



# VIKING X TREME

## High performance directional control valves

G1/8 - G1/2 body ported

Catalogue: PDE2569TCUK-ca  
Edition: December 2006



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**Important !**  
 Before carrying out any service work, ensure that the valve and manifold have been vented. Remove the primary supply air hose to ensure total disconnection of the air supply before dismantling valves or blank connection blocks.

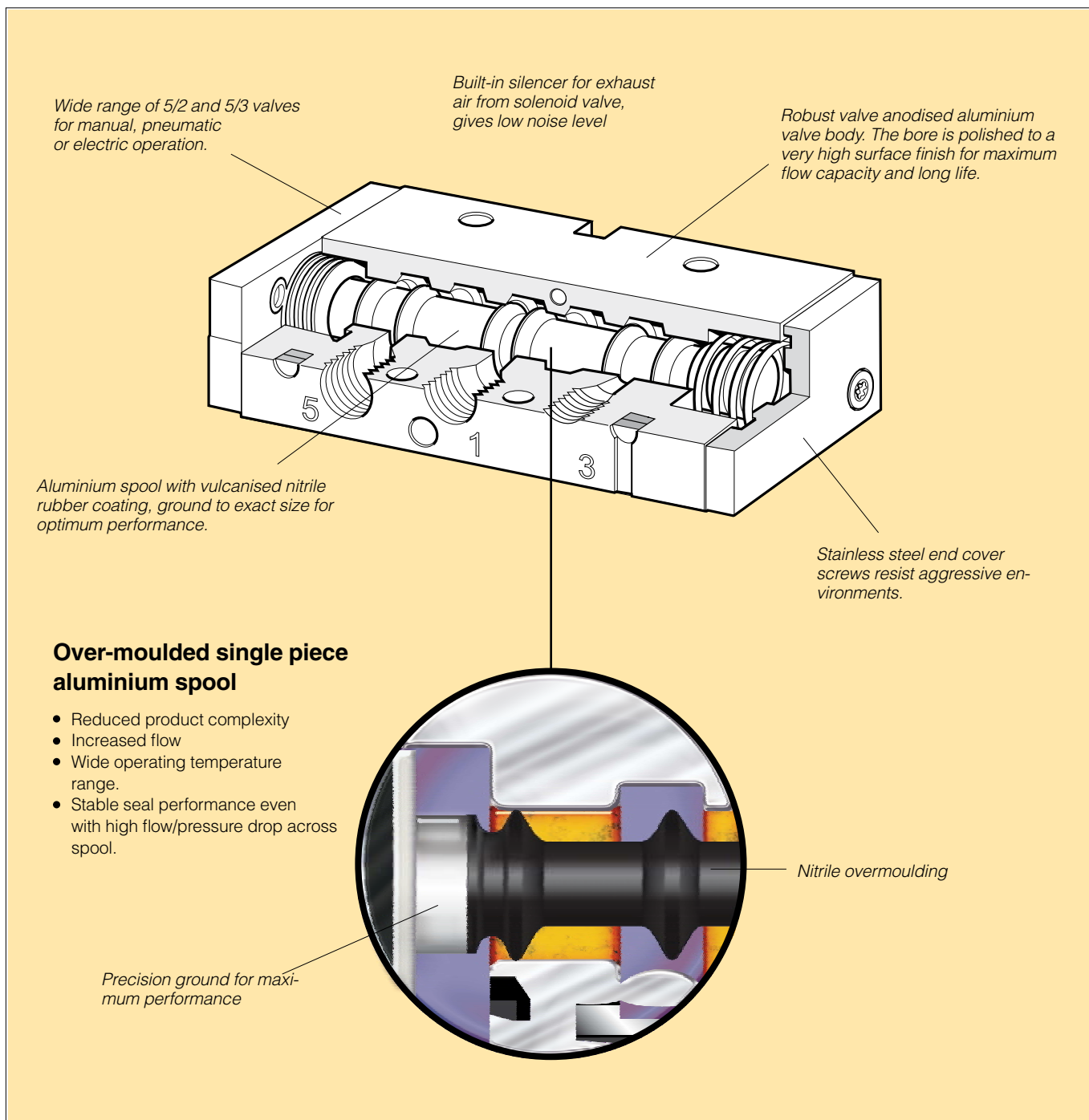
**NB !**  
 All technical data in this catalogue is typical only.  
 The air quality is decisive for the valve life: see ISO 8573.

**WARNING**

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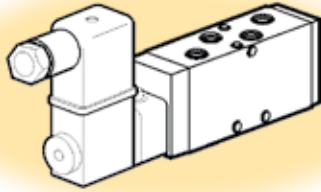


**Viking Xtreme range**

- P2LAX, dimension G1/8**
- P2LBX, dimension G1/4**
- P2LCX, dimension G3/8**
- P2LDX, dimension G1/2**

The Viking Xtreme valve range is robust, versatile and combines high performance with compact installation dimensions. Large flow capacity, short change-over times and low change-over pressure are important characteristics of this valve range.

All 4 sizes are designed to operate with pressures up to 16 bar and with temperature ranges from -40°C to + 60°C

**Compact installation dimensions - flexible installation**

Compact dimensions direct body porting and integral mounting holes are all features of the Viking Xtreme range. In addition to single valve installation, the Viking valve may be installed on manifolds so that the valves have a common supply and manifolded exhausts.

**Rust and corrosion resistant designs.**

Viking valves are made entirely of anodized aluminium, for good corrosion resistance. The smooth design, with no dirt-collecting pockets, makes the valve suitable for most environments, including applications with stringent hygiene requirements. The valve has stainless steel fixing screws for the end covers, to withstand aggressive environments.

**Mobile applications**

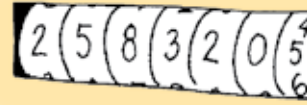
The Viking Xtreme valves have a robust body which is machined out of solid aluminium bar and then anodised. Valves have passed aggressive salt spray, and demanding vibration tests and will operate in ambient temperatures of  $-40^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$ . Solenoids are available having wide voltage tolerance for mobile applications.

**Food Industry Applications**

The Viking Xtreme valves have been designed in conjunction with several machine manufacturers and organisations in the food processing industry, with corrosion-resistant materials and smooth lines. The valves have been designed so that there are no gaps or crevices in which dirt could collect. The solenoid selected for this industry is the 15mm P2E-QV which is made of thermoplastic material and stainless steel, with viton™ and nitrile rubber seals.

**Process Industry Application**

Valves are available with NAMUR interface for direct mounting on quarter turn actuators and process valves.

**High reliability**

Valves easily comply with the requirements for the component reliability in accordance with EU Machinery Directive standards EN292-2 and EN983.

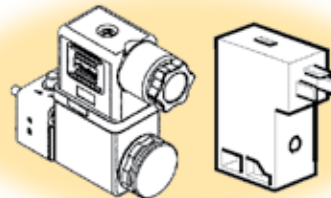
The Viking Xtreme valves have few moving parts combined with short spool movement, these features combine to give valves having high reliability and long service life. The valves are designed for use with or without supplementary lubrication.

**Maintenance**

The Viking Xtreme valve range has been developed from the very successful VGD15 and P2L-A product ranges which have a history of reliable and long service life in demanding and difficult applications. Spares are not required for the main valve or spool but solenoid operators can be replaced if required.

**Manual Override**

Solenoids are available with locking or non-locking manual overrides so that valves can be operated when the electrical supply is turned off.

**A wide range of solenoid valves**

The Viking Xtreme is available with solenoid options having voltage tolerances for mobile applications and for low temperatures down to  $-40^{\circ}\text{C}$ . The standard valve is fitted with a 22mm solenoid having EN175301-803 Industrial form B connector.

Alternative 15mm solenoid is also available having Form C/ISO15217 connector.

**Low noise level**

Valves fitted with the 15mm solenoid option uses captured pilot exhaust which is channelled through the valve body and exhausts to atmosphere through a silencer located in the valve body or end cover. This is particularly important for industries where low noise levels are required. The silencers make it possible for the valves to comply with the EU Machinery Directive, Noise 1.5.8

**High electrical encapsulation class**



The solenoid valves are protected to IP65 with the standard cable plug.

**Wide choice of solenoid connectors/cable plugs**



Solenoid connectors are available with or without LED and rectifier and may be selected fitted pre-wired with flying leads.

**Insensitive to dirty air**

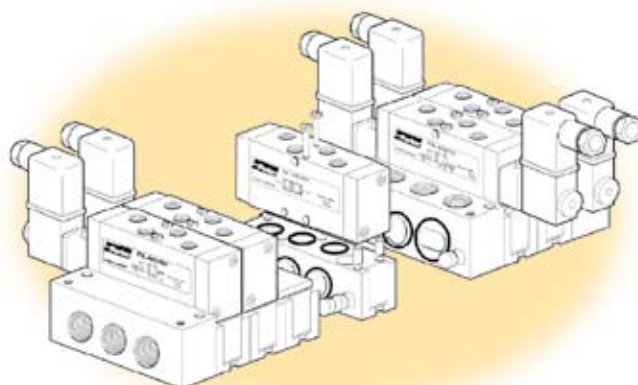


Thanks to large flow passage areas and the large flow diameter of 1.0 in the pilot valves, the P2L-A and P2L-B can be used in normal industrial or mobile environments without any problems of blocking. However the service life of the valve depends on the cleanliness of the air. Please refer to ISO 8573.

**Valves having ATEX approval**

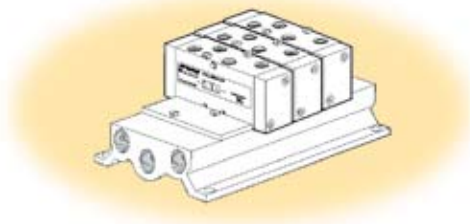
ATEX approved options are available for use in explosive atmospheres. Consult our Technical Sales Department for further information.

**Flexible multiple installation**



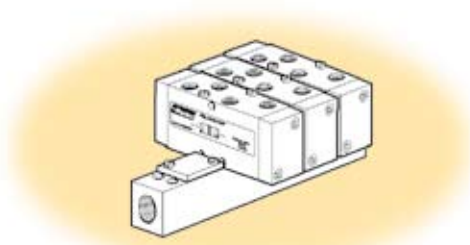
There is a system of multiple installation plates, intermediate blocks and several variants of connectors for the P2L-A. Several variants of connectors are available, which permit connection from above, beneath, straight from the side or in the middle of a valve block. Using the type L manifold, valve blocks may be constructed for supplying several different pressures.

**Manifold bar installation**



A manifold bar, with common ducts for ports 1, 3 and 5 gives simple, time saving and easily serviced installation. Manifold bars are available in several different sizes, with space for between 2 and 14 valves. They are designed for simple handling and are entirely serviced from the front.

**Pressure bar installation**



A pressure bar for common primary air supply gives a simple, robust, time saving and easily serviced installation. When pressure bars are used, restrictor-silencers can be installed in the exhaust ports of each valve, for individual adjustment of cylinder/air motor speed. Pressure bars are available in a number of different sizes, with space ranging from 2 to 10 valves.

## Material specification

### P2LAX

#### Valve

|                              |   |
|------------------------------|---|
| Valve body                   | Anodised aluminium                              |
| End covers                   | Anodised aluminium                              |
| Lever housing                | Acetal plastic                                  |
| Spool                        | Aluminium + nitrile rubber                      |
| Piston                       | Acetal plastic/ Anodised aluminium              |
| End cover sealings           | Nitrile rubber                                  |
| End cover screws             | Stainless steel                                 |
| Springs                      | Dacromet® - processed steel,<br>Stainless steel |
| Lever                        | Reinforced polyamid plastic                     |
| Panel mounting nut           | Polycarbonate plastic                           |
| Gaiter                       | Chloroprene rubber                              |
| Mounting screws for solenoid | Stainless steel                                 |

#### Accessories

|                             |                    |
|-----------------------------|--------------------|
| Manifold bar                | Anodised aluminium |
| Pressure bar                | Anodised aluminium |
| Multiple manifolds          | Anodised aluminium |
| End and intermediate blocks | Anodised aluminium |

### P2LCX

#### Valve

|                              |   |
|------------------------------|---|
| Valve body                   | Anodised aluminium                              |
| End covers                   | Anodised aluminium                              |
| Spool                        | Aluminium + nitrile rubber                      |
| Piston                       | Acetal plastic/ Anodised aluminium              |
| End cover sealings           | Nitrile rubber                                  |
| End cover screws             | Stainless steel                                 |
| Springs                      | Dacromet® - processed steel,<br>Stainless steel |
| Mounting screws for solenoid | Stainless steel                                 |

### P2LBX

#### Valve

|                              |   |
|------------------------------|---|
| Valve body                   | Anodised aluminium                              |
| End covers                   | Anodised aluminium                              |
| Lever housing                | Acetal plastic                                  |
| Spool                        | Aluminium + nitrile rubber                      |
| Piston                       | Acetal plastic/ Anodised aluminium              |
| End cover sealings           | Nitrile rubber                                  |
| End cover screws             | Stainless steel                                 |
| Springs                      | Dacromet® - processed steel,<br>Stainless steel |
| Mounting screws for solenoid | Stainless steel                                 |

#### Accessories

|              |                    |
|--------------|--------------------|
| Manifold bar | Anodised aluminium |
| Pressure bar | Anodised aluminium |

### P2LDX

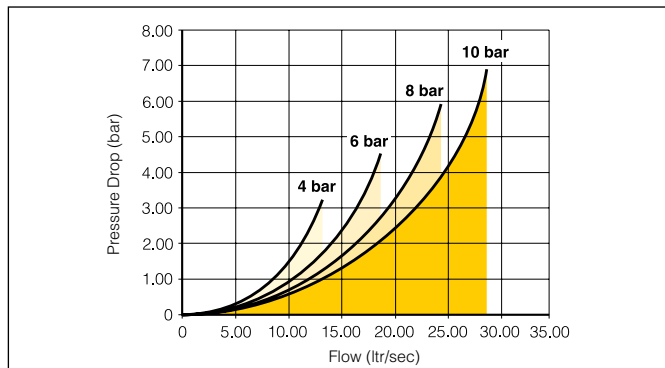
#### Valve

|                              |   |
|------------------------------|---|
| Valve body                   | Anodised aluminium                              |
| End covers                   | Anodised aluminium                              |
| Spool                        | Aluminium + nitrile rubber                      |
| Piston                       | Acetal plastic/ Anodised aluminium              |
| End cover sealings           | Nitrile rubber                                  |
| End cover screws             | Stainless steel                                 |
| Springs                      | Dacromet® - processed steel,<br>Stainless steel |
| Mounting screws for solenoid | Stainless steel                                 |

**Flow characteristics**

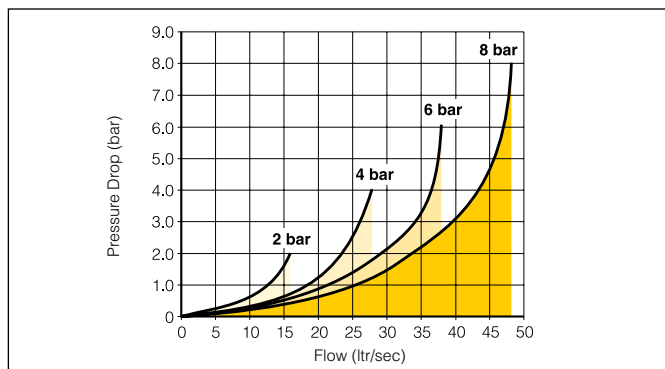
Flow capacities in accordance with ISO6358  
 All pressures = effective pressure  
 The curves in the diagram below are typical only

**Technical Data P2LAX**



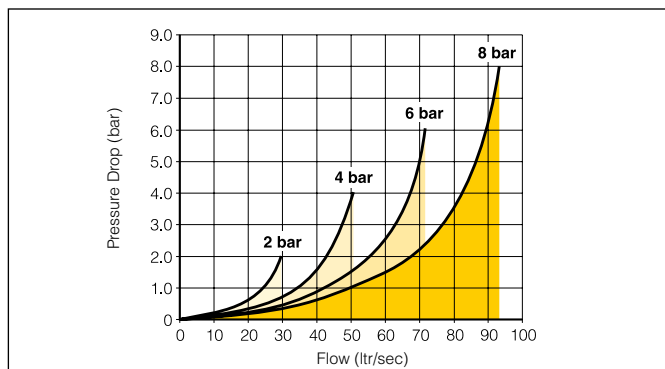
|                            |   |
|----------------------------|---|
| Port size                  | G1/8  |
| Max operating pressure.    | 16 bar  |
| Working temperature.       |   |
| Air pilot lever solenoid.  | -40°C to + 60°C   |
| Standard and food version. | -10°C to + 50°C   |
| Mobile version.            | -40°C to + 50°C   |
| Flow (acc. to ISO 6358)    | $c = 3,0 \text{ NI/s} \times \text{bar}$<br>$b = 0,2$<br>$Q_n = 11,0 \text{ l/s}$<br>$Q_{max} = 19,0 \text{ l/s}$<br>$C_v = 0,65$ |

**Technical Data P2LBX**



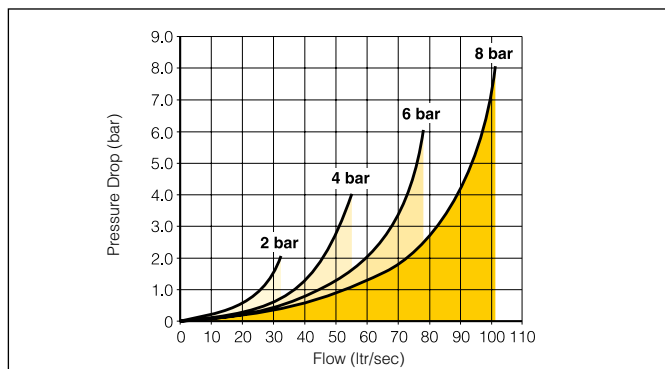
|                            |   |
|----------------------------|---|
| Port size                  | G1/4  |
| Max operating pressure.    | 16 bar  |
| Working temperature.       |   |
| Air pilot solenoid.        | -40°C to + 60°C   |
| Standard and food version. | -10°C to + 50°C   |
| Mobile version.            | -40°C to + 50°C   |
| Flow (acc. to ISO 6358)    | $c = 5,4 \text{ NI/s} \times \text{bar}$<br>$b = 0,2$<br>$Q_n = 21,5 \text{ l/s}$<br>$Q_{max} = 38,0 \text{ l/s}$<br>$C_v = 1,33$ |

**Technical Data P2LCX**



|                            |  |
|----------------------------|--|
| Port size                  | G3/8   |
| Max operating pressure.    | 16 bar   |
| Working temperature.       |  |
| Air pilot solenoid.        | -40°C to + 60°C  |
| Standard and food version. | -10°C to + 50°C  |
| Mobile version.            | -40°C to + 50°C  |
| Flow (acc. to ISO 6358)    | $c = 10,3 \text{ NI/s} \times \text{bar}$<br>$b = 0,22$<br>$Q_n = 41,0 \text{ l/s}$<br>$Q_{max} = 72,0 \text{ l/s}$<br>$C_v = 2,5$ |

**Technical Data P2LDX**



|                            |  |
|----------------------------|--|
| Port size                  | G1/2   |
| Max operating pressure.    | 16 bar   |
| Working temperature.       |  |
| Air pilot solenoid.        | -40°C to + 60°C  |
| Standard and food version. | -10°C to + 50°C  |
| Mobile version.            | -40°C to + 50°C  |
| Flow (acc. to ISO 6358)    | $c = 11,3 \text{ NI/s} \times \text{bar}$<br>$b = 0,3$<br>$Q_n = 44,3 \text{ l/s}$<br>$Q_{max} = 78 \text{ l/s}$<br>$C_v = 2,71$ |

Order chart - Viking Xtreme air pilot & lever valves - Xtreme operating pressure / temperature

|              |
|--------------|
| <b>P 2 L</b> |
| <b>A</b>     |
| <b>X</b>     |
| <b>5</b>     |
| <b>1 1</b>   |
| <b>P S</b>   |

| Valve family |                     |
|--------------|---------------------|
| <b>P2L</b>   | Viking inline valve |

| Size     |     |
|----------|-----|
| <b>A</b> | 1/8 |
| <b>B</b> | 1/4 |
| <b>C</b> | 3/8 |
| <b>D</b> | 1/2 |

| Version  |                   |
|----------|-------------------|
| <b>X</b> | Xtreme duty spool |

\* Xtreme duty spool suitable for max operating pressure 16 bar. Temperature range -40°C to +60°C

| Port thread |               |
|-------------|---------------|
| <b>11</b>   | G1/8          |
| <b>12</b>   | G1/4          |
| <b>13</b>   | G3/8          |
| <b>14</b>   | G1/2          |
| <b>91</b>   | 1/8 NPT       |
| <b>92</b>   | 1/4 NPT       |
| <b>93</b>   | 3/8 NPT       |
| <b>94</b>   | 1/2 NPT       |
| <b>1N</b>   | Namur G1/4    |
| <b>9N</b>   | Namur 1/4 NPT |

| Valve type function           |  |                                  |
|-------------------------------|--|----------------------------------|
| Manual and pneumatic operated |  |                                  |
| <b>5</b>                      |  | 5/2 valve                        |
| <b>6</b>                      |  | 5/3 valve closed centre position |
| <b>7</b>                      |  | 5/3 valve pressurised centre     |
| <b>8</b>                      |  | 5/3 valve vented centre          |

| Pilot main actuator/return |   |
|----------------------------|---|
| <b>P</b>                   | Air signal  |
| <b>S</b>                   | Spring (return only)  |
| <b>V</b>                   | Lever, 2 positions, 90° to ports (available in A version only)              |
| <b>1</b>                   | Lever, 3 positions self centred, 90° to ports (available on A version only) |
| <b>2</b>                   | Lever, held 3 positions, 90° to ports (available on A version only)         |

Shaded part numbers are standard

**Pneumatic and lever operated valves - Xtreme operating pressure / temperature**

Max operating pressure 16 bar, temp range -40°C to +60°C

| Symbol  | Size | Actuation     | Return     | Signal pressure<br>min. (bar)<br>at 6 bar<br>actua./return | Changeover<br>time (ms)<br>at 6 bar<br>actua./return | Weight<br>Kg | Order code        |
|---|------|---------------|------------|--|--|--------------|-------------------|
| <b>5/2 valves, temperature -40°C to +60°C</b> |      |               |            |  |  |              |                   |
|   | G1/8 | Air signal    | Air signal | 1,5/1,5  | 6/6  | 0,14         | <b>P2LAX511PP</b> |
|   | G1/4 |               |            | 1,5/1,5  | 10/10  | 0,30         | <b>P2LBX512PP</b> |
|   | G3/8 |               |            | 1,5/1,5  | 12/12  | 0,45         | <b>P2LCX513PP</b> |
|   | G1/2 |               |            | 1,5/1,5  | 20/20  | 0,45         | <b>P2LDX514PP</b> |
|   | G1/8 | Air signal    | Spring     | 3,2/-  | 8/18   | 0,15         | <b>P2LAX511PS</b> |
|   | G1/4 |               |            | 3,5/-  | 15/25  | 0,32         | <b>P2LBX512PS</b> |
|   | G3/8 |               |            | 3,5/-  | 10/15  | 0,45         | <b>P2LCX513PS</b> |
|   | G1/2 |               |            | 3,5/-  | 20/25  | 0,45         | <b>P2LDX514PS</b> |
| <b>5/3 valves, temperature -40°C to +60°C</b> |      |               |            |  |  |              |                   |
|   | G1/8 | Air signal    | Air signal | 3,8/-  | 10/20  | 0,15         | <b>P2LAX611PP</b> |
|   | G1/4 | Closed centre | Self       | 3,8/-  | 15/25  | 0,33         | <b>P2LBX612PP</b> |
|   | G3/8 | position      | centring   | 3,8/-  | 20/30  | 0,50         | <b>P2LCX613PP</b> |
|   | G1/2 |               |            | 3,8/-  | 20/40  | 0,50         | <b>P2LDX614PP</b> |
|   | G1/8 | Air signal    | Air signal | 3,8/-  | 10/20  | 0,15         | <b>P2LAX811PP</b> |
|   | G1/4 | Vented centre | Self       | 3,8/-  | 15/25  | 0,33         | <b>P2LBX812PP</b> |
|   | G3/8 | position      | centring   | 3,8/-  | 20/30  | 0,50         | <b>P2LCX813PP</b> |
|   | G1/2 |               |            | 3,8/-  | 20/40  | 0,50         | <b>P2LDX814PP</b> |
|   | G1/8 | Air signal    | Air signal | 3,8/-  | 10/20  | 0,15         | <b>P2LAX711PP</b> |
|   | G1/4 | Pressurised   | Self       | 3,8/-  | 15/25  | 0,33         | <b>P2LBX712PP</b> |
|   | G3/8 | centre        | centring   | 3,8/-  | 20/30  | 0,50         | <b>P2LCX713PP</b> |
|   | G1/2 | position      |            | 3,8/-  | 20/40  | 0,50         | <b>P2LDX714PP</b> |

**Lever operated directional control valves**

Max operating pressure 16 bar, temp range -40°C to +60°C.

| Symbol  | Size | Actuation | Return | Changeover<br>angle | Type | Weight<br>Kg | Order code        |
|---|------|-----------|--------|---------------------|------|--------------|-------------------|
| <b>5/2 valves, standard temperature, lever 90° to ports</b> |      |           |        |                     |      |              |                   |
|   | G1/8 | Lever     | Lever  | 28°                 | Std. | 0,18         | <b>P2LAX511VV</b> |
|   | G1/8 | Lever     | Spring | 28°                 | Std. | 0,18         | <b>P2LAX511VS</b> |
| <b>5/3 valves, standard temperature, lever 90° to ports</b> |      |           |        |                     |      |              |                   |
|   | G1/8 | Lever     | Lever  | ±14°                | Std. | 0,18         | <b>P2LAX61122</b> |
|   | G1/8 | Lever     | Lever  | ±14°                | Std. | 0,18         | <b>P2LAX81122</b> |
|   | G1/8 | Lever     | Lever  | ±14°                | Std. | 0,18         | <b>P2LAX71122</b> |
|   | G1/8 | Lever     | Lever  | ±14°                | Std. | 0,18         | <b>P2LAX61111</b> |
|   | G1/8 | Lever     | Lever  | ±14°                | Std. | 0,18         | <b>P2LAX81111</b> |
|   | G1/8 | Lever     | Lever  | ±14°                | Std. | 0,18         | <b>P2LAX71111</b> |

Order chart - Viking Xtreme Normal Operating Pressure / Temperature

|          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| <b>P</b> | <b>2</b> | <b>L</b> | <b>A</b> | <b>X</b> | <b>5</b> | <b>1</b> | <b>1</b> | <b>E</b> | <b>S</b> | <b>N</b> | <b>D</b> | <b>D</b> | <b>B</b> | <b>4</b> | <b>9</b> |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|

| Valve family |                     |
|--------------|---------------------|
| <b>P2L</b>   | Viking inline valve |

| Size     |     |
|----------|-----|
| <b>A</b> | 1/8 |
| <b>B</b> | 1/4 |
| <b>C</b> | 3/8 |
| <b>D</b> | 1/2 |

| Version  |                   |
|----------|-------------------|
| <b>X</b> | Xtreme duty spool |

| Port thread |               |
|-------------|---------------|
| <b>11</b>   | G1/8          |
| <b>12</b>   | G1/4          |
| <b>13</b>   | G3/8          |
| <b>14</b>   | G1/2          |
| <b>91</b>   | 1/8 NPT       |
| <b>92</b>   | 1/4 NPT       |
| <b>93</b>   | 3/8 NPT       |
| <b>94</b>   | 1/2 NPT       |
| <b>1N</b>   | Namur G1/4    |
| <b>9N</b>   | Namur 1/4 NPT |

| Solenoid pilot type |                        |
|---------------------|------------------------|
| <b>N</b>            | 10 bar / -10°C to 50°C |

| Solenoid exhaust |                      |
|------------------|----------------------|
| <b>D</b>         | Vented               |
| <b>N</b>         | Captured/tapped M5   |
| <b>X</b>         | 15mm solenoid vented |

| Valve type function  |                                  |
|--|----------------------------------|
| <b>Solenoid operated with internal supply to solenoid</b>                                    |                                  |
| <b>5</b>   | 5/2 valve                        |
| <b>6</b>   | 5/3 valve closed centre position |
| <b>7</b>   | 5/3 valve pressurised centre     |
| <b>8</b>   | 5/3 valve vented centre          |
| <b>Solenoid operated with external pilot supply to solenoids through ports #12 &amp; #14</b> |                                  |
| <b>N</b>   | 5/2 valve                        |
| <b>P</b>   | 5/3 valve closed centre position |
| <b>Q</b>   | 5/3 valve pressurised centre     |
| <b>R</b>   | 5/3 valve vented centre          |

| Pilot main actuator / Return |                         |
|------------------------------|-------------------------|
| <b>E</b>                     | Solenoid operated valve |
| <b>S</b>                     | Spring (return only)    |
| <b>P</b>                     | Press (return only)     |

| Overrides            |                      |
|----------------------|----------------------|
| <b>A*</b>            | None                 |
| <b>B*</b>            | Flush - non locking  |
| <b>C</b>             | Flush - locking      |
| <b>D<sup>1</sup></b> | Extended non-locking |
| <b>E*</b>            | Extended - locking   |
| <b>X</b>             | Less 15mm solenoid   |

\* Only available with enclosure 5  
<sup>1</sup> 22mm solenoid option

| Voltage      |                          |      |    |
|--------------|--------------------------|------|----|
|              | AC                       |      | DC |
|              | 60Hz                     | 50Hz |    |
| <b>40</b>    | 12                       |      |    |
| <b>42</b>    | 24                       | 22   |    |
| <b>45</b>    |                          |      | 12 |
| <b>47*</b>   |                          |      | 12 |
| <b>48*</b>   |                          |      | 24 |
| <b>49</b>    |                          |      | 24 |
| <b>53</b>    | 120                      | 110  |    |
| <b>57</b>    | 240                      | 230  |    |
| <b>blank</b> | valve less solenoid/coil |      |    |

\* If 22mm solenoid required on Mobile applications use model code on page 15. Alternatively check operating temperature and pressures with our technical department.

| Solenoid enclosure / Lead length |   |
|----------------------------------|---|
| <b>5</b>                         | 15mm, 3 pin Form C/ISO15217 in line with body |
| <b>B</b>                         | 22mm 3-pin Industrial Form B with coil        |
| <b>N</b>                         | 22mm solenoid pilot less coil                 |
| <b>X</b>                         | Valve less 15mm solenoid                      |

Shaded part numbers are standard

**Solenoid operated directional control valves fitted with 15mm solenoid(s) 24V DC**

Solenoid plug/connector to ordered separately. See page 34

Internal supply to solenoid valve(s) via port 1. Max operating pressure 10 bar, temp range -10°C to +50°C

| Symbol  | Size | Actuation       | Return          | Signal pressure<br>min. (bar)<br>at 6 bar<br>actua./return | Changeover<br>time (ms)<br>at 6 bar<br>actua./return | Weight<br>Kg | Order code              |
|---|------|-----------------|-----------------|--|--|--------------|-------------------------|
| <b>5/2 valves, internal air, standard temperature</b> |      |                 |                 |  |  |              |                         |
|   | G1/8 | Electric signal | Electric signal | 1,5/1,5  | 10/10  | 0,27         | <b>P2LAX511EENXB549</b> |
|   | G1/4 |                 |                 | 1,5/1,5  | 22/22  | 0,42         | <b>P2LBX512EENXB549</b> |
|   | G3/8 |                 |                 | 1,5/1,5  | 40/40  | 0,53         | <b>P2LCX513EENXB549</b> |
|   | G1/2 |                 |                 | 1,5/1,5  | 40/40  | 0,53         | <b>P2LDX514EENXB549</b> |
|   | G1/8 | Electric signal | Spring          | 3,2/-  | 12/30  | 0,22         | <b>P2LAX511ESNXB549</b> |
|   | G1/4 |                 |                 | 3,5/-  | 15/25  | 0,38         | <b>P2LBX512ESNXB549</b> |
|   | G3/8 |                 |                 | 3,5/-  | 25/65  | 0,50         | <b>P2LCX513ESNXB549</b> |
|   | G1/2 |                 |                 | 3,5/-  | 25/65  | 0,50         | <b>P2LDX514ESNXB549</b> |
| <b>5/3 valves, internal air, standard temperature</b> |      |                 |                 |  |  |              |                         |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAX611EENXB549</b> |
|   | G1/4 | Closed centre   | Self            | 3,8/-  | 25/30  | 0,44         | <b>P2LBX612EENXB549</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 0,55         | <b>P2LCX613EENXB549</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 0,55         | <b>P2LDX614EENXB549</b> |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAX811EENXB549</b> |
|   | G1/4 | Vented centre   | Self            | 3,8/-  | 25/30  | 0,44         | <b>P2LBX812EENXB549</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 0,55         | <b>P2LCX813EENXB549</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 0,55         | <b>P2LDX814EENXB549</b> |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAX711EENXB549</b> |
|   | G1/4 | Pressurised     | Self            | 3,8/-  | 25/30  | 0,44         | <b>P2LBX712EENXB549</b> |
|   | G3/8 | centre          | centring        | 3,8/-  | 90/90  | 0,55         | <b>P2LCX713EENXB549</b> |
|   | G1/2 | position        |                 | 3,8/-  | 90/90  | 0,55         | <b>P2LDX714EENXB549</b> |

**Solenoid operated directional control valves fitted with adapter to accept 15mm solenoid(s)**

Solenoid operator(s) and connector/plug(s) should be ordered separately. See page 30 & 34







Internal supply to solenoid valve(s) via port 1. Max operating pressure 10 bar, temp range -10°C to +50°C

| Symbol  | Size | Actuation       | Return          | Signal pressure<br>min. (bar)<br>at 6 bar<br>actua./return | Changeover<br>time (ms)<br>at 6 bar<br>actua./return | Weight<br>Kg | Order code            |
|---|------|-----------------|-----------------|--|--|--------------|-----------------------|
| <b>5/2 valves, internal air, standard temperature</b> |      |                 |                 |  |  |              |                       |
|   | G1/8 | Electric signal | Electric signal | 1,5/1,5  | 10/10  | 0,27         | <b>P2LAX511EENXXX</b> |
|   | G1/4 |                 |                 | 1,5/1,5  | 22/22  | 0,42         | <b>P2LBX512EENXXX</b> |
|   | G3/8 |                 |                 | 1,5/1,5  | 40/40  | 0,45         | <b>P2LCX513EENXXX</b> |
|   | G1/2 |                 |                 | 1,5/1,5  | 40/40  | 0,45         | <b>P2LDX514EENXXX</b> |
|   | G1/8 | Electric signal | Spring          | 3,2/-  | 12/30  | 0,22         | <b>P2LAX511ESNXXX</b> |
|   | G1/4 |                 |                 | 3,5/-  | 15/25  | 0,38         | <b>P2LBX512ESNXXX</b> |
|   | G3/8 |                 |                 | 3,5/-  | 25/65  | 0,42         | <b>P2LCX513ESNXXX</b> |
|   | G1/2 |                 |                 | 3,5/-  | 25/65  | 0,42         | <b>P2LDX514ESNXXX</b> |
|   | G1/8 | Electric signal | Air signal      | 1,5/1,5  | 10/6   | 0,22         | <b>P2LAX511EPNXXX</b> |
|   | G1/4 |                 |                 | 1,5/1,5  | 22/10  | 0,38         | <b>P2LBX512EPNXXX</b> |
|   | G3/8 |                 |                 | 1,5/1,5  | 22/10  | 0,76         | <b>P2LCX513EPNXXX</b> |
|   | G1/2 |                 |                 | 1,5/1,5  | 25/40  | 0,80         | <b>P2LDX514EPNXXX</b> |
| <b>5/3 valves, internal air, standard temperature</b> |      |                 |                 |  |  |              |                       |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAX611EENXXX</b> |
|   | G1/4 | Closed centre   | Self            | 3,8/-  | 25/30  | 0,44         | <b>P2LBX612EENXXX</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 0,55         | <b>P2LCX613EENXXX</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 0,55         | <b>P2LDX614EENXXX</b> |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAX811EENXXX</b> |
|   | G1/4 | Vented centre   | Self            | 3,8/-  | 25/30  | 0,44         | <b>P2LBX812EENXXX</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 0,55         | <b>P2LCX813EENXXX</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 0,55         | <b>P2LDX814EENXXX</b> |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAX711EENXXX</b> |
|   | G1/4 | Pressurised     | Self            | 3,8/-  | 25/30  | 0,44         | <b>P2LBX712EENXXX</b> |
|   | G3/8 | centre          | centring        | 3,8/-  | 90/90  | 0,55         | <b>P2LCX713EENXXX</b> |
|   | G1/2 | position        |                 | 3,8/-  | 90/90  | 0,55         | <b>P2LDX714EENXXX</b> |

## Solenoid operated directional control valves fitted with adapter to accept 15mm solenoid(s)

Solenoid operator(s) and connector/plug(s) should be ordered separately. See page 30 & 34

External supply to solenoid valve(s) via ports 12 & 14. Max operating pressure 10 bar, temp range -10°C to +50°C

| Symbol  | Size | Actuation       | Return          | Signal pressure<br>min. (bar)<br>at 6 bar<br>actua./return | Changeover<br>time (ms)<br>at 6 bar<br>actua./return | Weight<br>Kg | Order code            |
|---|------|-----------------|-----------------|--|--|--------------|-----------------------|
| <b>5/2 valves, external air, standard temperature</b>                               |      |                 |                 |  |  |              |                       |
|    | G1/8 | Electric signal | Electric signal | 1,5/1,5  | 10/10  | 0,19         | <b>P2LAXN11EENXXX</b> |
|   | G1/4 |                 |                 | 1,5/1,5  | 22/22  | 0,34         | <b>P2LBXN12EENXXX</b> |
|   | G3/8 |                 |                 | 1,5/1,5  | 40/40  | 0,45         | <b>P2LCXN13EENXXX</b> |
|   | G1/2 |                 |                 | 1,5/1,5  | 40/40  | 0,45         | <b>P2LDXN14EENXXX</b> |
|    | G1/8 | Electric signal | Spring          | 3,2/-  | 12/30  | 0,18         | <b>P2LAXN11ESNXXX</b> |
|   | G1/4 |                 |                 | 3,5/-  | 15/25  | 0,34         | <b>P2LBXN12ESNXXX</b> |
|   | G3/8 |                 |                 | 3,5/-  | 25/65  | 0,42         | <b>P2LCXN13ESNXXX</b> |
|   | G1/2 |                 |                 | 3,5/-  | 25/65  | 0,42         | <b>P2LDXN14ESNXXX</b> |
|    | G1/8 | Electric signal | Air signal      | 1,5/1,5  | 10/10  | 0,19         | <b>P2LAXN11EPNXXX</b> |
|   | G1/4 |                 |                 | 1,5/1,5  | 22/22  | 0,34         | <b>P2LBXN12EPNXXX</b> |
|   | G3/8 |                 |                 | 1,5/1,5  | 40/40  | 0,45         | <b>P2LCXN13EPNXXX</b> |
|   | G1/2 |                 |                 | 1,5/1,5  | 40/40  | 0,45         | <b>P2LDXN14EPNXXX</b> |
| <b>5/3 valves, external air, standard temperature</b>                               |      |                 |                 |  |  |              |                       |
|    | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,20         | <b>P2LAXP11EENXXX</b> |
|   | G1/4 | Closed centre   | Self            | 3,8/-  | 25/30  | 0,36         | <b>P2LBXP12EENXXX</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 0,55         | <b>P2LCXP13EENXXX</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 0,55         | <b>P2LDXP14EENXXX</b> |
|  | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,20         | <b>P2LAXR11EENXXX</b> |
|   | G1/4 | Vented centre   | Self            | 3,8/-  | 25/30  | 0,36         | <b>P2LBXR12EENXXX</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 0,55         | <b>P2LCXR13EENXXX</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 0,55         | <b>P2LDXR14EENXXX</b> |
|  | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,20         | <b>P2LAXQ11EENXXX</b> |
|   | G1/4 | Pressurised     | Self            | 3,8/-  | 25/30  | 0,36         | <b>P2LBXQ12EENXXX</b> |
|   | G3/8 | centre          | centring        | 3,8/-  | 90/90  | 0,55         | <b>P2LCXQ13EENXXX</b> |
|   | G1/2 | position        |                 | 3,8/-  | 90/90  | 0,55         | <b>P2LDXQ14EENXXX</b> |

**Solenoid operated directional control valves fitted with 22mm solenoid(s) 24V DC**

Solenoid plug/connector to be ordered separately. See page 34

Internal supply to solenoid valve(s) via port 1. Max operating pressure 10 bar, Temperature range -10°C to +50°C

| Symbol  | Size | Actuation       | Return          | Signal pressure<br>min. (bar)<br>at 6 bar<br>actua./return | Changeover<br>time (ms)<br>at 6 bar<br>actua./return | Weight<br>Kg | Order code              |
|---|------|-----------------|-----------------|--|--|--------------|-------------------------|
| <b>5/2 valves, internal air, standard temperature</b> |      |                 |                 |  |  |              |                         |
|   | G1/8 | Electric signal | Electric signal | 1,5/1,5  | 10/10  | 0,27         | <b>P2LAX511EENDDB49</b> |
|   | G1/4 |                 |                 | 1,5/1,5  | 22/22  | 0,42         | <b>P2LBX512EENDDB49</b> |
|   | G3/8 |                 |                 | 1,5/1,5  | 40/40  | 0,81         | <b>P2LCX513EENDDB49</b> |
|   | G1/2 |                 |                 | 1,5/1,5  | 40/40  | 0,81         | <b>P2LDX514EENDDB49</b> |
|   | G1/8 | Electric signal | Spring          | 3,2/-  | 12/30  | 0,22         | <b>P2LAX511ESNDDB49</b> |
|   | G1/4 |                 |                 | 3,5/-  | 15/25  | 0,38         | <b>P2LBX512ESNDDB49</b> |
|   | G3/8 |                 |                 | 3,5/-  | 25/65  | 0,76         | <b>P2LCX513ESNDDB49</b> |
|   | G1/2 |                 |                 | 3,5/-  | 25/65  | 0,76         | <b>P2LDX514ESNDDB49</b> |
| <b>5/3 valves, internal air, standard temperature</b> |      |                 |                 |  |  |              |                         |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAX611EENDDB49</b> |
|   | G1/4 | Closed centre   | Self            | 3,8/-  | 25/30  | 0,44         | <b>P2LBX612EENDDB49</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 1,11         | <b>P2LCX613EENDDB49</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 1,11         | <b>P2LDX614EENDDB49</b> |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAX811EENDDB49</b> |
|   | G1/4 | Vented centre   | Self            | 3,8/-  | 25/30  | 0,44         | <b>P2LBX812EENDDB49</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 1,11         | <b>P2LCX813EENDDB49</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 1,11         | <b>P2LDX814EENDDB49</b> |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAX711EENDDB49</b> |
|   | G1/4 | Pressurised     | Self            | 3,8/-  | 25/30  | 0,44         | <b>P2LBX712EENDDB49</b> |
|   | G3/8 | centre          | centring        | 3,8/-  | 90/90  | 1,11         | <b>P2LCX713EENDDB49</b> |
|   | G1/2 | position        |                 | 3,8/-  | 90/90  | 1,11         | <b>P2LDX714EENDDB49</b> |

**Solenoid operated directional control valves**

**(supplied with 22mm solenoid operator less coil)** See page 33 for coil part numbers




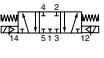
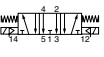

Internal supply to solenoid valve(s) via port 1.

| Symbol  | Size | Actuation       | Return          | Signal pressure<br>min. (bar)<br>at 6 bar<br>actua./return | Changeover<br>time (ms)<br>at 6 bar<br>actua./return | Weight<br>Kg | Order code            |
|---|------|-----------------|-----------------|--|--|--------------|-----------------------|
| <b>5/2 valves, internal air, standard temperature</b> |      |                 |                 |  |  |              |                       |
|   | G1/8 | Electric signal | Electric signal | 1,5/1,5  | 10/10  | 0,16         | <b>P2LAX511EENDDN</b> |
|   | G1/4 |                 |                 | 1,5/1,5  | 22/22  | 0,31         | <b>P2LBX512EENDDN</b> |
|   | G3/8 |                 |                 | 1,5/1,5  | 40/40  | 0,41         | <b>P2LCX513EENDDN</b> |
|   | G1/2 |                 |                 | 1,5/1,5  | 40/40  | 0,41         | <b>P2LDX514EENDDN</b> |
|   | G1/8 | Electric signal | Spring          | 3,2/-  | 12/30  | 0,16         | <b>P2LAX511ESNDDN</b> |
|   | G1/4 |                 |                 | 3,5/-  | 15/25  | 0,31         | <b>P2LBX512ESNDDN</b> |
|   | G3/8 |                 |                 | 3,5/-  | 25/65  | 0,40         | <b>P2LCX513ESNDDN</b> |
|   | G1/2 |                 |                 | 3,5/-  | 25/65  | 0,40         | <b>P2LDX514ESNDDN</b> |
|   | G1/8 | Electric signal | Air signal      | 1,5/1,5  | 10/6   | 0,16         | <b>P2LAX511EPNDDN</b> |
|   | G1/4 |                 |                 | 1,5/1,5  | 22/10  | 0,31         | <b>P2LBX512EPNDDN</b> |
|   | G3/8 |                 |                 | 1,5/1,5  | 25/40  | 0,40         | <b>P2LCX513EPNDDN</b> |
|   | G1/2 |                 |                 | 1,5/1,5  | 25/40  | 0,40         | <b>P2LDX514EPNDDN</b> |
| <b>5/3 valves, internal air, standard temperature</b> |      |                 |                 |  |  |              |                       |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,17         | <b>P2LAX611EENDDN</b> |
|   | G1/4 | Closed centre   | Self            | 3,8/-  | 25/30  | 0,33         | <b>P2LBX612EENDDN</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 1,00         | <b>P2LCX613EENDDN</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 1,00         | <b>P2LDX614EENDDN</b> |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,17         | <b>P2LAX811EENDDN</b> |
|   | G1/4 | Vented centre   | Self            | 3,8/-  | 25/30  | 0,33         | <b>P2LBX812EENDDN</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 1,00         | <b>P2LCX813EENDDN</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 1,00         | <b>P2LDX814EENDDN</b> |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,17         | <b>P2LAX711EENDDN</b> |
|   | G1/4 | Pressurised     | Self            | 3,8/-  | 25/30  | 0,33         | <b>P2LBX712EENDDN</b> |
|   | G3/8 | centre          | centring        | 3,8/-  | 90/90  | 1,00         | <b>P2LCX713EENDDN</b> |
|   | G1/2 | position        |                 | 3,8/-  | 90/90  | 1,00         | <b>P2LDX714EENDDN</b> |

## Solenoid operated directional control valves (supplied with 22mm solenoid less coil)

See page 33 for coil part numbers

External supply to solenoid valve(s) via ports 12 and 14. Standard temp. range -10°C to +50°C. Max operating pressure 10 bar

| Symbol  | Size | Actuation       | Return          | Signal pressure<br>min. (bar)<br>at 6 bar<br>actua./return | Changeover<br>time (ms)<br>at 6 bar<br>actua./return | Weight<br>Kg | Order code            |
|---|------|-----------------|-----------------|--|--|--------------|-----------------------|
| <b>5/2 valves, external air, standard temperature</b>                               |      |                 |                 |  |  |              |                       |
|    | G1/8 | Electric signal | Electric signal | 1,5/1,5  | 10/10  | 0,16         | <b>P2LAXN11EENDDN</b> |
|   | G1/4 |                 |                 | 1,5/1,5  | 22/22  | 0,31         | <b>P2LBXN12EENDDN</b> |
|   | G3/8 |                 |                 | 1,5/1,5  | 40/40  | 0,70         | <b>P2LCXN13EENDDN</b> |
|   | G1/2 |                 |                 | 1,5/1,5  | 40/40  | 0,70         | <b>P2LDXN14EENDDN</b> |
|    | G1/8 | Electric signal | Spring          | 3,2/-  | 12/30  | 0,16         | <b>P2LAXN11ESNDDN</b> |
|   | G1/4 |                 |                 | 3,5/-  | 15/25  | 0,30         | <b>P2LBXN12ESNDDN</b> |
|   | G3/8 |                 |                 | 3,5/-  | 25/65  | 0,70         | <b>P2LCXN13ESNDDN</b> |
|   | G1/2 |                 |                 | 3,5/-  | 25/65  | 0,70         | <b>P2LDXN14ESNDDN</b> |
|    | G1/8 | Electric signal | Air signal      | 1,5/1,5  | 10/6   | 0,16         | <b>P2LAXN11EPNDDN</b> |
|   | G1/4 |                 |                 | 1,5/1,5  | 22/10  | 0,32         | <b>P2LBXN12EPNDDN</b> |
|   | G3/8 |                 |                 | 1,5/1,5  | 25/40  | 0,70         | <b>P2LCXN13EPNDDN</b> |
|   | G1/2 |                 |                 | 1,5/1,5  | 25/40  | 0,70         | <b>P2LDXN14EPNDDN</b> |
| <b>5/3 valves, external air, standard temperature</b>                               |      |                 |                 |  |  |              |                       |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,17         | <b>P2LAXP11EENDDN</b> |
|   | G1/4 | Closed centre   | Self            | 3,8/-  | 25/30  | 0,33         | <b>P2LBXP12EENDDN</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 1,00         | <b>P2LCXP13EENDDN</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 1,00         | <b>P2LDXP14EENDDN</b> |
|  | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,17         | <b>P2LAXR11EENDDN</b> |
|   | G1/4 | Vented centre   | Self            | 3,8/-  | 25/30  | 0,33         | <b>P2LBXR12EENDDN</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 1,00         | <b>P2LCXR13EENDDN</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 1,00         | <b>P2LDXR14EENDDN</b> |
|  | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,17         | <b>P2LAXQ11EENDDN</b> |
|   | G1/4 | Pressurised     | Self            | 3,8/-  | 25/30  | 0,33         | <b>P2LBXQ12EENDDN</b> |
|   | G3/8 | centre          | centring        | 3,8/-  | 90/90  | 1,00         | <b>P2LCXQ13EENDDN</b> |
|   | G1/2 | position        |                 | 3,8/-  | 90/90  | 1,00         | <b>P2LDXQ14EENDDN</b> |

Order chart - Viking Xtreme Valves - Xtreme operating pressure / temperature

|          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| <b>P</b> | <b>2</b> | <b>L</b> | <b>A</b> | <b>X</b> | <b>5</b> | <b>1</b> | <b>1</b> | <b>E</b> | <b>S</b> | <b>H</b> | <b>D</b> | <b>D</b> | <b>B</b> | <b>4</b> | <b>9</b> |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|

| Valve family |                     |
|--------------|---------------------|
| <b>P2L</b>   | Viking inline valve |

| Size     |     |
|----------|-----|
| <b>A</b> | 1/8 |
| <b>B</b> | 1/4 |
| <b>C</b> | 3/8 |
| <b>D</b> | 1/2 |

| Version  |                   |
|----------|-------------------|
| <b>X</b> | Xtreme duty spool |

| Port thread |         |
|-------------|---------|
| <b>11</b>   | G1/8    |
| <b>12</b>   | G1/4    |
| <b>13</b>   | G3/8    |
| <b>14</b>   | G1/2    |
| <b>91</b>   | 1/8 NPT |
| <b>92</b>   | 1/4 NPT |
| <b>93</b>   | 3/8 NPT |
| <b>94</b>   | 1/2 NPT |

| Solenoid pilot type  |                        |
|----------------------|------------------------|
| <b>H<sup>1</sup></b> | 16 bar / -40°C to 60°C |

<sup>1</sup> Solenoid operated 'H' version supplied with B type enclosure 16 bar solenoid

| Solenoid exhaust |                   |
|------------------|-------------------|
| <b>D</b>         | Vented            |
| <b>N</b>         | Capture/tapped M5 |

| Overrides |                      |
|-----------|----------------------|
| <b>D</b>  | Extended non-locking |

| Voltage    |                          |      |    |
|------------|--------------------------|------|----|
|            | AC                       |      | DC |
|            | 60Hz                     | 50Hz |    |
| <b>40</b>  | 12                       |      |    |
| <b>42</b>  | 24                       | 22   |    |
| <b>45</b>  |                          |      | 12 |
| <b>47*</b> |                          |      | 12 |
| <b>48*</b> |                          |      | 24 |
| <b>49</b>  |                          |      | 24 |
| <b>53</b>  | 120                      | 110  |    |
| <b>57</b>  | 240                      | 230  |    |
| blank      | valve less solenoid/coil |      |    |

\* Mobile voltage see page 32 for operating parameters

| Valve type function   |                                  |
|---|----------------------------------|
| Solenoid operated with internal supply to solenoid                                |                                  |
| <b>5</b>  | 5/2 valve                        |
| <b>6</b>  | 5/3 valve closed centre position |
| <b>7</b>  | 5/3 valve pressurised centre     |
| <b>8</b>  | 5/3 valve vented centre          |
| Solenoid operated with external pilot supply to solenoids through ports #12 & #14 |                                  |
| <b>N</b>  | 5/2 valve                        |
| <b>P</b>  | 5/3 valve closed centre position |
| <b>Q</b>  | 5/3 valve pressurised centre     |
| <b>R</b>  | 5/3 valve vented centre          |

| Pilot main actuator / Return |                         |
|------------------------------|-------------------------|
| <b>E</b>                     | Solenoid operated valve |
| <b>S</b>                     | Spring (return only)    |
| <b>P</b>                     | Press (return only)     |

| Solenoid enclosure / Lead length |   |
|----------------------------------|---|
| <b>A</b>                         | 22mm Solenoid pilot & 30mm coil Form A            |
| <b>B</b>                         | 22mm Solenoid pilot & 22mm coil Industrial Form B |
| <b>N</b>                         | 22mm Solenoid pilot less coil                     |



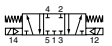
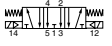

  

Shaded part numbers are standard

## Solenoid operated directional control valves - Xtreme duty 16 bar -40°C to +60°C

Complete with 22mm solenoid and 24V DC coil.

Internal supply to solenoid valve(s) via port 1. Connector/cable plugs to be ordered separately. See page 34

| Symbol  | Size | Actuation       | Return          | Signal pressure<br>min. (bar)<br>at 6 bar<br>actua./return | Changeover<br>time (ms)<br>at 6 bar<br>actua./return | Weight<br>Kg | Order code             |
|---|------|-----------------|-----------------|--|--|--------------|------------------------|
| <b>5/2 valves, internal air, low temperature</b>                                    |      |                 |                 |  |  |              |                        |
|    | G1/8 | Electric signal | Electric signal | 1,5/1,5  | 15/15  | 0,27         | <b>P2LAX511EEHDB49</b> |
|   | G1/4 |                 | Low temp.       | 1,5/1,5  | 25/25  | 0,42         | <b>P2LBX512EEHDB49</b> |
|   | G3/8 |                 |                 | 1,5/1,5  | 45/45  | 0,48         | <b>P2LCX513EEHDB49</b> |
|   | G1/2 |                 |                 |  |  |              | <b>P2LDX514EEHDB49</b> |
|    | G1/8 | Electric signal | Spring          | 3,2/-  | 15/30  | 0,22         | <b>P2LAX511ESHDB49</b> |
|   | G1/4 |                 | Low temp.       | 3,5/-  | 20/25  | 0,38         | <b>P2LBX512ESHDB49</b> |
|   | G3/8 |                 |                 | 3,5/-  | 30/65  | 0,46         | <b>P2LCX513ESHDB49</b> |
|   | G1/2 |                 |                 | 3,5/-  | 30/65  | 0,46         | <b>P2LDX514ESHDB49</b> |
| <b>5/3 valves, internal air, low temperature</b>                                    |      |                 |                 |  |  |              |                        |
|    | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAX611EEHDB49</b> |
|   | G1/4 | Closed centre   | Self            | 3,8/-  | 25/30  | 0,45         | <b>P2LBX612EEHDB49</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 0,55         | <b>P2LCX613EEHDB49</b> |
|   | G1/2 |                 | Low temp.       | 3,8/-  | 90/90  | 0,55         | <b>P2LDX614EEHDB49</b> |
|    | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAX811EEHDB49</b> |
|   | G1/4 | Vented centre   | Self            | 3,8/-  | 25/30  | 0,45         | <b>P2LBX812EEHDB49</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 0,55         | <b>P2LCX813EEHDB49</b> |
|   | G1/2 |                 | Low temp.       | 3,8/-  | 90/90  | 0,55         | <b>P2LDX814EEHDB49</b> |
|  | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAX711EEHDB49</b> |
|   | G1/4 | Pressurised     | Self            | 3,8/-  | 25/30  | 0,45         | <b>P2LBX712EEHDB49</b> |
|   | G3/8 | centre          | centring        | 3,8/-  | 90/90  | 0,55         | <b>P2LCX713EEHDB49</b> |
|   | G1/2 | position        | Low temp.       | 3,8/-  | 90/90  | 0,55         | <b>P2LDX714EEHDB49</b> |

**Solenoid operated directional control valves - Xtreme duty 16 bar -40°C to +60°C**

Valves fitted with 22mm solenoid operator(s) less coil(s). Order coils and plug/connectors separately

Internal supply to solenoid valve(s) via port 1. See pages 33 & 34 for coils and connectors

| Symbol  | Size | Actuation       | Return          | Signal pressure<br>min. (bar)<br>at 6 bar<br>actua./return | Changeover<br>time (ms)<br>at 6 bar<br>actua./return | Weight<br>Kg | Order code            |
|---|------|-----------------|-----------------|--|--|--------------|-----------------------|
| <b>5/2 valves, internal air, standard temperature</b> |      |                 |                 |  |  |              |                       |
|   | G1/8 | Electric signal | Electric signal | 1,5/1,5  | 10/10  | 0,16         | <b>P2LAX511EEHDDN</b> |
|   | G1/4 |                 |                 | 1,5/1,5  | 22/22  | 0,31         | <b>P2LBX512EEHDDN</b> |
|   | G3/8 |                 |                 | 1,5/1,5  | 40/40  | 0,41         | <b>P2LCX513EEHDDN</b> |
|   | G1/2 |                 |                 | 1,5/1,5  | 40/40  | 0,41         | <b>P2LDX514EEHDDN</b> |
|   | G1/8 | Electric signal | Spring          | 3,2/-  | 12/30  | 0,16         | <b>P2LAX511ESHDDN</b> |
|   | G1/4 |                 |                 | 3,5/-  | 15/25  | 0,31         | <b>P2LBX512ESHDDN</b> |
|   | G3/8 |                 |                 | 3,5/-  | 25/65  | 0,40         | <b>P2LCX513ESHDDN</b> |
|   | G1/2 |                 |                 | 3,5/-  | 25/65  | 0,40         | <b>P2LDX514ESHDDN</b> |
| <b>5/3 valves, internal air, standard temperature</b> |      |                 |                 |  |  |              |                       |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,17         | <b>P2LAX611EEHDDN</b> |
|   | G1/4 | Closed centre   | Self            | 3,8/-  | 25/30  | 0,33         | <b>P2LBX612EEHDDN</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 0,42         | <b>P2LCX613EEHDDN</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 0,42         | <b>P2LDX614EEHDDN</b> |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,17         | <b>P2LAX811EEHDDN</b> |
|   | G1/4 | Vented centre   | Self            | 3,8/-  | 25/30  | 0,33         | <b>P2LBX812EEHDDN</b> |
|   | G3/8 | position        | centring        | 3,8/-  | 90/90  | 0,42         | <b>P2LCX813EEHDDN</b> |
|   | G1/2 |                 |                 | 3,8/-  | 90/90  | 0,42         | <b>P2LDX814EEHDDN</b> |
|   | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,17         | <b>P2LAX711EEHDDN</b> |
|   | G1/4 | Pressurised     | Self            | 3,8/-  | 25/30  | 0,33         | <b>P2LBX712EEHDDN</b> |
|   | G3/8 | centre          | centring        | 3,8/-  | 90/90  | 0,42         | <b>P2LCX713EEHDDN</b> |
|   | G1/2 | position        |                 | 3,8/-  | 90/90  | 0,42         | <b>P2LDX714EEHDDN</b> |

**Solenoid operated directional control valves - Xtreme duty 16bar -40°C to + 60°C**

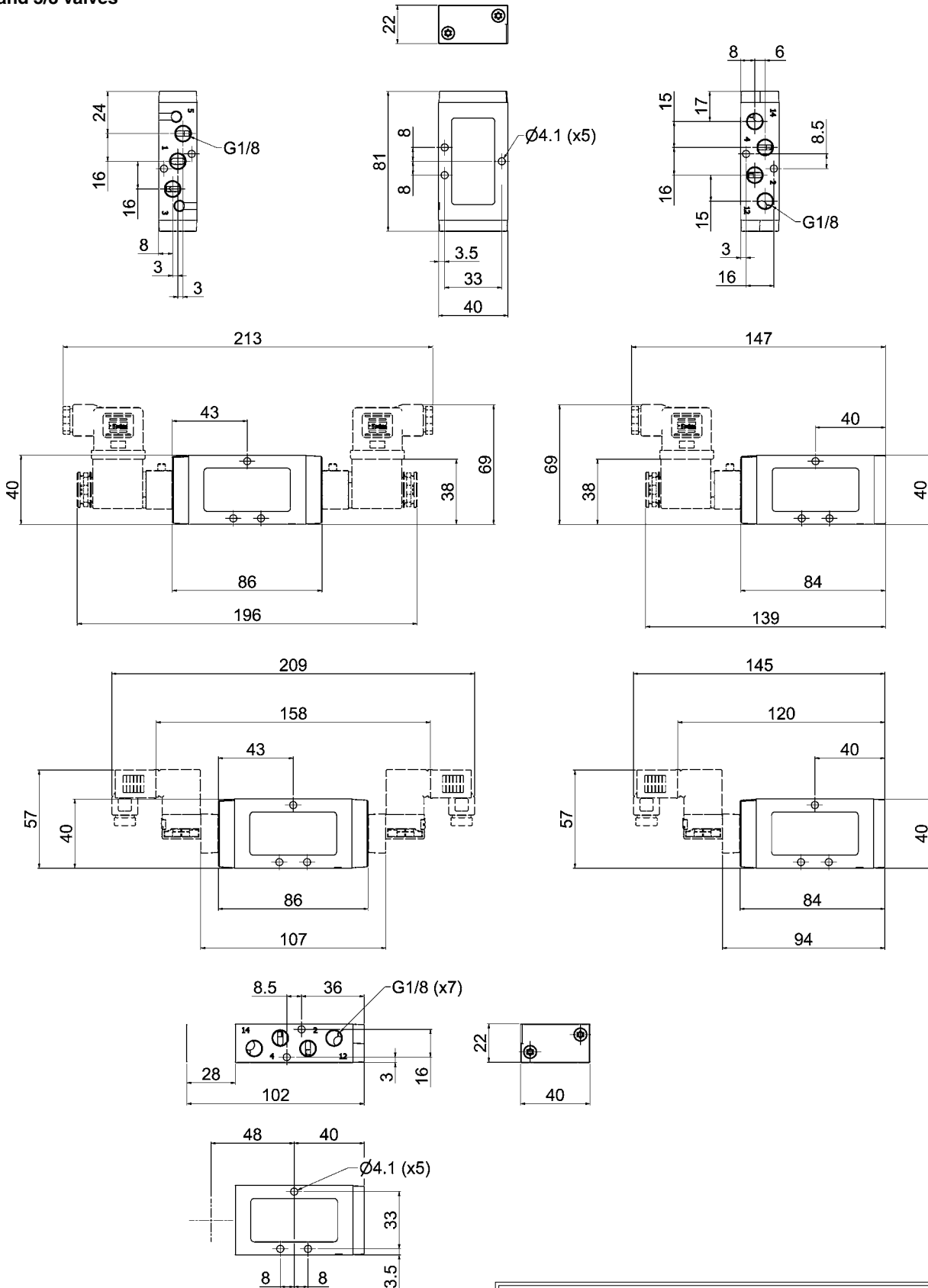
Valves fitted with 22mm solenoid operator(s) less coil(s). Order coils and plug/connectors separately

External supply to solenoid valve(s) via ports 12 & 14. See pages 33 & 34 for coils and connectors

| Symbol   | Size | Actuation       | Return          | Signal pressure<br>min. (bar)<br>at 6 bar<br>actua./return | Changeover<br>time (ms)<br>at 6 bar<br>actua./return | Weight<br>Kg | Order code            |
|--|------|-----------------|-----------------|--|--|--------------|-----------------------|
| <b>5/2 valves, external air to pilot operators</b> |      |                 |                 |  |  |              |                       |
|  | G1/8 | Electric signal | Electric signal | 1,5/1,5  | 10/10  | 0,27         | <b>P2LAXN11EEHDDN</b> |
|  | G1/4 |                 |                 | 1,5/1,5  | 22/22  | 0,42         | <b>P2LBXN12EEHDDN</b> |
|  | G3/8 |                 |                 | 1,5/1,5  | 40/40  | 0,81         | <b>P2LCXN13EEHDDN</b> |
|  | G1/2 |                 |                 | 1,5/1,5  | 40/40  | 0,81         | <b>P2LDXN14EEHDDN</b> |
|  | G1/8 | Electric signal | Spring          | 3,2/-  | 12/30  | 0,22         | <b>P2LAXN11ESHDDN</b> |
|  | G1/4 |                 |                 | 3,5/-  | 15/25  | 0,38         | <b>P2LBXN12ESHDDN</b> |
|  | G3/8 |                 |                 | 3,5/-  | 25/65  | 0,76         | <b>P2LCXN13ESHDDN</b> |
|  | G1/2 |                 |                 | 3,5/-  | 25/65  | 0,76         | <b>P2LDXN14ESHDDN</b> |
| <b>5/3 valves, external air to pilot operators</b> |      |                 |                 |  |  |              |                       |
|  | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAXP11EEHDDN</b> |
|  | G1/4 | Closed centre   | Self            | 3,8/-  | 25/30  | 0,44         | <b>P2LBXP12EEHDDN</b> |
|  | G3/8 | position        | centring        | 3,8/-  | 90/90  | 1,11         | <b>P2LCXP13EEHDDN</b> |
|  | G1/2 |                 |                 | 3,8/-  | 90/90  | 1,11         | <b>P2LDXP14EEHDDN</b> |
|  | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAXR11EEHDDN</b> |
|  | G1/4 | Vented centre   | Self            | 3,8/-  | 25/30  | 0,44         | <b>P2LBXR12EEHDDN</b> |
|  | G3/8 | position        | centring        | 3,8/-  | 90/90  | 1,11         | <b>P2LCXR13EEHDDN</b> |
|  | G1/2 |                 |                 | 3,8/-  | 90/90  | 1,11         | <b>P2LDXR14EEHDDN</b> |
|  | G1/8 | Electric signal | Electric signal | 3,8/-  | 16/34  | 0,28         | <b>P2LAXQ11EEHDDN</b> |
|  | G1/4 | Pressurised     | Self            | 3,8/-  | 25/30  | 0,44         | <b>P2LBXQ12EEHDDN</b> |
|  | G3/8 | centre          | centring        | 3,8/-  | 90/90  | 1,11         | <b>P2LCXQ13EEHDDN</b> |
|  | G1/2 | position        |                 | 3,8/-  | 90/90  | 1,11         | <b>P2LDXQ14EEHDDN</b> |

**Dimensions**

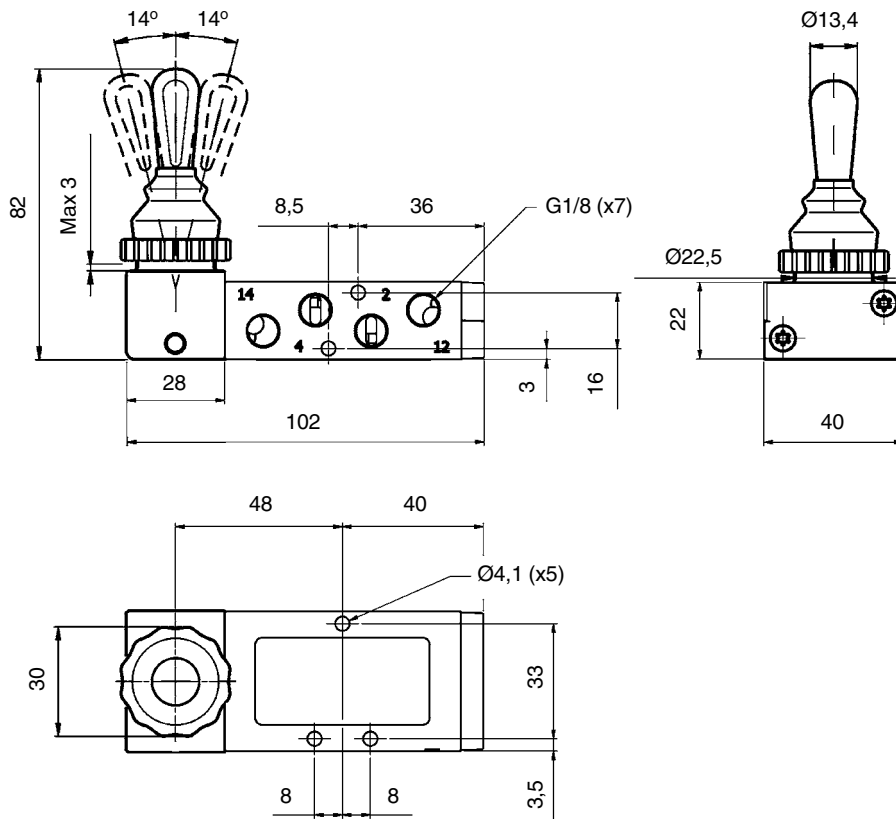
P2LAX... all  
5/2 and 5/3 valves



**Solenoid valves**  
Solenoid valves and cable plugs must be ordered separately.  
One pilot valve is required for each E in the valve order code.

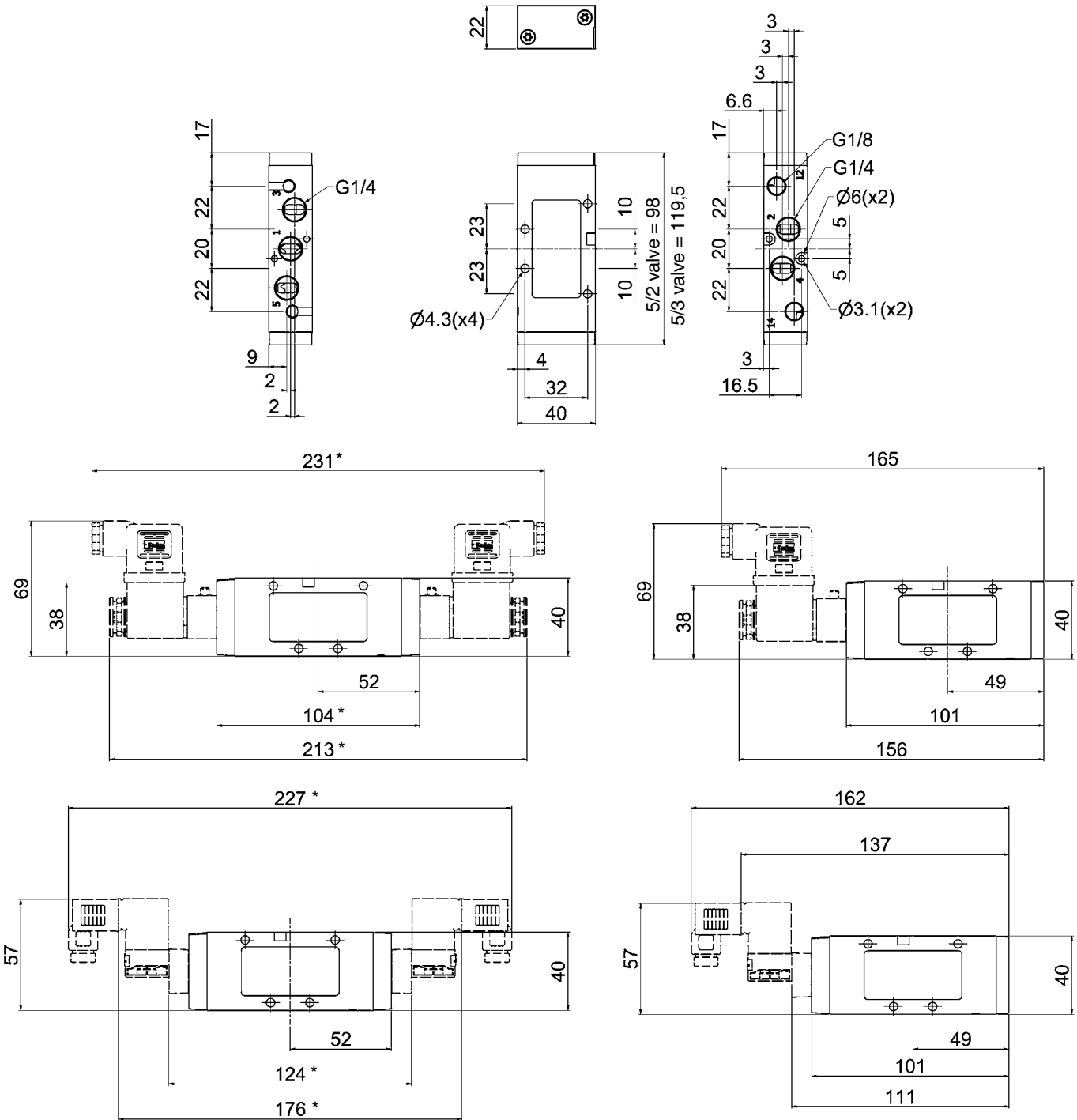
### Dimensions

#### P2LAX - Lever operated directional control valves



**Dimensions**

P2LBX... all  
5/2 and 5/3 valves

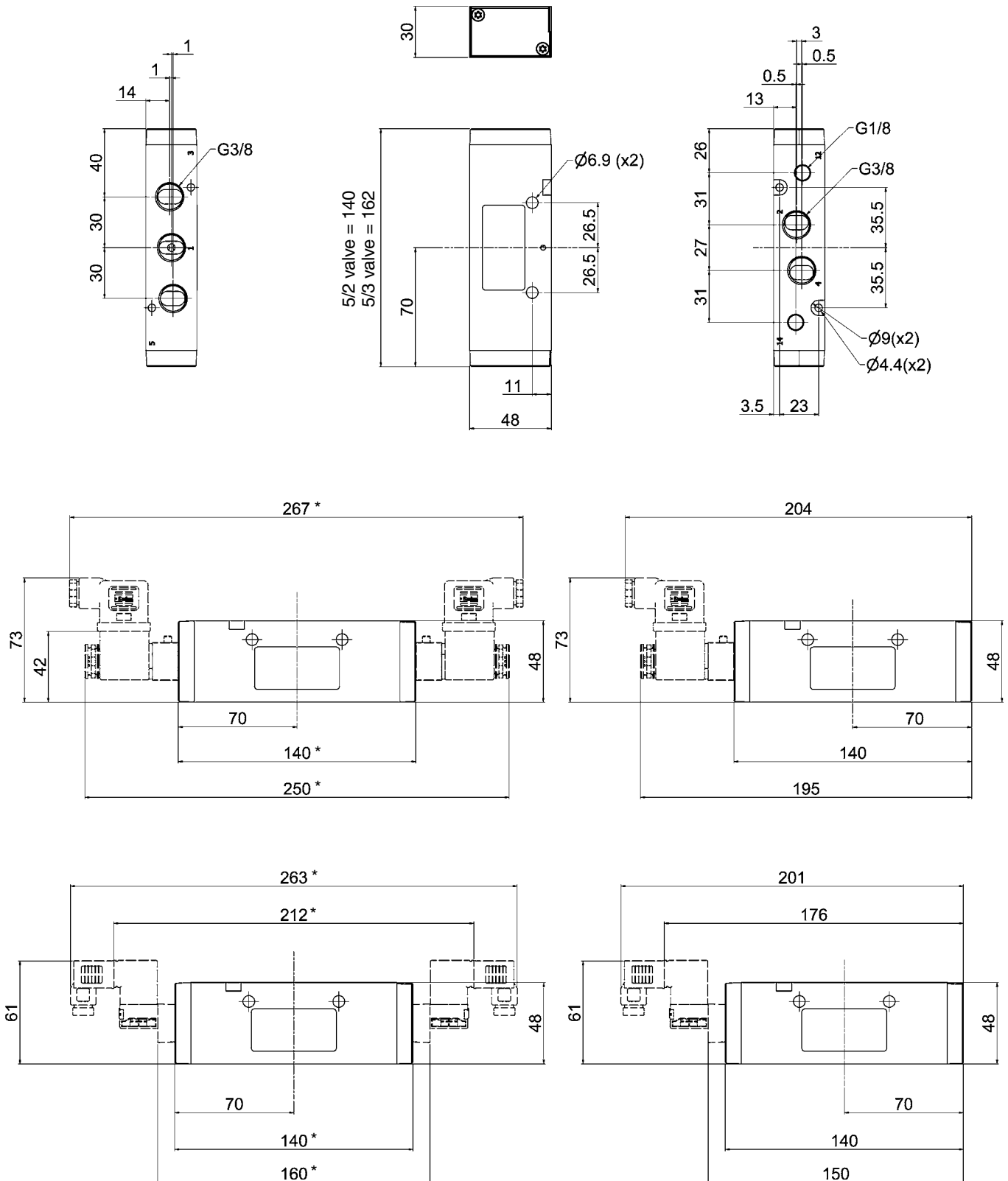


\* Note: 5/3 valves - add 21.5mm

**Solenoid valves**  
Solenoid valves and cable plugs must be ordered separately.  
One pilot valve is required for each E in the valve order code.

### Dimensions

P2LCX... all  
5/2 and 5/3 valves



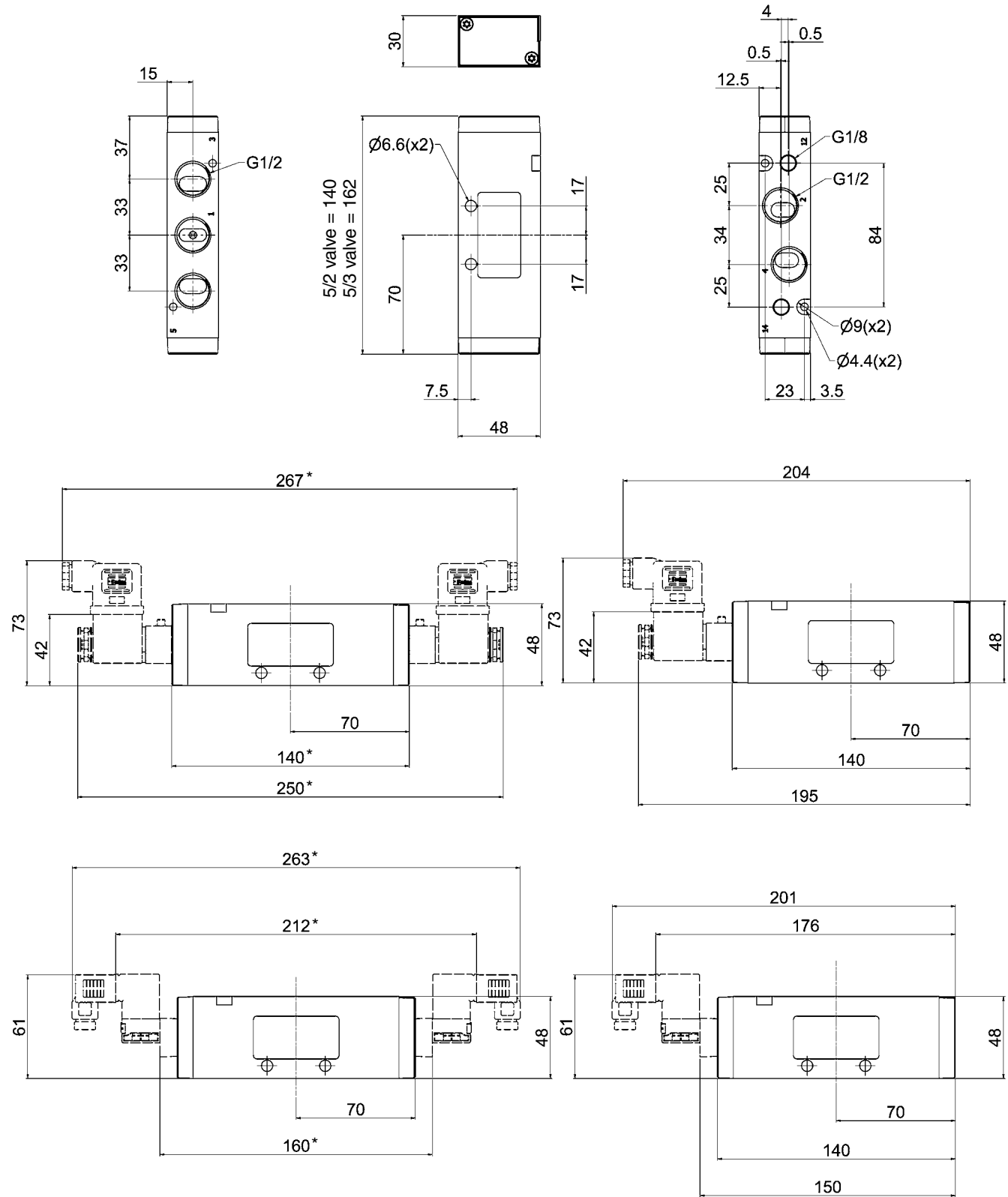
\* Note: 5/3 valves - add 22.0mm

**Solenoid valves**  
Solenoid valves and cable plugs must be ordered separately.  
One pilot valve is required for each E in the valve order code.

Dimensions

P2LDX... all

5/2 and 5/3 valves

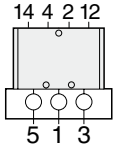


\* Note: 5/3 valves - add 22.0mm

**Solenoid valves**  
 Solenoid valves and cable plugs must be ordered separately.  
 One pilot valve is required for each E in the valve order code.

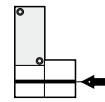
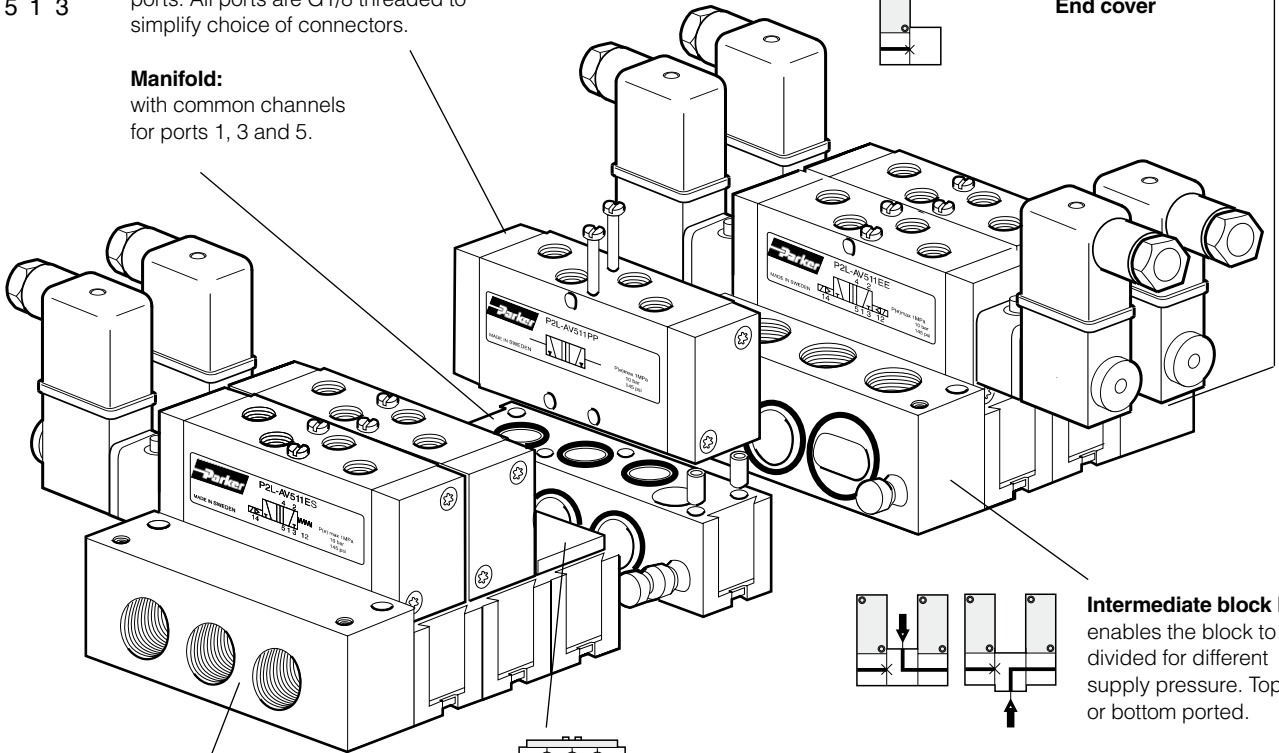
**P2LAX, flexible manifold assembly**

A practical system solution with the aid of connection pieces. The manifolds can easily be assembled from the top to form a compact and stable block. The block can then be installed in cabinets or directly on the machine frame as shown in the example in the bottom of this page.

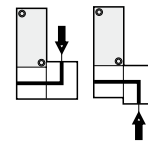


**Valve:**  
 with cylinder ports 2 and 4 and signal ports 12 and 14 facing upwards, enabling easily access to connection ports. All ports are G1/8 threaded to simplify choice of connectors.

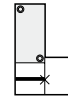
**Manifold:**  
 with common channels for ports 1, 3 and 5.



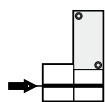
**Connection block S:**  
 straight connection block with a side ports for common air supply and exhaust.



**Connection block L:**  
 angled connection block for top or bottom ported.

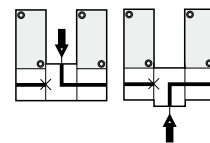


**End cover**

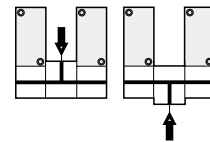


**Connection block S:**  
 straight connection block with a side ports for common air supply and exhaust.

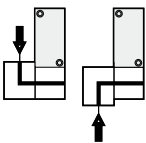
**Blanking plate:**  
 To incorporate spare positions.



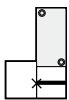
**Intermediate block L:**  
 enables the block to be divided for different supply pressure. Top or bottom ported.



**Intermediate block T:**  
 permits the connection of air between two manifolds. Top or bottom ports.

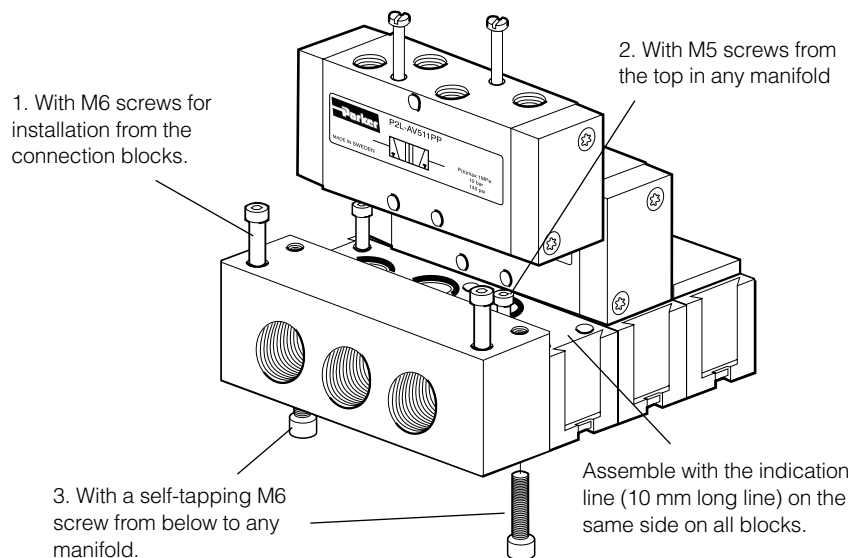


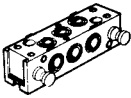
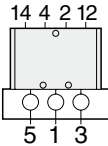
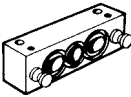
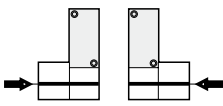
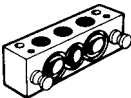
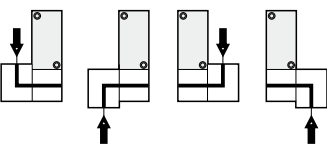
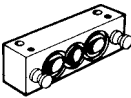
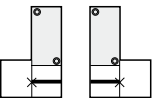
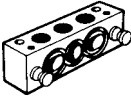
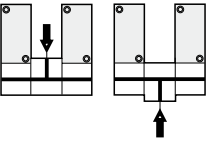
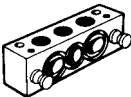
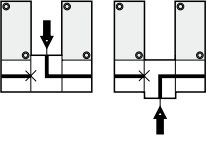

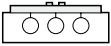
**Connection block L:**  
 angled connection block for top or bottom ported.



**End cover**

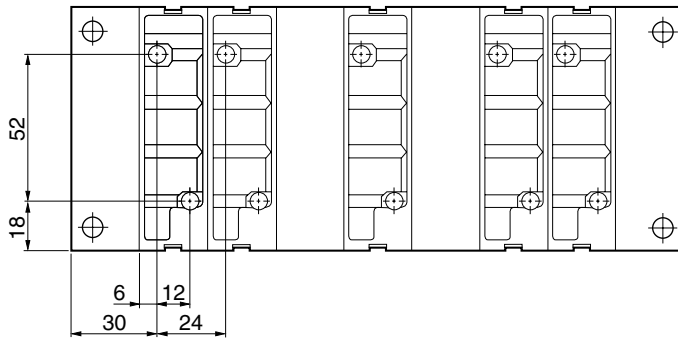
**Various mounting options**



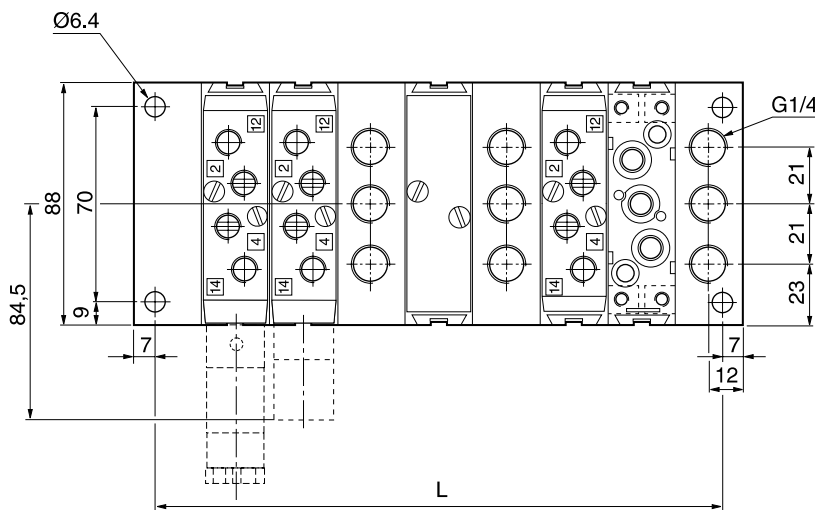
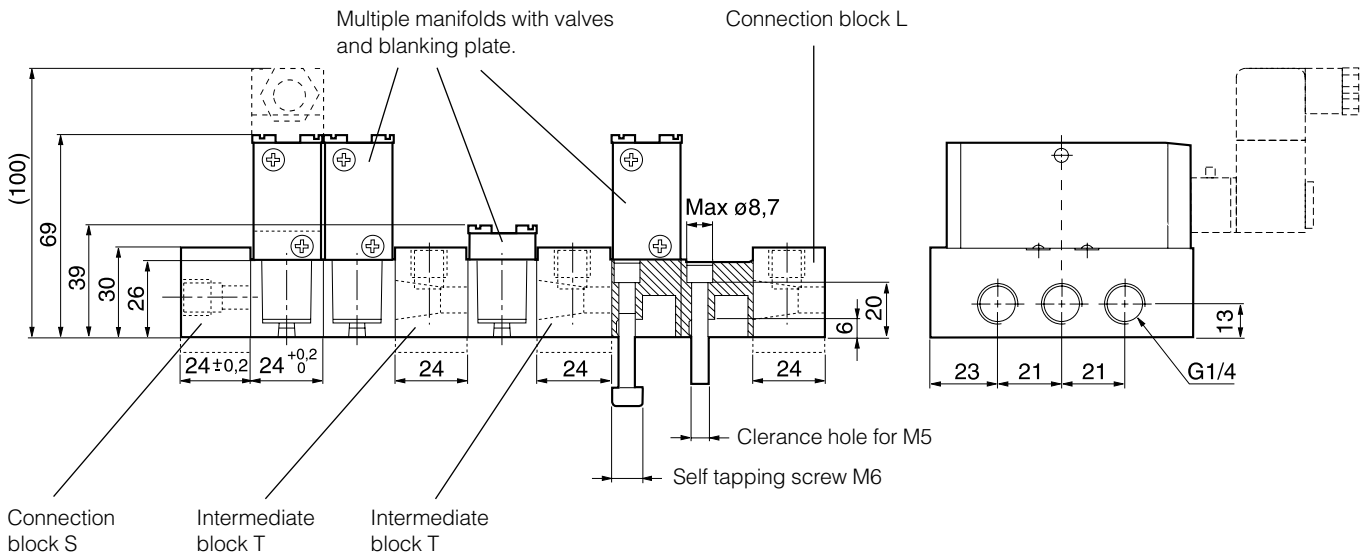
| Accessories P2LA   | Connection alternatives   | Type   | Weight<br>kg | Order code        |
|--|---|--|--------------|-------------------|
|    |    | <b>Multiple manifold</b><br>including seals,<br>mounting screws,<br>and guiding pins.            | 0,11         | <b>9121658060</b> |
|    |    | <b>Connection block S</b><br>including seals,<br>mounting screws,<br>and guiding pins.<br>G1/4   | 0,15         | <b>9121658064</b> |
|    |    | <b>Connection block L</b><br>including seals,<br>mounting screws,<br>and guiding pins.<br>G1/4   | 0,15         | <b>9121658061</b> |
|    |    | <b>End cover</b><br>including seals,<br>mounting screws,<br>and guiding pins.                    | 0,16         | <b>9121658066</b> |
|  |  | <b>Intermediate block T</b><br>including seals,<br>mounting screws,<br>and guiding pins.<br>G1/4 | 0,17         | <b>9121658062</b> |
|  |  | <b>Intermediate block L</b><br>including seals,<br>mounting screws,<br>and guiding pins.<br>G1/4 | 0,17         | <b>9121658065</b> |
|  |  | <b>Blanking plate</b><br>including seals,<br>mounting screws.                                    | 0,05         | <b>9121658063</b> |

Mounting screws in stainless steel for valve and blanking plate, see page 26

**Dimensions**



Connection block L and intermediate blocks L and T can be turned so that connection can be made from above or below.  
 Multiple manifolds must be fitted with the top indication line (a 10 mm long line) facing the same side on all manifolds.

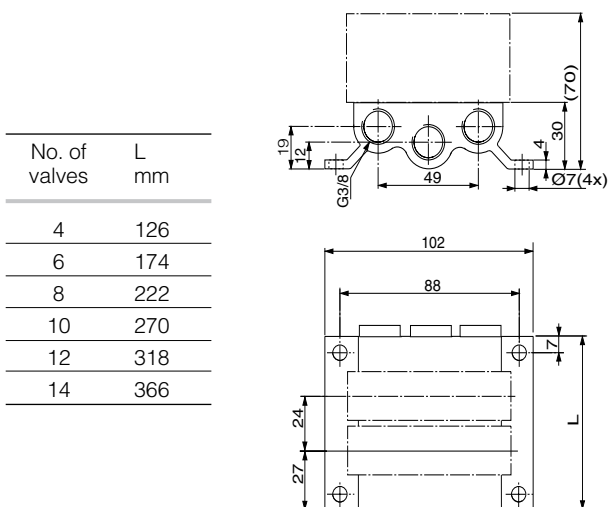


$L = 34 + (\text{Number of manifolds and Intermediate blocks} \times 24)$

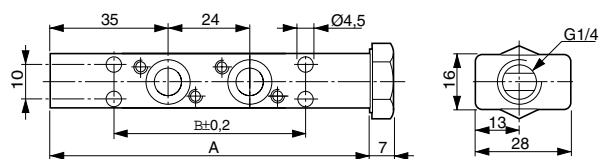
| Accessories P2LA | Type   | Weight<br>kg   | Order code   |  |
|------------------|--|--|--|--|
|                  | <b>Manifold bar, P2LA</b><br>including seals, mounting screws. G3/8<br>For 4 valves<br>For 6 valves<br>For 8 valves<br>For 10 valves<br>For 12 valves<br>For 14 valves | 0,48<br>0,63<br>0,80<br>0,98<br>1,10<br>1,23   | <b>9121658075</b><br><b>9121658076</b><br><b>9121658077</b><br><b>9121658078</b><br><b>9121658079</b><br><b>9121658099</b> |  |
|                  |  | 0,05   | <b>9121658063</b>  |  |
|                  |  | <b>Pressure bar, P2LA</b><br>for common air supply incl. O-rings and mounting screws. G1/4<br>For 2 valves<br>For 4 valves<br>For 6 valves<br>For 8 valves | 0,13<br>0,20<br>0,26<br>0,33   | <b>9121658070</b><br><b>9121658071</b><br><b>9121658072</b><br><b>9121658073</b> |
|                  |  |  | 0,05   | <b>9121658074</b>  |
|                  |  |  | 0,02   | <b>9121658043</b>  |
|                  |  |  | 0,01   | <b>9121658044</b>  |
|                  | <b>O-ring kit, P2LA</b><br>O-rings between valve and manifold bar/Pressure bar   | 0,01   | <b>9121658046</b>  |  |

## Dimensions

### Manifold bar, P2LA



### Pressure bar, P2LA

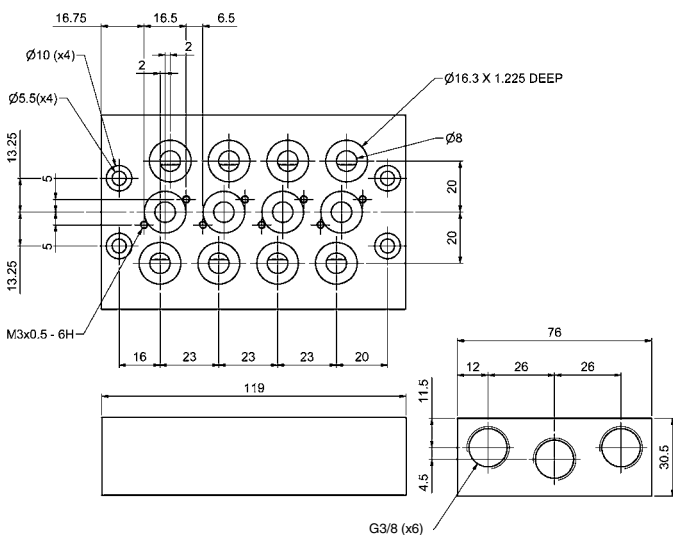


| No. of valves | A mm | B mm |
|---------------|------|------|
| 2             | 94   | 56   |
| 4             | 164  | 142  |
| 6             | 190  | 152  |
| 8             | 238  | 200  |

| Accessories P2LB | Type   | Weight<br>kg                         | Order code   |
|------------------|--|--------------------------------------|--|
|                  | <b>Manifold bar, P2LB, (not for P2LB with external air supply to solenoid valves)</b><br>incl. fasteners and O-ring. G3/8<br>For 2 valves<br>For 4 valves<br>For 6 valves<br>For 8 valves<br>For 10 valves | 0,69<br>1,13<br>1,56<br>2,00<br>2,45 | <b>9121594805X</b><br><b>9121594806X</b><br><b>9121594807X</b><br><b>9121594808X</b><br><b>9121594812X</b> |
|                  | <b>Blanking plate, P2LB</b><br>for Manifold bar  | 0,10                                 | <b>9121594809X</b>   |
|                  | <b>Pressure bar, P2LB</b><br>for common air supply incl. O-rings and banjo-bolts. G3/8<br>For 2 valves<br>For 4 valves<br>For 6 valves<br>For 8 valves<br>For 10 valves                                    | 0,38<br>0,53<br>0,68<br>0,83<br>0,99 | <b>9127113301X</b><br><b>9127113302X</b><br><b>9127113303X</b><br><b>9127113304X</b><br><b>9127113305X</b> |
|                  | <b>Blanking plug, P2LB</b><br>for Pressure bar. G1/4   | 0,02                                 | <b>9127113350</b>  |

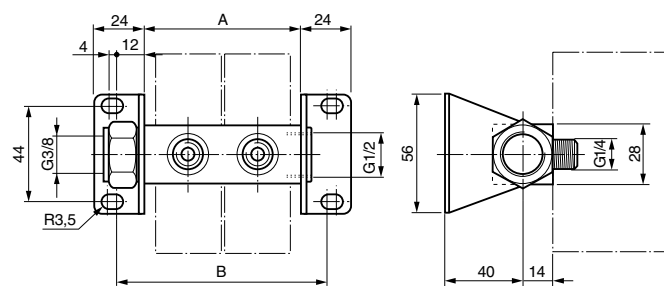
## Dimensions

### Manifold bar, P2LB

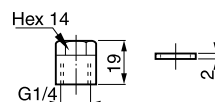


| No. of valves | L mm |
|---------------|------|
| 2             | 94   |
| 4             | 158  |
| 6             | 222  |
| 8             | 286  |
| 10            | 350  |

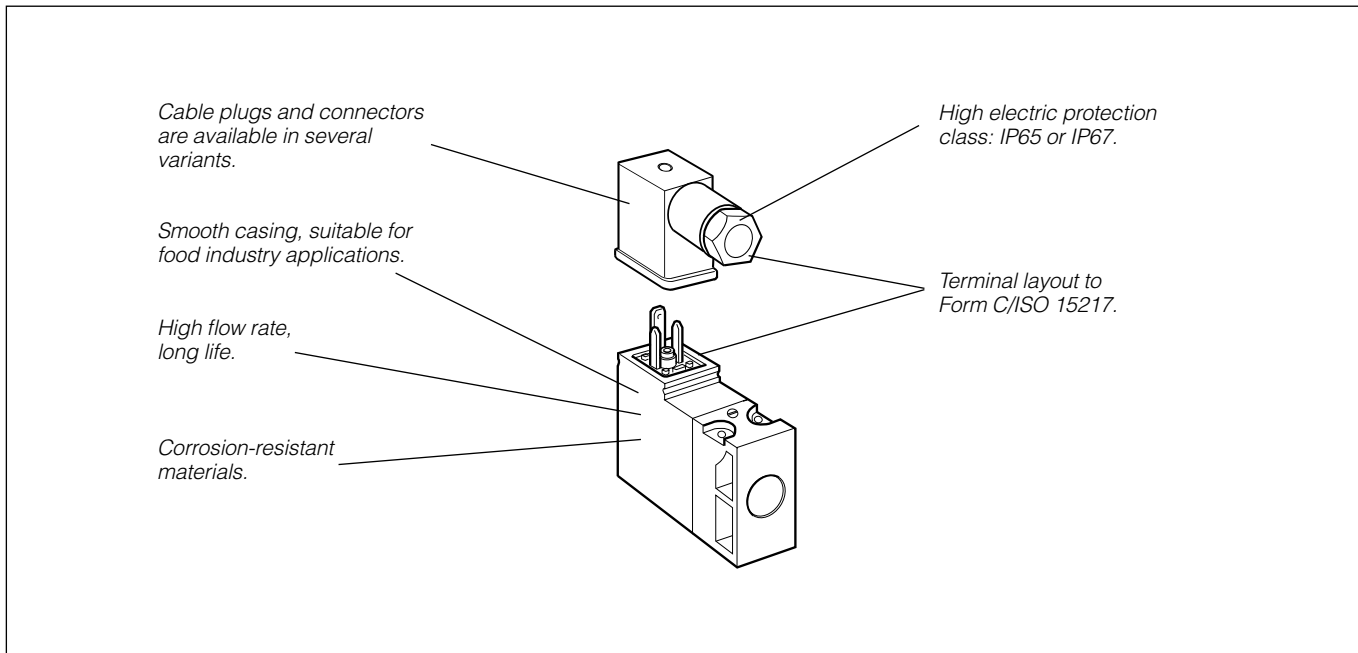
### Pressure bar, P2LB



### Blanking plug, P2LB



| No. of valves | A mm | B mm |
|---------------|------|------|
| 2             | 54   | 78   |
| 4             | 100  | 124  |
| 6             | 146  | 188  |
| 8             | 192  | 216  |
| 10            | 238  | 262  |

**The P2E-•V solenoid operator range**

The P2E-•V range of operators are normally closed (NC) 3/2 solenoid valves, with exceedingly compact dimensions in relation to their capacity.

**International standard**

The port connection pattern complies with a new French CNOMO standard (in process of drafting), with cable plug connections in accordance with Form C/ISO15217.

**Compact design**

Overall dimensions of the P2E-•V operators are substantially less than those of earlier generations of solenoid operators.

**High flow capacity**

High flow capacity relative to the electrical operating power as a result of optimised internal flow paths.

**Corrosion-resistant design**

The valve is made of thermoplastic material and stainless steel, with Viton™ and nitrile rubber seals for excellent corrosion resistance.

**Clean lines suitable for food industry applications, P2E-QV**

The valve has been designed in conjunction with several machine manufacturers and organisations in the food processing industry, with corrosion-resistant materials and smooth lines being important starting points. The valve and its accessories have been designed so that there are no gaps or crevices in which dirt could collect.

**High reliability**

Few moving parts result in high reliability, rapid changeover and very long life.

**Low power demand**

The solenoids have a power demand of 1.2 W at 24 V DC and 1.6 VA at 24 V AC, 115 V AC and 230 V AC.

**High protection class**

The protection class is IP 67 when connected using the cable plug with a moulded cable. When using the standard cable plug for fitting by the user, the protection class is IP65, the bare valve, with Fast-on connectors, has an encapsulation class of IP 20.

**Insensitive to dirty air**

The use of generously sized flow paths (1.0 mm diameter) means that the valve can be used in normal industrial environments without problems of blocking.

**Manual override as option**

The operators can be supplied with or without manual override. The manual override device is available as a screwdriver groove or with a control arm, and is either spring return (blue) or lockable (yellow).

### Order key, solenoid operators (15mm)

|          |          |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| <b>P</b> | <b>2</b> | <b>E</b> | <b>-</b> | <b>Q</b> | <b>V</b> | <b>3</b> | <b>2</b> | <b>C</b> | <b>3</b> |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|

| Valve family |                   |
|--------------|-------------------|
| <b>P2E</b>   | Solenoid operator |

| Subfamily |  |
|-----------|--|
|           | Solenoid operator, 15 mm wide<br>Electric connection acc. to ISO 15217 Form C<br>El/supply connection on opposite side |
| <b>K</b>  | Standard version   |
| <b>M</b>  | Mobile version   |
| <b>Q</b>  | Food industry version  |

| Type of current |                           |
|-----------------|---------------------------|
| <b>1</b>        | AC 50 Hz                  |
| <b>2</b>        | DC                        |
| <b>4</b>        | AC 50/60 Hz               |
| <b>5</b>        | Mobile and wide band only |

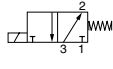
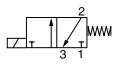
  

| Voltage  |          |
|----------|----------|
| <b>B</b> | 12 V     |
| <b>C</b> | 24 V     |
| <b>D</b> | 48 V     |
| <b>F</b> | 115 V*   |
| <b>J</b> | 230 V*   |
| <b>W</b> | 37,5 V** |
| <b>T</b> | 72 V**   |
| <b>Y</b> | 78 V**   |
| <b>V</b> | 96 V**   |
| <b>E</b> | 110 V**  |


| Overrides |                             |
|-----------|-----------------------------|
| <b>0</b>  | Without                     |
| <b>1</b>  | Non locking (blue)          |
| <b>2</b>  | Locking (yellow)            |
| <b>3</b>  | Extended non locking (blue) |
| <b>4</b>  | Extended locking (yellow)   |

| Valvetype/Function |   |
|--------------------|---|
| <b>1</b>           |  3/2 valve, normally open (NO)   |
| <b>3</b>           |  3/2 valve, normally closed (NC) |

\* For standard and food type only  
\*\* For mobile "M" version only

### Technical data

|                      | <b>NC, Standard</b>  | <b>NO, Standard</b>  | <b>NC, Food<sup>1)</sup></b> | <b>NC, Mobile<sup>2)</sup></b> | <b>NO, Mobile<sup>2)</sup></b> |
|----------------------|--|----------------------|------------------------------|--------------------------------|--------------------------------|
| Working pressure     | 0 to 10 bar  | 0 to 10 bar          | 0 to 10 bar                  | 0 to 10 bar                    | 0 to 10 bar                    |
| Working temperature  | -15 °C to +60 °C   | -15 °C to +50 °C     | -15 °C to +60 °C             | -40 °C to +70 °C               | -40 °C to +70 °C               |
| Orifice              | 1,0 mm   | 1,1 mm               | 1,0 mm                       | 1,0 mm                         | 1,1 mm                         |
| Flow Qmax            | 33 NI/min  | 33 NI/min            | 33 NI/min                    | 22 NI/min                      | 22 NI/min                      |
| Power, hold          | DC 1,2 W / AC 1,6 VA   | DC 1,8 W / AC 2,4 VA | DC 1,2 W / AC 1,6 VA         | DC 1 W                         | DC 1,4 W                       |
| Power, surge         | DC 1,2 W / AC 3,5 VA   | DC 1,8 W / AC 5,5 VA | DC 1,2 W / AC 3,5 VA         | DC 1 W                         | DC 1,4 W                       |
| Connection time      | 100%   | 100%                 | 100%                         | 100%                           | 100%                           |
| Voltage tolerance    | +10%/-15%  | +10%/-15%            | +10%/-15%                    | +25%/-30%                      | +25%/-30%                      |
| Electric connection: | Form C/ISO15217  |                      |                              |                                |                                |
| Port pattern:        | To future CNOMO standard   |                      |                              |                                |                                |
| Protection:          | IP 65 - IP 67, depending on type of cable plug   |                      |                              |                                |                                |
| Approval:            | Some valves are UL-approved and marked with the following symbol  |                      |                              |                                |                                |
| Working media:       | All neutral media, such as compressed air, water, hydraulic oil and many gases.  |                      |                              |                                |                                |
| 1) Design:           | Completely smooth exterior, suitable for food industry.  |                      |                              |                                |                                |
| 2) Mobile standard   | According to European standard EN 50 155.  |                      |                              |                                |                                |

### Transients

Interrupting the current through the solenoid coil produces momentary voltage peaks which, under unfavourable conditions, can amount to several hundred times the rated operating voltage. Normally, these transients do not cause problems, but to achieve the maximum life of relays in the circuit (and particularly of transistors, thyristors and integrated circuits) it is desirable to provide protection by means of voltage-dependent resistors (varistors). All cable plugs with a yellow LED also incorporate such protection.

### Service life

With compressed air at 6 bar, 20 °C and complying with the requirements for compressed air quality as set out in ISO8573-1 norm (class 4 for dry and class 5 for filtered air), the valves should have a life of at least 50 million cycles.

### Materials

#### Operator

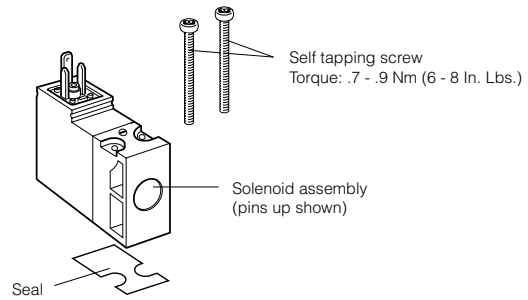
|                      |                                 |
|----------------------|---------------------------------|
| Body, coil casing    | Thermoplastic                   |
| Internal metal parts | Steel                           |
| Screws               | Stainless steel                 |
| Bottom plug          | Thermoplastic                   |
| Sealing materials    | FPM (Viton™) and nitrile rubber |

#### Cable head

|                 |                                    |
|-----------------|------------------------------------|
| Sheath          | Thermoplastic                      |
| Retaining screw | Stainless steel, zinc-plated steel |

**15mm Solenoid Operators**

Electrical connection EN175301-803 C/ISO15217 (Ex DIN 43650C)



**Solenoids 15 mm NC, standard**

(Note! Mounting screws included in basic valve)

| Voltage                       | Weight<br>Kg | Order code                 |                                      | Weight<br>Kg      | Order code                         |                   |
|-------------------------------|--------------|----------------------------|--------------------------------------|-------------------|------------------------------------|-------------------|
|                               |              | Without manual<br>override | Override, blue,<br>non locking flush |                   | Override, yellow,<br>locking flush |                   |
| 12 VDC                        | 0,038        | <b>P2E-KV32B0</b>          | 0,038                                | <b>P2E-KV32B1</b> | 0,038                              | <b>P2E-KV32B2</b> |
| 24 VDC                        | 0,038        | <b>P2E-KV32C0</b>          | 0,038                                | <b>P2E-KV32C1</b> | 0,038                              | <b>P2E-KV32C2</b> |
| 48 VDC                        | 0,038        | <b>P2E-KV32D0</b>          | 0,038                                | <b>P2E-KV32D1</b> | 0,038                              | <b>P2E-KV32D2</b> |
| 24 VAC 50Hz                   | 0,038        | <b>P2E-KV31C0</b>          | 0,038                                | <b>P2E-KV31C1</b> | 0,038                              | <b>P2E-KV31C2</b> |
| 48 VAC 50/60Hz                | 0,038        | <b>P2E-KV34D0</b>          | 0,038                                | <b>P2E-KV34D1</b> | 0,038                              | <b>P2E-KV34D2</b> |
| 115 VAC 50Hz/<br>120 VAC 60Hz | 0,038        | <b>P2E-KV31F0</b>          | 0,038                                | <b>P2E-KV31F1</b> | 0,038                              | <b>P2E-KV31F2</b> |
| 230 VAC 50Hz/<br>240 VAC 60Hz | 0,038        | <b>P2E-KV31J0</b>          | 0,038                                | <b>P2E-KV31J1</b> | 0,038                              | <b>P2E-KV31J2</b> |

| Voltage     | Weight<br>Kg | Order code        | Weight<br>Kg | Order code        |
|-------------|--------------|-------------------|--------------|-------------------|
| 24 VDC      | 0,038        | <b>P2E-KV32C3</b> | 0,038        | <b>P2E-KV32C4</b> |
| 24 VAC 50Hz | 0,038        | <b>P2E-KV31C3</b> | 0,038        | <b>P2E-KV31C4</b> |

**Solenoids 15 mm NC, mobile**

(Note! Mounting screws included in basic valve)

| Voltage  | Weight<br>Kg | Order code        | Weight<br>Kg | Order code        |
|----------|--------------|-------------------|--------------|-------------------|
| 12 VDC   | 0,038        | <b>P2E-MV35B0</b> | 0,038        | <b>P2E-MV35B1</b> |
| 24 VDC   | 0,038        | <b>P2E-MV35C0</b> | 0,038        | <b>P2E-MV35C1</b> |
| 37,5 VDC | 0,038        | <b>P2E-MV35W0</b> | 0,038        | <b>P2E-MV35W1</b> |
| 48 VDC   | 0,038        | <b>P2E-MV35D0</b> | 0,038        | <b>P2E-MV35D1</b> |
| 72 VDC   | 0,038        | <b>P2E-MV35T0</b> | 0,038        | <b>P2E-MV35T1</b> |
| 78 VDC   | 0,038        | <b>P2E-MV35Y0</b> | 0,038        | <b>P2E-MV35Y1</b> |
| 96 VDC   | 0,038        | <b>P2E-MV35V0</b> | 0,038        | <b>P2E-MV35V1</b> |
| 110 VDC  | 0,038        | <b>P2E-MV35E0</b> | 0,038        | <b>P2E-MV35E1</b> |

**Solenoids 15 mm NC, food industry version**

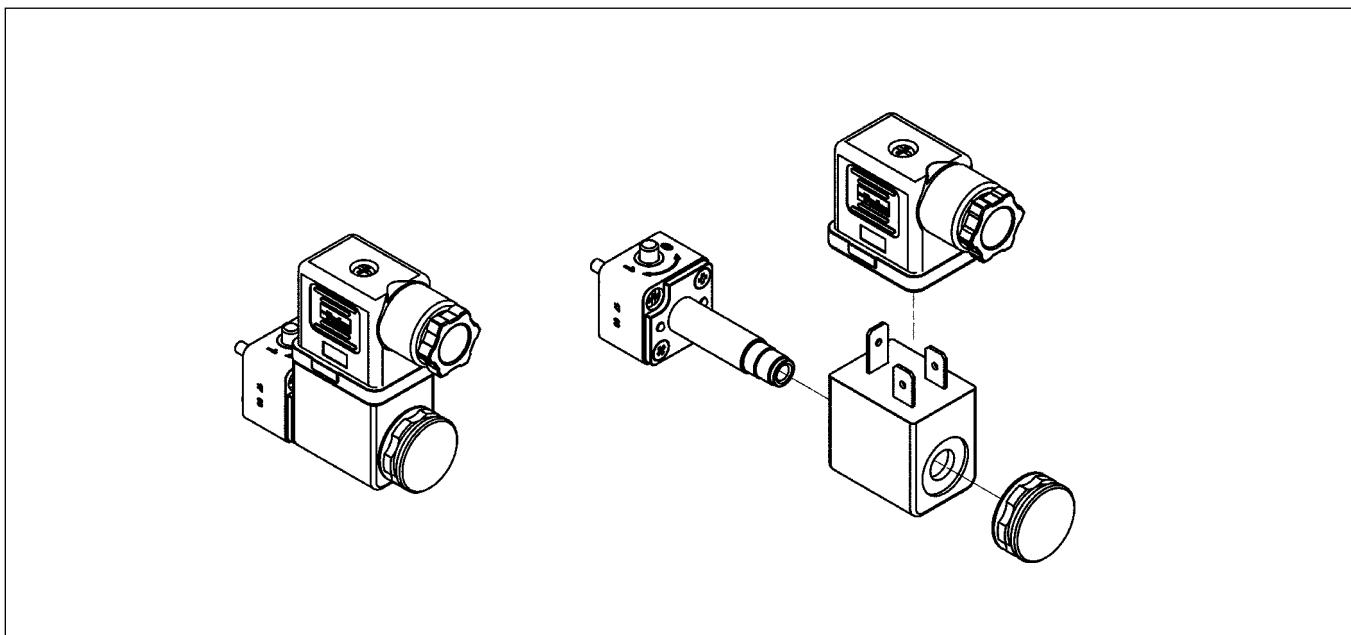
(Note! Mounting screws included in basic valve)

| Voltage                       | Weight<br>Kg | Order code        | Weight<br>Kg | Order code        | Weight<br>Kg | Order code        |
|-------------------------------|--------------|-------------------|--------------|-------------------|--------------|-------------------|
| 24 VDC                        | 0,038        | <b>P2E-QV32C0</b> | 0,038        | <b>P2E-QV32C1</b> | 0,038        | <b>P2E-QV32C2</b> |
| 48 VDC                        | 0,038        | <b>P2E-QV32D0</b> | 0,038        | <b>P2E-QV32D1</b> | 0,038        | <b>P2E-QV32D2</b> |
| 24 VAC 50Hz                   | 0,038        | <b>P2E-QV31C0</b> | 0,038        | <b>P2E-QV31C1</b> | 0,038        | <b>P2E-QV31C2</b> |
| 48 VAC 50/60Hz                | 0,038        | <b>P2E-QV34D0</b> | 0,038        | <b>P2E-QV34D1</b> | 0,038        | <b>P2E-QV34D2</b> |
| 115 V 50Hz/<br>120 V 60Hz     | 0,038        | <b>P2E-QV31F0</b> | 0,038        | <b>P2E-QV31F1</b> | 0,038        | <b>P2E-QV31F2</b> |
| 230 VAC 50Hz/<br>240 VAC 60Hz | 0,038        | <b>P2E-QV31J0</b> | 0,038        | <b>P2E-QV31J1</b> | 0,038        | <b>P2E-QV31J2</b> |

| Voltage       | Weight<br>Kg | Order code        | Weight<br>Kg | Order code        |
|---------------|--------------|-------------------|--------------|-------------------|
| 24 VDC        | 0,038        | <b>P2E-QV32C3</b> | 0,038        | <b>P2E-QV32C4</b> |
| 24 VAC 50Hz   | 0,038        | <b>P2E-QV31C3</b> | 0,038        | <b>P2E-QV31C4</b> |
| 115 VAC 50 Hz | 0,038        | <b>P2E-QV31F3</b> | 0,038        | <b>P2E-QV31F4</b> |
| 230 VAC 50 Hz | 0,038        | <b>P2E-QV31J3</b> | 0,038        | <b>P2E-QV31J4</b> |

In accordance with the EU Machine Directive, EN 983, solenoid valves with manual override should have spring-return operating arms for safety.



## 22mm Solenoid pilot options

The P2F P13\*4\* (NC) 3/2 solenoid pilot operators are designed for piloting pneumatic control valves with compressed air or other inert gases.

The P2F P operator is available for Normal operating pressures up to 10 bar having an outlet orifice 1.3mm and exhaust orifice 1.5 mm. An alternative operator is also available having an outlet orifice of 0.8mm and exhaust orifice of 1.0mm for Xtreme maximum operating pressure of 16 bar and wide band voltage tolerances required for mobile applications.

### Corrosion resistant design

The pilot operator body is manufactured in thermoplastic PA 6 material and the core tube brass/stainless steel. The plunger/core is made from stainless steel and the valve seats from FKM.

### Solenoid Pilot Exhaust

These operators all exhaust out of the top of the core tube which is tapped M5. The standard solenoid nut fitted to the core tube is the Diffuser nut which allows the exhaust to escape to atmosphere. This nut also minimises ingress of dirt into the valve through this port. The alternative plastic knurled nut can be specified (refer to part number system) if the exhaust air needs to be captured and piped away using the M5 tapped port.

### Coils

Coils are wound with enameled copper wire, having temperature index 180°C with class F insulation (155°C) and are encapsulated in Thermoplastic resin. When fitted with suitable connector and correct gasket they give protection to IP65.

### Mobile Applications

Viking Xtreme valves are tested to +5g shock and vibration. Solenoid operated valves are designed to operate with wide voltage tolerance bands within the ambient temperature ranges stated in the technical section.

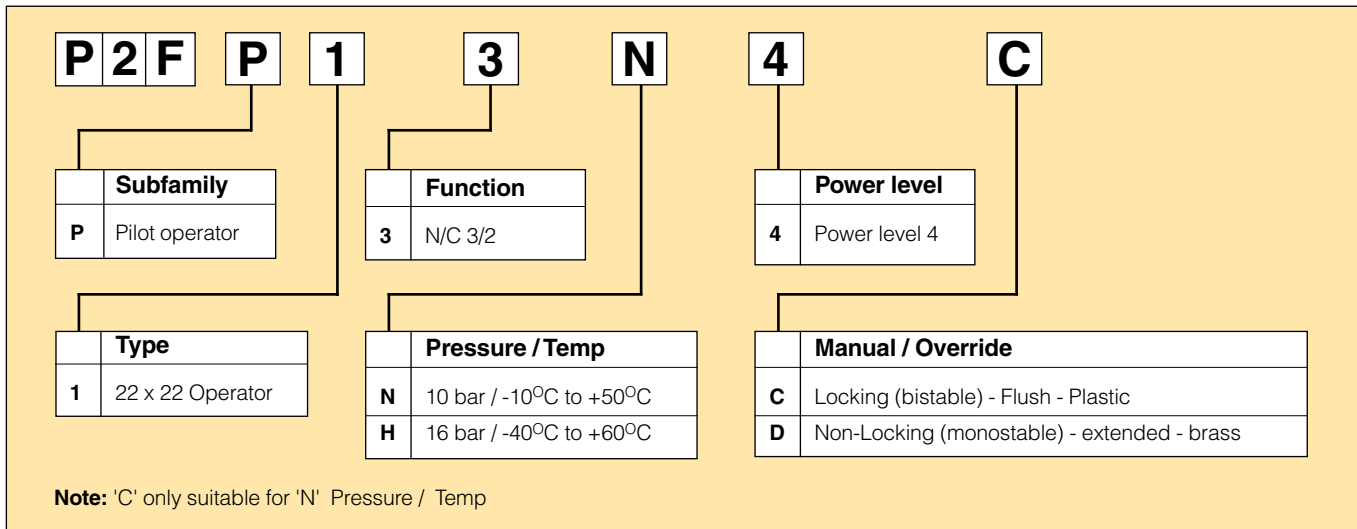
### Manual Override options

The pilot operators can be supplied with or without manual override. The standard manual override is the monostable (spring return) extended brass override. Alternatively the bistable (locking) override can be specified as an alternative for the Normal duty 10bar option.

### Spares

Solenoid operators are available as spares complete with mounting screws and seals. Coils and connectors should be ordered separately.

## Order key, solenoid operators (22mm)



## Technical data

|  | NC Normal   | NC Xtreme        | NC 22mm Xtreme (Mobile) | NC 30mm Xtreme (Mobile) |
|--|---|------------------|-------------------------|-------------------------|
| Working pressure                                   | 0 to 10 bar   | 0 to 16 bar      | 0 to 10 bar             | 0 to 16 bar             |
| Ambient temperature                                | -10 °C to +50 °C  | -40 °C to +60 °C | -40 °C to +60 °C        | -40 °C to +60 °C        |
| Orifice  | 1.3/1.5mm   | 0.8/1.0mm        | 0.8/1.0mm               | 0.8/1.0mm               |
| Flow Qn @ 6 bar input<br>1 bar press drop. 1-2 l/m | 55  | 20               | 20                      | 20                      |
| Flow Qn @ 6 bar input<br>1 bar press drop. 2-3 l/m | 70  | 30               | 30                      | 30                      |
| Power (DC)   | 4.8W  | 4.8W             | 6.0W                    | 6.8W                    |
| Power (AC)   | 8.5VA   | 8.5VA            |                         |                         |
| Voltage tolerance (Standard)                       | +/- 10%   | +/- 10%          |                         |                         |
| Voltage tolerance (Mobile)                         |   |                  | -10 to +30%             | +/- 30%                 |
| Duty cycle   | 100%  | 100%             | 100%                    | 100%                    |
| Insulation class                                   | F   | F                | F                       | F                       |
| Electric connection                                | Ind Form B  | Ind Form B       | Ind Form B              | Form A                  |
| Protection   | IP65  | IP65             | IP65                    | IP65                    |
| Shock & Vibration                                  | -   | 0 to +5g         | 0 to +5g                | 0 to +5g                |
| Approval   | CSA/UL  | CSA/UL           | CSA/UL                  | CSA/UL                  |
| Working media                                      | All neutral media such as compressed air and inert gases. |                  |                         |                         |

## Mobile applications

Solenoid operated Viking Xtreme duty valves for Mobile applications are fitted with the P2FP13H4D solenoid pilot operator. It has a 22mm footprint with 0.8/1.0mm orifice and will accept 22mm or 30mm coil options. The choice of coil option will depend on the voltage tolerance, operating ambient temperature range and maximum operating pressure. Use the technical data in the table above before selecting the coil type required, or contact our technical department.

## Transients

Interrupting the current through the solenoid coil produces momentary voltage peaks which, under unfavourable conditions, can amount to several hundred times the rated operating voltage. Normally, these transients do not cause problems, but to achieve the maximum life of relays in the circuit (and particularly of transistors, thyristors and integrated circuits) it is desirable to provide protection by means of voltage-dependent resistors (varistors). All connectors/cable plugs with LED's listed on page 34 include this type of circuit protection.

## Materials

### Pilot Valve

|                 |                                 |
|-----------------|---------------------------------|
| Body:           | Polyamide                       |
| Armature tube:  | Brass                           |
| Plunger & core: | Corrosion resistant Cr-Ni steel |
| Seals:          | FKM (Viton™)                    |
| Screws:         | Stainless steel                 |

### Coil

|                         |               |
|-------------------------|---------------|
| Encapsulation material: | Thermoplastic |
|-------------------------|---------------|

**22mm solenoid operator part numbers and spares**

**Solenoid coils for 22mm solenoid operators**

| Voltage              | Order code Form A | Weight (Kg) | Order code Form B | Weight (Kg) |
|----------------------|-------------------|-------------|-------------------|-------------|
| 12V 60Hz             |                   |             | <b>P2FCB440</b>   | 0.093       |
| 24V 50/60Hz          |                   |             | <b>P2FCB442</b>   | 0.093       |
| 12V DC               |                   |             | <b>P2FCB445</b>   | 0.093       |
| 12V DC Mobile        | <b>P2FCA447</b>   | 0.17        | <b>P2FCB447</b>   | 0.093       |
| 24v DC Mobile        | <b>P2FCA448</b>   | 0.17        | <b>P2FCB448</b>   | 0.093       |
| 24V DC               |                   |             | <b>P2FCB449</b>   | 0.093       |
| 48V DC               |                   |             | <b>P2FCB451</b>   | 0.093       |
| 110V/50Hz, 120V/60Hz |                   |             | <b>P2FCB453</b>   | 0.093       |
| 230V/50Hz, 230V/60Hz |                   |             | <b>P2FCB457</b>   | 0.093       |

**Note:** Mobile solenoids are only suitable for Viking Xtreme valves with 'H' specification having 0,8/1,0 operator type P2FP13H4D

**Spare Solenoid Nuts**

**Valves requiring captured exhaust should be fitted with plastic knurled nut**

| Order code   |
|--------------|
| <b>P2FNP</b> |

**Valves with vented exhaust are fitted with diffuser plastic nut**

| Order Code   |
|--------------|
| <b>P2FND</b> |

**Spare Solenoid Operators**

**Solenoid pilot operator 22mm NC, Normal duty (Max Operating pressure 10bar, Temp -10°C to +50°C)**

| Order code (with locking bi-stable m/o) | weight Kg | Order code (with Non-locking monostable m/o) | weight Kg |
|---|-----------|--|-----------|
| <b>P2FP13N4C</b>                        | 0.05kg    | <b>P2FP13N4D</b>                             | 0.05kg    |

**Solenoid pilot operator 22mm NC, Xtreme duty (Max Operating pressure 16bar, Temp -40°C to +60°C)**




| Order code (with Non-locking monostable m/o) | weight Kg |
|--|-----------|
| <b>P2FP13H4D</b>                             | 0.05kg    |

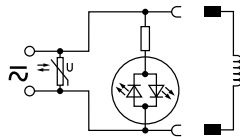
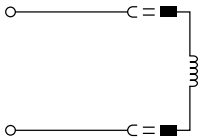
**Note.**

Solenoid pilot operators are fitted to the Viking valve range. Order the above part numbers for spares. The operators are supplied with mounting screws and interface 'O' rings.

**Coils and connectors must be ordered separately.**

### Solenoid Connectors / Cable Plugs EN175301-803

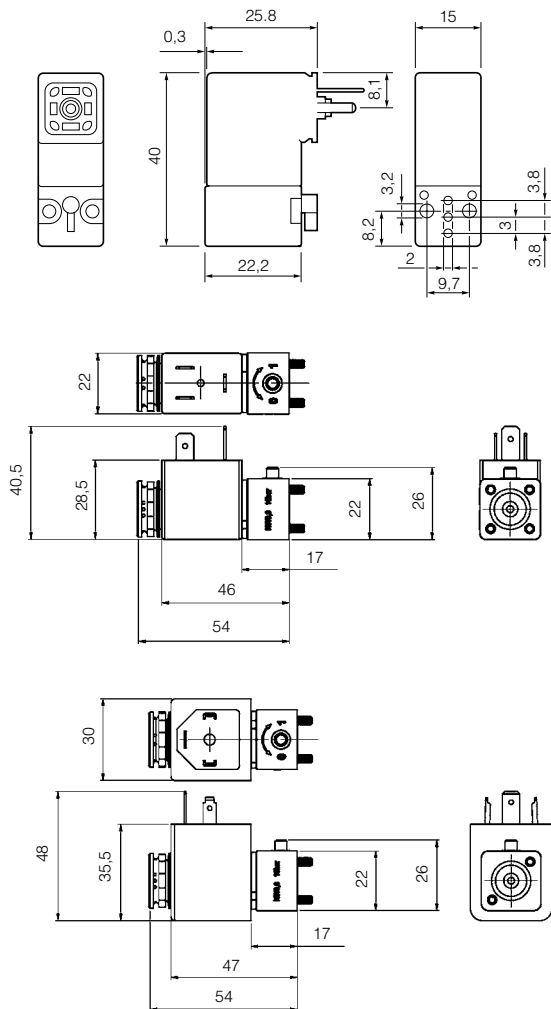
|   | Description                                     | Order code<br>15mm Form<br>C/ISO15217 | Order code<br>22mm<br>Industrial Form B | Order code<br>30mm<br>Form A/ISO4400 |
|---|---|---------------------------------------|---|--------------------------------------|
| With large headed screw suitable for mounting in inaccessible or recess position<br> | Standard IP65                                   | <b>P8C-C</b>                          |   |                                      |
|   | 24V DC<br>LED and protection IP65               | <b>P8C-C26C</b>                       |   |                                      |
|   | 110V AC<br>LED and protection IP65              | <b>P8C-C21E</b>                       |   |                                      |
| With standard screw<br>  | Standard IP65<br>without flying lead            | <b>P8C-D</b>                          | <b>3EV10V10</b>                         | <b>3EV290V10</b>                     |
|   | With LED and protection<br>24V AC/DC            | <b>P8C-D26C</b>                       | <b>3EV10V20-24</b>                      | <b>3EV290V20-24</b>                  |
|   | With LED and protection<br>110V AC              | <b>P8C-D21E</b>                       | <b>3EV10V20-110</b>                     |                                      |
|   | With LED and protection<br>230V AC              |                                       | <b>3EV10V20-230</b>                     |                                      |
| With cable<br>   | Standard with 2m cable IP65                     | <b>P8L-C2</b>                         |   |                                      |
|   | Standard with 5m cable IP65                     | <b>P8L-C5</b>                         |   |                                      |
|   | 24V AC/DC, 2m cable<br>LED and protection IP65  | <b>P8L-C226C</b>                      |   |                                      |
|   | 24V AC/DC, 5m cable<br>LED and protection IP65  | <b>P8L-C526C</b>                      | <b>3EV10V20-24L5</b>                    | <b>3EV290V20-24L5</b>                |
|   | 24V AC/DC, 10m cable<br>LED and protection IP65 | <b>P8L-CA26C</b>                      |   |                                      |
|   | 110V AC/DC, 2m cable<br>LED and protection IP65 | <b>P8L-C221E</b>                      |   |                                      |
|   | 110V AC/DC, 5m cable<br>LED and protection IP65 | <b>P8L-C521E</b>                      | <b>3EV10V20-110L5</b>                   |                                      |
| 230V AC, 5m cable<br>LED and protection IP65  |   | <b>3EV10V20-230L5</b>                 |   |                                      |



|                 |                     |                       |
|-----------------|---------------------|-----------------------|
| <b>P8C-C</b>    | <b>P8C-D26C</b>     | <b>P8L-C226C</b>      |
| <b>P8C-D</b>    | <b>P8C-D21E</b>     | <b>P8L-C526C</b>      |
| <b>P8L-C2</b>   | <b>P8C-C26C</b>     | <b>P8L-CA26C</b>      |
| <b>P8L-C5</b>   | <b>P8C-C21E</b>     | <b>P8L-C221E</b>      |
| <b>3EV10V10</b> |                     | <b>P8L-C521E</b>      |
|                 | <b>3EV10V20-24</b>  | <b>3EV10V20-24L5</b>  |
|                 | <b>3EV10V20-110</b> | <b>3EV10V20-110L5</b> |
|                 | <b>3EV10V20-230</b> | <b>3EV10V20-230L5</b> |

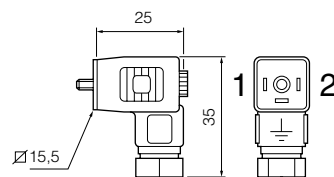
**Cable Plug Dimensions (mm)**

**Solenoid operators P2E-V...**



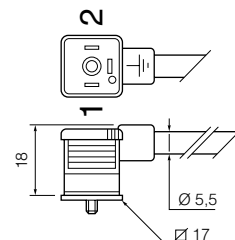
**Cable plugs**

- P8L-C2**
- P8LC5**
- P8L-C226C**
- P8L-C526C**
- P8L-CA26C**
- P8L-C221E**
- P8L-C521E**



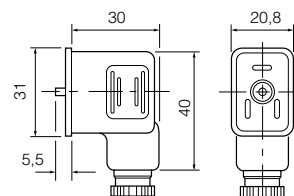
**Cable plugs**

- P8C-C**
- P8C-C26C**
- P8C-C21E**
- P8C-D**
- P8C-D26C**
- P8C-D21E**



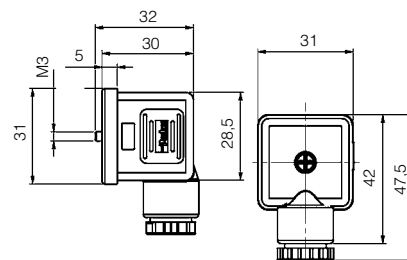
**Cable plugs**

- 3EV10V10**



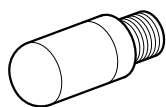
**Cable plugs**

- 3EV290V10**



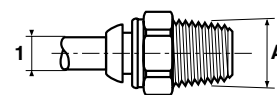
**Accessories**

**Silencers**



| Port | Ordercode       | Pack Qty |
|------|-----------------|----------|
| M5   | <b>P6M-PAC5</b> | 10       |
| G1/8 | <b>P6M-PAB1</b> | 10       |
| G1/4 | <b>P6M-PAB2</b> | 10       |
| G3/8 | <b>P6M-PAB3</b> | 10       |
| G1/2 | <b>P6M-PAB4</b> | 10       |

**Fittings**



**Male connector - BSPT**

| Tube dia 1 | Thread   | Ordercode         | Box Qty |
|------------|----------|-------------------|---------|
|            | <b>A</b> |                   |         |
| 4          | 1/8      | <b>F3PMB4-1/8</b> | 40      |
| 4          | 1/4      | <b>F3PMB4-1/4</b> | 30      |
| 6          | 1/8      | <b>F3PMB6-1/8</b> | 40      |
| 6          | 1/4      | <b>F3PMB6-1/4</b> | 40      |
| 8          | 1/4      | <b>F3PB8-1/4</b>  | 40      |
| 8          | 3/8      | <b>F3PB8-3/8</b>  | 30      |
| 10         | 3/8      | <b>F3PB10-3/8</b> | 20      |
| 12         | 3/8      | <b>F3PB12-1/2</b> | 10      |
| 14         | 1/2      | <b>F3PB14-1/2</b> | 10      |

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