

## Directional control valves DN 10 directly actuated Interface to DIN 24 340 and ISO 4401 (CETOP03)

PN [ $p_{max.}$ ] = 350 bar

### No dynamic seals

### Delay of switching time by exchangeable nozzle

### Optional: without manual override

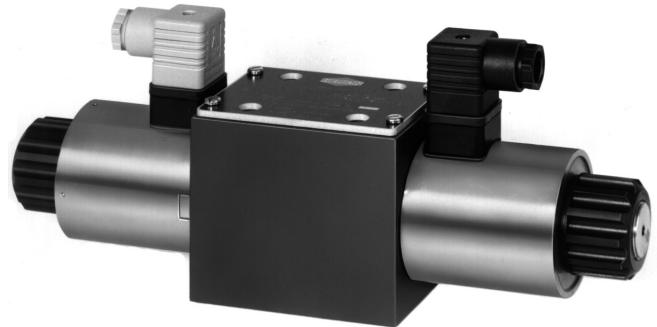
### Wet type solenoid with pressure-tight core tube

### Easy replacement of solenoids. Solenoids with pressure-tight tube (tube secured to valve body by means of central thread).

### Valves with Viton seals standard

### Coils designed for DC voltage.

### AC operation via connector equipped with rectifier



## Technical data

### General parameters

Designation:  
Directional control valve

Symbol:  
See type survey or type key

Design:  
Spool-type valve

Type of mounting:  
Flange

Line connection:  
Subplate

Mounting position:  
Preferably horizontal

Weight of valve with:  
1 actuator [kg]: 6.5  
2 actuators [kg]: 7.3

Weight of subplat.:  
G 1/2 [kg]: 2  
G 3/4 [kg]: 3.4

Ambient temperature range  
 $\theta_u$  [°C]:  
-20 to +50

Size:  
DN 10

MTTF<sub>d</sub> [years]:  
150

### Hydraulic parameters

Operating pressure  
 $p_e$  max. [bar]  
at port P, A, B:  
up to 350  
at port T:  
up to 210

Pressure fluid temperature  
 $\theta_u$  max. [°C]:  
+70

Viscosity range:  $\nu$  [mm<sup>2</sup>/s]:  
12 to 500

Flow  $Q_{max}$  [l/min]:  
See characteristic curves

Filtration:  
Oil purity class to ISO 4406:  
18/15

### Further parameters

Manual override:  
Standard

Switching times, approx. [ms]:  
 $t_{on}$ : 70 to 95  
 $t_{off}$ : 40 to 80

Number of switchings/h,  
approx.:  
15000

Rated voltage connector input  
 $U_N$  [V]:  
Standard voltages:  
VH 10      VH11  
(VH 13)    (VH 12)  
24 DC      230 AC 40...60 Hz  
+5%/-10%    +5%/-10%

Further voltages:  
VH10      VH11\*

12 DC	
24 DC	
48 DC	
98 DC	110 AC
110 DC	
125 DC	
185 DC	
205 DC	230 AC
220 DC	
230 DC	

\* via connector rectifier

Power consumption  
 $P_{20}$  [W]:  
42

Duty cycle [%]:  
100

Degree of protection for  
solenoid and electrical  
connection to DIN 40050:  
IP 65

## Directional control valves DN 10

### Type survey (standard versions)

Symbol	Symbol-No.	Overlap	Voltage	Type	Cat. No.
	001 <sup>1)</sup>	+	VDC 24V	S10VH10 G 001 001 5 0 V S10VH13 G 001 001 5 0 V	5204867.7908.02400 5204956.7908.02400
			VAC 230	S10VH11 G 001 001 5 0 V S10VH12 G 001 001 5 0 V	5204941.7908.20500 5205522.7908.20500
	003	-	VDC 24V	S10VH10 G 003 001 5 0 V S10VH13 G 003 001 5 0 V	5204869.7908.02400 5205414.7908.02400
			VAC 230	S10VH11 G 003 001 5 0 V S10VH12 G 003 001 5 0 V	5204940.7908.20500 5205578.7908.20500
	020	+	VDC 24V	S10VH10 G 020 001 5 0 V S10VH13 G 020 001 5 0 V	5204820.7908.02400 5204957.7908.02400
			VAC 230	S10VH11 G 020 001 5 0 V S10VH12 G 020 001 5 0 V	5204961.7908.20500 5205391.7908.20500
	019	+	VDC 24V	S10VH10 G 019 001 5 M V S10VH13 G 019 001 5 M V	5204963.7908.02400 5205349.7908.02400
			VAC 230	S10VH11 G 019 001 5 M V S10VH12 G 019 001 5 M V	5204964.7908.20500 5205412.7908.20500
	008	+	VDC 24V	S10VH10 G 008 001 5 0 V S10VH13 G 008 001 5 0 V	5204819.7908.02400 5204958.7908.02400
			VAC 230	S10VH11 G 008 001 5 0 V S10VH12 G 008 001 5 0 V	5204962.7908.20500 5205368.7908.20500
	009	+	VDC 24V	S10VH10 G 009 001 5 0 V S10VH13 G 009 001 5 0 V	5204927.7908.02400 5204959.7908.02400
			VAC 230	S10VH11 G 009 001 5 0 V S10VH12 G 009 001 5 0 V	5204943.7908.20500 5205389.7908.20500
	013	-	VDC 24V	S10VH10 G 013 001 5 0 V S10VH13 G 013 001 5 0 V	5204933.7908.02400 5204960.7908.02400
			VAC 230	S10VH11 G 013 001 5 0 V S10VH12 G 013 001 5 0 V	5204949.7908.20500 5205390.7908.20500

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

### Connecting plate

	Typ	Best.-Nr.
G 1/2	PS 10 G 4 001 2 0 0	1065184
G 3/4	PS 10 G 5 001 2 0 0	1065185

### 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. Further valve versions can be composed via combination of types - order numbers on request.

Flanged valves are provided with O-rings and connector. Subplate and mounting screws must be ordered separately.

**Type key**

**Directional control valve**

<b>S</b>	<b>10</b>	...	...	<b>G</b>	...	<b>001</b>	<b>5</b>	...	...
		1	2		3		4	5	6

- 1 Actuation: **V** – Without manual override  
**VH** – With manual override
- 2 Electrical connection: **10** – Connector Pg 11  
**11** – Connector Pg 11 with rectifier insert on plug  
**12** – Connector Pg 11 with rectifier insert and function indicator on plug  
**13** – Connector Pg 11 with function indicator on plug
- 3 Symbol: – Standard symbols see page 2  
– Extra symbols see below
- 5 Additional data: **O** – Standard design  
**M**<sup>1)</sup> – Mechanical detent  
**C**<sup>2)</sup> – Switching delay by means of nozzle
- 6 Sealing material: **V** – FKM (e.g. Viton)
- 3 Symbol:

**Subplate**

<b>P</b>	<b>S</b>	<b>10</b>	<b>G</b>	...	<b>001</b>	<b>2</b>	<b>0</b>	<b>0</b>
				1				

- 1 Line connection: **4** – G 1/2 (internal thread)  
**5** – G 3/4 to DIN ISO 228/1)

<sup>1)</sup> Only 2-position valves are available with detent.  
<sup>2)</sup> Port T of valves with a delayed switching time has to be pressurized with approx. 5 bar.  
<sup>3)</sup> Port T of these 3/2-way valves is to be used as leak oil connection.

Extra symbols	Symbol No.	Overlap	Extra symbols	Symbol No.	Overlap	Extra symbols	Symbol No.	Overlap
	002	-		016	-		086	+
	087	-		023	-		088	+
	004	+		025	+		097	+
	005	+		031 <sup>3)</sup>	-		231	-
	094	+		033	-		146	-
	010	+		038	+		153	-
	007	+		039	+		183	+
	011	-		043	+		198	+
	153	-		044 <sup>3)</sup>	-		223	+
	090	-		045	-		188	-
	017							

Further symbols on request!

**Ordering example**

Wanted:  
4/3 directional control valve  
DN 10, 24 VDC, solenoid with  
plug, symbol 001, along with  
corresponding subplate G 1/2.

**Directional control valve:**  
Type No.:  
S 10 VH 10 G 001 001 5 0 V  
Cat. No.:  
**5204867.7908.024.00**

**Subplate:**  
Type No.:  
P S 10 G 4 001 2 0 0  
Cat. No.:  
**1065184**

**Mounting screws:**  
[4 pcs. required]  
Socket-head screw:  
[M 6 x 60 DIN 912-10.9]  
Cat. No.:  
**0700416**

**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. Therefore the units are suitable for rough operating conditions and guarantee reliable switching, even with long rest periods.

**Actuation**

The directional control valves are electromagnetically operated, with spring return for the standard valves. The piston of valves with mechanical detent remains in energized position even if de-energized.

**Mounting**

The units are bolted on sub-plates and sealed by O-rings.

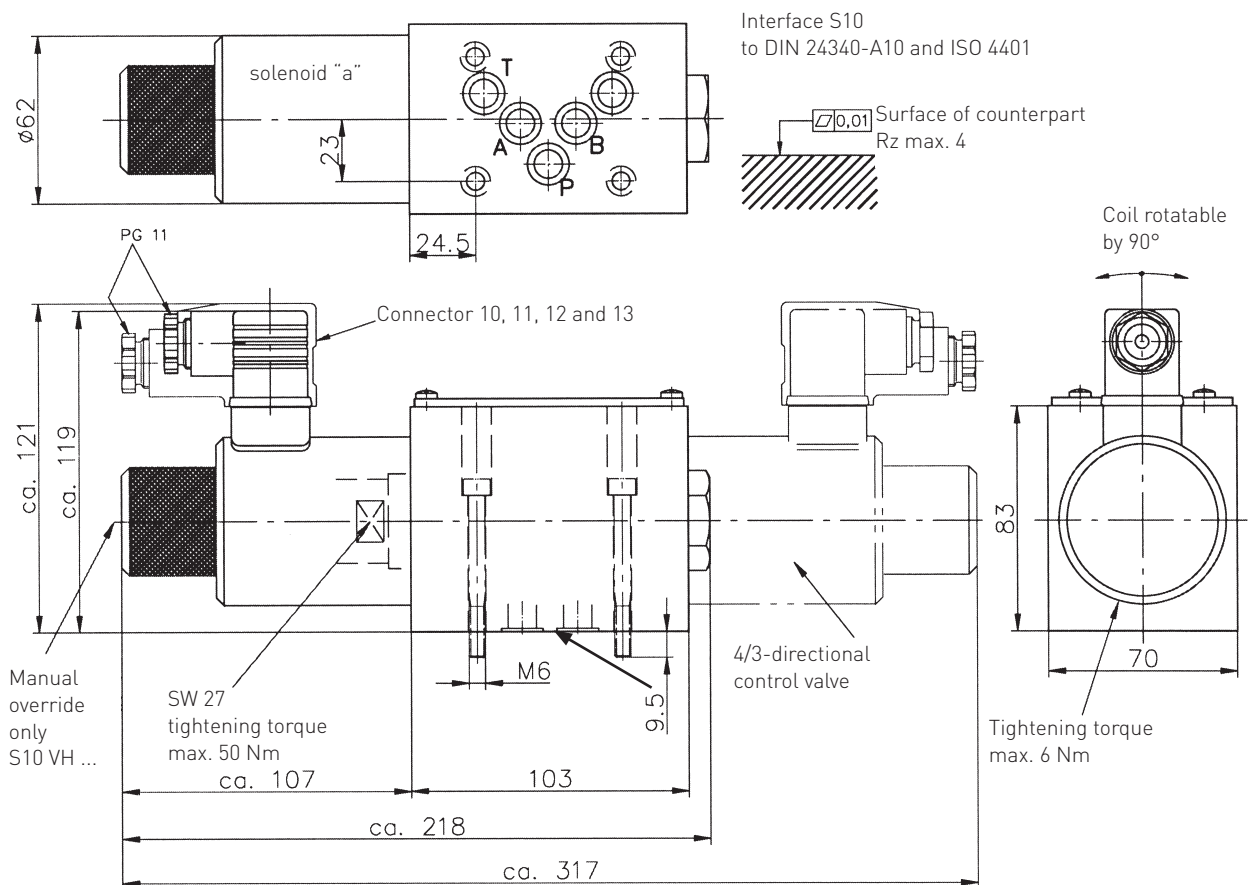
**Line connection**

Subplate, interface to DIN 24340-A10 and ISO 4401-AC-05-4-A [CETOP05].

**Dimensional drawings**

**Directional control valve**

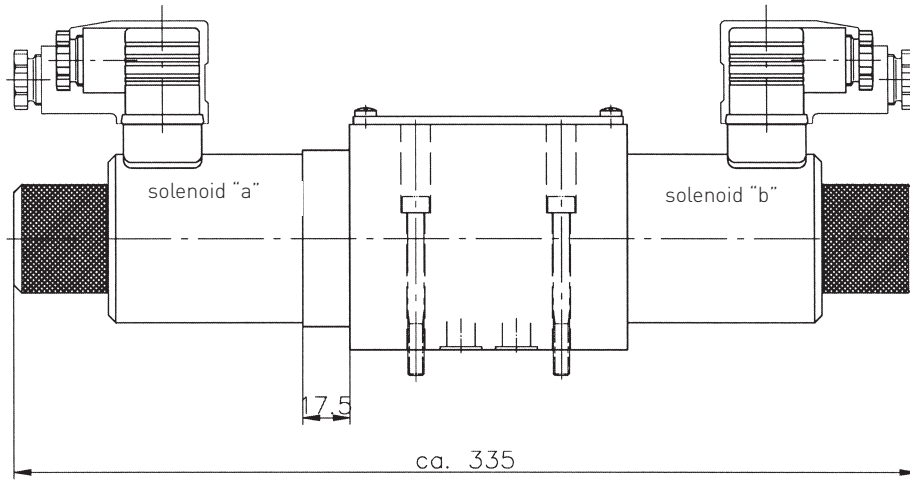
S 10 V ...  
S 10 VH ...



**Dimensional drawings**

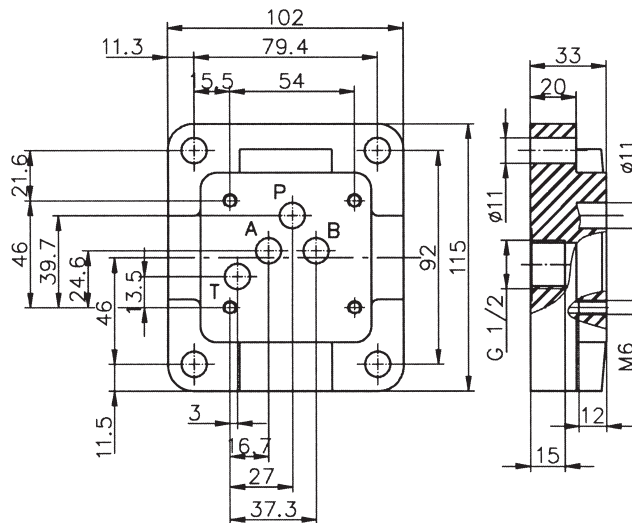
**Directional control valve**

S 10 V ... M ...  
S 10 VH ... M ...

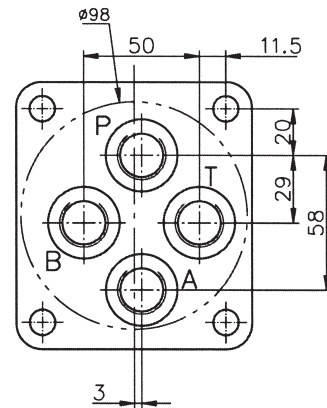


**Subplate** with interface according to DIN 24 340-A 10 and ISO 4401-AC-05-4-A

**G 1/2**

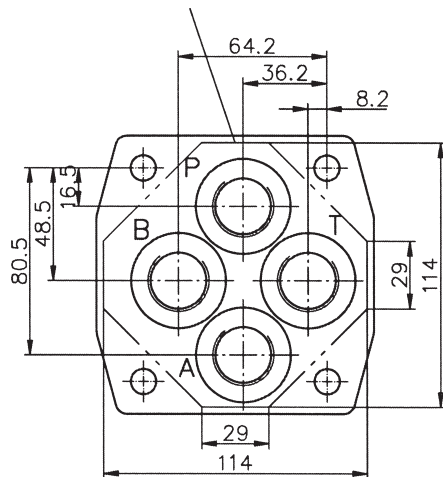
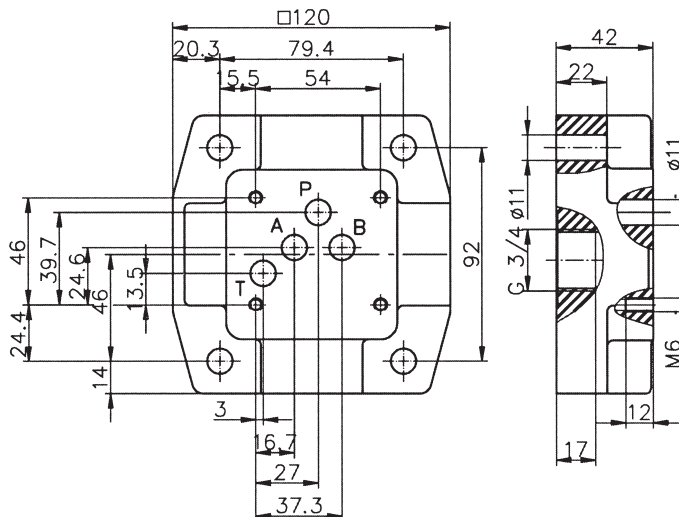


Aperture for connection in control panel  
Position: central to plate



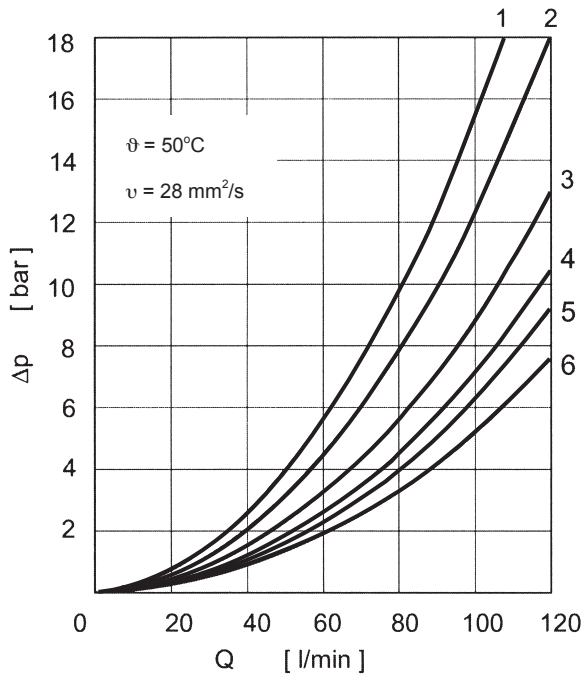
Aperture for connection in control panel

**G 3/4**

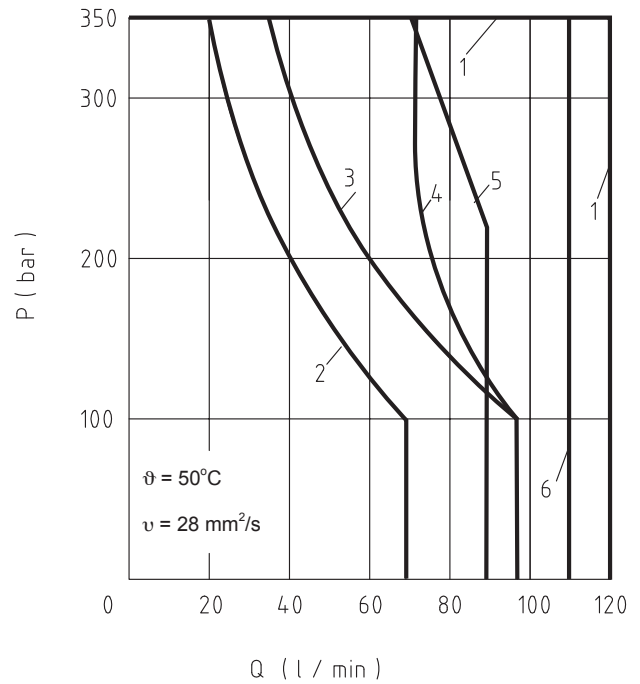


**Characteristic curves**

Flow curves  $Q = f(\Delta p)$



**Power limits**



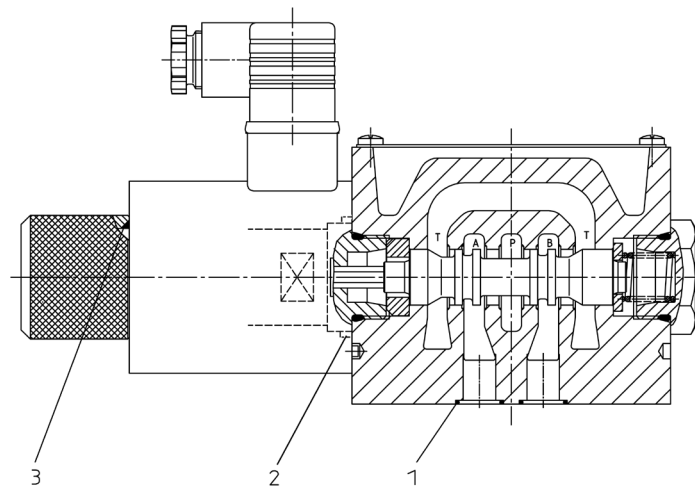
Symbol	Flow direction				
	P-A	P-B	A-T	B-T	P-T
001	6	6	-	-	-
003	6	6	4	4	-
008	6	6	5	5	-
009	6	6	3	3	-
013	4	4	3	2	1
019	6	6	4	4	-
020	6	6	4	4	-

Symbol	Characteristic curve
001	1
003	4
008	5
009	2
013	3
019	5
020	5

Maximum values determined with solenoid in warmed-up condition and at an undervoltage of 10%.  
 Fluid passing in two directions (from P to A and B to T).  
 If one port is closed, a reduced breaking capacity must be taken into consideration.  
 A reduced breaking capacity must also be taken into consideration for valve types with switching delay (nozzle).

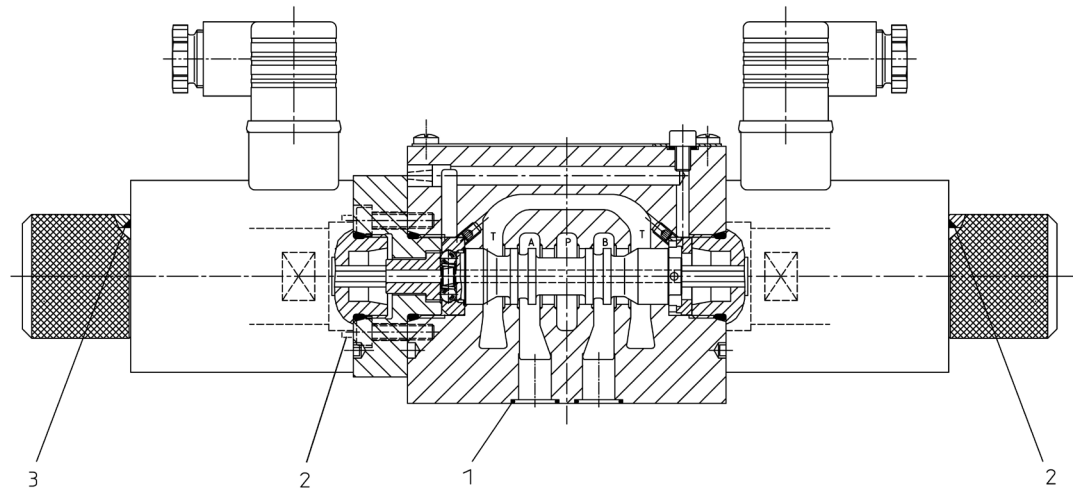
**Spare parts drawings**

**S 10 V ...**  
**S 10 VH ...**



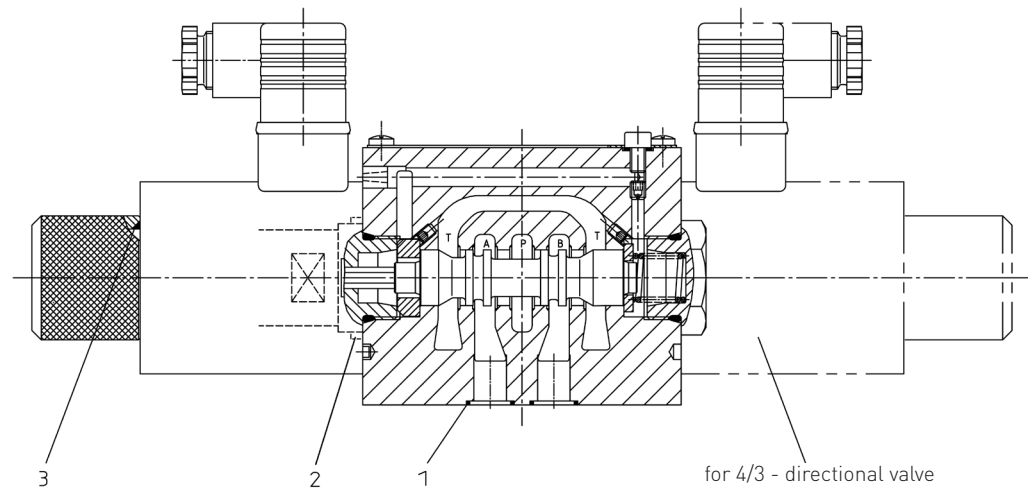
**S 10 V ... M**  
**S 10 VH ... M**

with mechanical detent



**S 10 V ... C ...**  
**S 10 VH ... C ...**

Switching time delay  
with nozzle



**Spare parts kit**

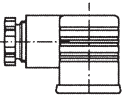
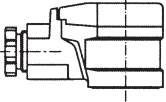
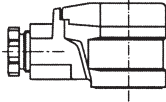
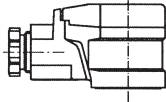
- 0618648**, containing:  
5 x O-ring (FKM 80) ref. 0701623 (part 1)  
2 x O-ring (NBR 70) ref. 0656606 (part 2)  
2 x O-ring (NBR 70) ref. 0701266 (part 3)

Sealings are exclusively available as spare parts kit.

Repairs and maintenance must only be carried out by the valve manufacturer or authorized personnel.

## Directional control valves DN 10

### Electrical spare parts

Electrical connection, Symbol 10	Cat. No.
 <p>Connector Pg 11 (Operating voltage: 0...300 V DC)</p>	<b>0570275</b>
Electrical connection, Symbol 11	Cat. No.
 <p>Connector Pg 11 with rectifier (Operating voltages: 15...250 V AC or 10...250 V DC)</p>	<b>0570819</b>
Electrical connection, Symbol 12	Cat. No.
 <p>Connector Pg 11 with rectifier and indicator (Operating voltages: 80...130 V AC or 100...130 V DC)</p>	<b>0588568</b>
<p>Connector Pg 11 with rectifier and indicator (Operating voltages: 150...250 V AC or 135...250 V DC)</p>	<b>0571502</b>
Electrical connection, Symbol 13	Cat. No.
 <p>Connector Pg 11 with indicator (Operating voltages: 24 V DC)</p>	<b>0570818</b>
<p>Connector Pg 11 with indicator (Operating voltages: 90...130 V DC)</p>	<b>0570816</b>
<p>Connector Pg 11 with indicator (Operating voltages: 150...250 V DC)</p>	<b>0570817</b>



**HERION Systemtechnik GmbH**

Untere Talstraße 65  
71263 Weil der Stadt  
Tel.: +49 (0) 7033/3018-0  
Fax: +49 (0) 7033/3018-10  
info@herion-systemtechnik.de  
www.herion-systemtechnik.de

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ESTUN INDUSTRIAL AUTOMATION CO., LTS  
155, Jiangjun Road, Jiangning Economical & Technical  
Development Zone, Nanjing, 211100 P.R.C.  
Tel.: +86-25-52785915  
E-Mail: info@estun.com  
www.estun.com

**Japan**

Riken Optech Corporation  
2-6-9, Higashi Ohi, Shinagawa-ku,  
Tokyo 140-8533  
Tel.: +81 3 34748602  
E-Mail: contact@rikenoptech.com  
www.rikenoptech.com

**Korea**

CHUNGWOO CO., LTD.  
# 416-4 Dokjeongri  
Janganmyun Hwaseongsi  
Kyungkido, Korea  
Tel.: +82 (0)31 351-5340  
E-Mail: blueox2@unitel.co.kr  
www.chungwooco.co.kr

**Spain**

EUROTECH SYSTEMS, S.L.  
Av. Can LLuch, 25  
08690 SANTA COLOMA DE CERVELLO  
Tel.: +34 93 634 0101  
E-Mail: eurotech@eurotechsys.com  
www.eurotechsys.com

**South Africa**

Ernest Lowe ELCO  
Pneumatic & Hydraulic Automation Solutions  
6, Skew Road, Boksburg North 1459,  
Gauteng, South Africa  
Tel.: +27 (11) 898-6600  
E-Mail: corporate@elco.co.za  
www.elco.co.za

**Taiwan**

Full Life Trading Co., Ltd.  
16F-4, No.2, Jian Ba Rd. Chung Ho City  
Taipei County, Taiwan 23562  
Tel.: +886-2-82261860  
E-Mail: sales-dept@fulllifetrading.com  
www.fulllifetrading.com

**Turkey**

Power Pnomatik Proses A. Ş  
Necatibey Cad. No:44/2  
Karaköy  
Ystanbul 34420  
Tel.: +90 212 2938870  
E-Mail: info@powerpnomatik.com  
www.powerpnomatik.com