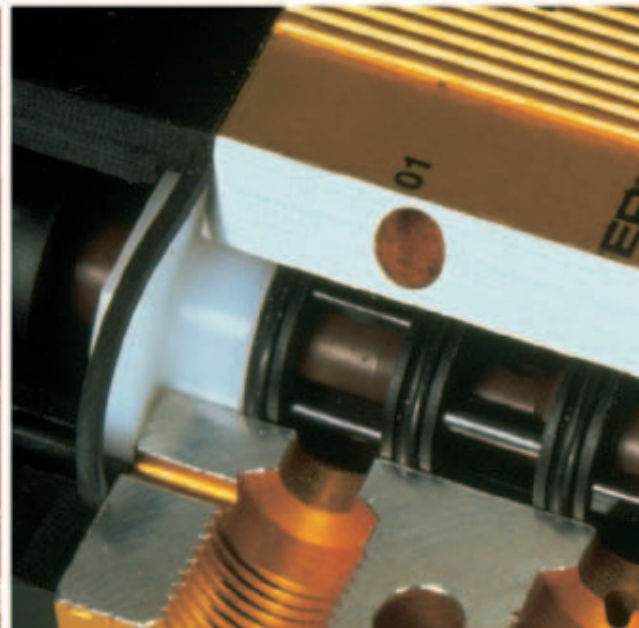
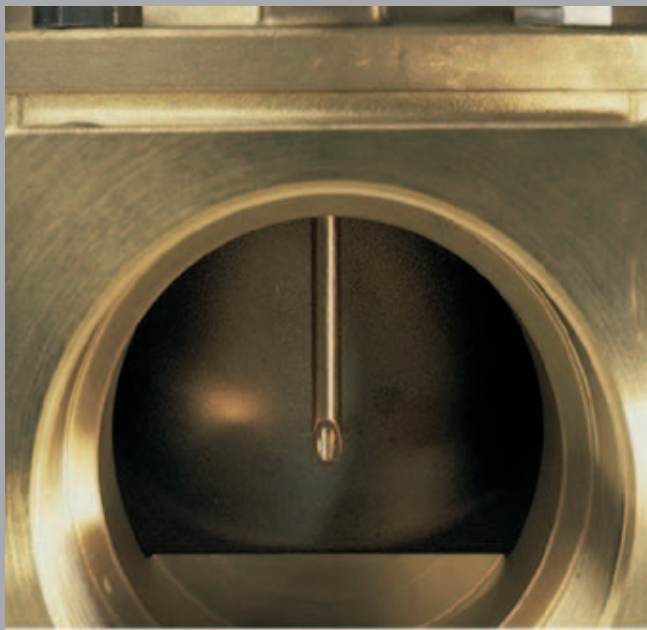


# General Catalogue Solenoid Valves

Catalogue 8930/GB

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## Parker Lucifer SA

### ***Perfect compatibility between a multinational approach and integration into the local industrial community.***

Parker Lucifer's Valve Division, manufacturing fluid control solenoid valves and pressure regulators, is located in Carouge-Geneva, Switzerland with manufacturing sites both in Geneva and Gessate near Milan, Italy.

With the multinational structure of the Parker Group we now have support that enables us to face the international market. To date we are represented in over 50 Countries with an established network of distributors in each industrial market open to us. Parker Lucifer is located in Geneva, Switzerland, a European communications and traffic centre.

### ***Mastering technologies in anticipation of your needs.***

We aim always to stay a step ahead of our customers' demands. You are looking for someone who has expertise in the latest technology, who has a solid body of know-how and who will participate directly in the development of your products.

Parker Lucifer takes advantage of the developments made in various divisions of Parker Corporation and, in doing so, of all the skills and synergy generated by our Group.

Parker's technology transfer policy provides us with the know-how of a global corporation. You derive direct advantage from this for our expertise in these technologies, which enables us to anticipate your needs.

### ***Total quality and innovation. Our strong points for building the future with you***

Quality has now become the essential condition for the survival of a corporation. You know it. We know it.

Your future depends on offering your customers ever more efficient, more reliable products. To do that, you have to be able to rely on first-rate suppliers who share your vision of the future and are capable of understanding your needs.

In order to better meet your demands and to ensure that we can offer you full guarantees of reliability, we have perfected a Total Quality program. At the same time, we pursue a strategy of innovation both in our processes and functions as well as in safety.

### ***Environmental management bears witness to our desire to protect essential values.***

Parker Lucifer is committed to respecting and protecting our environment by applying its own solutions. Although not mandatory, the ISO 14001 standards concern the environmental commitment of the company to supply products and service that will help our customers improve environmental quality. It relates to waste reduction, elimination of harmful materials, recycling and development of environment-friendly products. This Certified Management System to ISO 9001 / 14001 will also play a key role as a competitive differentiation in the marketplace.



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# Parker Lucifer - the experts in fluid control

Welcome to the Parker Lucifer catalogue. It's your entry point to an entire programme of solenoid valves based on the unique Lucifer modular concept. This gives you the widest choice of specifications and options to match your requirements exactly.

## Making business as simple as possible

The catalogue is just one part of a very special kind of supplier-specifier relationship. In short, we want to make doing business as simple as possible. It begins with organising **products by application** for the quickest selection of a product for a specified application. It extends to ease of ordering, fast delivery, and additional customer services. All backed by highly qualified support engineers willing and able to discuss your needs and suggest solutions. Work with us, for example, to create customised products; we have a proud record of customer partnership projects resulting in innovative products - and satisfied customers.

## The Parker Lucifer

The Parker Lucifer Series products have been designed to offer customers the ultimate in performance. Every valve is engineered for optimal operation, is constructed with modern machinery that use stringent processes, and provides standard features not necessarily offered in any competitive line.

The Parker Lucifer Series portfolio offers a broad range of solenoid valves. Sizes range from G1/8 to G3, with  $K_v$  as high as 1385 L/min. Pressure capabilities range up to 100 bar; the whole range is available with various seal materials, such as NBR, FKM, EPDM, PTFE, PCTFE, PUR and Ruby. Brass, stainless steel and plastic valves are available to control a wide variety of air, neutral gases and liquids, water, oils, process fluids and steam.



## Availability

With over 750 product listings, the valve you need is probably available from our standard range. What's more, the same valves are **available from our distributors anywhere in the world**. So wherever you are you can order with complete confidence.

Thanks to the breadth of our product offering, the flexibility of the modular architecture, and the use of automated manufacturing processes, you can count on the ready availability of the valve you require.

**Modular construction** ensures that even unusual configurations can be assembled from stock components. It provides a high degree of "mix & match" flexibility with a minimum number of parts, giving Parker Lucifer the ability to quickly deliver a great variety of valves.

## Quality assured

Certification by SQS (the Swiss Association for Quality Certification), Category ISO 9001/14001, is formal recognition of Parker Lucifer's commitment to total Quality. It is the outward sign of a company dedicated to customer satisfaction at every level of the organisation. It was first achieved back in 1987, long before Quality certification became an everyday business issue, and Parker Lucifer was one of the first to qualify in Switzerland.

## All the approvals you need

A wide range of valves and electrical parts are approved by recognised organisations (BASEEFA in UK, PTB in Germany, LCIE in France, CESI in Italy etc.) and meet CENELEC, IEC, and ISO standards. Lucifer valves are also certified by organisations such as TÜV, VDE, SEV/ASE, UL, CSA, etc.





# How to select your valve

This catalogue has been designed to make selection as easy as possible. The structure allows you to find your valve step by step, beginning with the most basic features and gradually focusing on more and more precise details.

First, decide what kind of valve you want: 2-way, 3-way, pneumatic or special. Then check the contents page and turn to the beginning of the relevant section.

For ease of use, each valve section is divided by application. At the front of the application sub-section you choose, you will find an overview table of the products featured (see sample below).

Using the table as a guide, decide what kind of actuation you want, then go across the columns, choosing the body material, function, connection, orifice size and maximum pressure: this

process takes you to the specific page number with your product,

Further technical information to help with specification is given in the final section of the catalogue.

| General application valves for dry or lubricated air, neutral gases and liquids |               |                 |            |              |                     | 2/2  |
|---|---------------|-----------------|------------|--------------|---------------------|------|
| ACTUATION   | BODY MATERIAL | FUNCTION        | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
| Direct operated   | Brass body    | Normally closed | 1/8        | 1.5 to 3     | 70.0                | 8    |
|   |               |                 | 1/4        | 1.2 to 5     | 100.0               | 8    |
|   |               |                 | 3/8        | 4 to 6       | 10.0                | 12   |
|   |               |                 | 1/2        | 8.5 to 11    | 4.0                 | 12   |
|   |               |                 | SB         | 1.5 to 3     | 100.0               | 14   |

# How to order a valve

Normally a complete valve is composed of 3 elements: the valve itself (body + pilot), the coil and the housing. For integrated coil/housings, the housing reference indicates the fixing nut and nameplate.

Two valve body references are indicated in the tables:

- the Lucifer reference
- the global reference

Either reference can be used when ordering. The Global valve reference permits a common numbering system between Lucifer and Skinner products. A complete cross-reference list of valve reference numbers can be found at the end of this catalogue. In both cases, it is necessary to order the coil and housing reference as well.

| Port size                       | Orifice (mm) | Flow factors (L/min) |            |     | Admissible differential pressure bar |     |    | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |        | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |  |
|---------------------------------|--------------|----------------------|------------|-----|--------------------------------------|-----|----|----------------|--------|-----|-----------|------------------------|---------------------|---------|--------|-----------------------|----|---------|------------------|----------|--|
|                                 |              | Liquids kv           | Gases Qmax | Qn  | Min                                  | DC  | AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil   | DC                    | AC |         |                  |          |  |
| <b>Brass body/Pipe mounting</b> |              |                      |            |     |                                      |     |    |                |        |     |           |                        |                     |         |        |                       |    |         |                  |          |  |
| 1/8                             | 1.5          | 1.5                  | 6          | 80  | 0                                    | 20  | 20 | 75             | 75     | 75  | FKM       | 7121CBG1GV00           | 121C14              | 2995    | 481865 | 9                     | 8  | 270     | 2                | 2        |  |
|                                 | 1.5          | 1.5                  | 6          | 80  | 0                                    | 20  | 20 | 75             | 75     | 75  | FKM       |                        | 121C14              | 4270    | 481000 | 8                     | 8  | 390     | 2                |          |  |
|                                 | 1.5          | 1.5                  | 6          | 80  | 0                                    | 20  | 20 | 75             | 75     | 75  | FKM       |                        | 121C14              | 2995    | 482730 | 7                     | 6  | 270     | 2                |          |  |
|                                 | 1.5          | 0.9                  | 2.4        | 70  | 0                                    | 12  | 20 | 75             | 75     | 75  | FKM       | -                      | 121M14              | 8993    | 481180 | 5                     | 4  | 150     | 1                | 1        |  |
|                                 | 1.5          | 0.9                  | 2.4        | 70  | 0                                    | 4   | 20 | 75             | 75     | 75  | FKM       |                        | 121M14              | 8993    | 488980 | 2.5                   | 2  | 150     | 1                |          |  |
|                                 | 1.5          | 1.5                  | 12.5       | 80  | 0                                    | 25  | 60 | 75             | 75     | 75  | PCTFE     | 7121KBG1GF00           | E121K14             | 2995    | 481865 | 9                     | 8  | 300     | 2                | 3        |  |
|                                 | 1.5          | 1.5                  | 12.5       | 80  | 0                                    | 30  | 70 | 75             | 75     | 75  | PCTFE     |                        | E121K14             | 4270    | 481000 | 8                     | 8  | 420     | 2                |          |  |
|                                 | 1.5          | 1.5                  | 12.5       | 80  | 0                                    | 55  | 70 | 75             | 75     | 75  | PCTFE     |                        | E121K14             | 4270    | 486265 | 14                    | 14 | 430     |                  |          |  |
|                                 | 2            | 2                    | 8          | 160 | 0                                    | 7   | 10 | 75             | 75     | 75  | FKM       | -                      | 121M13              | 8993    | 481180 | 5                     | 4  | 150     | 1                | 1        |  |
|                                 | 2            | 2                    | 8          | 160 | 0                                    | 2.5 | 10 | 75             | 75     | 75  | FKM       |                        | 121M13              | 8993    | 488980 | 2.5                   | 2  | 150     | 1                |          |  |
|                                 | 2.5          | 2.8                  | 8.5        | 220 | 0                                    | 10  | 10 | 75             | 75     | 75  | FKM       | 7121CBG1LV00           | E121C13             | 2995    | 481865 | 9                     | 8  | 270     | 2                | 2        |  |

Therefore please specify:

- I. Valve reference **or** Global valve reference
- II. Housing
- III. Coil
- IV. Voltage or voltage code (see tables in the Electrical parts section).

Ordering example:

121K0756-2995-481865-220/50  
**or**  
7121KBG2LVM0-2995-481865-220/50

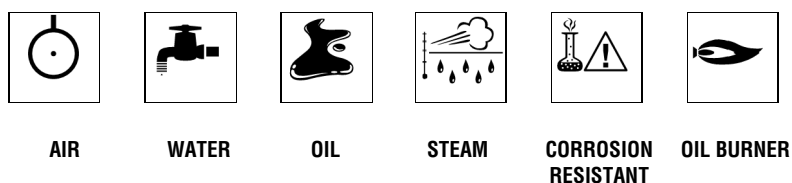
**Important** : valve, housing or coil can be ordered separately for use as a replacement or spare part.



# 2-way valves

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| Hot water - steam valves . . . . .  | 71   |
| Valves for hydraulic oil and neutral liquids (max. 100 bar) . . . . .                       | 85   |
| High corrosion resistant valves (Stainless Steel) . . . . .                                 | 95   |
| Oil burner valves (incl. TÜV approved types) . . . . .                                      | 101  |
| Dry operator valves for corrosive fluids . . . . .  | 113  |
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## Applications



AIR

WATER

OIL

STEAM

CORROSION  
RESISTANT

OIL BURNER





# General application valves for dry or lubricated air, neutral gases and liquids 2/2

| ACTUATION                | BODY MATERIAL   | FUNCTION               | CONNECTION    | ORIFICE (MM)    | MAX. PRESSURE (BAR) | PAGE |      |
|--------------------------|-----------------|------------------------|---------------|-----------------|---------------------|------|------|
| Direct operated          | Brass body      | Normally closed        | 1/8           | 1.5 to 3        | 70.0                | 8    |      |
|                          |                 |                        | 1/4           | 1.2 to 5        | 100.0               | 8    |      |
|                          |                 |                        | 3/8           | 4 to 6          | 10.0                | 12   |      |
|                          |                 |                        | 1/2           | 8.5 to 11       | 4.0                 | 12   |      |
|                          |                 |                        | SB            | 1.5 to 3        | 100.0               | 14   |      |
|                          |                 | Normally open          | 1/8           | 2.5             | 30.0                | 12   |      |
|                          |                 |                        | 1/4           | 1.5 to 2.5      | 40.0                | 12   |      |
|                          |                 | Magnetic latch control | 1/4           | 3 to 5          | 20.0                | 12   |      |
|                          |                 | Magnalift              | Brass body    | Normally closed | 3/8                 | 15   | 20.0 |
| 1/2                      | 15              |                        |               |                 | 20.0                | 16   |      |
| 3/4                      | 15              |                        |               |                 | 20.0                | 16   |      |
| 1                        | 15 to 25        |                        |               |                 | 20.0                | 18   |      |
| Normally open            | 3/8             |                        |               | 15              | 8.5                 | 20   |      |
|                          | 1/2             |                        |               | 15              | 8.5                 | 20   |      |
|                          | 3/4             |                        |               | 19              | 8.5                 | 20   |      |
|                          | 1               |                        |               | 15 to 25        | 20.0                | 18   |      |
| 303 Stainless steel body | Normally closed |                        | 3/8           | 15              | 7.0                 | 20   |      |
|                          |                 |                        | 1/2           | 15              | 7.0                 | 20   |      |
|                          |                 |                        | 3/4           | 19              | 7.0                 | 20   |      |
|                          | Normally open   |                        | 3/8           | 16              | 8.5                 | 20   |      |
|                          |                 |                        | 1/2           | 16              | 8.5                 | 20   |      |
| Pilot operated           | Brass body      | Normally closed        | 1/4           | 8 to 12         | 40.0                | 22   |      |
|                          |                 |                        | 3/8           | 11 to 12        | 40.0                | 22   |      |
|                          |                 |                        | 1/2           | 12 to 14.5      | 40.0                | 22   |      |
|                          |                 |                        | 3/4           | 18 to 20        | 16.0                | 24   |      |
|                          |                 |                        | 1             | 18 to 25        | 16.0                | 24   |      |
|                          |                 |                        | 1 1/4         | 28              | 16.0                | 26   |      |
|                          |                 |                        | 1 1/2         | 40              | 16.0                | 26   |      |
|                          |                 |                        | 2             | 40              | 16.0                | 28   |      |
|                          |                 |                        | SB            | 14              | 40.0                | 34   |      |
|                          |                 |                        | Normally open | 1/4             | 8 to 12             | 40.0 | 30   |
|                          |                 |                        |               | 3/8             | 11 to 12            | 40.0 | 32   |
|                          |                 |                        |               | 1/2             | 12 to 14.5          | 40.0 | 32   |
|                          |                 |                        |               | 3/4             | 18 to 20            | 16.0 | 32   |
|                          |                 |                        |               | 1               | 18 to 25            | 16.0 | 32   |
|                          |                 | 1 1/4                  |               | 28              | 16.0                | 32   |      |
|                          |                 | 1 1/2                  |               | 40              | 12.0                | 32   |      |
|                          |                 | 2                      |               | 40              | 12.0                | 32   |      |
|                          |                 | SB                     |               | 14              | 40.0                | 34   |      |
|                          |                 | Magnetic latch control |               | 1/4             | 12                  | 12.0 | 34   |
|                          |                 |                        | 3/8           | 12              | 12.0                | 34   |      |
|                          |                 |                        | 1/2           | 12              | 12.0                | 34   |      |
|                          |                 |                        | 3/4           | 18              | 12.0                | 34   |      |
|                          |                 |                        | 1             | 18              | 12.0                | 34   |      |
|                          |                 |                        | 1             | 18              | 12.0                | 34   |      |

**Notes:**

Direct operated and magnalift valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

# General application valves for dry or lubricated air, neutral gases and liquids

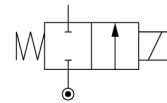
# 2/2



## Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |     | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

Normally closed



## Brass body/Pipe mounting

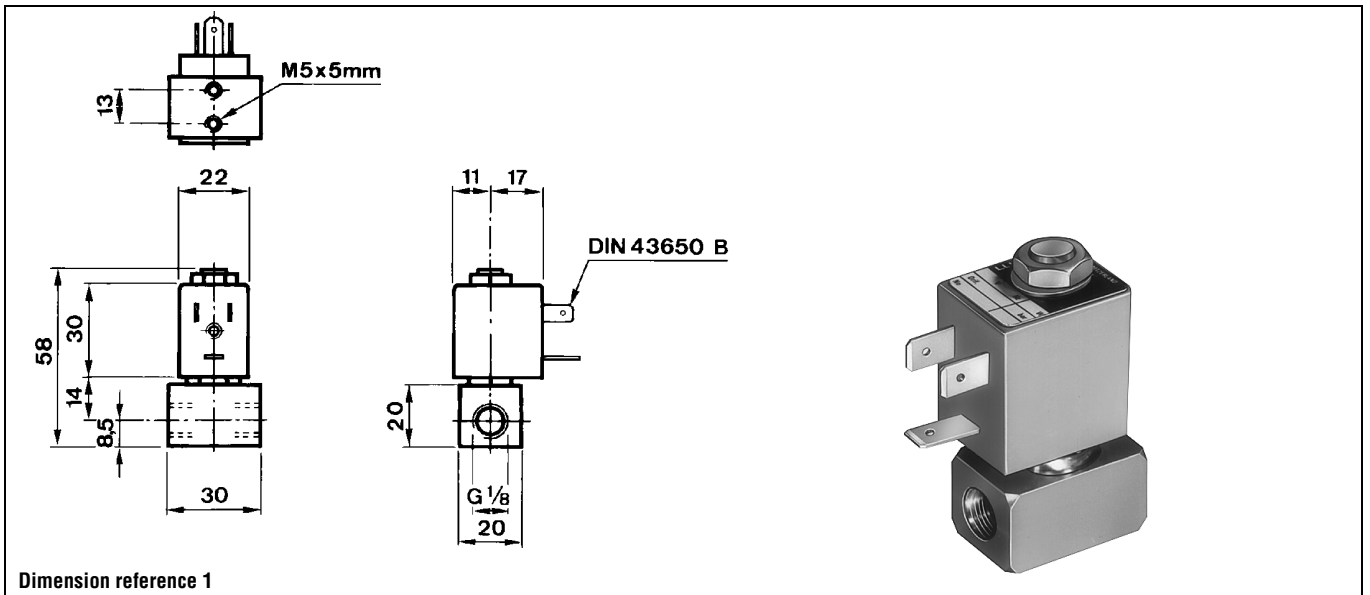
|     |     |      |      |     |    |     |     |     |     |      |              |              |           |        |        |     |     |     |   |      |
|-----|-----|------|------|-----|----|-----|-----|-----|-----|------|--------------|--------------|-----------|--------|--------|-----|-----|-----|---|------|
| 1/8 | 1.5 | 1.5  | 6    | 80  | 0  | 20  | 20  | 75  | 75  | 75   | FKM          | 7121ZBG1GV00 | -         | 2995   | 481865 | 9   | 8   | 270 | 2 | 7893 |
|     | 1.5 | 1.5  | 6    | 80  | 0  | 20  | 20  | 75  | 75  | 75   | FKM          |              |           | 4270   | 481000 | 8   | 8   | 390 | 2 |      |
|     | 1.5 | 1.5  | 6    | 80  | 0  | 20  | 20  | 75  | 75  | 75   | FKM          |              |           | 2995   | 482730 | 7   | 6   | 270 | 2 |      |
|     | 1.5 | 0.9  | 2.4  | 70  | 0  | 12  | 20  | 75  | 75  | 75   | FKM          | -            | 121M14    | 8993   | 481180 | 5   | 4   | 150 | 1 | 1    |
|     | 1.5 | 0.9  | 2.4  | 70  | 0  | 4   | 20  | 75  | 75  | 75   | FKM          |              |           | 8993   | 488980 | 2.5 | 2   | 150 | 1 |      |
|     | 1.5 | 1.5  | 12.5 | 80  | 0  | 25  | 60  | 75  | 75  | 75   | PCTFE        | 7121KBG1GF00 | E121K14   | 2995   | 481865 | 9   | 8   | 300 | 2 | 3    |
|     | 1.5 | 1.5  | 12.5 | 80  | 0  | 30  | 70  | 75  | 75  | 75   | PCTFE        |              |           | 4270   | 481000 | 8   | 8   | 420 | 2 |      |
|     | 1.5 | 1.5  | 12.5 | 80  | 0  | 55  | 70  | 75  | 75  | 75   | PCTFE        |              |           | 4270   | 486265 | 14  | 14  | 430 |   |      |
|     | 2   | 2    | 8    | 160 | 0  | 7   | 10  | 75  | 75  | 75   | FKM          | -            | 121M13    | 8993   | 481180 | 5   | 4   | 150 | 1 | 1    |
|     | 2   | 2    | 8    | 160 | 0  | 2.5 | 10  | 75  | 75  | 75   | FKM          |              |           | 8993   | 488980 | 2.5 | 2   | 150 | 1 |      |
|     | 2.5 | 2.8  | 8.5  | 220 | 0  | 10  | 10  | 75  | 75  | 75   | FKM          | 7121ZBG1LV00 | -         | 2995   | 481865 | 9   | 8   | 270 | 2 | 7893 |
|     | 2.5 | 2.8  | 8.5  | 220 | 0  | 10  | 10  | 75  | 75  | 75   | FKM          |              |           | 4270   | 481000 | 8   | 8   | 390 | 2 |      |
|     | 2.5 | 2.8  | 8.5  | 220 | 0  | 5   | 10  | 75  | 75  | 75   | FKM          |              |           | 2995   | 482730 | 7   | 6   | 270 | 2 |      |
|     | 2.5 | 3.5  | 25   | 220 | 0  | 10  | 28  | 100 | 100 | 100  | Ruby         | 7121KBG1LR00 | E121K23   | 2995   | 481865 | 9   | 8   | 300 | 2 | 3    |
|     | 2.5 | 3.5  | 25   | 220 | 0  | 12  | 34  | 130 | 130 | 130  | Ruby         |              |           | 4270   | 481000 | 8   | 8   | 420 | 2 |      |
| 2.5 | 3.5 | 25   | 220  | 0   | 22 | 50  | 120 | 120 | 120 | Ruby |              |              | 4270      | 486265 | 14     | 14  | 430 |     |   |      |
| 3   | 4.5 | 9    | 315  | 0   | 7  | 10  | 100 | 100 | 100 | FKM  | 7121KBG1NV00 | 121K1302     | 2995      | 481865 | 9      | 8   | 300 | 2   | 3 |      |
| 3   | 4.5 | 9    | 315  | 0   | 8  | 10  | 120 | 120 | 120 | FKM  |              |              | 4270      | 481000 | 8      | 8   | 420 | 2   |   |      |
| 3   | 4.5 | 9    | 315  | 0   | 10 | 10  | 120 | 120 | 120 | FKM  |              |              | 4270      | 486265 | 14     | 14  | 430 |     |   |      |
| 3   | 4.5 | 9    | 315  | 0   | 7  | 10  | 100 | 100 | 100 | FKM  | 7121KBG1NVM0 | 121K1352 1   | 2995      | 481865 | 9      | 8   | 300 | 2   | 3 |      |
| 3   | 4.5 | 9    | 315  | 0   | 8  | 10  | 120 | 120 | 120 | FKM  |              |              | 4270      | 481000 | 8      | 8   | 420 | 2   |   |      |
| 3   | 4.5 | 9    | 315  | 0   | 10 | 10  | 120 | 120 | 120 | FKM  |              |              | 4270      | 486265 | 14     | 14  | 430 |     |   |      |
| 1/4 | 1.2 | 0.85 | 8.5  | 50  | 0  | 36  | 80  | 100 | 100 | 100  | Ruby         | 7121KBG2ER00 | E121K65   | 2995   | 481865 | 9   | 8   | 290 |   | 3    |
|     | 1.2 | 0.85 | 8.5  | 50  | 0  | 43  | 100 | 130 | 130 | 130  | Ruby         |              |           | 4270   | 481000 | 8   | 8   | 410 |   |      |
|     | 1.2 | 0.85 | 8.5  | 50  | 0  | 75  | 100 | 120 | 120 | 120  | Ruby         |              |           | 4270   | 486265 | 14  | 14  | 420 |   |      |
|     | 1.5 | 1.5  | 6    | 80  | 0  | 20  | 20  | 100 | 100 | 100  | FKM          | 7121KBG2GV00 | E121K0402 | 2995   | 481865 | 9   | 8   | 290 | 2 | 3    |
|     | 1.5 | 1.5  | 6    | 80  | 0  | 20  | 20  | 120 | 120 | 120  | FKM          |              |           | 4270   | 481000 | 8   | 8   | 410 | 2 |      |

Table continued on page 10

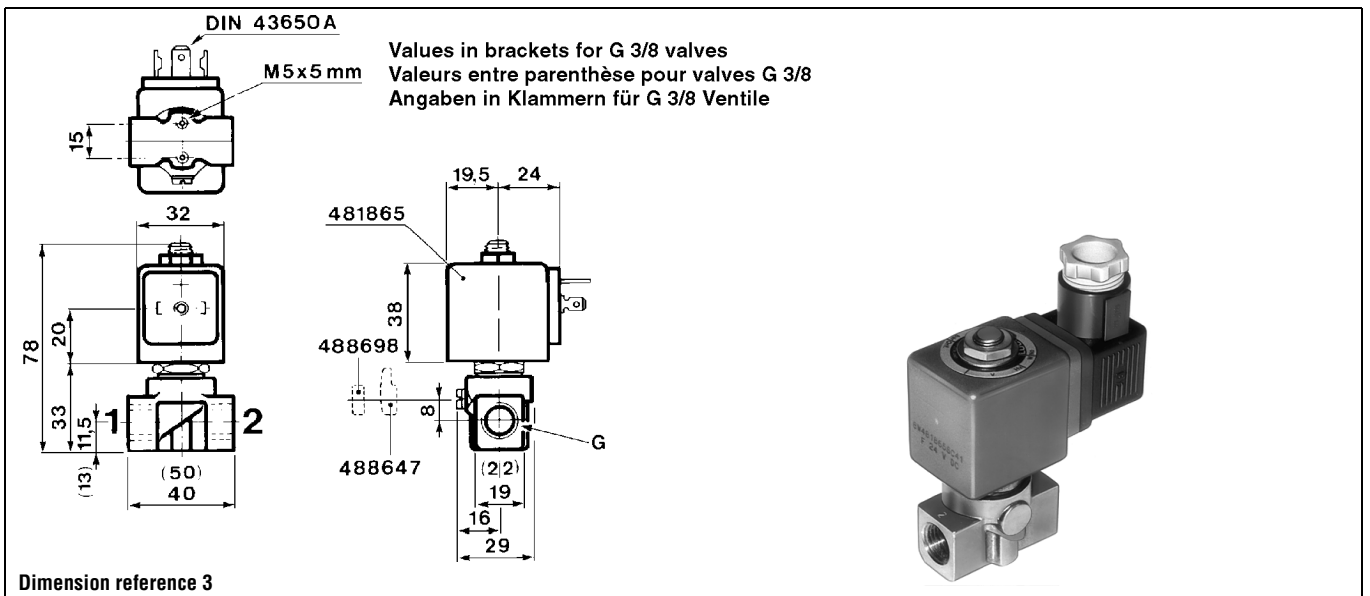
### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Manual override standard

# General application valves 2/2 - Direct operated

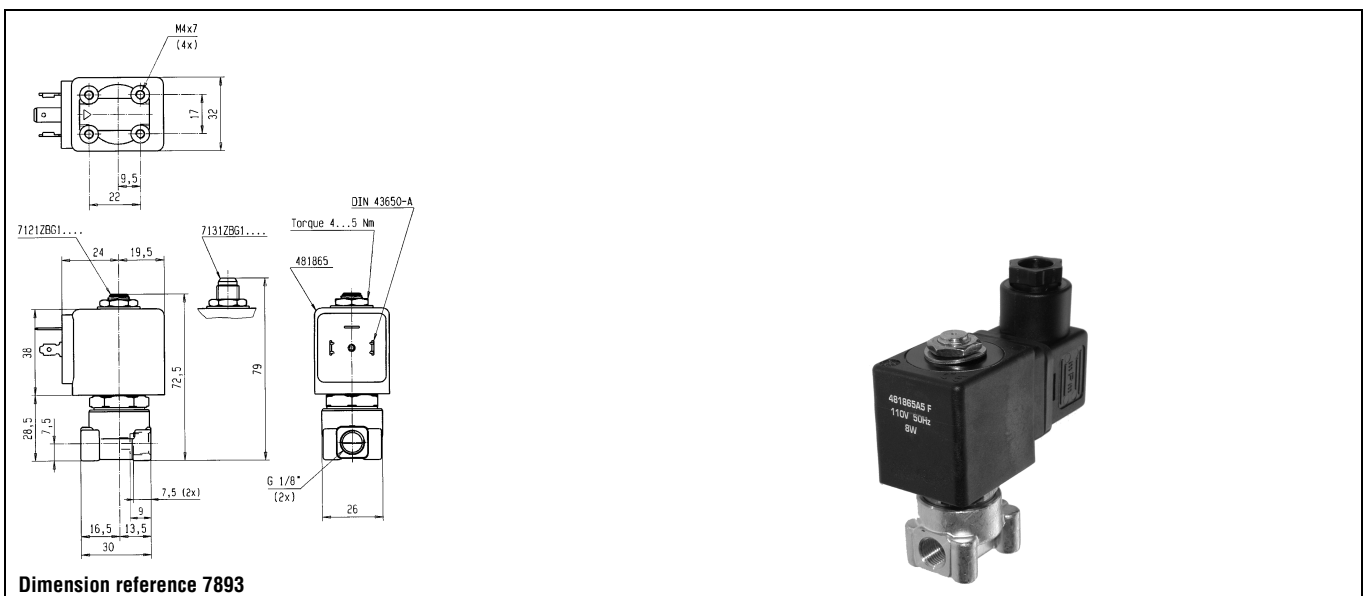


**Dimension reference 1**



**Dimension reference 3**

Values in brackets for G 3/8 valves  
Valeurs entre parenthèse pour valves G 3/8  
Angaben in Klammern für G 3/8 Ventile



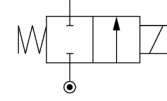
**Dimension reference 7893**

Torque 4...5 Nm

## General application valves 2/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |    | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|----|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

Normally closed



### Brass body/Pipe mounting

|     |     |     |      |     |   |     |     |     |     |     |       |              |                        |      |        |    |    |     |   |   |
|-----|-----|-----|------|-----|---|-----|-----|-----|-----|-----|-------|--------------|------------------------|------|--------|----|----|-----|---|---|
| 1/4 | 1.5 | 1.5 | 12.5 | 80  | 0 | 25  | 60  | 75  | 75  | 75  | PCTFE | 7121KBG2GF00 | E121K04                | 2995 | 481865 | 9  | 8  | 290 | 2 | 3 |
|     | 1.5 | 1.5 | 12.5 | 80  | 0 | 30  | 70  | 75  | 75  | 75  | PCTFE |              |                        | 4270 | 481000 | 8  | 8  | 410 | 2 |   |
|     | 1.5 | 1.5 | 12.5 | 80  | 0 | 55  | 70  | 75  | 75  | 75  | PCTFE |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 1.5 | 1.5 | 15   | 80  | 0 | 25  | 60  | 100 | 100 | 100 | Ruby  | 7121KBG2GR00 | E121K67                | 2995 | 481865 | 9  | 8  | 290 |   | 3 |
|     | 1.5 | 1.5 | 15   | 80  | 0 | 30  | 75  | 130 | 130 | 130 | Ruby  |              |                        | 4270 | 481000 | 8  | 8  | 410 |   |   |
|     | 1.5 | 1.5 | 15   | 80  | 0 | 55  | 100 | 120 | 120 | 120 | Ruby  |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 2.5 | 3.5 | 8.5  | 220 | 0 | 7   | 14  | 100 | 100 | 100 | FKM   | 7121KBG2LV00 | 121K0706               | 2995 | 481865 | 9  | 8  | 290 | 2 | 3 |
|     | 2.5 | 3.5 | 8.5  | 220 | 0 | 9   | 14  | 120 | 120 | 120 | FKM   |              |                        | 4270 | 481000 | 8  | 8  | 410 | 2 |   |
|     | 2.5 | 3.5 | 8.5  | 220 | 0 | 14  | 14  | 120 | 120 | 120 | FKM   |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 2.5 | 3.5 | 8.5  | 220 | 0 | 7   | 14  | 100 | 100 | 100 | FKM   | 7121KBG2LVM0 | 121K0756 <sup>1</sup>  | 2995 | 481865 | 9  | 8  | 290 | 2 | 3 |
|     | 2.5 | 3.5 | 8.5  | 220 | 0 | 9   | 14  | 120 | 120 | 120 | FKM   |              |                        | 4270 | 481000 | 8  | 8  | 410 | 2 |   |
|     | 2.5 | 3.5 | 8.5  | 220 | 0 | 14  | 14  | 120 | 120 | 120 | FKM   |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 2.5 | 3.5 | 25   | 220 | 0 | 10  | 28  | 75  | 75  | 75  | PCTFE | 7121KBG2LF00 | E121K07                | 2995 | 481865 | 9  | 8  | 290 | 2 | 3 |
|     | 2.5 | 3.5 | 25   | 220 | 0 | 12  | 34  | 75  | 75  | 75  | PCTFE |              |                        | 4270 | 481000 | 8  | 8  | 410 | 2 |   |
|     | 2.5 | 3.5 | 25   | 220 | 0 | 22  | 50  | 75  | 75  | 75  | PCTFE |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 2.5 | 3.5 | 25   | 220 | 0 | 10  | 28  | 100 | 100 | 100 | Ruby  | 7121KBG2LR00 | E121K63                | 2995 | 481865 | 9  | 8  | 290 |   | 3 |
|     | 2.5 | 3.5 | 25   | 220 | 0 | 12  | 34  | 130 | 130 | 130 | Ruby  |              |                        | 4270 | 481000 | 8  | 8  | 410 |   |   |
|     | 2.5 | 3.5 | 25   | 220 | 0 | 22  | 50  | 120 | 120 | 120 | Ruby  |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 3   | 4.5 | 9    | 315 | 0 | 7   | 10  | 100 | 100 | 100 | FKM   | 7121KBG2NV00 | E121K0302              | 2995 | 481865 | 9  | 8  | 290 | 2 | 3 |
|     | 3   | 4.5 | 9    | 315 | 0 | 8.5 | 10  | 120 | 120 | 120 | FKM   |              |                        | 4270 | 481000 | 8  | 8  | 410 | 2 |   |
|     | 3   | 4.5 | 9    | 315 | 0 | 10  | 10  | 120 | 120 | 120 | FKM   |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 3   | 4.5 | 9    | 315 | 0 | 7   | 10  | 100 | 100 | 100 | FKM   | 7121KBG2NVM0 | E121K0352 <sup>1</sup> | 2995 | 481865 | 9  | 8  | 290 | 2 | 3 |
|     | 3   | 4.5 | 9    | 315 | 0 | 8.5 | 10  | 120 | 120 | 120 | FKM   |              |                        | 4270 | 481000 | 8  | 8  | 410 | 2 |   |
|     | 3   | 4.5 | 9    | 315 | 0 | 10  | 10  | 120 | 120 | 120 | FKM   |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 3   | 4.5 | 27   | 315 | 0 | 7   | 20  | 75  | 75  | 75  | PCTFE | 7121KBG2NF00 | E121K03                | 2995 | 481865 | 9  | 8  | 290 | 2 | 3 |
|     | 3   | 4.5 | 27   | 315 | 0 | 8.5 | 25  | 75  | 75  | 75  | PCTFE |              |                        | 4270 | 481000 | 8  | 8  | 410 | 2 |   |
|     | 3   | 4.5 | 27   | 315 | 0 | 15  | 36  | 75  | 75  | 75  | PCTFE |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 3   | 4.5 | 27   | 320 | 0 | 7   | 20  | 100 | 100 | 100 | Ruby  | 7121KBG2NR00 | E121K64                | 2995 | 481865 | 9  | 8  | 290 |   | 3 |
|     | 3   | 4.5 | 27   | 320 | 0 | 8.5 | 25  | 130 | 130 | 130 | Ruby  |              |                        | 4270 | 481000 | 8  | 8  | 410 |   |   |
|     | 3   | 4.5 | 27   | 320 | 0 | 15  | 36  | 120 | 120 | 120 | Ruby  |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 4   | 7.5 | 10.5 | 480 | 0 | 4   | 10  | 100 | 100 | 100 | FKM   | 7121KBG2QVM0 | 121K0250 <sup>1</sup>  | 2995 | 481865 | 9  | 8  | 290 | 2 | 3 |
|     | 4   | 7.5 | 10.5 | 480 | 0 | 5   | 10  | 120 | 120 | 120 | FKM   |              |                        | 4270 | 481000 | 8  | 8  | 410 | 2 |   |
|     | 4   | 7.5 | 10.5 | 480 | 0 | 10  | 10  | 120 | 120 | 120 | FKM   |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 4   | 7.5 | 10.5 | 480 | 0 | 4   | 10  | 100 | 100 | 100 | FKM   | 7121KBG2QV00 | 121K02                 | 2995 | 481865 | 9  | 8  | 290 | 2 | 3 |
|     | 4   | 7.5 | 10.5 | 480 | 0 | 5   | 10  | 120 | 120 | 120 | FKM   |              |                        | 4270 | 481000 | 8  | 8  | 410 | 2 |   |
|     | 4   | 7.5 | 10.5 | 480 | 0 | 10  | 10  | 120 | 120 | 120 | FKM   |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 5   | 11  | 11.5 | 750 | 0 | 2   | 7   | 100 | 100 | 100 | FKM   | 7121KBG2SVM0 | 121K0150 <sup>1</sup>  | 2995 | 481865 | 9  | 8  | 290 | 2 | 3 |
|     | 5   | 11  | 11.5 | 750 | 0 | 2.8 | 7   | 120 | 120 | 120 | FKM   |              |                        | 4270 | 481000 | 8  | 8  | 410 | 2 |   |
|     | 5   | 11  | 11.5 | 750 | 0 | 5   | 7   | 120 | 120 | 120 | FKM   |              |                        | 4270 | 486265 | 14 | 14 | 420 |   |   |

Table continued on page 12

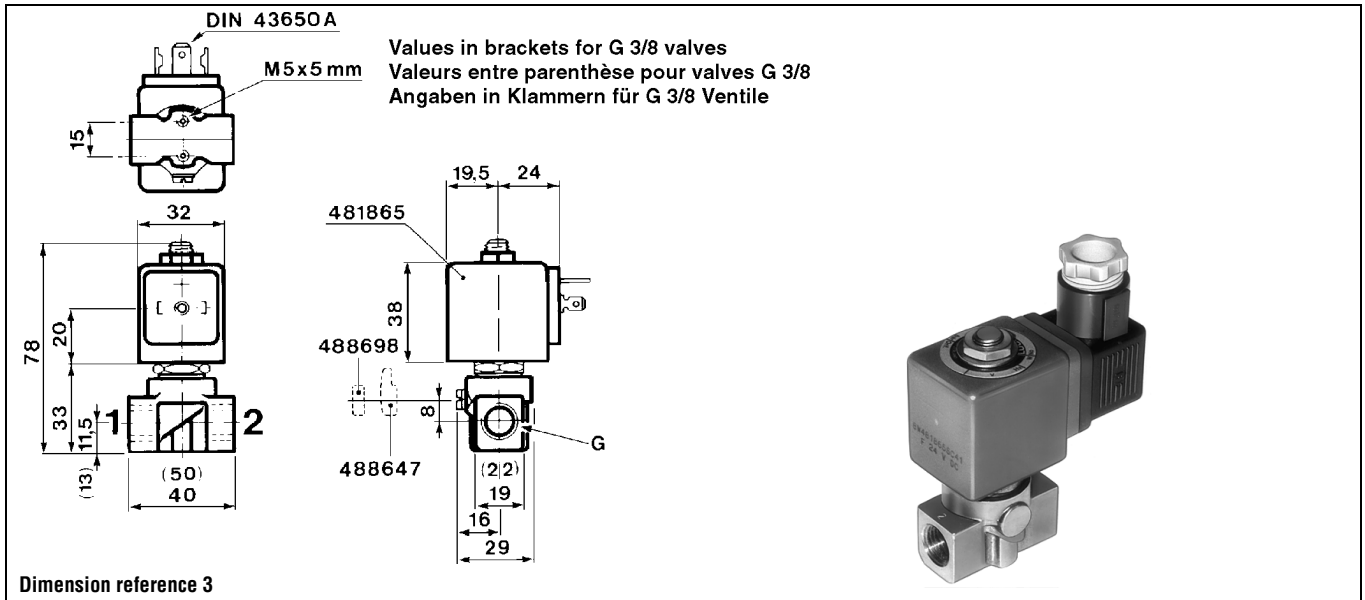
#### Notes:

\* See Electrical Parts Group table at end of section

1. Manual override standard



## General application valves 2/2 - Direct operated

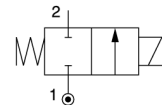


## General application valves 2/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |           |  | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----------|--|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC AC |  | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

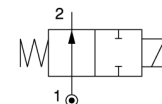
### Brass body/Pipe mounting

Normally closed



|     |     |     |      |      |      |      |     |     |     |     |     |              |                 |                |        |        |    |     |     |   |   |
|-----|-----|-----|------|------|------|------|-----|-----|-----|-----|-----|--------------|-----------------|----------------|--------|--------|----|-----|-----|---|---|
| 1/4 | 5   | 11  | 11.5 | 750  | 0    | 2    | 7   | 100 | 100 | 100 | FKM | 7121KBG2SV00 | <b>121K01</b>   | 2995           | 481865 | 9      | 8  | 290 | 2   | 3 |   |
|     | 5   | 11  | 11.5 | 750  | 0    | 2.8  | 7   | 120 | 120 | 120 | FKM |              |                 | 4270           | 481000 | 8      | 8  | 410 | 2   |   |   |
|     | 5   | 11  | 11.5 | 750  | 0    | 5    | 7   | 120 | 120 | 120 | FKM |              |                 | 4270           | 486265 | 14     | 14 | 420 |     |   |   |
| 3/8 | 4   | 7.5 | 10.5 | 480  | 0    | 4    | 10  | 100 | 100 | 100 | FKM | 7121KBG3QV00 | <b>121K3206</b> | 2995           | 481865 | 9      | 8  | 340 | 2   | 3 |   |
|     | 4   | 7.5 | 10.5 | 480  | 0    | 5    | 10  | 120 | 120 | 120 | FKM |              |                 | 4270           | 481000 | 8      | 8  | 460 | 2   |   |   |
|     | 4   | 7.5 | 10.5 | 480  | 0    | 10   | 10  | 120 | 120 | 120 | FKM |              |                 | 4270           | 486265 | 14     | 14 | 470 |     |   |   |
|     | 5   | 11  | 11.5 | 750  | 0    | 2    | 7   | 100 | 100 | 100 | FKM | 7121KBG3SV00 | <b>121K3106</b> | 2995           | 481865 | 9      | 8  | 340 | 2   | 3 |   |
|     | 5   | 11  | 11.5 | 750  | 0    | 2.8  | 7   | 120 | 120 | 120 | FKM |              |                 | 4270           | 481000 | 8      | 8  | 460 | 2   |   |   |
|     | 5   | 11  | 11.5 | 750  | 0    | 5    | 7   | 120 | 120 | 120 | FKM |              |                 | 4270           | 486265 | 14     | 14 | 470 |     |   |   |
| 1/2 | 6   | 12  | 12.5 | 1100 | 0    | 1.1  | 5   | 100 | 100 | 100 | FKM | 7121KBG3UV00 | <b>121K3306</b> | 2995           | 481865 | 9      | 8  | 340 | 2   | 3 |   |
|     | 6   | 12  | 12.5 | 1100 | 0    | 1.5  | 5   | 120 | 120 | 120 | FKM |              |                 | 4270           | 481000 | 8      | 8  | 460 | 2   |   |   |
|     | 6   | 12  | 12.5 | 1100 | 0    | 3    | 5   | 120 | 120 | 120 | FKM |              |                 | 4270           | 486265 | 14     | 14 | 470 | 2   |   |   |
|     | 1/2 | 8.5 | 25   | 15   | 1600 | 0    | 0.5 | 1.1 | 100 | 100 | 100 | FKM          | 7121KBG42V00    | <b>E121K46</b> | 2995   | 481865 | 9  | 8   | 430 | 2 | 7 |
|     |     | 8.5 | 25   | 15   | 1600 | 0    | 0.5 | 2.2 | 120 | 120 | 120 | FKM          |                 |                | 4270   | 481000 | 8  | 8   | 550 | 2 |   |
|     |     | 8.5 | 25   | 15   | 1600 | 0    | 1.2 | 4   | 120 | 120 | 120 | FKM          |                 |                | 4270   | 486265 | 14 | 14  | 560 |   |   |
| 1/2 | 11  | 36  | 20   | 2500 | 0    | 0.3  | 0.7 | 100 | 100 | 100 | FKM | 7121KBG44V00 | <b>E121K45</b>  | 2995           | 481865 | 9      | 8  | 430 | 2   | 7 |   |
|     | 11  | 36  | 20   | 2500 | 0    | 0.35 | 1.2 | 120 | 120 | 120 | FKM |              |                 | 4270           | 481000 | 8      | 8  | 550 | 2   |   |   |
|     | 11  | 36  | 20   | 2500 | 0    | 0.7  | 2.5 | 120 | 120 | 120 | FKM |              |                 | 4270           | 486265 | 14     | 14 | 560 |     |   |   |

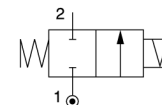
Normally open



### Brass body/Pipe mounting

|     |     |     |     |     |    |    |     |     |     |      |              |                 |                 |        |        |    |     |     |   |   |
|-----|-----|-----|-----|-----|----|----|-----|-----|-----|------|--------------|-----------------|-----------------|--------|--------|----|-----|-----|---|---|
| 1/8 | 2.5 | 3.5 | -   | -   | 0  | -  | 30  | 140 | 120 | 140  | Ruby         | 7122KBG1LR00    | <b>122K9363</b> | 4270   | 481044 | -  | 14  | 445 |   | 4 |
|     | 2.5 | 3.5 | -   | -   | 0  | 30 | 30  | 140 | 120 | 140  | Ruby         |                 |                 | 4270   | 486265 | 14 | 14  | 455 |   |   |
| 1/4 | 1.5 | 1.5 | 6   | 80  | 0  | 20 | 20  | 100 | 100 | 100  | FKM          | 7122KBG2GV00    | <b>122K8406</b> | 2995   | 481865 | 9  | 8   | 290 | 2 | 3 |
|     | 1.5 | 1.5 | 6   | 80  | 0  | 20 | 20  | 120 | 120 | 120  | FKM          |                 |                 | 4270   | 481000 | 8  | 8   | 410 | 2 |   |
|     | 1.5 | 1.5 | 8   | 80  | 0  | 30 | 30  | 100 | 100 | 100  | PCTFE        | 7122KBG2GF00    | <b>122K84</b>   | 2995   | 481865 | 9  | 8   | 290 | 2 | 3 |
|     | 1.5 | 1.5 | 8   | 80  | 0  | 30 | 30  | 120 | 120 | 120  | PCTFE        |                 |                 | 4270   | 481000 | 8  | 8   | 410 | 2 |   |
|     | 1.5 | 1.5 | 9.5 | 96  | 0  | 40 | 40  | 100 | 100 | 100  | Ruby         | 7122KBG2GR00    | <b>122K8408</b> | 2995   | 481865 | 9  | 8   | 290 | 2 | 3 |
|     | 1.5 | 1.5 | 9.5 | 96  | 0  | 40 | 40  | 130 | 130 | 130  | Ruby         |                 |                 | 4270   | 481000 | 8  | 8   | 410 | 2 |   |
|     | 2.5 | 3   | 3.5 | 180 | 0  | 12 | 12  | 100 | 100 | 100  | FKM          | 7122KBG2LV00    | <b>122K8306</b> | 2995   | 481865 | 9  | 8   | 290 | 2 | 3 |
|     | 2.5 | 3   | 3.5 | 180 | 0  | 12 | 12  | 120 | 120 | 120  | FKM          |                 |                 | 4270   | 481000 | 8  | 8   | 410 | 2 |   |
|     | 2.5 | 3   | 9.5 | 180 | 0  | 12 | 12  | 75  | 75  | 75   | PCTFE        | 7122KBG2LF00    | <b>122K83</b>   | 2995   | 481865 | 9  | 8   | 290 | 2 | 3 |
|     | 2.5 | 3   | 9.5 | 180 | 0  | 12 | 12  | 75  | 75  | 75   | PCTFE        |                 |                 | 4270   | 481000 | 8  | 8   | 410 | 2 |   |
| 2.5 | 3.5 | -   | -   | 0   | -  | 30 | 140 | 120 | 140 | Ruby | 7122KBG2LR00 | <b>122K8363</b> | 4270            | 481044 | -      | 14 | 425 |     | 4 |   |
| 2.5 | 3.5 | -   | -   | 0   | 30 | 30 | 140 | 120 | 140 | Ruby |              |                 | 4270            | 486265 | 14     | 14 | 435 |     |   |   |

Magnetic latch control



### Brass body/Pipe mounting

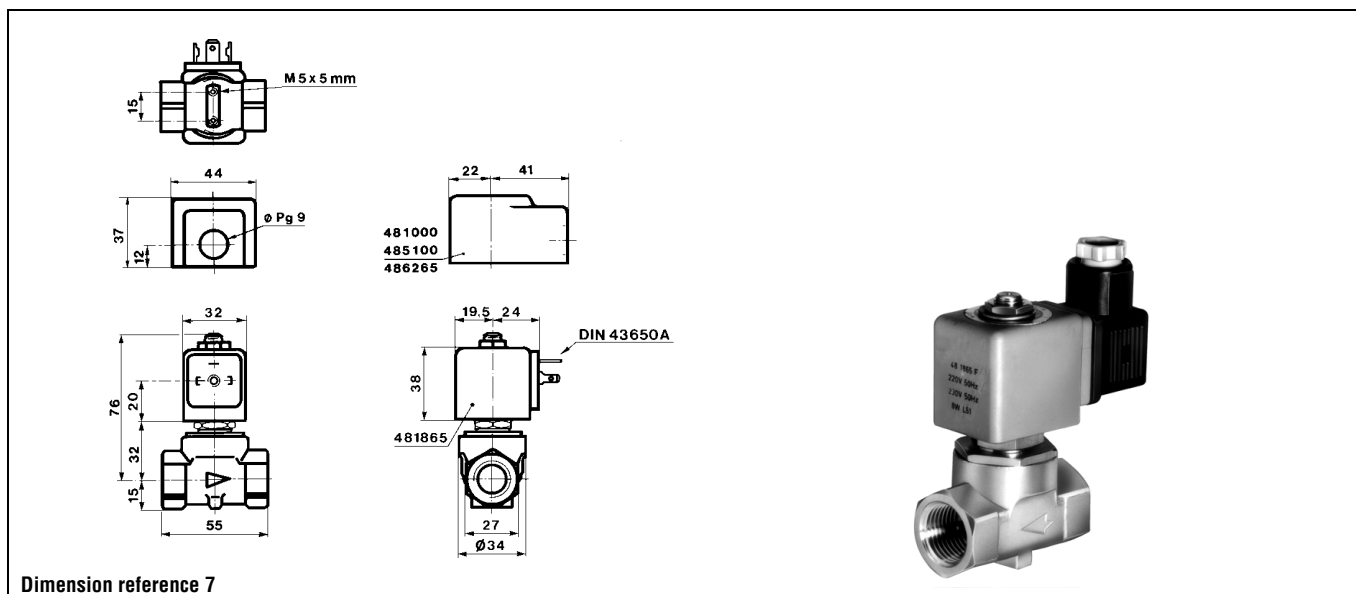
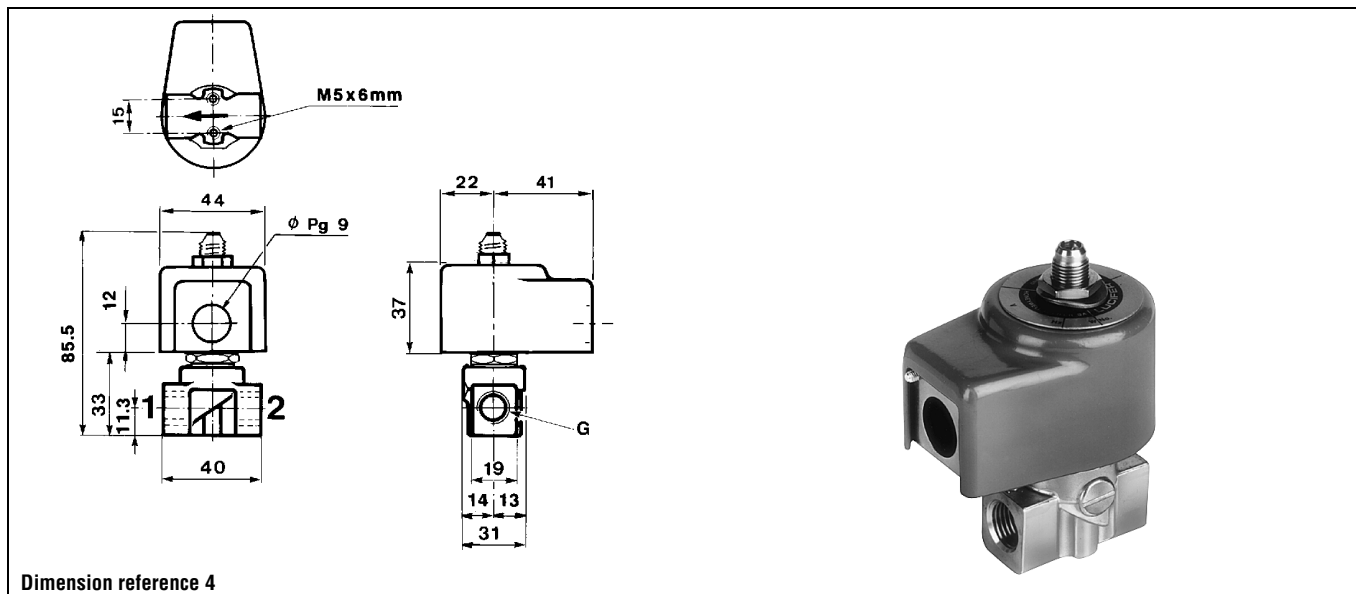
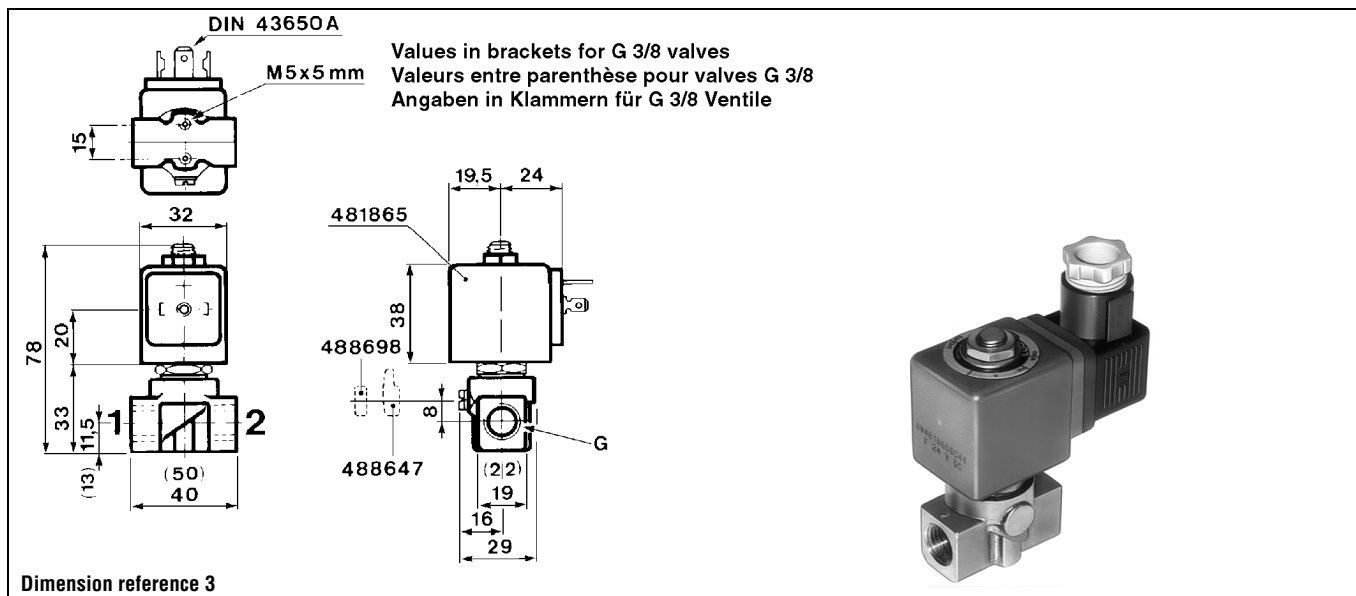
|     |   |     |    |     |   |   |    |    |    |    |       |              |               |      |        |    |    |     |   |   |
|-----|---|-----|----|-----|---|---|----|----|----|----|-------|--------------|---------------|------|--------|----|----|-----|---|---|
| 1/4 | 3 | 4.5 | 20 | 320 | 0 | - | 20 | 75 | 75 | 75 | PCTFE | 7125KBG2NF00 | <b>125K03</b> | 4269 | 484990 | -  | 11 | 430 | 4 | 3 |
|     | 3 | 4.5 | 20 | 320 | 0 | 7 | -  | 75 | 75 | 75 | PCTFE |              |               | 4269 | 485400 | 13 | -  | 430 | 4 |   |

Table continued on page 14

#### Notes:

\* See Electrical Parts Group table at end of section

## General application valves 2/2 - Direct operated

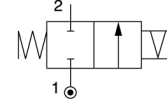


# General application valves 2/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |    | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|----|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

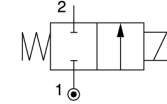
## Brass body/Pipe mounting

Magnetic latch control



|     |   |    |      |     |   |     |   |     |     |     |     |              |        |      |        |    |    |     |   |   |
|-----|---|----|------|-----|---|-----|---|-----|-----|-----|-----|--------------|--------|------|--------|----|----|-----|---|---|
| 1/4 | 5 | 11 | 11.5 | 750 | 0 | -   | 5 | 100 | 100 | 100 | FKM | 7125KBG2SV00 | 125K01 | 4269 | 484990 | -  | 11 | 430 | 4 | 3 |
|     | 5 | 11 | 11.5 | 750 | 0 | 1.5 | - | 100 | 100 | 100 | FKM |              |        | 4269 | 485400 | 13 | -  | 430 | 4 |   |

Normally closed



## Brass body/Sub-base mounting

|    |     |     |      |     |   |     |     |     |     |     |       |              |           |      |        |    |    |     |   |    |
|----|-----|-----|------|-----|---|-----|-----|-----|-----|-----|-------|--------------|-----------|------|--------|----|----|-----|---|----|
| SB | 1.5 | 1.6 | 6    | 80  | 0 | 20  | 20  | 100 | 100 | 100 | FKM   | 7121FBF4GV00 | E121F4406 | 2995 | 481865 | 9  | 8  | 250 |   | 12 |
|    | 1.5 | 1.6 | 6    | 80  | 0 | 20  | 20  | 120 | 120 | 120 | FKM   |              |           | 4270 | 481000 | 8  | 8  | 370 |   |    |
|    | 1.5 | 1.5 | 12.5 | 80  | 0 | 25  | 60  | 75  | 75  | 75  | PCTFE | 7121FBF4GF00 | E121F44   | 2995 | 481865 | 9  | 8  | 250 | 2 | 12 |
|    | 1.5 | 1.5 | 12.5 | 80  | 0 | 30  | 70  | 75  | 75  | 75  | PCTFE |              |           | 4270 | 481000 | 8  | 8  | 370 | 2 |    |
|    | 1.5 | 1.5 | 12.5 | 80  | 0 | 55  | 70  | 75  | 75  | 75  | PCTFE |              |           | 4270 | 486265 | 14 | 14 | 380 | 2 |    |
|    | 1.5 | 1.5 | 15   | 80  | 0 | 25  | 60  | 100 | 100 | 100 | Ruby  | 7121FBF4GR00 | 121F67    | 2995 | 481865 | 9  | 8  | 255 | 2 | 12 |
|    | 1.5 | 1.5 | 15   | 80  | 0 | 30  | 75  | 130 | 130 | 130 | Ruby  |              |           | 4270 | 481000 | 8  | 8  | 375 | 2 |    |
|    | 1.5 | 1.5 | 15   | 80  | 0 | 55  | 100 | 120 | 120 | 120 | Ruby  |              |           | 4270 | 486265 | 14 | 14 | 385 | 2 |    |
|    | 2.5 | 3.5 | 8.5  | 220 | 0 | 7   | 14  | 100 | 100 | 100 | FKM   | 7121FBF4LV00 | 121F4706  | 2995 | 481865 | 9  | 8  | 250 | 2 | 12 |
|    | 2.5 | 3.5 | 8.5  | 220 | 0 | 9   | 14  | 120 | 120 | 120 | FKM   |              |           | 4270 | 481000 | 8  | 8  | 370 | 2 |    |
|    | 2.5 | 3.5 | 8.5  | 220 | 0 | 14  | 14  | 120 | 120 | 120 | FKM   |              |           | 4270 | 486265 | 14 | 14 | 380 | 2 |    |
|    | 2.5 | 3.5 | 25   | 220 | 0 | 10  | 28  | 75  | 75  | 75  | PCTFE | 7121FBF4LF00 | 121F47    | 2995 | 481865 | 9  | 8  | 250 | 2 | 12 |
|    | 2.5 | 3.5 | 25   | 220 | 0 | 12  | 34  | 75  | 75  | 75  | PCTFE |              |           | 4270 | 481000 | 8  | 8  | 370 | 2 |    |
|    | 2.5 | 3.5 | 25   | 220 | 0 | 22  | 50  | 75  | 75  | 75  | PCTFE |              |           | 4270 | 486265 | 14 | 14 | 380 | 2 |    |
|    | 2.5 | 3.5 | 25   | 220 | 0 | 10  | 28  | 100 | 100 | 100 | Ruby  | 7121FBF4LR00 | 121F63    | 2995 | 481865 | 9  | 8  | 255 | 2 | 12 |
|    | 2.5 | 3.5 | 25   | 220 | 0 | 12  | 34  | 130 | 130 | 130 | Ruby  |              |           | 4270 | 481000 | 8  | 8  | 375 | 2 |    |
|    | 2.5 | 3.5 | 25   | 220 | 0 | 22  | 50  | 120 | 120 | 120 | Ruby  |              |           | 4270 | 486265 | 14 | 14 | 385 | 2 |    |
|    | 3   | 4.5 | 9    | 315 | 0 | 7   | 10  | 100 | 100 | 100 | FKM   | 7121FBF4NV00 | E121F4302 | 2995 | 481865 | 9  | 8  | 250 | 2 | 12 |
|    | 3   | 4.5 | 9    | 315 | 0 | 8.5 | 10  | 120 | 120 | 120 | FKM   |              |           | 4270 | 481000 | 8  | 8  | 370 | 2 |    |
|    | 3   | 4.5 | 9    | 315 | 0 | 10  | 10  | 120 | 120 | 120 | FKM   |              |           | 4270 | 486265 | 14 | 14 | 380 | 2 |    |
|    | 3   | 4.5 | 27   | 315 | 0 | 7   | 20  | 75  | 75  | 75  | PCTFE | 7121FBF4NF00 | E121F43   | 2995 | 481865 | 9  | 8  | 250 | 2 | 12 |
|    | 3   | 4.5 | 27   | 315 | 0 | 8.5 | 25  | 75  | 75  | 75  | PCTFE |              |           | 4270 | 481000 | 8  | 8  | 370 | 2 |    |
|    | 3   | 4.5 | 27   | 315 | 0 | 15  | 36  | 75  | 75  | 75  | PCTFE |              |           | 4270 | 486265 | 14 | 14 | 380 | 2 |    |
|    | 3   | 4.5 | 27   | 320 | 0 | 7   | 20  | 100 | 100 | 100 | Ruby  | 7121FBF4NR00 | 121F64    | 2995 | 481865 | 9  | 8  | 255 | 2 | 12 |
|    | 3   | 4.5 | 27   | 320 | 0 | 8.5 | 25  | 130 | 130 | 130 | Ruby  |              |           | 4270 | 481000 | 8  | 8  | 375 | 2 |    |
|    | 3   | 4.5 | 27   | 320 | 0 | 15  | 36  | 120 | 120 | 120 | Ruby  |              |           | 4270 | 486265 | 14 | 14 | 385 | 2 |    |

**Notes:**

\* See Electrical Parts Group table at end of section



# General application valves 2/2 - Direct operated

**DIN 43650 A**

M5x5 mm

Values in brackets for G 3/8 valves  
 Valeurs entre parenthèse pour valves G 3/8  
 Angaben in Klammern für G 3/8 Ventile

Technical drawing showing front, side, and detail views of a 2/2 direct operated valve. Dimensions include: 15, 32, 78, 20, 33, 11.5, (13), (50), 40, 19.5, 24, 481865, 38, 488698, 8, 488647, (2.2), 19, 16, 29. Part numbers 481865 and 488647 are indicated. A G thread is shown on the side view.

**Dimension reference 3**

**DIN 43650 A**

Technical drawing showing front, side, and detail views of a 2/2 direct operated valve. Dimensions include: Ø 9,3, Ø 4,3, 24, 10,2, 24, 32, 64, 20, 20, 32, 19.5, 24, 38, 481865, 32. Part number 481865 is indicated.

**Dimension reference 12**

# General application valves for dry or lubricated air, neutral gases and liquids

# 2/2

## Applications

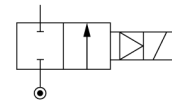
Magnalift valves are recommended in applications where the minimum pressure cannot be held at a sufficient level, i.e. where the effective supply pressure may be zero. This concerns applications like filling/emptying tanks by gravity and any other applications with a minimum pressure of zero.



## Magnalift

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |           |  | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----------|--|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC AC |  | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |
| G         |              |                      |      |          |                                      |           |  |                |        |     |           |                        |                     |         |      |                       |    |         |          |

Normally closed



## Brass body/Pipe mounting

|     |     |    |    |      |      |    |    |     |     |     |     |              |              |            |        |                |                |      |      |      |
|-----|-----|----|----|------|------|----|----|-----|-----|-----|-----|--------------|--------------|------------|--------|----------------|----------------|------|------|------|
| 3/8 | 15  | 65 | 65 | 4500 | 0    | 10 | -  | 100 | -   | 100 | FKM | 7221GBG3VVH0 | 221G2330     | 2995       | 481865 | <sup>1</sup> 9 | -              | 630  | 10   |      |
|     | 15  | 65 | 65 | 4500 | 0    | 10 | 10 | 65  | -   | 65  | FKM |              |              | 4270.06    | 492070 | <sup>1</sup> 8 | 8              | 1000 |      |      |
|     | 15  | 65 | 65 | 4500 | 0    | 10 | 10 | 75  | -   | 75  | FKM |              |              | 4270.06    | 492190 | <sup>1</sup> 9 | 11             | 1000 |      |      |
|     | 15  | 65 | 65 | 4500 | 0    | -  | 16 | 100 | -   | 100 | FKM | 7221GBG3VV00 | 221G23       | 2995       | 481865 | 9              | 8              | 630  | 10   |      |
|     |     | 15 | 65 | 65   | 4500 | 0  | -  | 16  | 120 | -   | 120 | FKM          |              |            | 4270   | 481000         | 8              | 8    | 750  |      |
|     |     | 15 | 65 | 65   | 4500 | 0  | 7  | 20  | 120 | -   | 140 | FKM          |              |            | 4270   | 486265         | 14             | 14   | 760  |      |
|     |     | 15 | 65 | 65   | 4500 | 0  | 10 | -   | 100 | 75  | 100 | NBR          | 7221GBG3VNH0 | 221G1330   | 2995   | 481865         | <sup>1</sup> 9 | -    | 630  | 10   |
|     |     | 15 | 65 | 65   | 4500 | 0  | 10 | 10  | 65  | 65  | 65  | NBR          |              |            | -      | 492070         | <sup>1</sup> 8 | 8    | 1000 |      |
|     |     | 15 | 65 | 65   | 4500 | 0  | 10 | 10  | 75  | 75  | 75  | NBR          |              |            | -      | 492190         | <sup>1</sup> 9 | 11   | 1000 |      |
|     | 15  | 65 | 65 | 4500 | 0    | -  | 16 | 100 | 75  | 100 | NBR | 7221GBG3VN00 | 221G13       | 2995       | 481865 | -              | 8              | 630  | 10   |      |
|     |     | 15 | 65 | 65   | 4500 | 0  | -  | 16  | 100 | 75  | 100 | NBR          |              |            | 4270   | 481000         | -              | 8    | 750  |      |
|     |     | 15 | 65 | 65   | 4500 | 0  | 7  | -   | 100 | 75  | 100 | NBR          |              |            | 4270   | 486265         | 14             | -    | 760  |      |
| 1/2 | 15  | 65 | 65 | 4500 | 0    | -  | 16 | 75  | -   | 75  | FKM | 7221GBG4VV1D | 221G25001D   | -          | 483250 | -              | 8              | 1605 | 3846 |      |
|     | 15  | 65 | 65 | 4500 | 0    | 10 | -  | 100 | -   | 100 | FKM | 7221GBG4VVH0 |              | 221G2530   | 2995   | 481865         | <sup>1</sup> 9 | -    | 640  | 10   |
|     | 15  | 65 | 65 | 4500 | 0    | 10 | 10 | 65  | -   | 65  | FKM |              |              |            | -      | 492070         | <sup>1</sup> 8 | 8    | 1010 |      |
|     | 15  | 65 | 65 | 4500 | 0    | 10 | 10 | 75  | -   | 75  | FKM |              | -            |            | 492190 | <sup>1</sup> 9 | 11             | 1010 |      |      |
|     | 15  | 65 | 65 | 4500 | 0    | -  | 16 | 100 | -   | 100 | FKM | 7221GBG4VV00 | 221G25       | 2995       | 481865 | -              | 8              | 630  | 10   |      |
|     |     | 15 | 65 | 65   | 4500 | 0  | -  | 16  | 120 | -   | 120 | FKM          |              |            | 4270   | 481000         | -              | 8    | 760  |      |
|     |     | 15 | 65 | 65   | 4500 | 0  | 7  | 20  | 120 | -   | 140 | FKM          |              |            | 4270   | 486265         | 14             | 14   | 760  |      |
|     |     | 15 | 65 | 65   | 4500 | 0  | 10 | -   | 100 | 75  | 100 | NBR          | 7221GBG4VNH0 | 221G1530   | 2995   | 481865         | <sup>1</sup> 9 | -    | 640  | 10   |
|     |     | 15 | 65 | 65   | 4500 | 0  | 10 | 10  | 65  | 65  | 65  | NBR          |              |            | -      | 492070         | <sup>1</sup> 8 | 9    | 1010 |      |
|     |     | 15 | 65 | 65   | 4500 | 0  | 10 | 10  | 75  | 75  | 75  | NBR          |              |            | -      | 492190         | <sup>1</sup> 9 | 11   | 1010 |      |
|     | 15  | 65 | 65 | 4500 | 0    | -  | 16 | 100 | 75  | 100 | NBR | 7221GBG4VN00 | 221G15       | 2995       | 481865 | -              | 8              | 640  | 10   |      |
|     |     | 15 | 65 | 65   | 4500 | 0  | -  | 16  | 100 | 75  | 100 | NBR          |              |            | 4270   | 481000         | -              | 8    | 760  |      |
|     |     | 15 | 65 | 65   | 4500 | 0  | 7  | -   | 100 | 75  | 100 | NBR          |              |            | 4270   | 486265         | 14             | -    | 770  |      |
|     | 3/4 | 15 | 80 | 80   | 6000 | 0  | -  | 16  | 75  | -   | 75  | FKM          | 7221GBG51V1D | 221G26001D | -      | 483250         | -              | 8    | 1635 | 3847 |

Table continued on page 18

## Notes:

1. Valves with model number ending by 30 or 31 are mainly equipped with electrical parts EEx m II T3/T4 No. 492190 or EEx m II T4/T5 No. 492070 or with standard DC coils.

# General application valves 2/2 - Magnalift

|        | A   | B     | C    | D    | E  | F  | G    | H  |
|--------|-----|-------|------|------|----|----|------|----|
|        | mm  | mm    | mm   | mm   | mm | mm | inch | mm |
| G15/25 | 75  | 93    | 37.5 | 15   | 34 | 27 | 1/2  | 53 |
| G13/23 | 75  | 93    | 37.5 | 15   | 34 | 27 | 3/8  | 53 |
| G16/26 | 80  | 95.5  | 40   | 17.5 | 34 | 32 | 3/4  | 53 |
| G17/27 | 85  | 102.5 | 42.5 | 22.5 | 36 | 41 | 1    | 53 |
| G21    | 100 | 108   | 50   | 23   | 41 | 41 | 1    | 70 |

**Dimension reference 10**

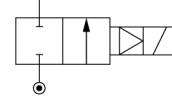
**Dimension reference 3846**

**Dimension reference 3847**

# General application valves 2/2 - Magnalift

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |           |  | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----------|--|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC AC |  | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |

Normally closed



## Brass body/Pipe mounting

|     |    |     |     |       |      |    |    |     |     |     |     |              |              |            |        |              |              |      |      |      |    |
|-----|----|-----|-----|-------|------|----|----|-----|-----|-----|-----|--------------|--------------|------------|--------|--------------|--------------|------|------|------|----|
| 3/4 | 15 | 80  | 80  | 6000  | 0    | 10 | -  | 100 | -   | 100 | FKM | 7221GBG51VH0 | 221G2630     | 2995       | 481865 | <sup>1</sup> | 9            | -    | 670  | 10   |    |
|     | 15 | 80  | 80  | 6000  | 0    | 10 | 10 | 65  | -   | 65  | FKM |              |              | -          | 492070 | <sup>1</sup> | 8            | 8    | 1040 |      |    |
|     | 15 | 80  | 80  | 6000  | 0    | 10 | 10 | 75  | -   | 75  | FKM |              |              | -          | 492190 | <sup>1</sup> | 9            | 11   | 1040 |      |    |
|     | 15 | 80  | 80  | 6000  | 0    | -  | 16 | 100 | -   | 100 | FKM | 7221GBG51V00 | 221G26       | 2995       | 481865 | -            | 8            | 670  | 10   |      |    |
|     | 15 | 80  | 80  | 6000  | 0    | -  | 16 | 120 | -   | 120 | FKM |              |              | 4270       | 481000 | -            | 8            | 790  |      |      |    |
|     | 15 | 80  | 65  | 6000  | 0    | 7  | 20 | 120 | -   | 140 | FKM |              |              | 4270       | 486265 | 14           | 14           | 800  |      |      |    |
|     | 15 | 80  | 80  | 6000  | 0    | 10 | -  | 100 | 75  | 100 | NBR | 7221GBG51NH0 | 221G1630     | 2995       | 481865 | <sup>1</sup> | 9            | -    | 670  | 10   |    |
|     | 15 | 80  | 80  | 6000  | 0    | 10 | 10 | 65  | 65  | 65  | NBR |              |              | -          | 492070 | <sup>1</sup> | 8            | 8    | 1040 |      |    |
|     | 15 | 80  | 80  | 6000  | 0    | 10 | 10 | 75  | 75  | 75  | NBR |              |              | -          | 492190 | <sup>1</sup> | 9            | 11   | 1040 |      |    |
|     | 15 | 80  | 80  | 6000  | 0    | -  | 16 | 100 | 75  | 100 | NBR | 7221GBG51N00 | 221G16       | 2995       | 481865 | -            | 8            | 670  | 10   |      |    |
|     | 15 | 80  | 80  | 6000  | 0    | -  | 16 | 100 | 75  | 100 | NBR |              |              | 4270       | 481000 | -            | 8            | 790  |      |      |    |
|     | 15 | 80  | 80  | 6000  | 0    | 7  | -  | 100 | 75  | 100 | NBR |              |              | 4270       | 486265 | 14           | -            | 800  |      |      |    |
|     | 1  | 15  | 80  | 80    | 6000 | 0  | -  | 16  | 75  | -   | 75  | FKM          | 7221GBG61V1D | 221G27001D | -      | 483250       | -            | 8    | 1775 | 3848 |    |
|     |    | 15  | 80  | 80    | 6000 | 0  | 10 | -   | 100 | -   | 100 | FKM          | 7221GBG61VH0 | 221G2730   | 2995   | 481865       | <sup>1</sup> | 9    | -    | 810  | 10 |
|     |    | 15  | 80  | 80    | 6000 | 0  | 10 | 10  | 65  | -   | 65  | FKM          |              |            | -      | 492070       | <sup>1</sup> | 8    | 8    | 1180 |    |
| 15  |    | 80  | 80  | 6000  | 0    | 10 | 10 | 75  | -   | 75  | FKM |              | -            |            | 492190 | <sup>1</sup> | 9            | 11   | 1180 |      |    |
| 15  |    | 80  | 80  | 6000  | 0    | -  | 16 | 100 | -   | 100 | FKM | 7221GBG61V00 | 221G27       | 2995       | 481865 | -            | 8            | 810  | 10   |      |    |
| 15  |    | 80  | 80  | 6000  | 0    | -  | 16 | 120 | -   | 120 | FKM |              |              | 4270       | 481000 | -            | 8            | 930  |      |      |    |
| 15  |    | 80  | 65  | 6000  | 0    | 7  | 20 | 120 | -   | 120 | FKM |              |              | 4270       | 486265 | 14           | 14           | 940  |      |      |    |
| 15  |    | 80  | 80  | 6000  | 0    | 10 | -  | 100 | 75  | 100 | NBR | 7221GBG61NH0 | 221G1730     | 2995       | 481865 | <sup>1</sup> | 9            | -    | 810  | 10   |    |
| 15  |    | 80  | 80  | 6000  | 0    | 10 | 10 | 65  | 65  | 65  | NBR |              |              | -          | 492070 | <sup>1</sup> | 8            | 8    | 1180 |      |    |
| 15  |    | 80  | 80  | 6000  | 0    | 10 | 10 | 75  | 75  | 75  | NBR |              |              | -          | 492190 | <sup>1</sup> | 9            | 11   | 1180 |      |    |
| 15  |    | 80  | 80  | 6000  | 0    | -  | 16 | 100 | 75  | 100 | NBR | 7221GBG61N00 | 221G17       | 2995       | 481865 | -            | 8            | 810  | 10   |      |    |
| 15  |    | 80  | 80  | 6000  | 0    | -  | 16 | 100 | 75  | 100 | NBR |              |              | 4270       | 481000 | -            | 8            | 930  |      |      |    |
| 15  |    | 80  | 80  | 6000  | 0    | 7  | -  | 100 | 75  | 100 | NBR |              |              | 4270       | 486265 | 14           | -            | 940  |      |      |    |
| 25  |    | 160 | 160 | 14000 | 0    | -  | 16 | 100 | -   | 100 | FKM | 7221GBG64V00 | 221G2106     | 2995       | 481865 | -            | 8            | 1170 | 10   |      |    |
| 25  |    | 160 | 160 | 14000 | 0    | -  | 16 | 100 | -   | 120 | FKM |              |              | 4270       | 481000 | -            | 8            | 1290 |      |      |    |
| 25  |    | 160 | 160 | 14000 | 0    | 6  | 16 | 100 | -   | 120 | FKM |              |              | 4270       | 486265 | 14           | 14           | 1300 |      |      |    |
| 25  |    | 170 | 160 | 14000 | 0    | 10 | -  | 100 | -   | 100 | FKM | 7221GBG64VH0 | 221G2136     | 2995       | 481865 | -            | 9            | -    | 1170 | 10   |    |
| 25  |    | 170 | 160 | 14000 | 0    | 10 | 10 | 65  | -   | 65  | FKM |              |              | -          | 492070 | <sup>1</sup> | 8            | 8    | 1540 |      |    |
| 25  |    | 170 | 160 | 14000 | 0    | 10 | 10 | 75  | -   | 75  | FKM |              |              | -          | 492190 | <sup>1</sup> | 9            | 11   | 1540 |      |    |
| 25  |    | 170 | 160 | 14000 | 0    | 10 | -  | 100 | 75  | 100 | NBR | 7221GBG64NH0 | 221G2130     | 2995       | 481865 | <sup>1</sup> | 9            | -    | 1170 | 10   |    |
| 25  |    | 170 | 160 | 14000 | 0    | 10 | 10 | 65  | 65  | 65  | NBR |              |              | -          | 492070 | <sup>1</sup> | 8            | 8    | 1540 |      |    |
| 25  |    | 170 | 160 | 14000 | 0    | 10 | 10 | 75  | 75  | 75  | NBR |              |              | -          | 492190 | <sup>1</sup> | 9            | 11   | 1540 |      |    |
| 25  |    | 160 | 160 | 14000 | 0    | -  | 16 | 100 | 75  | 100 | NBR | 7221GBG64N00 | 221G21       | 2995       | 481865 | -            | 8            | 1170 | 10   |      |    |
| 25  |    | 160 | 160 | 14000 | 0    | -  | 16 | 100 | 75  | 100 | NBR |              |              | 4270       | 481000 | -            | 8            | 1290 |      |      |    |
| 25  |    | 160 | 160 | 14000 | 0    | 6  | -  | 100 | 75  | 100 | NBR |              |              | 4270       | 486265 | 14           | -            | 1300 |      |      |    |

Table continued on page 20

### Notes:

1. Valves with model number ending by 30 or 31 are mainly equipped with electrical parts EEx me II T3/T4 No. 492190 or EEx m II T4/T5 No. 492070 or with standard DC coils.



# General application valves 2/2 - Magnalift

|        | A<br>mm | B<br>mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | G<br>inch | H<br>mm |
|--------|---------|---------|---------|---------|---------|---------|-----------|---------|
| G15/25 | 75      | 93      | 37.5    | 15      | 34      | 27      | 1/2       | 53      |
| G13/23 | 75      | 93      | 37.5    | 15      | 34      | 27      | 3/8       | 53      |
| G16/26 | 80      | 95.5    | 40      | 17.5    | 34      | 32      | 3/4       | 53      |
| G17/27 | 85      | 102.5   | 42.5    | 22.5    | 36      | 41      | 1         | 53      |
| G21    | 100     | 108     | 50      | 23      | 41      | 41      | 1         | 70      |

Dimension reference 10

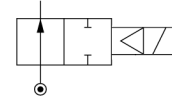
Dimension reference 3848

## General application valves 2/2 - Magnalift

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |           |  | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----------|--|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC AC |  | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |
| G         |              |                      |      |          |                                      |           |  |                |        |     |           |                        |                     |         |      |                       |    |         |          |

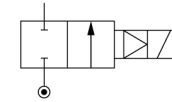
### Brass body/Pipe mounting

Normally open



|     |    |    |    |   |   |     |     |    |    |    |     |              |                 |             |               |    |    |     |     |
|-----|----|----|----|---|---|-----|-----|----|----|----|-----|--------------|-----------------|-------------|---------------|----|----|-----|-----|
| 3/8 | 15 | 43 | 43 | - | 0 | 8.5 | 8.5 | 85 | 85 | 85 | FKM | 72228BG3TV00 | <b>222G3306</b> | <b>4270</b> | <b>486265</b> | 14 | 14 | 940 | 102 |
| 1/2 | 15 | 58 | 58 | - | 0 | 8.5 | 8.5 | 85 | 85 | 85 | FKM | 72228BG4UV00 | <b>222G3506</b> | <b>4270</b> | <b>486265</b> | 14 | 14 | 940 | 102 |
| 3/4 | 19 | 72 | 72 | - | 0 | 8.5 | 8.5 | 85 | 85 | 85 | FKM | 72228BG5VV00 | <b>222G3606</b> | <b>4270</b> | <b>486265</b> | 14 | 14 | 940 | 102 |

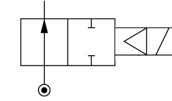
Normally closed



### 303 Stainless steel body/Pipe mounting

|     |    |    |    |   |   |     |   |    |    |    |     |              |                 |             |               |    |   |      |     |
|-----|----|----|----|---|---|-----|---|----|----|----|-----|--------------|-----------------|-------------|---------------|----|---|------|-----|
| 3/8 | 15 | 42 | 42 | - | 0 | -   | 7 | 85 | 85 | 85 | FKM | 72218RG3TV00 | <b>221G5306</b> | <b>2995</b> | <b>481865</b> | -  | 8 | 930  | 102 |
|     | 15 | 42 | 42 | - | 0 | -   | 7 | 85 | 85 | 85 | FKM |              |                 | <b>4270</b> | <b>481000</b> | -  | 8 | 1050 |     |
|     | 15 | 42 | 42 | - | 0 | 2.8 | - | 85 | 85 | 85 | FKM |              |                 | <b>4270</b> | <b>486265</b> | 14 | - | 1060 |     |
| 1/2 | 15 | 54 | 54 | - | 0 | -   | 7 | 85 | 85 | 85 | FKM | 72218RG4UV00 | <b>221G5506</b> | <b>2995</b> | <b>481865</b> | -  | 8 | 930  | 102 |
|     | 15 | 54 | 54 | - | 0 | -   | 7 | 85 | 85 | 85 | FKM |              |                 | <b>4270</b> | <b>481000</b> | -  | 8 | 1050 |     |
|     | 15 | 54 | 54 | - | 0 | 2.8 | - | 85 | 85 | 85 | FKM |              |                 | <b>4270</b> | <b>486265</b> | 14 | - | 1060 |     |
| 3/4 | 19 | 71 | 71 | - | 0 | -   | 7 | 85 | 85 | 85 | FKM | 72218RG5VV00 | <b>221G5606</b> | <b>2995</b> | <b>481865</b> | -  | 8 | 930  | 102 |
|     | 19 | 71 | 71 | - | 0 | -   | 7 | 85 | 85 | 85 | FKM |              |                 | <b>4270</b> | <b>481000</b> | -  | 8 | 1050 |     |
|     | 19 | 71 | 71 | - | 0 | 2.8 | - | 85 | 85 | 85 | FKM |              |                 | <b>4270</b> | <b>486265</b> | 14 | - | 1060 |     |

Normally open



### 303 Stainless steel body/Pipe mounting

|     |    |    |    |   |   |     |     |    |    |    |     |              |                 |             |               |    |    |      |     |
|-----|----|----|----|---|---|-----|-----|----|----|----|-----|--------------|-----------------|-------------|---------------|----|----|------|-----|
| 3/8 | 16 | 43 | 43 | - | 0 | 8.5 | 8.5 | 85 | 85 | 85 | FKM | 72228RG3TV00 | <b>222G5306</b> | <b>4270</b> | <b>486265</b> | 14 | 14 | -    | 102 |
| 1/2 | 16 | 58 | 58 | - | 0 | 8.5 | 8.5 | 85 | 85 | 85 | FKM | 72228RG4UV00 | <b>222G5506</b> | <b>4270</b> | <b>486265</b> | 14 | 14 | 1050 | 102 |

# General application valves 2/2 - Magnalift

Technical drawing of a 2/2 valve. The side view shows a main body with a diameter of 41 mm and a top section with a diameter of 22 mm. The top section has a G1/8 thread. The main body has a height dimension 'H' and a diameter 'P'. The front view shows a square body with four mounting holes and a central port labeled 'P'. The length of the front view is dimensioned as 'L'. A reference number '486265' points to the top section.

|                   | H<br>mm | P<br>mm | L<br>mm |
|-------------------|---------|---------|---------|
| 221G53../222G33.. | 103     | 89      | 67      |
| 221G55../222G35.. | 103     | 89      | 67      |
| 221G56../222G36.. | 103     | 89      | 69      |

Dimension reference 102

A 3D perspective view of the valve assembly, showing the main body and the top section.

# General application valves for dry or lubricated air, neutral gases and liquids

# 2/2

## Applications

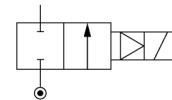
Pilot operated valves are ideally suited to shut-off applications of liquids with high flow and pressure. A minimum operating pressure is required: refer to tables.



## Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |            |          | Admissible differential pressure bar |        |        | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------------|----------|--------------------------------------|--------|--------|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Gases Qmax | Gases Qn | Min                                  | Max DC | Max AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

Normally closed



## Brass body/Pipe mounting

|     |      |      |      |      |      |     |    |     |     |     |     |              |              |          |        |        |           |        |     |     |     |    |    |
|-----|------|------|------|------|------|-----|----|-----|-----|-----|-----|--------------|--------------|----------|--------|--------|-----------|--------|-----|-----|-----|----|----|
| 1/4 | 8    | 36   | 36   | -    | 0.3  | 25  | 40 | -   | 100 | 100 | FKM | 7321HBG2SV00 | E321H21      | 1        | 2995   | 481865 | 9         | 8      | 800 | 2   | 9   |    |    |
|     | 8    | 36   | 36   | -    | 0.3  | 30  | 40 | -   | 100 | 100 | FKM |              |              |          |        | 4270   | 481000    | 8      | 8   | 920 | 2   |    |    |
|     | 8    | 36   | 36   | -    | 0.3  | 40  | 40 | -   | 100 | 100 | FKM |              |              |          |        | 4270   | 486265    | 14     | 14  | 930 | 2   |    |    |
|     | 8    | 36   | 36   | 1600 | 0.3  | 25  | 40 | 100 | 75  | 100 | NBR | 7321HBG2SN00 | E321H11      | 1        | 2995   | 481865 | 9         | 8      | 800 | 2   | 9   |    |    |
|     |      | 36   | 36   | 1600 | 0.3  | 30  | 40 | 100 | 75  | 100 | NBR |              |              |          |        | 4270   | 481000    | 8      | 8   | 920 | 2   |    |    |
|     |      | 12   | 30   | 30   | 2150 | 0.3 | 10 | 10  | 100 | 100 | 100 | FKM          | -            | 321K3106 |        | 8993   | 481180    | 5      | 4   | 380 | 1   | 72 |    |
|     |      | 12   | 30   | 30   | 2150 | 0.3 | 7  | 10  | 75  | 75  | 75  | FKM          |              |          |        | 8993   | 488980    | 2.5    | 2   | 380 | 1   |    |    |
|     |      | 12   | 30   | 30   | 2150 | 0.3 | 10 | 10  | 100 | 75  | 100 | NBR          | -            | 321K31   |        | 8993   | 481180    | 5      | 4   | 380 | 1   | 72 |    |
|     |      | 12   | 30   | 30   | 2150 | 0.3 | 7  | 10  | 75  | 75  | 75  | NBR          |              |          |        | 8993   | 488980    | 2.5    | 2   | 380 | 1   |    |    |
|     | 3/8  | 11   | 50   | 50   | -    | 0.3 | 25 | 40  | -   | 100 | 100 | FKM          | 7321HBG3TV00 | E321H23  | 1      | 2995   | 481865    | 9      | 8   | 780 | 2   | 9  |    |
|     |      | 11   | 50   | 50   | -    | 0.3 | 30 | 40  | -   | 100 | 120 | FKM          |              |          |        |        | 4270      | 481000 | 8   | 8   | 900 | 2  |    |
|     |      | 11   | 50   | 50   | -    | 0.3 | 40 | 40  | -   | 100 | 140 | FKM          |              |          |        |        | 4270      | 486265 | 14  | 14  | 910 | 2  |    |
| 11  |      | 50   | 50   | 2800 | 0.3  | 25  | 40 | 100 | 75  | 100 | NBR | 7321HBG3TN00 | E321H13      | 1        | 2995   | 481865 | 9         | 8      | 780 | 2   | 9   |    |    |
|     |      | 50   | 50   | 2800 | 0.3  | 30  | 40 | 100 | 75  | 100 | NBR |              |              |          |        | 4270   | 481000    | 8      | 8   | 900 | 2   |    |    |
| 12  |      | 45   | 45   | 3050 | 0.3  | 10  | 10 | 100 | 100 | 100 | FKM | -            | 321K3306     |          | 8993   | 481180 | 5         | 4      | 380 | 1   | 72  |    |    |
|     |      | 45   | 45   | 3050 | 0.3  | 7   | 10 | 75  | 75  | 75  | FKM |              |              |          | 8993   | 488980 | 2.5       | 2      | 380 | 1   |     |    |    |
|     |      | 45   | 45   | 3050 | 0.3  | 10  | 10 | 100 | 75  | 100 | NBR | -            | 321K33       |          | 8993   | 481180 | 5         | 4      | 380 | 1   | 72  |    |    |
|     | 45   | 45   | 3050 | 0.3  | 7    | 10  | 75 | 75  | 75  | NBR |     |              |              | 8993     | 488980 | 2.5    | 2         | 380    | 1   |     |     |    |    |
| 1/2 | 12   | 50   | 50   | 3400 | 0.3  | 10  | 10 | 100 | 100 | 100 | FKM | -            | 321K3506     |          | 8993   | 481180 | 5         | 4      | 380 | 1   | 72  |    |    |
|     | 12   | 50   | 50   | 3400 | 0.3  | 7   | 10 | 75  | 75  | 75  | FKM |              |              |          | 8993   | 488980 | 2.5       | 2      | 380 | 1   |     |    |    |
|     | 12   | 50   | 50   | 3400 | 0.3  | 10  | 10 | 100 | 75  | 100 | NBR | -            | 321K35       |          | 8993   | 481180 | 5         | 4      | 380 | 1   | 72  |    |    |
|     |      | 50   | 50   | 3400 | 0.3  | 7   | 10 | 75  | 75  | 75  | NBR |              |              |          | 8993   | 488980 | 2.5       | 2      | 380 | 1   |     |    |    |
|     | 14.5 | 60   | 60   | -    | 0.3  | 25  | 40 | -   | 100 | 100 | FKM | 7321HBG4UV00 | E321H25      | 1        | 2995   | 481865 | 9         | 8      | 740 | 2   | 9   |    |    |
|     |      | 60   | 60   | -    | 0.3  | 30  | 40 | -   | 100 | 120 | FKM |              |              |          |        | 4270   | 481000    | 8      | 8   | 860 | 2   |    |    |
|     |      | 60   | 60   | -    | 0.3  | 40  | 40 | -   | 100 | 140 | FKM |              |              |          |        | 4270   | 486265    | 14     | 14  | 870 | 2   |    |    |
|     |      | 14.5 | 60   | 60   | 3150 | 0.3 | 10 | -   | 75  | 75  | -   | NBR          | -            | 321H1590 | 3      | -      | 483580.01 | 4      | 0.4 | -   | 715 | 7  | 75 |

Table continued on page 24

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Pilot seat discs from ruby (synthetic)
- 2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing
- 3. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)
- 4. This reference no. is for the complete electrical part (coil + housing)

# General application valves 2/2 - Pilot operated

**DIN 43650 A**

**Dimension reference 9**

|            | A    | B    | C  | D    | E    | F  | G   | H    | I  | J    | Dia. |
|------------|------|------|----|------|------|----|-----|------|----|------|------|
|            | inch | mm   | mm | mm   | mm   | mm | mm  | mm   | mm | mm   | mm   |
| <b>K31</b> | 1/4  | 25   | 50 | 6.2  | 26   | 27 | 5.5 | 81   | 39 | 61   | 40   |
| <b>K33</b> | 3/8  | 25   | 50 | 6.2  | 26   | 27 | 5.5 | 81   | 39 | 61   | 40   |
| <b>K35</b> | 1/2  | 27.5 | 55 | 6.2  | 26   | 27 | 5.5 | 81   | 39 | 61   | 40   |
| <b>K36</b> | 3/4  | 40   | 80 | 9    | 33.5 | 32 | 8   | 96.5 | 46 | 68.5 | 56   |
| <b>K37</b> | 1    | 42.5 | 85 | 14.2 | 33.5 | 41 | 8   | 96.5 | 56 | 68.5 | 56   |

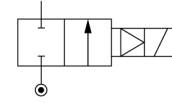
**Dimension reference 72**

**Dimension reference 75**

## General application valves 2/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |    | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|----|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

Normally closed



### Brass body/Pipe mounting

|     |      |     |     |       |     |    |    |     |     |     |     |              |                  |                          |               |     |   |      |   |    |
|-----|------|-----|-----|-------|-----|----|----|-----|-----|-----|-----|--------------|------------------|--------------------------|---------------|-----|---|------|---|----|
| 1/2 | 14.5 | 60  | 60  | 3150  | 0.3 | 25 | 40 | 100 | 75  | 100 | NBR | 7321HBG4UN00 | <b>E321H15</b>   | <sup>1</sup> <b>2995</b> | <b>481865</b> | 9   | 8 | 740  | 2 | 9  |
|     | 14.5 | 60  | 60  | 3150  | 0.3 | 30 | 40 | 100 | 75  | 100 | NBR |              |                  | <b>4270</b>              | <b>481000</b> | 8   | 8 | 860  | 2 |    |
| 3/4 | 18   | 100 | 100 | 9400  | 0.3 | 10 | 10 | 100 | 100 | 100 | FKM | -            | <b>321K3606</b>  | <b>8993</b>              | <b>481180</b> | 5   | 4 | 590  | 1 | 72 |
|     | 18   | 100 | 100 | 9400  | 0.3 | 7  | 10 | 75  | 75  | 75  | FKM |              |                  | <b>8993</b>              | <b>488980</b> | 2.5 | 2 | 590  | 1 |    |
|     | 18   | 100 | 100 | 9400  | 0.3 | 10 | 10 | 100 | 75  | 100 | NBR | -            | <b>321K36</b>    | <b>8993</b>              | <b>481180</b> | 5   | 4 | 590  | 1 | 72 |
|     | 18   | 100 | 100 | 9400  | 0.3 | 7  | 10 | 75  | 75  | 75  | NBR |              |                  | <b>8993</b>              | <b>488980</b> | 2.5 | 2 | 590  | 1 |    |
|     | 20   | 135 | 135 | 9500  | 0.3 | 16 | 16 | 100 | 100 | 100 | FKM | 7321GBG53V00 | <b>E321G3606</b> | <b>2995</b>              | <b>481865</b> | 9   | 8 | 1430 | 2 | 11 |
|     | 20   | 135 | 135 | 9500  | 0.3 | 16 | 16 | 120 | 100 | 120 | FKM |              |                  | <b>4270</b>              | <b>481000</b> | 8   | 8 | 1550 | 2 |    |
|     | 20   | 135 | 135 | 9500  | 0.3 | 16 | 16 | 100 | 75  | 100 | NBR | 7321GBG53N00 | <b>E321G36</b>   | <sup>3</sup> <b>2995</b> | <b>481865</b> | 9   | 8 | 1430 | 2 | 11 |
|     | 20   | 135 | 135 | 9500  | 0.3 | 16 | 16 | 100 | 75  | 100 | NBR |              |                  | <b>4270</b>              | <b>481000</b> | 8   | 8 | 1550 | 2 |    |
| 1   | 18   | 110 | 110 | 10150 | 0.3 | 10 | 10 | 100 | 100 | 100 | FKM | -            | <b>321K3706</b>  | <b>8993</b>              | <b>481180</b> | 5   | 4 | 735  | 1 | 72 |
|     | 18   | 110 | 110 | 10150 | 0.3 | 7  | 10 | 75  | 75  | 75  | FKM |              |                  | <b>8993</b>              | <b>488980</b> | 2.5 | 2 | 735  | 1 |    |
|     | 18   | 110 | 110 | 10150 | 0.3 | 10 | 10 | 100 | 75  | 100 | NBR | -            | <b>321K37</b>    | <b>8993</b>              | <b>481180</b> | 5   | 4 | 735  | 1 | 72 |
|     | 18   | 110 | 110 | 10150 | 0.3 | 7  | 10 | 75  | 75  | 75  | NBR |              |                  | <b>8993</b>              | <b>488980</b> | 2.5 | 2 | 735  | 1 |    |
|     | 25   | 180 | 180 | 14000 | 0.3 | 16 | 16 | 100 | 100 | 100 | FKM | 7321GBG64V00 | <b>E321G3706</b> | <b>2995</b>              | <b>481865</b> | 9   | 8 | 1230 | 2 | 11 |
|     | 25   | 180 | 180 | 14000 | 0.3 | 16 | 16 | 120 | 100 | 120 | FKM |              |                  | <b>4270</b>              | <b>481000</b> | 8   | 8 | 1350 | 2 |    |

Table continued on page 26

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Pilot seat discs from ruby (synthetic)
- 2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing
- 3. Manual override and 4 position selector for controlled closure rate: see "Anti-waterhammer valves" section

# General application valves 2/2 - Pilot operated

**Dimension reference 9**

|            | A   | B     | C  | D    | E    | F  | G     | H  |
|------------|-----|-------|----|------|------|----|-------|----|
|            | mm  | mm    | mm | mm   | mm   | mm | inch  | mm |
| <b>G37</b> | 100 | 121   | 50 | 23   | 54   | 41 | 1     | 70 |
| <b>G36</b> | 100 | 121   | 50 | 23   | 54   | 41 | 3/4   | 70 |
| <b>G38</b> | 110 | 137.5 | 55 | 33   | 60.5 | 60 | 1 1/4 | 99 |
| <b>G39</b> | 140 | 144   | 75 | 33   | 67   | 60 | 1 1/2 | 99 |
| <b>G40</b> | 150 | 158.5 | 80 | 41.5 | 73   | 75 | 2     | 99 |

**Dimension reference 11**

|            | A    | B    | C  | D    | E    | F  | G   | H    | I  | J    | Dia. |
|------------|------|------|----|------|------|----|-----|------|----|------|------|
|            | inch | mm   | mm | mm   | mm   | mm | mm  | mm   | mm | mm   | mm   |
| <b>K31</b> | 1/4  | 25   | 50 | 6.2  | 26   | 27 | 5.5 | 81   | 39 | 61   | 40   |
| <b>K33</b> | 3/8  | 25   | 50 | 6.2  | 26   | 27 | 5.5 | 81   | 39 | 61   | 40   |
| <b>K35</b> | 1/2  | 27.5 | 55 | 6.2  | 26   | 27 | 5.5 | 81   | 39 | 61   | 40   |
| <b>K36</b> | 3/4  | 40   | 80 | 9    | 33.5 | 32 | 8   | 96.5 | 46 | 68.5 | 56   |
| <b>K37</b> | 1    | 42.5 | 85 | 14.2 | 33.5 | 41 | 8   | 96.5 | 56 | 68.5 | 56   |

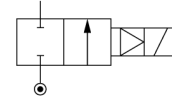
**Dimension reference 72**



## General application valves 2/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |            | Admissible differential pressure bar |        |        | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------------|--------------------------------------|--------|--------|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Gases Qmax | Min                                  | Max DC | Max AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

Normally closed



### Brass body/Pipe mounting

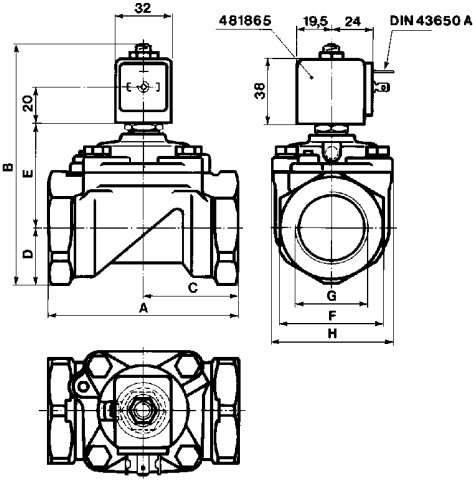
|       |    |     |     |       |     |     |    |     |     |     |     |              |                    |              |               |                  |              |     |      |      |   |      |
|-------|----|-----|-----|-------|-----|-----|----|-----|-----|-----|-----|--------------|--------------------|--------------|---------------|------------------|--------------|-----|------|------|---|------|
| 1     | 25 | 185 | 185 | 14100 | 0.3 | 10  | -  | 75  | 75  | -   | NBR | -            | <b>321G3790</b>    | <sup>1</sup> | -             | <b>483580.01</b> | <sup>2</sup> | 0.4 | -    | 1205 | 7 | 76   |
|       | 25 | 180 | 180 | 14000 | 0.3 | 16  | 16 | 75  | 75  | 75  | NBR | 7321GBG64N1D | <b>E321G37101D</b> | -            | -             | <b>483250</b>    | -            | 8   | 8    | 2195 | 5 | 3849 |
|       | 25 | 180 | 180 | 14000 | 0.3 | 16  | 16 | 100 | 75  | 100 | NBR | 7321GBG64N00 | <b>E321G37</b>     | <sup>3</sup> | <b>2995</b>   | <b>481865</b>    | -            | 9   | 8    | 1230 | 2 | 11   |
|       | 25 | 180 | 180 | 14000 | 0.3 | 16  | 16 | 100 | 75  | 100 | NBR | -            | -                  | -            | <b>4270</b>   | <b>481000</b>    | -            | 8   | 8    | 1350 | 2 | -    |
| 1 1/4 | 28 | 280 | 280 | 18000 | 0.3 | 16  | 16 | 100 | 100 | 100 | FKM | 7321GBG76V00 | <b>E321G3806</b>   | -            | <b>2995</b>   | <b>481865</b>    | -            | 9   | 8    | 1860 | 2 | 11   |
|       | 28 | 280 | 280 | 18000 | 0.3 | 16  | 16 | 120 | 100 | 120 | FKM | -            | -                  | <b>4270</b>  | <b>481000</b> | -                | 8            | 8   | 1980 | 2    | - |      |
|       | 28 | 280 | 280 | 18000 | 0.3 | 16  | 16 | 100 | 75  | 100 | NBR | 7321GBG76N00 | <b>E321G38</b>     | <sup>3</sup> | <b>2995</b>   | <b>481865</b>    | -            | 9   | 8    | 1860 | 2 | 11   |
|       | 28 | 280 | 280 | 18000 | 0.3 | 16  | 16 | 100 | 75  | 100 | NBR | -            | -                  | <b>4270</b>  | <b>481000</b> | -                | 8            | 8   | 1980 | 2    | - |      |
| 1 1/2 | 40 | 420 | 420 | 31500 | 0.3 | 7   | 16 | 100 | 100 | 100 | FKM | 7321GBG88V00 | <b>E321G3906</b>   | -            | <b>2995</b>   | <b>481865</b>    | -            | 9   | 8    | 2560 | 2 | 11   |
|       | 40 | 420 | 420 | 31500 | 0.3 | 8.5 | 16 | 120 | 100 | 120 | FKM | -            | -                  | <b>4270</b>  | <b>481000</b> | -                | 8            | 8   | 2680 | 2    | - |      |
|       | 40 | 425 | 425 | 31000 | 0.5 | 10  | -  | 75  | 75  | -   | NBR | -            | <b>321G3990</b>    | <sup>1</sup> | -             | <b>483580.01</b> | <sup>2</sup> | 0.4 | -    | 2635 | 7 | 76   |

Table continued on page 28


#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Other coil-housing available: 488650.01, 488660.01, 488670.01 (refer to electrical parts at end of this section)
- 2. This reference no. is for the complete electrical part (coil + housing)
- 3. Manual override and 4 position selector for controlled closure rate: see "Anti-waterhammer valves" section

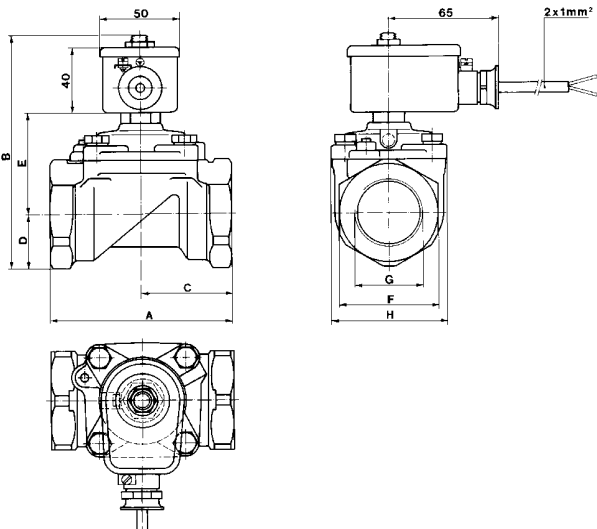
# General application valves 2/2 - Pilot operated




|     | A   | B     | C  | D    | E    | F  | G     | H  |
|-----|-----|-------|----|------|------|----|-------|----|
|     | mm  | mm    | mm | mm   | mm   | mm | inch  | mm |
| G37 | 100 | 121   | 50 | 23   | 54   | 41 | 1     | 70 |
| G36 | 100 | 121   | 50 | 23   | 54   | 41 | 3/4   | 70 |
| G38 | 110 | 137.5 | 55 | 33   | 60.5 | 60 | 1 1/4 | 99 |
| G39 | 140 | 144   | 75 | 33   | 67   | 60 | 1 1/2 | 99 |
| G40 | 150 | 158.5 | 80 | 41.5 | 73   | 75 | 2     | 99 |



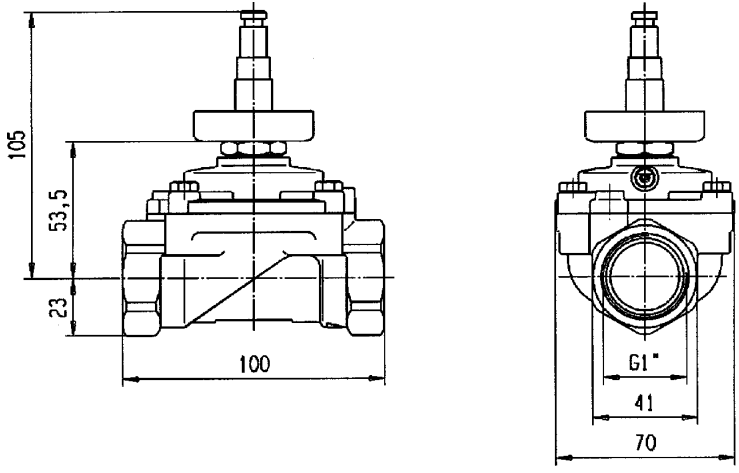
Dimension reference 11



|       | A   | B     | C  | D    | E  | F  | G     | H  |
|-------|-----|-------|----|------|----|----|-------|----|
|       | mm  | mm    | mm | mm   | mm | mm | inch  | mm |
| G3790 | 100 | 135   | 50 | 23   | 60 | 41 | 1     | 70 |
| G3990 | 140 | 158   | 75 | 33   | 73 | 60 | 1 1/2 | 99 |
| G4090 | 150 | 172.5 | 80 | 41.5 | 79 | 75 | 2     | 99 |



Dimension reference 76

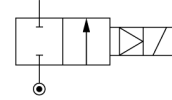


Dimension reference 3849

## General application valves 2/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |     |    | Fluid temp. °C |     |        | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----|----|----------------|-----|--------|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max | DC | AC             | Gas | Liquid |           | Oil               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| G         |              |                      |      |          |                                      |     |    |                |     |        |           |                   |                        |                     |         |                       |    |         |                  |          |

Normally closed



### Brass body/Pipe mounting

|       |    |     |     |       |     |     |    |     |     |     |     |              |                              |             |                               |     |    |      |   |      |
|-------|----|-----|-----|-------|-----|-----|----|-----|-----|-----|-----|--------------|------------------------------|-------------|-------------------------------|-----|----|------|---|------|
| 1 1/2 | 40 | 420 | 420 | 31500 | 0.3 | 8.5 | 16 | 75  | 75  | 75  | NBR | 7321GBG88N3D | <b>E321G39101D</b>           | -           | <b>483250</b>                 | 8   | 8  | 3525 | 5 | 3850 |
|       | 40 | 420 | 420 | 31500 | 0.3 | 7   | 16 | 100 | 75  | 100 | NBR | 7321GBG88N00 | <b>E321G39</b> <sup>1</sup>  | <b>2995</b> | <b>481865</b>                 | 9   | 8  | 2560 | 2 | 11   |
|       | 40 | 420 | 420 | 31500 | 0.3 | 8.5 | 16 | 100 | 75  | 100 | NBR |              |                              | <b>4270</b> | <b>481000</b>                 | 8   | 8  | 2680 | 2 |      |
|       | 40 | 420 | 420 | 31500 | 0.3 | 16  | 16 | 100 | 75  | 100 | NBR |              |                              | <b>4270</b> | <b>486265</b>                 | 14  | 14 | 2700 | 2 |      |
| 2     | 40 | 540 | 540 | 40000 | 0.3 | 7   | 16 | 100 | 100 | 100 | FKM | 7321GBG99V00 | <b>E321G4006</b>             | <b>2995</b> | <b>481865</b>                 | 9   | 8  | 2920 | 2 | 11   |
|       | 40 | 540 | 540 | 40000 | 0.3 | 7   | 16 | 120 | 100 | 120 | FKM |              |                              | <b>4270</b> | <b>481000</b>                 | 8   | 8  | 3040 | 2 |      |
|       | 40 | 540 | 540 | 38100 | 0.5 | 10  | -  | 75  | 75  | -   | NBR | -            | <b>321G4090</b> <sup>2</sup> | -           | <b>483580.01</b> <sup>3</sup> | 0.4 | -  | 2885 | 7 | 76   |

Table continued on page 30

#### Notes:

\* See Electrical Parts Group table at end of section

1. Manual override and 4 position selector for controlled closure rate: see "Anti-waterhammer valves" section
2. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)
3. This reference no. is for the complete electrical part (coil + housing)

# General application valves 2/2 - Pilot operated

Technical drawings of a 2/2 pilot-operated valve. Dimensions are labeled A through H. A 3D perspective view of the valve is shown to the right.

|     | A   | B     | C  | D    | E    | F  | G     | H  |
|-----|-----|-------|----|------|------|----|-------|----|
|     | mm  | mm    | mm | mm   | mm   | mm | inch  | mm |
| G37 | 100 | 121   | 50 | 23   | 54   | 41 | 1     | 70 |
| G36 | 100 | 121   | 50 | 23   | 54   | 41 | 3/4   | 70 |
| G38 | 110 | 137.5 | 55 | 33   | 60.5 | 60 | 1 1/4 | 99 |
| G39 | 140 | 144   | 75 | 33   | 67   | 60 | 1 1/2 | 99 |
| G40 | 150 | 158.5 | 80 | 41.5 | 73   | 75 | 2     | 99 |

Dimension reference 11

Technical drawings of a 2/2 pilot-operated valve with a 2x1mm² pilot port. Dimensions are labeled A through H. A 3D perspective view of the valve is shown to the right.

|       | A   | B     | C  | D    | E  | F  | G     | H  |
|-------|-----|-------|----|------|----|----|-------|----|
|       | mm  | mm    | mm | mm   | mm | mm | inch  | mm |
| G3790 | 100 | 135   | 50 | 23   | 60 | 41 | 1     | 70 |
| G3990 | 140 | 158   | 75 | 33   | 73 | 60 | 1 1/2 | 99 |
| G4090 | 150 | 172.5 | 80 | 41.5 | 79 | 75 | 2     | 99 |

Dimension reference 76

Technical drawings of a 2/2 pilot-operated valve. Dimensions are labeled A through H. A 3D perspective view of the valve is shown to the right.

|       | A   | B   | C  | D  | E    | F  | G     | H  |
|-------|-----|-----|----|----|------|----|-------|----|
|       | mm  | mm  | mm | mm | mm   | mm | inch  | mm |
| G3850 | 140 | 118 | 75 | 33 | 66.5 | 60 | 1 1/2 | 99 |

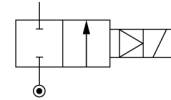
Dimension reference 3850

## General application valves 2/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |        | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|--------|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | Max AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

### Brass body/Pipe mounting

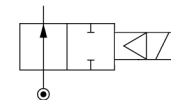
Normally closed



|   |    |     |     |       |     |     |    |     |    |     |     |              |                    |                   |               |    |    |      |   |      |
|---|----|-----|-----|-------|-----|-----|----|-----|----|-----|-----|--------------|--------------------|-------------------|---------------|----|----|------|---|------|
| 2 | 40 | 540 | 540 | 40000 | 0.3 | 8.5 | 16 | 75  | 75 | 75  | NBR | 7321GBG99N3D | <b>E321G40101D</b> | -                 | <b>483250</b> | 8  | 8  | 3865 | 5 | 3851 |
|   | 40 | 540 | 540 | 40000 | 0.3 | 7   | 16 | 100 | 75 | 100 | NBR | 7321GBG99N00 | <b>E321G40</b>     | <sup>1</sup> 2995 | <b>481865</b> | 9  | 8  | 2900 | 2 | 11   |
|   | 40 | 540 | 540 | 40000 | 0.3 | 8.5 | 16 | 100 | 75 | 100 | NBR |              |                    | <b>4270</b>       | <b>481000</b> | 8  | 8  | 3040 | 2 |      |
|   | 40 | 540 | 540 | 40000 | 0.3 | 16  | 16 | 100 | 75 | 100 | NBR |              |                    | <b>4270</b>       | <b>486265</b> | 14 | 14 | 3050 | 2 |      |

### Brass body/Pipe mounting

Normally open



|     |   |    |    |      |     |   |    |    |     |     |     |     |              |                 |                   |               |    |    |     |  |   |
|-----|---|----|----|------|-----|---|----|----|-----|-----|-----|-----|--------------|-----------------|-------------------|---------------|----|----|-----|--|---|
| 1/4 | 8 | 36 | 36 | -    | 0.3 | 3 | 40 | 40 | -   | 100 | 100 | FKM | 7322HBG2SV00 | <b>322H7106</b> | <sup>2</sup> 2995 | <b>481865</b> | 9  | 8  | 820 |  | 9 |
|     | 8 | 36 | 36 | -    | 0.3 | 3 | 40 | 40 | -   | 120 | 120 | FKM |              |                 | <b>4270</b>       | <b>481000</b> | 8  | 8  | 940 |  |   |
|     | 8 | 36 | 36 | -    | 0.3 | 3 | 40 | 40 | -   | 140 | 140 | FKM |              |                 | <b>4270</b>       | <b>486265</b> | 14 | 14 | 950 |  |   |
|     | 8 | 36 | 36 | 1600 | 0.3 | 3 | 25 | 40 | 100 | 75  | 100 | NBR | 7322HBG2SN00 | <b>322H71</b>   | <sup>2</sup> 2995 | <b>481865</b> | 9  | 8  | 840 |  | 9 |
|     | 8 | 36 | 36 | 1600 | 0.3 | 3 | 30 | 40 | 100 | 75  | 100 | NBR |              |                 | <b>4270</b>       | <b>481000</b> | 8  | 8  | 960 |  |   |

Table continued on page 32

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Manual override and 4 position selector for controlled closure rate: see "Anti-waterhammer valves" section
- 2. Pilot seat discs from ruby (synthetic)
- 3. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing

# General application valves 2/2 - Pilot operated

**Dimension reference 9**

|            | A   | B     | C  | D    | E    | F  | G     | H  |
|------------|-----|-------|----|------|------|----|-------|----|
|            | mm  | mm    | mm | mm   | mm   | mm | inch  | mm |
| <b>G37</b> | 100 | 121   | 50 | 23   | 54   | 41 | 1     | 70 |
| <b>G36</b> | 100 | 121   | 50 | 23   | 54   | 41 | 3/4   | 70 |
| <b>G38</b> | 110 | 137.5 | 55 | 33   | 60.5 | 60 | 1 1/4 | 99 |
| <b>G39</b> | 140 | 144   | 75 | 33   | 67   | 60 | 1 1/2 | 99 |
| <b>G40</b> | 150 | 158.5 | 80 | 41.5 | 73   | 75 | 2     | 99 |

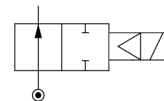
**Dimension reference 11**

**Dimension reference 3851**

## General application valves 2/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |     |    | Fluid temp. °C |     |        | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----|----|----------------|-----|--------|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max | DC | AC             | Gas | Liquid |           | Oil               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |

Normally open



### Brass body/Pipe mounting

|       |      |     |      |       |     |    |     |     |     |     |     |              |              |          |        |        |    |      |     |    |    |
|-------|------|-----|------|-------|-----|----|-----|-----|-----|-----|-----|--------------|--------------|----------|--------|--------|----|------|-----|----|----|
| 1/4   | 12   | 30  | 30   | 2150  | 0.3 | 12 | 12  | 100 | 100 | 100 | FKM | 7322KBG2SVW0 | 322K4106     | 2995     | 481865 | 9      | 8  | 490  |     | 73 |    |
|       | 12   | 30  | 30   | 2150  | 0.3 | 12 | 12  | 120 | 100 | 120 | FKM |              |              | 4270     | 481000 | 8      | 8  | 610  |     |    |    |
| 3/8   | 11   | 50  | 50   | -     | 0.3 | 2  | 40  | 40  | -   | 75  | 100 | FKM          | 7322HBG3TV00 | 322H7306 | 2995   | 481865 | 9  | 8    | 800 |    | 9  |
|       | 11   | 50  | 50   | -     | 0.3 | 2  | 40  | 40  | -   | 75  | 100 | FKM          |              |          | 4270   | 481000 | 8  | 8    | 920 |    |    |
|       | 11   | 50  | 50   | -     | 0.3 | 2  | 40  | 40  | -   | 140 | 140 | FKM          |              | 4270     | 486265 | 14     | 14 | 930  |     |    |    |
|       | 11   | 50  | 50   | 3240  | 0.3 | 2  | 40  | 40  | 100 | 75  | 100 | NBR          | 7322HBG3TN00 | 322H73   | 2995   | 481865 | 9  | 8    | 800 |    | 9  |
|       | 11   | 50  | 50   | 3240  | 0.3 | 2  | 40  | 40  | 100 | 75  | 100 | NBR          |              |          | 4270   | 481000 | 8  | 8    | 920 |    |    |
|       | 12   | 45  | 45   | 3050  | 0.3 | 12 | 12  | 100 | 100 | 100 | 100 | FKM          | 7322KBG3TVW0 | 322K4306 | 2995   | 481865 | 9  | 8    | 490 |    | 73 |
| 12    | 45   | 45  | 3050 | 0.3   | 12  | 12 | 120 | 100 | 120 | 100 | FKM |              | 4270         |          | 481000 | 8      | 8  | 610  |     |    |    |
| 1/2   | 12   | 50  | 50   | 3400  | 0.3 | 12 | 12  | 100 | 100 | 100 | FKM | 7322KBG4TVW0 | 322K4506     | 2995     | 481865 | 9      | 8  | 490  |     | 73 |    |
|       | 12   | 50  | 50   | 3400  | 0.3 | 12 | 12  | 120 | 100 | 120 | FKM |              |              | 4270     | 481000 | 8      | 8  | 610  |     |    |    |
|       | 14.5 | 60  | 60   | -     | 0.3 | 2  | 40  | 40  | -   | 100 | 100 | FKM          | 7322HBG4UV00 | 322H7506 | 2995   | 481865 | 9  | 8    | 760 |    | 9  |
|       | 14.5 | 60  | 60   | -     | 0.3 | 2  | 40  | 40  | -   | 100 | 120 | FKM          |              |          | 4270   | 481000 | 8  | 8    | 880 |    |    |
|       | 14.5 | 60  | 60   | -     | 0.3 | 2  | 40  | 40  | -   | 100 | 140 | FKM          |              | 4270     | 486265 | 14     | 14 | 890  |     |    |    |
|       | 14.5 | 60  | 60   | 3890  | 0.3 | 2  | 40  | 40  | 100 | 75  | 100 | NBR          | 7322HBG4UN00 | 322H75   | 2995   | 481865 | 9  | 8    | 760 |    | 9  |
| 14.5  | 60   | 60  | 3890 | 0.3   | 2   | 40 | 40  | 100 | 75  | 100 | NBR |              | 4270         |          | 481000 | 8      | 8  | 880  |     |    |    |
| 3/4   | 18   | 100 | 100  | 9400  | 0.3 | 12 | 12  | 100 | 100 | 100 | FKM | 7322KBG51VW0 | 322K4606     | 2995     | 481865 | 9      | 8  | 700  |     | 73 |    |
|       | 18   | 100 | 100  | 9400  | 0.3 | 12 | 12  | 120 | 100 | 120 | FKM |              |              | 4270     | 481000 | 8      | 8  | 820  |     |    |    |
|       | 20   | 135 | 135  | 9500  | 0.3 | 16 | 16  | 100 | 100 | 100 | FKM | 7322GBG53V00 | 322G3606     | 2995     | 481865 | 9      | 8  | 1430 |     | 11 |    |
|       | 20   | 135 | 135  | 9500  | 0.3 | 16 | 16  | 120 | 100 | 120 | FKM |              |              | 4270     | 481000 | 8      | 8  | 1550 |     |    |    |
|       | 20   | 135 | 135  | 9500  | 0.3 | 16 | 16  | 100 | 75  | 100 | NBR | 7322GBG53N00 | 322G36       | 2995     | 481865 | 9      | 8  | 1430 |     | 11 |    |
|       | 20   | 135 | 135  | 9500  | 0.3 | 16 | 16  | 100 | 75  | 100 | NBR |              |              | 4270     | 481000 | 8      | 8  | 1550 |     |    |    |
| 1     | 18   | 110 | 110  | 10150 | 0.3 | 12 | 12  | 100 | 100 | 100 | FKM | 7322KBG62VW0 | 322K4706     | 2995     | 481865 | 9      | 8  | 845  |     | 73 |    |
|       | 18   | 110 | 110  | 10150 | 0.3 | 12 | 12  | 120 | 100 | 120 | FKM |              |              | 4270     | 481000 | 8      | 8  | 965  |     |    |    |
|       | 25   | 180 | 180  | 14000 | 0.3 | 16 | 16  | 100 | 100 | 100 | FKM | 7322GBG64V00 | 322G3706     | 2995     | 481865 | 9      | 8  | 1230 |     | 11 |    |
|       | 25   | 180 | 180  | 14000 | 0.3 | 16 | 16  | 120 | 100 | 120 | FKM |              |              | 4270     | 481000 | 8      | 8  | 1350 |     |    |    |
|       | 25   | 180 | 180  | 14000 | 0.3 | 16 | 16  | 100 | 75  | 100 | NBR | 7322GBG64N00 | 322G37       | 2995     | 481865 | 9      | 8  | 1230 |     | 11 |    |
|       | 25   | 180 | 180  | 14000 | 0.3 | 16 | 16  | 100 | 75  | 100 | NBR |              |              | 4270     | 481000 | 8      | 8  | 1350 |     |    |    |
| 1 1/4 | 28   | 270 | 270  | 18000 | 0.3 | 16 | 16  | 100 | 100 | 100 | FKM | 7322GBG76V00 | 322G3806     | 2995     | 481865 | 9      | 8  | 1860 |     | 11 |    |
|       | 28   | 270 | 270  | 18000 | 0.3 | 16 | 16  | 120 | 100 | 120 | FKM |              |              | 4270     | 481000 | 8      | 8  | 1980 |     |    |    |
|       | 28   | 270 | 270  | 18000 | 0.3 | 16 | 16  | 100 | 75  | 100 | NBR | 7322GBG76N00 | 322G38       | 2995     | 481865 | 9      | 8  | 1860 |     | 11 |    |
|       | 28   | 270 | 270  | 18000 | 0.3 | 16 | 16  | 100 | 75  | 100 | NBR |              |              | 4270     | 481000 | 8      | 8  | 1980 |     |    |    |
| 1 1/2 | 40   | 420 | 420  | 31500 | 0.3 | 12 | 12  | 100 | 100 | 100 | FKM | 7322GBG88V00 | 322G3906     | 2995     | 481865 | 9      | 8  | 2560 |     | 11 |    |
|       | 40   | 420 | 420  | 31500 | 0.3 | 12 | 12  | 120 | 100 | 120 | FKM |              |              | 4270     | 481000 | 8      | 8  | 2680 |     |    |    |
|       | 40   | 420 | 420  | 31500 | 0.3 | 12 | 12  | 100 | 75  | 100 | NBR | 7322GBG88N00 | 322G39       | 2995     | 481865 | 9      | 8  | 2560 |     | 11 |    |
|       | 40   | 420 | 420  | 31500 | 0.3 | 12 | 12  | 100 | 75  | 100 | NBR |              |              | 4270     | 481000 | 8      | 8  | 2680 |     |    |    |
| 2     | 40   | 540 | 540  | 40000 | 0.3 | 12 | 12  | 100 | 100 | 100 | FKM | 7322GBG99V00 | 322G4006     | 2995     | 481865 | 9      | 8  | 2900 |     | 11 |    |
|       | 40   | 540 | 540  | 40000 | 0.3 | 12 | 12  | 120 | 100 | 120 | FKM |              |              | 4270     | 481000 | 8      | 8  | 3040 |     |    |    |
|       | 40   | 540 | 540  | 40000 | 0.3 | 12 | 12  | 100 | 75  | 100 | NBR | 7322GBG99N00 | 322G40       | 2995     | 481865 | 9      | 8  | 2900 |     | 11 |    |
|       | 40   | 540 | 540  | 40000 | 0.3 | 12 | 12  | 100 | 75  | 100 | NBR |              |              | 4270     | 481000 | 8      | 8  | 3040 |     |    |    |

Table continued on page 34

#### Notes:

\* See Electrical Parts Group table at end of section

1. Pilot seat discs from ruby (synthetic)
2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing



# General application valves 2/2 - Pilot operated

**Dimension reference 9**

|            | A   | B     | C  | D    | E    | F  | G     | H  |
|------------|-----|-------|----|------|------|----|-------|----|
|            | mm  | mm    | mm | mm   | mm   | mm | inch  | mm |
| <b>G37</b> | 100 | 121   | 50 | 23   | 54   | 41 | 1     | 70 |
| <b>G36</b> | 100 | 121   | 50 | 23   | 54   | 41 | 3/4   | 70 |
| <b>G38</b> | 110 | 137.5 | 55 | 33   | 60.5 | 60 | 1 1/4 | 99 |
| <b>G39</b> | 140 | 144   | 75 | 33   | 67   | 60 | 1 1/2 | 99 |
| <b>G40</b> | 150 | 158.5 | 80 | 41.5 | 73   | 75 | 2     | 99 |

**Dimension reference 11**

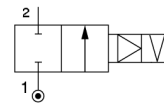
|            | A    | B    | C  | D    | E    | F  | G   | H    | I  | J    | Dia. |
|------------|------|------|----|------|------|----|-----|------|----|------|------|
|            | inch | mm   | mm | mm   | mm   | mm | mm  | mm   | mm | mm   | mm   |
| <b>K41</b> | 1/4  | 25   | 50 | 6.2  | 29   | 27 | 5.5 | 93.5 | 39 | 73.5 | 40   |
| <b>K43</b> | 3/8  | 25   | 50 | 6.2  | 29   | 27 | 5.5 | 93.5 | 39 | 73.5 | 40   |
| <b>K45</b> | 1/2  | 27.5 | 55 | 6.2  | 29   | 27 | 5.5 | 93.5 | 39 | 73.5 | 40   |
| <b>K46</b> | 3/4  | 40   | 80 | 9    | 36.5 | 32 | 8   | 109  | 46 | 81   | 56   |
| <b>K47</b> | 1    | 42.5 | 85 | 14.2 | 36.5 | 41 | 8   | 109  | 56 | 81   | 56   |

**Dimension reference 73**

# General application valves 2/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |     |  | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----|--|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max |  | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

Magnetic latch control

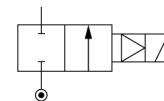


325 K41

## Brass body/Pipe mounting

|     |    |     |     |       |     |    |    |     |     |     |     |              |                 |             |               |    |    |     |   |    |
|-----|----|-----|-----|-------|-----|----|----|-----|-----|-----|-----|--------------|-----------------|-------------|---------------|----|----|-----|---|----|
| 1/4 | 12 | 30  | 30  | 2150  | 0.3 | -  | 12 | 100 | 100 | 100 | FKM | 7325KBG2SVW0 | <b>325K4106</b> | <b>4269</b> | <b>484990</b> | -  | 11 | 630 | 4 | 73 |
|     | 12 | 30  | 30  | 2150  | 0.3 | 12 | -  | 100 | 100 | 100 | FKM |              |                 | <b>4269</b> | <b>485400</b> | 13 | -  | 630 | 4 | 73 |
| 3/8 | 12 | 45  | 45  | 3050  | 0.3 | -  | 12 | 100 | 100 | 100 | FKM | 7325KBG3TVW0 | <b>325K4306</b> | <b>4269</b> | <b>484990</b> | -  | 11 | 630 | 4 | 73 |
|     | 12 | 45  | 45  | 3050  | 0.3 | 12 | -  | 100 | 100 | 100 | FKM |              |                 | <b>4269</b> | <b>485400</b> | 13 | -  | 630 | 4 | 73 |
| 1/2 | 12 | 50  | 50  | 3400  | 0.3 | -  | 12 | 100 | 100 | 100 | FKM | 7325KBG4TVW0 | <b>325K4506</b> | <b>4269</b> | <b>484990</b> | -  | 11 | 630 | 4 | 73 |
|     | 12 | 50  | 50  | 3400  | 0.3 | 12 | -  | 100 | 100 | 100 | FKM |              |                 | <b>4269</b> | <b>485400</b> | 13 | -  | 630 | 4 | 73 |
| 3/4 | 18 | 100 | 100 | 9400  | 0.3 | -  | 12 | 100 | 100 | 100 | FKM | 7325KBG51VW0 | <b>325K4606</b> | <b>4269</b> | <b>484990</b> | -  | 11 | 840 | 4 | 73 |
|     | 18 | 100 | 100 | 9400  | 0.3 | 12 | -  | 100 | 100 | 100 | FKM |              |                 | <b>4269</b> | <b>485400</b> | 13 | -  | 840 | 4 | 73 |
| 1   | 18 | 110 | 110 | 10150 | 0.3 | -  | 12 | 100 | 100 | 100 | FKM | 7325KBG62VW0 | <b>325K4706</b> | <b>4269</b> | <b>484990</b> | -  | 11 | 985 | 4 | 73 |
|     | 18 | 110 | 110 | 10150 | 0.3 | 12 | -  | 100 | 100 | 100 | FKM |              |                 | <b>4269</b> | <b>485400</b> | 13 | -  | 985 | 4 | 73 |

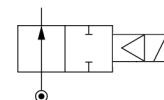
Normally closed



## Brass body/Sub-base mounting

|    |    |    |    |      |     |   |    |    |     |     |     |     |              |                  |             |               |               |    |     |     |   |    |
|----|----|----|----|------|-----|---|----|----|-----|-----|-----|-----|--------------|------------------|-------------|---------------|---------------|----|-----|-----|---|----|
| SB | 14 | 45 | 45 | -    | 0.3 | 2 | 25 | 40 | -   | 100 | 100 | FKM | 7321FBF3TV00 | <b>E321F3202</b> | <b>1</b>    | <b>2995</b>   | <b>481865</b> | 9  | 8   | 650 | 2 | 13 |
|    | 14 | 45 | 45 | -    | 0.3 | 2 | 30 | 40 | -   | 100 | 120 | FKM |              |                  | <b>4270</b> | <b>481000</b> | 8             | 8  | 770 | 2   |   |    |
|    | 14 | 45 | 45 | -    | 0.3 | 2 | 40 | 40 | -   | 100 | 120 | FKM |              |                  | <b>4270</b> | <b>486265</b> | 14            | 14 | 780 | 2   |   |    |
| SB | 14 | 45 | 45 | 2100 | 0.3 | 2 | 25 | 40 | 100 | 75  | 100 | NBR | 7321FBF3TN00 | <b>E321F32</b>   | <b>1</b>    | <b>2995</b>   | <b>481865</b> | 9  | 8   | 650 | 2 | 13 |
|    | 14 | 45 | 45 | 2100 | 0.3 | 2 | 30 | 40 | 100 | 75  | 100 | NBR |              |                  | <b>4270</b> | <b>481000</b> | 8             | 8  | 770 | 2   |   |    |
|    | 14 | 45 | 45 | 2100 | 0.3 | 2 | 40 | 40 | 100 | 75  | 100 | NBR |              |                  | <b>4270</b> | <b>486265</b> | 14            | 14 | 780 | 2   |   |    |

Normally open



## Brass body/Sub-base mounting

|    |    |    |    |      |     |   |    |    |    |     |     |     |              |                 |             |               |               |    |     |     |  |    |
|----|----|----|----|------|-----|---|----|----|----|-----|-----|-----|--------------|-----------------|-------------|---------------|---------------|----|-----|-----|--|----|
| SB | 14 | 45 | 45 | -    | 0.3 | 2 | 40 | 40 | -  | 100 | 100 | FKM | 7322FBF3TV00 | <b>322F7206</b> | <b>1</b>    | <b>2995</b>   | <b>481865</b> | 9  | 8   | 650 |  | 13 |
|    | 14 | 45 | 45 | -    | 0.3 | 2 | 40 | 40 | -  | 100 | 120 | FKM |              |                 | <b>4270</b> | <b>481000</b> | 8             | 8  | 770 |     |  |    |
|    | 14 | 45 | 45 | -    | 0.3 | 2 | 40 | 40 | -  | -   | 140 | FKM |              |                 | <b>4270</b> | <b>486265</b> | 14            | 14 | 780 |     |  |    |
| SB | 14 | 45 | 45 | 2100 | 0.3 | 2 | 40 | 40 | 75 | 75  | 75  | NBR | 7322FBF3TN00 | <b>322F72</b>   | <b>1</b>    | <b>2995</b>   | <b>481865</b> | 9  | 8   | 650 |  | 13 |
|    | 14 | 45 | 45 | 2100 | 0.3 | 2 | 40 | 40 | 75 | 75  | 75  | NBR |              |                 | <b>4270</b> | <b>481000</b> | 8             | 8  | 770 |     |  |    |

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Pilot seat discs from ruby (synthetic)
- 2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing

# General application valves 2/2 - Pilot operated

**Dimension reference 13**

|     | A    | B    | C  | D    | E    | F  | G   | H    | I  | J    | Dia. |
|-----|------|------|----|------|------|----|-----|------|----|------|------|
|     | inch | mm   | mm | mm   | mm   | mm | mm  | mm   | mm | mm   | mm   |
| K41 | 1/4  | 25   | 50 | 6.2  | 29   | 27 | 5.5 | 93.5 | 39 | 73.5 | 40   |
| K43 | 3/8  | 25   | 50 | 6.2  | 29   | 27 | 5.5 | 93.5 | 39 | 73.5 | 40   |
| K45 | 1/2  | 27.5 | 55 | 6.2  | 29   | 27 | 5.5 | 93.5 | 39 | 73.5 | 40   |
| K46 | 3/4  | 40   | 80 | 9    | 36.5 | 32 | 8   | 109  | 46 | 81   | 56   |
| K47 | 1    | 42.5 | 85 | 14.2 | 36.5 | 41 | 8   | 109  | 56 | 81   | 56   |

**Dimension reference 73**

## Electrical parts options with 2/2 general application valves for dry or lubricated air, neutral gases and liquids

| El. part Group | Coil             | Protection class | Protection class / Temperature class | Power |       | Coil      |           | Connection           | Housing | Housing | Ambient temp. |          |
|----------------|------------------|------------------|--------------------------------------|-------|-------|-----------|-----------|----------------------|---------|---------|---------------|----------|
|                |                  |                  |                                      | DC    | AC    | Order No. | Ref. No.  |                      |         |         | Order No.     | Ref. No. |
| 1              | 22 mm            | IP 65            | Class F                              | 2.5 W | 2 W   | DA01      | 488980    | for DIN plug         | A0      | 8993    | -40           | 50       |
|                |                  | IP 65            | Class F                              | 2.5 W | 2 W   | DA02      | 481045    | with DIN plug        | A0      | 8993    | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA03      | 481180    | for DIN plug         | A0      | 8993    | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA04      | 481530    | with DIN plug        | A0      | 8993    | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 5 W   | 4 W   | VA01      | 482605    | with 1500mm cable    | 00      | -       | -40           | 50       |
|                |                  | IP 65            | EEx m II T5                          | 2.5 W | 2 W   | VA02      | 482606    | with 1500mm cable    | 00      | -       | -40           | 50       |
| 2              | 32 mm (Std)      | IP 65            | Class F                              | 9 W   | 8 W   | DZ02      | 481865    | for DIN plug         | N1      | 2995    | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ03      | 482725    | with DIN plug        | N1      | 2995    | -40           | 50       |
|                |                  | IP 65            | Class H                              | 9 W   | 8 W   | DZ04      | 492453    | for DIN plug         | N1      | 2995    | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ05      | 492726    | with DIN plug        | N1      | 2995    | -40           | 50       |
|                |                  | IP 65            | Class F, 50/60 Hz                    | -     | 9 W   | DZ06      | 483510    | for DIN plug         | N1      | 2995    | -40           | 50       |
|                |                  | IP 65            |                                      | -     | 9 W   | DZ07      | 482635    | with DIN plug        | N1      | 2995    | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 9 W   | 8 W   | HZ05      | 492670    | with 3000mm cable    | 00      | -       | -40           | 40       |
|                |                  | IP 65            | Class H                              | 14 W  | 14 W  | DZ08      | 492425    | for DIN plug         | N1      | 2995    | -40           | 50       |
|                | 50 mm (Std)      | IP 65            |                                      | 14 W  | 14 W  | DZ09      | 492727    | with DIN plug        | N1      | 2995    | -40           | 50       |
|                |                  | IP10 / IP 44     | Class F                              | 8 W   | 8 W   | EZ01      | 481000    | screw-terminals      | E0      | 4270    | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 8 W   | 8 W   | EZ02      | 485100    | screw-terminals      | E0      | 4270    | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 14 W  | 14 W  | EZ92      | 486265    | screw-terminals      | E0      | 4270    | -40           | 50       |
|                |                  | IP 67            | Class F, M20x1.5                     | 8 W   | 8 W   | EZ01      | 481000    | screw-terminals      | G1      | 4538    | -40           | 50       |
|                |                  | IP 65            | EEx m II T5/T4                       | 9 W   | 8 W   | VZ01      | 492070    | with 1500mm cable    | 00      | -       | -40           | 40/65    |
|                |                  | IP 67            | EEx me II T4                         | 8 W   | 8 W   | HZ06      | 483371    | for cable connection | 00      | -       | -40           | 65       |
|                |                  | IP 66            | EEx me II T3/T4                      | 11 W  | 9 W   | VZ03      | 492190    | for cable connection | 00      | -       | -40           | 75/40    |
| 3              | 32 mm            | IP 65            | Class H                              | -     | 14 W  | DZ08      | 492425    | for DIN plug         | N1      | 2995    | -40           | 50       |
| 4              | 50 mm (impulse)  | IP10 / IP 44     | Class F                              | -     | 11 W  | MZ01      | 484990    | screw-terminals      | E1      | 4269    | -40           | 50       |
|                |                  | IP10 / IP 44     | Class F                              | 13 W  | -     | MZ02      | 485400    | screw-terminals      | E1      | 4269    | -40           | 50       |
| 5              | 50 mm            | IP 54            | EEx d IIC T4/T5/T6                   | 8 W   | 8 W   | HZ08      | 483250    | for cable 1/2 NPT    | 00      | -       | -40           | 80/75/60 |
| 6              | 32 mm (Miniwatt) | IP 65            | Class F                              | 1.6 W | -     | DZ10      | 482740    | for DIN plug         | N1      | 2995    | -40           | 50       |
|                |                  | IP 65            | Class F                              | 1.6W  | -     | DZ11      | 482745    | with DIN plug        | N1      | 2995    | -40           | 50       |
|                | 50 mm (Miniwatt) | IP 67            | EEx me II T5                         | 2.5 W | -     | VZ04      | 491117    | for cable connection | 00      | -       | -40           | 65       |
|                |                  | IP 67            | EEx m II T5/T4                       | 2.5 W | 2.5 W | VZ05      | 492370    | with 1500mm cable    | 00      | -       | -40           | 40/65    |
|                |                  | IP 66            | EEx me II T6/T5                      | 2.5 W | 2.5 W | VZ06      | 492390    | for cable connection | 00      | -       | -40           | 40/75    |
| 7              | 32 mm            | IP 65            | EEx ia II C T6                       | 0.4 W | -     | DZ12      | 483580.01 | for DIN plug         | N1      | 2995    | -40           | 55       |
|                |                  | IP 65            |                                      | 0.4 W | -     | DZ13      | 483960.01 | with DIN plug        | N1      | 2995    | -40           | 55       |
|                | 50 mm            | IP 66            | EEx ia II C T6                       | 0.4 W | -     | VZ07      | 488650.01 | for cable connection | 00      | -       | -40           | 65       |
|                |                  | IP 67            |                                      | 0.4 W | -     | VZ08      | 488660.01 | with 2000mm cable    | 00      | -       | -40           | 65       |
|                |                  | IP 65            |                                      | 0.4 W | -     | VZ09      | 488670.01 | with DIN plug        | 00      | -       | -40           | 65       |

Note: This table is indicative only. Please contact your distributor to confirm your selection.

# Miniature valves (2-way direct operated)

2/2

| ACTUATION       | BODY MATERIAL            | FUNCTION        | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|-----------------|--------------------------|-----------------|------------|--------------|---------------------|------|
| Direct operated | Brass body               | Normally closed | 1/8        | .8 to 4      | 56.0                | 38   |
|                 |                          | Normally open   | 1/8        | .8 to 2.4    | 21.0                | 40   |
|                 | 303 Stainless steel body | Normally closed | 1/8        | .8 to 4      | 56.0                | 40   |
|                 |                          | Normally open   | 1/8        | .8 to 2.4    | 21.0                | 42   |
|                 | Aluminium alloy body     | Normally closed | SB         | 1.2 to 1.6   | 35.0                | 42   |
|                 |                          | Normally open   | SB         | 1.2 to 2.4   | 14.0                | 42   |

**Notes:**

Direct operated valves: pressure range from 0 to max pressure.

# Miniature valves (2-way direct operated)

# 2/2

## Applications

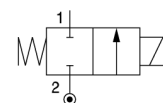
The Miniature Series is a small size and low power consumption valve line. It is available in 2-way (normally closed and normally open) and 3-way (normally closed and normally open) versions. These valves are equipped with integrated molded coils with tab or lead termination.

## Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |           |  | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                 |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----------|--|----------------|--------|-----|-----------|------------------------|-----------------|---------|------|-----------------------|----|---------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC AC |  | Gas            | Liquid | Oil |           | Global valve reference | Valve reference | Housing | Coil | DC                    | AC |         |          |

## Brass body/Pipe mounting

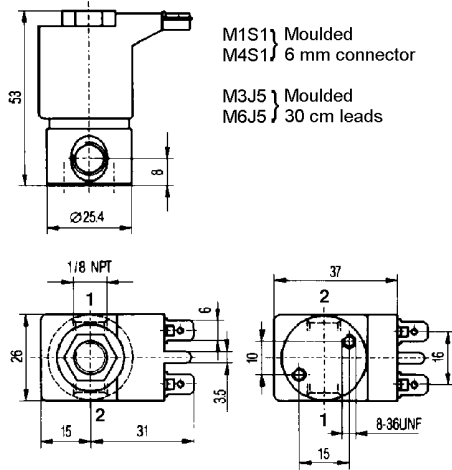
Normally closed



|     |      |      |   |   |      |       |       |    |    |     |              |              |    |      |      |     |     |     |     |
|-----|------|------|---|---|------|-------|-------|----|----|-----|--------------|--------------|----|------|------|-----|-----|-----|-----|
| 1/8 | 0.8  | 0.43 | - | - | 0    | 56    | 56    | 50 | 50 | 50  | FKM          | 3121BBN1AV00 | -  | NO   | M1S1 | 4.5 | 4.5 | -   | 100 |
|     | 0.8  | 0.43 | - | - | 0    | 56    | 56    | 50 | 50 | 50  | FKM          |              |    | NO   | M3J5 | 4.5 | 4.5 | -   |     |
|     | 0.8  | 0.43 | - | - | 0    | 54    | 54    | 50 | 50 | 50  | FKM          | 3921BBN1AV00 | -  | NO   | M4S1 | 2.5 | 2.5 | -   | 100 |
|     | 0.8  | 0.43 | - | - | 0    | 54    | 54    | 50 | 50 | 50  | FKM          |              |    | NO   | M6J5 | 2.5 | 2.5 | -   |     |
|     | 1.2  | 0.72 | - | - | 0    | 35    | 35    | 50 | 50 | 50  | FKM          | 3121BBN1EV00 | -  | NO   | M1S1 | 4.5 | 4.5 | -   | 100 |
|     | 1.2  | 0.72 | - | - | 0    | 35    | 35    | 50 | 50 | 50  | FKM          |              |    | NO   | M3J5 | 4.5 | 4.5 | -   |     |
|     | 1.2  | 0.72 | - | - | 0    | 21    | 21    | 50 | 50 | 50  | FKM          | 3921BBN1EV00 | -  | NO   | M4S1 | 2.5 | 2.5 | -   | 100 |
|     | 1.2  | 0.72 | - | - | 0    | 21    | 21    | 50 | 50 | 50  | FKM          |              |    | NO   | M6J5 | 2.5 | 2.5 | -   |     |
|     | 1.6  | 1.29 | - | - | 0    | 21    | 21    | 50 | 50 | 50  | FKM          | 3121BBN1GV00 | -  | NO   | M1S1 | 4.5 | 4.5 | -   | 100 |
|     | 1.6  | 1.29 | - | - | 0    | 21    | 21    | 50 | 50 | 50  | FKM          |              |    | NO   | M3J5 | 4.5 | 4.5 | -   |     |
|     | 1.6  | 1.29 | - | - | 0    | 6.6   | 6.6   | 50 | 50 | 50  | FKM          | 3921BBN1GV00 | -  | NO   | M4S1 | 2.5 | 2.5 | -   | 100 |
|     | 1.6  | 1.29 | - | - | 0    | 6.6   | 6.6   | 50 | 50 | 50  | FKM          |              |    | NO   | M6J5 | 2.5 | 2.5 | -   |     |
|     | 2    | 1.86 | - | - | 0    | 14    | 14    | 50 | 50 | 50  | FKM          | 3121BBN1JV00 | -  | NO   | M1S1 | 4.5 | 4.5 | -   | 100 |
|     | 2    | 1.86 | - | - | 0    | 14    | 14    | 50 | 50 | 50  | FKM          |              |    | NO   | M3J5 | 4.5 | 4.5 | -   |     |
|     | 2    | 1.86 | - | - | 0    | 4.5   | 4.5   | 50 | 50 | 50  | FKM          | 3921BBN1JV00 | -  | NO   | M4S1 | 2.5 | 2.5 | -   | 100 |
|     | 2    | 1.86 | - | - | 0    | 4.5   | 4.5   | 50 | 50 | 50  | FKM          |              |    | NO   | M6J5 | 2.5 | 2.5 | -   |     |
|     | 2.4  | 2.57 | - | - | 0    | 12.25 | 12.25 | 50 | 50 | 50  | FKM          | 3121BBN1LV00 | -  | NO   | M1S1 | 4.5 | 4.5 | -   | 100 |
|     | 2.4  | 2.57 | - | - | 0    | 12.25 | 12.25 | 50 | 50 | 50  | FKM          |              |    | NO   | M3J5 | 4.5 | 4.5 | -   |     |
|     | 2.4  | 2.57 | - | - | 0    | 2.8   | 2.8   | 50 | 50 | 50  | FKM          | 3921BBN1LV00 | -  | NO   | M4S1 | 2.5 | 2.5 | -   | 100 |
|     | 2.4  | 2.57 | - | - | 0    | 2.8   | 2.8   | 50 | 50 | 50  | FKM          |              |    | NO   | M6J5 | 2.5 | 2.5 | -   |     |
| 3.2 | 3.43 | -    | - | 0 | 7    | 7     | 50    | 50 | 50 | FKM | 3121BBN1NV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
| 3.2 | 3.43 | -    | - | 0 | 7    | 7     | 50    | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |
| 3.2 | 3.43 | -    | - | 0 | 0.28 | 0.28  | 50    | 50 | 50 | FKM | 3921BBN1NV00 | -            | NO | M4S1 | 2.5  | 2.5 | -   | 100 |     |
| 3.2 | 3.43 | -    | - | 0 | 0.28 | 0.28  | 50    | 50 | 50 | FKM |              |              | NO | M6J5 | 2.5  | 2.5 | -   |     |     |
| 4   | 4.3  | -    | - | 0 | 3.5  | 3.5   | 50    | 50 | 50 | FKM | 3121BBN1QV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
| 4   | 4.3  | -    | - | 0 | 3.5  | 3.5   | 50    | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |

Table continued on page 40

# Miniature valves 2/2 - Direct operated



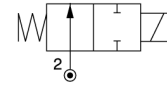
Dimension reference 100

## Miniature valves 2/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |           |  | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                 |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----------|--|----------------|--------|-----|-----------|------------------------|-----------------|---------|------|-----------------------|----|---------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC AC |  | Gas            | Liquid | Oil |           | Global valve reference | Valve reference | Housing | Coil | DC                    | AC |         |          |

### Brass body/Pipe mounting

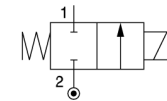
Normally open



|     |     |      |   |   |   |      |      |    |    |    |     |              |   |    |      |     |     |   |     |
|-----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|---|----|------|-----|-----|---|-----|
| 1/8 | 0.8 | 0.43 | - | - | 0 | 21   | 21   | 50 | 50 | 50 | FKM | 3129BBN1AV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 0.8 | 0.43 | - | - | 0 | 21   | 21   | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.2 | 0.72 | - | - | 0 | 14   | 14   | 50 | 50 | 50 | FKM | 3129BBN1EV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.2 | 0.72 | - | - | 0 | 14   | 14   | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.6 | 1.29 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM | 3129BBN1GV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.6 | 1.29 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM | 3129BBN1JV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2.4 | 2.57 | - | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM | 3129BBN1LV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2.4 | 2.57 | - | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |

### 303 Stainless steel body/Pipe mounting

Normally closed

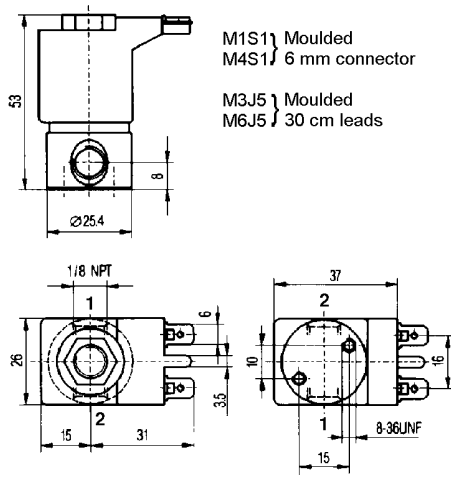


|     |     |      |   |   |   |       |       |    |    |    |     |              |   |    |      |     |     |   |     |
|-----|-----|------|---|---|---|-------|-------|----|----|----|-----|--------------|---|----|------|-----|-----|---|-----|
| 1/8 | 0.8 | 0.43 | - | - | 0 | 56    | 56    | 50 | 50 | 50 | FKM | 3121BSN1AV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 0.8 | 0.43 | - | - | 0 | 56    | 56    | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 0.8 | 0.43 | - | - | 0 | 54    | 54    | 50 | 50 | 50 | FKM | 3921BSN1AV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 0.8 | 0.43 | - | - | 0 | 54    | 54    | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 1.2 | 0.72 | - | - | 0 | 35    | 35    | 50 | 50 | 50 | FKM | 3121BSN1EV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.2 | 0.72 | - | - | 0 | 35    | 35    | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.2 | 0.72 | - | - | 0 | 21    | 21    | 50 | 50 | 50 | FKM | 3921BSN1EV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 1.2 | 0.72 | - | - | 0 | 21    | 21    | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 1.6 | 1.29 | - | - | 0 | 21    | 21    | 50 | 50 | 50 | FKM | 3121BSN1GV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.6 | 1.29 | - | - | 0 | 21    | 21    | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.6 | 1.29 | - | - | 0 | 6.6   | 6.6   | 50 | 50 | 50 | FKM | 3921BSN1GV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 1.6 | 1.29 | - | - | 0 | 6.6   | 6.6   | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 14    | 14    | 50 | 50 | 50 | FKM | 3121BSN1JV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 14    | 14    | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 4.5   | 4.5   | 50 | 50 | 50 | FKM | 3921BSN1JV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 4.5   | 4.5   | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 2.4 | 2.57 | - | - | 0 | 12.25 | 12.25 | 50 | 50 | 50 | FKM | 3121BSN1LV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2.4 | 2.57 | - | - | 0 | 12.25 | 12.25 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2.4 | 2.57 | - | - | 0 | 2.8   | 2.8   | 50 | 50 | 50 | FKM | 3921BSN1LV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 2.4 | 2.57 | - | - | 0 | 2.8   | 2.8   | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 3.2 | 3.43 | - | - | 0 | 7     | 7     | 50 | 50 | 50 | FKM | 3121BSN1NV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 3.2 | 3.43 | - | - | 0 | 7     | 7     | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 3.2 | 3.43 | - | - | 0 | 0.28  | 0.28  | 50 | 50 | 50 | FKM | 3921BSN1NV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 3.2 | 3.43 | - | - | 0 | 0.28  | 0.28  | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 4   | 4.3  | - | - | 0 | 3.5   | 3.5   | 50 | 50 | 50 | FKM | 3121BSN1QV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 4   | 4.3  | - | - | 0 | 3.5   | 3.5   | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |

Table continued on page 42



## Miniature valves 2/2 - Direct operated



M1S1 Moulded  
M4S1 6 mm connector

M3J5 Moulded  
M6J5 30 cm leads



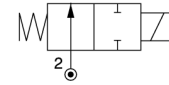
Dimension reference 100

## Miniature valves 2/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |       | Admissible differential pressure bar |     |    | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                 |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|-------|--------------------------------------|-----|----|----------------|--------|-----|-----------|------------------------|-----------------|---------|------|-----------------------|----|---------|----------|
|           |              | Liquids              |      | Gases | Min                                  | Max |    | Gas            | Liquid | Oil |           | Global valve reference | Valve reference | Housing | Coil | DC                    | AC |         |          |
| G         |              | kv                   | Qmax | Qn    |                                      | DC  | AC |                |        |     |           |                        |                 |         |      |                       |    |         |          |

### 303 Stainless steel body/Pipe mounting

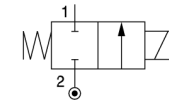
Normally open



|     |     |      |   |   |   |      |      |    |    |    |     |              |   |    |      |     |     |   |     |
|-----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|---|----|------|-----|-----|---|-----|
| 1/8 | 0.8 | 0.43 | - | - | 0 | 21   | 21   | 50 | 50 | 50 | FKM | 3129BSN1AV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 0.8 | 0.43 | - | - | 0 | 21   | 21   | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.2 | 0.72 | - | - | 0 | 14   | 14   | 50 | 50 | 50 | FKM | 3129BSN1EV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.2 | 0.72 | - | - | 0 | 14   | 14   | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.6 | 1.29 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM | 3129BSN1GV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.6 | 1.29 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM | 3129BSN1JV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2.4 | 2.57 | - | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM | 3129BSN1LV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2.4 | 2.57 | - | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |

### Aluminium alloy body/Sub-base mounting

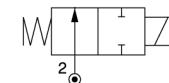
Normally closed



|    |     |      |   |   |   |     |     |    |    |    |     |              |     |    |      |     |     |   |     |
|----|-----|------|---|---|---|-----|-----|----|----|----|-----|--------------|-----|----|------|-----|-----|---|-----|
| SB | 1.2 | 0.72 | - | - | 0 | 35  | 35  | 50 | 50 | 50 | FKM | 3121BJA7EVC# | - 1 | NO | M1S1 | 4.5 | 4.5 | - | 101 |
|    | 1.2 | 0.72 | - | - | 0 | 35  | 35  | 50 | 50 | 50 | FKM |              | 1   | NO | M3J5 | 4.5 | 4.5 | - |     |
|    | 1.2 | 0.72 | - | - | 0 | 21  | 21  | 50 | 50 | 50 | FKM | 3921BJA7EVC# | - 1 | NO | M4S1 | 2.5 | 2.5 | - | 101 |
|    | 1.2 | 0.72 | - | - | 0 | 21  | 21  | 50 | 50 | 50 | FKM |              | 1   | NO | M6J5 | 2.5 | 2.5 | - |     |
|    | 1.6 | 1.29 | - | - | 0 | 21  | 21  | 50 | 50 | 50 | FKM | 3121BJA7GVC# | - 1 | NO | M1S1 | 4.5 | 4.5 | - | 101 |
|    | 1.6 | 1.29 | - | - | 0 | 21  | 21  | 50 | 50 | 50 | FKM |              | 1   | NO | M3J5 | 4.5 | 4.5 | - |     |
|    | 1.6 | 1.29 | - | - | 0 | 6.6 | 6.6 | 50 | 50 | 50 | FKM | 3921BJA7GVC# | - 1 | NO | M4S1 | 2.5 | 2.5 | - | 101 |
|    | 1.6 | 1.29 | - | - | 0 | 6.6 | 6.6 | 50 | 50 | 50 | FKM |              | 1   | NO | M6J5 | 2.5 | 2.5 | - |     |

### Aluminium alloy body/Sub-base mounting

Normally open

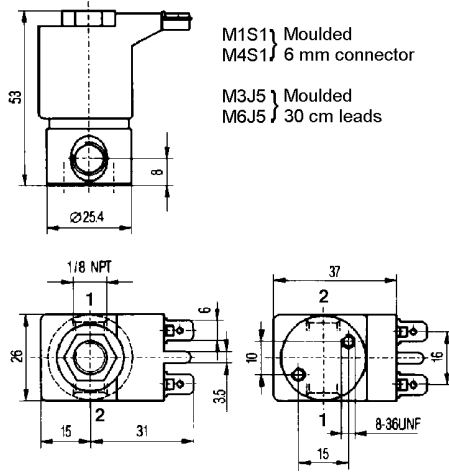


|    |     |      |   |   |   |      |      |    |    |    |     |              |     |    |      |     |     |   |     |
|----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|-----|----|------|-----|-----|---|-----|
| SB | 1.2 | 0.72 | - | - | 0 | 14   | 14   | 50 | 50 | 50 | FKM | 3129BJA7EVC# | - 1 | NO | M1S1 | 4.5 | 4.5 | - | 101 |
|    | 1.2 | 0.72 | - | - | 0 | 14   | 14   | 50 | 50 | 50 | FKM |              | 1   | NO | M3J5 | 4.5 | 4.5 | - |     |
|    | 1.6 | 1.29 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM | 3129BJA7GVC# | - 1 | NO | M1S1 | 4.5 | 4.5 | - | 101 |
|    | 1.6 | 1.29 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM |              | 1   | NO | M3J5 | 4.5 | 4.5 | - |     |
|    | 2.4 | 1.29 | - | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM | 3129BJA7LVC# | - 1 | NO | M1S1 | 4.5 | 4.5 | - | 101 |
|    | 2.4 | 1.29 | - | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM |              | 1   | NO | M3J5 | 4.5 | 4.5 | - |     |

#### Notes:

1. # Denotes the number of valves in the manifold, from 2 to 4

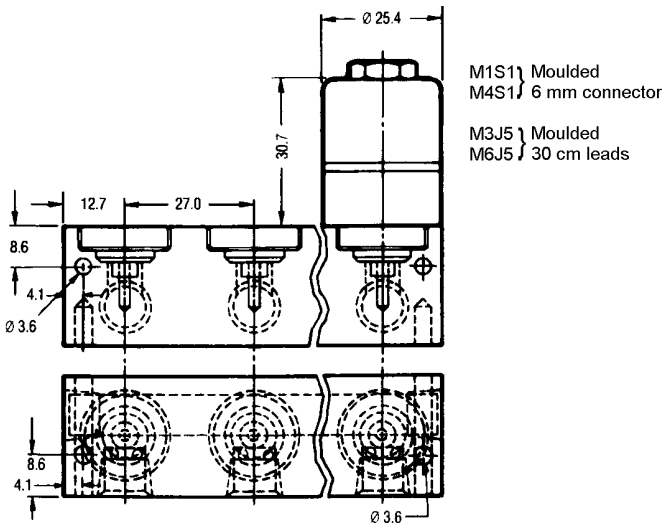
# Miniature valves 2/2 - Direct operated



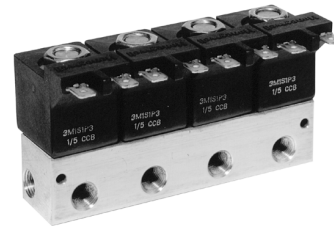
M1S1 } Moulded  
 M4S1 } 6 mm connector  
  
 M3J5 } Moulded  
 M6J5 } 30 cm leads



Dimension reference 100



M1S1 } Moulded  
 M4S1 } 6 mm connector  
  
 M3J5 } Moulded  
 M6J5 } 30 cm leads



Dimension reference 101



# Valves for water and neutral liquids

2/2

| ACTUATION       | BODY MATERIAL            | FUNCTION               | CONNECTION    | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|-----------------|--------------------------|------------------------|---------------|--------------|---------------------|------|
| Direct operated | Brass body               | Normally closed        | 1/8           | 1.5 to 3     | 20.0                | 46   |
|                 |                          |                        | 1/4           | 1.5 to 5     | 20.0                | 46   |
|                 |                          |                        | 3/8           | 4 to 6       | 10.0                | 48   |
|                 |                          |                        | 1/2           | 8.5 to 11    | 4.0                 | 48   |
|                 |                          |                        | SB            | 1.5 to 3     | 20.0                | 50   |
|                 |                          | Normally open          | 1/4           | 1.5 to 2.5   | 20.0                | 48   |
|                 |                          | Magnetic latch control | 1/4           | 5            | 5.0                 | 50   |
| Magnalift       | Brass body               | Normally closed        | 3/8           | 15           | 16.0                | 52   |
|                 |                          |                        | 1/2           | 15           | 16.0                | 52   |
|                 |                          |                        | 3/4           | 15           | 16.0                | 52   |
|                 |                          |                        | 1             | 15 to 25     | 16.0                | 52   |
|                 |                          | Normally open          | 3/8           | 15           | 8.5                 | 54   |
|                 |                          |                        | 1/2           | 15           | 8.5                 | 54   |
|                 |                          |                        | 3/4           | 19           | 8.5                 | 54   |
|                 |                          |                        |               |              |                     |      |
|                 | 303 Stainless steel body | Normally closed        | 3/8           | 15           | 7.0                 | 54   |
|                 |                          |                        | 1/2           | 15           | 7.0                 | 54   |
|                 |                          | Normally open          | 3/4           | 19           | 7.0                 | 54   |
|                 |                          |                        |               |              |                     |      |
| Pilot operated  | Brass body               | Normally closed        | 1/4           | 12           | 10.0                | 56   |
|                 |                          |                        | 3/8           | 12 to 13     | 20.0                | 56   |
|                 |                          |                        | 1/2           | 12 to 13     | 20.0                | 56   |
|                 |                          |                        | 3/4           | 18 to 20     | 20.0                | 56   |
|                 |                          |                        | 1             | 18 to 25     | 20.0                | 56   |
|                 |                          |                        | 1 1/4         | 28 to 35     | 16.0                | 58   |
|                 |                          |                        | 1 1/2         | 40           | 16.0                | 58   |
|                 |                          |                        | 2             | 40 to 50     | 16.0                | 58   |
|                 |                          |                        | 2 1/2         | 65           | 10.0                | 58   |
|                 |                          |                        | 3             | 75           | 10.0                | 58   |
|                 |                          |                        | SB            | 14           | 40.0                | 60   |
|                 |                          |                        | Normally open | 3/8          | 13                  | 20.0 |
|                 |                          | 1/2                    |               | 13           | 20.0                | 58   |
|                 |                          | 3/4                    |               | 20           | 20.0                | 58   |
|                 |                          | 1                      |               | 25           | 20.0                | 60   |
|                 |                          | 1 1/4                  |               | 28 to 35     | 16.0                | 60   |
|                 |                          | 1 1/2                  |               | 40           | 12.0                | 60   |
|                 |                          | 2                      |               | 40 to 50     | 12.0                | 60   |
|                 |                          | SB                     |               | 14           | 40.0                | 60   |

**Notes:**

Direct operated and magnalift valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

# Valves for water and neutral liquids

# 2/2

## Applications

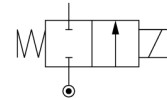
Wide range of valves suited to most industrial applications using liquids compatible with the indicated sealing materials. Typical applications can be found in general water supply, dispensing, industrial washing, laundry, heating-ventilation etc.



## Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |    | Fluid temp. °C | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|----|----------------|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max | DC |                |           | AC                | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |

Normally closed



## Brass body/Pipe mounting

|     |     |     |     |     |     |     |     |     |              |           |        |        |        |     |     |     |      |      |   |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-----------|--------|--------|--------|-----|-----|-----|------|------|---|
| 1/8 | 1.5 | 1.5 | 6   | 0   | 20  | 20  | 75  | FKM | 7121ZBG1GV00 | -         | 2995   | 481865 | 9      | 8   | 270 | 2   | 7893 |      |   |
|     | 1.5 | 1.5 | 6   | 0   | 20  | 20  | 75  | FKM |              |           | 4270   | 481000 | 8      | 8   | 390 | 2   |      |      |   |
|     | 1.5 | 1.5 | 6   | 0   | 20  | 20  | 75  | FKM |              |           | 2995   | 482730 | 7      | 6   | 270 | 2   |      |      |   |
|     | 1.5 | 0.9 | 2.4 | 0   | 12  | 20  | 75  | FKM | -            | 121M14    | 8993   | 481180 | 5      | 4   | 150 | 1   |      | 1    |   |
|     | 1.5 | 0.9 | 2.4 | 0   | 4   | 20  | 75  | FKM |              |           | 8993   | 488980 | 2.5    | 2   | 150 | 1   |      |      |   |
|     | 2   | 2   | 8   | 0   | 7   | 10  | 75  | FKM | -            | 121M13    | 8993   | 481180 | 5      | 4   | 150 | 1   |      | 1    |   |
|     | 2   | 2   | 8   | 0   | 2.5 | 10  | 75  | FKM |              |           | 8993   | 488980 | 2.5    | 2   | 150 | 1   |      |      |   |
|     | 2.5 | 2.8 | 8.5 | 0   | 10  | 10  | 75  | FKM | 7121ZBG1LV00 | -         | 2995   | 481865 | 9      | 8   | 270 | 2   |      | 7893 |   |
|     | 2.5 | 2.8 | 8.5 | 0   | 10  | 10  | 75  | FKM |              |           | 4270   | 481000 | 8      | 8   | 390 | 2   |      |      |   |
|     | 2.5 | 2.8 | 8.5 | 0   | 5   | 10  | 75  | FKM |              |           | 2995   | 482730 | 7      | 6   | 270 | 2   |      |      |   |
|     | 3   | 4.5 | 9   | 0   | 7   | 10  | 100 | FKM | 7121KBG1NVM0 | 121K1352  | 1      | 2995   | 481865 | 9   | 8   | 300 |      | 2    | 3 |
|     | 3   | 4.5 | 9   | 0   | 8   | 10  | 120 | FKM |              |           | 4270   | 481000 | 8      | 8   | 420 | 2   |      |      |   |
| 3   | 4.5 | 9   | 0   | 10  | 10  | 120 | FKM |     |              | 4270      | 486265 | 14     | 14     | 430 |     |     |      |      |   |
| 1/4 | 1.5 | 1.5 | 6   | 0   | 20  | 20  | 100 | FKM | 7121KBG2GV00 | E121K0402 | 2995   | 481865 | 9      | 8   | 290 | 2   | 3    |      |   |
|     | 1.5 | 1.5 | 6   | 0   | 20  | 20  | 120 | FKM |              |           | 4270   | 481000 | 8      | 8   | 410 | 2   |      |      |   |
|     | 2.5 | 3.5 | 8.5 | 0   | 7   | 14  | 100 | FKM | 7121KBG2LV00 | 121K0706  | 2995   | 481865 | 9      | 8   | 290 | 2   | 3    |      |   |
|     | 2.5 | 3.5 | 8.5 | 0   | 9   | 14  | 120 | FKM |              |           | 4270   | 481000 | 8      | 8   | 410 | 2   |      |      |   |
|     | 2.5 | 3.5 | 8.5 | 0   | 14  | 14  | 120 | FKM |              |           | 4270   | 486265 | 14     | 14  | 420 |     |      |      |   |
|     | 2.5 | 3.5 | 8.5 | 0   | 7   | 14  | 100 | FKM | 7121KBG2LVM0 | 121K0756  | 1      | 2995   | 481865 | 9   | 8   | 290 | 2    | 3    |   |
|     | 2.5 | 3.5 | 8.5 | 0   | 9   | 14  | 120 | FKM |              |           | 4270   | 481000 | 8      | 8   | 410 | 2   |      |      |   |
|     | 2.5 | 3.5 | 8.5 | 0   | 14  | 14  | 120 | FKM |              |           | 4270   | 486265 | 14     | 14  | 420 |     |      |      |   |
|     | 3   | 4.5 | 9   | 0   | 7   | 10  | 100 | FKM | 7121KBG2NV00 | E121K0302 | 2995   | 481865 | 9      | 8   | 290 | 2   | 3    |      |   |
|     | 3   | 4.5 | 9   | 0   | 8.5 | 10  | 120 | FKM |              |           | 4270   | 481000 | 8      | 8   | 410 | 2   |      |      |   |
|     | 3   | 4.5 | 9   | 0   | 10  | 10  | 120 | FKM |              |           | 4270   | 486265 | 14     | 14  | 420 |     |      |      |   |
|     | 3   | 4.5 | 9   | 0   | 7   | 10  | 100 | FKM | 7121KBG2NVM0 | E121K0352 | 1      | 2995   | 481865 | 9   | 8   | 290 | 2    | 3    |   |
| 3   | 4.5 | 9   | 0   | 8.5 | 10  | 120 | FKM |     |              | 4270      | 481000 | 8      | 8      | 410 | 2   |     |      |      |   |
| 3   | 4.5 | 9   | 0   | 10  | 10  | 120 | FKM |     |              | 4270      | 486265 | 14     | 14     | 420 |     |     |      |      |   |

Table continued on page 48

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Manual override standard

# Valves for water and neutral liquids 2/2 - Direct operated

**Dimension reference 1**

**Dimension reference 3**

Values in brackets for G 3/8 valves  
Valeurs entre parenthèse pour valves G 3/8  
Angaben in Klammern für G 3/8 Ventile

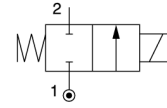
**Dimension reference 7893**

# Valves for water and neutral liquids 2/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

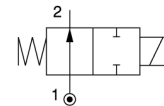
## Brass body/Pipe mounting

Normally closed



|     |     |     |      |      |      |      |     |     |              |                              |                 |                              |               |               |     |     |     |   |   |
|-----|-----|-----|------|------|------|------|-----|-----|--------------|------------------------------|-----------------|------------------------------|---------------|---------------|-----|-----|-----|---|---|
| 1/4 | 4   | 7.5 | 10.5 | 0    | 4    | 10   | 100 | FKM | 7121KBG2QVM0 | <b>121K0250</b> <sup>1</sup> | <b>2995</b>     | <b>481865</b>                | 9             | 8             | 290 | 2   | 3   |   |   |
|     | 4   | 7.5 | 10.5 | 0    | 5    | 10   | 120 | FKM |              |                              | <b>4270</b>     | <b>481000</b>                | 8             | 8             | 410 | 2   |     |   |   |
|     | 4   | 7.5 | 10.5 | 0    | 10   | 10   | 120 | FKM |              |                              | <b>4270</b>     | <b>486265</b>                | 14            | 14            | 420 |     |     |   |   |
|     | 1/4 | 4   | 7.5  | 10.5 | 0    | 4    | 10  | 100 | FKM          | 7121KBG2QV00                 | <b>121K02</b>   | <b>2995</b>                  | <b>481865</b> | 9             | 8   | 290 | 2   | 3 |   |
|     |     | 4   | 7.5  | 10.5 | 0    | 5    | 10  | 120 | FKM          |                              |                 | <b>4270</b>                  | <b>481000</b> | 8             | 8   | 410 | 2   |   |   |
|     |     | 4   | 7.5  | 10.5 | 0    | 10   | 10  | 120 | FKM          |                              |                 | <b>4270</b>                  | <b>486265</b> | 14            | 14  | 420 |     |   |   |
|     |     | 1/4 | 5    | 11   | 11.5 | 0    | 2   | 7   | 100          | FKM                          | 7121KBG2SVM0    | <b>121K0150</b> <sup>1</sup> | <b>2995</b>   | <b>481865</b> | 9   | 8   | 290 | 2 | 3 |
|     |     |     | 5    | 11   | 11.5 | 0    | 2.8 | 7   | 120          | FKM                          |                 |                              | <b>4270</b>   | <b>481000</b> | 8   | 8   | 410 | 2 |   |
|     |     |     | 5    | 11   | 11.5 | 0    | 5   | 7   | 120          | FKM                          |                 |                              | <b>4270</b>   | <b>486265</b> | 14  | 14  | 420 |   |   |
|     | 1/4 |     | 5    | 11   | 11.5 | 0    | 2   | 7   | 100          | FKM                          | 7121KBG2SV00    | <b>121K01</b>                | <b>2995</b>   | <b>481865</b> | 9   | 8   | 290 | 2 | 3 |
|     |     |     | 5    | 11   | 11.5 | 0    | 2.8 | 7   | 120          | FKM                          |                 |                              | <b>4270</b>   | <b>481000</b> | 8   | 8   | 410 | 2 |   |
|     |     |     | 5    | 11   | 11.5 | 0    | 5   | 7   | 120          | FKM                          |                 |                              | <b>4270</b>   | <b>486265</b> | 14  | 14  | 420 |   |   |
| 3/8 | 4   | 7.5 | 10.5 | 0    | 4    | 10   | 100 | FKM | 7121KBG3QV00 | <b>121K3206</b>              | <b>2995</b>     | <b>481865</b>                | 9             | 8             | 340 | 2   | 3   |   |   |
|     | 4   | 7.5 | 10.5 | 0    | 5    | 10   | 120 | FKM |              |                              | <b>4270</b>     | <b>481000</b>                | 8             | 8             | 460 | 2   |     |   |   |
|     | 4   | 7.5 | 10.5 | 0    | 10   | 10   | 120 | FKM |              |                              | <b>4270</b>     | <b>486265</b>                | 14            | 14            | 470 |     |     |   |   |
|     | 3/8 | 5   | 11   | 11.5 | 0    | 2    | 7   | 100 | FKM          | 7121KBG3SV00                 | <b>121K3106</b> | <b>2995</b>                  | <b>481865</b> | 9             | 8   | 340 | 2   | 3 |   |
|     |     | 5   | 11   | 11.5 | 0    | 2.8  | 7   | 120 | FKM          |                              |                 | <b>4270</b>                  | <b>481000</b> | 8             | 8   | 460 | 2   |   |   |
|     |     | 5   | 11   | 11.5 | 0    | 5    | 7   | 120 | FKM          |                              |                 | <b>4270</b>                  | <b>486265</b> | 14            | 14  | 470 |     |   |   |
|     | 3/8 | 6   | 12   | 12.5 | 0    | 1.1  | 5   | 100 | FKM          | 7121KBG3UV00                 | <b>121K3306</b> | <b>2995</b>                  | <b>481865</b> | 9             | 8   | 340 | 2   | 3 |   |
|     |     | 6   | 12   | 12.5 | 0    | 1.5  | 5   | 120 | FKM          |                              |                 | <b>4270</b>                  | <b>481000</b> | 8             | 8   | 460 | 2   |   |   |
|     |     | 6   | 12   | 12.5 | 0    | 3    | 5   | 120 | FKM          |                              |                 | <b>4270</b>                  | <b>486265</b> | 14            | 14  | 470 | 2   |   |   |
| 1/2 | 8.5 | 25  | 15   | 0    | 0.5  | 1.1  | 100 | FKM | 7121KBG42V00 | <b>E121K46</b>               | <b>2995</b>     | <b>481865</b>                | 9             | 8             | 430 | 2   | 7   |   |   |
|     | 8.5 | 25  | 15   | 0    | 0.5  | 2.2  | 120 | FKM |              |                              | <b>4270</b>     | <b>481000</b>                | 8             | 8             | 550 | 2   |     |   |   |
|     | 8.5 | 25  | 15   | 0    | 1.2  | 4    | 120 | FKM |              |                              | <b>4270</b>     | <b>486265</b>                | 14            | 14            | 560 |     |     |   |   |
|     | 1/2 | 11  | 36   | 20   | 0    | 0.3  | 0.7 | 100 | FKM          | 7121KBG44V00                 | <b>E121K45</b>  | <b>2995</b>                  | <b>481865</b> | 9             | 8   | 430 | 2   | 7 |   |
|     |     | 11  | 36   | 20   | 0    | 0.35 | 1.2 | 120 | FKM          |                              |                 | <b>4270</b>                  | <b>481000</b> | 8             | 8   | 550 | 2   |   |   |
|     |     | 11  | 36   | 20   | 0    | 0.7  | 2.5 | 120 | FKM          |                              |                 | <b>4270</b>                  | <b>486265</b> | 14            | 14  | 560 |     |   |   |

Normally open



## Brass body/Pipe mounting

|     |     |     |     |   |    |    |     |     |              |                 |             |               |   |   |     |   |   |
|-----|-----|-----|-----|---|----|----|-----|-----|--------------|-----------------|-------------|---------------|---|---|-----|---|---|
| 1/4 | 1.5 | 1.5 | 6   | 0 | 20 | 20 | 100 | FKM | 7122KBG2GV00 | <b>122K8406</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 290 | 2 | 3 |
|     | 1.5 | 1.5 | 6   | 0 | 20 | 20 | 120 | FKM |              |                 | <b>4270</b> | <b>481000</b> | 8 | 8 | 410 | 2 |   |
|     | 2.5 | 3   | 3.5 | 0 | 12 | 12 | 100 | FKM | 7122KBG2LV00 | <b>122K8306</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 290 | 2 | 3 |
|     | 2.5 | 3   | 3.5 | 0 | 12 | 12 | 120 | FKM |              |                 | <b>4270</b> | <b>481000</b> | 8 | 8 | 410 | 2 |   |

Table continued on page 50

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Manual override standard



# Valves for water and neutral liquids 2/2 - Direct operated

**DIN 43650 A**

M5x5 mm

Values in brackets for G 3/8 valves  
 Valeurs entre parenthèse pour valves G 3/8  
 Angaben in Klammern für G 3/8 Ventile

**Dimension reference 3**

M5x5 mm

44

37

12

∅ Pg 9

22 41

481000  
485100  
486265

32

76

20

32

15

55

19.5 24

38

481865

DIN 43650 A

27

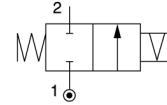
∅34

**Dimension reference 7**

## Valves for water and neutral liquids 2/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |    | Fluid temp. °C | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|----|----------------|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max | DC |                |           | AC                | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| G         |              |                      |      |                                      |     |    |                |           |                   |                        |                     |         |                       |    |         |                  |          |

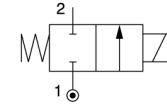
Magnetic latch control



### Brass body/Pipe mounting

|     |   |    |      |   |     |   |     |     |               |        |      |        |    |    |     |   |   |
|-----|---|----|------|---|-----|---|-----|-----|---------------|--------|------|--------|----|----|-----|---|---|
| 1/4 | 5 | 11 | 11.5 | 0 | -   | 5 | 100 | FKM | 7125KBBG2SV00 | 125K01 | 4269 | 484990 | -  | 11 | 430 | 4 | 3 |
|     | 5 | 11 | 11.5 | 0 | 1.5 | - | 100 | FKM |               |        | 4269 | 485400 | 13 | -  | 430 | 4 |   |

Normally closed



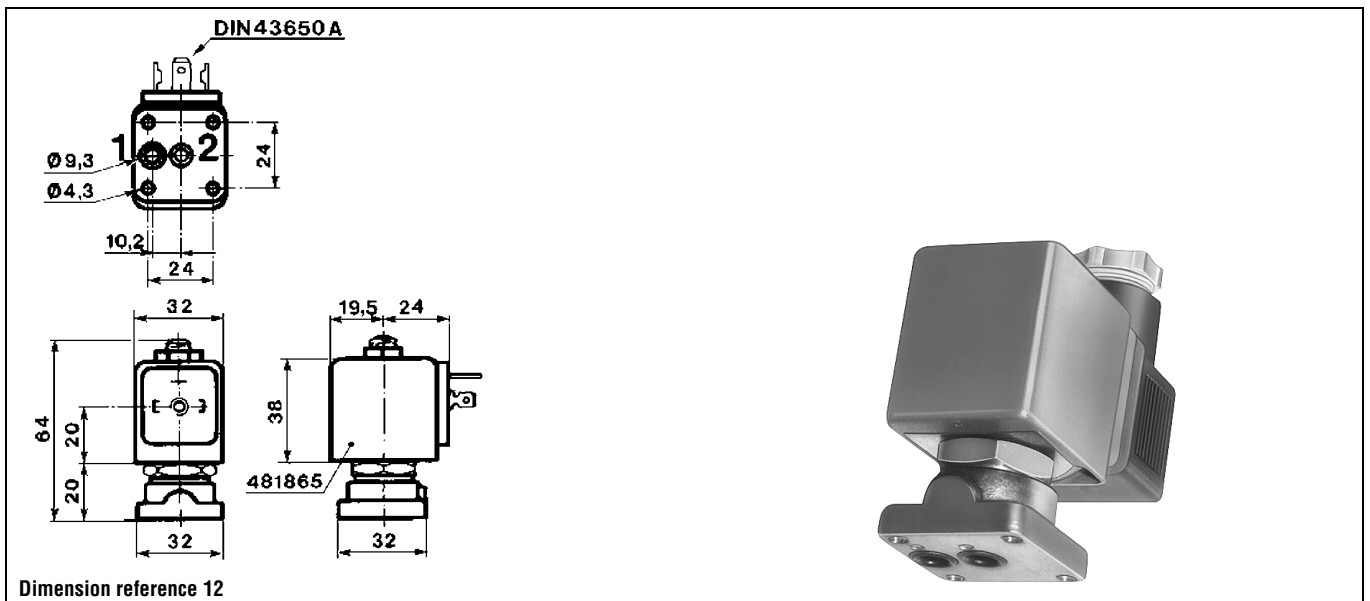
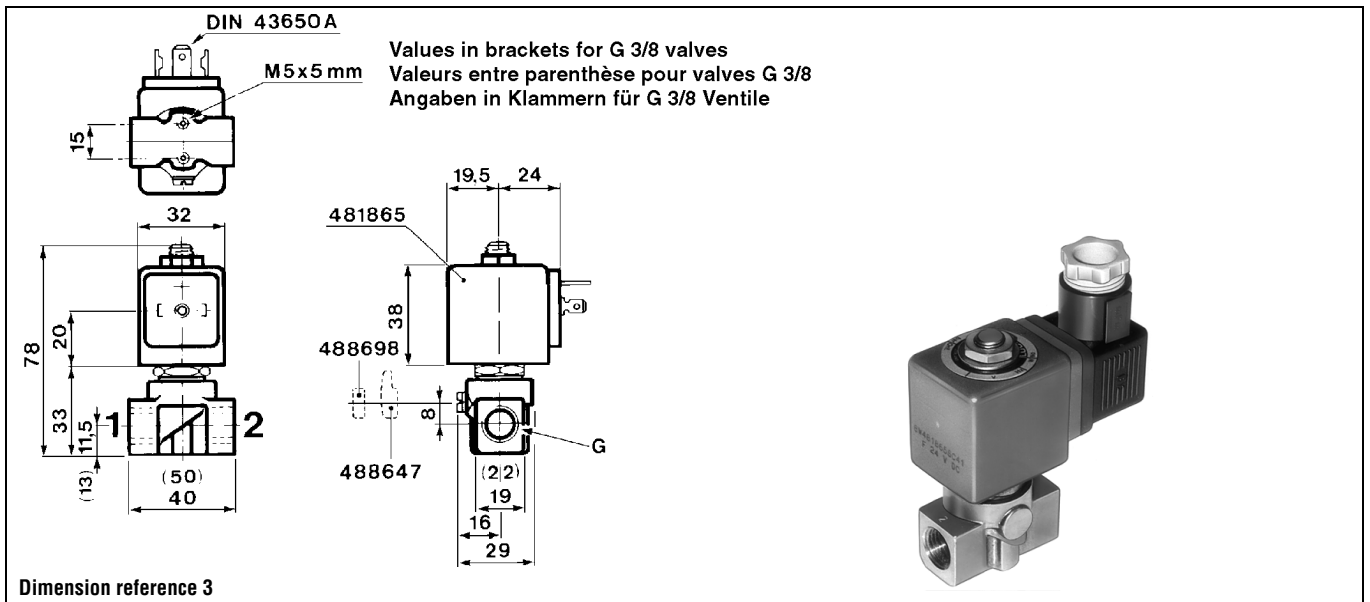
### Brass body/Sub-base mounting

|    |     |     |     |   |     |    |     |     |               |           |      |        |    |    |     |   |    |
|----|-----|-----|-----|---|-----|----|-----|-----|---------------|-----------|------|--------|----|----|-----|---|----|
| SB | 1.5 | 1.6 | 6   | 0 | 20  | 20 | 100 | FKM | 7121FBBF4GV00 | E121F4406 | 2995 | 481865 | 9  | 8  | 250 |   | 12 |
|    | 1.5 | 1.6 | 6   | 0 | 20  | 20 | 120 | FKM |               |           | 4270 | 481000 | 8  | 8  | 370 |   |    |
|    | 2.5 | 3.5 | 8.5 | 0 | 7   | 14 | 100 | FKM | 7121FBBF4LV00 | 121F4706  | 2995 | 481865 | 9  | 8  | 250 | 2 | 12 |
|    | 2.5 | 3.5 | 8.5 | 0 | 9   | 14 | 120 | FKM |               |           | 4270 | 481000 | 8  | 8  | 370 | 2 |    |
|    | 2.5 | 3.5 | 8.5 | 0 | 14  | 14 | 120 | FKM |               |           | 4270 | 486265 | 14 | 14 | 380 | 2 |    |
|    | 3   | 4.5 | 9   | 0 | 7   | 10 | 100 | FKM | 7121FBBF4NV00 | E121F4302 | 2995 | 481865 | 9  | 8  | 250 | 2 | 12 |
|    | 3   | 4.5 | 9   | 0 | 8.5 | 10 | 120 | FKM |               |           | 4270 | 481000 | 8  | 8  | 370 | 2 |    |
|    | 3   | 4.5 | 9   | 0 | 10  | 10 | 120 | FKM |               |           | 4270 | 486265 | 14 | 14 | 380 | 2 |    |

#### Notes:

\* See Electrical Parts Group table at end of section

# Valves for water and neutral liquids 2/2 - Direct operated



# Valves for water and neutral liquids

# 2/2

## Applications

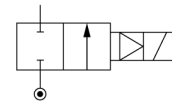
Magnalift valves are recommended in applications where the minimum pressure cannot be held at a sufficient level, i.e. where the effective supply pressure may be zero. This concerns applications like filling/emptying tanks by gravity and any other applications with a minimum pressure of zero.



## Magnalift

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |
| G         |              |                      |      |                                      |     |  |                |           |                        |                     |         |      |                       |    |         |          |

Normally closed



## Brass body/Pipe mounting

|     |     |     |     |    |    |    |     |     |              |          |                     |                     |    |      |      |    |
|-----|-----|-----|-----|----|----|----|-----|-----|--------------|----------|---------------------|---------------------|----|------|------|----|
| 3/8 | 15  | 65  | 65  | 0  | 10 | -  | 75  | NBR | 7221GBG3VNH0 | 221G1330 | 2995                | 481865 <sup>1</sup> | 9  | -    | 630  | 10 |
|     | 15  | 65  | 65  | 0  | 10 | 10 | 65  | NBR |              |          | -                   | 492070 <sup>1</sup> | 8  | 8    | 1000 |    |
|     | 15  | 65  | 65  | 0  | 10 | 10 | 75  | NBR |              |          | -                   | 492190 <sup>1</sup> | 9  | 11   | 1000 |    |
|     | 15  | 65  | 65  | 0  | -  | 16 | 75  | NBR | 7221GBG3VN00 | 221G13   | 2995                | 481865              | -  | 8    | 630  | 10 |
|     | 15  | 65  | 65  | 0  | -  | 16 | 75  | NBR |              |          | 4270                | 481000              | -  | 8    | 750  |    |
| 1/2 | 15  | 65  | 65  | 0  | 10 | -  | 75  | NBR | 7221GBG4VNH0 | 221G1530 | 2995                | 481865 <sup>1</sup> | 9  | -    | 640  | 10 |
|     | 15  | 65  | 65  | 0  | 10 | 10 | 65  | NBR |              |          | -                   | 492070 <sup>1</sup> | 8  | 9    | 1010 |    |
|     | 15  | 65  | 65  | 0  | 10 | 10 | 75  | NBR |              |          | -                   | 492190 <sup>1</sup> | 9  | 11   | 1010 |    |
|     | 15  | 65  | 65  | 0  | -  | 16 | 75  | NBR | 7221GBG4VN00 | 221G15   | 2995                | 481865              | -  | 8    | 640  | 10 |
|     | 15  | 65  | 65  | 0  | -  | 16 | 75  | NBR |              |          | 4270                | 481000              | -  | 8    | 760  |    |
| 3/4 | 15  | 80  | 80  | 0  | 10 | -  | 75  | NBR | 7221GBG51NH0 | 221G1630 | 2995                | 481865 <sup>1</sup> | 9  | -    | 670  | 10 |
|     | 15  | 80  | 80  | 0  | 10 | 10 | 65  | NBR |              |          | -                   | 492070 <sup>1</sup> | 8  | 8    | 1040 |    |
|     | 15  | 80  | 80  | 0  | 10 | 10 | 75  | NBR |              |          | -                   | 492190 <sup>1</sup> | 9  | 11   | 1040 |    |
|     | 15  | 80  | 80  | 0  | -  | 16 | 75  | NBR | 7221GBG51N00 | 221G16   | 2995                | 481865              | -  | 8    | 670  | 10 |
|     | 15  | 80  | 80  | 0  | -  | 16 | 75  | NBR |              |          | 4270                | 481000              | -  | 8    | 790  |    |
| 1   | 15  | 80  | 80  | 0  | 10 | -  | 75  | NBR | 7221GBG61NH0 | 221G1730 | 2995                | 481865 <sup>1</sup> | 9  | -    | 810  | 10 |
|     | 15  | 80  | 80  | 0  | 10 | 10 | 65  | NBR |              |          | -                   | 492070 <sup>1</sup> | 8  | 8    | 1180 |    |
|     | 15  | 80  | 80  | 0  | 10 | 10 | 75  | NBR |              |          | -                   | 492190 <sup>1</sup> | 9  | 11   | 1180 |    |
|     | 15  | 80  | 80  | 0  | -  | 16 | 75  | NBR | 7221GBG61N00 | 221G17   | 2995                | 481865              | -  | 8    | 810  | 10 |
|     | 15  | 80  | 80  | 0  | -  | 16 | 75  | NBR |              |          | 4270                | 481000              | -  | 8    | 930  |    |
|     | 15  | 80  | 80  | 0  | 7  | -  | 75  | NBR |              |          | 4270                | 486265              | 14 | -    | 940  |    |
|     | 25  | 170 | 160 | 0  | 10 | -  | 75  | NBR | 7221GBG64NH0 | 221G2130 | 2995                | 481865 <sup>1</sup> | 9  | -    | 1170 | 10 |
| 25  | 170 | 160 | 0   | 10 | 10 | 65 | NBR |     |              | -        | 492070 <sup>1</sup> | 8                   | 8  | 1540 |      |    |
| 25  | 170 | 160 | 0   | 10 | 10 | 75 | NBR |     |              | -        | 492190 <sup>1</sup> | 9                   | 11 | 1540 |      |    |

Table continued on page 54

### Notes:

1. Valves with model number ending by 30 or 31 are mainly equipped with electrical parts EEx me II T3/T4 No. 492190 or EEx m II T4/T5 No. 492070 or with standard DC coils.

# Valves for water and neutral liquids 2/2 - Magnalift

|               | A<br>mm | B<br>mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | G<br>inch | H<br>mm |
|---------------|---------|---------|---------|---------|---------|---------|-----------|---------|
| <b>G15/25</b> | 75      | 93      | 37.5    | 15      | 34      | 27      | 1/2       | 53      |
| <b>G13/23</b> | 75      | 93      | 37.5    | 15      | 34      | 27      | 3/8       | 53      |
| <b>G16/26</b> | 80      | 95.5    | 40      | 17.5    | 34      | 32      | 3/4       | 53      |
| <b>G17/27</b> | 85      | 102.5   | 42.5    | 22.5    | 36      | 41      | 1         | 53      |
| <b>G21</b>    | 100     | 108     | 50      | 23      | 41      | 41      | 1         | 70      |

**Dimension reference 10**

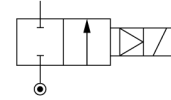
## Valves for water and neutral liquids 2/2 - Magnalift

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |

### Brass body/Pipe mounting

|   |    |     |     |   |   |    |    |     |              |               |             |               |    |   |      |    |
|---|----|-----|-----|---|---|----|----|-----|--------------|---------------|-------------|---------------|----|---|------|----|
| 1 | 25 | 160 | 160 | 0 | - | 16 | 75 | NBR | 7221GBG64N00 | <b>221G21</b> | <b>2995</b> | <b>481865</b> | -  | 8 | 1170 | 10 |
|   | 25 | 160 | 160 | 0 | - | 16 | 75 | NBR |              |               | <b>4270</b> | <b>481000</b> | -  | 8 | 1290 |    |
|   | 25 | 160 | 160 | 0 | 6 | -  | 75 | NBR |              |               | <b>4270</b> | <b>486265</b> | 14 | - | 1300 |    |

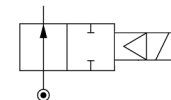
Normally closed



### Brass body/Pipe mounting

|     |    |    |    |   |     |     |    |     |              |                 |             |               |    |    |     |     |
|-----|----|----|----|---|-----|-----|----|-----|--------------|-----------------|-------------|---------------|----|----|-----|-----|
| 3/8 | 15 | 43 | 43 | 0 | 8.5 | 8.5 | 85 | FKM | 72228BG3TV00 | <b>222G3306</b> | <b>4270</b> | <b>486265</b> | 14 | 14 | 940 | 102 |
| 1/2 | 15 | 58 | 58 | 0 | 8.5 | 8.5 | 85 | FKM | 72228BG4UV00 | <b>222G3506</b> | <b>4270</b> | <b>486265</b> | 14 | 14 | 940 | 102 |
| 3/4 | 19 | 72 | 72 | 0 | 8.5 | 8.5 | 85 | FKM | 72228BG5VV00 | <b>222G3606</b> | <b>4270</b> | <b>486265</b> | 14 | 14 | 940 | 102 |

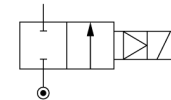
Normally open



### 303 Stainless steel body/Pipe mounting

|     |    |    |    |   |     |   |    |     |              |                 |             |               |    |   |      |     |
|-----|----|----|----|---|-----|---|----|-----|--------------|-----------------|-------------|---------------|----|---|------|-----|
| 3/8 | 15 | 42 | 42 | 0 | -   | 7 | 85 | FKM | 72218RG3TV00 | <b>221G5306</b> | <b>2995</b> | <b>481865</b> | -  | 8 | 930  | 102 |
|     | 15 | 42 | 42 | 0 | -   | 7 | 85 | FKM |              |                 | <b>4270</b> | <b>481000</b> | -  | 8 | 1050 |     |
|     | 15 | 42 | 42 | 0 | 2.8 | - | 85 | FKM |              |                 | <b>4270</b> | <b>486265</b> | 14 | - | 1060 |     |
| 1/2 | 15 | 54 | 54 | 0 | -   | 7 | 85 | FKM | 72218RG4UV00 | <b>221G5506</b> | <b>2995</b> | <b>481865</b> | -  | 8 | 930  | 102 |
|     | 15 | 54 | 54 | 0 | -   | 7 | 85 | FKM |              |                 | <b>4270</b> | <b>481000</b> | -  | 8 | 1050 |     |
|     | 15 | 54 | 54 | 0 | 2.8 | - | 85 | FKM |              |                 | <b>4270</b> | <b>486265</b> | 14 | - | 1060 |     |
| 3/4 | 19 | 71 | 71 | 0 | -   | 7 | 85 | FKM | 72218RG5VV00 | <b>221G5606</b> | <b>2995</b> | <b>481865</b> | -  | 8 | 930  | 102 |
|     | 19 | 71 | 71 | 0 | -   | 7 | 85 | FKM |              |                 | <b>4270</b> | <b>481000</b> | -  | 8 | 1050 |     |
|     | 19 | 71 | 71 | 0 | 2.8 | - | 85 | FKM |              |                 | <b>4270</b> | <b>486265</b> | 14 | - | 1060 |     |

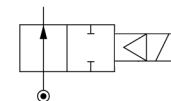
Normally closed



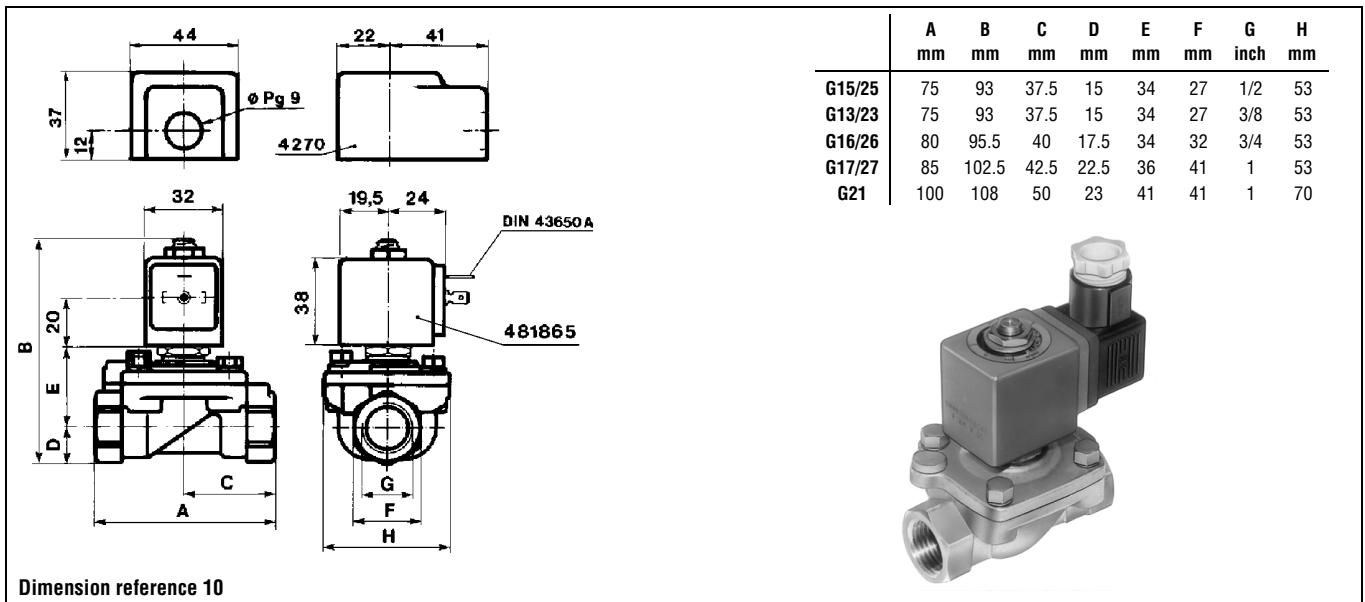
### 303 Stainless steel body/Pipe mounting

|     |    |    |    |   |     |     |    |     |              |                 |             |               |    |    |      |     |
|-----|----|----|----|---|-----|-----|----|-----|--------------|-----------------|-------------|---------------|----|----|------|-----|
| 3/8 | 16 | 43 | 43 | 0 | 8.5 | 8.5 | 85 | FKM | 72228RG3TV00 | <b>222G5306</b> | <b>4270</b> | <b>486265</b> | 14 | 14 | -    | 102 |
| 1/2 | 16 | 58 | 58 | 0 | 8.5 | 8.5 | 85 | FKM | 72228RG4UV00 | <b>222G5506</b> | <b>4270</b> | <b>486265</b> | 14 | 14 | 1050 | 102 |

Normally open



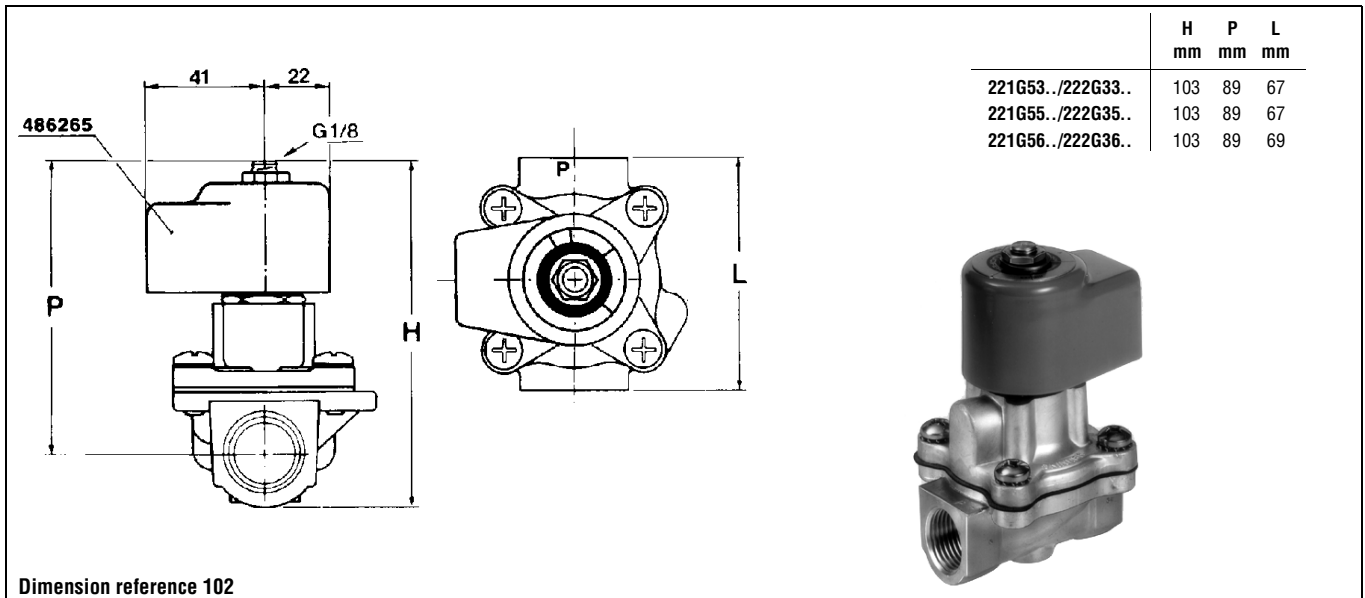
# Valves for water and neutral liquids 2/2 - Magnalift



Technical drawings showing dimensions A through H for a 2/2 valve. The top drawing shows a top view with dimensions 44, 22, 41, 37, 12, and a port labeled  $\phi$  Pg 9. The middle drawing shows a side view with dimensions 32, 19.5, 24, 38, and a port labeled DIN 43650A. The bottom drawing shows a front view with dimensions B, E, D, A, C, G, F, H. A part number 481865 is indicated.

|        | A<br>mm | B<br>mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | G<br>inch | H<br>mm |
|--------|---------|---------|---------|---------|---------|---------|-----------|---------|
| G15/25 | 75      | 93      | 37.5    | 15      | 34      | 27      | 1/2       | 53      |
| G13/23 | 75      | 93      | 37.5    | 15      | 34      | 27      | 3/8       | 53      |
| G16/26 | 80      | 95.5    | 40      | 17.5    | 34      | 32      | 3/4       | 53      |
| G17/27 | 85      | 102.5   | 42.5    | 22.5    | 36      | 41      | 1         | 53      |
| G21    | 100     | 108     | 50      | 23      | 41      | 41      | 1         | 70      |

Dimension reference 10



Technical drawings showing dimensions H, P, and L for a 2/2 valve. The left drawing shows a side view with dimensions 41, 22, G1/8, P, and H. The middle drawing shows a top view with a port labeled P and dimension L. A part number 486265 is indicated.

|                   | H<br>mm | P<br>mm | L<br>mm |
|-------------------|---------|---------|---------|
| 221G53../222G33.. | 103     | 89      | 67      |
| 221G55../222G35.. | 103     | 89      | 67      |
| 221G56../222G36.. | 103     | 89      | 69      |

Dimension reference 102

# Valves for water and neutral liquids

# 2/2

## Applications

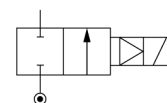
Pilot operated valves are ideally suited to shut-off applications of liquids with high flow and pressure. A minimum operating pressure is required: refer to tables.



## Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |    | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|----|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |    |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              |                      |      |                                      | DC  | AC |                |           |                        |                     |         |      |                       |    |         |                  |          |

Normally closed



## Brass body/Pipe mounting

|     |    |     |     |     |    |    |    |     |              |               |             |               |     |   |      |   |      |
|-----|----|-----|-----|-----|----|----|----|-----|--------------|---------------|-------------|---------------|-----|---|------|---|------|
| 1/4 | 12 | 30  | 30  | 0.3 | 10 | 10 | 75 | NBR | -            | <b>321K31</b> | <b>8993</b> | <b>481180</b> | 5   | 4 | 380  | 1 | 72   |
|     | 12 | 30  | 30  | 0.3 | 7  | 10 | 75 | NBR |              |               | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 380  | 1 |      |
| 3/8 | 12 | 45  | 45  | 0.3 | 10 | 10 | 75 | NBR | -            | <b>321K33</b> | <b>8993</b> | <b>481180</b> | 5   | 4 | 380  | 1 | 72   |
|     | 12 | 45  | 45  | 0.3 | 7  | 10 | 75 | NBR |              |               | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 380  | 1 |      |
|     | 13 | 50  | 50  | 0.1 | 20 | 20 | 90 | NBR | 7321BBG3TN00 | -             | <b>2995</b> | <b>481865</b> | 9   | 8 | 560  | 2 | 1000 |
|     | 13 | 50  | 50  | 0.1 | 20 | 20 | 90 | NBR |              |               | <b>4270</b> | <b>481000</b> | 8   | 8 | 560  | 2 |      |
|     | 13 | 50  | 50  | 0.1 | 20 | 20 | 90 | NBR | 7321BBG3TNM0 | - 1           | <b>2995</b> | <b>481865</b> | 9   | 8 | 560  | 2 | 1000 |
|     | 13 | 50  | 50  | 0.1 | 20 | 20 | 90 | NBR |              |               | <b>4269</b> | <b>481000</b> | 8   | 8 | 560  | 2 |      |
| 1/2 | 12 | 50  | 50  | 0.3 | 10 | 10 | 75 | NBR | -            | <b>321K35</b> | <b>8993</b> | <b>481180</b> | 5   | 4 | 380  | 1 | 72   |
|     | 12 | 50  | 50  | 0.3 | 7  | 10 | 75 | NBR |              |               | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 380  | 1 |      |
|     | 13 | 140 | 140 | 0.1 | 20 | 20 | 90 | NBR | 7321BBG4TN00 | -             | <b>2995</b> | <b>481865</b> | 9   | 8 | 590  | 2 | 1000 |
|     | 13 | 140 | 140 | 0.1 | 20 | 20 | 90 | NBR |              |               | <b>4269</b> | <b>481000</b> | 8   | 8 | 590  | 2 |      |
|     | 13 | 140 | 140 | 0.1 | 20 | 20 | 90 | NBR | 7321BBG4TNM0 | - 1           | <b>2995</b> | <b>481865</b> | 9   | 8 | 590  | 2 | 1000 |
|     | 13 | 140 | 140 | 0.1 | 20 | 20 | 90 | NBR |              |               | <b>4269</b> | <b>481000</b> | 8   | 8 | 590  | 2 |      |
| 3/4 | 18 | 100 | 100 | 0.3 | 10 | 10 | 75 | NBR | -            | <b>321K36</b> | <b>8993</b> | <b>481180</b> | 5   | 4 | 590  | 1 | 72   |
|     | 18 | 100 | 100 | 0.3 | 7  | 10 | 75 | NBR |              |               | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 590  | 1 |      |
|     | 20 | 140 | 140 | 0.1 | 20 | 20 | 90 | NBR | 7321BBG53N00 | -             | <b>2995</b> | <b>481865</b> | 9   | 8 | 1050 | 2 | 1000 |
|     | 20 | 140 | 140 | 0.1 | 20 | 20 | 90 | NBR |              |               | <b>4269</b> | <b>481000</b> | 8   | 8 | 1050 | 2 |      |
|     | 20 | 140 | 140 | 0.1 | 10 | 10 | 90 | NBR | 7321BBG53NM0 | - 2           | <b>2995</b> | <b>481865</b> | 9   | 8 | 1050 | 2 | 1000 |
|     | 20 | 140 | 140 | 0.1 | 10 | 10 | 90 | NBR |              |               | <b>4269</b> | <b>481000</b> | 8   | 8 | 1050 | 2 |      |
| 1   | 18 | 110 | 110 | 0.3 | 10 | 10 | 75 | NBR | -            | <b>321K37</b> | <b>8993</b> | <b>481180</b> | 5   | 4 | 735  | 1 | 72   |
|     | 18 | 110 | 110 | 0.3 | 7  | 10 | 75 | NBR |              |               | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 735  | 1 |      |
|     | 25 | 160 | 160 | 0.1 | 20 | 20 | 90 | NBR | 7321BBG64N00 | -             | <b>2995</b> | <b>481865</b> | 9   | 8 | 1110 | 2 | 1000 |
|     | 25 | 160 | 160 | 0.1 | 20 | 20 | 90 | NBR |              |               | <b>4269</b> | <b>481000</b> | 8   | 8 | 1110 | 2 |      |

Table continued on page 58

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Manual override standard
- 2. For manual override and closure speed control change M0 by M1
- 3. Manual override and 4 position selector for controlled closure rate: see "Anti-waterhammer valves" section



# Valves for water and neutral liquids 2/2 - Pilot operated

Technical drawings of a 2/2 pilot-operated valve. Dimensions are labeled A through H. A 3D perspective view of the valve is shown to the right.

|            | A<br>mm | B<br>mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | G<br>inch | H<br>mm |
|------------|---------|---------|---------|---------|---------|---------|-----------|---------|
| <b>G37</b> | 100     | 121     | 50      | 23      | 54      | 41      | 1         | 70      |
| <b>G36</b> | 100     | 121     | 50      | 23      | 54      | 41      | 3/4       | 70      |
| <b>G38</b> | 110     | 137.5   | 55      | 33      | 60.5    | 60      | 1 1/4     | 99      |
| <b>G39</b> | 140     | 144     | 75      | 33      | 67      | 60      | 1 1/2     | 99      |
| <b>G40</b> | 150     | 158.5   | 80      | 41.5    | 73      | 75      | 2         | 99      |

Dimension reference 11

Technical drawings of a 2/2 pilot-operated valve. Dimensions are labeled A through J and Dia. A 3D perspective view of the valve is shown to the right.

|            | A<br>inch | B<br>mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | G<br>mm | H<br>mm | I<br>mm | J<br>mm | Dia.<br>mm |
|------------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------------|
| <b>K31</b> | 1/4       | 25      | 50      | 6.2     | 26      | 27      | 5.5     | 81      | 39      | 61      | 40         |
| <b>K33</b> | 3/8       | 25      | 50      | 6.2     | 26      | 27      | 5.5     | 81      | 39      | 61      | 40         |
| <b>K35</b> | 1/2       | 27.5    | 55      | 6.2     | 26      | 27      | 5.5     | 81      | 39      | 61      | 40         |
| <b>K36</b> | 3/4       | 40      | 80      | 9       | 33.5    | 32      | 8       | 96.5    | 46      | 68.5    | 56         |
| <b>K37</b> | 1         | 42.5    | 85      | 14.2    | 33.5    | 41      | 8       | 96.5    | 56      | 68.5    | 56         |

Dimension reference 72

Technical drawings of a 2/2 pilot-operated valve. Dimensions are labeled A, B, C, D, and G. A 3D perspective view of the valve is shown to the right.

| G     | Size    |         |         |         |
|-------|---------|---------|---------|---------|
|       | A<br>mm | B<br>mm | C<br>mm | D<br>mm |
| 3/8   | 69      | 99.5    | 40      | 44      |
| 1/2   | 72      | 101.5   | 40      | 44      |
| 3/4   | 100     | 107     | 65      | 44      |
| 1     | 104     | 112.5   | 65      | 44      |
| 1 1/4 | 145     | 134     | 102     | 44      |
| 1 1/2 | 145     | 134     | 102     | 44      |
| 2     | 173     | 148     | 118     | 44      |
| 2 1/2 | 245     | 195     | 184     | 44      |
| 3     | 250     | 195     | 184     | 44      |

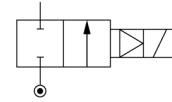
Dimension reference 1000

## Valves for water and neutral liquids 2/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

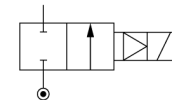
### Brass body/Pipe mounting

Normally closed



|       |    |      |      |     |     |    |    |     |              |         |   |      |        |    |    |      |   |      |
|-------|----|------|------|-----|-----|----|----|-----|--------------|---------|---|------|--------|----|----|------|---|------|
| 1     | 25 | 160  | 160  | 0.1 | 10  | 10 | 90 | NBR | 7321BBG64NM0 | -       | 1 | 2995 | 481865 | 9  | 8  | 1110 | 2 | 1000 |
|       | 25 | 160  | 160  | 0.1 | 10  | 10 | 90 | NBR |              |         |   | 4269 | 481000 | 9  | 8  | 1110 | 2 |      |
|       | 25 | 180  | 180  | 0.3 | 16  | 16 | 75 | NBR | 7321GBG64N00 | E321G37 | 2 | 2995 | 481865 | 9  | 8  | 1230 | 2 | 11   |
|       | 25 | 180  | 180  | 0.3 | 16  | 16 | 75 | NBR |              |         |   | 4270 | 481000 | 8  | 8  | 1350 | 2 |      |
| 1 1/4 | 28 | 280  | 280  | 0.3 | 16  | 16 | 75 | NBR | 7321GBG76N00 | E321G38 | 2 | 2995 | 481865 | 9  | 8  | 1860 | 2 | 11   |
|       | 28 | 280  | 280  | 0.3 | 16  | 16 | 75 | NBR |              |         |   | 4270 | 481000 | 8  | 8  | 1980 | 2 |      |
|       | 35 | 420  | 420  | 0.1 | 10  | 10 | 90 | NBR | 7321BBG78N00 | -       |   | 2995 | 481865 | 9  | 8  | 3120 | 2 | 1000 |
|       | 35 | 420  | 420  | 0.1 | 10  | 10 | 90 | NBR |              |         |   | 4269 | 481000 | 8  | 8  | 3120 | 2 |      |
|       | 35 | 420  | 420  | 0.1 | 5   | 5  | 90 | NBR | 7321BBG78NM0 | -       | 1 | 2995 | 481865 | 9  | 8  | 3120 | 2 | 1000 |
|       | 35 | 420  | 420  | 0.1 | 5   | 5  | 90 | NBR |              |         |   | 4269 | 481000 | 8  | 8  | 3120 | 2 |      |
| 1 1/2 | 40 | 500  | 500  | 0.1 | 10  | 10 | 90 | NBR | 7321BBG88N00 | -       |   | 2995 | 481865 | 9  | 8  | 2870 | 2 | 1000 |
|       | 40 | 500  | 500  | 0.1 | 10  | 10 | 90 | NBR |              |         |   | 4269 | 481000 | 8  | 8  | 2870 | 2 |      |
|       | 40 | 500  | 500  | 0.1 | 5   | 5  | 90 | NBR | 7321BBG88NM0 | -       | 1 | 2995 | 481865 | 9  | 8  | 2870 | 2 | 1000 |
|       | 40 | 500  | 500  | 0.1 | 5   | 5  | 90 | NBR |              |         |   | 4269 | 481000 | 8  | 8  | 2870 | 2 |      |
|       | 40 | 420  | 420  | 0.3 | 7   | 16 | 75 | NBR | 7321GBG88N00 | E321G39 | 2 | 2995 | 481865 | 9  | 8  | 2560 | 2 | 11   |
|       | 40 | 420  | 420  | 0.3 | 8.5 | 16 | 75 | NBR |              |         |   | 4270 | 481000 | 8  | 8  | 2680 | 2 |      |
| 2     | 40 | 420  | 420  | 0.3 | 16  | 16 | 75 | NBR |              |         |   | 4270 | 486265 | 14 | 14 | 2700 | 2 |      |
|       | 40 | 500  | 500  | 0.1 | 5   | 5  | 90 | NBR | 7321BBG99NM0 | -       | 1 | 2995 | 481865 | 9  | 8  | 4260 | 2 | 1000 |
|       | 40 | 500  | 500  | 0.1 | 5   | 5  | 90 | NBR |              |         |   | 4269 | 481000 | 8  | 8  | 4260 | 2 |      |
|       | 40 | 540  | 540  | 0.3 | 7   | 16 | 75 | NBR | 7321GBG99N00 | E321G40 | 2 | 2995 | 481865 | 9  | 8  | 2900 | 2 | 11   |
|       | 40 | 540  | 540  | 0.3 | 8.5 | 16 | 75 | NBR |              |         |   | 4270 | 481000 | 8  | 8  | 3040 | 2 |      |
|       | 40 | 540  | 540  | 0.3 | 16  | 16 | 75 | NBR |              |         |   | 4270 | 486265 | 14 | 14 | 3050 | 2 |      |
| 2 1/2 | 65 | 1050 | 1050 | 0.1 | 10  | 10 | 90 | NBR | 7321BBGCBNM1 | -       | 3 | 2995 | 481865 | 9  | 8  | -    | 2 | 1000 |
|       | 65 | 1050 | 1050 | 0.1 | 10  | 10 | 90 | NBR |              |         |   | 4269 | 481000 | 8  | 8  | -    | 2 |      |
| 3     | 75 | 1385 | 1385 | 0.1 | 10  | 10 | 90 | NBR | 7321BBGDNCM1 | -       | 3 | 2995 | 481865 | 9  | 8  | -    | 2 | 1000 |
|       | 75 | 1385 | 1385 | 0.1 | 10  | 10 | 90 | NBR |              |         |   | 4269 | 481000 | 8  | 8  | -    | 2 |      |

Normally open



### Brass body/Pipe mounting

|     |    |     |     |     |    |    |    |     |              |        |  |      |        |   |   |      |   |      |
|-----|----|-----|-----|-----|----|----|----|-----|--------------|--------|--|------|--------|---|---|------|---|------|
| 3/8 | 13 | 50  | 50  | 0.1 | 20 | 20 | 90 | NBR | 7322BBG3TN00 | -      |  | 2995 | 481865 | 9 | 8 | 560  | 2 | 2000 |
|     | 13 | 50  | 50  | 0.1 | 20 | 20 | 90 | NBR |              |        |  | 4270 | 481000 | 8 | 8 | 560  | 2 |      |
| 1/2 | 13 | 140 | 140 | 0.1 | 20 | 20 | 90 | NBR | 7322BBG4TN00 | -      |  | 2995 | 481865 | 9 | 8 | 590  | 2 | 2000 |
| 3/4 | 20 | 140 | 140 | 0.1 | 20 | 20 | 90 | NBR | 7322BBG53N00 | -      |  | 2995 | 481865 | 9 | 8 | 1050 | 2 | 2000 |
|     | 20 | 140 | 140 | 0.1 | 20 | 20 | 90 | NBR |              |        |  | 4270 | 481000 | 8 | 8 | 1050 | 2 |      |
|     | 20 | 135 | 135 | 0.3 | 16 | 16 | 75 | NBR | 7322GBG53N00 | 322G36 |  | 2995 | 481865 | 9 | 8 | 1430 |   | 11   |
|     | 20 | 135 | 135 | 0.3 | 16 | 16 | 75 | NBR |              |        |  | 4270 | 481000 | 8 | 8 | 1550 |   |      |

Table continued on page 60

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. For manual override and closure speed control change M0 by M1
- 2. Manual override and 4 position selector for controlled closure rate: see "Anti-waterhammer valves" section
- 3. Manual override and closure speed control standard

# Valves for water and neutral liquids 2/2 - Pilot operated

|            | A<br>mm | B<br>mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | G<br>inch | H<br>mm |
|------------|---------|---------|---------|---------|---------|---------|-----------|---------|
| <b>G37</b> | 100     | 121     | 50      | 23      | 54      | 41      | 1         | 70      |
| <b>G36</b> | 100     | 121     | 50      | 23      | 54      | 41      | 3/4       | 70      |
| <b>G38</b> | 110     | 137.5   | 55      | 33      | 60.5    | 60      | 1 1/4     | 99      |
| <b>G39</b> | 140     | 144     | 75      | 33      | 67      | 60      | 1 1/2     | 99      |
| <b>G40</b> | 150     | 158.5   | 80      | 41.5    | 73      | 75      | 2         | 99      |

Dimension reference 11

| Size  |     |       |     |    |
|-------|-----|-------|-----|----|
| G     | A   | B     | C   | D  |
| mm    | mm  | mm    | mm  | mm |
| 3/8   | 69  | 99.5  | 40  | 44 |
| 1/2   | 72  | 101.5 | 40  | 44 |
| 3/4   | 100 | 107   | 65  | 44 |
| 1     | 104 | 112.5 | 65  | 44 |
| 1 1/4 | 145 | 134   | 102 | 44 |
| 1 1/2 | 145 | 134   | 102 | 44 |
| 2     | 173 | 148   | 118 | 44 |
| 2 1/2 | 245 | 195   | 184 | 44 |
| 3     | 250 | 195   | 184 | 44 |

Dimension reference 1000

| Size  |     |       |     |    |
|-------|-----|-------|-----|----|
| G     | A   | B     | C   | D  |
| mm    | mm  | mm    | mm  | mm |
| 3/8   | 69  | 99.5  | 40  | 44 |
| 1/2   | 72  | 101.5 | 40  | 44 |
| 3/4   | 100 | 107   | 65  | 44 |
| 1     | 104 | 112.5 | 65  | 44 |
| 1 1/4 | 145 | 134   | 102 | 44 |
| 1 1/2 | 145 | 134   | 102 | 44 |
| 2     | 173 | 148   | 118 | 44 |
| 2 1/2 | 245 | 195   | 184 | 44 |
| 3     | 250 | 195   | 184 | 44 |

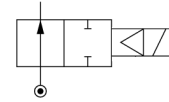
Dimension reference 2000

## Valves for water and neutral liquids 2/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

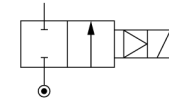
### Brass body/Pipe mounting

Normally open



|       |    |     |     |     |    |    |    |     |              |        |      |        |   |   |      |   |      |
|-------|----|-----|-----|-----|----|----|----|-----|--------------|--------|------|--------|---|---|------|---|------|
| 1     | 25 | 160 | 160 | 0.1 | 20 | 20 | 90 | NBR | 7322BBG64N00 | -      | 2995 | 481865 | 9 | 8 | 1110 | 2 | 2000 |
|       | 25 | 180 | 180 | 0.3 | 16 | 16 | 75 | NBR | 7322GBG64N00 | 322G37 | 2995 | 481865 | 9 | 8 | 1230 |   | 11   |
|       | 25 | 180 | 180 | 0.3 | 16 | 16 | 75 | NBR |              |        | 4270 | 481000 | 8 | 8 | 1350 |   |      |
| 1 1/4 | 28 | 270 | 270 | 0.3 | 16 | 16 | 75 | NBR | 7322GBG76N00 | 322G38 | 2995 | 481865 | 9 | 8 | 1860 |   | 11   |
|       | 28 | 270 | 270 | 0.3 | 16 | 16 | 75 | NBR |              |        | 4270 | 481000 | 8 | 8 | 1980 |   |      |
|       | 35 | 420 | 420 | 0.1 | 10 | 10 | 90 | NBR | 7322BBG78N00 | -      | 2995 | 481865 | 9 | 8 | 3120 | 2 | 2000 |
|       | 35 | 420 | 420 | 0.1 | 10 | 10 | 90 | NBR |              |        | 4270 | 481000 | 8 | 8 | 3120 | 2 |      |
| 1 1/2 | 40 | 500 | 500 | 0.1 | 10 | 10 | 90 | NBR | 7322BBG88N00 | -      | 2995 | 481865 | 9 | 8 | 2870 | 2 | 2000 |
|       | 40 | 500 | 500 | 0.1 | 10 | 10 | 90 | NBR |              |        | 4270 | 481000 | 8 | 8 | 2870 | 2 |      |
|       | 40 | 420 | 420 | 0.3 | 12 | 12 | 75 | NBR | 7322GBG88N00 | 322G39 | 2995 | 481865 | 9 | 8 | 2560 |   | 11   |
|       | 40 | 420 | 420 | 0.3 | 12 | 12 | 75 | NBR |              |        | 4270 | 481000 | 8 | 8 | 2680 |   |      |
| 2     | 40 | 540 | 540 | 0.3 | 12 | 12 | 75 | NBR | 7322GBG99N00 | 322G40 | 2995 | 481865 | 9 | 8 | 2900 |   | 11   |
|       | 40 | 540 | 540 | 0.3 | 12 | 12 | 75 | NBR |              |        | 4270 | 481000 | 8 | 8 | 3040 |   |      |
|       | 50 | 620 | 620 | 0.1 | 10 | 10 | 90 | NBR | 7322BBG99N00 | -      | 2995 | 481865 | 9 | 8 | 4260 | 2 | 2000 |
|       | 50 | 620 | 620 | 0.1 | 10 | 10 | 90 | NBR |              |        | 4270 | 481000 | 8 | 8 | 4260 | 2 |      |

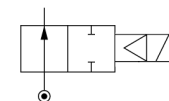
Normally closed



### Brass body/Sub-base mounting

|    |    |    |    |     |    |    |    |     |              |         |   |      |        |        |    |     |     |    |  |
|----|----|----|----|-----|----|----|----|-----|--------------|---------|---|------|--------|--------|----|-----|-----|----|--|
| SB | 14 | 45 | 45 | 0.3 | 25 | 40 | 75 | NBR | 7321FBF3TN00 | E321F32 | 1 | 2995 | 481865 | 9      | 8  | 650 | 2   | 13 |  |
|    | 14 | 45 | 45 | 0.3 | 30 | 40 | 75 | NBR |              |         |   |      | 4270   | 481000 | 8  | 8   | 770 | 2  |  |
|    | 14 | 45 | 45 | 0.3 | 40 | 40 | 75 | NBR |              |         |   |      | 4270   | 486265 | 14 | 14  | 780 | 2  |  |

Normally open



### Brass body/Sub-base mounting

|    |    |    |    |     |   |    |    |    |     |              |        |   |      |        |        |   |     |     |    |
|----|----|----|----|-----|---|----|----|----|-----|--------------|--------|---|------|--------|--------|---|-----|-----|----|
| SB | 14 | 45 | 45 | 0.3 | 2 | 40 | 40 | 75 | NBR | 7322FBF3TN00 | 322F72 | 1 | 2995 | 481865 | 9      | 8 | 650 |     | 13 |
|    | 14 | 45 | 45 | 0.3 | 2 | 40 | 40 | 75 | NBR |              |        |   |      | 4270   | 481000 | 8 | 8   | 770 |    |

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Pilot seat discs from ruby (synthetic)
- 2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing

# Valves for water and neutral liquids 2/2 - Pilot operated

|            | A   | B     | C  | D    | E    | F  | G     | H  |
|------------|-----|-------|----|------|------|----|-------|----|
|            | mm  | mm    | mm | mm   | mm   | mm | inch  | mm |
| <b>G37</b> | 100 | 121   | 50 | 23   | 54   | 41 | 1     | 70 |
| <b>G36</b> | 100 | 121   | 50 | 23   | 54   | 41 | 3/4   | 70 |
| <b>G38</b> | 110 | 137.5 | 55 | 33   | 60.5 | 60 | 1 1/4 | 99 |
| <b>G39</b> | 140 | 144   | 75 | 33   | 67   | 60 | 1 1/2 | 99 |
| <b>G40</b> | 150 | 158.5 | 80 | 41.5 | 73   | 75 | 2     | 99 |

Dimension reference 11

|            | A   | B     | C  | D    | E    | F  | G     | H  |
|------------|-----|-------|----|------|------|----|-------|----|
|            | mm  | mm    | mm | mm   | mm   | mm | inch  | mm |
| <b>G37</b> | 100 | 121   | 50 | 23   | 54   | 41 | 1     | 70 |
| <b>G36</b> | 100 | 121   | 50 | 23   | 54   | 41 | 3/4   | 70 |
| <b>G38</b> | 110 | 137.5 | 55 | 33   | 60.5 | 60 | 1 1/4 | 99 |
| <b>G39</b> | 140 | 144   | 75 | 33   | 67   | 60 | 1 1/2 | 99 |
| <b>G40</b> | 150 | 158.5 | 80 | 41.5 | 73   | 75 | 2     | 99 |

Dimension reference 13

| Size  |     |       |     |    |
|-------|-----|-------|-----|----|
| G     | A   | B     | C   | D  |
|       | mm  | mm    | mm  | mm |
| 3/8   | 69  | 99.5  | 40  | 44 |
| 1/2   | 72  | 101.5 | 40  | 44 |
| 3/4   | 100 | 107   | 65  | 44 |
| 1     | 104 | 112.5 | 65  | 44 |
| 1 1/4 | 145 | 134   | 102 | 44 |
| 1 1/2 | 145 | 134   | 102 | 44 |
| 2     | 173 | 148   | 118 | 44 |
| 2 1/2 | 245 | 195   | 184 | 44 |
| 3     | 250 | 195   | 184 | 44 |

Dimension reference 2000

## Electrical parts options with 2/2 valves for water and neutral liquids

| El. part Group | Coil             | Protection class | Protection class / Temperature class | Power |       | Coil Order No. | Coil Ref. No. | Connection           | Housing Order No. | Housing Ref. No. | Ambient temp. |          |
|----------------|------------------|------------------|--------------------------------------|-------|-------|----------------|---------------|----------------------|-------------------|------------------|---------------|----------|
|                |                  |                  |                                      | DC    | AC    |                |               |                      |                   |                  | min.          | max.     |
| 1              | 22 mm            | IP 65            | Class F                              | 2.5 W | 2 W   | DA01           | 488980        | for DIN plug         | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 2.5 W | 2 W   | DA02           | 481045        | with DIN plug        | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA03           | 481180        | for DIN plug         | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA04           | 481530        | with DIN plug        | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 5 W   | 4 W   | VA01           | 482605        | with 1500mm cable    | 00                | -                | -40           | 50       |
|                |                  | IP 65            | EEx m II T5                          | 2.5 W | 2 W   | VA02           | 482606        | with 1500mm cable    | 00                | -                | -40           | 50       |
| 2              | 32 mm (Std)      | IP 65            | Class F                              | 9 W   | 8 W   | DZ02           | 481865        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ03           | 482725        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class H                              | 9 W   | 8 W   | DZ04           | 492453        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      |       | 8 W   | DZ05           | 492726        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class F, 50/60 Hz                    | -     | 9 W   | DZ06           | 483510        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | -     | 9 W   | DZ07           | 482635        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 9 W   | 8 W   | HZ05           | 492670        | with 3000mm cable    | 00                | -                | -40           | 40       |
|                |                  | IP 65            | Class H                              | 14 W  | 14 W  | DZ08           | 492425        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                | 50 mm (Std)      | IP10 / IP 44     | Class F                              | 8 W   | 8 W   | EZ01           | 481000        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 8 W   | 8 W   | EZ02           | 485100        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 14 W  | 14 W  | EZ92           | 486265        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP 67            | Class F, M20x1.5                     | 8 W   | 8 W   | EZ01           | 481000        | screw-terminals      | G1                | 4538             | -40           | 50       |
|                |                  | IP 65            | EEx m II T5/T4                       | 9 W   | 8 W   | VZ01           | 492070        | with 1500mm cable    | 00                | -                | -40           | 40/65    |
|                |                  | IP 67            | EEx me II T4                         | 8 W   | 8 W   | HZ06           | 483371        | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 66            | EEx me II T3/T4                      | 11 W  | 9 W   | VZ03           | 492190        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  |                  |                                      |       |       |                |               |                      |                   |                  |               |          |
| 3              | 32 mm            | IP 65            | Class H                              | -     | 14 W  | DZ08           | 492425        | for DIN plug         | N1                | 2995             | -40           | 50       |
| 4              | 50 mm (impulse)  | IP10 / IP 44     | Class F                              | -     | 11 W  | MZ01           | 484990        | screw-terminals      | E1                | 4269             | -40           | 50       |
|                |                  | IP10 / IP 44     | Class F                              | 13 W  | -     | MZ02           | 485400        | screw-terminals      | E1                | 4269             | -40           | 50       |
| 5              | 50 mm            | IP 54            | EEx d IIC T4/T5/T6                   | 8 W   | 8 W   | HZ08           | 483250        | for cable 1/2 NPT    | 00                | -                | -40           | 80/75/60 |
| 6              | 32 mm (Miniwatt) | IP 65            | Class F                              | 1.6 W | -     | DZ10           | 482740        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 1.6W  | -     | DZ11           | 482745        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                | 50 mm (Miniwatt) | IP 67            | EEx me II T5                         | 2.5 W | -     | VZ04           | 491117        | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 67            | EEx m II T5/T4                       | 2.5 W | 2.5 W | VZ05           | 492370        | with 1500mm cable    | 00                | -                | -40           | 40/65    |
|                |                  | IP 66            | EEx me II T6/T5                      | 2.5 W | 2.5 W | VZ06           | 492390        | for cable connection | 00                | -                | -40           | 40/75    |
| 7              | 32 mm            | IP 65            | EEx ia II C T6                       | 0.4 W | -     | DZ12           | 483580.01     | for DIN plug         | N1                | 2995             | -40           | 55       |
|                |                  | IP 65            |                                      | 0.4 W | -     | DZ13           | 483960.01     | with DIN plug        | N1                | 2995             | -40           | 55       |
|                | 50 mm            | IP 66            | EEx ia II C T6                       | 0.4 W | -     | VZ07           | 488650.01     | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 67            |                                      | 0.4 W | -     | VZ08           | 488660.01     | with 2000mm cable    | 00                | -                | -40           | 65       |
|                |                  | IP 65            |                                      | 0.4 W | -     | VZ09           | 488670.01     | with DIN plug        | 00                | -                | -40           | 65       |

Note: This table is indicative only. Please contact your distributor to confirm your selection.

# Anti-water hammer valves

2/2

| ACTUATION      | BODY MATERIAL | FUNCTION        | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|----------------|---------------|-----------------|------------|--------------|---------------------|------|
| Magnalift      | Brass body    | Normally closed | 3/8        | 15           | 16.0                | 64   |
|                |               |                 | 1/2        | 15           | 16.0                | 64   |
|                |               |                 | 3/4        | 15           | 16.0                | 64   |
|                |               |                 | 1          | 15 to 25     | 16.0                | 64   |
| Pilot operated | Brass body    | Normally closed | 1/4        | 12           | 12.0                | 66   |
|                |               |                 | 3/8        | 12           | 12.0                | 66   |
|                |               |                 | 1/2        | 12           | 12.0                | 66   |
|                |               |                 | 3/4        | 18 to 20     | 16.0                | 66   |
|                |               |                 | 1          | 18 to 25     | 16.0                | 66   |
|                |               |                 | 1 1/4      | 28           | 16.0                | 68   |
|                |               |                 | 1 1/2      | 40           | 16.0                | 68   |
|                |               |                 | 2          | 40           | 16.0                | 68   |
|                |               | Normally open   | 3/4        | 20           | 16.0                | 68   |
|                |               |                 | 1          | 25           | 16.0                | 68   |
|                |               |                 | 1 1/4      | 28           | 16.0                | 68   |
|                |               |                 | 1 1/2      | 40           | 12.0                | 68   |
|                |               |                 | 2          | 40           | 12.0                | 68   |

**Notes:**

Magnalift valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

# Anti-water hammer valves

# 2/2

## Applications

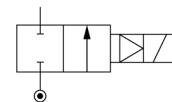
Magnalift valves are recommended in applications where the minimum pressure cannot be held at a sufficient level, i.e. where the effective supply pressure may be zero. This concerns applications like filling/emptying tanks by gravity and any other applications with a minimum pressure of zero.



## Magnalift

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |
| G         |              |                      |      |                                      |     |  |                |           |                        |                     |         |      |                       |    |         |          |

Normally closed



## Brass body/Pipe mounting

|     |    |     |     |   |    |    |    |     |              |          |              |        |              |              |      |      |      |    |
|-----|----|-----|-----|---|----|----|----|-----|--------------|----------|--------------|--------|--------------|--------------|------|------|------|----|
| 3/8 | 15 | 65  | 65  | 0 | 10 | -  | 75 | NBR | 7221GBG3VNH0 | 221G1330 | 2995         | 481865 | <sup>1</sup> | 9            | -    | 630  | 10   |    |
|     | 15 | 65  | 65  | 0 | 10 | 10 | 65 | NBR |              |          | -            | 492070 | <sup>1</sup> | 8            | 8    | 1000 |      |    |
|     | 15 | 65  | 65  | 0 | 10 | 10 | 75 | NBR |              |          | -            | 492190 | <sup>1</sup> | 9            | 11   | 1000 |      |    |
|     | 15 | 65  | 65  | 0 | -  | 16 | 75 | NBR | 7221GBG3VN00 | 221G13   | 2995         | 481865 | -            | 8            | 8    | 630  | 10   |    |
|     | 15 | 65  | 65  | 0 | -  | 16 | 75 | NBR |              |          | 4270         | 481000 | -            | 8            | 8    | 750  |      |    |
|     | 15 | 65  | 65  | 0 | 7  | -  | 75 | NBR |              |          | 4270         | 486265 | 14           | -            | -    | 760  |      |    |
| 1/2 | 15 | 65  | 65  | 0 | 10 | -  | 75 | NBR | 7221GBG4VNH0 | 221G1530 | 2995         | 481865 | <sup>1</sup> | 9            | -    | 640  | 10   |    |
|     | 15 | 65  | 65  | 0 | 10 | 10 | 65 | NBR |              |          | -            | 492070 | <sup>1</sup> | 8            | 9    | 1010 |      |    |
|     | 15 | 65  | 65  | 0 | 10 | 10 | 75 | NBR |              |          | -            | 492190 | <sup>1</sup> | 9            | 11   | 1010 |      |    |
|     | 15 | 65  | 65  | 0 | -  | 16 | 75 | NBR | 7221GBG4VN00 | 221G15   | 2995         | 481865 | -            | 8            | 8    | 640  | 10   |    |
|     | 15 | 65  | 65  | 0 | -  | 16 | 75 | NBR |              |          | 4270         | 481000 | -            | 8            | 8    | 760  |      |    |
|     | 15 | 65  | 65  | 0 | 7  | -  | 75 | NBR |              |          | 4270         | 486265 | 14           | -            | -    | 770  |      |    |
| 3/4 | 15 | 80  | 80  | 0 | -  | 10 | 75 | NBR | 7221GBG51NC0 | 221G1610 | <sup>2</sup> | 2995   | 481865       | -            | 8    | 670  | 10   |    |
|     | 15 | 80  | 80  | 0 | -  | 16 | 75 | NBR |              |          | 4270         | 481000 | -            | 8            | 790  |      |      |    |
|     | 15 | 80  | 80  | 0 | 7  | -  | 75 | NBR |              |          | 4270         | 486265 | 14           | -            | 800  |      |      |    |
|     | 15 | 80  | 80  | 0 | 10 | -  | 75 | NBR | 7221GBG51NCH | 221G1631 | <sup>2</sup> | 2995   | 481865       | <sup>1</sup> | 9    | -    | 670  | 10 |
|     | 15 | 80  | 80  | 0 | 10 | 10 | 65 | NBR |              |          | -            | 492070 | <sup>1</sup> | 8            | 8    | 1040 |      |    |
|     | 15 | 80  | 80  | 0 | 10 | 10 | 75 | NBR |              |          | -            | 492190 | <sup>1</sup> | 9            | 11   | 1040 |      |    |
| 1   | 15 | 80  | 80  | 0 | -  | 16 | 75 | NBR | 7221GBG61NC0 | 221G1710 | <sup>2</sup> | 2995   | 481865       | -            | 8    | 810  | 10   |    |
|     | 15 | 80  | 80  | 0 | -  | 16 | 75 | NBR |              |          | 4270         | 481000 | -            | 8            | 930  |      |      |    |
|     | 15 | 80  | 80  | 0 | 7  | -  | 75 | NBR |              |          | 4270         | 486265 | 14           | -            | 940  |      |      |    |
|     | 15 | 80  | 80  | 0 | 10 | -  | 75 | NBR | 7221GBG61NCH | 221G1731 | <sup>2</sup> | 2995   | 481865       | <sup>1</sup> | 9    | 8    | 810  | 10 |
|     | 15 | 80  | 80  | 0 | 10 | 10 | 65 | NBR |              |          | -            | 492070 | <sup>1</sup> | 8            | 8    | 1180 |      |    |
|     | 15 | 80  | 80  | 0 | 10 | 10 | 75 | NBR |              |          | -            | 492190 | <sup>1</sup> | 9            | 11   | 1180 |      |    |
|     | 25 | 160 | 160 | 0 | -  | 16 | 75 | NBR | 7221GBG64NC0 | 221G2110 | <sup>2</sup> | 2995   | 481865       | -            | 8    | 1170 | 10   |    |
|     | 25 | 160 | 160 | 0 | -  | 16 | 75 | NBR |              |          | 4270         | 481000 | -            | 8            | 1290 |      |      |    |
|     | 25 | 160 | 160 | 0 | 6  | -  | 75 | NBR |              |          | 4270         | 486265 | 14           | -            | 1300 |      |      |    |
|     | 25 | 160 | 160 | 0 | 10 | -  | 75 | NBR | 7221GBG64NCH | 221G2131 | <sup>2</sup> | 2995   | 481865       | <sup>1</sup> | 9    | -    | 1170 | 10 |
|     | 25 | 160 | 160 | 0 | 10 | 10 | 65 | NBR |              |          | -            | 492070 | <sup>1</sup> | 8            | 8    | 1540 |      |    |
|     | 25 | 160 | 160 | 0 | 10 | 10 | 75 | NBR |              |          | -            | 492190 | <sup>1</sup> | 9            | 11   | 1540 |      |    |

### Notes:

1. Valves with model number ending by 30 or 31 are mainly equipped with electrical parts EEx me II T3/T4 No. 492190 or EEx m II T4/T5 No. 492070 or with standard DC coils.
2. 4 position selector for controlled closure rate





# Anti-water hammer valves

# 2/2

## Applications

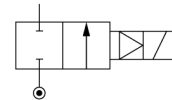
Pilot operated valves are ideally suited to shut-off applications of liquids with high flow and pressure. A minimum operating pressure is required: refer to tables.



## Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              |                      |      |                                      |     |  |                |           |                        |                     |         |      |                       |    |         |                  |          |

Normally closed



## Brass body/Pipe mounting

|     |    |     |     |     |    |    |     |     |              |                  |                          |               |   |   |      |   |    |
|-----|----|-----|-----|-----|----|----|-----|-----|--------------|------------------|--------------------------|---------------|---|---|------|---|----|
| 1/4 | 12 | 30  | 30  | 0.3 | 12 | 12 | 100 | FKM | 7321KBG2SVW0 | <b>321K4106</b>  | <b>2995</b>              | <b>481865</b> | 9 | 8 | 490  |   | 73 |
|     | 12 | 30  | 30  | 0.3 | 12 | 12 | 100 | FKM |              |                  | <b>4270</b>              | <b>481000</b> | 8 | 8 | 610  |   |    |
|     | 12 | 30  | 30  | 0.3 | 12 | 12 | 100 | FKM | 7321KBG2SVMW | <b>321K4156</b>  | <sup>1</sup> <b>2995</b> | <b>481865</b> | 9 | 8 | 490  |   | 73 |
|     | 12 | 30  | 30  | 0.3 | 12 | 12 | 100 | FKM |              |                  | <b>4270</b>              | <b>481000</b> | 8 | 8 | 610  |   |    |
| 3/8 | 12 | 45  | 45  | 0.3 | 12 | 12 | 100 | FKM | 7321KBG3TVW0 | <b>321K4306</b>  | <b>2995</b>              | <b>481865</b> | 9 | 8 | 490  |   | 73 |
|     | 12 | 45  | 45  | 0.3 | 12 | 12 | 100 | FKM |              |                  | <b>4270</b>              | <b>481000</b> | 8 | 8 | 610  |   |    |
|     | 12 | 45  | 45  | 0.3 | 12 | 12 | 100 | FKM | 7321KBG3TVMW | <b>321K4356</b>  | <sup>1</sup> <b>2995</b> | <b>481865</b> | 9 | 8 | 490  |   | 73 |
|     | 12 | 45  | 45  | 0.3 | 12 | 12 | 100 | FKM |              |                  | <b>4270</b>              | <b>481000</b> | 8 | 8 | 610  |   |    |
| 1/2 | 12 | 50  | 50  | 0.3 | 12 | 12 | 100 | FKM | 7321KBG4TVW0 | <b>321K4506</b>  | <b>2995</b>              | <b>481865</b> | 9 | 8 | 490  |   | 73 |
|     | 12 | 50  | 50  | 0.3 | 12 | 12 | 100 | FKM |              |                  | <b>4270</b>              | <b>481000</b> | 8 | 8 | 610  |   |    |
|     | 12 | 50  | 50  | 0.3 | 12 | 12 | 100 | FKM | 7321KBG4TVMW | <b>321K4556</b>  | <sup>1</sup> <b>2995</b> | <b>481865</b> | 9 | 8 | 490  |   | 73 |
|     | 12 | 50  | 50  | 0.3 | 12 | 12 | 100 | FKM |              |                  | <b>4270</b>              | <b>481000</b> | 8 | 8 | 610  |   |    |
| 3/4 | 18 | 100 | 100 | 0.3 | 12 | 12 | 100 | FKM | 7321KBG51VW0 | <b>321K4606</b>  | <b>2995</b>              | <b>481865</b> | 9 | 8 | 700  |   | 73 |
|     | 18 | 100 | 100 | 0.3 | 12 | 12 | 100 | FKM |              |                  | <b>4270</b>              | <b>481000</b> | 8 | 8 | 820  |   |    |
|     | 18 | 100 | 100 | 0.3 | 12 | 12 | 100 | FKM | 7321KBG51VMW | <b>321K4656</b>  | <sup>1</sup> <b>2995</b> | <b>481865</b> | 9 | 8 | 700  |   | 73 |
|     | 18 | 100 | 100 | 0.3 | 12 | 12 | 100 | FKM |              |                  | <b>4270</b>              | <b>481000</b> | 8 | 8 | 820  |   |    |
|     | 20 | 135 | 135 | 0.3 | 16 | 16 | 75  | NBR | 7321GBG53NMC | <b>E321G3610</b> | <sup>2</sup> <b>2995</b> | <b>481865</b> | 9 | 8 | 1430 | 2 | 11 |
|     | 20 | 135 | 135 | 0.3 | 16 | 16 | 75  | NBR |              |                  | <b>4270</b>              | <b>481000</b> | 8 | 8 | 1550 | 2 |    |
| 1   | 18 | 110 | 110 | 0.3 | 12 | 12 | 100 | FKM | 7321KBG62VW0 | <b>321K4706</b>  | <b>2995</b>              | <b>481865</b> | 9 | 8 | 845  |   | 73 |
|     | 18 | 110 | 110 | 0.3 | 12 | 12 | 100 | FKM |              |                  | <b>4270</b>              | <b>481000</b> | 8 | 8 | 965  |   |    |
|     | 18 | 110 | 110 | 0.3 | 12 | 12 | 100 | FKM | 7321KBG62VMW | <b>321K4756</b>  | <sup>1</sup> <b>2995</b> | <b>481865</b> | 9 | 8 | 845  |   | 73 |
|     | 18 | 110 | 110 | 0.3 | 12 | 12 | 100 | FKM |              |                  | <b>4270</b>              | <b>481000</b> | 8 | 8 | 965  |   |    |
|     | 25 | 180 | 180 | 0.3 | 16 | 16 | 75  | NBR | 7321GBG64NMC | <b>E321G3710</b> | <sup>2</sup> <b>2995</b> | <b>481865</b> | 9 | 8 | 1230 | 2 | 11 |
|     | 25 | 180 | 180 | 0.3 | 16 | 16 | 75  | NBR |              |                  | <b>4270</b>              | <b>481000</b> | 8 | 8 | 1350 | 2 |    |

Table continued on page 68

### Notes:

\* See Electrical Parts Group table at end of section

1. Manual override standard

2. Manual override and 4 position selector for controlled closure rate standard - without manual override and 4 position selector on request: same type without suffix 10, e.g. : E321G36

# Anti-water hammer valves 2/2 - Pilot operated

|            | A<br>mm | B<br>mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | G<br>inch | H<br>mm |
|------------|---------|---------|---------|---------|---------|---------|-----------|---------|
| <b>G37</b> | 100     | 121     | 50      | 23      | 54      | 41      | 1         | 70      |
| <b>G36</b> | 100     | 121     | 50      | 23      | 54      | 41      | 3/4       | 70      |
| <b>G38</b> | 110     | 137.5   | 55      | 33      | 60.5    | 60      | 1 1/4     | 99      |
| <b>G39</b> | 140     | 144     | 75      | 33      | 67      | 60      | 1 1/2     | 99      |
| <b>G40</b> | 150     | 158.5   | 80      | 41.5    | 73      | 75      | 2         | 99      |

**Dimension reference 11**

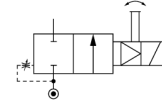
|            | A<br>inch | B<br>mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | G<br>mm | H<br>mm | I<br>mm | J<br>mm | Dia.<br>mm |
|------------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------------|
| <b>K41</b> | 1/4       | 25      | 50      | 6.2     | 29      | 27      | 5.5     | 93.5    | 39      | 73.5    | 40         |
| <b>K43</b> | 3/8       | 25      | 50      | 6.2     | 29      | 27      | 5.5     | 93.5    | 39      | 73.5    | 40         |
| <b>K45</b> | 1/2       | 27.5    | 55      | 6.2     | 29      | 27      | 5.5     | 93.5    | 39      | 73.5    | 40         |
| <b>K46</b> | 3/4       | 40      | 80      | 9       | 36.5    | 32      | 8       | 109     | 46      | 81      | 56         |
| <b>K47</b> | 1         | 42.5    | 85      | 14.2    | 36.5    | 41      | 8       | 109     | 56      | 81      | 56         |

**Dimension reference 73**

## Anti-water hammer valves 2/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              |                      |      |                                      |     |  |                |           |                        |                     |         |      |                       |    |         |                  |          |

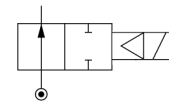
Normally closed



### Brass body/Pipe mounting

|       |    |     |     |     |     |    |    |     |              |           |   |      |        |        |    |      |      |    |  |
|-------|----|-----|-----|-----|-----|----|----|-----|--------------|-----------|---|------|--------|--------|----|------|------|----|--|
| 1 1/4 | 28 | 280 | 280 | 0.3 | 16  | 16 | 75 | NBR | 7321GBG76NMC | E321G3810 | 1 | 2995 | 481865 | 9      | 8  | 1860 | 2    | 11 |  |
|       | 28 | 280 | 280 | 0.3 | 16  | 16 | 75 | NBR |              |           |   |      | 4270   | 481000 | 8  | 8    | 1980 | 2  |  |
| 1 1/2 | 40 | 420 | 420 | 0.3 | 10  | 16 | 75 | NBR | 7321GBG88NMC | E321G3910 | 1 | 2995 | 481865 | 9      | 8  | 2560 | 2    | 11 |  |
|       | 40 | 420 | 420 | 0.3 | 8.5 | 16 | 75 | NBR |              |           |   |      | 4270   | 481000 | 8  | 8    | 2680 | 2  |  |
|       | 40 | 420 | 420 | 0.3 | 16  | 16 | 75 | NBR |              |           |   |      | 4270   | 486265 | 14 | 14   | 2700 | 2  |  |
| 2     | 40 | 540 | 540 | 0.3 | 10  | 16 | 75 | NBR | 7321GBG99NMC | E321G4010 | 1 | 2995 | 481865 | 9      | 8  | 2900 | 2    | 11 |  |
|       | 40 | 540 | 540 | 0.3 | 8.5 | 16 | 75 | NBR |              |           |   |      | 4270   | 481000 | 8  | 8    | 3040 | 2  |  |
|       | 40 | 540 | 540 | 0.3 | 16  | 16 | 75 | NBR |              |           |   |      | 4270   | 486265 | 14 | 14   | 3050 | 2  |  |

Normally open



### Brass body/Pipe mounting

|       |    |     |     |     |    |    |    |     |              |          |   |      |        |        |   |      |      |    |
|-------|----|-----|-----|-----|----|----|----|-----|--------------|----------|---|------|--------|--------|---|------|------|----|
| 3/4   | 20 | 135 | 135 | 0.3 | 16 | 16 | 75 | NBR | 7322GBG53NCO | 322G3610 | 2 | 2995 | 481865 | 9      | 8 | 1430 |      | 11 |
|       | 20 | 135 | 135 | 0.3 | 16 | 16 | 75 | NBR |              |          |   |      | 4270   | 481000 | 8 | 8    | 1550 |    |
| 1     | 25 | 185 | 185 | 0.3 | 16 | 16 | 75 | NBR | 7322GBG64NCO | 322G3710 | 2 | 2995 | 481865 | 9      | 8 | 1230 |      | 11 |
|       | 25 | 185 | 185 | 0.3 | 16 | 16 | 75 | NBR |              |          |   |      | 4270   | 481000 | 8 | 8    | 1350 |    |
| 1 1/4 | 28 | 270 | 270 | 0.3 | 16 | 16 | 75 | NBR | 7322GBG76NCO | 322G3810 | 2 | 2995 | 481865 | 9      | 8 | 1860 |      | 11 |
|       | 28 | 270 | 270 | 0.3 | 16 | 16 | 75 | NBR |              |          |   |      | 4270   | 481000 | 8 | 8    | 1980 |    |
| 1 1/2 | 40 | 425 | 425 | 0.3 | 12 | 12 | 75 | NBR | 7322GBG88NCO | 322G3910 | 2 | 2995 | 481865 | 9      | 8 | 2560 |      | 11 |
|       | 40 | 425 | 425 | 0.3 | 12 | 12 | 75 | NBR |              |          |   |      | 4270   | 481000 | 8 | 8    | 2680 |    |
| 2     | 40 | 540 | 540 | 0.3 | 12 | 12 | 75 | NBR | 7322GBG99NCO | 322G4010 | 2 | 2995 | 481865 | 9      | 8 | 2900 |      | 11 |
|       | 40 | 540 | 540 | 0.3 | 12 | 12 | 75 | NBR |              |          |   |      | 4270   | 481000 | 8 | 8    | 3040 |    |

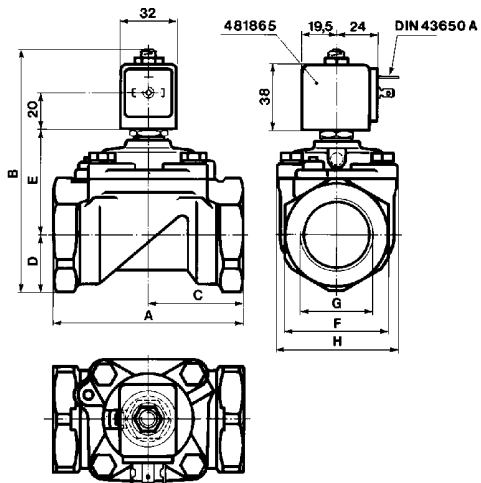
#### Notes:

\* See Electrical Parts Group table at end of section

1. Manual override and 4 position selector for controlled closure rate standard - without manual override and 4 position selector on request: same type without suffix 10, e.g. : E321G36

2. 4 position selector for controlled closure rate standard

## Anti-water hammer valves 2/2 - Pilot operated



|            | A<br>mm | B<br>mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | G<br>inch | H<br>mm |
|------------|---------|---------|---------|---------|---------|---------|-----------|---------|
| <b>G37</b> | 100     | 121     | 50      | 23      | 54      | 41      | 1         | 70      |
| <b>G36</b> | 100     | 121     | 50      | 23      | 54      | 41      | 3/4       | 70      |
| <b>G38</b> | 110     | 137.5   | 55      | 33      | 60.5    | 60      | 1 1/4     | 99      |
| <b>G39</b> | 140     | 144     | 75      | 33      | 67      | 60      | 1 1/2     | 99      |
| <b>G40</b> | 150     | 158.5   | 80      | 41.5    | 73      | 75      | 2         | 99      |



Dimension reference 11

## Electrical parts options with 2/2 anti-waterhammer valves for water and neutral liquids

| El. part Group | Coil             | Protection class | Protection class / Temperature class | Power |       | Coil      |           | Connection           | Housing   |          | Ambient temp. |          |
|----------------|------------------|------------------|--------------------------------------|-------|-------|-----------|-----------|----------------------|-----------|----------|---------------|----------|
|                |                  |                  |                                      | DC    | AC    | Order No. | Ref. No.  |                      | Order No. | Ref. No. | min.          | max.     |
| 1              | 22 mm            | IP 65            | Class F                              | 2.5 W | 2 W   | DA01      | 488980    | for DIN plug         | A0        | 8993     | -40           | 50       |
|                |                  | IP 65            | Class F                              | 2.5 W | 2 W   | DA02      | 481045    | with DIN plug        | A0        | 8993     | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA03      | 481180    | for DIN plug         | A0        | 8993     | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA04      | 481530    | with DIN plug        | A0        | 8993     | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 5 W   | 4 W   | VA01      | 482605    | with 1500mm cable    | 00        | -        | -40           | 50       |
|                |                  | IP 65            | EEx m II T5                          | 2.5 W | 2 W   | VA02      | 482606    | with 1500mm cable    | 00        | -        | -40           | 50       |
| 2              | 32 mm (Std)      | IP 65            | Class F                              | 9 W   | 8 W   | DZ02      | 481865    | for DIN plug         | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ03      | 482725    | with DIN plug        | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            | Class H                              | 9 W   | 8 W   | DZ04      | 492453    | for DIN plug         | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ05      | 492726    | with DIN plug        | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            | Class F, 50/60 Hz                    | -     | 9 W   | DZ06      | 483510    | for DIN plug         | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            |                                      | -     | 9 W   | DZ07      | 482635    | with DIN plug        | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 9 W   | 8 W   | HZ05      | 492670    | with 3000mm cable    | 00        | -        | -40           | 40       |
|                |                  | IP 65            | Class H                              | 14 W  | 14 W  | DZ08      | 492425    | for DIN plug         | N1        | 2995     | -40           | 50       |
|                | 50 mm (Std)      | IP 65            |                                      | 14 W  | 14 W  | DZ09      | 492727    | with DIN plug        | N1        | 2995     | -40           | 50       |
|                |                  | IP10 / IP 44     | Class F                              | 8 W   | 8 W   | EZ01      | 481000    | screw-terminals      | E0        | 4270     | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 8 W   | 8 W   | EZ02      | 485100    | screw-terminals      | E0        | 4270     | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 14 W  | 14 W  | EZ92      | 486265    | screw-terminals      | E0        | 4270     | -40           | 50       |
|                |                  | IP 67            | Class F, M20x1.5                     | 8 W   | 8 W   | EZ01      | 481000    | screw-terminals      | G1        | 4538     | -40           | 50       |
|                |                  | IP 65            | EEx m II T5/T4                       | 9 W   | 8 W   | VZ01      | 492070    | with 1500mm cable    | 00        | -        | -40           | 40/65    |
|                |                  | IP 67            | EEx me II T4                         | 8 W   | 8 W   | HZ06      | 483371    | for cable connection | 00        | -        | -40           | 65       |
|                |                  | IP 66            | EEx me II T3/T4                      | 11 W  | 9 W   | VZ03      | 492190    | for cable connection | 00        | -        | -40           | 75/40    |
| 3              | 32 mm            | IP 65            | Class H                              | -     | 14 W  | DZ08      | 492425    | for DIN plug         | N1        | 2995     | -40           | 50       |
| 4              | 50 mm (impulse)  | IP10 / IP 44     | Class F                              | -     | 11 W  | MZ01      | 484990    | screw-terminals      | E1        | 4269     | -40           | 50       |
|                |                  | IP10 / IP 44     | Class F                              | 13 W  | -     | MZ02      | 485400    | screw-terminals      | E1        | 4269     | -40           | 50       |
| 5              | 50 mm            | IP 54            | EEx d IIC T4/T5/T6                   | 8 W   | 8 W   | HZ08      | 483250    | for cable 1/2 NPT    | 00        | -        | -40           | 80/75/60 |
| 6              | 32 mm (Miniwatt) | IP 65            | Class F                              | 1.6 W | -     | DZ10      | 482740    | for DIN plug         | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            | Class F                              | 1.6W  | -     | DZ11      | 482745    | with DIN plug        | N1        | 2995     | -40           | 50       |
|                | 50 mm (Miniwatt) | IP 67            | EEx me II T5                         | 2.5 W | -     | VZ04      | 491117    | for cable connection | 00        | -        | -40           | 65       |
|                |                  | IP 67            | EEx m II T5/T4                       | 2.5 W | 2.5 W | VZ05      | 492370    | with 1500mm cable    | 00        | -        | -40           | 40/65    |
|                |                  | IP 66            | EEx me II T6/T5                      | 2.5 W | 2.5 W | VZ06      | 492390    | for cable connection | 00        | -        | -40           | 40/75    |
| 7              | 32 mm            | IP 65            | EEx ia II C T6                       | 0.4 W | -     | DZ12      | 483580.01 | for DIN plug         | N1        | 2995     | -40           | 55       |
|                |                  | IP 65            |                                      | 0.4 W | -     | DZ13      | 483960.01 | with DIN plug        | N1        | 2995     | -40           | 55       |
|                | 50 mm            | IP 66            | EEx ia II C T6                       | 0.4 W | -     | VZ07      | 488650.01 | for cable connection | 00        | -        | -40           | 65       |
|                |                  | IP 67            |                                      | 0.4 W | -     | VZ08      | 488660.01 | with 2000mm cable    | 00        | -        | -40           | 65       |
|                |                  | IP 65            |                                      | 0.4 W | -     | VZ09      | 488670.01 | with DIN plug        | 00        | -        | -40           | 65       |

Note: This table is indicative only. Please contact your distributor to confirm your selection.

# Hot water - steam valves

2/2

| ACTUATION       | BODY MATERIAL            | FUNCTION        | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|-----------------|--------------------------|-----------------|------------|--------------|---------------------|------|
| Direct operated | Brass body               | Normally closed | 1/4        | 3 to 5       | 10.0                | 72   |
|                 |                          |                 | 3/8        | 6            | 5.0                 | 72   |
|                 |                          |                 | 1/2        | 8.5 to 11    | 4.0                 | 72   |
|                 | 303 Stainless steel body |                 | 1/4        | 1.5 to 5     | 100.0               | 74   |
| Magnalift       | Brass body               | Normally closed | 3/8        | 15           | 10.0                | 76   |
|                 |                          |                 | 1/2        | 15           | 10.0                | 76   |
|                 |                          |                 | 3/4        | 15           | 10.0                | 76   |
|                 |                          |                 | 1          | 15 to 25     | 10.0                | 76   |
|                 |                          | Normally open   | 3/8        | 15           | 3.5                 | 78   |
|                 |                          |                 | 1/2        | 15           | 3.5                 | 78   |
|                 | 303 Stainless steel body | Normally closed | 3/8        | 15           | 7.0                 | 78   |
|                 |                          |                 | 1/2        | 15           | 7.0                 | 78   |
|                 |                          |                 | 3/4        | 15 to 19     | 7.0                 | 78   |
|                 |                          | Normally open   | 3/8        | 16           | 8.5                 | 78   |
|                 |                          |                 | 1/2        | 16           | 8.5                 | 78   |
|                 |                          |                 | 3/4        | 19           | 8.5                 | 78   |
| Pilot operated  | Brass body               | Normally closed | 1/4        | 12           | 12.0                | 80   |
|                 |                          |                 | 3/8        | 12 to 15     | 20.0                | 80   |
|                 |                          |                 | 1/2        | 12 to 15     | 12.0                | 80   |
|                 |                          |                 | 3/4        | 15 to 20     | 12.0                | 80   |
|                 |                          |                 | 1          | 18 to 27     | 12.0                | 80   |
|                 |                          |                 | 1 1/4      | 29 to 35     | 8.5                 | 82   |
|                 |                          |                 | 1 1/2      | 32 to 40     | 8.5                 | 82   |
|                 |                          |                 | 2          | 50           | 4.0                 | 82   |
|                 |                          | Normally open   | 3/8        | 15           | 8.5                 | 82   |
|                 |                          |                 | 1/2        | 16           | 8.5                 | 82   |
|                 |                          |                 | 3/4        | 15           | 8.5                 | 82   |
|                 |                          |                 | 1          | 27           | 8.5                 | 82   |
|                 |                          |                 | 1 1/4      | 28           | 8.5                 | 82   |
|                 |                          |                 | 1 1/2      | 31           | 8.5                 | 82   |

**Notes:**

Direct operated and magnalift valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

# Hot water - steam valves

# 2/2

## Applications

Hot water and steam valves are important elements in many industrial applications. They serve to control the flow of steam in various heating applications: steam cookers, autoclaves, air conditioning systems, car washing equipment and food processing equipment.

Note: The indicated max. pressures for steam are in bar abs.

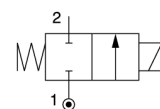


## Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C |       | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  | Water          | Steam |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |
| G         |              |                      |      |                                      |     |  |                |       |           |                        |                     |         |      |                       |    |         |          |

## Brass body/Pipe mounting

Normally closed



|     |     |     |      |   |      |     |     |     |      |              |                  |             |               |    |    |     |   |
|-----|-----|-----|------|---|------|-----|-----|-----|------|--------------|------------------|-------------|---------------|----|----|-----|---|
| 1/4 | 3   | 4.5 | 9    | 0 | 7    | 10  | 100 | -   | EPDM | 7121KBG2NE00 | <b>121K0323</b>  | <b>2995</b> | <b>481865</b> | 9  | 8  | 290 | 3 |
|     | 3   | 4.5 | 9    | 0 | 8.5  | 10  | 120 | -   | EPDM | 7121KBG2NE00 |                  | <b>4270</b> | <b>481000</b> | 8  | 8  | 410 |   |
|     | 3   | 4.5 | 9    | 0 | 10   | 10  | 120 | -   | EPDM | 7121KBG2NE00 |                  | <b>4270</b> | <b>486265</b> | 14 | 14 | 420 |   |
|     | 3   | 4.5 | 9    | 0 | 4    | 4   | -   | 140 | EPDM | 7121KBG2NES0 |                  | <b>4270</b> | <b>486265</b> | 14 | 14 | 420 |   |
|     | 3   | 4.5 | 9    | 0 | 4    | 4   | -   | 140 | EPDM | 7121KBG2NES0 |                  | <b>2995</b> | <b>492425</b> | 14 | 14 | 300 |   |
|     | 5   | 11  | 11.5 | 0 | 2    | 7   | 100 | -   | EPDM | 7121KBG2SE00 | <b>121K0103</b>  | <b>2995</b> | <b>481865</b> | 9  | 8  | 290 | 3 |
|     | 5   | 11  | 11.5 | 0 | 2.8  | 7   | 120 | -   | EPDM | 7121KBG2SE00 |                  | <b>4270</b> | <b>481000</b> | 8  | 8  | 410 |   |
|     | 5   | 11  | 11.5 | 0 | 5    | 7   | 120 | -   | EPDM | 7121KBG2SE00 |                  | <b>4270</b> | <b>486265</b> | 14 | 14 | 420 |   |
|     | 5   | 11  | 11.5 | 0 | 4    | 4   | -   | 140 | EPDM | 7121KBG2SES0 |                  | <b>4270</b> | <b>486265</b> | 14 | 14 | 420 |   |
|     | 5   | 11  | 11.5 | 0 | 3.5  | 4   | -   | 140 | EPDM | 7121KBG2SES0 |                  | <b>2995</b> | <b>492425</b> | 14 | 14 | 300 |   |
| 3/8 | 6   | 12  | 12.5 | 0 | 1.1  | 5   | 100 | -   | EPDM | 7121KBG3UE00 | <b>121K3303</b>  | <b>2995</b> | <b>481865</b> | 9  | 8  | 340 | 3 |
|     | 6   | 12  | 12.5 | 0 | 1.5  | 5   | 120 | -   | EPDM | 7121KBG3UE00 |                  | <b>4270</b> | <b>481000</b> | 8  | 8  | 460 |   |
|     | 6   | 12  | 12.5 | 0 | 3    | 5   | 120 | -   | EPDM | 7121KBG3UE00 |                  | <b>4270</b> | <b>486265</b> | 14 | 14 | 470 |   |
|     | 6   | 12  | 12.5 | 0 | 3    | 4   | -   | 140 | EPDM | 7121KBG3UES0 |                  | <b>4270</b> | <b>486265</b> | 14 | 14 | 470 |   |
|     | 6   | 12  | 12.5 | 0 | 2.5  | 4   | -   | 140 | EPDM | 7121KBG3UES0 |                  | <b>2995</b> | <b>492425</b> | 14 | 14 | 350 |   |
| 1/2 | 8.5 | 25  | 15   | 0 | 0.5  | 2.2 | 120 | -   | EPDM | 7121KBG42E00 | <b>E121K4603</b> | <b>4270</b> | <b>481000</b> | 8  | 8  | 550 | 7 |
|     | 8.5 | 25  | 15   | 0 | 1.2  | 4   | 120 | -   | EPDM | 7121KBG42E00 |                  | <b>4270</b> | <b>486265</b> | 14 | 14 | 560 |   |
|     | 8.5 | 25  | 15   | 0 | 2.2  | 4   | -   | 140 | EPDM | 7121KBG42ES0 |                  | <b>4270</b> | <b>486265</b> | 14 | 14 | 560 |   |
|     | 8.5 | 25  | 15   | 0 | 2    | 4   | -   | 140 | EPDM | 7121KBG42ES0 |                  | <b>2995</b> | <b>492425</b> | 14 | 14 | 440 |   |
|     | 11  | 36  | 20   | 0 | 0.35 | 1.2 | 120 | -   | EPDM | 7121KBG44E00 | <b>E121K4503</b> | <b>4270</b> | <b>481000</b> | 8  | 8  | 550 | 7 |
|     | 11  | 36  | 20   | 0 | -    | 2   | -   | 140 | EPDM | 7121KBG44ES0 |                  | <b>4270</b> | <b>486265</b> | 14 | 14 | 560 |   |
|     | 11  | 36  | 20   | 0 | 0.7  | 2.5 | 120 | -   | EPDM | 7121KBG44E00 |                  | <b>4270</b> | <b>486265</b> | 14 | 14 | 560 |   |
|     | 11  | 36  | 20   | 0 | -    | 2.5 | -   | 140 | EPDM | 7121KBG44ES0 |                  | <b>2995</b> | <b>492425</b> | 14 | 14 | 440 |   |

Table continued on page 74



# Hot water - steam valves 2/2 - Direct operated

**DIN 43650A**

M5x5 mm

Values in brackets for G 3/8 valves  
 Valeurs entre parenthèse pour valves G 3/8  
 Angaben in Klammern für G 3/8 Ventile

Dimension reference 3

M5 x 5 mm

44

37

12

∅ Pg 9

22 41

481000  
485100  
486265

32

76

20

32

15

55

19.5 24

38

481865

DIN 43650A

27

∅34

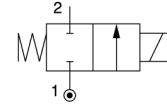
Dimension reference 7

## Hot water - steam valves 2/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C |       | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  | Water          | Steam |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |

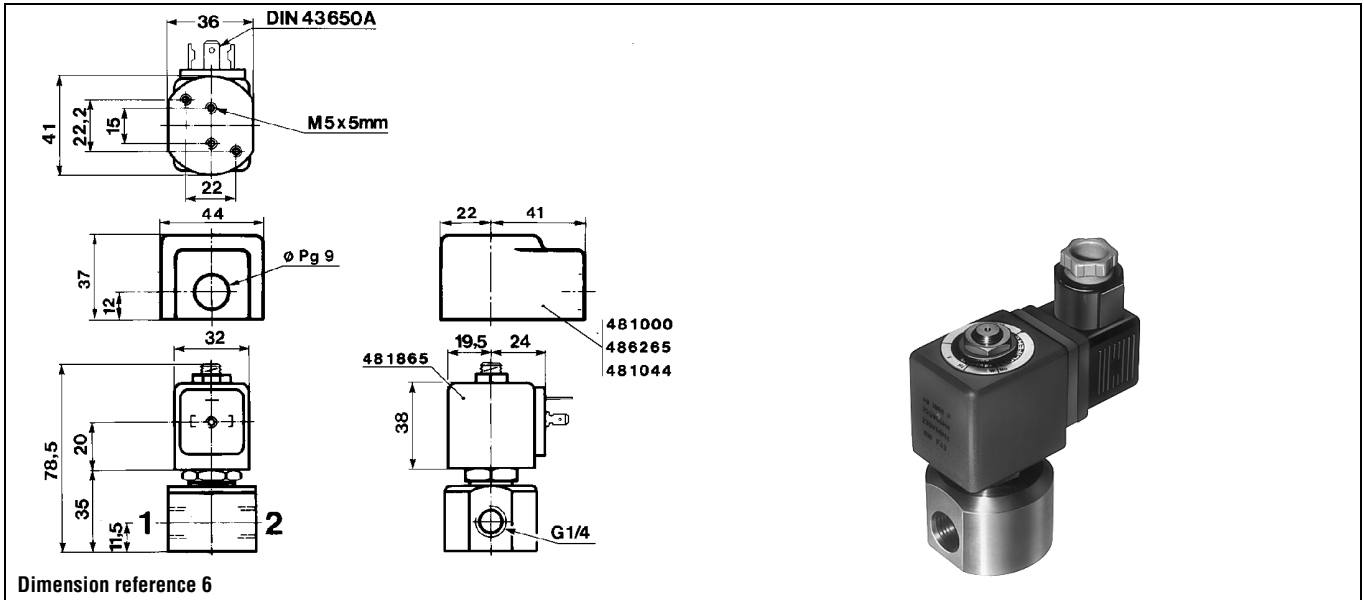
### 303 Stainless steel body/Pipe mounting

Normally closed



|     |     |     |    |     |     |     |     |      |              |                 |                 |               |               |    |     |     |   |
|-----|-----|-----|----|-----|-----|-----|-----|------|--------------|-----------------|-----------------|---------------|---------------|----|-----|-----|---|
| 1/4 | 1.5 | 1.5 | 15 | 0   | 25  | 60  | 100 | -    | Ruby         | 7121VVG2GR00    | <b>121V5463</b> | <b>2995</b>   | <b>481865</b> | 9  | 8   | 410 | 6 |
|     | 1.5 | 1.5 | 15 | 0   | 30  | 75  | 130 | -    | Ruby         | 7121VVG2GR00    |                 | <b>4270</b>   | <b>481000</b> | 8  | 8   | 530 |   |
|     | 1.5 | 1.5 | 15 | 0   | 55  | 100 | 140 | -    | Ruby         | 7121VVG2GR00    |                 | <b>4270</b>   | <b>486265</b> | 14 | 14  | 540 |   |
|     | 1.5 | 1.5 | 15 | 0   | 30  | 75  | -   | 180  | Ruby         | 7121VVG2GRS0    |                 | <b>4270</b>   | <b>486265</b> | 14 | 14  | 540 |   |
|     | 1.5 | 1.5 | 15 | 0   | 25  | 60  | -   | 180  | Ruby         | 7121VVG2GRS0    |                 | <b>2995</b>   | <b>492425</b> | 14 | 14  | 420 |   |
|     | 2.5 | 3.5 | 25 | 0   | 10  | 28  | 100 | -    | Ruby         | 7121VVG2LR00    | <b>121V5763</b> | <b>2995</b>   | <b>481865</b> | 9  | 8   | 410 | 6 |
|     | 2.5 | 3.5 | 25 | 0   | 12  | 34  | 130 | -    | Ruby         | 7121VVG2LR00    |                 | <b>4270</b>   | <b>481000</b> | 8  | 8   | 530 |   |
|     | 2.5 | 3.5 | 25 | 0   | 12  | 34  | -   | 180  | Ruby         | 7121VVG2LRS0    |                 | <b>4270</b>   | <b>486265</b> | 14 | 14  | 540 |   |
|     | 2.5 | 3.5 | 25 | 0   | 22  | 50  | 140 | -    | Ruby         | 7121VVG2LR00    |                 | <b>4270</b>   | <b>486265</b> | 14 | 14  | 540 |   |
|     | 2.5 | 3.5 | 25 | 0   | 10  | 28  | -   | 180  | Ruby         | 7121VVG2LRS0    |                 | <b>2995</b>   | <b>492425</b> | 14 | 14  | 420 |   |
|     | 3   | 4.5 | 27 | 0   | 7   | 20  | 100 | -    | Ruby         | 7121VVG2NR00    | <b>121V5363</b> | <b>2995</b>   | <b>481865</b> | 9  | 8   | 410 | 6 |
|     | 3   | 4.5 | 27 | 0   | 8.5 | 25  | 130 | -    | Ruby         | 7121VVG2NR00    |                 | <b>4270</b>   | <b>481000</b> | 8  | 8   | 530 |   |
|     | 3   | 4.5 | 27 | 0   | 15  | 36  | 140 | -    | Ruby         | 7121VVG2NR00    |                 | <b>4270</b>   | <b>486265</b> | 14 | 14  | 540 |   |
|     | 3   | 4.5 | 27 | 0   | 8.5 | 25  | -   | 180  | Ruby         | 7121VVG2NRS0    |                 | <b>4270</b>   | <b>486265</b> | 14 | 14  | 540 |   |
|     | 3   | 4.5 | 27 | 0   | 7   | 20  | -   | 180  | Ruby         | 7121VVG2NRS0    |                 | <b>2995</b>   | <b>492425</b> | 14 | 14  | 420 |   |
|     | 4   | 7   | 35 | 0   | 4   | 12  | 100 | -    | Ruby         | 7121VVG2QR00    | <b>121V5263</b> | <b>2995</b>   | <b>481865</b> | 9  | 8   | 410 | 6 |
|     | 4   | 7   | 35 | 0   | 5   | 15  | 130 | -    | Ruby         | 7121VVG2QR00    |                 | <b>4270</b>   | <b>481000</b> | 8  | 8   | 530 |   |
|     | 4   | 7   | 35 | 0   | 10  | 22  | 130 | -    | Ruby         | 7121VVG2QR00    |                 | <b>4270</b>   | <b>486265</b> | 14 | 14  | 540 |   |
|     | 4   | 7   | 35 | 0   | 5   | 15  | -   | 180  | Ruby         | 7121VVG2QRS0    |                 | <b>4270</b>   | <b>486265</b> | 14 | 14  | 540 |   |
|     | 4   | 7   | 35 | 0   | 4   | 12  | -   | 180  | Ruby         | 7121VVG2QRS0    |                 | <b>2995</b>   | <b>492425</b> | 14 | 14  | 420 |   |
| 5   | 10  | 40  | 0  | 2   | 8.5 | 100 | -   | Ruby | 7121VVG2SR00 | <b>121V5163</b> | <b>2995</b>     | <b>481865</b> | 9             | 8  | 410 | 6   |   |
| 5   | 10  | 40  | 0  | 3.5 | 10  | 130 | -   | Ruby | 7121VVG2SR00 |                 | <b>4270</b>     | <b>481000</b> | 8             | 8  | 530 |     |   |
| 5   | 10  | 40  | 0  | 6.5 | 14  | 140 | -   | Ruby | 7121VVG2SR00 |                 | <b>4270</b>     | <b>486265</b> | 14            | 14 | 540 |     |   |
| 5   | 10  | 40  | 0  | 3.5 | 10  | -   | 180 | Ruby | 7121VVG2SRS0 |                 | <b>4270</b>     | <b>486265</b> | 14            | 14 | 540 |     |   |
| 5   | 10  | 40  | 0  | 2   | 8.5 | -   | 180 | Ruby | 7121VVG2SRS0 |                 | <b>2995</b>     | <b>492425</b> | 14            | 14 | 420 |     |   |

# Hot water - steam valves 2/2 - Direct operated



# Hot water - steam valves

# 2/2

## Applications

Magnalift valves are recommended in applications where the minimum pressure cannot be held at a sufficient level, i.e. where the effective supply pressure may be zero. This concerns applications like filling/emptying tanks by gravity and any other applications with a minimum pressure of zero.

Note: The indicated max. pressures for steam are in bar abs.

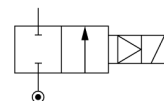


## Magnalift

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C |       | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  | Water          | Steam |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |
| G         |              |                      |      |                                      |     |  |                |       |           |                        |                     |         |      |                       |    |         |          |

## Brass body/Pipe mounting

Normally closed



|     |    |     |     |   |   |    |     |     |      |              |          |      |        |    |    |      |    |
|-----|----|-----|-----|---|---|----|-----|-----|------|--------------|----------|------|--------|----|----|------|----|
| 3/8 | 15 | 65  | 65  | 0 | - | 10 | 100 | -   | EPDM | 7221GBG3VE00 | 221G1303 | 2995 | 481865 | -  | 8  | 630  | 10 |
|     | 15 | 65  | 65  | 0 | - | 10 | 120 | -   | EPDM | 7221GBG3VE00 |          | 4270 | 481000 | -  | 8  | 750  |    |
|     | 15 | 65  | 65  | 0 | 7 | 10 | 120 | -   | EPDM | 7221GBG3VE00 |          | 4270 | 486265 | 14 | 14 | 760  |    |
|     | 15 | 65  | 65  | 0 | 4 | 4  | -   | 140 | EPDM | 7221GBG3VES0 |          | 4270 | 486265 | 14 | 14 | 760  |    |
|     | 15 | 65  | 65  | 0 | 4 | 4  | -   | 140 | EPDM | 7221GBG3VES0 |          | 2995 | 492425 | 14 | 14 | 640  |    |
| 1/2 | 15 | 65  | 65  | 0 | - | 10 | 100 | -   | EPDM | 7221GBG4VE00 | 221G1503 | 2995 | 481865 | -  | 8  | 640  | 10 |
|     | 15 | 65  | 65  | 0 | - | 10 | 120 | -   | EPDM | 7221GBG4VE00 |          | 4270 | 481000 | -  | 8  | 760  |    |
|     | 15 | 65  | 65  | 0 | 7 | 10 | 120 | -   | EPDM | 7221GBG4VE00 |          | 4270 | 486265 | 14 | 14 | 770  |    |
|     | 15 | 65  | 65  | 0 | 4 | 4  | -   | 140 | EPDM | 7221GBG4VES0 |          | 4270 | 486265 | 14 | 14 | 770  |    |
|     | 15 | 65  | 65  | 0 | 4 | 4  | -   | 140 | EPDM | 7221GBG4VES0 |          | 2995 | 492425 | 14 | 14 | 650  |    |
| 3/4 | 15 | 80  | 80  | 0 | - | 10 | 100 | -   | EPDM | 7221GBG51E00 | 221G1603 | 2995 | 481865 | -  | 8  | 670  | 10 |
|     | 15 | 80  | 80  | 0 | - | 10 | 120 | -   | EPDM | 7221GBG51E00 |          | 4270 | 481000 | -  | 8  | 790  |    |
|     | 15 | 80  | 80  | 0 | 7 | 10 | 120 | -   | EPDM | 7221GBG51E00 |          | 4270 | 486265 | 14 | 14 | 800  |    |
|     | 15 | 80  | 80  | 0 | 4 | 4  | -   | 140 | EPDM | 7221GBG51ES0 |          | 4270 | 486265 | 14 | 14 | 800  |    |
|     | 15 | 80  | 80  | 0 | 4 | 4  | -   | 140 | EPDM | 7221GBG51ES0 |          | 2995 | 492425 | 14 | 14 | 680  |    |
| 1   | 15 | 80  | 80  | 0 | - | 10 | 100 | -   | EPDM | 7221GBG61E00 | 221G1703 | 2995 | 481865 | -  | 8  | 810  | 10 |
|     | 15 | 80  | 80  | 0 | - | 10 | 120 | -   | EPDM | 7221GBG61E00 |          | 4270 | 481000 | -  | 8  | 930  |    |
|     | 15 | 80  | 80  | 0 | 7 | 10 | 120 | -   | EPDM | 7221GBG61E00 |          | 4270 | 486265 | 14 | 14 | 940  |    |
|     | 15 | 80  | 80  | 0 | 4 | 4  | -   | 140 | EPDM | 7221GBG61ES0 |          | 4270 | 486265 | 14 | 14 | 940  |    |
|     | 15 | 80  | 80  | 0 | 4 | 4  | -   | 140 | EPDM | 7221GBG61ES0 |          | 2995 | 492425 | 14 | 14 | 820  |    |
|     | 25 | 160 | 160 | 0 | - | 10 | 100 | -   | EPDM | 7221GBG64E00 | 221G2103 | 2995 | 481865 | -  | 8  | 1170 | 10 |
|     | 25 | 160 | 160 | 0 | - | 10 | 120 | -   | EPDM | 7221GBG64E00 |          | 4270 | 481000 | -  | 8  | 1290 |    |
|     | 25 | 160 | 160 | 0 | 7 | 10 | 120 | -   | EPDM | 7221GBG64E00 |          | 4270 | 486265 | 14 | 14 | 1300 |    |
|     | 25 | 160 | 160 | 0 | 4 | 4  | -   | 140 | EPDM | 7221GBG64ES0 |          | 4270 | 486265 | 14 | 14 | 1300 |    |
|     | 25 | 160 | 160 | 0 | 4 | 4  | -   | 140 | EPDM | 7221GBG64ES0 |          | 2995 | 492425 | 14 | 14 | 1180 |    |

Table continued on page 78

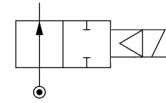


## Hot water - steam valves 2/2 - Magnalift

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C |       | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  | Water          | Steam |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |
| G         |              |                      |      |                                      |     |  |                |       |           |                        |                     |         |      |                       |    |         |          |

### Brass body/Pipe mounting

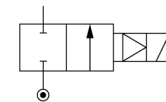
Normally open



|     |    |    |    |   |     |     |     |     |      |              |          |      |        |    |    |     |     |
|-----|----|----|----|---|-----|-----|-----|-----|------|--------------|----------|------|--------|----|----|-----|-----|
| 3/8 | 15 | 43 | 43 | 0 | -   | 3.5 | -   | 145 | EPDM | 72228BG3TES0 | 222G3303 | 4270 | 486265 | -  | 14 | 940 | 102 |
|     | 15 | 43 | 43 | 0 | 8.5 | 8.5 | 100 | -   | EPDM | 72228BG3TE00 |          | 4270 | 486265 | 14 | 14 | 940 |     |
| 1/2 | 15 | 58 | 58 | 0 | -   | 3.5 | -   | 145 | EPDM | 72228BG4UES0 | 222G3503 | 4270 | 486265 | -  | 14 | 940 | 102 |
|     | 15 | 58 | 58 | 0 | 8.5 | 8.5 | 100 | -   | EPDM | 72228BG4UE00 |          | 4270 | 486265 | 14 | 14 | 940 |     |
| 3/4 | 19 | 72 | -  | 0 | -   | 3.5 | -   | 145 | EPDM | 72228BG5VES0 | 222G3603 | 4270 | 486265 | -  | 14 | 940 | 102 |
|     | 19 | 72 | 72 | 0 | 8.5 | 8.5 | 100 | -   | EPDM | 72228BG5VE00 |          | 4270 | 486265 | 14 | 14 | 940 |     |

### 303 Stainless steel body/Pipe mounting

Normally closed



|     |    |    |    |   |     |   |     |     |      |              |          |      |        |    |    |      |     |
|-----|----|----|----|---|-----|---|-----|-----|------|--------------|----------|------|--------|----|----|------|-----|
| 3/8 | 15 | 42 | -  | 0 | -   | 7 | 85  | -   | EPDM | 72218RG3TE00 | 221G5303 | 4270 | 481000 | -  | 8  | 1050 | 102 |
|     | 15 | 42 | -  | 0 | 3.8 | 4 | -   | 145 | EPDM | 72218RG3TES0 |          | 4270 | 486265 | 14 | 14 | 1060 |     |
|     | 15 | 42 | -  | 0 | 2.8 | 7 | 100 | -   | EPDM | 72218RG3TE00 |          | 4270 | 486265 | 14 | 14 | 1060 |     |
|     | 15 | 42 | -  | 0 | -   | 4 | -   | 145 | EPDM | 72218RG3TES0 |          | 2995 | 492425 | -  | 14 | 1060 |     |
| 1/2 | 15 | 54 | 54 | 0 | -   | 7 | 85  | -   | EPDM | 72218RG4UE00 | 221G5503 | 4270 | 481000 | -  | 8  | 1050 | 102 |
|     | 15 | 54 | 54 | 0 | 3.8 | 4 | -   | 145 | EPDM | 72218RG4UES0 |          | 4270 | 486265 | -  | 14 | 1060 |     |
|     | 15 | 54 | 54 | 0 | 2.8 | 7 | 100 | -   | EPDM | 72218RG4UE00 |          | 4270 | 486265 | 14 | 14 | 1060 |     |
|     | 15 | 54 | 54 | 0 | -   | 4 | -   | 140 | EPDM | 72218RG4UES0 |          | 2995 | 492425 | -  | 14 | 1060 |     |
| 3/4 | 15 | 71 | 71 | 0 | 2.8 | 7 | 100 | -   | EPDM | 72218RG5VE00 | 221G5603 | 4270 | 486265 | 14 | 14 | 1060 | 102 |
|     | 19 | 71 | 71 | 0 | -   | 7 | 85  | -   | EPDM | 72218RG5VE00 |          | 4270 | 481000 | -  | 8  | 1050 |     |
|     | 19 | 71 | 71 | 0 | 3.8 | 4 | -   | 145 | EPDM | 72218RG5VES0 |          | 4270 | 486265 | 14 | 14 | 1060 |     |
|     | 19 | 71 | 71 | 0 | -   | 4 | -   | 145 | EPDM | 72218RG5VES0 |          | 2995 | 492425 | -  | 14 | 1060 |     |

### 303 Stainless steel body/Pipe mounting

Normally open

|     |    |    |    |   |     |     |     |     |      |              |          |      |        |    |    |      |     |
|-----|----|----|----|---|-----|-----|-----|-----|------|--------------|----------|------|--------|----|----|------|-----|
| 3/8 | 16 | 43 | 43 | 0 | 8.5 | 8.5 | 100 | -   | EPDM | 72228RG3TE00 | 222G5303 | 4270 | 486265 | 14 | 14 | 1060 | 102 |
|     | 16 | 43 | 43 | 0 | -   | 3.5 | -   | 145 | EPDM | 72228RG3TES0 |          | 4270 | 486265 | -  | 14 | 1060 |     |
| 1/2 | 16 | 58 | 58 | 0 | 8.5 | 8.5 | 100 | -   | EPDM | 72228RG4UE00 | 222G5503 | 4270 | 486265 | 14 | 14 | 1060 | 102 |
|     | 16 | 58 | 58 | 0 | -   | 3.5 | -   | 145 | EPDM | 72228RG4UES0 |          | 4270 | 486265 | -  | 14 | 1060 |     |
| 3/4 | 19 | 72 | 72 | 0 | 8.5 | 8.5 | 100 | -   | EPDM | 72228RG5VE00 | 222G5603 | 4270 | 486265 | 14 | 14 | 1060 | 102 |
|     | 19 | 72 | 72 | 0 | -   | 3.5 | -   | 145 | EPDM | 72228RG5VES0 |          | 4270 | 486265 | -  | 14 | 1060 |     |

# Hot water - steam valves 2/2 - Magnalift

|                   | H   | P  | L  |
|-------------------|-----|----|----|
|                   | mm  | mm | mm |
| 221G53../222G33.. | 103 | 89 | 67 |
| 221G55../222G35.. | 103 | 89 | 67 |
| 221G56../222G36.. | 103 | 89 | 69 |

Dimension reference 102

# Hot water - steam valves

# 2/2

## Applications

Pilot operated valves are ideally suited to shut-off applications of liquids with high flow and pressure.

A minimum operating pressure is required: refer to tables.

Note: The indicated max. pressures for steam are in bar abs.

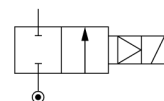


## Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |    | Fluid temp. °C |       | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|----|----------------|-------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |    | Water          | Steam |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |
| G         |              |                      |      |                                      | DC  | AC |                |       |           |                        |                     |         |      |                       |    |         |          |

## Brass body/Pipe mounting

Normally closed



|     |     |     |     |     |     |     |     |      |              |              |          |      |        |        |    |      |      |      |
|-----|-----|-----|-----|-----|-----|-----|-----|------|--------------|--------------|----------|------|--------|--------|----|------|------|------|
| 1/4 | 12  | 30  | 30  | 0.3 | 12  | 12  | 120 | -    | EPDM         | 7321KBG2SEW0 | 321K4103 | 1    | 4270   | 481000 | 8  | 8    | 610  | 73   |
|     | 12  | 30  | 30  | 0.3 | 12  | 12  | 100 | -    | EPDM         | 7321KBG2SEW0 |          |      | 2995   | 482730 | 7  | 6    | 490  |      |
| 3/8 | 12  | 45  | 45  | 0.3 | 12  | 12  | 120 | -    | EPDM         | 7321KBG3TEW0 | 321K4303 | 1    | 4270   | 481000 | 8  | 8    | 610  | 73   |
|     | 12  | 45  | 45  | 0.3 | 12  | 12  | 100 | -    | EPDM         | 7321KBG3TEW0 |          |      | 2995   | 482730 | 7  | 6    | 490  |      |
|     | 13  | 50  | 50  | 0.1 | 20  | 20  | 140 | 140  | EPDM         | 7321BBG3TE00 | -        |      | 4270   | 486265 | 14 | 14   | 560  | 1000 |
| 1/2 | 15  | 42  | 42  | 0.3 | -   | 8.5 | -   | 180  | PTFE         | 73218BG3TTS0 | 321G8312 |      | 4270   | 486265 | -  | 14   | 960  | 97   |
|     | 12  | 50  | 50  | 0.3 | 12  | 12  | 120 | -    | EPDM         | 7321KBG4TEW0 | 321K4503 | 1    | 4270   | 481000 | 8  | 8    | 610  | 73   |
|     | 12  | 50  | 50  | 0.3 | 12  | 12  | 100 | -    | EPDM         | 7321KBG4TEW0 |          |      | 2995   | 482730 | 7  | 6    | 490  |      |
|     | 13  | 140 | 140 | 0.1 | 4   | 4   | 140 | 140  | EPDM         | 7321BBG4TE00 | -        |      | 4270   | 486265 | 14 | 14   | 590  | 1000 |
| 15  | 56  | 56  | 0.3 | -   | 8.5 | -   | 180 | PTFE | 73218BG4UTS0 | 321G8512     |          | 4270 | 486265 | -      | 14 | 960  | 97   |      |
| 3/4 | 15  | 64  | 64  | 0.3 | -   | 8.5 | -   | 180  | PTFE         | 73218BG5VTS0 | 321G8612 |      | 4270   | 486265 | -  | 14   | 960  | 97   |
|     | 18  | 100 | 100 | 0.3 | 12  | 12  | 120 | -    | EPDM         | 7321KBG51EW0 | 321K4603 | 1    | 4270   | 481000 | 8  | 8    | 820  | 73   |
|     | 18  | 100 | 100 | 0.3 | 12  | 12  | 100 | -    | EPDM         | 7321KBG51EW0 |          |      | 2995   | 482730 | 7  | 6    | 700  |      |
| 20  | 140 | 140 | 0.1 | 4   | 4   | 140 | 140 | EPDM | 7321BBG53E00 | -            |          | 4270 | 486265 | 14     | 14 | 1050 | 1000 |      |
| 1   | 18  | 110 | 110 | 0.3 | 12  | 12  | 120 | -    | EPDM         | 7321KBG62EW0 | 321K4703 | 1    | 4270   | 481000 | 8  | 8    | 965  | 73   |
|     | 18  | 110 | 110 | 0.3 | 12  | 12  | 100 | -    | EPDM         | 7321KBG62EW0 |          |      | 2995   | 482730 | 7  | 6    | 845  |      |
|     | 25  | 160 | 160 | 0.1 | 4   | 4   | 140 | 140  | EPDM         | 7321BBG64E00 | -        |      | 4270   | 486265 | 14 | 14   | 1110 | 1000 |

Table continued on page 82

### Notes:

1. Anti-waterhammer valve



# Hot water - steam valves 2/2 - Pilot operated

|            | A    | B    | C  | D    | E    | F  | G   | H    | I  | J    | Dia. |
|------------|------|------|----|------|------|----|-----|------|----|------|------|
|            | inch | mm   | mm | mm   | mm   | mm | mm  | mm   | mm | mm   | mm   |
| <b>K41</b> | 1/4  | 25   | 50 | 6.2  | 29   | 27 | 5.5 | 93.5 | 39 | 73.5 | 40   |
| <b>K43</b> | 3/8  | 25   | 50 | 6.2  | 29   | 27 | 5.5 | 93.5 | 39 | 73.5 | 40   |
| <b>K45</b> | 1/2  | 27.5 | 55 | 6.2  | 29   | 27 | 5.5 | 93.5 | 39 | 73.5 | 40   |
| <b>K46</b> | 3/4  | 40   | 80 | 9    | 36.5 | 32 | 8   | 109  | 46 | 81   | 56   |
| <b>K47</b> | 1    | 42.5 | 85 | 14.2 | 36.5 | 41 | 8   | 109  | 56 | 81   | 56   |

Dimension reference 73

|                 | H   | P   | L  | F  |
|-----------------|-----|-----|----|----|
|                 | mm  | mm  | mm | mm |
| <b>321G8312</b> | 130 | 117 | 68 | 36 |
| <b>321G8512</b> | 130 | 117 | 68 | 36 |
| <b>321G8612</b> | 135 | 119 | 70 | 37 |
| <b>322G8312</b> | 136 | 123 | 68 | 36 |
| <b>322G8512</b> | 136 | 123 | 68 | 36 |
| <b>322G8612</b> | 142 | 125 | 70 | 37 |

Dimension reference 97

| G     | Size |       |     |    |
|-------|------|-------|-----|----|
|       | A    | B     | C   | D  |
| mm    | mm   | mm    | mm  | mm |
| 3/8   | 69   | 99.5  | 40  | 44 |
| 1/2   | 72   | 101.5 | 40  | 44 |
| 3/4   | 100  | 107   | 65  | 44 |
| 1     | 104  | 112.5 | 65  | 44 |
| 1 1/4 | 145  | 134   | 102 | 44 |
| 1 1/2 | 145  | 134   | 102 | 44 |
| 2     | 173  | 148   | 118 | 44 |
| 2 1/2 | 245  | 195   | 184 | 44 |
| 3     | 250  | 195   | 184 | 44 |

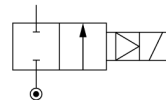
Dimension reference 1000

## Hot water - steam valves 2/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C |       | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |  | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-------|-----------|------------------------|---------------------|---------|------|-----------------------|--|---------|----------|
|           |              |                      |      |                                      |     |  |                |       |           | Global valve reference | Valve reference no. | Housing | Coil |                       |  |         |          |
| G         |              | kv                   | Qmax | Min                                  | Max |  | Water          | Steam |           |                        |                     |         | DC   | AC                    |  |         |          |

### Brass body/Pipe mounting

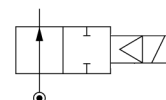
Normally closed



|       |    |     |     |      |   |     |     |     |      |              |                 |             |               |    |    |      |      |
|-------|----|-----|-----|------|---|-----|-----|-----|------|--------------|-----------------|-------------|---------------|----|----|------|------|
| 1     | 27 | 195 | 195 | 0.35 | - | 8.5 | -   | 180 | PTFE | 73218BG64TS0 | <b>321G8712</b> | <b>4270</b> | <b>486265</b> | -  | 14 | 4240 | 98   |
| 1 1/4 | 29 | 230 | 230 | 0.35 | - | 8.5 | -   | 180 | PTFE | 73218BG75TS0 | <b>321G8812</b> | <b>4270</b> | <b>486265</b> | -  | 14 | 4240 | 98   |
|       | 35 | 420 | 420 | 0.1  | 4 | 4   | 140 | 140 | EPDM | 7321BBG78E00 | -               | <b>4270</b> | <b>486265</b> | 14 | 14 | 3120 | 1000 |
| 1 1/2 | 32 | 320 | 320 | 0.35 | - | 8.5 | -   | 180 | PTFE | 73218BG87TS0 | <b>321G8912</b> | <b>4270</b> | <b>486265</b> | -  | 14 | 4240 | 98   |
|       | 40 | 500 | 500 | 0.1  | 4 | 4   | 140 | 140 | EPDM | 7321BBG88E00 | -               | <b>4270</b> | <b>486265</b> | 14 | 14 | 2870 | 1000 |
| 2     | 50 | 620 | 620 | 0.1  | 4 | 4   | 140 | 140 | EPDM | 7321BBG99E00 | -               | <b>4270</b> | <b>486265</b> | 14 | 14 | 4260 | 1000 |

### Brass body/Pipe mounting

Normally open



|       |    |     |     |      |   |     |   |     |      |              |                 |             |               |   |    |      |    |
|-------|----|-----|-----|------|---|-----|---|-----|------|--------------|-----------------|-------------|---------------|---|----|------|----|
| 3/8   | 15 | 42  | 42  | 0.35 | - | 8.5 | - | 180 | PTFE | 73228BG3TTS0 | <b>322G8312</b> | <b>4270</b> | <b>486265</b> | - | 14 | 960  | 97 |
| 1/2   | 16 | 56  | 56  | 0.35 | - | 8.5 | - | 180 | PTFE | 73228BG4UTS0 | <b>322G8512</b> | <b>4270</b> | <b>486265</b> | - | 14 | 960  | 97 |
| 3/4   | 15 | 64  | 64  | 0.35 | - | 8.5 | - | 180 | PTFE | 73228BG52TS0 | <b>322G8612</b> | <b>4270</b> | <b>486265</b> | - | 14 | 960  | 97 |
| 1     | 27 | 195 | 195 | 0.35 | - | 8.5 | - | 180 | PTFE | 73228BG64TS0 | <b>322G8712</b> | <b>4270</b> | <b>486265</b> | - | 14 | 4240 | 98 |
| 1 1/4 | 28 | 230 | 230 | 0.35 | - | 8.5 | - | 180 | PTFE | 73228BG75TS0 | <b>322G8812</b> | <b>4270</b> | <b>486265</b> | - | 14 | 4240 | 98 |
| 1 1/2 | 31 | 320 | 320 | 0.35 | - | 8.5 | - | 180 | PTFE | 73228BG87TS0 | <b>322G8912</b> | <b>4270</b> | <b>486265</b> | - | 14 | 4240 | 98 |

# Hot water - steam valves 2/2 - Pilot operated

|          | H<br>mm | P<br>mm | L<br>mm | F<br>mm |
|----------|---------|---------|---------|---------|
| 321G8312 | 130     | 117     | 68      | 36      |
| 321G8512 | 130     | 117     | 68      | 36      |
| 321G8612 | 135     | 119     | 70      | 37      |
| 322G8312 | 136     | 123     | 68      | 36      |
| 322G8512 | 136     | 123     | 68      | 36      |
| 322G8612 | 142     | 125     | 70      | 37      |

**Dimension reference 97**

|          | W<br>mm | D<br>mm | S<br>mm | P<br>mm | L<br>mm |
|----------|---------|---------|---------|---------|---------|
| 321G8712 | 116     | 94      | 61      | 101     | 98      |
| 321G8812 | 124     | 98      | 64      | 101     | 98      |
| 321G8912 | 138     | 109     | 78      | 104     | 114     |
| 322G8712 | 116     | 94      | 61      | 107     | 98      |
| 322G8812 | 124     | 98      | 64      | 107     | 98      |
| 322G8912 | 138     | 109     | 78      | 110     | 114     |

**Dimension reference 98**

| G     | Size    |         |         |         |
|-------|---------|---------|---------|---------|
|       | A<br>mm | B<br>mm | C<br>mm | D<br>mm |
| 3/8   | 69      | 99.5    | 40      | 44      |
| 1/2   | 72      | 101.5   | 40      | 44      |
| 3/4   | 100     | 107     | 65      | 44      |
| 1     | 104     | 112.5   | 65      | 44      |
| 1 1/4 | 145     | 134     | 102     | 44      |
| 1 1/2 | 145     | 134     | 102     | 44      |
| 2     | 173     | 148     | 118     | 44      |
| 2 1/2 | 245     | 195     | 184     | 44      |
| 3     | 250     | 195     | 184     | 44      |

**Dimension reference 1000**



# Valves for oil (hydraulic) and neutral liquids (max. 100 bar)

2/2

| ACTUATION       | BODY MATERIAL | FUNCTION        | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|-----------------|---------------|-----------------|------------|--------------|---------------------|------|
| Direct operated | Brass body    | Normally closed | 1/8        | 1.5 to 2.5   | 70.0                | 86   |
|                 |               |                 | 1/4        | 1.2 to 3     | 100.0               | 86   |
|                 |               |                 | SB         | 1.5 to 3     | 100.0               | 88   |
|                 |               | Normally open   | 1/8        | 2.5          | 30.0                | 88   |
|                 |               |                 | 1/4        | 1.5 to 2.5   | 40.0                | 88   |
| Pilot operated  | Brass body    | Normally closed | 1/4        | 8            | 40.0                | 90   |
|                 |               |                 | 3/8        | 11           | 40.0                | 90   |
|                 |               |                 | 1/2        | 14.5         | 40.0                | 90   |
|                 |               |                 | SB         | 14           | 40.0                | 92   |
|                 |               | Normally open   | 1/4        | 8            | 40.0                | 90   |
|                 |               |                 | 3/8        | 11           | 40.0                | 92   |
|                 |               |                 | 1/2        | 14.5         | 40.0                | 92   |
|                 |               |                 | SB         | 14           | 40.0                | 92   |

**Notes:**

Direct operated valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

# Valves for oil (hydraulic) and neutral liquids (max. 100 bar)

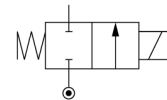
# 2/2



## Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

Normally closed



## Brass body/Pipe mounting

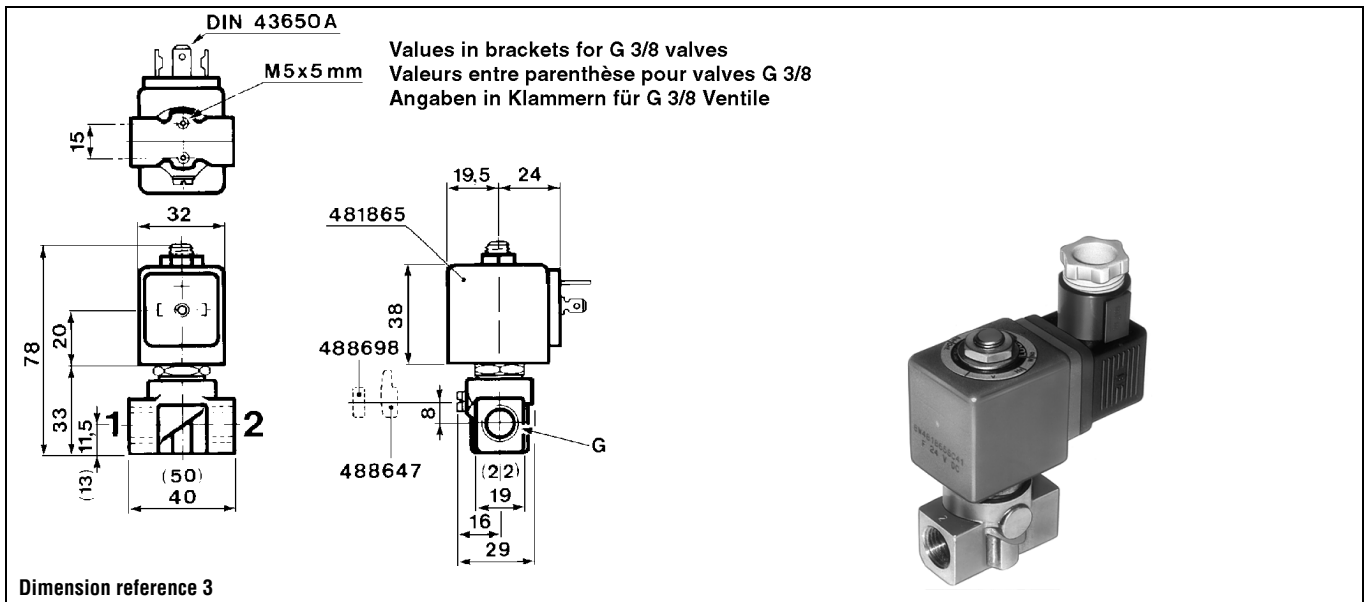
|     |     |      |      |   |     |     |     |       |              |         |      |        |    |    |     |   |   |
|-----|-----|------|------|---|-----|-----|-----|-------|--------------|---------|------|--------|----|----|-----|---|---|
| 1/8 | 1.5 | 1.5  | 12.5 | 0 | 25  | 60  | 75  | PCTFE | 7121KBG1GF00 | E121K14 | 2995 | 481865 | 9  | 8  | 300 | 2 | 3 |
|     | 1.5 | 1.5  | 12.5 | 0 | 30  | 70  | 75  | PCTFE |              |         | 4270 | 481000 | 8  | 8  | 420 | 2 |   |
|     | 1.5 | 1.5  | 12.5 | 0 | 55  | 70  | 75  | PCTFE |              |         | 4270 | 486265 | 14 | 14 | 430 |   |   |
|     | 2.5 | 3.5  | 25   | 0 | 10  | 28  | 100 | Ruby  | 7121KBG1LR00 | E121K23 | 2995 | 481865 | 9  | 8  | 300 | 2 | 3 |
|     | 2.5 | 3.5  | 25   | 0 | 12  | 34  | 130 | Ruby  |              |         | 4270 | 481000 | 8  | 8  | 420 | 2 |   |
|     | 2.5 | 3.5  | 25   | 0 | 22  | 50  | 120 | Ruby  |              |         | 4270 | 486265 | 14 | 14 | 430 |   |   |
| 1/4 | 1.2 | 0.85 | 8.5  | 0 | 36  | 80  | 100 | Ruby  | 7121KBG2ER00 | E121K65 | 2995 | 481865 | 9  | 8  | 290 |   | 3 |
|     | 1.2 | 0.85 | 8.5  | 0 | 43  | 100 | 130 | Ruby  |              |         | 4270 | 481000 | 8  | 8  | 410 |   |   |
|     | 1.2 | 0.85 | 8.5  | 0 | 75  | 100 | 120 | Ruby  |              |         | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 1.5 | 1.5  | 12.5 | 0 | 25  | 60  | 75  | PCTFE | 7121KBG2GF00 | E121K04 | 2995 | 481865 | 9  | 8  | 290 | 2 | 3 |
|     | 1.5 | 1.5  | 12.5 | 0 | 30  | 70  | 75  | PCTFE |              |         | 4270 | 481000 | 8  | 8  | 410 | 2 |   |
|     | 1.5 | 1.5  | 12.5 | 0 | 55  | 70  | 75  | PCTFE |              |         | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 1.5 | 1.5  | 15   | 0 | 25  | 60  | 100 | Ruby  | 7121KBG2GR00 | E121K67 | 2995 | 481865 | 9  | 8  | 290 |   | 3 |
|     | 1.5 | 1.5  | 15   | 0 | 30  | 75  | 130 | Ruby  |              |         | 4270 | 481000 | 8  | 8  | 410 |   |   |
|     | 1.5 | 1.5  | 15   | 0 | 55  | 100 | 120 | Ruby  |              |         | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 2.5 | 3.5  | 25   | 0 | 10  | 28  | 100 | Ruby  | 7121KBG2LR00 | E121K63 | 2995 | 481865 | 9  | 8  | 290 |   | 3 |
|     | 2.5 | 3.5  | 25   | 0 | 12  | 34  | 130 | Ruby  |              |         | 4270 | 481000 | 8  | 8  | 410 |   |   |
|     | 2.5 | 3.5  | 25   | 0 | 22  | 50  | 120 | Ruby  |              |         | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 3   | 4.5  | 27   | 0 | 7   | 20  | 75  | PCTFE | 7121KBG2NF00 | E121K03 | 2995 | 481865 | 9  | 8  | 290 | 2 | 3 |
|     | 3   | 4.5  | 27   | 0 | 8.5 | 25  | 75  | PCTFE |              |         | 4270 | 481000 | 8  | 8  | 410 | 2 |   |
|     | 3   | 4.5  | 27   | 0 | 15  | 36  | 75  | PCTFE |              |         | 4270 | 486265 | 14 | 14 | 420 |   |   |
|     | 3   | 4.5  | 27   | 0 | 7   | 20  | 100 | Ruby  | 7121KBG2NR00 | E121K64 | 2995 | 481865 | 9  | 8  | 290 |   | 3 |
|     | 3   | 4.5  | 27   | 0 | 8.5 | 25  | 130 | Ruby  |              |         | 4270 | 481000 | 8  | 8  | 410 |   |   |
|     | 3   | 4.5  | 27   | 0 | 15  | 36  | 120 | Ruby  |              |         | 4270 | 486265 | 14 | 14 | 420 |   |   |

Table continued on page 88

### Notes:

\* See Electrical Parts Group table at end of section

# Valves for oil (hydraulic) and neutral liquids 2/2 - Direct operated

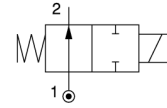


## Valves for oil (hydraulic) and neutral liquids 2/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

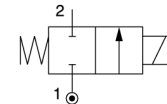
### Brass body/Pipe mounting

Normally open



|     |     |     |     |   |    |    |     |       |              |                 |             |               |    |    |     |   |   |
|-----|-----|-----|-----|---|----|----|-----|-------|--------------|-----------------|-------------|---------------|----|----|-----|---|---|
| 1/8 | 2.5 | 3.5 | -   | 0 | -  | 30 | 140 | Ruby  | 7122KBG1LR00 | <b>122K9363</b> | <b>4270</b> | <b>481044</b> | -  | 14 | 445 |   | 4 |
|     | 2.5 | 3.5 | -   | 0 | 30 | 30 | 140 | Ruby  |              |                 | <b>4270</b> | <b>486265</b> | 14 | 14 | 455 |   |   |
| 1/4 | 1.5 | 1.5 | 8   | 0 | 30 | 30 | 100 | PCTFE | 7122KBG2GF00 | <b>122K84</b>   | <b>2995</b> | <b>481865</b> | 9  | 8  | 290 | 2 | 3 |
|     | 1.5 | 1.5 | 8   | 0 | 30 | 30 | 120 | PCTFE |              |                 | <b>4270</b> | <b>481000</b> | 8  | 8  | 410 | 2 |   |
|     | 1.5 | 1.5 | 9.5 | 0 | 40 | 40 | 100 | Ruby  | 7122KBG2GR00 | <b>122K8408</b> | <b>2995</b> | <b>481865</b> | 9  | 8  | 290 | 2 | 3 |
|     | 1.5 | 1.5 | 9.5 | 0 | 40 | 40 | 130 | Ruby  |              |                 | <b>4270</b> | <b>481000</b> | 8  | 8  | 410 | 2 |   |
|     | 2.5 | 3.5 | -   | 0 | -  | 30 | 140 | Ruby  | 7122KBG2LR00 | <b>122K8363</b> | <b>4270</b> | <b>481044</b> | -  | 14 | 425 |   | 4 |
|     | 2.5 | 3.5 | -   | 0 | 30 | 30 | 140 | Ruby  |              |                 | <b>4270</b> | <b>486265</b> | 14 | 14 | 435 |   |   |

Normally closed



### Brass body/Sub-base mounting

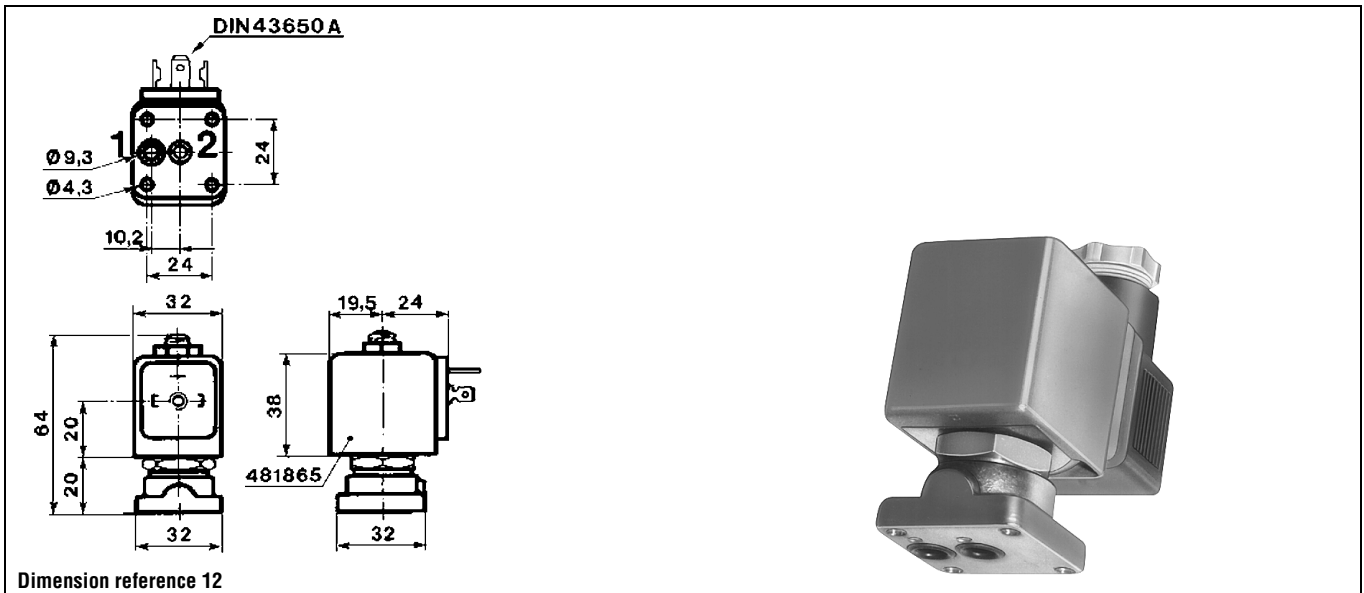
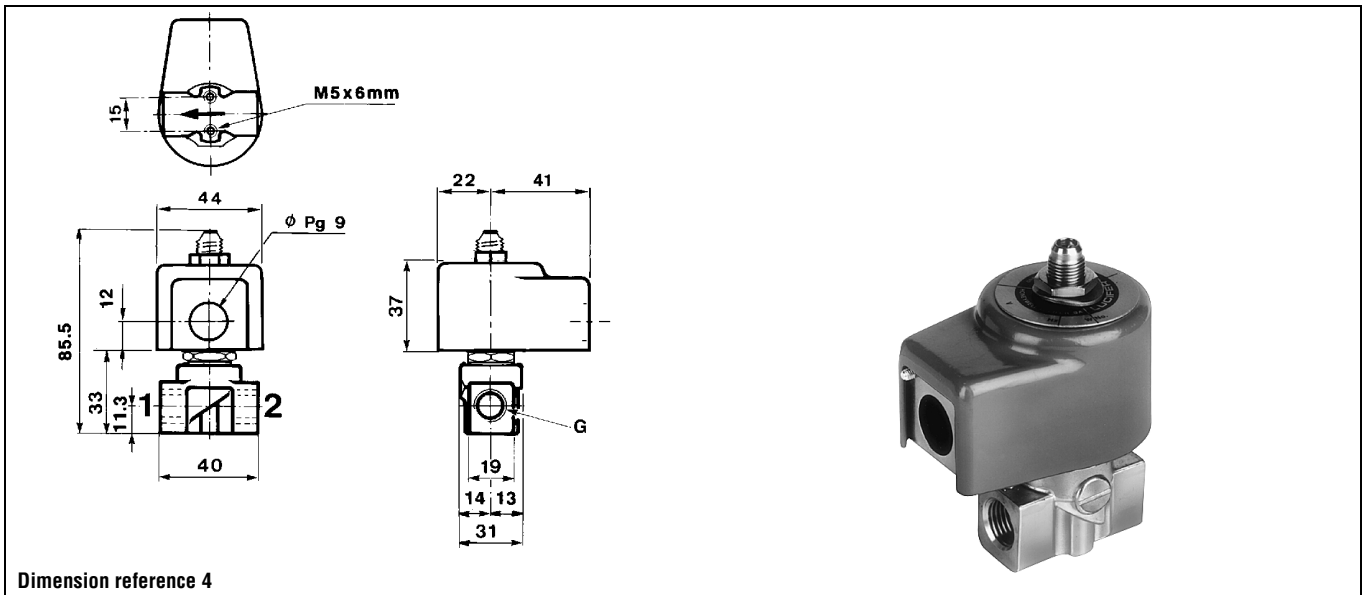
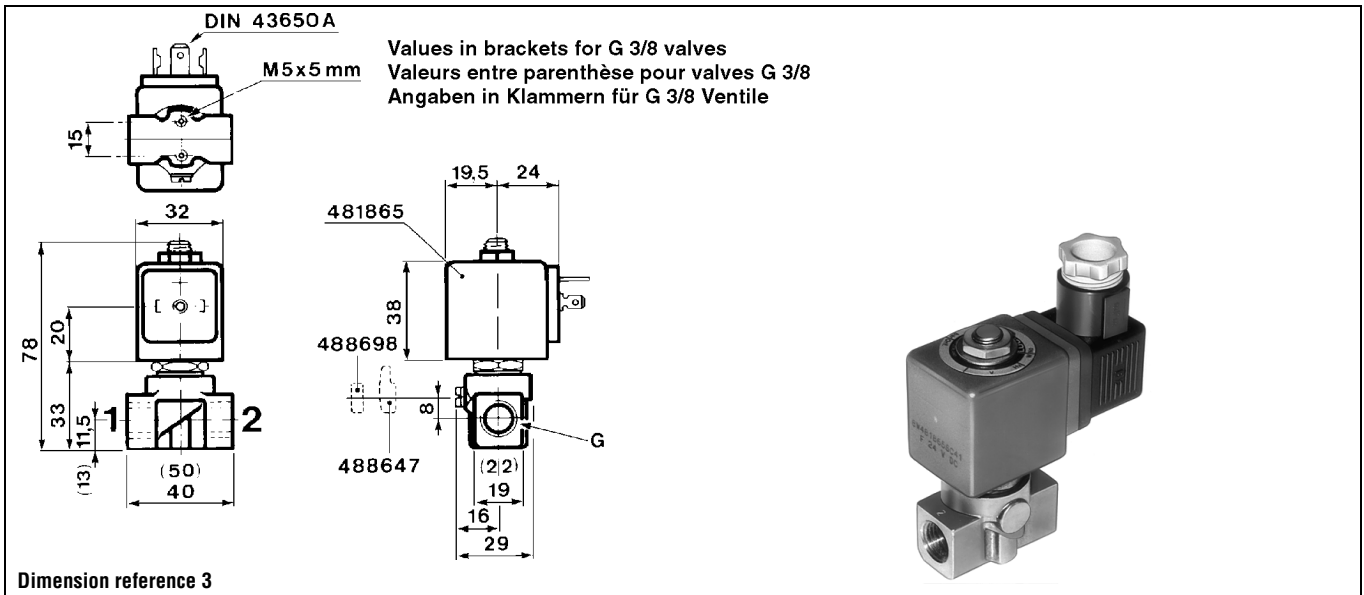
|    |     |     |      |     |     |     |      |              |               |                |               |               |    |     |     |    |    |
|----|-----|-----|------|-----|-----|-----|------|--------------|---------------|----------------|---------------|---------------|----|-----|-----|----|----|
| SB | 1.5 | 1.5 | 12.5 | 0   | 25  | 60  | 75   | PCTFE        | 7121FBF4GF00  | <b>E121F44</b> | <b>2995</b>   | <b>481865</b> | 9  | 8   | 250 | 2  | 12 |
|    | 1.5 | 1.5 | 12.5 | 0   | 30  | 70  | 75   | PCTFE        |               |                | <b>4270</b>   | <b>481000</b> | 8  | 8   | 370 | 2  |    |
|    | 1.5 | 1.5 | 12.5 | 0   | 55  | 70  | 75   | PCTFE        |               |                | <b>4270</b>   | <b>486265</b> | 14 | 14  | 380 | 2  |    |
|    | 1.5 | 1.5 | 15   | 0   | 25  | 60  | 100  | Ruby         | 7121FBF4GR00  | <b>121F67</b>  | <b>2995</b>   | <b>481865</b> | 9  | 8   | 255 | 2  | 12 |
|    | 1.5 | 1.5 | 15   | 0   | 30  | 75  | 130  | Ruby         |               |                | <b>4270</b>   | <b>481000</b> | 8  | 8   | 375 | 2  |    |
|    | 1.5 | 1.5 | 15   | 0   | 55  | 100 | 120  | Ruby         |               |                | <b>4270</b>   | <b>486265</b> | 14 | 14  | 385 | 2  |    |
|    | 2.5 | 3.5 | 25   | 0   | 10  | 28  | 100  | Ruby         | 7121FBF4LR00  | <b>121F63</b>  | <b>2995</b>   | <b>481865</b> | 9  | 8   | 255 | 2  | 12 |
|    | 2.5 | 3.5 | 25   | 0   | 12  | 34  | 130  | Ruby         |               |                | <b>4270</b>   | <b>481000</b> | 8  | 8   | 375 | 2  |    |
|    | 2.5 | 3.5 | 25   | 0   | 22  | 50  | 120  | Ruby         |               |                | <b>4270</b>   | <b>486265</b> | 14 | 14  | 385 | 2  |    |
|    | 3   | 4.5 | 27   | 0   | 7   | 20  | 75   | PCTFE        | 7121FBF4NF00  | <b>E121F43</b> | <b>2995</b>   | <b>481865</b> | 9  | 8   | 250 | 2  | 12 |
|    | 3   | 4.5 | 27   | 0   | 8.5 | 25  | 75   | PCTFE        |               |                | <b>4270</b>   | <b>481000</b> | 8  | 8   | 370 | 2  |    |
|    | 3   | 4.5 | 27   | 0   | 15  | 36  | 75   | PCTFE        |               |                | <b>4270</b>   | <b>486265</b> | 14 | 14  | 380 | 2  |    |
| 3  | 4.5 | 27  | 0    | 7   | 20  | 100 | Ruby | 7121FBF4NR00 | <b>121F64</b> | <b>2995</b>    | <b>481865</b> | 9             | 8  | 255 | 2   | 12 |    |
| 3  | 4.5 | 27  | 0    | 8.5 | 25  | 130 | Ruby |              |               | <b>4270</b>    | <b>481000</b> | 8             | 8  | 375 | 2   |    |    |
| 3  | 4.5 | 27  | 0    | 15  | 36  | 120 | Ruby |              |               | <b>4270</b>    | <b>486265</b> | 14            | 14 | 385 | 2   |    |    |

#### Notes:

\* See Electrical Parts Group table at end of section



# Valves for oil (hydraulic) and neutral liquids 2/2 - Direct operated



# Valves for oil (hydraulic) and neutral liquids

# 2/2

## Applications

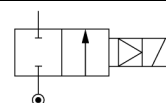
Pilot operated valves are ideally suited to shut-off applications of liquids with high flow and pressure. A minimum operating pressure is required: refer to tables.



## Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              |                      |      |                                      |     |  |                |           |                        |                     |         |      |                       |    |         |                  |          |

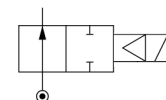
Normally closed



## Brass body/Pipe mounting

|     |      |    |    |     |   |    |    |     |     |              |         |   |      |        |    |    |     |   |   |
|-----|------|----|----|-----|---|----|----|-----|-----|--------------|---------|---|------|--------|----|----|-----|---|---|
| 1/4 | 8    | 36 | 36 | 0.3 | 2 | 25 | 40 | 100 | FKM | 7321HBG2SV00 | E321H21 | 1 | 2995 | 481865 | 9  | 8  | 800 | 2 | 9 |
|     | 8    | 36 | 36 | 0.3 |   | 30 | 40 | 100 | FKM |              |         |   | 4270 | 481000 | 8  | 8  | 920 | 2 |   |
|     | 8    | 36 | 36 | 0.3 | 2 | 40 | 40 | 100 | FKM |              |         |   | 4270 | 486265 | 14 | 14 | 930 | 2 |   |
|     | 8    | 36 | 36 | 0.3 | 2 | 25 | 40 | 100 | NBR | 7321HBG2SN00 | E321H11 | 1 | 2995 | 481865 | 9  | 8  | 800 | 2 | 9 |
| 3/8 | 8    | 36 | 36 | 0.3 | 2 | 30 | 40 | 100 | NBR |              |         |   | 4270 | 481000 | 8  | 8  | 920 | 2 |   |
|     | 11   | 50 | 50 | 0.3 | 2 | 25 | 40 | 100 | FKM | 7321HBG3TV00 | E321H23 | 1 | 2995 | 481865 | 9  | 8  | 780 | 2 | 9 |
|     | 11   | 50 | 50 | 0.3 | 2 | 30 | 40 | 120 | FKM |              |         |   | 4270 | 481000 | 8  | 8  | 900 | 2 |   |
|     | 11   | 50 | 50 | 0.3 | 2 | 40 | 40 | 140 | FKM |              |         |   | 4270 | 486265 | 14 | 14 | 910 | 2 |   |
| 1/2 | 11   | 50 | 50 | 0.3 | 2 | 25 | 40 | 100 | NBR | 7321HBG3TN00 | E321H13 | 1 | 2995 | 481865 | 9  | 8  | 780 | 2 | 9 |
|     | 11   | 50 | 50 | 0.3 | 2 | 30 | 40 | 100 | NBR |              |         |   | 4270 | 481000 | 8  | 8  | 900 | 2 |   |
|     | 14.5 | 60 | 60 | 0.3 | 2 | 25 | 40 | 100 | FKM | 7321HBG4UV00 | E321H25 | 1 | 2995 | 481865 | 9  | 8  | 740 | 2 | 9 |
|     | 14.5 | 60 | 60 | 0.3 | 2 | 30 | 40 | 120 | FKM |              |         |   | 4270 | 481000 | 8  | 8  | 860 | 2 |   |
|     | 14.5 | 60 | 60 | 0.3 | 2 | 40 | 40 | 140 | FKM |              |         |   | 4270 | 486265 | 14 | 14 | 870 | 2 |   |
|     | 14.5 | 60 | 60 | 0.3 | 2 | 25 | 40 | 100 | NBR | 7321HBG4UN00 | E321H15 | 1 | 2995 | 481865 | 9  | 8  | 740 | 2 | 9 |
|     | 14.5 | 60 | 60 | 0.3 | 2 | 30 | 40 | 100 | NBR |              |         |   | 4270 | 481000 | 8  | 8  | 860 | 2 |   |

Normally open



## Brass body/Pipe mounting

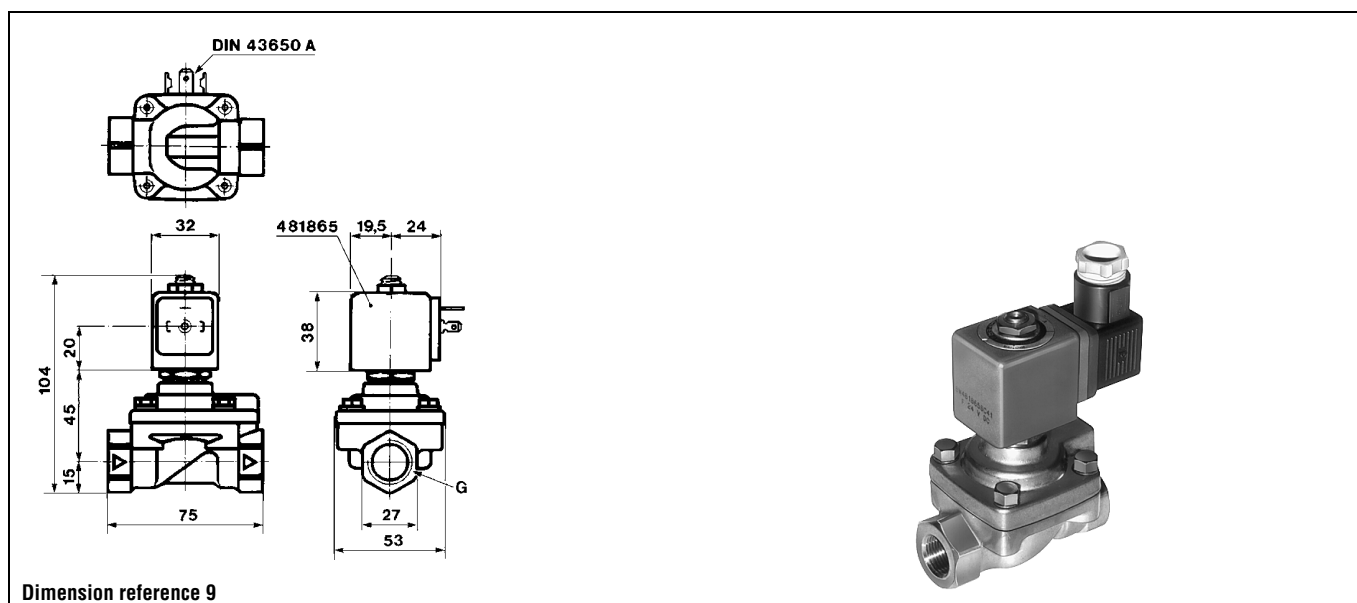
|     |   |    |    |     |   |    |    |     |     |              |          |   |      |        |    |    |     |  |   |
|-----|---|----|----|-----|---|----|----|-----|-----|--------------|----------|---|------|--------|----|----|-----|--|---|
| 1/4 | 8 | 36 | 36 | 0.3 | 2 | 40 | 40 | 100 | FKM | 7322HBG2SV00 | 322H7106 | 1 | 2995 | 481865 | 9  | 8  | 820 |  | 9 |
|     | 8 | 36 | 36 | 0.3 | 2 | 40 | 40 | 120 | FKM |              |          |   | 4270 | 481000 | 8  | 8  | 940 |  |   |
|     | 8 | 36 | 36 | 0.3 | 2 | 40 | 40 | 140 | FKM |              |          |   | 4270 | 486265 | 14 | 14 | 950 |  |   |

Table continued on page 92

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Pilot seat discs from ruby (synthetic)
- 2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing

## Valves for oil (hydraulic) and neutral liquids 2/2 - Pilot operated

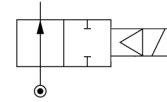


## Valves for oil (hydraulic) and neutral liquids 2/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

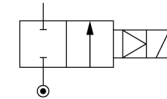
### Brass body/Pipe mounting

Normally open



|     |      |    |    |     |   |    |    |     |     |              |          |   |      |        |        |    |     |     |   |  |
|-----|------|----|----|-----|---|----|----|-----|-----|--------------|----------|---|------|--------|--------|----|-----|-----|---|--|
| 1/4 | 8    | 36 | 36 | 0.3 | 2 | 25 | 40 | 100 | NBR | 7322HBG2SN00 | 322H71   | 1 | 2995 | 481865 | 9      | 8  | 840 |     | 9 |  |
|     | 8    | 36 | 36 | 0.3 | 2 | 30 | 40 | 100 | NBR |              |          |   |      | 4270   | 481000 | 8  | 8   | 960 |   |  |
| 3/8 | 11   | 50 | 50 | 0.3 | 2 | 40 | 40 | 100 | FKM | 7322HBG3TV00 | 322H7306 | 1 | 2995 | 481865 | 9      | 8  | 800 |     | 9 |  |
|     | 11   | 50 | 50 | 0.3 | 2 | 40 | 40 | 100 | FKM |              |          |   |      | 4270   | 481000 | 8  | 8   | 920 |   |  |
|     | 11   | 50 | 50 | 0.3 | 2 | 40 | 40 | 140 | FKM |              |          |   |      | 4270   | 486265 | 14 | 14  | 930 |   |  |
|     | 11   | 50 | 50 | 0.3 | 2 | 40 | 40 | 100 | NBR | 7322HBG3TN00 | 322H73   | 1 | 2995 | 481865 | 9      | 8  | 800 |     | 9 |  |
|     | 11   | 50 | 50 | 0.3 | 2 | 40 | 40 | 100 | NBR |              |          |   | 4270 | 481000 | 8      | 8  | 920 |     |   |  |
| 1/2 | 14.5 | 60 | 60 | 0.3 | 2 | 40 | 40 | 100 | FKM | 7322HBG4UV00 | 322H7506 | 1 | 2995 | 481865 | 9      | 8  | 760 |     | 9 |  |
|     | 14.5 | 60 | 60 | 0.3 | 2 | 40 | 40 | 120 | FKM |              |          |   |      | 4270   | 481000 | 8  | 8   | 880 |   |  |
|     | 14.5 | 60 | 60 | 0.3 | 2 | 40 | 40 | 140 | FKM |              |          |   |      | 4270   | 486265 | 14 | 14  | 890 |   |  |
|     | 14.5 | 60 | 60 | 0.3 | 2 | 40 | 40 | 100 | NBR | 7322HBG4UN00 | 322H75   | 1 | 2995 | 481865 | 9      | 8  | 760 |     | 9 |  |
|     | 14.5 | 60 | 60 | 0.3 | 2 | 40 | 40 | 100 | NBR |              |          |   | 4270 | 481000 | 8      | 8  | 880 |     |   |  |

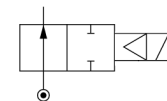
Normally closed



### Brass body/Sub-base mounting

|    |    |    |    |     |   |    |    |     |     |              |           |   |      |        |        |    |     |     |    |  |
|----|----|----|----|-----|---|----|----|-----|-----|--------------|-----------|---|------|--------|--------|----|-----|-----|----|--|
| SB | 14 | 45 | 45 | 0.3 | 2 | 25 | 40 | 100 | FKM | 7321FBF3TV00 | E321F3202 | 1 | 2995 | 481865 | 9      | 8  | 650 | 2   | 13 |  |
|    | 14 | 45 | 45 | 0.3 | 2 | 30 | 40 | 120 | FKM |              |           |   |      | 4270   | 481000 | 8  | 8   | 770 | 2  |  |
|    | 14 | 45 | 45 | 0.3 | 2 | 40 | 40 | 120 | FKM |              |           |   |      | 4270   | 486265 | 14 | 14  | 780 | 2  |  |
|    | 14 | 45 | 45 | 0.3 | 2 | 25 | 40 | 100 | NBR | 7321FBF3TN00 | E321F32   | 1 | 2995 | 481865 | 9      | 8  | 650 | 2   | 13 |  |
|    | 14 | 45 | 45 | 0.3 | 2 | 30 | 40 | 100 | NBR |              |           |   | 4270 | 481000 | 8      | 8  | 770 | 2   |    |  |
|    | 14 | 45 | 45 | 0.3 | 2 | 40 | 40 | 100 | NBR |              |           |   | 4270 | 486265 | 14     | 14 | 780 | 2   |    |  |

Normally open



### Brass body/Sub-base mounting

|    |    |    |    |     |   |    |    |     |     |              |          |   |      |        |        |    |     |     |    |  |
|----|----|----|----|-----|---|----|----|-----|-----|--------------|----------|---|------|--------|--------|----|-----|-----|----|--|
| SB | 14 | 45 | 45 | 0.3 | 2 | 40 | 40 | 100 | FKM | 7322FBF3TV00 | 322F7206 | 1 | 2995 | 481865 | 9      | 8  | 650 |     | 13 |  |
|    | 14 | 45 | 45 | 0.3 | 2 | 40 | 40 | 120 | FKM |              |          |   |      | 4270   | 481000 | 8  | 8   | 770 |    |  |
|    | 14 | 45 | 45 | 0.3 | 2 | 40 | 40 | 140 | FKM |              |          |   |      | 4270   | 486265 | 14 | 14  | 780 |    |  |
|    | 14 | 45 | 45 | 0.3 | 2 | 40 | 40 | 75  | NBR | 7322FBF3TN00 | 322F72   | 1 | 2995 | 481865 | 9      | 8  | 650 |     | 13 |  |
|    | 14 | 45 | 45 | 0.3 | 2 | 40 | 40 | 75  | NBR |              |          |   | 4270 | 481000 | 8      | 8  | 770 |     |    |  |

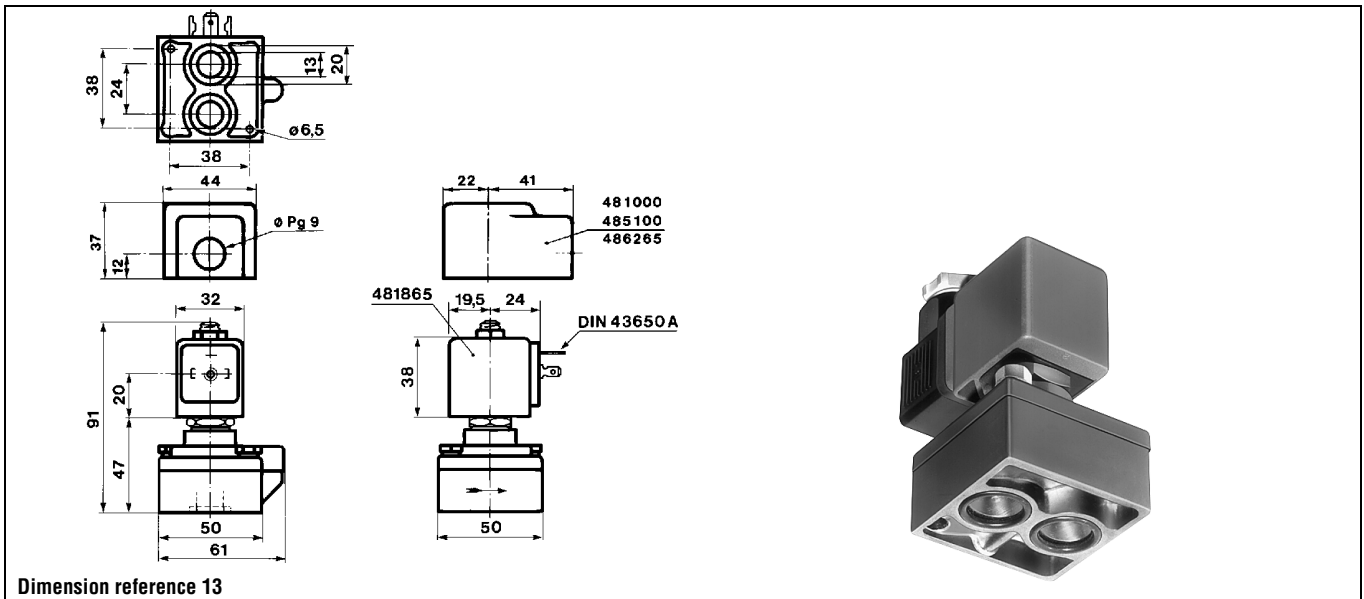
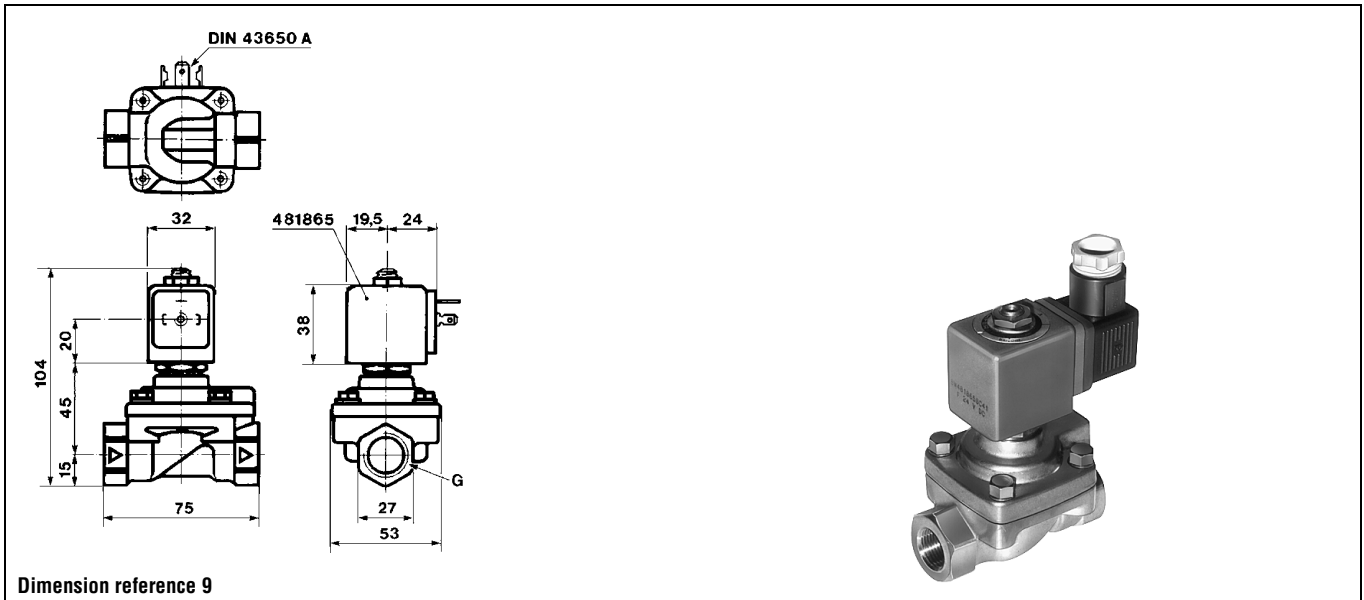
#### Notes:

\* See Electrical Parts Group table at end of section

1. Pilot seat discs from ruby (synthetic)

2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing

# Valves for oil (hydraulic) and neutral liquids 2/2 - Pilot operated



## Electrical parts options with 2/2 valves for oil (hydraulic) and neutral liquids

| El. part Group | Coil             | Protection class | Protection class / Temperature class | Power |       | Coil Order No. | Coil Ref. No. | Connection           | Housing Order No. | Housing Ref. No. | Ambient temp. |          |
|----------------|------------------|------------------|--------------------------------------|-------|-------|----------------|---------------|----------------------|-------------------|------------------|---------------|----------|
|                |                  |                  |                                      | DC    | AC    |                |               |                      |                   |                  | min.          | max.     |
| 1              | 22 mm            | IP 65            | Class F                              | 2.5 W | 2 W   | DA01           | 488980        | for DIN plug         | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 2.5 W | 2 W   | DA02           | 481045        | with DIN plug        | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA03           | 481180        | for DIN plug         | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA04           | 481530        | with DIN plug        | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 5 W   | 4 W   | VA01           | 482605        | with 1500mm cable    | 00                | -                | -40           | 50       |
|                |                  | IP 65            | EEx m II T5                          | 2.5 W | 2 W   | VA02           | 482606        | with 1500mm cable    | 00                | -                | -40           | 50       |
| 2              | 32 mm (Std)      | IP 65            | Class F                              | 9 W   | 8 W   | DZ02           | 481865        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ03           | 482725        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class H                              | 9 W   | 8 W   | DZ04           | 492453        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ05           | 492726        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class F, 50/60 Hz                    | -     | 9 W   | DZ06           | 483510        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | -     | 9 W   | DZ07           | 482635        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 9 W   | 8 W   | HZ05           | 492670        | with 3000mm cable    | 00                | -                | -40           | 40       |
|                |                  | IP 65            | Class H                              | 14 W  | 14 W  | DZ08           | 492425        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                | 50 mm (Std)      | IP10 / IP 44     | Class F                              | 8 W   | 8 W   | EZ01           | 481000        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 8 W   | 8 W   | EZ02           | 485100        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 14 W  | 14 W  | EZ92           | 486265        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP 67            | Class F, M20x1.5                     | 8 W   | 8 W   | EZ01           | 481000        | screw-terminals      | G1                | 4538             | -40           | 50       |
|                |                  | IP 65            | EEx m II T5/T4                       | 9 W   | 8 W   | VZ01           | 492070        | with 1500mm cable    | 00                | -                | -40           | 40/65    |
|                |                  | IP 67            | EEx me II T4                         | 8 W   | 8 W   | HZ06           | 483371        | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 66            | EEx me II T3/T4                      | 11 W  | 9 W   | VZ03           | 492190        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  |                  |                                      |       |       |                |               |                      |                   |                  |               |          |
| 3              | 32 mm            | IP 65            | Class H                              | -     | 14 W  | DZ08           | 492425        | for DIN plug         | N1                | 2995             | -40           | 50       |
| 4              | 50 mm (impulse)  | IP10 / IP 44     | Class F                              | -     | 11 W  | MZ01           | 484990        | screw-terminals      | E1                | 4269             | -40           | 50       |
|                |                  | IP10 / IP 44     | Class F                              | 13 W  | -     | MZ02           | 485400        | screw-terminals      | E1                | 4269             | -40           | 50       |
| 5              | 50 mm            | IP 54            | EEx d IIC T4/T5/T6                   | 8 W   | 8 W   | HZ08           | 483250        | for cable 1/2 NPT    | 00                | -                | -40           | 80/75/60 |
| 6              | 32 mm (Miniwatt) | IP 65            | Class F                              | 1.6 W | -     | DZ10           | 482740        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 1.6W  | -     | DZ11           | 482745        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                | 50 mm (Miniwatt) | IP 67            | EEx me II T5                         | 2.5 W | -     | VZ04           | 491117        | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 67            | EEx m II T5/T4                       | 2.5 W | 2.5 W | VZ05           | 492370        | with 1500mm cable    | 00                | -                | -40           | 40/65    |
|                |                  | IP 66            | EEx me II T6/T5                      | 2.5 W | 2.5 W | VZ06           | 492390        | for cable connection | 00                | -                | -40           | 40/75    |
| 7              | 32 mm            | IP 65            | EEx ia II C T6                       | 0.4 W | -     | DZ12           | 483580.01     | for DIN plug         | N1                | 2995             | -40           | 55       |
|                |                  | IP 65            |                                      | 0.4 W | -     | DZ13           | 483960.01     | with DIN plug        | N1                | 2995             | -40           | 55       |
|                | 50 mm            | IP 66            | EEx ia II C T6                       | 0.4 W | -     | VZ07           | 488650.01     | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 67            |                                      | 0.4 W | -     | VZ08           | 488660.01     | with 2000mm cable    | 00                | -                | -40           | 65       |
|                |                  | IP 65            |                                      | 0.4 W | -     | VZ09           | 488670.01     | with DIN plug        | 00                | -                | -40           | 65       |

Note: This table is indicative only. Please contact your distributor to confirm your selection.

# High corrosion-resistant valves (Stainless Steel)

| ACTUATION       | BODY MATERIAL            | FUNCTION        | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|-----------------|--------------------------|-----------------|------------|--------------|---------------------|------|
| Direct operated | 303 Stainless steel body | Normally closed | 1/4        | 1.5 to 5     | 100.0               | 96   |

**Notes:**

Direct operated valves: pressure range from 0 to max pressure.

# High corrosion-resistant valves (Stainless Steel)

# 2/2

## Applications

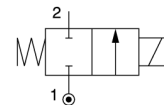
The valves in this section are made of corrosion-resistant material internally and externally. Please refer to the fluid compatibility chart in this catalogue for detailed fluid compatibility.



## Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |     |  | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----|--|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max |  | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

Normally closed



## 303 Stainless steel body/Pipe mounting

|     |     |      |      |     |     |     |     |     |     |      |              |              |            |        |        |    |     |      |   |      |
|-----|-----|------|------|-----|-----|-----|-----|-----|-----|------|--------------|--------------|------------|--------|--------|----|-----|------|---|------|
| 1/4 | 1.5 | 1.5  | 12.5 | 80  | 0   | 20  | 20  | 100 | 100 | 100  | FKM          | 7121VVG2GV00 | 121V5406   | 2995   | 481865 | 9  | 8   | 410  | 2 | 6    |
|     | 1.5 | 1.5  | 12.5 | 80  | 0   | 20  | 20  | 120 | 120 | 120  | FKM          |              |            | 4270   | 481000 | 8  | 8   | 530  | 2 |      |
|     | 1.5 | 1.5  | 15   | 80  | 0   | 25  | 60  | -   | 100 | -    | Ruby         | 7121VVG2GR00 | 121V5463   | 2995   | 481865 | 9  | 8   | 410  | 2 | 6    |
|     | 1.5 | 1.5  | 15   | 80  | 0   | 30  | 75  | -   | 130 | -    | Ruby         |              |            | 4270   | 481000 | 8  | 8   | 530  | 2 |      |
|     | 1.5 | 1.5  | 15   | 80  | 0   | 55  | 100 | -   | 140 | -    | Ruby         |              |            | 4270   | 486265 | 14 | 14  | 540  |   |      |
|     | 2.5 | 3.5  | 8.5  | 220 | 0   | 7   | 14  | 100 | 100 | 100  | FKM          | 7121VVG2LV00 | 121V5706   | 2995   | 481865 | 9  | 8   | 410  | 2 | 6    |
|     | 2.5 | 3.5  | 8.5  | 220 | 0   | 9   | 14  | 120 | 120 | 120  | FKM          |              |            | 4270   | 481000 | 8  | 8   | 530  | 2 |      |
|     | 2.5 | 3.5  | 8.5  | 220 | 0   | 14  | 14  | 120 | 120 | 120  | FKM          |              |            | 4270   | 486265 | 14 | 14  | 540  |   |      |
|     | 2.5 | 3.5  | 25   | 220 | 0   | 10  | 28  | -   | 100 | -    | Ruby         | 7121VVG2LR00 | 121V5763   | 2995   | 481865 | 9  | 8   | 410  | 2 | 6    |
|     | 2.5 | 3.5  | 25   | 220 | 0   | 12  | 34  | -   | 130 | -    | Ruby         |              |            | 4270   | 481000 | 8  | 8   | 530  | 2 |      |
|     | 2.5 | 3.5  | 25   | 220 | 0   | 22  | 50  | -   | 140 | -    | Ruby         |              |            | 4270   | 486265 | 14 | 14  | 540  |   |      |
|     | 3   | 4.5  | 9    | 315 | 0   | 8.5 | 10  | 75  | 75  | 75   | FKM          | 7121VVG2NV1D | 121V53061D | -      | 483250 | 8  | 8   | 1375 | 5 | 6773 |
|     | 3   | 4.5  | 27   | 315 | 0   | 7   | 10  | 100 | 100 | 100  | FKM          | 7121VVG2NV00 | 121V5306   | 2995   | 481865 | 9  | 8   | 410  | 2 | 6    |
|     | 3   | 4.5  | 27   | 315 | 0   | 8.5 | 10  | 120 | 120 | 120  | FKM          |              |            | 4270   | 481000 | 8  | 8   | 530  | 2 |      |
|     | 3   | 4.5  | 27   | 315 | 0   | 10  | 10  | 120 | 120 | 120  | FKM          |              |            | 4270   | 486265 | 14 | 14  | 530  |   |      |
|     | 3   | 4.5  | 27   | 315 | 0   | 7   | 20  | -   | 100 | -    | Ruby         | 7121VVG2NR00 | 121V5363   | 2995   | 481865 | 9  | 8   | 410  | 2 | 6    |
|     | 3   | 4.5  | 27   | 315 | 0   | 8.5 | 25  | -   | 130 | -    | Ruby         |              |            | 4270   | 481000 | 8  | 8   | 530  | 2 |      |
|     | 3   | 4.5  | 27   | 315 | 0   | 15  | 36  | -   | 140 | -    | Ruby         |              |            | 4270   | 486265 | 14 | 14  | 540  |   |      |
|     | 4   | 7    | 10.5 | 450 | 0   | 4   | 10  | 100 | 100 | 100  | FKM          | 7121VVG2QV00 | 121V5206   | 2995   | 481865 | 9  | 8   | 410  | 2 | 6    |
|     | 4   | 7    | 10.5 | 450 | 0   | 5   | 10  | 120 | 120 | 120  | FKM          |              |            | 4270   | 481000 | 8  | 8   | 530  | 2 |      |
| 4   | 7   | 10.5 | 450  | 0   | 10  | -   | 120 | 120 | 120 | FKM  |              | 4270         |            | 486265 | 14     | -  | 540 |      |   |      |
| 4   | 7   | 35   | 450  | 0   | 4   | 12  | -   | 100 | -   | Ruby | 7121VVG2QR00 | 121V5263     | 2995       | 481865 | 9      | 8  | 410 | 2    | 6 |      |
| 4   | 7   | 35   | 450  | 0   | 5   | 15  | -   | 130 | -   | Ruby |              |              | 4270       | 481000 | 8      | 8  | 530 | 2    |   |      |
| 4   | 7   | 35   | 450  | 0   | 10  | 22  | -   | 130 | -   | Ruby |              |              | 4270       | 486265 | 14     | 14 | 540 |      |   |      |
| 4   | 7   | 35   | 450  | 0   | 3.5 | 3.5 | -   | -   | 100 | PTFE | 7121VVG2QT00 | 121V5212     | 2995       | 481865 | 9      | 8  | 410 | 2    | 6 |      |
| 4   | 7   | 35   | 450  | 0   | 3.5 | 3.5 | -   | -   | 130 | PTFE |              |              | 4270       | 481000 | 8      | 8  | 530 | 2    |   |      |

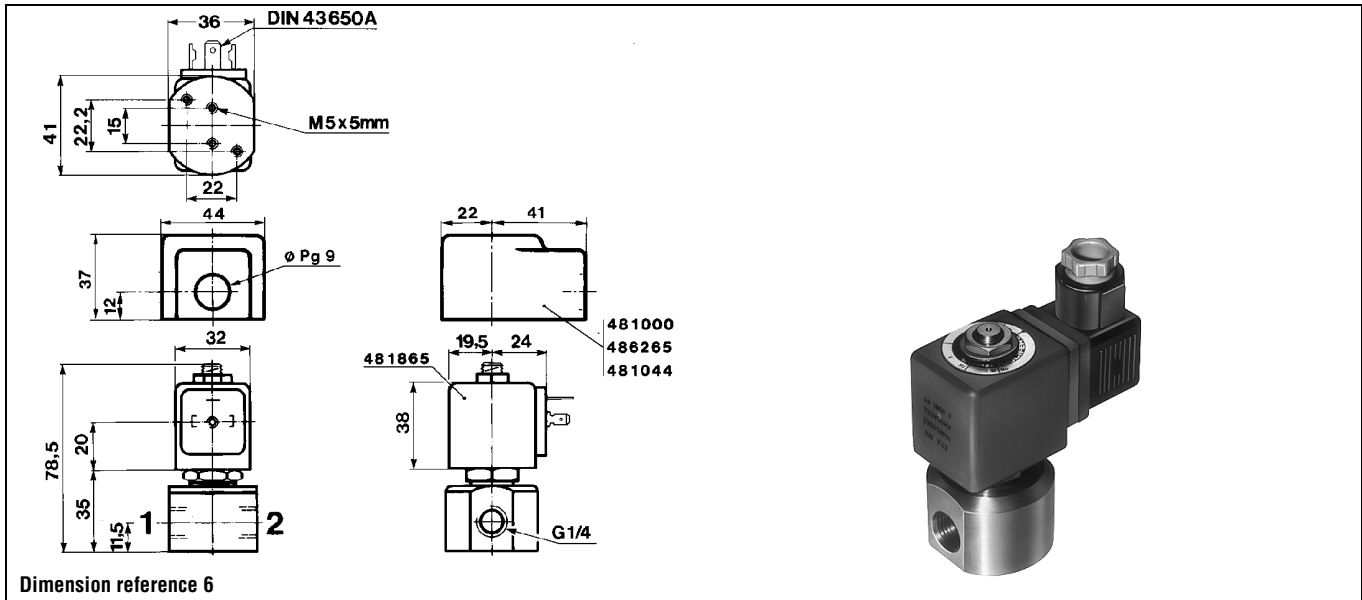
Table continued on page 98

### Notes:

\* See Electrical Parts Group table at end of section



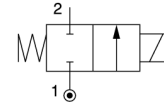
# High corrosion-resistant valves (Stainless Steel) 2/2 - Direct operated



## High corrosion-resistant valves (Stainless Steel) 2/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |          | Admissible differential pressure bar |           |  | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|----------|--------------------------------------|-----------|--|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Gases Qn | Min                                  | Max DC AC |  | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

Normally closed



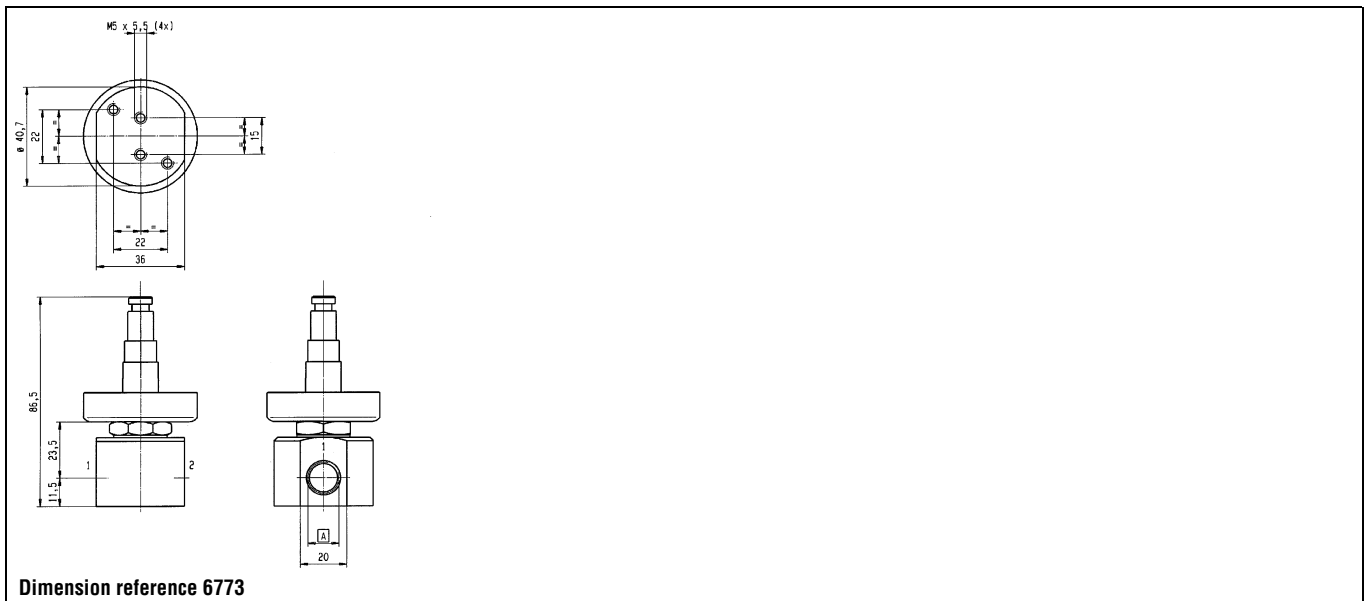
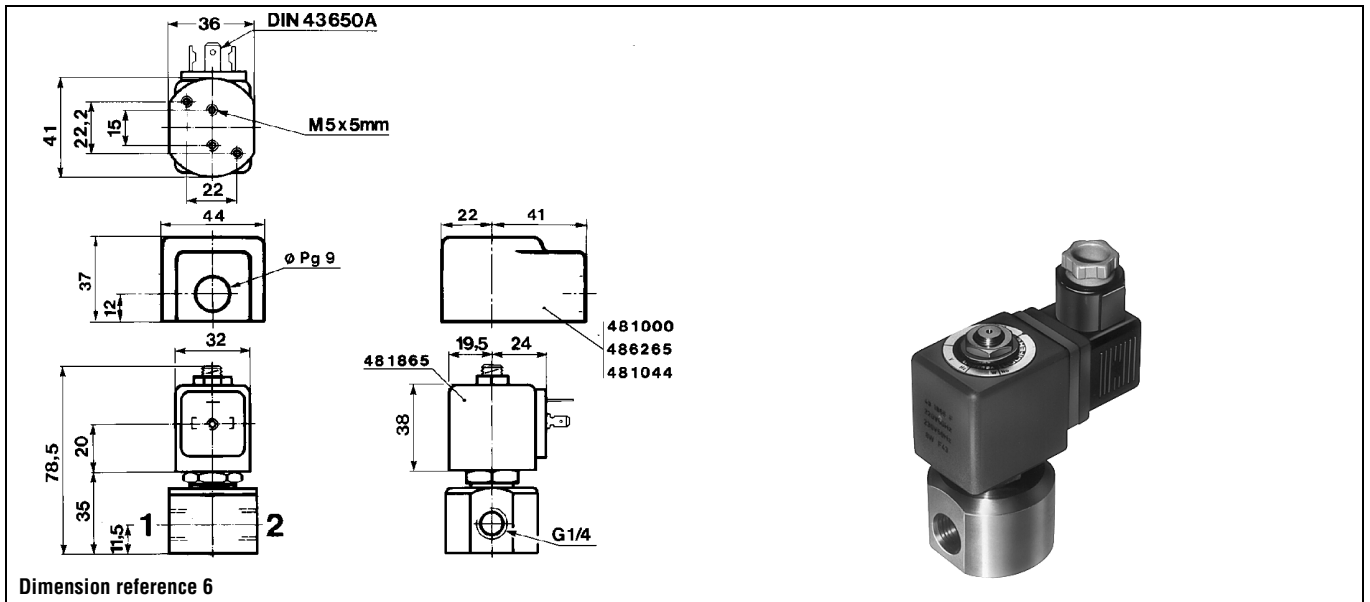
### 303 Stainless steel body/Pipe mounting

|     |   |    |      |     |   |     |     |     |     |     |      |              |                   |             |               |    |    |      |   |      |
|-----|---|----|------|-----|---|-----|-----|-----|-----|-----|------|--------------|-------------------|-------------|---------------|----|----|------|---|------|
| 1/4 | 5 | 10 | 11.5 | 750 | 0 | 2.8 | 7   | 75  | 75  | 75  | FKM  | 7121VVG2SV1D | <b>121V51061D</b> | -           | <b>483250</b> | 8  | 8  | 1375 | 5 | 6773 |
|     | 5 | 10 | 11.5 | 750 | 0 | 2   | 7   | 100 | 100 | 100 | FKM  | 7121VVG2SV00 | <b>121V5106</b>   | <b>2995</b> | <b>481865</b> | 9  | 8  | 410  | 2 | 6    |
|     | 5 | 10 | 11.5 | 750 | 0 | 2.8 | 7   | 120 | 100 | 120 | FKM  |              |                   | <b>4270</b> | <b>481000</b> | 8  | 8  | 530  | 2 |      |
|     | 5 | 10 | 11.5 | 750 | 0 | 5   | 7   | 120 | 120 | 120 | FKM  |              |                   | <b>4270</b> | <b>486265</b> | 14 | 14 | 540  |   |      |
|     | 5 | 10 | 40   | 750 | 0 | 2   | 8.5 | -   | 100 | -   | Ruby | 7121VVG2SR00 | <b>121V5163</b>   | <b>2995</b> | <b>481865</b> | 9  | 8  | 410  | 2 | 6    |
|     | 5 | 10 | 40   | 750 | 0 | 3.5 | 10  | -   | 130 | -   | Ruby |              |                   | <b>4270</b> | <b>481000</b> | 8  | 8  | 530  | 2 |      |
|     | 5 | 10 | 40   | 750 | 0 | 6.5 | 14  | -   | 140 | -   | Ruby |              |                   | <b>4270</b> | <b>486265</b> | 14 | 14 | 540  |   |      |
|     | 5 | 10 | 35   | 750 | 0 | 2   | 2.8 | 100 | 100 | 100 | PTFE | 7121VVG2ST00 | <b>121V5112</b>   | <b>2995</b> | <b>481865</b> | 9  | 8  | 410  | 2 | 6    |
|     | 5 | 10 | 35   | 750 | 0 | 2.8 | 2.8 | 130 | 130 | 130 | PTFE |              |                   | <b>4270</b> | <b>481000</b> | 8  | 8  | 530  | 2 |      |

#### Notes:

\* See Electrical Parts Group table at end of section

# High corrosion-resistant valves (Stainless Steel) 2/2 - Direct operated



## Electrical parts options with 2/2 high corrosion resistant stainless steel valves

| El. part Group | Coil             | Protection class | Protection class / Temperature class | Power |       | Coil Order No. | Coil Ref. No. | Connection           | Housing   |          | Ambient temp. |          |
|----------------|------------------|------------------|--------------------------------------|-------|-------|----------------|---------------|----------------------|-----------|----------|---------------|----------|
|                |                  |                  |                                      | DC    | AC    |                |               |                      | Order No. | Ref. No. | Order No.     | Ref. No. |
| 1              | 22 mm            | IP 65            | Class F                              | 2.5 W | 2 W   | DA01           | 488980        | for DIN plug         | A0        | 8993     | -40           | 50       |
|                |                  | IP 65            | Class F                              | 2.5 W | 2 W   | DA02           | 481045        | with DIN plug        | A0        | 8993     | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA03           | 481180        | for DIN plug         | A0        | 8993     | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA04           | 481530        | with DIN plug        | A0        | 8993     | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 5 W   | 4 W   | VA01           | 482605        | with 1500mm cable    | 00        | -        | -40           | 50       |
|                |                  | IP 65            | EEx m II T5                          | 2.5 W | 2 W   | VA02           | 482606        | with 1500mm cable    | 00        | -        | -40           | 50       |
| 2              | 32 mm (Std)      | IP 65            | Class F                              | 9 W   | 8 W   | DZ02           | 481865        | for DIN plug         | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ03           | 482725        | with DIN plug        | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            | Class H                              | 9 W   | 8 W   | DZ04           | 492453        | for DIN plug         | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ05           | 492726        | with DIN plug        | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            | Class F, 50/60 Hz                    | -     | 9 W   | DZ06           | 483510        | for DIN plug         | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            |                                      | -     | 9 W   | DZ07           | 482635        | with DIN plug        | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 9 W   | 8 W   | HZ05           | 492670        | with 3000mm cable    | 00        | -        | -40           | 40       |
|                |                  | IP 65            | Class H                              | 14 W  | 14 W  | DZ08           | 492425        | for DIN plug         | N1        | 2995     | -40           | 50       |
|                | 50 mm (Std)      | IP 65            |                                      | 14 W  | 14 W  | DZ09           | 492727        | with DIN plug        | N1        | 2995     | -40           | 50       |
|                |                  | IP10 / IP 44     | Class F                              | 8 W   | 8 W   | EZ01           | 481000        | screw-terminals      | E0        | 4270     | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 8 W   | 8 W   | EZ02           | 485100        | screw-terminals      | E0        | 4270     | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 14 W  | 14 W  | EZ92           | 486265        | screw-terminals      | E0        | 4270     | -40           | 50       |
|                |                  | IP 67            | Class F, M20x1.5                     | 8 W   | 8 W   | EZ01           | 481000        | screw-terminals      | G1        | 4538     | -40           | 50       |
|                |                  | IP 65            | EEx m II T5/T4                       | 9 W   | 8 W   | VZ01           | 492070        | with 1500mm cable    | 00        | -        | -40           | 40/65    |
|                |                  | IP 67            | EEx me II T4                         | 8 W   | 8 W   | HZ06           | 483371        | for cable connection | 00        | -        | -40           | 65       |
|                |                  | IP 66            | EEx me II T3/T4                      | 11 W  | 9 W   | VZ03           | 492190        | for cable connection | 00        | -        | -40           | 75/40    |
| 3              | 32 mm            | IP 65            | Class H                              | -     | 14 W  | DZ08           | 492425        | for DIN plug         | N1        | 2995     | -40           | 50       |
| 4              | 50 mm (impulse)  | IP10 / IP 44     | Class F                              | -     | 11 W  | MZ01           | 484990        | screw-terminals      | E1        | 4269     | -40           | 50       |
|                |                  | IP10 / IP 44     | Class F                              | 13 W  | -     | MZ02           | 485400        | screw-terminals      | E1        | 4269     | -40           | 50       |
| 5              | 50 mm            | IP 54            | EEx d IIC T4/T5/T6                   | 8 W   | 8 W   | HZ08           | 483250        | for cable 1/2 NPT    | 00        | -        | -40           | 80/75/60 |
| 6              | 32 mm (Miniwatt) | IP 65            | Class F                              | 1.6 W | -     | DZ10           | 482740        | for DIN plug         | N1        | 2995     | -40           | 50       |
|                |                  | IP 65            | Class F                              | 1.6W  | -     | DZ11           | 482745        | with DIN plug        | N1        | 2995     | -40           | 50       |
|                | 50 mm (Miniwatt) | IP 67            | EEx me II T5                         | 2.5 W | -     | VZ04           | 491117        | for cable connection | 00        | -        | -40           | 65       |
|                |                  | IP 67            | EEx m II T5/T4                       | 2.5 W | 2.5 W | VZ05           | 492370        | with 1500mm cable    | 00        | -        | -40           | 40/65    |
|                |                  | IP 66            | EEx me II T6/T5                      | 2.5 W | 2.5 W | VZ06           | 492390        | for cable connection | 00        | -        | -40           | 40/75    |
| 7              | 32 mm            | IP 65            | EEx ia II C T6                       | 0.4 W | -     | DZ12           | 483580.01     | for DIN plug         | N1        | 2995     | -40           | 55       |
|                |                  | IP 65            |                                      | 0.4 W | -     | DZ13           | 483960.01     | with DIN plug        | N1        | 2995     | -40           | 55       |
|                | 50 mm            | IP 66            | EEx ia II C T6                       | 0.4 W | -     | VZ07           | 488650.01     | for cable connection | 00        | -        | -40           | 65       |
|                |                  | IP 67            |                                      | 0.4 W | -     | VZ08           | 488660.01     | with 2000mm cable    | 00        | -        | -40           | 65       |
|                |                  | IP 65            |                                      | 0.4 W | -     | VZ09           | 488670.01     | with DIN plug        | 00        | -        | -40           | 65       |

Note: This table is indicative only. Please contact your distributor to confirm your selection.

# Oil burner valves (incl. TÜV approved types)

2/2

| ACTUATION       | BODY MATERIAL | FUNCTION        | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|-----------------|---------------|-----------------|------------|--------------|---------------------|------|
| Direct operated | Brass body    | Normally closed | 1/8        | 2.2 to 3     | 50.0                | 102  |
|                 |               |                 | 1/4        | 1.2 to 3     | 100.0               | 104  |
|                 |               |                 | 3/8        | 4 to 11      | 30.0                | 104  |
|                 |               | Normally open   | 1/2        | 14           | 30.0                | 104  |
|                 |               |                 | 1/8        | 2.5          | 30.0                | 106  |
|                 |               |                 | 1/4        | 2.5 to 4     | 30.0                | 106  |
| Pilot operated  | Brass body    | Normally closed | 1/4        | 8            | 40.0                | 108  |
|                 |               |                 | 3/8        | 11           | 40.0                | 108  |
|                 |               |                 | 1/2        | 14.5 to 15   | 40.0                | 108  |
|                 |               |                 | SB         | 14           | 40.0                | 110  |
|                 |               | Normally open   | 1/4        | 8            | 40.0                | 108  |
|                 |               |                 | 3/8        | 11           | 40.0                | 108  |
|                 |               |                 | 1/2        | 14.5         | 40.0                | 110  |
|                 |               |                 | SB         | 14           | 40.0                | 110  |

**Notes:**

Direct operated valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

# Oil burner valves (incl. TÜV approved types)

# 2/2

## Applications

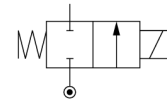
TÜV approved types are described in more detail in Data Sheet 8634/GB.  
TÜV approved models are safety shut-off solenoid valves for oil burner systems according to DIN EN 264 and fuel oils EL, L, M and S according to DIN 51603.



## Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |    | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|----|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |    |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |
| G         |              |                      |      |                                      |     | DC | AC             |           |                        |                     |         |      |                       |    |         |          |

Normally closed



## Brass body/Pipe mounting

|     |     |     |    |   |    |    |     |      |               |                |              |                |               |    |    |     |      |
|-----|-----|-----|----|---|----|----|-----|------|---------------|----------------|--------------|----------------|---------------|----|----|-----|------|
| 1/8 | 2.2 | 2.8 | 11 | 0 | -  | 25 | 120 | Ruby | 7121ZBG1LRT0  | -              | <sup>1</sup> | <b>2995.20</b> | <b>483764</b> | -  | 9  | 270 | 7863 |
|     | 2.2 | 2.8 | 11 | 0 | -  | 33 | 120 | Ruby |               |                |              | <b>2995.20</b> | <b>492425</b> | -  | 14 | 270 |      |
|     | 2.5 | 2.8 | 16 | 0 | 10 | 24 | 75  | Ruby | 7121ZBG1LR00  | -              |              | <b>2995</b>    | <b>481865</b> | 9  | 8  | 270 | 7893 |
|     | 2.5 | 2.8 | 16 | 0 | 5  | 13 | 75  | Ruby |               |                |              | <b>2995</b>    | <b>482730</b> | 7  | 6  | 270 |      |
|     | 2.5 | 2.8 | 16 | 0 | 10 | 33 | -   | Ruby | 7121ZCBG1LR00 | -              |              | <b>4270</b>    | <b>481000</b> | 8  | 8  | 390 | 7893 |
|     | 2.5 | 3.5 | 25 | 0 | 10 | 28 | 100 | Ruby | 7121KBG1LR00  | <b>E121K23</b> |              | <b>2995</b>    | <b>481865</b> | 9  | 8  | 300 | 3    |
|     | 2.5 | 3.5 | 25 | 0 | 12 | 34 | 130 | Ruby |               |                |              | <b>4270</b>    | <b>481000</b> | 8  | 8  | 420 |      |
|     | 2.5 | 3.5 | 25 | 0 | 22 | 50 | 120 | Ruby |               |                |              | <b>4270</b>    | <b>486265</b> | 14 | 14 | 430 |      |

Table continued on page 104

### Notes:

1. TÜV approved for oil burners

# Oil burner valves 2/2 - Direct operated

**DIN 43650 A**  
**M5x5 mm**  
 Values in brackets for G 3/8 valves  
 Valeurs entre parenthèse pour valves G 3/8  
 Angaben in Klammern für G 3/8 Ventile

**Dimension reference 3**

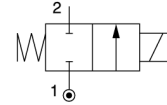
**Dimension reference 7893**

## Oil burner valves 2/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | OR                    | DC |         |          |

### Brass body/Pipe mounting

Normally closed



|     |     |      |      |    |     |                 |                 |      |              |                              |                              |                |               |    |     |     |
|-----|-----|------|------|----|-----|-----------------|-----------------|------|--------------|------------------------------|------------------------------|----------------|---------------|----|-----|-----|
| 1/8 | 3   | 4    | -    | 0  | -   | 30              | 160             | Ruby | 7121KBG1NRT0 | <b>121K2423</b> <sup>1</sup> | <b>8760.23</b>               | <b>483824</b>  | -             | 19 | 420 | 107 |
|     | 3   | 4    | -    | 0  | -   | 30              | 160             | Ruby |              |                              | <b>8520.23</b>               | <b>483824</b>  | -             | 19 | 480 |     |
| 1/4 | 1.2 | 0.85 | 8.5  | 0  | 36  | 80              | 100             | Ruby | 7121KBG2ER00 | <b>E121K65</b>               | <b>2995</b>                  | <b>481865</b>  | 9             | 8  | 290 | 3   |
|     | 1.2 | 0.85 | 8.5  | 0  | 43  | 100             | 130             | Ruby |              |                              | <b>4270</b>                  | <b>481000</b>  | 8             | 8  | 410 |     |
|     | 1.2 | 0.85 | 8.5  | 0  | 75  | 100             | 120             | Ruby |              |                              | <b>4270</b>                  | <b>486265</b>  | 14            | 14 | 420 |     |
|     | 1.5 | 1.5  | 15   | 0  | 25  | 60              | 100             | Ruby | 7121KBG2GR00 | <b>E121K67</b>               | <b>2995</b>                  | <b>481865</b>  | 9             | 8  | 290 | 3   |
|     | 1.5 | 1.5  | 15   | 0  | 30  | 75              | 130             | Ruby |              |                              | <b>4270</b>                  | <b>481000</b>  | 8             | 8  | 410 |     |
|     | 1.5 | 1.5  | 15   | 0  | 55  | 100             | 120             | Ruby |              |                              | <b>4270</b>                  | <b>486265</b>  | 14            | 14 | 420 |     |
|     | 2.5 | 3.5  | 25   | 0  | 10  | 28              | 100             | Ruby | 7121KBG2LR00 | <b>E121K63</b>               | <b>2995</b>                  | <b>481865</b>  | 9             | 8  | 290 | 3   |
|     | 2.5 | 3.5  | 25   | 0  | 12  | 34              | 130             | Ruby |              |                              | <b>4270</b>                  | <b>481000</b>  | 8             | 8  | 410 |     |
|     | 2.5 | 3.5  | 25   | 0  | 22  | 50              | 120             | Ruby |              |                              | <b>4270</b>                  | <b>486265</b>  | 14            | 14 | 420 |     |
|     | 3   | 4.5  | -    | 0  | -   | 30              | 160             | Ruby | -            | <b>121K6423</b> <sup>1</sup> | <b>8520.23</b>               | <b>483824</b>  | -             | 19 | 470 | 107 |
|     | 3   | 4.5  | -    | 0  | -   | 30              | 160             | Ruby | 7121KBG2NRT0 | <b>121K6423</b>              | <b>8760.23</b>               | <b>483824</b>  | -             | 19 | 410 | 107 |
|     | 3   | 4.5  | 27   | 0  | 7   | 20              | 100             | Ruby | 7121KBG2NR00 | <b>E121K64</b>               | <b>2995</b>                  | <b>481865</b>  | 9             | 8  | 290 | 3   |
| 3/8 | 4   | 7.5  | 10.5 | 0  | 4   | 10              | 100             | FKM  | 7121KBG3QV00 | <b>121K3206</b>              | <b>2995</b>                  | <b>481865</b>  | 9             | 8  | 340 | 3   |
|     | 4   | 7.5  | 10.5 | 0  | 5   | 10              | 120             | FKM  |              |                              | <b>4270</b>                  | <b>481000</b>  | 8             | 8  | 460 |     |
|     | 4   | 7.5  | 10.5 | 0  | 10  | 10              | 120             | FKM  |              |                              | <b>4270</b>                  | <b>486265</b>  | 14            | 14 | 470 |     |
|     | 5   | 11   | 11.5 | 0  | 2   | 7               | 100             | FKM  | 7121KBG3SV00 | <b>121K3106</b>              | <b>2995</b>                  | <b>481865</b>  | 9             | 8  | 340 | 3   |
|     | 5   | 11   | 11.5 | 0  | 2.8 | 7               | 120             | FKM  |              |                              | <b>4270</b>                  | <b>481000</b>  | 8             | 8  | 460 |     |
|     | 5   | 11   | 11.5 | 0  | 5   | 7               | 120             | FKM  |              |                              | <b>4270</b>                  | <b>486265</b>  | 14            | 14 | 470 |     |
|     | 6   | 12   | 12.5 | 0  | 1.1 | 5               | 100             | FKM  | 7121KBG3UV00 | <b>121K3306</b>              | <b>2995</b>                  | <b>481865</b>  | 9             | 8  | 340 | 3   |
|     | 6   | 12   | 12.5 | 0  | 1.5 | 5               | 120             | FKM  |              |                              | <b>4270</b>                  | <b>481000</b>  | 8             | 8  | 460 |     |
|     | 6   | 12   | 12.5 | 0  | 3   | 5               | 120             | FKM  |              |                              | <b>4270</b>                  | <b>486265</b>  | 14            | 14 | 470 |     |
|     | 11  | 22   | 13.5 | 0  | -   | 30 <sup>2</sup> | 160             | FKM  | 7121GBG34VT0 | <b>121G2320</b> <sup>1</sup> | <b>8760.23</b>               | <b>483541</b>  | -             | 20 | -   | 108 |
|     | 11  | 22   | 13.5 | 0  | -   | 30 <sup>2</sup> | 160             | FKM  |              |                              | <b>8520.23</b>               | <b>483541</b>  | -             | 20 | -   |     |
|     | 1/2 | 14   | 25   | 15 | 0   | -               | 30 <sup>2</sup> | 160  | FKM          | 7121GBG45VT0                 | <b>121G2520</b> <sup>1</sup> | <b>8760.23</b> | <b>483541</b> | -  | 20  | -   |
| 14  |     | 25   | 15   | 0  | -   | 30 <sup>2</sup> | 160             | FKM  |              |                              | <b>8520.23</b>               | <b>483541</b>  | -             | 20 | -   |     |
| 14  |     | 25   | 15   | 0  | -   | 19              | 160             | FKM  | 7121GBG45VT1 | <b>121G2523</b> <sup>1</sup> | <b>8520.23</b>               | <b>483824</b>  | -             | 19 | 480 | 107 |

Table continued on page 106

#### Notes:

1. TUV approved for oil burners
2. Max. static pressure = 30 bar; max pressure differential = 0.2 bar



# Oil burner valves 2/2 - Direct operated

**DIN 43650A**  
**M5x5 mm**  
 Values in brackets for G 3/8 valves  
 Valeurs entre parenthèse pour valves G 3/8  
 Angaben in Klammern für G 3/8 Ventile

78  
 15  
 32  
 20  
 33  
 11.5  
 1  
 2  
 (50)  
 40  
 481865  
 19.5  
 24  
 38  
 488698  
 8  
 488647  
 (22)  
 19  
 16  
 29  
 G

**Dimension reference 3**

121 K: 78  
 122 K: 85.5  
 44  
 22  
 57  
 37  
 11  
 11.5  
 22  
 40  
 8760.23  
 15  
 19  
 27  
 G  
 M5 x 6mm

**Dimension reference 107**

50  
 Pg 11  
 87  
 40  
 14  
 43  
 15  
 75  
 8520.23  
 25  
 62  
 102  
 G  
 53

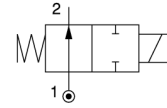
**Dimension reference 108**

## Oil burner valves 2/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |

### Brass body/Pipe mounting

Normally open

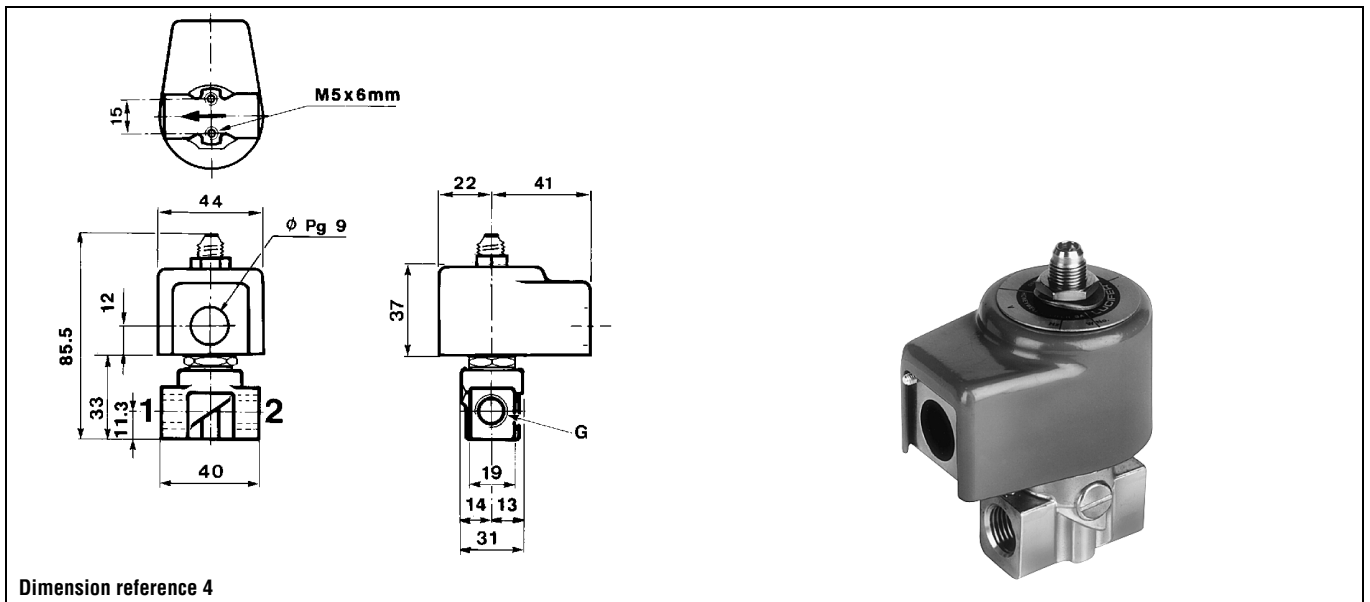


|     |     |     |   |   |    |     |      |      |              |                              |                |               |    |    |     |     |
|-----|-----|-----|---|---|----|-----|------|------|--------------|------------------------------|----------------|---------------|----|----|-----|-----|
| 1/8 | 2.5 | 3.5 | - | 0 | -  | 30  | 160  | Ruby | 7122KBG1LRT0 | <b>122K9321</b> <sup>1</sup> | <b>8760.23</b> | <b>483824</b> | -  | 19 | 455 | 105 |
|     | 2.5 | 3.5 | - | 0 | -  | 30  | 160  | Ruby |              |                              | <b>8520.23</b> | <b>483824</b> | -  | 19 | 515 |     |
|     | 2.5 | 3.5 | - | 0 | -  | 30  | 140  | Ruby | 7122KBG1LR00 | <b>122K9363</b>              | <b>4270</b>    | <b>481044</b> | -  | 14 | 445 | 4   |
|     | 2.5 | 3.5 | - | 0 | 30 | 30  | 140  | Ruby |              |                              | <b>4270</b>    | <b>486265</b> | 14 | 14 | 455 |     |
| 1/4 | 2.5 | 3.5 | - | 0 | -  | 30  | 160  | Ruby | 7122KBG2LRT0 | <b>122K8321</b> <sup>1</sup> | <b>8760.23</b> | <b>483824</b> | -  | 19 | 435 | 105 |
|     | 2.5 | 3.5 | - | 0 | -  | 30  | 160  | Ruby |              |                              | <b>8520.23</b> | <b>483824</b> | -  | 19 | 495 |     |
|     | 2.5 | 3.5 | - | 0 | -  | 30  | 140  | Ruby | 7122KBG2LR00 | <b>122K8363</b>              | <b>4270</b>    | <b>481044</b> | -  | 14 | 425 | 4   |
|     | 2.5 | 3.5 | - | 0 | 30 | 30  | 140  | Ruby |              |                              | <b>4270</b>    | <b>486265</b> | 14 | 14 | 435 |     |
|     | 4   | 6.5 | - | 0 | -  | 30  | 160  | Ruby | 7121KBG2QRT0 | <b>121K6220</b> <sup>1</sup> | <b>8520.23</b> | <b>483541</b> | -  | 20 | -   | 105 |
| 4   | 6.5 | -   | 0 | - | 30 | 160 | Ruby |      |              | <b>8760.23</b>               | <b>483541</b>  | -             | 20 | -  |     |     |

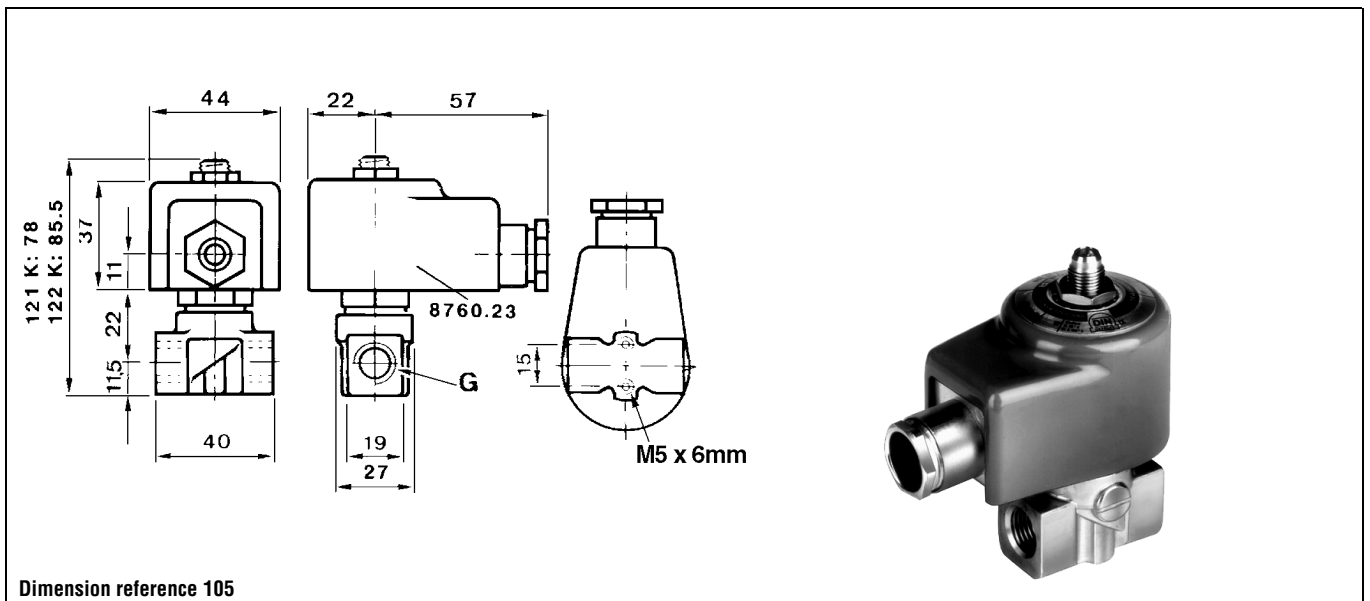
#### Notes:

1. TUV approved for oil burners

# Oil burner valves 2/2 - Direct operated



Dimension reference 4



Dimension reference 105

# Oil burner valves 2/2 - Pilot operated

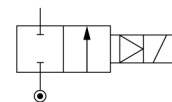
# 2/2



## Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |    | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |  |
|-----------|--------------|----------------------|------|--------------------------------------|-----|----|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|--|
|           |              | kv                   | Qmax | Min                                  | Max |    |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |  |
| G         |              |                      |      |                                      |     | DC | AC             |           |                        |                     |         |      |                       |    |         |          |  |

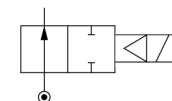
Normally closed



## Brass body/Pipe mounting

|     |      |    |    |     |   |    |    |     |     |              |                 |              |                |               |    |    |      |     |
|-----|------|----|----|-----|---|----|----|-----|-----|--------------|-----------------|--------------|----------------|---------------|----|----|------|-----|
| 1/4 | 8    | 36 | 36 | 0.3 | 2 | 25 | 40 | 100 | FKM | 7321HBG2SV00 | <b>E321H21</b>  | <sup>1</sup> | <b>2995</b>    | <b>481865</b> | 9  | 8  | 800  | 9   |
|     | 8    | 36 | 36 | 0.3 |   | 30 | 40 | 100 | FKM |              |                 |              | <b>4270</b>    | <b>481000</b> | 8  | 8  | 920  |     |
|     | 8    | 36 | 36 | 0.3 | 2 | 40 | 40 | 100 | FKM |              |                 |              | <b>4270</b>    | <b>486265</b> | 14 | 14 | 930  |     |
| 3/8 | 11   | 40 | 40 | 0.3 | 2 | -  | 30 | 160 | FKM | 7321HBG3TVT0 | <b>321H2322</b> | <sup>3</sup> | <b>8760.23</b> | <b>483541</b> | -  | 20 | 1070 | 104 |
|     | 11   | 40 | 40 | 0.3 | 2 | -  | 30 | 160 | FKM |              |                 |              | <b>8520.23</b> | <b>483541</b> | -  | 20 | 1010 |     |
|     | 11   | 50 | 50 | 0.3 | 2 | 25 | 40 | 100 | FKM | 7321HBG3TV00 | <b>E321H23</b>  | <sup>1</sup> | <b>2995</b>    | <b>481865</b> | 9  | 8  | 780  | 9   |
|     | 11   | 50 | 50 | 0.3 | 2 | 30 | 40 | 120 | FKM |              |                 |              | <b>4270</b>    | <b>481000</b> | 8  | 8  | 900  |     |
|     | 11   | 50 | 50 | 0.3 | 2 | 40 | 40 | 140 | FKM |              |                 |              | <b>4270</b>    | <b>486265</b> | 14 | 14 | 910  |     |
| 1/2 | 14.5 | 60 | 60 | 0.3 | 2 | 25 | 40 | 100 | FKM | 7321HBG4UV00 | <b>E321H25</b>  | <sup>1</sup> | <b>2995</b>    | <b>481865</b> | 9  | 8  | 740  | 9   |
|     | 14.5 | 60 | 60 | 0.3 | 2 | 30 | 40 | 120 | FKM |              |                 |              | <b>4270</b>    | <b>481000</b> | 8  | 8  | 860  |     |
|     | 14.5 | 60 | 60 | 0.3 | 2 | 40 | 40 | 140 | FKM |              |                 |              | <b>4270</b>    | <b>486265</b> | 14 | 14 | 870  |     |
|     | 15   | 60 | 60 | 0.3 |   | -  | 30 | 160 | FKM | 7321HBG4UVT0 | <b>321H2522</b> | <sup>3</sup> | <b>8760.23</b> | <b>483541</b> | -  | 20 | 870  | 104 |
|     | 15   | 60 | 60 | 0.3 | 2 | -  | 30 | 160 | FKM |              |                 |              | <b>8520.23</b> | <b>483541</b> | -  | 20 | 870  |     |

Normally open



## Brass body/Pipe mounting

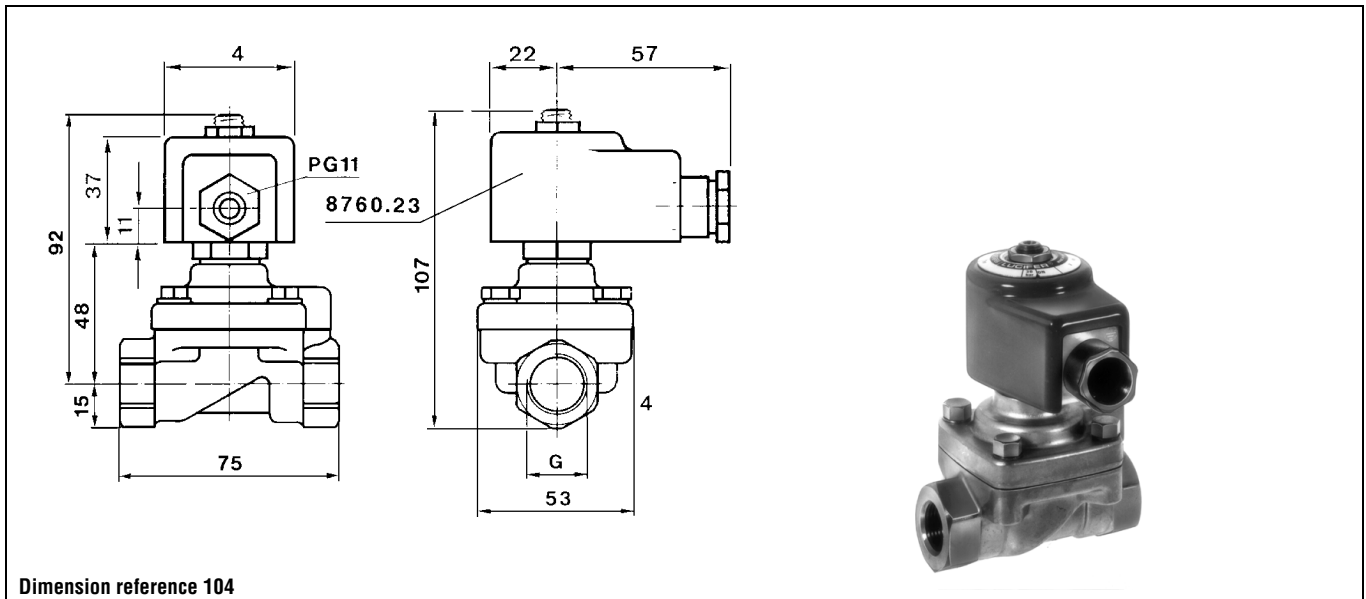
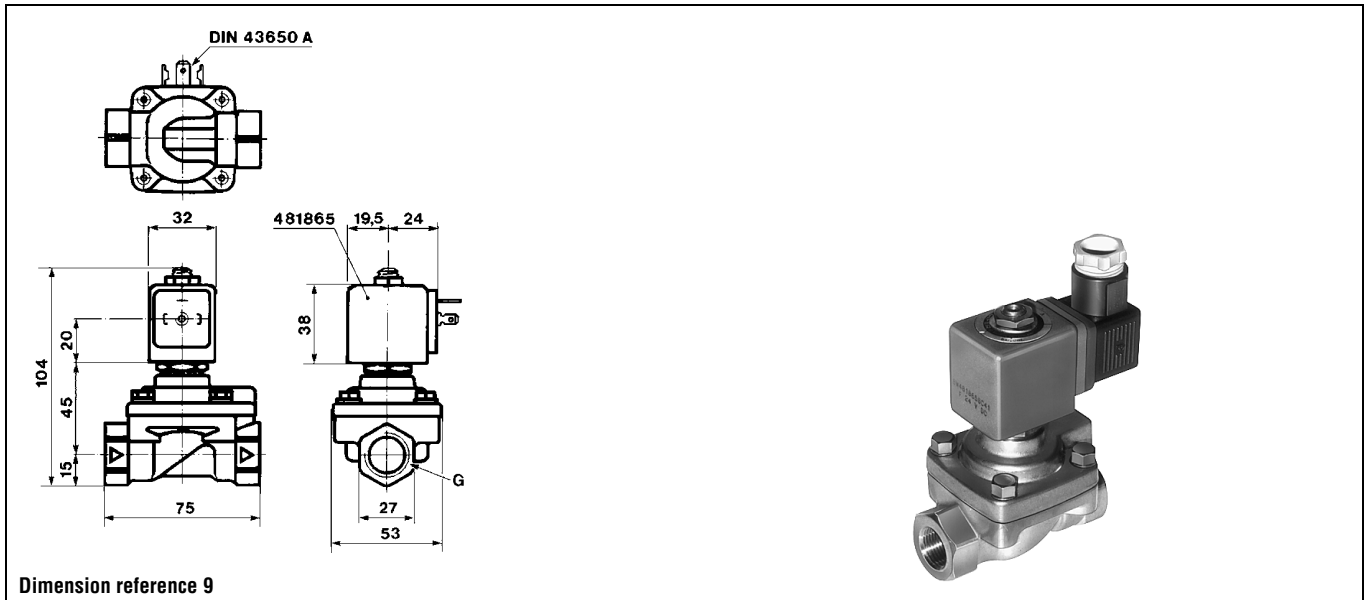
|     |    |    |    |     |   |    |    |     |     |              |                 |              |             |               |    |    |     |   |
|-----|----|----|----|-----|---|----|----|-----|-----|--------------|-----------------|--------------|-------------|---------------|----|----|-----|---|
| 1/4 | 8  | 36 | 36 | 0.3 | 2 | 40 | 40 | 100 | FKM | 7322HBG2SV00 | <b>322H7106</b> | <sup>1</sup> | <b>2995</b> | <b>481865</b> | 9  | 8  | 820 | 9 |
|     | 8  | 36 | 36 | 0.3 | 2 | 40 | 40 | 120 | FKM |              |                 |              | <b>4270</b> | <b>481000</b> | 8  | 8  | 940 |   |
|     | 8  | 36 | 36 | 0.3 | 2 | 40 | 40 | 140 | FKM |              |                 |              | <b>4270</b> | <b>486265</b> | 14 | 14 | 950 |   |
| 3/8 | 11 | 50 | 50 | 0.3 | 2 | 40 | 40 | 100 | FKM | 7322HBG3TV00 | <b>322H7306</b> | <sup>1</sup> | <b>2995</b> | <b>481865</b> | 9  | 8  | 800 | 9 |
|     | 11 | 50 | 50 | 0.3 | 2 | 40 | 40 | 100 | FKM |              |                 |              | <b>4270</b> | <b>481000</b> | 8  | 8  | 920 |   |
|     | 11 | 50 | 50 | 0.3 | 2 | 40 | 40 | 140 | FKM |              |                 |              | <b>4270</b> | <b>486265</b> | 14 | 14 | 930 |   |

Table continued on page 110

### Notes:

1. Pilot seat discs from ruby (synthetic)
2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing
3. TUV approved for oil burners

# Oil burner valves 2/2 - Pilot operated

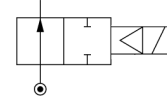


## Oil burner valves 2/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |

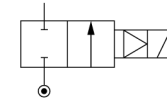
### Brass body/Pipe mounting

Normally open



|     |      |    |    |     |   |    |    |     |     |              |                              |             |               |    |    |     |   |
|-----|------|----|----|-----|---|----|----|-----|-----|--------------|------------------------------|-------------|---------------|----|----|-----|---|
| 1/2 | 14.5 | 60 | 60 | 0.3 | 1 | 20 | 20 | 100 | FKM | 7322GBG4UV00 | <b>322G7506</b>              | <b>2995</b> | <b>481865</b> | 9  | 8  | 760 | 9 |
|     | 14.5 | 60 | 60 | 0.3 | 1 | 20 | 20 | 100 | FKM |              |                              | <b>4270</b> | <b>481000</b> | 8  | 8  | 880 |   |
|     | 14.5 | 60 | 60 | 0.3 | 1 | 40 | 40 | 100 | FKM | 7322HBG4UV00 | <b>322H7506</b> <sup>2</sup> | <b>2995</b> | <b>481865</b> | 9  | 8  | 760 | 9 |
|     | 14.5 | 60 | 60 | 0.3 | 1 | 40 | 40 | 120 | FKM |              |                              | <b>4270</b> | <b>481000</b> | 8  | 8  | 880 |   |
|     | 14.5 | 60 | 60 | 0.3 | 1 | 40 | 40 | 140 | FKM |              |                              | <b>4270</b> | <b>486265</b> | 14 | 14 | 890 |   |

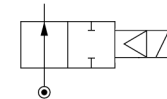
Normally closed



### Brass body/Sub-base mounting

|    |    |    |    |     |   |    |    |     |     |              |                               |             |               |    |    |     |    |
|----|----|----|----|-----|---|----|----|-----|-----|--------------|-------------------------------|-------------|---------------|----|----|-----|----|
| SB | 14 | 45 | 45 | 0.3 | 1 | 25 | 40 | 100 | FKM | 7321FBF3TV00 | <b>E321F3202</b> <sup>2</sup> | <b>2995</b> | <b>481865</b> | 9  | 8  | 650 | 13 |
|    | 14 | 45 | 45 | 0.3 | 1 | 30 | 40 | 120 | FKM |              |                               | <b>4270</b> | <b>481000</b> | 8  | 8  | 770 |    |
|    | 14 | 45 | 45 | 0.3 | 1 | 40 | 40 | 120 | FKM |              |                               | <b>4270</b> | <b>486265</b> | 14 | 14 | 780 |    |

Normally open



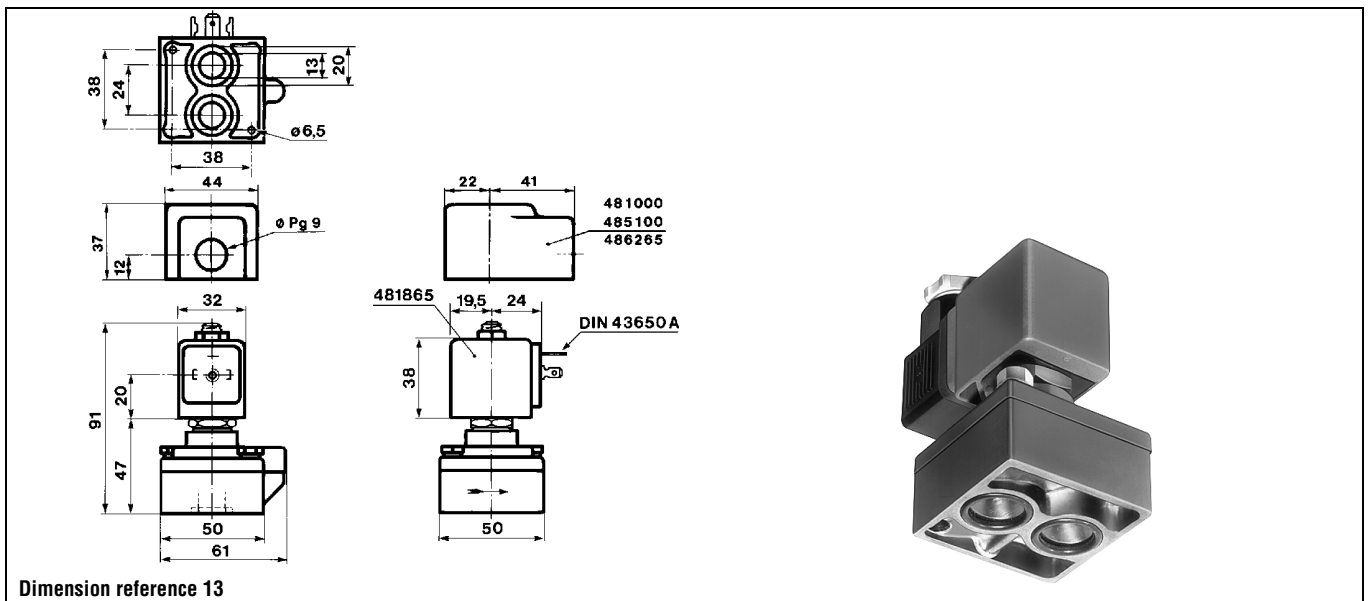
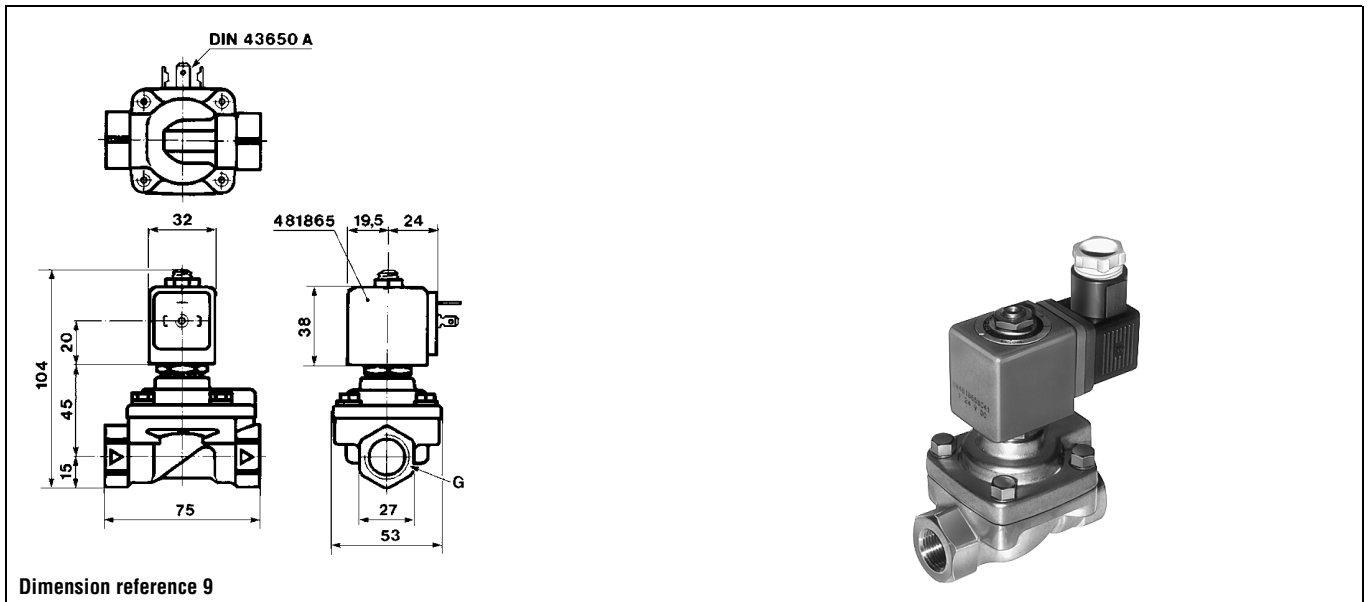
### Brass body/Sub-base mounting

|    |    |    |    |     |   |    |    |     |     |              |                              |             |               |    |    |     |    |
|----|----|----|----|-----|---|----|----|-----|-----|--------------|------------------------------|-------------|---------------|----|----|-----|----|
| SB | 14 | 45 | 45 | 0.3 | 1 | 40 | 40 | 100 | FKM | 7322FBF3TV00 | <b>322F7206</b> <sup>2</sup> | <b>2995</b> | <b>481865</b> | 9  | 8  | 650 | 13 |
|    | 14 | 45 | 45 | 0.3 | 1 | 40 | 40 | 100 | FKM |              |                              | <b>4270</b> | <b>481000</b> | 8  | 8  | 770 |    |
|    | 14 | 45 | 45 | 0.3 | 1 | 40 | 40 | 140 | FKM |              |                              | <b>4270</b> | <b>486265</b> | 14 | 14 | 780 |    |

#### Notes:

1. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing
2. Pilot seat discs from ruby (synthetic)

# Oil burner valves 2/2 - Pilot operated







# Dry operator valves for corrosive fluids

2/2

| ACTUATION       | BODY MATERIAL            | FUNCTION        | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|-----------------|--------------------------|-----------------|------------|--------------|---------------------|------|
| Direct operated | 303 Stainless steel body | Normally closed | 1/4 NPT    | 2 to 4.5     | 5.0                 | 114  |
|                 | Teflon body              |                 | 1/4 NPT    | 2 to 4.5     | 5.0                 | 114  |

**Notes:**

Direct operated valves: pressure range from 0 to max pressure.

# Dry operator valves for corrosive fluids

# 2/2

## Applications

The plunger is physically separated from the fluid by a soft diaphragm, isolating the plunger and the pilot tube from the main corrosive fluid. The fluid is only in contact with the body and the diaphragm.

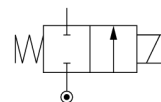


## Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |  | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|--|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |  |                |           | Global valve reference | Valve reference no. | Housing | Coil | OR                    | DC |         |          |

## 303 Stainless steel body/Pipe mounting

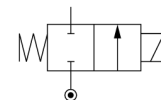
Normally closed



|         |     |     |   |   |     |     |    |       |              |   |      |        |   |   |     |     |
|---------|-----|-----|---|---|-----|-----|----|-------|--------------|---|------|--------|---|---|-----|-----|
| 1/4 NPT | 2   | 2.3 | - | 0 | 5   | 5   | 60 | BunaN | 71214VN2KN00 | - | 2995 | 481865 | 9 | 8 | 480 | 113 |
|         | 2   | 2.3 | - | 0 | 5   | 5   | 60 | PTFE  | 71214VN2KT00 | - | 2995 | 481865 | 9 | 8 | 480 | 113 |
|         | 3   | 3.3 | - | 0 | 3.5 | 3.5 | 60 | BunaN | 71214VN2MN00 | - | 2995 | 481865 | 9 | 8 | 480 | 113 |
|         | 3   | 3.3 | - | 0 | 3.5 | 3.5 | 60 | PTFE  | 71214VN2MT00 | - | 2995 | 481865 | 9 | 8 | 480 | 113 |
|         | 4   | 5   | - | 0 | 2.5 | 2.5 | 60 | BunaN | 71214VN2QN00 | - | 2995 | 481865 | 9 | 8 | 480 | 113 |
|         | 4   | 5   | - | 0 | 2.5 | 2.5 | 60 | PTFE  | 71214VN2QT00 | - | 2995 | 481865 | 9 | 8 | 480 | 113 |
|         | 4.5 | 6.7 | - | 0 | 1.4 | 1.4 | 60 | BunaN | 71214VN2SN00 | - | 2995 | 481865 | 9 | 8 | 480 | 113 |
|         | 4.5 | 6.7 | - | 0 | 1.4 | 1.4 | 60 | PTFE  | 71214VN2ST00 | - | 2995 | 481865 | 9 | 8 | 480 | 113 |

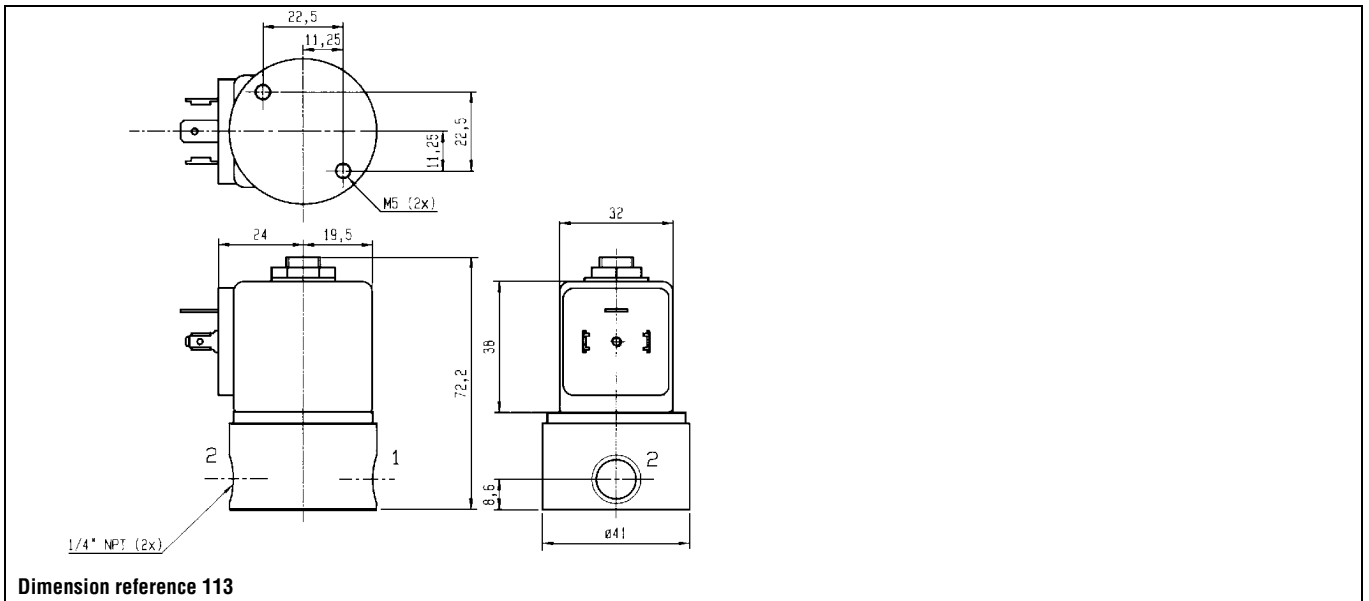
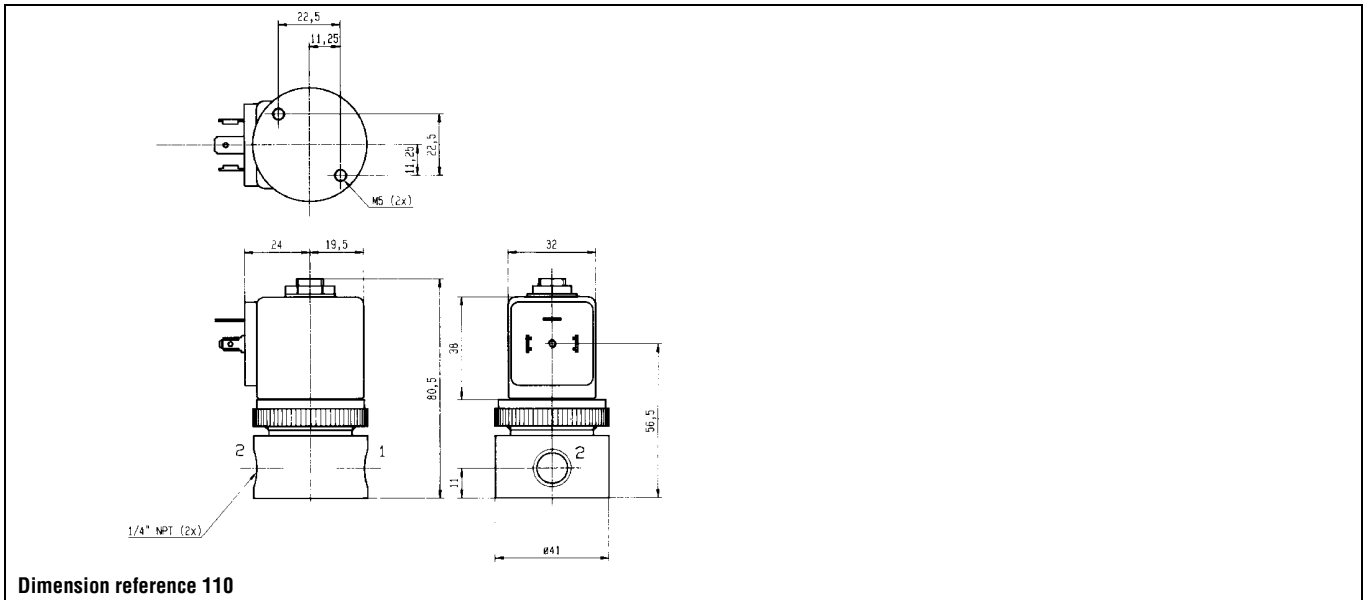
## Teflon body/Pipe mounting

Normally closed



|         |     |     |   |   |     |     |    |      |              |   |      |        |   |   |     |     |
|---------|-----|-----|---|---|-----|-----|----|------|--------------|---|------|--------|---|---|-----|-----|
| 1/4 NPT | 2   | 2.3 | - | 0 | 5   | 5   | 60 | PTFE | 71214TN2KT00 | - | 2995 | 481865 | 9 | 8 | 365 | 110 |
|         | 3   | 3.3 | - | 0 | 3.5 | 3.5 | 60 | PTFE | 71214TN2MT00 | - | 2995 | 481865 | 9 | 8 | 365 | 110 |
|         | 4   | 5   | - | 0 | 2.5 | 2.5 | 60 | PTFE | 71214TN2QT00 | - | 2995 | 481865 | 9 | 8 | 365 | 110 |
|         | 4.5 | 6.7 | - | 0 | 1.4 | 1.4 | 60 | PTFE | 71214TN2ST00 | - | 2995 | 481865 | 9 | 8 | 365 | 110 |

# Dry operator valves for corrosive fluids 2/2 - Direct operated



# Dry operator valves for corrosive fluids

## Fluid compatibility chart

|   | Stainless Steel 18-8, 302, 303, 304, 305 | BUNA N (Nitrile) | Teflon* | Noryl |                            | Stainless Steel 18-8, 302, 303, 304, 305 | BUNA N (Nitrile) | Teflon* | Noryl |
|---|--|------------------|---------|-------|----------------------------|--|------------------|---------|-------|
| Acetic Acid 8%  | S  | NR               | S       | S     | Nickle Nitrate             | T  | T                | S       | S     |
| Acetone   | S  | NR               | S       | NR    | Nitrobenzene               | NR                                       | NR               | S       | NR    |
| Acetylene Dry   | S  | S                | S       | U     | Nitrogen                   | S  | S                | S       | S     |
| Air Lubricated 120°C (248°F)                                | S  | NR               | S       | S     | Nitrous Oxide              | T  | S                | S       | U     |
| Air Lubricated 82°C (180°F)                                 | S  | S                | S       | S     | n-Octyl Alcohol            | U  | T                | S       | U     |
| Air Unlubricated 120°C (248°F)                              | S  | NR               | S       | S     | Olive Oil                  | S  | S                | S       | S     |
| Air Unlubricated 82°C (180°F)                               | S  | S                | S       | S     | Oxygen                     | S  | NR               | S       | S     |
| Alcohol Ethyl (Ethanol)                                     | S  | NR               | S       | F     | Ozone                      | T  | NR               | S       | U     |
| Alcohol Methyl (Methanol)                                   | S  | S                | S       | F     | Perchloroethylene          | F  | NR               | S       | NR    |
| Ammonia Gas Anhydrous 20                                    | S  | S                | S       | S     | n-Propyl Acetobne          | U  | NR               | S       | U     |
| Argon   | S  | S                | S       | U     | Propyl Alcohol             | S  | T                | S       | U     |
| Beer  | S  | S                | S       | S     | Pyridine                   | S  | NR               | S       | T     |
| Benzene   | S  | NR               | S       | NR    | Pyrolube                   | U  | NR               | U       | U     |
| Boric Acid  | S  | NR               | S       | S     | Quick Silver               | U  | S                | S       | U     |
| Citric Acid 10%   | S  | S                | S       | S     | Red Oil                    | U  | S                | S       | U     |
| Cod Liver Oil   | S  | S                | S       | U     | Rust Inhibitors            | U  | S                | U       | U     |
| Coffee  | S  | S                | S       | U     | Shellac                    | S  | S                | S       | U     |
| Diesel Fuel   | S  | T                | S       | NR    | Silicone Oil               | S  | S                | S       | S     |
| Ethylene Glycol (Antifreeze)                                | S  | S                | S       | S     | Sodium Phosphates          | T  | S                | S       | S     |
| Freon 12  | S  | S                | S       | NR    | Steam 140°C (298°F)        | S  | NR               | S       | S     |
| Freon 22  | S  | NR               | S       | NR    | Steam 180°C (356°F)        | S  | NR               | S       | T     |
| Fuel Oil  | S  | T                | S       | S     | Stoddard Solvent           | S  | S                | S       | NR    |
| Gasoline Leaded   | S  | S                | S       | NR    | Sucrose Solution           | S  | S                | S       | S     |
| Gasoline Unleaded   | S  | NR               | S       | NR    | Sulfur                     | T  | NR               | S       | S     |
| Helium  | S  | S                | S       | S     | Sulfur Hexafluoride        | S  | NR               | S       | U     |
| Hydraulic Fluids - Fire Resistant Cellulube Phosphate Ester | S  | NR               | S       | U     | Toluene                    | S  | NR               | S       | NR    |
| Pydraul   | S  | NR               | S       | U     | Trichloroethylene          | T  | NR               | S       | NR    |
| Skydrol   | S  | NR               | S       | NR    | Trimethylpentane           | U  | S                | S       | U     |
| Petroleum   | S  | S                | S       | NR    | Trisodium Phosphate        | T  | F                | S       | S     |
| Jet Fuel  | S  | T                | -       | NR    | Turpentine                 | S  | S                | S       | S     |
| Kerosene  | S  | S                | S       | NR    | Urea                       | S  | T                | S       | S     |
| Ketones   | T  | NR               | S       | NR    | Varnish                    | S  | T                | S       | U     |
| Lard (Animal Fat)   | S  | S                | S       | U     | Vegetable Oil              | S  | S                | S       | U     |
| Lead Acetate  | NR                                       | NR               | S       | F     | Vinegar                    | T  | T                | S       | S     |
| Linseed Oil   | S  | S                | S       | S     | Water Boiler Feed          | S  | S                | S       | U     |
| Lime & Water  | NR                                       | S                | S       | U     | Water Deionized Distilled  | S  | T                | S       | S     |
| Lubricating Oil   | S  | S                | S       | T     | Water Fresh <82°C (180°F)  | S  | S                | S       | S     |
| Methane   | S  | S                | S       | U     | Water Fresh <100°C (212°F) | S  | NR               | S       | S     |
| Methanol Alcohol-Methyl                                     | S  | S                | S       | T     | Water Return Condensate    | S  | S                | S       | U     |
| Methyl Ethyl Ketone (MEK)                                   | F  | NR               | S       | NR    | Water Sea/Salt             | T  | S                | S       | S     |
| Mineral Spirits   | S  | S                | S       | T     | Whiskey                    | S  | S                | S       | S     |
| Motor Oil   | S  | S                | S       | S     | Wine                       | S  | S                | S       | S     |
| Naptha  | S  | S                | S       | NR    | Xylene                     | S  | NR               | S       | NR    |
| Natural Gas   | S  | S                | S       | U     | Zinc Chloride              | NR                                       | S                | S       | S     |
|   |  |                  |         |       | Zinc Sulfate               | T  | T                | S       | S     |

### Notes

The data should be used as a guide, and not as a final recommendation.

S = Satisfactory; T = Test to Verify, F = fair; U = No Data Available, NR = Not Recommended Unless Otherwise Stated, Media are at 100% Concentration and at Room Temperature.

# Fast switching valves

2/2

| ACTUATION | BODY MATERIAL | FUNCTION        | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|-----------|---------------|-----------------|------------|--------------|---------------------|------|
| Magnalift | Brass body    | Normally closed | 3/8        | 8            | 7.0                 | 118  |

**Notes:**

Magnalift valves: pressure range from 0 to max pressure.

# Fast switching valves

# 2/2

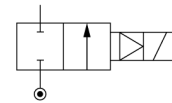
## Applications

- Where extremely short response times and/or dry air service are required
- Textile weaving machines
- Printing machines
- Sorting machines
- Banknote counting machines.

## Magnalift

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |    | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|----|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |    |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |          |
| G         |              |                      |      |                                      | DC  | AC |                |           |                        |                     |         |      |                       |    |         |          |

Normally closed



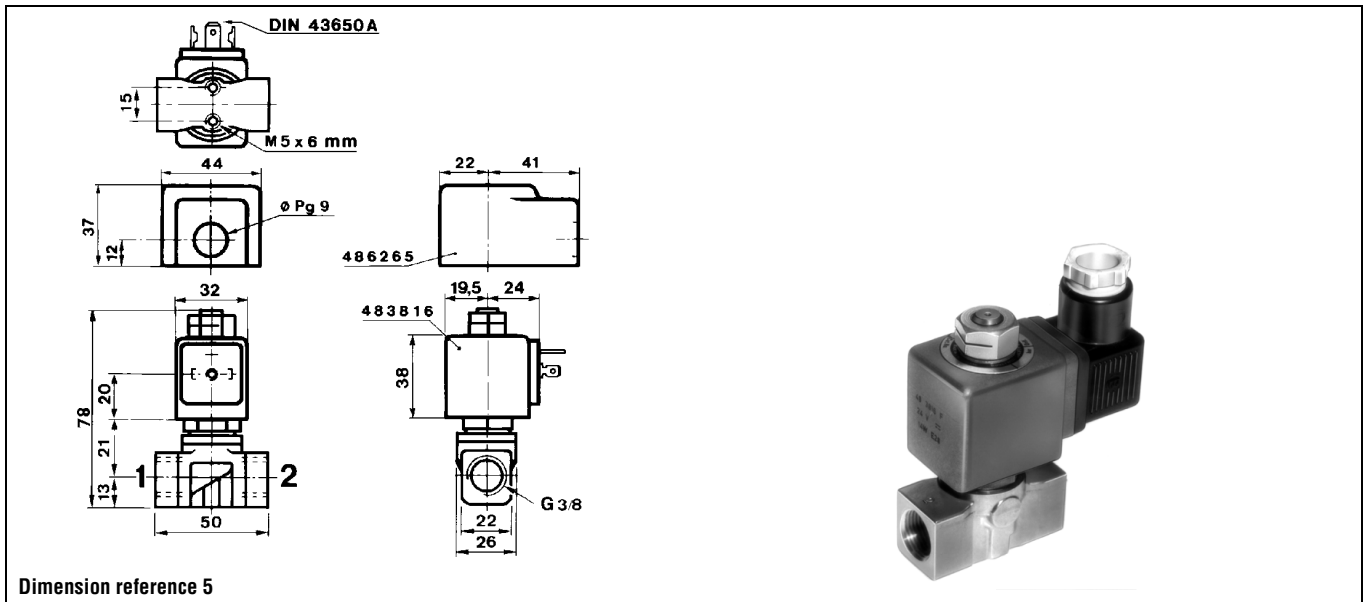
## Brass body/Pipe mounting

|     |   |   |    |   |   |   |   |     |   |             |         |        |    |   |     |   |
|-----|---|---|----|---|---|---|---|-----|---|-------------|---------|--------|----|---|-----|---|
| 3/8 | 8 | - | 40 | 0 | 7 | - | - | PUR | - | 221J3301E 1 | 2995.60 | 483816 | 14 | - | 360 | 5 |
|     | 8 | - | 40 | 0 | 7 | - | - | PUR |   |             | 4270.60 | 486265 | 14 | - | 490 |   |

### Notes:

1. Fast response and long life

# Fast switching valves 2/2 - Magnalift







# 3-way valves

|   | <b>Page</b> |
|---|-------------|
| General application valves for dry or lubricated air<br>neutral gases and liquids . . . . . | 123         |
| Miniature valves (3-way direct operated) . . . . .  | 161         |
| Valves for hydraulic oil and neutral liquids (max. 75 bar) . . . . .                        | 175         |
| High corrosion resistant valves (Stainless Steel) . . . . .                                 | 181         |

## Applications



**AIR**



**WATER**



**OIL**



**CORROSION  
RESISTANT**



# General application valves for dry or lubricated air, neutral gases and liquids

# 3/2

| ACTUATION       | BODY MATERIAL | FUNCTION               | CONNECTION           | ORIFICE (MM)    | MAX. PRESSURE (BAR) | PAGE     |      |     |
|-----------------|---------------|------------------------|----------------------|-----------------|---------------------|----------|------|-----|
| Direct operated | Brass body    | Normally closed        | 1/8                  | 1.2 to 2.5      | 15.0                | 124      |      |     |
|                 |               |                        | 1/4                  | 1 to 4.5        | 30.0                | 126      |      |     |
|                 |               |                        | SB                   | 1 to 2.5        | 15.0                | 136      |      |     |
|                 |               | Normally open          | 1/4                  | 1.5 to 3        | 16.0                | 132      |      |     |
|                 |               |                        | SB                   | 1.5 to 2.5      | 16.0                | 144      |      |     |
|                 |               |                        | Universal            | 1/8             | 1.5 to 2.5          | 10.0     | 134  |     |
|                 |               | 1/4                    |                      | 1.5 to 3        | 10.0                | 134      |      |     |
|                 |               | SB                     |                      | 1.5 to 2.5      | 10.0                | 144      |      |     |
|                 |               | Magnetic latch control | 1/4                  | 1.5 to 2.5      | 16.0                | 136      |      |     |
|                 |               |                        | Delrin body          | Normally closed | SB                  | 2        | 10.0 | 148 |
|                 |               | Pilot operated         | Anod. aluminium body | Normally closed | 1/4                 | 6.5 to 8 | 40.0 | 150 |
|                 |               |                        |                      |                 | 1/2                 | 14 to 15 | 15.0 | 152 |
| Normally open   | 1/4           |                        |                      | 8               | 40.0                | 152      |      |     |
|                 | 1/2           |                        |                      | 14              | 15.0                | 154      |      |     |

### Notes:

Direct operated and magnalift valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

# General application valves for dry or lubricated air, neutral gases and liquids

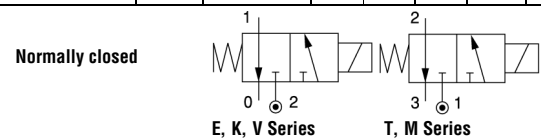
# 3/2



## Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |     |     | Fluid temp. °C |     |                        | Seat disc | Reference numbers   |         |      |    | Power consumption (W) |  | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----|-----|----------------|-----|------------------------|-----------|---------------------|---------|------|----|-----------------------|--|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max | Gas | Liquid         | Oil | Global valve reference |           | Valve reference no. | Housing | Coil | DC | AC                    |  |         |                  |          |

## Brass body/Pipe mounting



|     |       |       |       |       |   |    |     |     |     |     |              |                |                 |                         |               |     |     |     |    |      |
|-----|-------|-------|-------|-------|---|----|-----|-----|-----|-----|--------------|----------------|-----------------|-------------------------|---------------|-----|-----|-----|----|------|
| 1/8 | 1.2   | 0.7   | 2.2   | 50    | 0 | 10 | 10  | 75  | 75  | 75  | FKM          | -              | <b>131M15</b>   | <b>8993</b>             | <b>488980</b> | 2.5 | 2   | 150 | 1  | 14   |
|     | (1.5) | (0.9) | (2.2) | (70)  | 0 | 10 | 10  | 75  | 75  | 75  | FKM          | -              | <b>131M15</b>   | <b>8993</b>             | <b>488980</b> | 2.5 | 2   | 150 | 1  | 14   |
|     | 1.5   | 1.1   | 2.4   | 70    | 0 | 7  | 7   | 75  | 75  | 75  | FKM          | -              | <b>131M14</b>   | <b>8993</b>             | <b>488980</b> | 2.5 | 2   | 150 | 1  | 14   |
|     | 1.5   | 1.5   | 5.8   | 80    | 0 | 15 | 15  | 100 | 100 | 100 | FKM          | 7131KBG1GV00   | <b>E131K14</b>  | <b>2995</b>             | <b>481865</b> | 9   | 8   | 325 | 2  | 17   |
|     | 1.5   | 1.5   | 5.8   | 80    | 0 | 15 | 15  | 120 | 120 | 120 | FKM          | 7131ZBG1JV00   | -               | <b>2995</b>             | <b>481865</b> | 9   | 8   | 270 | 2  | 7894 |
|     | 2     | 2     | 6.5   | 140   | 0 | -  | 10  | 75  | 75  | 75  | FKM          | 7131ZBG1JV00   | -               | <b>2995</b>             | <b>481865</b> | 9   | 8   | 270 | 2  | 7894 |
|     | 2     | 2     | 6.5   | 140   | 0 | 10 | 10  | 75  | 75  | 75  | FKM          | 7131ZBG1JV00   | -               | <b>4270</b>             | <b>481000</b> | 8   | 8   | 390 | 2  | 7894 |
|     | 2     | 2     | 6.5   | 140   | 0 | 10 | 10  | 75  | 75  | 75  | FKM          | 7131ZBG1JV00   | -               | <b>2995</b>             | <b>482730</b> | 7   | 6   | 270 | 2  | 7894 |
|     | 2     | 2.5   | 8     | 140   | 0 | 10 | 10  | 100 | 100 | 100 | FKM          | 7131KBG1JVM0   | <b>131K1650</b> | <b>1</b><br><b>2995</b> | <b>481865</b> | 9   | 8   | 310 | 2  | 17   |
|     | (2.5) | (3.5) | (8.5) | (220) | 0 | 10 | 10  | 100 | 100 | 100 | FKM          | 7131KBG1JVM0   | <b>131K1650</b> | <b>2995</b>             | <b>481865</b> | 9   | 8   | 310 | 2  | 17   |
|     | 2     | 2.5   | 8     | 140   | 0 | 10 | 10  | 120 | 120 | 120 | FKM          | 7131KBG1JVM0   | <b>131K1650</b> | <b>4270</b>             | <b>481000</b> | 8   | 8   | 430 | 2  | 17   |
|     | (2.5) | (3.5) | (8.5) | (220) | 0 | 10 | 10  | 120 | 120 | 120 | FKM          | 7131KBG1JVM0   | <b>131K1650</b> | <b>4270</b>             | <b>481000</b> | 8   | 8   | 430 | 2  | 17   |
|     | 2     | 2.5   | 8     | 140   | 0 | 10 | 10  | 100 | 100 | 100 | FKM          | 7131KBG1JV00   | <b>131K16</b>   | <b>2995</b>             | <b>481865</b> | 9   | 8   | 310 | 2  | 17   |
|     | (2.5) | (3.5) | (8.5) | (220) | 0 | 10 | 10  | 100 | 100 | 100 | FKM          | 7131KBG1JV00   | <b>131K16</b>   | <b>2995</b>             | <b>481865</b> | 9   | 8   | 310 | 2  | 17   |
|     | 2     | 2.5   | 8     | 140   | 0 | 10 | 10  | 120 | 120 | 120 | FKM          | 7131KBG1JV00   | <b>131K16</b>   | <b>4270</b>             | <b>481000</b> | 8   | 8   | 430 | 2  | 17   |
|     | (2.5) | (3.5) | (8.5) | (220) | 0 | 10 | 10  | 120 | 120 | 120 | FKM          | 7131KBG1JV00   | <b>131K16</b>   | <b>4270</b>             | <b>481000</b> | 8   | 8   | 430 | 2  | 17   |
| 2.5 | 3.5   | 8.5   | 220   | 0     | 7 | 7  | 100 | 100 | 100 | FKM | 7131KBG1LV00 | <b>E131K13</b> | <b>2995</b>     | <b>481865</b>           | 9             | 8   | 325 | 2   | 17 |      |
| 2.5 | 3.5   | 8.5   | 220   | 0     | 7 | 7  | 120 | 120 | 120 | FKM | 7131KBG1LV00 | <b>E131K13</b> | <b>4270</b>     | <b>481000</b>           | 8             | 8   | 445 | 2   | 17 |      |

Table continued on page 126

### Notes:

\* See Electrical Parts Group table at end of section

1. Manual override standard

Values shown within brackets are valid for exhaust port only.

# General application valves 3/2 - Direct operated

**Dimension reference 14**

**Dimension reference 17**

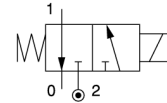
**Dimension reference 7894**

## General application valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |     |     | Fluid temp. °C |     |                        | Seat disc | Reference numbers   |         |      |    | Power consumption (W) |  | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----|-----|----------------|-----|------------------------|-----------|---------------------|---------|------|----|-----------------------|--|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max | Gas | Liquid         | Oil | Global valve reference |           | Valve reference no. | Housing | Coil | DC | AC                    |  |         |                  |          |

### Brass body/Pipe mounting

Normally closed



|       |       |       |       |       |    |    |     |     |     |     |              |                               |                               |               |                               |     |     |     |    |    |
|-------|-------|-------|-------|-------|----|----|-----|-----|-----|-----|--------------|-------------------------------|-------------------------------|---------------|-------------------------------|-----|-----|-----|----|----|
| 1/4   | 1     | 0.6   | -     | 38    | 0  | 10 | -   | 75  | 75  | 75  | FKM          | 7131KBG2CV90                  | <b>131K0490</b>               | -             | <b>483580.01</b> <sup>1</sup> | 0.4 | -   | 285 | 7  | 77 |
|       | 1.2   | 0.8   | 4.5   | 50    | 0  | -  | 30  | 130 | 130 | 130 | Ruby         | 7131KBG2ERM0                  | <b>E131K6450</b> <sup>2</sup> | <b>4270</b>   | <b>481000</b>                 | -   | 8   | 430 | 2  | 17 |
|       | (1.5) | (1.5) | (9)   | (80)  | 0  | -  | 30  | 130 | 130 | 130 | Ruby         |                               |                               | <b>4270</b>   | <b>481000</b>                 | -   | 8   | 430 | 2  |    |
|       | 1.2   | 0.8   | 4.5   | 50    | 0  | 30 | -   | 140 | 140 | 140 | Ruby         |                               |                               | <b>4270</b>   | <b>486265</b>                 | 14  | -   | 430 | 2  |    |
|       | (1.5) | (1.5) | (9)   | (80)  | 0  | 30 | -   | 140 | 140 | 140 | Ruby         |                               |                               | <b>4270</b>   | <b>486265</b>                 | 14  | -   | 430 | 2  |    |
|       | 1.2   | 0.8   | 4.5   | 50    | 0  | -  | 30  | 130 | 130 | 130 | Ruby         | 7131KBG2ER00                  | <b>E131K64</b>                | <b>4270</b>   | <b>481000</b>                 | -   | 8   | 430 | 2  | 17 |
|       | (1.5) | (1.5) | (9)   | (80)  | 0  | -  | 30  | 130 | 130 | 130 | Ruby         |                               |                               | <b>4270</b>   | <b>481000</b>                 | -   | 8   | 430 | 2  |    |
|       | 1.2   | 0.8   | 4.5   | 50    | 0  | 30 | -   | 140 | 140 | 140 | Ruby         |                               |                               | <b>4270</b>   | <b>486265</b>                 | 14  | -   | 440 | 2  |    |
|       | (1.5) | (1.5) | (9)   | (80)  | 0  | 30 | -   | 140 | 140 | 140 | Ruby         |                               |                               | <b>4270</b>   | <b>486265</b>                 | 14  | -   | 440 | 2  |    |
|       | 1.5   | 1.5   | 4     | 80    | 0  | 7  | -   | 75  | 75  | 75  | FKM          | 7131KBG2GVL5                  | <b>131K0480</b>               | <b>2995</b>   | <b>482740</b>                 | 1.6 | -   | 310 | 6  | 17 |
|       | 1.5   | 1.5   | 6     | 80    | 0  | 15 | 15  | 100 | 100 | 100 | FKM          | 7131KBG2GVM0                  | <b>E131K0450</b> <sup>2</sup> | <b>2995</b>   | <b>481865</b>                 | 9   | 8   | 310 | 2  | 17 |
|       | 1.5   | 1.5   | 6     | 80    | 0  | 15 | 15  | 120 | 120 | 120 | FKM          |                               |                               | <b>4270</b>   | <b>481000</b>                 | 8   | 8   | 430 | 2  |    |
|       | 1.5   | 1.5   | 6     | 80    | 0  | 15 | 15  | 100 | 100 | 100 | FKM          | 7131KBG2GV00                  | <b>E131K04</b>                | <b>2995</b>   | <b>481865</b>                 | 9   | 8   | 310 | 2  | 17 |
|       | 1.5   | 1.5   | 6     | 80    | 0  | 15 | 15  | 120 | 120 | 120 | FKM          |                               |                               | <b>4270</b>   | <b>481000</b>                 | 8   | 8   | 430 | 2  |    |
|       | 2     | 2.5   | 8     | 140   | 0  | 10 | 10  | 75  | 75  | 75  | FKM          | 7131TBG2JVM0                  | <b>131T2301</b> <sup>2</sup>  | <b>2995</b>   | <b>481865</b>                 | 9   | 8   | 400 | 2  | 18 |
|       | (3)   | (4.5) | (9)   | (355) | 0  | 10 | 10  | 75  | 75  | 75  | FKM          |                               |                               | <b>2995</b>   | <b>481865</b>                 | 9   | 8   | 400 | 2  |    |
|       | 2     | 2.5   | 8     | 140   | 0  | 10 | 10  | 75  | 75  | 75  | FKM          |                               |                               | <b>4270</b>   | <b>481000</b>                 | 8   | 8   | 520 | 2  |    |
|       | (3)   | (4.5) | (9)   | (355) | 0  | 10 | 10  | 75  | 75  | 75  | FKM          |                               |                               | <b>4270</b>   | <b>481000</b>                 | 8   | 8   | 520 | 2  |    |
|       | 2     | 2.5   | 8     | 140   | 0  | 10 | 10  | 75  | 75  | 75  | FKM          | 7131TBG2JV00                  | <b>131T23</b>                 | <b>2995</b>   | <b>481865</b>                 | 9   | 8   | 400 | 2  | 18 |
|       | (3)   | (4.5) | (9)   | (355) | 0  | 10 | 10  | 75  | 75  | 75  | FKM          |                               |                               | <b>2995</b>   | <b>481865</b>                 | 9   | 8   | 400 | 2  |    |
| 2     | 2.5   | 8     | 140   | 0     | 10 | 10 | 75  | 75  | 75  | FKM |              |                               | <b>4270</b>                   | <b>481000</b> | 8                             | 8   | 520 | 2   |    |    |
| (3)   | (4.5) | (9)   | (355) | 0     | 10 | 10 | 75  | 75  | 75  | FKM |              |                               | <b>4270</b>                   | <b>481000</b> | 8                             | 8   | 520 | 2   |    |    |
| 2     | 2.5   | 8     | 140   | 0     | 10 | 10 | 100 | 100 | 100 | FKM | 7131KBG2JVM0 | <b>E131K0650</b> <sup>2</sup> | <b>2995</b>                   | <b>481865</b> | 9                             | 8   | 310 | 2   | 17 |    |
| (2.5) | (3.5) | (8.5) | (220) | 0     | 10 | 10 | 100 | 100 | 100 | FKM |              |                               | <b>2995</b>                   | <b>481865</b> | 9                             | 8   | 310 | 2   |    |    |
| 2     | 2.5   | 8     | 140   | 0     | 10 | 10 | 120 | 120 | 120 | FKM |              |                               | <b>4270</b>                   | <b>481000</b> | 8                             | 8   | 430 | 2   |    |    |
| (2.5) | (3.5) | (8.5) | (220) | 0     | 10 | 10 | 120 | 120 | 120 | FKM |              |                               | <b>4270</b>                   | <b>481000</b> | 8                             | 8   | 430 | 2   |    |    |
| 2     | 2.5   | 8     | 140   | 0     | 10 | 10 | 100 | 100 | 100 | FKM | 7131KBG2JV00 | <b>E131K06</b>                | <b>2995</b>                   | <b>481865</b> | 9                             | 8   | 310 | 2   | 17 |    |
| (2.5) | (3.5) | (8.5) | (220) | 0     | 10 | 10 | 100 | 100 | 100 | FKM |              |                               | <b>2995</b>                   | <b>481865</b> | 9                             | 8   | 310 | 2   |    |    |
| 2     | 2.5   | 8     | 140   | 0     | 10 | 10 | 120 | 120 | 120 | FKM |              |                               | <b>4270</b>                   | <b>481000</b> | 8                             | 8   | 430 | 2   |    |    |
| (2.5) | (3.5) | (8.5) | (220) | 0     | 10 | 10 | 120 | 120 | 120 | FKM |              |                               | <b>4270</b>                   | <b>481000</b> | 8                             | 8   | 430 | 2   |    |    |

Table continued on page 128

#### Notes:

\* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

2. Manual override standard

Values shown within brackets are valid for exhaust port only.

# General application valves 3/2 - Direct operated

**Dimension reference 17**

**Dimension reference 18**

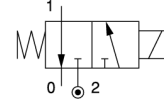
**Dimension reference 77**

## General application valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |     |     | Fluid temp. °C |     |                        | Seat disc | Reference numbers   |         |      |    | Power consumption (W) |  | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----|-----|----------------|-----|------------------------|-----------|---------------------|---------|------|----|-----------------------|--|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max | Gas | Liquid         | Oil | Global valve reference |           | Valve reference no. | Housing | Coil | DC | AC                    |  |         |                  |          |

### Brass body/Pipe mounting

Normally closed



|     |       |       |       |       |   |    |     |     |     |     |     |              |                                 |               |               |   |     |      |   |      |
|-----|-------|-------|-------|-------|---|----|-----|-----|-----|-----|-----|--------------|---------------------------------|---------------|---------------|---|-----|------|---|------|
| 1/4 | 2     | 2.5   | 8     | 140   | 0 | 10 | 10  | 80  | 80  | 80  | PUR | 7131KBG2JP1D | <b>E131K06081D</b> <sup>1</sup> | -             | <b>483250</b> | 8 | 8   | 1255 | 5 | 3845 |
|     | 2.5   | 3.5   | 8.5   | 220   | 0 | 7  | 7   | 75  | 75  | 75  | FKM | 7131TBG2LVM0 | <b>131T2901</b> <sup>2</sup>    | <b>2995</b>   | <b>481865</b> | 9 | 8   | 400  | 2 | 18   |
|     | (3.5) | (5.5) | (9.5) | (400) | 0 | 7  | 7   | 75  | 75  | 75  | FKM |              |                                 | <b>2995</b>   | <b>481865</b> | 9 | 8   | 400  | 2 |      |
|     | 2.5   | 5.5   | 9.5   | 400   | 0 | 7  | 7   | 75  | 75  | 75  | FKM |              |                                 | <b>4270</b>   | <b>481000</b> | 8 | 8   | 520  | 2 |      |
|     | (3.5) | (3.5) | (8.5) | (220) | 0 | 7  | 7   | 75  | 75  | 75  | FKM |              |                                 | <b>4270</b>   | <b>481000</b> | 8 | 8   | 520  | 2 |      |
|     | 2.5   | 3.5   | 8.5   | 220   | 0 | 7  | 7   | 75  | 75  | 75  | FKM | 7131TBG2LV00 | <b>131T29</b>                   | <b>2995</b>   | <b>481865</b> | 9 | 8   | 400  | 2 | 18   |
|     | (3.5) | (5.5) | (9.5) | (400) | 0 | 7  | 7   | 75  | 75  | 75  | FKM |              |                                 | <b>2995</b>   | <b>481865</b> | 9 | 8   | 400  | 2 |      |
|     | 2.5   | 3.5   | 8.5   | 220   | 0 | 7  | 7   | 75  | 75  | 75  | FKM |              |                                 | <b>4270</b>   | <b>481000</b> | 8 | 8   | 520  | 2 |      |
|     | (3.5) | (5.5) | (9.5) | (400) | 0 | 7  | 7   | 75  | 75  | 75  | FKM |              |                                 | <b>4270</b>   | <b>481000</b> | 8 | 8   | 520  | 2 |      |
|     | 2.5   | 3.5   | 8.5   | 220   | 0 | 7  | 7   | 100 | 100 | 100 | FKM | 7131KBG2LVM0 | <b>E131K0350</b> <sup>2</sup>   | <b>2995</b>   | <b>481865</b> | 9 | 8   | 310  | 2 | 17   |
|     | 2.5   | 3.5   | 8.5   | 220   | 0 | 7  | 7   | 120 | 120 | 120 | FKM |              |                                 | <b>4270</b>   | <b>481000</b> | 8 | 8   | 430  | 2 |      |
|     | 2.5   | 3.5   | 8.5   | 220   | 0 | 7  | 7   | 100 | 100 | 100 | FKM | 7131KBG2LV00 | <b>E131K03</b>                  | <b>2995</b>   | <b>481865</b> | 9 | 8   | 310  | 2 | 17   |
| 2.5 | 3.5   | 8.5   | 220   | 0     | 7 | 7  | 120 | 120 | 120 | FKM |     |              | <b>4270</b>                     | <b>481000</b> | 8             | 8 | 430 | 2    |   |      |

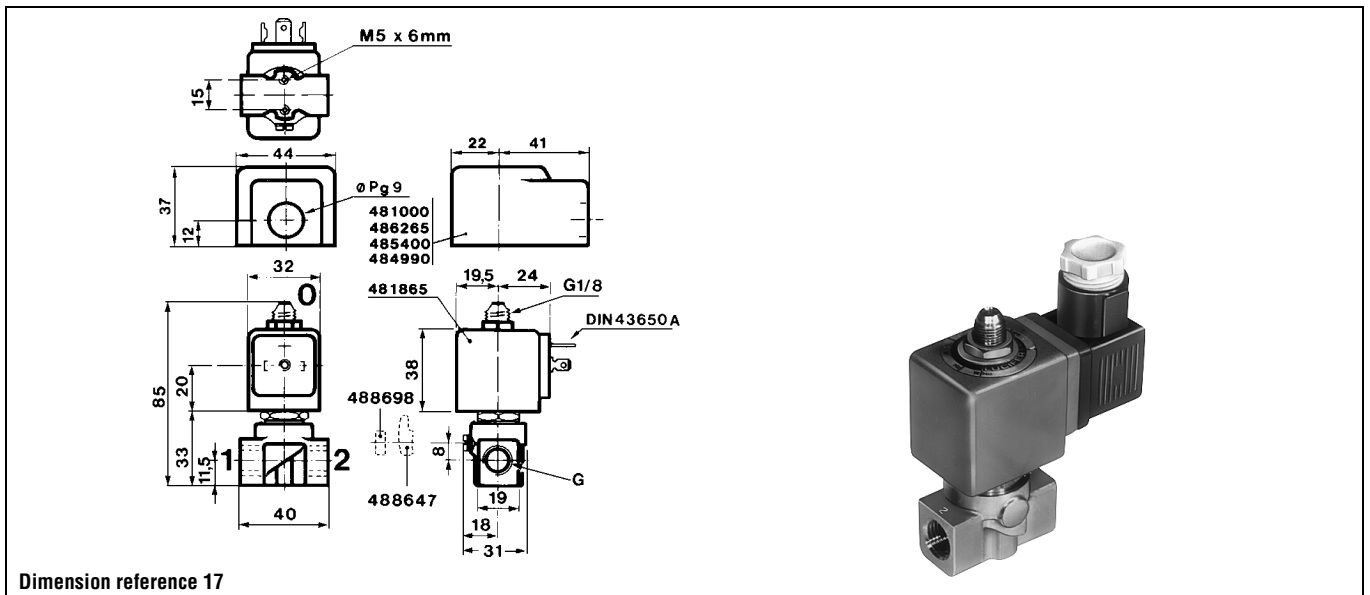
Table continued on page 130

#### Notes:

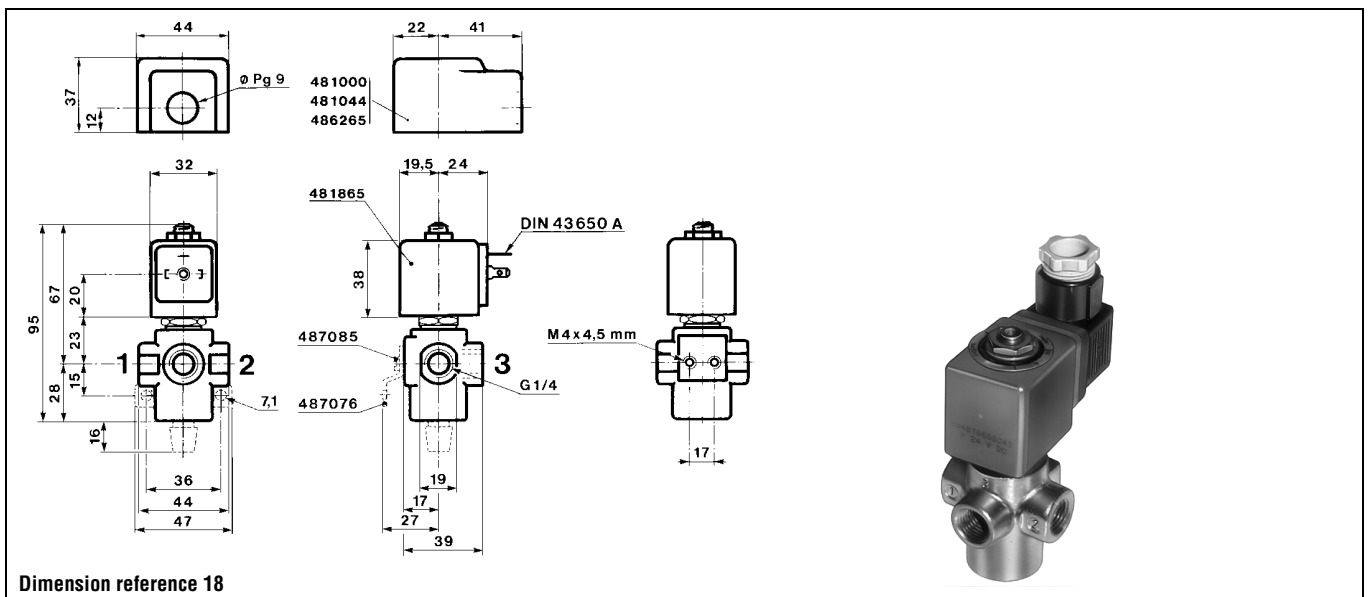
- \* See Electrical Parts Group table at end of section
  - 1. Operates with low temperatures down to -40 deg. C
  - 2. Manual override standard
- Values shown within brackets are valid for exhaust port only.



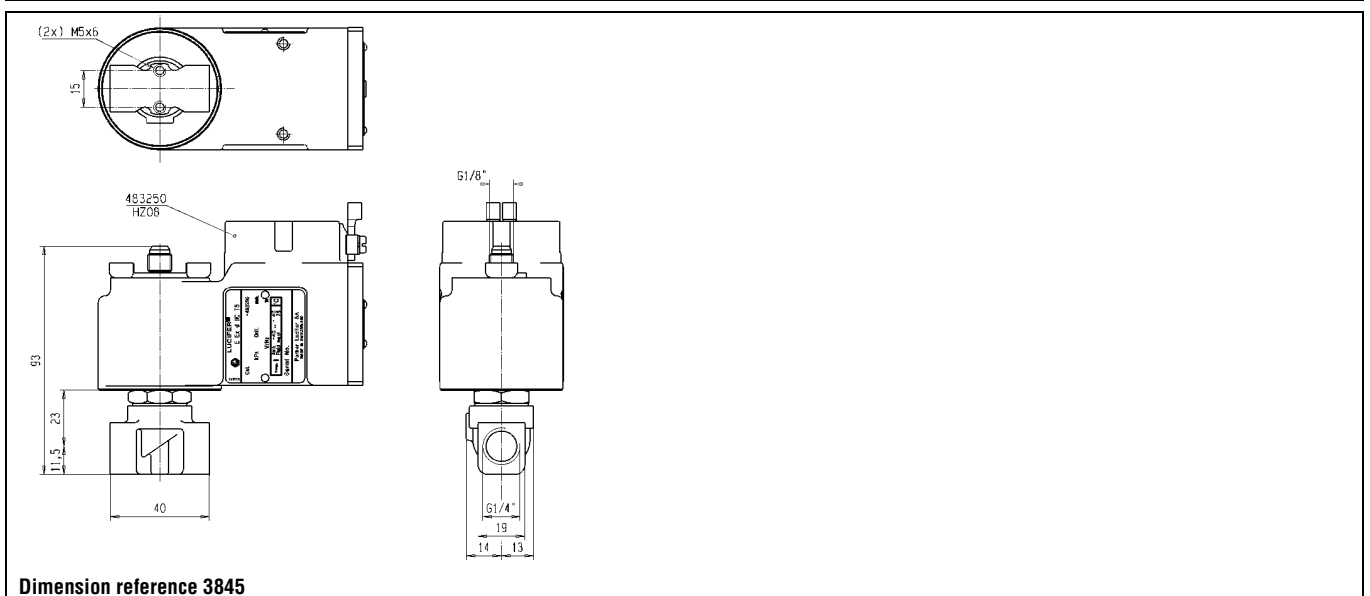
# General application valves 3/2 - Direct operated



Dimension reference 17



Dimension reference 18

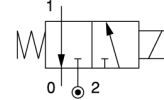


Dimension reference 3845

# General application valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |        | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|--------|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | Max AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

Normally closed



## Brass body/Pipe mounting

|     |     |      |        |      |     |   |   |     |     |     |      |              |             |        |        |     |   |      |   |      |
|-----|-----|------|--------|------|-----|---|---|-----|-----|-----|------|--------------|-------------|--------|--------|-----|---|------|---|------|
| 1/4 | 2.5 | 2.7  | 7.1    | 220  | 0.1 | 7 | 7 | 75  | 75  | 75  | NBR  | 7131EBG2LN00 | E131E03     | 2995   | 481865 | 9   | 8 | 650  | 2 | 19   |
|     | (6) | (15) | (12.5) | 1100 | 0.1 | 7 | 7 | 75  | 75  | 75  | NBR  |              |             | 2995   | 481865 | 9   | 8 | 650  | 2 |      |
|     | 2.5 | 2.7  | 7.1    | 220  | 0.1 | 7 | 7 | 75  | 75  | 75  | NBR  |              |             | 4270   | 481000 | 8   | 8 | 770  | 2 |      |
|     | (6) | (15) | (12.5) | 1100 | 0.1 | 7 | 7 | 75  | 75  | 75  | NBR  |              |             | 4270   | 481000 | 8   | 8 | 770  | 2 |      |
|     | 2.5 | 3.5  | 9.5    | 220  | 0   | 7 | 7 | 100 | 100 | 100 | Ruby | 7131KBG2LRM0 | E131K6350   | 1 2995 | 481865 | 9   | 8 | 310  | 2 | 17   |
|     | 2.5 | 3.5  | 9.5    | 220  | 0   | 7 | 7 | 130 | 130 | 130 | Ruby |              |             | 4270   | 481000 | 8   | 8 | 430  | 2 |      |
|     | 2.5 | 3.5  | 9.5    | 220  | 0   | 7 | 7 | 100 | 100 | 100 | Ruby | 7131KBG2LR00 | E131K63     | 2995   | 481865 | 9   | 8 | 310  | 2 | 17   |
|     | 2.5 | 3.5  | 9.5    | 220  | 0   | 7 | 7 | 130 | 130 | 130 | Ruby |              |             | 4270   | 481000 | 8   | 8 | 430  | 2 |      |
|     | 2.5 | 3.5  | 8.5    | 220  | 0   | 7 | 7 | 75  | 75  | 75  | PUR  | 7131KBG2LP1D | E131K03081D | 2 -    | 483250 | 8   | 8 | 1255 | 5 | 3845 |
|     | 2.5 | 3.5  | 8.5    | 220  | 0   | 7 | 7 | 75  | 75  | 75  | PUR  | 7131KBG2LP00 | E131K0308   | 2 2995 | 481865 | 9   | 8 | 180  | 2 | 17   |
|     | 2.5 | 3.5  | 8.5    | 220  | 0   | 7 | 7 | 75  | 75  | 75  | PUR  |              |             | 4270   | 481000 | 8   | 8 | 180  | 2 |      |
|     | 2.5 | 3.5  | 8.5    | 220  | 0   | 7 | 7 | 75  | 75  | 75  | PUR  | 7131KBG2LPM0 | E131K0358   | 1 2995 | 481865 | 2 9 | 8 | 180  | 2 | 17   |
|     | 2.5 | 3.5  | 8.5    | 220  | 0   | 7 | 7 | 75  | 75  | 75  | PUR  |              |             | 4270   | 481000 | 2 8 | 8 | 180  | 2 |      |

Table continued on page 132

### Notes:

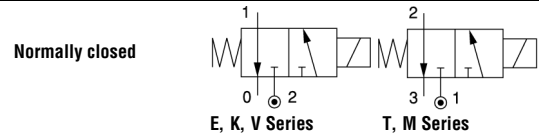
- \* See Electrical Parts Group table at end of section
  - 1. Manual override standard
  - 2. Operates with low temperatures down to -40 deg. C
- Values shown within brackets are valid for exhaust port only.



# General application valves 3/2 - Direct operated

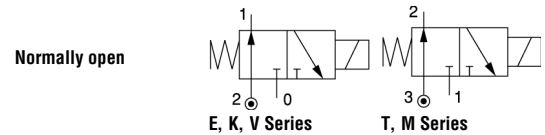
| Port size | Orifice (mm) | Flow factors (L/min) |            |          | Admissible differential pressure bar |        |        | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------------|----------|--------------------------------------|--------|--------|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Gases Qmax | Gases Qn | Min                                  | Max DC | Max AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

## Brass body/Pipe mounting



|     |     |       |        |        |       |   |    |    |    |    |     |              |              |          |        |        |    |     |     |    |    |
|-----|-----|-------|--------|--------|-------|---|----|----|----|----|-----|--------------|--------------|----------|--------|--------|----|-----|-----|----|----|
| 1/4 | 3   | 4.5   | 9      | 355    | 0     | - | 10 | 75 | 75 | 75 | FKM | 7131TBG2NVA0 | 131T22       | 4270     | 481044 | -      | 14 | 520 |     | 18 |    |
|     | (4) | (6)   | (10.5) | (450)  | 0     | - | 10 | 75 | 75 | 75 | FKM |              |              | 4270     | 481044 | -      | 14 | 520 |     |    |    |
|     | 3   | 6     | 10.5   | 450    | 0     | - | 10 | 75 | 75 | 75 | FKM |              |              | 2995     | 492425 | -      | 14 | 400 |     |    |    |
|     | (4) | (4.5) | (9)    | (355)  | 0     | - | 10 | 75 | 75 | 75 | FKM |              |              | 2995     | 492425 | -      | 14 | 400 |     |    |    |
|     |     | 4.5   | 7      | 10.5   | 500   | 0 | 2  | 2  | 75 | 75 | 75  | FKM          | 7131TBG2RVM0 | 131T2101 | 2995   | 481865 | 9  | 8   | 400 | 2  | 18 |
|     |     | (6)   | (9)    | (12.5) | (710) | 0 | 2  | 2  | 75 | 75 | 75  | FKM          |              |          | 2995   | 481865 | 9  | 8   | 400 | 2  |    |
|     |     | 4.5   | 7      | 10.5   | 500   | 0 | 2  | 2  | 75 | 75 | 75  | FKM          |              |          | 4270   | 481000 | 8  | 8   | 520 | 2  |    |
|     |     | (6)   | (9)    | (12.5) | (710) | 0 | 2  | 2  | 75 | 75 | 75  | FKM          |              |          | 4270   | 481000 | 8  | 8   | 520 | 2  |    |
|     |     | 4.5   | 7      | 10.5   | 500   | 0 | 2  | 2  | 75 | 75 | 75  | FKM          | 7131TBG2RV00 | 131T21   | 2995   | 481865 | 9  | 8   | 400 | 2  | 18 |
|     |     | (6)   | (9)    | (12.5) | (710) | 0 | 2  | 2  | 75 | 75 | 75  | FKM          |              |          | 2995   | 481865 | 9  | 8   | 400 | 2  |    |
|     |     | 4.5   | 7      | 10.5   | 500   | 0 | 2  | 2  | 75 | 75 | 75  | FKM          |              |          | 4270   | 481000 | 8  | 8   | 520 | 2  |    |
|     |     | (6)   | (9)    | (12.5) | (710) | 0 | 2  | 2  | 75 | 75 | 75  | FKM          |              |          | 4270   | 481000 | 8  | 8   | 520 | 2  |    |

## Brass body/Pipe mounting



|     |     |       |       |       |       |    |     |     |     |     |     |              |              |          |        |        |    |     |     |    |    |
|-----|-----|-------|-------|-------|-------|----|-----|-----|-----|-----|-----|--------------|--------------|----------|--------|--------|----|-----|-----|----|----|
| 1/4 | 1.5 | 1.4   | 6     | 80    | 0     | 16 | 16  | 100 | 100 | 100 | FKM | 7132KBG2GV00 | 132K04       | 2995     | 481865 | 9      | 8  | 310 | 2   | 17 |    |
|     | 1.5 | 1.4   | 6     | 80    | 0     | 16 | 16  | 120 | 120 | 120 | FKM |              |              | 4270     | 481000 | 8      | 8  | 430 | 2   |    |    |
|     |     | 2     | 1.8   | 6     | 125   | 0  | 10  | 10  | 100 | 100 | 100 | FKM          | 7132KBG2JV00 | 132K06   | 2995   | 481865 | 9  | 8   | 310 | 2  | 17 |
|     |     | 2     | 1.8   | 6     | 125   | 0  | 10  | 10  | 120 | 120 | 120 | FKM          |              |          | 4270   | 481000 | 8  | 8   | 430 | 2  |    |
|     |     | 2     | 2.5   | 8     | 140   | 0  | 5   | 10  | 75  | 75  | 75  | FKM          | 7132TBG2JVM0 | 132T2301 | 2995   | 481865 | 9  | 8   | 300 |    | 18 |
|     |     | (3)   | (4.5) | (9)   | (355) | 0  | 5   | 10  | 75  | 75  | 75  | FKM          |              |          | 2995   | 481865 | 9  | 8   | 300 |    |    |
|     |     | 2     | 2.5   | 8     | 140   | 0  | 5   | 10  | 75  | 75  | 75  | FKM          |              |          | 4270   | 481000 | 8  | 8   | 420 |    |    |
|     |     | (3)   | (4.5) | (9)   | (355) | 0  | 5   | 10  | 75  | 75  | 75  | FKM          |              |          | 4270   | 481000 | 8  | 8   | 420 |    |    |
|     |     | 2     | 2.5   | 8     | 140   | 0  | 10  | -   | 75  | 75  | 75  | FKM          |              |          | 4270   | 486265 | 14 | 14  | 430 |    |    |
|     |     | (3)   | (4.5) | (9)   | (355) | 0  | 10  | -   | 75  | 75  | 75  | FKM          |              |          | 4270   | 486265 | 14 | 14  | 430 |    |    |
|     |     | 2     | 2.5   | 8     | 140   | 0  | 5   | 10  | 75  | 75  | 75  | FKM          | 7132TBG2JV00 | 132T23   | 2995   | 481865 | 9  | 8   | 300 |    | 18 |
|     |     | (3)   | (4.5) | (9)   | (355) | 0  | 5   | 10  | 75  | 75  | 75  | FKM          |              |          | 2995   | 481865 | 9  | 8   | 300 |    |    |
|     |     | 2     | 2.5   | 8     | 140   | 0  | 5   | 10  | 75  | 75  | 75  | FKM          |              |          | 4270   | 481000 | 8  | 8   | 420 |    |    |
|     |     | (3)   | (4.5) | (9)   | (355) | 0  | 5   | 10  | 75  | 75  | 75  | FKM          |              |          | 4270   | 481000 | 8  | 8   | 420 |    |    |
|     |     | 2     | 2.5   | 8     | 140   | 0  | 10  | -   | 75  | 75  | 75  | FKM          |              |          | 4270   | 486265 | 14 | -   | 430 |    |    |
|     |     | (3)   | (4.5) | (9)   | (355) | 0  | 10  | -   | 75  | 75  | 75  | FKM          |              |          | 4270   | 486265 | 14 | -   | 430 |    |    |
|     |     | 2.5   | 2.2   | 8.5   | 160   | 0  | 7   | 7   | 100 | 100 | 100 | FKM          | 7132KBG2LV00 | 132K03   | 2995   | 481865 | 9  | 8   | 310 | 2  | 17 |
|     |     | 2.5   | 2.2   | 8.5   | 160   | 0  | 7   | 7   | 120 | 120 | 120 | FKM          |              |          | 4270   | 481000 | 8  | 8   | 430 | 2  |    |
|     |     | 2.5   | 3.5   | 8.5   | 220   | 0  | 3.5 | 7   | 75  | 75  | 75  | FKM          | 7132TBG2LV00 | 132T29   | 2995   | 481865 | 9  | 8   | 300 |    | 18 |
|     |     | (3.5) | (5.5) | (9.5) | (400) | 0  | 3.5 | 7   | 75  | 75  | 75  | FKM          |              |          | 2995   | 481865 | 9  | 8   | 300 |    |    |
|     |     | 2.5   | 3.5   | 8.5   | 220   | 0  | 3.5 | 7   | 75  | 75  | 75  | FKM          |              |          | 4270   | 481000 | 8  | 8   | 420 |    |    |
|     |     | (3.5) | (5.5) | (9.5) | (400) | 0  | 3.5 | 7   | 75  | 75  | 75  | FKM          |              |          | 4270   | 481000 | 8  | 8   | 420 |    |    |
|     |     | 2.5   | 3.5   | 8.5   | 220   | 0  | 7   | -   | 75  | 75  | 75  | FKM          |              |          | 4270   | 486265 | 14 | 14  | 430 |    |    |
|     |     | (3.5) | (5.5) | (9.5) | (400) | 0  | 7   | -   | 75  | 75  | 75  | FKM          |              |          | 4270   | 486265 | 14 | 14  | 430 |    |    |

Table continued on page 134

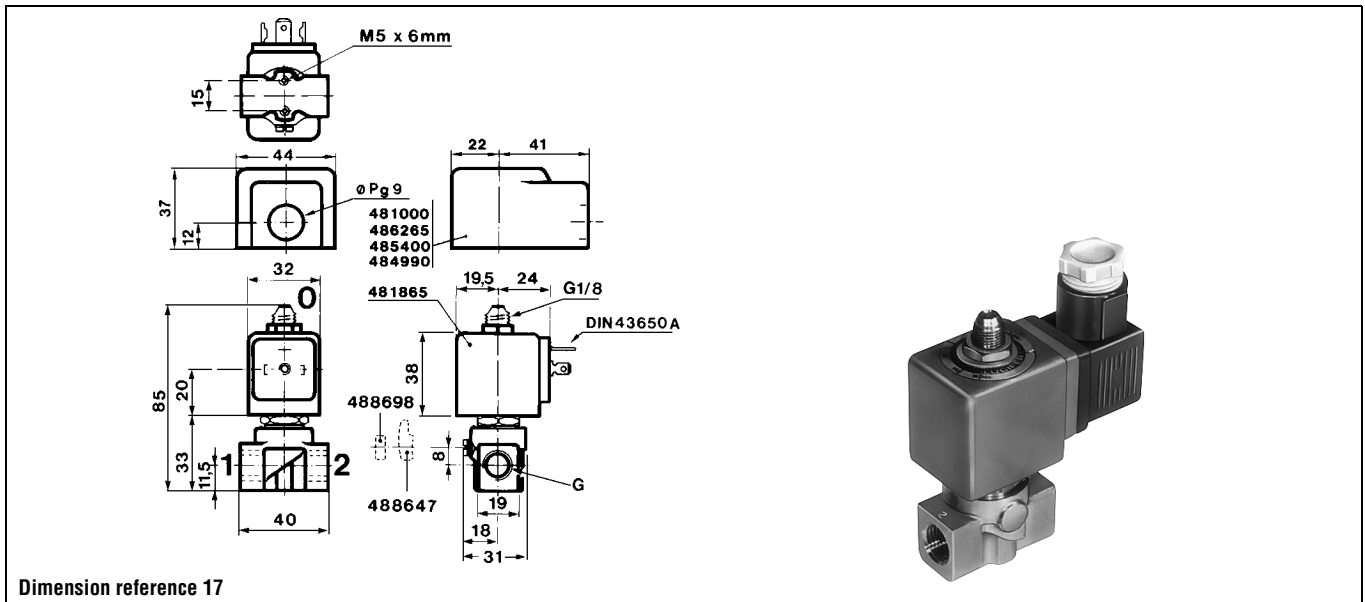
### Notes:

\* See Electrical Parts Group table at end of section

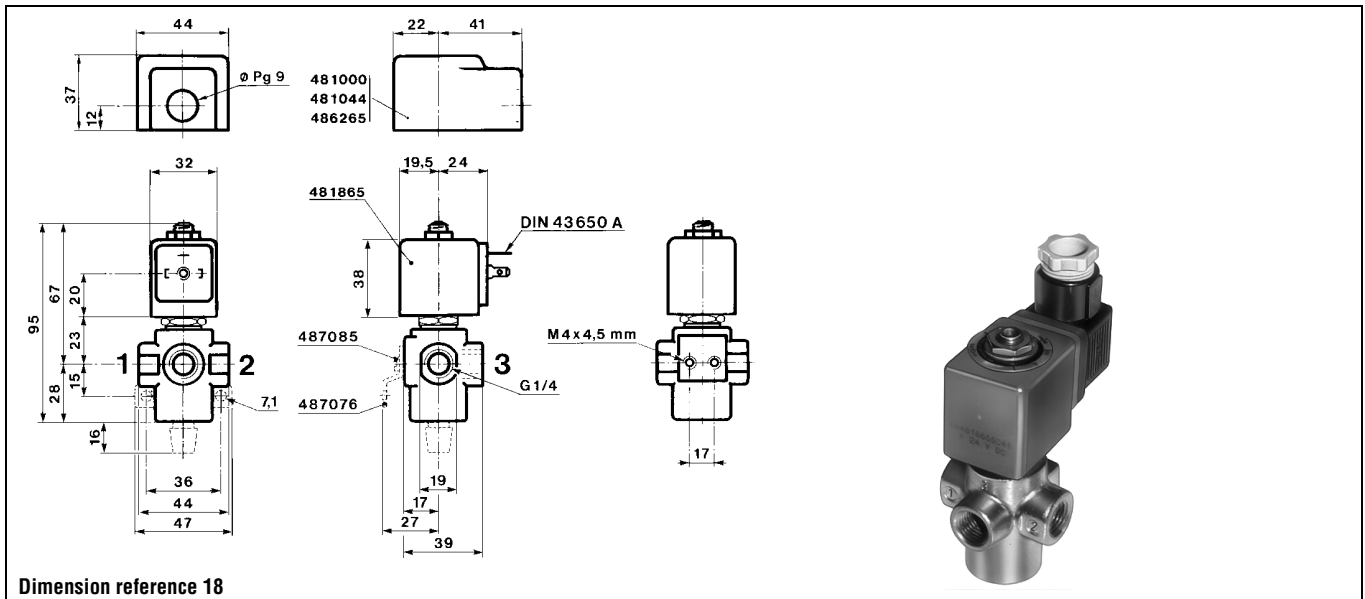
1. Manual override standard

Values shown within brackets are valid for exhaust port only.

# General application valves 3/2 - Direct operated



Dimension reference 17



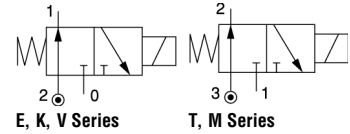
Dimension reference 18

# General application valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |        | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|--------|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | Max AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

## Brass body/Pipe mounting

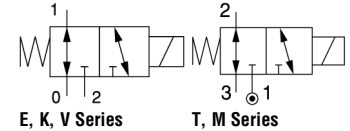
Normally open



|     |     |       |        |       |   |   |    |    |    |    |     |              |        |      |        |   |    |     |    |
|-----|-----|-------|--------|-------|---|---|----|----|----|----|-----|--------------|--------|------|--------|---|----|-----|----|
| 1/4 | 3   | 6     | 10.5   | 450   | 0 | - | 10 | 75 | 75 | 75 | FKM | 7132TBG2NVA0 | 132T22 | 4270 | 481044 | - | 14 | 420 | 18 |
|     | (4) | (4.5) | (9)    | (355) | 0 | - | 10 | 75 | 75 | 75 | FKM |              |        | 4270 | 481044 | - | 14 | 420 |    |
|     | 3   | 4.5   | 9      | 355   | 0 | - | 7  | 75 | 75 | 75 | FKM |              |        | 2995 | 492425 | - | 14 | 325 |    |
|     | (4) | (6)   | (10.5) | (450) | 0 | - | 7  | 75 | 75 | 75 | FKM |              |        | 2995 | 492425 | - | 14 | 325 |    |

## Brass body/Pipe mounting

Universal



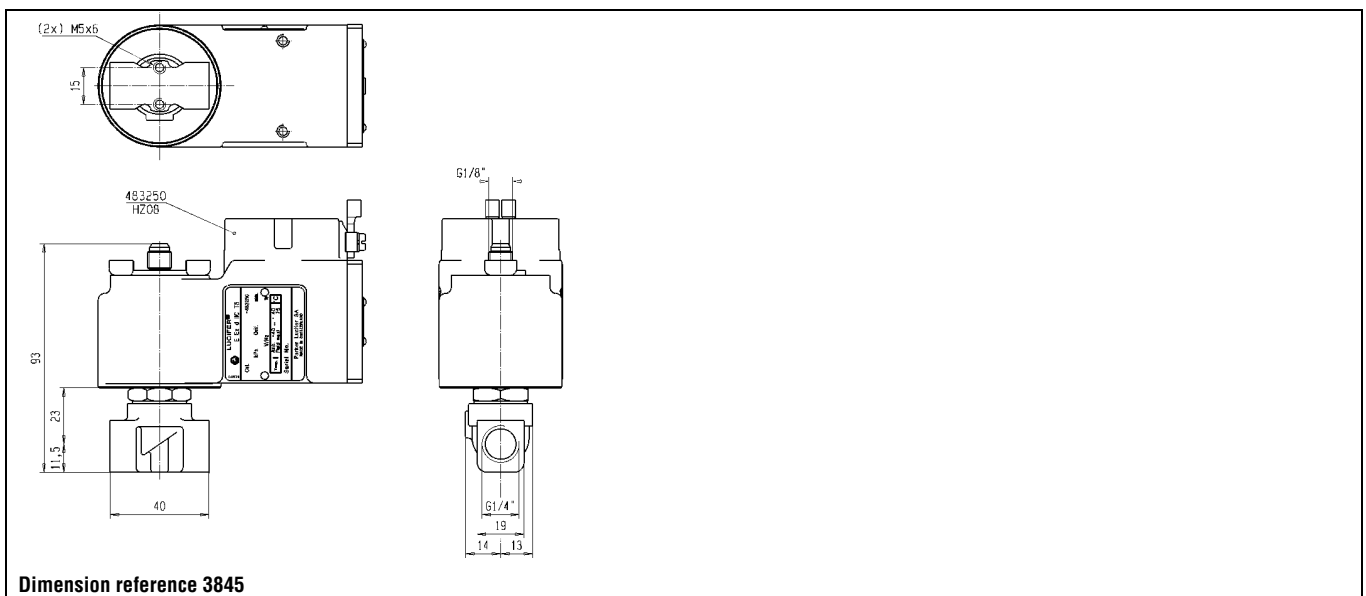
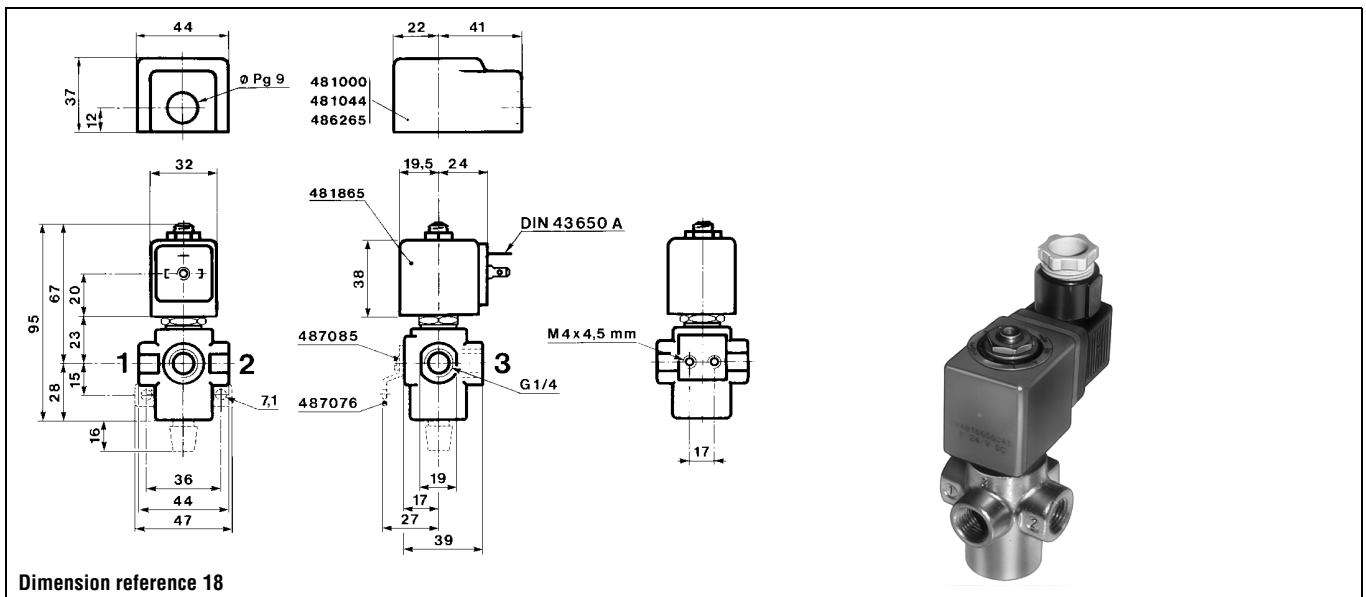
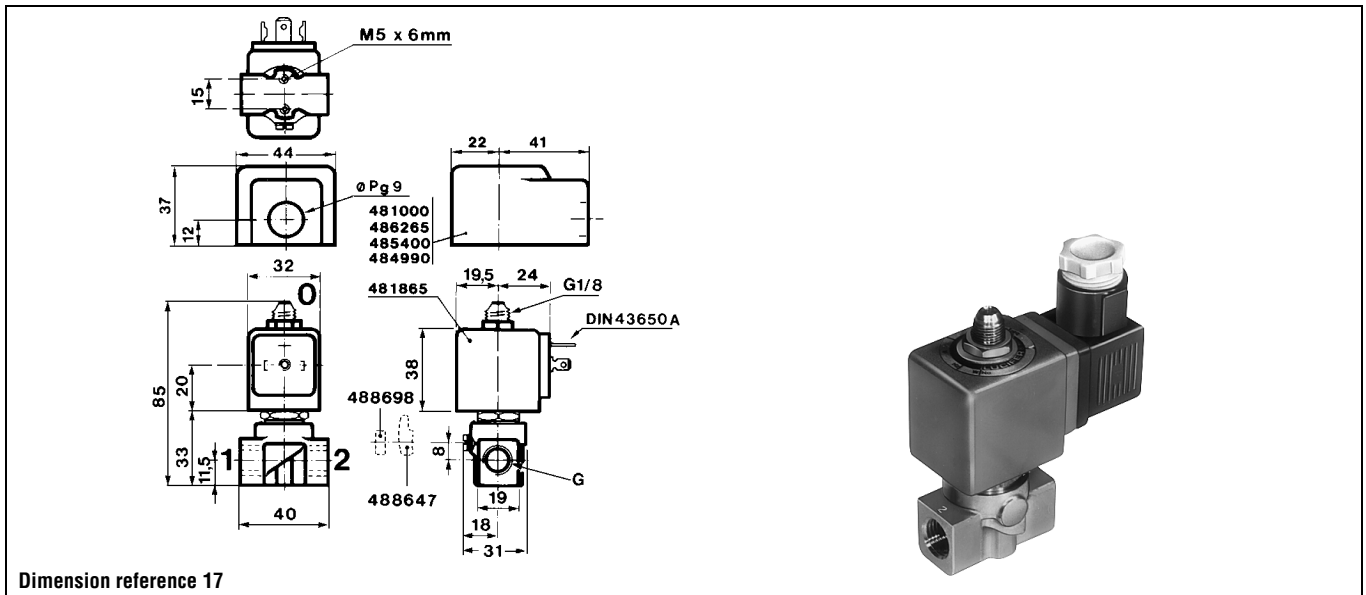
|     |     |     |     |     |     |    |    |     |     |     |              |              |              |         |        |        |     |      |     |      |
|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|--------------|--------------|--------------|---------|--------|--------|-----|------|-----|------|
| 1/8 | 1.5 | 1.5 | 4.7 | 80  | 0   | 10 | 10 | 100 | 100 | 100 | FKM          | 7133KBG1GV00 | E133K14      | 2995    | 481865 | 9      | 8   | 325  | 2   | 17   |
|     | 1.5 | 1.5 | 4.7 | 80  | 0   | 10 | 10 | 120 | 120 | 120 | FKM          |              |              | 4270    | 481000 | 8      | 8   | 445  | 2   |      |
|     | 2   | 2.5 | 6.6 | 145 | 0   | 7  | 7  | 100 | 100 | 100 | FKM          | 7133KBG1JV00 | E133K16      | 2995    | 481865 | 9      | 8   | 325  | 2   | 17   |
|     | 2   | 2.5 | 6.6 | 145 | 0   | 7  | 7  | 120 | 120 | 120 | FKM          |              |              | 4270    | 481000 | 8      | 8   | 445  | 2   |      |
|     | 1/4 | 2.5 | 3.5 | 7   | 220 | 0  | 4  | 4   | 100 | 100 | 100          | FKM          | 7133KBG1LV00 | E133K13 | 2995   | 481865 | 9   | 8    | 325 | 2    |
| 2.5 |     | 3.5 | 7   | 220 | 0   | 4  | 4  | 120 | 120 | 120 | FKM          |              | 4270         |         | 481000 | 8      | 8   | 445  | 2   |      |
| 1/4 | 1.5 | 1.5 | 4.5 | 80  | 0   | 10 | 10 | 100 | 100 | 100 | FKM          | 7133KBG2GVM0 | E133K0450    | 2995    | 481865 | 9      | 8   | 310  | 2   | 17   |
|     | 1.5 | 1.5 | 4.5 | 80  | 0   | 10 | 10 | 120 | 120 | 120 | FKM          |              |              | 4270    | 481000 | 8      | 8   | 430  | 2   |      |
|     | 1.5 | 1.5 | 4.5 | 80  | 0   | 10 | 10 | 100 | 100 | 100 | FKM          | 7133KBG2GV00 | E133K04      | 2995    | 481865 | 9      | 8   | 310  | 2   | 17   |
|     | 1.5 | 1.5 | 4.5 | 80  | 0   | 10 | 10 | 120 | 120 | 120 | FKM          |              |              | 4270    | 481000 | 8      | 8   | 430  | 2   |      |
|     | 1.5 | 1.5 | 4.5 | 80  | 0   | 10 | 10 | 75  | 75  | 75  | NBR          | 7133KBG2GV1D | E133K04001D  | -       | 483250 | 8      | 8   | 1255 | 5   | 3845 |
|     | 2   | 2.5 | 7   | 140 | 0   | 7  | 7  | 75  | 75  | 75  | FKM          | 7133TBG2JVM0 | 133T2301     | 2995    | 481865 | 9      | 8   | 400  |     | 18   |
|     | 2   | 2.5 | 7   | 140 | 0   | 7  | 7  | 75  | 75  | 75  | FKM          |              |              | 4270    | 481000 | 8      | 8   | 520  |     |      |
|     | 2   | 2.5 | 7   | 140 | 0   | 7  | 7  | 75  | 75  | 75  | FKM          | 7133TBG2JV00 | 133T23       | 2995    | 481865 | 9      | 8   | 400  |     | 18   |
|     | 2   | 2.5 | 7   | 140 | 0   | 7  | 7  | 75  | 75  | 75  | FKM          |              |              | 4270    | 481000 | 8      | 8   | 520  |     |      |
|     | 2   | 2.5 | 6.6 | 145 | 0   | 7  | 7  | 100 | 100 | 100 | FKM          | 7133KBG2JVM0 | E133K0650    | 2995    | 481865 | 9      | 8   | 310  | 2   | 17   |
|     | 2   | 2.5 | 6.6 | 140 | 0   | 7  | 7  | 120 | 120 | 120 | FKM          |              |              | 4270    | 481000 | 8      | 8   | 430  | 2   |      |
|     | 2   | 2.5 | 6.6 | 145 | 0   | 7  | 7  | 100 | 100 | 100 | FKM          | 7133KBG2JV00 | E133K06      | 2995    | 481865 | 9      | 8   | 310  | 2   | 17   |
|     | 2   | 2.5 | 6.6 | 140 | 0   | 7  | 7  | 120 | 120 | 120 | FKM          |              |              | 4270    | 481000 | 8      | 8   | 430  | 2   |      |
|     | 2.5 | 3.5 | 7   | 220 | 0   | 4  | 4  | 100 | 100 | 100 | FKM          | 7133KBG2LVM0 | E133K0350    | 2995    | 481865 | 9      | 8   | 310  | 2   | 17   |
|     | 2.5 | 3.5 | 7   | 220 | 0   | 4  | 4  | 120 | 120 | 120 | FKM          |              |              | 4270    | 481000 | 8      | 8   | 430  | 2   |      |
|     | 2.5 | 3.5 | 7   | 220 | 0   | 4  | 4  | 100 | 100 | 100 | FKM          | 7133KBG2LV00 | E133K03      | 2995    | 481865 | 9      | 8   | 310  | 2   | 17   |
|     | 2.5 | 3.5 | 7   | 220 | 0   | 4  | 4  | 120 | 120 | 120 | FKM          |              |              | 4270    | 481000 | 8      | 8   | 430  | 2   |      |
|     | 3   | 4.5 | 6   | 355 | 0   | 2  | 2  | 75  | 75  | 75  | FKM          | 7133TBG2NVM0 | 133T2101     | 2995    | 481865 | 9      | 8   | 300  | 2   | 18   |
|     | 3   | 4.5 | 6   | 355 | 0   | 2  | 2  | 75  | 75  | 75  | FKM          |              |              | 4270    | 481000 | 8      | 8   | 420  | 2   |      |
| 3   | 4.5 | 6   | 355 | 0   | 2   | 2  | 75 | 75  | 75  | FKM | 7133TBG2NV00 | 133T21       | 2995         | 481865  | 9      | 8      | 400 | 2    | 18  |      |
| 3   | 4.5 | 6   | 355 | 0   | 2   | 2  | 75 | 75  | 75  | FKM |              |              | 4270         | 481000  | 8      | 8      | 520 | 2    |     |      |

Table continued on page 136

### Notes:

- \* See Electrical Parts Group table at end of section
  - 1. Manual override standard
- Values shown within brackets are valid for exhaust port only.

# General application valves 3/2 - Direct operated

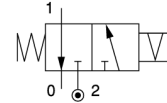


## General application valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |        | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|--------|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | Max AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              |                      |      |          |                                      |        |        |                |        |     |           |                        |                     |         |      |                       |    |         |                  |          |

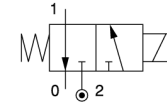
### Brass body/Pipe mounting

Magnetic latch control



|     |     |     |     |     |   |    |    |     |     |     |     |              |               |               |               |   |     |     |   |    |
|-----|-----|-----|-----|-----|---|----|----|-----|-----|-----|-----|--------------|---------------|---------------|---------------|---|-----|-----|---|----|
| 1/4 | 1.5 | 1.5 | 6   | 80  | 0 | -  | 16 | 100 | 100 | 100 | FKM | 7135KBG2GV00 | <b>135K04</b> | <b>4269</b>   | <b>484990</b> | - | 11  | 450 | 4 | 17 |
|     | 1.5 | 1.5 | 6   | 80  | 0 | 16 | -  | 100 | 100 | 100 | FKM |              | <b>4269</b>   | <b>485400</b> | 13            | - | 450 | 4   |   |    |
|     | 2.5 | 3.5 | 8.5 | 220 | 0 | -  | 7  | 100 | 100 | 100 | FKM | 7135KBG2LV00 | <b>135K03</b> | <b>4269</b>   | <b>484990</b> | - | 11  | 450 | 4 | 17 |
|     | 2.5 | 3.5 | 8.5 | 220 | 0 | 7  | -  | 100 | 100 | 100 | FKM |              | <b>4269</b>   | <b>485400</b> | 13            | - | 450 | 4   |   |    |

Normally closed



### Brass body/Sub-base mounting

|    |   |     |   |   |   |    |   |    |    |   |     |   |                 |              |   |                  |              |     |   |     |   |    |
|----|---|-----|---|---|---|----|---|----|----|---|-----|---|-----------------|--------------|---|------------------|--------------|-----|---|-----|---|----|
| SB | 1 | 0.6 | - | - | 0 | 10 | - | 75 | 75 | - | FKM | - | <b>131F4490</b> | <sup>1</sup> | - | <b>483580.01</b> | <sup>2</sup> | 0.4 | - | 235 | 7 | 79 |
|----|---|-----|---|---|---|----|---|----|----|---|-----|---|-----------------|--------------|---|------------------|--------------|-----|---|-----|---|----|

Table continued on page 138

#### Notes:

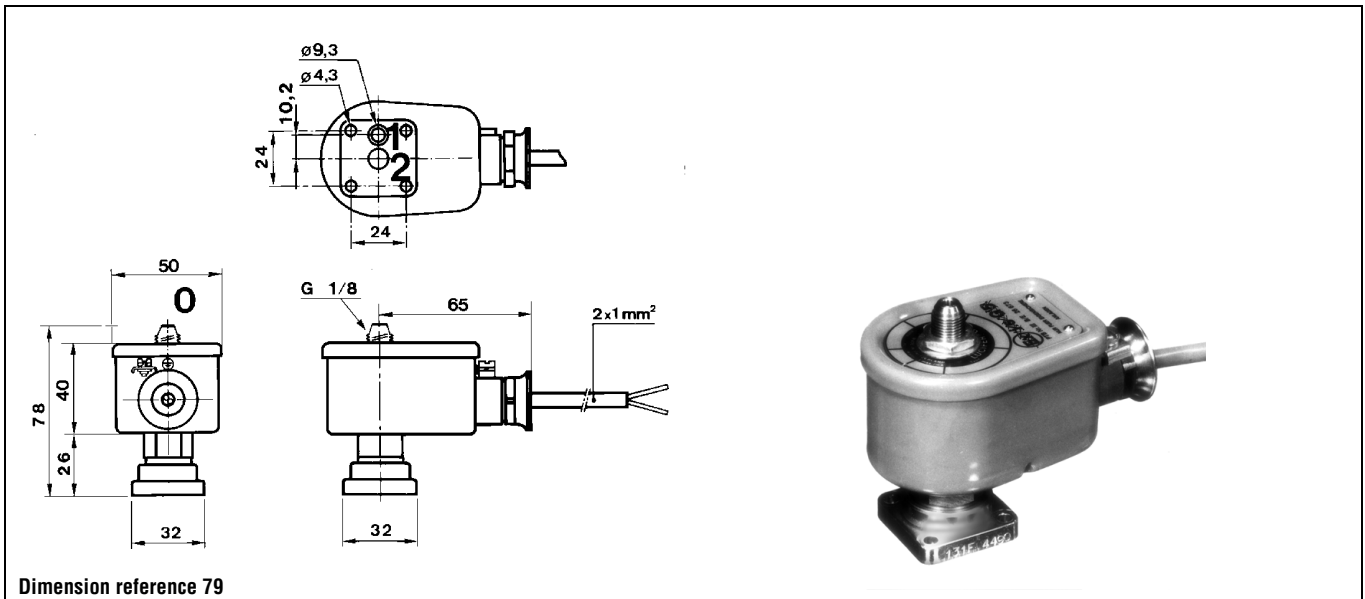
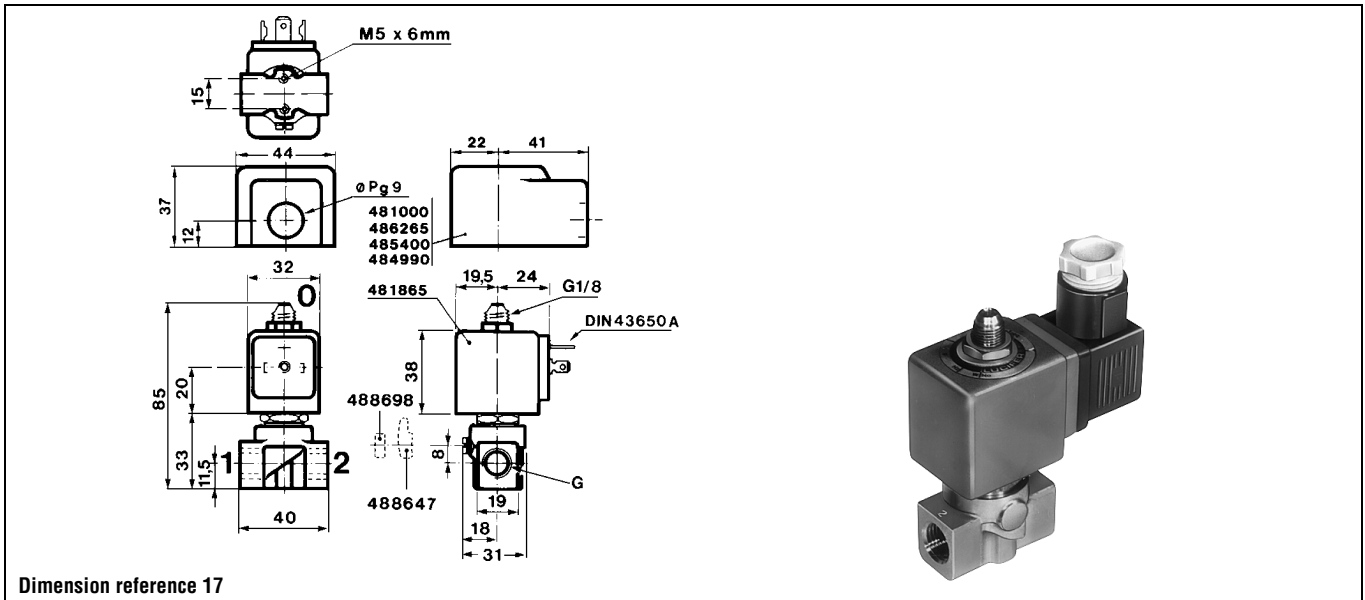
\* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

2. This reference no. is for the complete electrical part (coil + housing)



# General application valves 3/2 - Direct operated

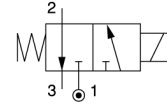


## General application valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |    | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|----|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              |                      |      |          |                                      |        |    |                |        |     |           |                        |                     |         |      |                       |    |         |                  |          |

### Brass body/Sub-base mounting

Normally closed



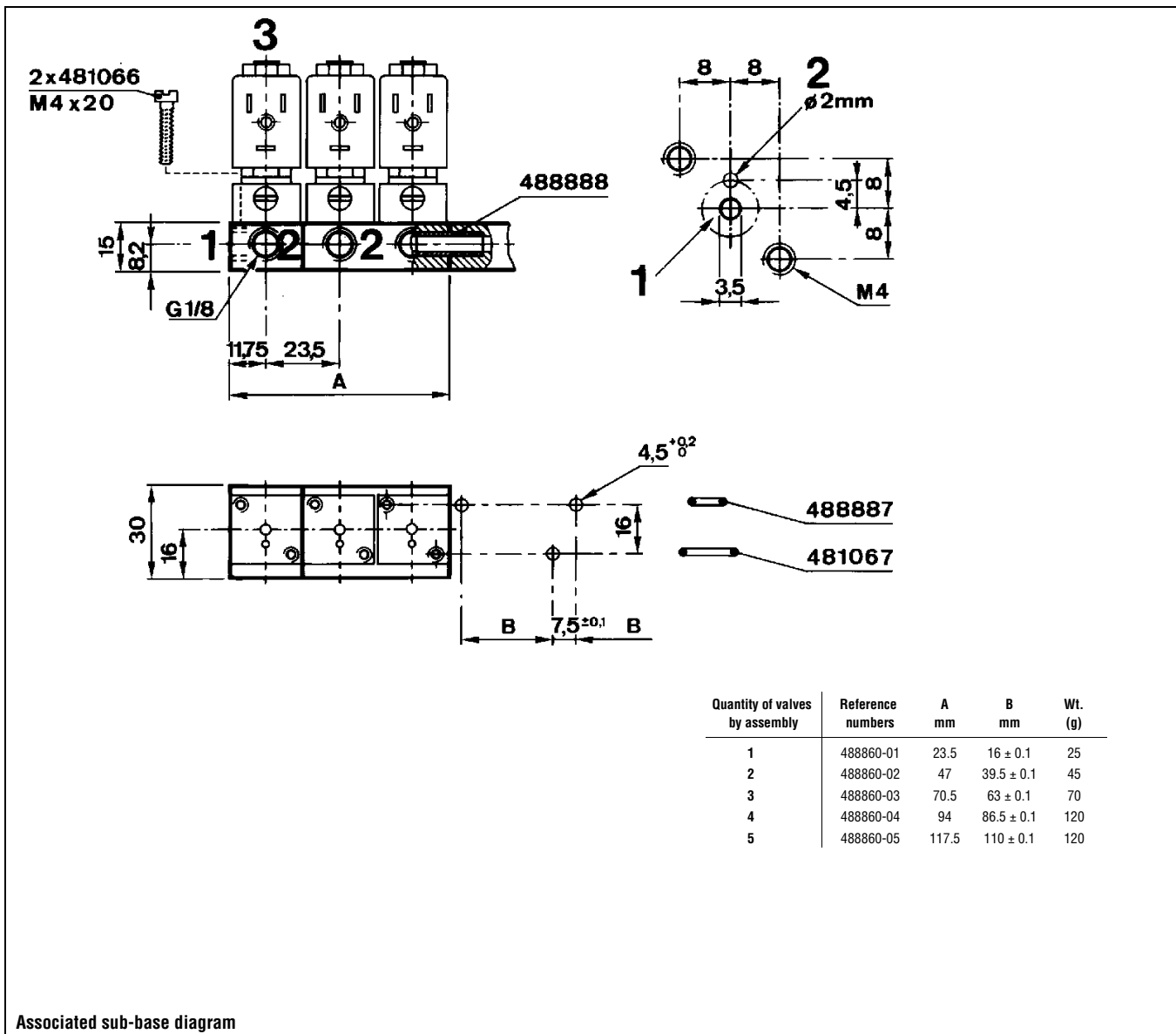
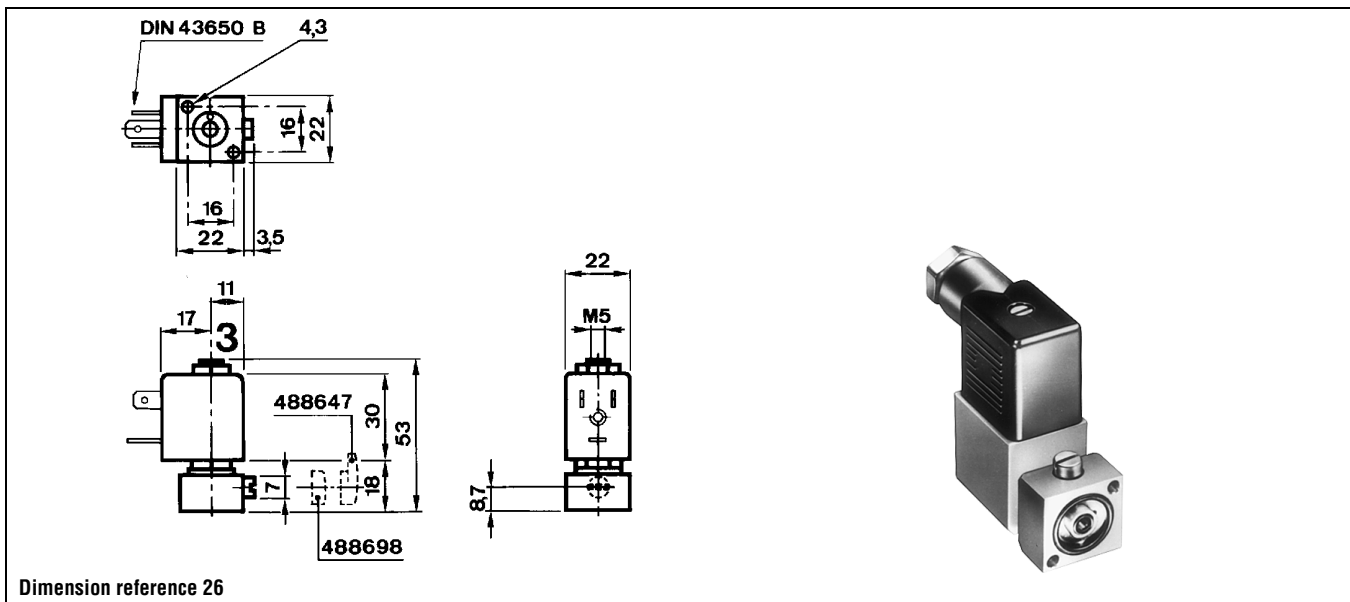
|    |       |       |       |      |   |    |    |    |    |    |     |   |                 |             |               |     |   |     |   |    |
|----|-------|-------|-------|------|---|----|----|----|----|----|-----|---|-----------------|-------------|---------------|-----|---|-----|---|----|
| SB | 1.2   | 0.7   | 2.2   | 50   | 0 | 10 | 10 | 75 | 75 | 75 | FKM | - | <b>131M75</b>   | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 125 | 1 | 26 |
|    | (1.5) | (0.9) | (2.2) | (70) | 0 | 10 | 10 | 75 | 75 | 75 | FKM |   |                 | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 125 | 1 |    |
|    | 1.2   | 0.7   | 2.2   | 50   | 0 | 10 | 10 | 75 | 75 | 75 | FKM | - | <b>131M7550</b> | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 125 | 1 | 26 |
|    | (1.5) | (1)   | (2.2) | (70) | 0 | 10 | 10 | 75 | 75 | 75 | FKM |   |                 | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 125 | 1 |    |

Table continued on page 140

#### Notes:

- \* See Electrical Parts Group table at end of section
  - 1. Manual override standard
- Values shown within brackets are valid for exhaust port only.

# General application valves 3/2 - Direct operated

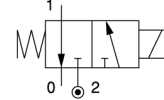


## General application valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |     |     | Fluid temp. °C |     |                        | Seat disc | Reference numbers   |         |      |    | Power consumption (W) |  | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----|-----|----------------|-----|------------------------|-----------|---------------------|---------|------|----|-----------------------|--|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max | Gas | Liquid         | Oil | Global valve reference |           | Valve reference no. | Housing | Coil | DC | AC                    |  |         |                  |          |
| G         |              |                      |      |          |                                      |     |     |                |     |                        |           |                     |         |      |    |                       |  |         |                  |          |

### Brass body/Sub-base mounting

Normally closed



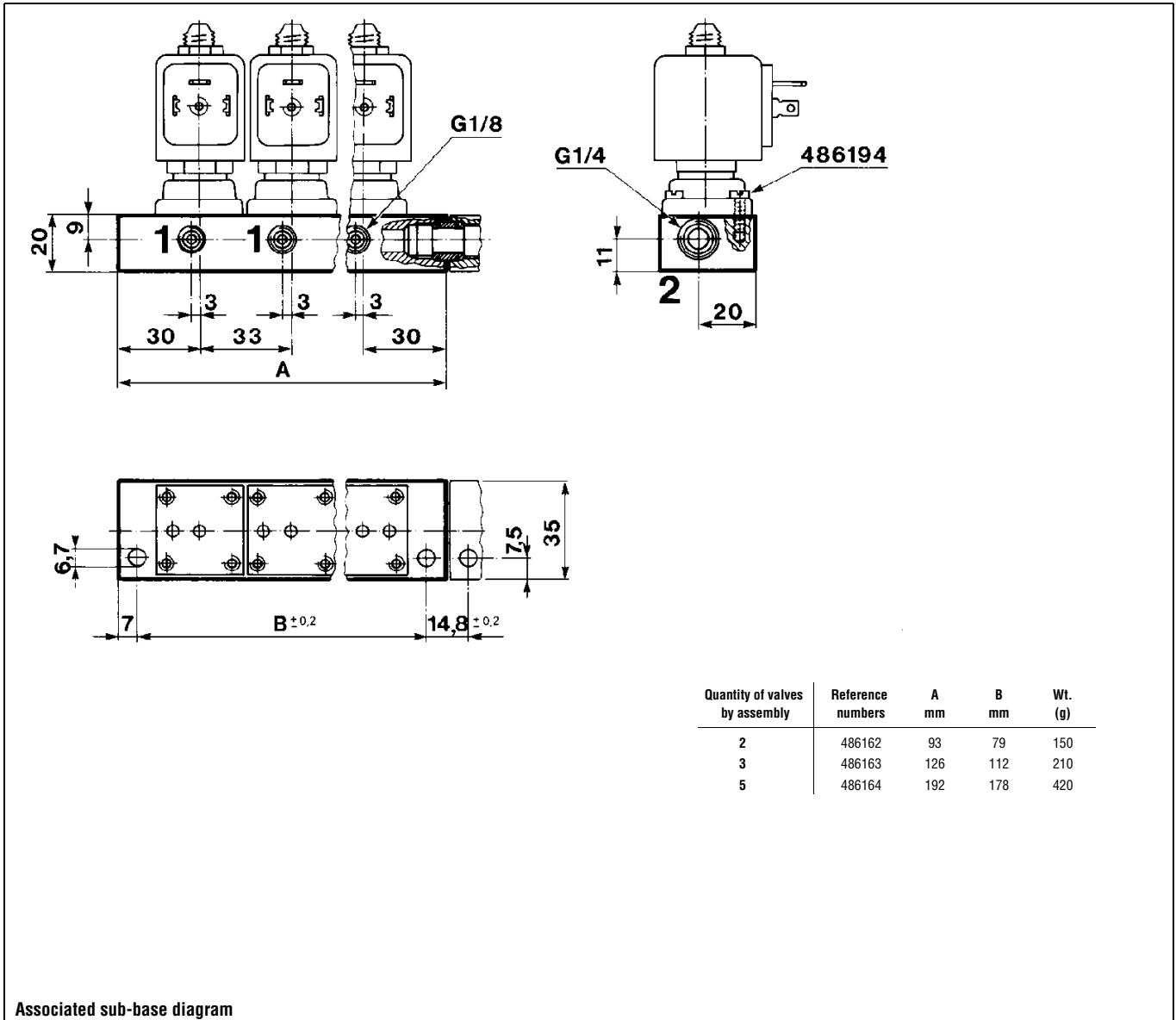
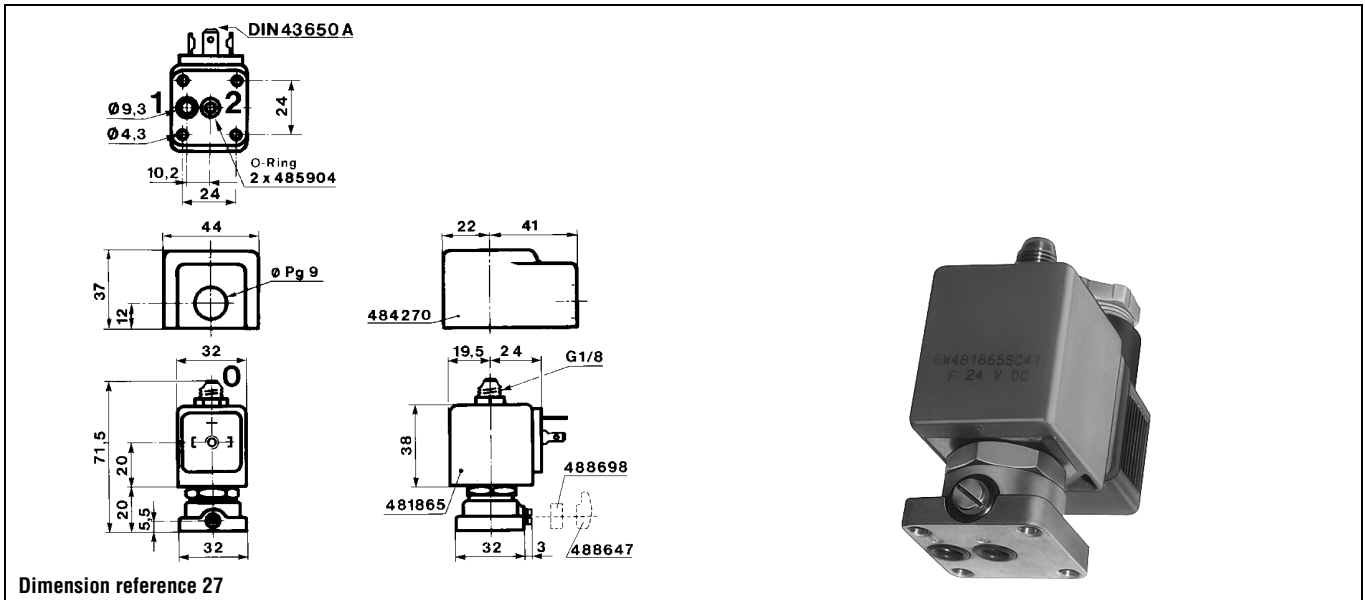
|    |     |     |   |    |   |   |   |    |    |    |     |              |          |      |        |     |   |     |   |    |
|----|-----|-----|---|----|---|---|---|----|----|----|-----|--------------|----------|------|--------|-----|---|-----|---|----|
| SB | 1.5 | 1.5 | 4 | 80 | 0 | 7 | - | 75 | 75 | 75 | FKM | 7131FBF4GLV5 | 131F4480 | 2995 | 482740 | 1.6 | - | 255 | 6 | 27 |
|----|-----|-----|---|----|---|---|---|----|----|----|-----|--------------|----------|------|--------|-----|---|-----|---|----|

Table continued on page 142

#### Notes:

\* See Electrical Parts Group table at end of section

# General application valves 3/2 - Direct operated

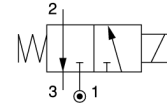


## General application valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |    | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|----|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              |                      |      |          |                                      |        |    |                |        |     |           |                        |                     |         |      |                       |    |         |                  |          |

### Brass body/Sub-base mounting

Normally closed



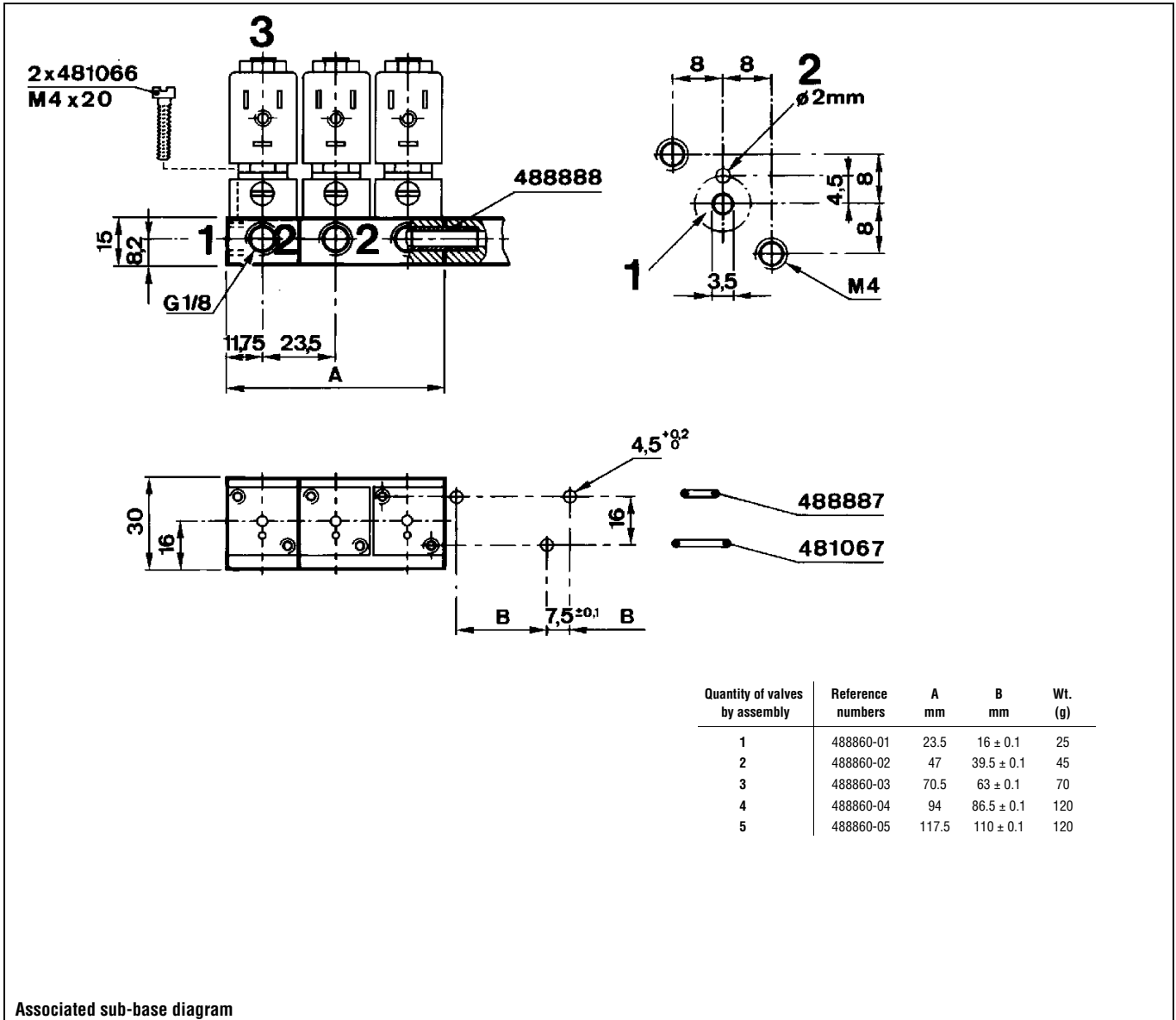
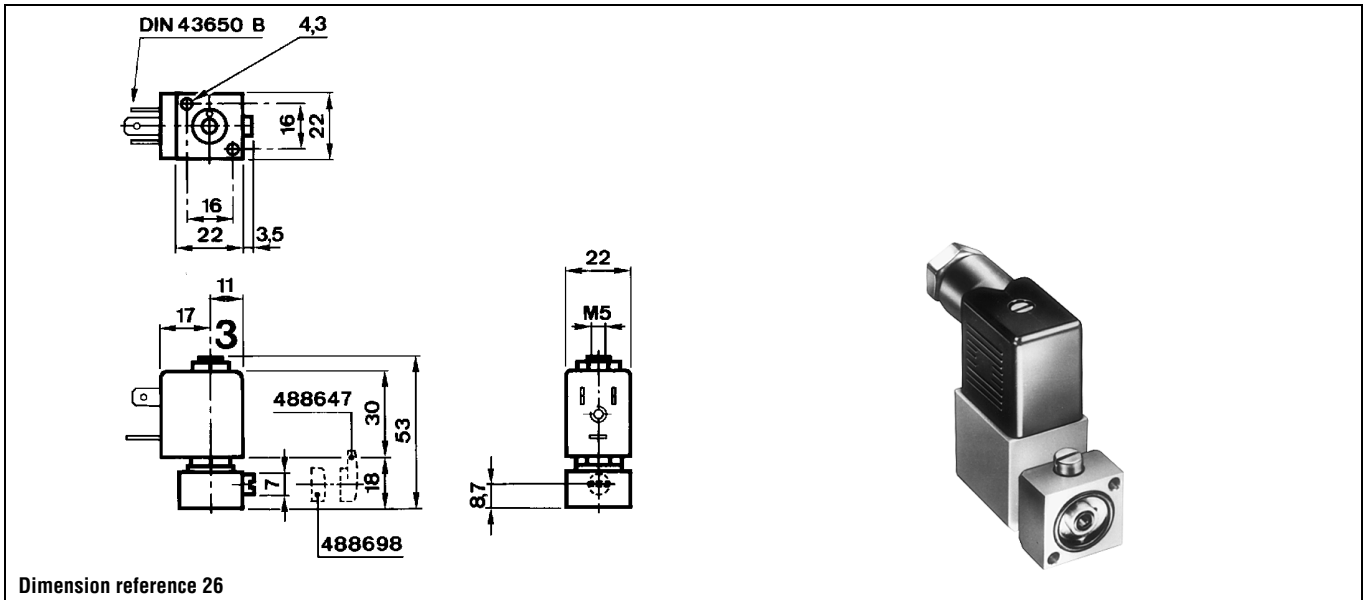
|    |     |     |     |    |   |   |   |    |    |    |     |   |                 |             |               |     |   |     |   |    |
|----|-----|-----|-----|----|---|---|---|----|----|----|-----|---|-----------------|-------------|---------------|-----|---|-----|---|----|
| SB | 1.5 | 0.9 | 2.4 | 70 | 0 | 7 | 7 | 75 | 75 | 75 | FKM | - | <b>131M74</b>   | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 125 | 1 | 26 |
|    | 1.5 | 0.9 | 2.4 | 70 | 0 | 7 | 7 | 75 | 75 | 75 | FKM | - | <b>131M7450</b> | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 125 | 1 | 26 |

Table continued on page 144

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Manual override standard

# General application valves 3/2 - Direct operated

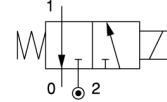


# General application valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |        | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|--------|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | Max AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              |                      |      |          |                                      |        |        |                |        |     |           |                        |                     |         |      |                       |    |         |                  |          |

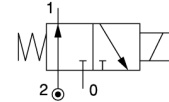
## Brass body/Sub-base mounting

Normally closed



|    |       |       |       |       |   |    |    |     |     |     |     |              |                  |                   |               |   |   |     |   |    |
|----|-------|-------|-------|-------|---|----|----|-----|-----|-----|-----|--------------|------------------|-------------------|---------------|---|---|-----|---|----|
| SB | 1.5   | 1.5   | 5.8   | 80    | 0 | 15 | 15 | 100 | 100 | 100 | FKM | 7131FBF4GVM0 | <b>E131F4450</b> | <sup>1</sup> 2995 | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | 1.5   | 1.5   | 5.8   | 80    | 0 | 15 | 15 | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | 1.5   | 1.5   | 5.8   | 80    | 0 | 15 | 15 | 100 | 100 | 100 | FKM | 7131FBF4GV00 | <b>E131F44</b>   | <b>2995</b>       | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | 1.5   | 1.5   | 5.8   | 80    | 0 | 15 | 15 | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | 2     | 2.5   | 8     | 140   | 0 | 10 | 10 | 100 | 100 | 100 | FKM | 7131FBF4JVM0 | <b>131F4650</b>  | <sup>1</sup> 2995 | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | (2.5) | (3.5) | (8.5) | (220) | 0 | 10 | 10 | 100 | 100 | 100 | FKM |              |                  | <b>2995</b>       | <b>481865</b> | 9 | 8 | 255 | 2 |    |
|    | 2     | 2.5   | 8     | 140   | 0 | 10 | 10 | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | (2.5) | (3.5) | (8.5) | (220) | 0 | 10 | 10 | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | 2     | 2.5   | 8     | 140   | 0 | 10 | 10 | 100 | 100 | 100 | FKM | 7131FBF4JV00 | <b>131F46</b>    | <b>2995</b>       | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | (2.5) | (3.5) | (8.5) | (220) | 0 | 10 | 10 | 100 | 100 | 100 | FKM |              |                  | <b>2995</b>       | <b>481865</b> | 9 | 8 | 255 | 2 |    |
|    | 2     | 2.5   | 8     | 140   | 0 | 10 | 10 | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | (2.5) | (3.5) | (8.5) | (220) | 0 | 10 | 10 | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | 2.5   | 3.5   | 8.5   | 220   | 0 | 7  | 7  | 100 | 100 | 100 | FKM | 7131FBF4LVM0 | <b>E131F4350</b> | <sup>1</sup> 2995 | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | 2.5   | 3.5   | 8.5   | 220   | 0 | 7  | 7  | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | 2.5   | 3.5   | 8.5   | 220   | 0 | 7  | 7  | 100 | 100 | 100 | FKM | 7131FBF4LV00 | <b>E131F43</b>   | <b>2995</b>       | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | 2.5   | 3.5   | 8.5   | 220   | 0 | 7  | 7  | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |

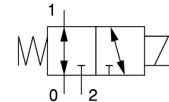
Normally open



## Brass body/Sub-base mounting

|    |     |     |     |     |   |    |    |     |     |     |     |              |               |             |               |   |   |     |   |    |
|----|-----|-----|-----|-----|---|----|----|-----|-----|-----|-----|--------------|---------------|-------------|---------------|---|---|-----|---|----|
| SB | 1.5 | 1.4 | 6   | 80  | 0 | 16 | 16 | 100 | 100 | 100 | FKM | 7132FBF4GV00 | <b>132F44</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | 1.5 | 1.4 | 6   | 80  | 0 | 16 | 16 | 120 | 120 | 120 | FKM |              |               | <b>4270</b> | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | 2   | 1.8 | 6   | 125 | 0 | 10 | 10 | 100 | 100 | 100 | FKM | 7132FBF4JV00 | <b>132F46</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | 2   | 1.8 | 6   | 125 | 0 | 10 | 10 | 120 | 120 | 120 | FKM |              |               | <b>4270</b> | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | 2.5 | 2.2 | 8.5 | 160 | 0 | 7  | 7  | 100 | 100 | 100 | FKM | 7132FBF4LV00 | <b>132F43</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | 2.5 | 2.2 | 8.5 | 160 | 0 | 7  | 7  | 120 | 120 | 120 | FKM |              |               | <b>4270</b> | <b>481000</b> | 8 | 8 | 375 | 2 |    |

Universal



## Brass body/Sub-base mounting

|    |     |     |     |     |   |    |    |     |     |     |     |              |                  |                   |               |   |   |     |   |    |
|----|-----|-----|-----|-----|---|----|----|-----|-----|-----|-----|--------------|------------------|-------------------|---------------|---|---|-----|---|----|
| SB | 1.5 | 1.5 | 4.5 | 80  | 0 | 10 | 10 | 100 | 100 | 100 | FKM | 7133FBF4GVM0 | <b>E133F4450</b> | <sup>1</sup> 2995 | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | 1.5 | 1.5 | 4.5 | 80  | 0 | 10 | 10 | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | 1.5 | 1.5 | 4.5 | 80  | 0 | 10 | 10 | 100 | 100 | 100 | FKM | 7133FBF4GV00 | <b>E133F44</b>   | <b>2995</b>       | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | 1.5 | 1.5 | 4.5 | 80  | 0 | 10 | 10 | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | 2   | 2.5 | 6   | 140 | 0 | 7  | 7  | 100 | 100 | 100 | FKM | 7133FBF4JVM0 | <b>133F4650</b>  | <sup>1</sup> 2995 | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | 2   | 2.5 | 6   | 140 | 0 | 7  | 7  | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | 2   | 2.5 | 6   | 140 | 0 | 7  | 7  | 100 | 100 | 100 | FKM | 7133FBF4JV00 | <b>133F46</b>    | <b>2995</b>       | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | 2   | 2.5 | 6   | 140 | 0 | 7  | 7  | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |
|    | 2.5 | 3.5 | 7   | 220 | 0 | 4  | 4  | 100 | 100 | 100 | FKM | 7133FBF4LVM0 | <b>E133F4350</b> | <sup>1</sup> 2995 | <b>481865</b> | 9 | 8 | 255 | 2 | 27 |
|    | 2.5 | 3.5 | 7   | 220 | 0 | 4  | 4  | 120 | 120 | 120 | FKM |              |                  | <b>4270</b>       | <b>481000</b> | 8 | 8 | 375 | 2 |    |

Table continued on page 146

### Notes:

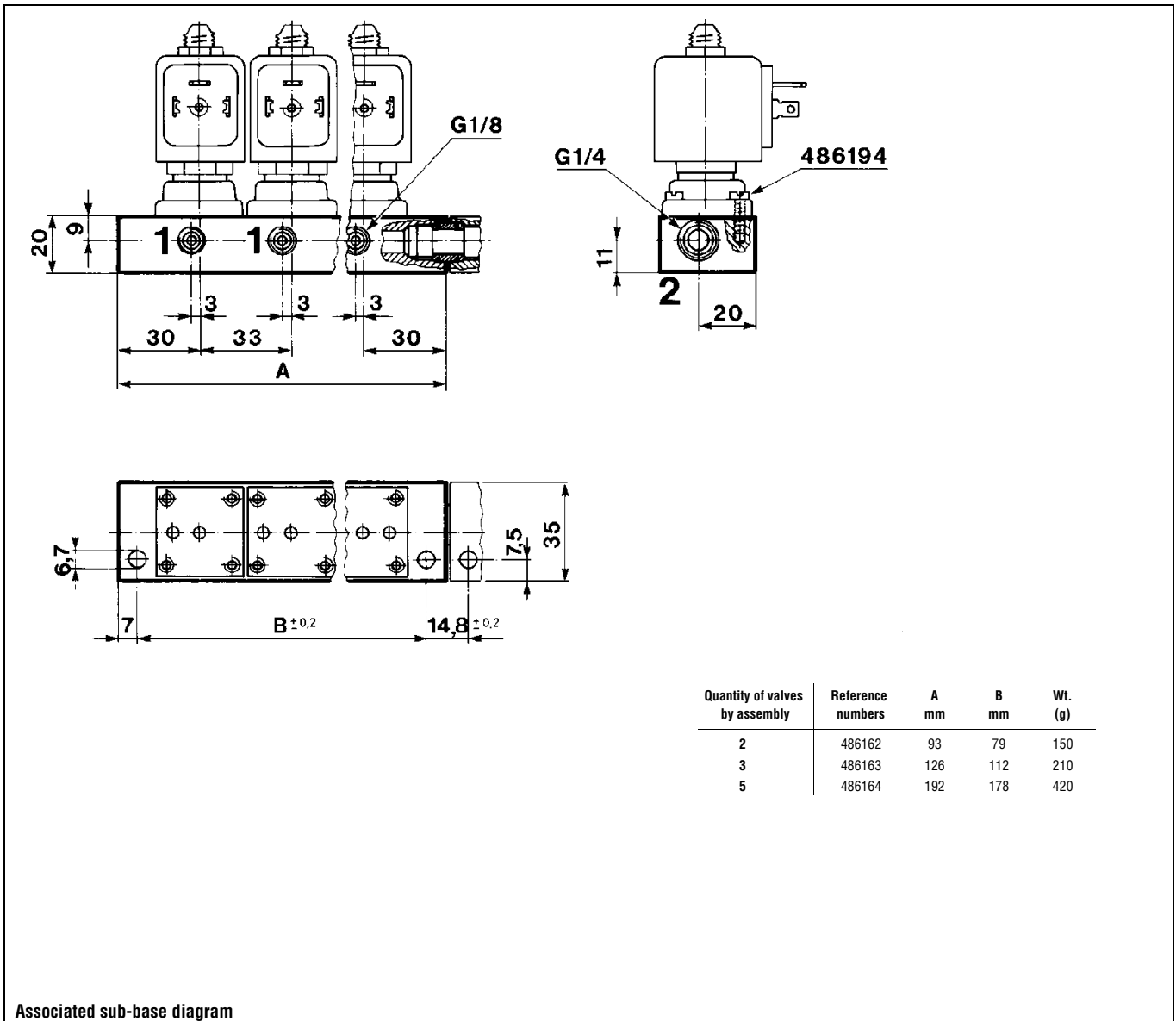
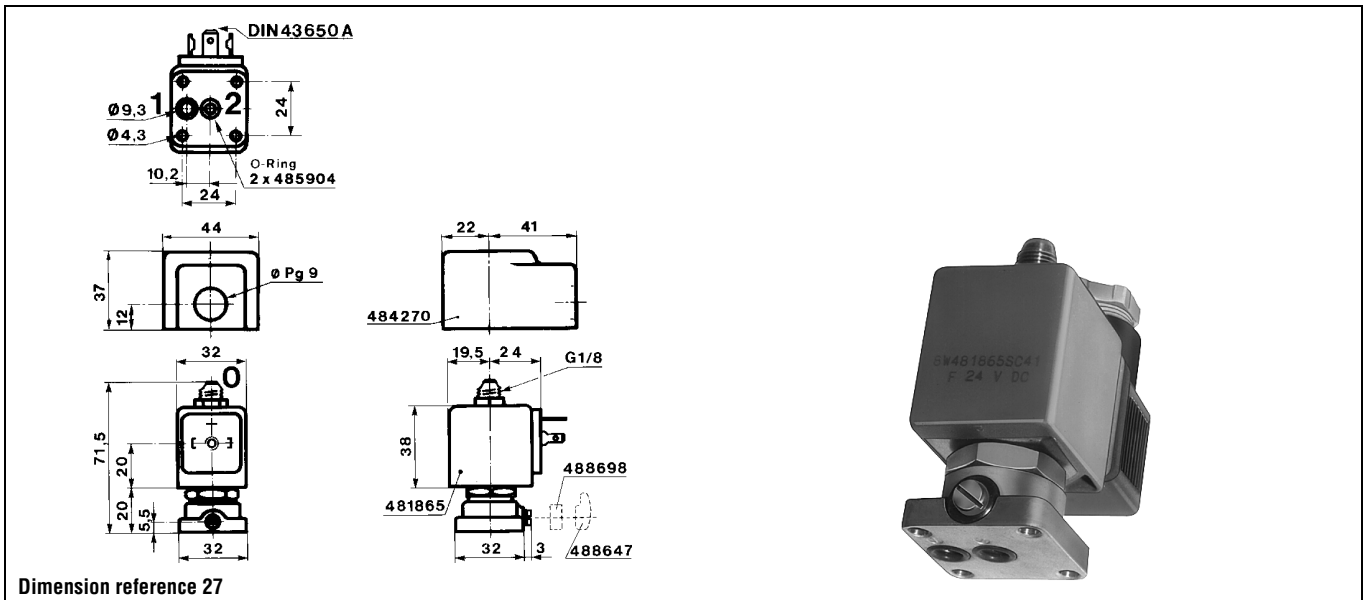
\* See Electrical Parts Group table at end of section

1. Manual override standard

Values shown within brackets are valid for exhaust port only.



# General application valves 3/2 - Direct operated

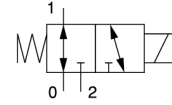


## General application valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |        | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|--------|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | Max AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              |                      |      |          |                                      |        |        |                |        |     |           |                        |                     |         |      |                       |    |         |                  |          |

### Brass body/Sub-base mounting

Universal



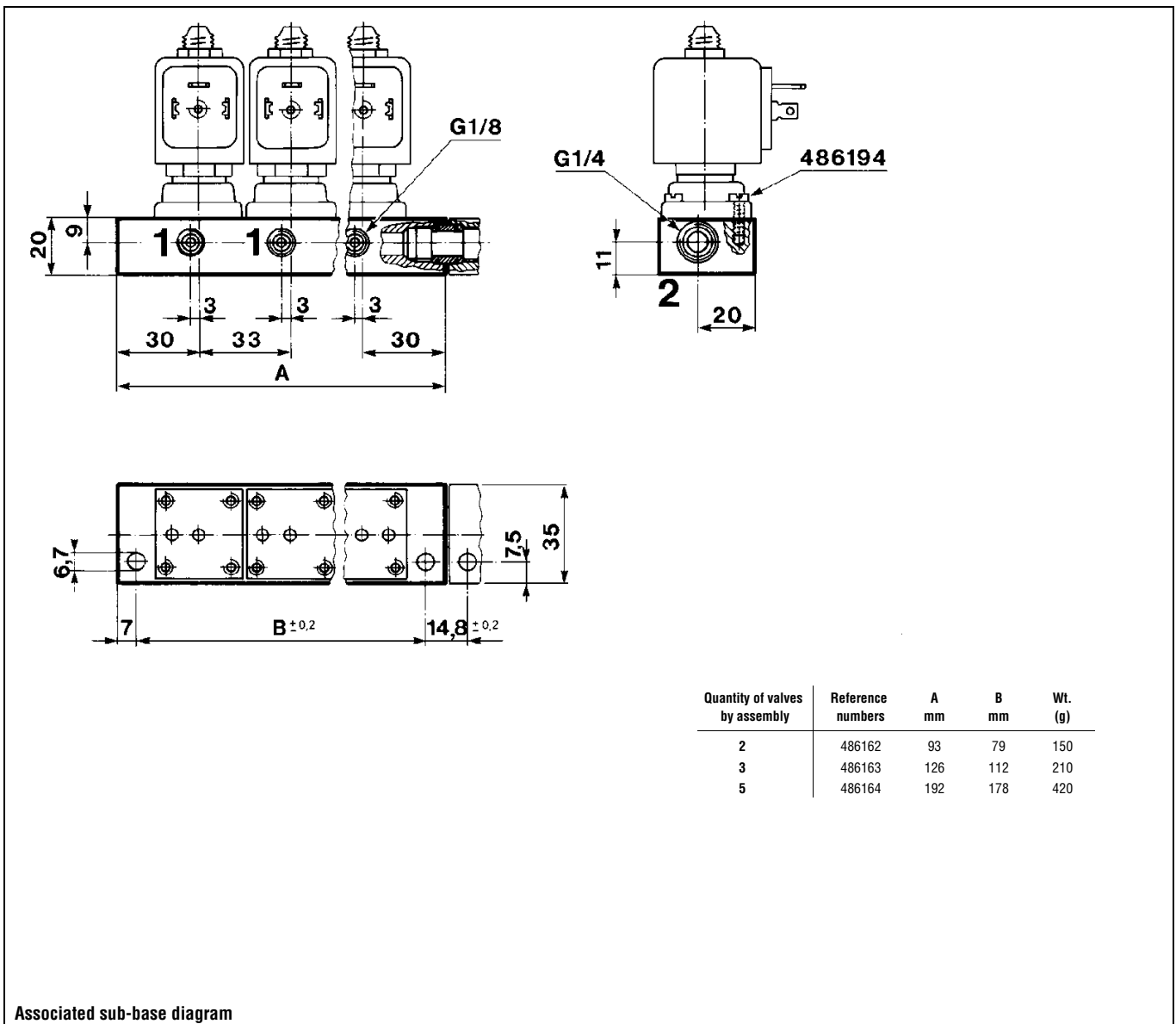
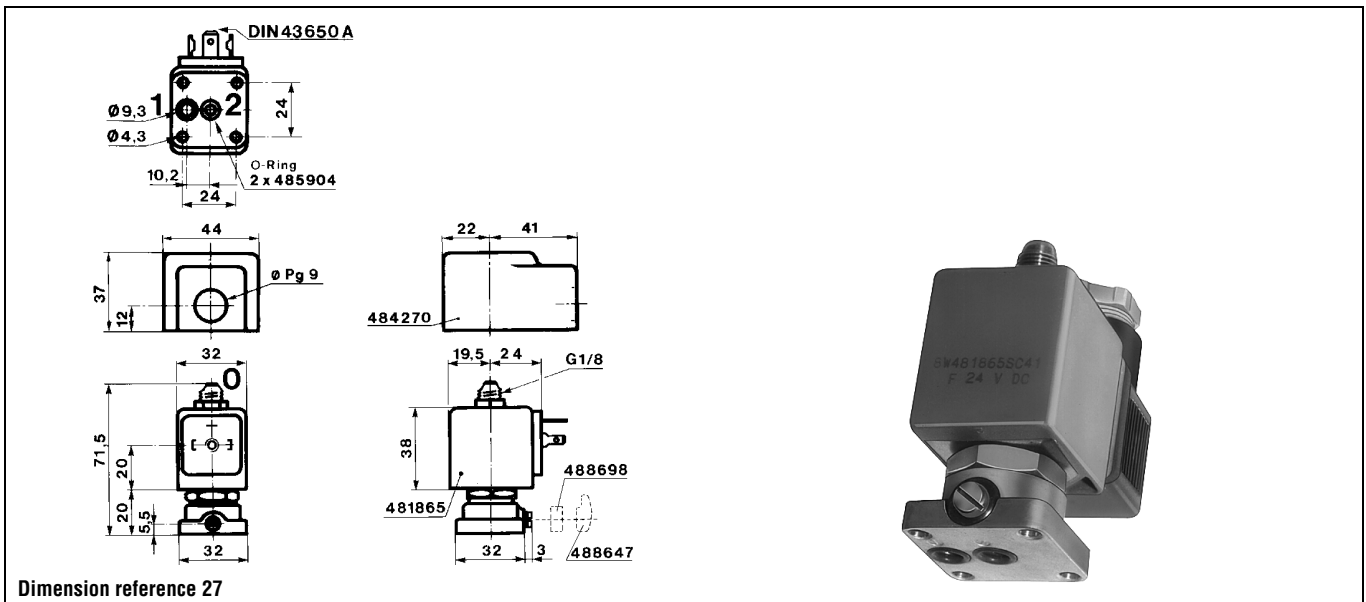
|    |     |     |   |     |   |   |   |     |     |     |     |              |         |      |        |   |   |     |   |    |
|----|-----|-----|---|-----|---|---|---|-----|-----|-----|-----|--------------|---------|------|--------|---|---|-----|---|----|
| SB | 2.5 | 3.5 | 7 | 220 | 0 | 4 | 4 | 100 | 100 | 100 | FKM | 7133FBF4LV00 | E133F43 | 2995 | 481865 | 9 | 8 | 255 | 2 | 27 |
|    | 2.5 | 3.5 | 7 | 220 | 0 | 4 | 4 | 120 | 120 | 120 | FKM |              |         | 4270 | 481000 | 8 | 8 | 375 | 2 |    |

Table continued on page 148

#### Notes:

\* See Electrical Parts Group table at end of section

# General application valves 3/2 - Direct operated

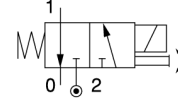


## General application valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |     |     | Fluid temp. °C |     |                        | Seat disc | Reference numbers   |         |      |    | Power consumption (W) |  | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----|-----|----------------|-----|------------------------|-----------|---------------------|---------|------|----|-----------------------|--|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max | Gas | Liquid         | Oil | Global valve reference |           | Valve reference no. | Housing | Coil | DC | AC                    |  |         |                  |          |
| G         |              |                      |      |          |                                      |     |     |                |     |                        |           |                     |         |      |    |                       |  |         |                  |          |

### Delrin body/Sub-base mounting

Normally closed



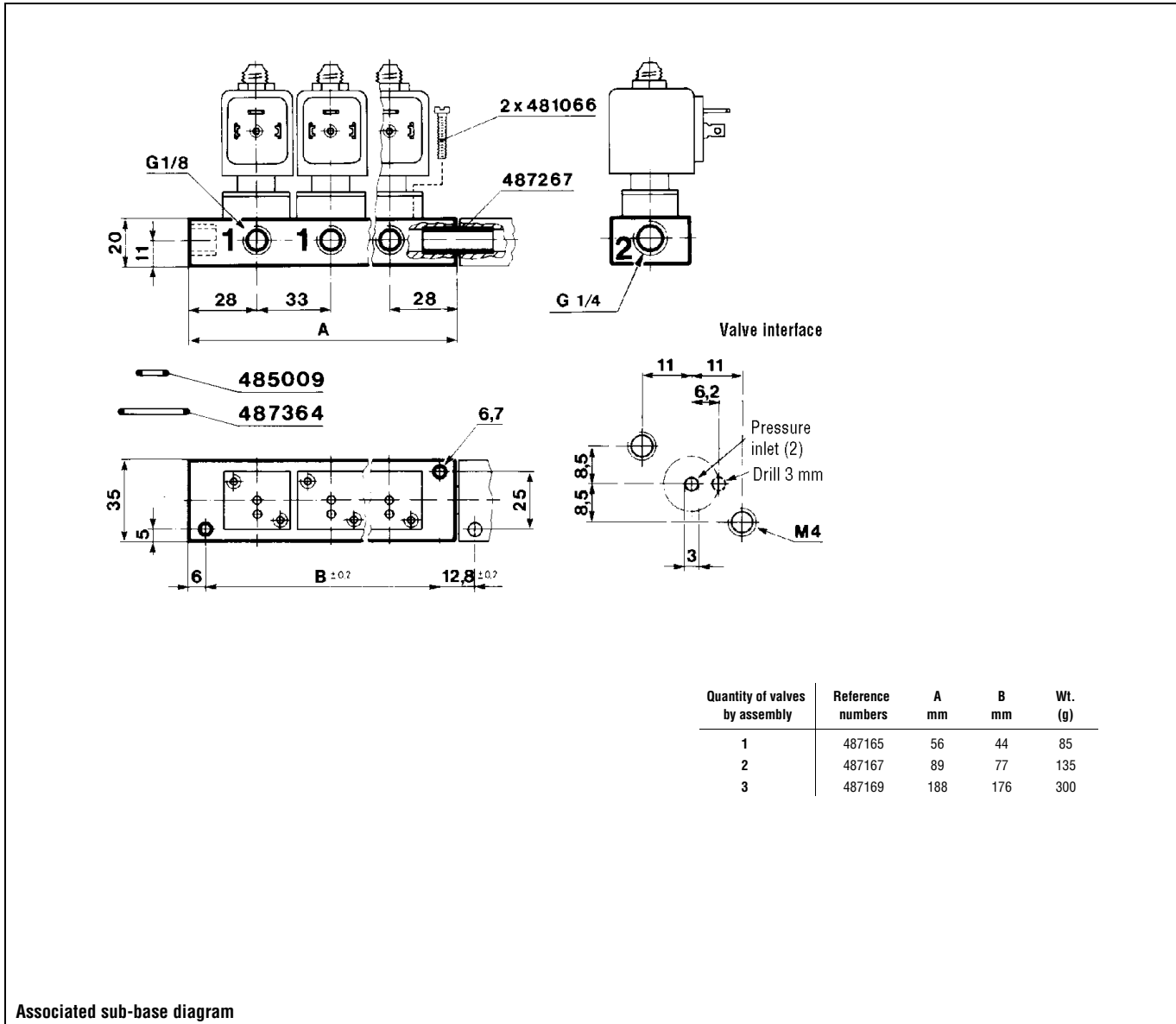
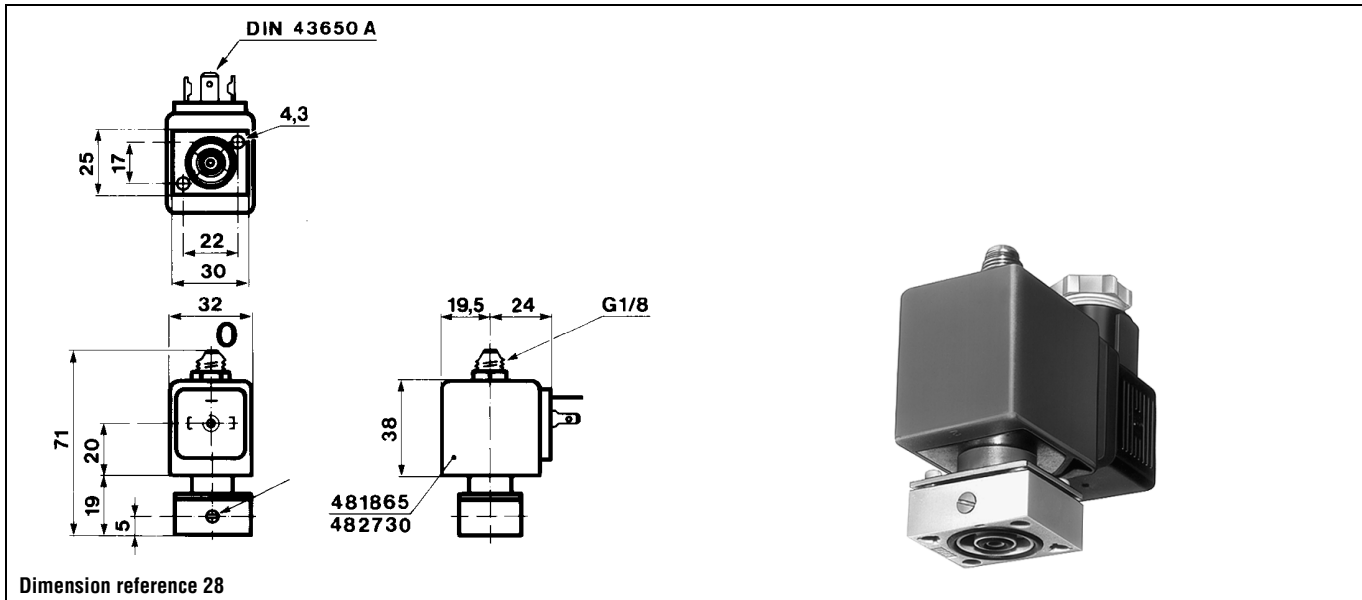
|    |   |   |     |     |   |    |    |    |   |   |     |              |                |                          |               |                |   |     |   |    |
|----|---|---|-----|-----|---|----|----|----|---|---|-----|--------------|----------------|--------------------------|---------------|----------------|---|-----|---|----|
| SB | 2 | 2 | 6.5 | 140 | 0 | 10 | 10 | 50 | - | - | FKM | 7131FDF2JV00 | <b>E131F26</b> | <sup>1</sup> <b>2995</b> | <b>481865</b> | <sup>2</sup> - | 8 | 200 | 2 | 28 |
|    | 2 | 2 | 6.5 | 140 | 0 | 10 | 10 | 50 | - | - | FKM |              |                | <b>2995</b>              | <b>482730</b> | 7              | 6 | 200 | 2 |    |

#### Notes:

\* See Electrical Parts Group table at end of section

1. Manual override standard
2. 20% Switch-on - max. 2 min.

# General application valves 3/2 - Direct operated



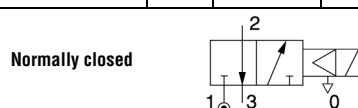
# General application valves for dry or lubricated air, neutral gases and liquids

# 3/2



## Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |            |    | Admissible differential pressure bar |     |     | Fluid temp. °C |     |                        | Seat disc | Reference numbers   |         |      |    | Power consumption (W) |  | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------------|----|--------------------------------------|-----|-----|----------------|-----|------------------------|-----------|---------------------|---------|------|----|-----------------------|--|---------|------------------|----------|
|           |              | Liquids kv           | Gases Qmax | Qn | Min                                  | Max | Gas | Liquid         | Oil | Global valve reference |           | Valve reference no. | Housing | Coil | DC | AC                    |  |         |                  |          |



## Anod. aluminium body/Pipe mounting

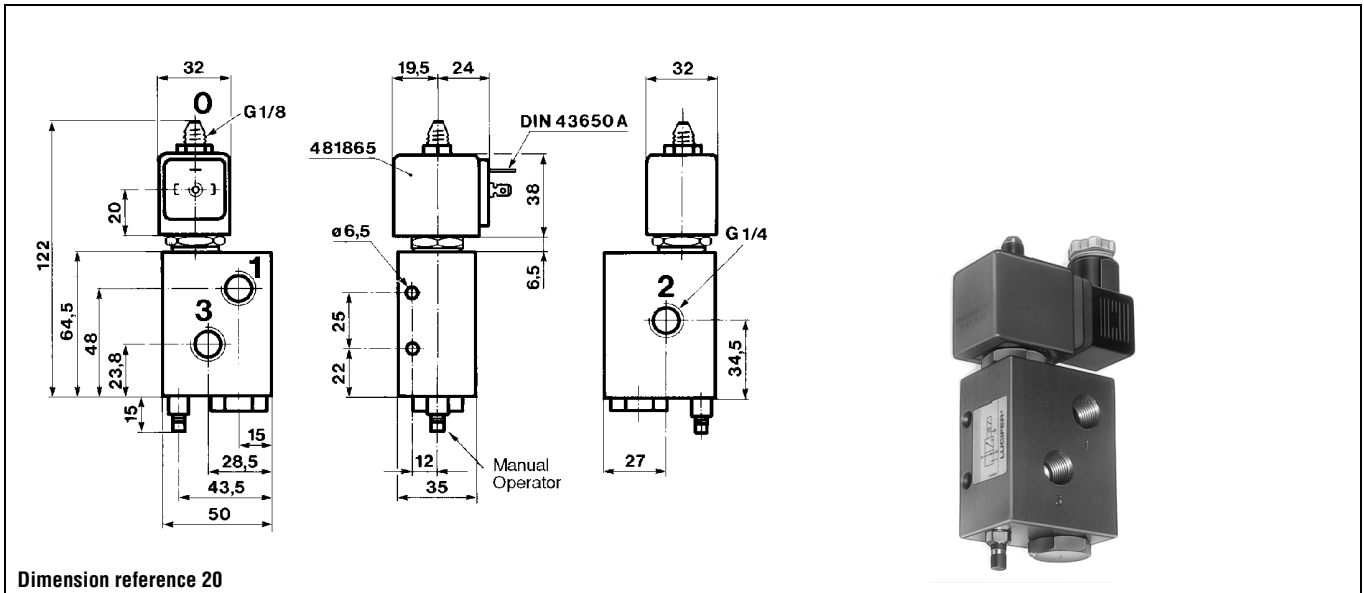
|     |     |    |    |     |   |    |    |    |   |    |     |              |                 |                          |                  |                  |   |      |   |    |
|-----|-----|----|----|-----|---|----|----|----|---|----|-----|--------------|-----------------|--------------------------|------------------|------------------|---|------|---|----|
| 1/4 | 6.5 | -  | -  | 750 | 1 | 10 | -  | 75 | - | -  | NBR | 7331BAG2KNL2 | <b>331B7480</b> | <b>2995</b>              | <b>482740</b>    | 1.6              | - | 510  | 6 | 20 |
|     | 6.5 | 10 | -  | 645 | 1 | 10 | -  | 75 | - | -  | NBR | -            | <b>331B7490</b> | <sup>1</sup> -           | <b>483580.01</b> | <sup>2</sup> 0.4 | - | 485  | 7 | 80 |
|     | 6.5 | -  | -  | 750 | 1 | 10 | 10 | 75 | - | -  | NBR | 7331BAG2KNMO | <b>E331B74</b>  | <sup>3</sup> <b>2995</b> | <b>481865</b>    | 9                | 8 | 510  | 2 | 20 |
|     | 8   | 10 | 10 | 750 | 1 | 40 | 40 | 75 | - | 75 | NBR | 7331BAG2KN00 | <b>331B02</b>   | <sup>4</sup> <b>2995</b> | <b>481865</b>    | 9                | 8 | 880  | 2 | 23 |
|     | 8   | 10 | 10 | 750 | 1 | 40 | 40 | 75 | - | 75 | NBR | -            | -               | <b>4270</b>              | <b>481000</b>    | 8                | 8 | 1000 | 2 |    |

Table continued on page 152

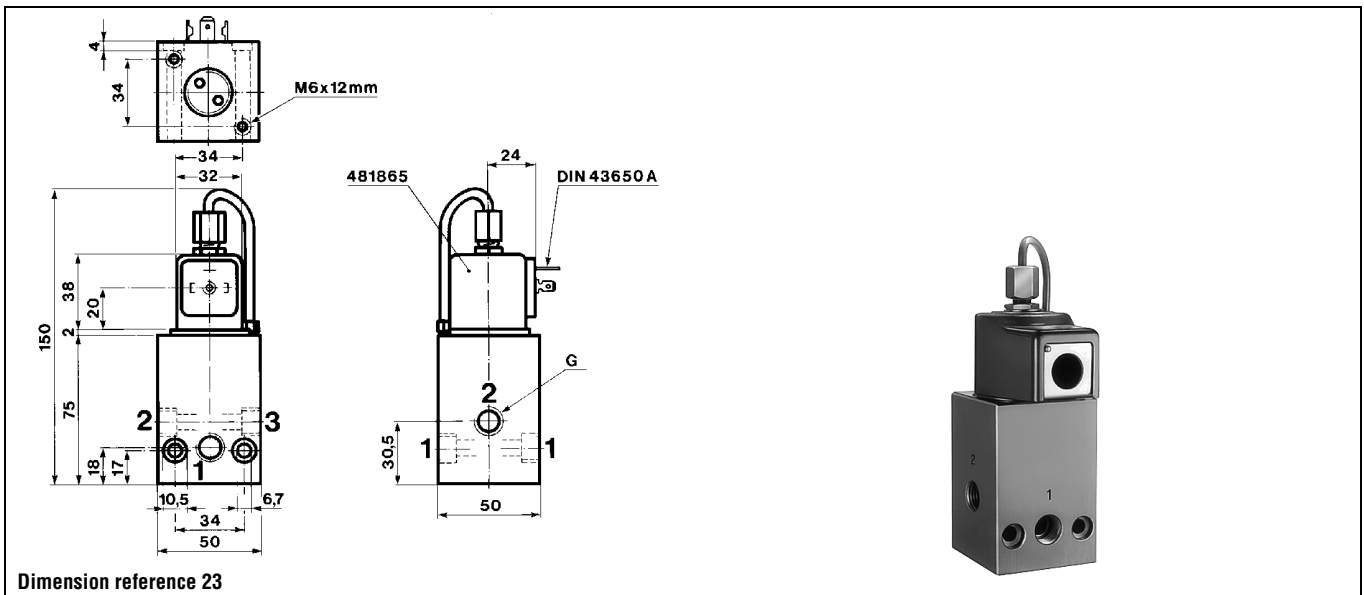
### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Other coil-housing available: 488650.01, 488660.01, 488670.01 (refer to electrical parts at end of this section)
- 2. This reference no. is for the complete electrical part (coil + housing)
- 3. Manual override standard
- 4. Pilot seat discs from Kel-F (PTFE); valve with pilot return pipe

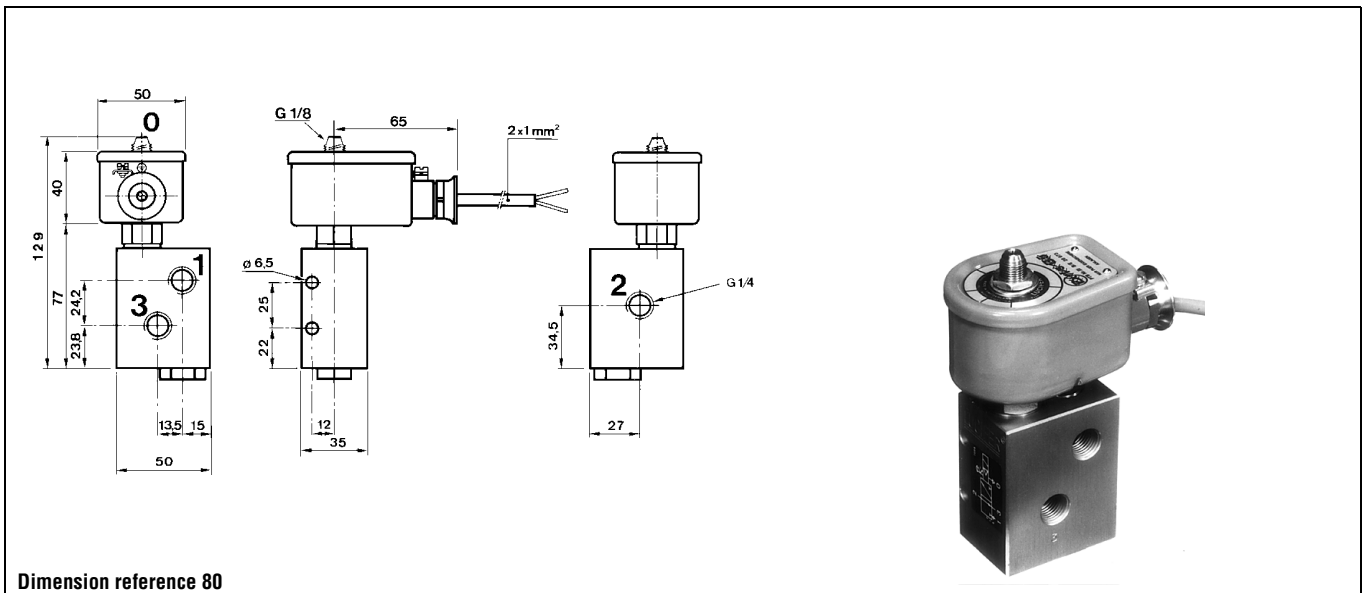
# General application valves 3/2 - Pilot operated



Dimension reference 20



Dimension reference 23



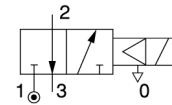
Dimension reference 80

# General application valves 3/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |        | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|--------|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | Max AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

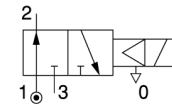
## Anod. aluminium body/Pipe mounting

Normally closed



|     |    |    |    |      |   |    |    |    |   |    |     |              |                |             |               |   |   |      |   |    |
|-----|----|----|----|------|---|----|----|----|---|----|-----|--------------|----------------|-------------|---------------|---|---|------|---|----|
| 1/4 | 8  | 20 | 20 | 1100 | 1 | 15 | 15 | 75 | - | 75 | NBR | 7331BAG2QN00 | <b>E331B01</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 880  | 2 | 21 |
|     | 8  | 20 | 20 | 1100 | 1 | 15 | 15 | 75 | - | 75 | NBR |              |                | <b>4270</b> | <b>481000</b> | 8 | 8 | 1000 | 2 |    |
| 1/2 | 14 | -  | -  | 2500 | 1 | 15 | 15 | 75 | - | -  | NBR | 7331BAG4QN00 | <b>E331B21</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 980  | 2 | 24 |
|     | 14 | -  | -  | 2500 | 1 | 15 | 15 | 75 | - | -  | NBR |              |                | <b>4270</b> | <b>481000</b> | 8 | 8 | 1100 | 2 |    |

Normally open



## Anod. aluminium body/Pipe mounting

|     |   |    |    |     |   |    |    |    |   |    |     |              |               |             |               |   |   |      |   |    |
|-----|---|----|----|-----|---|----|----|----|---|----|-----|--------------|---------------|-------------|---------------|---|---|------|---|----|
| 1/4 | 8 | 10 | 10 | 750 | 1 | 40 | 40 | 75 | - | 75 | NBR | 7332BAG2KN00 | <b>332B02</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 880  | 2 | 25 |
|     | 8 | 10 | 10 | 750 | 1 | 40 | 40 | 75 | - | 75 | NBR |              |               | <b>4270</b> | <b>481000</b> | 8 | 8 | 1000 | 2 |    |

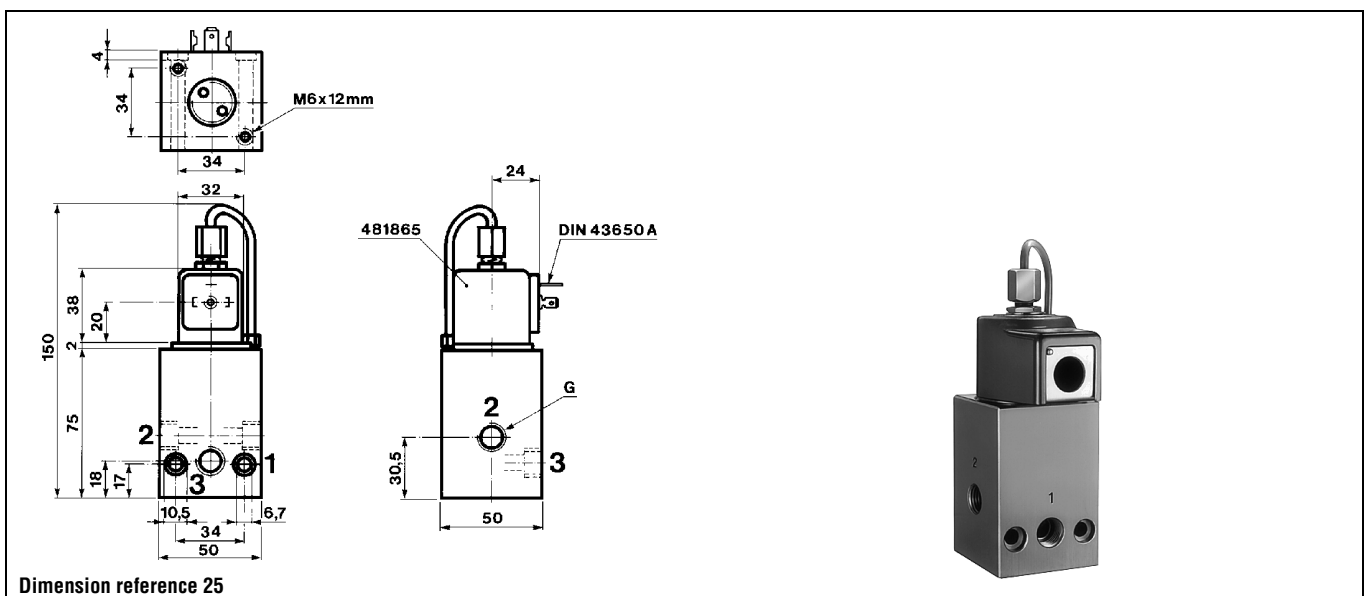
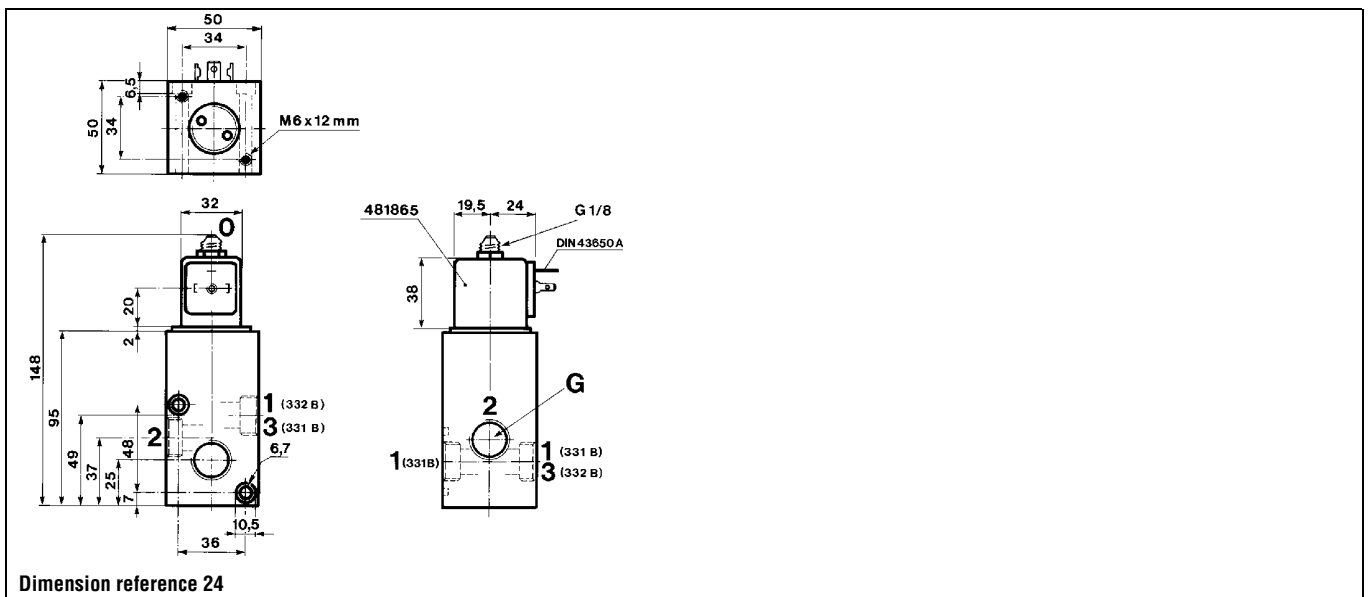
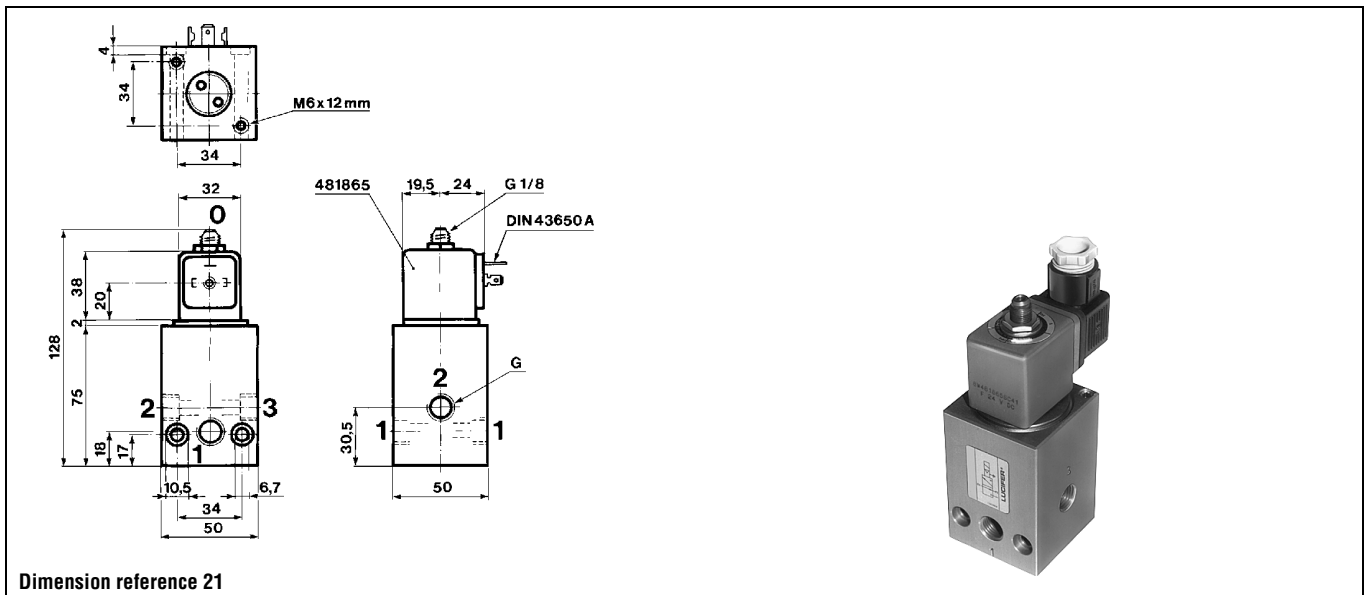
Table continued on page 154

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Pilot seat discs from Kel-F (PCTFE); valve with pilot return pipe



# General application valves 3/2 - Pilot operated

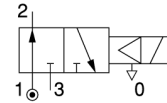


## General application valves 3/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |     |     | Fluid temp. °C |     |                        | Seat disc | Reference numbers   |         |      |    | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----|-----|----------------|-----|------------------------|-----------|---------------------|---------|------|----|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max | Gas | Liquid         | Oil | Global valve reference |           | Valve reference no. | Housing | Coil | OR | DC                    | AC |         |                  |          |
| G         |              |                      |      |          |                                      |     |     |                |     |                        |           |                     |         |      |    |                       |    |         |                  |          |

### Anod. aluminium body/Pipe mounting

Normally open



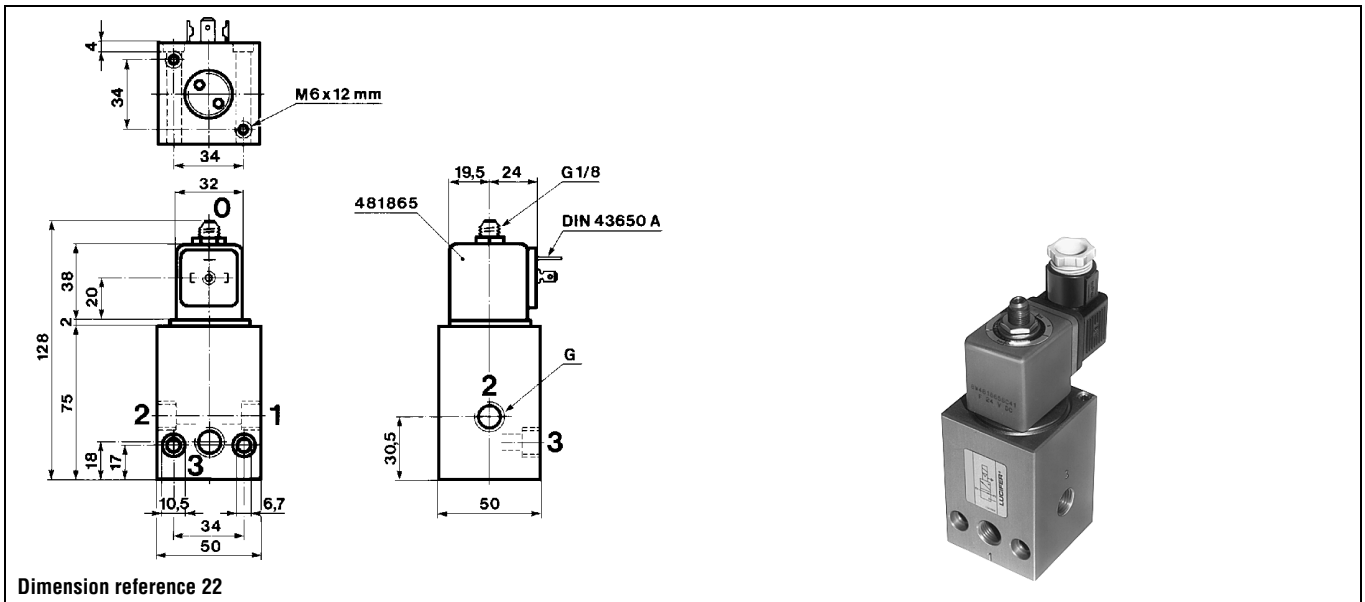
|     |    |    |    |      |   |    |    |    |   |    |     |              |                |             |               |   |   |      |   |    |
|-----|----|----|----|------|---|----|----|----|---|----|-----|--------------|----------------|-------------|---------------|---|---|------|---|----|
| 1/4 | 8  | 20 | 20 | 1100 | 1 | 15 | 15 | 75 | - | 75 | NBR | 7332BAG2QN00 | <b>E332B01</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 880  | 2 | 22 |
|     | 8  | 20 | 20 | 1100 | 1 | 15 | 15 | 75 | - | 75 | NBR |              |                | <b>4270</b> | <b>481000</b> | 8 | 8 | 1000 | 2 |    |
| 1/2 | 14 | -  | -  | 2500 | 1 | 15 | 15 | 75 | - | -  | NBR | 7332BAG4QN00 | <b>E332B21</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 980  | 2 | 24 |
|     | 14 | -  | -  | 2500 | 1 | 15 | 15 | 75 | - | -  | NBR |              |                | <b>4270</b> | <b>481000</b> | 8 | 8 | 1100 | 2 |    |

Table continued on page 156

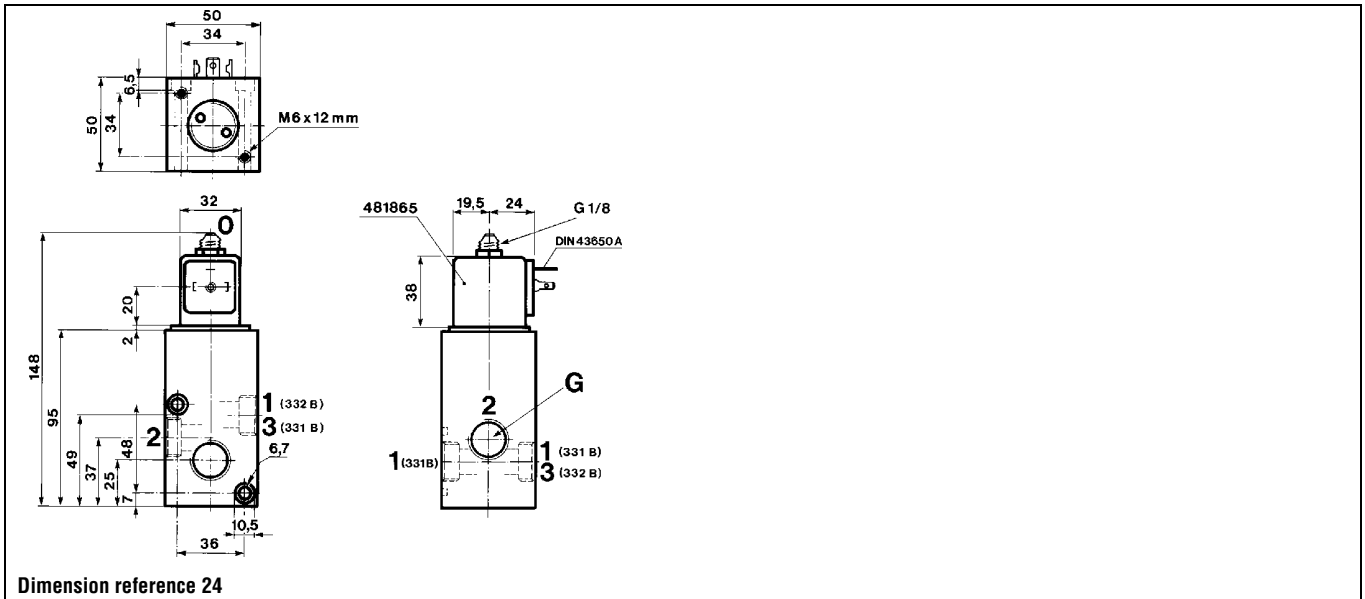
#### Notes:

\* See Electrical Parts Group table at end of section

# General application valves 3/2 - Pilot operated



Dimension reference 22



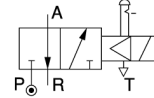
Dimension reference 24

## General application valves 3/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |    | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|----|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              |                      |      |          |                                      |        |    |                |        |     |           |                        |                     |         |      |                       |    |         |                  |          |

### Anod. aluminium body/Sub-base mounting

Normally closed



|     |    |    |   |      |     |    |    |    |   |   |     |              |                    |   |               |   |   |      |   |      |
|-----|----|----|---|------|-----|----|----|----|---|---|-----|--------------|--------------------|---|---------------|---|---|------|---|------|
| 1/2 | 15 | 56 | - | 5000 | 0.5 | 10 | 10 | 75 | - | - | NBR | 7331LAV4TN1D | <b>E331L21001D</b> | - | <b>483250</b> | 8 | 8 | 1715 | 5 | 3854 |
|-----|----|----|---|------|-----|----|----|----|---|---|-----|--------------|--------------------|---|---------------|---|---|------|---|------|

Table continued on page 158

#### Notes:

\* See Electrical Parts Group table at end of section

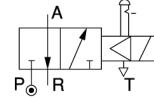


## General application valves 3/2 - Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |     |     | Fluid temp. °C |     |                        | Seat disc | Reference numbers   |         |      |    | Power consumption (W) |  | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----|-----|----------------|-----|------------------------|-----------|---------------------|---------|------|----|-----------------------|--|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max | Gas | Liquid         | Oil | Global valve reference |           | Valve reference no. | Housing | Coil | DC | AC                    |  |         |                  |          |
| G         |              |                      |      |          |                                      |     |     |                |     |                        |           |                     |         |      |    |                       |  |         |                  |          |

### Anod. aluminium body/Sub-base mounting

Normally closed



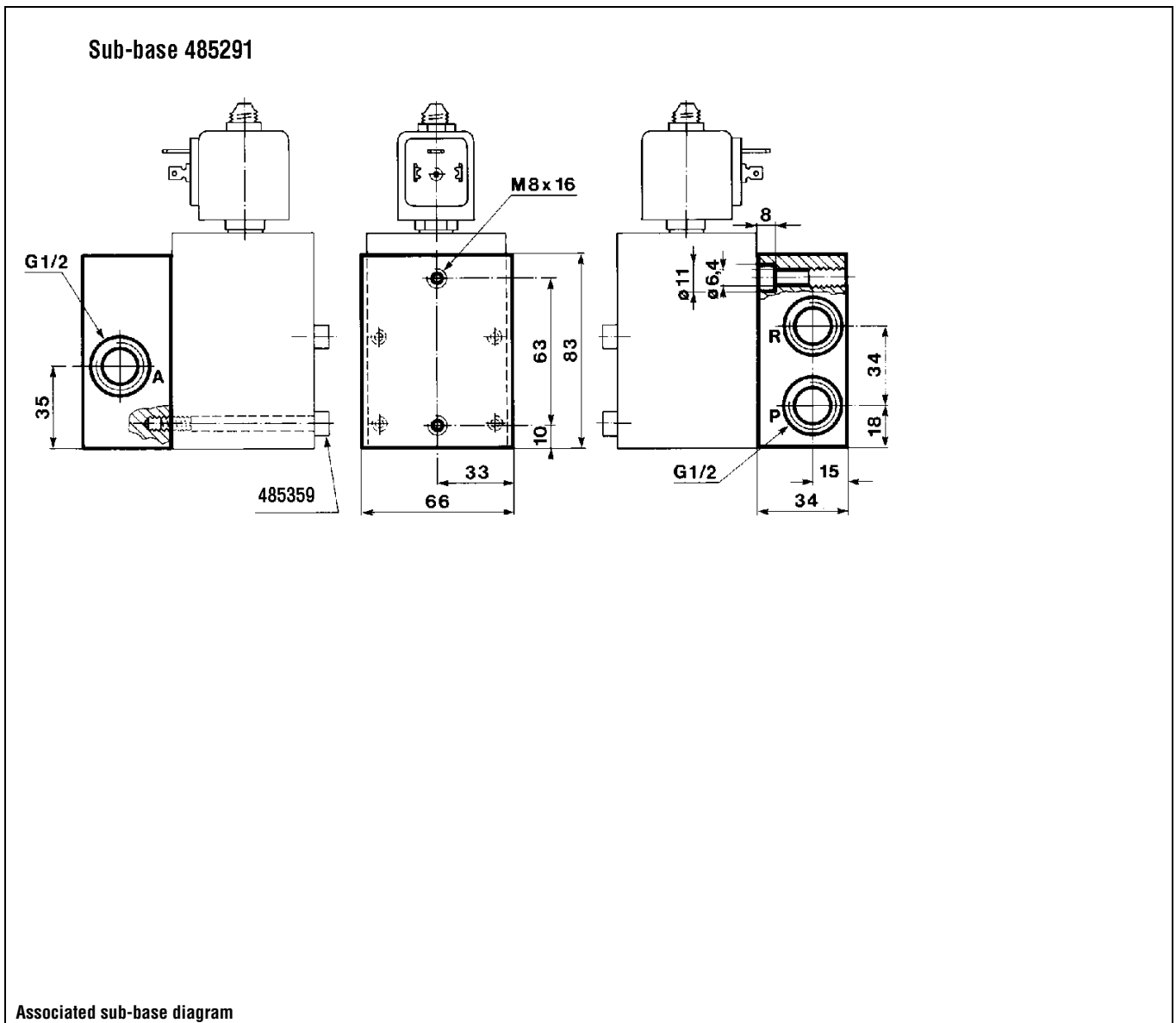
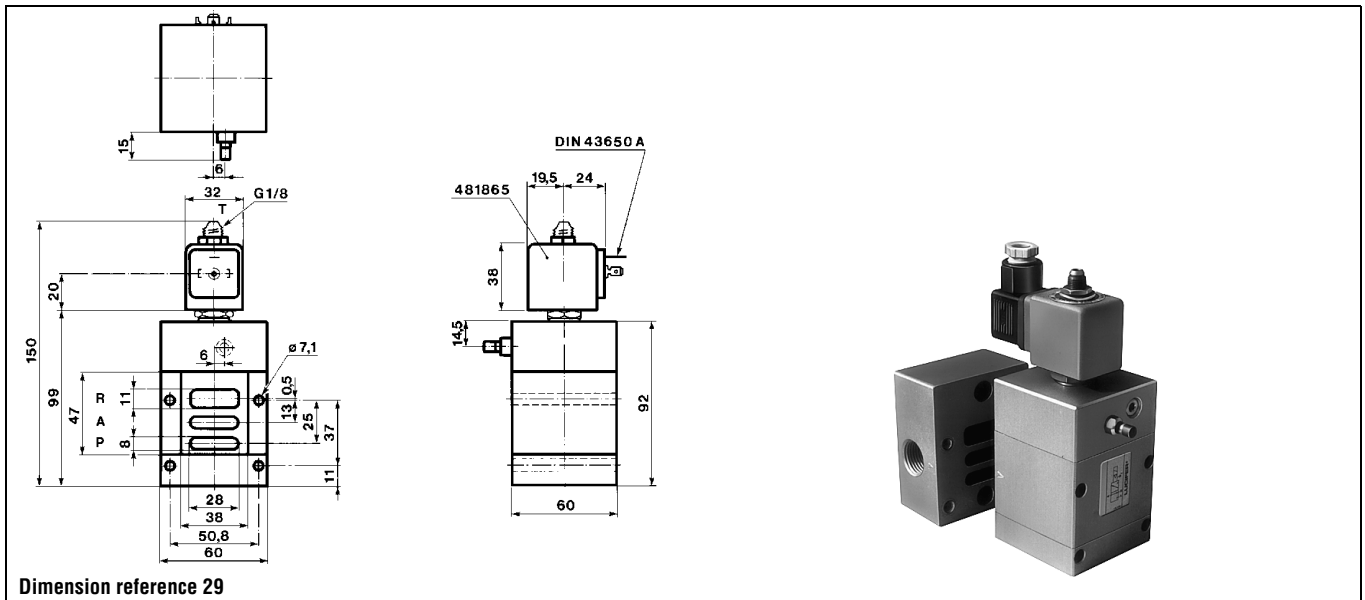
|     |    |   |   |      |     |    |    |    |   |   |     |              |                |                          |               |   |   |      |   |    |
|-----|----|---|---|------|-----|----|----|----|---|---|-----|--------------|----------------|--------------------------|---------------|---|---|------|---|----|
| 1/2 | 15 | - | - | 5000 | 0.5 | 10 | 10 | 75 | - | - | NBR | 7331LAV4TNM0 | <b>E331L21</b> | <sup>1</sup> <b>2995</b> | <b>481865</b> | 9 | 8 | 880  | 2 | 29 |
|     | 15 | - | - | 5000 | 0.5 | 10 | 10 | 75 | - | - | NBR |              |                | <b>4270</b>              | <b>481000</b> | 8 | 8 | 1100 | 2 |    |

#### Notes:

\* See Electrical Parts Group table at end of section

1. Manual override standard

# General application valves 3/2 - Pilot operated



## Electrical parts options with 3/2 general application valves for dry or lubricated air, neutral gases and liquids

| El. part Group | Coil             | Protection class | Protection class / Temperature class | Power |       | Coil Order No. | Coil Ref. No. | Connection           | Housing Order No. | Housing Ref. No. | Ambient temp. |          |
|----------------|------------------|------------------|--------------------------------------|-------|-------|----------------|---------------|----------------------|-------------------|------------------|---------------|----------|
|                |                  |                  |                                      | DC    | AC    |                |               |                      |                   |                  | min.          | max.     |
| 1              | 22 mm            | IP 65            | Class F                              | 2.5 W | 2 W   | DA01           | 488980        | for DIN plug         | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 2.5 W | 2 W   | DA02           | 481045        | with DIN plug        | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA03           | 481180        | for DIN plug         | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA04           | 481530        | with DIN plug        | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 5 W   | 4 W   | VA01           | 482605        | with 1500mm cable    | 00                | -                | -40           | 50       |
|                |                  | IP 65            | EEx m II T5                          | 2.5 W | 2 W   | VA02           | 482606        | with 1500mm cable    | 00                | -                | -40           | 50       |
| 2              | 32 mm (Std)      | IP 65            | Class F                              | 9 W   | 8 W   | DZ02           | 481865        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ03           | 482725        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class H                              | 9 W   | 8 W   | DZ04           | 492453        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ05           | 492726        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class F, 50/60 Hz                    | -     | 9 W   | DZ06           | 483510        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | -     | 9 W   | DZ07           | 482635        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 9 W   | 8 W   | HZ05           | 492670        | with 3000mm cable    | 00                | -                | -40           | 40       |
|                |                  | IP 65            | Class H                              | 14 W  | 14 W  | DZ08           | 492425        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                | 50 mm (Std)      | IP10 / IP 44     | Class F                              | 8 W   | 8 W   | EZ01           | 481000        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 8 W   | 8 W   | EZ02           | 485100        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 14 W  | 14 W  | EZ92           | 486265        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP 67            | Class F, M20x1.5                     | 8 W   | 8 W   | EZ01           | 481000        | screw-terminals      | G1                | 4538             | -40           | 50       |
|                |                  | IP 65            | EEx m II T5/T4                       | 9 W   | 8 W   | VZ01           | 492070        | with 1500mm cable    | 00                | -                | -40           | 40/65    |
|                |                  | IP 67            | EEx me II T4                         | 8 W   | 8 W   | HZ06           | 483371        | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 66            | EEx me II T3/T4                      | 11 W  | 9 W   | VZ03           | 492190        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  |                  |                                      |       |       |                |               |                      |                   |                  |               |          |
| 3              | 32 mm            | IP 65            | Class H                              | -     | 14 W  | DZ08           | 492425        | for DIN plug         | N1                | 2995             | -40           | 50       |
| 4              | 50 mm (impulse)  | IP10 / IP 44     | Class F                              | -     | 11 W  | MZ01           | 484990        | screw-terminals      | E1                | 4269             | -40           | 50       |
|                |                  | IP10 / IP 44     | Class F                              | 13 W  | -     | MZ02           | 485400        | screw-terminals      | E1                | 4269             | -40           | 50       |
| 5              | 50 mm            | IP 54            | EEx d IIC T4/T5/T6                   | 8 W   | 8 W   | HZ08           | 483250        | for cable 1/2 NPT    | 00                | -                | -40           | 80/75/60 |
| 6              | 32 mm (Miniwatt) | IP 65            | Class F                              | 1.6 W | -     | DZ10           | 482740        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 1.6W  | -     | DZ11           | 482745        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                | 50 mm (Miniwatt) | IP 67            | EEx me II T5                         | 2.5 W | -     | VZ04           | 491117        | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 67            | EEx m II T5/T4                       | 2.5 W | 2.5 W | VZ05           | 492370        | with 1500mm cable    | 00                | -                | -40           | 40/65    |
|                |                  | IP 66            | EEx me II T6/T5                      | 2.5 W | 2.5 W | VZ06           | 492390        | for cable connection | 00                | -                | -40           | 40/75    |
| 7              | 32 mm            | IP 65            | EEx ia II C T6                       | 0.4 W | -     | DZ12           | 483580.01     | for DIN plug         | N1                | 2995             | -40           | 55       |
|                |                  | IP 65            |                                      | 0.4 W | -     | DZ13           | 483960.01     | with DIN plug        | N1                | 2995             | -40           | 55       |
|                | 50 mm            | IP 66            | EEx ia II C T6                       | 0.4 W | -     | VZ07           | 488650.01     | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 67            |                                      | 0.4 W | -     | VZ08           | 488660.01     | with 2000mm cable    | 00                | -                | -40           | 65       |
|                |                  | IP 65            |                                      | 0.4 W | -     | VZ09           | 488670.01     | with DIN plug        | 00                | -                | -40           | 65       |

Note: This table is indicative only. Please contact your distributor to confirm your selection.



# Miniature valves (3-way direct operated)

3/2

| ACTUATION       | BODY MATERIAL            | FUNCTION        | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|-----------------|--------------------------|-----------------|------------|--------------|---------------------|------|
| Direct operated | Brass body               | Normally closed | 1/8        | .3 to 4      | 14.0                | 162  |
|                 |                          | Normally open   | 1/8        | .8 to 4      | 11.2                | 162  |
|                 |                          | Universal       | 1/8        | .8 to 4      | 10.5                | 164  |
|                 |                          | Diverting       | 1/8        | .8 to 4      | 16.0                | 166  |
|                 | 303 Stainless steel body | Normally closed | 1/8        | .3 to 4      | 14.0                | 166  |
|                 |                          | Normally open   | 1/8        | .8 to 4      | 11.2                | 168  |
|                 |                          | Universal       | 1/8        | .8 to 4      | 10.5                | 168  |
|                 |                          | Diverting       | 1/8        | .8 to 4      | 16.0                | 170  |
|                 | Aluminium alloy body     | Normally closed | SB         | 1.2 to 1.6   | 10.5                | 170  |
|                 |                          | Normally open   | SB         | 1.2 to 1.6   | 8.75                | 170  |
|                 |                          | Universal       | SB         | 1.2 to 1.6   | 7.0                 | 170  |
|                 |                          | Diverting       | SB         | 1.2 to 1.6   | 11.2                | 172  |

**Notes:**

Direct operated valves: pressure range from 0 to max pressure.

# Miniature valves (3-way direct operated)

# 3/2

## Applications

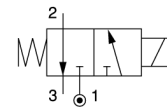
The Miniature Series is a small size and low power consumption valve line. It is available in 2-way (normally closed and normally open) and 3-way (normally closed and normally open) versions. These valves are equipped with integrated molded coils with tab or lead termination.

## Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |           |  | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                 |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----------|--|----------------|--------|-----|-----------|------------------------|-----------------|---------|------|-----------------------|----|---------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC AC |  | Gas            | Liquid | Oil |           | Global valve reference | Valve reference | Housing | Coil | DC                    | AC |         |          |

## Brass body/Pipe mounting

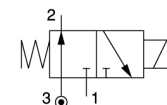
Normally closed



|     |     |      |   |   |   |      |      |    |    |    |     |              |   |    |      |     |     |   |     |
|-----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|---|----|------|-----|-----|---|-----|
| 1/8 | 0.3 | 0.43 | - | - | 0 | 14   | 14   | 50 | 50 | 50 | FKM | 3131BBN1AV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 0.3 | 0.43 | - | - | 0 | 14   | 14   | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.2 | 0.72 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM | 3131BBN1EV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.2 | 0.72 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.6 | 1.29 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM | 3131BBN1GV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.6 | 1.29 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM | 3131BBN1JV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 3.5  | 3.5  | 50 | 50 | 50 | FKM | 3931BBN1JV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 3.5  | 3.5  | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 2.4 | 2.57 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM | 3131BBN1LV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2.4 | 2.57 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2.4 | 2.57 | - | - | 0 | 2.45 | 2.45 | 50 | 50 | 50 | FKM | 3931BBN1LV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 2.4 | 2.57 | - | - | 0 | 2.45 | 2.45 | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 3.2 | 3.43 | - | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM | 3131BBN1NV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 3.2 | 3.43 | - | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 3.2 | 3.43 | - | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM | 3931BBN1NV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 3.2 | 3.43 | - | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 4   | 4.3  | - | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM | 3131BBN1QV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 4   | 4.3  | - | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 4   | 4.3  | - | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM | 3931BBN1QV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 4   | 4.3  | - | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |

## Brass body/Pipe mounting

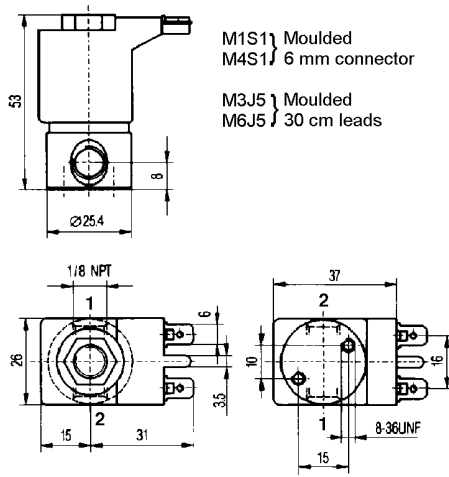
Normally open



|     |     |      |   |   |   |      |      |    |    |    |     |              |   |    |      |     |     |   |     |
|-----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|---|----|------|-----|-----|---|-----|
| 1/8 | 0.8 | 0.43 | - | - | 0 | 11.2 | 11.2 | 50 | 50 | 50 | FKM | 3139BBN1AV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 0.8 | 0.43 | - | - | 0 | 11.2 | 11.2 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |

Table continued on page 164

# Miniature valves 3/2 - Direct operated



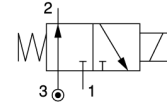
Dimension reference 100

## Miniature valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |       | Admissible differential pressure bar |     |    | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                 |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|-------|--------------------------------------|-----|----|----------------|--------|-----|-----------|------------------------|-----------------|---------|------|-----------------------|----|---------|----------|
|           |              | Liquids              |      | Gases | Min                                  | Max |    | Gas            | Liquid | Oil |           | Global valve reference | Valve reference | Housing | Coil | DC                    | AC |         |          |
| G         |              | kv                   | Qmax | Qn    |                                      | DC  | AC |                |        |     |           |                        |                 |         |      |                       |    |         |          |

### Brass body/Pipe mounting

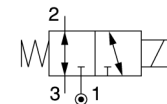
Normally open



|     |     |      |   |   |   |      |      |    |    |    |     |              |   |    |      |     |     |   |     |
|-----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|---|----|------|-----|-----|---|-----|
| 1/8 | 1.2 | 0.72 | - | - | 0 | 8.75 | 8.75 | 50 | 50 | 50 | FKM | 3139BBN1EV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.2 | 0.72 | - | - | 0 | 8.75 | 8.75 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.6 | 1.29 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM | 3139BBN1GV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.6 | 1.29 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM | 3139BBN1JV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2.4 | 2.57 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM | 3139BBN1LV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2.4 | 2.57 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 3.2 | 3.43 | - | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM | 3139BBN1NV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 3.2 | 3.43 | - | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 4   | 4.3  | - | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM | 3139BBN1QV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 4   | 4.3  | - | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |

### Brass body/Pipe mounting

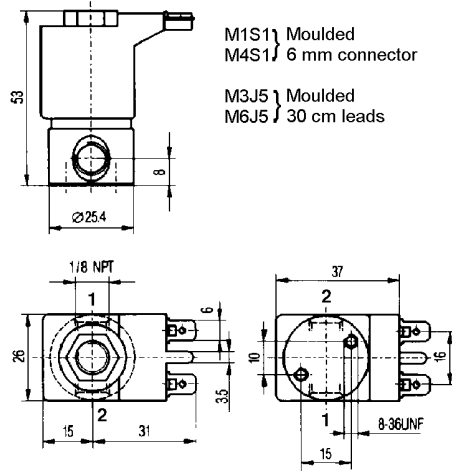
Universal



|     |     |      |   |   |   |      |      |    |    |    |     |              |   |    |      |     |     |   |     |
|-----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|---|----|------|-----|-----|---|-----|
| 1/8 | 0.8 | 0.43 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM | 3133BBN1AV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 0.8 | 0.43 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 0.8 | 0.43 | - | - | 0 | 6.6  | 6.6  | 50 | 50 | 50 | FKM | 3933BBN1AV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 0.8 | 0.43 | - | - | 0 | 6.6  | 6.6  | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 1.2 | 0.72 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM | 3133BBN1EV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.2 | 0.72 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.2 | 0.72 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM | 3933BBN1EV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 1.2 | 0.72 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 1.6 | 1.29 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM | 3133BBN1GV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.6 | 1.29 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.6 | 1.29 | - | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM | 3933BBN1GV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 1.6 | 1.29 | - | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM | 3133BBN1JV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 0.56 | 0.56 | 50 | 50 | 50 | FKM | 3933BBN1JV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 0.56 | 0.56 | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 2.4 | 2.57 | - | - | 0 | 2.45 | 2.45 | 50 | 50 | 50 | FKM | 3133BBN1LV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2.4 | 2.57 | - | - | 0 | 2.45 | 2.45 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 3.2 | 3.43 | - | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM | 3133BBN1NV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 3.2 | 3.43 | - | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 4   | 4.3  | - | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM | 3133BBN1QV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 4   | 4.3  | - | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |

Table continued on page 166

# Miniature valves 3/2 - Direct operated



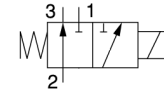
Dimension reference 100

## Miniature valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |       | Admissible differential pressure bar |     |    | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                 |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|-------|--------------------------------------|-----|----|----------------|--------|-----|-----------|------------------------|-----------------|---------|------|-----------------------|----|---------|----------|
|           |              | Liquids              |      | Gases | Min                                  | Max |    | Gas            | Liquid | Oil |           | Global valve reference | Valve reference | Housing | Coil | DC                    | AC |         |          |
|           |              | kv                   | Qmax | Qn    |                                      | DC  | AC |                |        |     |           |                        |                 |         |      |                       |    |         |          |

### Brass body/Pipe mounting

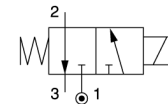
Diverting



|     |      |      |   |   |      |      |    |    |    |     |              |              |    |      |      |     |     |     |     |
|-----|------|------|---|---|------|------|----|----|----|-----|--------------|--------------|----|------|------|-----|-----|-----|-----|
| 1/8 | 0.8  | 0.43 | - | - | 0    | 16   | 16 | 50 | 50 | 50  | FKM          | 3138BBN1AV00 | -  | NO   | M1S1 | 4.5 | 4.5 | -   | 100 |
|     | 0.8  | 0.43 | - | - | 0    | 16   | 16 | 50 | 50 | 50  | FKM          |              |    | NO   | M3J5 | 4.5 | 4.5 | -   |     |
| 1.2 | 0.72 | -    | - | 0 | 11.2 | 11.2 | 50 | 50 | 50 | FKM | 3138BBN1EV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
|     | 0.72 | -    | - | 0 | 11.2 | 11.2 | 50 | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |
| 1.6 | 1.29 | -    | - | 0 | 8.4  | 8.4  | 50 | 50 | 50 | FKM | 3138BBN1GV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
|     | 1.29 | -    | - | 0 | 8.4  | 8.4  | 50 | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |
| 2   | 1.86 | -    | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM | 3138BBN1JV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
|     | 1.86 | -    | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |
| 2.4 | 2.57 | -    | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM | 3138BBN1LV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
|     | 2.57 | -    | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |
| 3.2 | 3.43 | -    | - | 0 | 2.45 | 2.45 | 50 | 50 | 50 | FKM | 3138BBN1NV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
|     | 3.43 | -    | - | 0 | 2.45 | 2.45 | 50 | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |
| 4   | 4.3  | -    | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM | 3138BBN1QV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
|     | 4.3  | -    | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |

### 303 Stainless steel body/Pipe mounting

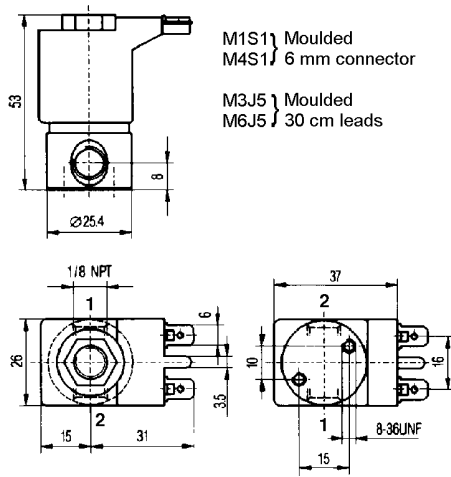
Normally closed



|     |      |      |   |   |      |      |    |    |    |     |              |              |    |      |      |     |     |     |     |
|-----|------|------|---|---|------|------|----|----|----|-----|--------------|--------------|----|------|------|-----|-----|-----|-----|
| 1/8 | 0.3  | 0.43 | - | - | 0    | 14   | 14 | 50 | 50 | 50  | FKM          | 3131BSN1AV00 | -  | NO   | M1S1 | 4.5 | 4.5 | -   | 100 |
|     | 0.3  | 0.43 | - | - | 0    | 14   | 14 | 50 | 50 | 50  | FKM          |              |    | NO   | M3J5 | 4.5 | 4.5 | -   |     |
| 1.2 | 0.72 | -    | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM | 3131BSN1EV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
|     | 0.72 | -    | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |
| 1.6 | 1.29 | -    | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM | 3131BSN1GV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
|     | 1.29 | -    | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |
| 2   | 1.86 | -    | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM | 3131BSN1JV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
|     | 1.86 | -    | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |
| 2   | 1.86 | -    | - | 0 | 3.5  | 3.5  | 50 | 50 | 50 | FKM | 3931BSN1JV00 | -            | NO | M4S1 | 2.5  | 2.5 | -   | 100 |     |
|     | 1.86 | -    | - | 0 | 3.5  | 3.5  | 50 | 50 | 50 | FKM |              |              | NO | M6J5 | 2.5  | 2.5 | -   |     |     |
| 2.4 | 2.57 | -    | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM | 3131BSN1LV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
|     | 2.57 | -    | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |
| 2.4 | 2.57 | -    | - | 0 | 2.45 | 2.45 | 50 | 50 | 50 | FKM | 3931BSN1LV00 | -            | NO | M4S1 | 2.5  | 2.5 | -   | 100 |     |
|     | 2.57 | -    | - | 0 | 2.45 | 2.45 | 50 | 50 | 50 | FKM |              |              | NO | M6J5 | 2.5  | 2.5 | -   |     |     |
| 3.2 | 3.43 | -    | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM | 3131BSN1NV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
|     | 3.43 | -    | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |
| 3.2 | 3.43 | -    | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM | 3931BSN1NV00 | -            | NO | M4S1 | 2.5  | 2.5 | -   | 100 |     |
|     | 3.43 | -    | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM |              |              | NO | M6J5 | 2.5  | 2.5 | -   |     |     |
| 4   | 4.3  | -    | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM | 3131BSN1QV00 | -            | NO | M1S1 | 4.5  | 4.5 | -   | 100 |     |
|     | 4.3  | -    | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM |              |              | NO | M3J5 | 4.5  | 4.5 | -   |     |     |
| 4   | 4.3  | -    | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM | 3931BSN1QV00 | -            | NO | M4S1 | 2.5  | 2.5 | -   | 100 |     |
|     | 4.3  | -    | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM |              |              | NO | M6J5 | 2.5  | 2.5 | -   |     |     |

Table continued on page 168

# Miniature valves 3/2 - Direct operated



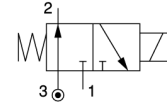
Dimension reference 100

## Miniature valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |       | Admissible differential pressure bar |     |    | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                 |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|-------|--------------------------------------|-----|----|----------------|--------|-----|-----------|------------------------|-----------------|---------|------|-----------------------|----|---------|----------|
|           |              | Liquids              |      | Gases | Min                                  | Max |    | Gas            | Liquid | Oil |           | Global valve reference | Valve reference | Housing | Coil | DC                    | AC |         |          |
|           |              | kv                   | Qmax | Qn    |                                      | DC  | AC |                |        |     |           |                        |                 |         |      |                       |    |         |          |

### 303 Stainless steel body/Pipe mounting

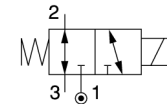
Normally open



|     |     |      |   |   |   |      |      |    |    |    |     |              |   |    |      |     |     |   |     |
|-----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|---|----|------|-----|-----|---|-----|
| 1/8 | 0.8 | 0.43 | - | - | 0 | 11.2 | 11.2 | 50 | 50 | 50 | FKM | 3139BSN1AV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 0.8 | 0.43 | - | - | 0 | 11.2 | 11.2 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.2 | 0.72 | - | - | 0 | 8.75 | 8.75 | 50 | 50 | 50 | FKM | 3139BSN1EV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.2 | 0.72 | - | - | 0 | 8.75 | 8.75 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.6 | 1.29 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM | 3139BSN1GV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.6 | 1.29 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM | 3139BSN1JV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2.4 | 2.57 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM | 3139BSN1LV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2.4 | 2.57 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 3.2 | 3.43 | - | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM | 3139BSN1NV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 3.2 | 3.43 | - | - | 0 | 2.8  | 2.8  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 4   | 4.3  | - | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM | 3139BSN1QV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 4   | 4.3  | - | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |

### 303 Stainless steel body/Pipe mounting

Universal

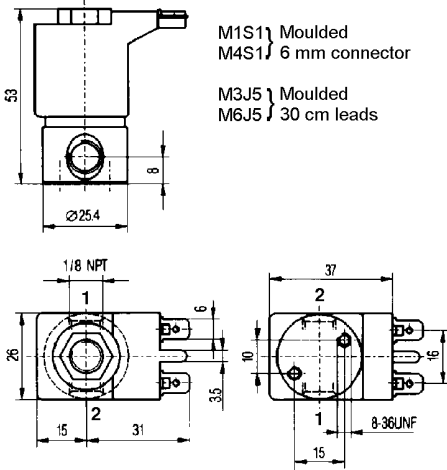


|     |     |      |   |   |   |      |      |    |    |    |     |              |   |    |      |     |     |   |     |
|-----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|---|----|------|-----|-----|---|-----|
| 1/8 | 0.8 | 0.43 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM | 3133BSN1AV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 0.8 | 0.43 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 0.8 | 0.43 | - | - | 0 | 6.6  | 6.6  | 50 | 50 | 50 | FKM | 3933BSN1AV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 0.8 | 0.43 | - | - | 0 | 6.6  | 6.6  | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 1.2 | 0.72 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM | 3133BSN1EV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.2 | 0.72 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.2 | 0.72 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM | 3933BSN1EV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 1.2 | 0.72 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 1.6 | 1.29 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM | 3133BSN1GV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.6 | 1.29 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.6 | 1.29 | - | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM | 3933BSN1GV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 1.6 | 1.29 | - | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM | 3133BSN1JV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 0.56 | 0.56 | 50 | 50 | 50 | FKM | 3933BSN1JV00 | - | NO | M4S1 | 2.5 | 2.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 0.56 | 0.56 | 50 | 50 | 50 | FKM |              |   | NO | M6J5 | 2.5 | 2.5 | - |     |
|     | 2.4 | 2.57 | - | - | 0 | 2.45 | 2.45 | 50 | 50 | 50 | FKM | 3133BSN1LV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2.4 | 2.57 | - | - | 0 | 2.45 | 2.45 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 3.2 | 3.43 | - | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM | 3133BSN1NV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 3.2 | 3.43 | - | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 4   | 4.3  | - | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM | 3133BSN1QV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 4   | 4.3  | - | - | 0 | 0.7  | 0.7  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |

Table continued on page 170



# Miniature valves 3/2 - Direct operated



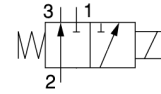
Dimension reference 100

# Miniature valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |           |  | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                 |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----------|--|----------------|--------|-----|-----------|------------------------|-----------------|---------|------|-----------------------|----|---------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC AC |  | Gas            | Liquid | Oil |           | Global valve reference | Valve reference | Housing | Coil | DC                    | AC |         |          |

## 303 Stainless steel body/Pipe mounting

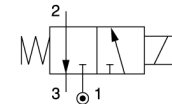
Diverting



|     |     |      |   |   |   |      |      |    |    |    |     |              |   |    |      |     |     |   |     |
|-----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|---|----|------|-----|-----|---|-----|
| 1/8 | 0.8 | 0.43 | - | - | 0 | 16   | 16   | 50 | 50 | 50 | FKM | 3138BSN1AV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 0.8 | 0.43 | - | - | 0 | 16   | 16   | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.2 | 0.72 | - | - | 0 | 11.2 | 11.2 | 50 | 50 | 50 | FKM | 3138BSN1EV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.2 | 0.72 | - | - | 0 | 11.2 | 11.2 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 1.6 | 1.29 | - | - | 0 | 8.4  | 8.4  | 50 | 50 | 50 | FKM | 3138BSN1GV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 1.6 | 1.29 | - | - | 0 | 8.4  | 8.4  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2   | 1.86 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM | 3138BSN1JV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2   | 1.86 | - | - | 0 | 5.6  | 5.6  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 2.4 | 2.57 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM | 3138BSN1LV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 2.4 | 2.57 | - | - | 0 | 4.2  | 4.2  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 3.2 | 3.43 | - | - | 0 | 2.45 | 2.45 | 50 | 50 | 50 | FKM | 3138BSN1NV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 3.2 | 3.43 | - | - | 0 | 2.45 | 2.45 | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |
|     | 4   | 4.3  | - | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM | 3138BSN1QV00 | - | NO | M1S1 | 4.5 | 4.5 | - | 100 |
|     | 4   | 4.3  | - | - | 0 | 1.4  | 1.4  | 50 | 50 | 50 | FKM |              |   | NO | M3J5 | 4.5 | 4.5 | - |     |

## Aluminium alloy body/Sub-base mounting

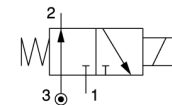
Normally closed



|    |     |      |   |   |   |      |      |    |    |    |     |              |   |   |    |      |     |     |   |     |
|----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|---|---|----|------|-----|-----|---|-----|
| SB | 1.2 | 0.72 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM | 3131BJA7EVC# | - | 1 | NO | M1S1 | 4.5 | 4.5 | - | 101 |
|    | 1.2 | 0.72 | - | - | 0 | 10.5 | 10.5 | 50 | 50 | 50 | FKM |              |   | 1 | NO | M3J5 | 4.5 | 4.5 | - |     |
|    | 1.6 | 1.29 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM | 3131BJA7GVC# | - | 1 | NO | M1S1 | 4.5 | 4.5 | - | 101 |
|    | 1.6 | 1.29 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM |              |   | 1 | NO | M3J5 | 4.5 | 4.5 | - |     |

## Aluminium alloy body/Sub-base mounting

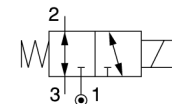
Normally open



|    |     |      |   |   |   |      |      |    |    |    |     |              |   |   |    |      |     |     |   |     |
|----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|---|---|----|------|-----|-----|---|-----|
| SB | 1.2 | 0.72 | - | - | 0 | 8.75 | 8.75 | 50 | 50 | 50 | FKM | 3139BJA7EVC# | - | 1 | NO | M1S1 | 4.5 | 4.5 | - | 101 |
|    | 1.2 | 0.72 | - | - | 0 | 8.75 | 8.75 | 50 | 50 | 50 | FKM |              |   | 1 | NO | M3J5 | 4.5 | 4.5 | - |     |
|    | 1.6 | 1.29 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM | 3139BJA7GVC# | - | 1 | NO | M1S1 | 4.5 | 4.5 | - | 101 |
|    | 1.6 | 1.29 | - | - | 0 | 7    | 7    | 50 | 50 | 50 | FKM |              |   | 1 | NO | M3J5 | 4.5 | 4.5 | - |     |

## Aluminium alloy body/Sub-base mounting

Universal



|    |     |      |   |   |   |     |     |    |    |    |     |              |   |   |    |      |     |     |   |     |
|----|-----|------|---|---|---|-----|-----|----|----|----|-----|--------------|---|---|----|------|-----|-----|---|-----|
| SB | 1.2 | 0.72 | - | - | 0 | 7   | 7   | 50 | 50 | 50 | FKM | 3133BJA7EVC# | - | 1 | NO | M1S1 | 4.5 | 4.5 | - | 101 |
|    | 1.2 | 0.72 | - | - | 0 | 7   | 7   | 50 | 50 | 50 | FKM |              |   | 1 | NO | M3J5 | 4.5 | 4.5 | - |     |
|    | 1.2 | 0.72 | - | - | 0 | 4.2 | 4.2 | 50 | 50 | 50 | FKM | 3933BJA7EVC# | - | 1 | NO | M4S1 | 2.5 | 2.5 | - | 101 |
|    | 1.2 | 0.72 | - | - | 0 | 4.2 | 4.2 | 50 | 50 | 50 | FKM |              |   | 1 | NO | M6J5 | 2.5 | 2.5 | - |     |
|    | 1.6 | 1.29 | - | - | 0 | 5.6 | 5.6 | 50 | 50 | 50 | FKM | 3133BJA7GVC# | - | 1 | NO | M1S1 | 4.5 | 4.5 | - | 101 |
|    | 1.6 | 1.29 | - | - | 0 | 5.6 | 5.6 | 50 | 50 | 50 | FKM |              |   | 1 | NO | M3J5 | 4.5 | 4.5 | - |     |

Table continued on page 172

### Notes:

1. # Denotes the number of valves in the manifold, from 2 to 4

# Miniature valves 3/2 - Direct operated

M1S1 } Moulded  
 M4S1 } 6 mm connector  
  
 M3J5 } Moulded  
 M6J5 } 30 cm leads

**Dimension reference 100**

M1S1 } Moulded  
 M4S1 } 6 mm connector  
  
 M3J5 } Moulded  
 M6J5 } 30 cm leads

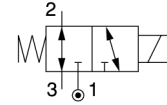
**Dimension reference 101**

## Miniature valves 3/2 - Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |           |  | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                 |         |      | Power consumption (W) |    | Wt. (g) | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|-----------|--|----------------|--------|-----|-----------|------------------------|-----------------|---------|------|-----------------------|----|---------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC AC |  | Gas            | Liquid | Oil |           | Global valve reference | Valve reference | Housing | Coil | DC                    | AC |         |          |
| G         |              |                      |      |          |                                      |           |  |                |        |     |           |                        |                 |         |      |                       |    |         |          |

### Aluminium alloy body/Sub-base mounting

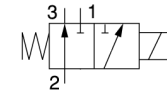
Universal



|    |     |      |   |   |   |     |     |    |    |    |     |              |   |   |           |             |     |     |   |     |
|----|-----|------|---|---|---|-----|-----|----|----|----|-----|--------------|---|---|-----------|-------------|-----|-----|---|-----|
| SB | 1.6 | 1.29 | - | - | 0 | 1.4 | 1.4 | 50 | 50 | 50 | FKM | 3933BJA7GVC# | - | 1 | <b>NO</b> | <b>M4S1</b> | 2.5 | 2.5 | - | 101 |
|    | 1.6 | 1.29 | - | - | 0 | 1.4 | 1.4 | 50 | 50 | 50 | FKM |              |   | 1 | <b>NO</b> | <b>M6J5</b> | 2.5 | 2.5 | - |     |

### Aluminium alloy body/Sub-base mounting

Diverting

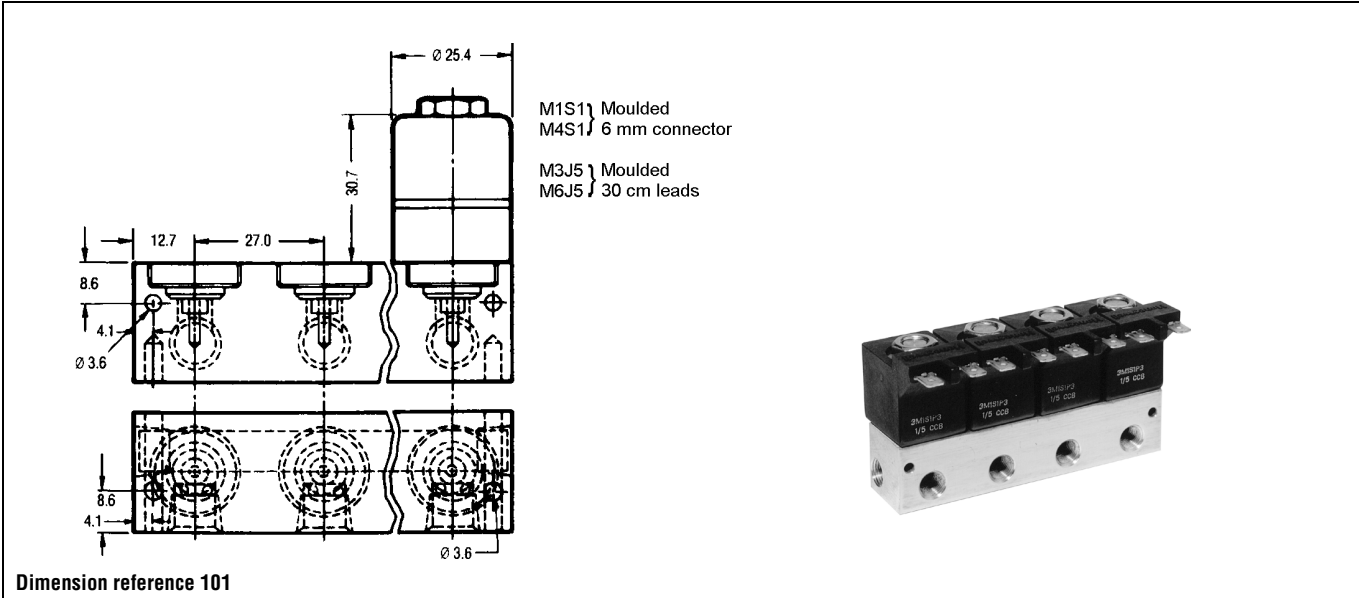


|    |     |      |   |   |   |      |      |    |    |    |     |              |   |   |           |             |     |     |   |     |
|----|-----|------|---|---|---|------|------|----|----|----|-----|--------------|---|---|-----------|-------------|-----|-----|---|-----|
| SB | 1.2 | 0.72 | - | - | 0 | 11.2 | 11.2 | 50 | 50 | 50 | FKM | 3138BJA7EVC# | - | 1 | <b>NO</b> | <b>M1S1</b> | 4.5 | 4.5 | - | 101 |
|    | 1.2 | 0.72 | - | - | 0 | 11.2 | 11.2 | 50 | 50 | 50 | FKM |              |   | 1 | <b>NO</b> | <b>M3J5</b> | 4.5 | 4.5 | - |     |
|    | 1.6 | 1.29 | - | - | 0 | 8.4  | 8.4  | 50 | 50 | 50 | FKM | 3138BJA7GVC# | - | 1 | <b>NO</b> | <b>M1S1</b> | 4.5 | 4.5 | - | 101 |
|    | 1.6 | 1.29 | - | - | 0 | 8.4  | 8.4  | 50 | 50 | 50 | FKM |              |   | 1 | <b>NO</b> | <b>M3J5</b> | 4.5 | 4.5 | - |     |

#### Notes:

1. # Denotes the number of valves in the manifold, from 2 to 4

# Miniature valves 3/2 - Direct operated





# Valves for oil (hydraulic) and neutral liquids applications (max. 75 bar)

3/2

| ACTUATION       | BODY MATERIAL            | FUNCTION        | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|-----------------|--------------------------|-----------------|------------|--------------|---------------------|------|
| Direct operated | Brass body               | Normally closed | 1/4        | 0.8          | 75.0                | 176  |
|                 |                          | Universal       | 1/4        | 0.8          | 30.0                | 176  |
|                 | 303 Stainless steel body | Normally closed | 1/4        | 0.8          | 40.0                | 176  |
| Pilot operated  | Anod. aluminium body     | Normally closed | 1/4        | 8            | 40.0                | 178  |
|                 |                          | Normally open   | 1/4        | 8            | 40.0                | 178  |

**Notes:**

Direct operated valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

# Valves for oil (hydraulic) and neutral liquids applications (max. 75 bar)

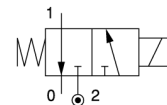
# 3/2



## Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |    |     | Fluid temp. °C | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|----|-----|----------------|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | DC | Max |                |           | AC                | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| G         |              |                      |      |                                      |    |     |                |           |                   |                        |                     |         |                       |    |         |                  |          |

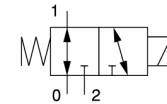
Normally closed



## Brass body/Pipe mounting

|     |     |     |     |   |    |    |     |       |              |               |             |               |    |   |     |   |    |
|-----|-----|-----|-----|---|----|----|-----|-------|--------------|---------------|-------------|---------------|----|---|-----|---|----|
| 1/4 | 0.8 | 0.3 | 2   | 0 | 40 | 40 | 75  | PCTFE | 7131KBG2BF00 | <b>131K05</b> | <b>4270</b> | <b>481000</b> | 8  | 8 | 430 | 2 | 17 |
|     | 0.8 | 0.3 | 2.5 | 0 | -  | 75 | 130 | Ruby  | 7131KBG2BR00 | <b>131K65</b> | <b>4270</b> | <b>481000</b> | -  | 8 | 430 | 2 | 17 |
|     | 0.8 | 0.3 | 2.5 | 0 | 75 | -  | 140 | Ruby  |              |               | <b>4270</b> | <b>486265</b> | 14 | - | 440 | 2 |    |

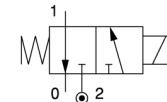
Universal



## Brass body/Pipe mounting

|     |     |     |     |   |    |    |     |     |              |                |             |               |   |   |     |   |    |
|-----|-----|-----|-----|---|----|----|-----|-----|--------------|----------------|-------------|---------------|---|---|-----|---|----|
| 1/4 | 0.8 | 0.3 | 1.6 | 0 | 30 | 30 | 100 | FKM | 7133KBG2BV00 | <b>E133K05</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 310 | 2 | 17 |
|     | 0.8 | 0.3 | 1.6 | 0 | 30 | 30 | 120 | FKM |              |                | <b>4270</b> | <b>481000</b> | 8 | 8 | 430 | 2 |    |

Normally closed



## 303 Stainless steel body/Pipe mounting

|     |     |     |   |   |    |    |     |      |              |               |             |               |   |   |     |   |    |
|-----|-----|-----|---|---|----|----|-----|------|--------------|---------------|-------------|---------------|---|---|-----|---|----|
| 1/4 | 0.8 | 0.3 | 2 | 0 | 40 | 40 | 100 | Ruby | 7131WVG2BR00 | <b>131V65</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 410 | 2 | 16 |
|-----|-----|-----|---|---|----|----|-----|------|--------------|---------------|-------------|---------------|---|---|-----|---|----|

### Notes:

\* See Electrical Parts Group table at end of section



# Valves for oil (hydraulic) and neutral liquids 3/2 - Direct operated

**Dimension reference 16**

**Dimension reference 17**

# Valves for oil (hydraulic) and neutral liquids applications (max. 75 bar)

# 3/2

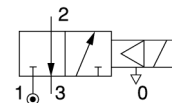


## Pilot operated

| Port size | Orifice (mm) | Flow factors (L/min) |      | Admissible differential pressure bar |     |    | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|--------------------------------------|-----|----|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | kv                   | Qmax | Min                                  | Max |    |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              |                      |      |                                      | DC  | AC |                |           |                        |                     |         |      |                       |    |         |                  |          |

## Anod. aluminium body/Pipe mounting

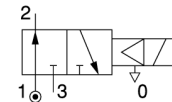
Normally closed



|     |   |    |    |   |    |    |    |     |              |               |   |             |               |   |   |      |   |    |
|-----|---|----|----|---|----|----|----|-----|--------------|---------------|---|-------------|---------------|---|---|------|---|----|
| 1/4 | 8 | 10 | 10 | 1 | 40 | 40 | 75 | NBR | 7331BAG2KN00 | <b>331B02</b> | 1 | <b>2995</b> | <b>481865</b> | 9 | 8 | 880  | 2 | 23 |
|     | 8 | 10 | 10 | 1 | 40 | 40 | 75 | NBR |              |               |   | <b>4270</b> | <b>481000</b> | 8 | 8 | 1000 | 2 |    |

## Anod. aluminium body/Pipe mounting

Normally open

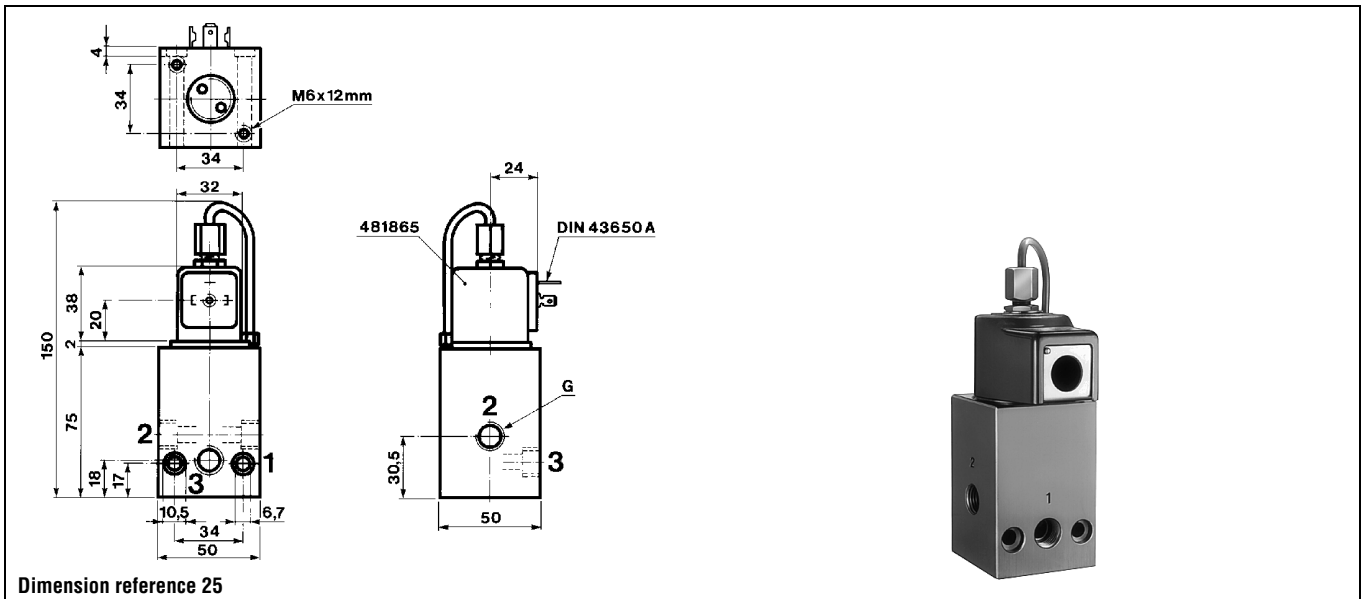
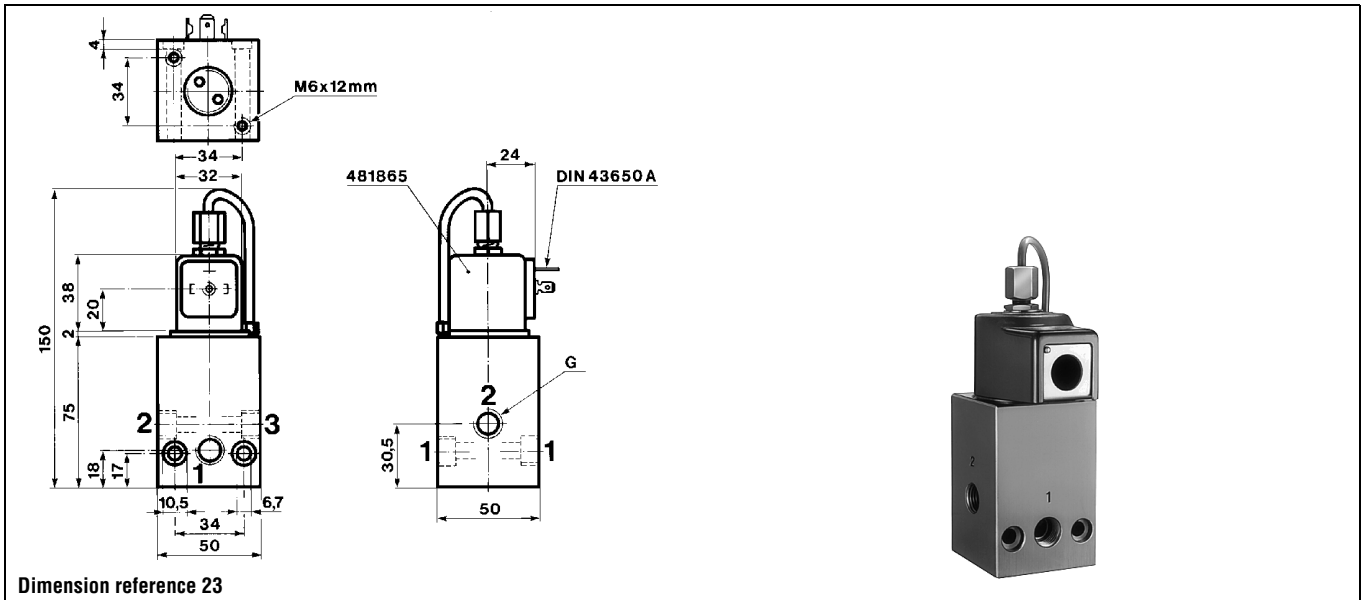


|     |   |    |    |   |    |    |    |     |              |               |   |             |               |   |   |      |   |    |
|-----|---|----|----|---|----|----|----|-----|--------------|---------------|---|-------------|---------------|---|---|------|---|----|
| 1/4 | 8 | 10 | 10 | 1 | 40 | 40 | 75 | NBR | 7332BAG2KN00 | <b>332B02</b> | 1 | <b>2995</b> | <b>481865</b> | 9 | 8 | 880  | 2 | 25 |
|     | 8 | 10 | 10 | 1 | 40 | 40 | 75 | NBR |              |               |   | <b>4270</b> | <b>481000</b> | 8 | 8 | 1000 | 2 |    |

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Pilot seat discs from Kel-F (PCTFE); valve with pilot return pipe

# Valves for oil (hydraulic) and neutral liquids 3/2 - Pilot operated



## Electrical parts options with 3/2 valves for oil (hydraulic) and neutral liquids

| El. part Group | Coil             | Protection class | Protection class / Temperature class | Power        |         | Coil Order No. | Coil Ref. No. | Connection           | Housing Order No. | Housing Ref. No. | Ambient temp. |          |     |    |
|----------------|------------------|------------------|--------------------------------------|--------------|---------|----------------|---------------|----------------------|-------------------|------------------|---------------|----------|-----|----|
|                |                  |                  |                                      | DC           | AC      |                |               |                      |                   |                  | min.          | max.     |     |    |
| 1              | 22 mm            | IP 65            | Class F                              | 2.5 W        | 2 W     | DA01           | 488980        | for DIN plug         | A0                | 8993             | -40           | 50       |     |    |
|                |                  | IP 65            | Class F                              | 2.5 W        | 2 W     | DA02           | 481045        | with DIN plug        | A0                | 8993             | -40           | 50       |     |    |
|                |                  | IP 65            | Class F                              | 5 W          | 4 W     | DA03           | 481180        | for DIN plug         | A0                | 8993             | -40           | 50       |     |    |
|                |                  | IP 65            | Class F                              | 5 W          | 4 W     | DA04           | 481530        | with DIN plug        | A0                | 8993             | -40           | 50       |     |    |
|                |                  | IP 65            | EEx m II T4                          | 5 W          | 4 W     | VA01           | 482605        | with 1500mm cable    | 00                | -                | -40           | 50       |     |    |
|                |                  | IP 65            | EEx m II T5                          | 2.5 W        | 2 W     | VA02           | 482606        | with 1500mm cable    | 00                | -                | -40           | 50       |     |    |
| 2              | 32 mm (Std)      | IP 65            | Class F                              | 9 W          | 8 W     | DZ02           | 481865        | for DIN plug         | N1                | 2995             | -40           | 50       |     |    |
|                |                  | IP 65            |                                      | 9 W          | 8 W     | DZ03           | 482725        | with DIN plug        | N1                | 2995             | -40           | 50       |     |    |
|                |                  | IP 65            | Class H                              | 9 W          | 8 W     | DZ04           | 492453        | for DIN plug         | N1                | 2995             | -40           | 50       |     |    |
|                |                  | IP 65            |                                      | 9 W          | 8 W     | DZ05           | 492726        | with DIN plug        | N1                | 2995             | -40           | 50       |     |    |
|                |                  | IP 65            | Class F, 50/60 Hz                    | -            | 9 W     | DZ06           | 483510        | for DIN plug         | N1                | 2995             | -40           | 50       |     |    |
|                |                  | IP 65            |                                      | -            | 9 W     | DZ07           | 482635        | with DIN plug        | N1                | 2995             | -40           | 50       |     |    |
|                |                  | IP 65            | EEx m II T4                          | 9 W          | 8 W     | HZ05           | 492670        | with 3000mm cable    | 00                | -                | -40           | 40       |     |    |
|                |                  | IP 65            | Class H                              | 14 W         | 14 W    | DZ08           | 492425        | for DIN plug         | N1                | 2995             | -40           | 50       |     |    |
|                |                  | IP 65            |                                      | 14 W         | 14 W    | DZ09           | 492727        | with DIN plug        | N1                | 2995             | -40           | 50       |     |    |
|                | 50 mm (Std)      | IP10 / IP 44     | Class F                              | 8 W          | 8 W     | EZ01           | 481000        | screw-terminals      | E0                | 4270             | -40           | 50       |     |    |
|                |                  | IP10 / IP 44     | Class H                              | 8 W          | 8 W     | EZ02           | 485100        | screw-terminals      | E0                | 4270             | -40           | 50       |     |    |
|                |                  | IP10 / IP 44     | Class H                              | 14 W         | 14 W    | EZ92           | 486265        | screw-terminals      | E0                | 4270             | -40           | 50       |     |    |
|                |                  | IP 67            | Class F, M20x1.5                     | 8 W          | 8 W     | EZ01           | 481000        | screw-terminals      | G1                | 4538             | -40           | 50       |     |    |
|                |                  | IP 65            | EEx m II T5/T4                       | 9 W          | 8 W     | VZ01           | 492070        | with 1500mm cable    | 00                | -                | -40           | 40/65    |     |    |
|                |                  | IP 67            | EEx me II T4                         | 8 W          | 8 W     | HZ06           | 483371        | for cable connection | 00                | -                | -40           | 65       |     |    |
|                |                  | IP 66            | EEx me II T3/T4                      | 11 W         | 9 W     | VZ03           | 492190        | for cable connection | 00                | -                | -40           | 75/40    |     |    |
|                |                  | 3                | 32 mm                                | IP 65        | Class H | -              | 14 W          | DZ08                 | 492425            | for DIN plug     | N1            | 2995     | -40 | 50 |
|                |                  | 4                | 50 mm (impulse)                      | IP10 / IP 44 | Class F | -              | 11 W          | MZ01                 | 484990            | screw-terminals  | E1            | 4269     | -40 | 50 |
| IP10 / IP 44   | Class F          |                  |                                      | 13 W         | -       | MZ02           | 485400        | screw-terminals      | E1                | 4269             | -40           | 50       |     |    |
| 5              | 50 mm            | IP 54            | EEx d IIC T4/T5/T6                   | 8 W          | 8 W     | HZ08           | 483250        | for cable 1/2 NPT    | 00                | -                | -40           | 80/75/60 |     |    |
| 6              | 32 mm (Miniwatt) | IP 65            | Class F                              | 1.6 W        | -       | DZ10           | 482740        | for DIN plug         | N1                | 2995             | -40           | 50       |     |    |
|                |                  | IP 65            | Class F                              | 1.6W         | -       | DZ11           | 482745        | with DIN plug        | N1                | 2995             | -40           | 50       |     |    |
|                | 50 mm (Miniwatt) | IP 67            | EEx me II T5                         | 2.5 W        | -       | VZ04           | 491117        | for cable connection | 00                | -                | -40           | 65       |     |    |
|                |                  | IP 67            | EEx m II T5/T4                       | 2.5 W        | 2.5 W   | VZ05           | 492370        | with 1500mm cable    | 00                | -                | -40           | 40/65    |     |    |
|                |                  | IP 66            | EEx me II T6/T5                      | 2.5 W        | 2.5 W   | VZ06           | 492390        | for cable connection | 00                | -                | -40           | 40/75    |     |    |
| 7              | 32 mm            | IP 65            | EEx ia II C T6                       | 0.4 W        | -       | DZ12           | 483580.01     | for DIN plug         | N1                | 2995             | -40           | 55       |     |    |
|                |                  | IP 65            |                                      | 0.4 W        | -       | DZ13           | 483960.01     | with DIN plug        | N1                | 2995             | -40           | 55       |     |    |
|                | 50 mm            | IP 66            | EEx ia II C T6                       | 0.4 W        | -       | VZ07           | 488650.01     | for cable connection | 00                | -                | -40           | 65       |     |    |
|                |                  | IP 67            |                                      | 0.4 W        | -       | VZ08           | 488660.01     | with 2000mm cable    | 00                | -                | -40           | 65       |     |    |
|                |                  | IP 65            |                                      | 0.4 W        | -       | VZ09           | 488670.01     | with DIN plug        | 00                | -                | -40           | 65       |     |    |

Note: This table is indicative only. Please contact your distributor to confirm your selection.

# High corrosion-resistant valves (Stainless Steel)

3/2

| ACTUATION       | BODY MATERIAL            | FUNCTION        | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|-----------------|--------------------------|-----------------|------------|--------------|---------------------|------|
| Direct operated | 303 Stainless steel body | Normally closed | 1/4        | 1 to 2.5     | 15.0                | 182  |
|                 |                          | Universal       | 1/4        | 1.5 to 2.5   | 10.0                | 182  |

**Notes:**

Direct operated valves: pressure range from 0 to max pressure.

# High corrosion-resistant valves (Stainless Steel)

# 3/2

## Applications

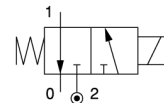
The valves in this section are made of corrosion-resistant material internally and externally. Please refer to the fluid compatibility chart in this catalogue for detailed fluid compatibility.



## Direct operated

| Port size | Orifice (mm) | Flow factors (L/min) |      |          | Admissible differential pressure bar |        |        | Fluid temp. °C |        |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|------|----------|--------------------------------------|--------|--------|----------------|--------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              | Liquids kv           | Qmax | Gases Qn | Min                                  | Max DC | Max AC | Gas            | Liquid | Oil |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              |                      |      |          |                                      |        |        |                |        |     |           |                        |                     |         |      |                       |    |         |                  |          |

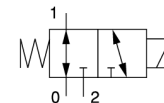
Normally closed



## 303 Stainless steel body/Pipe mounting

|     |     |     |     |     |   |    |    |     |     |     |      |              |                       |      |                        |     |    |     |   |    |
|-----|-----|-----|-----|-----|---|----|----|-----|-----|-----|------|--------------|-----------------------|------|------------------------|-----|----|-----|---|----|
| 1/4 | 1   | 0.6 | 2   | 32  | 0 | 10 | -  | 75  | 75  | -   | FKM  | -            | 131V5490 <sup>1</sup> | -    | 483580.01 <sup>2</sup> | 0.4 | -  | 325 | 7 | 78 |
|     | 1.5 | 1.5 | 6   | 80  | 0 | 15 | 15 | 100 | 100 | 100 | FKM  | 7131VVG2GV00 | 131V5406              | 2995 | 481865                 | 9   | 8  | 410 | 2 | 16 |
|     | 1.5 | 1.5 | 6   | 80  | 0 | 15 | 15 | 120 | 120 | 120 | FKM  |              |                       | 4270 | 481000                 | 8   | 8  | 530 | 2 |    |
|     | 1.5 | 1.5 | 6   | 80  | 0 | 15 | 15 | 100 | 100 | 100 | Ruby | 7131VVG2GR00 | 131V5463              | 2995 | 481865                 | 9   | 8  | 410 | 2 | 16 |
|     | 1.5 | 1.5 | 6   | 80  | 0 | 15 | 15 | 130 | 130 | 130 | Ruby |              |                       | 4270 | 481000                 | 8   | 8  | 530 | 2 |    |
|     | 1.5 | 1.5 | 6   | 80  | 0 | 15 | 15 | 180 | 180 | 180 | Ruby |              |                       | 4270 | 486265                 | 14  | 14 | 540 | 2 |    |
|     | 2.5 | 3.5 | 8.5 | 220 | 0 | 7  | 7  | 100 | 100 | 100 | FKM  | 7131VVG2LV00 | 131V5306              | 2995 | 481865                 | 9   | 8  | 410 | 2 | 16 |
|     | 2.5 | 3.5 | 8.5 | 220 | 0 | 7  | 7  | 120 | 120 | 120 | FKM  |              |                       | 4270 | 481000                 | 8   | 8  | 530 | 2 |    |
|     | 2.5 | 3.5 | 9.5 | 220 | 0 | 7  | 7  | 100 | 100 | 100 | Ruby | 7131VVG2LR00 | 131V5363              | 2995 | 481865                 | 9   | 8  | 410 | 2 | 16 |
|     | 2.5 | 3.5 | 9.5 | 220 | 0 | 7  | 7  | 130 | 130 | 130 | Ruby |              |                       | 4270 | 481000                 | 8   | 8  | 530 | 2 |    |
|     | 2.5 | 3.5 | 9.5 | 220 | 0 | 7  | 7  | 180 | 180 | 180 | Ruby |              |                       | 4270 | 486265                 | 14  | 14 | 540 | 2 |    |

Universal



## 303 Stainless steel body/Pipe mounting

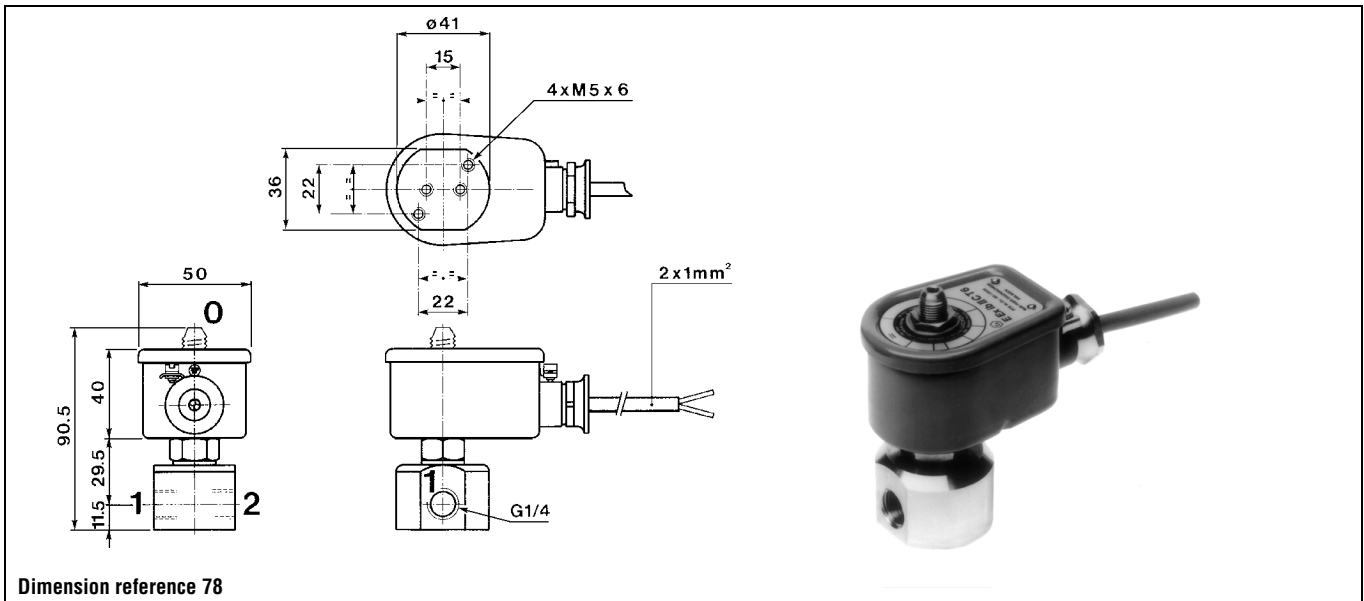
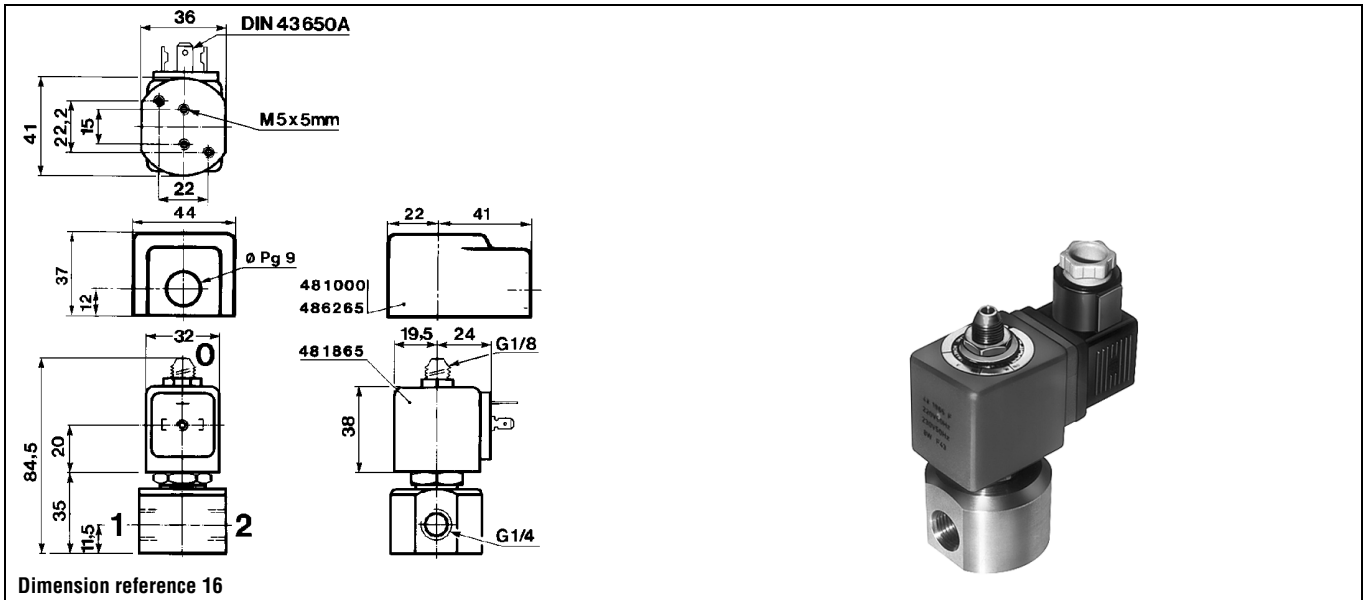
|     |     |     |     |     |   |    |    |     |     |     |      |              |          |      |        |    |    |     |   |    |
|-----|-----|-----|-----|-----|---|----|----|-----|-----|-----|------|--------------|----------|------|--------|----|----|-----|---|----|
| 1/4 | 1.5 | 1.6 | 4.5 | 80  | 0 | 10 | 10 | 100 | 100 | 100 | FKM  | 7133VVG2GV00 | 133V5406 | 2995 | 481865 | 9  | 8  | 410 | 2 | 16 |
|     | 1.5 | 1.6 | 4.5 | 80  | 0 | 10 | 10 | 120 | 120 | 120 | FKM  |              |          | 4270 | 481000 | 8  | 8  | 530 | 2 |    |
|     | 1.5 | 1.6 | 4.5 | 80  | 0 | 10 | 10 | 100 | 100 | 100 | Ruby | 7133VVG2GR00 | 133V5463 | 2995 | 481865 | 9  | 8  | 410 | 2 | 16 |
|     | 1.5 | 1.6 | 4.5 | 80  | 0 | 10 | 10 | 130 | 130 | 130 | Ruby |              |          | 4270 | 481000 | 8  | 8  | 530 | 2 |    |
|     | 1.5 | 1.6 | 4.5 | 80  | 0 | 10 | 10 | 180 | 180 | 180 | Ruby |              |          | 4270 | 486265 | 14 | 14 | 540 | 2 |    |
|     | 2.5 | 3.5 | 8.5 | 220 | 0 | 4  | 4  | 100 | 100 | 100 | FKM  | 7133VVG2LV00 | 133V5306 | 2995 | 481865 | 9  | 8  | 410 | 2 | 16 |
|     | 2.5 | 3.5 | 8.5 | 220 | 0 | 4  | 4  | 120 | 120 | 120 | FKM  |              |          | 4270 | 481000 | 8  | 8  | 530 | 2 |    |
|     | 2.5 | 3.5 | 8.5 | 220 | 0 | 4  | 4  | 100 | 100 | 100 | Ruby | 7133VVG2LR00 | 133V5363 | 2995 | 481865 | 9  | 8  | 410 | 2 | 16 |
|     | 2.5 | 3.5 | 8.5 | 220 | 0 | 4  | 4  | 130 | 130 | 130 | Ruby |              |          | 4270 | 481000 | 8  | 8  | 530 | 2 |    |
|     | 2.5 | 3.5 | 8.5 | 220 | 0 | 4  | 4  | 180 | 180 | 180 | Ruby |              |          | 4270 | 486265 | 14 | 14 | 540 | 2 |    |

### Notes:

\* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 488670.01 (refer to electrical parts at end of this section)
2. This reference no. is for the complete electrical part (coil + housing)

# High corrosion-resistant valves (Stainless Steel) 3/2 - Direct operated



## Electrical parts options with 3/2 high corrosion resistant stainless steel valves

| El. part Group | Coil             | Protection class | Protection class / Temperature class | Power |       | Coil Order No. | Coil Ref. No. | Connection           | Housing Order No. | Housing Ref. No. | Ambient temp. |          |
|----------------|------------------|------------------|--------------------------------------|-------|-------|----------------|---------------|----------------------|-------------------|------------------|---------------|----------|
|                |                  |                  |                                      | DC    | AC    |                |               |                      |                   |                  | min.          | max.     |
| 1              | 22 mm            | IP 65            | Class F                              | 2.5 W | 2 W   | DA01           | 488980        | for DIN plug         | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 2.5 W | 2 W   | DA02           | 481045        | with DIN plug        | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA03           | 481180        | for DIN plug         | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W   | 4 W   | DA04           | 481530        | with DIN plug        | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 5 W   | 4 W   | VA01           | 482605        | with 1500mm cable    | 00                | -                | -40           | 50       |
|                |                  | IP 65            | EEx m II T5                          | 2.5 W | 2 W   | VA02           | 482606        | with 1500mm cable    | 00                | -                | -40           | 50       |
| 2              | 32 mm (Std)      | IP 65            | Class F                              | 9 W   | 8 W   | DZ02           | 481865        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ03           | 482725        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class H                              | 9 W   | 8 W   | DZ04           | 492453        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ05           | 492726        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class F, 50/60 Hz                    | -     | 9 W   | DZ06           | 483510        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | -     | 9 W   | DZ07           | 482635        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 9 W   | 8 W   | HZ05           | 492670        | with 3000mm cable    | 00                | -                | -40           | 40       |
|                |                  | IP 65            | Class H                              | 14 W  | 14 W  | DZ08           | 492425        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                | 50 mm (Std)      | IP10 / IP 44     | Class F                              | 8 W   | 8 W   | EZ01           | 481000        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 8 W   | 8 W   | EZ02           | 485100        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP10 / IP 44     | Class H                              | 14 W  | 14 W  | EZ92           | 486265        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP 67            | Class F, M20x1.5                     | 8 W   | 8 W   | EZ01           | 481000        | screw-terminals      | G1                | 4538             | -40           | 50       |
|                |                  | IP 65            | EEx m II T5/T4                       | 9 W   | 8 W   | VZ01           | 492070        | with 1500mm cable    | 00                | -                | -40           | 40/65    |
|                |                  | IP 67            | EEx me II T4                         | 8 W   | 8 W   | HZ06           | 483371        | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 66            | EEx me II T3/T4                      | 11 W  | 9 W   | VZ03           | 492190        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  |                  |                                      |       |       |                |               |                      |                   |                  |               |          |
| 3              | 32 mm            | IP 65            | Class H                              | -     | 14 W  | DZ08           | 492425        | for DIN plug         | N1                | 2995             | -40           | 50       |
| 4              | 50 mm (impulse)  | IP10 / IP 44     | Class F                              | -     | 11 W  | MZ01           | 484990        | screw-terminals      | E1                | 4269             | -40           | 50       |
|                |                  | IP10 / IP 44     | Class F                              | 13 W  | -     | MZ02           | 485400        | screw-terminals      | E1                | 4269             | -40           | 50       |
| 5              | 50 mm            | IP 54            | EEx d IIC T4/T5/T6                   | 8 W   | 8 W   | HZ08           | 483250        | for cable 1/2 NPT    | 00                | -                | -40           | 80/75/60 |
| 6              | 32 mm (Miniwatt) | IP 65            | Class F                              | 1.6 W | -     | DZ10           | 482740        | for DIN plug         | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 1.6W  | -     | DZ11           | 482745        | with DIN plug        | N1                | 2995             | -40           | 50       |
|                | 50 mm (Miniwatt) | IP 67            | EEx me II T5                         | 2.5 W | -     | VZ04           | 491117        | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 67            | EEx m II T5/T4                       | 2.5 W | 2.5 W | VZ05           | 492370        | with 1500mm cable    | 00                | -                | -40           | 40/65    |
|                |                  | IP 66            | EEx me II T6/T5                      | 2.5 W | 2.5 W | VZ06           | 492390        | for cable connection | 00                | -                | -40           | 40/75    |
| 7              | 32 mm            | IP 65            | EEx ia II C T6                       | 0.4 W | -     | DZ12           | 483580.01     | for DIN plug         | N1                | 2995             | -40           | 55       |
|                |                  | IP 65            |                                      | 0.4 W | -     | DZ13           | 483960.01     | with DIN plug        | N1                | 2995             | -40           | 55       |
|                | 50 mm            | IP 66            | EEx ia II C T6                       | 0.4 W | -     | VZ07           | 488650.01     | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 67            |                                      | 0.4 W | -     | VZ08           | 488660.01     | with 2000mm cable    | 00                | -                | -40           | 65       |
|                |                  | IP 65            |                                      | 0.4 W | -     | VZ09           | 488670.01     | with DIN plug        | 00                | -                | -40           | 65       |

Note: This table is indicative only. Please contact your distributor to confirm your selection.



# 3- & 4-way valves for pneumatic applications

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## Applications



AIR



# 4-way pneumatic valves for pipe connection/sub-base mounting

| ACTUATION                              | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE            |
|--|------------|--------------|---------------------|-----------------|
| Pilot operated                         | 1/8        | 4            | 10.0                | 196             |
|  | 1/4        | 6 to 8       | 40.0                | 188/198/202/204 |
|  | 3/8        | 8            | 15.0                | 200             |
|  | 1/2        | 14           | 15.0                | 212             |
|  | SB         | 4 to 15      | 10.0                | 190/214/216     |
|  | CETOP      | 6            | 10.0                | 216             |
| Impulse coil                           | 1/4        | 8            | 15.0                | 192/200         |
|  | 1/2        | 14           | 15.0                | 212             |
|  | SB         | 15           | 10.0                | 194/216         |
|  | CETOP      | 6            | 10.0                | 220             |
| Two solenoids and main pressure supply | 1/8        | 4            | 10.0                | 198             |
|  | 1/4        | 8            | 10.0                | 206/208         |
|  | SB         | 4            | 10.0                | 214             |
| External pressure supply               | CETOP      | 6            | 10.0                | 218             |
| Double external pressure supply        | 1/4        | 8            | 10.0                | 210             |

**Notes:**

Pilot operated valves: pressure range from 1 or 2 bar to max. pressure (refer to tables).

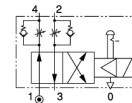
# 4-way pneumatic valves for pipe connection/sub-base mounting

# 4/2



| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |  | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|--|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max |  |                       |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

4/2 - Pilot operated -



## Anod. aluminium body/Pipe mounting

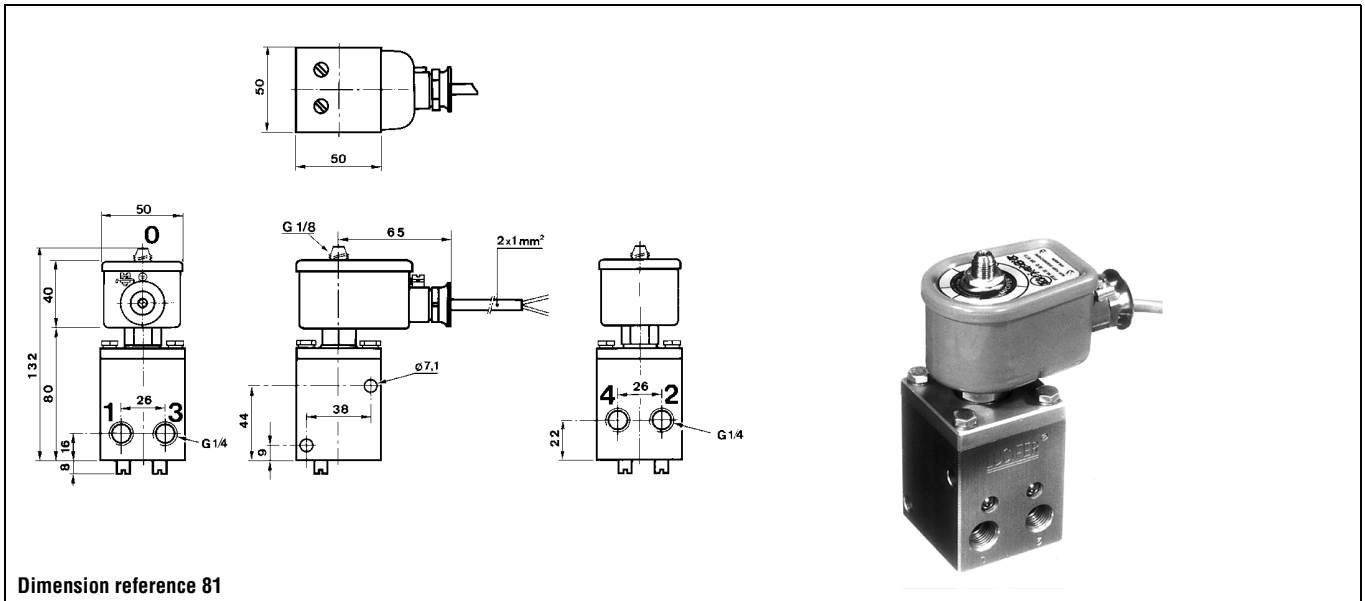
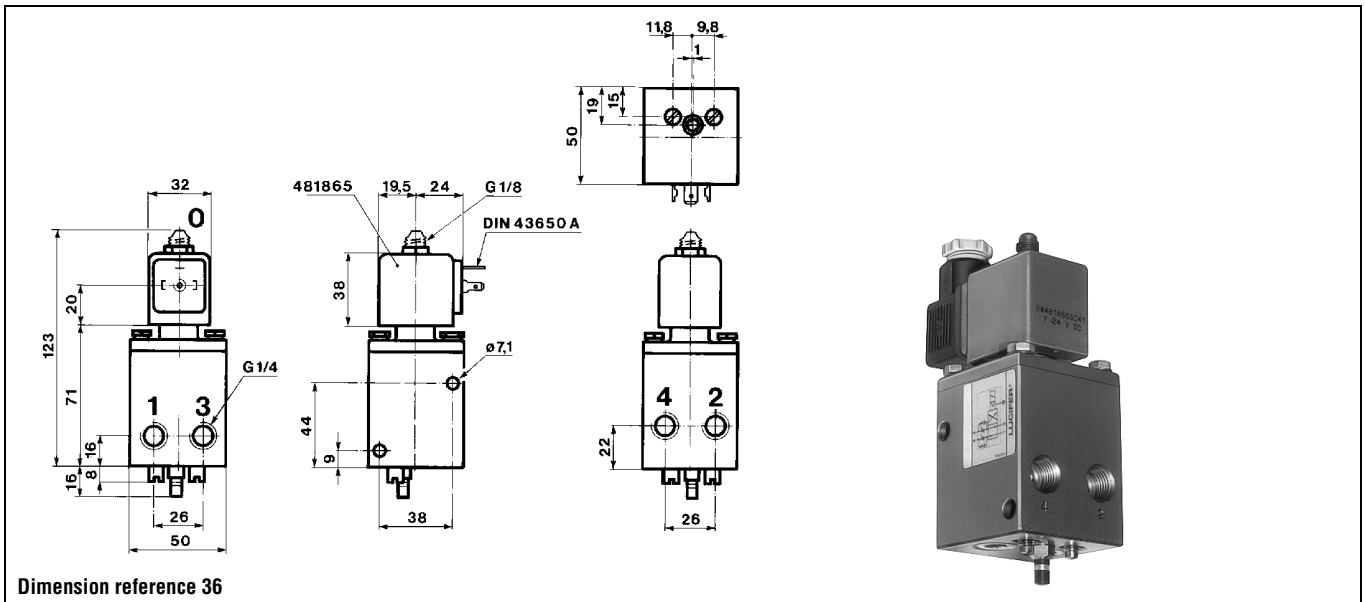
|     |   |     |   |    |    |    |     |              |                 |   |             |                  |     |   |     |   |    |
|-----|---|-----|---|----|----|----|-----|--------------|-----------------|---|-------------|------------------|-----|---|-----|---|----|
| 1/4 | 6 | 630 | 1 | 10 | 10 | 75 | NBR | 7341BAG2JNMO | <b>341B3403</b> | 1 | <b>2995</b> | <b>481865</b>    | 9   | 8 | 700 | 2 | 36 |
|     | 6 | 630 | 1 | 10 | 10 | 75 | NBR |              |                 |   | <b>4270</b> | <b>481000</b>    | 8   | 8 | 820 | 2 |    |
|     | 6 | 630 | 1 | 10 | 10 | 75 | NBR | 7341BAG2JNMR | <b>341B34</b>   | 2 | <b>2995</b> | <b>481865</b>    | 9   | 8 | 700 | 2 | 36 |
|     | 6 | 630 | 1 | 10 | 10 | 75 | NBR |              |                 |   | <b>4270</b> | <b>481000</b>    | 8   | 8 | 820 | 2 |    |
|     | 6 | 630 | 1 | 10 | -  | 75 | NBR | 7341BAG2JNL8 | <b>341B3480</b> | 2 | <b>2995</b> | <b>482740</b>    | 1.6 | - | 700 | 6 | 36 |
|     | 6 | 560 | 1 | 10 | -  | 75 | NBR | -            | <b>341B3490</b> | 3 | -           | <b>483580.01</b> | 0.4 | - | 665 | 7 | 81 |

Table continued on page 190

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Without flow regulators
- 2. Flow regulating screws standard
- 3. Other coil-housing available: 488650.01, 488660.01, 488670.01 (refer to electrical parts at end of this section)
- 4. This reference no. is for the complete electrical part (coil + housing)

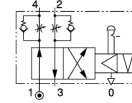
# 4-way pneumatic valves for pipe connection/sub-base mounting



## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |  | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|--|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max |  |                       |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

4/2 - Pilot operated -



### Anod. aluminium body/Sub-base mounting

|    |   |     |   |    |    |    |     |              |                 |   |             |               |   |   |     |   |    |
|----|---|-----|---|----|----|----|-----|--------------|-----------------|---|-------------|---------------|---|---|-----|---|----|
| SB | 6 | 630 | 1 | 10 | 10 | 75 | NBR | 7341FAS3JNM0 | <b>341F3403</b> | 1 | <b>2995</b> | <b>481865</b> | 9 | 8 | 700 | 2 | 37 |
|    | 6 | 630 | 1 | 10 | 10 | 75 | NBR |              |                 |   | <b>4270</b> | <b>481000</b> | 8 | 8 | 820 | 2 |    |
|    | 6 | 630 | 1 | 10 | 10 | 75 | NBR | 7341FAS3JNMR | <b>341F34</b>   | 2 | <b>2995</b> | <b>481865</b> | 9 | 8 | 700 | 2 | 37 |
|    | 6 | 630 | 1 | 10 | 10 | 75 | NBR |              |                 |   | <b>4270</b> | <b>481000</b> | 8 | 8 | 820 | 2 |    |

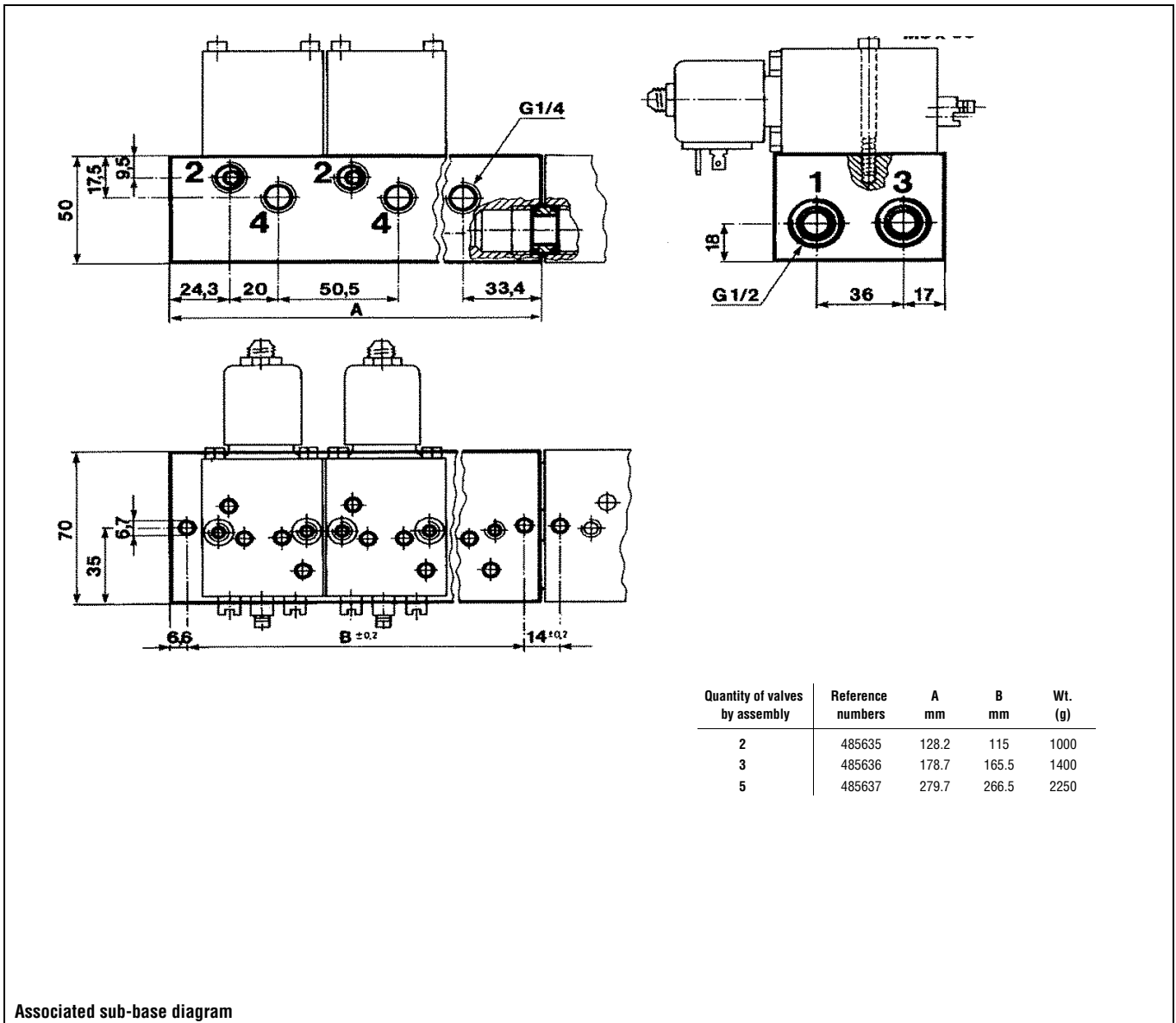
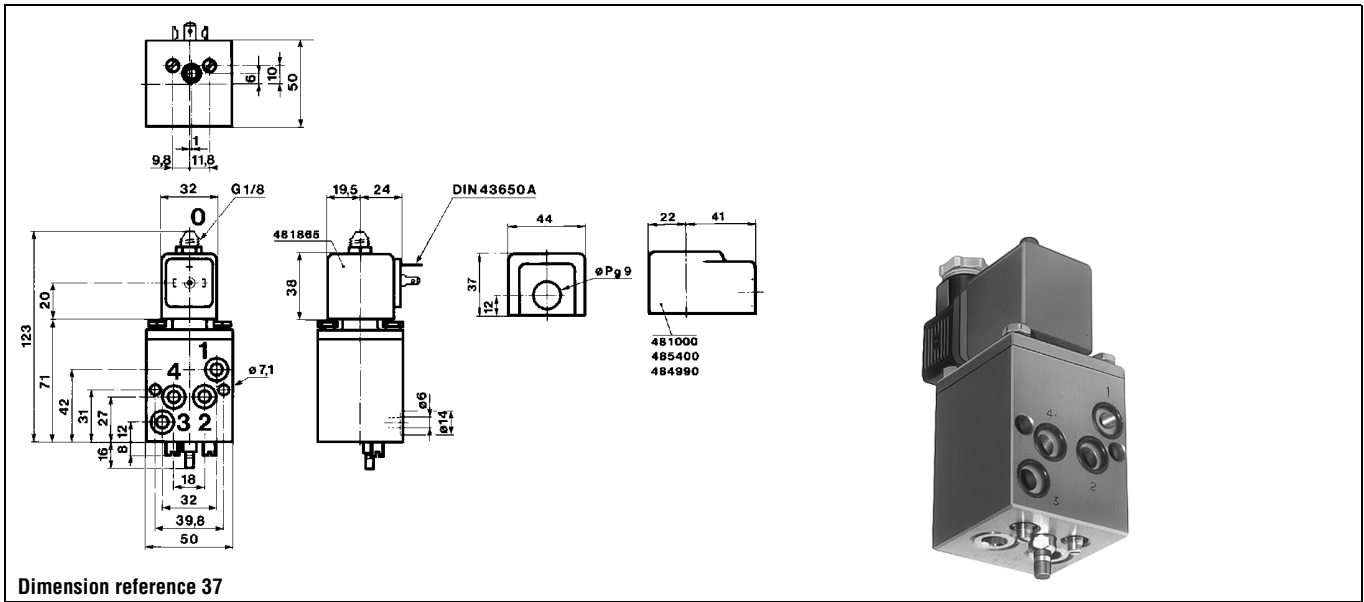
Table continued on page 192

#### Notes:

\* See Electrical Parts Group table at end of section

1. Without flow regulators
2. Flow regulating screws standard

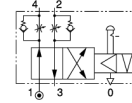
# 4-way pneumatic valves for pipe connection/sub-base mounting



## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |  | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|--|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max |  |                       |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

4/2 - Impulse coil -



### Anod. aluminium body/Pipe mounting

|     |   |     |   |    |    |    |     |              |               |   |             |               |    |    |     |   |    |
|-----|---|-----|---|----|----|----|-----|--------------|---------------|---|-------------|---------------|----|----|-----|---|----|
| 1/4 | 6 | 630 | 1 | -  | 10 | 75 | NBR | 7345BAG2JNMR | <b>345B34</b> | 1 | <b>4269</b> | <b>484990</b> | -  | 11 | 840 | 4 | 36 |
|     | 6 | 630 | 1 | 10 | -  | 75 | NBR |              |               |   | <b>4269</b> | <b>485400</b> | 13 | -  | 840 | 4 |    |

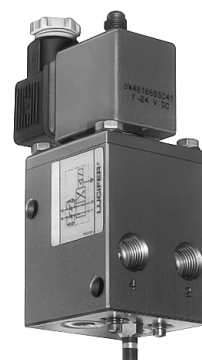
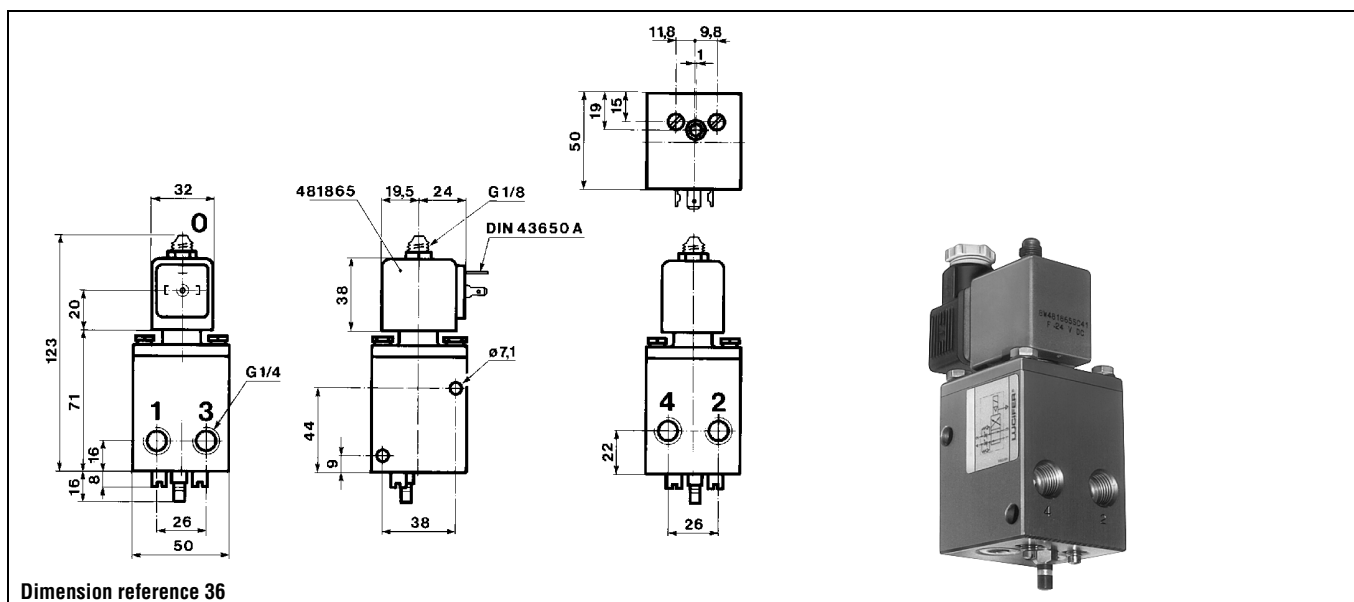
Table continued on page 194

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Flow regulating screws standard



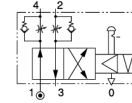
## 4-way pneumatic valves for pipe connection/sub-base mounting



## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |    | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |  |
|-----------|--------------|----------------------------|--------------------------------------|-----|----|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|--|
|           |              |                            | Min                                  | Max |    |                       |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |  |
| G         |              |                            |                                      | DC  | AC |                       |           |                        |                     |         |      |                       |    |         |                  |          |  |

4/2 - Impulse coil -



### Anod. aluminium body/Sub-base mounting

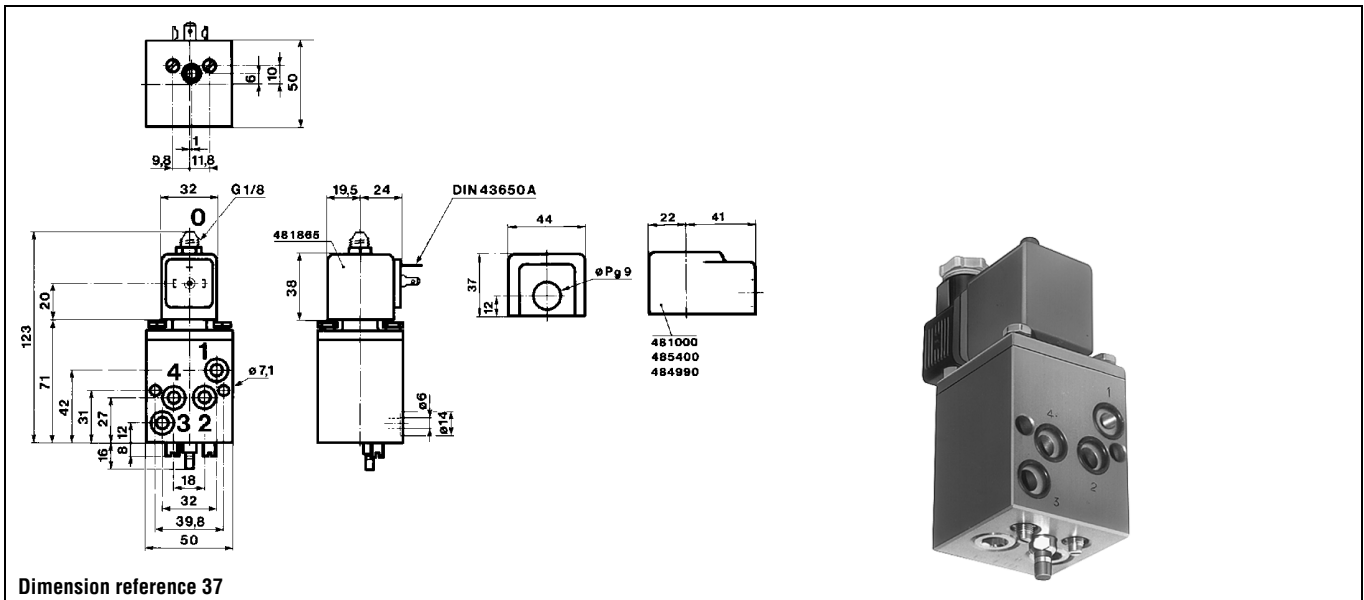
|    |   |     |   |    |    |    |     |              |        |   |      |        |      |        |     |   |     |
|----|---|-----|---|----|----|----|-----|--------------|--------|---|------|--------|------|--------|-----|---|-----|
| SB | 6 | 630 | 1 | -  | 10 | 75 | NBR | 7345FAS3JNMR | 345F34 | 1 | 4269 | 484990 | -    | 11     | 840 | 4 | 37  |
|    | 6 | 630 | 1 | 10 | -  | 75 | NBR |              |        |   |      |        | 4269 | 485400 | 13  | - | 840 |

#### Notes:

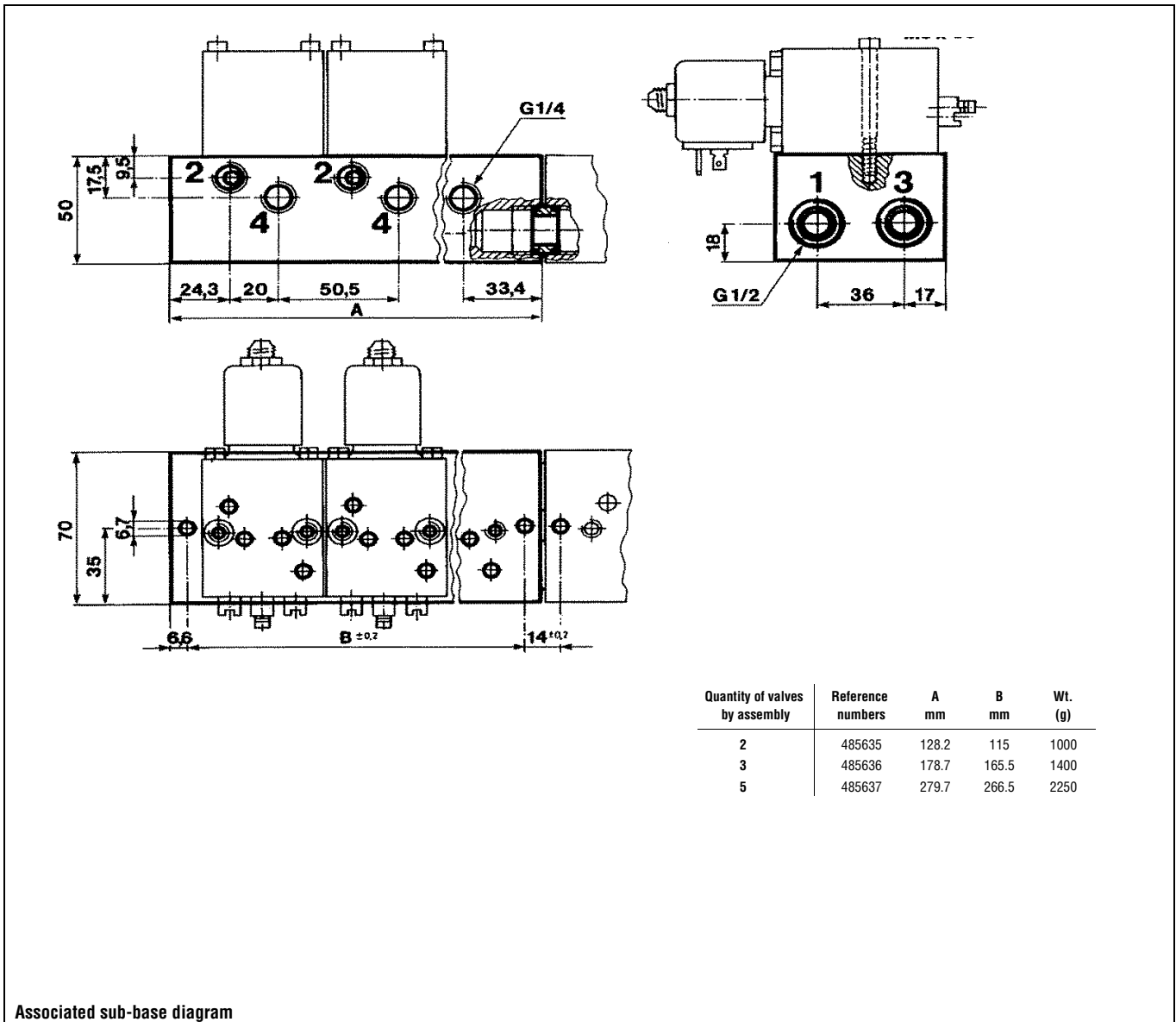
\* See Electrical Parts Group table at end of section

1. Flow regulating screws standard

# 4-way pneumatic valves for pipe connection/sub-base mounting



Dimension reference 37



Associated sub-base diagram

| Quantity of valves by assembly | Reference numbers | A mm  | B mm  | Wt. (g) |
|--------------------------------|-------------------|-------|-------|---------|
| 2                              | 485635            | 128.2 | 115   | 1000    |
| 3                              | 485636            | 178.7 | 165.5 | 1400    |
| 5                              | 485637            | 279.7 | 266.5 | 2250    |

# 4-way pneumatic valves for pipe connection/sub-base mounting

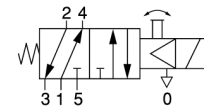
# 5/2



| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |    | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |    |
|-----------|--------------|----------------------------|--------------------------------------|-----|----|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|----|
|           |              |                            | Min                                  | Max |    |                       |           | Global valve reference | Valve reference no. | Housing | Coil | OR                    | DC |         |                  |          | AC |
| G         |              |                            |                                      | DC  | AC |                       |           |                        |                     |         |      |                       |    |         |                  |          |    |

## Aluminium alloy and brass body/Pipe mounting

5/2 - Pilot operated -



|     |   |     |   |    |    |    |     |   |          |      |        |     |   |     |   |    |
|-----|---|-----|---|----|----|----|-----|---|----------|------|--------|-----|---|-----|---|----|
| 1/8 | 4 | 400 | 1 | 10 | 10 | 75 | NBR | - | 341L9101 | 8993 | 488980 | 2.5 | 2 | 270 | 1 | 42 |
|-----|---|-----|---|----|----|----|-----|---|----------|------|--------|-----|---|-----|---|----|

Table continued on page 198

### Notes:

\* See Electrical Parts Group table at end of section

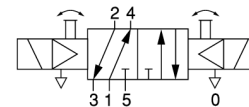


## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |  | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|--|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max |  |                       |           | Global valve reference | Valve reference no. | Housing | Coil | OR                    | DC |         |                  |          |

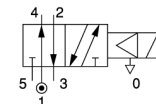
### Aluminium alloy and brass body/Pipe mounting

5/2 - Two solenoids and main pressure supply -



|     |   |     |   |    |    |    |     |   |                 |             |                 |     |   |     |   |     |
|-----|---|-----|---|----|----|----|-----|---|-----------------|-------------|-----------------|-----|---|-----|---|-----|
| 1/8 | 4 | 315 | 2 | 10 | 10 | 75 | NBR | - | <b>347L9101</b> | <b>8993</b> | <b>488980</b> 1 | 2.5 | 2 | 430 | 1 | 117 |
|-----|---|-----|---|----|----|----|-----|---|-----------------|-------------|-----------------|-----|---|-----|---|-----|

5/2 - Pilot operated -



### Anod. aluminium body/Pipe mounting

|     |   |      |   |    |    |    |     |              |                 |             |               |   |   |      |   |    |
|-----|---|------|---|----|----|----|-----|--------------|-----------------|-------------|---------------|---|---|------|---|----|
| 1/4 | 8 | 640  | 1 | 40 | 40 | 75 | NBR | 7341BAG2KN00 | <b>341B02</b> 2 | <b>2995</b> | <b>481865</b> | 9 | 8 | 1700 | 2 | 39 |
|     | 8 | 640  | 1 | 40 | 40 | 75 | NBR |              |                 | <b>4270</b> | <b>481000</b> | 8 | 8 | 1800 | 2 |    |
|     | 8 | 1000 | 1 | 15 | 15 | 75 | NBR | 7341BAG2PN00 | <b>E341B01</b>  | <b>2995</b> | <b>481865</b> | 9 | 8 | 1700 | 2 | 38 |
|     | 8 | 1000 | 1 | 15 | 15 | 75 | NBR |              |                 | <b>4270</b> | <b>481000</b> | 8 | 8 | 1800 | 2 |    |

Table continued on page 200

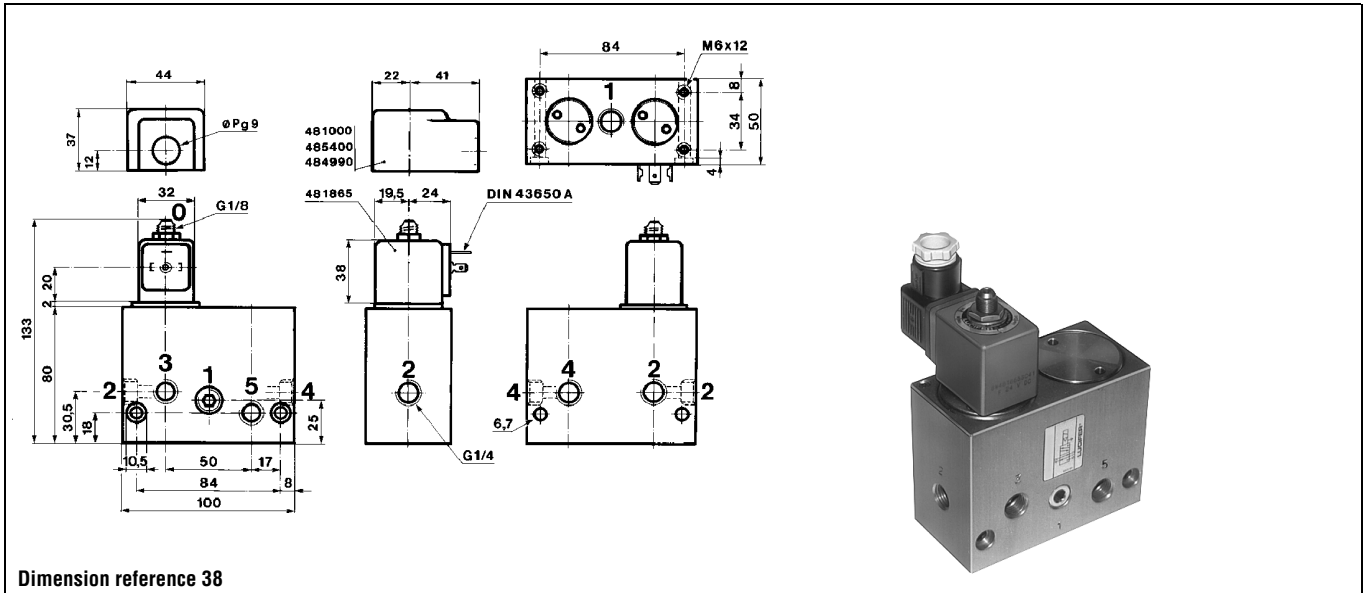
#### Notes:

\* See Electrical Parts Group table at end of section

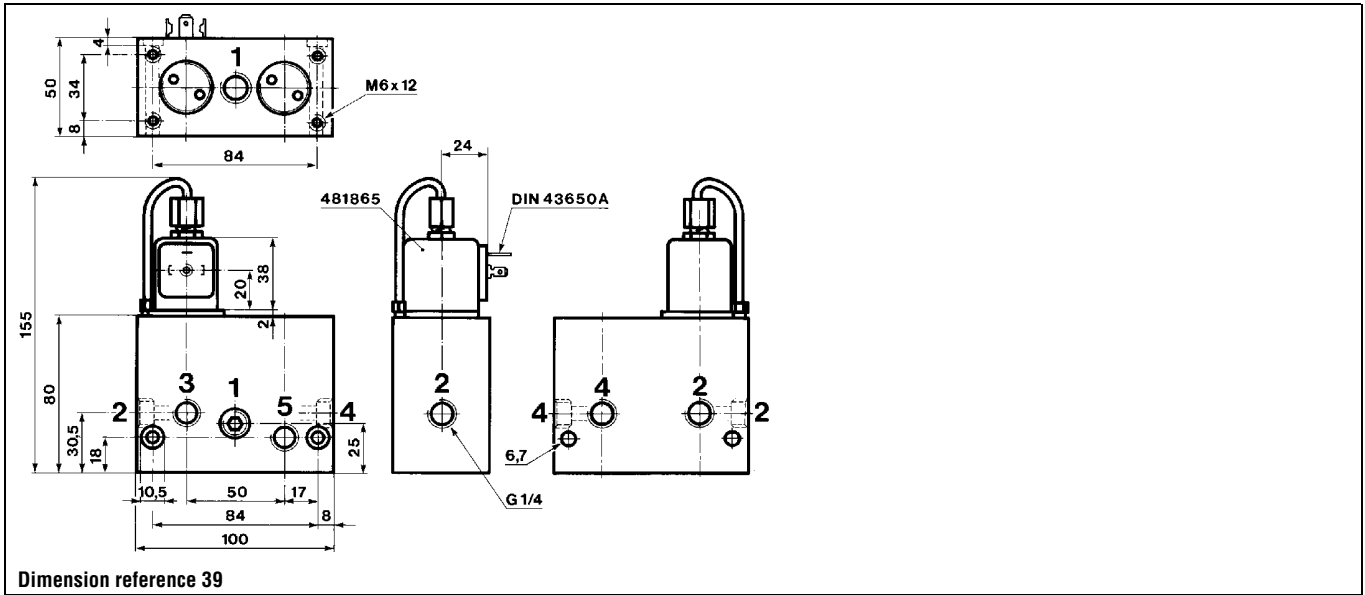
1. Please order two of these items per valve

2. Valve with pilot return pipe on exhaust port

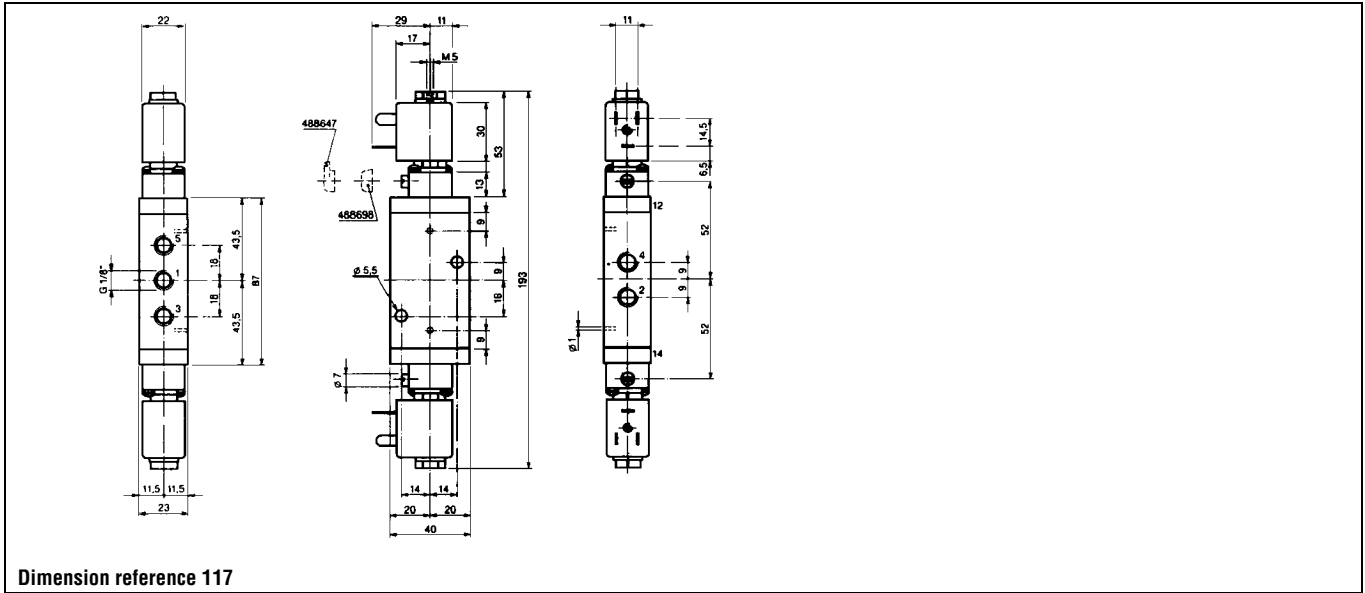
# 4-way pneumatic valves for pipe connection/sub-base mounting



Dimension reference 38



Dimension reference 39



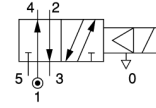
Dimension reference 117

## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |  | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|--|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max |  |                       |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

### Anod. aluminium body/Pipe mounting

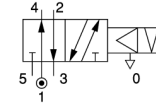
5/2 - Pilot operated -



|     |   |      |   |    |    |    |     |              |                |      |               |   |   |      |   |    |
|-----|---|------|---|----|----|----|-----|--------------|----------------|------|---------------|---|---|------|---|----|
| 3/8 | 8 | 1000 | 1 | 15 | 15 | 75 | NBR | 7341BAG3PN00 | <b>E341B11</b> | 2995 | <b>481865</b> | 9 | 8 | 1700 | 2 | 40 |
|     | 8 | 1000 | 1 | 15 | 15 | 75 | NBR |              |                | 4270 | <b>481000</b> | 8 | 8 | 1800 | 2 |    |

### Anod. aluminium body/Pipe mounting

5/2 - Impulse coil -



|     |   |      |   |    |    |    |     |              |               |      |               |    |    |      |   |    |
|-----|---|------|---|----|----|----|-----|--------------|---------------|------|---------------|----|----|------|---|----|
| 1/4 | 8 | 1000 | 1 | -  | 15 | 75 | NBR | 7345BAG2PN00 | <b>345B04</b> | 4269 | <b>484990</b> | -  | 11 | 1800 | 4 | 38 |
|     | 8 | 1000 | 1 | 15 | -  | 75 | NBR |              |               | 4269 | <b>485400</b> | 13 | -  | 1800 | 4 |    |

Table continued on page 202

#### Notes:

\* See Electrical Parts Group table at end of section



# 4-way pneumatic valves for pipe connection/sub-base mounting

481000  
485400  
484990

481865

DIN 43650 A

G1/8

G1/4

Dimension reference 38

M6x12

DIN 43650 A

G1/8

G3/8

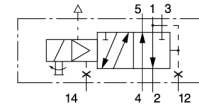
Dimension reference 40

## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |    | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |  |
|-----------|--------------|----------------------------|--------------------------------------|-----|----|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|--|
|           |              |                            | Min                                  | Max |    |                       |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |  |
| G         |              |                            |                                      | DC  | AC |                       |           |                        |                     |         |      |                       |    |         |                  |          |  |

### Die-cast zinc body/Pipe mounting

5/2 - Pilot operated -



|     |   |      |   |    |    |    |     |   |        |      |        |     |   |     |   |     |
|-----|---|------|---|----|----|----|-----|---|--------|------|--------|-----|---|-----|---|-----|
| 1/4 | 8 | 1400 | 1 | 10 | 10 | 75 | NBR | - | 341L11 | 8993 | 488980 | 2.5 | 2 | 690 | 1 | 118 |
|-----|---|------|---|----|----|----|-----|---|--------|------|--------|-----|---|-----|---|-----|

Table continued on page 204

#### Notes:

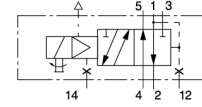
\* See Electrical Parts Group table at end of section



## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |  | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|--|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max |  |                       |           | Global valve reference | Valve reference no. | Housing | Coil | OR                    | DC |         |                  |          |

5/2 - Pilot operated -



### Die-cast zinc body/Pipe mounting

|     |   |      |   |    |    |    |     |              |                  |             |                    |     |   |     |   |      |
|-----|---|------|---|----|----|----|-----|--------------|------------------|-------------|--------------------|-----|---|-----|---|------|
| 1/4 | 8 | 1400 | 1 | 10 | 10 | 75 | NBR | -            | <b>341L1190</b>  | -           | <b>483580.01</b> 1 | 0.4 | - | 690 | 7 | 7478 |
|     | 8 | 1400 | 1 | 10 | 10 | 75 | NBR | 7341LMG2NNM0 | <b>E341L1130</b> | <b>2995</b> | <b>481865</b>      | 9   | 8 | -   | 2 | 3539 |
|     | 8 | 1400 | 1 | 10 | 10 | 75 | NBR |              |                  | <b>4270</b> | <b>481000</b>      | 8   | 8 | -   | 2 |      |

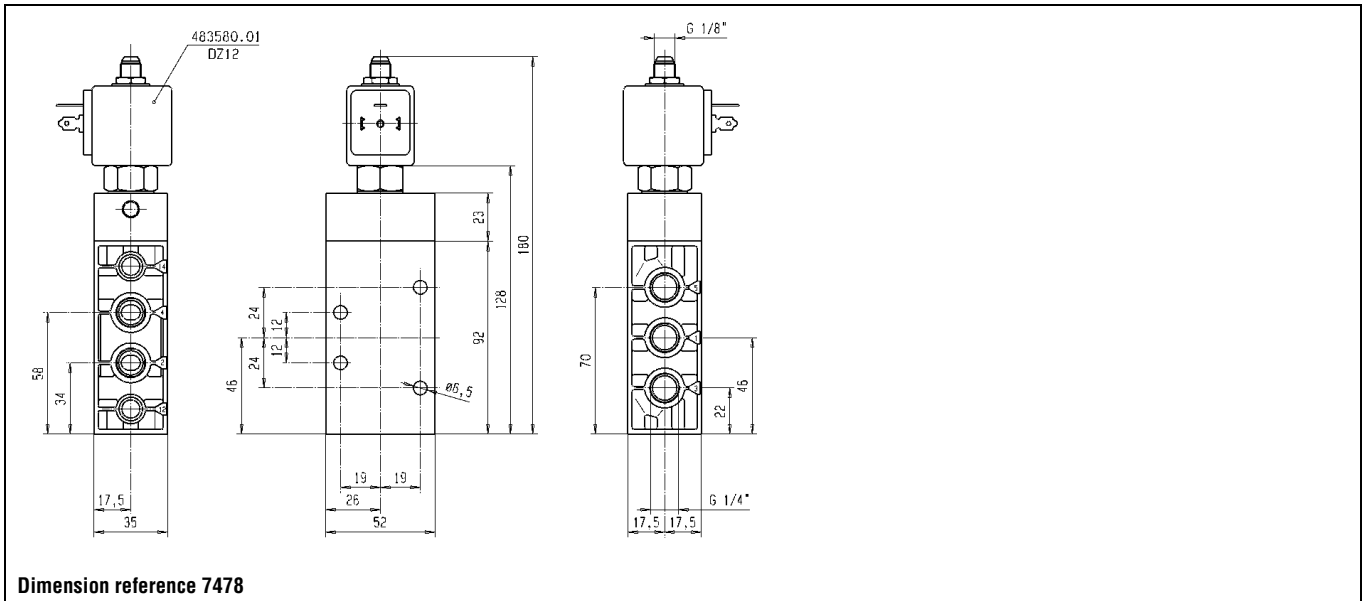
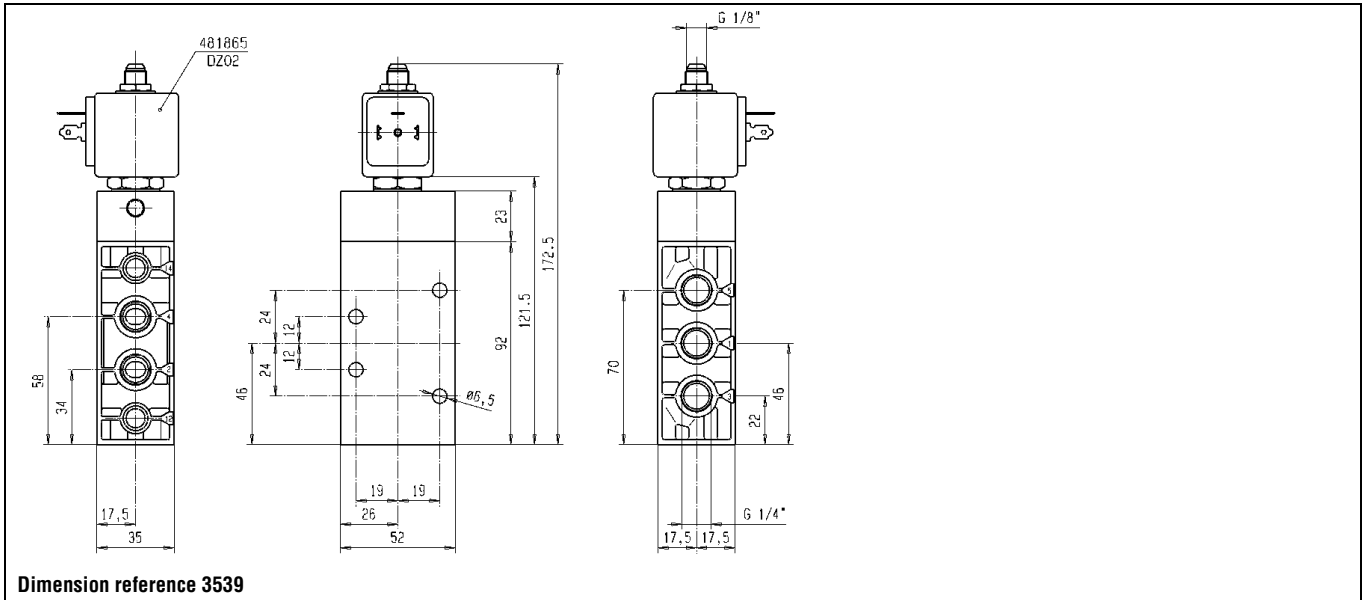
Table continued on page 206

#### Notes:

\* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

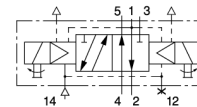
# 4-way pneumatic valves for pipe connection/sub-base mounting



## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |    | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |  |
|-----------|--------------|----------------------------|--------------------------------------|-----|----|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|--|
|           |              |                            | Min                                  | Max |    |                       |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |  |
| G         |              |                            |                                      | DC  | AC |                       |           |                        |                     |         |      |                       |    |         |                  |          |  |

5/2 - Two solenoids and main pressure supply -



### Die-cast zinc body/Pipe mounting

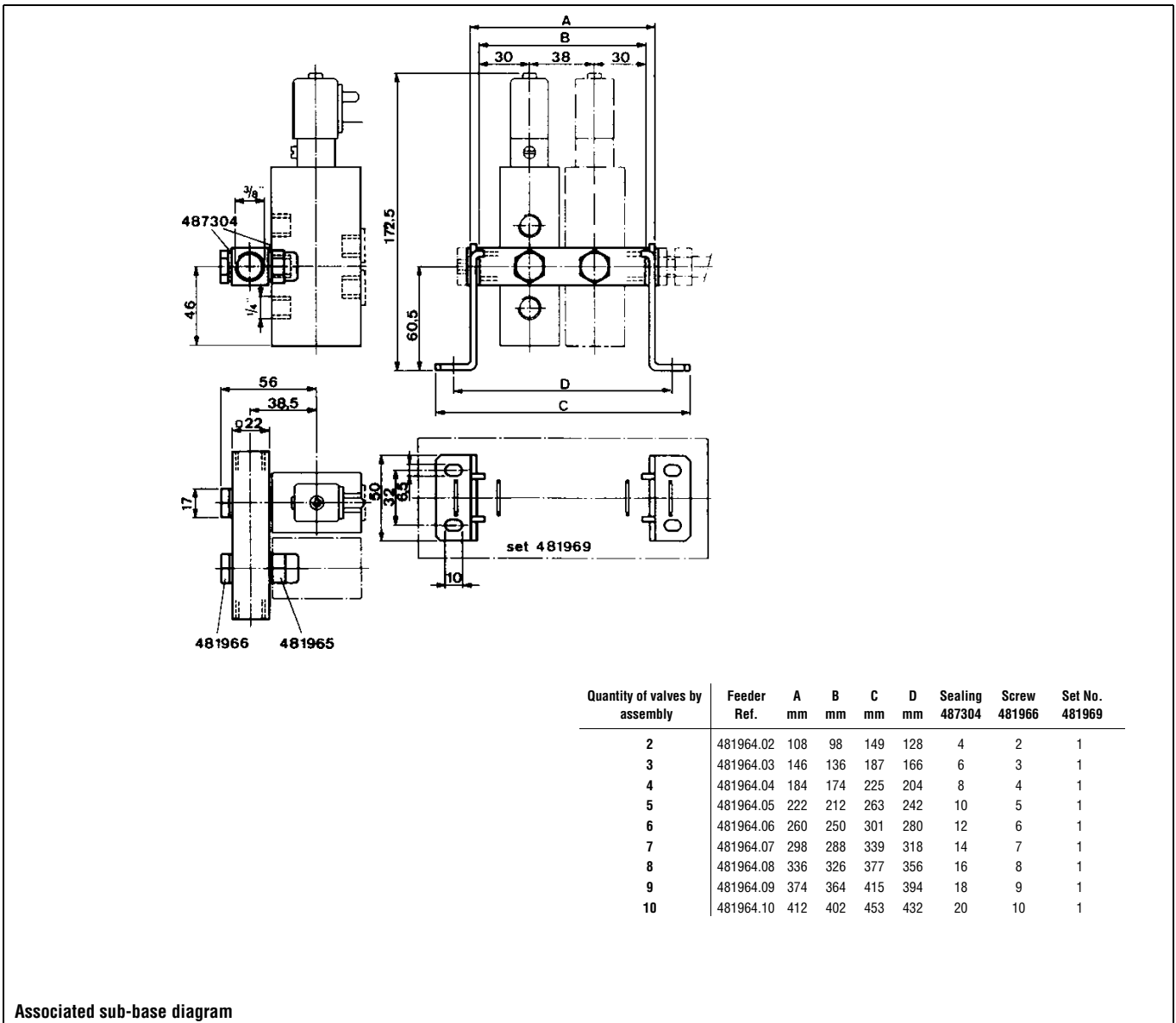
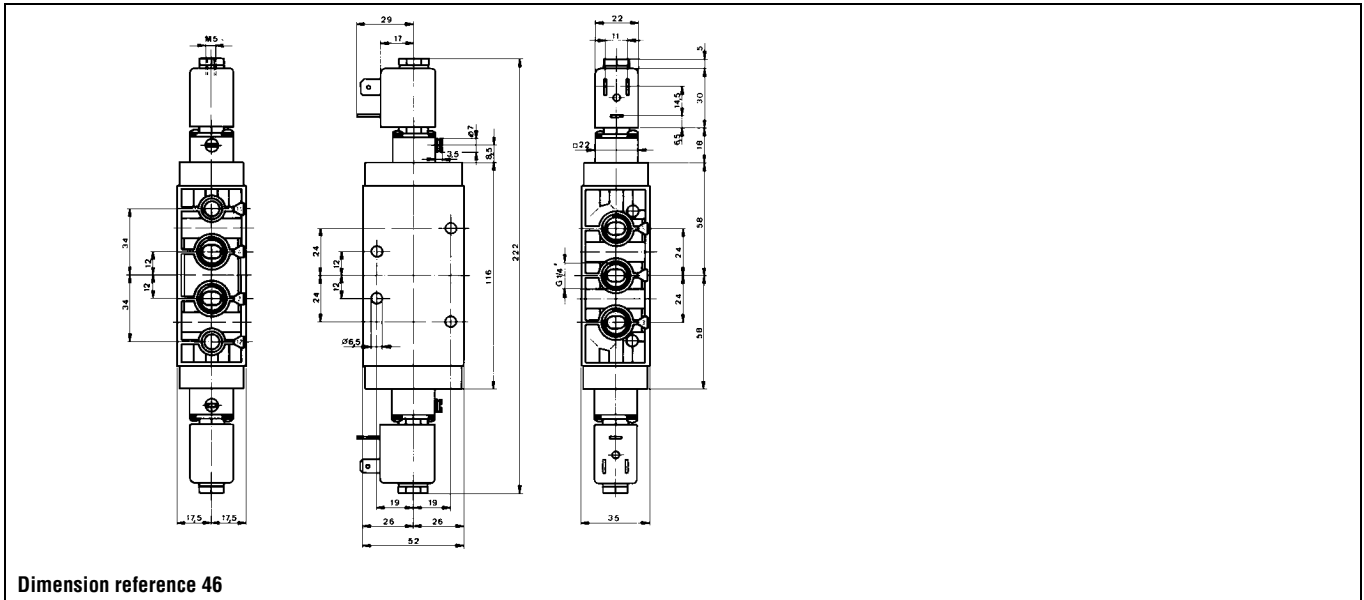
|     |   |      |   |    |    |    |     |   |        |      |        |   |     |   |     |   |    |
|-----|---|------|---|----|----|----|-----|---|--------|------|--------|---|-----|---|-----|---|----|
| 1/4 | 8 | 1400 | 1 | 10 | 10 | 75 | NBR | - | 347L11 | 8993 | 488980 | 1 | 2.5 | 2 | 750 | 1 | 46 |
|-----|---|------|---|----|----|----|-----|---|--------|------|--------|---|-----|---|-----|---|----|

Table continued on page 208

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Please order two housings and coils for each valve

# 4-way pneumatic valves for pipe connection/sub-base mounting

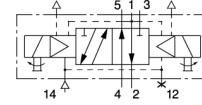


## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |  | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|--|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max |  |                       |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

### Die-cast zinc body/Pipe mounting

5/2 - Two solenoids and main pressure supply -



|     |   |      |   |    |    |    |     |              |           |      |   |        |   |   |   |   |   |      |
|-----|---|------|---|----|----|----|-----|--------------|-----------|------|---|--------|---|---|---|---|---|------|
| 1/4 | 8 | 1400 | 1 | 10 | 10 | 75 | NBR | 7347LMG2NNM0 | E347L1130 | 2995 | 1 | 481865 | 1 | 9 | 8 | - | 2 | 3541 |
|     | 8 | 1400 | 1 | 10 | 10 | 75 | NBR |              |           | 4270 | 1 | 481000 | 1 | 8 | 8 | - | 2 |      |

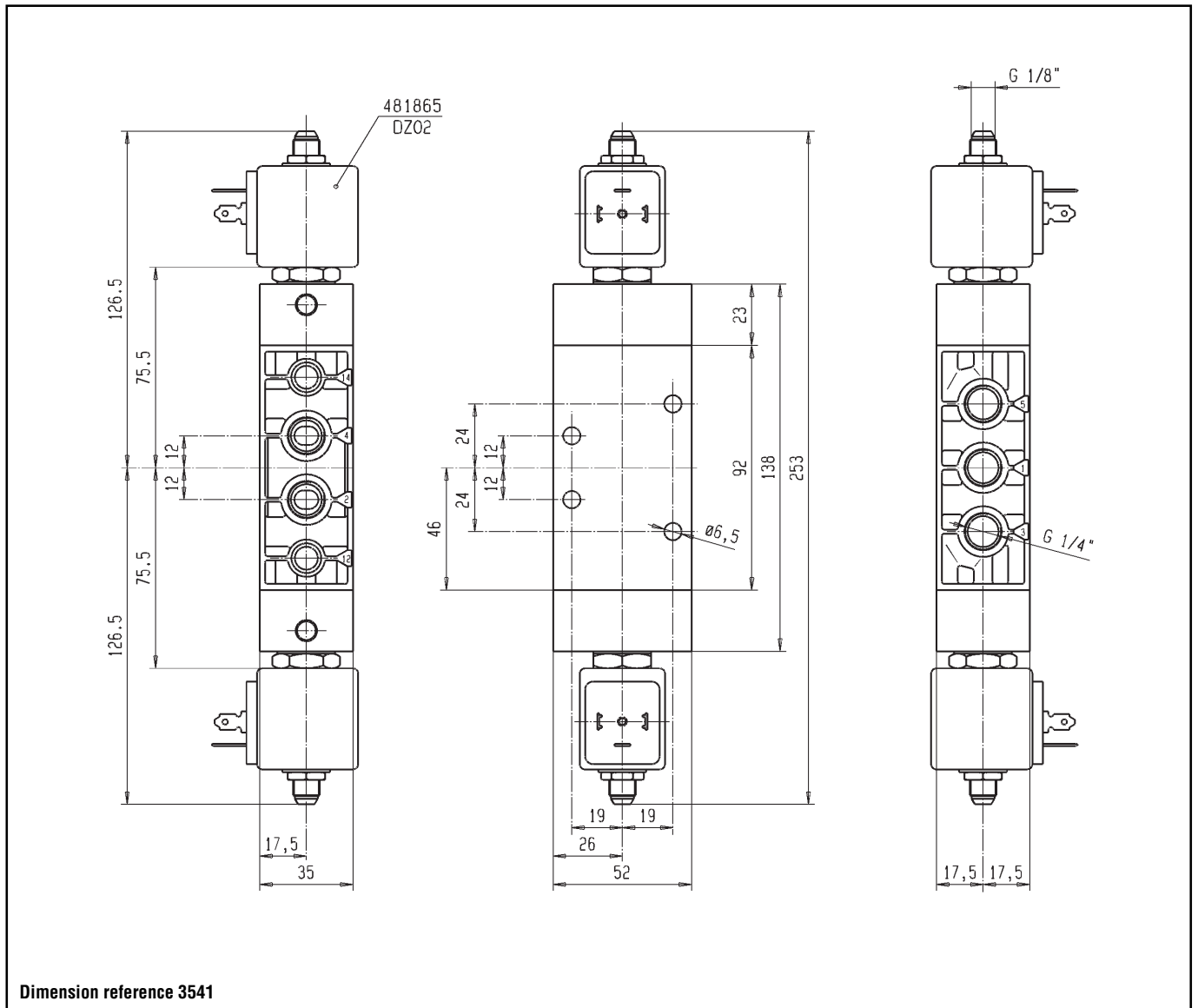
Table continued on page 210

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Please order two of these items per valve



## 4-way pneumatic valves for pipe connection/sub-base mounting

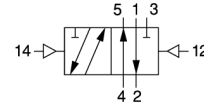


## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |    | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |  |
|-----------|--------------|----------------------------|--------------------------------------|-----|----|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|--|
|           |              |                            | Min                                  | Max |    |                       |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |  |
| G         |              |                            |                                      | DC  | AC |                       |           |                        |                     |         |      |                       |    |         |                  |          |  |

### Die-cast zinc body/Pipe mounting

5/2 - Double external pressure supply -



|     |   |      |   |    |    |    |     |              |        |   |   |   |   |   |   |     |
|-----|---|------|---|----|----|----|-----|--------------|--------|---|---|---|---|---|---|-----|
| 1/4 | 8 | 1400 | 0 | 10 | 10 | 75 | NBR | 7547LMG2NN00 | 547L11 | - | - | - | - | - | - | 118 |
|-----|---|------|---|----|----|----|-----|--------------|--------|---|---|---|---|---|---|-----|

Table continued on page 212

#### Notes:

\* See Electrical Parts Group table at end of section

CANCELLED

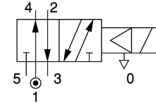


## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |  | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|--|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max |  |                       |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

### Anod. aluminium body/Pipe mounting

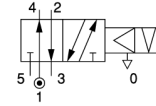
5/2 - Pilot operated -



|     |    |      |   |    |    |    |     |              |                |      |               |   |   |      |   |    |
|-----|----|------|---|----|----|----|-----|--------------|----------------|------|---------------|---|---|------|---|----|
| 1/2 | 14 | 2500 | 1 | 15 | 15 | 75 | NBR | 7341BAG4TN00 | <b>E341B21</b> | 2995 | <b>481865</b> | 9 | 8 | 1900 | 2 | 41 |
|     | 14 | 2500 | 1 | 15 | 15 | 75 | NBR |              |                | 4270 | <b>481000</b> | 8 | 8 | 2000 | 2 |    |

### Anod. aluminium body/Pipe mounting

5/2 - Impulse coil -



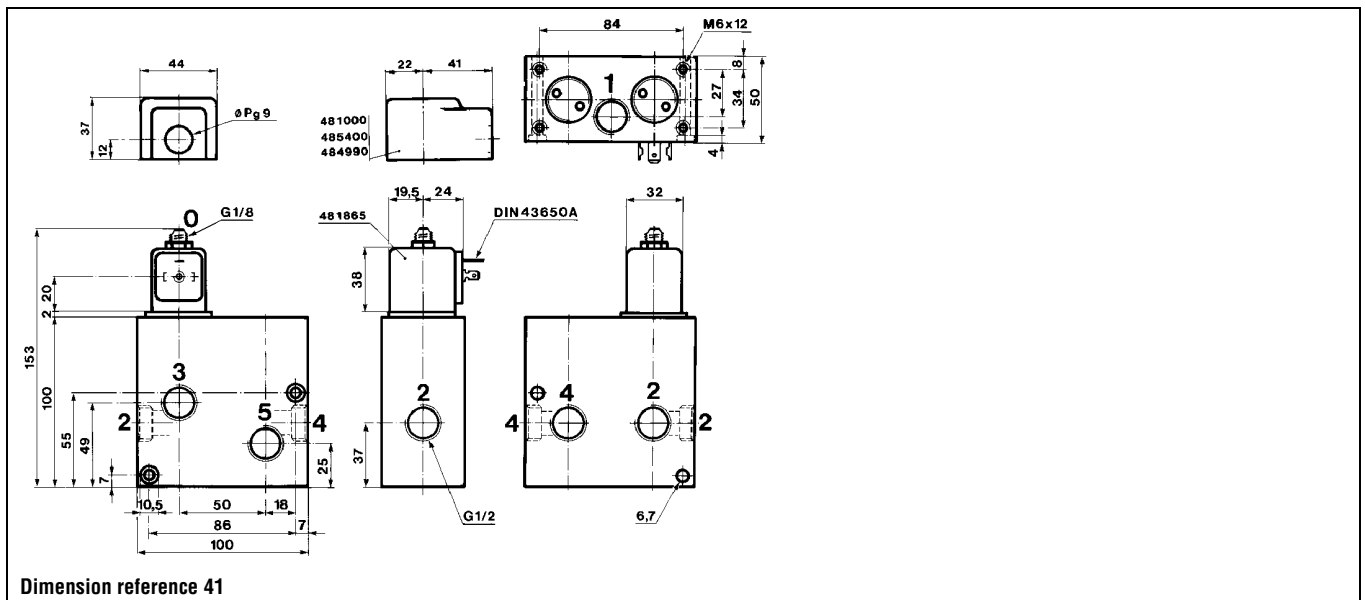
|     |    |      |   |    |    |    |     |              |               |      |               |    |    |      |   |    |
|-----|----|------|---|----|----|----|-----|--------------|---------------|------|---------------|----|----|------|---|----|
| 1/2 | 14 | 2500 | 1 | -  | 15 | 75 | NBR | 7345BAG4TN00 | <b>345B24</b> | 4269 | <b>484990</b> | -  | 11 | 2000 | 4 | 41 |
|     | 14 | 2500 | 1 | 15 | -  | 75 | NBR |              |               | 4269 | <b>485400</b> | 13 | -  | 2000 | 4 |    |

Table continued on page 214

#### Notes:

\* See Electrical Parts Group table at end of section

## 4-way pneumatic valves for pipe connection/sub-base mounting

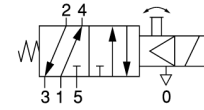


## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |  | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|--|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max |  |                       |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |

### Aluminium alloy and brass body/Sub-base mounting

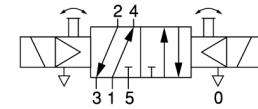
5/2 - Pilot operated -



|    |   |     |   |    |    |    |     |   |          |      |        |     |   |     |   |     |
|----|---|-----|---|----|----|----|-----|---|----------|------|--------|-----|---|-----|---|-----|
| SB | 4 | 400 | 1 | 10 | 10 | 75 | NBR | - | 341L9201 | 8993 | 488980 | 2.5 | 2 | 230 | 1 | 119 |
|----|---|-----|---|----|----|----|-----|---|----------|------|--------|-----|---|-----|---|-----|

### Aluminium alloy and brass body/Sub-base mounting

5/2 - Two solenoids and main pressure supply -



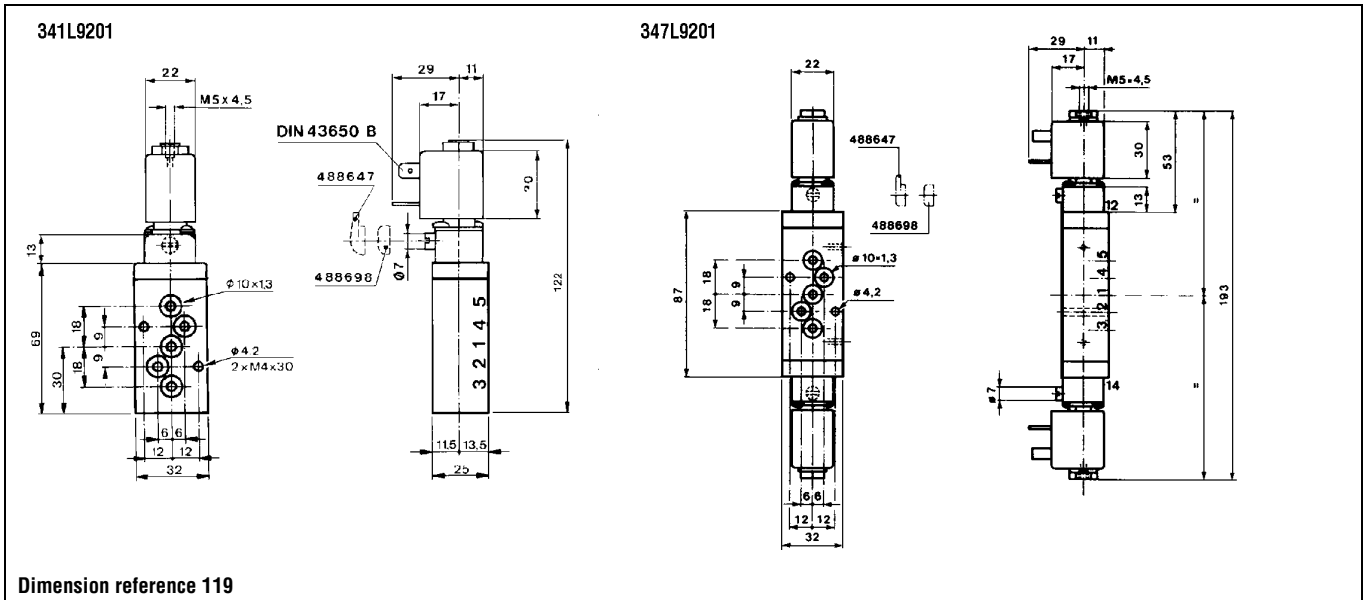
|    |   |     |   |    |    |    |     |   |          |      |        |   |     |   |     |   |     |
|----|---|-----|---|----|----|----|-----|---|----------|------|--------|---|-----|---|-----|---|-----|
| SB | 4 | 400 | 1 | 10 | 10 | 75 | NBR | - | 347L9201 | 8993 | 488980 | 1 | 2.5 | 2 | 350 | 1 | 119 |
|----|---|-----|---|----|----|----|-----|---|----------|------|--------|---|-----|---|-----|---|-----|

Table continued on page 216

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Please order two of these items per valve

# 4-way pneumatic valves for pipe connection/sub-base mounting



## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |    | Fluid temp. °C<br>Gas | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |  |
|-----------|--------------|----------------------------|--------------------------------------|-----|----|-----------------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|--|
|           |              |                            | Min                                  | Max |    |                       |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |  |
| G         |              |                            |                                      | DC  | AC |                       |           |                        |                     |         |      |                       |    |         |                  |          |  |

5/2 - Pilot operated -

### Anod. aluminium body/Sub-base mounting

|    |    |      |     |    |   |    |     |              |                 |              |   |                  |              |     |   |      |   |    |
|----|----|------|-----|----|---|----|-----|--------------|-----------------|--------------|---|------------------|--------------|-----|---|------|---|----|
| SB | 15 | 3550 | 0.5 | 10 | - | 75 | NBR | 7341LAV4TN90 | <b>341L2190</b> | <sup>1</sup> | - | <b>483580.01</b> | <sup>2</sup> | 0.4 | - | 1205 | 7 | 82 |
|----|----|------|-----|----|---|----|-----|--------------|-----------------|--------------|---|------------------|--------------|-----|---|------|---|----|

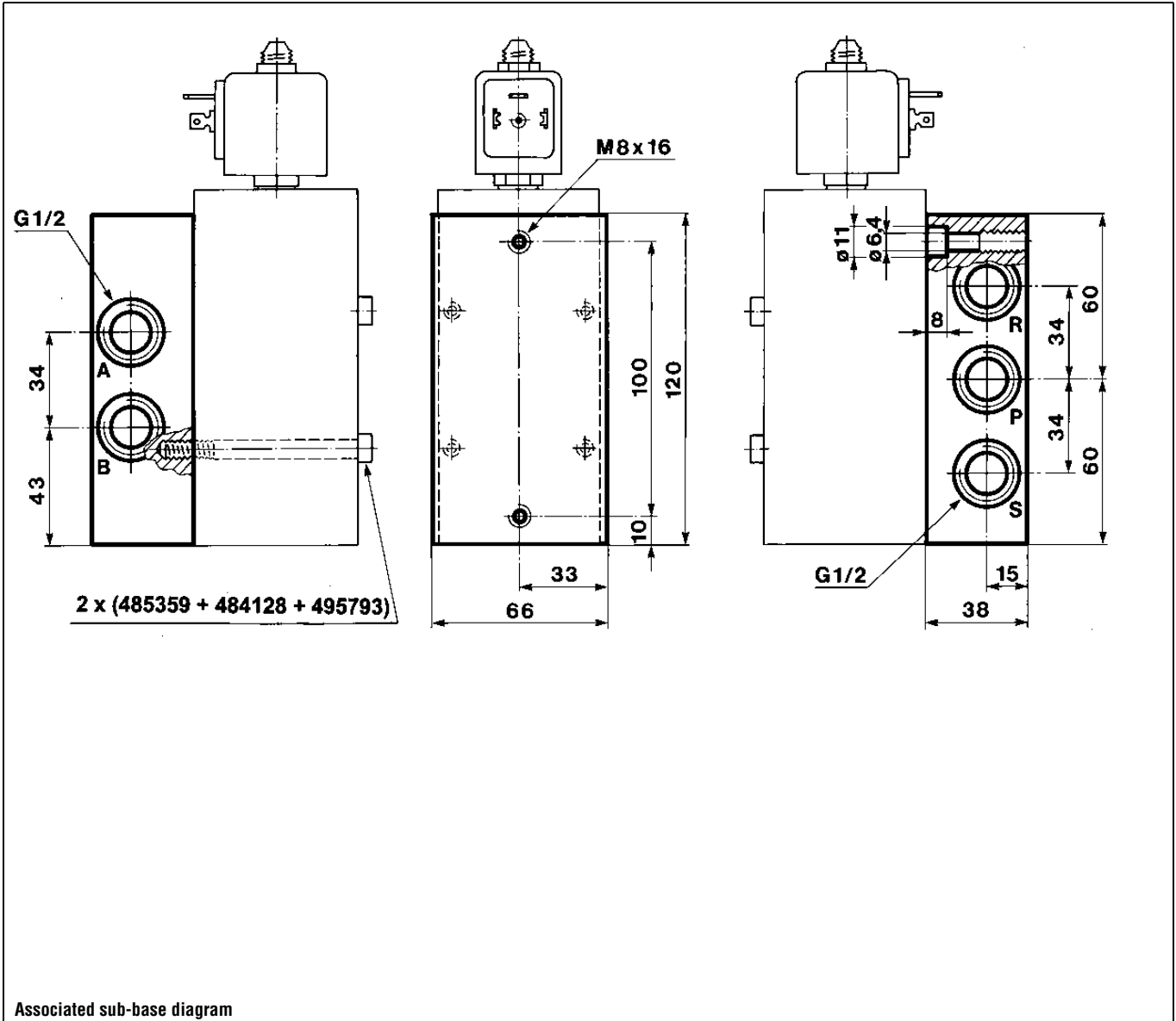
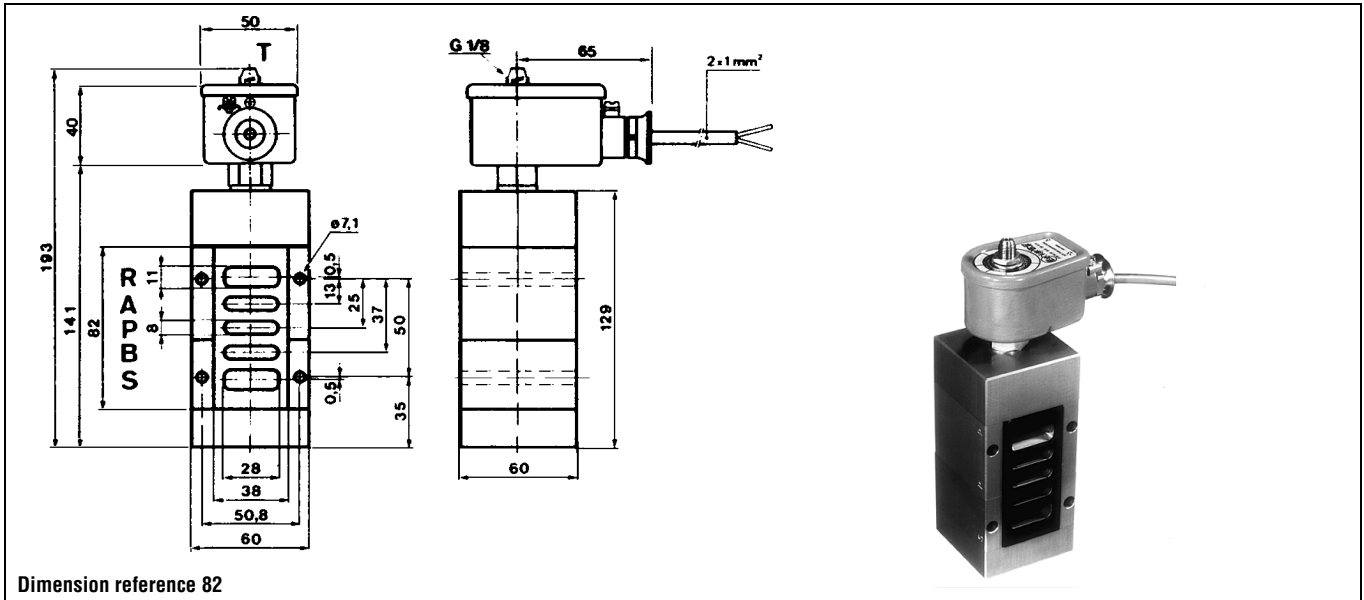
Table continued on page 218

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Other coil-housing available: 488650.01, 488660.01, 488670.01 (refer to electrical parts at end of this section)
- 2. This reference no. is for the complete electrical part (coil + housing)



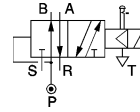
# 4-way pneumatic valves for pipe connection/sub-base mounting



## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max |    |                |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              | Qn                   |                                      | DC  | AC |                |           |                        |                     |         |      |                       |    |         |                  | DC       |

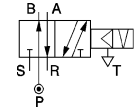
5/2 - Pilot operated -



### Anod. aluminium body/Sub-base mounting

|    |    |      |     |    |    |    |     |              |         |      |        |   |   |      |   |    |
|----|----|------|-----|----|----|----|-----|--------------|---------|------|--------|---|---|------|---|----|
| SB | 15 | 5000 | 0.5 | 10 | 10 | 75 | NBR | 7341LAV4TNM0 | E341L21 | 2995 | 481865 | 9 | 8 | 1240 | 2 | 91 |
|    | 15 | 5000 | 0.5 | 10 | 10 | 75 | NBR |              |         | 4270 | 481000 | 8 | 8 | 1360 | 2 |    |

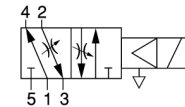
5/2 - Impulse coil -



### Anod. aluminium body/Sub-base mounting

|    |    |      |     |    |    |    |     |              |        |      |        |    |    |      |   |    |
|----|----|------|-----|----|----|----|-----|--------------|--------|------|--------|----|----|------|---|----|
| SB | 15 | 5000 | 0.5 | -  | 10 | 75 | NBR | 7345LAV4TNM0 | 345L21 | 4269 | 484990 | -  | 11 | 1360 | 4 | 91 |
|    | 15 | 5000 | 0.5 | 10 | -  | 75 | NBR |              |        | 4269 | 485400 | 13 | -  | 1360 | 4 |    |

5/2 - Pilot operated -



### Delrin body/Sub-base mounting CETOP 1/8

|       |     |     |    |    |    |     |      |              |                      |        |                     |     |     |     |   |    |
|-------|-----|-----|----|----|----|-----|------|--------------|----------------------|--------|---------------------|-----|-----|-----|---|----|
| CETOP | 6   | 800 | 1  | 10 | -  | 75  | NBR  | 7341LDC1LNL8 | 341L0180             | 2995   | 482740              | 1.6 | -   | 430 | 6 | 47 |
|       | 6   | 800 | 1  | 10 | 10 | 75  | NBR  | -            | 341L04 <sup>1</sup>  | 8993   | 488980              | 2.5 | 2   | -   | 1 | 48 |
|       | 6   | 800 | 1  | 10 | 10 | 75  | NBR  | -            | 341L05 <sup>2</sup>  | 8993   | 488980              | 2.5 | 2   | -   | 1 | 48 |
|       | 6   | 800 | 1  | 10 | 10 | 75  | NBR  | 7341LDC1LNM8 | E341L01 <sup>1</sup> | 2995   | 481865 <sup>3</sup> | 9   | 8   | 430 | 2 | 47 |
|       | 6   | 800 | 1  | 10 | 10 | 75  | NBR  |              |                      | 4270   | 481000 <sup>3</sup> | 8   | 8   | 560 | 2 |    |
|       | 6   | 800 | 1  | 10 | 10 | 75  | NBR  |              |                      | 2995   | 482730              | 7   | 6   | 430 | 2 |    |
|       | 6   | 800 | 1  | 10 | 10 | 75  | NBR  | 7341LDC1LNMI | E341L02 <sup>2</sup> | 2995   | 481865              | 9   | 8   | 420 | 2 | 47 |
|       | 6   | 800 | 1  | 10 | 10 | 75  | NBR  |              |                      | 4270   | 481000              | 8   | 8   | 550 | 2 |    |
| 6     | 800 | 1   | 10 | 10 | 75 | NBR | 2995 |              |                      | 482730 | 7                   | 6   | 420 | 2   |   |    |

Table continued on page 220

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Manual override and flow regulating screws standard
- 2. Manual override standard
- 3. Switch-on time limited to 50% ED. For 100% ED please use coil ref. 482730

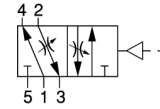


## 4-way pneumatic valves for pipe connection/sub-base mounting

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |    |     | Fluid temp. °C<br>Gas | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|----|-----|-----------------------|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | DC | Max |                       |           | AC                | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |

### Delrin body/Sub-base mounting CETOP 1/8

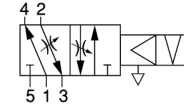
5/2 - External pressure supply -



|       |   |     |   |    |    |    |     |              |               |   |   |   |   |   |     |   |    |
|-------|---|-----|---|----|----|----|-----|--------------|---------------|---|---|---|---|---|-----|---|----|
| CETOP | 6 | 800 | 0 | 10 | 10 | 75 | NBR | 7541LDC1LNR0 | <b>541L01</b> | 1 | - | - | - | - | 360 | - | 90 |
|-------|---|-----|---|----|----|----|-----|--------------|---------------|---|---|---|---|---|-----|---|----|

### Delrin body/Sub-base mounting CETOP 1/8

5/2 - Impulse coil -



|       |   |     |   |    |    |    |     |              |               |   |             |               |    |    |     |     |    |
|-------|---|-----|---|----|----|----|-----|--------------|---------------|---|-------------|---------------|----|----|-----|-----|----|
| CETOP | 6 | 800 | 1 | -  | 10 | 75 | NBR | 7345LDC1LNM8 | <b>345L01</b> | 2 | <b>4269</b> | <b>484990</b> | -  | 11 | 580 | 4   | 89 |
|       | 6 | 800 | 1 | 10 | -  | 75 | NBR |              |               |   | <b>4269</b> | <b>485400</b> | 13 | -  |     | 580 |    |

#### Notes:

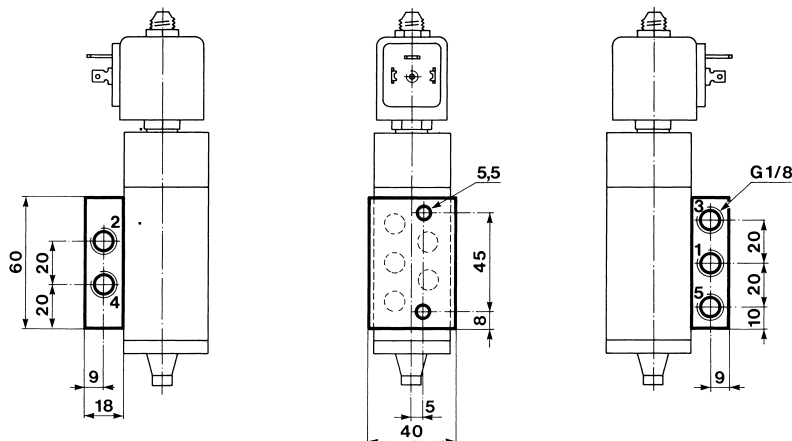
- \* See Electrical Parts Group table at end of section
- 1. Flow regulating screws standard
- 2. Manual override and flow regulating screws standard



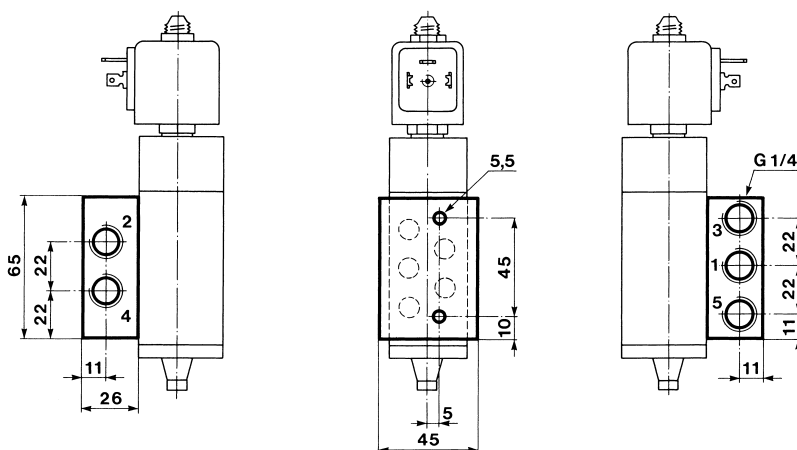
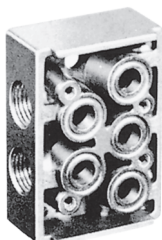
# 4-way pneumatic valves for pipe connection/sub-base mounting

## Manifold blocks for

- E 341 L 01
- E 341 L 02
- 345 L 01
- 541 L 01



## No. 486867, G 1/8



## No. 486866, G 1/4

### Installation information:

Each valve is supplied with four mounting screws and a preformed seal in the valve body.

### For modular assembly:

Uniform alloy modular elements  
 No. 486870, G 1/8  
 No. 486869, G 1/4

### For single valves:

Uniform alloy sub-bases  
 No. 486867, G 1/8  
 No. 486866, G 1/4

### Plugs:

No. 484285, G 1/8  
 No. 484083, G 1/4  
 No. 484174, G 1/2

### Separating gasket:

No. 488252  
 A complete sealing gasket, made from synthetic rubber, can be inserted between two modular elements to separate a modular valve assembly into two independent control systems.

### End plates:

Made from alloy these close off the modular elements.  
 No. 487816, G 1/4  
 No. 487734, G 1/2

### Assembly kit:

No. 487744 containing  
 2 mounting clamps  
 1 preformed seal

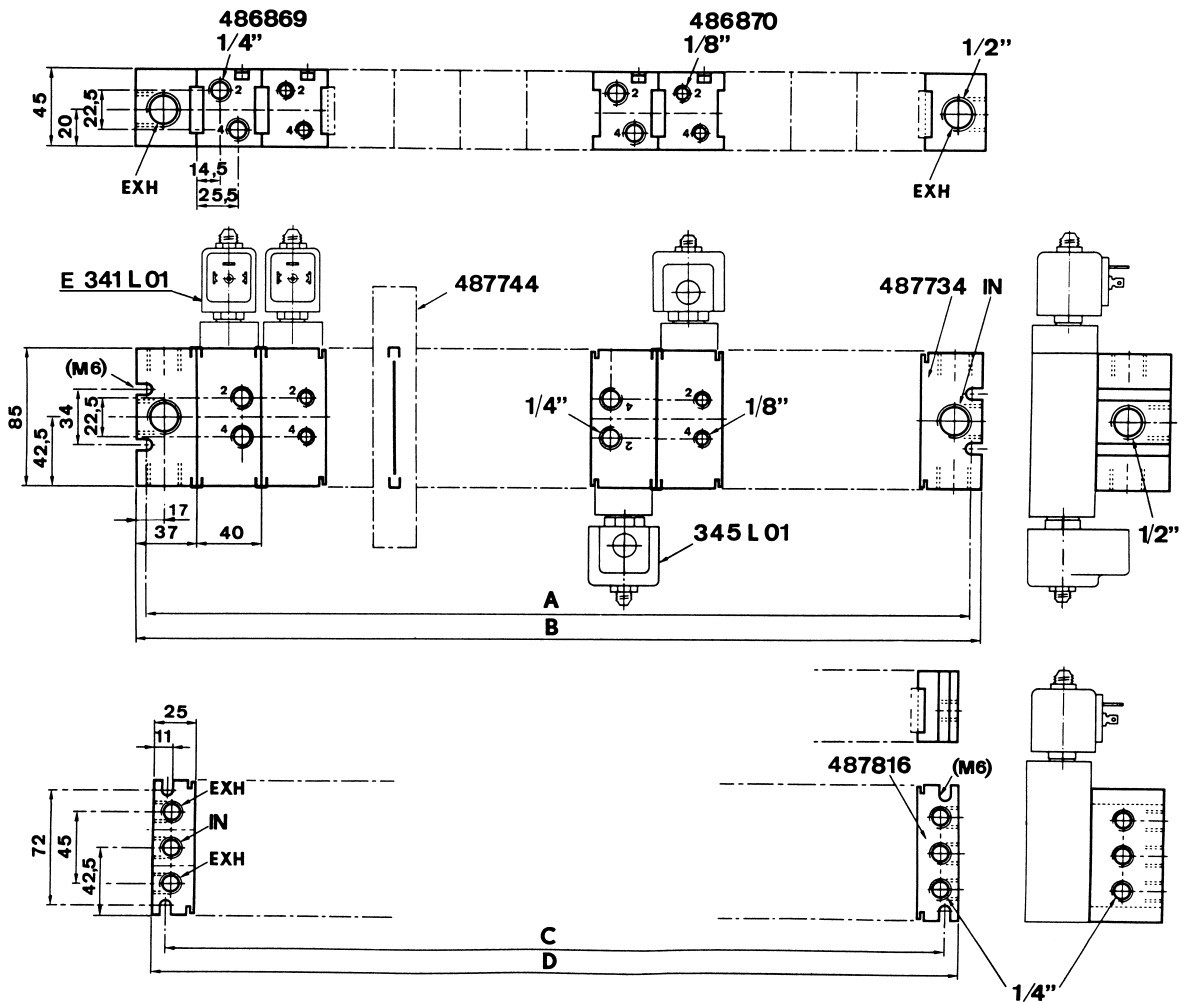
### Ordering example:

4 solenoid valves E 341 L 01  
 482995, 481865, 220/50  
 4 modular elements  
 No. 486870, G 1/8  
 2 end plates No. 487816, G 1/4  
 5 assembly kits (4 + 1)  
 No. 487744.

# 4-way pneumatic valves for pipe connection/sub-base mounting

## Modular Assembly

| Accessories                    |            | Ref. No.                   | Weight             |        |                        |
|--------------------------------|------------|----------------------------|--------------------|--------|------------------------|
| Modular elements               |            | 486870<br>486869           | 205 g              |        |                        |
| End plates                     |            | 487816<br>487734           | 160 g<br>155 g     |        |                        |
| Assembly kit                   |            | 487744                     | 16 g               |        |                        |
| Separating gasket              |            | 488252                     | 10 g               |        |                        |
| Plugs                          |            | 484285<br>484083<br>484174 | 4 g<br>6 g<br>15 g |        |                        |
| Quantity of valves by assembly | Dimensions |                            |                    |        | Quantity assembly kits |
|                                | A          | B                          | C                  | D      |                        |
| 1                              | 102        | 114                        | 74                 | 90     | 2                      |
| 2                              | 142        | 154                        | 114                | 130    | 3                      |
| 3                              | 182        | 194                        | 154                | 170    | 4                      |
| 4                              | 222        | 234                        | 194                | 210    | 5                      |
| ...n                           | 62+40n     | 74+40n                     | 34+40n             | 50+40n | n + 1                  |



All valves models E 341 L 01, E 341 L 02, 345 L 01 and 541 L 01 can be manifold mounted on the same base.

## Electrical parts options with 4/2, 5/2 pneumatic valves

| El. part Group | Coil             | Protection class | Protection class / Temperature class | Power |       | Coil Order No. | Coil Ref. No.    | Connection           | Housing Order No. | Housing Ref. No. | Ambient temp. |          |
|----------------|------------------|------------------|--------------------------------------|-------|-------|----------------|------------------|----------------------|-------------------|------------------|---------------|----------|
|                |                  |                  |                                      | DC    | AC    |                |                  |                      |                   |                  | min.          | max.     |
| 1              | 22 mm            | IP 65            | <b>Class F</b>                       | 2.5 W | 2 W   | DA01           | <b>488980</b>    | for DIN plug         | A0                | <b>8993</b>      | -40           | 50       |
|                |                  | IP 65            | <b>Class F</b>                       | 2.5 W | 2 W   | DA02           | <b>481045</b>    | with DIN plug        | A0                | <b>8993</b>      | -40           | 50       |
|                |                  | IP 65            | <b>Class F</b>                       | 5 W   | 4 W   | DA03           | <b>481180</b>    | for DIN plug         | A0                | <b>8993</b>      | -40           | 50       |
|                |                  | IP 65            | <b>Class F</b>                       | 5 W   | 4 W   | DA04           | <b>481530</b>    | with DIN plug        | A0                | <b>8993</b>      | -40           | 50       |
|                |                  | IP 65            | <b>EEx m II T4</b>                   | 5 W   | 4 W   | VA01           | <b>482605</b>    | with 1500mm cable    | 00                | -                | -40           | 50       |
|                |                  | IP 65            | <b>EEx m II T5</b>                   | 2.5 W | 2 W   | VA02           | <b>482606</b>    | with 1500mm cable    | 00                | -                | -40           | 50       |
| 2              | 32 mm (Std)      | IP 65            | <b>Class F</b>                       | 9 W   | 8 W   | DZ02           | <b>481865</b>    | for DIN plug         | N1                | <b>2995</b>      | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ03           | <b>482725</b>    | with DIN plug        | N1                | <b>2995</b>      | -40           | 50       |
|                |                  | IP 65            | <b>Class H</b>                       | 9 W   | 8 W   | DZ04           | <b>492453</b>    | for DIN plug         | N1                | <b>2995</b>      | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W   | 8 W   | DZ05           | <b>492726</b>    | with DIN plug        | N1                | <b>2995</b>      | -40           | 50       |
|                |                  | IP 65            | <b>Class F, 50/60 Hz</b>             | -     | 9 W   | DZ06           | <b>483510</b>    | for DIN plug         | N1                | <b>2995</b>      | -40           | 50       |
|                |                  | IP 65            |                                      | -     | 9 W   | DZ07           | <b>482635</b>    | with DIN plug        | N1                | <b>2995</b>      | -40           | 50       |
|                |                  | IP 65            | <b>EEx m II T4</b>                   | 9 W   | 8 W   | HZ05           | <b>492670</b>    | with 3000mm cable    | 00                | -                | -40           | 40       |
|                |                  | IP 65            | <b>Class H</b>                       | 14 W  | 14 W  | DZ08           | <b>492425</b>    | for DIN plug         | N1                | <b>2995</b>      | -40           | 50       |
|                | 50 mm (Std)      | IP 65            |                                      | 14 W  | 14 W  | DZ09           | <b>492727</b>    | with DIN plug        | N1                | <b>2995</b>      | -40           | 50       |
|                |                  | IP10 / IP 44     | <b>Class F</b>                       | 8 W   | 8 W   | EZ01           | <b>481000</b>    | screw-terminals      | E0                | <b>4270</b>      | -40           | 50       |
|                |                  | IP10 / IP 44     | <b>Class H</b>                       | 8 W   | 8 W   | EZ02           | <b>485100</b>    | screw-terminals      | E0                | <b>4270</b>      | -40           | 50       |
|                |                  | IP10 / IP 44     | <b>Class H</b>                       | 14 W  | 14 W  | EZ92           | <b>486265</b>    | screw-terminals      | E0                | <b>4270</b>      | -40           | 50       |
|                |                  | IP 67            | <b>Class F, M20x1.5</b>              | 8 W   | 8 W   | EZ01           | <b>481000</b>    | screw-terminals      | G1                | <b>4538</b>      | -40           | 50       |
|                |                  | IP 65            | <b>EEx m II T5/T4</b>                | 9 W   | 8 W   | VZ01           | <b>492070</b>    | with 1500mm cable    | 00                | -                | -40           | 40/65    |
|                |                  | IP 67            | <b>EEx me II T4</b>                  | 8 W   | 8 W   | HZ06           | <b>483371</b>    | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 66            | <b>EEx me II T3/T4</b>               | 11 W  | 9 W   | VZ03           | <b>492190</b>    | for cable connection | 00                | -                | -40           | 75/40    |
| 3              | 32 mm            | IP 65            | <b>Class H</b>                       | -     | 14 W  | DZ08           | <b>492425</b>    | for DIN plug         | N1                | <b>2995</b>      | -40           | 50       |
| 4              | 50 mm (impulse)  | IP10 / IP 44     | <b>Class F</b>                       | -     | 11 W  | MZ01           | <b>484990</b>    | screw-terminals      | E1                | <b>4269</b>      | -40           | 50       |
|                |                  | IP10 / IP 44     | <b>Class F</b>                       | 13 W  | -     | MZ02           | <b>485400</b>    | screw-terminals      | E1                | <b>4269</b>      | -40           | 50       |
| 5              | 50 mm            | IP 54            | <b>EEx d IIC T4/T5/T6</b>            | 8 W   | 8 W   | HZ08           | <b>483250</b>    | for cable 1/2 NPT    | 00                | -                | -40           | 80/75/60 |
| 6              | 32 mm (Miniwatt) | IP 65            | <b>Class F</b>                       | 1.6 W | -     | DZ10           | <b>482740</b>    | for DIN plug         | N1                | <b>2995</b>      | -40           | 50       |
|                |                  | IP 65            | <b>Class F</b>                       | 1.6W  | -     | DZ11           | <b>482745</b>    | with DIN plug        | N1                | <b>2995</b>      | -40           | 50       |
|                | 50 mm (Miniwatt) | IP 67            | <b>EEx me II T5</b>                  | 2.5 W | -     | VZ04           | <b>491117</b>    | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 67            | <b>EEx m II T5/T4</b>                | 2.5 W | 2.5 W | VZ05           | <b>492370</b>    | with 1500mm cable    | 00                | -                | -40           | 40/65    |
|                |                  | IP 66            | <b>EEx me II T6/T5</b>               | 2.5 W | 2.5 W | VZ06           | <b>492390</b>    | for cable connection | 00                | -                | -40           | 40/75    |
| 7              | 32 mm            | IP 65            | <b>EEx ia II C T6</b>                | 0.4 W | -     | DZ12           | <b>483580.01</b> | for DIN plug         | N1                | <b>2995</b>      | -40           | 55       |
|                |                  | IP 65            |                                      | 0.4 W | -     | DZ13           | <b>483960.01</b> | with DIN plug        | N1                | <b>2995</b>      | -40           | 55       |
|                | 50 mm            | IP 66            | <b>EEx ia II C T6</b>                | 0.4 W | -     | VZ07           | <b>488650.01</b> | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP 67            |                                      | 0.4 W | -     | VZ08           | <b>488660.01</b> | with 2000mm cable    | 00                | -                | -40           | 65       |
|                |                  | IP 65            |                                      | 0.4 W | -     | VZ09           | <b>488670.01</b> | with DIN plug        | 00                | -                | -40           | 65       |

Note: This table is indicative only. Please contact your distributor to confirm your selection.



# Solenoid valves for actuator control

| ACTUATION  | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE        |
|--|------------|--------------|---------------------|-------------|
| <b>Direct operated</b>   | 1/8        | 1.2 to 1.5   | 10.0                | 226         |
|  | 1/4        | 1.5 to 5.0   | 16.0                | 226         |
| <b>Pilot operated</b>  | 1/8        | 4.0          | 10.0                | 238/248     |
|  | 1/4        | 8.0          | 10.0                | 244/250/254 |
| <b>Pilot operated - Integrated pilot</b>                         | 1/8        | 4.0          | 10.0                | 238         |
|  | 1/4        | 8.0          | 10.0                | 242         |
| <b>Impulse coil</b>  | 1/8        | 4.0          | 10.0                | 242         |
| <b>Two solenoids and main pressure supply</b>                    | 1/8        | 4.0          | 10.0                | 240/254     |
|  | 1/4        | 8.0          | 10.0                | 246/252     |
| <b>Two solenoids and main pressure supply - Integrated pilot</b> | 1/8        | 4.0          | 10.0                | 240         |
|  | 1/4        | 8.0          | 10.0                | 246         |
| <b>Pilot operated with external pressure supply</b>              | 1/8        | 4.0          | 10.0                | 242         |
| <b>External pressure supply</b>                                  | 1/8        | 4.0          | 10.0                | 244         |

Notes:

# Solenoid valves for actuator control

# 3/2

## Applications

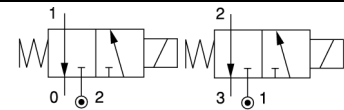
3-way directional valves for control of single acting pneumatic actuators.



| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max |    | Min            | Max |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              | Qn                   |                                      | DC  | AC | Min            | Max |           |                        |                     |         |      |                       |    |         |                  |          |

## Brass body/Pipe mounting

Direct operated



E, K, V Series      T, M Series

|       |       |       |    |    |     |     |     |     |              |                               |               |                               |     |     |     |    |    |
|-------|-------|-------|----|----|-----|-----|-----|-----|--------------|-------------------------------|---------------|-------------------------------|-----|-----|-----|----|----|
| 1/8   | 1.2   | 50    | 0  | 10 | 10  | -10 | 75  | FKM | -            | <b>131M15</b>                 | <b>8993</b>   | <b>488980</b>                 | 2.5 | 2   | 150 | 1  | 14 |
|       | (1.5) | (70)  | 0  | 10 | 10  | -10 | 75  | FKM |              | <b>8993</b>                   | <b>488980</b> | 2.5                           | 2   | 150 | 1   | 14 |    |
|       | 1.5   | 70    | 0  | 7  | 7   | -10 | 75  | FKM | -            | <b>131M14</b>                 | <b>8993</b>   | <b>488980</b>                 | 2.5 | 2   | 150 | 1  | 14 |
| 1/4   | 1     | 38    | 0  | 10 | -   | -10 | 75  | FKM | 7131KBG2CV90 | <b>131K0490</b>               | -             | <b>483580.01</b> <sup>1</sup> | 0.4 | -   | 285 | 7  | 77 |
|       | 1.5   | 80    | 0  | 7  | -   | -10 | 75  | FKM | 7131KBG2GVL5 | <b>131K0480</b>               | <b>2995</b>   | <b>482740</b>                 | 1.6 | -   | 310 | 6  | 17 |
|       | 1.5   | 80    | 0  | 15 | 15  | -10 | 100 | FKM | 7131KBG2GVM0 | <b>E131K0450</b> <sup>2</sup> | <b>2995</b>   | <b>481865</b>                 | 9   | 8   | 310 | 2  | 17 |
|       | 1.5   | 80    | 0  | 15 | 15  | -10 | 120 | FKM |              | <b>4270</b>                   | <b>481000</b> | 8                             | 8   | 430 | 2   |    |    |
|       | 1.5   | 80    | 0  | 15 | 15  | -10 | 100 | FKM | 7131KBG2GV00 | <b>E131K04</b>                | <b>2995</b>   | <b>481865</b>                 | 9   | 8   | 310 | 2  | 17 |
|       | 1.5   | 80    | 0  | 15 | 15  | -10 | 120 | FKM |              | <b>4270</b>                   | <b>481000</b> | 8                             | 8   | 430 | 2   |    |    |
|       | 2     | 140   | 0  | 10 | 10  | -10 | 100 | FKM | 7131KBG2JVM0 | <b>E131K0650</b> <sup>2</sup> | <b>2995</b>   | <b>481865</b>                 | 9   | 8   | 310 | 2  | 17 |
|       | (2.5) | (220) | 0  | 10 | 10  | -10 | 100 | FKM |              | <b>2995</b>                   | <b>481865</b> | 9                             | 8   | 310 | 2   |    |    |
|       | 2     | 140   | 0  | 10 | 10  | -10 | 120 | FKM |              | <b>4270</b>                   | <b>481000</b> | 8                             | 8   | 430 | 2   |    |    |
|       | (2.5) | (220) | 0  | 10 | 10  | -10 | 120 | FKM |              | <b>4270</b>                   | <b>481000</b> | 8                             | 8   | 430 | 2   |    |    |
|       | 2     | 140   | 0  | 10 | 10  | -10 | 100 | FKM | 7131KBG2JV00 | <b>E131K06</b>                | <b>2995</b>   | <b>481865</b>                 | 9   | 8   | 310 | 2  | 17 |
|       | (2.5) | (220) | 0  | 10 | 10  | -10 | 100 | FKM |              | <b>2995</b>                   | <b>481865</b> | 9                             | 8   | 310 | 2   |    |    |
| 2     | 140   | 0     | 10 | 10 | -10 | 120 | FKM |     | <b>4270</b>  | <b>481000</b>                 | 8             | 8                             | 430 | 2   |     |    |    |
| (2.5) | (220) | 0     | 10 | 10 | -10 | 120 | FKM |     | <b>4270</b>  | <b>481000</b>                 | 8             | 8                             | 430 | 2   |     |    |    |

Table continued on page 228

### Notes:

\* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

2. Manual override standard

Values shown within brackets are valid for exhaust port only.

# Solenoid valves for actuator control - 3/2 valves - Pipe connection

M5x5mm

58

30

14

8.5

2

1

22

M5

3

11

17

DIN 43650 B

20

G 1/8

20

Dimension reference 14

M5 x 6mm

15

44

37

12

22

41

32

19.5

24

G1/8

38

8

19

18

31

40

11.5

33

20

85

1

2

481865

488698

488647

481000

486265

485400

484990

DIN 43650A

G

Dimension reference 17

M5 x 5mm

15

50

93

40

11.5

29.5

1

2

40

19

G 1/8

65

2x1mm<sup>2</sup>

G 1/4

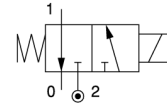
Dimension reference 77

## Solenoid valves for actuator control - 3/2 valves - Pipe connection

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |

### Brass body/Pipe mounting

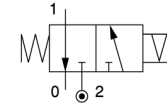
Direct operated



|     |     |        |     |    |    |     |     |     |              |                    |   |             |               |   |   |      |     |      |    |
|-----|-----|--------|-----|----|----|-----|-----|-----|--------------|--------------------|---|-------------|---------------|---|---|------|-----|------|----|
| 1/4 | 2   | 140    | 0   | 10 | 10 | -40 | 80  | PUR | 7131KBG2JP1D | <b>E131K06081D</b> | 1 | -           | <b>483250</b> | 8 | 8 | 1255 | 5   | 3845 |    |
|     | 2.5 | 220    | 0   | 7  | 7  | -10 | 100 | FKM | 7131KBG2LVM0 | <b>E131K0350</b>   | 2 | <b>2995</b> | <b>481865</b> | 9 | 8 | 310  | 2   | 17   |    |
|     | 2.5 | 220    | 0   | 7  | 7  | -10 | 120 | FKM |              |                    |   | <b>4270</b> | <b>481000</b> | 8 | 8 | 430  | 2   |      |    |
|     | 2.5 | 220    | 0.1 | 7  | 7  | -10 | 75  | NBR | 7131EBG2LN00 | <b>E131E03</b>     |   | <b>2995</b> | <b>481865</b> | 9 | 8 | 650  | 2   | 19   |    |
|     | (6) | (1100) | 0.1 | 7  | 7  | -10 | 75  | NBR |              |                    |   | <b>2995</b> | <b>481865</b> | 9 | 8 | 650  | 2   |      |    |
|     | 2.5 | 220    | 0.1 | 7  | 7  | -10 | 75  | NBR |              |                    |   | <b>4270</b> | <b>481000</b> | 8 | 8 | 770  | 2   |      |    |
|     | (6) | (1100) | 0.1 | 7  | 7  | -10 | 75  | NBR |              |                    |   | <b>4270</b> | <b>481000</b> | 8 | 8 | 770  | 2   |      |    |
|     | 2.5 | 220    | 0   | 7  | 7  | -10 | 80  | NBR | 7131KBG2LV1D | <b>E131K03001D</b> |   | -           | <b>483250</b> | 8 | 8 | 1255 | 5   | 3845 |    |
|     | 2.5 | 220    | 0   | 7  | 7  | -40 | 75  | PUR | 7131KBG2LP1D | <b>E131K03081D</b> | 1 | -           | <b>483250</b> | 8 | 8 | 1255 | 5   | 3845 |    |
|     | 2.5 | 220    | 0   | 7  | 7  | -40 | 75  | PUR | 7131KBG2LP00 | <b>E131K0308</b>   | 1 | <b>2995</b> | <b>481865</b> | 9 | 8 | 180  | 2   | 17   |    |
|     | 2.5 | 220    | 0   | 7  | 7  | -40 | 75  | PUR |              |                    |   | <b>4270</b> | <b>481000</b> | 8 | 8 | 180  | 2   |      |    |
|     | 2.5 | 220    | 0   | 7  | 7  | -40 | 75  | PUR | 7131KBG2LPM0 | <b>E131K0358</b>   | 2 | <b>2995</b> | <b>481865</b> | 1 | 9 | 8    | 180 | 2    | 17 |
|     | 2.5 | 220    | 0   | 7  | 7  | -40 | 75  | PUR |              |                    |   | <b>4270</b> | <b>481000</b> | 1 | 8 | 8    | 180 | 2    |    |

### Brass body/Pipe mounting

Direct operated



|     |     |     |   |    |    |     |     |     |              |               |  |             |               |    |    |     |   |    |
|-----|-----|-----|---|----|----|-----|-----|-----|--------------|---------------|--|-------------|---------------|----|----|-----|---|----|
| 1/4 | 1.5 | 80  | 0 | -  | 16 | -10 | 100 | FKM | 7135KBG2GV00 | <b>135K04</b> |  | <b>4269</b> | <b>484990</b> | -  | 11 | 450 | 4 | 17 |
|     | 1.5 | 80  | 0 | 16 | -  | -10 | 100 | FKM |              |               |  | <b>4269</b> | <b>485400</b> | 13 | -  | 450 | 4 |    |
|     | 2.5 | 220 | 0 | -  | 7  | -10 | 100 | FKM | 7135KBG2LV00 | <b>135K03</b> |  | <b>4269</b> | <b>484990</b> | -  | 11 | 450 | 4 | 17 |
|     | 2.5 | 220 | 0 | 7  | -  | -10 | 100 | FKM |              |               |  | <b>4269</b> | <b>485400</b> | 13 | -  | 450 | 4 |    |

Table continued on page 230

#### Notes:

- \* See Electrical Parts Group table at end of section
  - 1. Operates with low temperatures down to -40 deg. C
  - 2. Manual override standard
- Values shown within brackets are valid for exhaust port only.

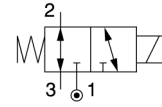


## Solenoid valves for actuator control - 3/2 valves - Pipe connection

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |    |     | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|----|-----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | DC | Max | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| G         |              | Qn                   |                                      |    |     |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

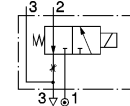
### Anod. aluminium body/Pipe mounting

Direct operated



|     |   |     |   |    |    |     |    |     |   |        |   |   |           |   |     |   |     |   |    |
|-----|---|-----|---|----|----|-----|----|-----|---|--------|---|---|-----------|---|-----|---|-----|---|----|
| 1/4 | 5 | 680 | 0 | 10 | -  | -25 | 65 | NBR | - | 133X01 | 1 | - | 492965.01 | 2 | 0.8 | - | 860 | 9 | 83 |
|     | 5 | 680 | 0 | 10 | 10 | -25 | 65 | NBR | - |        | - | - | 492300    | 2 | 6   | 6 | 860 | 9 |    |

Direct operated



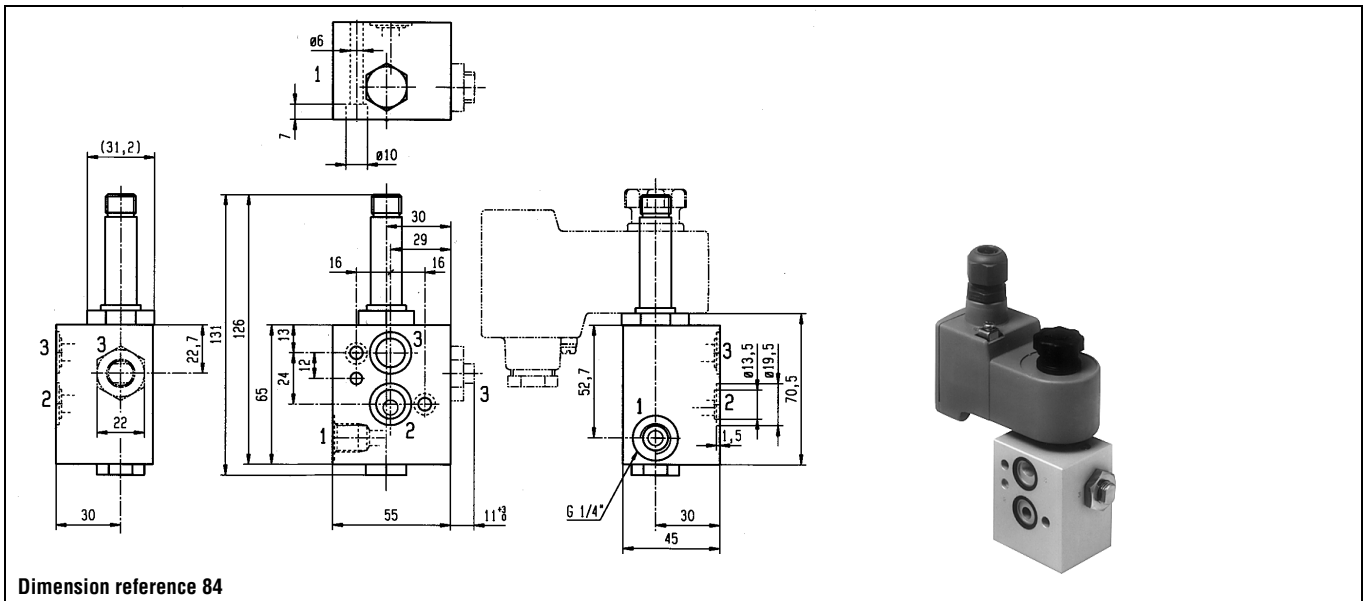
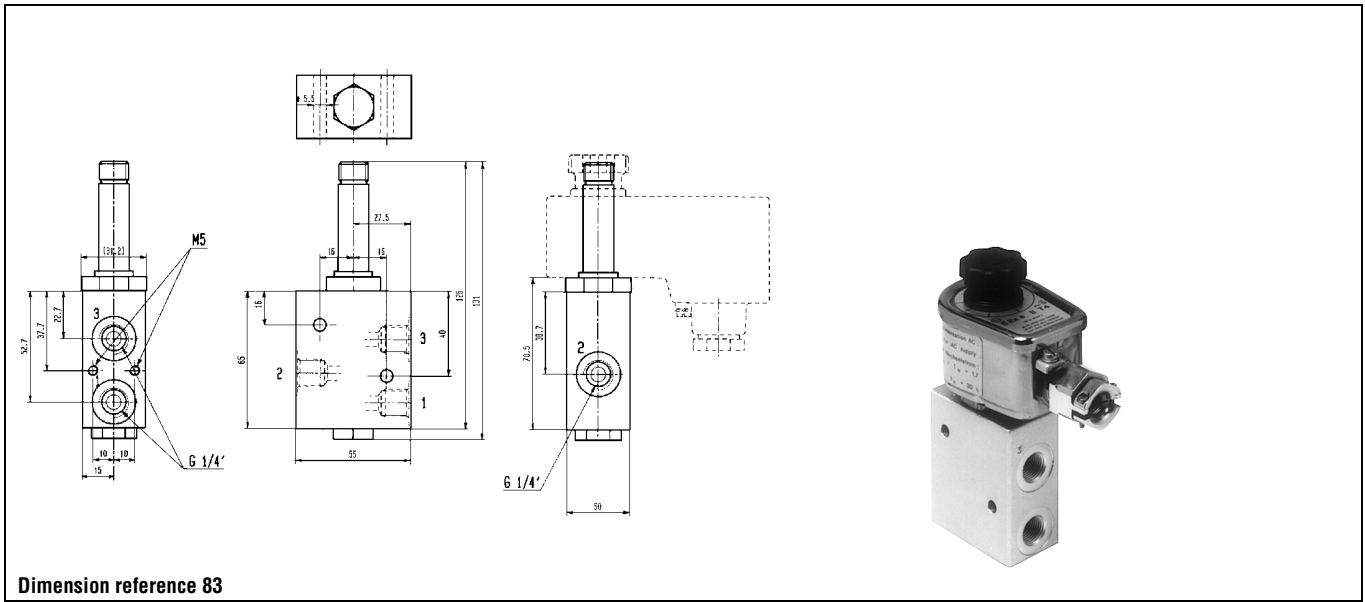
### Anod. aluminium body/NAMUR interface

|     |   |     |   |    |    |     |    |     |              |          |   |           |   |      |   |      |   |    |
|-----|---|-----|---|----|----|-----|----|-----|--------------|----------|---|-----------|---|------|---|------|---|----|
| 1/4 | 5 | 680 | 0 | 10 | 10 | -25 | 75 | NBR | 7131XAKLVN00 | 131X1101 | - | 492300    | 2 | 6    | 6 | 1000 | 9 | 84 |
|     | 5 | 680 | 0 | 10 | -  | -25 | 75 | NBR | -            |          | - | 483330.01 | 2 | 0.85 | - | 1000 | 9 |    |

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Optional manual override available on request - add suffix 50 to the basic reference number
- 2. This reference no. is for the complete electrical part (coil + housing)

# Solenoid valves for actuator control - 3/2 valves - Pipe connection







# Stackable solenoid valves for actuator control

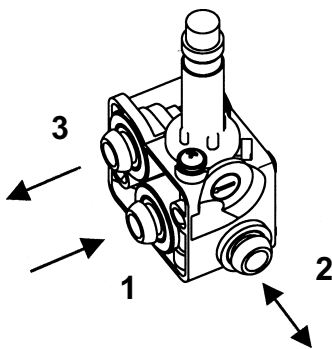
| ACTUATION       | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE |
|-----------------|------------|--------------|---------------------|------|
| Direct operated | 6 6 6      | 1.3 to 1.5   | 10.0                | 234  |
|                 | 8 6 8      | 1.3 to 1.5   | 10.0                | 234  |
|                 | - 6 -      | 1.3 to 1.5   | 10.0                | 234  |

Notes:

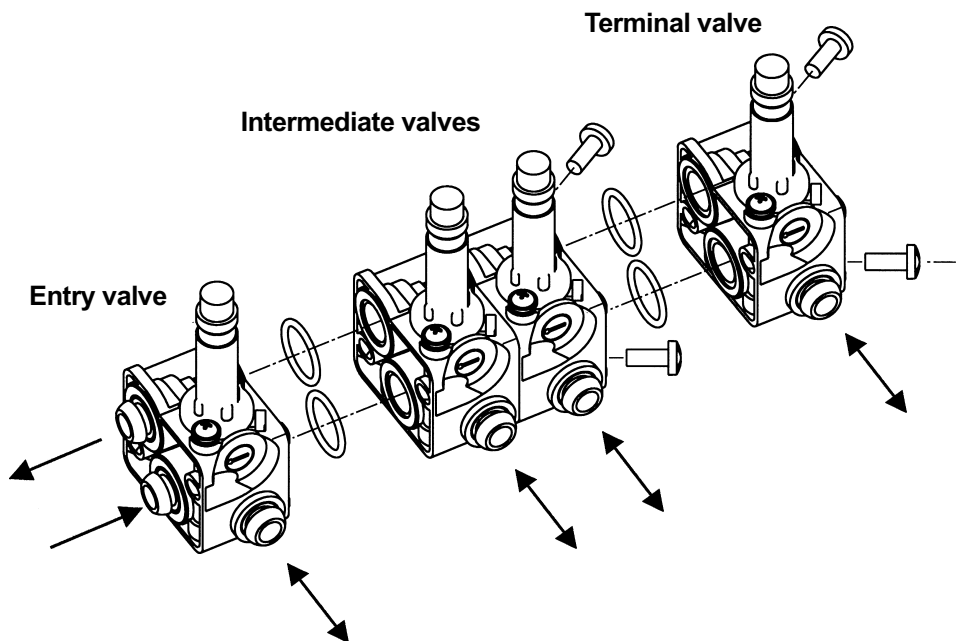
### TECHNICAL DATA

|                                     |   |
|-------------------------------------|---|
| <b>Valve function</b>               | 3/2 solenoid valve, normally closed   |
| <b>Valve design</b>                 | Direct operated poppet valve.   |
| <b>Mounting</b>                     | Direct pipe mounting (single valve) by self tapping screws 3.6x16<br>Battery mounting screws M4x10mm (supplied with the valves)<br>For battery on DIN rail EN50022/35mm<br>kit No. 494205 (fixing plate + screws).<br>For battery mounting: recommended maximum number of valves operating simultaneously: 10 valves for 8 mm / 6 valves for 6 mm |
| <b>Mounting position</b>            | Unrestricted.   |
| <b>Material specifications</b>      | Body made of Polyamid PA66 33%GF. Internal parts from stainless steel.<br>Sealing material from synthetic rubber (FKM).   |
| <b>Manual override</b>              | Screw driver operated manual override is standard.<br>Horizontal position of the slot on the screw head corresponds to the «closed» valve position; vertical position = «open».   |
| <b>Media</b>                        | Dry or lubricated air, inert gases  |
| <b>Lubrication</b>                  | Not required.   |
| <b>Fluid temperature</b>            | Min. - 10°C<br>Max. +75°C   |
| <b>Ambient temperature</b>          | - 10 °C up to + 50°C.   |
| <b>Voltage tolerance</b>            | - 10% to +15% of nominal.   |
| <b>Class of insulation material</b> | Class F 155°C   |
| <b>Solenoid duty</b>                | Continuous duty solenoid  |
| <b>Life expectancy</b>              | Indicative: 10 Mio. cycles  |

### Single valve

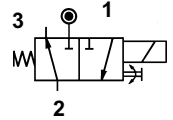


### Stackable valves



**VALVE TYPES OVERVIEW**

| Push-in Connection<br><br>Ø<br>(mm) | Orifice<br><br>(mm) | Qn<br><br>L/min | Pressure<br>(Bar) |     | Max media temp.<br><br>(°C) | Seat Disc Material | Valve reference | El. Parts group |
|-------------------------------------|---------------------|-----------------|-------------------|-----|-----------------------------|--------------------|-----------------|-----------------|
|                                     |                     |                 | min               | max |                             |                    |                 |                 |



**SINGLE VALVE**

| 1 | 2 | 3 | 1 = Inlet - 2 = user - 3 = exhaust |            |   |    |    |     |              | El. Parts group |
|---|---|---|------------------------------------|------------|---|----|----|-----|--------------|-----------------|
| 6 | 6 | 6 | 1.5                                | 50         | 0 | 7  | 75 | FKM | 2131TNF6GVMS |                 |
| 6 | 6 | 6 | 1.3<br>(1.5)                       | 50<br>(62) | 0 | 10 | 75 | FKM | 2131TNF6EVMS |                 |

**STACKABLE**

**Entry Valve**

|   |   |   |              |            |   |    |    |     |              |   |
|---|---|---|--------------|------------|---|----|----|-----|--------------|---|
| 6 | 6 | 6 | 1.5          | 62         | 0 | 7  | 75 | FKM | 2131TNF6GVME | 1 |
| 8 | 6 | 8 | 1.5          | 62         | 0 | 7  | 75 | FKM | 2131TNF8GVME |   |
| 6 | 6 | 6 | 1.3<br>(1.5) | 50<br>(62) | 0 | 10 | 75 | FKM | 2131TNF6EVME |   |
| 8 | 6 | 8 | 1.3<br>(1.5) | 50<br>(62) | 0 | 10 | 75 | FKM | 2131TNF8EVME |   |

**Intermediate valve**

|   |   |   |              |            |   |    |    |     |              |   |
|---|---|---|--------------|------------|---|----|----|-----|--------------|---|
| - | 6 | - | 1.5          | 62         | 0 | 7  | 75 | FKM | 2131TNF6GVMI | 1 |
| - | 6 | - | 1.3<br>(1.5) | 50<br>(62) | 0 | 10 | 75 | FKM | 2131TNF6EVMI |   |

**Terminal valve**

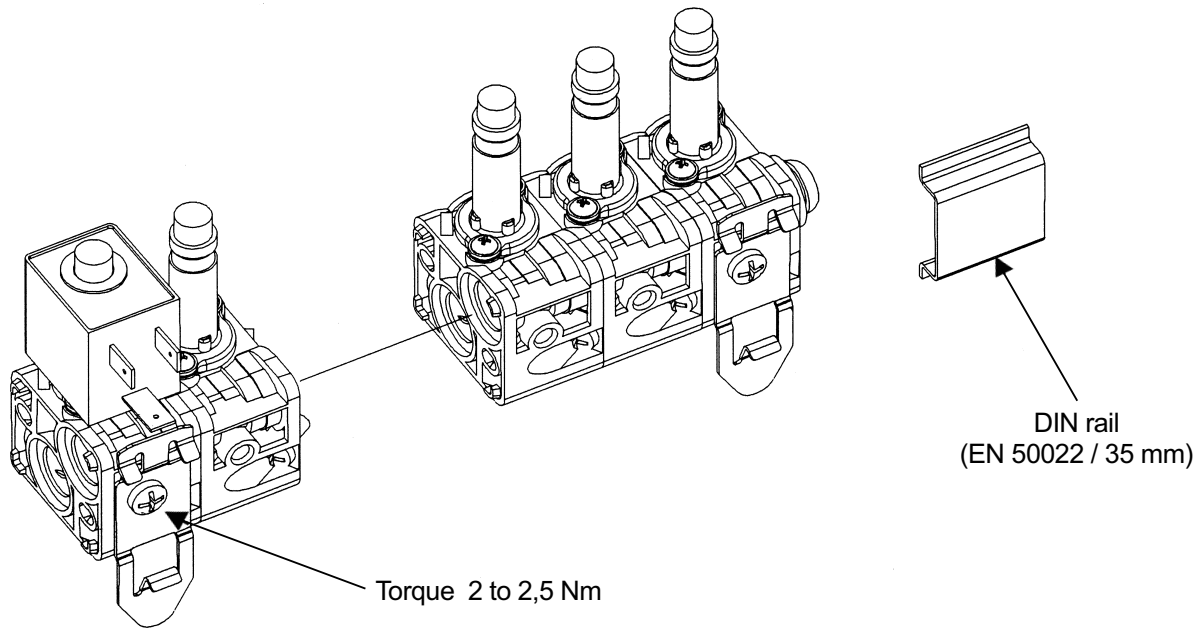
|   |   |   |              |            |   |    |    |     |              |   |
|---|---|---|--------------|------------|---|----|----|-----|--------------|---|
| - | 6 | - | 1.5          | 62         | 0 | 7  | 75 | FKM | 2131TNF6GVMT | 1 |
| - | 6 | - | 1.3<br>(1.5) | 50<br>(62) | 0 | 10 | 75 | FKM | 2131TNF6EVMT |   |

**Note:** Values shown within brackets are valid for exhaust port only.

**ELECTRICAL DATA**

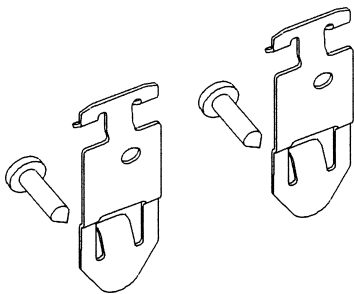
| Coil Ref. No. | Coil Order No. | Protection Class           | Power (W) |    | Connection    | Housing Ref. No. | Housing Order No. | Ambient temperature (°C) |     | El. Parts Group |
|---------------|----------------|----------------------------|-----------|----|---------------|------------------|-------------------|--------------------------|-----|-----------------|
|               |                |                            | DC        | AC |               |                  |                   | min                      | max |                 |
| 488980        | DA01           | Without DIN Plug - Class F | 2.5       | 2  | DIN Plug      | 8993             | A0                | - 10                     | 50  | 1               |
| 481045        | DA02           | With DIN Plug Class F IP65 | 2.5       | 2  | DIN Plug      | 8993             | A0                | - 10                     | 50  |                 |
| 482606        | VA02           | Ex m II T5 - IP65          | 2.5       | 2  | Cable 1500 mm | -                | -                 | - 40                     | 50  |                 |

**MOUNTING ON DIN RAIL**



**ACCESSORIES**

Fixing kit for DIN rail EN 50022 / 35mm



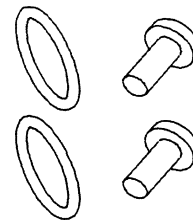
**494205**

2 x mounting plates  
2 x Screws Ø 4.2 x 16

To be ordered separately

**SPARE PARTS KIT**

Spare parts kit for stackable valve

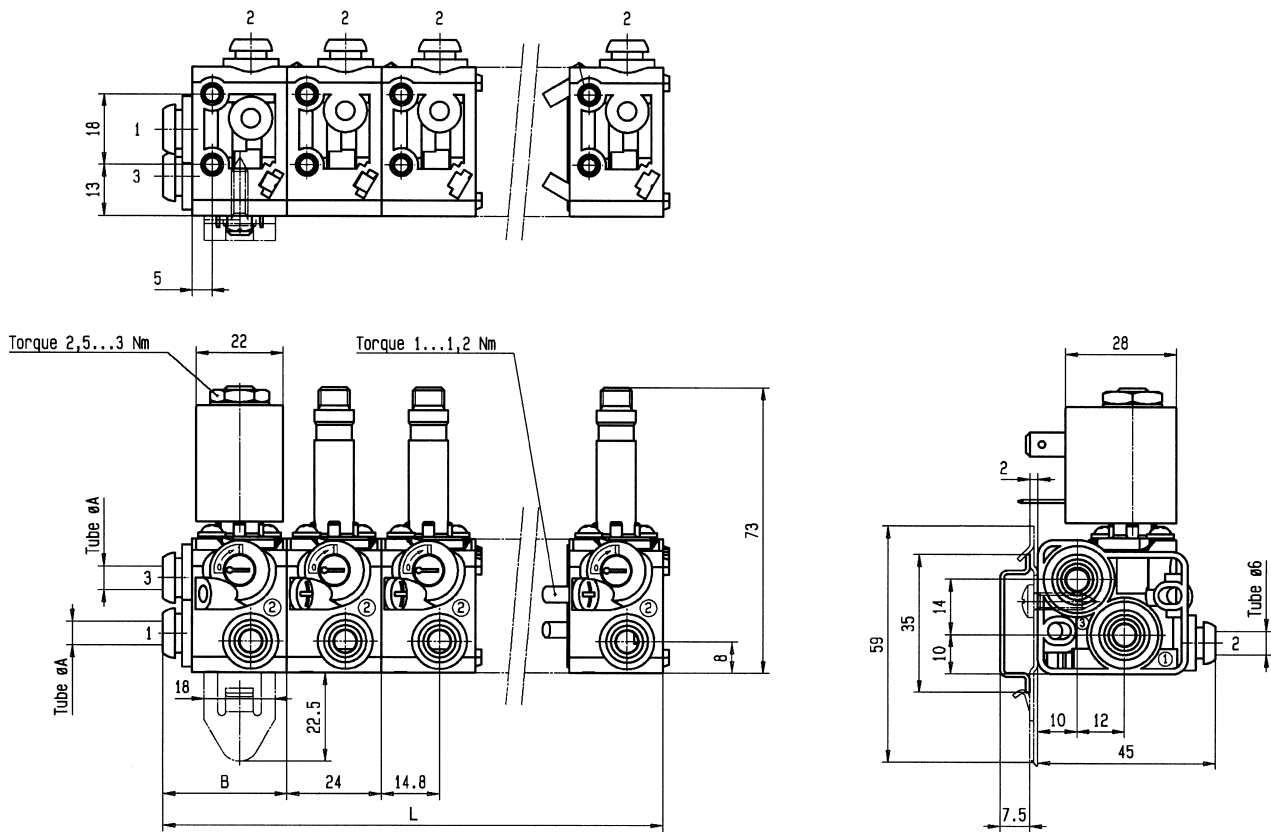


**495102**

2 x Screws M4 x 10  
2 x O-Rings Øint. 14 x 1.78

Supplied with valves

DIMENSIONAL DRAWINGS



Unit weight without coil: 50 g.

|  |                 |                 |
|--|-----------------|-----------------|
| Ø A [mm]                                       | 6               | 8               |
| B [mm]   | 29              | 34              |
| L [mm]   | $24 (n-1) + 29$ | $24 (n-1) + 34$ |
| n = number of valves, maximum recommended = 10 |                 |                 |

# Solenoid valves for actuator control

# 5/2

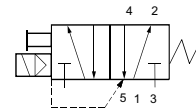
## Applications

3- or 4-way directional valves for control of single or double acting pneumatic actuators.



| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     | Fluid temp. °C |     | Seat disc | Reference numbers      |                     |         | OR | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----------------|-----|-----------|------------------------|---------------------|---------|----|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | Min            | Max |           | Global valve reference | Valve reference no. | Housing |    | Coil                  | DC |         |                  |          |
| G         |              | Qn                   |                                      |     |                |     |           |                        |                     |         |    |                       |    |         |                  |          |

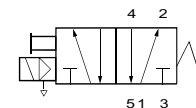
Pilot operated - Integrated pilot



## Anod. aluminium body/Pipe mounting - Spool design

|     |   |     |   |    |    |     |    |     |              |               |   |             |               |     |   |     |   |     |
|-----|---|-----|---|----|----|-----|----|-----|--------------|---------------|---|-------------|---------------|-----|---|-----|---|-----|
| 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR | 2341PAG1JNM0 | <b>341P01</b> | 1 | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 310 | 1 | 201 |
|-----|---|-----|---|----|----|-----|----|-----|--------------|---------------|---|-------------|---------------|-----|---|-----|---|-----|

Pilot operated



## Anod. aluminium body/Pipe mounting - Spool design

|     |   |     |   |    |    |     |    |     |              |                 |   |             |                  |     |     |     |     |     |
|-----|---|-----|---|----|----|-----|----|-----|--------------|-----------------|---|-------------|------------------|-----|-----|-----|-----|-----|
| 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR | 7341PAG1JNM0 | <b>341P21</b>   |   | <b>2995</b> | <b>481865</b>    | 9   | 8   | 360 | 2   | 202 |
|     | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR |              |                 |   | <b>4270</b> | <b>481000</b>    | 8   | 8   | 470 | 2   |     |
|     | 4 | 600 | 2 | 10 | 10 | -40 | 65 | NBR | 7341PAG1JPM0 | <b>341P2108</b> | 2 | <b>2995</b> | <b>481865</b>    | 9   | 8   | 360 | 2   | 202 |
|     | 4 | 600 | 2 | 10 | 10 | -40 | 65 | NBR |              |                 |   | <b>4270</b> | <b>481000</b>    | 8   | 8   | 470 | 2   |     |
|     | 4 | 600 | 2 | 10 | -  | -25 | 80 | NBR | 7341PAG1JNL2 | <b>341P2180</b> |   | <b>2995</b> | <b>482740</b>    | 1.6 | -   | 470 | 6   | 202 |
|     | 4 | 600 | 2 | 10 | -  | -25 | 80 | NBR | 7341PAG1JN90 | <b>341P2190</b> |   | -           | <b>483580.01</b> | 3   | 0.4 | -   | 470 | 7   |

Table continued on page 240

## Notes:

- \* See Electrical Parts Group table at end of section
- 1. Manual override standard
- 2. Operates with low temperatures down to -40 deg. C
- 3. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design

**Dimension reference 201**

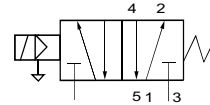
**Dimension reference 202**

**Dimension reference 7351**

# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| G         |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

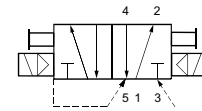
Pilot operated



## Anod. aluminium body/Pipe mounting - Spool design

|     |   |     |   |    |    |     |    |     |              |            |   |        |   |   |      |   |      |
|-----|---|-----|---|----|----|-----|----|-----|--------------|------------|---|--------|---|---|------|---|------|
| 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 65 | NBR | 7341PAG1JN1D | 341P21001D | - | 483250 | 8 | 8 | 1450 | 5 | 7636 |
|-----|---|-----|---|----|----|-----|----|-----|--------------|------------|---|--------|---|---|------|---|------|

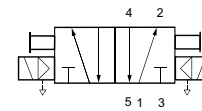
Two solenoids and main pressure supply - Integrated pilot



## Anod. aluminium body/Pipe mounting - Spool design

|     |   |     |   |    |    |     |    |     |              |        |      |        |   |     |   |     |   |     |
|-----|---|-----|---|----|----|-----|----|-----|--------------|--------|------|--------|---|-----|---|-----|---|-----|
| 1/8 | 4 | 400 | 2 | 10 | 10 | -25 | 80 | NBR | 2347PAG1HNM0 | 347P01 | 8993 | 488980 | 1 | 2.5 | 2 | 460 | 1 | 207 |
|-----|---|-----|---|----|----|-----|----|-----|--------------|--------|------|--------|---|-----|---|-----|---|-----|

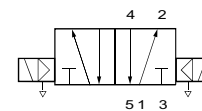
Two solenoids and main pressure supply



## Anod. aluminium body/Pipe mounting - Spool design

|     |   |     |   |    |    |     |    |     |              |        |      |        |   |   |   |     |   |     |
|-----|---|-----|---|----|----|-----|----|-----|--------------|--------|------|--------|---|---|---|-----|---|-----|
| 1/8 | 4 | 400 | 2 | 10 | 10 | -25 | 80 | NBR | 7347PAG1HNM0 | 347P21 | 2995 | 481865 | 1 | 9 | 8 | 500 | 2 | 206 |
|     | 4 | 400 | 2 | 10 | 10 | -25 | 80 | NBR |              |        | 4270 | 481000 | 1 | 8 | 8 | 720 | 2 | 206 |

Two solenoids and main pressure supply



## Anod. aluminium body/Pipe mounting - Spool design

|     |   |     |   |    |   |     |    |     |              |          |   |           |   |     |   |     |   |     |
|-----|---|-----|---|----|---|-----|----|-----|--------------|----------|---|-----------|---|-----|---|-----|---|-----|
| 1/8 | 4 | 400 | 2 | 10 | - | -25 | 80 | NBR | 7347PAG1HN90 | 347P2190 | - | 483580.01 | 2 | 0.4 | - | 720 | 7 | 206 |
|-----|---|-----|---|----|---|-----|----|-----|--------------|----------|---|-----------|---|-----|---|-----|---|-----|

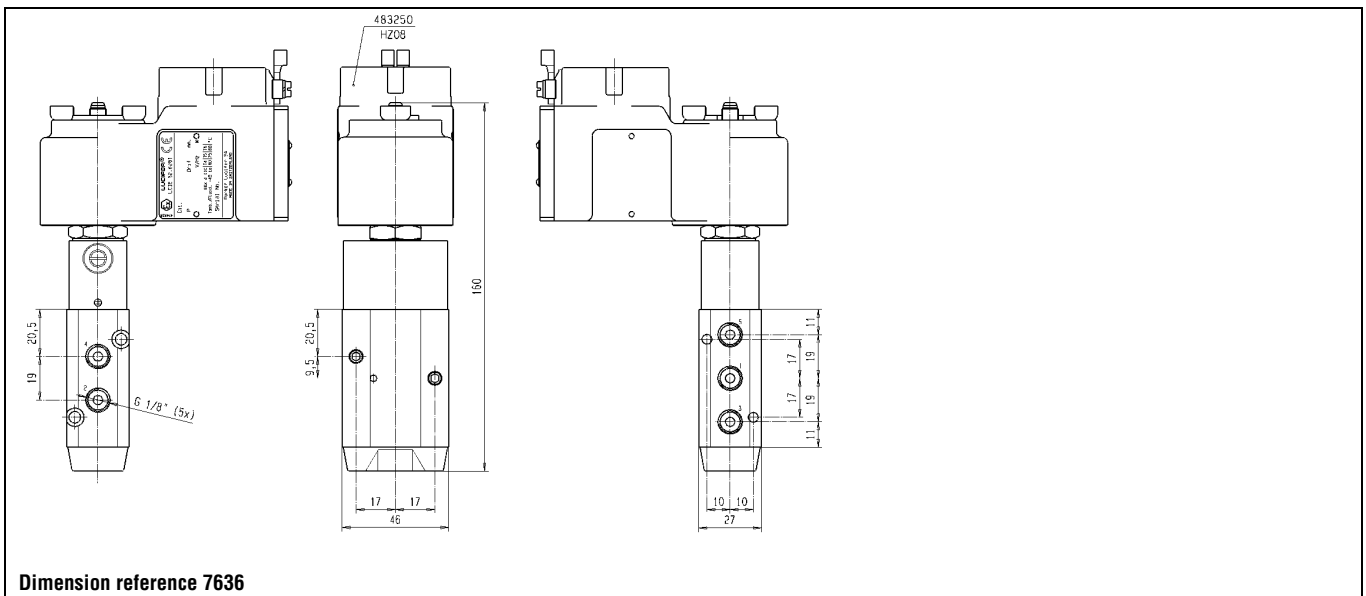
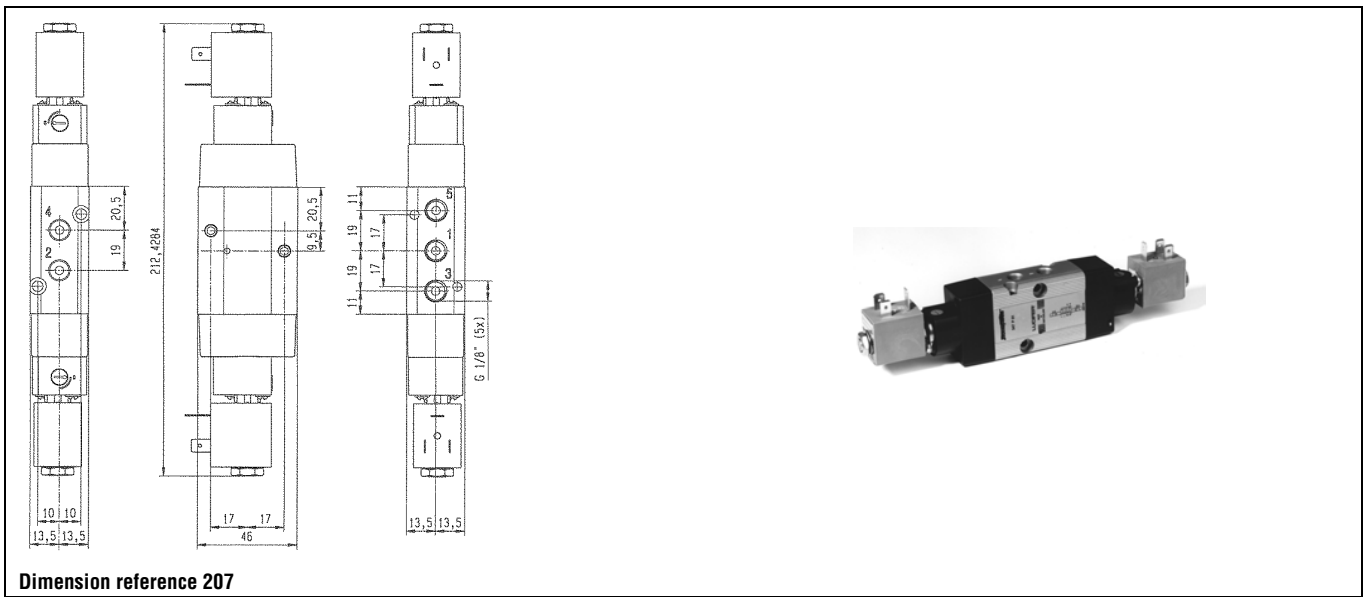
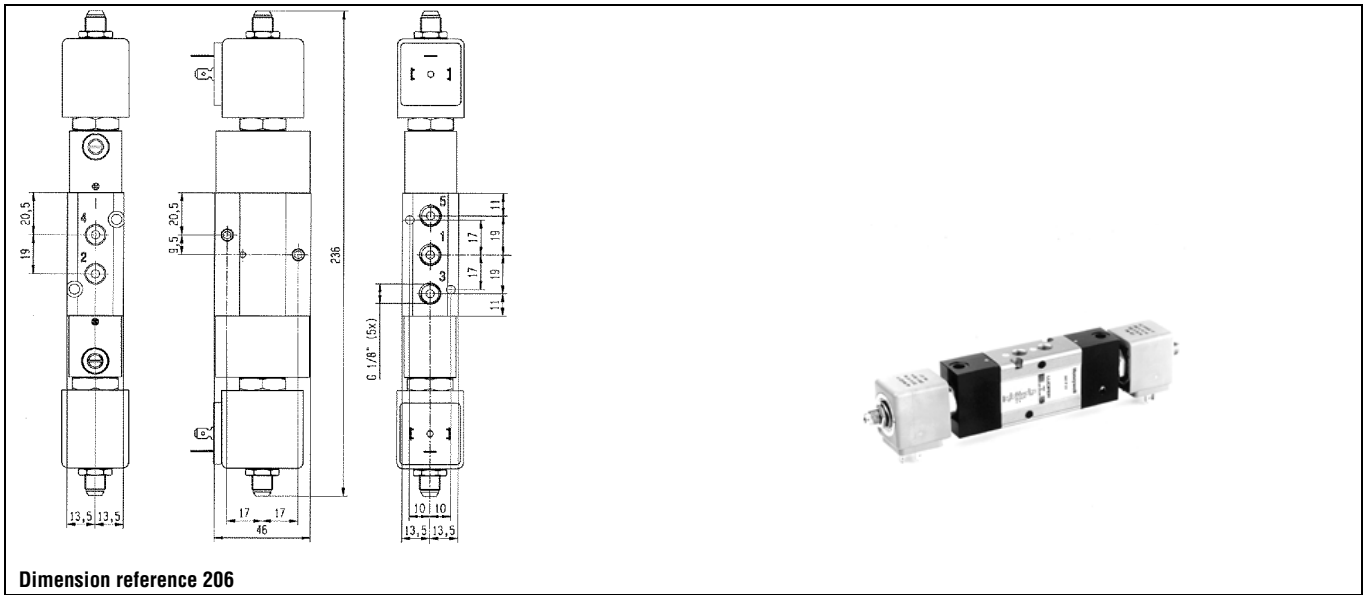
Table continued on page 242

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Please order two housings and coils for each valve
- 2. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)



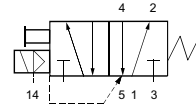
# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design



# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| G         |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

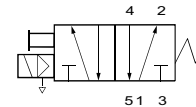
Pilot operated with external pressure supply



## Anod. aluminium body/Pipe mounting - Spool design

|     |   |     |   |    |    |     |    |     |              |                 |   |             |               |   |   |     |   |     |
|-----|---|-----|---|----|----|-----|----|-----|--------------|-----------------|---|-------------|---------------|---|---|-----|---|-----|
| 1/8 | 4 | 600 | 2 | 10 | 10 | -40 | 65 | NBR | 7441PAG1JPM0 | <b>441P2108</b> | 1 | <b>2995</b> | <b>481865</b> | 9 | 8 | 360 | 2 | 204 |
|     | 4 | 600 | 2 | 10 | 10 | -40 | 65 | NBR |              |                 |   | <b>4270</b> | <b>481000</b> | 8 | 8 | 470 | 2 |     |

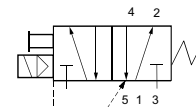
Impulse coil



## Anod. aluminium body/NAMUR interface - Spool design

|     |   |     |   |    |    |     |    |     |              |               |   |   |               |    |    |     |   |     |
|-----|---|-----|---|----|----|-----|----|-----|--------------|---------------|---|---|---------------|----|----|-----|---|-----|
| 1/8 | 4 | 600 | 2 | -  | 10 | -25 | 80 | NBR | 7345PAG1JNM0 | <b>345P21</b> | - | - | <b>484990</b> | -  | 11 | 330 | 4 | 202 |
|     | 4 | 600 | 2 | 10 | -  | -25 | 80 | NBR |              |               | - | - | <b>485400</b> | 13 | -  | 330 | 4 |     |

Pilot operated - Integrated pilot



## Anod. aluminium body/Pipe mounting - Spool design

|     |   |      |   |    |    |     |    |     |              |               |  |             |               |     |   |     |   |     |
|-----|---|------|---|----|----|-----|----|-----|--------------|---------------|--|-------------|---------------|-----|---|-----|---|-----|
| 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 2341PAG2HNM0 | <b>341P02</b> |  | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 380 | 1 | 224 |
|-----|---|------|---|----|----|-----|----|-----|--------------|---------------|--|-------------|---------------|-----|---|-----|---|-----|

Table continued on page 244

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Operates with low temperatures down to -40 deg. C

# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design

Technical drawings for dimension reference 202 showing front, side, and top views with dimensions: 19, 20,5, 13,5, 13,5, 9,5, 20,5, 158,5, 17, 17, 46, 10, 10, 13,5, 13,5, 27, 11, 17, 19, 11, 17, 19, 11, G 1/8" (5x).

**Dimension reference 202**

Technical drawings for dimension reference 204 showing front, side, and top views with dimensions: 14, 4, 7, 20,5, 19, 13,5, 13,5, 146,7, 9,5, 20,5, 17, 17, 46, 11, 19, 17, 11, 19, 17, 11, 10, 10, 13,5, 13,5, 27, 11, 19, 17, 11, G 1/8" (5x).

**Dimension reference 204**

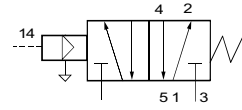
Technical drawings for dimension reference 224 showing front, side, and top views with dimensions: 80,1, 47, 23, 35, 17,5, 17,5, 160,6, 23, 33,9, 42, 55, 11,2, 23,8, 23,8, 11,2, 17,5, 17,5.

**Dimension reference 224**

# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| G         |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

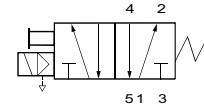
External pressure supply



## Anod. aluminium body/NAMUR interface - Spool design

|     |   |     |   |    |    |     |    |     |              |          |   |   |   |   |   |     |   |     |
|-----|---|-----|---|----|----|-----|----|-----|--------------|----------|---|---|---|---|---|-----|---|-----|
| 1/8 | 4 | 600 | 2 | 10 | 10 | -40 | 65 | PUR | 7541PAG1JP00 | 541P0108 | 1 | - | - | - | - | 270 | - | 205 |
|-----|---|-----|---|----|----|-----|----|-----|--------------|----------|---|---|---|---|---|-----|---|-----|

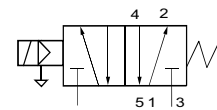
Pilot operated



## Anod. aluminium body/Pipe mounting - Spool design

|     |   |      |   |    |    |     |    |     |              |          |      |        |     |   |     |   |     |
|-----|---|------|---|----|----|-----|----|-----|--------------|----------|------|--------|-----|---|-----|---|-----|
| 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7341PAG2PNM0 | 341P22   | 2995 | 481865 | 9   | 8 | 450 | 2 | 218 |
|     | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR |              |          | 4270 | 481000 | 8   | 8 | 560 | 2 |     |
|     | 8 | 1400 | 2 | 10 | -  | -25 | 80 | NBR | 7341PAG2PNL2 | 341P2280 | 2995 | 482740 | 1.6 | - | 450 | 6 | 218 |
|     | 8 | 1400 | 2 | 10 | -  | -25 | 80 | NBR |              |          | -    | 491117 | 2.5 | - | 810 | 6 |     |

Pilot operated



## Anod. aluminium body/Pipe mounting - Spool design

|     |   |      |   |    |   |     |    |     |              |          |   |           |   |     |   |     |   |     |
|-----|---|------|---|----|---|-----|----|-----|--------------|----------|---|-----------|---|-----|---|-----|---|-----|
| 1/4 | 8 | 1400 | 2 | 10 | - | -25 | 80 | NBR | 7341PAG2PN90 | 341P2290 | - | 483580.01 | 2 | 0.4 | - | 560 | 7 | 218 |
|-----|---|------|---|----|---|-----|----|-----|--------------|----------|---|-----------|---|-----|---|-----|---|-----|

Table continued on page 246

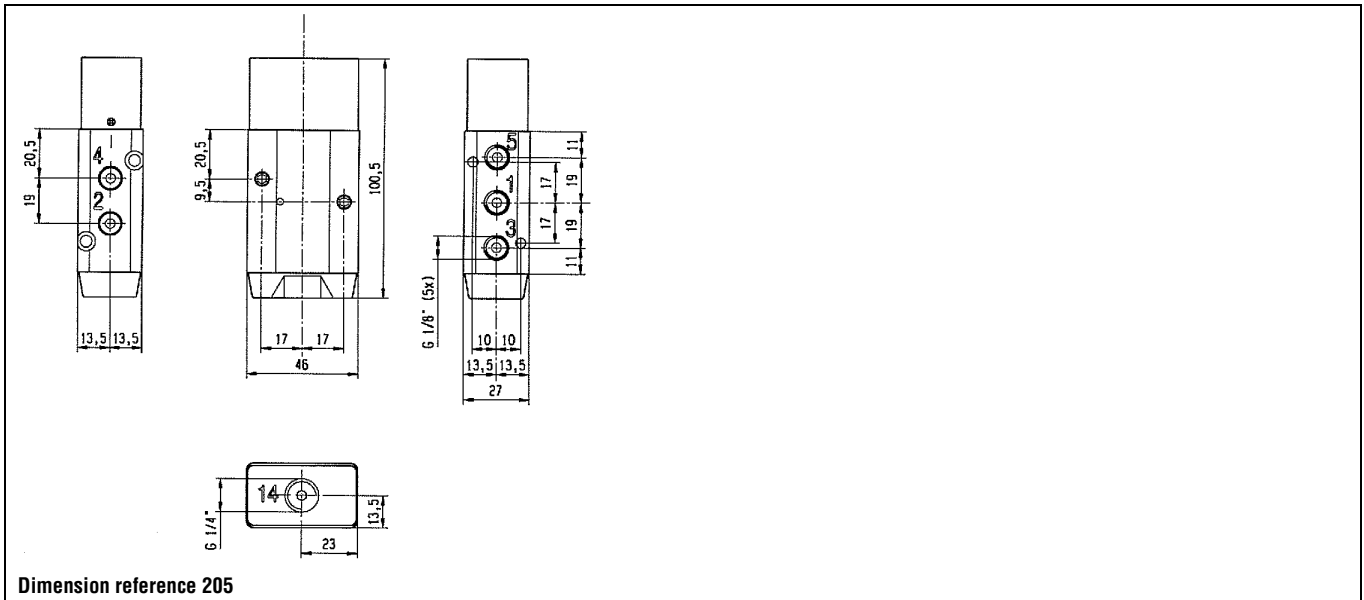
### Notes:

\* See Electrical Parts Group table at end of section

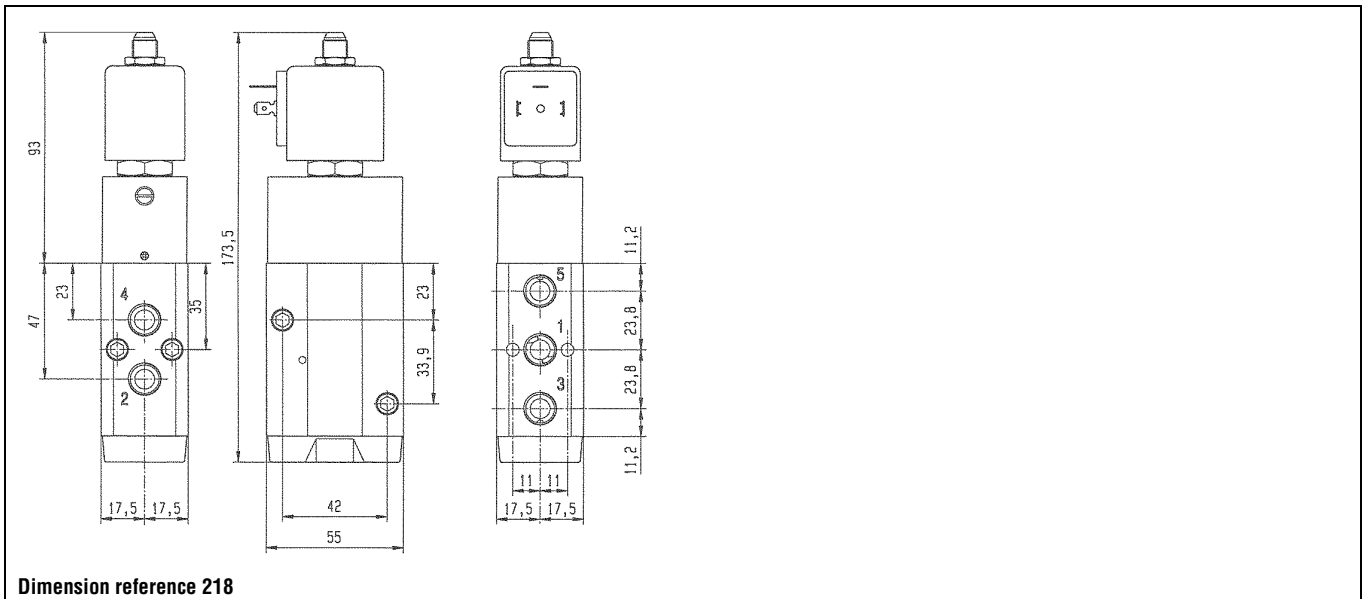
1. Operates with low temperatures down to -40 deg. C

2. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design



Dimension reference 205

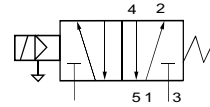


Dimension reference 218

# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| G         |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

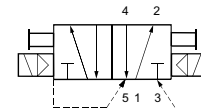
Pilot operated



## Anod. aluminium body/Pipe mounting - Spool design

|     |   |      |   |    |    |     |    |     |              |            |   |        |   |   |      |   |      |
|-----|---|------|---|----|----|-----|----|-----|--------------|------------|---|--------|---|---|------|---|------|
| 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7341PAG2PN1D | 341P22001D | - | 483250 | 8 | 8 | 1450 | 5 | 7755 |
|-----|---|------|---|----|----|-----|----|-----|--------------|------------|---|--------|---|---|------|---|------|

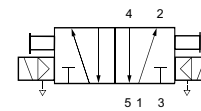
Two solenoids and main pressure supply - Integrated pilot



## Anod. aluminium body/Pipe mounting - Spool design

|     |   |      |   |    |    |     |    |     |              |        |      |        |   |     |   |     |   |     |
|-----|---|------|---|----|----|-----|----|-----|--------------|--------|------|--------|---|-----|---|-----|---|-----|
| 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 2347PAG2PNM0 | 347P02 | 8993 | 488980 | 1 | 2.5 | 2 | 450 | 1 | 225 |
|-----|---|------|---|----|----|-----|----|-----|--------------|--------|------|--------|---|-----|---|-----|---|-----|

Two solenoids and main pressure supply



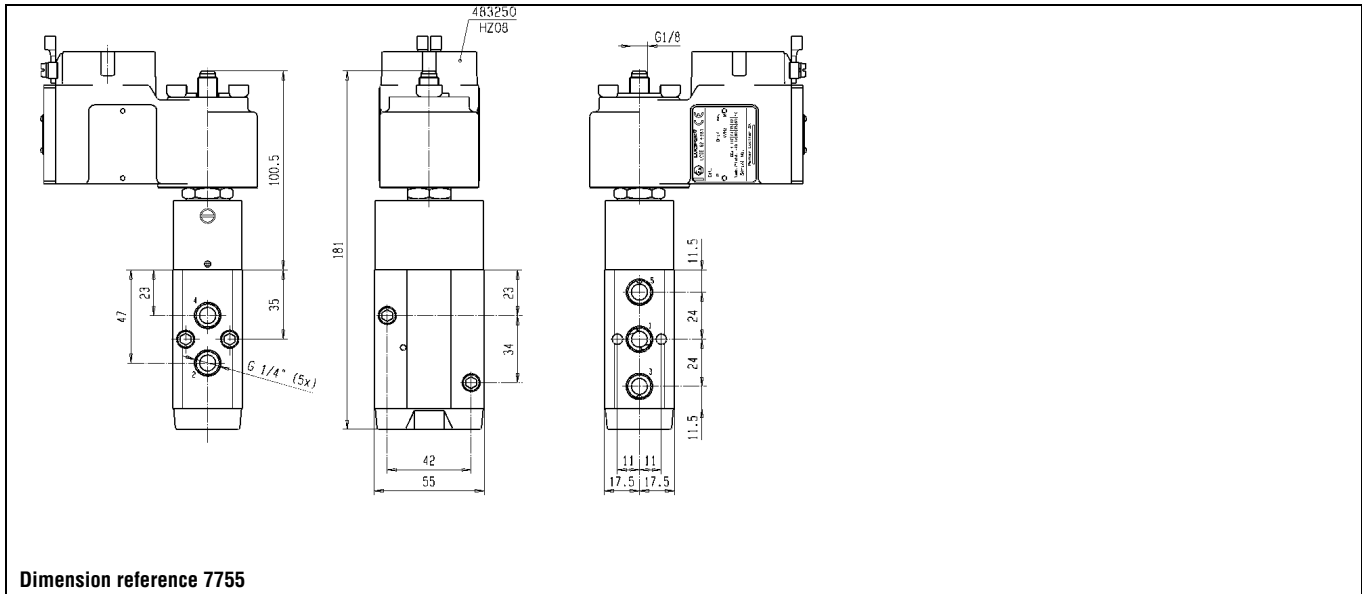
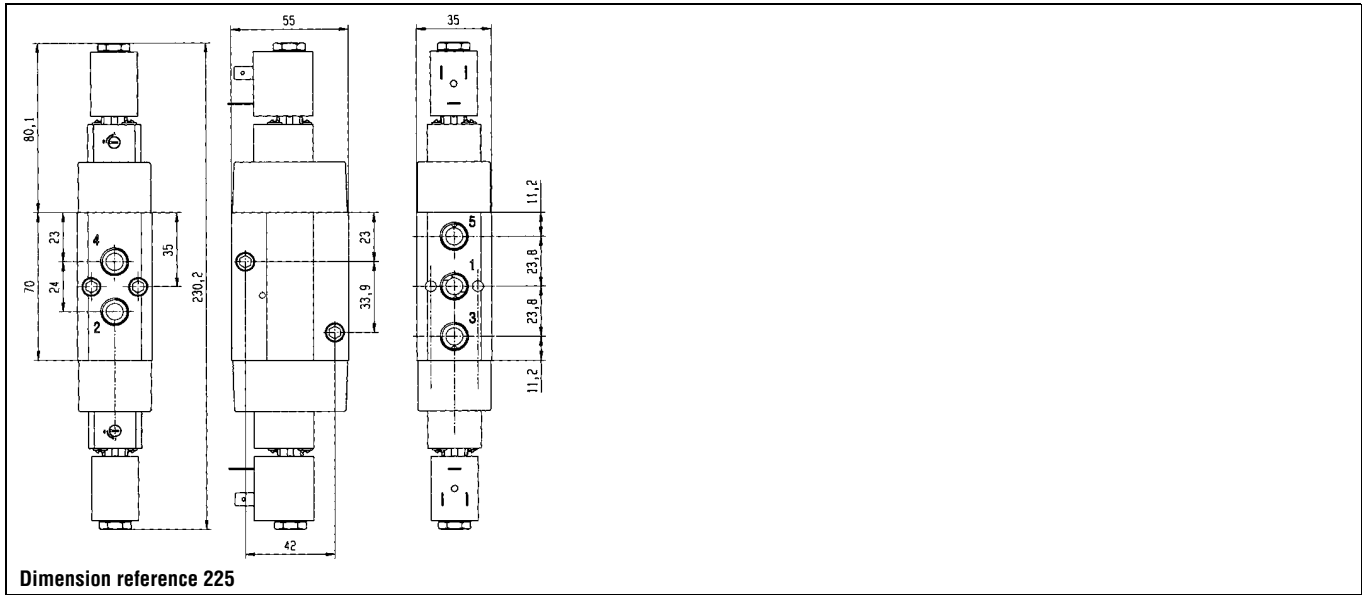
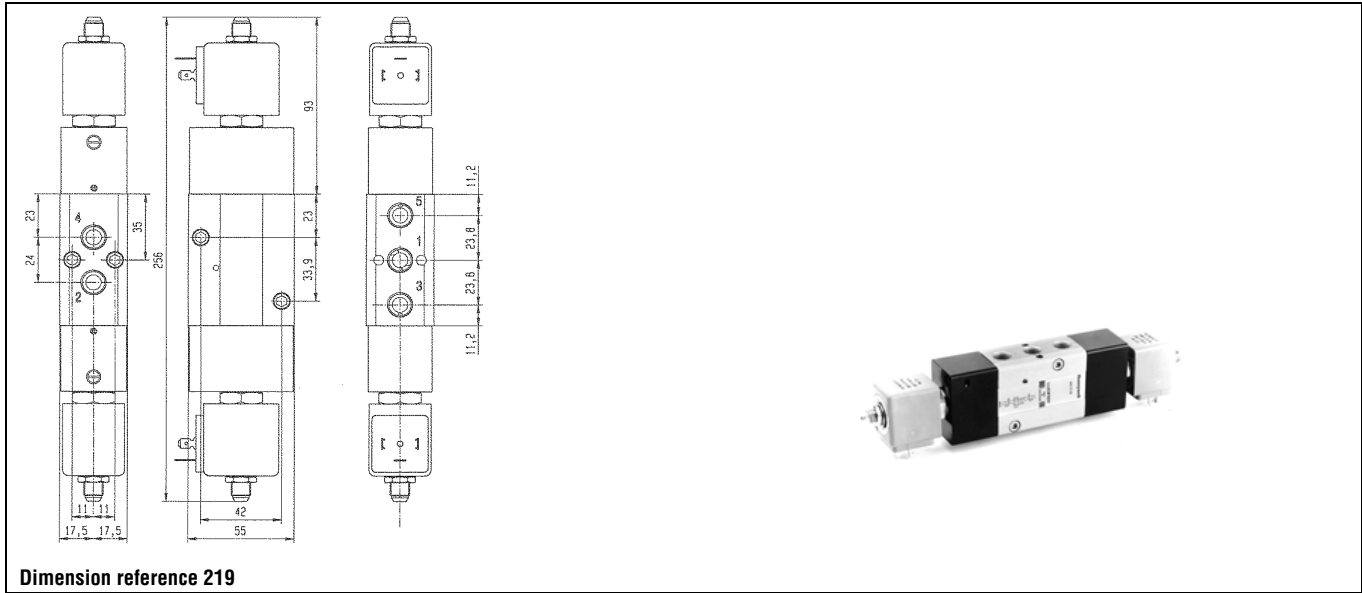
## Anod. aluminium body/Pipe mounting - Spool design

|     |   |      |   |    |    |     |    |     |              |        |      |        |   |   |   |     |   |     |
|-----|---|------|---|----|----|-----|----|-----|--------------|--------|------|--------|---|---|---|-----|---|-----|
| 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7347PAG2PNM0 | 347P22 | 2995 | 481865 | 1 | 9 | 8 | 590 | 2 | 219 |
|     | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR |              |        | 4270 | 481000 | 1 | 8 | 8 | 810 | 2 | 219 |

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Please order two housings and coils for each valve

# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design



# Solenoid valves for actuator control

# 5/2

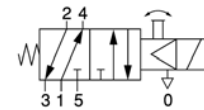
## Applications

3- or 4-way directional valves for control of single - or double acting pneumatic actuators.



| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max |    | Min            | Max |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              | Qn                   |                                      | DC  | AC |                |     |           |                        |                     |         |      |                       |    |         |                  |          |

Pilot operated



## Aluminium alloy and brass body/Pipe mounting - Poppet design

|     |   |     |   |    |    |     |    |     |   |          |      |        |     |   |     |   |    |
|-----|---|-----|---|----|----|-----|----|-----|---|----------|------|--------|-----|---|-----|---|----|
| 1/8 | 4 | 400 | 1 | 10 | 10 | -10 | 75 | NBR | - | 341L9101 | 8993 | 488980 | 2.5 | 2 | 270 | 1 | 42 |
|-----|---|-----|---|----|----|-----|----|-----|---|----------|------|--------|-----|---|-----|---|----|

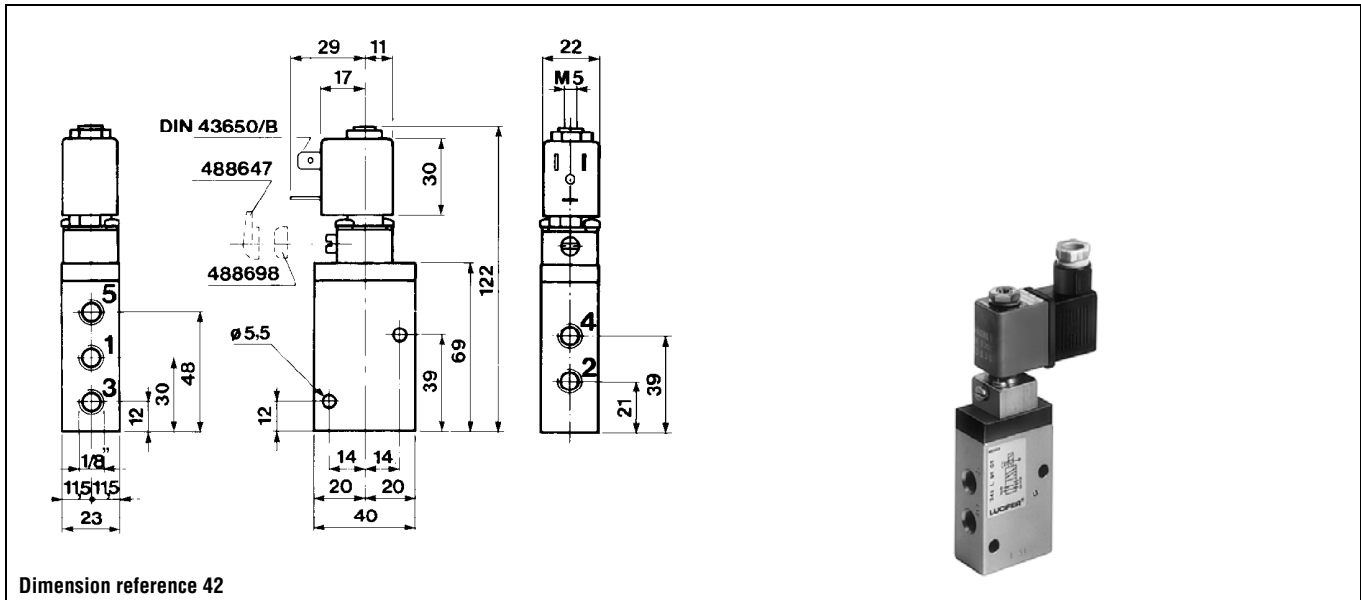
Table continued on page 250

### Notes:

\* See Electrical Parts Group table at end of section



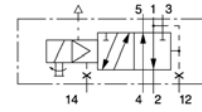
# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Poppet design



## Solenoid valves for actuator control - 5/2 valves - Pipe connection-Poppet design

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers      |                     |  |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|------------------------|---------------------|--|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max |    | Min            | Max |           | Global valve reference | Valve reference no. |  | Housing | Coil                  | DC |         |                  |          |
| G         |              | Qn                   |                                      | DC  | AC | Min            | Max |           |                        |                     |  |         |                       |    |         |                  |          |

Pilot operated



### Die-cast zinc body/Pipe mounting - Poppet design

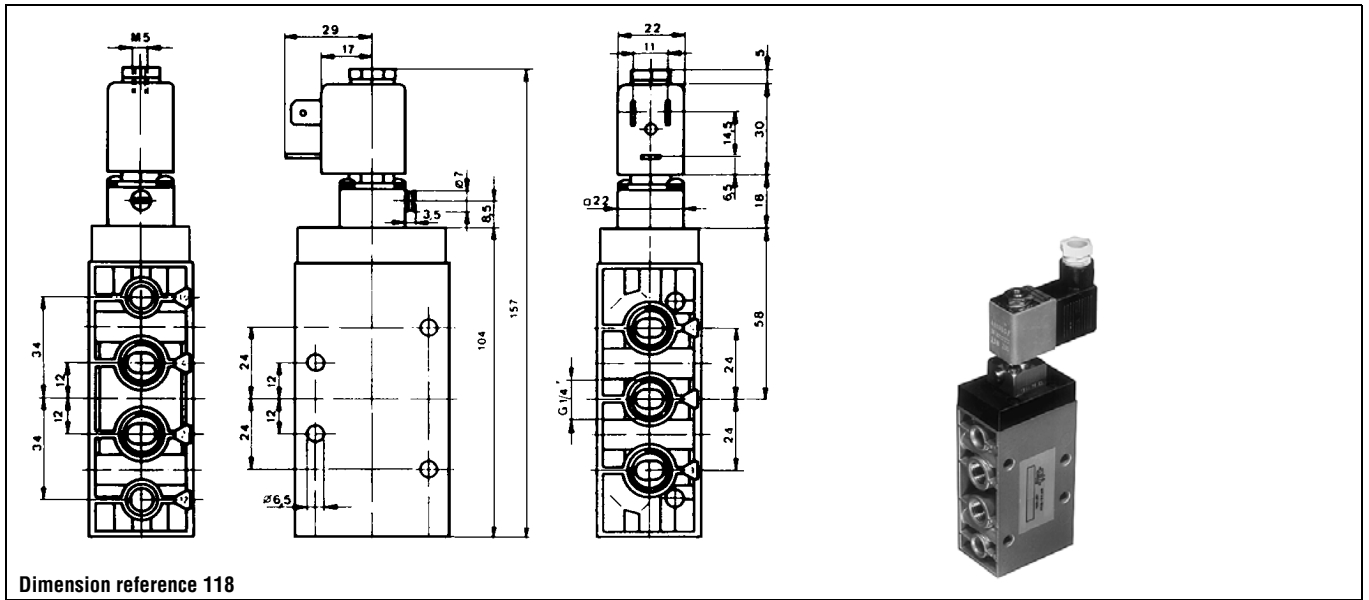
|     |   |      |   |    |    |     |    |     |   |        |      |        |     |   |     |   |     |
|-----|---|------|---|----|----|-----|----|-----|---|--------|------|--------|-----|---|-----|---|-----|
| 1/4 | 8 | 1400 | 1 | 10 | 10 | -10 | 75 | NBR | - | 341L11 | 8993 | 488980 | 2.5 | 2 | 690 | 1 | 118 |
|-----|---|------|---|----|----|-----|----|-----|---|--------|------|--------|-----|---|-----|---|-----|

Table continued on page 252

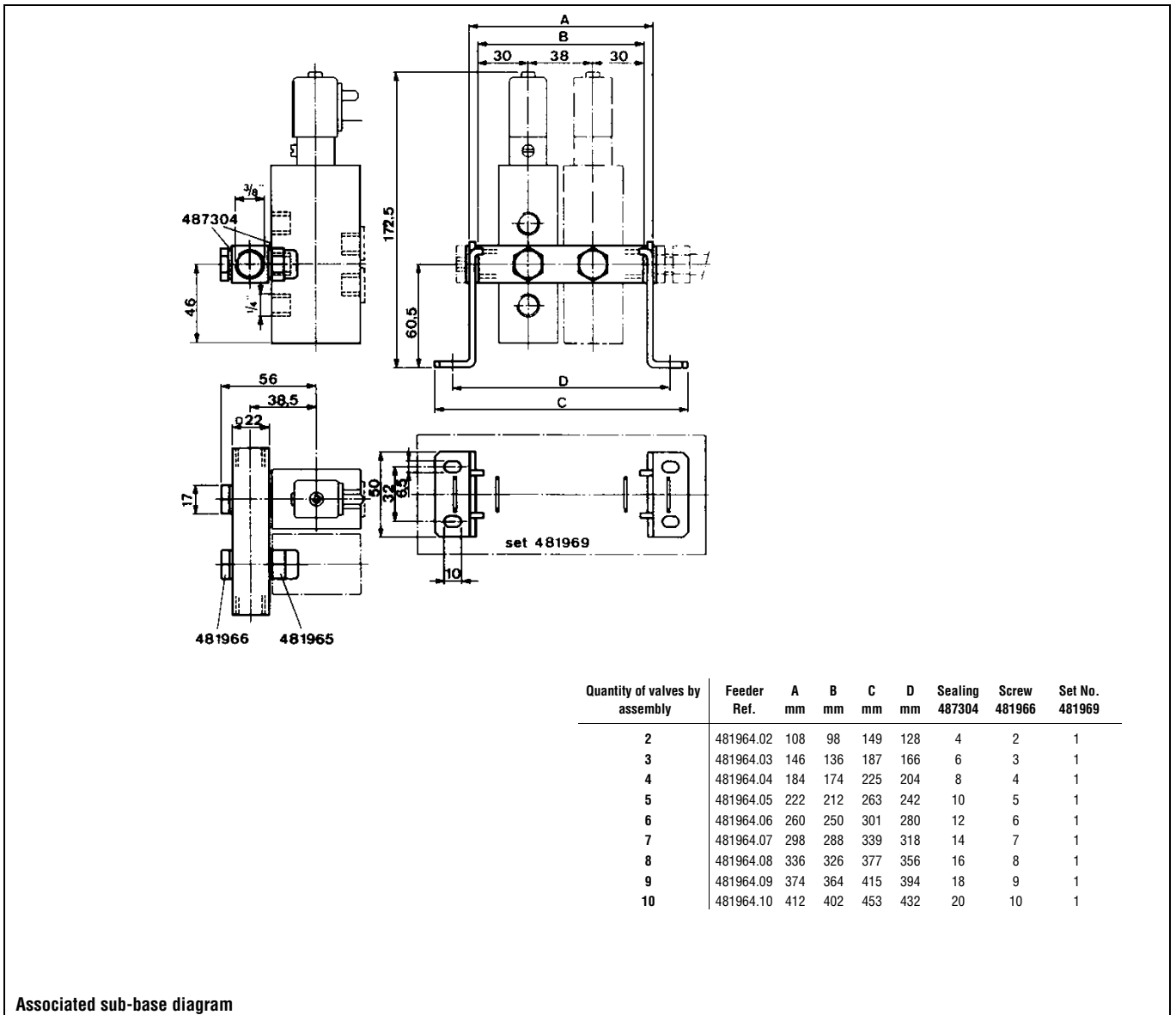
#### Notes:

\* See Electrical Parts Group table at end of section

# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Poppet design



Dimension reference 118

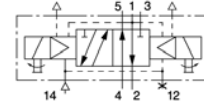


Associated sub-base diagram

# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Poppet design

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C         |                     | Seat disc | Reference numbers |      |  |    | Power consumption (W) | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|------------------------|---------------------|-----------|-------------------|------|--|----|-----------------------|---------|------------------|----------|
|           |              |                      | Min                                  | Max | AC | Global valve reference | Valve reference no. |           | Housing           | Coil |  |    |                       |         |                  |          |
| G         |              | Qn                   |                                      | DC  | AC | Min                    | Max                 |           |                   |      |  | DC | AC                    |         |                  |          |

Two solenoids and main pressure supply



## Die-cast zinc body/Pipe mounting - Poppet design

|     |   |      |   |    |    |     |    |     |   |        |      |        |   |     |   |     |   |    |
|-----|---|------|---|----|----|-----|----|-----|---|--------|------|--------|---|-----|---|-----|---|----|
| 1/4 | 8 | 1400 | 1 | 10 | 10 | -10 | 75 | NBR | - | 347L11 | 8993 | 488980 | 1 | 2.5 | 2 | 750 | 1 | 46 |
|-----|---|------|---|----|----|-----|----|-----|---|--------|------|--------|---|-----|---|-----|---|----|

Table continued on page 254

### Notes:

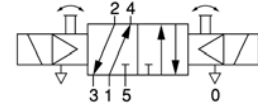
- \* See Electrical Parts Group table at end of section
- 1. Please order two housings and coils for each valve



## Solenoid valves for actuator control - 5/2 valves - Pipe connection-Poppet design

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | AC | Min            | Max |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              | Qn                   |                                      |     |    |                |     |           |                        |                     |         |      |                       |    |         |                  |          |

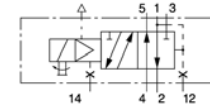
Two solenoids and main pressure supply



### Aluminium alloy and brass body/Pipe mounting - Poppet design

|     |   |     |   |    |    |     |    |     |   |          |      |        |   |     |   |     |   |     |
|-----|---|-----|---|----|----|-----|----|-----|---|----------|------|--------|---|-----|---|-----|---|-----|
| 1/8 | 4 | 315 | 2 | 10 | 10 | -10 | 75 | NBR | - | 347L9101 | 8993 | 488980 | 1 | 2.5 | 2 | 430 | 1 | 117 |
|-----|---|-----|---|----|----|-----|----|-----|---|----------|------|--------|---|-----|---|-----|---|-----|

Pilot operated



### Die-cast zinc body/Pipe mounting - Poppet design

|     |   |      |   |    |    |     |    |     |              |           |      |           |   |     |   |   |      |
|-----|---|------|---|----|----|-----|----|-----|--------------|-----------|------|-----------|---|-----|---|---|------|
| 1/4 | 8 | 1400 | 1 | 10 | 10 | -10 | 75 | NBR | 7341LMG2NNM0 | E341L1130 | 2995 | 481865    | 9 | 8   | - | 2 | 3539 |
|     | 8 | 1400 | 1 | 10 | 10 | -10 | 75 | NBR | 7341LMG2NNM0 |           | 4270 | 481000    | 8 | 8   | - | 2 | 3539 |
|     | 8 | 1400 | 1 | 10 | 10 | -10 | 75 | NBR | -            | 341L1190  | -    | 483580.01 | 2 | 0.4 | - | 7 | 7478 |

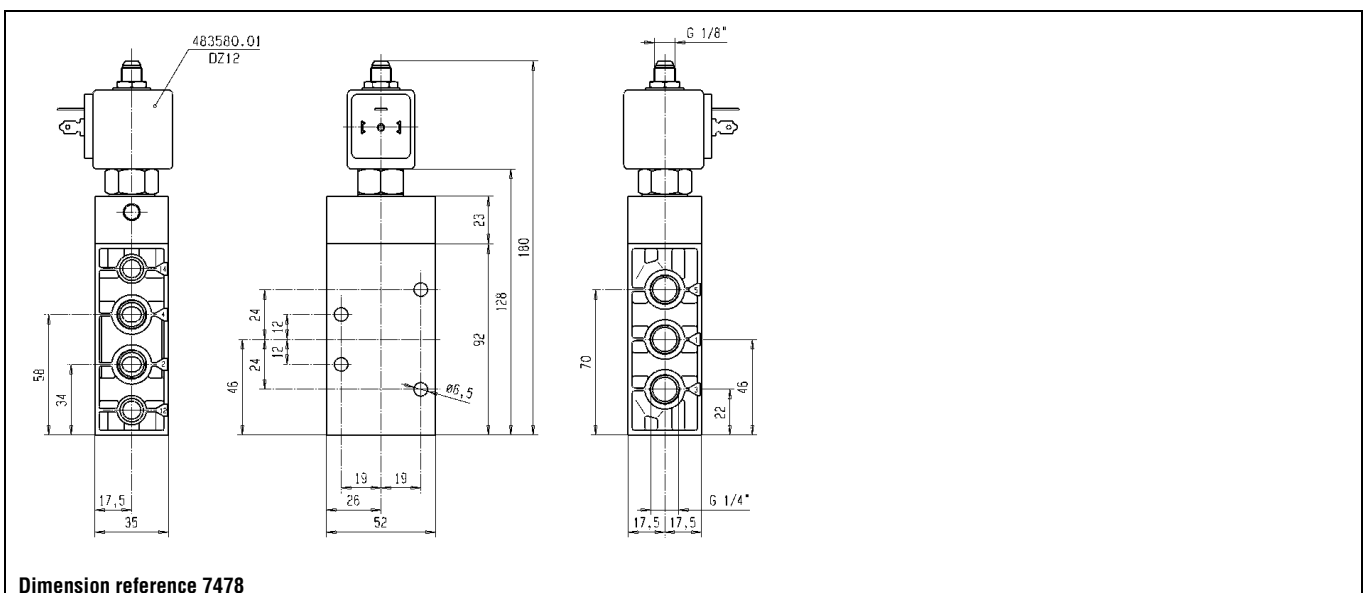
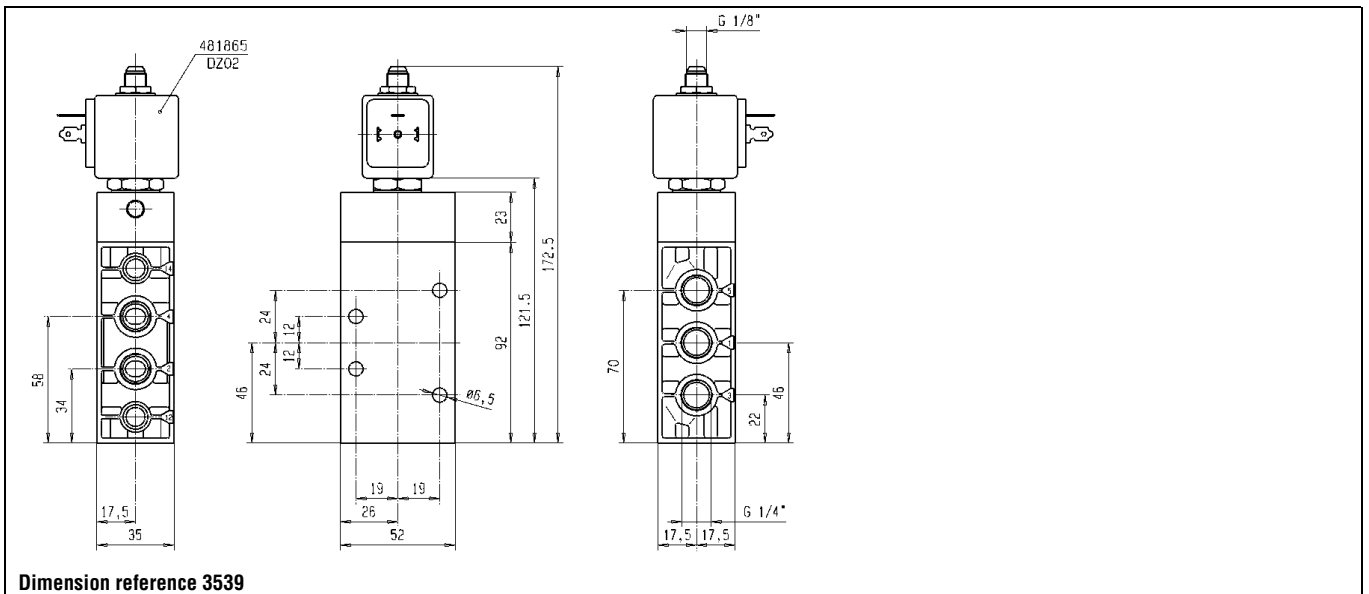
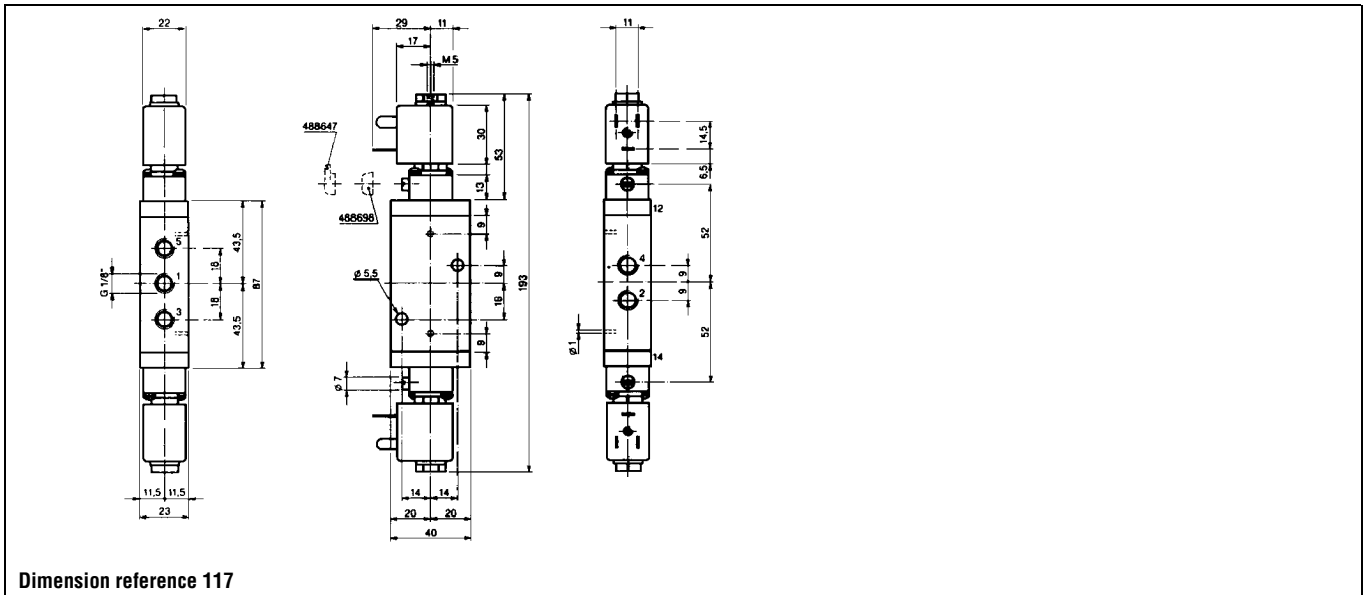
#### Notes:

\* See Electrical Parts Group table at end of section

1. Please order two of these items per valve

2. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

# Solenoid valves for actuator control - 5/2 valves - Pipe connection-Poppet design







# Solenoid valves for actuator control – NAMUR interface

| ACTUATION   | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) <KPA> | PAGE        |
|---|------------|--------------|---------------------------|-------------|
| Pilot operated  | 1/4        | 8            | 10.0                      | 264/266     |
|   | 1/4 - 1/8  | 4            | 10.0                      | 258/260/270 |
| Pilot operated - Integrated pilot                         | 1/4        | 8            | 10.0                      | 264         |
|   | 1/4 - 1/8  | 4            | 10.0                      | 258         |
| Two solenoids and main pressure supply                    | 1/4        | 8            | 10.0                      | 268         |
|   | 1/4 - 1/8  | 4            | 10.0                      | 262         |
| Two solenoids and main pressure supply - Integrated pilot | 1/4        | 8            | 10.0                      | 268         |
|   | 1/4 - 1/8  | 4            | 10.0                      | 262         |
| Solenoid and external pressure supply                     | 1/4 - 1/8  | 4            | 10.0                      | 260         |
| External pressure supply                                  | 1/4 - 1/8  | 4            | 10.0                      | 262         |

Notes:

# Solenoid valves for actuator control

# 3/2 5/2

## Applications

3- or 4-way directional valves for control of single - or double acting pneumatic actuators.

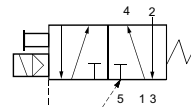
A patented sealing plate is incorporated to the body - providing on-site conversion of the valve from 5/2 to the 3/2 function (or vice versa) by simply rotating the plate through 180°. In the 3/2 function it provides venting of spring chambers to prevent corrosion which normally occurs when environmental air penetrates into the actuator.

The interface design corresponds to the German NAMUR standard and the VDI/VDE 3845 recommendations of the actuator industry and permits a compact design of the actuator/valve unit.



| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     | Fluid temp. °C |     | Seat disc | Reference numbers      |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----------------|-----|-----------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | Min            | Max |           | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| G         |              | Qn                   |                                      |     |                |     |           |                        |                     |         |                       |    |         |                  |          |

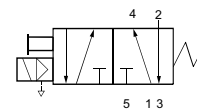
Pilot operated - Integrated pilot



## Anod. aluminium body/NAMUR interface - Spool design

|           |   |     |   |    |    |     |    |     |              |               |   |             |               |     |   |     |   |     |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|---------------|---|-------------|---------------|-----|---|-----|---|-----|
| 1/4 - 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR | 2341NAKBJNM1 | <b>341N01</b> | 1 | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 320 | 1 | 209 |
|           | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR | 2341NAKBJNMO | <b>341N11</b> |   | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 320 | 1 | 208 |

Pilot operated



## Anod. aluminium body/NAMUR interface - Spool design

|           |   |     |   |    |    |     |    |     |              |               |  |             |               |   |   |     |   |     |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|---------------|--|-------------|---------------|---|---|-----|---|-----|
| 1/4 - 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR | 7341NAKBJNM1 | <b>341N21</b> |  | <b>2995</b> | <b>481865</b> | 9 | 8 | 390 | 2 | 210 |
|           | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR |              |               |  | <b>4270</b> | <b>481000</b> | 8 | 8 | 500 | 2 |     |

Table continued on page 260

### Notes:

\* See Electrical Parts Group table at end of section

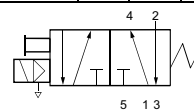
1. Manual override standard



# Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | AC | Min            | Max |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              | Qn                   |                                      |     |    |                |     |           |                        |                     |         |      |                       |    |         |                  |          |

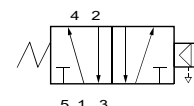
Pilot operated



## Anod. aluminium body/NAMUR interface - Spool design

|           |   |     |   |    |    |     |    |     |              |                 |             |               |     |   |     |   |     |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|-----------------|-------------|---------------|-----|---|-----|---|-----|
| 1/4 - 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR | 7341NAKBJNMO | <b>341N31</b>   | <b>2995</b> | <b>481865</b> | 9   | 8 | 510 | 2 | 211 |
|           | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR |              |                 | <b>4270</b> | <b>481000</b> | 8   | 8 | 620 | 2 |     |
|           | 4 | 600 | 2 | 10 | 10 | -40 | 65 | NBR | 7341NAKBJPMO | <b>341N3108</b> | <b>2995</b> | <b>481865</b> | 9   | 8 | 510 | 2 | 211 |
|           | 4 | 600 | 2 | 10 | 10 | -40 | 65 | NBR |              |                 | <b>4270</b> | <b>481000</b> | 8   | 8 | 620 | 2 |     |
|           | 4 | 600 | 2 | 10 | -  | -25 | 80 | NBR | 7341NAKBJNL2 | <b>341N3180</b> | <b>2995</b> | <b>482740</b> | 1.6 | - | 510 | 6 | 211 |

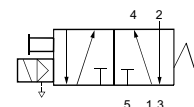
Pilot operated



## Anod. aluminium body/NAMUR interface - Spool design

|           |   |     |   |    |    |     |    |     |              |                 |   |                  |                  |   |     |   |     |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|-----------------|---|------------------|------------------|---|-----|---|-----|
| 1/4 - 1/8 | 4 | 400 | 2 | 10 | 10 | -25 | 80 | NBR | 7341NAKBHN90 | <b>341N3190</b> | - | <b>483580.01</b> | <sup>2</sup> 0.4 | - | 640 | 7 | 211 |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|-----------------|---|------------------|------------------|---|-----|---|-----|

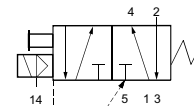
Pilot operated



## Anod. aluminium body/NAMUR interface - Spool design

|           |   |     |   |    |    |     |    |     |              |                   |   |               |   |   |      |   |      |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|-------------------|---|---------------|---|---|------|---|------|
| 1/4 - 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR | 7341NAKBJN1D | <b>341N31001D</b> | - | <b>483250</b> | 8 | 8 | 1520 | 5 | 7753 |
|           | 4 | 600 | 2 | 10 | 10 | -40 | 65 | NBR | 7341NAKBJP1D | <b>341N31081D</b> | - | <b>483250</b> | 8 | 8 | 1520 | 5 | 7753 |

Solenoid and external pressure supply



## Anod. aluminium body/NAMUR interface - Spool design

|           |   |     |   |    |    |     |    |     |              |                 |                          |               |   |   |     |   |     |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|-----------------|--------------------------|---------------|---|---|-----|---|-----|
| 1/4 - 1/8 | 4 | 600 | 2 | 10 | 10 | -40 | 65 | NBR | 7441NAKBJPMO | <b>441N3108</b> | <sup>1</sup> <b>2995</b> | <b>481865</b> | 9 | 8 | 510 | 2 | 211 |
|           | 4 | 600 | 2 | 10 | 10 | -40 | 65 | NBR |              |                 | <b>4270</b>              | <b>481000</b> | 8 | 8 | 620 | 2 |     |

Table continued on page 262

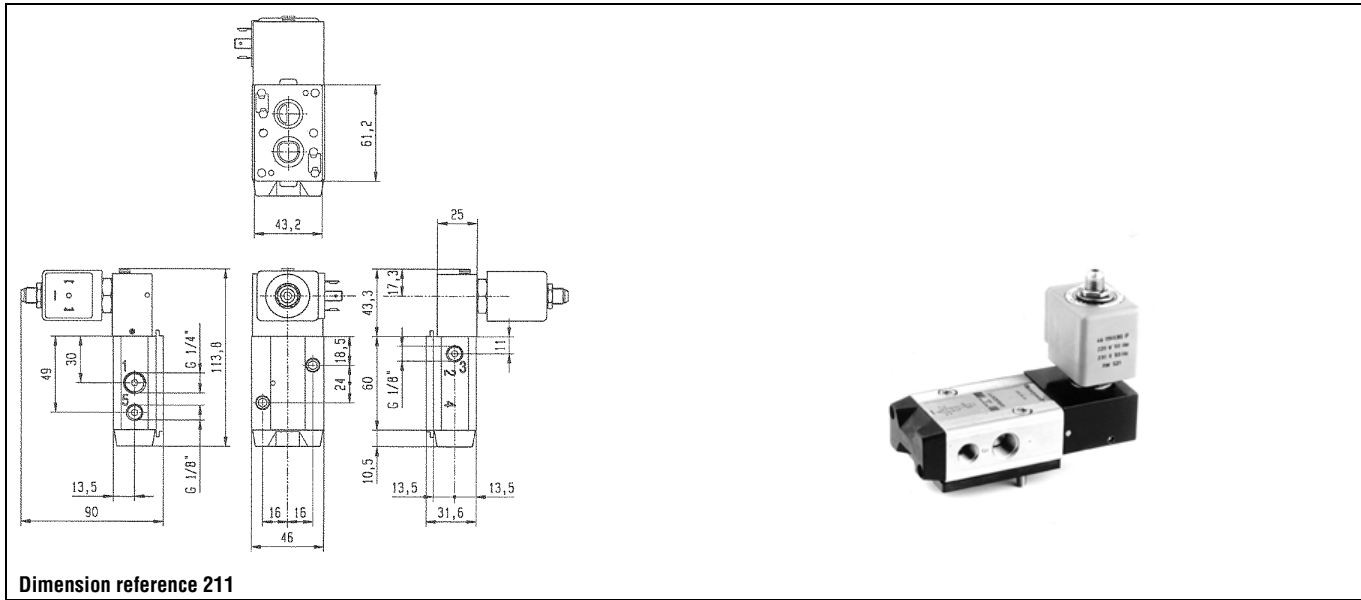
### Notes:

\* See Electrical Parts Group table at end of section

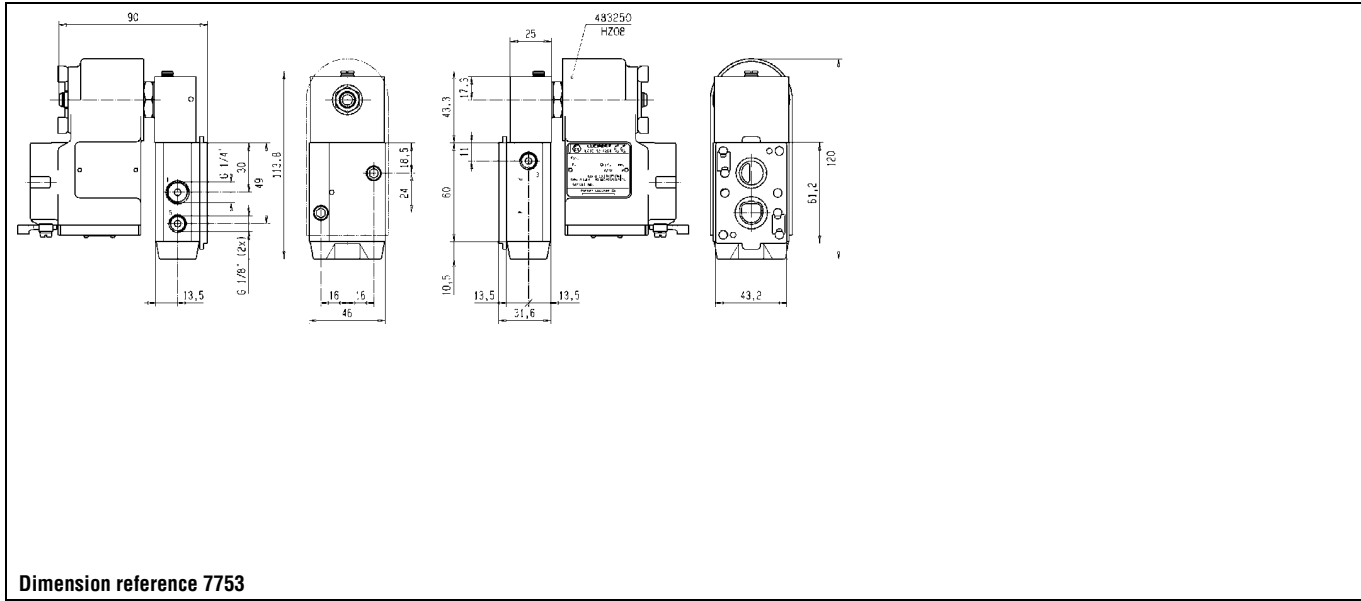
1. Operates with low temperatures down to -40 deg. C

2. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

# Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design



Dimension reference 211

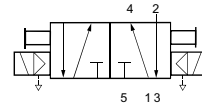


Dimension reference 7753

# Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |                        | Seat disc | Reference numbers   |         |      |    | Power consumption (W) |  | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|------------------------|-----------|---------------------|---------|------|----|-----------------------|--|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Global valve reference |           | Valve reference no. | Housing | Coil | DC | AC                    |  |         |                  |          |
| G         |              | Qn                   |                                      |     |    | Min            | Max                    |           |                     |         |      |    |                       |  |         |                  |          |

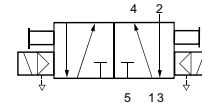
Two solenoids and main pressure supply - Integrated pilot



## Anod. aluminium body/NAMUR interface - Spool design

|           |   |     |   |    |    |     |    |     |              |        |      |        |   |     |   |     |   |     |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|--------|------|--------|---|-----|---|-----|---|-----|
| 1/4 - 1/8 | 4 | 400 | 2 | 10 | 10 | -25 | 80 | NBR | 2347NAKBHNM0 | 347N11 | 8993 | 488980 | 1 | 2.5 | 2 | 530 | 1 | 213 |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|--------|------|--------|---|-----|---|-----|---|-----|

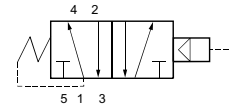
Two solenoids and main pressure supply



## Anod. aluminium body/NAMUR interface - Spool design

|           |   |     |   |    |    |     |    |     |              |        |      |        |   |   |   |     |   |     |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|--------|------|--------|---|---|---|-----|---|-----|
| 1/4 - 1/8 | 4 | 400 | 2 | 10 | 10 | -25 | 80 | NBR | 7347NAKBHNM0 | 347N31 | 2995 | 481865 | 1 | 9 | 8 | 670 | 2 | 216 |
|           | 4 | 400 | 2 | 10 | 10 | -25 | 80 | NBR |              |        | 4270 | 481000 | 1 | 8 | 8 | 890 | 2 | 216 |

External pressure supply



## Anod. aluminium body/NAMUR interface - Spool design

|           |   |     |   |    |    |     |    |     |              |          |   |   |   |   |   |     |   |     |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|----------|---|---|---|---|---|-----|---|-----|
| 1/4 - 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 80 | FKM | 7541NAKBJN00 | 541N01   | - | - | - | - | - | 300 | - | 214 |
|           | 4 | 600 | 2 | 10 | 10 | -40 | 65 | NBR | 7541NAKBJN00 | 541N0108 | 2 | - | - | - | - | 300 | - | 214 |

Table continued on page 264

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Please order two housings and coils for each valve
- 2. Operates with low temperatures down to -40 deg. C

# Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design

**Dimension reference 213**

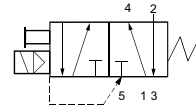
**Dimension reference 214**

**Dimension reference 216**

## Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| G         |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

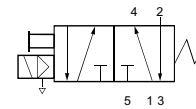
Pilot operated - Integrated pilot



### Anod. aluminium body/NAMUR interface - Spool design

|     |   |      |   |    |    |     |    |     |              |               |             |               |     |   |     |   |     |
|-----|---|------|---|----|----|-----|----|-----|--------------|---------------|-------------|---------------|-----|---|-----|---|-----|
| 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 2341NAKBPNM1 | <b>341N02</b> | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 470 | 1 | 220 |
|     | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 2341NAKBNNM0 | <b>341N12</b> | <b>8993</b> | <b>488980</b> | 2.5 | 2 | 470 | 1 | 221 |

Pilot operated



### Anod. aluminium body/NAMUR interface - Spool design

|     |   |      |   |    |    |     |    |     |              |               |             |               |   |   |     |   |     |
|-----|---|------|---|----|----|-----|----|-----|--------------|---------------|-------------|---------------|---|---|-----|---|-----|
| 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7341NAKBPNM1 | <b>341N22</b> | <b>2995</b> | <b>481865</b> | 9 | 8 | 690 | 2 | 222 |
|     | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR |              |               | <b>4270</b> | <b>481000</b> | 8 | 8 | 800 | 2 |     |

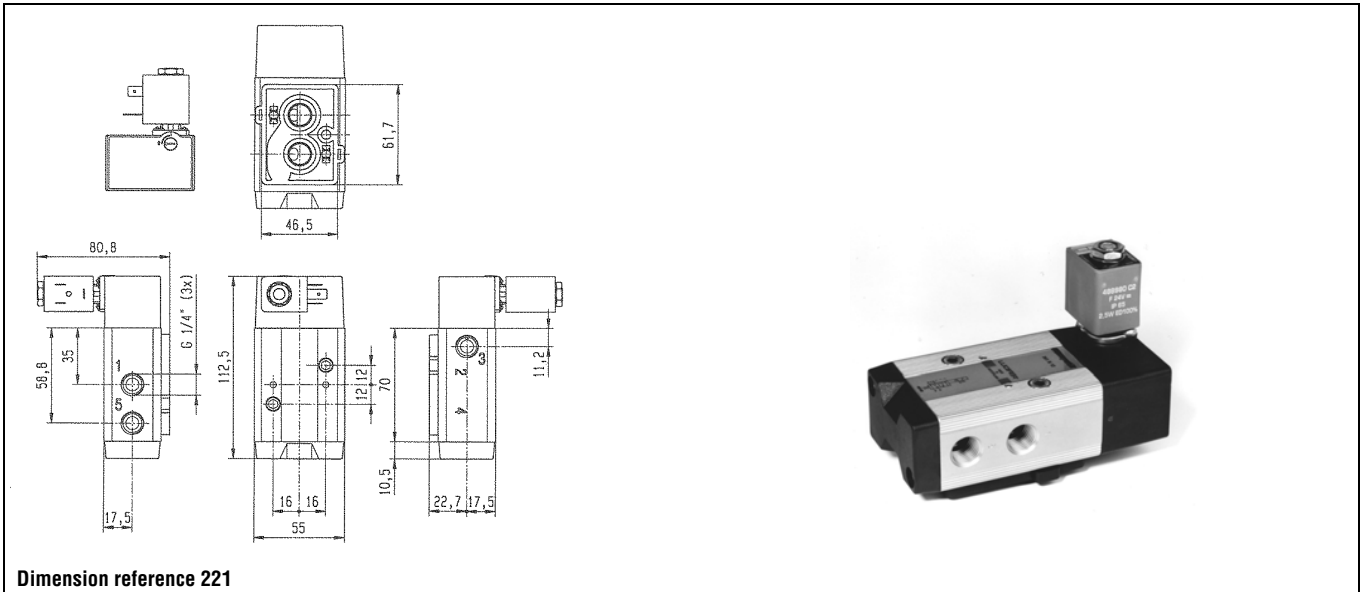
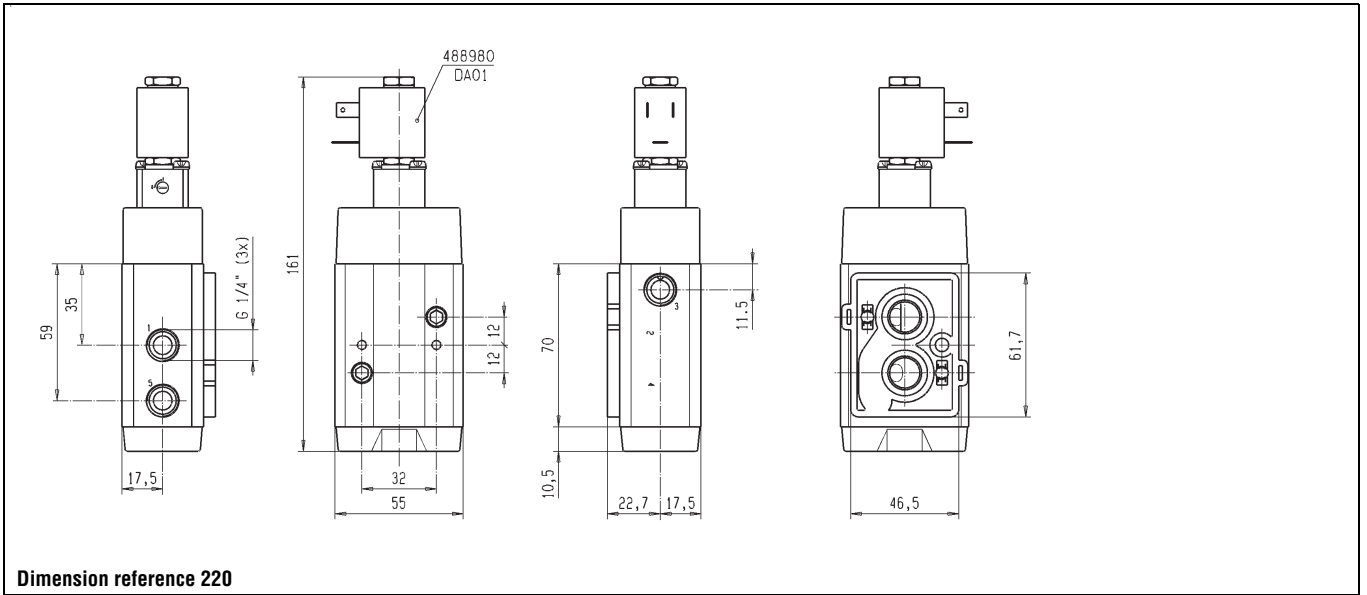
Table continued on page 266

#### Notes:

\* See Electrical Parts Group table at end of section



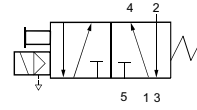
# Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design



## Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| G         |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

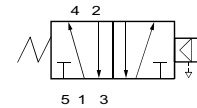
Pilot operated



### Anod. aluminium body/NAMUR interface - Spool design

|     |   |      |   |    |    |     |    |     |              |          |      |        |     |   |     |   |     |
|-----|---|------|---|----|----|-----|----|-----|--------------|----------|------|--------|-----|---|-----|---|-----|
| 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7341NAKBPNM0 | 341N32   | 2995 | 481865 | 9   | 8 | 740 | 2 | 223 |
|     | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR |              |          | 4270 | 481000 | 8   | 8 | 850 | 2 |     |
|     | 8 | 1400 | 2 | 10 | -  | -25 | 80 | FKM | 7341NAKBPNL2 | 341N3280 | 2995 | 482740 | 1.6 | - | 740 | 6 | 223 |
|     | 8 | 1400 | 2 | 10 | -  | -25 | 80 | FKM |              |          | -    | 491117 | 2.5 | - | 740 | 6 |     |

Pilot operated



### Anod. aluminium body/NAMUR interface - Spool design

|     |   |      |   |    |    |     |    |     |              |            |   |                        |     |   |      |   |      |
|-----|---|------|---|----|----|-----|----|-----|--------------|------------|---|------------------------|-----|---|------|---|------|
| 1/4 | 8 | 1400 | 2 | 10 | -  | -25 | 80 | NBR | 7341NAKBPN90 | 341N3290   | - | 483580.01 <sup>1</sup> | 0.4 | - | 850  | 7 | 223  |
|     | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7341NAKBPN1D | 341N32001D | - | 483250                 | 8   | 8 | 1730 | 5 | 7754 |

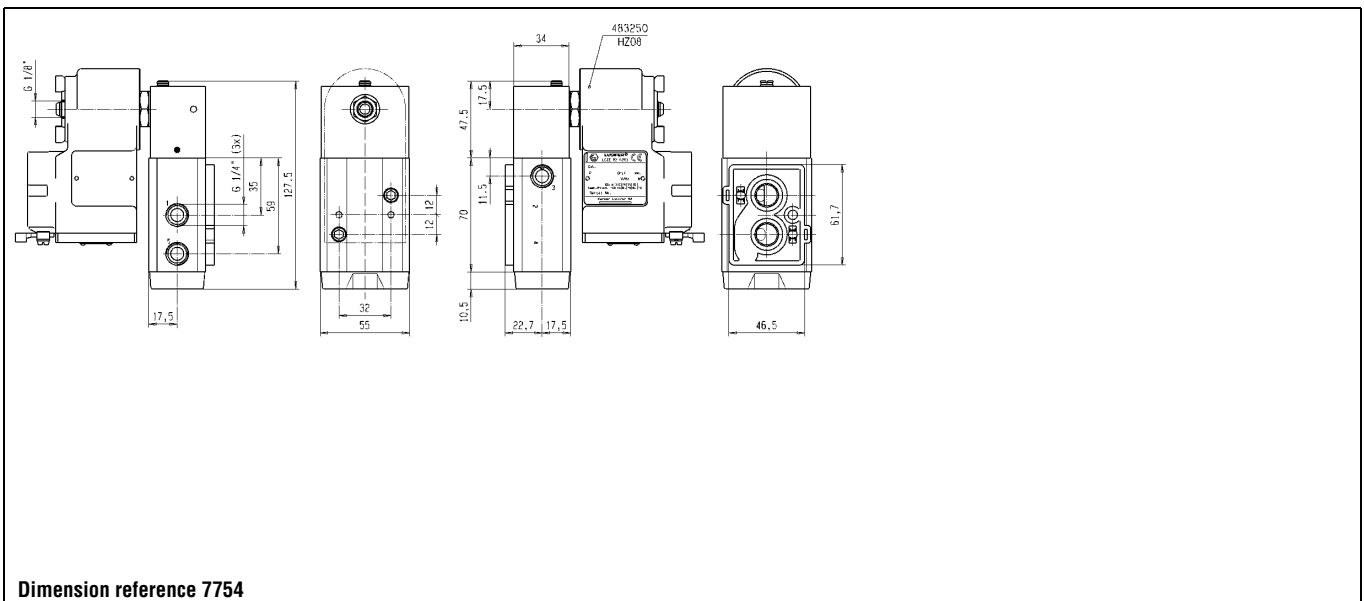
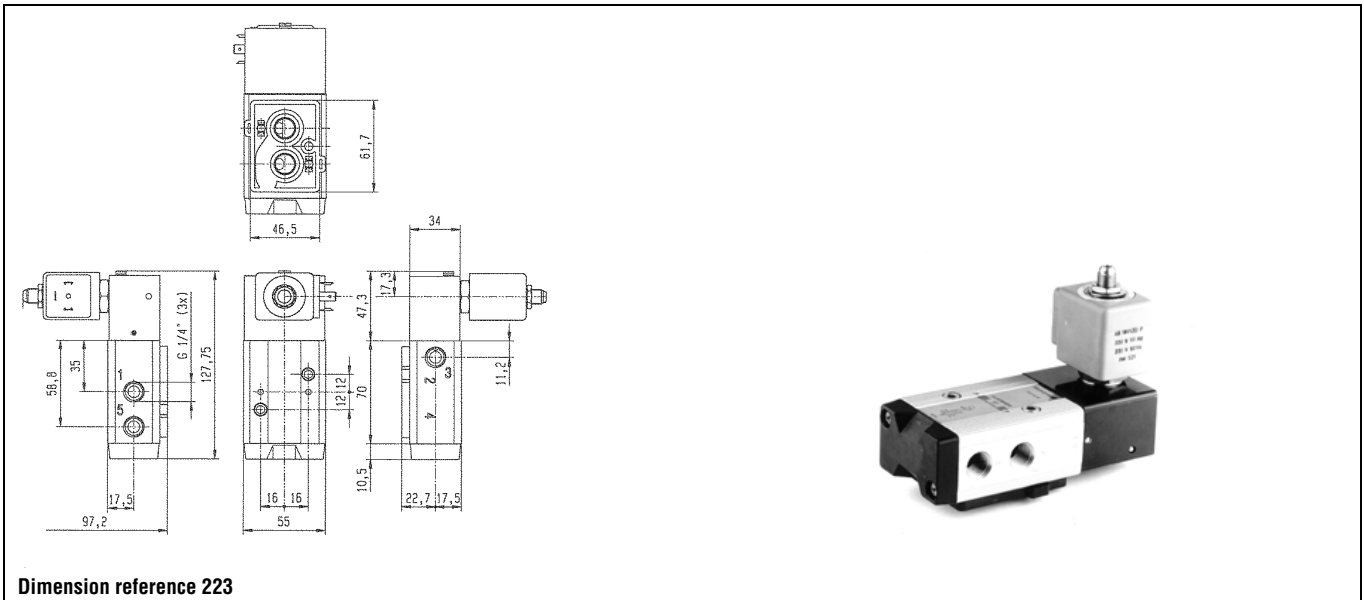
Table continued on page 268

#### Notes:

\* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

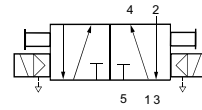
# Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design



# Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | AC | Min            | Max |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              | Qn                   |                                      |     |    |                |     |           |                        |                     |         |      |                       |    |         |                  |          |

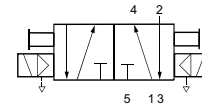
Two solenoids and main pressure supply - Integrated pilot



## Anod. aluminium body/NAMUR interface - Spool design

|     |   |      |   |    |    |     |    |     |              |               |             |               |   |     |   |     |   |      |
|-----|---|------|---|----|----|-----|----|-----|--------------|---------------|-------------|---------------|---|-----|---|-----|---|------|
| 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 2347NAKBPNM0 | <b>347N12</b> | <b>8993</b> | <b>488980</b> | 1 | 2.5 | 2 | 640 | 1 | 7315 |
|-----|---|------|---|----|----|-----|----|-----|--------------|---------------|-------------|---------------|---|-----|---|-----|---|------|

Two solenoids and main pressure supply



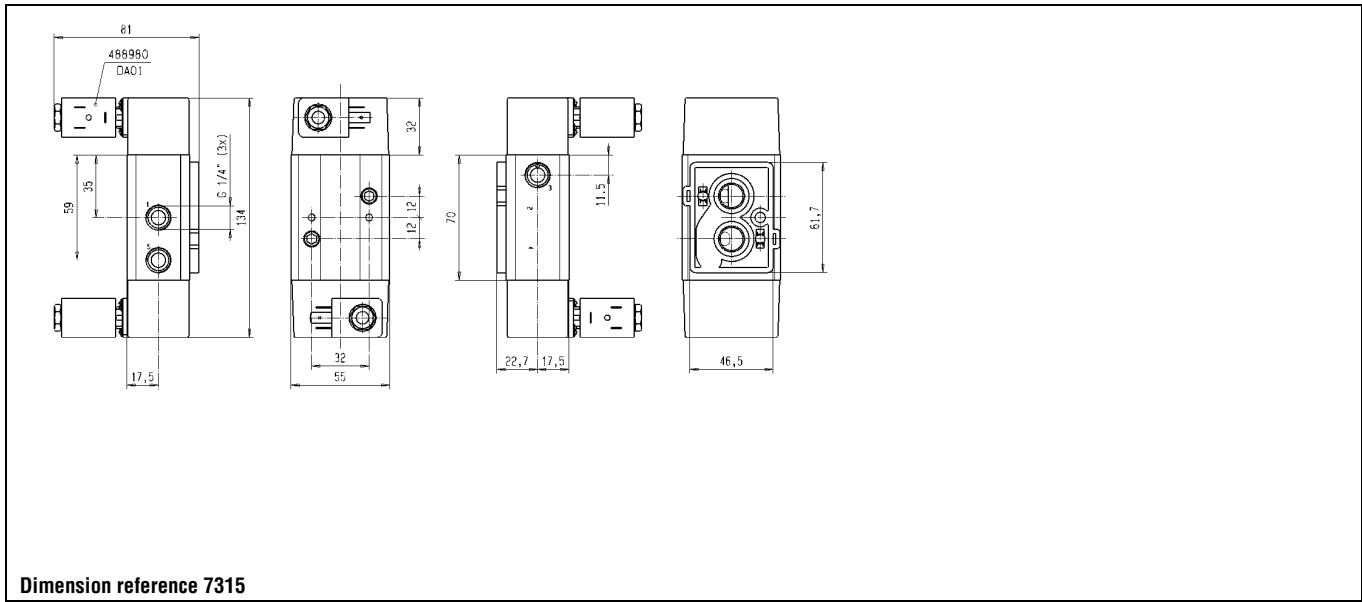
## Anod. aluminium body/NAMUR interface - Spool design

|     |   |      |   |    |    |     |    |     |              |               |             |               |   |   |   |     |   |      |
|-----|---|------|---|----|----|-----|----|-----|--------------|---------------|-------------|---------------|---|---|---|-----|---|------|
| 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7347NAKBPNM0 | <b>347N32</b> | <b>2995</b> | <b>481865</b> | 1 | 9 | 8 | 770 | 2 | 7320 |
|     | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR |              |               | <b>4270</b> | <b>481000</b> | 1 | 8 | 8 | 980 | 2 |      |

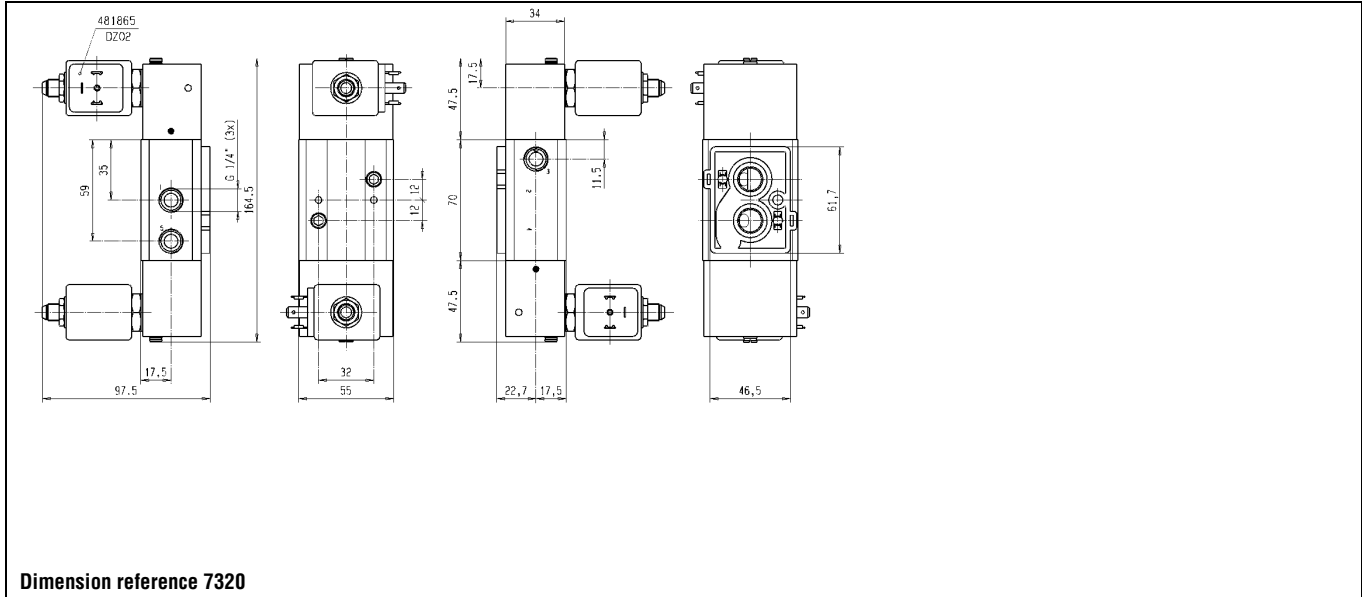
### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Please order two housings and coils for each valve

# Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design



Dimension reference 7315



Dimension reference 7320

# Solenoid valves for actuator control

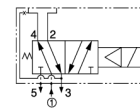
# 3/2 5/2



| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     | Fluid temp. °C |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----------------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | Min            | Max |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| G         |              | Qn                   |                                      |     |                |     |           |                        |                     |         |      |                       |    |         |                  |          |

**Anod. aluminium body/NAMUR interface - Poppet design**

Pilot operated



|           |   |     |   |    |    |     |    |     |              |                   |             |                               |     |   |      |   |    |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|-------------------|-------------|-------------------------------|-----|---|------|---|----|
| 1/4 - 1/8 | 4 | 355 | 1 | 10 | 10 | -10 | 75 | NBR | -            | <b>341L9504</b>   | <b>8993</b> | <b>488980</b>                 | 2.5 | 2 | 360  | 1 | 44 |
|           | 4 | 355 | 1 | 10 | 10 | -10 | 75 | NBR | 7341LAKBGN1D | <b>341L95341D</b> | -           | <b>483250</b>                 | 8   | 8 | 1470 | 5 | 45 |
|           | 4 | 355 | 1 | 10 | 10 | -10 | 75 | NBR | 7341LAKBGNM0 | <b>341L9534</b>   | <b>2995</b> | <b>481865</b>                 | 9   | 8 | 470  | 2 | 45 |
|           | 4 | 355 | 1 | 10 | -  | -10 | 75 | NBR | 7341LAKBGNL2 | <b>341L9584</b>   | -           | <b>482740</b>                 | 1.6 | - | 470  | 6 | 45 |
|           | 4 | 355 | 1 | 10 | -  | -10 | 75 | NBR | 7341LAKBGN90 | <b>341L9594</b>   | -           | <b>483580.01</b> <sup>1</sup> | 0.4 | - | 470  | 7 | 45 |
|           | 4 | 355 | 2 | 10 | -  | -25 | 65 | PUR | 7341LAPBGPL2 | <b>341L9588</b>   | -           | <b>482740</b>                 | 1.6 | - | 470  | 6 | 45 |
|           | 4 | 355 | 2 | 10 | -  | -25 | 75 | PUR | -            | <b>341L9598</b>   | -           | <b>483580.01</b> <sup>1</sup> | 0.4 | - | 470  | 7 | 45 |

**Notes:**

\* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)



## Electrical parts options with 3/2, 5/2 valves for pneumatic actuator control

| El. part Group | Coil             | Protection class | Protection class / Temperature class | Power   |       | Coil Order No. | Coil Ref. No. | Connection                    | Housing Order No. | Housing Ref. No. | Ambient temp. |          |
|----------------|------------------|------------------|--------------------------------------|---------|-------|----------------|---------------|-------------------------------|-------------------|------------------|---------------|----------|
|                |                  |                  |                                      | DC      | AC    |                |               |                               |                   |                  | min.          | max.     |
| 1              | 22 mm            | IP 65            | Class F                              | 2.5 W   | 2 W   | DA01           | 488980        | for DIN plug                  | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 2.5 W   | 2 W   | DA02           | 481045        | with DIN plug                 | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W     | 4 W   | DA03           | 481180        | for DIN plug                  | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 5 W     | 4 W   | DA04           | 481530        | with DIN plug                 | A0                | 8993             | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 5 W     | 4 W   | VA01           | 482605        | with 1500mm cable             | 00                | -                | -40           | 50       |
|                |                  | IP 65            | EEx m II T5                          | 2.5 W   | 2 W   | VA02           | 482606        | with 1500mm cable             | 00                | -                | -40           | 50       |
| 2              | 32 mm (Std)      | IP 65            | Class F                              | 9 W     | 8 W   | DZ02           | 481865        | for DIN plug                  | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W     | 8 W   | DZ03           | 482725        | with DIN plug                 | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class H                              | 9 W     | 8 W   | DZ04           | 482453        | for DIN plug                  | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | 9 W     | 8 W   | DZ05           | 492726        | with DIN plug                 | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class F, 50/60 Hz                    | -       | 9 W   | DZ06           | 483510        | for DIN plug                  | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | -       | 9 W   | DZ07           | 482635        | with DIN plug                 | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | EEx m II T4                          | 9 W     | 8 W   | HZ05           | 492670        | with 3000mm cable             | 00                | -                | -40           | 40       |
|                |                  | IP 65            | Class H                              | 14 W    | 14 W  | DZ08           | 492425        | for DIN plug                  | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            |                                      | 14 W    | 14 W  | DZ09           | 492727        | with DIN plug                 | N1                | 2995             | -40           | 50       |
|                |                  | 50 mm (Std)      | IP10 / IP 44                         | Class F | 8 W   | 8 W            | EZ01          | 481000                        | screw-terminals   | E0               | 4270          | -40      |
|                | IP10 / IP 44     |                  | Class H                              | 8 W     | 8 W   | EZ02           | 485100        | screw-terminals               | E0                | 4270             | -40           | 50       |
|                | IP 67            |                  | Class F, M20x1.5                     | 8 W     | 8 W   | EZ01           | 481000        | screw-terminals               | G1                | 4538             | -40           | 50       |
|                | IP 65            |                  | EEx m II T5/T4                       | 9 W     | 8 W   | VZ01           | 492070        | with 1500mm cable             | 00                | -                | -40           | 40/65    |
|                | IP 67            |                  | EEx me II T4                         | 8 W     | 8 W   | HZ06           | 483371        | for cable connection          | 00                | -                | -40           | 65       |
|                | IP 66            |                  | EEx me II T3/T4                      | 11 W    | 9 W   | VZ03           | 492190        | for cable connection          | 00                | -                | -40           | 75/40    |
|                | 3                | 32 mm            | IP 65                                | Class H | -     | 14 W           | DZ08          | 492425                        | for DIN plug      | N1               | 2995          | -40      |
| 4              | 50 mm (impulse)  | IP10 / IP 44     | Class F                              | -       | 11 W  | MZ01           | 484990        | screw-terminals               | E1                | 4269             | -25           | 50       |
|                |                  | IP10 / IP 44     | Class F                              | 13 W    | -     | MZ02           | 485400        | screw-terminals               | E1                | 4269             | -25           | 50       |
| 5              | 50 mm            | IP 54            | EEx d IIC T4/T5/T6                   | 8 W     | 8 W   | HZ08           | 483250        | for cable connection, 1/2 NPT | 00                | -                | -40           | 80/75/60 |
| 6              | 32 mm (Miniwatt) | IP 65            | Class F                              | 1.6 W   | -     | DZ10           | 482740        | for DIN plug                  | N1                | 2995             | -40           | 50       |
|                |                  | IP 65            | Class F                              | 1.6W    | -     | DZ11           | 482745        | with DIN plug                 | N1                | 2995             | -40           | 50       |
|                | 50 mm (Miniwatt) | IP 67            | EEx me II T5                         | 2.5 W   | -     | VZ04           | 491117        | for cable connection          | 00                | -                | -40           | 65       |
|                |                  | IP 67            | EEx m II T5/T4                       | 2.5 W   | 2.5 W | VZ05           | 492370        | with 1500mm cable             | 00                | -                | -40           | 40/65    |
|                |                  | IP 66            | EEx me II T6/T5                      | 2.5 W   | 2.5 W | VZ06           | 492390        | for cable connection          | 00                | -                | -40           | 40/75    |
| 7              | 32 mm            | IP 65            | EEx ia II C T6                       | 0.4 W   | -     | DZ12           | 483580.01     | for DIN plug                  | N1                | 2995             | -25           | 55       |
|                |                  | IP 65            |                                      | 0.4 W   | -     | DZ13           | 483960.01     | with DIN plug                 | N1                | 2995             | -25           | 55       |
|                | 50 mm            | IP 66            | EEx ia II C T6                       | 0.4 W   | -     | VZ07           | 488650.01     | for cable connection          | 00                | -                | -25           | 65       |
|                |                  | IP 67            |                                      | 0.4 W   | -     | VZ08           | 488660.01     | with 2000mm cable             | 00                | -                | -25           | 65       |
|                |                  | IP 65            |                                      | 0.4 W   | -     | VZ09           | 488670.01     | with DIN plug                 | 00                | -                | -25           | 65       |
| 9              | 32 mm            | IP 65            | Class F                              | 9 W     | 9 W   | DZ93           | 492387        | with DIN plug                 | N9                | 8886             | -40           | 50       |
|                |                  | IP 67            | EEx me II T4                         | 8 W     | -     | HZ14           | 483371.01     | for cable connection          | 00                | -                | -40           | 65       |
|                | 50 mm            | IP 66            | EEx me II T6/T5                      | 1.5 W   | -     | VZ13           | 492200        | for cable connection          | 00                | -                | -40           | 40/75    |
|                |                  | IP 66            | EEx me II T5/T4                      | 6 W     | 6 W   | VZ14           | 492300        | for cable connection          | 00                | -                | -40           | 40/75    |
|                |                  | IP 67            | EEx m II T5/T4                       | 5 W     | 5 W   | VZ02           | 492270        | with 1500mm cable             | 00                | -                | -40           | 40/65    |
|                |                  | IP 66            | EEx ib IIB T6                        | 0.8 W   | -     | VZ11           | 482660        | for cable connection          | 00                | -                | -40           | 75       |
|                |                  | IP 66            | EEx ib IIC T6                        | 0.8 W   | -     | VZ12           | 483330.01     | for cable connection          | 00                | -                | -40           | 75       |
|                |                  | IP 66            | EEx ia IIC T6                        | 0.8W    | -     | VZ92           | 492965.02     | for cable connection          | 00                | -                | -40           | 65       |
| 10             | 50 mm            | IP 66            | EEx me II T6/T5                      | 1.5 W   | -     | VZ26           | 492210        | for cable connection          | 00                | -                | -40           | 40/75    |
|                |                  | IP 66            | EEx me II T5/T4                      | 6 W     | 6 W   | VZ27           | 492310        | for cable connection          | 00                | -                | -40           | 40/75    |
|                |                  | IP 66            | EEx ib IIB T6                        | 0.8 W   | -     | VZ11           | 482660        | for cable connection          | 00                | -                | -40           | 75       |
|                |                  | IP 66            | EEx ib IIC T6                        | 0.8 W   | -     | VZ12           | 483330.01     | for cable connection          | 00                | -                | -40           | 75       |
|                |                  | IP 66            | EEx ia IIC T6                        | 0.8W    | -     | VZ91           | 492965.01     | for cable connection          | 00                | -                | -40           | 65       |
| 11             | 50 mm            | IP 65            | EEx d II C T4/T5/T6                  | 8 W     | 8 W   | HZ19           | 483270        | for cable , M20x1.5           | 00                | -                | -40           | 80/75/60 |
|                |                  | IP 65            | EEx d II C T4/T5/T6                  | 8 W     | 8 W   | HZ21           | 483270.02     | for cable , 1/2 NPT           | 00                | -                | -40           | 80/75/60 |
| 12             | 50 mm            | IP 66            | EEx me II T5/T4                      | 6 W     | 6 W   | VZ27           | 492310        | for cable connection          | 00                | -                | -40           | 40/75    |
|                |                  | IP 66            | EEx ib IIB T6                        | 0.8 W   | -     | VZ22           | 482160.01     | for cable connection          | 00                | -                | -40           | 65       |
|                |                  | IP 66            | EEx ib IIC T6                        | 0.8 W   | -     | VZ23           | 482870.01     | for cable connection          | 00                | -                | -40           | 65       |

Note: This table is indicative only. Please contact your distributor to confirm your selection.



# 316 St. Steel valves for chemical, petrochemical and offshore applications

| ACTUATION                         | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) | PAGE    |
|-----------------------------------|------------|--------------|---------------------|---------|
| Direct operated                   | 1/4        | 2.5 to 5.0   | 1000.0              | 274/278 |
|                                   | 3/8        | 5.0          | 1000.0              | 282     |
|                                   | SB         | 2.5          | 1400.0              | 276/278 |
| Direct operated with manual reset | 1/4        | 5.0          | 1000.0              | 274/280 |
|                                   | 3/8        | 5.0          | 1000.0              | 274/276 |

Notes:

# 316 St. Steel valves for chemical, petrochemical and offshore applications

# 3/2

## Applications

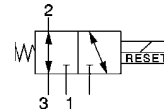
Directional control and fail/safe function in valve actuator circuits in corrosive and hazardous environment.

Solenoid pilots for main stage valves in corrosive and hazardous locations.



| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure kPa |     | Fluid temp. °C | Admissible ambient temp. °C | Seat disc | Reference numbers   |      | Power consumption (W) |    | Degree of protection Ex | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----------------|-----------------------------|-----------|---------------------|------|-----------------------|----|-------------------------|------------------|----------|
|           |              |                      | Min                                  | Max |                |                             |           | Valve reference no. | Coil | DC                    | AC |                         |                  |          |
| NPT       |              | Qn                   |                                      |     |                |                             |           |                     |      |                       |    |                         |                  |          |

Direct operated with manual reset



## 316L Stainless Steel body/Pipe mounting

|     |   |     |   |      |      |            |            |     |                      |                    |     |   |                    |    |      |
|-----|---|-----|---|------|------|------------|------------|-----|----------------------|--------------------|-----|---|--------------------|----|------|
| 1/4 | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR | <b>U033X51561D</b> 1 | <b>483270</b> 2    | 8   | 8 | EEx d IIC T4/T5/T6 | 11 | 7030 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR |                      | <b>483270.02</b> 2 | 8   | 8 | EEx d IIC T5       | 11 |      |
|     | 5 | 680 | 0 | 1000 | -    | -25 to +65 | -25 to +65 | NBR | <b>U033X5156</b> 1   | <b>482870.01</b> 2 | 0.8 | - | EEx ia IIC T6      | 12 | 7771 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR |                      | <b>492310</b> 2    | 6   | 6 | EEx me II T4(T5)   | 12 |      |
| 3/8 | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR | <b>U033X52561D</b> 1 | <b>483270</b> 2    | 8   | 8 | EEx d II C T4(T6)  | 11 | 7672 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR |                      | <b>483270.02</b> 2 | 8   | 8 | EEx d II C T4(T6)  | 11 |      |

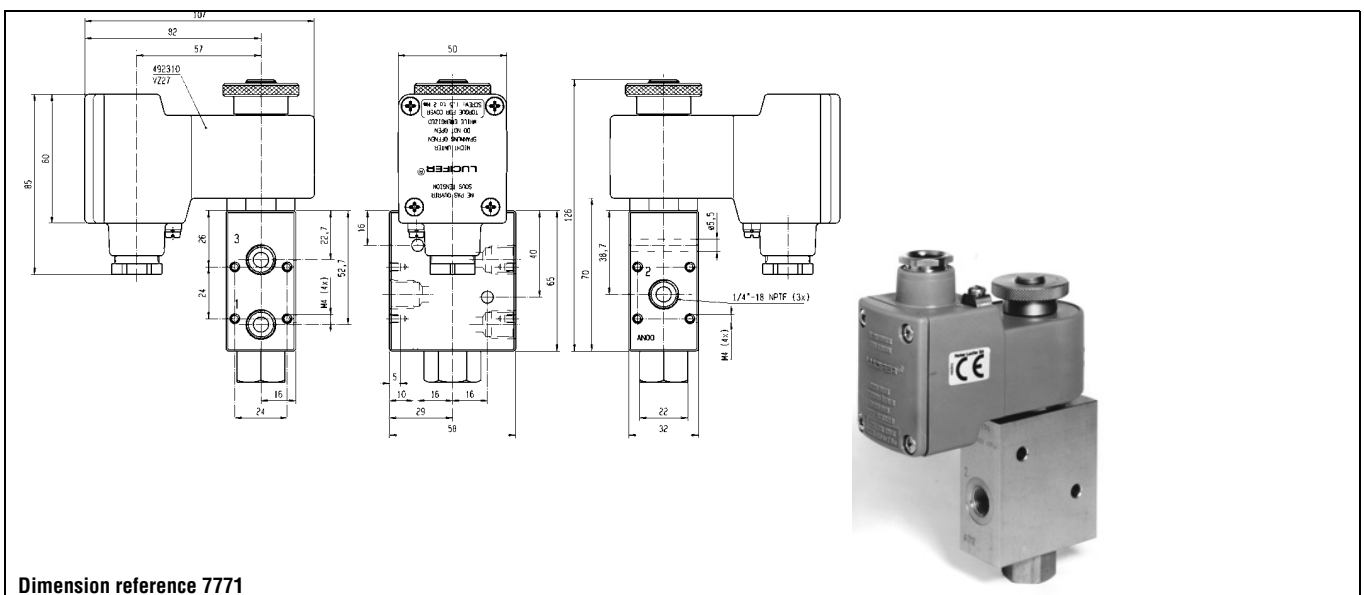
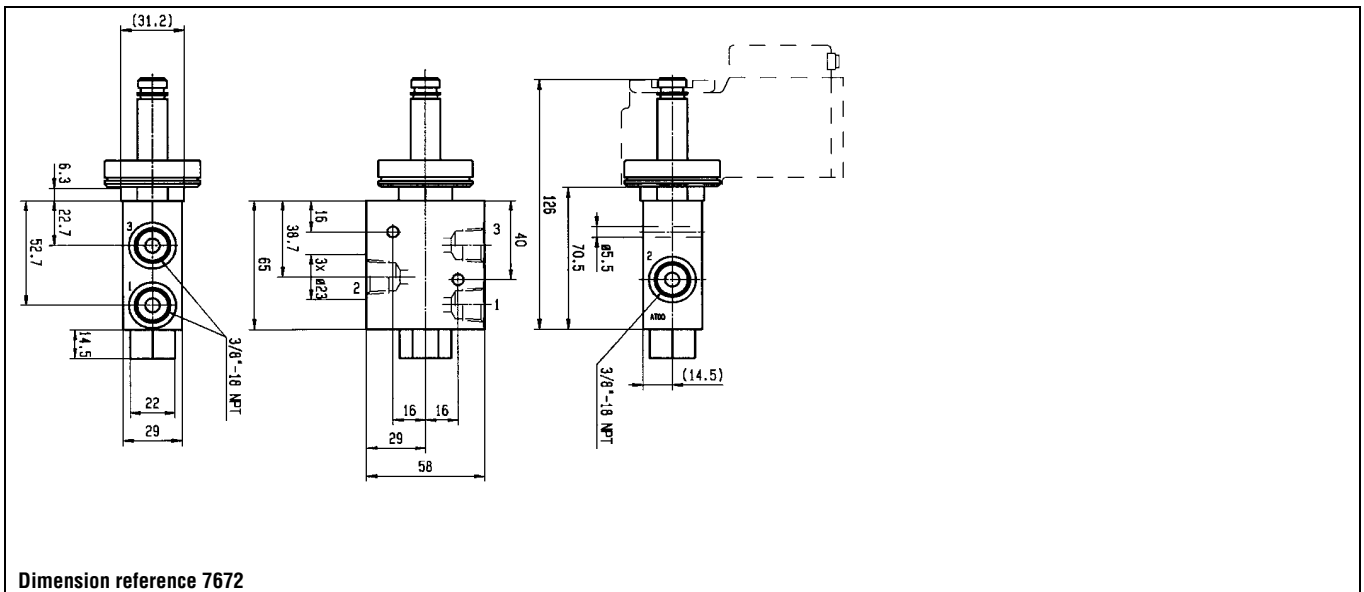
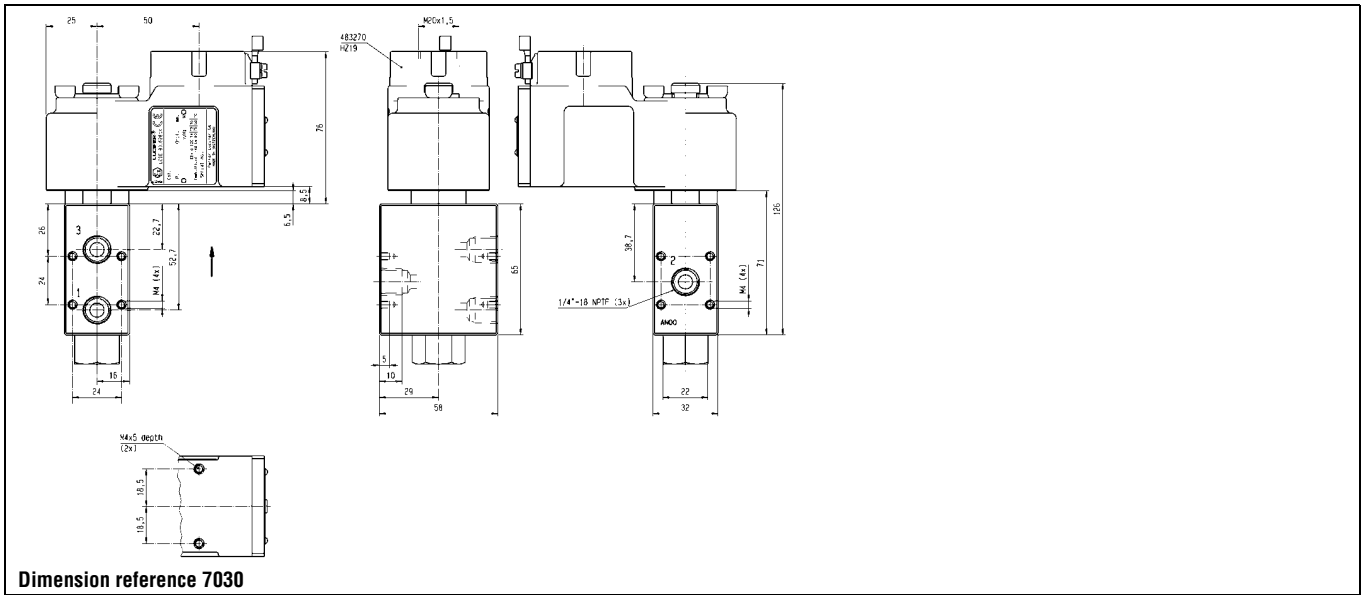
Table continued on page 276

### Notes:

\* See Electrical Parts Group table at end of section

1. With manual reset
2. Valve with NPT ports

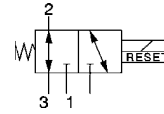
# 316 St. Steel valves for chemical, petrochemical and offshore applications



## 316 St. Steel valves for chemical, petrochemical and offshore applications

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure kPa |     |    | Fluid temp. °C | Admissible ambient temp. °C | Seat disc | Reference numbers |                     | Power consumption (W) |    | Degree of protection Ex | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----------------------------|-----------|-------------------|---------------------|-----------------------|----|-------------------------|------------------|----------|
|           |              |                      | Min                                  | Max | DC |                |                             |           | AC                | Valve reference no. | Coil                  | DC |                         |                  |          |
| NPT       |              | Qn                   |                                      |     |    |                |                             |           |                   |                     |                       |    |                         |                  |          |

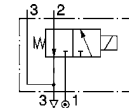
Direct operated with manual reset



### 316L Stainless Steel body/Pipe mounting

|     |   |     |   |      |      |            |            |     |           |   |           |   |     |   |                  |    |      |
|-----|---|-----|---|------|------|------------|------------|-----|-----------|---|-----------|---|-----|---|------------------|----|------|
| 3/8 | 5 | 680 | 0 | 1000 | -    | -25 to +65 | -25 to +65 | NBR | U033X5256 | 1 | 482870.01 | 2 | 0.8 | - | EEx ia IIC T6    | 12 | 7671 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR |           | 2 | 492310    | 2 | 6   | 6 | EEx me II T4(T5) | 12 |      |

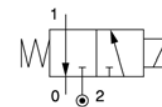
Direct operated



### 316L Stainless Steel body/NAMUR interface

|     |   |     |   |      |      |            |            |     |           |   |           |     |   |                  |      |      |
|-----|---|-----|---|------|------|------------|------------|-----|-----------|---|-----------|-----|---|------------------|------|------|
| 3/8 | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR | U131X1201 | 2 | 492965.01 | 0.8 | - | EEx ia IIC T6    | 9,10 | 7668 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR |           | 2 | 492310    | 6   | 6 | EEx me II T4(T5) | 9,10 |      |

Direct operated



### 316L Stainless Steel body/Sub-base mounting

|    |     |     |   |      |      |            |            |     |           |   |           |     |   |                  |    |    |
|----|-----|-----|---|------|------|------------|------------|-----|-----------|---|-----------|-----|---|------------------|----|----|
| SB | 2.5 | 220 | 0 | 1000 | -    | -25 to +65 | -25 to +50 | FKM | U131F5695 | 2 | 492965.01 | 0.8 | - | EEx ia IIC T6    | 10 | 85 |
|    | 2.5 | 220 | 0 | 1000 | 1000 | -25 to +75 | -25 to +50 | FKM |           | 2 | 492310    | 6   | 6 | EEx me II T4(T5) | 10 |    |

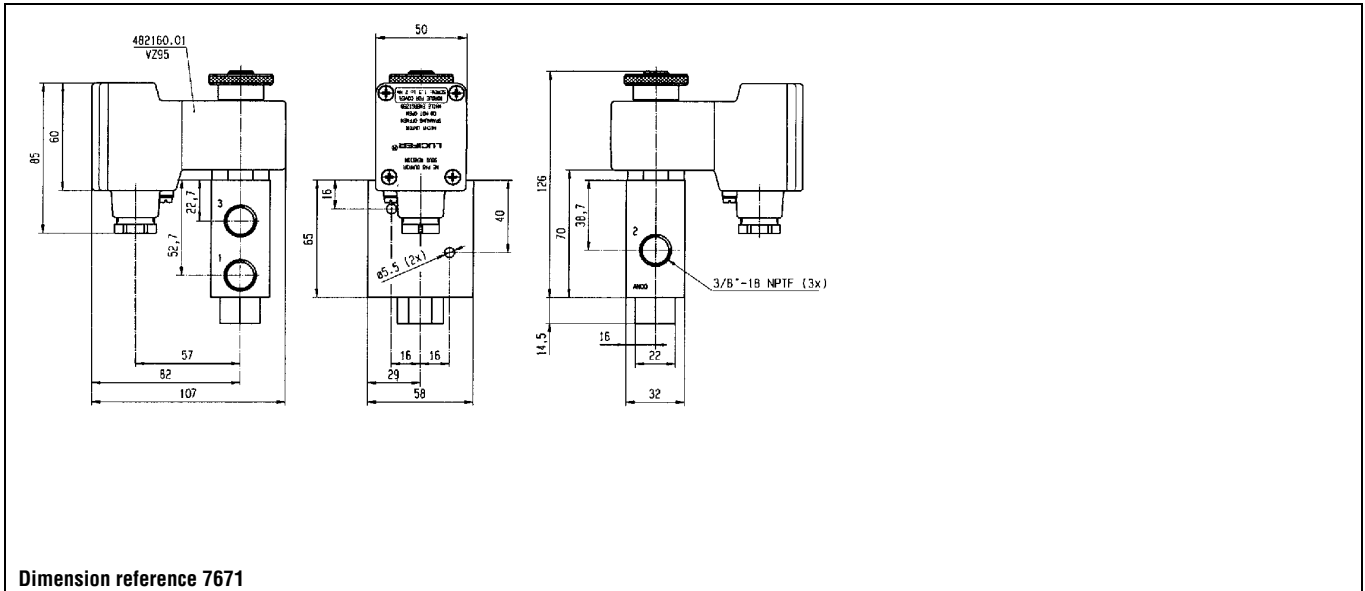
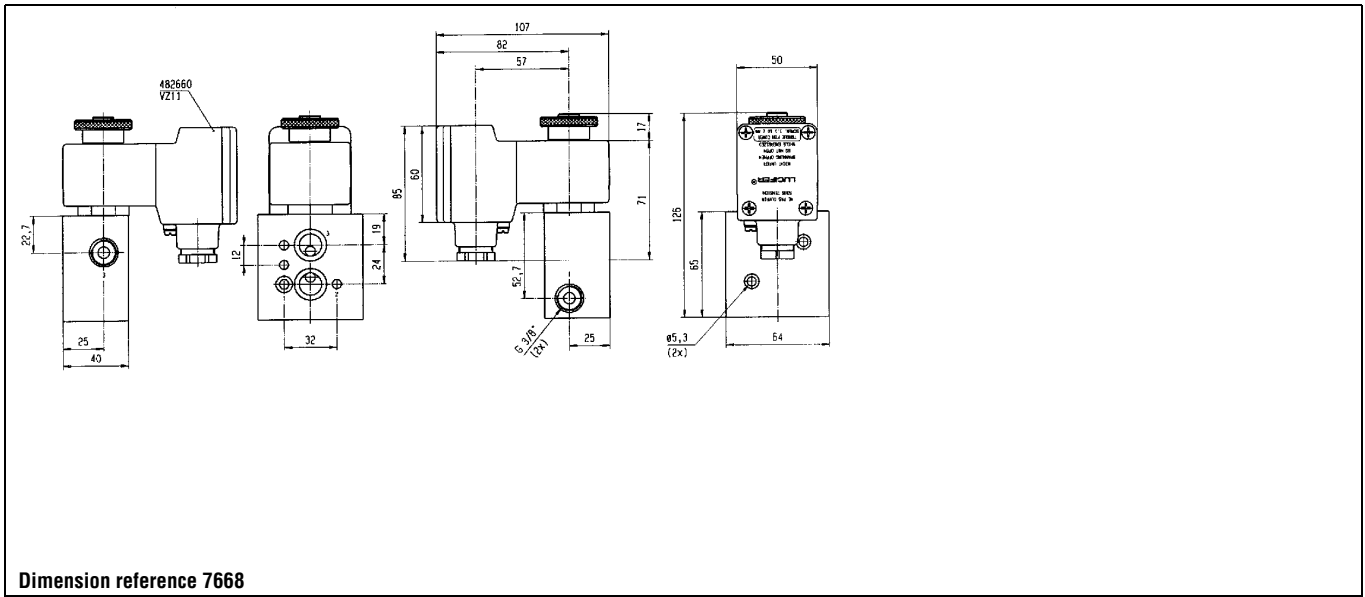
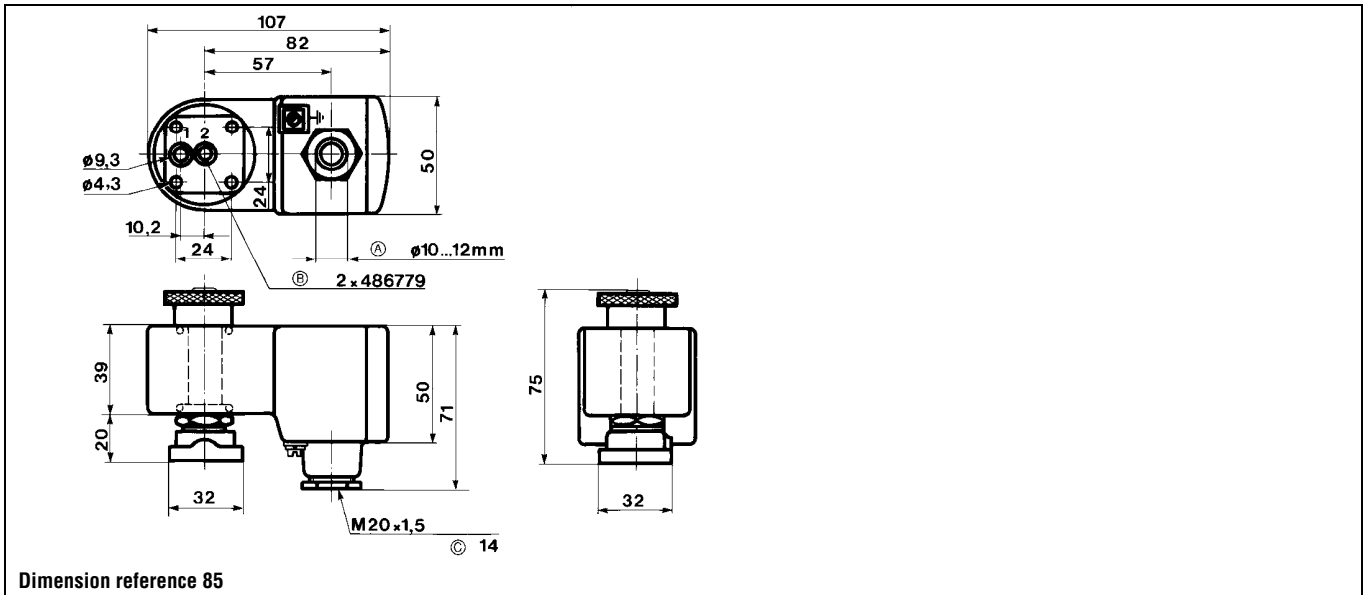
Table continued on page 278

#### Notes:

\* See Electrical Parts Group table at end of section

1. With manual reset
2. Valve with NPT ports

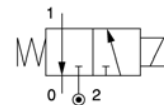
# 316 St. Steel valves for chemical, petrochemical and offshore applications



## 316 St. Steel valves for chemical, petrochemical and offshore applications

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure kPa |     | Fluid temp. °C | Admissible ambient temp. °C | Seat disc | Reference numbers   |      | Power consumption (W) | Degree of protection Ex | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----------------|-----------------------------|-----------|---------------------|------|-----------------------|-------------------------|------------------|----------|
|           |              |                      | Min                                  | Max |                |                             |           | Valve reference no. | Coil |                       |                         |                  |          |
| NPT       |              | Qn                   | DC                                   | AC  |                |                             |           |                     | DC   | AC                    |                         |                  |          |

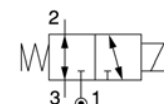
Direct operated



### 316L Stainless Steel body/Sub-base mounting

|    |     |     |   |      |      |            |            |     |                          |           |   |   |              |    |      |
|----|-----|-----|---|------|------|------------|------------|-----|--------------------------|-----------|---|---|--------------|----|------|
| SB | 2.5 | 220 | 0 | 1400 | 1400 | -25 to +80 | -25 to +50 | FKM | U131F56951D <sup>1</sup> | 483270    | 8 | 8 | EEx d IIC T5 | 11 | 3783 |
|    | 2.5 | 220 | 0 | 1400 | 1400 | -25 to +80 | -25 to +50 | FKM |                          | 483270.02 | 8 | 8 | EEx d IIC T5 | 11 |      |

Direct operated



### 316L Stainless Steel body/Pipe mounting

|     |     |     |   |     |     |            |            |     |                          |                        |     |   |                  |    |      |
|-----|-----|-----|---|-----|-----|------------|------------|-----|--------------------------|------------------------|-----|---|------------------|----|------|
| 1/4 | 2.5 | 220 | 0 | 850 | -   | -25 to +75 | -25 to +50 | FKM | U133V5695 <sup>1</sup>   | 492965.01 <sup>2</sup> | 0.8 | - | EEx ia IIC T6    | 10 | 86   |
|     | 2.5 | 220 | 0 | 850 | 850 | -25 to +75 | -25 to +50 | FKM |                          | 492310 <sup>3</sup>    | 6   | 6 | EEx me II T4(T5) | 10 |      |
|     | 2.5 | 220 | 0 | 850 | 850 | -25 to +75 | -25 to +50 | FKM | U133V56951D <sup>1</sup> | 483270                 | 8   | 8 | EEx d IIC T5     | 11 | 6714 |
|     | 2.5 | 220 | 0 | 850 | 850 | -25 to +75 | -25 to +50 | FKM |                          | 483270.02              | 8   | 8 | EEx d IIC T5     | 11 |      |

Table continued on page 280

#### Notes:

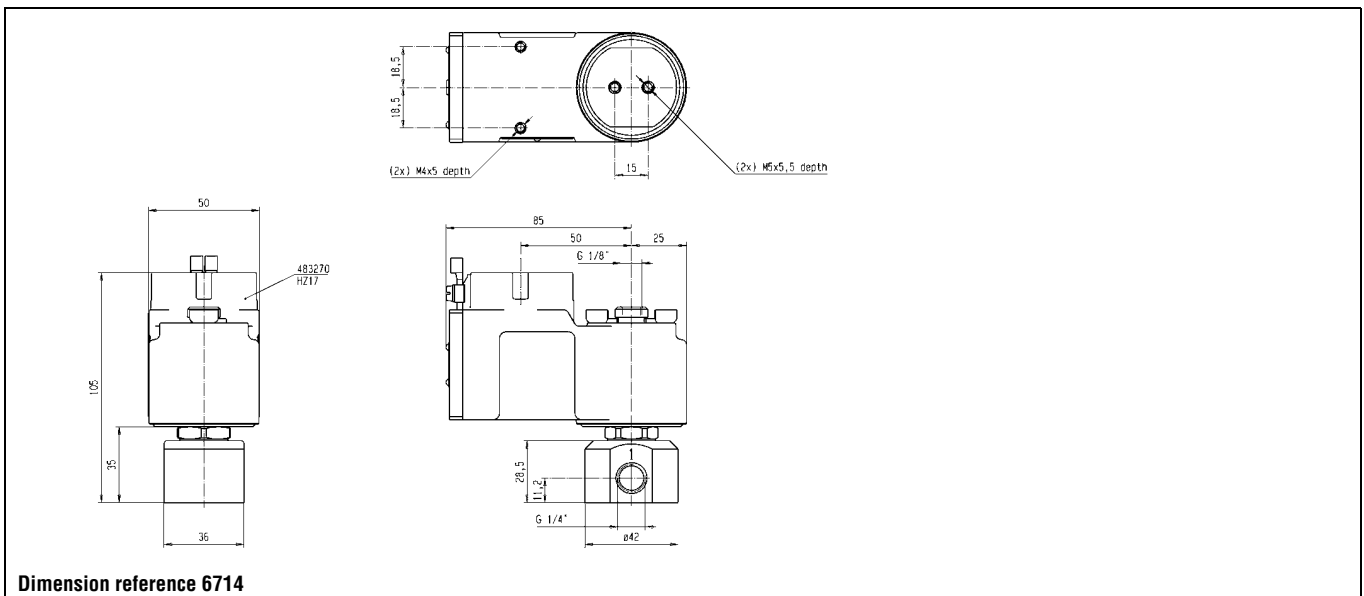
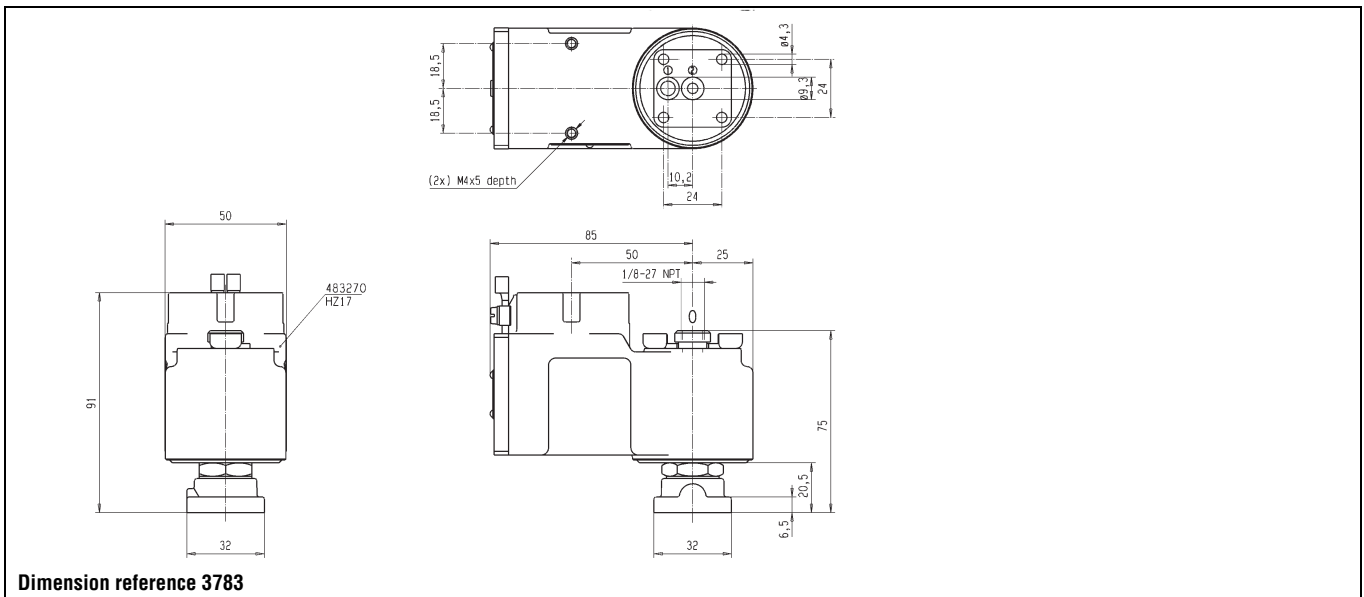
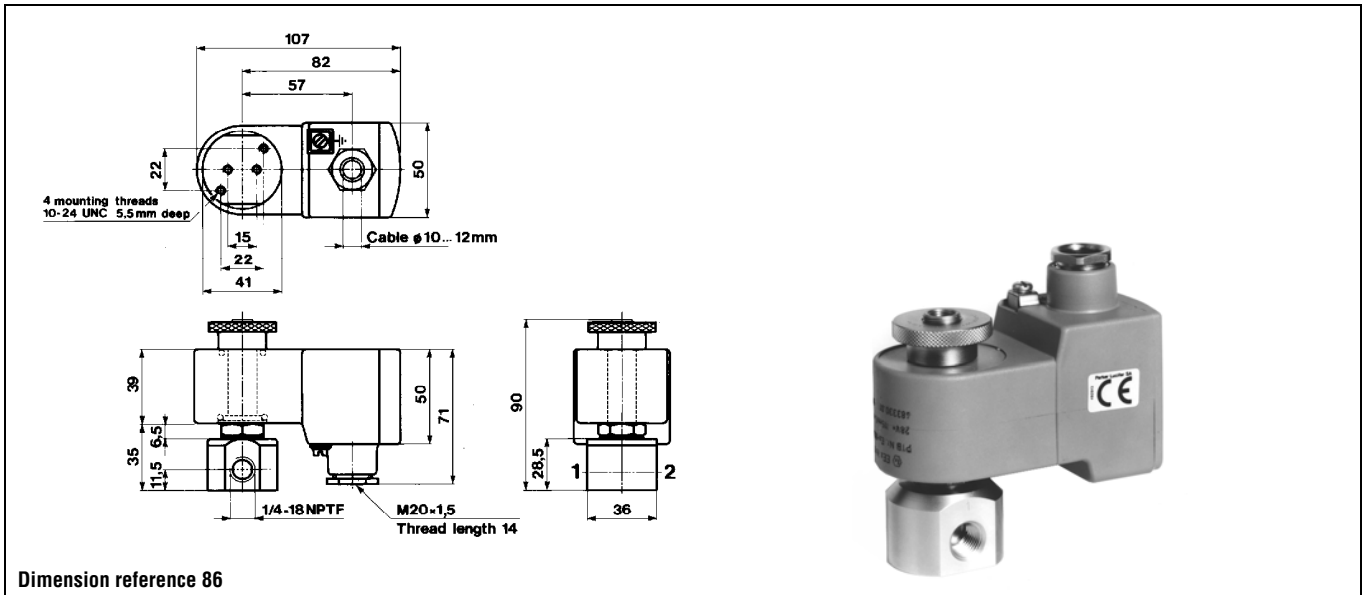
\* See Electrical Parts Group table at end of section

1. Valve with NPT ports

2. Max. power consumption DC = 1 W with connected cable length max. 4 km (2 km back and forth), section 1 mm<sup>2</sup>

3. Other coil-housing available

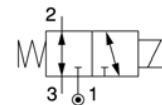
# 316 St. Steel valves for chemical, petrochemical and offshore applications



## 316 St. Steel valves for chemical, petrochemical and offshore applications

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure kPa |    |     | Fluid temp. °C | Admissible ambient temp. °C | Seat disc | Reference numbers |                     | Power consumption (W) |    | Degree of protection Ex | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|----|-----|----------------|-----------------------------|-----------|-------------------|---------------------|-----------------------|----|-------------------------|------------------|----------|
|           |              |                      | Min                                  | DC | Max |                |                             |           | AC                | Valve reference no. | Coil                  | DC |                         |                  |          |
| NPT       |              | Qn                   |                                      |    |     |                |                             |           |                   |                     |                       |    |                         |                  |          |

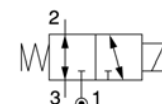
Direct operated



### 316L Stainless Steel body/Pipe mounting

|     |   |     |   |      |      |            |            |     |           |   |           |     |   |                  |    |      |
|-----|---|-----|---|------|------|------------|------------|-----|-----------|---|-----------|-----|---|------------------|----|------|
| 1/4 | 5 | 680 | 0 | 1000 | -    | -25 to +65 | -25 to +65 | NBR | U133X5156 | 1 | 492965.01 | 0.8 | - | EEx ia IIC T6    | 10 | 7770 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR |           |   |           | 6   | 6 | EEx me II T4(T5) | 10 |      |

Direct operated



### 316L Stainless Steel body/Pipe mounting

|     |   |     |   |      |      |            |            |     |             |   |           |     |   |                    |    |      |
|-----|---|-----|---|------|------|------------|------------|-----|-------------|---|-----------|-----|---|--------------------|----|------|
| 1/4 | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR | U133X51561D | 1 | 483270    | 8   | 8 | EEx d IIC T4/T5/T6 | 11 | 7011 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR |             |   |           | 8   | 8 | EEx d IIC T4/T5/T6 | 11 |      |
|     | 5 | 680 | 0 | 1000 | -    | -25 to +65 | -25 to +65 | NBR | U133X5196   | 2 | 492965.01 | 0.8 | - | EEx ia IIC T6      | 10 | 7770 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR |             |   |           | 6   | 6 | EEx me II T4(T5)   | 10 |      |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR | U133X51961D | 1 | 483270    | 8   | 8 | EEx d IIC T5       | 11 | 7038 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR |             |   |           | 8   | 8 | EEx d IIC T5       | 11 |      |

Table continued on page 282

#### Notes:

\* See Electrical Parts Group table at end of section

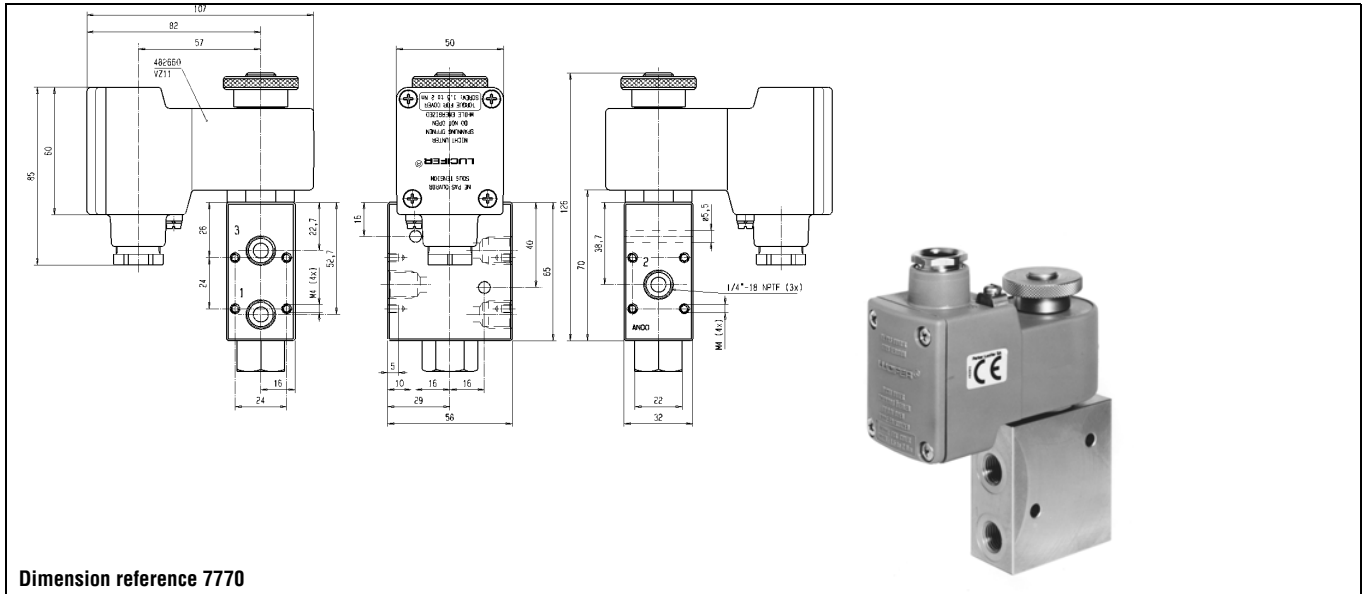
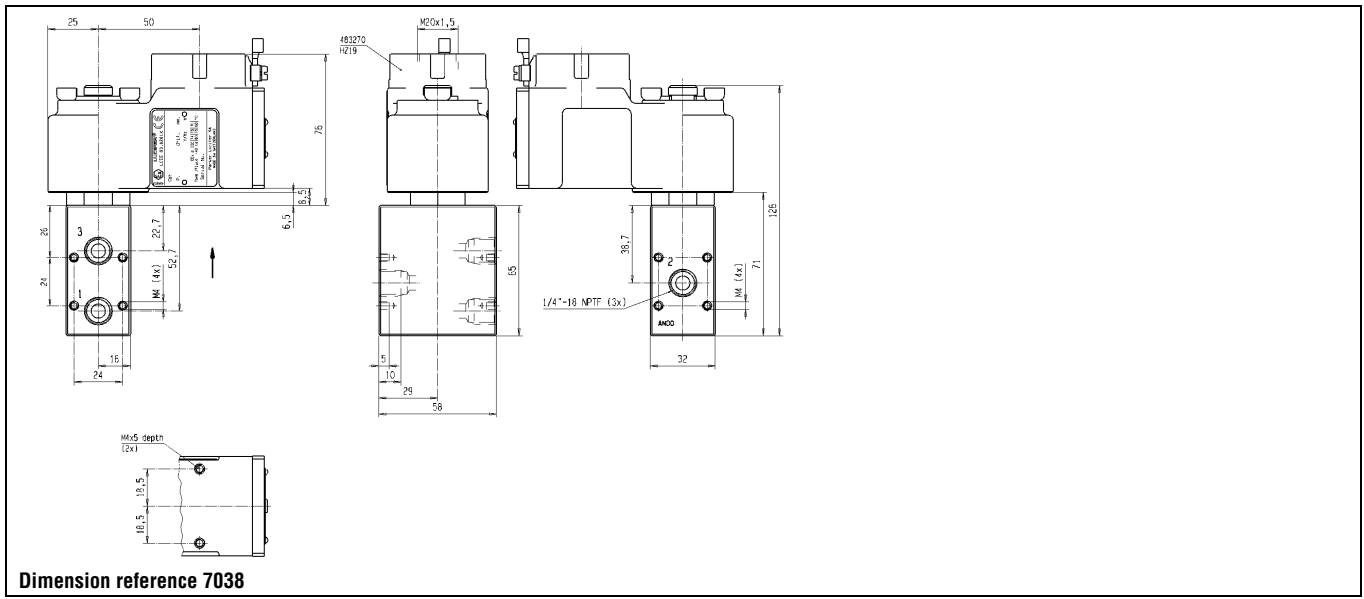
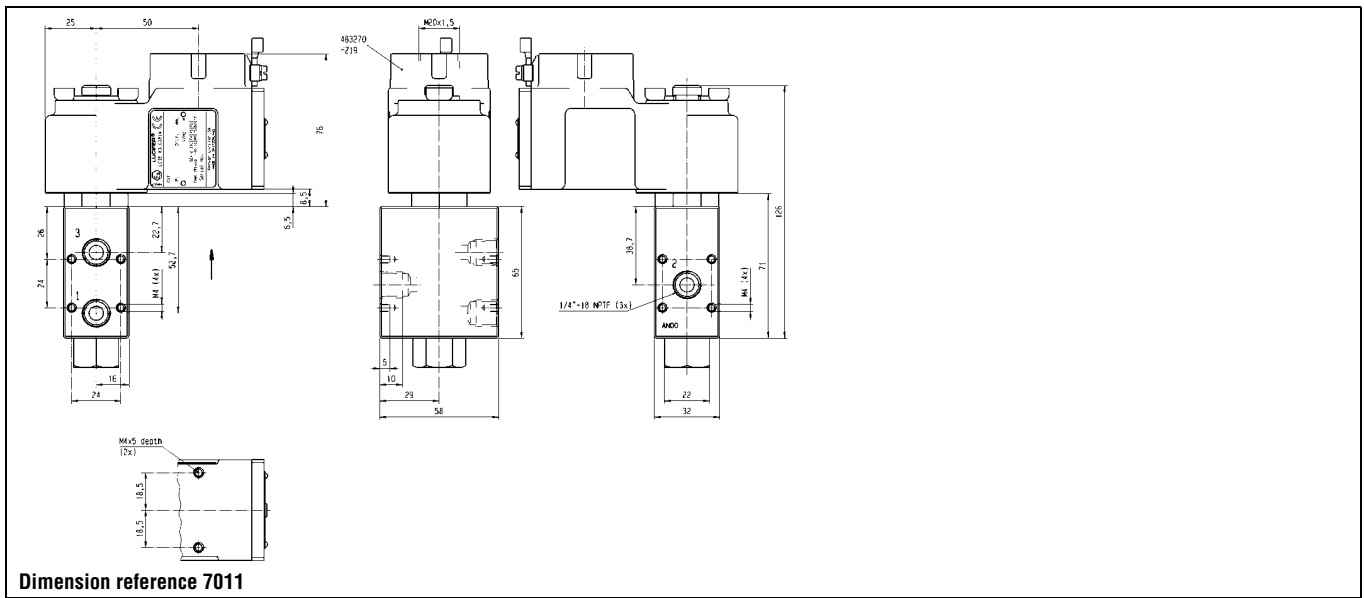
1. Valve with NPT ports

2. Optional manual override available on request - change suffix 96 to 56

Valve with NPT ports



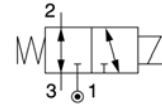
# 316 St. Steel valves for chemical, petrochemical and offshore applications



## 316 St. Steel valves for chemical, petrochemical and offshore applications

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure kPa |     | Fluid temp. °C | Admissible ambient temp. °C | Seat disc | Reference numbers   |      | Power consumption (W) |    | Degree of protection Ex | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----------------|-----------------------------|-----------|---------------------|------|-----------------------|----|-------------------------|------------------|----------|
|           |              |                      | Min                                  | Max |                |                             |           | Valve reference no. | Coil | DC                    | AC |                         |                  |          |
| NPT       |              | Qn                   |                                      |     |                |                             |           |                     |      |                       |    |                         |                  |          |

Direct operated



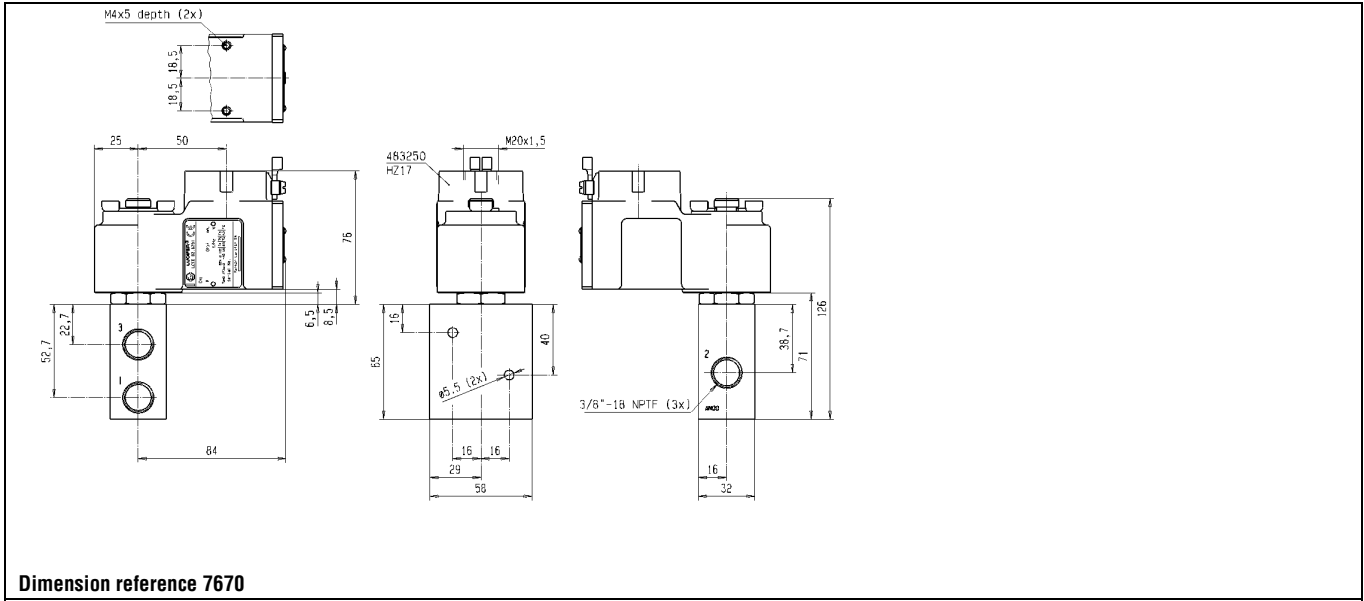
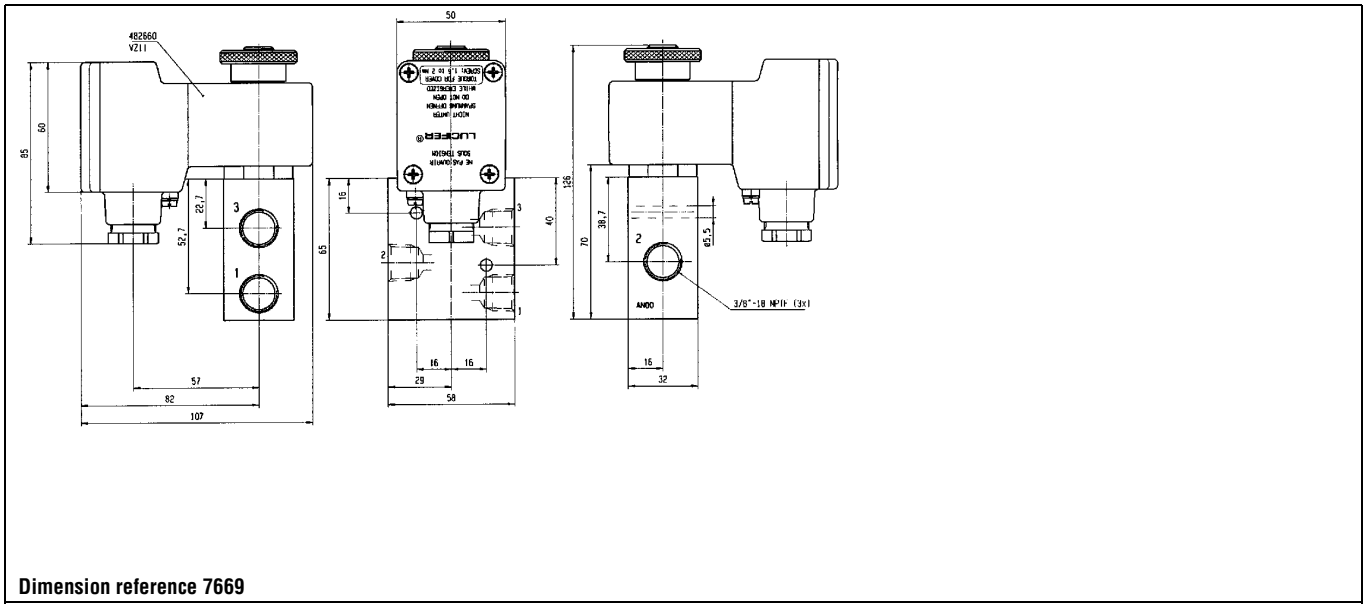
### 316L Stainless Steel body/Pipe mounting

|     |   |     |   |      |      |            |            |     |                    |   |                  |     |   |                    |    |      |
|-----|---|-----|---|------|------|------------|------------|-----|--------------------|---|------------------|-----|---|--------------------|----|------|
| 3/8 | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR | <b>U133X5296</b>   | 1 | <b>492965.01</b> | 0.8 | - | EEx ia IIC T6      | 10 | 7669 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR |                    |   | <b>492310</b>    | 6   | 6 | EEx me II T4(T5)   | 10 |      |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR | <b>U133X52961D</b> | 1 | <b>483270</b>    | 8   | 8 | EEx d IIC T4/T5/T6 | 10 | 7670 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 to +65 | -25 to +65 | NBR |                    |   | <b>483270.02</b> | 8   | 8 | EEx d IIC T4/T5/T6 | 10 |      |

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Valve with NPT ports

# 316 St. Steel valves for chemical, petrochemical and offshore applications



## NOTES

## NOTES

## Electrical parts options with 3/2 - 316L Stainless steel valves for chemical, petrochemical & Offshore applications

| El. part Group | Coil             | Protection class | Protection class / Temperature class | Power |        | Coil Order No.    | Coil Ref. No. | Connection           | Housing Order No. | Housing Ref. No. | Ambient temp. |          |
|----------------|------------------|------------------|--------------------------------------|-------|--------|-------------------|---------------|----------------------|-------------------|------------------|---------------|----------|
|                |                  |                  |                                      | DC    | AC     |                   |               |                      |                   |                  | min.          | max.     |
| 1              | 22 mm            | IP65             | Class F                              | 2.5   | 2      | DA01              | 488980        | for DIN B plug       | A2                | 8993             | -40           | 50       |
|                |                  | IP65             | Class F                              | 2.5   | 2      | DA02              | 481045        | with DIN B plug      | A2                | 8993             | -40           | 50       |
|                |                  | IP65             | EEx m II T5                          | 2.5   | 2      | VA12              | 482606.10     | with 1500mm cable    | 00                | -                | -40           | 50       |
| 2              | 32 mm (Std)      | IP65             | Class F                              | 9     | 8      | DZ02              | 481865        | for DIN A plug       | NL                | 8132             | -40           | 50       |
|                |                  | IP65             | Class F                              | 9     | 8      | DZ03              | 482725        | with DIN A plug      | NL                | 8132             | -40           | 50       |
|                |                  | IP65             | Class H                              | 9     | 8      | DZ04              | 492453        | for DIN A plug       | NL                | 8132             | -40           | 50       |
|                |                  | IP65             | Class H                              | 9     | 8      | DZ05              | 492726        | with DIN A plug      | NL                | 8132             | -40           | 50       |
|                | 50 mm (Std)      | IP65             | Class F, 50/60 Hz                    | -     | 9      | DZ06              | 483510        | for DIN A plug       | NL                | 8132             | -40           | 50       |
|                |                  | IP65             | Class F, 50/60 Hz                    | -     | 9      | DZ07              | 482635        | with DIN A plug      | NL                | 8132             | -40           | 50       |
|                |                  | IP65             | EEx m II T4                          | 9     | 8      | HZ90              | 492670.10     | with 3000mm cable    | 00                | -                | -25           | 40       |
|                |                  | IP10/IP44        | Class F                              | 8     | 8      | EZ01              | 481000        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP10/IP44        | Class H                              | 8     | 8      | EZ02              | 485100        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP67             | Class F, IP 67, M20x1.5              | 8     | 8      | EZ01              | 481000        | screw-terminals      | G1                | 4538             | -40           | 50       |
|                |                  | IP65             | EEx m II T4/T5                       | 9     | 8      | VZ01              | 492070        | with 1500mm cable    | 00                | -                | -40           | 40/65    |
|                |                  | IP67             | EEx me II T4                         | 8     | 8      | HZ06              | 483371        | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP66             | EEx me II T3/T4                      | 11    | 9      | VZ90              | 492190.10     | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  | IP67             | EEx me II T3/T4                      | 8     | 8      | HZ23              | 494040        | for cable connection | 00                | -                | -40           | 90/65    |
| IP65           | EEx md IIC T4/T5 | 8                | 8                                    | HZ09  | 493640 | with 1500mm cable | 00            | -                    | -40               | 75/40            |               |          |
| 5              | 50 mm            | IP54             | EEx d IIC T4/T5/T6                   | 8     | 8      | HZ08              | 483250        | for cable, 1/2 NPT   | 00                | -                | -40           | 80/75/60 |
| 7              | 32 mm I.S.       | IP65             | EEx ia II C T6                       | 0.4   | -      | DZ12              | 483580.01     | for DIN A plug       | NL                | 8132             | -40           | 55       |
|                |                  | IP65             | EEx ia II C T6                       | 0.4   | -      | DZ13              | 483960.01     | with DIN A plug      | NL                | 8132             | -40           | 55       |
|                | 50 mm I.S.       | IP66             | EEx ia II C T6                       | 0.4   | -      | VZ93              | 494035.10     | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP67             | EEx ia II C T6                       | 0.4   | -      | VZ08              | 488660.01     | with 2000mm cable    | 00                | -                | -40           | 65       |
|                |                  | IP65             | EEx ia II C T6                       | 0.4   | -      | VZ09              | 488670.01     | with DIN A plug      | 00                | -                | -40           | 65       |
| 9              | 32 mm 50 mm CPR  | IP65             | Class F                              | 9     | 9      | DZ93              | 492387        | with DIN A plug      | N9                | 8886             | -40           | 50       |
|                |                  | IP66             | EEx me II T5/T6                      | 1.5   | -      | VZ13              | 492200        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  | IP67             | EEx me II T4                         | 8     | -      | VZ14              | 483371.01     | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP66             | EEx me II T4/T5                      | 6     | 6      | VZ15              | 492300        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  | IP67             | EEx m II T4/T5                       | 5     | 5      | VZ02              | 492270        | with 1500mm cable    | 00                | -                | -40           | 65/40    |
|                |                  | IP65             | EEx ib IIB T6                        | 0.8   | -      | VZ11              | 482660        | for cable connection | 00                | -                | -40           | 75       |
|                |                  | IP66             | EEx ib IIC T6                        | 0.8   | -      | VZ12              | 483330.01     | for cable connection | 00                | -                | -40           | 75       |
|                |                  | IP66             | EEx ia IIC T6                        | 0.8   | -      | VZ92              | 492965.02     | for cable connection | 00                | -                | -40           | 65       |
| 10             | 50 mm OFFSHORE   | IP66             | EEx me II T5/T6                      | 1.5   | -      | VZ26              | 492210        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  | IP66             | EEx me II T4/T5                      | 6     | 6      | VZ27              | 492310        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  | IP65             | EEx ib IIB T6                        | 0.8   | -      | VZ11              | 482660        | for cable connection | 00                | -                | -40           | 75       |
|                |                  | IP66             | EEx ib IIC T6                        | 0.8   | -      | VZ12              | 483330.01     | for cable connection | 00                | -                | -40           | 75       |
|                |                  | IP66             | EEx ia IIC T6                        | 0.8   | -      | VZ91              | 492965.01     | for cable connection | 00                | -                | -40           | 65       |
| 11             | 50 mm EEx d      | IP65             | EEx d II C T4/T5/T6                  | 8     | 8      | HZ19              | 483270        | for cable , M20x1.5  | 00                | -                | -40           | 80/75/60 |
|                |                  | IP65             | EEx d II C T4/T5/T6                  | 8     | 8      | HZ21              | 483270.02     | for cable , 1/2 NPT  | 00                | -                | -40           | 80/75/60 |
| 12             | 50 mm            | IP66             | EEx me II T4/T5                      | 6     | 6      | VZ27              | 492310        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  | IP66             | EEx ia IIB T6                        | 0.8   | -      | VZ22              | 482160.01     | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP66             | EEx ia IIC T6                        | 0.8   | -      | VZ23              | 482870.01     | for cable connection | 00                | -                | -40           | 65       |

Note: This table is indicative only. Please contact your distributor to confirm your selection.

# 316L St. Steel valves for actuator control

| ACTUATION                                    | CONNECTION | ORIFICE (MM) | MAX. PRESSURE (BAR) <KPA> | PAGE            |
|--|------------|--------------|---------------------------|-----------------|
| Direct operated                              | 1/4        | 2.5 to 5     | <1000.0>                  | 288             |
|  | 3/8        | 5            | <1000.0>                  | 290/292         |
|  | SB         | 2.5          | <1000.0>                  | 292             |
| Pilot operated                               | 1/4 - 1/8  | 4            | 10.0                      | 296/298/308/310 |
|  | 3/8 - 1/4  | 8            | 10.0                      | 300/302/312     |
| Pilot operated - Integrated pilot            | 1/4 - 1/8  | 4            | 10.0                      | 296/308         |
|  | 3/8 - 1/4  | 8            | 10.0                      | 298/310         |
| Two solenoids and main pressure supply       | 1/4 - 1/8  | 4            | 10.0                      | 304/314         |
|  | 3/8 - 1/4  | 8            | 10.0                      | 304/306/314     |
| Pilot operated with external pressure supply | 3/8 - 1/4  | 8            | 10.0                      | 302             |
| External pressure supply                     | 3/8 - 1/4  | 8            | 10.0                      | 302             |
| Direct operated with manual reset            | 1/4        | 5            | <1000.0>                  | 292/294         |
|  | 3/8        | 5            | <1000.0>                  | 294             |

Notes:

# 316 St. Steel valves for actuator control

# 3/2

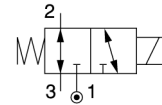
## Applications

Directional control and fail/safe function in valve actuator circuits in corrosive and hazardous environment.

Solenoid pilots for main stage valves in corrosive and hazardous locations.

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure kPa |     |     | Fluid temp. °C |     | Seat disc | Reference numbers      |                     |         |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|-----|----------------|-----|-----------|------------------------|---------------------|---------|------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | Max | Min            | Max |           | Global valve reference | Valve reference no. | Housing | Coil | DC                    | AC |         |                  |          |
| NPT       |              | Qn                   |                                      |     |     |                |     |           |                        |                     |         |      |                       |    |         |                  |          |

Direct operated



## 316L Stainless Steel body/Pipe mounting

|     |     |     |   |      |      |     |    |     |              |             |   |   |           |     |   |      |    |      |
|-----|-----|-----|---|------|------|-----|----|-----|--------------|-------------|---|---|-----------|-----|---|------|----|------|
| 1/4 | 2.5 | 220 | 0 | 850  | 850  | -25 | 75 | FKM | 7133VRN2LV9D | U133V56951D | 1 | - | 483270    | 8   | 8 | -    | 11 | 6714 |
|     | 2.5 | 220 | 0 | 850  | 850  | -25 | 75 | FKM |              |             |   | - | 483270.02 | 8   | 8 | -    | 11 |      |
|     | 2.5 | 220 | 0 | 850  | -    | -25 | 75 | FKM | 7133VRN2LV95 | U133V5695   | 1 | - | 492965.01 | 0.8 | - | -    | 10 | 86   |
|     | 2.5 | 220 | 0 | 850  | 850  | -25 | 75 | FKM |              |             |   | - | 492310    | 6   | 6 | -    | 10 |      |
|     | 5   | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR | 7133XRN2SV1D | U133X51561D | 1 | - | 483270    | 8   | 8 | 1960 | 11 | 7011 |
|     | 5   | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR |              |             |   | - | 483270.02 | 8   | 8 | 1960 | 11 |      |

Table continued on page 290

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Valve with NPT ports
- 2. Max. power consumption DC = 1 W with connected cable length max. 4 km (2 km back and forth), section 1 mm<sup>2</sup>
- 3. Other coil-housing available

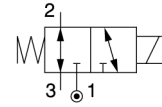




## 316 St. Steel valves for actuator control

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure kPa |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| NPT       |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

Direct operated



## 316L Stainless Steel body/Pipe mounting

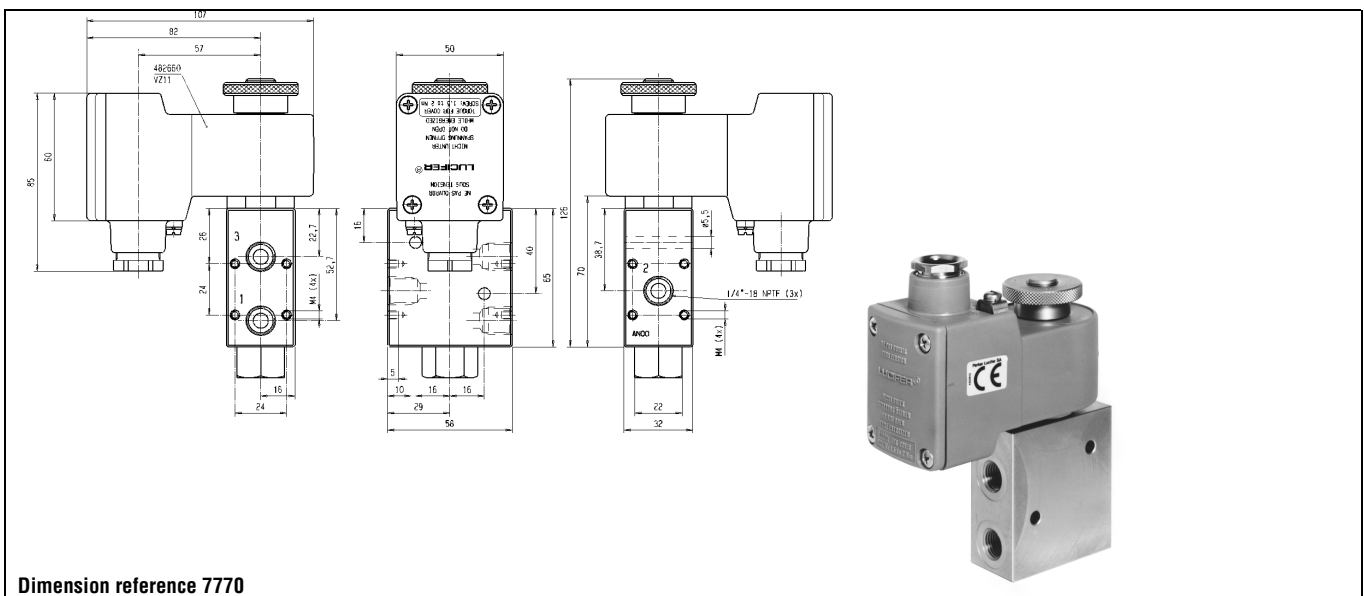
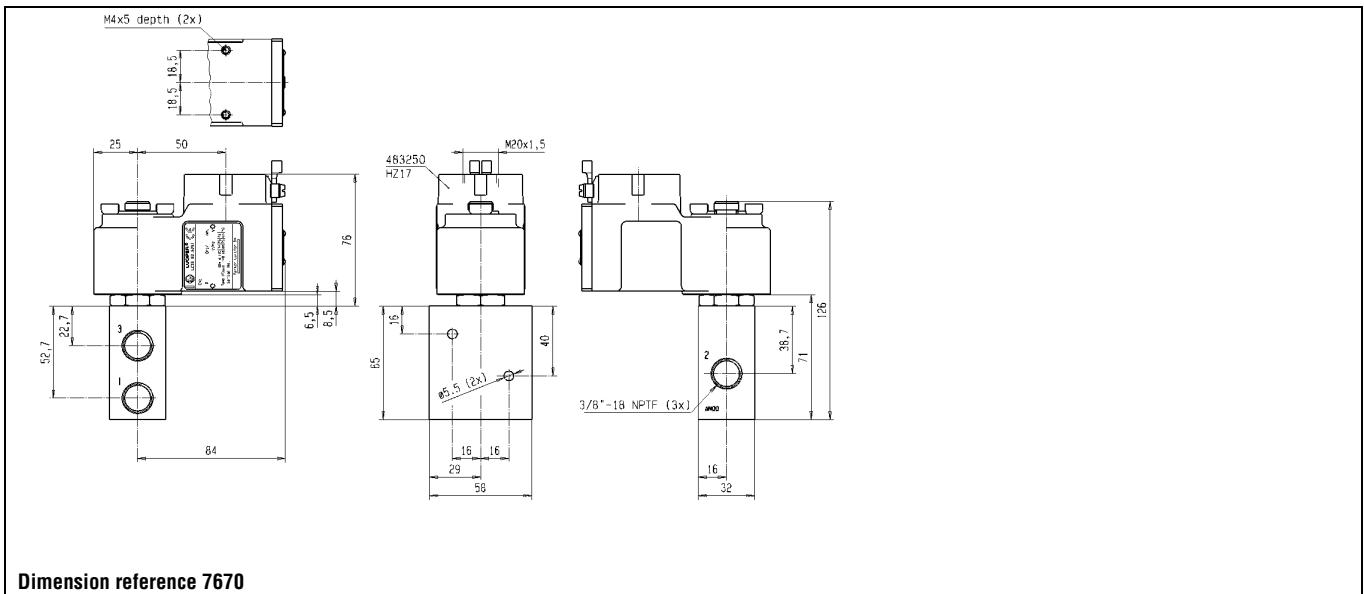
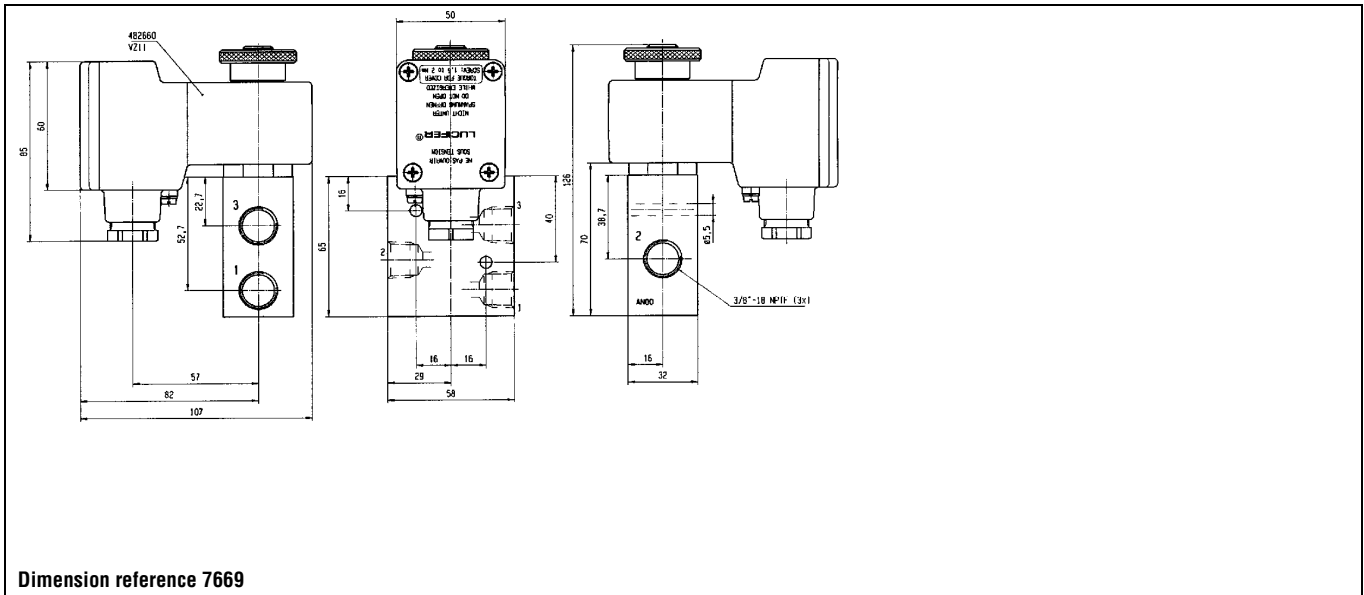
|     |   |     |   |      |      |     |    |     |              |                    |   |   |                  |     |   |      |    |      |
|-----|---|-----|---|------|------|-----|----|-----|--------------|--------------------|---|---|------------------|-----|---|------|----|------|
| 1/4 | 5 | 680 | 0 | 1000 | -    | -25 | 65 | NBR | 7133XRN2SV00 | <b>U133X5156</b>   | 1 | - | <b>492965.01</b> | 0.8 | - | 1340 | 10 | 7770 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR |              |                    |   | - | <b>492310</b>    | 6   | 6 | 1340 | 10 |      |
| 3/8 | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR | 7133XRN3SN9H | <b>U133X52961D</b> | 1 | - | <b>483270</b>    | 8   | 8 | 1940 | 10 | 7670 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR |              |                    |   | - | <b>483270.02</b> | 8   | 8 | 1940 | 10 |      |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR | 7133XRN3SN96 | <b>U133X5296</b>   | 1 | - | <b>492965.01</b> | 0.8 | - | -    | 10 | 7669 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR |              |                    |   | - | <b>492310</b>    | 6   | 6 | -    | 10 |      |

Table continued on page 292

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Valve with NPT ports

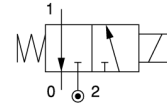
# 316 St. Steel valves for actuator control



## 316 St. Steel valves for actuator control

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure kPa |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| NPT       |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

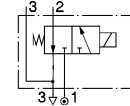
Direct operated



### 316L Stainless Steel body/Sub-base mounting

|    |     |     |   |      |      |     |    |     |              |                  |   |   |                  |     |   |     |    |    |
|----|-----|-----|---|------|------|-----|----|-----|--------------|------------------|---|---|------------------|-----|---|-----|----|----|
| SB | 2.5 | 220 | 0 | 1000 | -    | -25 | 65 | FKM | 7131FRF2LV95 | <b>U131F5695</b> | 1 | - | <b>492965.01</b> | 0.8 | - | 700 | 10 | 85 |
|    | 2.5 | 220 | 0 | 1000 | 1000 | -25 | 75 | FKM |              |                  |   | - | <b>492310</b>    | 6   | 6 | 700 | 10 |    |

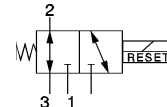
Direct operated



### 316L Stainless Steel body/NAMUR interface

|     |   |     |   |      |      |     |    |     |              |                  |   |   |                  |     |   |   |      |      |
|-----|---|-----|---|------|------|-----|----|-----|--------------|------------------|---|---|------------------|-----|---|---|------|------|
| 3/8 | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR | 7131XRKMVN00 | <b>U131X1201</b> | 1 | - | <b>492965.01</b> | 0.8 | - | - | 9,10 | 7668 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR |              |                  |   | - | <b>492310</b>    | 6   | 6 | - | 9,10 |      |

Direct operated with manual reset



### 316L Stainless Steel body/Pipe mounting

|     |   |     |   |      |      |     |    |     |              |                    |   |   |                  |   |   |   |      |    |      |
|-----|---|-----|---|------|------|-----|----|-----|--------------|--------------------|---|---|------------------|---|---|---|------|----|------|
| 1/4 | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR | 7033XRN2SN1D | <b>U033X51561D</b> | 2 | - | <b>483270</b>    | 1 | 8 | 8 | 2150 | 11 | 7030 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR |              |                    |   | - | <b>483270.02</b> | 1 | 8 | 8 | 2150 | 11 |      |

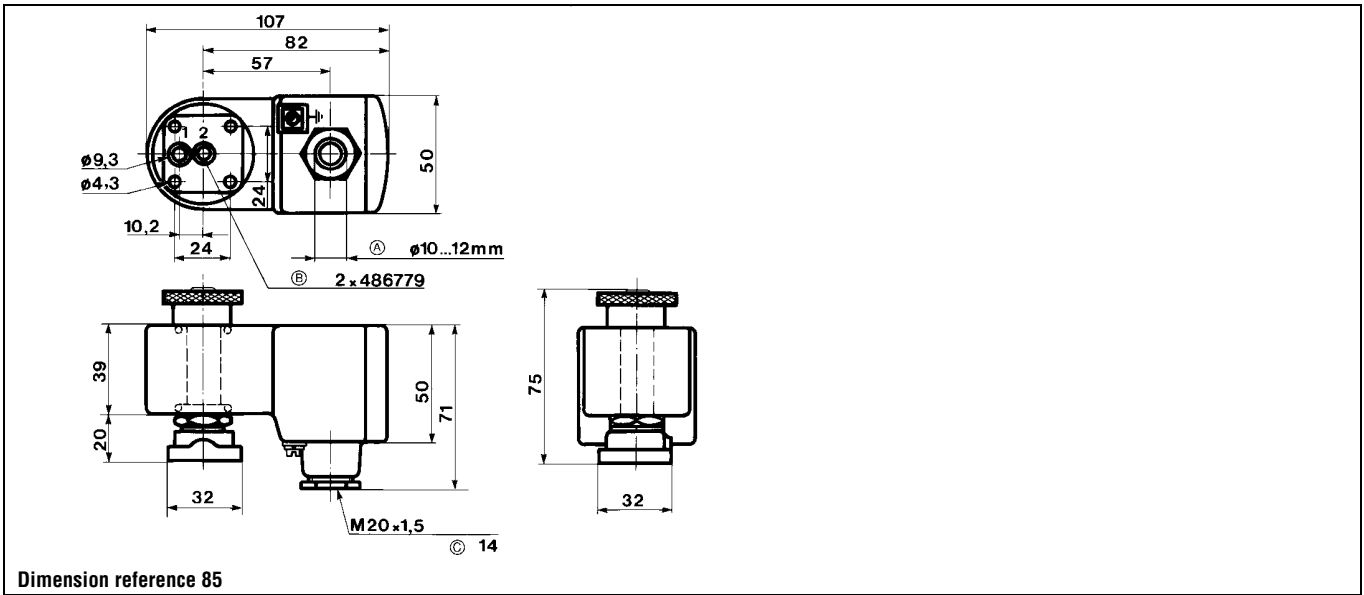
Table continued on page 294

#### Notes:

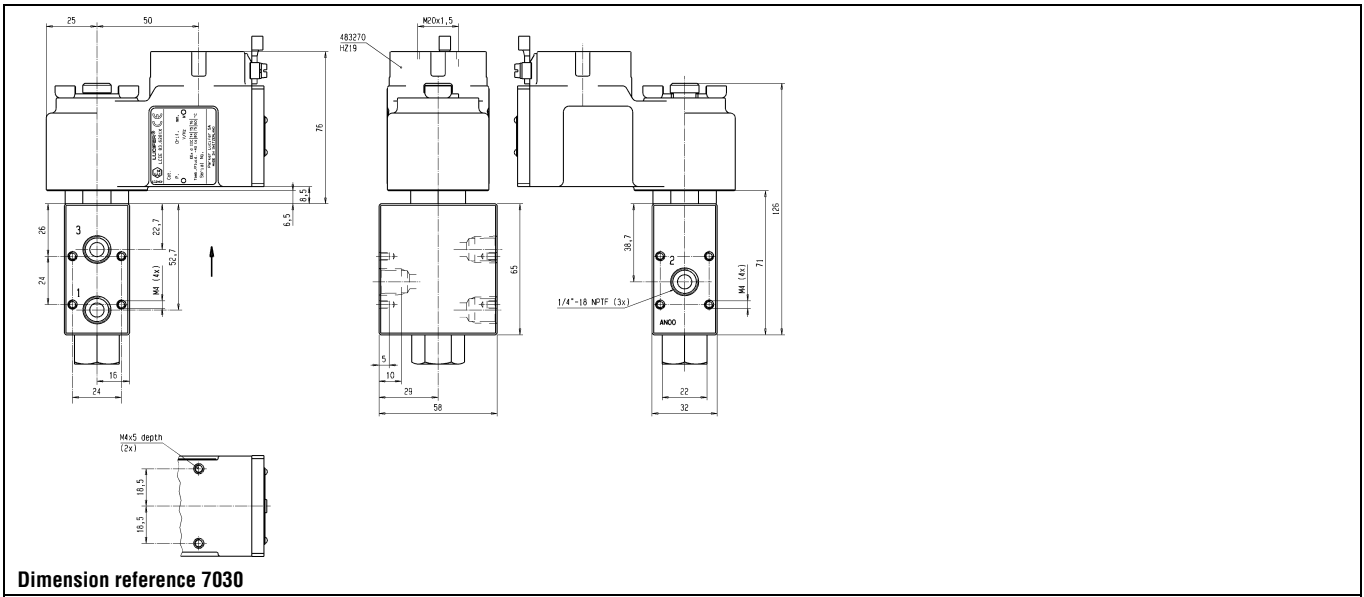
\* See Electrical Parts Group table at end of section

1. Valve with NPT ports
2. With manual reset

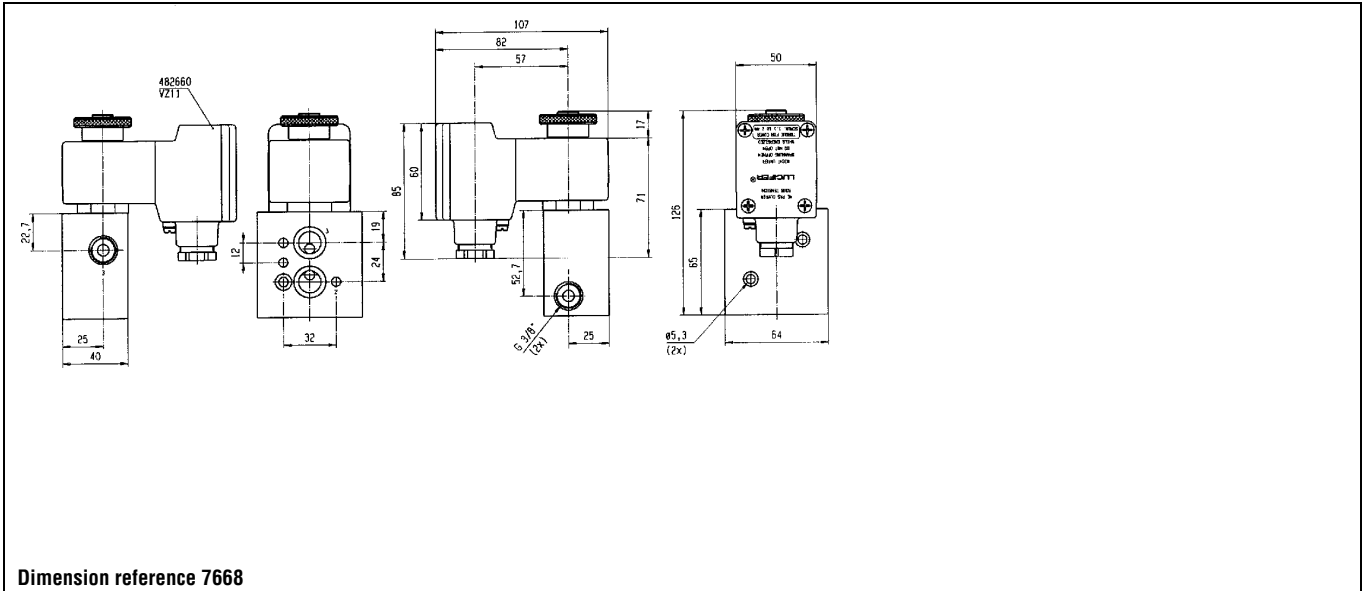
# 316 St. Steel valves for actuator control



Dimension reference 85



Dimension reference 7030



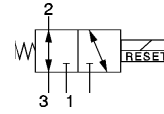
Dimension reference 7668

## 316 St. Steel valves for actuator control

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure kPa |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| NPT       |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

## 316L Stainless Steel body/Pipe mounting

Direct operated with manual reset



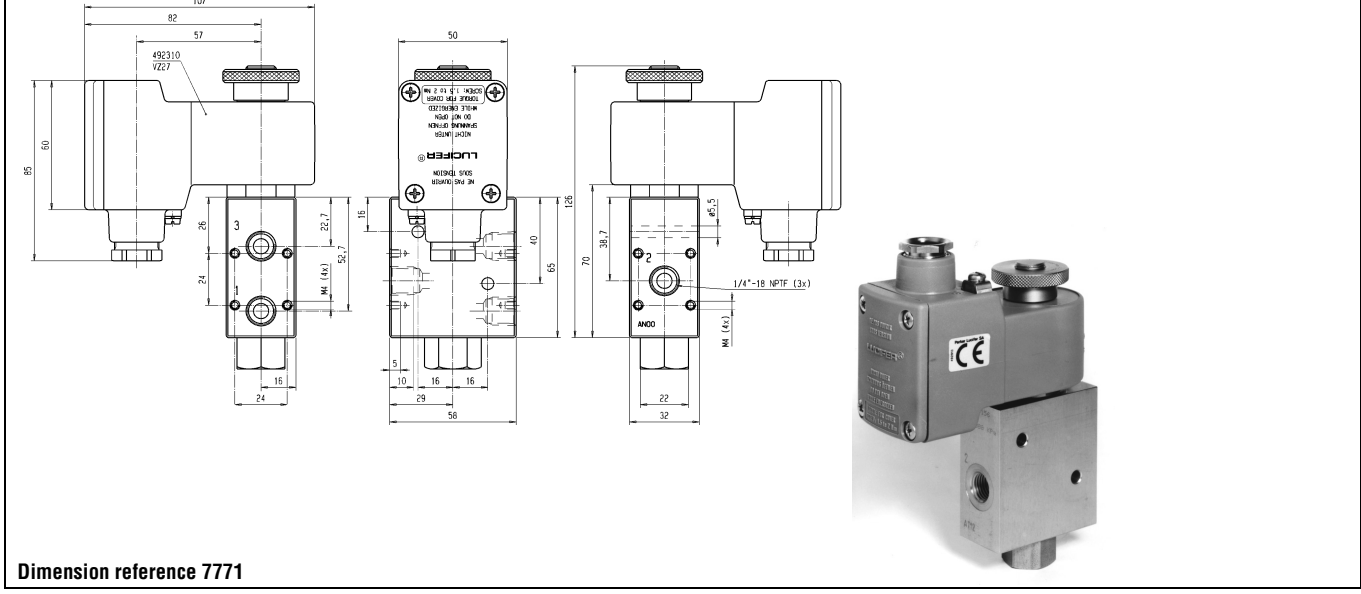
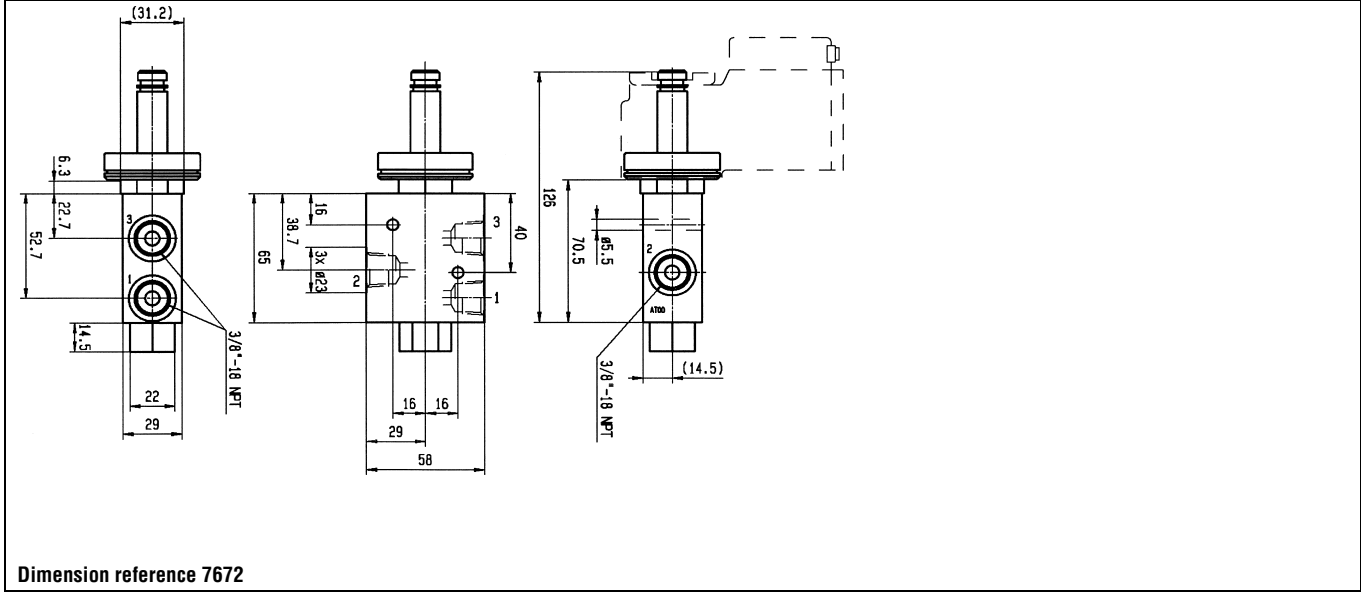
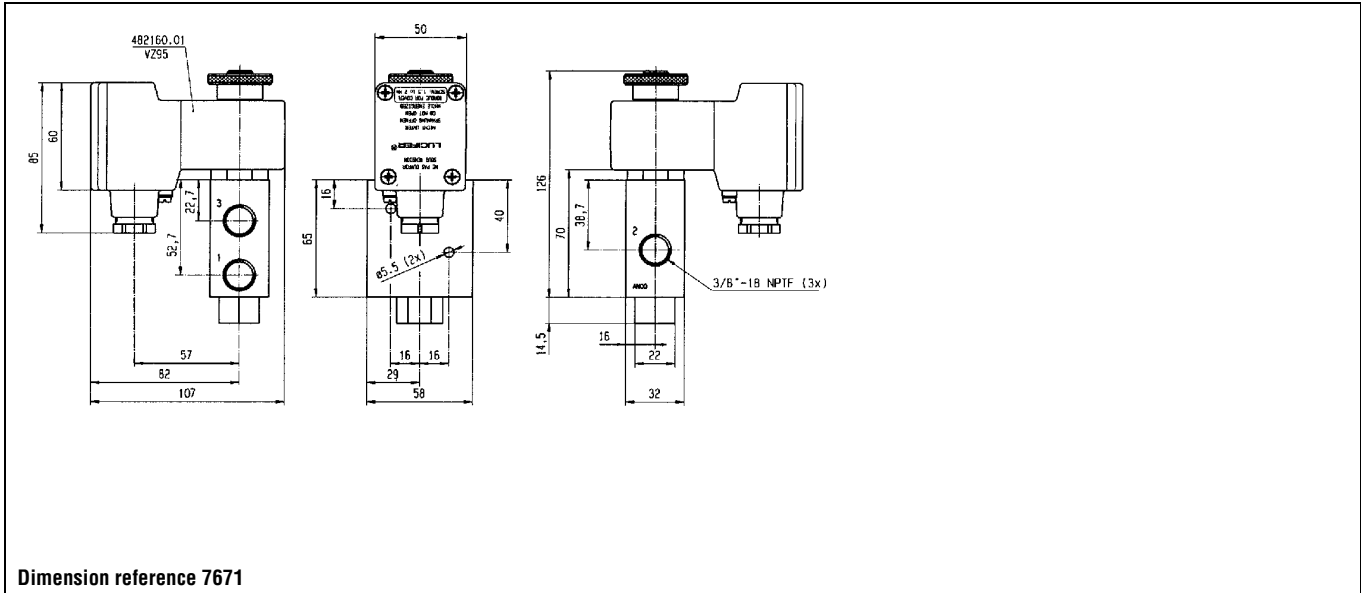
|     |   |     |   |      |      |     |    |     |              |                    |   |   |                  |   |     |   |      |    |      |
|-----|---|-----|---|------|------|-----|----|-----|--------------|--------------------|---|---|------------------|---|-----|---|------|----|------|
| 1/4 | 5 | 680 | 0 | 1000 | -    | -25 | 65 | NBR | 7033XRN2SN00 | <b>U033X5156</b>   | 1 | - | <b>482870.01</b> | 2 | 0.8 | - | 1300 | 12 | 7771 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR |              |                    |   | - | <b>492310</b>    | 2 | 6   | 6 | 1300 | 12 |      |
| 3/8 | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR | 7033XRN3SN1D | <b>U033X52561D</b> | 1 | - | <b>483270</b>    | 2 | 8   | 8 | 1980 | 11 | 7672 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR |              |                    |   | - | <b>483270.02</b> | 2 | 8   | 8 | 1980 | 11 |      |
|     | 5 | 680 | 0 | 1000 | -    | -25 | 65 | NBR | 7033XRN3SN00 | <b>U033X5256</b>   | 1 | - | <b>482870.01</b> | 2 | 0.8 | - | 1300 | 12 | 7671 |
|     | 5 | 680 | 0 | 1000 | 1000 | -25 | 65 | NBR |              |                    |   | - | <b>492310</b>    | 2 | 6   | 6 | 1300 | 12 |      |

### Notes:

\* See Electrical Parts Group table at end of section

1. With manual reset
2. Valve with NPT ports

# 316 St. Steel valves for actuator control



# 316L St. Steel valves for actuator control

# 5/2

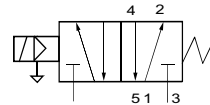
## Applications

Directional control and fail/safe function in valve actuator circuits in corrosive and hazardous environment.

Solenoid pilots for main stage valves in corrosive and hazardous locations.

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers      |                     |  |      | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|----|----------------|-----|-----------|------------------------|---------------------|--|------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max |    | Min            | Max |           | Global valve reference | Valve reference no. |  | Coil | DC                    | AC |         |                  |          |
| NPT       |              |                            |                                      | DC  | AC |                |     |           |                        |                     |  |      |                       |    | Housing |                  |          |

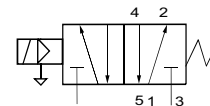
Pilot operated - Integrated pilot



## 316L Stainless Steel body/Pipe mounting

|           |   |     |   |    |    |     |    |     |              |                  |   |           |               |   |     |   |     |   |      |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|------------------|---|-----------|---------------|---|-----|---|-----|---|------|
| 1/4 - 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR | 2341PRN2JNM1 | <b>U341P0150</b> | 1 | <b>A2</b> | <b>488980</b> | 2 | 2.5 | 2 | 220 | 1 | 7576 |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|------------------|---|-----------|---------------|---|-----|---|-----|---|------|

Pilot operated



## 316L Stainless Steel body/Pipe mounting

|           |   |     |   |    |    |     |    |     |              |                  |   |               |                  |     |     |     |   |      |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|------------------|---|---------------|------------------|-----|-----|-----|---|------|
| 1/4 - 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR | 7341PRN2JN00 | <b>U341P3150</b> | 2 | <b>NL</b>     | <b>481865</b>    | 9   | 8   | 420 | 2 | 7547 |
|           | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR |              | <b>E0</b>        |   | <b>481000</b> | 8                | 8   | 420 | 2   |   |      |
|           | 4 | 600 | 2 | 10 | 10 | -25 | 55 | NBR | 7341PRN2JN92 | <b>U341P3192</b> | 2 | <b>NL</b>     | <b>483580.01</b> | 0.4 | -   | 420 | 7 | 7549 |

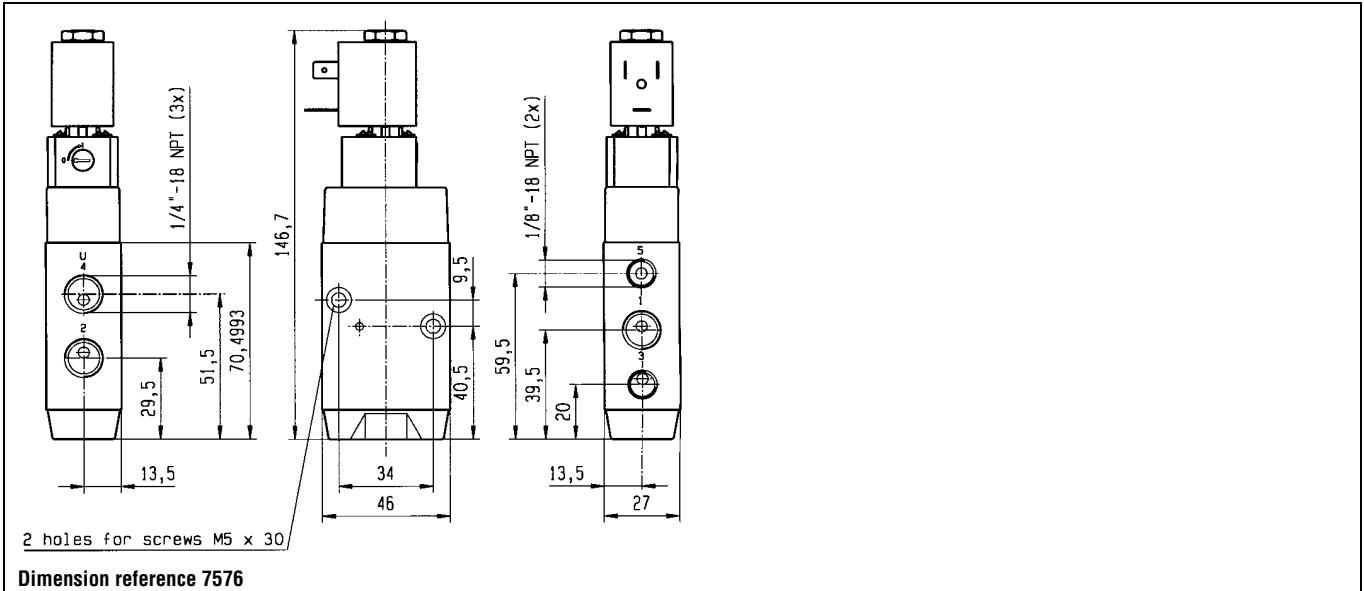
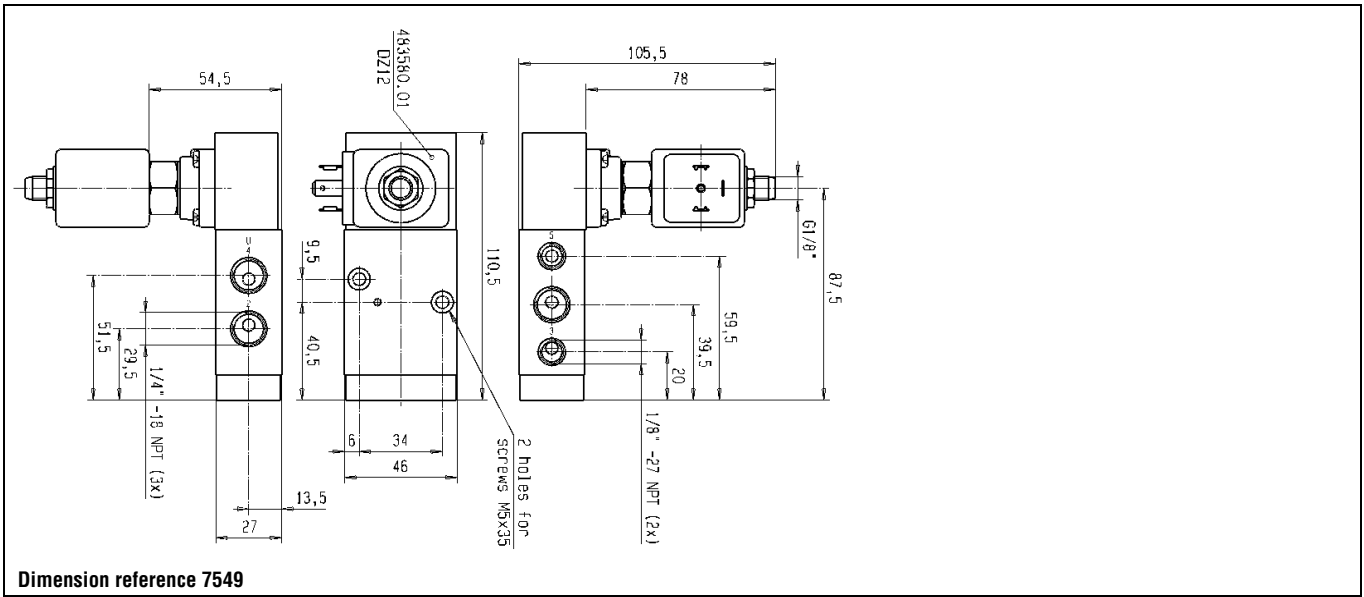
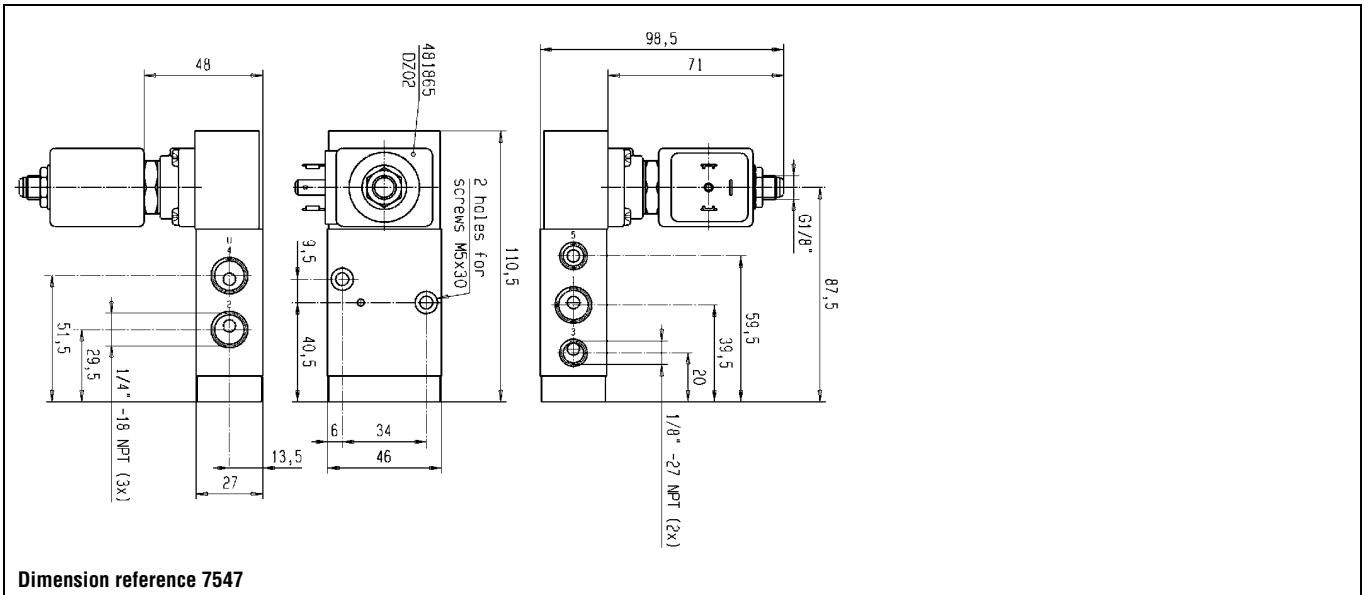
Table continued on page 298

### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Manual override standard
- 2. Valve with NPT ports



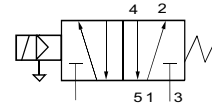
# 316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection



## 316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| NPT       |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

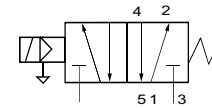
Pilot operated



### 316L Stainless Steel body/Pipe mounting

|           |   |     |   |    |    |     |    |     |              |                    |   |   |                  |     |   |   |    |      |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|--------------------|---|---|------------------|-----|---|---|----|------|
| 1/4 - 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 75 | NBR | 7341PRN2JN95 | <b>U341P3195</b>   | 1 | - | <b>492965.01</b> | 0.8 | - | - | 10 | 7550 |
|           | 4 | 600 | 2 | 10 | 10 | -25 | 75 | NBR |              |                    |   | - | <b>492310</b>    | 6   | 6 | - | 10 |      |
|           | 4 | 600 | 2 | 10 | 10 | -10 | 75 | NBR | 7341PRN2JN9D | <b>U341P31951D</b> | 1 | - | <b>483270</b>    | 8   | 8 | - | 11 | 7551 |
|           | 4 | 600 | 2 | 10 | 10 | -10 | 75 | NBR |              |                    |   | - | <b>483270.02</b> | 8   | 8 | - | 11 |      |

Pilot operated - Integrated pilot



### 316L Stainless Steel body/Pipe mounting

|           |   |      |   |    |    |     |    |     |              |                  |   |           |               |   |     |   |   |   |      |
|-----------|---|------|---|----|----|-----|----|-----|--------------|------------------|---|-----------|---------------|---|-----|---|---|---|------|
| 3/8 - 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 2341PRN3NNM1 | <b>U341P0250</b> | 2 | <b>A2</b> | <b>488980</b> | 1 | 2.5 | 2 | - | 1 | 7578 |
|-----------|---|------|---|----|----|-----|----|-----|--------------|------------------|---|-----------|---------------|---|-----|---|---|---|------|

Table continued on page 300

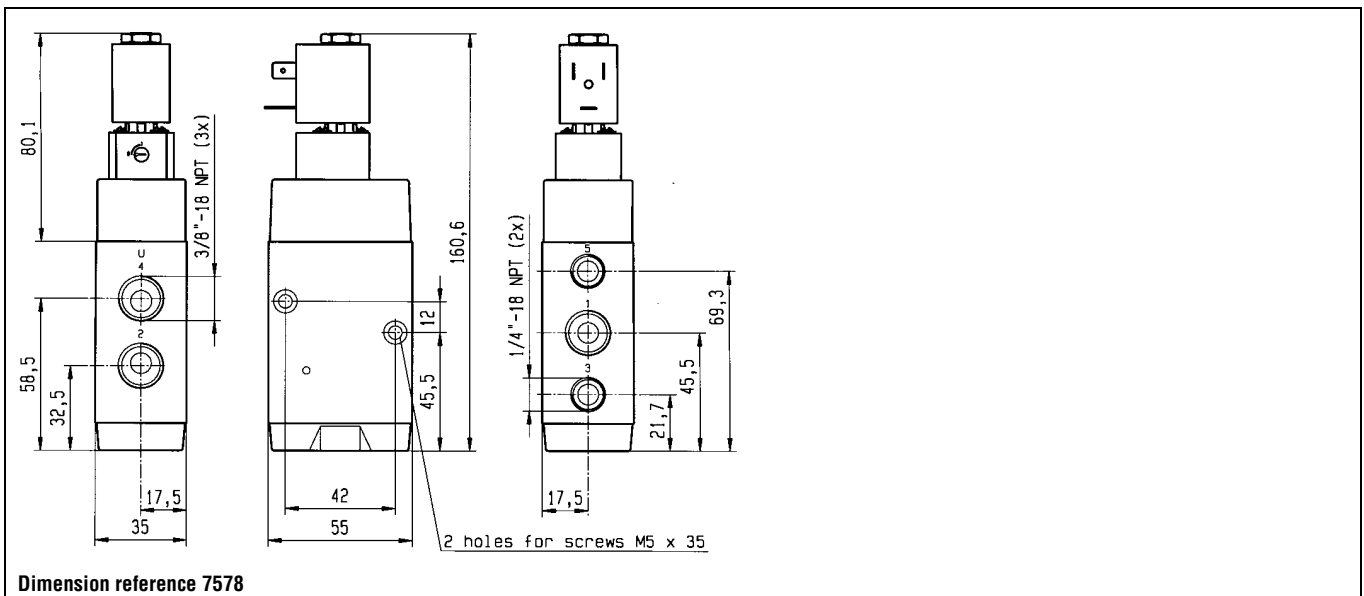
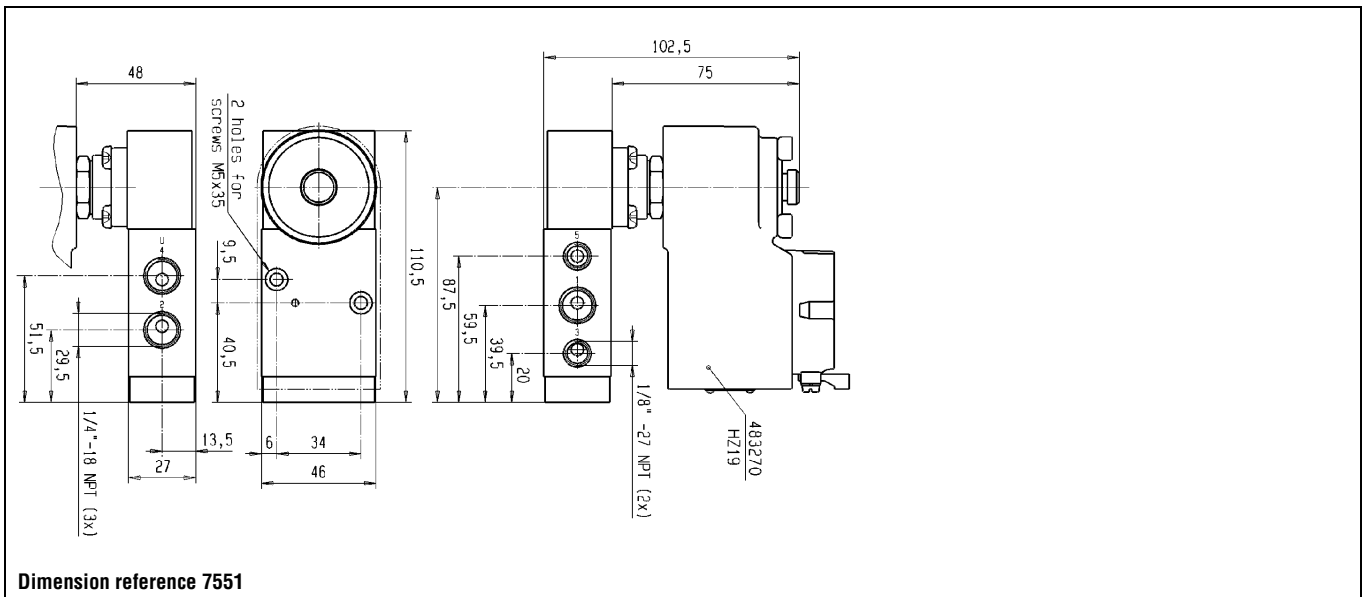
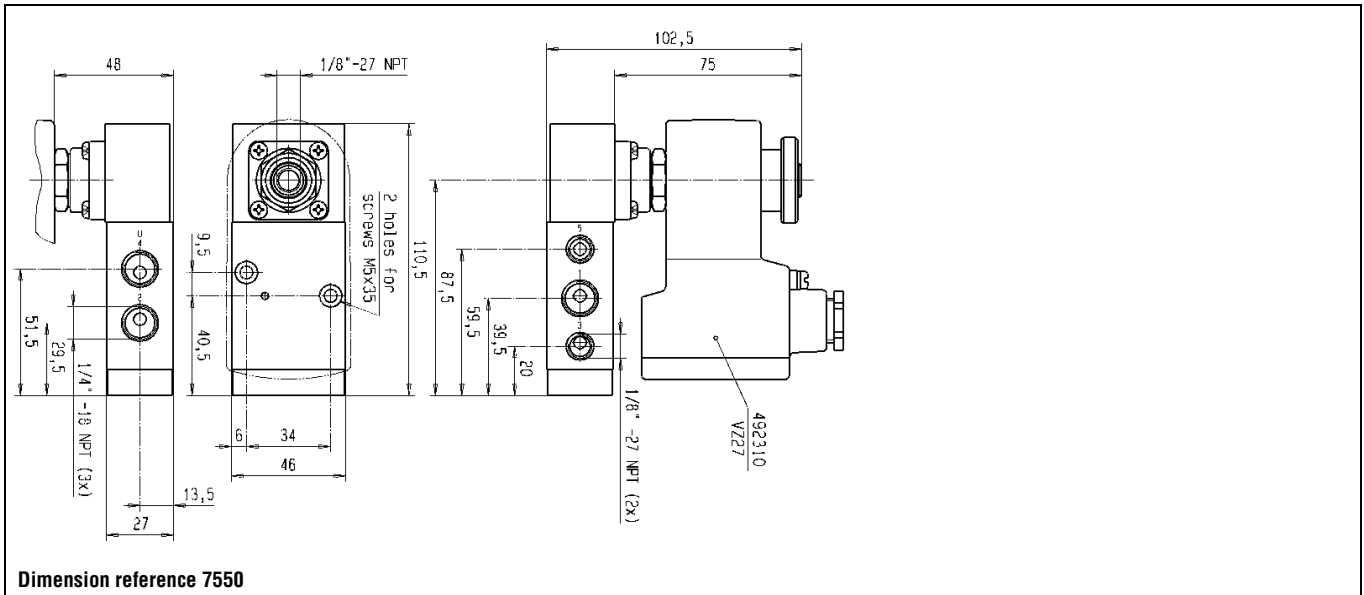
#### Notes:

\* See Electrical Parts Group table at end of section

1. Valve with NPT ports

2. Manual override standard

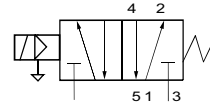
# 316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection



## 316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |    |     | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|----|-----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | DC | Max | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| NPT       |              | Qn                   |                                      |    |     |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

Pilot operated



### 316L Stainless Steel body/Pipe mounting

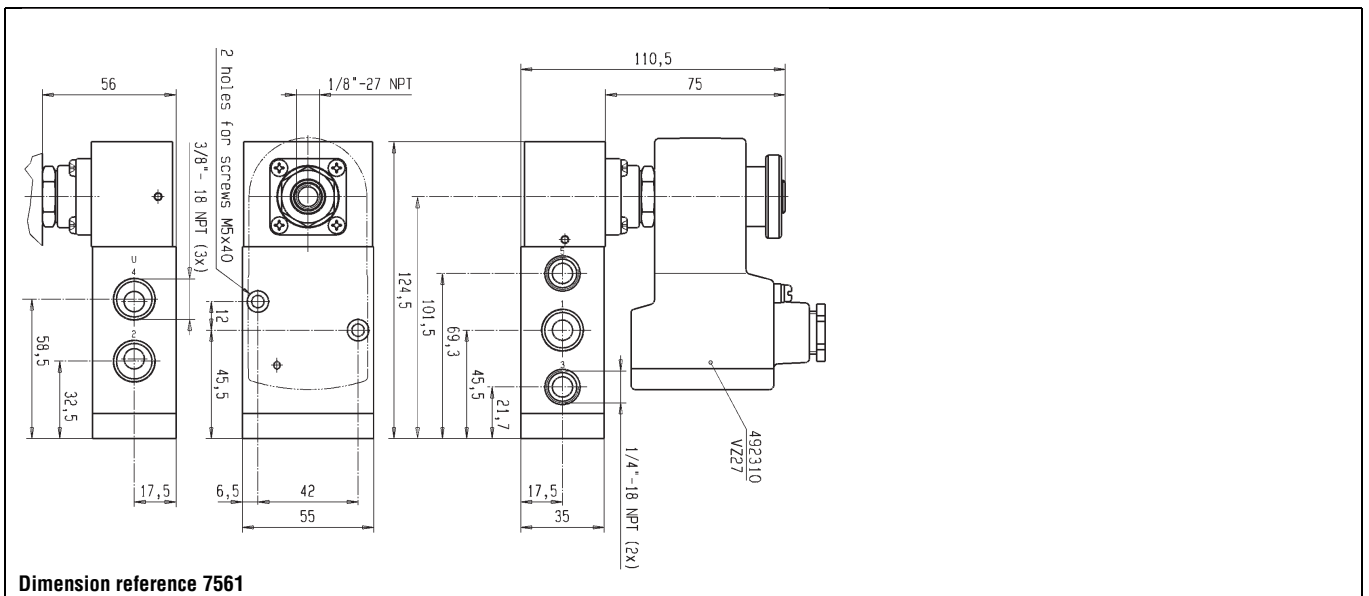
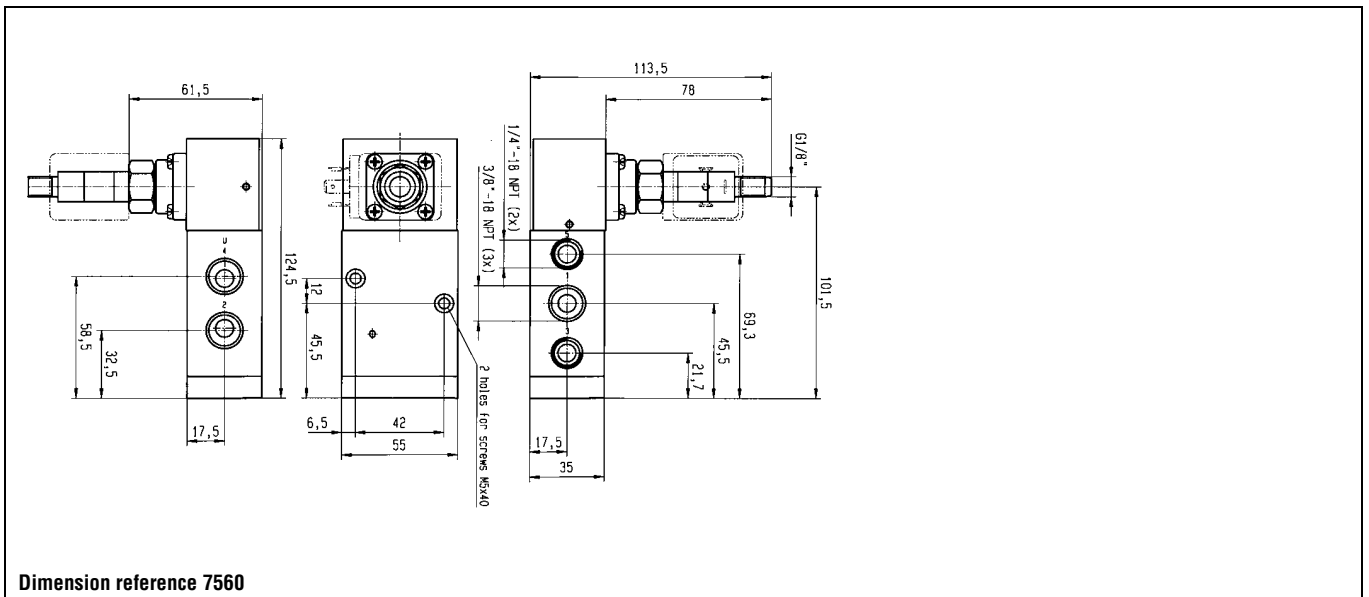
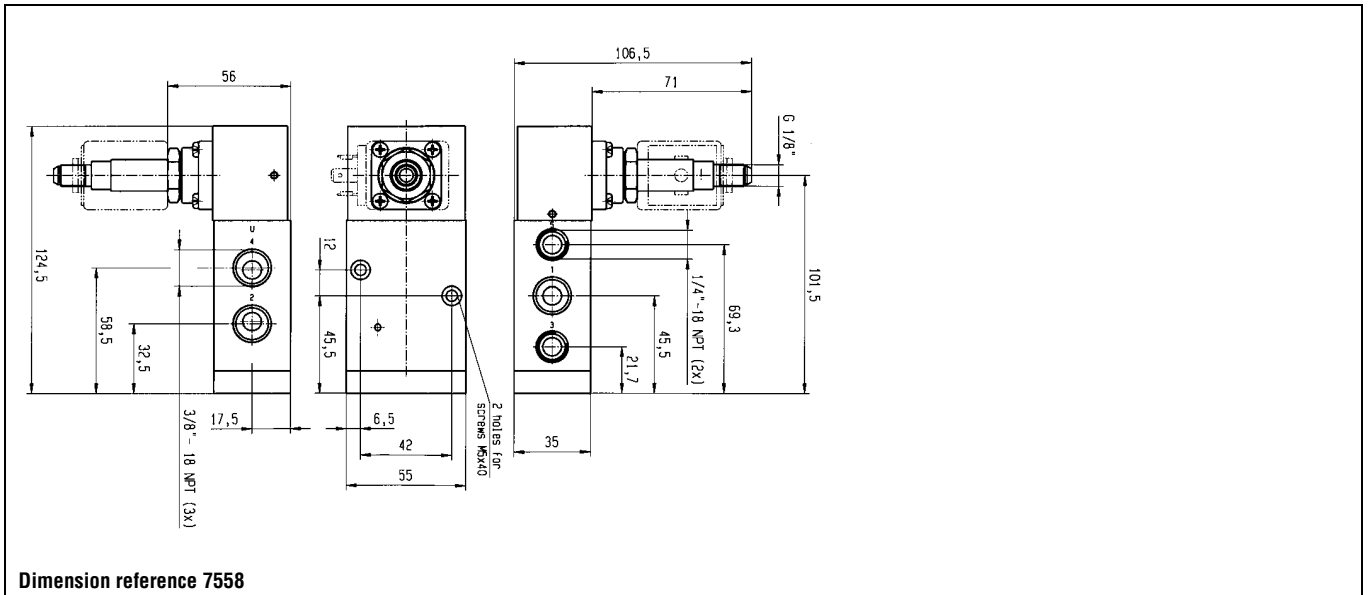
|           |   |      |   |    |    |     |    |     |              |                  |   |               |                  |     |   |    |    |      |
|-----------|---|------|---|----|----|-----|----|-----|--------------|------------------|---|---------------|------------------|-----|---|----|----|------|
| 3/8 - 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7341PRN3NN00 | <b>U341P3250</b> | 1 | NL            | <b>481865</b>    | 9   | 8 | -  | 2  | 7558 |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR |              | <b>E0</b>        |   | <b>481000</b> | 8                | 8   | - | 2  |    |      |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7341PRN3NN92 | <b>U341P3292</b> | 1 | NL            | <b>483580.01</b> | 0.4 | - | -  | 7  | 7560 |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 75 | NBR | 7341PRN3NN95 | <b>U341P3295</b> | 1 | -             | <b>492965.01</b> | 0.8 | - | -  | 10 | 7561 |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 75 | NBR |              | -                |   | <b>492310</b> | 6                | 6   | - | 10 |    |      |

Table continued on page 302

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Valve with NPT ports

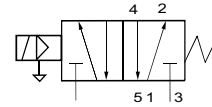
# 316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection



## 316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| NPT       |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

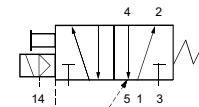
Pilot operated



### 316L Stainless Steel body/Pipe mounting

|           |   |      |   |    |    |     |    |     |              |             |   |           |   |   |   |    |      |
|-----------|---|------|---|----|----|-----|----|-----|--------------|-------------|---|-----------|---|---|---|----|------|
| 3/8 - 1/4 | 8 | 1400 | 2 | 10 | 10 | -10 | 80 | NBR | 7341PRN3NN9D | U341P32951D | - | 483270    | 8 | 8 | - | 11 | 7562 |
|           | 8 | 1400 | 2 | 10 | 10 | -10 | 80 | NBR |              |             | - | 483270.02 | 8 | 8 | - | 11 |      |

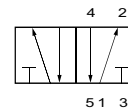
Pilot operated with external pressure supply



### 316L Stainless Steel body/Pipe mounting

|           |   |      |   |    |    |     |    |     |              |             |    |        |   |   |   |   |      |
|-----------|---|------|---|----|----|-----|----|-----|--------------|-------------|----|--------|---|---|---|---|------|
| 3/8 - 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7441PRN3NN00 | U441P3250 1 | NL | 481865 | 9 | 8 | - | 2 | 7565 |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR |              |             | E0 | 481000 | 8 | 8 | - | 2 |      |

External pressure supply



### 316L Stainless Steel body/Pipe mounting

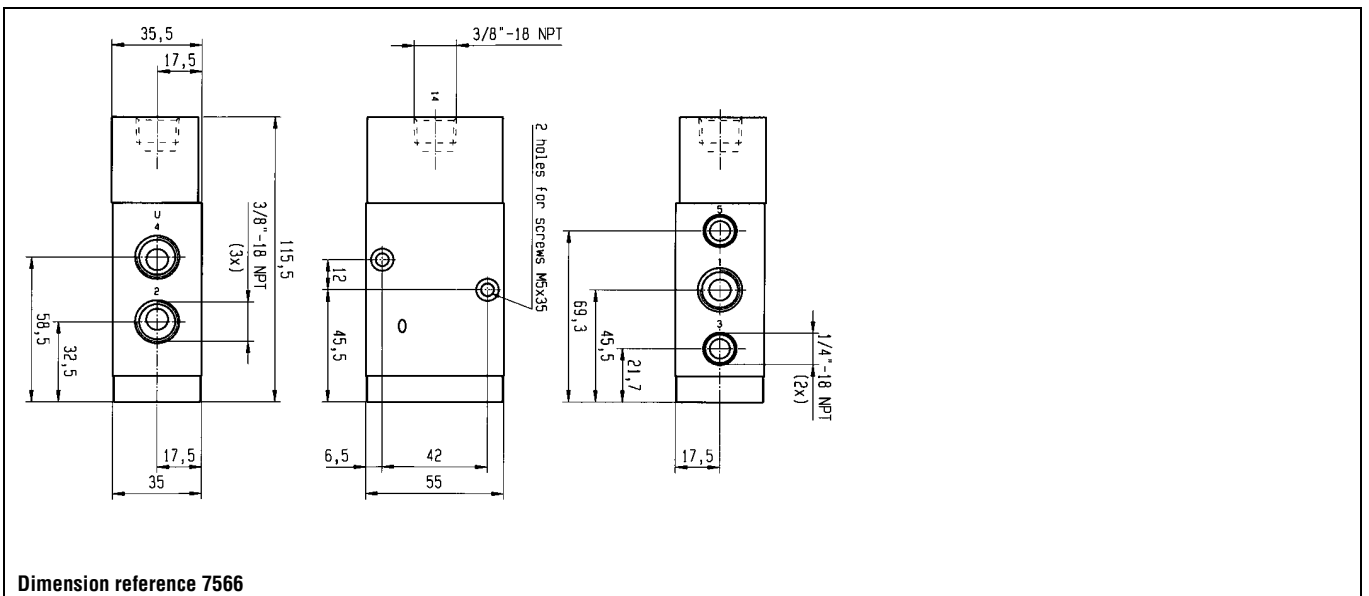
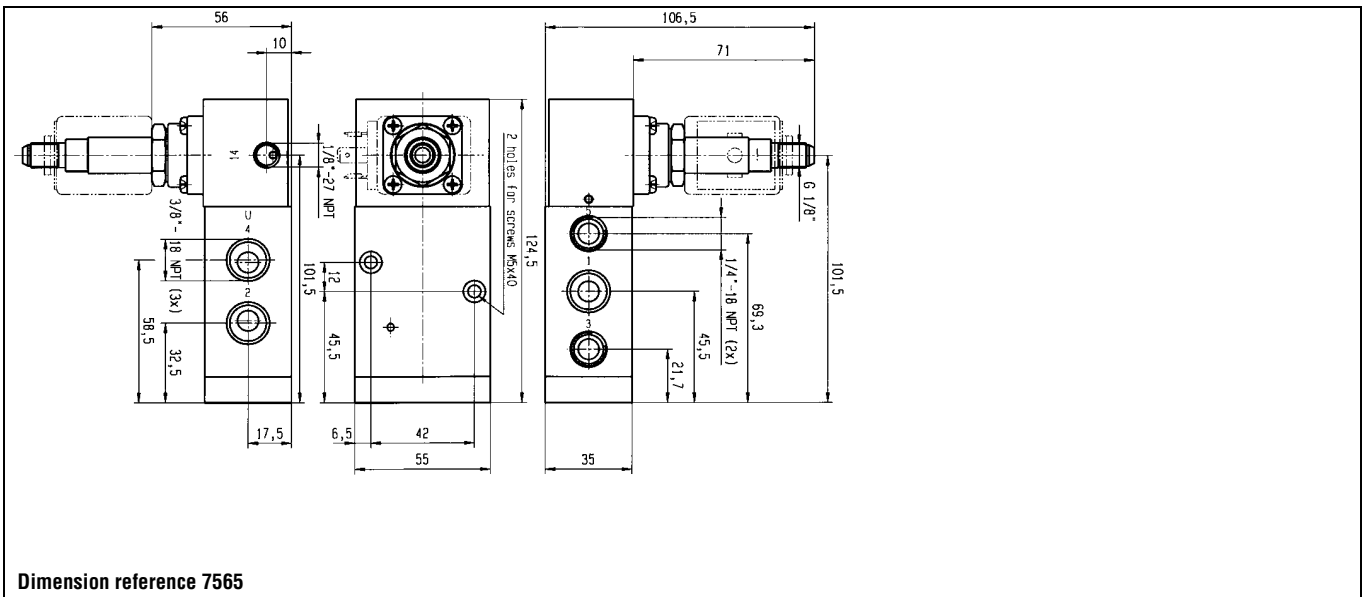
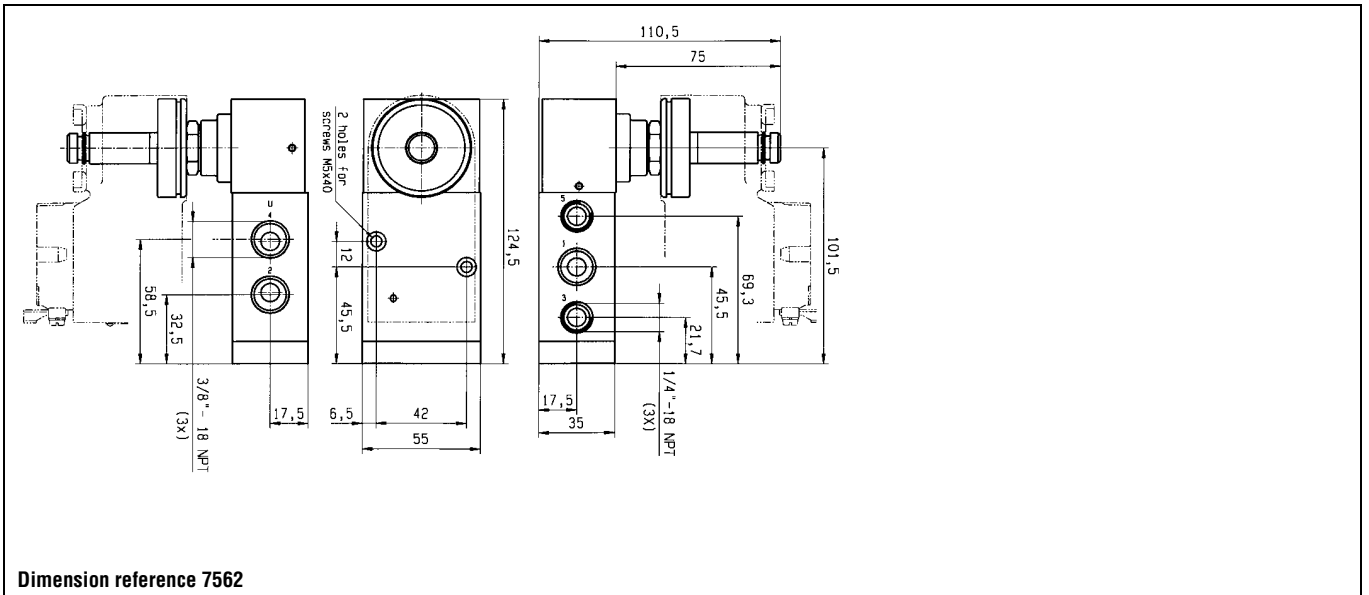
|           |   |      |   |    |    |     |    |     |              |             |   |   |   |   |   |   |      |
|-----------|---|------|---|----|----|-----|----|-----|--------------|-------------|---|---|---|---|---|---|------|
| 3/8 - 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7541PRN3NNM1 | U541P0250 1 | - | - | - | - | - | - | 7566 |
|-----------|---|------|---|----|----|-----|----|-----|--------------|-------------|---|---|---|---|---|---|------|

Table continued on page 304

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Valve with NPT ports

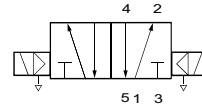
# 316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection



## 316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| NPT       |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

Two solenoids and main pressure supply



### 316L Stainless Steel body/Pipe mounting

|           |   |      |   |    |    |     |    |     |              |                  |   |    |                  |     |   |   |    |      |
|-----------|---|------|---|----|----|-----|----|-----|--------------|------------------|---|----|------------------|-----|---|---|----|------|
| 1/4 - 1/8 | 4 | 600  | 2 | 10 | 10 | -25 | 80 | NBR | 7347PRN2JN00 | <b>U347P3150</b> | 1 | NL | <b>481865</b>    | 9   | 8 | - | 2  | 7552 |
|           | 4 | 600  | 2 | 10 | 10 | -25 | 80 | NBR |              |                  |   | E0 | <b>481000</b>    | 8   | 8 | - | 2  |      |
|           | 4 | 600  | 2 | 10 | 10 | -25 | 65 | NBR | 7347PRN2JN95 | <b>U347P3195</b> | 1 | -  | <b>492965.01</b> | 0.8 | - | - | 10 | 7553 |
|           | 4 | 600  | 2 | 10 | 10 | -25 | 75 | NBR |              |                  |   | -  | <b>492310</b>    | 6   | 6 | - | 10 |      |
| 3/8 - 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7347PRN3NN00 | <b>U347P3250</b> | 1 | NL | <b>481865</b>    | 9   | 8 | - | 2  | 7563 |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR |              |                  |   | E0 | <b>481000</b>    | 8   | 8 | - | 2  |      |

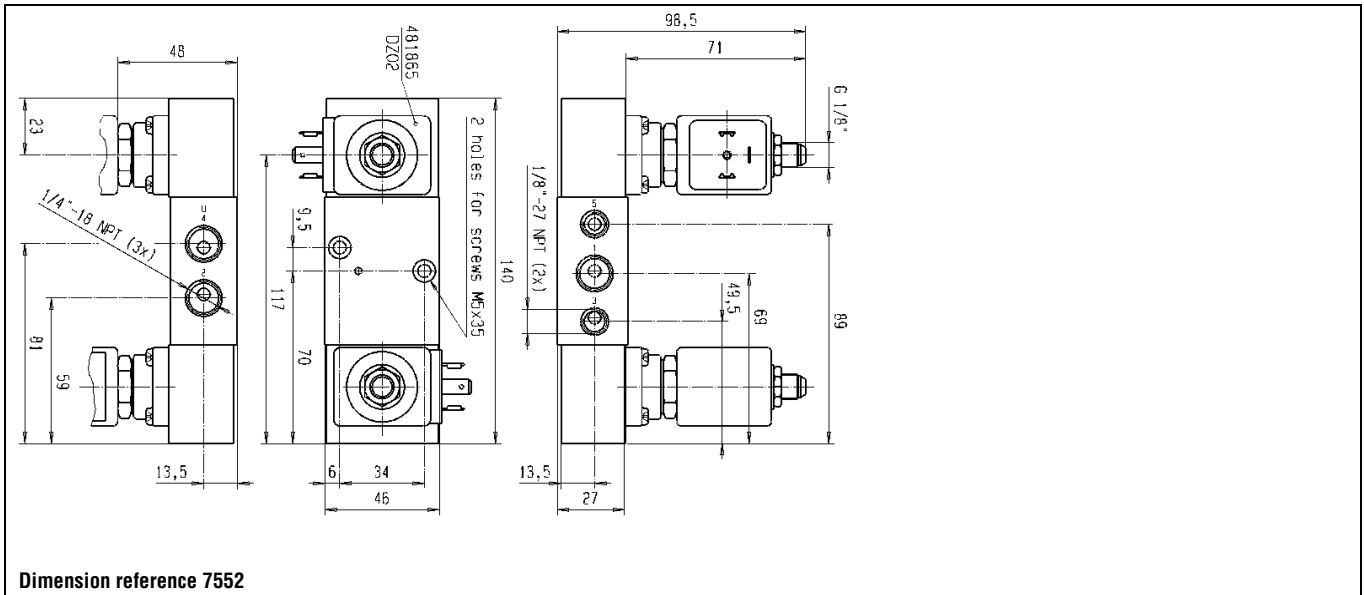
Table continued on page 306

#### Notes:

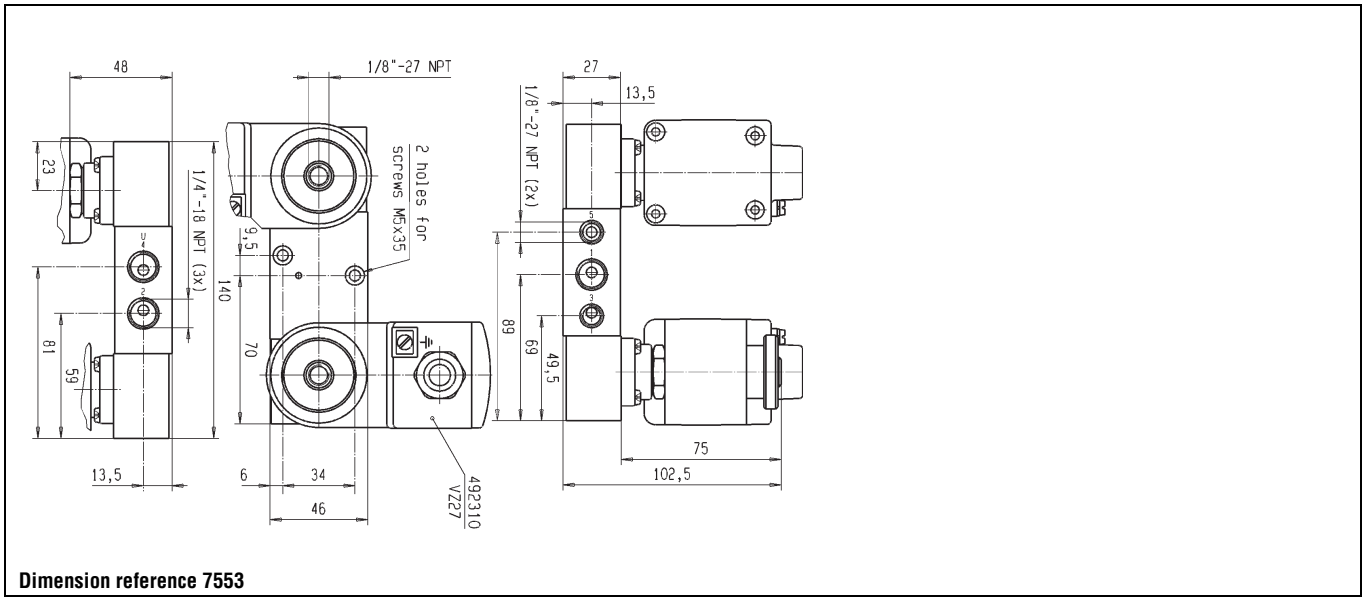
- \* See Electrical Parts Group table at end of section
- 1. Valve with NPT ports



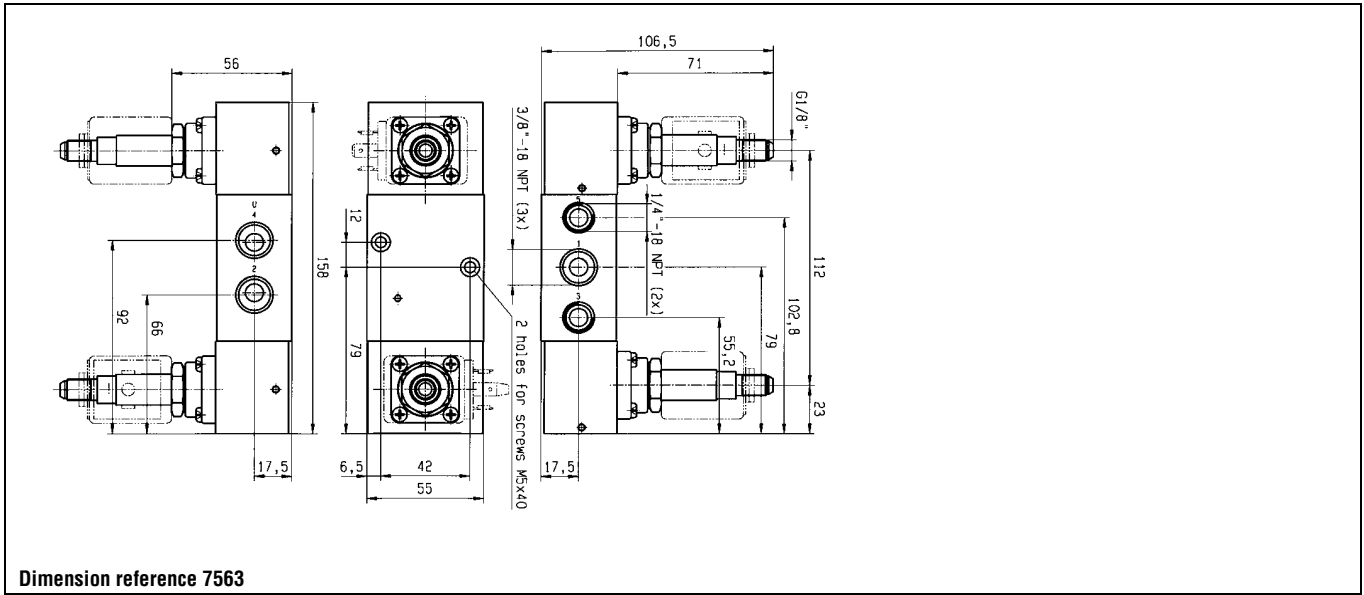
# 316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection



Dimension reference 7552



Dimension reference 7553

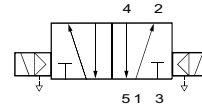


Dimension reference 7563

## 316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| NPT       |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

Two solenoids and main pressure supply



### 316L Stainless Steel body/Pipe mounting

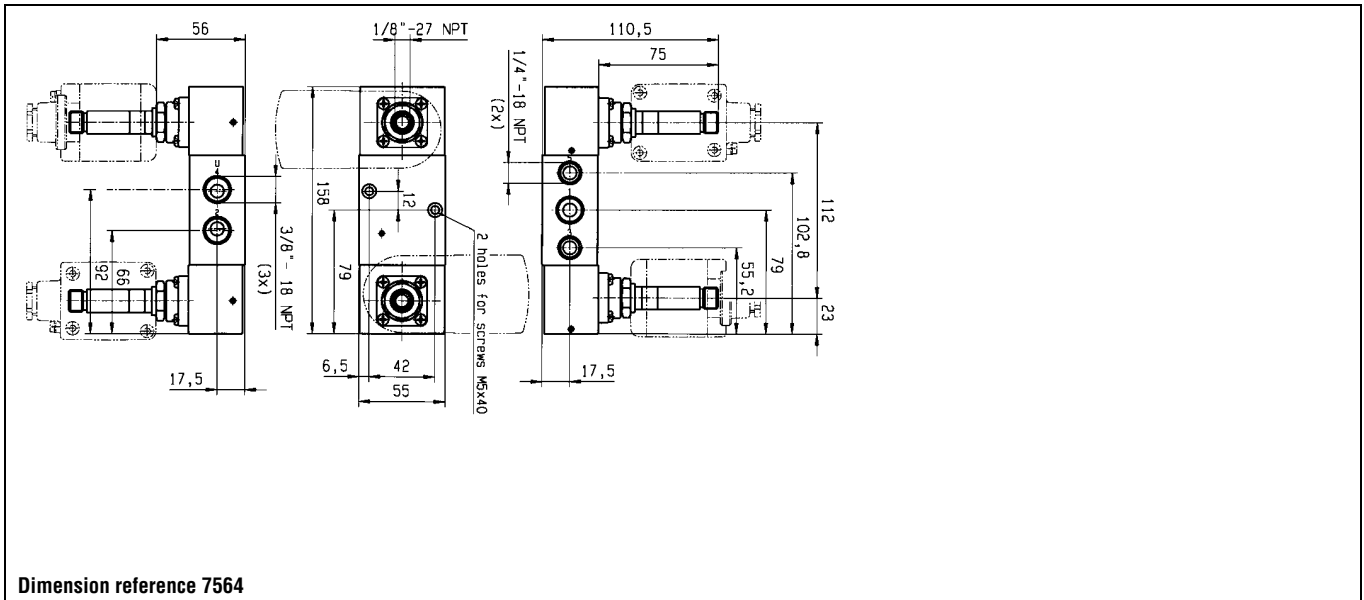
|           |   |      |   |    |    |     |    |     |              |                  |   |   |                  |     |   |   |    |      |
|-----------|---|------|---|----|----|-----|----|-----|--------------|------------------|---|---|------------------|-----|---|---|----|------|
| 3/8 - 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 75 | NBR | 7347PRN3NN95 | <b>U347P3295</b> | 1 | - | <b>492965.01</b> | 0.8 | - | - | 10 | 7564 |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 75 | NBR |              |                  |   | - | <b>492310</b>    | 6   | 6 | - | 10 |      |

#### Notes:

\* See Electrical Parts Group table at end of section

1. Valve with NPT ports

# 316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection



# 316L St. Steel valves for actuator control

# 3/2 5/2

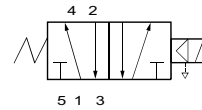
## Applications

Directional control and fail/safe function in valve actuator circuits in corrosive and hazardous environment.

Solenoid pilots for main stage valves in corrosive and hazardous locations.

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers      |                     |  |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|----|----------------|-----|-----------|------------------------|---------------------|--|---------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max |    | Min            | Max |           | Global valve reference | Valve reference no. |  | Housing | Coil                  | DC |         |                  |          |
| NPT       |              |                            |                                      | DC  | AC |                |     |           |                        |                     |  |         |                       |    |         |                  |          |

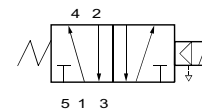
Pilot operated - Integrated pilot



## 316L Stainless Steel body/NAMUR interface

|           |   |     |   |    |    |     |    |     |              |                  |   |           |               |   |     |   |   |   |      |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|------------------|---|-----------|---------------|---|-----|---|---|---|------|
| 1/4 - 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR | 2341NRKDJNM1 | <b>U341N0150</b> | 1 | <b>A2</b> | <b>488980</b> | 2 | 2.5 | 2 | - | 1 | 7575 |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|------------------|---|-----------|---------------|---|-----|---|---|---|------|

Pilot operated



## 316L Stainless Steel body/NAMUR interface

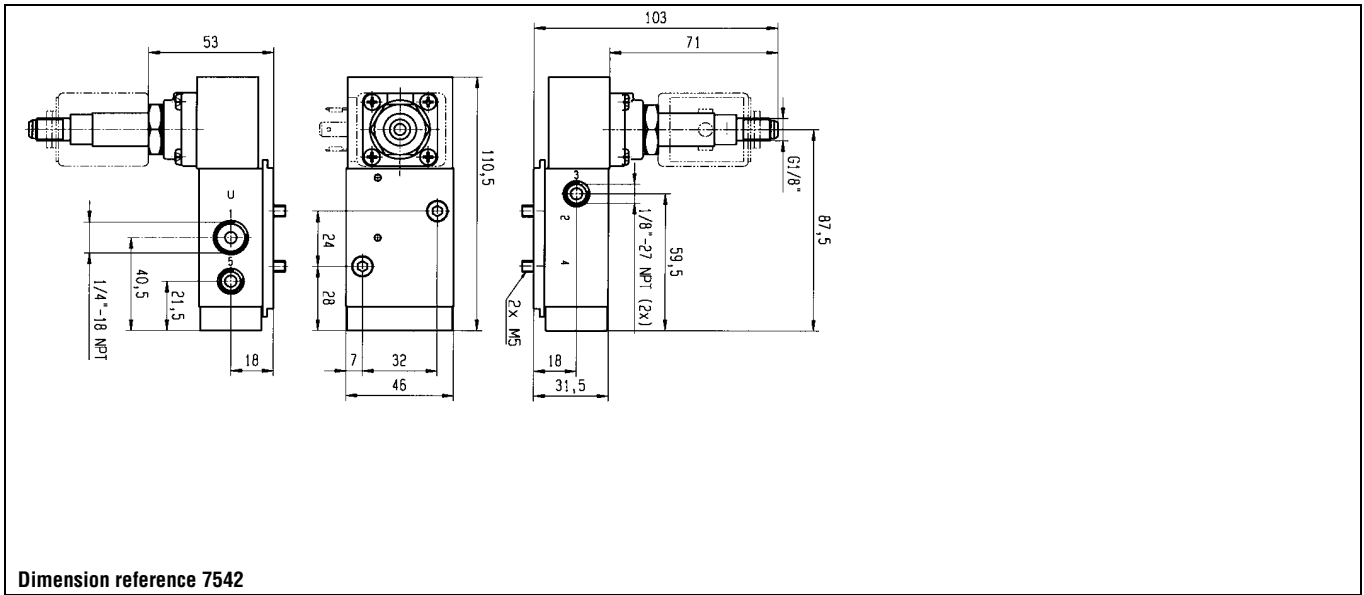
|           |   |     |   |    |    |     |    |     |              |                    |   |               |               |   |   |   |   |      |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|--------------------|---|---------------|---------------|---|---|---|---|------|
| 1/4 - 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 75 | NBR | 7341NRKDJN00 | <b>U341N3150</b>   | 2 | <b>NL</b>     | <b>481865</b> | 9 | 8 | - | 2 | 7542 |
|           | 4 | 600 | 2 | 10 | 10 | -25 | 75 | NBR |              | <b>E0</b>          |   | <b>481000</b> | 8             | 8 | - | 2 |   |      |
|           | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR | 7341NRKDJN1D | <b>U341N31501D</b> | 2 | <b>-</b>      | <b>483250</b> | 8 | 8 | - | 5 | 7543 |

Table continued on page 310

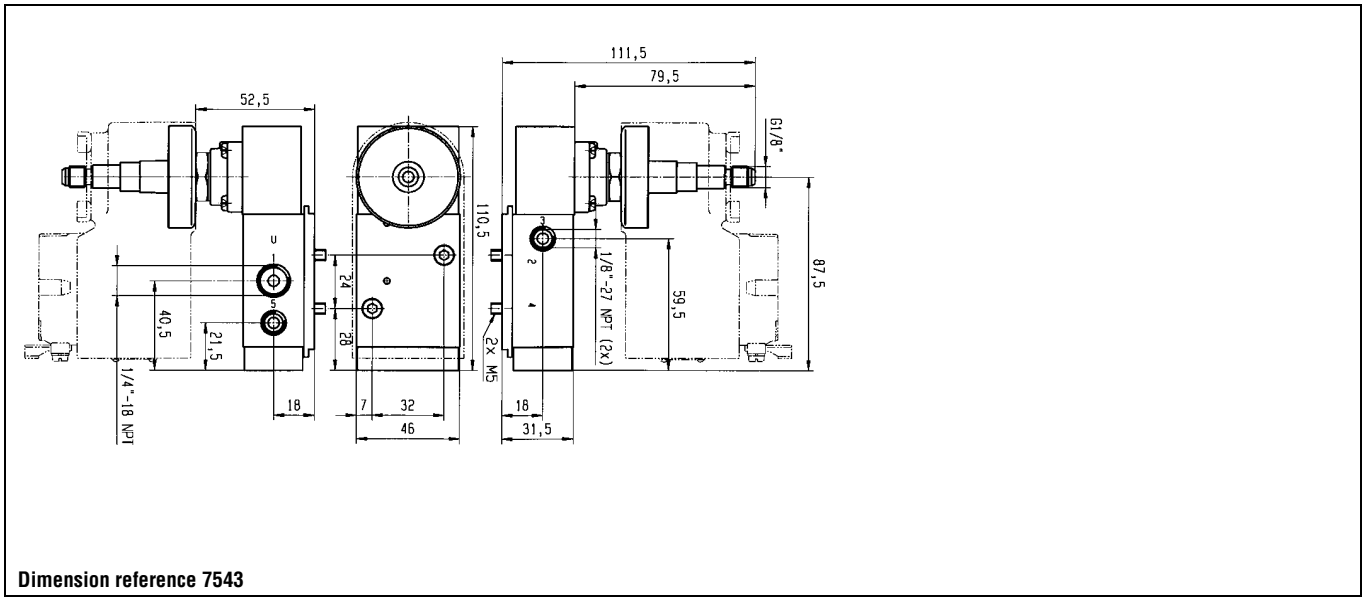
### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Manual override standard
- 2. Valve with NPT ports

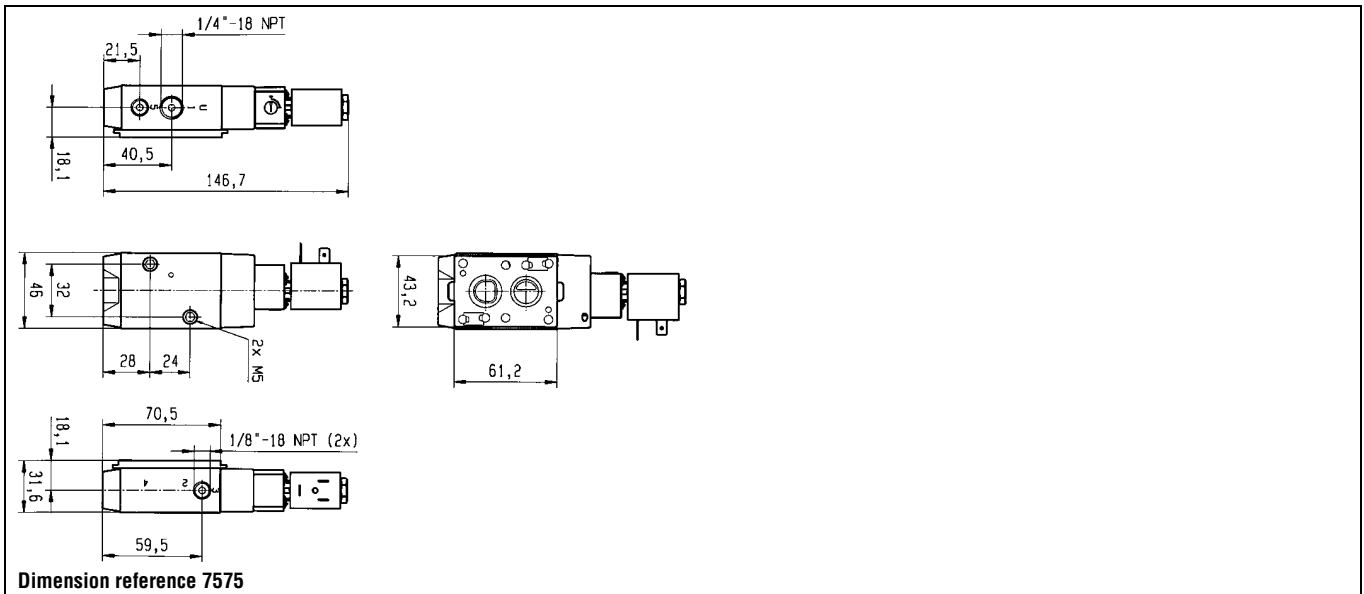
# 316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface



Dimension reference 7542



Dimension reference 7543

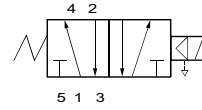


Dimension reference 7575

## 316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface

| Port size | Orifice (mm) | Flow factors (L/min)<br>Qn | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                            | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| NPT       |              |                            |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

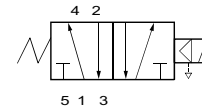
Pilot operated



### 316L Stainless Steel body/NAMUR interface

|           |   |     |   |    |    |     |    |     |              |                  |   |    |                  |     |   |   |    |      |
|-----------|---|-----|---|----|----|-----|----|-----|--------------|------------------|---|----|------------------|-----|---|---|----|------|
| 1/4 - 1/8 | 4 | 600 | 2 | 10 | 10 | -25 | 80 | NBR | 7341NRKDJN92 | <b>U341N3192</b> | 1 | NL | <b>483580.01</b> | 0.4 | - | - | 7  | 7544 |
|           | 4 | 600 | 2 | 10 | 10 | -25 | 75 | NBR | 7341NRKDJN95 | <b>U341N3195</b> | 1 | -  | <b>492965.01</b> | 0.8 | - | - | 10 | 7696 |
|           | 4 | 600 | 2 | 10 | 10 | -25 | 75 | NBR |              |                  |   | -  | <b>492310</b>    | 6   | 6 | - | 10 |      |

Pilot operated - Integrated pilot



### 316L Stainless Steel body/NAMUR interface

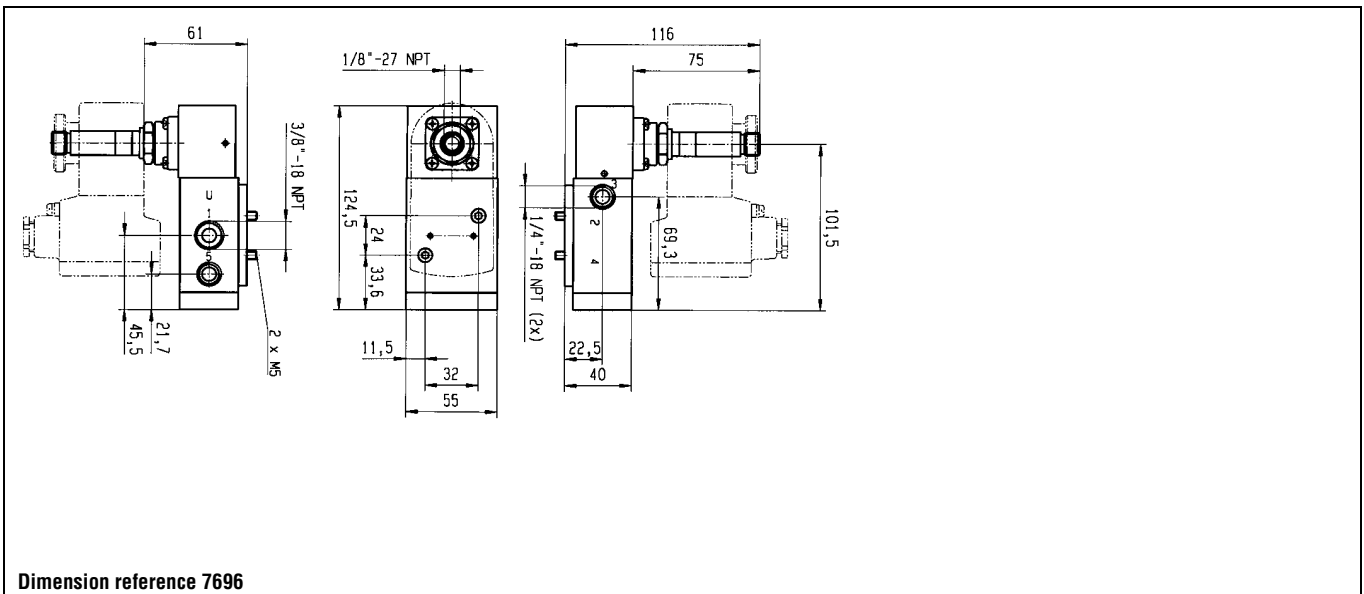
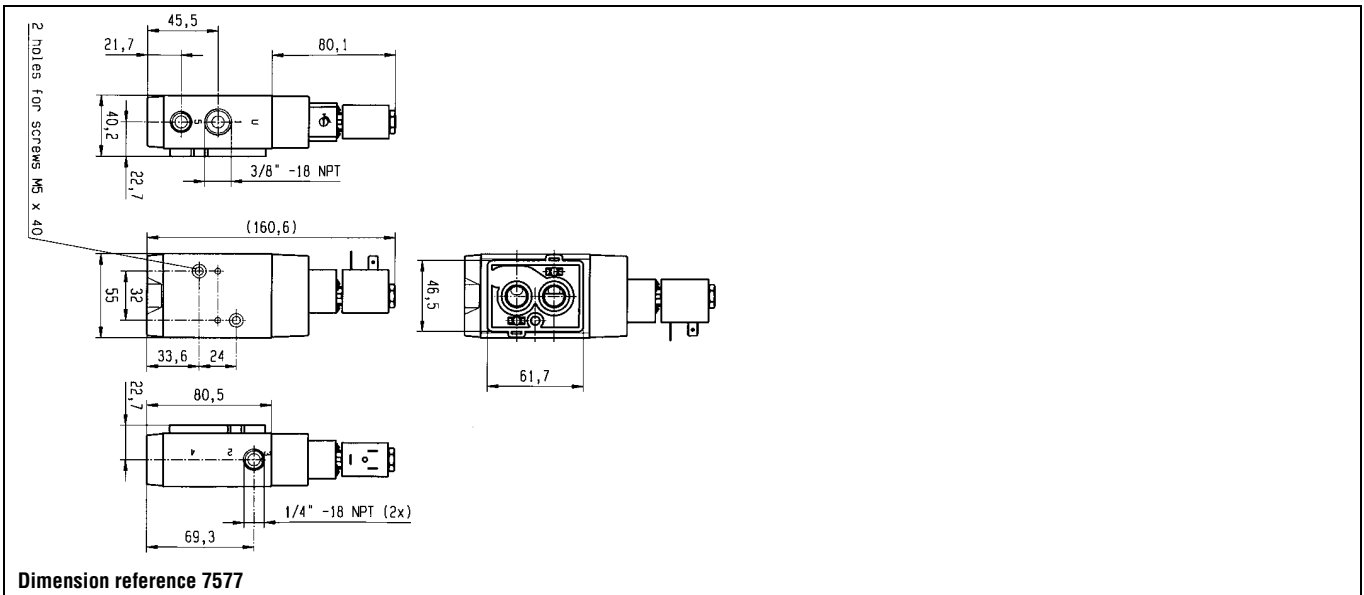
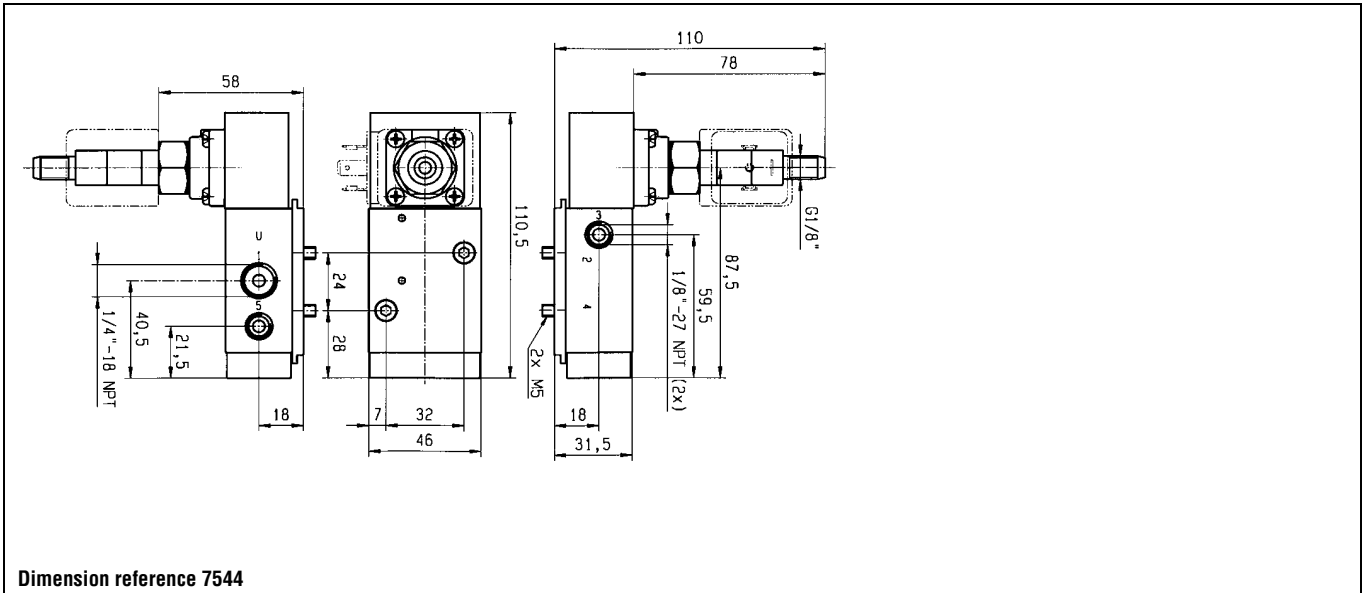
|           |   |      |   |    |    |     |    |     |             |                  |  |    |               |     |   |   |   |      |
|-----------|---|------|---|----|----|-----|----|-----|-------------|------------------|--|----|---------------|-----|---|---|---|------|
| 3/8 - 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 2341NRKNNM1 | <b>U341N0250</b> |  | A2 | <b>488980</b> | 2.5 | 2 | - | 1 | 7577 |
|-----------|---|------|---|----|----|-----|----|-----|-------------|------------------|--|----|---------------|-----|---|---|---|------|

Table continued on page 312

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Valve with NPT ports

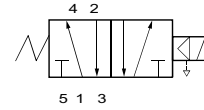
# 316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface



## 316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| NPT       |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

Pilot operated



### 316L Stainless Steel body/NAMUR interface

|           |   |      |   |    |    |     |    |     |              |                  |   |               |                  |     |   |    |    |      |
|-----------|---|------|---|----|----|-----|----|-----|--------------|------------------|---|---------------|------------------|-----|---|----|----|------|
| 3/8 - 1/4 | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7341NRKNNN00 | <b>U341N3250</b> | 1 | NL            | <b>481865</b>    | 9   | 8 | -  | 2  | 7554 |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR |              | <b>E0</b>        |   | <b>481000</b> | 8                | 8   | - | 2  |    |      |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 55 | NBR | 7341NRKNNN92 | <b>U341N3292</b> | 1 | NL            | <b>483580.01</b> | 0.4 | - | -  | 7  | 7556 |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 75 | NBR | 7341NRKNNN95 | <b>U341N3295</b> | 1 | -             | <b>492965.01</b> | 0.8 | - | -  | 10 | 7695 |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 75 | NBR |              | -                |   | <b>492310</b> | 6                | 6   | - | 10 |    |      |

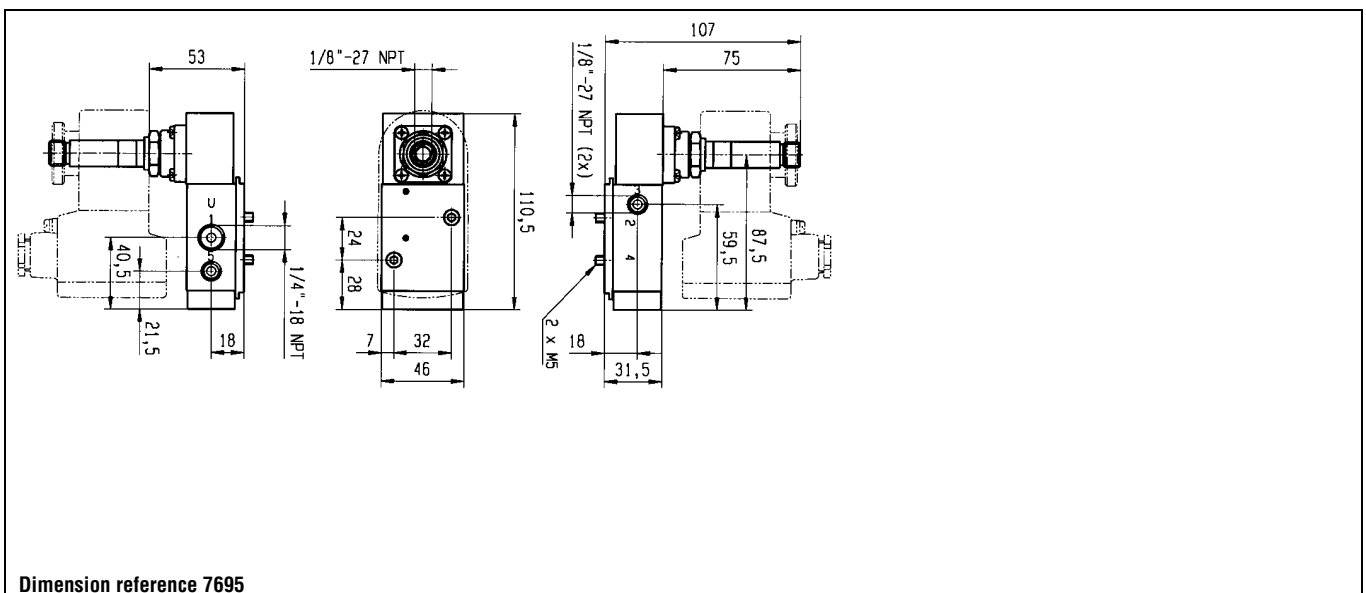
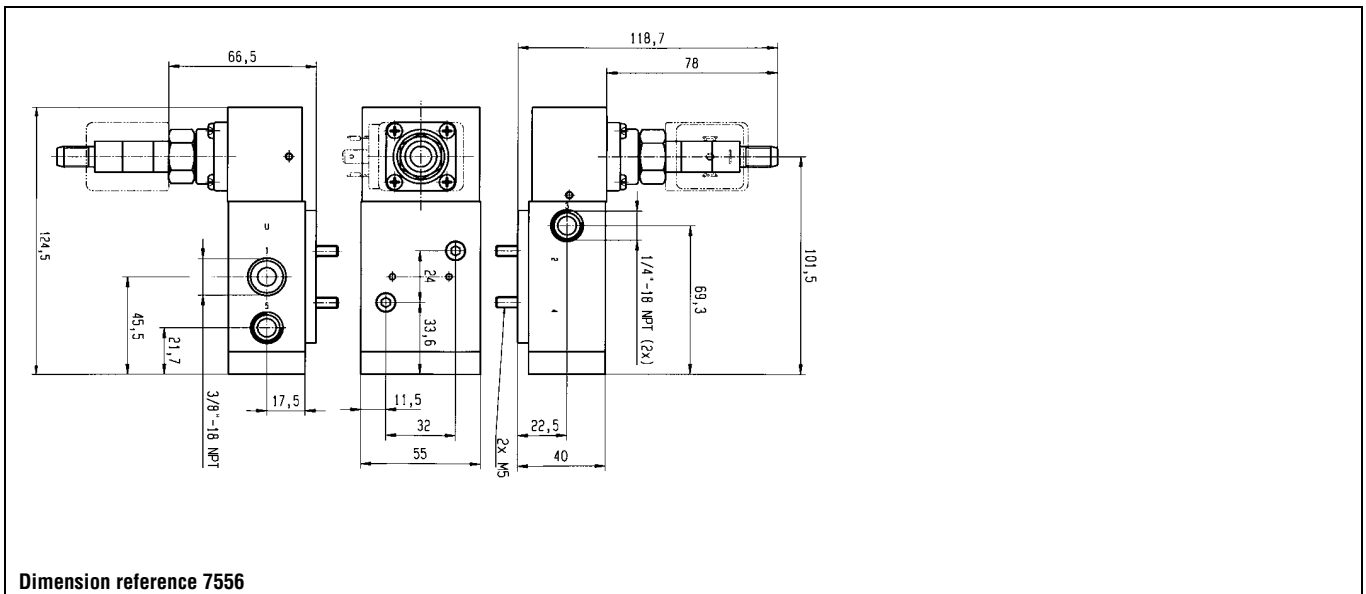
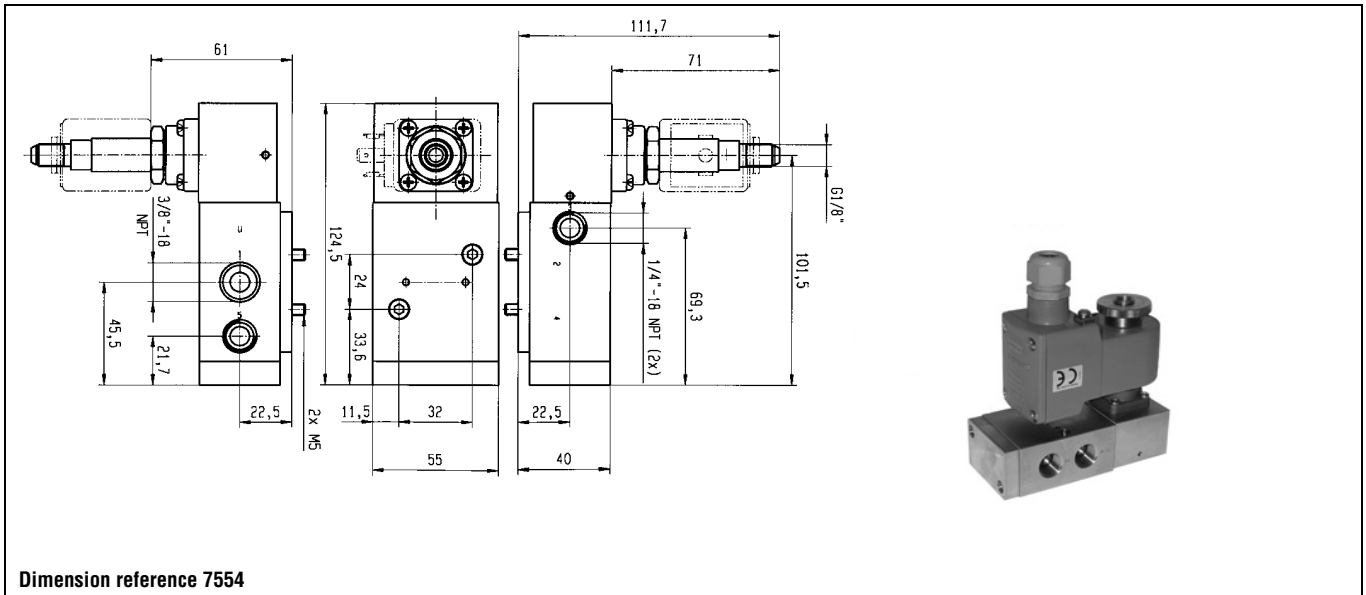
Table continued on page 314

#### Notes:

- \* See Electrical Parts Group table at end of section
- 1. Valve with NPT ports



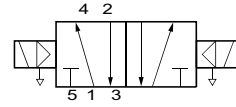
# 316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface



## 316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface

| Port size | Orifice (mm) | Flow factors (L/min) | Admissible differential pressure bar |     |    | Fluid temp. °C |     | Seat disc | Reference numbers |                        |                     |         | Power consumption (W) |    | Wt. (g) | El. Part Group * | Dim ref. |
|-----------|--------------|----------------------|--------------------------------------|-----|----|----------------|-----|-----------|-------------------|------------------------|---------------------|---------|-----------------------|----|---------|------------------|----------|
|           |              |                      | Min                                  | Max | DC | AC             | Min |           | Max               | Global valve reference | Valve reference no. | Housing | Coil                  | DC |         |                  |          |
| NPT       |              | Qn                   |                                      |     |    |                |     |           |                   |                        |                     |         |                       |    |         |                  |          |

Two solenoids and main pressure supply



### 316L Stainless Steel body/NAMUR interface

|           |   |      |   |    |    |     |    |     |              |           |   |           |           |    |        |        |   |   |      |
|-----------|---|------|---|----|----|-----|----|-----|--------------|-----------|---|-----------|-----------|----|--------|--------|---|---|------|
| 1/4 - 1/8 | 4 | 400  | 2 | 10 | 10 | -25 | 80 | NBR | 7347NRKDHNMO | U347N3150 | 1 | NL        | 481865    | 2  | 9      | 8      | - | 2 | 7545 |
|           | 4 | 400  | 2 | 10 | 10 | -25 | 80 | NBR |              |           |   | E0        | 481000    |    | 2      | 8      | 8 | - |      |
| 3/8 - 1/4 | 4 | 400  | 2 | 10 | 10 | -25 | 55 | NBR | 7347NRKDHN92 | U347N3192 | 1 | NL        | 483580.01 | 2  | 0.4    | -      | - | 7 | 7546 |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR | 7347NRKNNN00 |           |   | U347N3250 | 1         |    | NL     | 481865 | 2 | 9 |      |
|           | 8 | 1400 | 2 | 10 | 10 | -25 | 80 | NBR |              |           |   |           |           | E0 | 481000 |        |   | 8 | 8    |

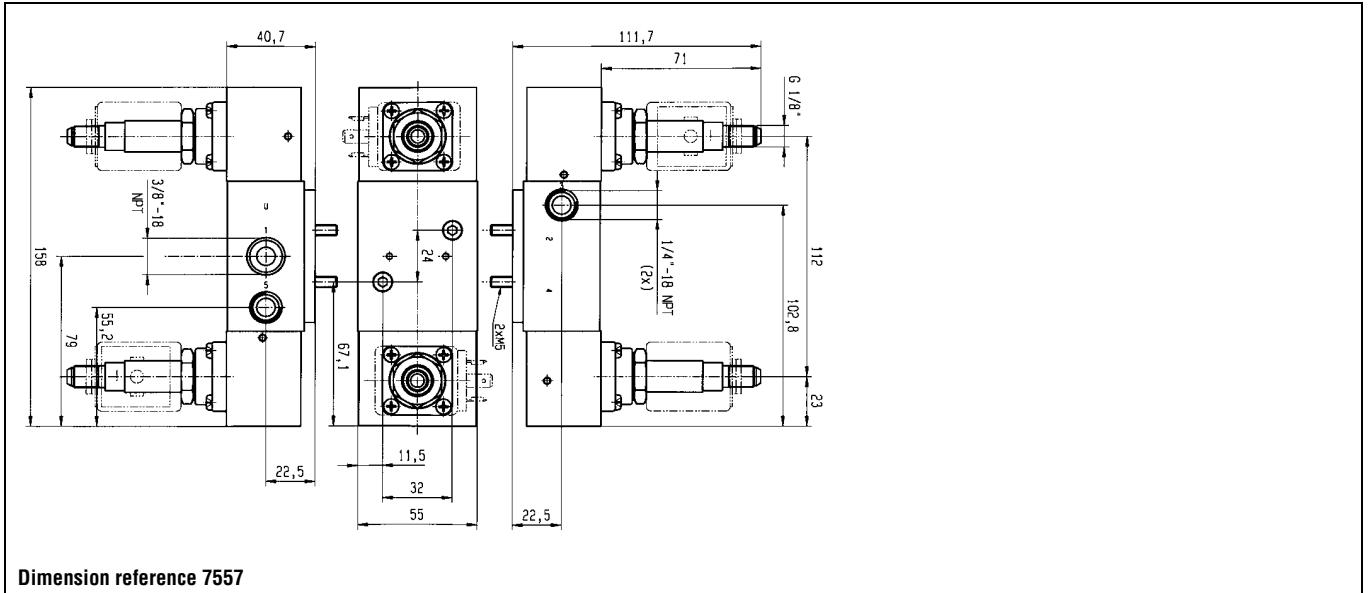
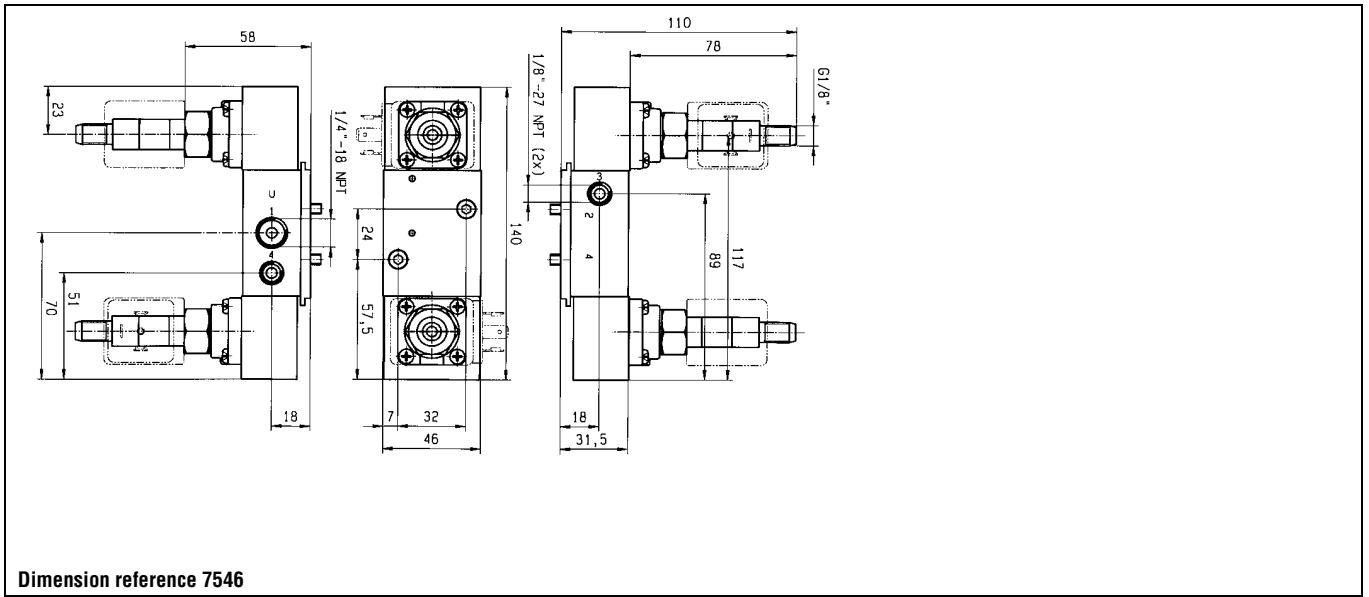
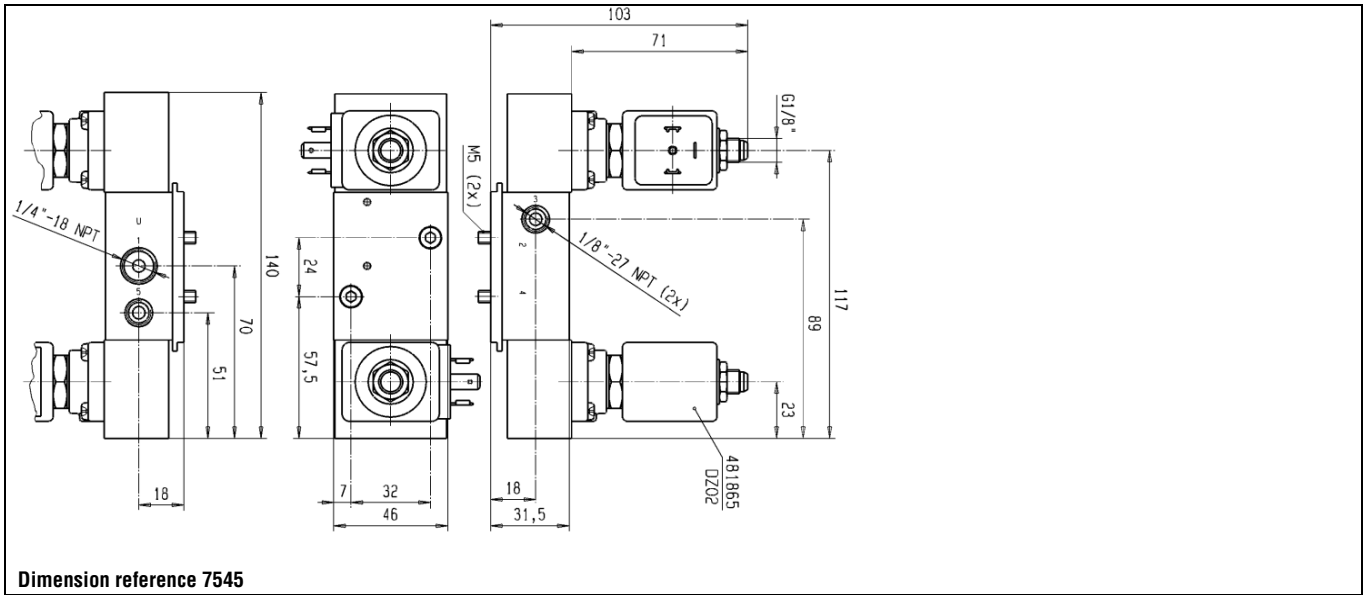
#### Notes:

\* See Electrical Parts Group table at end of section

1. Valve with NPT ports

2. Please order two housings and coils for each valve

# 316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface



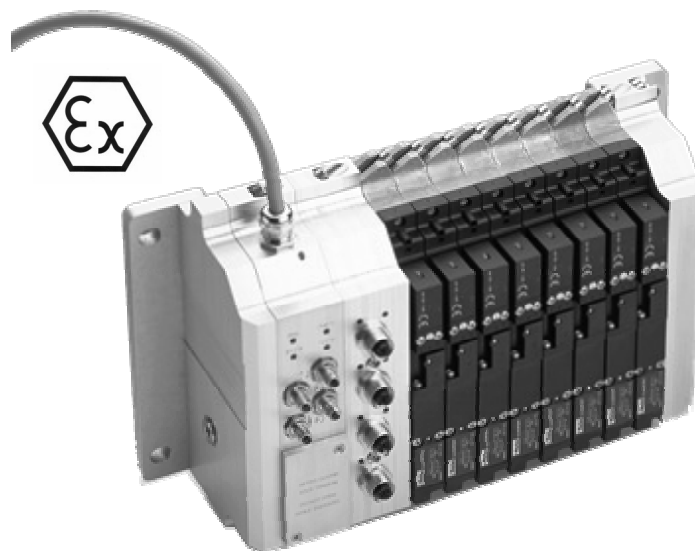
## Electrical parts options with 3/2-5/2 - 316L Stainless steel valves for pneumatic actuator control

| El. part Group | Coil             | Protection class | Protection class / Temperature class | Power |        | Coil Order No.    | Coil Ref. No. | Connection           | Housing Order No. | Housing Ref. No. | Ambient temp. |          |
|----------------|------------------|------------------|--------------------------------------|-------|--------|-------------------|---------------|----------------------|-------------------|------------------|---------------|----------|
|                |                  |                  |                                      | DC    | AC     |                   |               |                      |                   |                  | min.          | max.     |
| 1              | 22 mm            | IP65             | Class F                              | 2.5   | 2      | DA01              | 488980        | for DIN B plug       | A2                | 8993             | -40           | 50       |
|                |                  | IP65             | Class F                              | 2.5   | 2      | DA02              | 481045        | with DIN B plug      | A2                | 8993             | -40           | 50       |
|                |                  | IP65             | EEx m II T5                          | 2.5   | 2      | VA12              | 482606.10     | with 1500mm cable    | 00                | -                | -40           | 50       |
| 2              | 32 mm (Std)      | IP65             | Class F                              | 9     | 8      | DZ02              | 481865        | for DIN A plug       | NL                | 8132             | -40           | 50       |
|                |                  | IP65             | Class F                              | 9     | 8      | DZ03              | 482725        | with DIN A plug      | NL                | 8132             | -40           | 50       |
|                |                  | IP65             | Class H                              | 9     | 8      | DZ04              | 492453        | for DIN A plug       | NL                | 8132             | -40           | 50       |
|                |                  | IP65             | Class H                              | 9     | 8      | DZ05              | 492726        | with DIN A plug      | NL                | 8132             | -40           | 50       |
|                |                  | IP65             | Class F, 50/60 Hz                    | -     | 9      | DZ06              | 483510        | for DIN A plug       | NL                | 8132             | -40           | 50       |
|                |                  | IP65             | Class F, 50/60 Hz                    | -     | 9      | DZ07              | 482635        | with DIN A plug      | NL                | 8132             | -40           | 50       |
|                | 50 mm (Std)      | IP65             | EEx m II T4                          | 9     | 8      | HZ09              | 492670.10     | with 3000mm cable    | 00                | -                | -25           | 40       |
|                |                  | IP10/IP44        | Class F                              | 8     | 8      | EZ01              | 481000        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP10/IP44        | Class H                              | 8     | 8      | EZ02              | 485100        | screw-terminals      | E0                | 4270             | -40           | 50       |
|                |                  | IP67             | Class F, IP 67, M20x1.5              | 8     | 8      | EZ01              | 481000        | screw-terminals      | G1                | 4538             | -40           | 50       |
|                |                  | IP65             | EEx m II T4/T5                       | 9     | 8      | VZ01              | 492070        | with 1500mm cable    | 00                | -                | -40           | 40/65    |
|                |                  | IP67             | EEx me II T4                         | 8     | 8      | HZ06              | 483371        | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP66             | EEx me II T3/T4                      | 11    | 9      | VZ90              | 492190.10     | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  | IP67             | EEx me II T3/T4                      | 8     | 8      | HZ23              | 494040        | for cable connection | 00                | -                | -40           | 90/65    |
| IP65           | EEx md IIC T4/T5 | 8                | 8                                    | HZ09  | 493640 | with 1500mm cable | 00            | -                    | -40               | 75/40            |               |          |
| 5              | 50 mm            | IP54             | EEx d IIC T4/T5/T6                   | 8     | 8      | HZ08              | 483250        | for cable, 1/2 NPT   | 00                | -                | -40           | 80/75/60 |
| 7              | 32 mm I.S.       | IP65             | EEx ia II C T6                       | 0.4   | -      | DZ12              | 483580.01     | for DIN A plug       | NL                | 8132             | -40           | 55       |
|                |                  | IP65             | EEx ia II C T6                       | 0.4   | -      | DZ13              | 483960.01     | with DIN A plug      | NL                | 8132             | -40           | 55       |
|                | 50 mm I.S.       | IP66             | EEx ia II C T6                       | 0.4   | -      | VZ93              | 494035.10     | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP67             | EEx ia II C T6                       | 0.4   | -      | VZ08              | 488660.01     | with 2000mm cable    | 00                | -                | -40           | 65       |
|                |                  | IP65             | EEx ia II C T6                       | 0.4   | -      | VZ09              | 488670.01     | with DIN A plug      | 00                | -                | -40           | 65       |
| 9              | 32 mm            | IP65             | Class F                              | 9     | 9      | DZ93              | 492387        | with DIN A plug      | N9                | 8886             | -40           | 50       |
|                |                  | IP66             | EEx me II T5/T6                      | 1.5   | -      | VZ13              | 492200        | for cable connection | 00                | -                | -40           | 75/40    |
|                | 50 mm            | IP67             | EEx me II T4                         | 8     | -      | VZ14              | 483371.01     | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP66             | EEx me II T4/T5                      | 6     | 6      | VZ15              | 492300        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  | IP67             | EEx m II T4/T5                       | 5     | 5      | VZ02              | 492270        | with 1500mm cable    | 00                | -                | -40           | 65/40    |
|                |                  | IP65             | EEx ib IIB T6                        | 0.8   | -      | VZ11              | 482660        | for cable connection | 00                | -                | -40           | 75       |
|                |                  | IP66             | EEx ib IIC T6                        | 0.8   | -      | VZ12              | 483330.01     | for cable connection | 00                | -                | -40           | 75       |
|                |                  | IP66             | EEx ia IIC T6                        | 0.8   | -      | VZ92              | 492965.02     | for cable connection | 00                | -                | -40           | 65       |
| 10             | 50 mm            | IP66             | EEx me II T5/T6                      | 1.5   | -      | VZ26              | 492210        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  | IP66             | EEx me II T4/T5                      | 6     | 6      | VZ27              | 492310        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  | IP65             | EEx ib IIB T6                        | 0.8   | -      | VZ11              | 482660        | for cable connection | 00                | -                | -40           | 75       |
|                |                  | IP66             | EEx ib IIC T6                        | 0.8   | -      | VZ12              | 483330.01     | for cable connection | 00                | -                | -40           | 75       |
|                |                  | IP66             | EEx ia IIC T6                        | 0.8   | -      | VZ91              | 492965.01     | for cable connection | 00                | -                | -40           | 65       |
| 11             | 50 mm EEx d      | IP65             | EEx d II C T4/T5/T6                  | 8     | 8      | HZ19              | 483270        | for cable , M20x1.5  | 00                | -                | -40           | 80/75/60 |
|                |                  | IP65             | EEx d II C T4/T5/T6                  | 8     | 8      | HZ21              | 483270.02     | for cable , 1/2 NPT  | 00                | -                | -40           | 80/75/60 |
| 12             | 50 mm            | IP66             | EEx me II T4/T5                      | 6     | 6      | VZ27              | 492310        | for cable connection | 00                | -                | -40           | 75/40    |
|                |                  | IP66             | EEx ia IIB T6                        | 0.8   | -      | VZ22              | 482160.01     | for cable connection | 00                | -                | -40           | 65       |
|                |                  | IP66             | EEx ia IIC T6                        | 0.8   | -      | VZ23              | 482870.01     | for cable connection | 00                | -                | -40           | 65       |

Note: This table is indicative only. Please contact your distributor to confirm your selection.

# EExPress™

## EEx p [ia] m IIC T5 Bus Manifold for Pneumatic actuator control



Parker Lucifer has developed industry's first fully integrated fieldbus manifold system – the patented EExPress™ Bus Manifold – for the control of pneumatic actuators in hazardous (Zone 1 and Zone 2) process industry environments like chemical, petrochemical applications. The EExPress™ Bus Manifold is a stackable valve system that fully integrates 5/2 solenoid valves, control electronics and input sensors, a unique feature on the market today, and uses the Profibus DP fieldbus communications protocol – the preferred protocol of the process industries. One bus address can operate up to 32 individual 5/2 modular solenoid valves, or a combination of valves and actuator position sensors.

The concept consists in an “integrated solution” which permits to install the manifold close to the pneumatic actuators - without the need for expensive explosion-proof pressurised cabinets. The **EEx p [ia] m IIC T5** protection is reached by using a “safety pressure” - the complete block is put under 50 mb safety pressure. This permits a substantial reduction of installation and maintenance costs, a simplification of the electrical connections, the use of Profibus DP and offers increased safety due to separated wiring of communication and power supply.

**For more information see brochure 8752/GB**

## 1. PRODUCT INTRODUCTION

The EExPress™ bus Manifold is a patented stackable system composed of:

- 1 x End plates Kit
- X x Solenoid valve module
- X x Input sensor module
- 1 x Gateway

The EExPress™ Explosion-proof manifold 5/2 valve island design uses the **EEx [ia] pm protection**.



Up to 32 valves per island require one bus address only.

The system includes a bus part satisfying the intrinsic safety requirements and communicating directly with a master control unit by using the Profibus DP protocol.

The manifold assembly and the dedicated power supply are coping with the "p" protection. The galvanic separation between the EEx ia zone and the EEx p is assured by opto-coupler and by a transformer.

The valve coils are coping with the ìmî protection.

## 2. APPLICATIONS

This smart EExPress™ bus manifold package has been designed for the control of pneumatic actuators in Process Industries with **hazardous environments Zone 1 or Zone 2** such as:

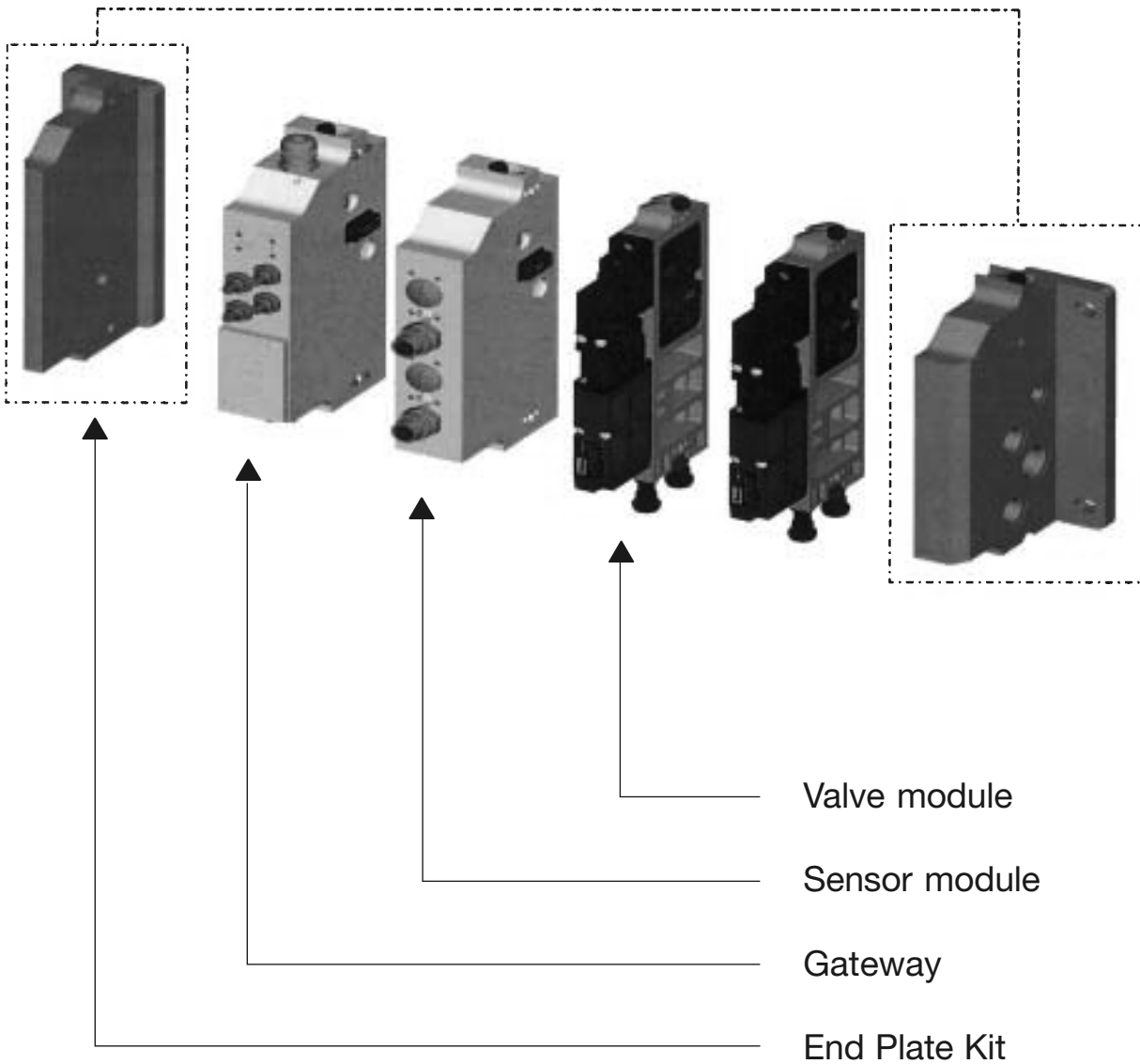
- Ghemical & Pharmaceutical.
- Gas and solvant handling
- Powder transportation.
- Refining.
- Etc.

These high demanding markets are concerned with:

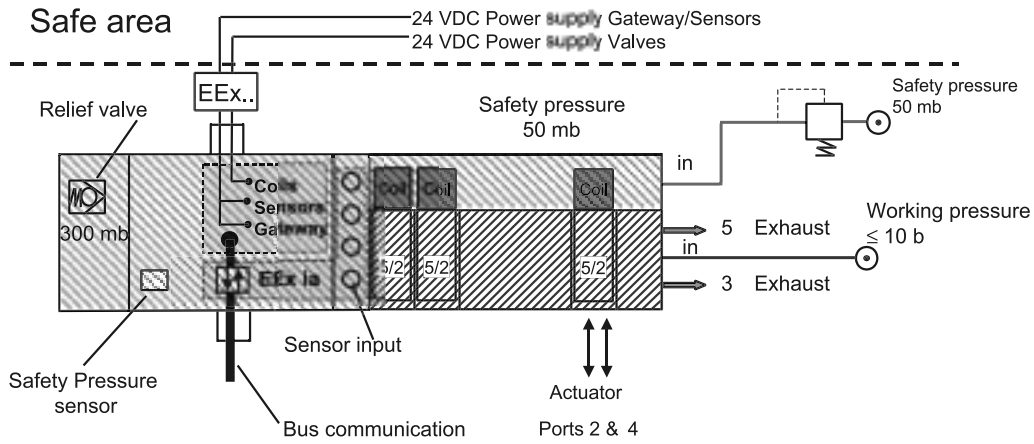
- Process & people safety
- Plant installation simplification
- Process productivity
- Friendly use product
- Partners support



### 3. PRODUCT CONFIGURATION



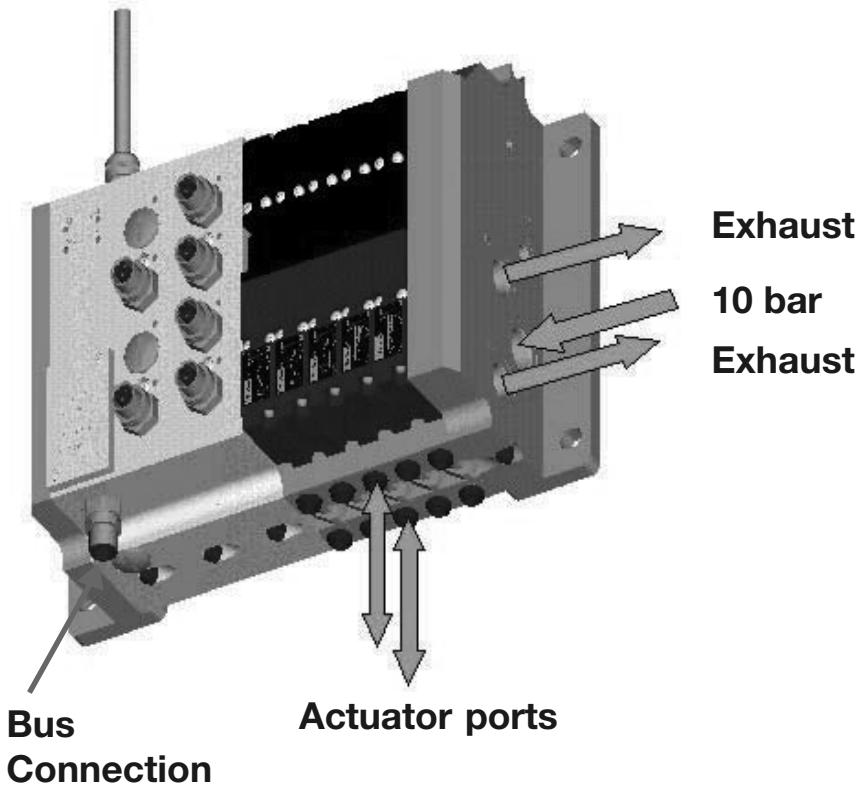
## 5. PRODUCT OPERATING PRINCIPLE



### Hazardous area zone 1 or 2

- Gateway
- Intrinsically safe circuit = "ia" protection
- Solenoid valve coil = "m" protection
- ≤ 50 mb safety pressure area = "p" protection
- ≤ 10 b working pressure area

### Power supply





**HOW TO ORDER ASSEMBLED MANIFOLDS****21.2 Choose the components for 1 manifold in the following order:**

|  |                                    |                  |                  |             |
|--|------------------------------------|------------------|------------------|-------------|
| <b>1 - Plate kit</b>                       |                                    |                  |                  |             |
| N.B. One plate kit only per manifold       |                                    |                  |                  |             |
| <i>End plate A</i>                         | <i>Pressure supply plate B</i>     | <i>Order No.</i> | <i>Qty</i>       |             |
| BSP  | BSP                                | 495190           | 1                |             |
| <b>2 - Gateway selection</b>               |                                    |                  |                  |             |
| N.B. One gateway only per manifold         |                                    |                  |                  |             |
| <i>Protocol</i>                            | <i>Communication link</i>          | <i>Order No.</i> | <i>Qty</i>       |             |
| Profibus DP                                | Copper (1 connector)               | 495176           | 1                |             |
| Profibus DP                                | Copper (1 connectors + 1 repeater) | 495275           | 1                |             |
| Profibus DP                                | Optical fibre                      | 493972           | 1                |             |
| <b>3 - Sensor modules</b>                  |                                    |                  |                  |             |
| N.B. 0 up to 8 sensor modules per manifold |                                    |                  |                  |             |
| <i>Nb of connectors</i>                    | <i>Connection</i>                  | <i>ON/OFF</i>    | <i>Order No.</i> | <i>Qty*</i> |
| 2x IN connectors                           | M 12                               | x                | 495141           | 0 to 8      |
| 4x IN connectors                           | M 12                               | x                | 495142           | 0 to 8      |
| <b>4 - Valve modules</b>                   |                                    |                  | <i>Order No.</i> | <i>Qty</i>  |
| N.B. 0 up to 32 valve modules per manifold |                                    |                  |                  |             |
| Module with 5/2 valves                     |                                    |                  | 494237           | 0 to 32     |

\* **Warning:** For one bus address, the combination sensor module + valve module has to fit the following formula:  $4 \times (\text{Number of sensor modules with } 2 \times \text{IN connectors} + \text{Number of sensor modules with } 4 \times \text{IN connectors}) + \text{Number of valve modules} < 32$ .

**21.3 Example of manifold configuration and order:**

| Description                     | Order No. chosen | Qty per Manifold chosen |
|---------------------------------|------------------|-------------------------|
| Plate Kit                       | 495190           | 1                       |
| Gateway                         | 495176           | 1                       |
| Sensor module – 2 IN connectors | 495141           | 4                       |
| Sensor module – 4 IN connectors | –                | –                       |
| Valve module                    | 494237           | 8                       |

**Order:** 5 manifold with above mentioned components.

The selected components will be supplied as an assembled manifold.

A – The label on the manifold shows:

1. The LCIE conformity for the EEx ia pm protection.
2. The LCIE approval code: EM followed by a manufacturing code. I.e. **EM 12345**

B – Each manufacturing code defines a specific manifold configuration

C – The **EM XXXXX** is also mentioned on the shipping bulletin and on the invoice

D – To simplify, customers can re-order the same manifold by using the **EM XXXXX** code mentioned on these documents.



|   | Page |
|---|------|
| Electropneumatic pressure regular EPP3                      | 324  |
| EP - Transducer.  | 326  |
| Electropneumatic pressure regulator EPP3 -High Flow Series. | 328  |

### **The product**

A range of electropneumatic pressure regulators (G 1/8, G 1/4 and G 1/2) which, by means of an integrated electronic control system and pulse width modulated solenoid valve, controls the output pressure proportional to an analogue or digital electrical signal. A high precision is achieved by means of internal feedback through an integrated pressure sensor.

### **Applications**

Pressure control independent of flow in electropneumatic control systems, in particular for the following industries:

- Robotics: welding, painting lines etc.
- Paper and printing: tension regulations, speed and brake control for rolls
- Machine Tools: Plastic moulding, laser welding, presses, polishing etc.
- Trucks and Trains: control of adaptive suspensions.

### **Benefits**

- More flexibility of the controls
- Very fast response times
- Excellent linearity and hysteresis
- No air consumption in rest position
- Increase of productivity (performance, Quality, reliability)
- Direct interface to programmable controllers.

# Electropneumatic pressure regulator

EPP3 Series

## TECHNICAL DATA

### Fluid

Lubricated or non lubricated air and neutral gases recommended filtration : 25-50  $\mu$

### Temperature range:

Ambient 0 to 50°C.  
Fluid 0 to 50°C.

### Inlet pressure range:

1 to 12 bar (the inlet pressure must always be at least 1 bar above the regulated pressure value).

### Outlet pressure range:

0.2 to 10 bar

### Hysteresis:

~100 mbar. (Factory set up)

### Linearity:

1% f.s.o.

### Air consumption at constant control signal:

0.

### Supply voltage:

24 V DC  $\pm$  15% (Max. ripple 1 V)

### Power consumption:

Max. 6 W with 24 V DC and constant changes of the control signal ; < 1W without change of control signal

### Control signal:

Analog 0 - 10 V Impedance: 10 k  $\Omega$   
Analog 4 - 20 mA Impedance: 0.5 k  $\Omega$

### Outlet sensor signal:

A) proportional pressure outlet signal 0-10 V from integrated sensor (recommended load resistance 10 k  $\Omega$ )

B) proportional pressure outlet signal 4-20 mA from integrated sensor (recommended load resistance 0.5 k  $\Omega$ )

C) "Alarm" output signal 0/24 V with adjustable triggering level. (Difference between control signal and sensor pressure signal) (Imax. = 40 mA)

- factory set up: diff. signal =  $\pm$  0.8 V to  $\pm$  1 V  
- possible set up: diff. signal =  $\pm$  0.1 V to  $\pm$  5 V  
To neutralize the alarm output signal during the control signal changes, the use of a synchronized time lag relay is required.

### Indicative response time:

With a volume of 330 cm<sup>3</sup> at the outlet of the regulator.

Filling : 2 to 4 bar - 2 to 8 bar

Step response: ~60 ms - ~120 ms

Emptying: 4 to 2 bar - 8 to 2 bar

Step response: ~70 ms - ~130 ms

### Safety position:

In case of control failure or if it is less than 1% of its full scale value, the regulated pressure drops automatically to 0 bar (atmospheric pressure). In case of voltage supply failure, the regulated pressure will be kept constant (with eventual discrepancy due to loss of pressure in the servo-chamber).

### Electrical connection:

4 screw terminals under the protection cover with Pg 13.5 cable gland or through DIN 43651 connector (6 P + E).

### Life expectancy:

> 50 Mio changes of control signal steps.

**Attention:** It is compulsory to set the control signal at 0 V or 4 mA each time the air pressure supply is turned off (during the night or the weekend). When the air pressure supply cannot be fully exhausted,

it is necessary to assure that the deviation between the control value and the inlet pressure remains smaller than 1 bar.

### Mounting position:

Indifferent (recommended position: upright; electronic part on top).

### Resistance to vibrations:

30 g in all directions

### Degree of protection:

IP 65.

### External sensors:

All pressure sensors with following characteristics are compatible with the EP-transducer

Sensitivity: 0.5 V/bar up to 10 V/bar

Zero offset: -3 V/bar to 10 V/bar

### Assembly:

Silicone free

### Electromagnetic compatibility:

in accordance with IEC 801-4 part 4 standards.

### Installation and setting instructions:

see publication MI-9202 and appendix supplied with the product.

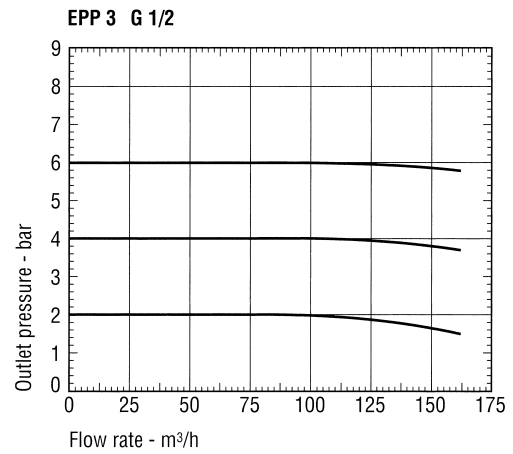
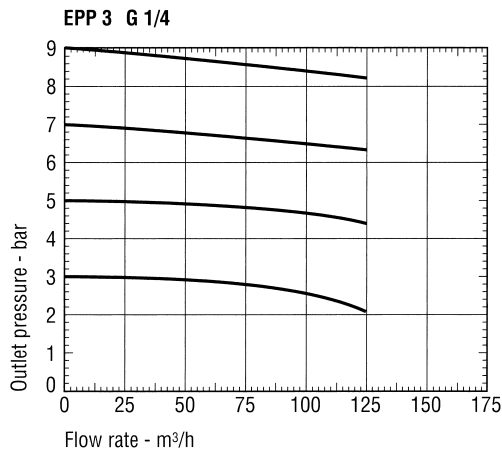
Please ask for the special technical specification sheet No. 8677 for more details.

## SUMMARY OF TYPES

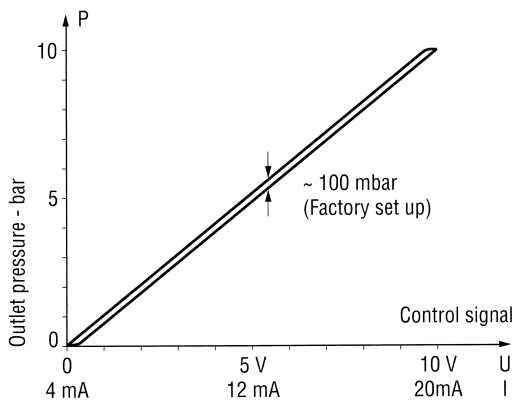
|                      | Connection<br>G | With integrated<br>pressure sensor | Entry options<br>for external<br>sensor signal |                               | Outlet signal options |                       |                        | Electrical<br>connection |                         |
|----------------------|-----------------|------------------------------------|--|-------------------------------|-----------------------|-----------------------|------------------------|--------------------------|-------------------------|
|                      |                 |                                    | Feedback<br>signal<br>0-10 V                   | Feedback<br>signal<br>4-20 mA | without               | 0 - 10 V<br>4 - 20 mA | 0 - 10 V<br>0/24 alarm | DIN 43651<br>connector   | Cable gland<br>Pg. 13.5 |
| EPP3JC 21 U/I 100 10 | 1/4             | •                                  |  |                               | •                     |                       |                        |                          | •                       |
| 21 U/I 600 10        | 1/4             | •                                  |  |                               |                       | •                     |                        | •                        |                         |
| 21 U/I 700 10        | 1/4             | •                                  |  |                               |                       |                       | •                      | •                        |                         |
| EPP3JC 23 U/I 130 10 | 1/4             |                                    | •  |                               | •                     |                       |                        | •                        |                         |
| 24 U/I 130 10        | 1/4             |                                    |  | •                             | •                     |                       |                        | •                        |                         |
| EPP3JC 41 U/I 100 10 | 1/2             | •                                  |  |                               | •                     |                       |                        |                          | •                       |
| 41 U/I 600 10        | 1/2             | •                                  |  |                               |                       | •                     |                        | •                        |                         |
| 41 U/I 700 10        | 1/2             | •                                  |  |                               |                       |                       | •                      | •                        |                         |
| EPP3JC 43 U/I 130 10 | 1/2             |                                    | •  |                               | •                     |                       |                        | •                        |                         |
| 44 U/I 130 10        | 1/2             |                                    |  | •                             | •                     |                       |                        | •                        |                         |

## FLOW DATA

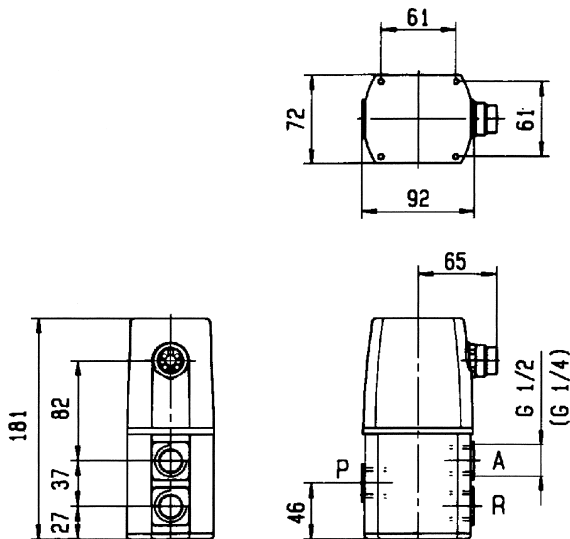
Outlet Pressure in Function of Flow at Constant Control Signal (P1 = 10 bar)



## HYSTERESIS DIAGRAM



**EPP3JC...130/600/700... with  
DIN circular plug-in connection  
6 P + E (connector included)**



## TECHNICAL DATA

### Fluid:

Lubricated or non lubricated air and neutral gases recommended filtration : 25-50  $\mu$

### Temperature range:

Ambient 0 to 50°C  
Fluid 0 to 50°C

### Inlet pressure range:

G 1/8 - 1 to 10 bar  
G 1/4 - 1 to 7 bar

### Outlet pressure range:

G 1/8 - 0.2 to 10 bar  
G 1/4 - 0.2 to 7 bar

### Hysteresis:

~ 50 mbar (Factory set up)

### Linearity:

1% f.s.o.

### Air consumption at constant control signal:

0

### Supply voltage:

24 V DC  $\pm$  15% (Max. ripple 1 V)

### Power consumption:

G 1/8 - max. 6 W } with 24 V DC and constant  
G 1/4 - max. 7 W } changes of the control signal  
<1 W without change of control signal

### Control signal:

Analog 0 - 10 V Impedance: 10 k  $\Omega$   
Analog 4 - 20 mA Impedance: 0.5 k  $\Omega$

### Outlet sensor signal:

For types with output signal module.  
Proportional pressure output signal supplied by the pressure sensor.

A) 0-10 V, voltage signal (recommended load resistance 10 k  $\Omega$ )

B) 4-20 mA, current signal (recommended load resistance 0.5 k  $\Omega$ )

Voltage and current signal can be received simultaneously. Both are protected against short-circuits

C) "Alarm" output signal 0/24 V (Imax. = 40 mA) with adjustable triggering level.

(Difference between control signal and sensor pressure signal)

- factory set up: diff. signal =  $\pm$  0.8 V to  $\pm$  1 V

- possible set up: diff. signal =  $\pm$  0.1 V to  $\pm$  5 V

To neutralize the alarm output signal during the control signal changes, the use of a synchronized time lag relay is required.

### Indicative response time:

With a volume of 30 cm<sup>3</sup> at the outlet of the EP-transducer

|                      |            |            |
|----------------------|------------|------------|
| Filling :            | 2 to 4 bar | -          |
| Emptying :           | -          | 4 to 2 bar |
| Step response: G 1/8 | ~ 100 ms   | ~120 ms    |
| G 1/4                | ~ 70 ms    | ~100 ms    |

### Conductance C (dm<sup>3</sup>/s.bar):

G 1/8 - 0.1

G 1/4 - 0.2

### Outlet pressure/Flow rate:

G 1/8 - pressure drop 0.5 bar at 1.0 Nm<sup>3</sup>/h  
(P<sub>1</sub> = 7 bar, P<sub>out</sub> = 6 bar)

G 1/4 - pressure drop 0.5 bar at 2.1 Nm<sup>3</sup>/h  
(P<sub>1</sub> = 7 bar, P<sub>out</sub> = 6 bar)

### Safety position:

In case of control failure or if it is less than 1% of its full scale value, the regulated pressure drops automatically to 0 bar (atmospheric pressure). In case of voltage supply failure, the regulated pressure will be kept constant

### Electrical connection:

4 screw terminals under the protection cover with Pg 13.5 cable gland or through DIN 43651 connector (6 P + E)

### Life expectancy:

> 50 Mio changes of control signal steps

**Attention:** It is compulsory to set the control signal at 0 V or 4 mA each time the air pressure supply is turned off (during the night or the weekend). When the air pressure supply cannot be fully exhausted, it is necessary to assure that the deviation between the control value and the inlet pressure remains smaller than 1 bar.

### Mounting position:

Indifferent (recommended position: upright; electronic part on top).

### Resistance to vibrations:

30 g in all directions

### External sensors:

All pressure sensors with following characteristics are compatible with the EP-transducer

Sensitivity: 0.5 V/bar up to 10 V/bar

Zero offset: -3 V/bar to 10 V/bar

### Degree of protection:

IP 65

### Electromagnetic compatibility:

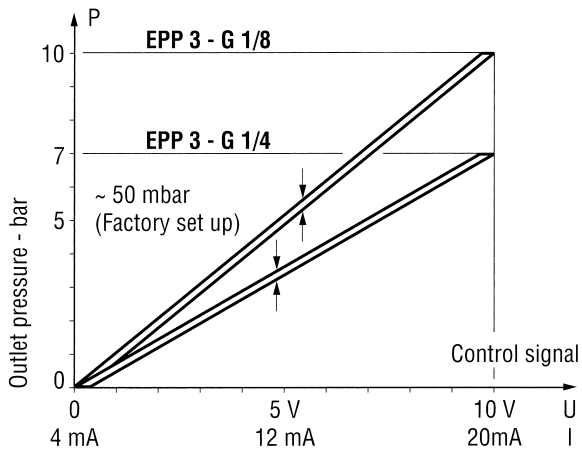
In accordance with IEC 801-4 part 4 standards

### Installation and setting instructions:

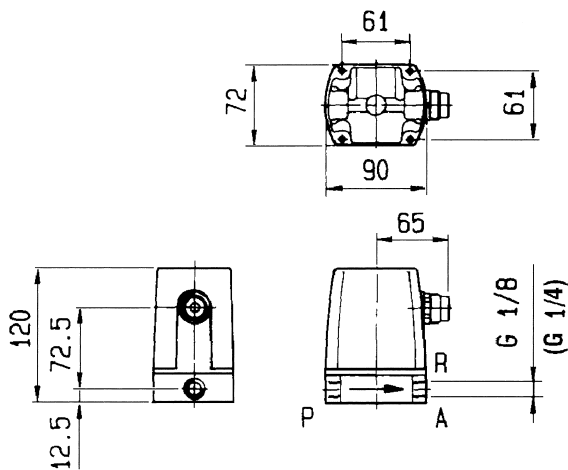
See publication MI-9202 and appendix supplied with the product.

Please ask for the special technical specification sheet No. 8678 for more details.

## HYSTERESIS DIAGRAM



## EPP3PC ... 130/600/700



## SUMMARY OF TYPES

|                      | Connection<br>G | With integrated<br>pressure sensor | Entry options<br>for external<br>sensor signal |                               | Outlet signal options |                       |                        | Electrical<br>connection |                         |
|----------------------|-----------------|------------------------------------|--|-------------------------------|-----------------------|-----------------------|------------------------|--------------------------|-------------------------|
|                      |                 |                                    | Feedback<br>signal<br>0-10 V                   | Feedback<br>signal<br>4-20 mA | Without               | 0 - 10 V<br>4 - 20 mA | 0 - 10 V<br>0/24 alarm | DIN 43651<br>connector   | Cable gland<br>Pg. 13.5 |
| EPP3PC 11 U/I 100 10 | 1/8             | •                                  |  |                               | •                     |                       |                        |                          | •                       |
| 11 U/I 600 10        | 1/8             | •                                  |  |                               |                       | •                     |                        | •                        |                         |
| 11 U/I 700 10        | 1/8             | •                                  |  |                               |                       |                       | •                      | •                        |                         |
| EPP3PC 13 U/I 130 10 | 1/8             |                                    | •  |                               | •                     |                       |                        | •                        |                         |
| 14 U/I 130 10        | 1/8             |                                    |  | •                             | •                     |                       |                        | •                        |                         |
| EPP3PC 21 U/I 100 07 | 1/4             | •                                  |  |                               | •                     |                       |                        |                          | •                       |
| 21 U/I 600 07        | 1/4             | •                                  |  |                               |                       | •                     |                        | •                        |                         |
| 21 U/I 700 07        | 1/4             | •                                  |  |                               |                       |                       | •                      | •                        |                         |
| EPP3PC 23 U/I 130 07 | 1/4             |                                    | •  |                               | •                     |                       |                        | •                        |                         |
| 24 U/I 130 07        | 1/4             |                                    |  | •                             | •                     |                       |                        | •                        |                         |

# Electropneumatic Pressure Regulator - High Flow

EPP3 Series

## TECHNICAL DATA

### Fluid:

Lubricated or non lubricated air and neutral gases recommended filtration : 25-50  $\mu$

### Temperature range:

Ambient 0 to 50°C  
Fluid 0 to 50°C

### Inlet pressure range:

1 to 12 bar (the inlet pressure must always be at least 1 bar above the regulated pressure)

### Outlet pressure range:

0.2 to 10 bar

### Hysteresis:

~ 100 mbar (Factory set up)

### Linearity:

1% f.s.o.

### Air consumption at constant control signal:

0

### Supply voltage:

24 V DC  $\pm$  15% (Max. ripple 1 V)

### Power consumption:

Max. 6 W with 24 V DC and constant changes of the control signal  
<1 W without change of control signal

### Control signal:

Analog 0 - 10 V Impedance: 10 k  $\Omega$   
Analog 4 - 20 mA Impedance: 0.5 k  $\Omega$

### Outlet sensor signal:

A) proportional pressure outlet signal 0-10 V from integrated sensor (recommended load resistance 10 k  $\Omega$ )

B) proportional pressure outlet signal 4-20 mA from integrated sensor (recommended load resistance 0.5 k  $\Omega$ )

C) "Alarm" output signal 0/24 V with adjustable triggering level. (Difference between control signal and sensor pressure signal) (Imax. = 40 mA)

- factory set up: diff. signal =  $\pm$  0.8 V to  $\pm$  1 V

- possible set up: diff. signal =  $\pm$  0.1 V to  $\pm$  5 V

To neutralize the alarm output signal during the control signal changes, the use of a synchronized time lag relay is required

### Safety position:

In case of control failure or if it is less than 1% of its full scale value, the regulated pressure drops automatically to 0 bar (atmospheric pressure). In case of voltage supply failure, the regulated pressure will be kept constant

### Electrical connection:

Through DIN 43651 circular plug-in connector (6 P + E)

### Life expectancy:

> 20 Mio changes of control signal steps

**Attention:** It is compulsory to set the control signal at 0 V or 4 mA each time the air pressure supply is turned off (during the night or the weekend). When the air pressure supply cannot be fully exhausted, it is necessary to assure that the deviation between the control value and the inlet pressure remains smaller than 1 bar.

### Mounting position:

Indifferent (recommended position: upright; electronic part on top)

### Resistance to vibrations:

30 g in all directions

### Degree of protection:

IP 65

### Assembly:

Silicone free

### Electromagnetic compatibility:

In accordance with IEC 801-4 part 4 standards.

### Installation and setting instructions:

See publication MI-9202 and appendix supplied with the product.

Please ask for the special technical

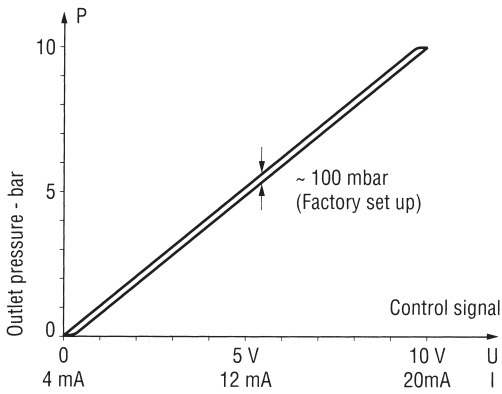
specification sheet No. 8679 for more details.

## SUMMARY OF TYPES

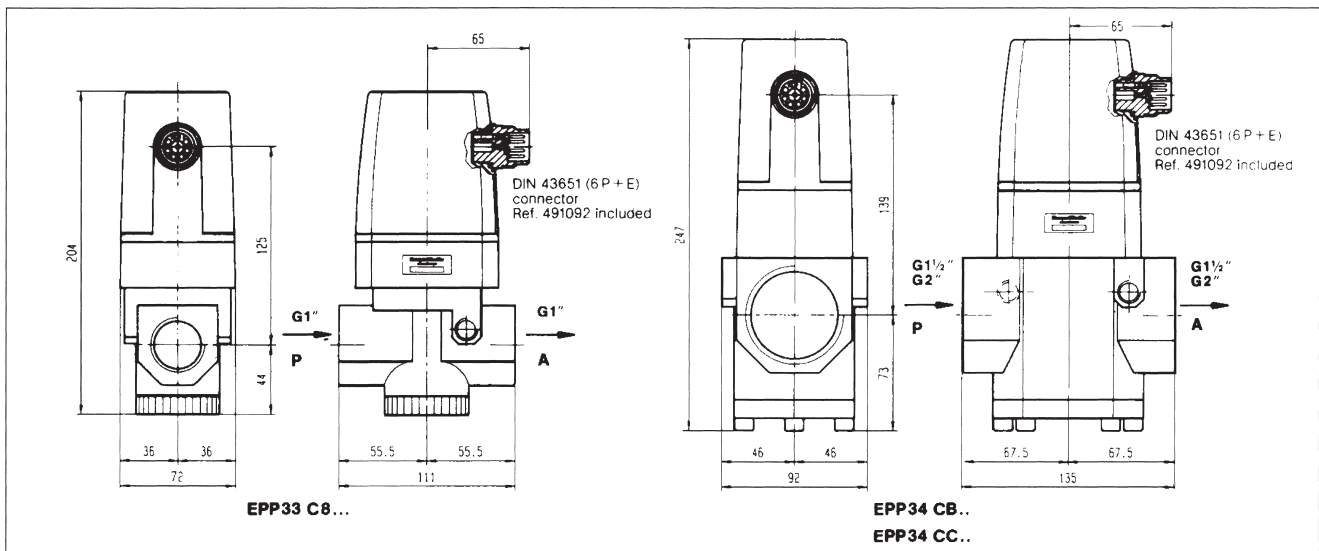
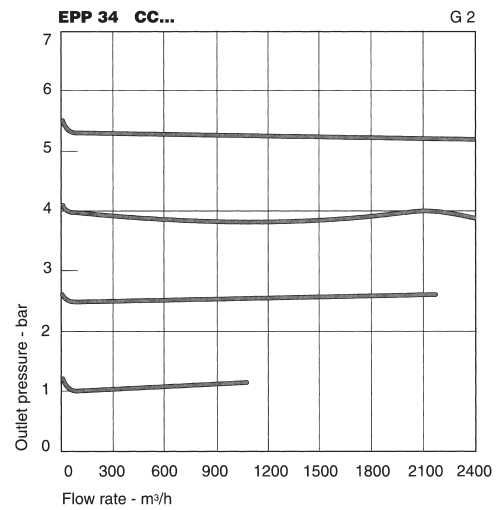
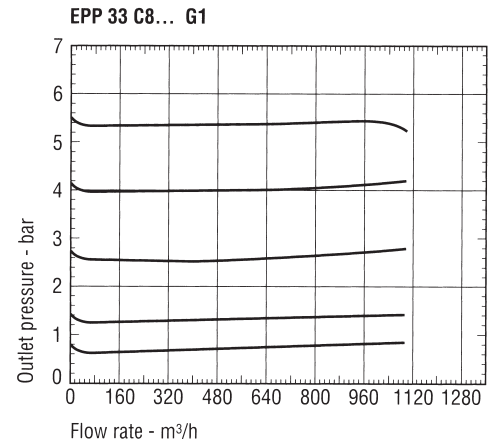
|                      | Connection<br>G | With integrated<br>pressure sensor | Outlet signal<br>options |                        | Electrical<br>connection |
|----------------------|-----------------|------------------------------------|--------------------------|------------------------|--------------------------|
|                      |                 |                                    | 0 - 10 V<br>4 - 20 mA    | 0 - 10 V<br>0/24 alarm | DIN 43651<br>connector   |
| EPP3C8 1 U/I 600 10  | 1               | •                                  | •                        |                        | •                        |
| 1 U/I 700 10         | 1               | •                                  |                          | •                      | •                        |
| EPP34CC 1 U/I 600 10 | 2               | •                                  | •                        |                        | •                        |
| 1 U/I 700 10         | 2               | •                                  |                          | •                      | •                        |



## HYSTERESIS DIAGRAM



## FLOW DATA Outlet Pressure in Function of Flow at Constant Control Signal (P1 = 7 BAR)



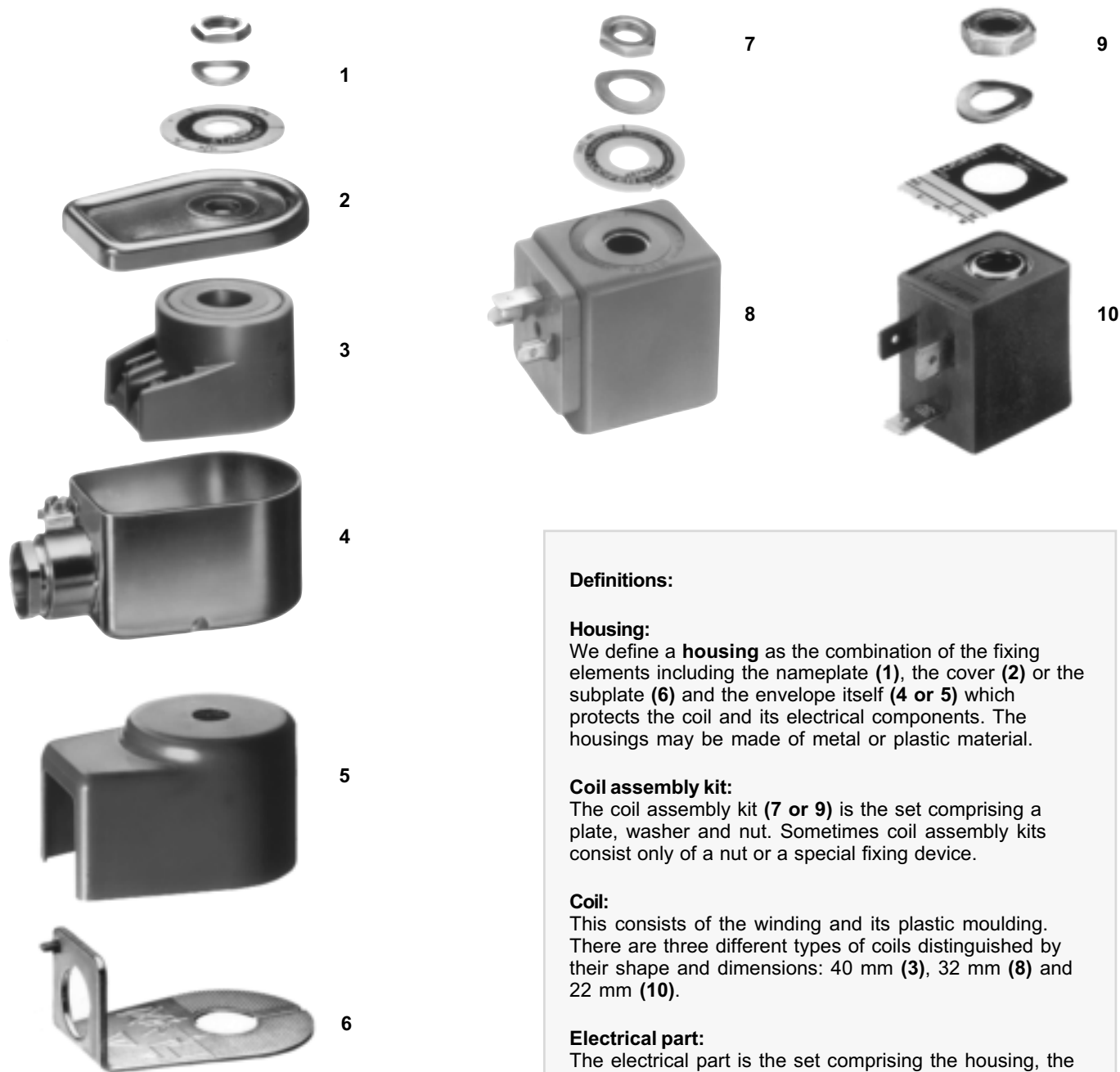


## Electrical Parts

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*For complete information please refer to publication No. 8700/GB*

## Housings or coil assembly kits, coils and electrical parts



### Definitions:

#### Housing:

We define a **housing** as the combination of the fixing elements including the nameplate (1), the cover (2) or the subplate (6) and the envelope itself (4 or 5) which protects the coil and its electrical components. The housings may be made of metal or plastic material.

#### Coil assembly kit:

The coil assembly kit (7 or 9) is the set comprising a plate, washer and nut. Sometimes coil assembly kits consist only of a nut or a special fixing device.

#### Coil:

This consists of the winding and its plastic moulding. There are three different types of coils distinguished by their shape and dimensions: 40 mm (3), 32 mm (8) and 22 mm (10).

#### Electrical part:

The electrical part is the set comprising the housing, the assembly kit and the coil.

### Warning:

Any Lucifer coil or electrical part may be energized **only when mounted on a valve**. Otherwise there is a risk of damaging the product and its surroundings (overheating, explosion, fire, etc.).

The data supplied in the Parker Lucifer Catalogs are to be consulted, and pertinent accident prevention regulations are to be followed during product installation and use. Any unauthorized work performed on the product by the purchaser or by third parties can impair its function, and relieves us of all warranty claims and liability for any resulting damage.

## Part 1: Housings or coil assembly kits

### 1.1 Coil housing with screw terminals

#### 1.1.1 Standard housing



**Reference:** 4270 or E0

**Material:** epoxy-coated steel

**Degree of protection:** IP according to IEC/EN 60529  
**IP 10** with armoured conduit  
**IP 44** with cable gland

**Electrical connection:**

Can be made with armoured conduit or cable gland M12x1.5, Parts No. 495740 and 495741 to be ordered separately.

Grounding connection by screw M3 on the inside of housing base plate.

**Weight:** 120 g.

#### Benefits:

This metal housing offers the ideal protection against shocks and corrosion – rotatable 360° – easy mounting in confined spaces – single-nut mounting – light weight – simplifies conversion of existing equipment to other requirements.

#### Application:

The majority of the Lucifer valves can be fitted with this standard housing, and can be mounted with several compatible Lucifer coils.

#### Compatible coils:

481000 or **EZ01**

Standard coil,  
8 W, class F (155°C), page 12

483520 or **EZ90**

Double-frequency coil,  
9 W, class F (155°C), page 12

481044 or **EZ91**

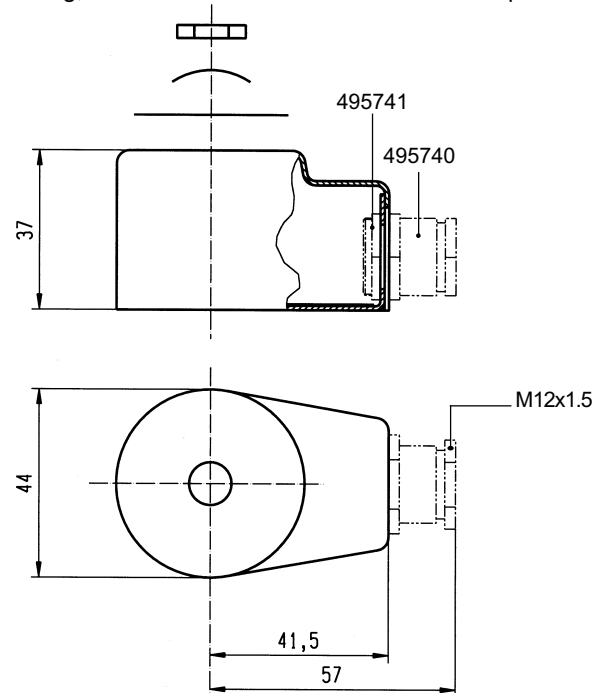
Standard high-power coil,  
14 W, class F (155°C), page 12

485100 or **EZ02**

Standard high-temperature coil,  
8 W, class H (180°C), page 12

486265 or **EZ92**

High-temperature and high-power coil,  
14 W, class H (180°C), page 12



### 1.1.2 Housing for bistable (impulse) coils



**Reference:** 4269 or E1

**Material:** epoxy-coated steel

**Degree of protection:** IP according to IEC/EN 60529  
**IP 10** with armoured conduit  
**IP 44** with cable gland

**Electrical connection:**

Can be made with armoured conduit or cable gland M12x1.5, Parts No. 495740 and 495741 to be ordered separately.

Grounding connection by screw M3 on the inside of housing base plate.

**Weight:** 120 g.

**Benefits:**

This metal housing offers the ideal protection against shocks and corrosion – rotatable 360° – easy mounting in confined spaces – single-nut mounting – light weight – simplifies conversion of existing equipment to other requirements.

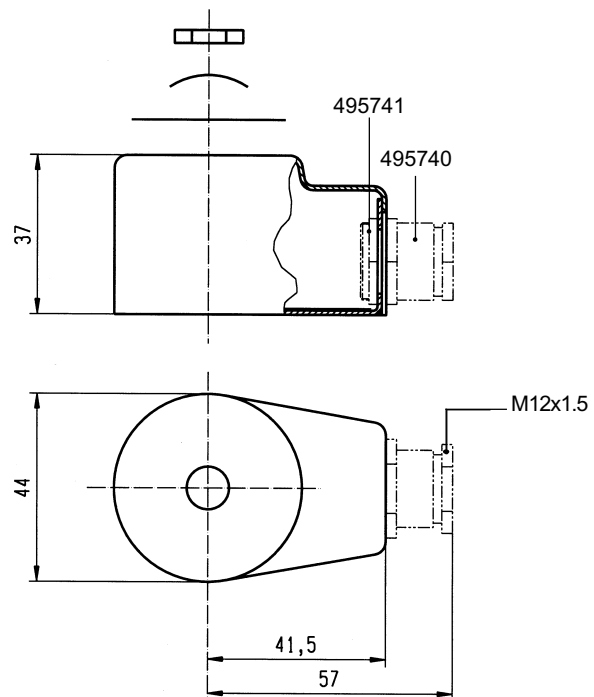
**Application:**

This housing is specially designed for group 4 coils and can be mounted only with valves controlled by electrical impulses.

**Compatible coils: Gr. 4**

484990 or **MZ01**  
 Impulse coil for AC,  
 11 W, class F (155°C), page 13

485400 or **MZ02**  
 Impulse coil for DC,  
 13 W, class F (155°C), page 13



## 1.2 Waterproof and dustproof housing

### 1.2.1 Waterproof housing



**Reference:** 4538 or G1                      **M20 x 1.5**

**Material:** Galvanized passivated steel

**Degree of protection:** IP 67 according to IEC/EN 60529

**Electrical connection:**

Cable connection by cable gland according to DIN 46320. Cable with outer diameter 6.5 -13.5 mm (M20 x 1.5) can be simply sealed using a rubber gland with resilient sealing rings.

The enclosure is internally and externally fitted with grounding and earthing screw terminals.

**Weight:** 180 g.

**Benefits:**

This enclosure is dust- and waterproof. It corresponds to the degree of "International Protection" IP 67 according to IEC / EN 60529. Corrosion resistant, the metal housing offers good protection for the coil against shocks and other outside influences – rotatable 360° – easy mounting in confined spaces – easy access to the screw terminals – single-nut mounting – light weight – simple conversion of existing electrical equipment to other requirements without interruption of fluid passage in the valve.

**Application:**

This housing can be equipped with several coils of our programme, like the standard, double-frequency and magnetic latch coils

**Compatible coils:**

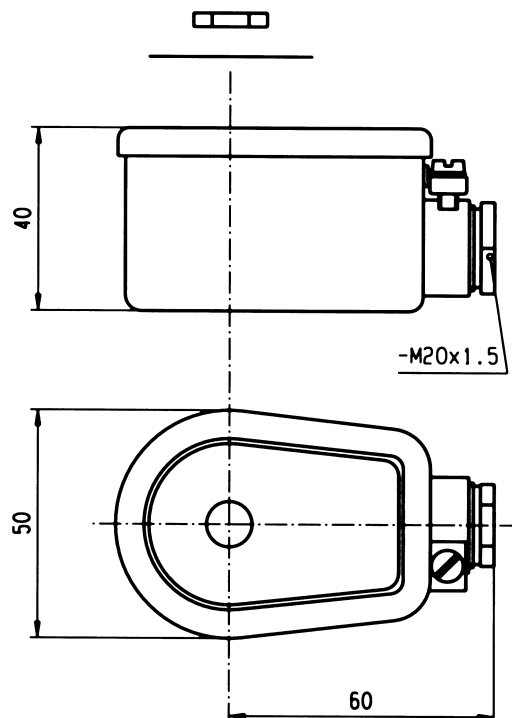
481000 or **EZ01**  
Standard coil,  
8 W, Class F (155°C), page 12

483520 or **EZ90**  
Double-frequency coil,  
9 W, class F (155°C), page 12

485100 or **EZ02**  
Coil for high temperature,  
8 W, class H (180°C), page 12

484990 or **MZ01**  
Impulse coil for AC,  
11 W, class F (155°C), page 13

485400 or **MZ02**  
Impulse coil for DC,  
13 W, class F (155°C), page 13



### 1.2.2 Waterproof housing for high-temperature coils



**Reference:** 8520 or G5                      **M20 x 1.5**

**Degree of protection:** IP 67 according to IEC/EN 60529

**Electrical connection:**

Cable connection by cable gland according to DIN 46320. Cable with outer diameter 6.5 - 13.5 mm can be simply sealed using a rubber gland with resilient sealing rings.

The enclosure is internally and externally fitted with grounding and earthing screw terminals.

**Weight:** 180 g.

**Benefits:**

This enclosure is dust- and waterproof. It corresponds to the degree of "International Protection" IP 67 according to IEC / EN 60529. Corrosion resistant, the metal housing offers good protection for the coil against shocks and other outside influences – rotatable 360° – easy mounting in confined spaces – easy access to the screw terminals – single-nut mounting – light weight – simple conversion of existing electrical equipment to other requirements without interruption of fluid passage in the valve.

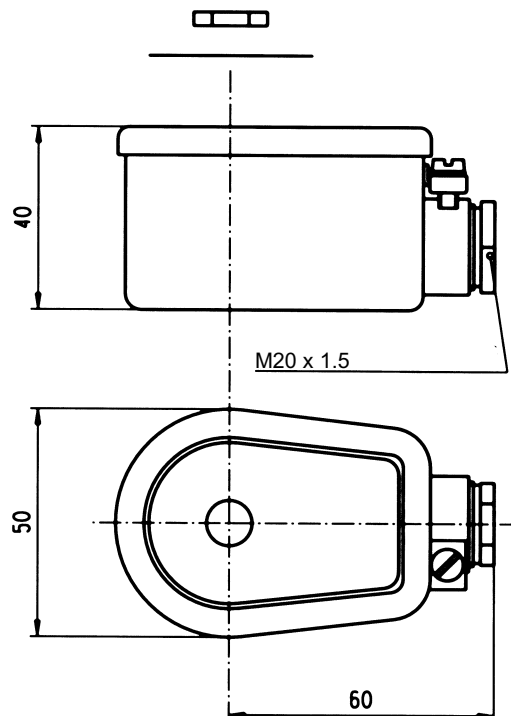
**Application:**

The majority of the Lucifer valves can be fitted with this housing and can be mounted with several compatible Lucifer coils for high temperature (14W, class F).

**Compatible coils:**

481044 or **EZ91**  
High power coil,  
14 W, Class F (155°C), page 12

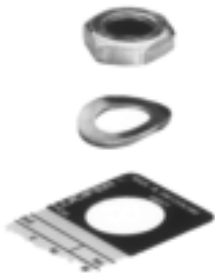
486265 or **EZ92**  
High power coil,  
14 W, class H (180°C), page 12





## 1.3 Coil assembly kits

### 1.3.1 Coil assembly kit for 22 mm coil



The coil assembly kit corresponds to the numbering system for Lucifer valve housings (Valve-housing - coil - voltage).

It is composed of a nameplate with the details of the valve type, a washer and a nut to secure the 22 mm coil to the valve.

| Reference | Code | Specification   | Application           |
|-----------|------|---|-----------------------|
| 8993      | A4   | Standard - aluminium nameplate - passivated washer and nut - pressure indication in [bar]     | Standard valves       |
| 8993.03   | A1   | Standard - aluminium nameplate - passivated washer and nut - pressure indication in [psi]     | Standard valves       |
| 8122      | A2   | Special - aluminium nameplate - stainless steel washer and nut - pressure indication in [kPa] | 316L St. Steel Valves |

### 1.3.2 Coil assembly kit for 32 mm coil



The coil assembly kit corresponds to the "housing" of Lucifer valve numbering system (Valve - housing - coil - voltage).

It is composed of a nameplate giving details of the valve type, a round washer and a nut to ensure the fixing between 32 mm coil and the valve.

| Reference | Code | Specification  | Application           |
|-----------|------|--|-----------------------|
| 2995      | N1   | Standard - aluminium nameplate - passivated iron washer and nut - pressure indication in [bar] | Standards valves      |
| 2995.03   | N3   | Standard - aluminium nameplate - passivated iron washer and nut - pressure indication in [psi] | UL / CSA valves       |
| 8132      | NL   | Special - aluminium nameplate - stainless steel washer and nut - pressure indication in [kPa]  | 316L St. Steel valves |

### 1.3.3 Coil assembly kit for CPR coils



It is composed of a plastic nut with a metal insert to secure the CPR coils to the valves, e.g. 133x.../432300C2.

| Reference | Code | Specification                 | Application |
|-----------|------|-------------------------------|-------------|
| 8886      | NT   | Plastic nut with metal insert | CPR valves  |

## 1.4 Degrees of protection “IP” – IEC/EN 60529

Full-enclosure protection is often required, either in the standards concerning “potentially explosive environments” or for other specific needs.

| First figure indicates protection against dangerous access and foreign objects | Index | IP | Index | Second figure indicates protection against water penetration               |
|--|-------|----|-------|--|
| Non-protected  | 0     |    |       | 0  |
| Protected against solid objects<br>Ø 50 mm or more                             | 1     |    | 1     | Protected against vertically falling water drops                           |
| Protected against solid objects<br>Ø 12.5 mm or more                           | 2     |    | 2     | Protected against vertically falling water drops when enclosure tilted 15° |
| Protected against solid objects<br>Ø 2.5 mm or more                            | 3     |    | 3     | Protected against spraying water up to 60° from vertical                   |
| Protected against solid objects<br>Ø 1 mm or more                              | 4     |    | 4     | Protected against splashing water from any direction                       |
| Dust-protected   | 5     |    | 5     | Protected against jets of water from any direction                         |
| Dust-tight   | 6     |    | 6     | Protected against powerful jets of water from any direction                |
|  |       |    | 7     | Protected against immersion  |
|  |       |    | 8     | Protected against continuous immersion                                     |

### Correlation between IP (IEC) and NEMA\* 250 standards

|       |               |
|-------|---------------|
| IP 10 | NEMA 1        |
| IP 11 | NEMA 2        |
| IP 14 | NEMA 3R       |
| IP 52 | NEMA 5-12-12K |
| IP 54 | NEMA 3-3S-13  |
| IP 56 | NEMA 4-4X     |
| IP 67 | NEMA 6-6P     |

\* NEMA: National Electrical Manufacturers Association (USA)

The enclosures to NEMA standards 7 to 10 concern equipment for hazardous areas.

## Part 2: Coils

### Groups:

Lucifer coils and electrical parts are classified by groups determining their compatibility with Lucifer solenoid valves.

In this catalogue you will find the global reference of these groups which is given in most Lucifer catalogues.

The global reference of these groups is composed of one number (principal reference from 1 to 12) defined as follows:

- 1** Application on valves of 2000 series with 22 mm pilot
- 2** Application on standard valves or on 7000 series with M20 x 1 pilot
- 3** Specific application
- 4** Application on standard valves or on 7000 series with magnetic latch pilot
- 5** Application on special valves for flameproof electrical parts
- 6** Application on standard valves or on 7000 series, for coils and low-power electrical parts
- 7** Application on standard valves or on 7000 series, for intrinsically safe coils and electrical parts
- 8** Application on special valves, for intrinsically safe coils and electrical parts with booster
- 9** Application on special valves, for CPR or Offshore coils and electrical parts
- 10** Application on valves for Offshore coils and electrical parts
- 11** Application flameproof "d" for Offshore coils and electrical parts
- 12** Application on Offshore valves with manual reset.

### How to order:

1. Valve reference or global reference
2. Housing reference or global reference
3. Coil / electrical part or global reference
4. Voltage or voltage code (see table on page 64)

### Ordering example:

121K0756-2995-481865- 3D 220-230/50 3D **or**  
7121KBG2LVM0-N1-DZ02 3D

**Important:** valve, housing or coil can be ordered separately for use as a replacement or spare part.

## 2.1 Coils with screw terminals:

### 2.1.1 Standard coils

# 2



These coils can be mounted with the majority of the Lucifer solenoid valves. They can be mounted with all Lucifer metal housings. The coil winding is completely encapsulated in synthetic material. Easy mounting in confined spaces. Electrical connection with screw terminals for wire up to 1.5 mm<sup>2</sup>.



This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

# 2 / 3

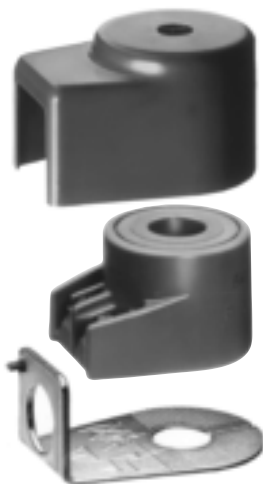
| Coil / specification  |    | Standard              | Double frequency      | High power            | High temperature      | High temp. + high power |              |
|---|----|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------|--------------|
| Reference   |    | 481000 or <b>EZ01</b> | 483520 or <b>EZ90</b> | 481044 or <b>EZ91</b> | 485100 or <b>EZ02</b> | 486265 or <b>EZ92</b>   |              |
| Class of insulation   |    | F 155°C               | F 155°C               | F 155°C               | H 180°C               | H 180°C                 |              |
| Ambient temperature   |    | -40°C to +50°C        | -40°C to +50°C        | -40°C to +50°C        | -40°C to +50°C        | -40°C to +50°C          |              |
| The application is limited also by the temperature range of the valve |    |                       |                       |                       |                       |                         |              |
| Elect. Power  | DC | Pn (hot)              | 8 W                   | -                     | -                     | 8 W                     | 14 W         |
|   |    | P (cold) 20°C         | 9 W                   | -                     | -                     | 9 W                     | 21 W         |
|   | AC | Pn (holding)          | 8 W                   | 9 W                   | 14 W                  | 8 W                     | 14 W         |
|   |    | Attraction cold       | 32 VA (9 W)           | 36 VA (10 W)          | 56 VA (20 W)          | 32 VA (9 W)             | 56 VA (20 W) |
| Weight  |    | 130 g                 | 130 g                 | 130 g                 | 140 g                 | 140 g                   |              |

**Voltage tolerance:** -10% to +10% of Un (-15% to +5% for double-frequency coil with voltage code S6 if 240 V/50/Hz is used).

**Duty:** Continuous duty coil (ED 100%)

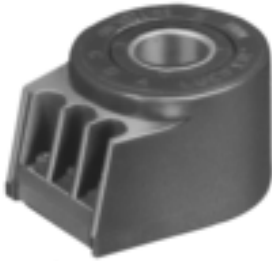
**Voltages:** see voltage code table

**Mounting:** examples



2.1.2 Bistable (impulse) coils

4



These coils are specially designed for Lucifer bistable (or impulse or magnetic latch) solenoid valves.

They can be mounted only with Lucifer metallic housings 4269 or 4538. The coil winding is completely encapsulated in synthetic material. Easy mounting in confined spaces. Electrical connection with screw terminals for wire up to 1.5 mm<sup>2</sup>.



This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

| Coil / Specification      |    | Direct Current  | Alternating Current     |                       |      |
|---------------------------|----|---|-------------------------|-----------------------|------|
| Diagram                   |    | <p>Only an electrical impulse given to terminals A-C reverses the magnetic field. This magnetic field demagnetises the reversible magnet enough to allow the return spring to bring the plunger back to its initial position and close the valve.</p> |                         |                       |      |
| Length of impulses        |    | Switch on (terminals A-B): minimum 50 ms, (maximum 1s)<br>Switch off (terminals A-C): minimum 35 ms, (maximum 1s)   |                         |                       |      |
| Reference                 |    | 485400 or <b>MZ02</b>   | * 482245 or <b>MZ90</b> | 484990 or <b>MZ01</b> |      |
| Electr. Power consumption | DC | Attraction (hot)  | 13 W                    | 13 W                  | -    |
|                           |    | Attraction (cold)   | 19 W                    | 19 W                  | -    |
|                           |    | Release (hot)   | 8 W                     | 8 W                   | -    |
|                           |    | Release (cold)  | 10 W                    | 10 W                  | -    |
|                           | AC | Attraction (hot)  | -                       | -                     | 11 W |
|                           |    | Attraction (cold)   | -                       | -                     | 17 W |
|                           |    | Release (hot)   | -                       | -                     | 4 W  |
|                           |    | Release (cold)  | -                       | -                     | 7 W  |

\* Electrical part IP67; contact your distributor for details.

**Class of insulation material:** F 155°C

**Ambient temperature:** -40°C to +50°C

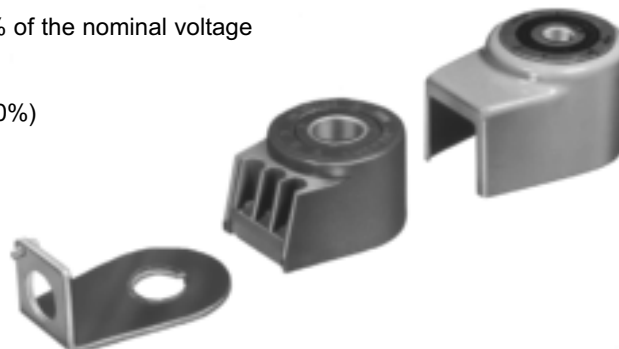
**Voltage tolerances:** -10% to +10% of the nominal voltage

**Voltages:** See voltage code table

**Duty:** Continuous duty coil (ED 100%)

**Weight:** 150 g

**Mounting:** example



## 2.2 Coils for DIN plug connection:

### 2.2.1 32 mm Coils

2



These coils can be mounted with the majority of the Lucifer solenoid valves. This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc. Ease of mounting in confined space - offers shock and corrosion protection - simplifies conversion of existing equipment to other requirements, etc.



This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

2 / 3

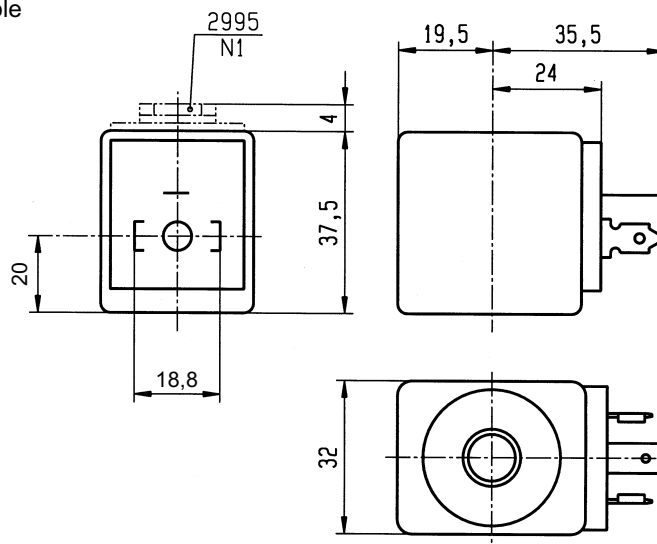
| Specification   |           | Standard  | Double frequency      | Reduced power         | High temperature      | High temp. + High power |              |
|---|-----------|---|-----------------------|-----------------------|-----------------------|-------------------------|--------------|
| Ref. (without plug)   |           | 481865 or <b>DZ02</b>   | 483510 or <b>DZ06</b> | 482730 or <b>DZ90</b> | 492453 or <b>DZ04</b> | 492425 or <b>DZ08</b>   |              |
| Ref. (with plug)  |           | 482725 or <b>DZ03</b>   | 482635 or <b>DZ07</b> | 482735 or <b>DZ91</b> | 492726 or <b>DZ05</b> | 492727 or <b>DZ09</b>   |              |
| <b>Degree of protection</b>   |           | IP65 according to IEC / EN 60529 standards (with plug connection) |                       |                       |                       |                         |              |
| <b>Class of insulation</b>  |           | F 155°C   | F 155°C               | F 155°C               | H 180°C               | H 180°C                 |              |
| <b>Electrical connection</b>  |           | Through a 2 P + E plug according to DIN 43650 type A              |                       |                       |                       |                         |              |
| <b>Ambient temperature</b>  |           | -40°C to +50°C  | -40°C to +50°C        | -40°C to +50°C        | -40°C to +50°C        | -40°C to +50°C          |              |
| The application is limited also by the temperature range of the valve |           |   |                       |                       |                       |                         |              |
| <b>Elect. Power</b>   | <b>DC</b> | <b>P<sub>n</sub></b> (hot)  | 9 W                   | -                     | 7 W                   | 9 W                     | 14 W         |
|   |           | <b>P</b> (cold) 20°C  | 12 W                  | -                     | 9 W                   | 12 W                    | 21 W         |
|   | <b>AC</b> | <b>P<sub>n</sub></b> (holding)                                    | 8 W                   | 9 W                   | 6 W                   | 8 W                     | 14 W         |
|   |           | Attraction cold   | 26 VA (9 W)           | 32 VA (10 W)          | 20 VA (7 W)           | 26 VA (9 W)             | 55 VA (18 W) |

**Voltage tolerances:** -10% to +10% of the nominal voltage

**Duty:** Continuous duty coil (ED 100%)

**Voltages:** see voltage code table

**Weight:** 130 g (without plug)



## 2.2.1.1 32 mm UL-recognized Coil

2



These coils can be mounted with the majority of the Lucifer solenoid valves. This is an encapsulated assembly comprising a coil, integral magnetic-iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc. Ease of mounting in confined space - offers shock and corrosion protection - simplifies conversion of existing equipment to other requirements, etc.



This coil is UL-approved as a recognized component for the insulation class F, conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

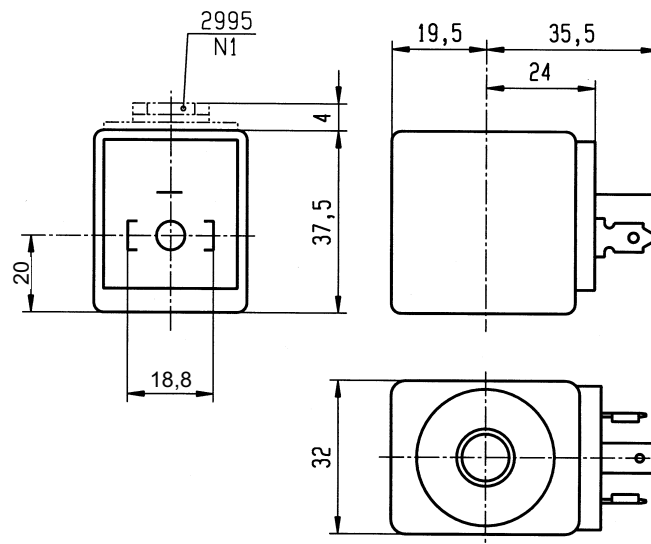
| Specification            |    | UL-recognized coil - UL File E125678 - designation AMIF               |                       |      |
|--------------------------|----|---|-----------------------|------|
| Reference (without plug) |    | 491514 or <b>D400</b>   | 491514 or <b>D500</b> |      |
| Degree of protection     |    | IP65 according to IEC / EN 60529 standards (with plug connection)     |                       |      |
| Class of insulation      |    | F 155°C   | F 155°C               |      |
| Electrical connection    |    | Through a 2 P + E plug according to DIN 43650 type A                  |                       |      |
| Ambient temperature      |    | -40°C to 50°C   | - 40°C to 50°C        |      |
|                          |    | The application is limited also by the temperature range of the valve |                       |      |
| Elect. Power             | DC | Pn (hot)  | -                     | 12 W |
|                          |    | P (cold) 20°C   | -                     | 16 W |
|                          | AC | Pn (holding)  | 11 W                  | -    |
|                          |    | Attraction cold   | 40 VA (13 W)          | -    |

**Voltage tolerances:** -15% to +10% of the nominal voltage

**Duty:** Continuous duty coil (ED 100%)

**Voltages:** see voltage code table

**Weight:** 130 g (without plug)



## 2.2.1.2 32 mm Miniwatt Coil

6



This reduced power coil is compatible with certain types of Lucifer solenoid valves only. This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc. Ease of mounting in confined space - offers shock and corrosion protection - simplifies conversion of existing equipment to other requirements, etc.



This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

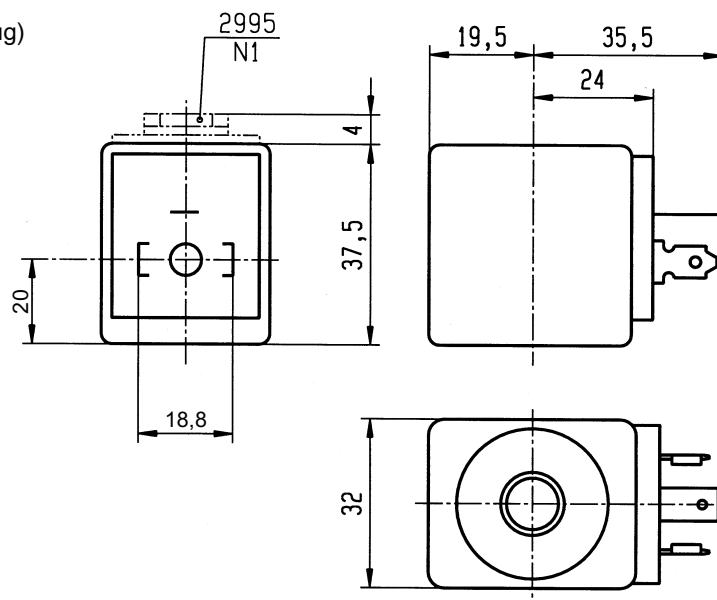
| Specification   |           | Miniwatt  |       |
|---|-----------|---|-------|
| <b>Reference</b> (without plug)<br><b>Reference</b> (with plug) |           | 482740 or <b>DZ10</b><br>482745 or <b>DZ11</b>  |       |
| <b>Degree of protection</b>                                     |           | <b>IP65</b> according to IEC / EN 60529 standards (with plug connection)                |       |
| <b>Class of insulation</b>                                      |           | F 155°C   |       |
| <b>Electrical connection</b>                                    |           | Through a 2 P + E plug according to DIN 43650 type A                                    |       |
| <b>Ambient temperature</b>                                      |           | -40°C to +50°C<br>The application is limited also by the temperature range of the valve |       |
| <b>Elect. Power</b>   | <b>DC</b> | <b>P<sub>n</sub></b> (hot)  | 1.6 W |
|   |           | <b>P</b> (cold) 20°C  | 2.1 W |
|   | <b>AC</b> | <b>P<sub>n</sub></b> (holding)  | -     |
|   |           | Attraction cold   | -     |

**Voltage tolerance:** -10% to +10% of the nominal voltage

**Duty:** continuous duty coil (ED 100%)

**Voltages:** see voltage code table

**Weight:** 130 g (without plug)





## 2.2.1.2 32 mm CPR Coil

9



This coil is compatible only with the Offshore and CPR\* types of Lucifer solenoid valves. This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc. Ease of mounting in confined space - offers shock and corrosion protection - simplifies conversion of existing equipment to other requirements, etc.  
(\* CPR = Chemical, Petrochemical and Refinery application)



This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

| Specification   |                      | CPR   |
|---|----------------------|---|
| <b>Reference</b> (without plug)<br><b>Reference</b> (with plug) |                      | 492385 or <b>DZ92</b><br>492387 or <b>DZ93</b>  |
| <b>Degree of protection</b>                                     |                      | <b>IP65</b> according to IEC / EN 60529 standards (with plug connection)                |
| <b>Class of insulation</b>                                      |                      | F 155°C   |
| <b>Electrical connection</b>                                    |                      | Through a 2 P + E plug according to DIN 43650 type A                                    |
| <b>Ambient temperature</b>                                      |                      | -40°C to +50°C<br>The application is limited also by the temperature range of the valve |
| <b>Elect. Power</b>   | <b>DC</b>            |   |
|   | <b>Pn</b> (hot)      | 9 W   |
|   | <b>P</b> (cold) 20°C | 12 W  |
| <b>AC</b>   | <b>Pn</b> (holding)  | 9 W   |
|   | Attraction cold      | 12 W  |

**Voltage tolerance:** -10% to +10% of the nominal voltage

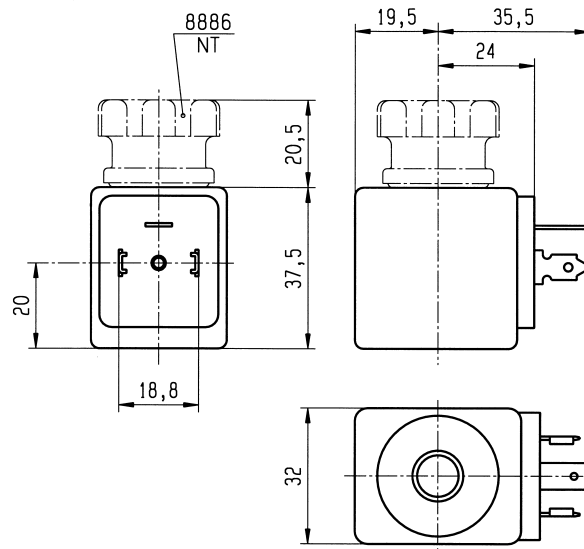
**Duty:** continuous duty coil (ED 100%)

**Voltages:** see voltage code table

**Weight:** 130 g (without plug)

**Important:**

For AC voltage, this coil must be mounted with a connector (DIN plug) including a rectifier-bridge.



## 2.2.2 22 mm Coil

1



This miniature coil is designed for valves equipped with a miniature tube assembly. This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc. Ease of mounting in confined space - offers shock and corrosion protection - simplifies conversion of existing equipment to other requirements, etc.



This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

| Specification         |    | Low power   | High power            | Standard UL / CSA*    | Double frequency      |              |
|-----------------------|----|---|-----------------------|-----------------------|-----------------------|--------------|
| Ref. (without plug)   |    | 488980 or <b>DA01</b>   | 481180 or <b>DA03</b> | 492912 or <b>DA05</b> | 483590 or <b>DA07</b> |              |
| Ref. (with plug)      |    | 481045 or <b>DA02</b>   | 481530 or <b>DA04</b> | 492919 or <b>DA06</b> |                       |              |
| Degree of protection  |    | IP65 according to IEC / EN 60529 standards (with plug connection)                       |                       |                       |                       |              |
| Classe of insulation  |    | F 155°C   | F 155°C               | A 105°C for UL/CSA    | F 155°C               |              |
| Electrical connection |    | Through a 2 P + E plug according to DIN 43650 type B                                    |                       |                       |                       |              |
| Ambient temperature   |    | -40°C to +50°C<br>The application is limited also by the temperature range of the valve |                       |                       |                       |              |
| Elect. Power          | DC | Pn (hot)  | 2.5 W DC              | 5 W DC                | 4 W                   | -            |
|                       |    | P (cold) 20°C   | 3 W                   | 6.5 W                 | 4.5 W                 | -            |
|                       | AC | Pn (holding)  | 2 W                   | 4 W                   | 3 W                   | 3 W          |
|                       |    | Attraction cold   | 5.7 VA (2.5 W)        | 8.9 VA (5 W)          | 7.5 VA (4 W)          | 7.5 VA (4 W) |

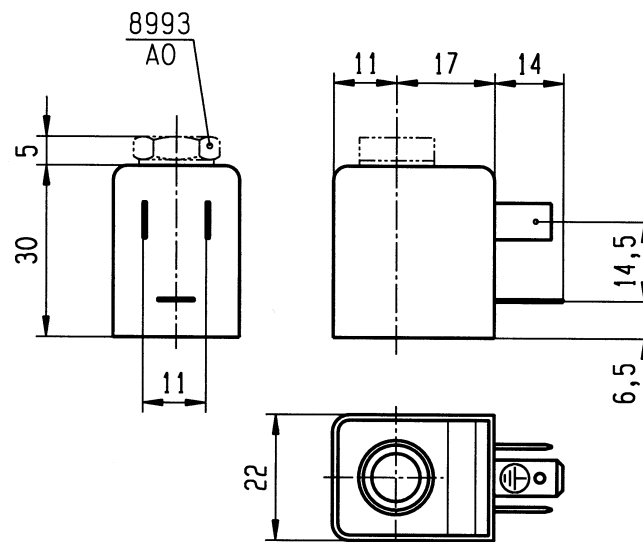
\* This coil is UL/CSA accepted with corresponding approved valves only.

**Voltage tolerance:** -10 to +10% of the nominal (for coil 492912 and 492919 : - 15% to + 10% of the nominal voltage)

**Duty:** continuous duty coil (ED 100%)

**Voltages:** see voltage code table

**Weight:** 100 g with plug



## Part 3: Explosion proof electrical parts

### 3.1 Encapsulated electrical parts for zone 22:

#### 3.1.1 22 mm electrical part with connector



**Application:** Control of solenoid valves in explosive atmospheres where dust dangerous area (zone 22) is required.

**Benefits:** This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc.

Small size for ease of mounting in confined spaces.

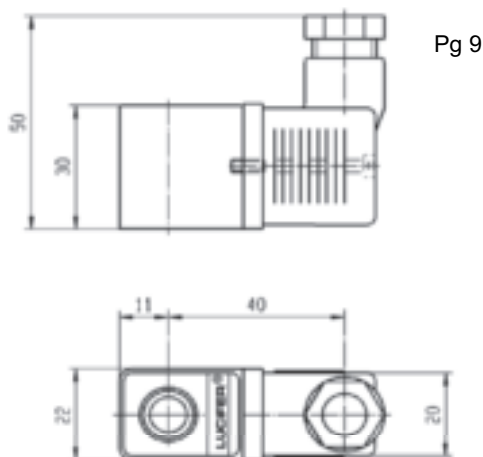
All Lucifer valves which are suitable for standard 22 mm coils can be fitted with those electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC « ATEX ».

|                            |      |   |               |
|----------------------------|------|---|---------------|
| Reference                  |      | 495865  |               |
| Specification              |      | Standard 22 mm  |               |
| Type of protection         | Dust | II 3 D (zone 22)  |               |
| Degree of protection       |      | IP65 according to IEC / EN 60529 standards (with plug connection)                           |               |
| Ambient temperature        |      | - 40 °C to + 50 °C<br>The application is limited also by the temperature range of the valve |               |
| Dust temperature class (D) |      | 95 °C   |               |
| Class of insulation        |      | F (155 °)   |               |
| Electrical connection      |      | Through a 2 P + E plug according to EN 175301-803 type B                                    |               |
| Elect. Power               | DC   | Pn (hot)  | 2.5 W         |
|                            |      | P (cold) 20°C   | 3 W           |
|                            | AC   | Pn (holding)  | 2 W           |
|                            |      | Attraction cold   | 5.7 VA (2.5W) |
| Voltage                    |      | 24 VDC, 220-230/50  |               |
| Voltage tolerance          |      | ± 10% of the nominal voltage  |               |
| Solenoid duty              |      | Continuous duty solenoid (ED 100%)  |               |

Weight: 120 g.



## 3.1.2 32 mm electrical parts with connector

2



**Application:** Control of solenoid valves in explosive atmospheres where dust dangerous area (zone 22) is required.

**Benefits:** This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc.

Small size for ease of mounting in confined spaces.

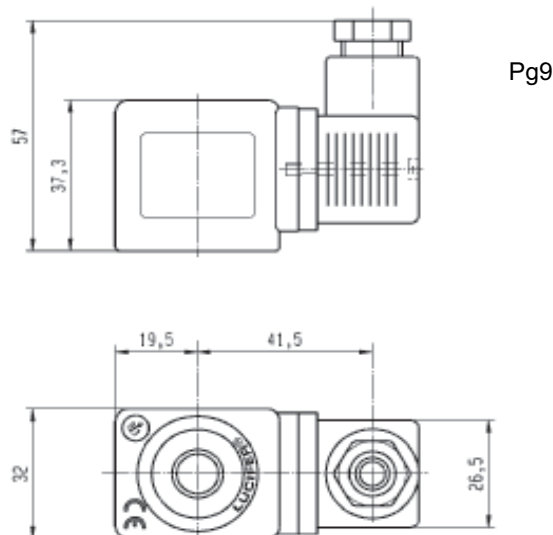
All Lucifer valves which are suitable for standard 32 mm coils can be fitted with those electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC « ATEX ».

| Reference                  |      | 495870  | 495875             | 495880           |             |
|----------------------------|------|---|--------------------|------------------|-------------|
| Specification              |      | Standard 32 mm  | Low power 32 mm    | High power 32 mm |             |
| Type of protection         | Dust | II 3 D (zone 22)  |                    |                  |             |
| Degree of protection       |      | IP65 according to IEC / EN 60529 standards (with plug connection)                           |                    |                  |             |
| Ambient temperature        |      | - 40 °C to + 50 °C<br>The application is limited also by the temperature range of the valve |                    |                  |             |
| Dust temperature class (D) |      | 130 °C  | 130 °C             | 170 °C           |             |
| Class of insulation        |      | F (155 °C)  | F (155 °C)         | H (180 °C °)     |             |
| Electrical connection      |      | Through a 2 P + E plug according to EN 175301-803 type A                                    |                    |                  |             |
| Elect. Power               | DC   | Pn (hot)  | 9 W                | 7 W              | 14 W        |
|                            |      | P (cold) 20°C   | 12 W               | 9 W              | 21 W        |
|                            | AC   | Pn (holding)  | 8 W                | 6 W              | 14 W        |
|                            |      | Attraction cold   | 26 VA (9W)         | 20 VA (7W)       | 55 VA (18W) |
| Voltage                    |      | 24 VDC, 48/50, 110/50, 220-230/50   | 24 VDC, 220-230/50 | 24 VDC, 230/50   |             |
| Voltage tolerance          |      | ± 10% of the nominal voltage  |                    |                  |             |
| Solenoid duty              |      | Continuous duty solenoid (ED 100%)  |                    |                  |             |

Weight: 150 g.



3.2 Increased safety electrical parts for zone 22

3.2.1 Electrical parts 495915

4



**Application:** Control of solenoid valves in explosive atmospheres where dust dangerous area (zone 22) is required.

**Benefits:** Rotatable housing 360°, galvanized steel with internal and external screw terminals for earth connection.

Small size for ease of mounting in confined space. Simplifies conversion of existing equipment to hazardous area requirements.

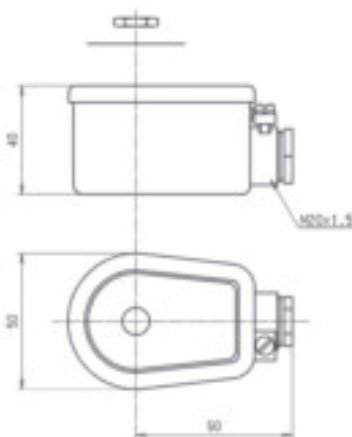
These electrical parts are specially designed for Lucifer bistable (or impulse or magnetic latch) solenoid valves.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC « ATEX ».

| Reference                            |      | 495915 DC  | 495915 AC                         |      |
|--------------------------------------|------|--|-----------------------------------|------|
| Type of protection                   | Dust | II 3 D (zone 22)   |                                   |      |
| Dust temperature class (D)           |      | 130 °C   |                                   |      |
| Insulation Class                     |      | F (155 °C)   |                                   |      |
| Ambiant temperature                  |      | - 40 °C ÷ + 50 °C<br>The application is limited also by the temperature range of the valve |                                   |      |
| Electr. Power conspition             | DC   | Attraction (hot)   | 13 W                              | -    |
|                                      |      | Attraction (cold)  | 19 W                              | -    |
|                                      |      | Release (hot)  | 8 W                               | -    |
|                                      |      | Release (cold)   | 10 W                              | -    |
|                                      | AC   | Attraction (hot)   | -                                 | 11 W |
|                                      |      | Attraction (cold)  | -                                 | 17 W |
|                                      |      | Release (hot)  | -                                 | 4 W  |
|                                      |      | Release (cold)   | -                                 | 7 W  |
| <b>Voltages, (voltage tolerance)</b> |      | 24 VDC (± 10%)   | 110-115 VAC; 220-230 VAC, (± 10%) |      |
| <b>Duty cycle</b>                    |      | 100%   |                                   |      |

Weight: 320 g



As soon as an electrical impulse is given to the terminals A-B, the electromagnetical force attracts the plunger and simultaneously magnetizes a reversible permanent magnet ring. This magnet retains the plunger in place. Repeated or extended impulses or continuous current do not alter the position of the movable core. It stays in position even without current.

Only an electrical impulse given to terminals A-C reverses the magnetic field. This magnetic field demagnetises the reversible magnet enough to allow the return spring to bring the plunger back to its initial position and close the valve

Switch on (terminals A-B): minimum 50 ms, maximum 1 s  
Switch off (terminals A-C): minimum 35 ms, maximum 1 s

### 3.3 Encapsulated electrical parts “m”:

#### 3.3.1 22 mm electrical part

1



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx m II T4 or T5 is required.

**Benefits:** coil and magnetic circuit encapsulated in synthetic material - offering shock and corrosion protection. AC coils with integrated thermal fuse.

Small size for ease of mounting in confined spaces.

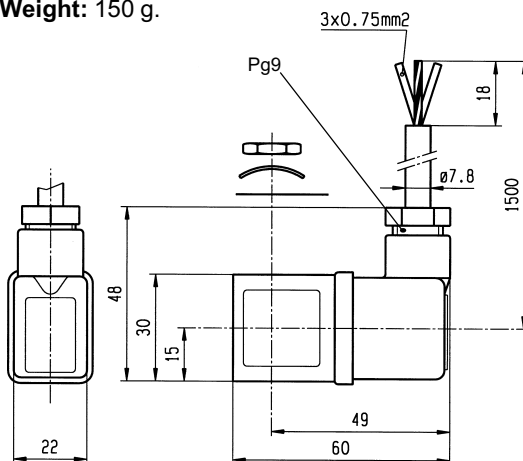
All Lucifer valves which are suitable for standard 22 mm coils can be fitted with those electric parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

|                                    |             |   |   |
|------------------------------------|-------------|---|---|
| <b>Reference</b>                   |             | 482605 or <b>VA01</b>   | 482606 or <b>VA02</b><br>* 482606.10 or <b>VA12</b><br>° 482606.160 or <b>VA07</b>      |
| <b>Approval</b>                    |             | <b>LCIE 02 ATEX 6014 X</b>  |   |
| <b>Type of protection</b>          | <b>Gas</b>  | II 2 G - EEx m II T4  | II 2 G - EEx m II T5  |
|                                    | <b>Dust</b> | II 2 D - 130°C  | II 2 D - 95°C   |
| <b>Degree of protection</b>        |             | <b>IP65</b> according to IEC / EN 60529 standards                   |   |
| <b>Ambient temperature</b>         |             | -40°C to +50°C  | -40°C to +50°C<br>The application is limited also by the temperature range of the valve |
| <b>Class of insulation</b>         |             | F (155°C)   | F (155°C)   |
| <b>Electrical connection</b>       |             | Cable connection (3 x 0.75 mm <sup>2</sup> ) encapsulated with coil |   |
| <b>Elect. Power</b>                | <b>DC</b>   | <b>P<sub>n</sub></b> (hot)  | 5 W   |
|                                    |             | <b>P</b> (cold) 20°C  | 6.5 W   |
|                                    | <b>AC</b>   | <b>P<sub>n</sub></b> (holding)                                      | 4 W   |
|                                    |             | Attraction cold   | 8.9 VA (5 W)  |
| <b>Voltage / Voltage tolerance</b> |             | see voltage code table / tolerance ± 10% of the nominal voltage     |   |
| <b>Solenoid duty</b>               |             | Continuous duty solenoid (ED 100%)                                  |   |

**Weight:** 150 g.



\* 482606.10 for stainless steel application - 1.5 m cable length.

° 482606.160 - 6 m cable length.

#### Fuses:

Both electrical parts VA01 and VA02 have to be connected in series with a safety fuse according to CEI 60127-3.

#### VA01:

DC: 12V, 1000mA - 24V, 500mA - 48V, 200mA - 110V, 100mA  
AC 50 Hz: 24V, 500mA - 48V, 250mA - 110/115V, 100mA - 220/230V, 63mA  
AC 60 Hz: 24V, 630mA - 110/115V, 125mA - 220/230V, 63mA

#### VA02:

DC: 12V, 400mA - 24V, 200mA - 48V, 100mA - 110V, 50mA  
AC 50 Hz: 24V, 250mA - 48V, 125mA - 110/115V, 63mA - 220/230V, 32mA  
AC 60Hz: 24V, 315mA - 110/115V, 63mA - 220/230V, 32mA

## 3.3.2 32 mm electrical part

2



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx m II T4 is required.

**Benefits:** Coil and magnetic circuit encapsulated in synthetic material - offering shock and corrosion protection. AC/DC coils with integrated thermal fuse. DC coils with integrated surge suppression diode.

Small size for ease of mounting in confined spaces.

All Lucifer valves which are suitable for standards coils (9W DC or 8W AC) can be fitted with this electrical part.

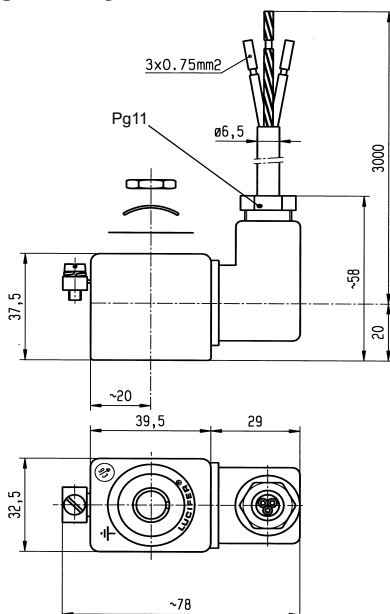


These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

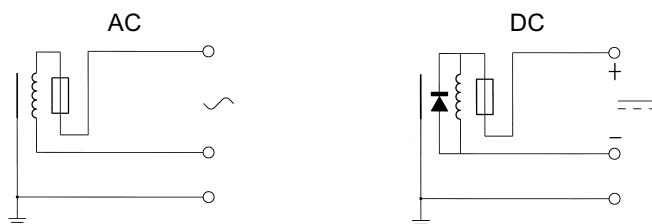
|                             |      |   |             |
|-----------------------------|------|---|-------------|
| Reference                   |      | 492670 or HZ05<br>* 492670.10 or HZ90<br>° 492670.160 or HZ91                           |             |
| Approval                    |      | LCIE 02 ATEX 6015 X   |             |
| Type of protection          | Gas  | II 2 G - EEx m II T4  |             |
|                             | Dust | II 2 D - 130°C  |             |
| Degree of protection        |      | IP65  |             |
| Ambient temperature         |      | -40°C to +40°C<br>The application is limited also by the temperature range of the valve |             |
| Class of insulation         |      | F (155°C)   |             |
| Electrical connection       |      | Cable connection (3 x 1.5 mm <sup>2</sup> ) encapsulated with coil                      |             |
| Elect. Power                | DC   | Pn (hot)  | 9 W         |
|                             |      | P (cold) 20°C   | 12 W        |
|                             | AC   | Pn (holding)  | 8 W         |
|                             |      | Attraction cold   | 26 VA (9 W) |
| Voltage / Voltage tolerance |      | see voltage code table / tolerance ±10% of the nominal voltage                          |             |
| Solenoid duty               |      | Continuous duty solenoid (ED 100%)  |             |

Weight: 320g.

\* 492670.10 for stainless steel application - 3 m cable length.  
° 492670.160 - 6 m cable length

**Special conditions:**

The supply connection lines have to be fixed and positioned in such a way that they are protected against mechanical damages.



It is necessary to use a safety fuse with a nominal current corresponding to the coil current (max. 3 x nominal according to IEC 60127 and IEC 60269) against short-circuits.

**Recommended values:**

**DC:** 12V, 1250mA - 24V, 630mA - 48V, 315mA - 110V, 125mA  
**AC 50 Hz:** 24V, 1000mA - 48V, 500mA - 110, 250mA - 230V, 100mA  
**AC 60 Hz:** 240V, 100mA

3.3.3 Standard electrical parts with waterproof metal housing:

2 / 6



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx m II T4 or T5 is required.

**Benefits:** Epoxy-coated steel housing - solenoid coil, rectifier (silicium diodes), fuse and varistor protection element are completely encapsulated in the coil housing by means of epoxy resin.

Small size for ease of mounting in confined space. Simplifies conversion of existing equipment to hazardous area requirements.

All Lucifer valves which are suitable for standards coils (8 W or 2.5 W DC) can be fitted with these electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

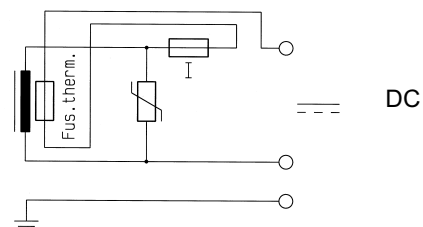
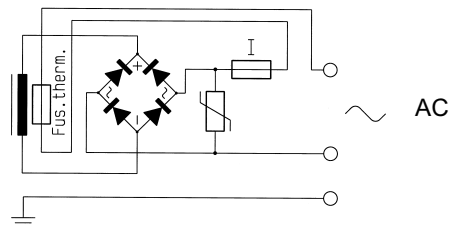
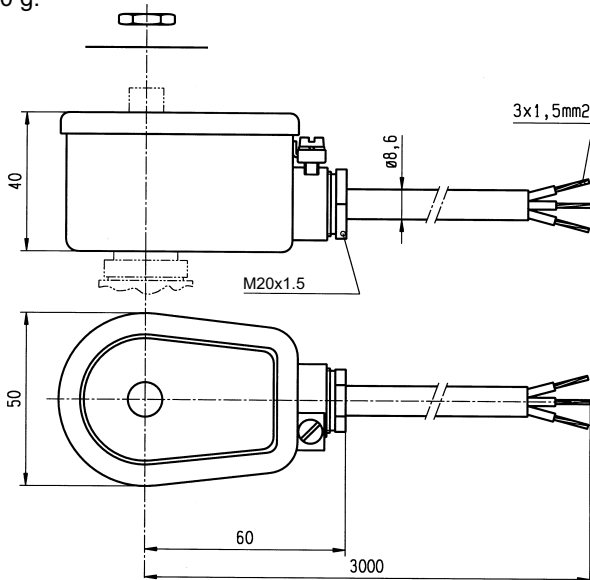
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6

|                                    |             |  |                       |                                       |      |
|------------------------------------|-------------|--|-----------------------|---------------------------------------|------|
| <b>Reference</b>                   |             | 492070 or <b>VZ01</b><br>*492070.60 or <b>VZ96</b>   | 492370 or <b>VZ05</b> | 492070.03 or <b>VZ21</b>              |      |
| <b>Approval</b>                    |             | <b>LCIE 02 ATEX 6017 X</b>   |                       | <b>AUS Ex. 321</b>                    |      |
| <b>Type of protection</b>          | <b>Gas</b>  | II 2 G - EEx m II T4   | II 2 G - EEx m II T5  | Ex m IIC T4 / T5<br>Classe I - Zone 1 |      |
|                                    | <b>Dust</b> | II 2 D - 130°C   | II 2 D - 95°C         |                                       |      |
| <b>Degree of protection</b>        |             | IP67   |                       | IP67                                  |      |
| <b>Ambient temperature</b>         |             | -40°C to +65°C<br>The application is limited also by the temperature range of the valve              | -40°C to +40°C        | -40 to +65°C / +40 °C                 |      |
| <b>Class of insulation</b>         |             | F (155°C)  |                       | F (155°C)                             |      |
| <b>Electrical connection</b>       |             | Cable connection (3 x 1.5mm <sup>2</sup> ) with cable gland M20x1.5, external earth screw connection |                       |                                       |      |
| <b>Elect. Power</b>                | <b>DC</b>   | <b>P<sub>n</sub></b> (hot)   | 8 W                   | 2.5 W                                 | 8 W  |
|                                    |             | <b>P</b> (cold) 20°C   | 10 W                  | 3 W                                   | 10 W |
|                                    | <b>AC</b>   | <b>P<sub>n</sub></b> (holding)   | 9 W                   | 2.5 W                                 | 9 W  |
|                                    |             | Attraction cold  | 11 W                  | 3 W                                   | 11 W |
| <b>Voltage / Voltage tolerance</b> |             | see voltage code table / tolerance ± 10% of the nominal voltage                                      |                       |                                       |      |
| <b>Solenoid duty</b>               |             | Continuous duty solenoid (ED 100%)   |                       |                                       |      |

Weight: 500 g.

\* 492070.60 - 6 m cable length





3.3.4 CPR electrical parts with waterproof metal housing:

9



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx m II T4 or T5 is required.

**Benefits:** Epoxy-coated steel housing - solenoid coil, rectifier (silicium diodes), fuse and varistor protection completely encapsulated in the coil housing by means of epoxy resin.

Small size for ease of mounting in confined space. Simplifies conversion of existing equipment to hazardous area requirements.

All Lucifer valves equipped with the specific CPR\* upper parts, can be fitted with this electrical part.

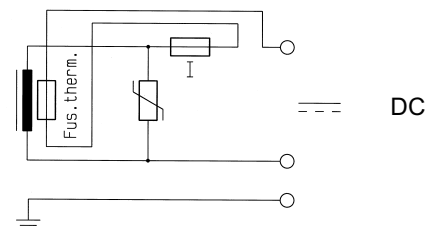
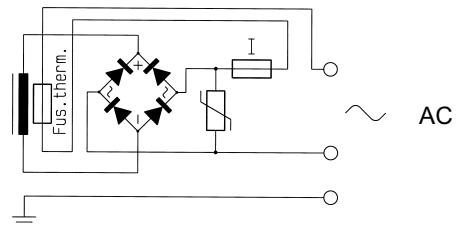
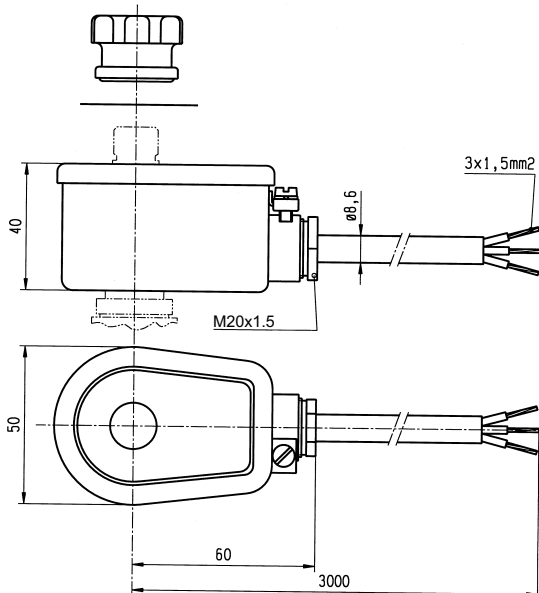
(\* CPR = Chemical, Petrochemical and Refinery application)



These electrical parts conform to the IEC/CENELEC safety standards and complies with European explosive atmosphere directive 94/9/EC «ATEX».

|   |             |  |                      |
|---|-------------|--|----------------------|
| <b>Reference</b>  |             | 492270 or <b>VZ02</b>  |                      |
| <b>Approval</b>   |             | <b>LCIE 02 ATEX 6017 X</b>   |                      |
| <b>Type of protection</b>   | <b>Gas</b>  | II 2 G - EEx m II T4   | II 2 G - EEx m II T5 |
|   | <b>Dust</b> | II 2 D - 130°C   | II 2 D - 95°C        |
| <b>Degree of protection</b>   |             | IP67   |                      |
| <b>Ambient temperature</b>  |             | -40°C to +65°C   | -40°C to +40°C       |
| The application is limited also by the temperature range of the valve |             |  |                      |
| <b>Class of insulation</b>  |             | F (155°C)  |                      |
| <b>Electrical connection</b>  |             | Cable connection (3 X 1.5mm <sup>2</sup> ) with cable gland M20 x 1.5, external earth screw connection |                      |
| <b>Elect. Power</b>   | <b>DC</b>   | <b>P<sub>n</sub></b> (hot)   | 5 W                  |
|   |             | <b>P</b> (cold) 20°C   | 6 W                  |
|   | <b>AC</b>   | <b>P<sub>n</sub></b> (holding)   | 5 W                  |
|   |             | Attraction cold  | 6 W                  |
| <b>Voltage / Voltage tolerance</b>                                    |             | see voltage code table / tolerance ±10% of the nominal voltage   |                      |
| <b>Solenoid duty</b>  |             | Continuous duty solenoid (ED 100%)   |                      |

Weight: 500 g.



### 3.4 Increased safety electrical parts “me”:

#### 3.4.1 Electrical parts 483371 or HZ06 and 494040 or HZ23

# 2



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx me II T3 or T4 is required.

**Benefits:** Rotatable housing 360°, galvanized steel with internal and external screw terminals for earth connection.

Small size for ease of mounting in confined space. Simplifies conversion of existing equipment to hazardous area requirements.

All Lucifer valves suitable for standard 8 W DC or AC coils can be fitted with these electrical parts.

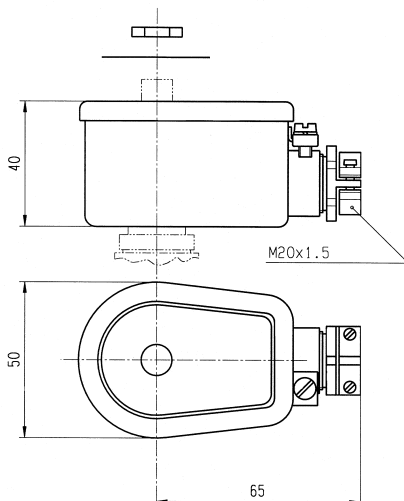


These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

| Reference   |      | 483371 or <b>HZ06</b><br>* 483371.01 or <b>HZ14</b>  | 494040 or <b>HZ23</b> |                            |
|---|------|--|-----------------------|----------------------------|
| Approval  |      | <b>LCIE 02 ATEX 6011 X</b>   |                       | <b>LCIE 02 ATEX 6013 X</b> |
| Type of protection  | Gas  | II 2 G - EEx me II T4  | II 2 G - EEx me II T3 | II 2 G - EEx me II T4      |
|   | Dust | II 2 D - 130°C   | II 2 D - 195°C        | II 2 D - 130°C             |
| Degree of protection  |      | IP67   |                       | IP67                       |
| Ambient temperature   |      | -40°C to +65°C   | -40°C to +90°C        | -40°C to +65°C             |
| The application is limited also by the temperature range of the valve |      |  |                       |                            |
| Class of insulation   |      | F (155°C)  | H (180°C)             |                            |
| Electrical connection   |      | By special cable gland M20 x 1.5 EExe on screw terminals for wires up to 1.5 mm <sup>2</sup> .<br>Cables with outside diameter 6.5 to 13.5 mm can be simply sealed using the rubber gland with resilient sealing rings supplied. |                       |                            |
| Elect. Power  | DC   | Pn (hot)   | 8 W                   | 8 W                        |
|   |      | P (cold) 20°C  | 9 W                   | 9 W                        |
|   | AC   | Pn (holding)   | 8 W                   | 8 W                        |
|   |      | Attraction cold  | 32 VA (9 W)           | 32 VA (9 W)                |
| Voltage / Voltage tolerance   |      | see voltage code table / tolerance -10/ +10% of the nominal voltage  |                       |                            |
| Solenoid duty   |      | Continuous duty solenoid (ED 100%)   |                       |                            |

Weight: 320 g.

\*483371.01 for CPR valves



#### Fuses:

Both electrical parts HZ06 and HZ23 have to be connected in series with a safety fuse according to IEC 60127-3.

#### HZ06:

DC: 12V, 1000mA, 24V, 400mA - 48V, 250mA - 110V, 100mA  
AC 50 Hz: 24V, 630mA - 48V, 315mA - 110V, 160mA - 220/230V, 80mA  
AC 60 H2: 24V, 750mA - 110V, 160mA - 240V, 80mA

#### HZ23:

DC: 24V, 400mA - 48V, 250mA - 110V, 100mA, 220V, 63mA  
AC 50 Hz: 24V, 630mA - 48V, 315mA - 110/115V, 160mA - 220/230V, 80mA

## 3.4.2 Low power electrical part 491117 or VZ04

6



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx me II T5 is required.

**Benefits:** Rotatable housing 360°, galvanized steel with internal and external screw terminals for earth connection.

Small size for ease of mounting in confined space. Simplifies conversion of existing equipment to hazardous area requirements.

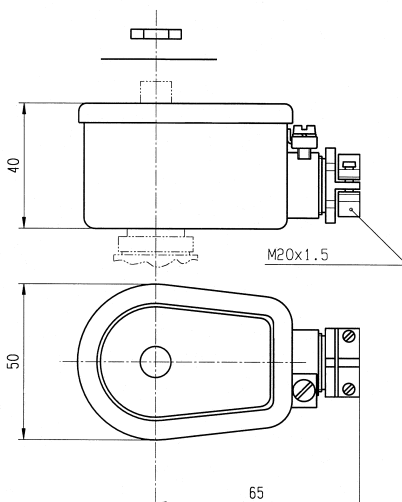
All Lucifer valves which are suitable for standard coils 2.5 WDC only can be fitted with this electrical part.



This electrical part conforms to the IEC/CENELEC safety standards and complies with European explosive atmosphere directive 94/9/EC «ATEX».

|                                    |             |  |       |
|------------------------------------|-------------|--|-------|
| <b>Reference</b>                   |             | 491117 or <b>VZ04</b>  |       |
| <b>Approval</b>                    |             | <b>LCIE 02 ATEX 6012 X</b>   |       |
| <b>Type of protection</b>          | <b>Gas</b>  | II 2 G - EEx me II T5  |       |
|                                    | <b>Dust</b> | II 2 D - 95°C  |       |
| <b>Degree of protection</b>        |             | IP67   |       |
| <b>Ambient temperature</b>         |             | -40°C to +65°C<br>The application is limited also by the temperature range of the valve  |       |
| <b>Class of insulation</b>         |             | F (155°C)  |       |
| <b>Electrical connection</b>       |             | By special cable gland M20 x 1.5 "EEx e" on screw terminals for wires up to 1.5 mm". Cables with outside diameter 6.5 mm to 13.5 mm can be simply sealed using the rubber gland with resilient sealing rings supplied. |       |
| <b>Elect. Power</b>                | <b>DC</b>   | <b>Pn (hot)</b>  | 2.5 W |
|                                    |             | <b>P (cold) 20°C</b>   | 3 W   |
|                                    | <b>AC</b>   | <b>Pn (holding)</b>  | -     |
|                                    |             | <b>Attraction cold</b>   | -     |
| <b>Voltage / Voltage tolerance</b> |             | see voltage code table / tolerance -10/ +10% of the nominal voltage  |       |
| <b>Solenoid duty</b>               |             | Continuous duty solenoid (ED 100%)   |       |

**Weight:** 320 g.

**Fuses:**

The electrical part VZ04 has to be connected in series with a safety fuse according to IEC 60127-3

**VZ04:**

DC: 24V, 160mA

### 3.5 Encapsulated and increased safety electrical parts “me”:

#### 3.5.1 Electrical parts 492190 or VZ03 and 492390 or VZ06

2 / 6



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx me II T3 to T6 is required.

**Benefits:** Rotatable 360°, fibreglass-reinforced plastic housing. Solenoid coil, rectifier (silicium diodes), fuses and varistor protection are completely encapsulated into the coil housing by epoxy resin for shock and corrosion protection.

Small size for ease of mounting in confined space.

All Lucifer valves suitable for standard 8WDC coils can be fitted with the VZ03, and all Lucifer valves with the suffix “80” can be fitted with VZ06 electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

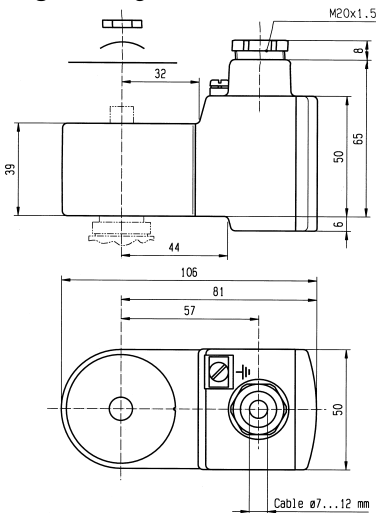
2

6

| Reference   |      | 492190 or <b>VZ03</b><br>*492190.10 or <b>VZ90</b>  | 492390 or <b>VZ06</b> | 492190.03 or <b>VZ34</b> |
|---|------|---|-----------------------|--------------------------|
| Approval  |      | LCIE 02 ATEX 6023 X   |                       |                          |
| Type of protection  | Gas  | II 2 G - EEx me II T3   | II 2 G - EEx me II T4 | II 2 G - EEx me II T5/T6 |
|   | Dust | II 2 D - 195°C  | II 2 D -95°C          | II 2 D -130°C / 80°C     |
| Degree of protection  |      | IP66  | IP66                  | IP66                     |
| Ambient temperature   |      | -40°C to +75°C  | -40°C to +40°C        | -40°C to 75/+40°C        |
| The application is limited also by the temperature range of the valve |      |   |                       |                          |
| Class of insulation   |      | F (155°C)   |                       | F (155°C)                |
| Electrical connection   |      | Screw terminals within terminal box. Cable connection through a cable gland M20 x 1.5<br>Additional earth connection on external screw terminal |                       |                          |
| Elect. Power  | DC   | Pn (hot)  | 9 W                   | 2.5 W                    |
|   |      | P (cold) 20°C   | 11 W                  | 3 W                      |
|   | AC   | Pn (holding)  | 11 W                  | 2.5 W                    |
|   |      | Attraction cold   | 13 W                  | 3 W                      |
| Voltage / Voltage tolerance   |      | see voltage code table / tolerance ±10% of the nominal voltage  |                       |                          |
| Solenoid duty   |      | Continuous duty solenoid (ED 100%)  |                       |                          |

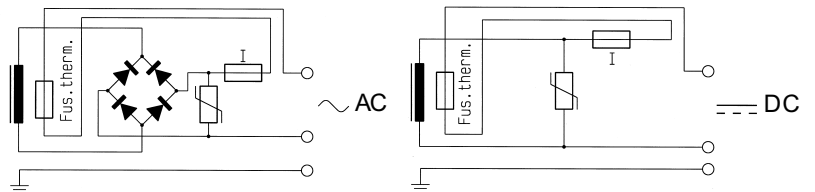
Weight: 500 g.

\* 492190.10 for stainless steel valves applications.



Simplifies conversion of existing equipment to hazardous area requirements (according to CENELEC standards EN 50014, EN 50019 and EN 50028).

The electrical part **VZ06** can be used only with the low-power valves.



3.5.2 Electrical parts 492200 or VZ13, 492210 or VZ26

9 / 10



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx me II T5 to T6 is required.

**Benefits:** Rotatable 360°, fibreglass-reinforced plastic housing. Solenoid coil and booster electronic are completely encapsulated into the coil housing by epoxy resin for shock and corrosion protection.

Small size for ease of mounting in confined space.

All Lucifer valves suitable for CPR/Offshore application can be fitted with these electrical parts (except type U033X).



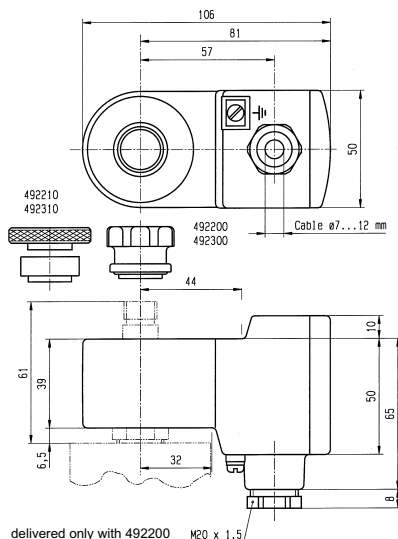
These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

9

10

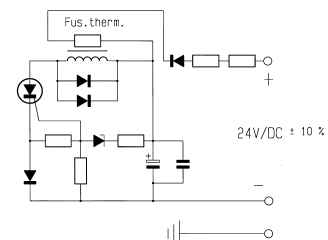
| Reference   |      | 492200 or VZ13  |                       | 492210 or VZ26                         |                       |
|---|------|---|-----------------------|--|-----------------------|
| Approval  |      | LCIE 02 ATEX 6023 X   |                       |  |                       |
| Type of protection  | Gas  | II 2 G - EEx me II T5   | II 2 G - EEx me II T6 | II 2 G - EEx me II T5                  | II 2 G - EEx me II T6 |
|   | Dust | II 2 D -95°C  | II 2 D -80°C          | II 2 D -95°C                           | II 2 D -80°C          |
| Degree of protection  |      | IP66  |                       | IP66                                   |                       |
| Ambient temperature   |      | -40°C to +75°C  | -40°C to +40°C        | -40°C to +75°C                         | -40°C to +40°C        |
| The application is limited also by the temperature range of the valve |      |   |                       |  |                       |
| Class of insulation   |      | F (155°C)   |                       | F (155°C)                              |                       |
| Electrical connection   |      | Screw terminals within terminal box. Cable connection through a cable gland M20X1.5<br>Additional earth connection on external screw terminal |                       |  |                       |
| Power consumption DC  |      | 1 bis 1.8 W, depending on cable length  |                       | 1 bis 1.8 W, depending on cable length |                       |
| Inrush current (attraction) min. required for holding                 |      | Provided by booster circuit during ~50 ms as soon as the Zener voltage of 21.6 V is reached<br>I mini = 60 mA (I nominal = 75 mA)             |                       |  |                       |
| Voltage DC  |      | U nominal = 24 VDC, Umini = 21.6 VDC  |                       |  |                       |
| Resistance/additional resistance                                      |      | 23 Ω + (R = 270 Ω)  |                       |  |                       |
| Inductance  |      | 0 mH  |                       |  |                       |
| Capacitance   |      | 0 μF  |                       |  |                       |
| Response time   |      | 2 - 4 s   |                       |  |                       |
| Voltage / Voltage tolerance   |      | see voltage code table / tolerance ± 10% of the nominal voltage   |                       |  |                       |
| Solenoid duty   |      | Continuous duty solenoid (ED 100%)  |                       |  |                       |

Weight: 500 g.



Indications:

VZ13 = Booster for CPR valves  
VZ26 = Booster for Offshore valves



These electrical parts need an external fuse of I = 100 mA

3.5.3 Electrical part 492300 or VZ14 and 492310 or VZ27

# 9/10/12



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx me II T5 to T6 is required.

**Benefits:** Rotatable 360° fibreglass-reinforced plastic housing. Solenoid coil, rectifier (silicium diodes), fuses and varistor protection are completely encapsulated into the coil housing by epoxy resin for shock and corrosion protection.

Small size for ease of mounting in confined space.

All Lucifer valves suitable for CPR/Offshore application can be fitted with these electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

## 9

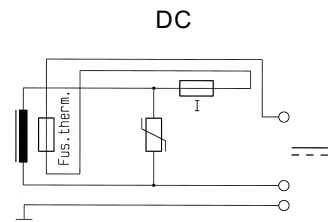
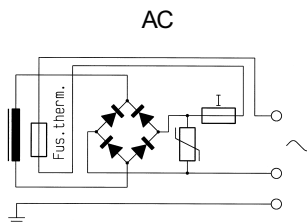
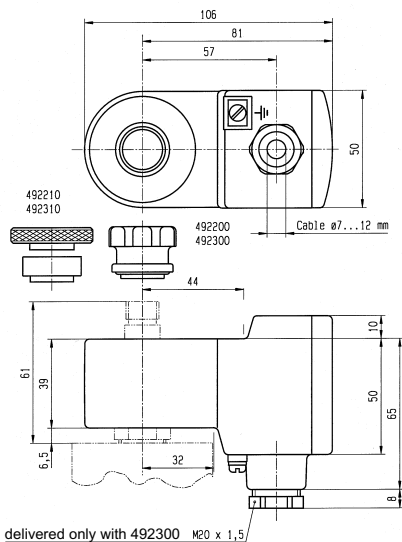
## 10/12

|                                    |             |   |                       |  |
|------------------------------------|-------------|---|-----------------------|--|
| <b>Reference</b>                   |             | 492300 or <b>VZ14</b>   | 492310 or <b>VZ27</b> | 492310.03 or <b>VZ29</b>               |
| <b>Approval</b>                    |             | <b>LCIE 02 ATEX 6023 X</b>  |                       | <b>AUS Ex 321</b>                      |
| <b>Type of protection</b>          | <b>Gas</b>  | II 2 G - EEx me II T4   | II 2 G - EEx me II T5 | Ex me IIC T4 / T5<br>Classe I - Zone 1 |
|                                    | <b>Dust</b> | II 2 D - 130°C  | II 2 D - 95°C         |  |
| <b>Degree of protection</b>        |             | IP66  |                       | IP65                                   |
| <b>Ambient temperature</b>         |             | -40°C to +75°C  | -40°C to +40°C        | -40 to +40 / + 75°C                    |
|                                    |             | The application is limited also by the temperature range of the valve   |                       |  |
| <b>Class of insulation</b>         |             | F (155°C)   |                       |  |
| <b>Electrical connection</b>       |             | Screw terminals within terminal box. Cable connection through a cable gland M20 x 1.5<br>Additional earth connection on external screw terminal |                       |  |
| <b>Elect. Power</b>                | <b>DC</b>   | <b>Pn (hot)</b>   | 6 W                   | 6 W                                    |
|                                    |             | <b>P (cold) 20°C</b>  | 7.5 W                 | 7.5 W                                  |
|                                    | <b>AC</b>   | <b>Pn (holding)</b>   | 6 W                   | 6 W                                    |
|                                    |             | <b>Attraction cold</b>  | 7.5 W                 | 7.5 W                                  |
| <b>Voltage / Voltage tolerance</b> |             | see voltage code table / tolerance ±10% of the nominal voltage  |                       |  |
| <b>Solenoid duty</b>               |             | Continuous duty solenoid (ED 100%)  |                       |  |

Weight: 500 g.

**Indications:**

VZ14 = for CPR valves  
VZ27 = for Offshore valves



### 3.6 Flameproof electrical parts “d”:

#### 3.6.1 Electrical part 483250 or HZ08

5



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx d IIC T4 to T6 is required.

**Benefits:** Rotatable 360°, housing made of cast iron with internal connection chamber: Cover made of aluminium alloy fixed with 4 screws. The electromagnetic control pilot is composed of three main elements: housing, coil and plunger tube including housing plate.

Small size for ease of mounting in confined space.

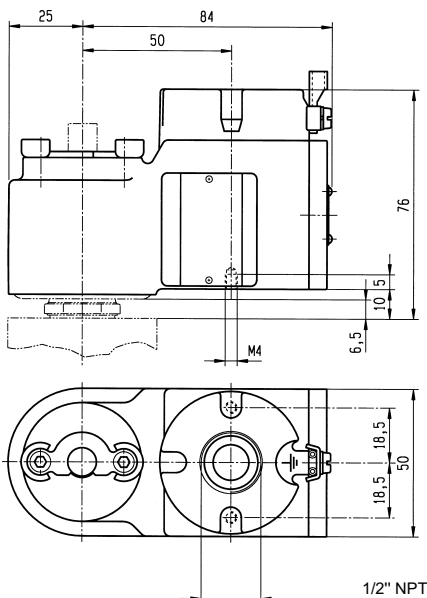
All Lucifer valves with the suffix “1D” (except CPR/Offshore valves 1D) can be fitted with these electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and

|                                    |             |   |                       |                       |
|------------------------------------|-------------|---|-----------------------|-----------------------|
| <b>Reference</b>                   |             | 483250 or HZ08  |                       |                       |
| <b>Approval</b>                    |             | LCIE 02 ATEX 6007   |                       |                       |
| <b>Type of protection</b>          | <b>Gas</b>  | II 2 G - EEx d IIC T4   | II 2 G - EEx d IIC T5 | II 2 G - EEx d IIC T6 |
|                                    | <b>Dust</b> | II 2 D - 130°C  | II 2 D - 95°C         | II 2 D - 80°C         |
| <b>Degree of protection</b>        |             | IP64 with appropriate cable gland   |                       |                       |
| <b>Ambient temperature</b>         |             | -40 to +80°C  | -40 to +75°C          | -40 to +60°C          |
|                                    |             | The application is limited also by the temperature range of the valve   |                       |                       |
| <b>Class of insulation</b>         |             | F (155°C)   |                       |                       |
| <b>Electrical connection</b>       |             | The electrical connection is made within the housing connection chamber on an accessible screw terminal. The cable entry to the connecting chamber is made through 1/2" NPT thread suitable for fitting an approved EEx d IIC cable gland (493426). |                       |                       |
| <b>Elect. Power</b>                | <b>DC</b>   | Pn (hot)  | 8 W                   |                       |
|                                    |             | P (cold) 20°C   | 9 W                   |                       |
|                                    | <b>AC</b>   | Pn (holding)  | 8 W                   |                       |
|                                    |             | Attraction cold   | 32 VA (9 W)           |                       |
| <b>Voltage / Voltage tolerance</b> |             | see voltage code table / tolerance -10/ +10% of the nominal voltage   |                       |                       |
| <b>Solenoid duty</b>               |             | Continuous duty solenoid (ED 100%)  |                       |                       |

**Weight:** 1100 g (with coil)



#### Plunger tube

The plunger tube is welded to the stainless steel plate and is therefore integrated into the housing, which is screwed on the valve body.

This electrical part is supplied only as complete unit mounted on a valve, as the “EEx d” protection depends on minimum gap between plunger tube, plate and housing.

3.6.2 Electrical parts 483270 or HZ19 and 483270.02 or HZ21

9



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx d IIC T4 to T6 is required.

**Benefits:** Rotatable 360°, housing made of cast iron with internal connection chamber: Cover made of aluminium alloy fixed with 4 screws. The electromagnetic control pilot is composed of three main elements: housing, coil and plunger tube including housing plate.

Small size for ease of mounting in confined space.

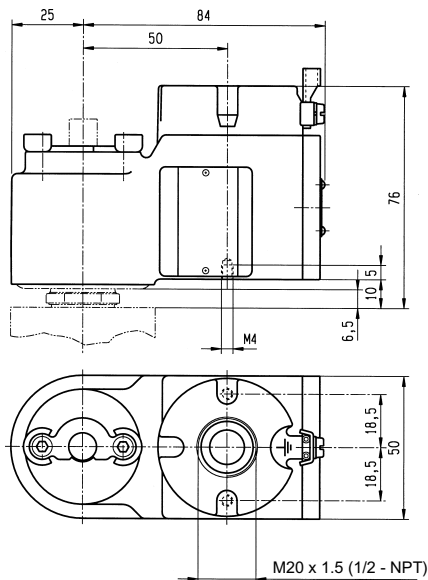
All Lucifer valves with suffix "1D" and suited for CPR/Offshore application can be fitted with these electrical parts



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

|   |             |   |                                    |                       |
|---|-------------|---|------------------------------------|-----------------------|
| <b>Reference</b>  |             | 483270 or <b>HZ19</b> (M20 x 1.5)   | 483270.02 or <b>HZ21</b> (1/2 NPT) |                       |
| <b>Approval</b>   |             | <b>LCIE 02 ATEX 6008 X</b>  |                                    |                       |
| <b>Type of protection</b>   | <b>Gas</b>  | II 2 G - EEx d IIC T4   | II 2 G - EEx d IIC T5              | II 2 G - EEx d IIC T6 |
|   | <b>Dust</b> | II 2 D - 130°C  | II 2 D - 95°C                      | II 2 D - 80°C         |
| <b>Degree of protection</b>   |             | IP66 with appropriate cable gland   |                                    |                       |
| <b>Ambient temperature</b>  |             | -40 to +80°C  | -40 to +75°C                       | -40 to +60°C          |
| The application is limited also by the temperature range of the valve |             |   |                                    |                       |
| <b>Class of insulation</b>  |             | F (155°C)   |                                    | F (155°C)             |
| <b>Electrical connection</b>  |             | The electrical connection is made within the housing connection chamber on an accessible screw terminal. The cable entry to the connecting chamber is made through 1/2" NPT or M20 x 1.5 thread suitable for fitting an approved EEx d IIC cable gland. |                                    |                       |
| <b>Elect. Power</b>   | <b>DC</b>   | <b>P<sub>n</sub></b> (hot)  | 8 W                                |                       |
|   |             | <b>P</b> (cold) 20°C  | 9 W                                |                       |
|   | <b>AC</b>   | <b>P<sub>n</sub></b> (holding)  | 8 W                                |                       |
|   |             | Attraction cold   | 9 W                                |                       |
| <b>Voltage / Voltage tolerance</b>                                    |             | see voltage code table / tolerance -10/ +10% of the nominal voltage   |                                    |                       |
| <b>Solenoid duty</b>  |             | Continuous duty solenoid (ED 100%)  |                                    |                       |

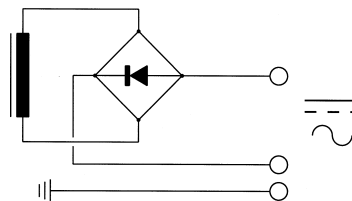
**Weight:** 1100 g (with coil)



**Plunger tube**

The plunger tube is welded to the stainless steel plate and is thus integrated to the housing which is screwed on the valve body.

This electrical part is supplied only as complete unit mounted on a valve, as the "EEx d" protection depends on minimum gap between plunger tube, plate and housing.





3.6.3 Electrical part HZ09

5



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx md IIC T4 to T5 is required.

**Benefits:** Metal armature encapsulated in synthetic material provides high shock and corrosion protection.

Small size for ease of mounting in confined space.

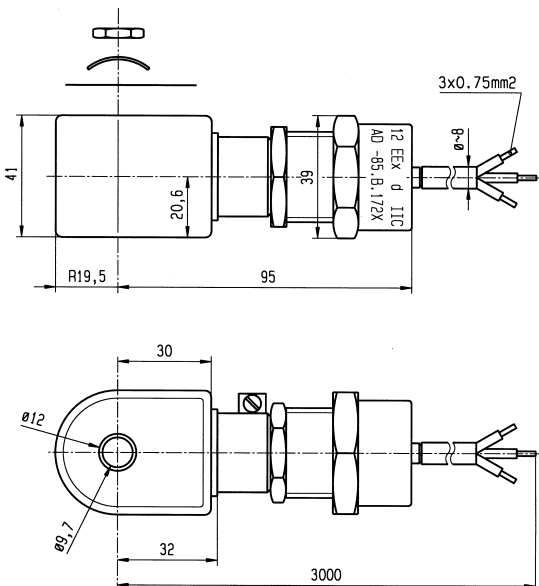
All Lucifer valves suitable for standard 8W coils can be fitted with this electrical part.



These electrical part conforms to the IEC/CENELEC safety standards and complies with European explosive atmosphere directive 94/9/EC «ATEX».

|   |             |   |                        |
|---|-------------|---|------------------------|
| <b>Reference</b>  |             | 493640 or HZ09  |                        |
| <b>Approval</b>   |             | LCIE 02 ATEX 6009 X   |                        |
| <b>Type of protection</b>   | <b>Gas</b>  | II 2 G - EEx md IIC T4  | II 2 G - EEx md IIC T5 |
|   | <b>Dust</b> | II 2 D - 130°C  | II 2 D - 95°C          |
| <b>Degree of protection</b>   |             | IP65  |                        |
| <b>Ambient temperature</b>  |             | -40°C to +75°C  | -40°C to +40°C         |
| The application is limited also by the temperature range of the valve |             |   |                        |
| <b>Class of insulation</b>  |             | F (155°C)   |                        |
| <b>Electrical connection</b>  |             | Special "EEx d" cable gland 1/2" NPT, galvanized steel, with EPDM sealing. (EPR) cable, outside diameter 7.3 ± 0.5 mm |                        |
| <b>Elect. Power</b>   | <b>DC</b>   | <b>Pn</b> (hot)   | 8 W                    |
|   |             | <b>P</b> (cold) 20°C  | 9 W                    |
|   | <b>AC</b>   | <b>Pn</b> (holding)   | 8 W                    |
|   |             | Attraction cold   | 32 VA (9 W)            |
| <b>Voltage / Voltage tolerance</b>                                    |             | see voltage code table / tolerance -15/ +10% of the nominal voltage   |                        |
| <b>Solenoid duty</b>  |             | Continuous duty solenoid (ED 100%)  |                        |

Weight: 500 g



Fuses

The HZ09 electrical part is equipped with a standard thermal cut-off fuse on all models and voltages

This electrical part HZ09 must be connected in series with a safety fuse according to IEC 60127-3.

- DC: 24V, 630 mA
- AC: 110/50-120/60, 250 mA - 220/50-240/60, 125mA
- 230/50, 125 mA

### 3.7 Intrinsically safe electrical parts “i”:

#### Intrinsic safety

A system or an element of a system in a hazardous area is intrinsically safe when in any circumstance no explosion can be caused by either a spark or other heat source. The power level of an intrinsically safe electrical system is therefore extremely low.

#### Application

Intrinsically safe valves are recommended or even compulsory where the highest safety level against explosions is required: chemical industry, refineries, mines, on-and off-shore platforms, etc. In addition to the «intrinsic safety» characteristic, a remarkable low power consumption is needed to control such valves. They can be triggered directly from an electronic circuit such as in a computerised system as they require neither relay nor amplifier.

#### Safety barriers

Each electrical apparatus, e.g. solenoid valves within the hazardous area must be further protected by safety barriers. Lucifer solenoid operators are compatible with commercially available safety barriers (see guidance chart page 39 to 44). In order to determine whether a barrier is compatible, one must be fully aware of its electrical characteristics.

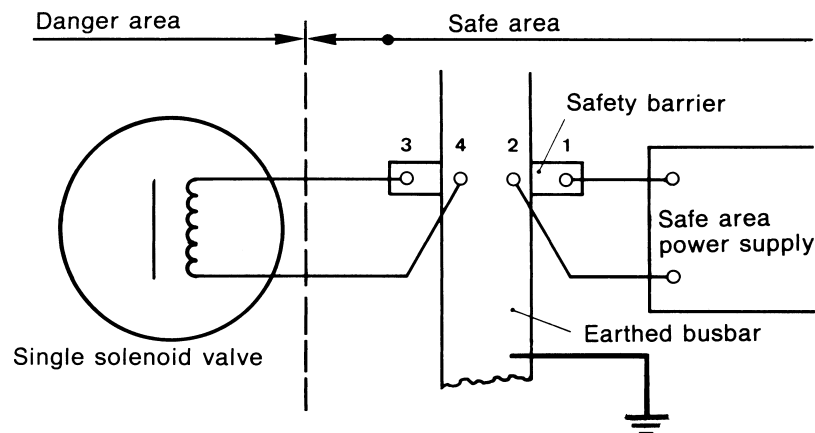
Minimum voltage calculations for proper valve functioning must be made with the total resistance value of barrier, coil (hot) and wiring (total length), and with the maximum ambient temperature.

#### Electrical supply

Parker Lucifer intrinsically electrical parts may only be fed from:

- Certified I.S. power supplies or
- Through an adequate intrinsic safe safety barrier
- Through intrinsically safe Remote I/O

#### Installation sketch



3.7.1 Electrical part 32 mm IS

7



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx ia or ib IIC T6 is required.

**Benefits:** Fully encapsulated assembly comprising a coil, metal armature, three diodes circuit and DIN plug connection.

The encapsulation provides an effective compact housing offering full protection against dust, oil, water, etc.

Small size for ease of mounting in confined space.

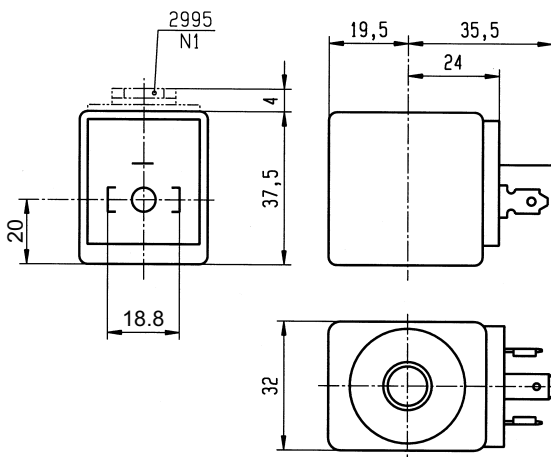
All Lucifer valves with the suffix "90" can be fitted with these electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere 94/9/EC «ATEX» directive.

|   |             |   |  |  |
|---|-------------|---|--|--|
| <b>Reference</b> (without plug)<br>(with plug)                                  |             | 483580.01 or <b>DZ12</b><br>483960.01 or <b>DZ13</b>  | 483580.03 or <b>DZ16</b><br>483960.03 or <b>DZ17</b> | 490880 or <b>DZ18</b><br>493997 or <b>DZ19</b>               |
| <b>Zulassungsnummer</b>   |             | <b>LCIE 02 ATEX 6065 X</b>  | <b>AUS 1146 X</b>                                    | <b>LCIE/FM - CSA</b> (pending)                               |
| <b>Type of protection</b>   | <b>Gas</b>  | II 1 G - EEx ia IIC T6  | Ex ia IIC T6<br>Classe I - Zone 0                    | Cl. I, Div. I, Gr. A, B, C, D<br>Cl. II, Div. I, Gr. E, F, G |
|   | <b>Dust</b> | II 1 D - 80°C   |  |  |
| <b>Degree of protection</b>   |             | IP65 with plug connection   |  | NEMA 4-4X  |
| <b>Ambient temperature</b>  |             | -40°C to +55°C<br>The application is limited also by the temperature range of the valve                                 |  | +60°C  |
| <b>Class of insulation</b>  |             | F (155°C)   |  |  |
| <b>Electrical connection</b>  |             | The coil is connected with a 2P + E plug according to EN 175301-803 type A - contact 1 is marked as the positive pole + |  |  |
| <b>Maximum supply voltage</b>   |             | 28 VDC – 110 mA   |  | 30 VDC – 100 mA  |
|   |             | The minimum operating voltage at maximum +60°C is 14 VDC  |  |  |
| <b>Power</b>  | <b>DC</b>   | Minimum   | 500 mW   | 500 mW   |
|   |             | Maximum   | 3 W  | 3 W  |
| Depending on applied voltage, IS barrier type and resistance of connected cable |             |   |  |  |
| <b>Coil resistance at 20°C</b>  |             | 340 Ω   |  |  |
| <b>Impedance</b>  |             | 340 Ω   |  |  |
| <b>Apparent inductance</b>  |             | 0 mH  |  |  |
| <b>Apparent capacitance</b>   |             | 0 μF  |  |  |
| <b>Solenoid duty</b>  |             | Continuous duty solenoid (ED 100%)  |  |  |

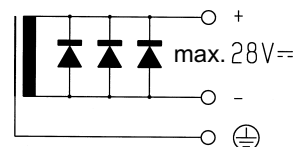
**Weight:** 160 g (with plug)



**Important**

The intrinsically safe supply circuit should have enough capacity in all environmental conditions to assure a **minimum operating current of 35 mA** through the coil.

The minimal holding current is 20 mA



For the barrier compatibility see the corresponding table on pages 39, 40 and 41.

3.7.2 Electrical part 488650.01 or VZ07 and 494035.10 or VZ93

7



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx ia or ib IIC T6 is required.

**Benefits:** Rotatable 360° housing, polyamid with fibreglass housing and cover. Coil, electronic circuits and other elements required for intrinsic safety are completely encapsulated in the housing with epoxy material for shock and corrosion protection.

Small size for ease of mounting in confined space.

All Lucifer valves with the suffix "90" can be fitted with these electrical parts.

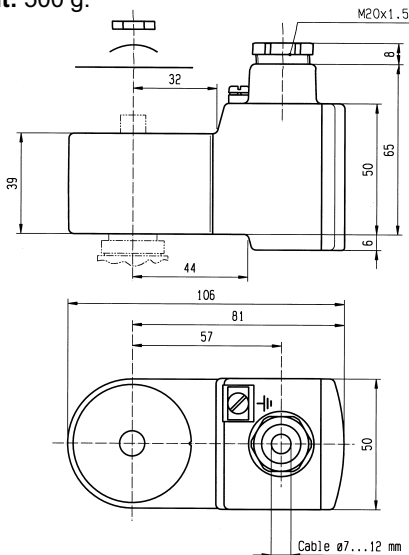


These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

| Reference   |      | 488650.01 or VZ07   | * 494035.10 or VZ93 | 488650.03 or VZ31 | 490885 or VZ33                |
|---|------|---|---------------------|-------------------|-------------------------------|
| Approval  |      | LCIE 02 ATEX 6024 X   |                     | AUS Ex 137 X      | LCIE / FM / CSA               |
| Type of protection  | Gas  | II 1 G - EEx ia IIC T6  |                     | Ex ia IIC T6      | Cl. I, Div. I, Gr. A, B, C, D |
|   | Dust | II 1 D - 80°C   |                     | Classe I - Zone 0 | Cl. II, Div. I, Gr. E, F, G   |
| Degree of protection  |      | IP66  |                     | IP65              | NEMA 4-4X                     |
| Ambiant temperature   |      | -40°C to +65°C  |                     | -40°C to +65°C    | +60°C                         |
| The application is limited also by the temperature range of the valve           |      |   |                     |                   |                               |
| Electrical connection   |      | Cable entry through a cable gland M20 x 1.5. Screw terminals for leads 3 x 1.5 mm" max. Additional earth connection possible with external screw terminal |                     |                   |                               |
| Maximum supply voltage  |      | 28 VDC – 110 mA   |                     | 28 VDC – 110 mA   | 30 VDC – 100 mA               |
| The minimum operating voltage at maximum +60°C is 11.5 VDC                      |      |   |                     |                   |                               |
| Power   | DC   | Minimum   | 300 mW              | 300 mW            | 300 mW                        |
|   |      | Maximum   | 3 W                 | 3 W               | 3 W                           |
| Depending on applied voltage, IS barrier type and resistance of connected cable |      |   |                     |                   |                               |
| Coil resistance at 20°C   |      |   |                     | 295 Ω             |                               |
| Impedance   |      |   |                     | 345 Ω             |                               |
| Apparent inductance   |      |   |                     | 0 mH              |                               |
| Apparent capacitance  |      |   |                     | 0 μF              |                               |
| Solenoid duty   |      | Continuous duty solenoid (ED 100%)  |                     |                   |                               |

\* with stainless steel fixing kit.

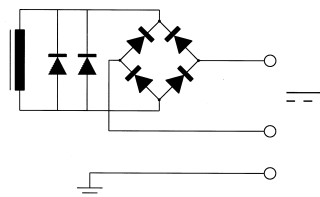
Weight: 500 g.



**Important**

The intrinsically safe supply circuit should have enough capacity in all environmental conditions to assure a minimum operating current of 29 mA through the coil.

The minimal holding current is 20 mA



For the barrier compatibility see the corresponding table in pages 39, 40 and 41.

## 3.7.3 Electrical part 488660.01 or VZ08

7



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx ia or ib IIC T6 is required.

**Benefits:** Rotatable 360° housing, epoxy-coated metal housing and cover. Coil, electronic circuits and other elements required for intrinsic safety are completely encapsulated in the housing with epoxy material for shock and corrosion protection.

Small size for ease of mounting in confined space.

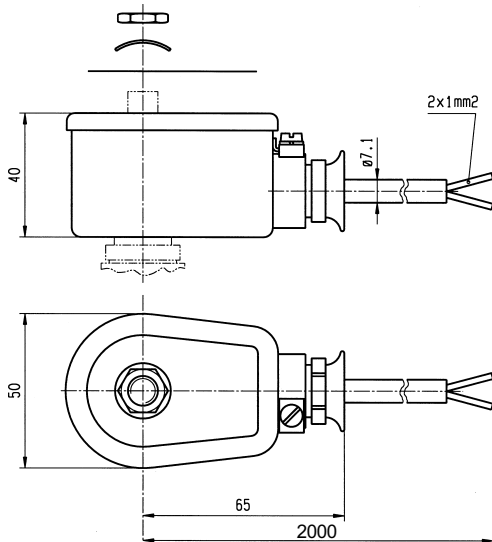
All Lucifer valves with the suffix "90" can be fitted with these electrical parts.



These electrical part conforms to the IEC/CENELEC safety standards and complies with European explosive atmosphere directive 94/9/EC «ATEX».

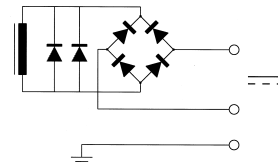
| Reference  |      | 488660.01 or VZ08  | 488660.03 or VZ17                 | 490890 or VZ18   |
|--|------|--|-----------------------------------|--|
| Approval   |      | LCIE 02 ATEX 6024 X  | AUS Ex 137 X                      | LCIE / FM / CSA  |
| Type of protection   | Gas  | II 1 G - EEx ia IIC T6   | Ex ia IIC T6<br>Classe I - Zone 0 | Cl. I, Div. I, Gr. A, B, C, D<br>Cl. II, Div. I, Gr. E, F, G |
|  | Dust | II 1 D - 80°C  |                                   |  |
| Degree of protection   |      | IP67   |                                   | NEMA 4-4X  |
| Ambiant temperature  |      | -40°C to +65°C<br>The application is limited also by the temperature range of the valve  |                                   | +60°C  |
| Electrical connection  |      | Fixed and potted dual-core (2 x 1mm <sup>2</sup> ), blue connection cable, entry cable gland M20 x 1.5.<br>Additional earth connection possible with external screw terminal |                                   |  |
| Maximum supply voltage   |      | 28 VDC – 110 mA<br>The minimum operating voltage at maximum +60°C is 11.5 VDC  |                                   | 30 VDC – 100 mA  |
| Power  | DC   | Minimum  | 300 mW                            | 300 mW   |
|  |      | Maximum  | 3 W                               | 3 W  |
| Depending on applied voltage, IS barrier type and length resistance of connected cable |      |  |                                   |  |
| Coil resistance at 20°C  |      | 295 Ω  |                                   |  |
| Impedance  |      | 345 Ω  |                                   |  |
| Apparent inductance  |      | 0 mH   |                                   |  |
| Apparent capacitance   |      | 0 μF   |                                   |  |
| Solenoid duty  |      | Continuous duty solenoid (ED 100%)   |                                   |  |

Weight: 500 g.

**Important**

The intrinsically safe supply circuit should have enough capacity in all environmental conditions to assure a **minimum operating current of 29 mA** through the coil.

The minimal holding current is 20 mA



For the barriers compatibility see the corresponding table in pages 39, 40 and 41.

3.7.4 Electrical part 488670.01 or VZ09

7



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx ia or ib IIC T6 is required.

**Benefits:** Rotatable 360° housing, epoxy-coated metal housing and cover. Coil, electronic circuits and other elements required for intrinsic safety are completely encapsulated in the housing with epoxy material for shock and corrosion protection.

Small size for ease of mounting in confined space.

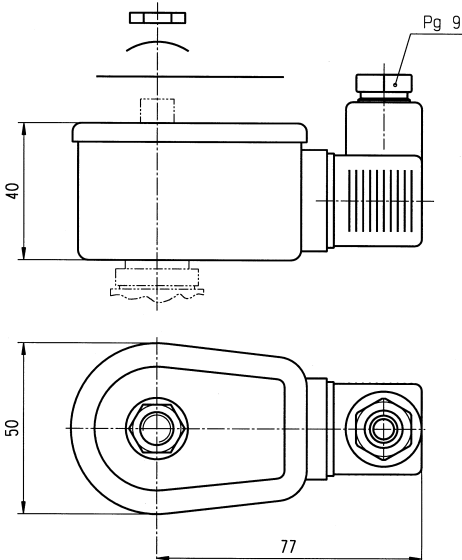
All Lucifer valves with the suffix "90" can be fitted with these electrical parts



These electrical part conforms to the IEC/CENELEC safety standards and complies with European explosive atmosphere directive 94/9/EC «ATEX».

|   |             |   |                               |
|---|-------------|---|-------------------------------|
| <b>Reference</b>  |             | 488670.01 or <b>VZ09</b>  | 490895 or <b>VZ20</b>         |
| <b>Approval</b>   |             | <b>LCIE 02 ATEX 6024 X</b>  | <b>LCIE / FM / CSA</b>        |
| <b>Type of protection</b>   | <b>Gas</b>  | II 1 G - EEx ia IIC T6  | Cl. I, Div. I, Gr. A, B, C, D |
|   | <b>Dust</b> | II 1 D - 80°C   | Cl. II, Div. I, Gr. E, F, G   |
| <b>Degree of protection</b>   |             | IP67  | NEMA 4-4X                     |
| <b>Ambiant temperature</b>  |             | -40°C to +65°C<br>The application is limited also by the temperature range of the valve | +60°C                         |
| <b>Electrical connection</b>  |             | DIN standard plug interface 2P + T (DIN 43650 A) with Pg 9 cable gland.                 |                               |
| <b>Maximum supply voltage</b>   |             | 28 VDC – 110 mA<br>The minimum operating voltage at maximum +60°C is 11.5 VDC           | 30 VDC – 100 mA               |
| <b>Power</b>  | <b>DC</b>   | Minimum   | 300 mW                        |
|   |             | Maximum   | 3 W                           |
| Depending on applied voltage, IS barrier type and resistance of connected cable |             |   |                               |
| <b>Coil resistance at 20°C</b>  |             | 295 Ω   |                               |
| <b>Impedance</b>  |             | 345 Ω   |                               |
| <b>Apparent inductance</b>  |             | 0 mH  |                               |
| <b>Apparent capacitance</b>   |             | 0 μF  |                               |
| <b>Solenoid duty</b>  |             | Continuous duty solenoid (ED 100%)  |                               |

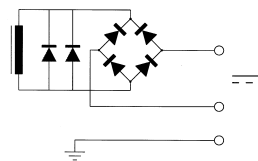
Weight: 500 g.



**Important**

The intrinsically safe supply circuit should have enough capacity in all environmental conditions to assure a **minimum operating current of 29 mA** through the coil.

The minimal holding current is 20 mA



For the barriers compatibility see the corresponding table in pages 39, 40 and 41.

3.7.5 Electrical parts 482160.01 or VZ95 and 482870.01 or VZ23

12



**Application:** Control of solenoid valves in dangerous areas where explosion-proof protection EEx ia IIB or IIC T6 is required.

**Benefits:** Rotatable 360° housing, polyamid with fibreglass housing and cover. Coil, electronic circuits and other elements required for intrinsic safety are completely encapsulated in the housing with epoxy material for shock and corrosion protection.

Small size for ease of mounting in confined space.

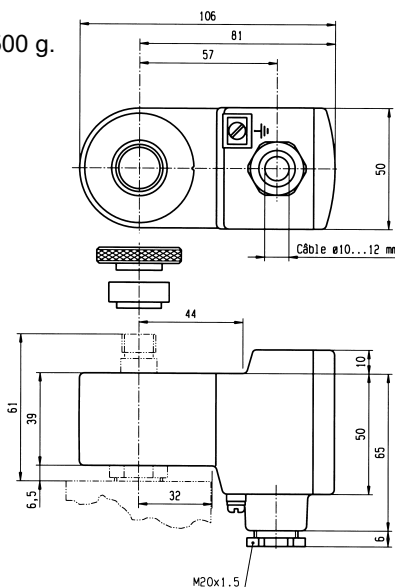
All Lucifer valves labelled "033X" with manual-reset can be fitted with these electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

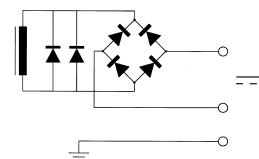
|   |             |   |                          |                                    |  |
|---|-------------|---|--------------------------|------------------------------------|--|
| <b>Reference</b>  |             | 482160.01 or <b>VZ95</b>  | 482870.01 or <b>VZ23</b> | 482870.03 or <b>VZ24</b>           | 492335 or <b>VZ30</b>  |
| <b>Approval</b>   |             | <b>LCIE 02 ATEX 6024 X</b>  |                          | <b>AUS Ex 137 X</b>                | <b>LCIE / FM / CSA</b>                                       |
| <b>Type of protection</b>   | <b>Gas</b>  | II 1 G - EEx ia IIB T6  | II 1 G - EEx ia IIC T6   | EEx ia IIC T6<br>Classe I - Zone 0 | Cl. I, Div. I, Gr. A, B, C, D<br>Cl. II, Div. I, Gr. E, F, G |
|   | <b>Dust</b> | II 1 D - 80°C   |                          |                                    |  |
| <b>Degree of protection</b>   |             | IP66  |                          | IP65                               | NEMA 4-4X  |
| <b>Ambiant temperature</b>  |             | -40°C to +65°C<br>The application is limited also by the temperature range of the valve   |                          |                                    | +60°C  |
| <b>Electrical connection</b>  |             | Cable connection through a stainless steel cable gland M20 x 1.5 allowing use of cable diameter from 10 to 12 mm. Additional earth connection possible with external screw terminal |                          |                                    |  |
| <b>Maximum supply voltage</b>   |             | 28 VDC – 280 mA   | 28 VDC – 110 mA          | 28 VDC – 110 mA                    | 30 VDC – 100 mA  |
| <b>Power</b>  | <b>DC</b>   | Minimum   | 300 mW                   |                                    | 300 mW   |
|   |             | Maximum   | 3 W                      |                                    | 3 W  |
| Depending on applied voltage, IS barrier type and resistance of connected cable |             |   |                          |                                    |  |
| <b>Coil resistance at 20°C</b>  |             | 295 Ω   |                          |                                    |  |
| <b>Impedance</b>  |             | 345 Ω   |                          |                                    |  |
| <b>Apparent inductance</b>  |             | 0 mH  |                          |                                    |  |
| <b>Apparent capacitance</b>   |             | 0 μF  |                          |                                    |  |
| <b>Solenoid duty</b>  |             | Continuous duty solenoid (ED 100%)  |                          |                                    |  |

Weight: 500 g.



**Important**

The required minimal holding current is 25 mA



For the barriers compatibility see the corresponding table in pages 39, 40 and 41.

## 3.7.6 Electrical part 482660 or VZ11 with booster

9



**Application:** Control of solenoid valves in dangerous areas where an explosion-proof protection EEx ib IIB or IIC T6 is required.

**Benefits:** Rotatable 360° housing, polyamid with fibreglass housing and cover. Coil, electronic circuits and other elements required for intrinsic safety are completely encapsulated in the housing with epoxy material for shock and corrosion protection.

Small size for ease of mounting in confined space.

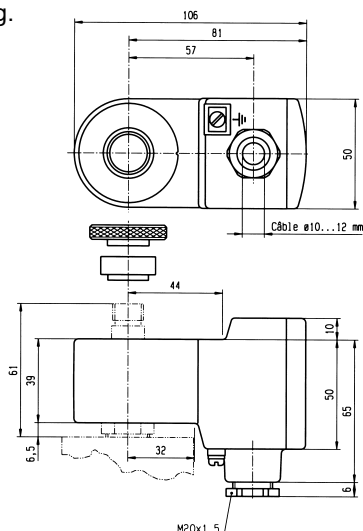
All Lucifer valves suitable for CPR/Offshore application can be fitted with these electrical parts (except type U033X).



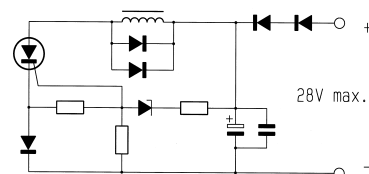
These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

| Reference   |         | 482660 or VZ11  | 483330.01 or VZ12      | 483330.03 or VZ25                  | 490860 or VZ28   |
|---|---------|---|------------------------|------------------------------------|--|
| Approval  |         | LCIE 02 ATEX 6024 X   |                        | AUS Ex 137 X                       | LCIE / FM / CSA  |
| Type of protection  | Gas     | II 2 G - EEx ib IIB T6  | II 2 G - EEx ib IIC T6 | EEx ib IIC T6<br>Classe I - Zone 1 | Cl. I, Div. I, Gr. A, B, C, D<br>Cl. II, Div. I, Gr. E, F, G |
|   | Dust    | II 2 D - 80°C   |                        |                                    |  |
| Degree of protection  |         | IP66  |                        | IP65                               | NEMA 4-4X  |
| Ambiant temperature   |         | -40°C to +75°C<br>The application is limited also by the temperature range of the valve   |                        |                                    | +60°C  |
| Electrical connection   |         | Cable connection through a stainless steel cable gland M20X1.5 allowing use of cable diameter from 10 to 12 mm. Additional earth connection possible with external screw terminal |                        |                                    |  |
| Maximum supply voltage  |         | 28 VDC – 280 mA   |                        | 28 VDC – 110 mA                    | 30 VDC – 100 mA<br>The minimum operating voltage is 21.6 VDC |
| Power   | DC      | Minimum   | 300 mW                 |                                    | 300 mW   |
|   | Maximum | 3 W   |                        | 3 W                                |  |
| Depending on applied voltage, IS barrier type and resistance of connected cable |         |   |                        |                                    |  |
| Coil resistance at 20°C   |         | 23 Ω  |                        |                                    |  |
| Impedance   |         | 50 Ω  |                        |                                    |  |
| Apparent inductance   |         | 0 mH  |                        |                                    |  |
| Apparent capacitance  |         | 0 μF  |                        |                                    |  |
| Response time   |         | 2 – 4 s   |                        |                                    |  |
| Solenoid duty   |         | Continuous duty solenoid (ED 100%)  |                        |                                    |  |

Weight: 500 g.

**Important**

The intrinsically safe supply circuit should have enough capacity under all environmental conditions to assure a **minimum operating current of 45 mA** through the coil.



For the barriers compatibility see the corresponding table in pages 42, 43 and 44.



3.7.7 Electrical parts 492965.01 or VZ91 with “Booster”.

9



**Application:** Control of solenoid valves in dangerous areas where an explosion-proof protection EEx ia IIC T6 is required.

**Benefits:** Rotatable 360° housing, polyamid with fibreglass housing and cover. Coil, electronic circuits and other elements required for intrinsic safety are completely encapsulated in the housing with epoxy material for shock and corrosion protection.

Small size for ease of mounting in confined space.

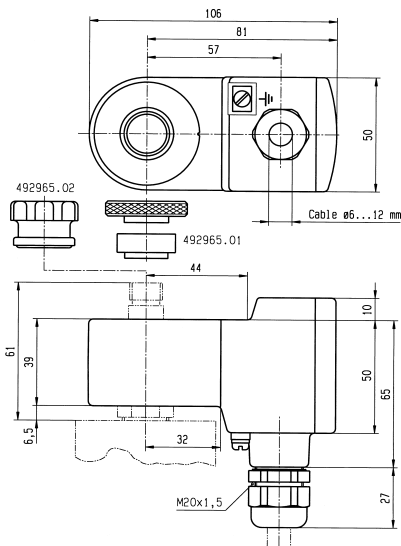
All Lucifer valves suitable for CPR/Offshore application can be fitted with these electrical parts (except type U033X).



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

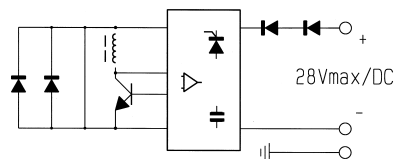
|   |             |  |                     |
|---|-------------|--|---------------------|
| <b>Reference</b>  |             | 492965.01 or <b>VZ91</b> - stainless steel fixation<br>492965.02 or <b>VZ92</b> - plastic fixation   |                     |
| <b>Approval</b>   |             | <b>LCIE 02 ATEX 6066 X</b>   |                     |
| <b>Type of protection</b>   | <b>Gas</b>  | II 1 G - EEx ia IIC T6   |                     |
|   | <b>Dust</b> | II 1 D - 80°C  |                     |
| <b>Degree of protection</b>   |             | IP66   |                     |
| <b>Ambiant temperature</b>  |             | -40°C to +65°C<br>The application is limited also by the temperature range of the valve  |                     |
| <b>Electrical connection</b>  |             | Cable connection through a plastic cable gland M20 x 1.5 allowing use of cable diameter from 6 to 12 mm. Additional earth connection possible with external screw terminal |                     |
| <b>Maximum supply voltage</b>   |             | 28 VDC – 110 mA  |                     |
| <b>Power</b>  | <b>DC</b>   | Minimum  | 0.3 W (with 13 VDC) |
|   |             | Maximum  | 2.3 W (with 24 VDC) |
| Depending on applied voltage, IS barrier type and resistance of connected cable |             |  |                     |
| <b>Line check</b>   |             | 4 mA or 5 VDC max  |                     |
| <b>Coil resistance at 20°C</b>  |             | 85 Ω   |                     |
| <b>Impedance</b>  |             | 275 Ω (with 13 VDC) – 260 Ω (with 24 VDC)  |                     |
| <b>Apparent inductance</b>  |             | 0 mH   |                     |
| <b>Apparent capacitance</b>   |             | 0 μF   |                     |
| <b>Response time</b>  |             | 2 – 4 s  |                     |
| <b>Solenoid duty</b>  |             | Continuous duty solenoid (ED 100%)   |                     |

Weight: 500 g.



**Important**

The intrinsically safe supply circuit should have enough capacity under all environmental conditions to assure a **minimum operating current of 20 mA** through the coil.



For the barriers compatibility see the corresponding table in pages 42, 43 and 44.

## IS Standard coils parameters

| IS- STANDARD ELECTRICAL PARTS                             |  |                               |  |  |                  |   |  |                  |                                |
|---|--|-------------------------------|--|--|------------------|---|--|------------------|--------------------------------|
| Type of IS-protection                                     | EEEx ia IICT6  | EEEx ia IICT6                 | EEEx ia IIB T6   | EEEx ia IIC T6   | Ex ia            | EEEx ia IIB T6  | EEEx ia IIC T6   | Ex ia            | Ex ia                          |
| Order references  | 488650.01/03   | 490885                        | 483580.01/03   | 483580.01/03   | 490880           | 482160.01   | 482870.01  | 493997           | 492335                         |
|   | 488660.01/03   | 490890                        | 483960.01/03   | 483960.01/03   | 493997           |   |  |                  |                                |
|   | 488670.01/03   | 490895                        |  |  |                  |   |  |                  |                                |
| Certified by  | LCIE/AUS   | LCIE/FM/CSA                   | PTB/AUS  | LCIE/FM  | LCIE/FM/CSA      | LCIE  | LCIE   | LCIE             | LCIE/FM/CSA                    |
| Resistance of coil winding at 20°C (for information only) | 295 Ohm  | 295 Ohm                       | 340 Ohm  | 340 Ohm  | 340 Ohm          | 295 Ohm   | 295 Ohm  | 295 Ohm          | 295 Ohm                        |
| Impedance of electrical part                              | 345 Ohm  | 345 Ohm                       | 340 Ohm  | 340 Ohm  | 340 Ohm          | 345 Ohm   | 345 Ohm  | 345 Ohm          | 345 Ohm                        |
| Minimum voltage required for functioning at 60°C          | 11.5 V   | 11.5 V                        | 14 V   | 14 V   | 14 V             | manual reset  | manual reset   | manual reset     | manual reset                   |
| Minimum current required for functioning (attraction)     | 29 mA  | 29 mA                         | 35 mA  | 35 mA  | 35 mA            | manual reset  | manual reset   | manual reset     | manual reset                   |
| Minimum current required for holding                      | 20 mA  | 20 mA                         | 20 mA  | 20 mA  | 20 mA            | 25 mA   | 25 mA  | 25 mA            | 25 mA                          |
| Inductance [L] of coil (mH apparent)                      | 0  | 0                             | 0  | 0  | 0                | 0   | 0  | 0                | 0                              |
| Capacitance [C] of coil (µF apparent)                     | 0  | 0                             | 0  | 0  | 0                | 0   | 0  | 0                | 0                              |
| Ambient temperatures                                      | (-40 à +65°C)  | (-40 à +65°C)                 | (-40 à +55°C)  | (-40 à +55°C)  | (-40 à +55°C)    | (-40 à +65°C)   | (-40 à +65°C)  | (-40 à +65°C)    | (-40 à +65°C)                  |
| Maximum admissible voltage/current                        | 28V / 110mA - 0.77 W<br>27V / 120mA - 0.81 W<br>26V / 135 mA - 0.88 W<br>25V / 150 mA - 0.94 W<br>24V / 170 mA - 1.2 W | 30V/100mA<br>28V/330 Ohm<br>- | 28V / 110mA - 0.77 W<br>27V / 120mA - 0.81 W<br>26V / 135 mA - 0.88 W<br>25V / 150 mA - 0.94 W<br>24V / 170 mA - 1.2 W | 28V / 110mA - 0.77 W<br>27V / 120mA - 0.81 W<br>26V / 135 mA - 0.88 W<br>25V / 150 mA - 0.94 W<br>24V / 170 mA - 1.2 W | 30V / 100mA<br>- | 28V / 280mA - 1.96 W<br>27V / 320mA - 2.16 W<br>26V / 350 mA - 2.27 W<br>25V / 390 mA - 2.43 W<br>24V / 430 mA - 2.58 W | 28V / 110mA - 0.77 W<br>27V / 120mA - 0.81 W<br>26V / 135 mA - 0.88 W<br>25V / 150 mA - 0.94 W<br>24V / 170 mA - 1.2 W | 30V / 100mA<br>- | 30V / 100mA<br>28V/300Ohm<br>- |
| Security parameters                                       |  |                               |  |  |                  |   |  |                  |                                |

Cable resistance (there and back): 0.6 mm\_ - 59 Ohm/km; 1.0 mm\_ - 35 Ohm/km; 1.5 mm\_ - 24 Ohm/km . Assign approx. 30 Ohm for line-resistance.

Guidance chart for IS-barriers, Isolating interface units and Remote I/O for Standard IS -coils

| TYPE                                  | MANUFACTURER   | REFERENCE          | EEEx..       | RESIST. of barrier in Ohm | IS ELECTRICAL PARTS                               |   |  |                                 |                               |                               |                          |                |  |
|---------------------------------------|--|--------------------|--------------|---------------------------|---|---|--|---------------------------------|-------------------------------|-------------------------------|--------------------------|----------------|--|
|                                       |  |                    |              |                           | EEEx ia IIC T6 LCIE/AUS 488660.01/03 488670.01/03 | EEEx ia IIC T6 LCIE/FM/CSA 490885 490890 490895 | EEEx ia IIC T6 LCIE/AUS 483580.01/03 483960.01 | Ex ia LCIE/FM/CSA 490880 493997 | EEEx ia IIB T6 LCIE 482160,01 | EEEx ia IIC T6 LCIE 482870,01 | Ex ia LCIE/FM/CSA 492335 |                |  |
| Shunt Diode Safety barriers (passive) | MTL  | 7128P              | ia           | 275                       |   |   |  |                                 |                               |                               |                          |                |  |
|                                       |  | 728,7028           | ia           | 332                       | x   |   |  |                                 | x                             |                               | x                        |                |  |
|                                       | Pepperl & Fuchs  | Z 728              | ia           | 300                       | x   |   |  |                                 |                               |                               |                          |                |  |
|                                       |  | Z779               | ia           | 300                       | x   |   |  |                                 |                               |                               |                          |                |  |
|                                       | STAHL  | 9001/01-252-100-14 | ia           | 252                       | x   |   |  |                                 |                               |                               |                          |                |  |
|                                       |  | 9001/01-280-100-10 | ia           | 280                       | x   |   |  |                                 |                               |                               |                          |                |  |
|                                       |  | 9001/01-280-110-10 | ia           | 255                       | x   |   |  |                                 |                               |                               |                          |                |  |
|                                       |  | 9002/13-280-100-04 | ia           | 340                       | 24Vmin./LR3                                       | 27Vmin./LRmax3                                  | 24Vmin./LRmax3                                 | 27Vmin./LRmax3                  | 24Vmin./LRmax3                | 24Vmin./LRmax3                | 24Vmin./LRmax3           | 24Vmin./LRmax3 |  |
|                                       | Galvanic Isolated Interface Units (actives) and Remote I/O | A puissance 3      | NAEV 22-140  | ia                        |   |   |  |                                 |                               |                               |                          |                |  |
|                                       |  |                    | NAEV 26 -100 | ia                        |   |   |  |                                 |                               |                               |                          |                |  |
| ABB                                   |  | V1732-54           | ib           |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       |  | V1732-55           | ib           |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       |  | V1732-61           | ia           |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       |  | DO 890             | ib           |                           |   |   |  |                                 |                               |                               |                          |                |  |
| S900- DO4-Ex                          |  | S900- DO4-Ex       | ib           |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       |  |                    |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
| BARTEC                                |  | 07-7331-2301/1000  | ia           |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       |  | 07-7331-2301/1100  | ia           |                           |   |   |  |                                 |                               |                               |                          |                |  |
| BRADLEY                               | FEX-EX 24V   | ia                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       |  |                    |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
| COOPER                                | LB 2101  | ia                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       | LB 2105  | ia                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       | LB 2112  | ia                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
| ELCON                                 | 1881 / 1882  | ia                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       | 471 / 472  | ia                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       | 2871/2872  | ia                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       | 2875/2876  | ia                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
| GEORGIN                               | AVB 122  | ia                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       | AVB 125  | ia                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       | AVB 128  | ia                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
| HIMA                                  | F3328A   | ib                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       | F3335  | ib                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |
|                                       | H4007  | ib                 |              |                           |   |   |  |                                 |                               |                               |                          |                |  |

Conditions: ED 100%, Max. ambient temp. 60°C. Coils marked with x: Suitable for > 30 Ohm additional Line Resistance. LRmax = max.additional Line Resistance in Ohm with min. voltage if required.

**Guidance chart for IS-barriers, Isolating interface units and Remote I/O for Standard IS -coils**

| TYPE   | MANUFACTURER | REFERENCE          | EEA.  | RESIST. of barrier in Ohm | IS ELECTRICAL PARTS  |   |   |                               |                               |                            |   |
|--|--------------|--------------------|-------|---------------------------|--|---|---|-------------------------------|-------------------------------|----------------------------|---|
|  |              |                    |       |                           | EEEx ia IIC T6 LCIE/AUS 488650.01/03 488660.01/03 488670.01/03 | EEEx ia IIC T6 LCIE/FM/CSA 490885 490890 490895 | EEEx ia IIC T6 LCIE/AUS 483580.01/03 4833960.01 | EEEx ia IIB T6 LCIE 482160.01 | EEEx ia IIC T6 LCIE 482870.01 | EEEx ia LCIE/FM/CSA 492335 |   |
| Galvanic Isolated Interface Units (actives) and Remote I/O | MTL          | 3021, 4021, 4021S  | ia    |                           | X  |   |   |                               | X                             |                            |   |
|  |              | 3022               | ia    |                           |  |   |   |                               | X                             |                            |   |
|  |              | 4023               | ia    |                           |  |   |   |                               |                               |                            |   |
|  |              | 4024               | ia    |                           |  | X   |   |                               |                               | X                          |   |
|  |              | 4025               | ia    |                           |  | X   | X   |                               |                               | X                          | X |
|  |              | 5021, 5023, 5024   | ia    |                           |  | X   |   |                               |                               | X                          |   |
|  |              | 5025               | ia    |                           |  |   |   |                               | X                             | X                          |   |
| Pepperl & Fuchs  |              | EGA-041-3          | ia    |                           |  |   |   |                               |                               | X                          |   |
|  |              | KFD2-SD-Ex1.36     | ia    |                           |  |   |   |                               |                               | X                          |   |
|  |              | KFD2-SD-Ex1.48     | ia    |                           |  |   |   |                               |                               |                            | X |
|  |              | KFD2-SL-Ex1.36     | ia    |                           |  |   |   |                               |                               |                            | X |
|  |              | KFD2-SL2-Ex1.LK    | ia    |                           |  |   |   |                               |                               |                            | X |
|  |              | KFD2-SL2-Ex2       | ia    |                           |  |   |   |                               |                               |                            | X |
|  |              | KFD2-SL-Ex1.48     | ia    |                           |  |   |   |                               |                               |                            | X |
|  |              | KSD2-BO-Ex         | ia    |                           |  |   |   |                               |                               |                            | X |
|  |              | RSD-BO-Ex4         | ib    |                           |  |   |   |                               |                               |                            | X |
|  |              |                    |       |                           |  |   |   |                               |                               |                            |   |
| STAHL  |              | 9311/52-11-10      | ia    |                           | X  |   |   | 25Vmin./LRmax 3               |                               | X                          | X |
|  |              | 9111/63-11-00      | ia    |                           | X  |   |   | 25Vmin./LRmax 3               |                               | X                          | X |
|  |              | 9351/10-15-10      | ia    |                           |  | X   |   |                               |                               | X                          | X |
|  |              | 9351/10-16-10      | ia    |                           |  |   |   |                               |                               | X                          | X |
|  |              | 9351/10-17-10      | ia    |                           |  |   |   |                               |                               | X                          | X |
|  |              | 9381/10-187-050-10 | ib    |                           |  | X   |   |                               |                               | X                          | X |
|  |              | 9381/10-246-055-10 | ib    |                           |  | X   |   |                               |                               | X                          | X |
|  |              | 9381/10-246-070-10 | ib    |                           |  | X   |   |                               |                               | X                          | X |
|  |              | 9475/12-04-11      | ia    |                           |  | X   |   |                               |                               | X                          | X |
|  |              | 9475/12-04-21      | ia/ib |                           |  | X   |   |                               |                               | X                          | X |
| TURCK  |              | MK72-S01-Ex        | ib    |                           |  |   |   |                               |                               |                            |   |
|  |              | MK72-S02-Ex        | ib    |                           |  |   |   |                               |                               |                            |   |
|  |              | MK72-S04-Ex        | ib    |                           |  | X   |   |                               |                               |                            |   |
|  |              | MK72-S05-Ex        | ib    |                           |  | X   |   |                               |                               |                            |   |
|  |              | MK72-S06-Ex        | ib    |                           |  | X   |   |                               |                               |                            |   |
|  |              | MK72-S07-Ex        | ib    |                           |  | X   |   |                               |                               |                            |   |
|  |              | MK72-S12-Ex        | ia    |                           |  | X   |   |                               |                               |                            |   |
|  |              | MC72-41            | ia    |                           |  | X   |   |                               |                               |                            |   |
| MC72-43  | ia           |                    |       | X                         |  |   |   |                               |                               |                            |   |

Conditions: ED 100%, Max. ambient temp. 60°C. Coils marked with x: Suitable for > 30 Ohm additional Line Resistance. LRmax = max.additional Line Resistance in Ohm with min. voltage if required.

## IS Booster coils parameters

| IS - BOOSTER ELECTRICAL PARTS |  |                                      |                  |  |   |  |
|-------------------------------|--|--------------------------------------|------------------|--|---|--|
| Type of IS-protection         | EEx ia IIB T6  | EEx ia IIC T6                        | EEx ib IIB T6    | EEx ib IIC T6  | Ex ia   |  |
| Order reference               | 492965.01/02   |                                      | 482660           | 483330.01  | 490860  |  |
| Certified by                  | LCIE   |                                      | LCIE             | LCIE   | LCIE/FM/CSA   |  |
| Function parameters           | Resistance of coil winding at 20°C ( for information only) |                                      | 85 Ohm           | 23 Ohm   | 23 Ohm  |  |
|                               | Impedance of electrical part                               |                                      | 275 Ohm/13V      | 50 Ohm*  | 50 Ohm*   |  |
|                               | Minimum voltage required for functioning at 60°C           |                                      | 13 V             | 21.6 V   | 21.6 V  |  |
|                               | Minimum current required for functioning (attraction)      |                                      | -                | -  | -   |  |
|                               | Minimum current required for functioning (holding)         |                                      | 20 mA            | 45 mA  | 45 mA   |  |
|                               | Inductance [L] of coil (mH apparent)                       |                                      | -                | 0  | 0   |  |
|                               | Capacitance [C] of coil (µF apparent)                      |                                      | -                | 0  | 0   |  |
|                               | Ambient temperatures                                       |                                      | -40 °C to +65 °C | -40 °C to +65 °C   | -40 °C to +65 °C  | +65°C  |
|                               | Maximum current for continuous line check                  |                                      | 4 mA             | 0  | 0   | 0  |
|                               | Security parameters  | Maximum admissible voltages /current |                  | 28V / 110mA - 0.77 W<br>27V / 120mA - 0.81 W<br>26V / 135 mA - 0.88 W<br>25V / 150 mA - 0.94 W<br>24V / 170 mA - 1.2 W | 28V / 280mA - 1.96 W<br>27V / 320mA - 2.16 W<br>26V / 350 mA - 2.27 W<br>25V / 390 mA - 2.43 W<br>24V / 430 mA - 2.58 W | 28V / 110mA - 0.77 W<br>27V / 120mA - 0.81 W<br>26V / 135 mA - 0.88 W<br>25V / 150 mA - 0.94 W<br>24V / 170 mA - 1.2 W |

Cable resistance (there and back): 0.6 mm<sub>2</sub> - 59 Ohm/km; 1.0 mm<sub>2</sub> - 35 Ohm/km; 1.5 mm<sub>2</sub> - 24 Ohm/km. Assign 30 Ohm for line-resistance.

\* Attention : For function tests without barrier, only with in series connected resistance of min. 170 Ohm.  
Assign approx. 30 Ohm for line - resistance.

**Guidance chart for IS-barriers, Isolating Interface Units and Remote I/O for Booster IS -coils**

| TYPE              | MANUFACTURER    | REFERENCE          | EEEx.. | RESIST.<br>of barrier<br>in Ohm | IS Booster coil                |               |                          |               |                             |  |                 |               |   |
|-------------------|-----------------|--------------------|--------|---------------------------------|--------------------------------|---------------|--------------------------|---------------|-----------------------------|--|-----------------|---------------|---|
|                   |                 |                    |        |                                 | EEEx ia IIC T6<br>492965.01/02 |               | EEEx ib IIB T6<br>482660 |               | EEEx ib IIC T6<br>483330.01 |  | Ex ia<br>490860 |               |   |
|                   |                 |                    |        |                                 | LCIE                           |               | LCIE                     |               | LCIE                        |  |                 | LCIE/FM/GSA   |   |
| Shunt Diode       | MTL             | 728                | ia     |                                 | x                              |               |                          |               |                             |  |                 |               |   |
| Safety Barriers   |                 | 728,7028           | ia     |                                 | x                              |               |                          |               |                             |  |                 |               |   |
| (passive)         | Pepperl & Fuchs | Z 728              | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               |   |
|                   |                 | Z 779              | ia     |                                 | x                              |               |                          |               |                             |  |                 |               |   |
|                   | STAHL           | 9001/01-252-100-14 | ia     | 252                             | x                              |               | x                        |               |                             |  |                 |               |   |
|                   |                 | 9001/01-280-100-10 | ia     | 280                             | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | 9001/01-280-110-10 | ia     | 255                             | x                              |               | x                        |               |                             |  |                 |               |   |
|                   |                 | 9002/13-280-100-04 | ia     | 340                             | 17Vmin/LRmax30                 | 26Vmin/LRmax3 | 26Vmin/LRmax3            | 26Vmin/LRmax3 |                             |  |                 | 26Vmin/LRmax3 |   |
| Galvanic Isolated | A puissance 3   | NAEV 26 - 1002-140 | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               |   |
| Interface Units   | ABB             | V171132-54         | ib     |                                 | x                              |               |                          |               |                             |  |                 |               |   |
| (active)          |                 | V171132-55         | ib     |                                 | x                              |               |                          |               |                             |  |                 |               |   |
| and Remotes I/O   |                 | V171132-61         | ia     |                                 | x                              |               |                          |               |                             |  |                 |               |   |
|                   |                 | DO 890             | ib     |                                 | x                              |               | x                        |               |                             |  |                 |               |   |
|                   |                 | S900-DO4-EX        | ib     |                                 | x                              |               |                          |               |                             |  |                 |               |   |
|                   | BARTEC          | 07-7331-2301/1000  | ia     |                                 | x                              |               |                          |               |                             |  |                 |               |   |
|                   |                 | 07-7331-2301/1100  | ia     |                                 | x                              |               |                          |               |                             |  |                 |               |   |
|                   | BRADLEY         | FEX-EX 24V         | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   | COOPER          | LB 2101            | ia     |                                 | x                              |               |                          |               |                             |  |                 |               |   |
|                   |                 | LB 2105            | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | LB 2112            | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   | ELCON           | 1881 / 1882        | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | 471 / 472          | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | 2871/2872          | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | 2875/2876          | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   | GEORGIN         | AVB 122            | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | AVB 125            | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | AVB 128            | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   | Hima            | F3328A             | ib     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | F3335              | ib     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | H4007              | ib     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   | MTL             | 3021, 4021, 4021S  | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | 3022               | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | 4023               | ia     |                                 |                                |               | x                        |               |                             |  |                 |               |   |
|                   |                 | 4024               | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | 4025               | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |
|                   |                 | 5021, 5025         | ia     |                                 | x                              |               | x                        |               |                             |  |                 |               | x |






Conditions: ED 100%, Max. ambient temp. 60°C. Coils marked with x: Suitable for > 30 Ohm additional Line Resistance.  
LRmax = max.additional Line Resistance in Ohm with min. voltage if required.

Guidance chart for IS-barriers, Isolating Interface Units and Remote I/O for Booster IS -coils

| TYPE   | MANUFACTURER    | REFERENCE          | EEx.. | RESIST. of barrier in Ohm | IS Booster coil                       |                                 |                                    | EExia<br>490860<br>LCIE/FM/CSA |   |
|--|-----------------|--------------------|-------|---------------------------|---------------------------------------|---------------------------------|------------------------------------|--------------------------------|---|
|  |                 |                    |       |                           | EEx ia IIC T6<br>492965.01/02<br>LCIE | EEx ib IIB T6<br>482660<br>LCIE | EEx ib IIC T6<br>483330,01<br>LCIE |                                |   |
| Galvanic Isolated Interface Units (active) and Remotes I/O | Pepperl & Fuchs | EGA-041-3          | ia    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | KFD2-SD-Ex1.36     | ia    |                           |                                       | x                               |                                    |                                |   |
|  |                 | KFD2-SL-Ex1.36     | ia    |                           |                                       | x                               |                                    |                                |   |
|  |                 | KFD2-SD-Ex1.48     | ia    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | KFD2-SL-Ex1.48     | ia    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | KFD2-SL-Ex1.48.90A | ia    |                           | x                                     |                                 | x                                  | x                              |   |
|  |                 | KFD2-SL-Ex1.48.90A | ia    |                           | x                                     |                                 | x                                  | x                              |   |
|  |                 | KFD2-SL2-Ex1.LK    | ia    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | KFD2-SL2-Ex2       | ia    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | KSD2-BO-Ex         | ia    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | RSD-BO-Ex4         | ib    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | RSD-VO-Ex8         | ib    |                           | x                                     |                                 |                                    |                                |   |
|  | PULS            | 5RD00-0AB0         | ib    |                           |                                       |                                 |                                    |                                |   |
|  | STAHL           | 93.11/52-11-10     | ia    |                           | 15Vmin/LRmax30                        | x                               | x                                  |                                |   |
|  |                 | 91.11/63-11-00     | ia    |                           | 15Vmin/LRmax30                        | x                               | x                                  |                                |   |
|  |                 | 9351/10-15-10      | ia    |                           | x                                     | x                               | x                                  |                                |   |
|  |                 | 9351/10-16-10      | ia    |                           | x                                     | x                               | x                                  |                                |   |
|  |                 | 9351/10-17-10      | ia    |                           |                                       | x                               |                                    |                                |   |
|  |                 | 9381/10-187-050-10 | ib    |                           |                                       |                                 | x                                  |                                |   |
|  |                 | 9381/10-246-055-10 | ib    |                           |                                       | x                               | x                                  |                                |   |
|  |                 | 9381/10-246-070-10 | ib    |                           |                                       | x                               | x                                  |                                |   |
|  |                 | 9465/12-08-11      | ib    |                           |                                       |                                 |                                    |                                |   |
|  |                 | 9475/12-04-31      | ib    |                           |                                       |                                 |                                    |                                |   |
|  |                 | 9475/12-08-51      | ib    |                           |                                       |                                 |                                    |                                |   |
|  | Turck           | MK72-S01-Ex        | ib    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | MK72-S02-Ex        | ib    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | MK72-S04-Ex        | ib    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | MK72-S05-Ex        | ib    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | MK72-S06-Ex        | ib    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | MK72-S07-Ex        | ib    |                           | x                                     |                                 |                                    |                                |   |
|  |                 | MK72-S09-Ex        | ia    |                           |                                       |                                 |                                    |                                |   |
|  |                 | MK72-S12-Ex        | ia    |                           |                                       |                                 |                                    |                                |   |
|  |                 | MC72 - 41          |       | ia                        |                                       |                                 |                                    |                                | x |
|  |                 | MC72 - 43          |       | ia                        |                                       |                                 |                                    |                                |   |
|  | MC72 - 44       |                    | ia    |                           |                                       |                                 |                                    |                                |   |

Conditions: ED 100%, Max. ambient temp. 60°C. Coils marked with x: Suitable for > 30 Ohm additional Line Resistance.  
LRmax = max.additional Line Resistance in Ohm with min. voltage if required.

## Accessories

|   |   |
|---|---|
|    | <p><b>DIN plug connector according to DIN 43650 AB Pg 9 2P+T</b></p> <p>No. 481043</p> <p>Electrical connection suitable for all 22 mm coils<br/>(e.g. 488980, 481180)</p>  |
|    | <p><b>DIN plug connector according to DIN 43650 AA Pg 9 2P+T</b></p> <p>No. 486586 for standard version<br/>No. 492645 for high temperature version</p> <p>Electrical connection suitable for all 32 mm coils<br/>(e.g. 481865, 492425)</p> |
|  | <p><b>Stainless steel assembly kit</b></p> <p>Nut No. 482213 M14 x 1+ Ring No. 482214 +<br/>O-Ring No. 483917</p> <p>Coil assembly kit for offshore electrical parts.<br/>(e.g. 482160.01, 482870.01, 483330.01, 492210, 492965.01)</p>     |
|  | <p><b>Cable gland</b></p> <p>No. 493841 - M20x1.5 - EEx ia IIC</p> <p>Electrical connection and mooring cable with 6 to 12 mm diameter, for electrical parts approved "me", "ia".<br/>(e.g. 492965...)</p>                                  |
|  | <p><b>Cable gland</b></p> <p>No. 493426 - 1/2"-14 NPT</p> <p>Electrical connection and mooring cable with 6 to 12 mm diameter, for flameproof approved electrical parts.<br/>(e.g. 493640)</p>  |





## Part 4: Explosive environments

### 4.1. Introduction

Current European regulations concerning electrical equipment for potentially explosive environments are based on optional and partial European directives which require regular modification in the form of application or adaptation directives in order to keep pace with technical developments.

The basic European text in this field, directive **76/117/EC**, which allow the free circulation of goods within the European Union, provides the general framework for the present regulations.

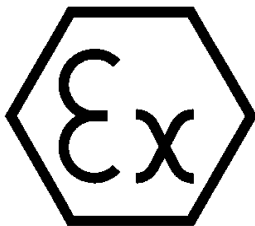
Electrical equipment for use in potentially explosive environments is certified by a government-approved body when it meets relevant European standards (EN 50014 and upwards) covering each type of protection (**d, i, e, m, p**, etc.). Such equipment is then issued with a **European certificate of conformity and control**, entitling it to carry the distinctive mark:



This mark opens the way for trading within the European Union and occasionally beyond.

This system has now been in operation for more than 15 years. Although largely beneficial, it has revealed certain drawbacks, notably a lack of flexibility and the absence of a global concept for safety. It has now been completely revised by the **new European directive 94/9/EC from March 23, 1994**.

The certificates of conformity to harmonised standards obtained in compliance with previous directives will remain valid until June 30, 2003, but their validity will cover only conformity to the harmonised standards specified in these directives.



**European Commission  
mark for "Ex" equipment**

### European Community member states

|                       |                           |                     |                      |                      |
|-----------------------|---------------------------|---------------------|----------------------|----------------------|
| <b>Austria - A</b>    | <b>Belgium - B</b>        | <b>Denmark - D</b>  | <b>Germany - D</b>   | <b>Finland - FIN</b> |
| <b>France - F</b>     | <b>Great Britain - GB</b> | <b>Greece - GR</b>  | <b>Ireland - IRL</b> | <b>Italy - I</b>     |
| <b>Luxembourg - L</b> | <b>Netherlands - NL</b>   | <b>Portugal - P</b> | <b>Spain - E</b>     | <b>Sweden - S</b>    |

## 4.2 Definitions (ref. IEC 60079-10)

### 4.2.1 Explosive gas environments

Mixture with air, under atmospheric conditions, of flammable substances in the form of gases, vapour, mists or dusts in which, after combustion has occurred, combustion spreads to the entire unburned mixture.

### 4.2.2 Hazardous areas

A hazardous area is an area in which an explosive gas environment is present, or may be expected to be present, in quantities such as to require special precautions for construction, installation and use of electrical apparatus.

### 4.2.3. Ingredients for an explosion

When combustible materials are mixed with air, an explosive mixture is produced. Danger of explosion therefore exists wherever these hazardous materials are handled: such a condition is to be found on the biggest chemical plant as well as at the smallest filling station.

Nowadays with the use of electronic and electrical instrumentation in process control, the risk of combustion by electrical energy has increased sharply.

To protect personnel and expensive equipment special precautions should be taken to prevent combustion of those dangerous substances. Conditions likely to ignite explosive mixtures are as follows:

- Electrical sparks and arcs produced when circuits are opened and closed (e.g. relay contacts)
- Conductors heated by passage of current or by faulty apparatus.
- Mechanical sparks; moving object hitting stationary object.
- Electrostatic sparks caused by charged components.
- Chemical action.
- Lightning strikes.
- Radio waves

### 4.2.4 Zones

The hazardous areas are classified in zones based on the frequency of the occurrence and the duration of an explosive gas environment as follows:

- **Zone 0**

An area in which an explosive gas environment is present continuously or is present for long periods

Type of protection: ia - intrinsic Safety

- **Zone 1**

An area in which an explosive gas environment is likely to occur in normal operations.

Type of protection: d - flameproof enclosure, e - increased safety, ib - intrinsic safety, m - encapsulation

- **Zone 2**

An area in which an explosive gas environment is not likely to occur and if it does occur it will exist for a short period only.

Type of protection: n - protection (IEC 60079-15)

## Classification of hazardous location

| Explosive environment                        | Continuous presence   | Intermittent presence<br>(normal operation conditions)            | Occasional presence<br>(abnormal operation)                       |
|--|---|---|---|
| <b>IEC</b>                                   | Zone 0 (gas)<br>Zone 20 (dust)                                    | Zone 1 (gas)<br>Zone 21 (dust)                                    | Zone 2 (gas)<br>Zone 22 (dust)                                    |
| <b>Europe</b>                                | Zone 0 (gas)<br>Zone 20 (dust)                                    | Zone 1 (gas)<br>Zone 21 (dust)                                    | Zone 2 (gas)<br>Zone 22 (dust)                                    |
| <b>Canada (CEC) *</b><br><b>USA (NEC) **</b> | Cl. I Div.1 (gas)<br>Cl. II Div.1 (dust)<br>Cl.III Div.1 (fibres) | Cl. I Div.1 (gas)<br>Cl. II Div.1 (dust)<br>Cl.III Div.1 (fibres) | Cl. I Div.2 (gas)<br>Cl. II Div.2 (dust)<br>Cl.III Div.2 (fibres) |

\* (CEC): Code Canadien d'Electricité / \*\* (NEC): National Electrical Code

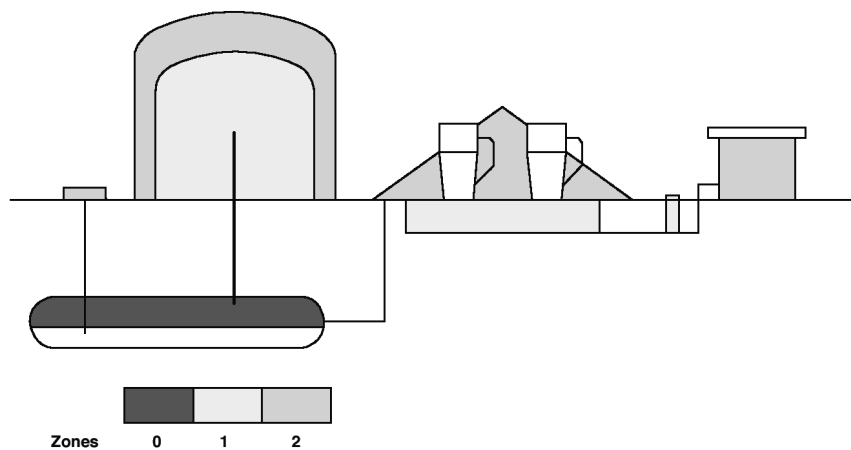
### Zones and types of protection (gas applications)

| Type of protection    | ia       | ib       | o, p, q, d, e, m, or combination between 2 or more types |
|-----------------------|----------|----------|--|
| <b>Suitable zones</b> | <b>0</b> | <b>1</b> | 1, 2   |

Some additional tests for gas and dust applications are applied to the product according to the new ATEX directive related to the EN 50281-1-1 and EN 50281-1-2 standards:

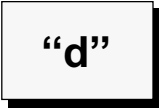
| Type of protection    | ia        | ib        | o, p, q, d, e, m, or a combination of 2 or more types |
|-----------------------|-----------|-----------|---|
| <b>Suitable zones</b> | <b>20</b> | <b>21</b> | 21, 22  |

### Example of classification:

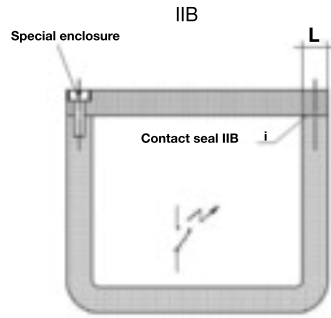


### 4.5. Types of protection used by Lucifer

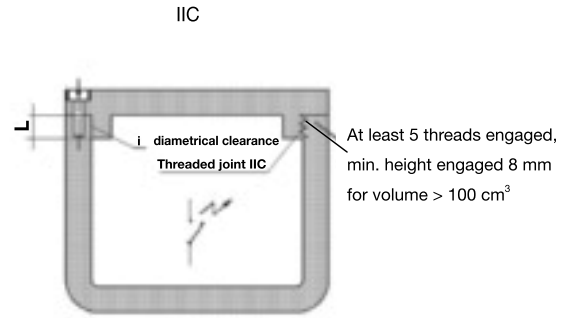
#### 4.5.1 Flameproof enclosure



A type of protection where the parts that can ignite an explosive environment are placed in an enclosure which can withstand the pressure developed during an internal explosion of an explosive mixture and which prevents the transmission of the explosion to the explosive environment surrounding the enclosure.

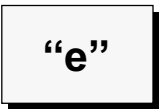


For volume > 2 dm<sup>3</sup>  
Mini length L = 12.5 mm  
Max gap i = 0.15 mm

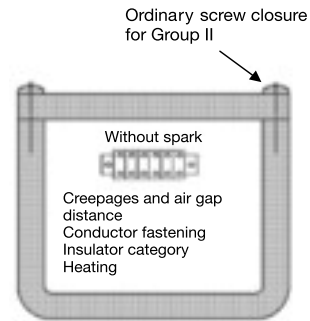


For volume > 2 dm<sup>3</sup>  
Mini length L = 25 mm  
Max dia. clearance i = 0.15 mm

#### 4.5.2 Increased safety

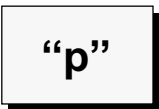


Type of protection applied to electrical apparatus that does not produce arcs or sparks in normal service, in which additional measures are applied so as to give increased security against the possibility of excessive temperatures and of the occurrence of arcs and sparks.

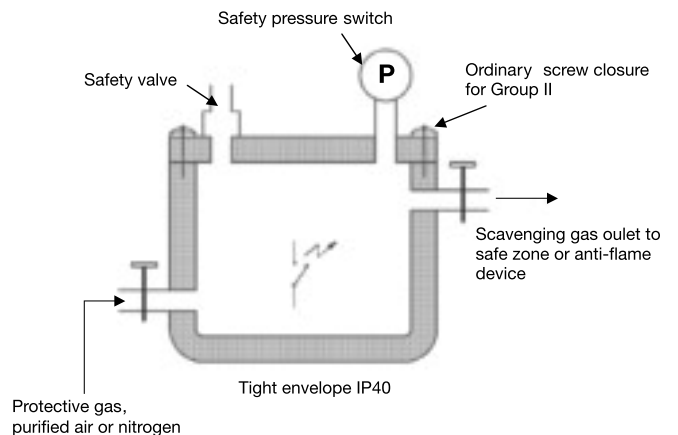


Tight envelope IP54

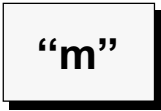
#### 4.5.3 Pressurized apparatus



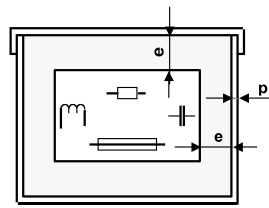
A type of protection by which the entry of a surrounding environment into the enclosure of the electrical apparatus, is prevented by maintaining, inside the said enclosure, a protective gas at a higher pressure than that of the surrounding environment. The overpressure is maintained either with or without a continuous flow of the protective gas.



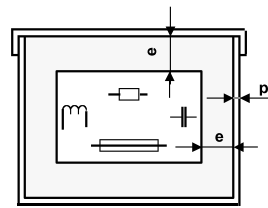
### 4.5.4 Encapsulation



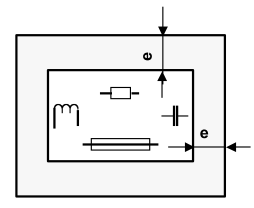
A type of protection in which the parts which could ignite an explosive environment by either sparking or heating are enclosed in a compound in such a way that this explosive environment cannot be ignited



Potting  
Metallic envelope  
 $e > 1 \text{ mm}$



Potting  
Insulating envelope  
If  $p > 1 \text{ mm}$ ,  $e$  non-imposed  
If  $p > 1 \text{ mm}$ ,  $e + p > 3 \text{ mm}$

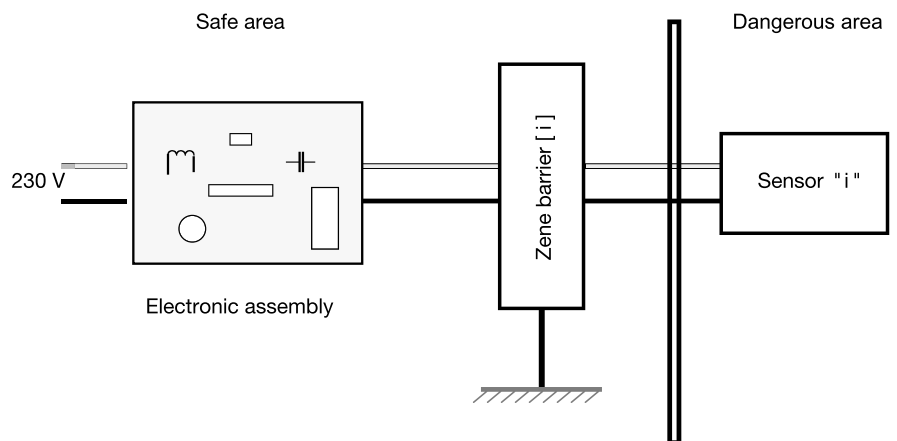


Casing  
without envelope  
 $e > 3 \text{ mm}$

### 4.5.5 Intrinsic safety



A circuit in which no spark or any thermal effect produced in the test conditions prescribed in the standard EN 50020 (which include normal operation and specified fault conditions) is capable of causing combustion of a given explosive environment.





# Additional information

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# Principles of operation

Solenoid valves are electro-mechanical devices that control fluid flow. This is achieved by opening or closing one or several orifices in the solenoid valve. The (solenoid) coil is the electrical element that converts an electrical signal into a mechanical force which, in turn, shifts the mobile plunger that opens or closes an orifice (nozzle) by means of its seat disc(s).

Solenoid valves are usually constructed from 3 distinct components:

- the body (including the sleeve assembly)
- the coil (or coil housing)
- the housing (or nut/nameplate fixing elements).

These 3 modular components are in many cases interchangeable i.e. a valve body can be used with a number of coil/housing combinations. This catalogue presents the main recommended versions. Your distributor will be pleased to speak to you about other specific versions.

## Direct operated valves (see fig. 1)

The magnetic force is used directly to open or close the passage of fluid at the plunger sealing. The performance is limited by the available performance of the coil (limits of pressure/orifice size.) The pressure rating of the valve starts from zero bar to the maximum value.

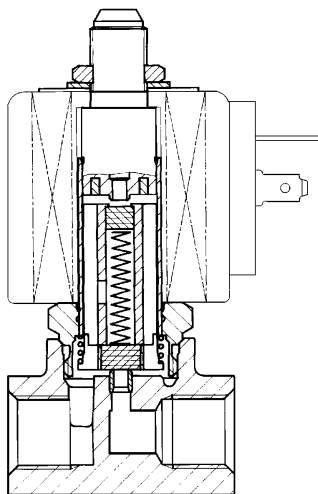


Fig. 1

## Pilot operated valves (see fig. 2 and 3)

In cases where it is necessary to control higher flow/higher pressure it is necessary to use pilot operated valves. The supply pressure enters the direct operated "pilot stage" which directs the flow to a "pilot chamber" which, in turn, applies the pilot pressure over a large area (generally a diaphragm or a piston). Therefore, a large force is generated to move the main sealing elements against higher pressure or over a large orifice. One condition of operation is to have a minimum pressure (indicated in the catalogue table) available to shift the valve. In most applications this presents no particular problems (refer to "Magnalift valves" below). The pressure rating of the valve starts from a minimum value (0.3 or 0.5 bar) up to the maximum value.

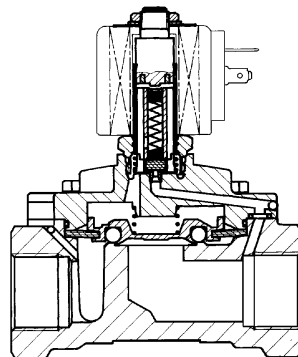


Fig. 2

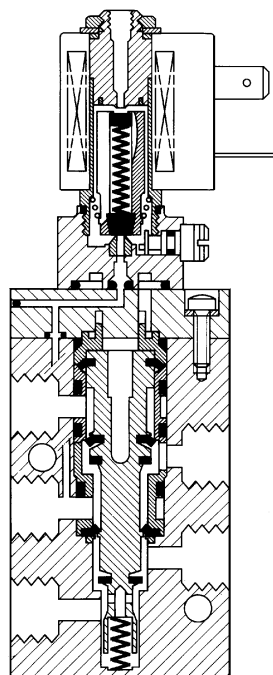


Fig. 3

## Magnalift valves (see fig. 4)

The magnalift valves combine the features of a direct operated and a pilot operated valve. A mechanical link between the plunger and the diaphragm retainer allows the valve to operate as a direct operated valve at low pressures and as a pilot operated valve at higher pressures.

The advantage of this design is that the pressure rating of the valve starts from zero bar to the maximum value.

Magnalift valves are specified when the valve controls the emptying/filling of a tank under gravity.

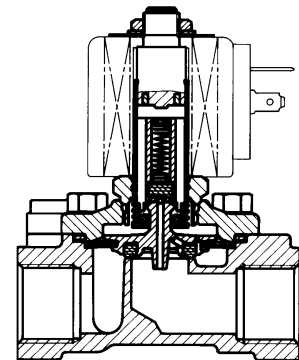


Fig. 4

# Flow rate

## Liquids

The flow through a pipe or a valve is given by:

$$Q = k_v \sqrt{\Delta p / \gamma}$$

where  $Q$  = flow (L/min)  
 $\Delta$  = pressure drop (bar)  
 $\gamma$  = density of fluid (kg/dm<sup>3</sup>)  
 $k_v$  = flow factor of the pipe or valve (L/min)  
 For water  $\gamma = 1$  kg/dm<sup>3</sup>

### Flow factor $k_v$

The  $k_v$  flow factor of a valve is defined as the flow rate of water in litres per minute with a pressure drop of 1 bar across the valve. Valve manufacturers use different definitions for  $k_v$  i.e.  $k_v$  may be expressed in L/h or m<sup>3</sup>/h, etc. Care should therefore be taken when comparing values.

### Maximum flow rate $Q_{max}$ .

For particular 2-way valves the maximum flow must be limited for reasons of mechanical resistance and durability. A very high flow velocity may dislocate a poppet sealing or a diaphragm. Maximum flow rates are indicated in the catalogue.

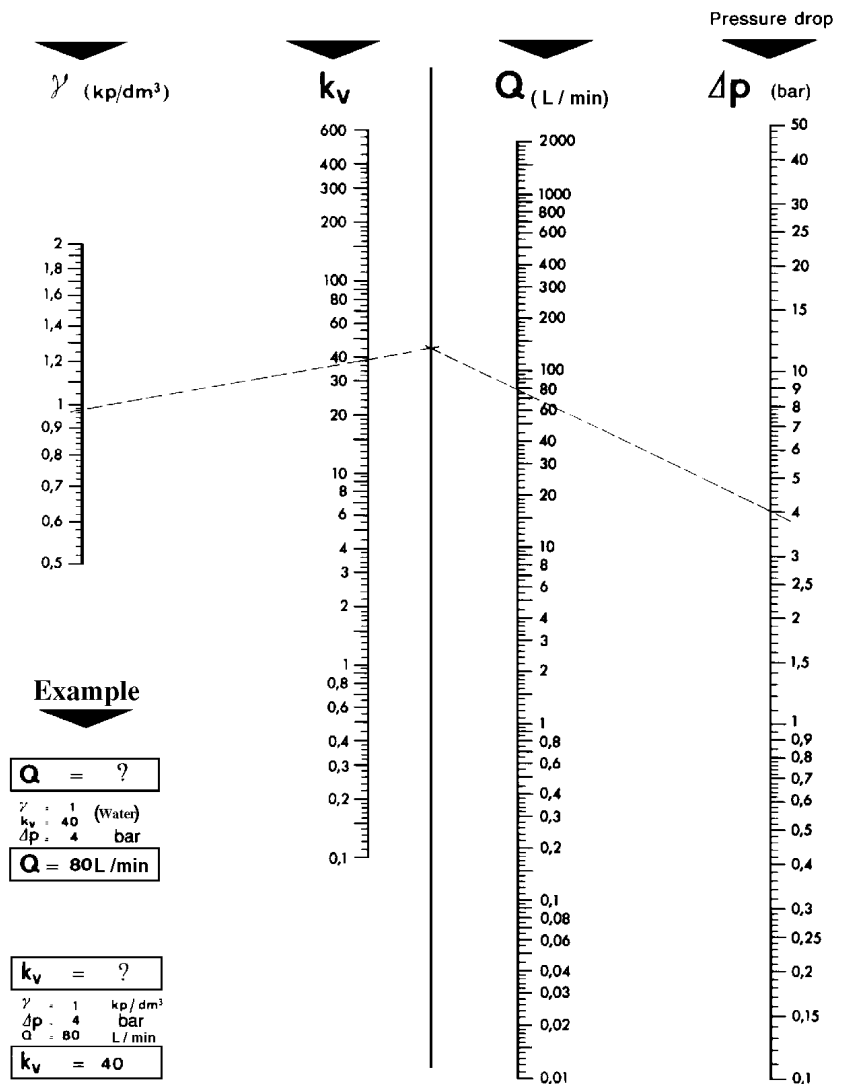
## Gases

### Nominal flow $Q_n$

Calculations can be made with specific flow factors based on the CETOP RP 50P standard. For practical purposes and ease of valve selection the catalogue shows the nominal flow  $Q_n$ . The nominal flow  $Q_n$  is defined as the flow rate (L/min) of air across the valve when the inlet pressure  $p_1 = 6$  bar and the pressure drop  $\Delta p = 1$  bar.

N.B. THE VALUES OF FLOW FACTORS AND FLOW RATES MENTIONED IN CATALOGUES ARE SUBJECT TO  $\pm 15\%$  TOLERANCES.

For detailed technical information please ask for publication 1230/GB



Nomogram for liquid flow calculation

# Unit conversion tables/designation of sealing materials

## Measures

1 inch = 25.4 mm  
 1 mm = 0.039 inch  
 1 U.S. gallon = 3.785 litres  
 1 imperial gallon = 4.546 litres

## Pressure

1 bar = 1.02 kg/cm<sup>2</sup> = 0.98 atm  
 = 10<sup>5</sup> Pa = 100 kPa  
 1 bar = 14.51 psi  
 1 psi = 0.0689 bar = 0.0703 kg/cm<sup>2</sup>

## Flow rate

kv in L/min/Δp = 1 bar  
 cv in gpm/Δp = 1 psi  
 1 cv = 0.07 kv  
 1 kv = 14.28 cv  
 1 gpm (U.S. gallon) = 3.785 L/min  
 1 L/min = 0.0353 cfm

## Temperature

°F = °C x 9/5 + 32  
 °C = (°F - 32) x 5/9

## Torque

1 in. lb. = 0.113 Nm  
 1 Nm = 8.25 in. lb.

## Size

| mm   | inches | decimal inches |
|------|--------|----------------|
| 0.79 | 1/32   | 0.031          |
| 1.59 | 1/16   | 0.063          |
| 2.38 | 3/32   | 0.094          |
| 3.18 | 1/8    | 0.125          |
| 3.97 | 5/32   | 0.156          |
| 4.76 | 3/16   | 0.188          |
| 5.56 | 7/32   | 0.219          |
| 6.35 | 1/4    | 0.250          |
| 7.14 | 9/32   | 0.281          |
| 7.94 | 5/16   | 0.313          |
| 8.73 | 11/32  | 0.344          |
| 9.53 | 3/8    | 0.375          |
| 10.3 | 13/32  | 0.406          |
| 11.1 | 7/16   | 0.438          |
| 11.9 | 15/32  | 0.469          |
| 12.7 | 1/2    | 0.500          |
| 13.5 | 17/32  | 0.531          |
| 14.3 | 9/16   | 0.563          |
| 15.1 | 19/32  | 0.594          |
| 15.9 | 5/8    | 0.625          |
| 16.7 | 21/32  | 0.656          |
| 17.5 | 11/16  | 0.688          |
| 18.3 | 23/32  | 0.719          |
| 19.1 | 3/4    | 0.750          |
| 19.8 | 25/32  | 0.781          |
| 20.6 | 13/16  | 0.813          |
| 21.4 | 27/32  | 0.844          |
| 22.2 | 7/8    | 0.875          |
| 23.0 | 29/32  | 0.906          |
| 23.8 | 15/16  | 0.938          |
| 24.6 | 31/32  | 0.969          |
| 25.4 | 1      | 1.000          |

## Designation of sealing materials

| ASTM Designation | Commercial Designation            |
|------------------|-----------------------------------|
| NBR              | Nitrile rubber, Buna-N., Perbunan |
| FKM              | Fluoroelastomer                   |
| EPDM             | Ethylene propylene                |
| PCTFE            | Kel-F                             |
| PTFE             | Teflon®                           |
| CR               | Neoprene                          |
| PUR              | Polyurethane                      |
| PFPM             | Kalrez                            |





# Index by reference numbers

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| 121V5706        | 7121VVG2LV00      | 116       |
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| 122K8306        | 7122KBG2LV00      | 12/48     |
| 122K8321        | 7122KBG2LRT0      | 106       |
| 122K8363        | 7122KBG2LR00      | 12/88/106 |
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| 122K8406        | 7122KBG2GV00      | 12/48     |
| 122K8408        | 7122KBG2GR00      | 12/88     |
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| E 131F4350      | 7131FBF4LVM0      | 144       |
| E 131F44        | 7131FBF4GV00      | 144       |
| E 131F4450      | 7131FBF4GVM0      | 144       |
| 131F4480        | 7131FBF4GLV5      | 140       |
| 131F4490        | -                 | 136       |
| 131F46          | 7131FBF4JV00      | 144       |
| 131F4650        | 7131FBF4JVM0      | 144       |
| U 131F5695      | 7131FRF2LV95      | 276/292   |
| U 131F56951D    | 7131FRF2LV1D      | 278       |
| E 131K03        | 7131KBG2LV00      | 128       |
| E 131K03001D    | 7131KBG2LV1D      | 228       |
| E 131K0308      | 7131KBG2LP00      | 130/228   |
| E 131K03081D    | 7131KBG2LP1D      | 130/228   |
| E 131K0350      | 7131KBG2LVM0      | 128/228   |
| E 131K0358      | 7131KBG2LPM0      | 130/228   |
| E 131K04        | 7131KBG2GV00      | 126/226   |
| E 131K0450      | 7131KBG2GVM0      | 126/226   |
| 131K0480        | 7131KBG2GLV5      | 126/226   |
| 131K0490        | 7131KBG2CV90      | 126/226   |
| 131K05          | 7131KBG2BF00      | 176       |
| E 131K06        | 7131KBG2JV00      | 126/226   |
| E 131K06081D    | 7131KBG2JP1D      | 128/228   |
| E 131K0650      | 7131KBG2JVM0      | 126/226   |
| E 131K13        | 7131KBG1LV00      | 124       |
| E 131K14        | 7131KBG1GV00      | 124       |
| 131K16          | 7131KBG1JV00      | 124       |
| 131K1650        | 7131KBG1JVM0      | 124       |
| E 131K63        | 7131KBG2LR00      | 130       |
| E 131K6350      | 7131KBG2LRM0      | 130       |
| E 131K64        | 7131KBG2ER00      | 126       |
| E 131K6450      | 7131KBG2ERM0      | 126       |

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| 131K65          | 7131KBG2BR00      | 176     |
| 131M14          | -                 | 124/226 |
| 131M15          | -                 | 124/226 |
| 131M74          | -                 | 142     |
| 131M7450        | -                 | 142     |
| 131M75          | -                 | 138     |
| 131M7550        | -                 | 138     |
| 131T21          | 7131TBG2RV00      | 132     |
| 131T2101        | 7131TBG2RVM0      | 132     |
| 131T22          | 7131TBG2NVA0      | 132     |
| 131T23          | 7131TBG2JV00      | 126     |
| 131T2301        | 7131TBG2JVM0      | 126     |
| 131T29          | 7131TBG2LV00      | 128     |
| 131T2901        | 7131TBG2LVM0      | 128     |
| 131V5306        | 7131VVG2LV00      | 182     |
| 131V5363        | 7131VVG2LR00      | 182     |
| 131V5406        | 7131VVG2GV00      | 182     |
| 131V5463        | 7131VVG2GR00      | 182     |
| 131V5490        | -                 | 182     |
| 131V65          | 7131VVG2BR00      | 176     |
| 131X1101        | 7131XAKLVN00      | 230     |
| U 131X1201      | 7131XRKMVN00      | 276/292 |
| 132F43          | 7132FBF4LV00      | 144     |
| 132F44          | 7132FBF4GV00      | 144     |
| 132F46          | 7132FBF4JV00      | 144     |
| 132K03          | 7132KBG2LV00      | 132     |
| 132K04          | 7132KBG2GV00      | 132     |
| 132K06          | 7132KBG2JV00      | 132     |
| 132T22          | 7132TBG2NVA0      | 134     |
| 132T23          | 7132TBG2JV00      | 132     |
| 132T2301        | 7132TBG2JVM0      | 132     |
| 132T29          | 7132TBG2LV00      | 132     |
| E 133F43        | 7133FBF4LV00      | 146     |
| E 133F4350      | 7133FBF4LVM0      | 144     |
| E 133F44        | 7133FBF4GV00      | 144     |
| E 133F4450      | 7133FBF4GVM0      | 144     |
| 133F46          | 7133FBF4JV00      | 144     |
| 133F4650        | 7133FBF4JVM0      | 144     |
| E 133K03        | 7133KBG2LV00      | 134     |
| E 133K0350      | 7133KBG2LVM0      | 134     |
| E 133K04        | 7133KBG2GV00      | 134     |
| E 133K04001D    | 7133KBG2GV1D      | 134     |
| E 133K0450      | 7133KBG2GVM0      | 134     |
| E 133K05        | 7133KBG2BV00      | 176     |
| E 133K06        | 7133KBG2JV00      | 134     |
| E 133K0650      | 7133KBG2JVM0      | 134     |
| E 133K13        | 7133KBG1LV00      | 134     |
| E 133K14        | 7133KBG1GV00      | 134     |
| E 133K16        | 7133KBG1JV00      | 134     |
| 133T21          | 7133TBG2NV00      | 134     |
| 133T2101        | 7133TBG2NVM0      | 134     |
| 133T23          | 7133TBG2JV00      | 134     |
| 133T2301        | 7133TBG2JVM0      | 134     |
| 133V5306        | 7133VVG2LV00      | 182     |
| 133V5363        | 7133VVG2LR00      | 182     |

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| 133V5406        | 7133VVG2GV00      | 182      | 222G3603        | 72228BG5VES0      | 78        | 321K4303        | 7321KBG3TEW0      | 80        |
| 133V5463        | 7133VVG2GR00      | 182      | 222G3606        | 72228BG5VV00      | 20/54     | 321K4306        | 7321KBG3TVW0      | 66        |
| U 133V5695      | 7133VRN2LV95      | 278/288  | 222G5303        | 72228RG3TE00      | 78        | 321K4356        | 7321KBG3TVMW      | 66        |
| U 133V56951D    | 7133VRN2LV9D      | 278/288  | 222G5306        | 72228RG3TV00      | 20/54     | 321K4503        | 7321KBG4TEW0      | 80        |
| 133X01          | -                 | 230      | 222G5503        | 72228RG4UE00      | 78        | 321K4506        | 7321KBG4TVW0      | 66        |
| U 133X5156      | 7133XRN2SV00      | 280/290  | 222G5506        | 72228RG4UV00      | 20/54     | 321K4556        | 7321KBG4TVMW      | 66        |
| U 133X51561D    | 7133XRN2SV1D      | 280/288  | 222G5603        | 72228RG5VE00      | 78        | 321K4603        | 7321KBG51EW0      | 80        |
| U 133X5196      | 7133XRN2VN96      | 280      | E 321F32        | 7321FBF3TN00      | 34/60/92  | 321K4606        | 7321KBG51VW0      | 66        |
| U 133X51961D    | 7133XRN2VN9H      | 280      | E 321F3202      | 7321FBF3TV00      | 34/92/110 | 321K4656        | 7321KBG51VMW      | 66        |
| U 133X5296      | 7133XRN3SN96      | 282/290  | E 321G36        | 7321GBG53N00      | 24/56     | 321K4703        | 7321KBG62EW0      | 80        |
| U 133X52961D    | 7133XRN3SN9H      | 282/290  | E 321G3606      | 7321GBG53V00      | 24        | 321K4706        | 7321KBG62VW0      | 66        |
| 135K03          | 7135KBG2LV00      | 136/228  | E 321G3610      | 7321GBG53NMC      | 66        | 321K4756        | 7321KBG62VMW      | 66        |
| 135K04          | 7135KBG2GV00      | 136/228  | E 321G37        | 7321GBG64N00      | 26/58     | 322F72          | 7322FBF3TN00      | 34/60/92  |
| 221G13          | 7221GBG3VN00      | 16/52/64 | E 321G3706      | 7321GBG64V00      | 24        | 322F7206        | 7322FBF3TV00      | 34/92/110 |
| 221G1303        | 7221GBG3VE00      | 76       | E 321G3710      | 7321GBG64NMC      | 66        | 322G36          | 7322GBG53N00      | 32/58     |
| 221G1330        | 7221GBG3VNH0      | 16/52/64 | E 321G37101D    | 7321GBG64N1D      | 26        | 322G3606        | 7322GBG53V00      | 32        |
| 221G15          | 7221GBG4VN00      | 16/52/64 | 321G3790        | -                 | 26        | 322G3610        | 7322GBG53NCO      | 68        |
| 221G1503        | 7221GBG4VE00      | 76       | E 321G38        | 7321GBG76N00      | 26/58     | 322G37          | 7322GBG64N00      | 32/60     |
| 221G1530        | 7221GBG4VNH0      | 16/52/64 | E 321G3806      | 7321GBG76V00      | 26        | 322G3706        | 7322GBG64V00      | 32        |
| 221G16          | 7221GBG51N00      | 18/52    | E 321G3810      | 7321GBG76NMC      | 68        | 322G3710        | 7322GBG64NCO      | 68        |
| 221G1603        | 7221GBG51E00      | 76       | E 321G39        | 7321GBG88N00      | 28/58     | 322G38          | 7322GBG76N00      | 32/60     |
| 221G1610        | 7221GBG51NCO      | 64       | E 321G3906      | 7321GBG88V00      | 26        | 322G3806        | 7322GBG76V00      | 32        |
| 221G1630        | 7221GBG51NH0      | 18/52    | E 321G3910      | 7321GBG88NMC      | 68        | 322G3810        | 7322GBG76NCO      | 68        |
| 221G1631        | 7221GBG51NCH      | 64       | E 321G39101D    | 7321GBG88N3D      | 28        | 322G39          | 7322GBG88N00      | 32/60     |
| 221G17          | 7221GBG61N00      | 18/52    | 321G3990        | -                 | 26        | 322G3906        | 7322GBG88V00      | 32        |
| 221G1703        | 7221GBG61E00      | 76       | E 321G40        | 7321GBG99N00      | 30/58     | 322G3910        | 7322GBG88NCO      | 68        |
| 221G1710        | 7221GBG61NCO      | 64       | E 321G4006      | 7321GBG99V00      | 28        | 322G40          | 7322GBG99N00      | 32/60     |
| 221G1730        | 7221GBG61NH0      | 18/52    | E 321G4010      | 7321GBG99NMC      | 68        | 322G4006        | 7322GBG99V00      | 32        |
| 221G1731        | 7221GBG61NCH      | 64       | E 321G40101D    | 7321GBG99N3D      | 30        | 322G4010        | 7322GBG99NCO      | 68        |
| 221G21          | 7221GBG64N00      | 18/54    | 321G4090        | -                 | 28        | 322G7506        | 7322GBG4UV00      | 110       |
| 221G2103        | 7221GBG64E00      | 76       | 321G8312        | 73218BG3TTS0      | 80        | 322G8312        | 73228BG3TTS0      | 82        |
| 221G2106        | 7221GBG64V00      | 18       | 321G8512        | 73218BG4UTS0      | 80        | 322G8512        | 73228BG4UTS0      | 82        |
| 221G2110        | 7221GBG64NCO      | 64       | 321G8612        | 73218BG5VTS0      | 80        | 322G8612        | 73228BG52TS0      | 82        |
| 221G2130        | 7221GBG64NH0      | 18/52    | 321G8712        | 73218BG64TTS0     | 82        | 322G8712        | 73228BG64TTS0     | 82        |
| 221G2131        | 7221GBG64NCH      | 64       | 321G8812        | 73218BG75TTS0     | 82        | 322G8812        | 73228BG75TTS0     | 82        |
| 221G2136        | 7221GBG64VHO      | 18       | 321G8912        | 73218BG87TTS0     | 82        | 322G8912        | 73228BG87TTS0     | 82        |
| 221G23          | 7221GBG3VV00      | 16       | E 321H11        | 7321HBG2SN00      | 22/90     | 322H71          | 7322HBG2SN00      | 30/92     |
| 221G2330        | 7221GBG3VVHO      | 16       | E 321H13        | 7321HBG3TN00      | 22/90     | 322H7106        | 7322HBG2SV00      | 30/90/108 |
| 221G25          | 7221GBG4VV00      | 16       | E 321H15        | 7321HBG4UN00      | 24/90     | 322H73          | 7322HBG3TN00      | 32/92     |
| 221G25001D      | 7221GBG4VV1D      | 16       | 321H1590        | -                 | 22        | 322H7306        | 7322HBG3TV00      | 32/92/108 |
| 221G2530        | 7221GBG4VVHO      | 16       | E 321H21        | 7321HBG2SV00      | 22/90/108 | 322H75          | 7322HBG4UN00      | 32/92     |
| 221G26          | 7221GBG51V00      | 18       | E 321H23        | 7321HBG3TV00      | 22/90/108 | 322H7506        | 7322HBG4UV00      | 32/92/110 |
| 221G26001D      | 7221GBG51V1D      | 16       | 321H2322        | 7321HBG3TVT0      | 108       | 322K4106        | 7322KBG2SVW0      | 32        |
| 221G2630        | 7221GBG51VHO      | 18       | E 321H25        | 7321HBG4UV00      | 22/90/108 | 322K4306        | 7322KBG3TVW0      | 32        |
| 221G27          | 7221GBG61V00      | 18       | 321H2522        | 7321HBG4UVT0      | 108       | 322K4506        | 7322KBG4TVW0      | 32        |
| 221G27001D      | 7221GBG61V1D      | 18       | 321K31          | -                 | 22/56     | 322K4606        | 7322KBG51VW0      | 32        |
| 221G2730        | 7221GBG61VHO      | 18       | 321K3106        | -                 | 22        | 322K4706        | 7322KBG62VW0      | 32        |
| 221G5303        | 72218RG3TE00      | 78       | 321K33          | -                 | 22/56     | 325K4106        | 7325KBG2SVW0      | 34        |
| 221G5306        | 72218RG3TV00      | 20/54    | 321K3306        | -                 | 22        | 325K4306        | 7325KBG3TVW0      | 34        |
| 221G5503        | 72218RG4UE00      | 78       | 321K35          | -                 | 22/56     | 325K4506        | 7325KBG4TVW0      | 34        |
| 221G5506        | 72218RG4UV00      | 20/54    | 321K3506        | -                 | 22        | 325K4606        | 7325KBG51VW0      | 34        |
| 221G5603        | 72218RG5VE00      | 78       | 321K36          | -                 | 24/56     | 325K4706        | 7325KBG62VW0      | 34        |
| 221G5606        | 72218RG5VV00      | 20/54    | 321K3606        | -                 | 24        | E 331B01        | 7331BAG2QN00      | 152       |
| 221J3301E       | -                 | 118      | 321K37          | -                 | 24/56     | 331B02          | 7331BAG2KN00      | 150/178   |
| 222G3303        | 72228BG3TES0      | 78       | 321K3706        | -                 | 24        | E 331B21        | 7331BAG4QN00      | 152       |
| 222G3306        | 72228BG3TV00      | 20/54    | 321K4103        | 7321KBG2SEW0      | 80        | E 331B74        | 7331BAG2KNMO      | 150       |
| 222G3503        | 72228BG4UES0      | 78       | 321K4106        | 7321KBG2SVW0      | 66        | 331B7480        | 7331BAG2KNL2      | 150       |
| 222G3506        | 72228BG4UV00      | 20/54    | 321K4156        | 7321KBG2SVMW      | 66        | 331B7490        | -                 | 150       |

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| E 331L21        | 7331LAV4TNM0      | 158     | U 341N3295      | 7341NRKNNN95      | 312     | -               | 3121BBN1AV00      | 38   |
| E 331L21001D    | 7331LAV4TN1D      | 156     | 341P01          | 2341PAG1JNM0      | 238     | -               | 3121BBN1EV00      | 38   |
| E 332B01        | 7332BAG2QN00      | 154     | U 341P0150      | 2341PRN2JNM1      | 296     | -               | 3121BBN1GV00      | 38   |
| 332B02          | 7332BAG2KN00      | 152/178 | 341P02          | 2341PAG2HNM0      | 242     | -               | 3121BBN1JV00      | 38   |
| E 332B21        | 7332BAG4QN00      | 154     | U 341P0250      | 2341PRN3NNM1      | 298     | -               | 3121BBN1LV00      | 38   |
| E 341B01        | 7341BAG2PN00      | 198     | 341P21          | 7341PAG1JNM0      | 238     | -               | 3121BBN1NV00      | 38   |
| 341B02          | 7341BAG2KN00      | 198     | 341P21001D      | 7341PAG1JN1D      | 240     | -               | 3121BBN1QV00      | 38   |
| E 341B11        | 7341BAG3PN00      | 200     | 341P2108        | 7341PAG1JPM0      | 238     | -               | 3121BJA7EVC#      | 42   |
| E 341B21        | 7341BAG4TN00      | 212     | 341P2180        | 7341PAG1JNL2      | 238     | -               | 3121BJA7GVC#      | 42   |
| 341B34          | 7341BAG2JNMR      | 188     | 341P2190        | 7341PAG1JN90      | 238     | -               | 3121BSN1AV00      | 40   |
| 341B3403        | 7341BAG2JNM0      | 188     | 341P22          | 7341PAG2PNM0      | 244     | -               | 3121BSN1EV00      | 40   |
| 341B3480        | 7341BAG2JNL8      | 188     | 341P22001D      | 7341PAG2PN1D      | 246     | -               | 3121BSN1GV00      | 40   |
| 341B3490        | -                 | 188     | 341P2280        | 7341PAG2PNL2      | 244     | -               | 3121BSN1JV00      | 40   |
| 341F34          | 7341FAS3JNMR      | 190     | 341P2290        | 7341PAG2PN90      | 244     | -               | 3121BSN1LV00      | 40   |
| 341F3403        | 7341FAS3JNM0      | 190     | U 341P3150      | 7341PRN2JN00      | 296     | -               | 3121BSN1NV00      | 40   |
| E 341L01        | 7341LDC1LNM8      | 218     | U 341P3192      | 7341PRN2JN92      | 296     | -               | 3121BSN1QV00      | 40   |
| 341L0180        | 7341LDC1LNL8      | 218     | U 341P3195      | 7341PRN2JN95      | 298     | -               | 3129BBN1AV00      | 40   |
| E 341L02        | 7341LDC1LNM1      | 218     | U 341P31951D    | 7341PRN2JN9D      | 298     | -               | 3129BBN1EV00      | 40   |
| 341L04          | -                 | 218     | U 341P3250      | 7341PRN3NN00      | 300     | -               | 3129BBN1GV00      | 40   |
| 341L05          | -                 | 218     | U 341P3292      | 7341PRN3NN92      | 300     | -               | 3129BBN1JV00      | 40   |
| 341L11          | -                 | 202/256 | U 341P3295      | 7341PRN3NN95      | 300     | -               | 3129BBN1LV00      | 40   |
| E 341L1130      | 7341LMG2NNM0      | 204/260 | U 341P32951D    | 7341PRN3NN9D      | 302     | -               | 3129BJA7EVC#      | 42   |
| 341L1190        | -                 | 204/260 | 345B04          | 7345BAG2PN00      | 200     | -               | 3129BJA7GVC#      | 42   |
| E 341L21        | 7341LAV4TNM0      | 218     | 345B24          | 7345BAG4TN00      | 212     | -               | 3129BJA7LVC#      | 42   |
| 341L2190        | 7341LAV4TN90      | 216     | 345B34          | 7345BAG2JNMR      | 192     | -               | 3129BSN1AV00      | 42   |
| 341L9101        | -                 | 196/254 | 345F34          | 7345FAS3JNMR      | 194     | -               | 3129BSN1EV00      | 42   |
| 341L9201        | -                 | 214     | 345L01          | 7345LDC1LNM8      | 220     | -               | 3129BSN1GV00      | 42   |
| 341L9504        | -                 | 270     | 345L21          | 7345LAV4TNM0      | 218     | -               | 3129BSN1JV00      | 42   |
| 341L9534        | 7341LAKBGNM0      | 270     | 345P21          | 7345PAG1JNM0      | 242     | -               | 3129BSN1LV00      | 42   |
| 341L95341D      | 7341LAKBGN1D      | 270     | 347L11          | -                 | 206/258 | -               | 3131BBN1AV00      | 162  |
| 341L9584        | 7341LAKBGNL2      | 270     | E 347L1130      | 7347LMG2NNM0      | 208     | -               | 3131BBN1EV00      | 162  |
| 341L9588        | 7341LAPBGPL2      | 270     | 347L9101        | -                 | 198/260 | -               | 3131BBN1GV00      | 162  |
| 341L9594        | 7341LAKBGN90      | 270     | 347L9201        | -                 | 214     | -               | 3131BBN1JV00      | 162  |
| 341L9598        | -                 | 270     | 347N11          | 2347NAKBHNM0      | 262     | -               | 3131BBN1LV00      | 162  |
| 341N01          | 2341NAKBJNM1      | 258     | 347N12          | 2347NAKBPNM0      | 268     | -               | 3131BBN1NV00      | 162  |
| U 341N0150      | 2341NRKDJNM1      | 308     | 347N31          | 7347NAKBHNM0      | 262     | -               | 3131BBN1QV00      | 162  |
| 341N02          | 2341NAKBPNM1      | 264     | U 347N3150      | 7347NRKDHNM0      | 314     | -               | 3131BJA7EVC#      | 170  |
| U 341N0250      | 2341NRKNNNM1      | 310     | U 347N3192      | 7347NRKDHN92      | 314     | -               | 3131BJA7GVC#      | 170  |
| 341N11          | 2341NAKBJNM0      | 258     | 347N32          | 7347NAKBPNM0      | 268     | -               | 3131BSN1AV00      | 166  |
| 341N12          | 2341NAKBNNM0      | 264     | U 347N3250      | 7347NRKNNN00      | 314     | -               | 3131BSN1EV00      | 166  |
| 341N21          | 7341NAKBJNM1      | 258     | 347P01          | 2347PAG1HNM0      | 240     | -               | 3131BSN1GV00      | 166  |
| 341N22          | 7341NAKBPNM1      | 264     | 347P02          | 2347PAG2PNM0      | 246     | -               | 3131BSN1JV00      | 166  |
| 341N31          | 7341NAKBJNM0      | 260     | 347P21          | 7347PAG1HNM0      | 240     | -               | 3131BSN1LV00      | 166  |
| 341N31001D      | 7341NAKBJN1D      | 260     | 347P2190        | 7347PAG1HN90      | 240     | -               | 3131BSN1NV00      | 166  |
| 341N3108        | 7341NAKBJP1D      | 260     | 347P22          | 7347PAG2PNM0      | 244     | -               | 3131BSN1QV00      | 166  |
| 341N31081D      | 7341NAKBJP1D      | 260     | U 347P3150      | 7347PRN2JN00      | 304     | -               | 3133BBN1AV00      | 164  |
| U 341N3150      | 7341NRKDJN00      | 308     | U 347P3195      | 7347PRN2JN95      | 304     | -               | 3133BBN1EV00      | 164  |
| U 341N31501D    | 7341NRKDJN1D      | 308     | U 347P3250      | 7347PRN3NN00      | 304     | -               | 3133BBN1GV00      | 164  |
| 341N3180        | 7341NAKBJNL2      | 260     | U 347P3295      | 7347PRN3NN95      | 306     | -               | 3133BBN1JV00      | 164  |
| 341N3190        | 7341NAKBHN90      | 260     | 441N3108        | 7441NAKBJP1D      | 266     | -               | 3133BBN1LV00      | 164  |
| U 341N3192      | 7341NRKDJN92      | 310     | 441P2108        | 7441PAG1JPM0      | 242     | -               | 3133BBN1NV00      | 164  |
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| 7321BBG64NM0      | -               | 58    | 73228BG64TTS0     | 322G8712        | 82        | 7341BAG2PN00      | E 341B01        | 198       |
| 7321BBG78E00      | -               | 82    | 73228BG75TTS0     | 322G8812        | 82        | 7341BAG3PN00      | E 341B11        | 200       |
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## Parker Hannifin Corporation

### About Parker Hannifin Corporation

Parker Hannifin is a leading global motion-control company dedicated to delivering premier customer service. A Fortune 500 corporation listed on the New York Stock Exchange (PH), our components and systems comprise over 1,400 product lines that control motion in some 1,000 industrial and aerospace markets. Parker is the only manufacturer to offer its customers a choice of hydraulic, pneumatic, and electromechanical motion-control solutions. Our Company has the largest distribution network in its field, with over 7,500 distributors serving more than 400,000 customers worldwide.

### Parker's Charter

To be a leading worldwide manufacturer of components and systems for the builders and users of durable goods. More specifically, we will design, market and manufacture products controlling motion, flow and pressure. We will achieve profitable growth through premier customer service.

### Product Information

North American customers seeking product information, the location of a nearby distributor, or repair services will receive prompt attention by calling the Parker Product Information Center at our toll-free number: 1-800-C-PARKER (1-800-272-7537). In the UK, a similar service is available by calling 0500-103-203.

**The Aerospace Group** is a leader in the development, design, manufacture and servicing of control systems and components for aerospace and related high-technology markets, while achieving growth through premier customer service.



**The Climate & Industrial Controls Group** designs, manufactures and sells system controls and protectors to refrigeration and air-conditioning customers worldwide. The Group also provides solenoid valves, process control valves, and gerotors for a multitude of industrial applications.



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