

Directional Control Valves

Size 6



direct controlled
Port size G 3/8

PN [$p_{max.}$] = 315 bar

7501293.06.02.06

Description (standard units)

Design

The design is based upon the **5-chamber-system**. A spool of hardened steel slides in a housing made of high-strength cast-iron. The units are therefore suitable for rough operating conditions.

Actuation

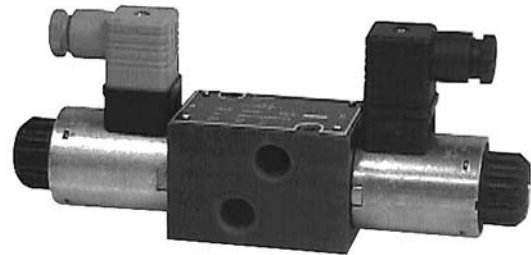
The directional control valves can be actuated either electromagnetically, electropneumatically, hydraulically, pneumatically, mechanically or by spring.

Mounting

By means of bolts onto equipment rack, etc., or to pipe line.

Line connection

Port size G 3/8.



Features

- Good guidance of the spool (5-chamber system) - this means reliable switching even with long rest period
- No dynamic seals
- Delay of switching time by exchangeable nozzle
- Solenoids with pressure-tight core tube (tube secured) to valve body by means of central thread). No need to open pressure-tight space when replacing coil
- Valves with Viton seals standard
- Coils designed for DC voltage. AC operation via connector equipped with rectifier
- No dynamic seals

Type code

Directional control valve

| | | | | | | | | | |
|----------|----------|-----|-----|------------|-----|------------|-----|-----|-----|
| S | 6 | ... | ... | S 3 | ... | 001 | ... | ... | ... |
| | | 1 | 2 | | 3 | | 4 | 5 | 6 |

1 Actuation: **VH** – DC solenoid, pressure-tight with manual override

Other actuations e.g. pneumatical hydraulic by roller lever or by hand on request.

- 2 Electrical connection:
- 00** – Actuation without electrical connection
 - 10** – Plug socket Pg 11 to DIN 43650 on solenoid
 - 11** – Plug socket Pg 11 to DIN 43650 on solenoid and incorporated rectifier
 - 13** – Plug socket Pg 11 to DIN 43650 on solenoid, plug socket provided with signal indicator

3 Symbol

| Symbol | Symbol No. | Over-lap | Symbol | Symbol No. | Over-lap |
|--------|-------------------|----------|--------|------------|----------|
| | 001 ³⁾ | + | | 008 | + |
| | 020 | + | | 009 | + |
| | 019 ²⁾ | + | | 013 | - |

4 Engineering version: **6**

5 Additional data: **O** – Standard design
M – Mechanical detent ¹⁾

6 Sealing material: **V** – Viton

¹⁾ on request

²⁾ 2-position valves available with detent for all types of actuator, except roller tappet (R). 3-position valve can only be arrested by means of a hand lever.

³⁾ Port T of these 3/2 directional control valves is used as leak oil connection.

Parameters according to VDI 3267

| | | | |
|---------------------------|-------------------------------|---------------|-----------|
| Type designation | (Actuation) | VH 10 ... | VH 11 ... |
| General parameters | | | |
| Designation | Directional control valve | | |
| Symbol | See type survey and type code | | |
| Design | Spool-type valve | | |
| Type of mounting | Flange | | |
| Line connection | Port size | | |
| Mounting position | Preferably horizontal | | |
| Weight | 1 actuator [kg] | 1.9 | 1.9 |
| | 2 actuators | 2.7 | 2.7 |
| Ambient temperature range | ϑ_u [°C] | - 20 ... + 50 | |
| Size | NG | 6 | |

Hydraulic parameters

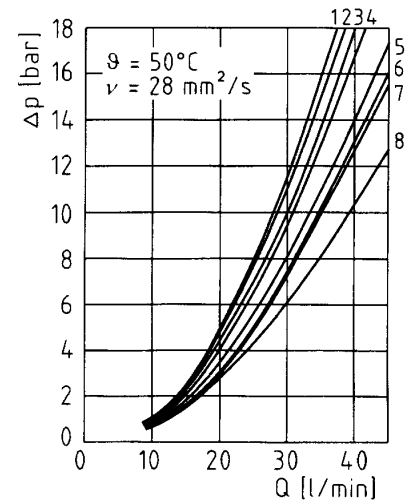
| | | |
|----------------------------|----------------------------|--|
| Operating pressure range | p_e max. [bar] | at port P, A, B ... 315 |
| | | at port T ... 160 |
| Pressure fluid temperature | ϑ_m max. [°C] | + 70 |
| Viscosity range | ν [mm ² /s] | 12 ... 500 |
| Flow | Q_{max} (l/min) | See characteristic curve |
| Filtering | | Oil class according to ISO 4406: 18/15 |

Other parameters

| | | |
|---|-----------------|---|
| Manual override | | yes |
| Switching times | appr. [ms] | |
| | t_e | 50 ... 80 |
| | t_a | 30 ... 55 |
| Approx. number of switchings/h | | 15 000 |
| Rated voltage | U_N [V] | Standard voltages |
| (other voltages available on request) | | 24 ± 10 % 230 V/50 Hz + 5 / - 10 % |
| Current draw | P_{20} [W] DC | 31 |
| Duty cycle | ED_{rel} [%] | 100 |
| Degree of protection for solenoid and electrical connection to DIN 40 050 | | IP 65 |

Flow resistance

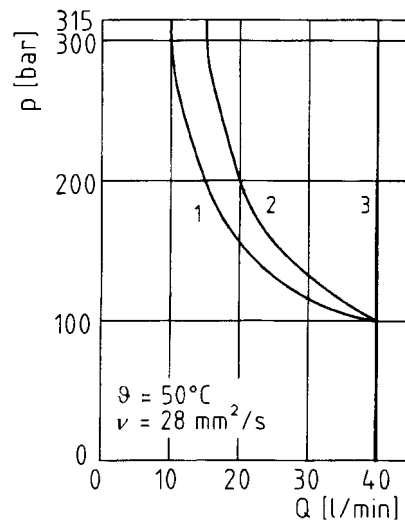
| Symbol | Flow direction | | | | |
|--------|----------------|-----|-----|-----|-----|
| | P-A | P-B | A-T | B-T | P-T |
| 001 | 5 | 5 | - | - | - |
| 008 | 6 | 6 | 3 | 3 | - |
| 009 | 5 | 5 | 4 | 4 | - |
| 013 | 3 | 3 | 1 | 1 | 8 |
| 019 | 7 | 7 | 2 | 2 | - |
| 020 | 7 | 7 | 2 | 2 | - |



Flow Q_{max}

Limiting values measured with warm solenoid and 10% low voltage. Valve passed through in both directions (P-A and B-T). Blocking of one port lead to lower switching capacities.

| Symbol | Characteristic curve |
|--------|----------------------|
| 001 | 1 |
| 008 | 3 |
| 009 | 2 |
| 013 | 3 |
| 019 | 3 |
| 020 | 3 |



Ordering

The units are designated by their type number. The composition of this number can be drawn from the type code. The standard versions are listed in the type survey. When ordering any of the standard versions, please state type number as well as catalog number to preclude possible misinterpretations.

When inquiring about or ordering units not listed in our type survey of this publication, the type number made up by you by means of the type code, however, will do. The corresponding catalog number will then be stated in our confirmation of order.

Example of order

Wanted: 4/3-way directional control valve NG 6, 24 V DC. Electrical connection: Plug socket on solenoid, Symbol 008, port size G 3/8.

Directional control valve:

Type No.: S 6 VH 10 S3 008 001 6 O V
 Cat. No.: **5201449.7234**

Type survey (standard versions)

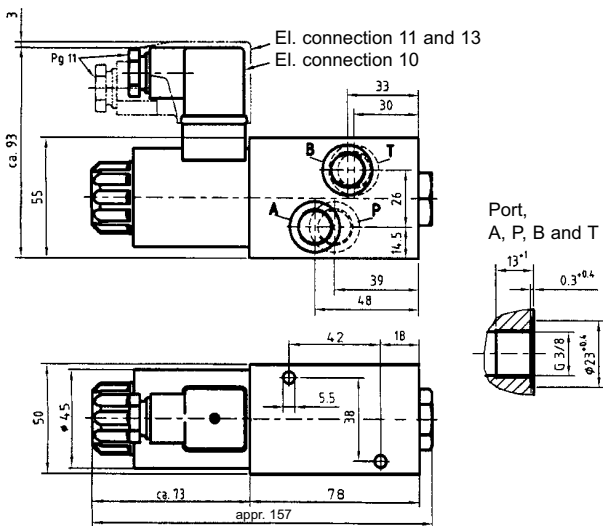
| Symbol | Symbol No. | Overlap | Actuation | Dimensional drawing | Spare part drawing | Electrical connection | Line connection | Voltage | Type | Cat. No. | |
|--------|-------------------|---------|----------------------------------|---------------------|--------------------|---|-----------------|---------|----------------------------|---------------------|----------|
| | | | | | | | | | | Valve | Solenoid |
| | 001 ¹⁾ | + | Solenoid actuated pressure tight | 01 | 01 | No. 10: Plug socket to DIN 43650 (Pg 11) on solenoid or No. 11: Plug socket to DIN 43650 (Pg 11) on solenoid with incorporated rectifier | G 3/8 | VDC | S 6 VH 10 S3 001 001 6 O V | 5201501.7234 | |
| | 020 | + | | 01 | 01 | | | VDC | S 6 VH 10 S3 020 001 6 O V | 5204087.7234 | |
| | 019 | + | | 03 | 03 | | | VDC | S 6 VH 10 S3 019 001 6 M V | 5201504.7234 | |
| | 008 | + | | 02 | 02 | | | VDC | S 6 VH 10 S3 008 001 6 O V | 5201449.7234 | |
| | 009 | + | | 02 | 02 | | | VDC | S 6 VH 10 S3 009 001 6 O V | 5201502.7234 | |
| | 013 | - | | 02 | 02 | | | VDC | S 6 VH 10 S3 013 001 6 O V | 5201503.7234 | |
| | | | | | | | | VAC | S 6 VH 11 S3 001 001 6 O V | 5201506.7234 | |
| | | | | | | | | VAC | S 6 VH 11 S3 020 001 6 O V | 5204088.7234 | |
| | | | | | | | | VAC | S 6 VH 11 S3 019 001 6 M V | 5201508.7234 | |
| | | | | | | | | VAC | S 6 VH 11 S3 008 001 6 O V | 5201509.7234 | |
| | | | | | | | | VAC | S 6 VH 11 S3 009 001 6 O V | 5201510.7234 | |
| | | | | | | | | VAC | S 6 VH 11 S3 013 001 6 O V | 5202029.7234 | |

¹⁾ Port T of these 3/2 directional control valves is used as leak oil connection.

Dimensional drawings

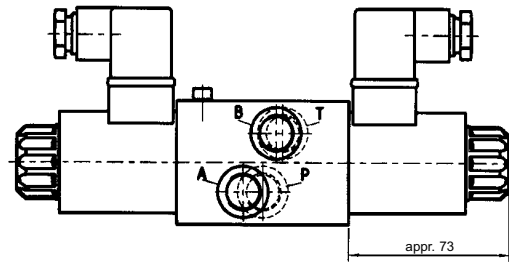
S 6 VH 10
S 6 VH 11

01



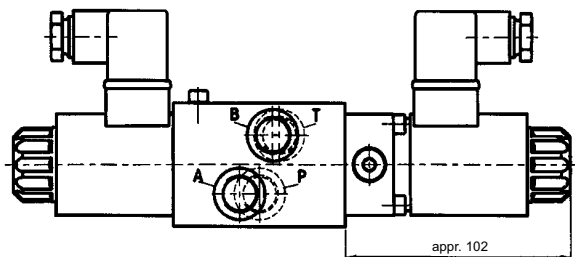
S 6 VH 10
S 6 VH 11

02



S 6 VH 10 ... M
S 6 VH 11 ... M

03



Spare parts drawings

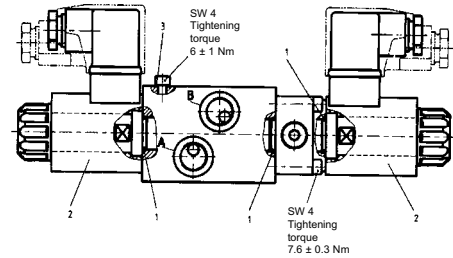
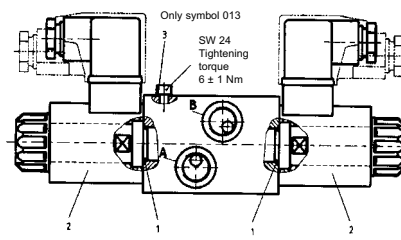
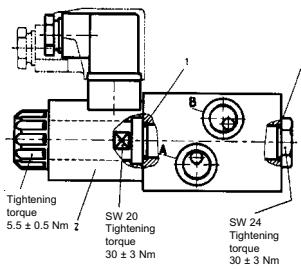
S 6 VH 10
S 6 VH 11

01

02

with mechanical detent

03



Spare parts (pieces)

| Spare part drawing | | 01 | 02 | 03 | Cat. No. |
|--------------------|--|--|----------------|-----------------|----------------|
| Part | Designation | S 6 VH 10 ... S 6 VH 11 ... | S 6 VH ... 013 | S 6 VH 10 ... M | |
| 1 | O-ring (17 x 2) | 2 | 2 | 3 | 0661476 |
| 2 | DC-solenoid (voltage) | 1 or 2 | 1 or 2 | 2 | 7234 |
| 2 | For use of AC voltage: DC-solenoid with rectifier connector (voltage value is necessary) | 1 or 2 (rectifier connector see electrical spare parts) | | | 7234 |
| 3 | Sealing ring 5.7 x 9 x 1 | - | 1 | 1 | 0660227 |

Electrical spare parts

| Electrical connection, Code 10 | Cat. No. |
|--------------------------------|----------------|
| Connector: | |
| Design A (grey) | 0657859 |
| Design B (black) | 0570275 |
| Electrical connection, Code 11 | Cat. No. |
| Connector: | |
| Design A (grey) | 0570322 |
| Design B (black) | 0570819 |

| Electrical connection, Code 13 | Cat. No. |
|--------------------------------------|----------------|
| Design A (grey) Connector + lamp | |
| 15 to 30 V DC | 0570256 |
| 15 to 60 V AC | |
| 90 to 130 V AC or 100 to 130 V DC | 0656553 |
| 150 to 250 V AC/DC | 0656552 |
| Design B (black) Connector + lamp | |
| 15 to 30 V DC | 0570818 |
| 15 to 60 V AC | |
| 90 to 130 V AC or 100 to 130 V DC | 0570816 |
| 150 to 250 V AC/DC | 0570817 |