

# Directional control Valve size 25



**Pilot operated  
Spool type valve  
Interface acc. to DIN 24340 and ISO 4401**

**PN [p<sub>max.</sub>] = 315 bar**

7501298.06.12.08

## Description (Standard Appliances)

### Design

The S 25 type valves are spool type valves available in 4/2- and 4/3-way designs. The valves can be used as 2- or 3-way designs by closing the appropriate ports.

### Actuation

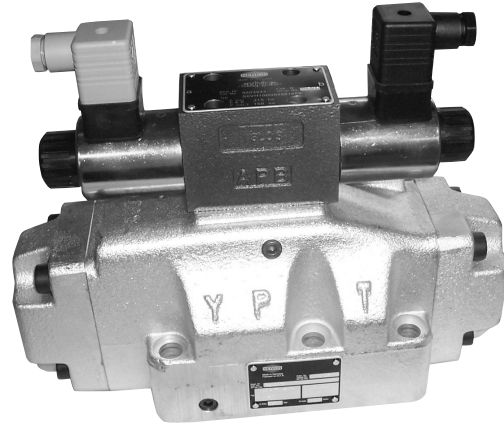
Pilot operated valves are operated by solenoids. The auxiliary manual operation is only effective when control pressure is available.

### Mounting

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

### Line connector

Subplate, interface to DIN 24340-A25 and ISO 4401-AE-08-4-A.



## Type key

### Directional valve




<b>S</b>	<b>25</b>	...	...	...	<b>G</b>	...	...	...	...	...
		1	2	3		4	5	6	7	8

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

### 2 Control type

	Pilot	Control oil inlet X	Control oil outlet Y	Timed settings
<b>17-</b>	S 6	internal	external	none
<b>18-</b>	S 6	external	external	none
<b>19-</b>	S 6	internal	external	available
<b>20-</b>	S 6	external	external	available
<b>21-</b>	S 6	internal	internal	none
<b>22-</b>	S 6	external	internal	none
<b>23-</b>	S 6	internal	internal	available
<b>24-</b>	S 6	external	internal	available

### 3 Electrical connection:

- 10 -**  PG 11 socket according to DIN 43650 mounted on solenoid
- 11 -**  PG 11 socket according to DIN 43650 mounted on solenoid with integrated rectifier
- 13 -**  PG11 socket according to DIN 43650 mounted on solenoid, signal indicator mounted on socket

## Type key

4 Symbols:

Symbol No.	Symbol	Overlap
020		+
005		+
019		+
008		+
009		+
010		+
011 1)		-
013 1)		-

For the symbols shown:  
Solenoid operated valve with control pattern 17  
with hydraulic and direct pneumatic operation.

1) Control patterns 17, 19, 21 and 23 are only possible  
in conjunction with symbol 013 with a precharge  
cartridge valve in P.

5 Armature: **001** – Standard configuration

6 Engineering version: **2** – with pilot valve size 6

7 Additional data:  
**O** – Standard configuration  
**M** – mechanical detent of the pilot valve  
**R** – Pilot cartridge in port P<sup>1)</sup> (main valve)  
**E** – mechanical detent of the pilot valve and precharge cartridge valve in P-port from main valve

8 Seal material:  
**O** – Perbunan  
**V** – Viton

### Subplate

<b>P</b>	<b>S</b>	<b>25</b>	<b>G</b>	...	<b>001</b>	...	<b>O</b>	<b>O</b>
				1		2		

1 Line connector:  
**6** – G 1"  
**7** – G 1 ¼"  
**8** – G 1 ½"  
(Internal thread according to DIN ISO 228/1)

2 Engineering Revision: **2**

## Parameter to VDI 3267

Type designation	S 25 VH
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### General parameters

Designation	Directional control valve	
Type	Spool-type valve	
Symbol	See type key	
Mounting type	Flange	
Line connector	Subplate	
Weight of valve	[kg]	
1 actuator		16.6
2 actuators		17.2
Weight of subplate	[kg]	
G 1, G 1 1/4		9.2
G 1 1/2		24.2
Weight of double-throttle non-return valve	[kg]	1.9
Mounting position	any	
Ambient temperature range $\vartheta_u$	[°C]	-20 bis +50
Nominal size	NG	25

### Electrical parameters

Operation	VH	
Switching time <sup>2)</sup> $t_e$	[ms]	50
(pilot valve) $t_a$	[ms]	30
No. of switchings/h	approx. 15 000	
Rated voltage $U_N$	[V]	24
Nennspannungstoleranz $\Delta U_N$	Special voltages on request ( $\pm 10\%$ )	
Current draw	$P_{20}$ [W] $\equiv$	32
	$P_{20}$ [VA] $\sim$	-
Duty cycle $ED_{rel}$ [%]	100	
Degree of protection for solenoid and electrical connection to DIN 40 050	IP 54	
Electrical connection	see Type keys	

Type designation	S 25 VH
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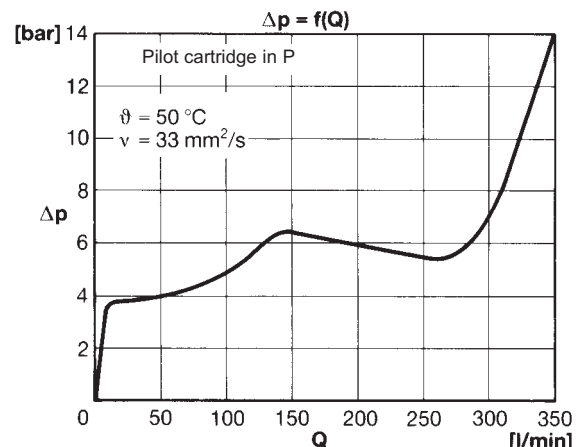
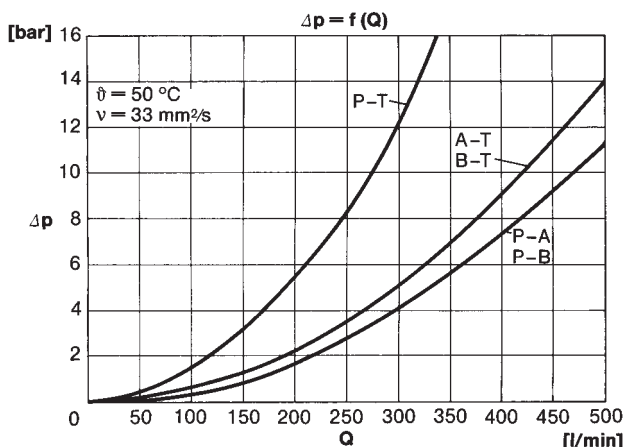
### Hydraulic parameters

Operating pressure range	$p$ [bar] X = extern	315
Port P, A, B:	X = intern	315
Port T:	X = extern	315
	Y = intern	100
Control pressure	$p_{St}$ [bar] <sup>1)</sup>	8 to 315
Control volume	$V_{St}$ [cm <sup>3</sup> ] Symbol 020, 019	19,5
	005, 008, 009, 010, 011, 013	9,7
Temperature of pressure medium $\vartheta_m$	max. [°C]	+70
Viscosity range	$\nu$ [mm <sup>2</sup> /s]	12 bis 500
Flow volume	Q [l/min]	see characteristic curves

1) For symbols 011 and 013 the control pressure is achieved by the precharge cartridge valve in P.

2) The main valve switching time is dependant on the control oil supply

## Characteristic curves



## Control modes

### Control type: 17

#### Internal control oil feed:

Port "X" in subplate closed.  
Port "p" in main valve opened.

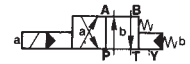
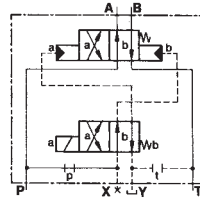
#### External control oil feed:

Port for control oil return in "Y" in subplate.  
Port "t" in main valve closed.

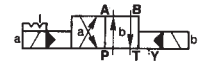
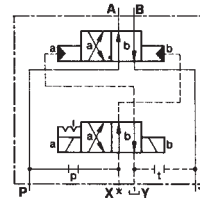
detailed symbol

simple symbol

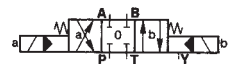
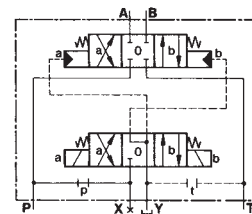
#### 4/2- Control valve 020



#### 4/2- Control valve 019



#### 4/3- Control valve 008



### Control type: 18

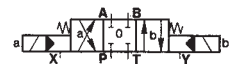
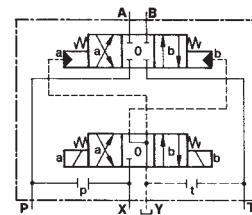
#### External control oil feed:

Port for control oil in "X" in subplate.  
Port "p" in main valve closed.

#### External control oil return:

Port for control oil return in "Y" in subplate.  
Port "t" in main valve closed.

#### 4/3- Control valve 008



### Control type: 19

#### Switching time settings:

The switching times of the main valve can be influenced by a double throttle non-return valve, which throttles the control oil supply.

The switching times are changed with the following settings:

**Throttle 1:** from 0 to a  
from b to 0

**Throttle 2:** from 0 to b  
from a to 0

Internal control oil flow  
External control oil return

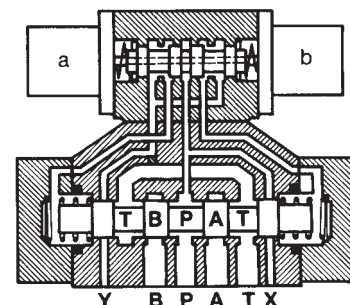
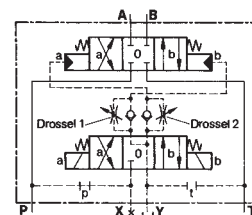
#### Schema:

#### Control type: 17

Internal control oil flow  
External control oil return

**Comment:** control type versions see type key

#### 4/3- Control valve 008



## 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 ordering units not listed in our type survey of this publication, the type number by you by means of the type code, however, will do. The corresponding catalog number will be than stated in our confirmation order.

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

## Example of order

4/3-way NG 25 directional valve, pilot operated;  
DC 24 V, Electrical connection: Connector on solenoid, symbol 008, internal control oil flow, external control oil return, with G 1 1/4" subplate.

### Directional control valve:

Type description: S 25 VH 17 10 G 008 001 2 O O  
Order No.: **5203674.7234**

### Subplate:

Type description: P S 25 G 7 001 2 O O  
Order No.: **1065189**

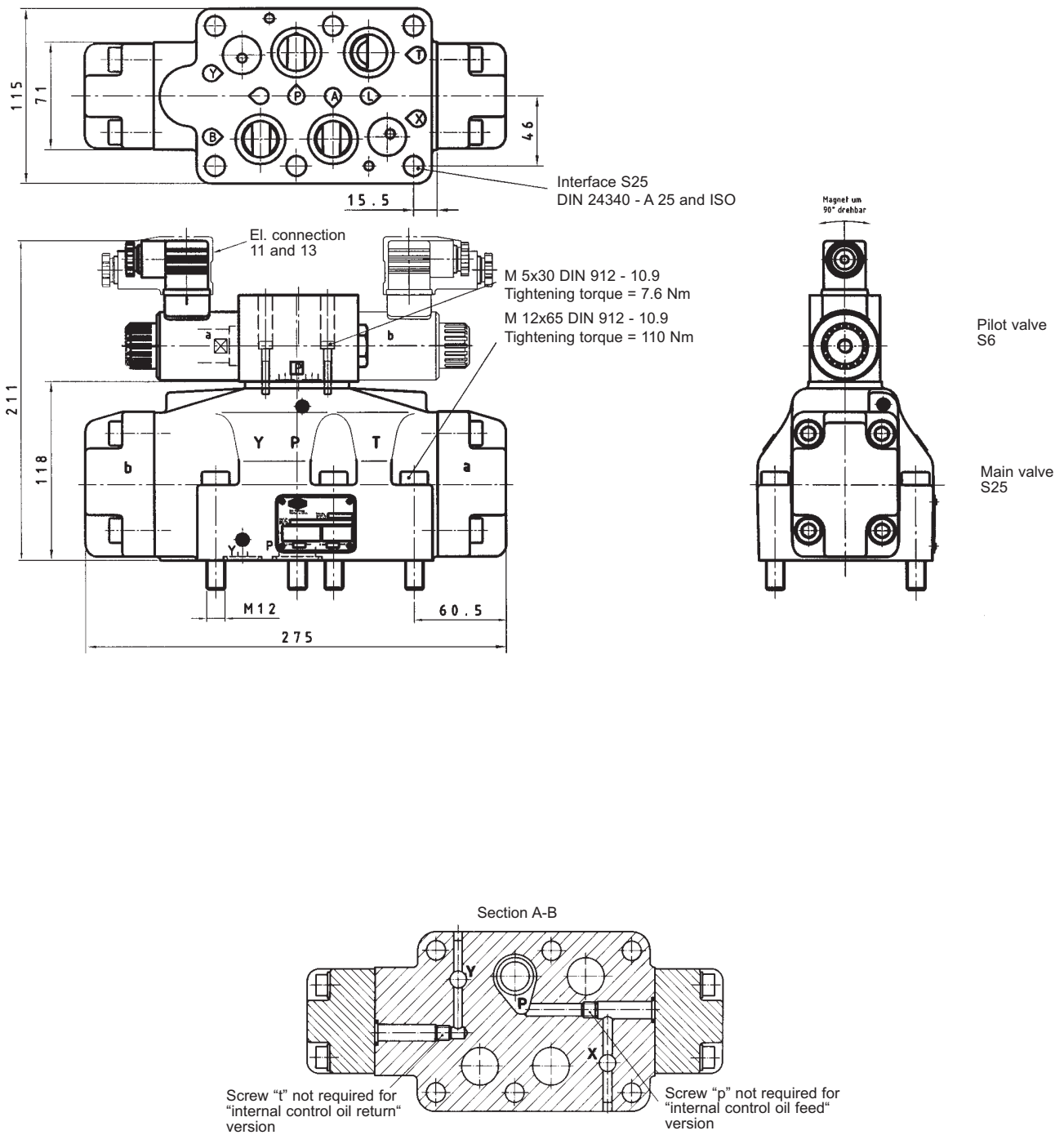
## Type survey (standard versions)

1) Simplified main and pilot valve symbol	Symbol No.	Overlap	Control mode	Actation	Electrical connection	Line connection	Voltage	Type	Cat No.:	
									Valve	Solenoid
	020	+	17	Pilot valve: solenoid operation, pressure sealed Main valve: hydraulic	10	Subplate: G 1 Type: P S 25 G 6 001 2 O O order no. <b>1065188</b> G 1 1/4 Type: P S 25 G 7 001 2 O O order no. <b>1065189</b> G 1 1/2 Type: P S 25 G 8 001 2 O O order no. <b>1065190</b>	~	S 25 VH 17 10 G 020 001 2 O O	<b>5203666.7234</b>	
			19					S 25 VH 17 11 G 020 001 2 O O		
	019	+	17	Pilot valve: solenoid operation, pressure sealed Main valve: hydraulic	10	Subplate: G 1 Type: P S 25 G 6 001 2 O O order no. <b>1065188</b> G 1 1/4 Type: P S 25 G 7 001 2 O O order no. <b>1065189</b> G 1 1/2 Type: P S 25 G 8 001 2 O O order no. <b>1065190</b>	~	S 25 VH 19 10 G 020 001 2 O O	<b>5203668.7234</b>	
			19					S 25 VH 19 11 G 020 001 2 O O		
	008	+	17	Pilot valve: solenoid operation, pressure sealed Main valve: hydraulic	10	Subplate: G 1 Type: P S 25 G 6 001 2 O O order no. <b>1065188</b> G 1 1/4 Type: P S 25 G 7 001 2 O O order no. <b>1065189</b> G 1 1/2 Type: P S 25 G 8 001 2 O O order no. <b>1065190</b>	~	S 25 VH 17 10 G 019 001 2 M O	<b>5203670.7234</b>	
			19					S 25 VH 17 11 G 019 001 2 M O		
	009	+	17	Pilot valve: solenoid operation, pressure sealed Main valve: hydraulic	10	Subplate: G 1 Type: P S 25 G 6 001 2 O O order no. <b>1065188</b> G 1 1/4 Type: P S 25 G 7 001 2 O O order no. <b>1065189</b> G 1 1/2 Type: P S 25 G 8 001 2 O O order no. <b>1065190</b>	~	S 25 VH 19 10 G 019 001 2 M O	<b>5203672.7234</b>	
			19					S 25 VH 19 11 G 019 001 2 M O		
	009	+	17	Pilot valve: solenoid operation, pressure sealed Main valve: hydraulic	10	Subplate: G 1 Type: P S 25 G 6 001 2 O O order no. <b>1065188</b> G 1 1/4 Type: P S 25 G 7 001 2 O O order no. <b>1065189</b> G 1 1/2 Type: P S 25 G 8 001 2 O O order no. <b>1065190</b>	~	S 25 VH 17 10 G 008 001 2 O O	<b>5203674.7234</b>	
			19					S 25 VH 17 11 G 008 001 2 O O		
	009	+	17	Pilot valve: solenoid operation, pressure sealed Main valve: hydraulic	10	Subplate: G 1 Type: P S 25 G 6 001 2 O O order no. <b>1065188</b> G 1 1/4 Type: P S 25 G 7 001 2 O O order no. <b>1065189</b> G 1 1/2 Type: P S 25 G 8 001 2 O O order no. <b>1065190</b>	~	S 25 VH 19 10 G 008 001 2 O O	<b>5203676.7234</b>	
			19					S 25 VH 19 11 G 008 001 2 O O		
	009	+	17	Pilot valve: solenoid operation, pressure sealed Main valve: hydraulic	10	Subplate: G 1 Type: P S 25 G 6 001 2 O O order no. <b>1065188</b> G 1 1/4 Type: P S 25 G 7 001 2 O O order no. <b>1065189</b> G 1 1/2 Type: P S 25 G 8 001 2 O O order no. <b>1065190</b>	~	S 25 VH 17 10 G 009 001 2 O O	<b>5203678.7234</b>	
			19					S 25 VH 17 11 G 009 001 2 O O		
	009	+	17	Pilot valve: solenoid operation, pressure sealed Main valve: hydraulic	10	Subplate: G 1 Type: P S 25 G 6 001 2 O O order no. <b>1065188</b> G 1 1/4 Type: P S 25 G 7 001 2 O O order no. <b>1065189</b> G 1 1/2 Type: P S 25 G 8 001 2 O O order no. <b>1065190</b>	~	S 25 VH 19 10 G 009 001 2 O O	<b>5203680.7234</b>	
			19					S 25 VH 19 11 G 009 001 2 O O		
	013	-	17	Pilot valve: solenoid operation, pressure sealed Main valve: hydraulic	10	Subplate: G 1 Type: P S 25 G 6 001 2 O O order no. <b>1065188</b> G 1 1/4 Type: P S 25 G 7 001 2 O O order no. <b>1065189</b> G 1 1/2 Type: P S 25 G 8 001 2 O O order no. <b>1065190</b>	~	S 25 VH 17 10 G 013 001 2 R O	<b>5203682.7234</b>	
			19					S 25 VH 17 11 G 013 001 2 R O		
	013	-	17	Pilot valve: solenoid operation, pressure sealed Main valve: hydraulic	10	Subplate: G 1 Type: P S 25 G 6 001 2 O O order no. <b>1065188</b> G 1 1/4 Type: P S 25 G 7 001 2 O O order no. <b>1065189</b> G 1 1/2 Type: P S 25 G 8 001 2 O O order no. <b>1065190</b>	~	S 25 VH 19 10 G 013 001 2 R O	<b>5203684.7234</b>	
			19					S 25 VH 19 11 G 013 001 2 R O		

1) Symbols are shown in operation type: electro-hydraulic  
with control type: 17

## Dimensional Drawings

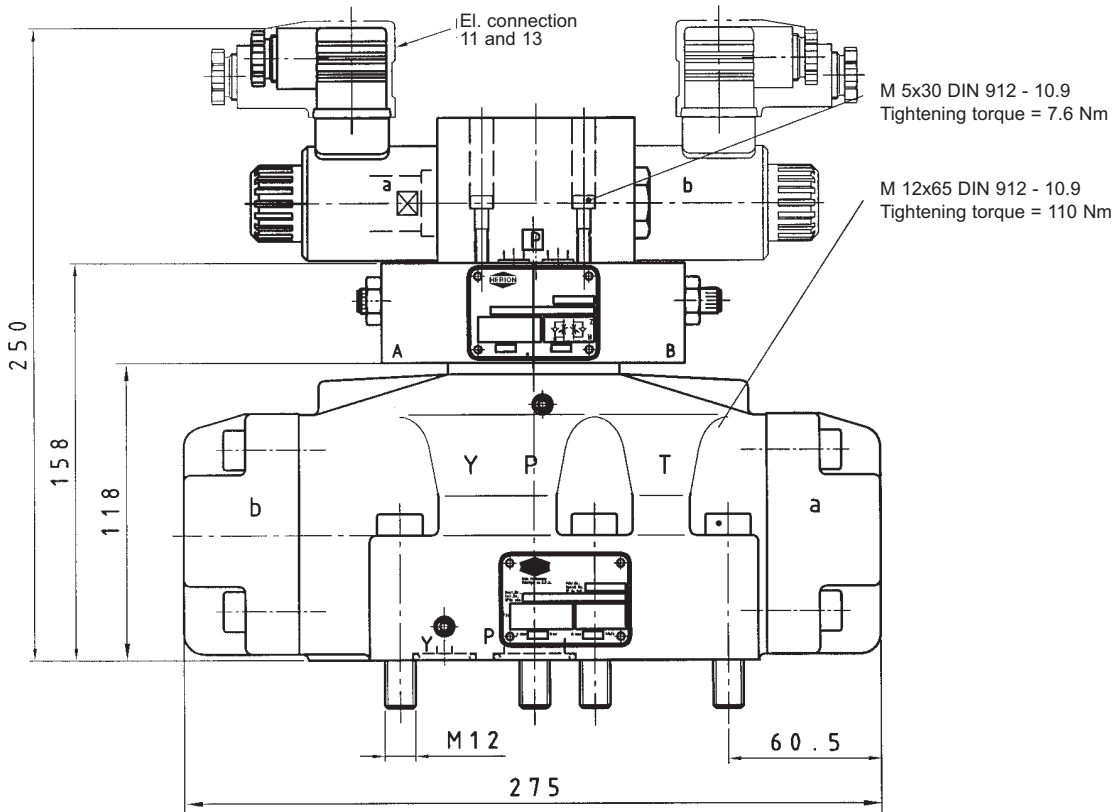
**Directional valve:** See subplate dimensioned drawing for the dimensions of the connection layout.



## Dimensional Drawings

Switching times set  
by double throttle  
non-return valve  
MU 2 S6 ...

Control type  
19, 20, 23, 24, 29





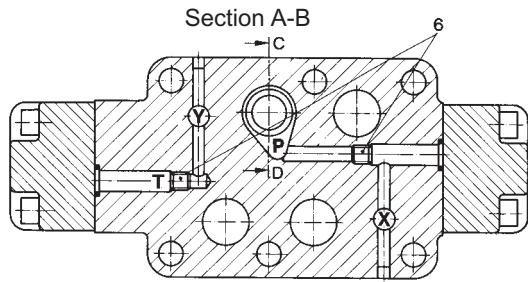
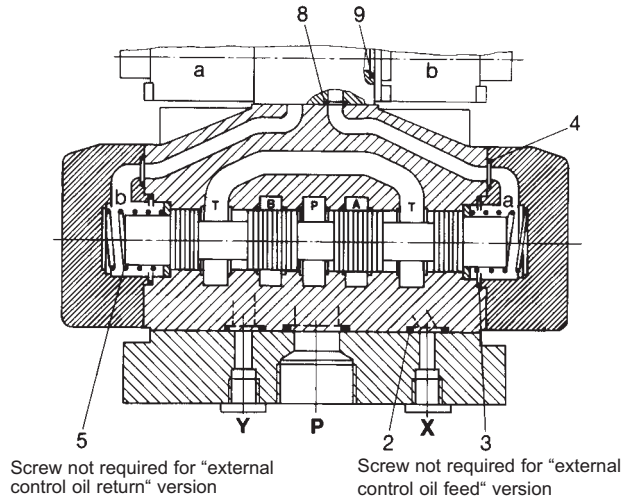


# Spare Part Drawings

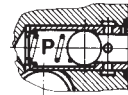
Pilot valve  
S 6...

Main valve  
S 25...

Subplate



Section C-D

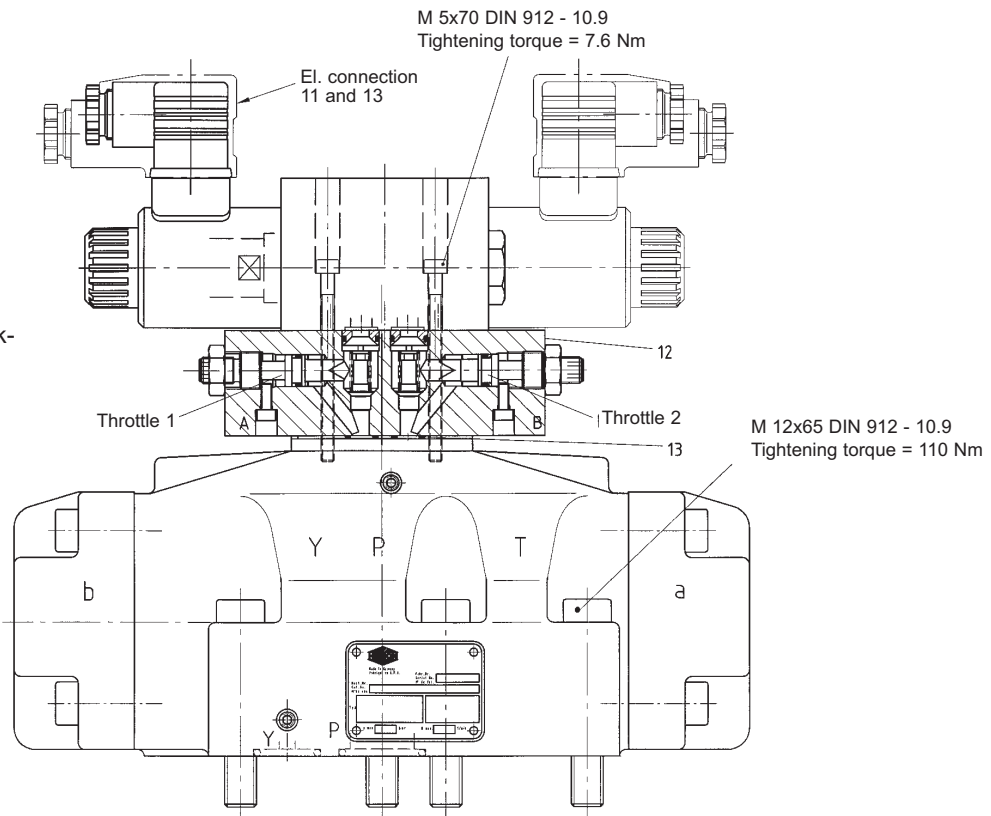


Check valve cartridge  
Oder no.: **0659642**

Pilotventil  
S 6...

Doppel-Drosselrück-  
schlagventil  
MU 2 S6 ...

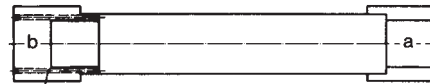
Hauptventil  
S 25...



## Spare Part Drawings

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Piston position for spring operation and for spare parts in relationship to symbol 020 (compression spring is not required with symbol 019).



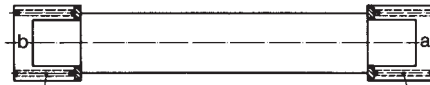
**0720334**

005



**0569756**

008, 009, 010, 011, 012, 013



**0569757**

**0569757**

For replacement purchase of:

**Directional control valve complete:** See type key and order no. on name plate from main valve.

**Pilot valve:** See type key and order no. on name plate from pilot valve.

## Individual Spare Parts

Part	Description	S 25 VH ...	S 25 VH ... with double throttle non-return valve	Order no.:
1	O-ring (26.6 x 3.5)	4	4	<b>0701343</b>
2	O-ring (18.6 x 3.5)	2	2	<b>0701338</b>
3	O-ring (44.1 x 2.6)	2	2	<b>0701307</b>
4	O-ring (12.4 x 1.8)	4	4	<b>0701254</b>
5	Compression spring	see "Piston stroke for spring operation" spare part diagram		-
6	Plug screw	2	2	<b>0701198</b>
7	1) Pilot valve complete	1	1	-
8	O-ring (9.25 x 1.78)	4	4	<b>0701728</b>
9	O-ring 16 x 2)	2	2	<b>0661476</b>
10	Connector A	1	1	<b>0657859</b>
11	Connector B	1	1	<b>0570275</b>
12	Double throttle non-return valve complete	-	1	<b>5400060</b>
13	O-ring (9.2 x 1.8)	-	4	<b>0701728</b>

Mounting screws S 6, Tightening torque = 7,6 Nm

-	Socket head screws (M5 x 30 DIN 912-10.9)	4	4	<b>0700387</b>
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Mounting screws S 25, Tightening torque = 110 Nm

-	Socket head screws (M12 x 65 DIN 912-10.9)	6	6	<b>0700476</b>
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### Spare part kits

Order no.	<b>0727128</b>	<b>0727128 + 0616660</b>	-
1 Set of replacement wearing parts consists of the following:	1...4, 8...9	1...4, 8...9, 13	-