

## Description

Proportional valves are used to control direction and flow in hydraulic systems. The applications of these valves ensure any motion sequences at low cost. Features: 4/3 or 4/2 way function with electrical controlled flow regulation and large variation ratio. The flow control is largely load-compensated. The counterbalance effect ensures that load does not go out of control.

The PVS is suitable where acceleration and deceleration movements are difficult to realize with common hydraulic components. Applications: Feed control, robotic systems, handling operations, etc.

The large flow variation ratio is achieved by a variable orifice, which changes proportional to the pressure drop. The sliding spool orifice is in the side body.

## Technical Data

| General Specifications | PVS 6-...-5/5-...                           | PVS 6-.-5/5-.-EEx emII T4 | PVS 6-...-3/17-... |
|------------------------|---|---------------------------|--------------------|
| Description:           | Proportional directional control valve      |                           |                    |
| Mounting position:     | Any   |                           |                    |
| Ambient temperature:   | - 20 ... + 50° C                            | - 20 ... + 40° C          | - 20 ... + 50° C   |
| Nominal Size:          | NG6, DIN 24340 A 06 to ISO 4401-03, Cetop 3 |                           |                    |
| Weight:                | 2.5 kg                                      | 3.4 kg                    | 3.8 kg             |

| Electrical Specifications          |   |                        |   |
|------------------------------------|---|------------------------|---|
| Nominal voltage:                   | 24 VDC, 12 VDC                            | 24 VDC EEx             | 24 VDC, 12 VDC                            |
| Current range:                     | 0.2 - 0.75 A (24 V)<br>0.4 - 1.5 A (12 V) | 0 - 0.61 A             | 0.2 - 0.9 A (24 V)<br>0.4 - 1.8 A (12 V)  |
| Rated resistance R <sub>20</sub> : | 24.0 Ω (24 V)<br>6.2 Ω (12 V)             | 32 Ω                   | 20.0 Ω (24 V)<br>5.5 Ω (12 V)             |
| Power rating:                      | max. 17.5 W                               | max. 17 W              | max. 21 W                                 |
| Relative duty factor:              | 100%                                      |                        |   |
| Protection class:                  | IP54 acc. to DIN 40050                    | IP67 acc. to DIN 40050 | IP54 acc. to DIN 40050                    |
| Connection:                        | Plug connection ISO 4400/DIN 43650 (2P+E) | Terminal box           | Plug connection ISO 4400/DIN 43650 (2P+E) |
| Temperature class:                 |   | T4 acc. to EN50014     |   |

**Safety, Start up: only for EEx em II T4:** The solenoid coils must only be mounted on those valves assigned to. In the power supply for each solenoid a fuse of an appropriate rating (max. 3 times I<sub>B</sub> of solenoid, DIN 41571 or IEC 127) respectively a motor circuit breaker with electromagnetic and thermal interruption must be installed. The fuse may be located in the power supply unit for the solenoid or between power supply and solenoid. The voltage rating for the fuse must be equal or higher than the one for the solenoid.

| Hydraulic Specifications |   |                  |                  |
|--------------------------|---|------------------|------------------|
| flow rate at Δp 15 bar:  | 0.01-5 l/min                                      | 0.01-5 l/min     | 0.05-17 l/min    |
| Pressure range:          | P, A and B 315 bar, T 160 bar                     |                  |                  |
| Fluid:                   | Mineral oil, HFC fluid or other fluids on request |                  |                  |
| Viscosity range:         | 12-320 mm <sup>2</sup> /s (cSt)                   |                  |                  |
| Filtration:              | 25 μm minimum, recommended: 10μm or better        |                  |                  |
| Fluid temperature:       | - 20 ... + 70° C                                  | - 20 ... + 40° C | - 20 ... + 70° C |
| Hysteresis:              | appr. 3% at optimal dither signal                 |                  |                  |

### Overview

| Symbols | Description     | Design  |
|---------|-----------------|---|
|         | PVS 6-2-...-N   | 4/3 way function<br>spool type N  |
|         | PVS 6-2-...-D   | 4/3 way function<br>spool type D  |
|         | PVS 6-1-...-DB  | Feed control with<br>rapid reverse  |
|         | PVS 6-2-...-T   | 4/3 way function<br>spool type T  |
|         | PVS 6-1-...-NBZ | 4/2 way function<br>proportional solenoid b-side<br>spool type N, D and T |
|         | PVS 6-1-...-NAZ | 4/2 way function<br>proportional solenoid a-side<br>spool type N, D and T |

→ other functions on request

### Type Code

|              |      |      |                                     |                                    |
|--------------|------|------|-------------------------------------|------------------------------------|
| <b>PVS 6</b> | -... | -... | -...                                | -...                               |
|              |      |      | omit                                | = 24 VDC standard                  |
|              |      |      | 12 VDC                              | = 12 VDC                           |
|              |      |      | EEx em II T4                        | = explosion proof execution 24 VDC |
|              |      |      | Type and design acc. table overview |                                    |
|              |      |      | Flow range                          |                                    |
|              |      |      | 5 / 5 = 0.01 - 5 l/min              |                                    |
|              |      |      | 3 / 17 = 0.05 - 17 l/min            |                                    |
|              |      |      | 1 = 4/2 way function                |                                    |
|              |      |      | 2 = 4/3 way function                |                                    |
|              |      |      | Proportional valve NG 6             |                                    |

### Ordering specification (Example):

- proportional valve NG 6
- 4/3 way function
- spool type T
- flow range 0.05 - 17 l/min

### Type code:

} PVS 6-2-3/17-T

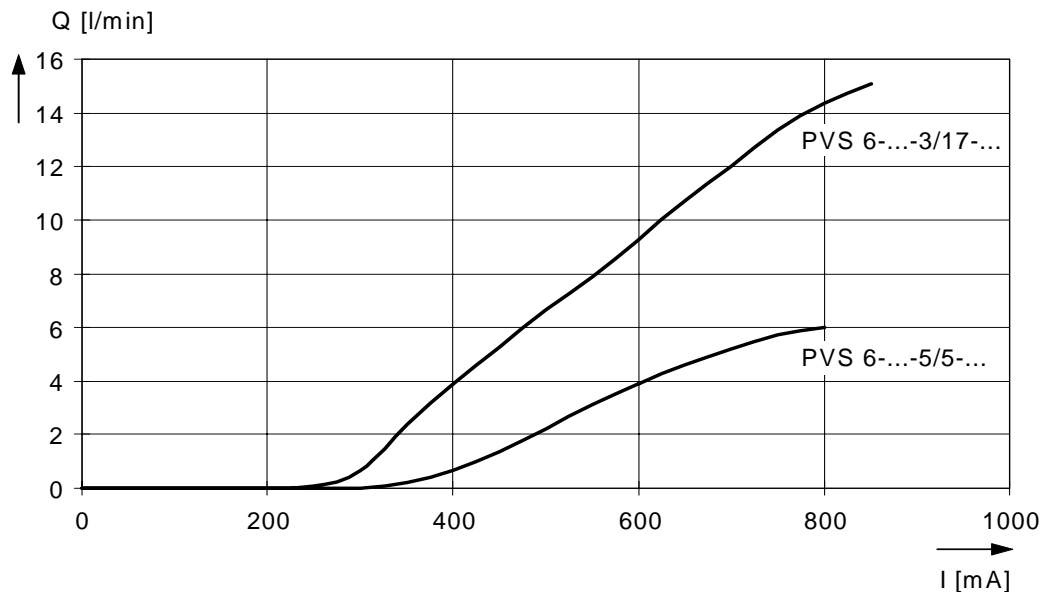
### Characteristics

#### Q-I Characteristics:

PVS 6-...-5/5-...  
and  
PVS 6-...-3/17-...

Flow rate (Q) depending  
on the current (I)

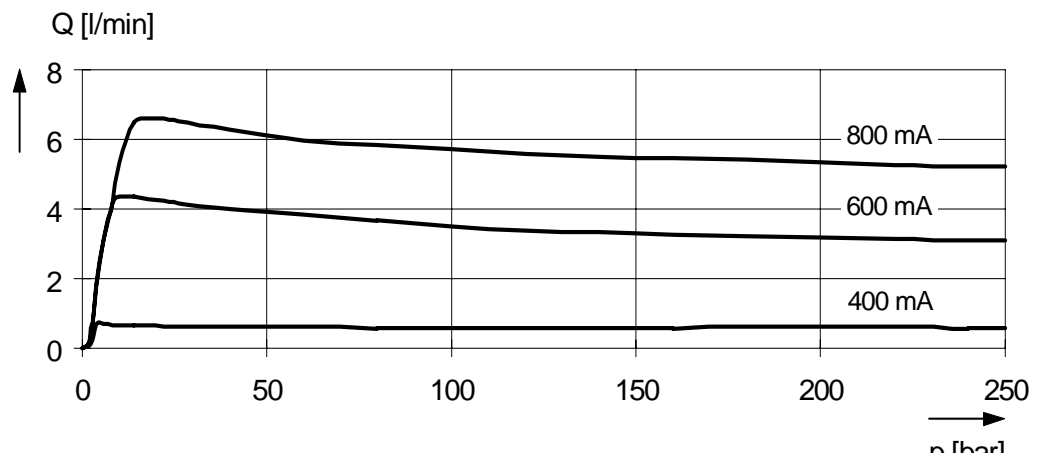
Test pressure  
 $p = 70 \text{ bar}$



#### Q-p Characteristics:

PVS 6-...-5/5-...

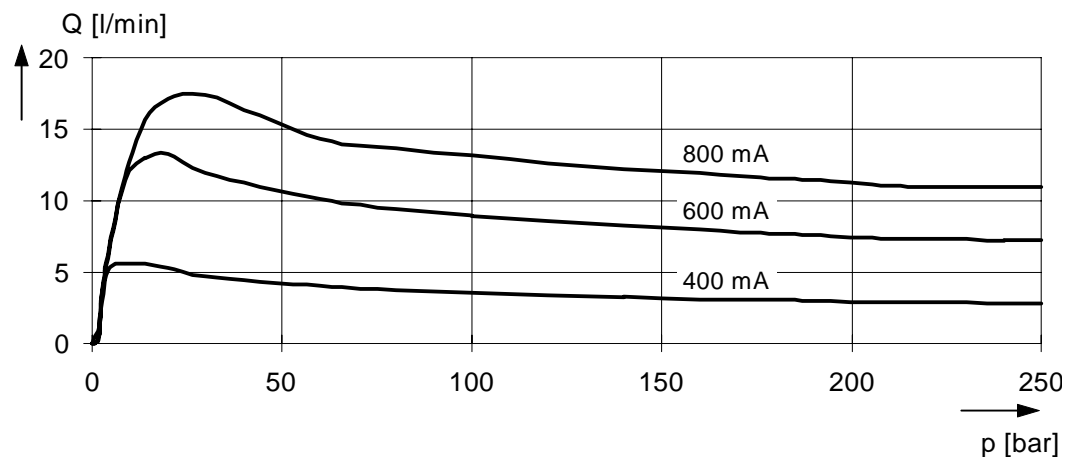
Flow rate (Q)  
depending on the test  
pressure (p)



#### Q-p Characteristics:

PVS 6-...-3/17-...

Flow rate (Q)  
depending on the test  
pressure (p)



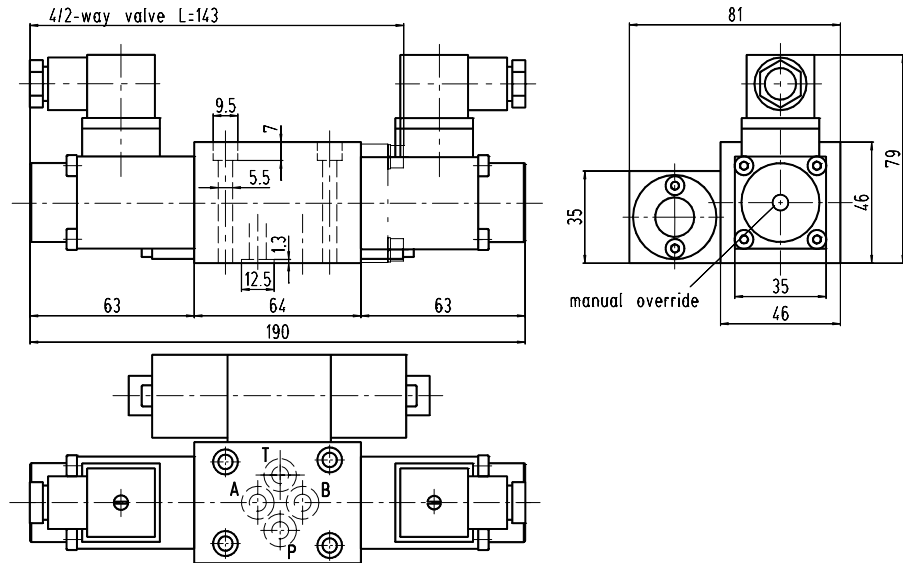
Measuring conditions:

- hydraulic oil HLP 46; viscosity  $46 \text{ mm}^2/\text{s}$
- fluid temperature  $40...50^\circ \text{C}$

Characteristics of PVS 6-...-5/5-...EEx em II T4 are similar to PVS 6-...-5/5-...

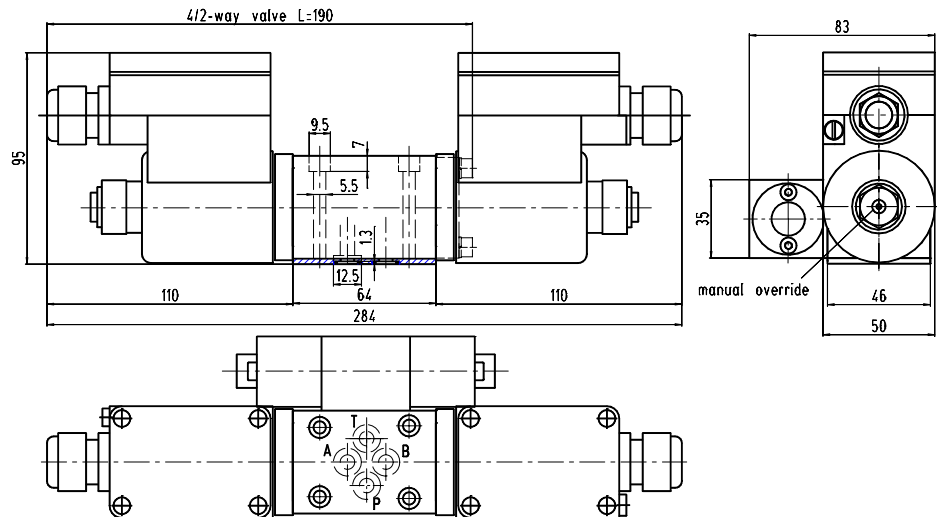
Dimension

PVS 6- $\frac{1}{2}$ -5/5-...



Dimension

PVS 6- $\frac{1}{2}$ -5/5-...-EEx em II T4



Dimension

PVS 6- $\frac{1}{2}$ -3/17-...

