

HERION Systemtechnik GmbH

Proportional Directional Control Valves Size 6

Direct controlled, electrically adjustable
Interface to DIN 24 340 and ISO 4401
PN [pmax.] = 315 bar

7500455.06.02.06

Throttle Check Valves Size 8, 10, 12, 16, 20 and 25

For inline and switchboards installation
PN [pmax.] = 350 bar

7500718.06.01.06

2-way flow control valves NG 6 with jump start suppression

Interface to DIN 24 340 and ISO
PN [pmax.] = 315 bar

7500990.06.02.06

2-Way Flow Control Valves Size 10

Interface to DIN 24 340 and ISO
PN [pmax.] = 315 bar

7500994.06.02.06

Proportional Pressure Relief Valves Nominal size 6

Directly controlled
Interface to DIN 24 340 and ISO
PN [pmax.] = 315 bar

7501247.06.02.06

Proportional Pressure Relief Valves Nominal sizes 10 and 25

Indirectly controlled
Interface to DIN 24 340 and ISO 6264
PN [pmax.] = 315 bar

7501248.06.01.06

3-Way Proportional Pressure Reducing Valves Nominal size 10

Indirectly controlled
HERION interface
PN [pmax.] = 315 bar

7501249.06.03.06

Directional control valves DN 6 (NG 6)

Directly actuated
Interface to DIN 24 340 and ISO 4401
PN [pmax.] = 315 bar

7501292.06.03.05

Directional Control Valves Size 6 direct controlled

Port size G 3/8
PN [pmax.] = 315 bar

7501293.06.02.06

Directional control valves Size 6

direct controlled, with inductive switching position monitoring, inductive limit switch Interface to DIN 24 340 and ISO 4401
PN [pmax.] = 315 bar

7501294.06.03.05

Directional control valves DN 10 (NG 10)

Directly actuated Interface to DIN 24 340 and ISO 4401
PN [pmax.] = 315 bar

7501296.06.08.05

Directional control valves DN 10 (NG 10)

Directly actuated with switching position monitoring
Interface to DIN 24 340 and ISO 4401

7501297.06.08.05

Pressure relief valves Size 6

direct controlled Interface to DIN 24 340 and ISO 6264
PN [pmax.] = 350 bar

7501400.06.01.06

Pressure Relief Valves NG 10, 25 and 32

indirectly-controlled, interface to DIN 24 340 and ISO 6264
Sequence Valves NG 10, 25 and 32
indirectly-controlled, interface of pressure relief valve to DIN 24 340 and ISO 6264
PN [pmax.] = 315 bar

7501401.06.01.06

Pressure Relief Valves NG 10, 25 and 32

indirectly-controlled, interface to DIN 24 340 and ISO 6264
Sequence Valves NG 10, 25 and 32
indirectly-controlled, interface of pressure relief valve to DIN 24 340 and ISO 6264
PN [pmax.] = 315 bar

7501401.06.01.06

Pressure Relief Valves Size 10 and 25

with solenoid-actuated relief, pilot operated
Interface to DIN 24 340 and ISO 6264
PN [pmax.] = 315 bar

7501402.06.01.06

Pressure Relief Valves Size 10 and 25

with solenoid-actuated relief, pilot operated
Interface to DIN 24 340 and ISO 6264
PN [pmax.] = 315 bar

7501402.06.01.06

Accumulator safety valves Size 6 and 10

Directly-controlled with TÜV type approval according to DGR 97/23/EG, cartridge-type
PN [pmax.] = 10 to 350 bar

7501406.06.01.06

Accumulator safety valves Size 6 and 10

Directly-controlled with TÜV type approval according to DGR 97/23/EG, cartridge-type
PN [pmax.] = 10 to 350 bar

7501406.06.01.06

2-way pressure reducing valve NG 10, 25 and 32

indirectly-controlled
Interface to DIN 24 340 and ISO
PN [pmax.] = 315 bar

7501407.06.01.06

2-way pressure reducing valve NG 10, 25 and 32

indirectly-controlled Interface to DIN 24 340 and ISO PN [pmax.] = 315 bar

7501407.06.01.06

3-way pressure reducing valves Size 10

Indirectly controlled HERION port dimensions

PN [pmax.] = 315 bar

7501409.06.02.06

Pressure relief valves Size 10 direct operated

interface to DIN 24 340 and ISO 6264

PN [pmax.] = 315 bar

7501410.06.02.06

2-Way Flow Control Valves Nominal sizes 6 and 10

as intermediate device for directional control valves NG 6 and 10

Interface to DIN 24 340 and ISO 4401

PN [pmax.] = 315 bar

7501416.06.05.06

2-Way Flow Control Valves Nominal sizes 6 and 10

as intermediate device for directional control valves NG 6 and 10

Interface to DIN 24 340 and ISO 4401

PN [pmax.] = 315 bar

7501416.06.05.06

Survey Pressure valves7501427.06.01.07

Survey Directional control valves7501428.06.02.07

Survey 2-way-flow control valves7501430.06.02.07

Proportional Pressure Relief Valves Sizes 6 and 10

Poppet valve, direct actuated, with damping

Interface to DIN 24 340 and ISO 4401

PN [pmax.] = 315 bar

7501489.06.01.06

Proportional Pressure Relief Valves Sizes 6 and 10

Poppet valve, direct actuated, with damping

Interface to DIN 24 340 and ISO 4401

PN [pmax.] = 315 bar

7501489.06.01.06

Pressure Switches Series 18D

Hydraulic Pressure Switches

G 1/4, 7/16-20 UNF (SAE 4), 1/4 NPT Flange

7501629.06.03.06

Proportional Directional Control Valve Size 6

Direct operated, position-controlled

Interface to DIN 24 340 and ISO 4401

PN [pmax.] = 315 bar

7501719.06.03.06

Proportional Directional Control Valves Size 10

Direct actuated, electrically adjustable

Interface to DIN 24 340 and ISO 4401

PN [pmax.] = 315 bar

7502255.06.03.06

Proportional Directional Control Valves Size 10

Direct actuated, electrically adjustable, position-controlled
Interface to DIN 24 340 and ISO 4401 PN [pmax.] = 315 bar

7502257.06.03.06

Proportional Directional Control Valves Nominal sizes 16 and 25

Pilot operated, electrically adjustable
Interface acc. to DIN 24 340 and ISO 4401
PN [pmax.] = 315 bar

7502968.06.01.06

Proportional Directional Control Valves Nominal sizes 16 and 25

Pilot operated, electrically adjustable
Interface acc. to DIN 24 340 and ISO 4401
PN [pmax.] = 315 bar

7502968.06.01.06

Air Cylinders Type LPA for Ram Weight Compensation

Single acting, pull stroke version
Dia. 100 to 500 mm
PN [pmax.] = 16 bar

7503155.06.01.07

Proportional Directional Control Valves Size 6



**Systemtechnik
GmbH**

**Direct controlled, electrically adjustable
Interface to DIN 24 340 and ISO 4401**

PN [p_{max.}] = 315 bar

7500455.06.02.06

Description (standard units)

Design

The proportional directional control valve size 6 is based on the 5-chamber system, and is in the form of a slide valve.

Application

The proportional directional control valve can be used to control the direction and speed of hydraulic cylinders and hydraulic motors and is employed in cases where a servo valve would be too expensive and a normal directional control valve would not offer a sufficient range of functions. The electrical control allows the wide variety of motions to be executed simply and extremely precisely by means of the continuously-controllable signal.

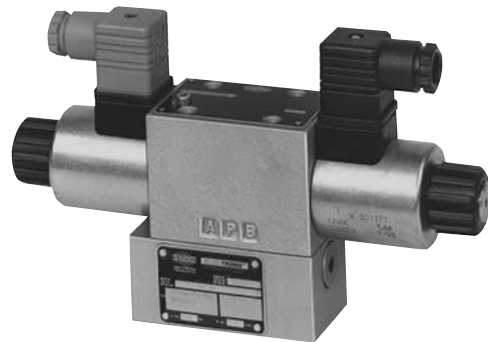
Using the pressure balance as intermediate component, the proportional directional control valve can take over a flow control function.

Mounting

The units are screwed to subplates and sealed by means of O-rings.

Line connection

Subplate, interface to DIN 24 340-A 6 and ISO 4401-AB-03-4-A.



Features

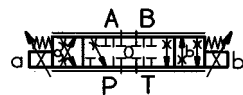
- Speed and direction control in accordance with setpoint specification
- Program control, remote control
- Spring-centred robust design
- Inexpensive system solution
- With pressure balance, load-compensated speed control.

Type key

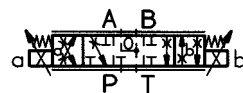
Proportional directional control valve

S	6	UP	10	G	...	...	...	O	...
					1	2	3		4

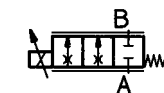
1 Symbol: **187**



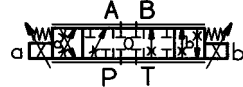
233



193



212



- 2 Code No.: **201** - See characteristic curve
205 - See characteristic curve
206 - See characteristic curve
101 - See characteristic curve
105 - See characteristic curve
106 - See characteristic curve

3 Engineering version: **4**

4 Sealing material: **V** - FKM (e.g. Viton)

Subplate

P	S	6	G	...	...	...	O	O
				1	2	3		

- 1 Line connection: **2** - G 1/4 (Internal thread)
3 - G 3/8 to DIN ISO 228/1)

2 Code No.: **024** - G 1/4
001 - G 3/8

3 Engineering version: **2**

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Parameters

Type designation	S 6 UP... 10 G...	S 6 UP... 10 G...
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General parameters

Description	Proportional directional control valve		
Symbol	See type key		
Design	Spool-type valve, pilot operated		
Type of mounting	Flange		
Line connection	Subplate		
Mounting position	Valve axis horizontal (See installation drawings)		
Type of actuator	Proportional solenoid		
Weight of valve	with 1 solenoid	[kg]	1.8
	with 2 solenoids		2.4
Weight of pressure balance as intermediate component, ports A, B, T		[kg]	1:0
Weight of pressure balance as intermediate component, ports A and B		[kg]	2.8
Weight of subplate	G 1/4	[kg]	0.7
	G 3/8	[kg]	1.0
Ambient temperature range	ϑ_u	[°C]	-20 ... +50
Size	NG		6

Hydraulic parameters

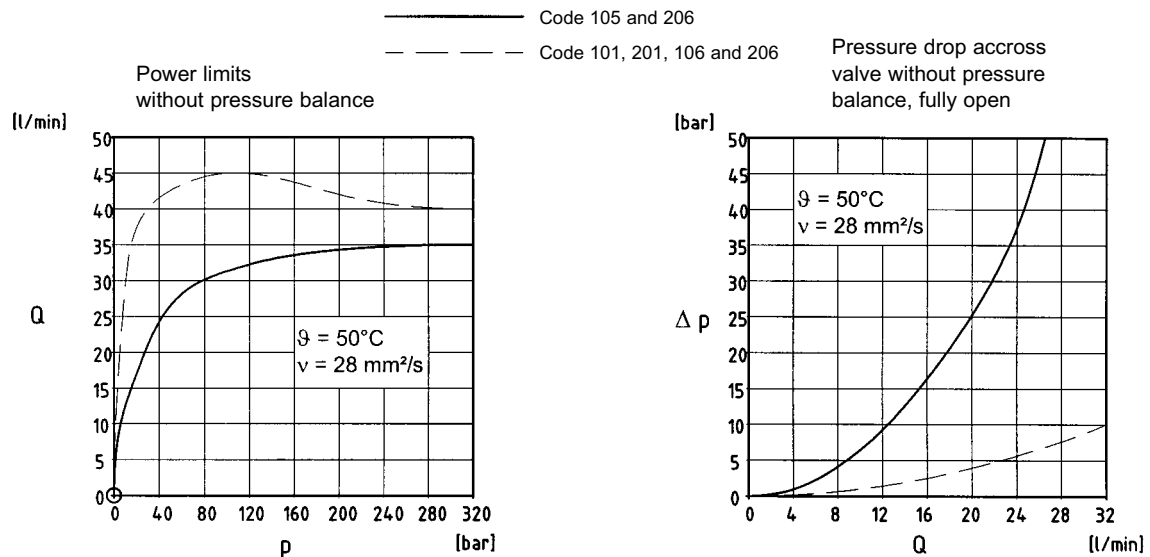
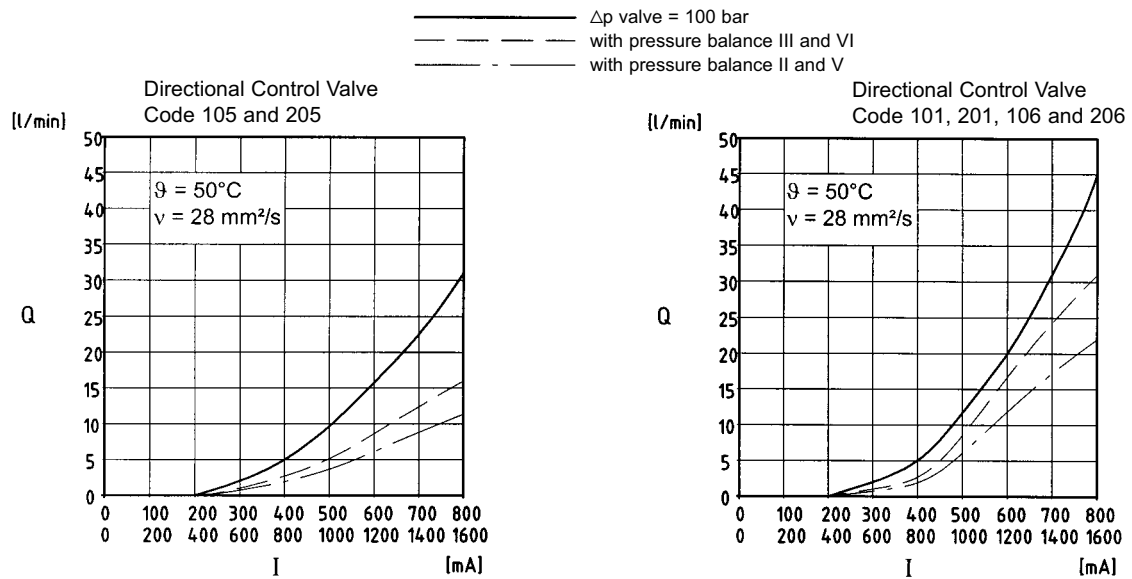
Operating pressure range at ports P, A and B	p_{max}	[bar]	up to 315
Operating pressure range at port T	p_{max}		up to 160
Temperature of pressure fluid	$\vartheta_m \text{ max.}$	[°C]	+70
Viscosity range	ν	[mm²/s]	12 ... 500
Zero flow ($\Delta p = 100 \text{ bar}$)		[cm³/min]	20
Flow rate with pressure balance II and V with pressure balance III und VI	Q_{min}	[cm³/min]	50
			100
Pressure drop - with pressure balance II and V		Δp [bar]	5
per control edge - with pressure balance III and VI		Δp [bar]	10
Repeatability with dither ¹⁾	at Q_{min}	[%]	10
	at $I=500 \text{ mA}$	[%]	1
Hysteresis			
- with pressure balance (with dither ¹⁾)	I_N	[%]	2
- without pressure balance (with dither ¹⁾)	I_N	[%]	2
Sensitivity of response, with dither ¹⁾	I_N	[%]	0.1
Width of backlash, with dither ¹⁾	I_N	[%]	0.1
Floating time	$Q = 0\% \dots 100\%$	[ms]	35
	$Q = 100\% \dots 0\%$	[ms]	70
Filtration, absolute		[µm]	25

Electrical parameters of proportional solenoid

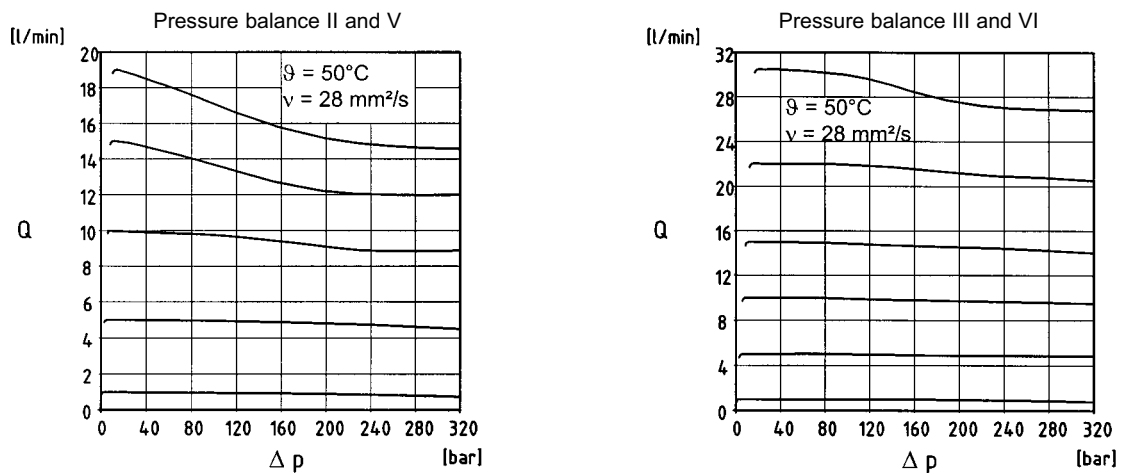
Solenoid Cat. No.		7297	7298
Rated current	I_N	[mA]	800
Resistance	R_{20}	[Ω]	21.3
Duty cycle	ED	[%]	100
Electrical connection	Connector to DIN 43 650 A		
Degree of protection to DIN 40 050	IP 65 (with connector)		
Drive electrics	DC 05 / DC 05-XLT see Page 6		pQ 11, pQ 12 see Page 6

¹⁾ Dither: Frequency 50 Hz, amplitude 120 mA_{ss}

Characteristic curves



Directional Control Valve
Code 101, 201, 106 and 206



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. O-rings are enclosed with flanged units. Pressure balance, subplate, drive electronics and mounting screws must be ordered separately.

Example of order

Proportional directional control valve, size 6, for flange mounting, Symbol 187, with Code 205, pressure balance, mating subplate G 1/4 and drive electronics.

Proportional directional control valve:

Type: S 6 UP 10 G 187 205 4 O V
Cat. No.: **5204807.7298**

Pressure balance:

Cat. No.: **6015190**

Subplate:

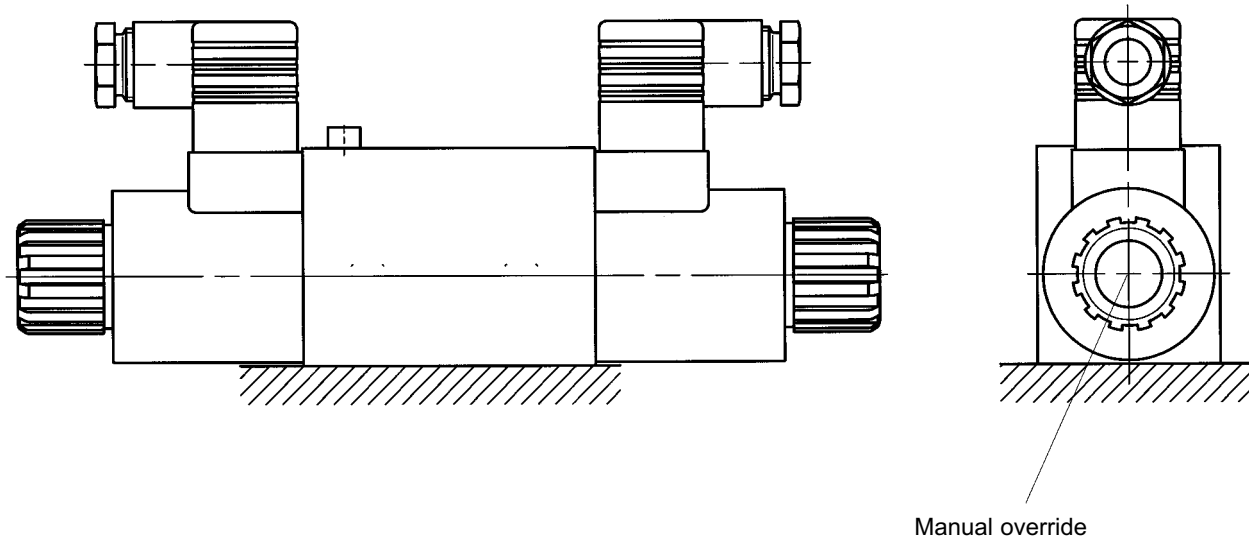
Type: P S 6 G 2 024 2 O O
Cat. No.: **1065173**

Mounting screws: (4 pcs. required)

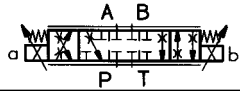
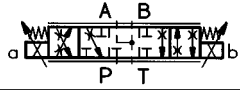
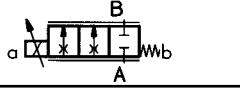
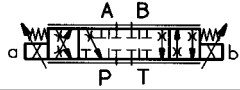
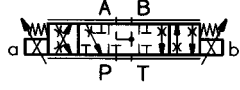
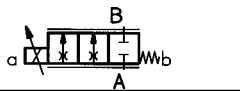
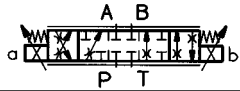
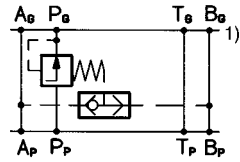
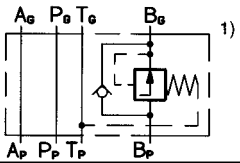
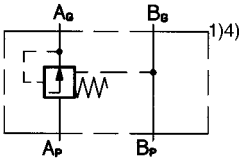
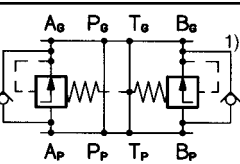
Socket head screw (M 5 x 70 DIN 912-10.9)
Cat. No.: **0662315**

Drive electronics to be ordered separately, see Page 6.

Installation drawing



Equipment survey and possibilities of combination (standard designs)

Designation	Symbol	Symbol-No.	Type	Cat. No.	Combination ²⁾			
Proportional directional control valve		187	S 6 UP 10 G 187 201 4 O V S 6 UP 10 G 187 205 4 O V	5204789.7298 5204807.7298	X	X		
		233	S 6 UP 10 G 233 201 4 O V S 6 UP 10 G 233 205 4 O V	5204811.7298 5204812.7298	X	X		
		193	S 6 UP 10 G 193 206 4 O V	5204808.7298	X		X	
		212	S 6 UP 10 G 212 201 4 O V S 6 UP 10 G 212 205 4 O V	5204809.7298 5204810.7298	X			X
		187	S 6 UP 10 G 187 101 4 O V S 6 UP 10 G 187 105 4 O V	5204827.7297 5204828.7297	X	X		
		233	S 6 UP 10 G 233 101 4 O V S 6 UP 10 G 233 105 4 O V	5204829.7297 5204830.7297	X	X		
		193	S 6 UP 10 G 193 106 4 O V	5204833.7297	X		X	
		212	S 6 UP 10 G 212 101 4 O V S 6 UP 10 G 212 105 4 O V	5204831.7297 5204832.7297	X			X
Pressure balance II		Pressure balance port P		6015189		X		
Pressure balance III				6015190		X		
Pressure balance II		Pressure balance port B → T (return)		0723311				X
Pressure balance II		Pressure balance port A → B		0723116			X	
Pressure balance III				0723065			X	
Pressure balance V		Pressure balance port A → T; B → T (return)		6015532				X
Pressure balance VI				6015533				X
Subplates G 1/4	-	-	P S 6 G 2 024 2 O O	1065173	X			
G 3/8	-	-	P S 6 G 3 001 2 O O	1065183	X			
Mounting screws ³⁾	Socket head screws (M 5 x 30 DIN 912-10.9) Socket head screws (M 5 x 70 DIN 912-10.9) Socket head screws (M 5 x 110 DIN 912-10.9)			0700387 0662315 0661664	X		X	X

1) Port designation at symbol: Index "G" = valve side, Index "P" = plate side

2) Possibilities of combination between proportional directional control valve, pressure balance, subplate and mounting screws.

3) Tightening torque = 7.6 Nm

4) See 2-way proportional flow control valves, Publication 7502022

Drive electronics DC 05 / DC 05-XLT

Digital amplifier with constant current regulator PWM
Power supply: 18 ... 30 VDC, incl. residual ripple
Ambient temperature ϑ_{a} : 0 ... +50 °C
Weight: 0,4 kg
Mounting position: Upright
Free air circulation must be ensured
Space requirement for installation of 19" card rack: 50 mm
European format: 100 x 160 mm



Type	Setpoint input (switchable)		Internal setpoints	Ramps	Terminal strip Form F DIN 41612	PID controller for external control loops	Cat. No.	For Further information, see script
	[V]	[mA]	Pcs.	Pcs.	Number of pins			
For proportional directional control valves Rated current I_N: 0 ... 1600 mA								
DC 05	2x0...±10V	0(4)...20 mA	4	4	48	● / ○ (switchable)	5150000 ¹⁾	7503503
DC 05-XLT	0...±10V		4	2	48	○	5150001 ¹⁾	7503504
			Functional compatible to pQ 03					

1) Pre-parametrized electronics on request.

Drive electronics pQ 11

Plug-in amplifier with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC, Residual ripple: ≤ 10 %
Ambient temperature ϑ_{a} : -20 ... +50 °C
Mounting position: Optional



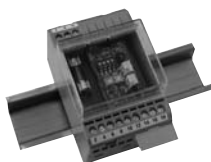
Setpoint input (switchable)		Type of connection		Weight	Cat. No.	For Further information, see script
[V]	[mA]	Connecting cable, 2 m	Connector acc. to DIN 43651	[kg]		
For proportional valves with 2 solenoids 2 pQ 11 necessary Rated current I_N: 0 ... 2400 mA, allowed resistance of solenoid R_{20}: 2,5...4,5 Ω						HERION 7502961
0 ... 10	0 (4)...20	●	○	0,18	5980085	
0 ... 10	0 (4)...20	○	●	0,18	5980081 ¹⁾	

Mark in table: ○ without, ● with

1) Cable connector to be ordered separately. Cat. No. **0660689**

Drive electronics pQ 12

Amplifier module with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC, Residual ripple: ≤ 10 %
Ambient temperature ϑ_{a} : -20 ... +50 °C
Mounting position: Optional
For attachment on mounting rail acc. to EN 50022

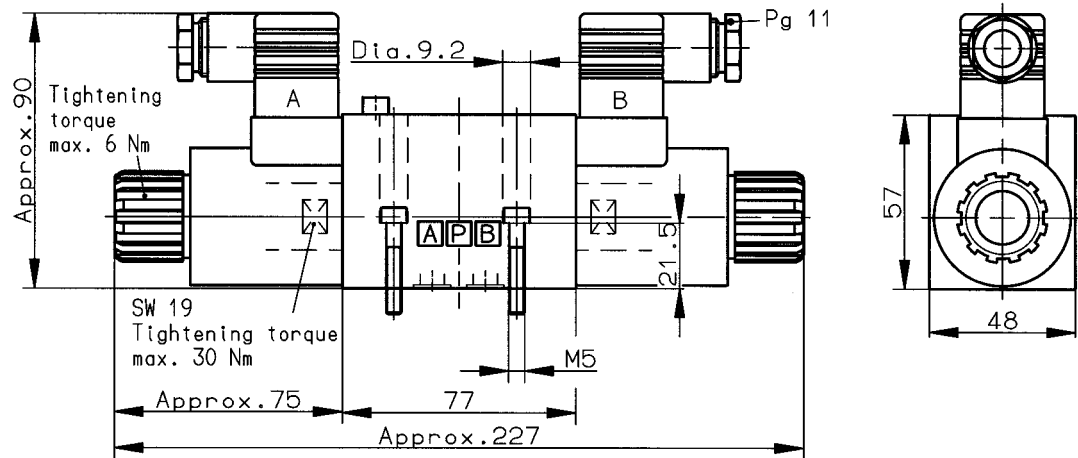


Setpoint input (switchable)	Output currents		Cat. No.	For Further information, see script
[V] [mA]	[mA]			
For proportional valves with 2 solenoids 2 pQ 11 necessary				HERION 7503109
0 ... 10	0 (4)...20	0 ... 1600 / 2400	5980126	

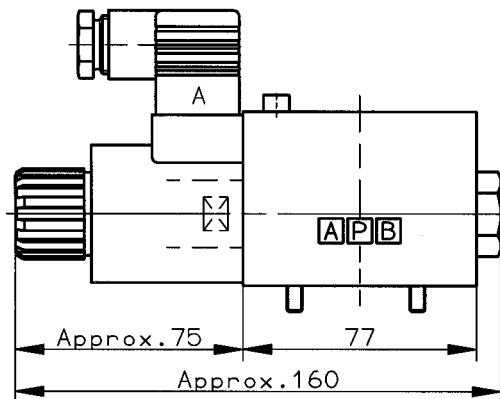
Dimensional drawings [mm]

Proportional directional control valve

S 6 UP 10 G 187 ... 4 O V
S 6 UP 10 G 233 ... 4 O V
S 6 UP 10 G 212 ... 4 O V

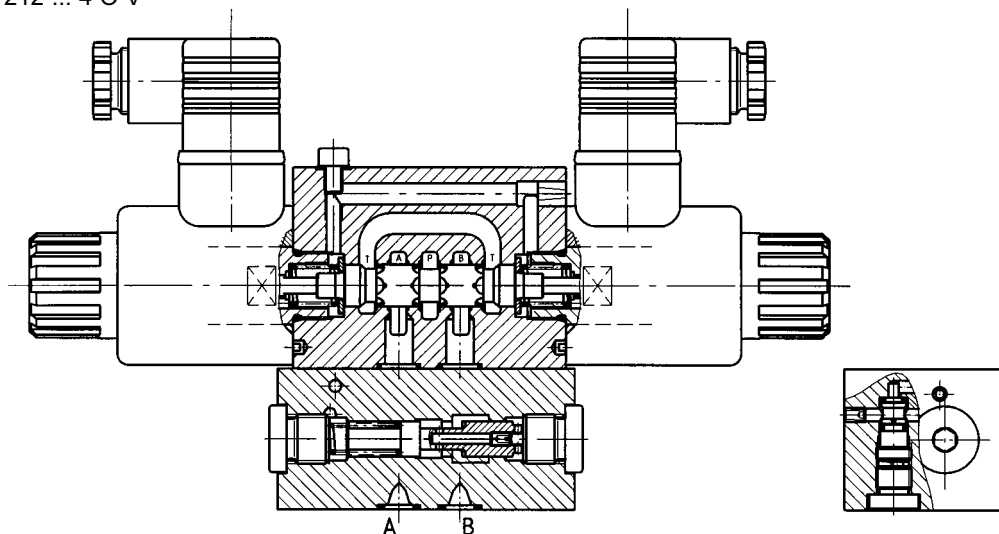


S 6 UP 10 G 193 ... 4 O V



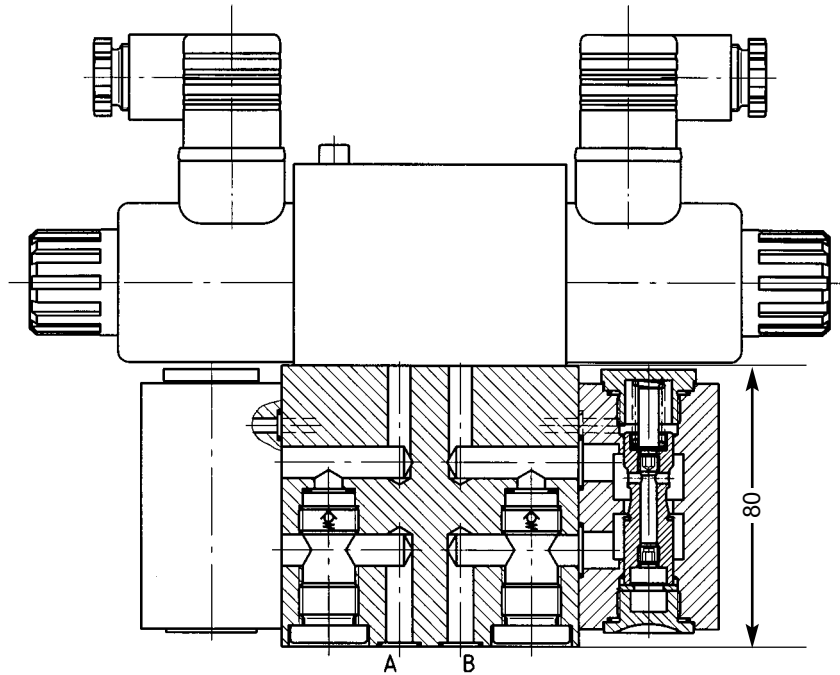
Proportional directional control valve with pressure balance in port P to B → T

S 6 UP 10 G 187 ... 4 O V
S 6 UP 10 G 233 ... 4 O V
S 6 UP 10 G 212 ... 4 O V



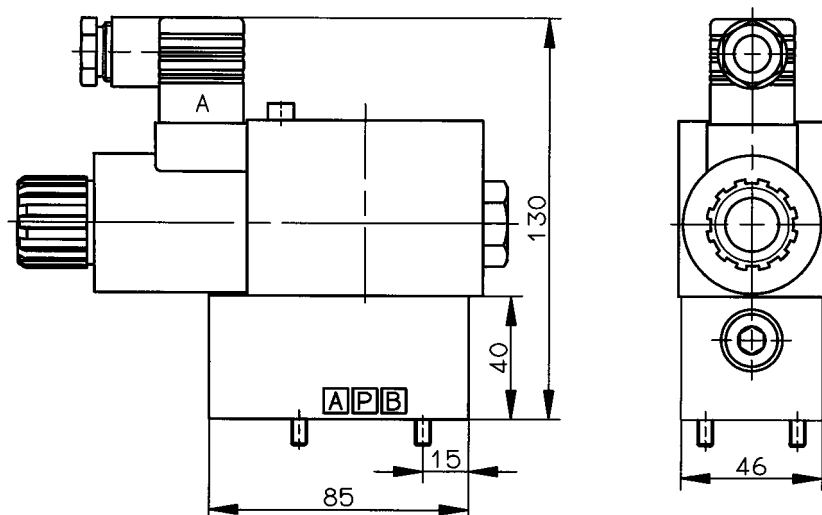
Proportional directional control valve pressure balance in port A → T to B → T (return flow)

S 6 UP 10 G 212 ... 4 O V



Proportional directional control valve in port A → B

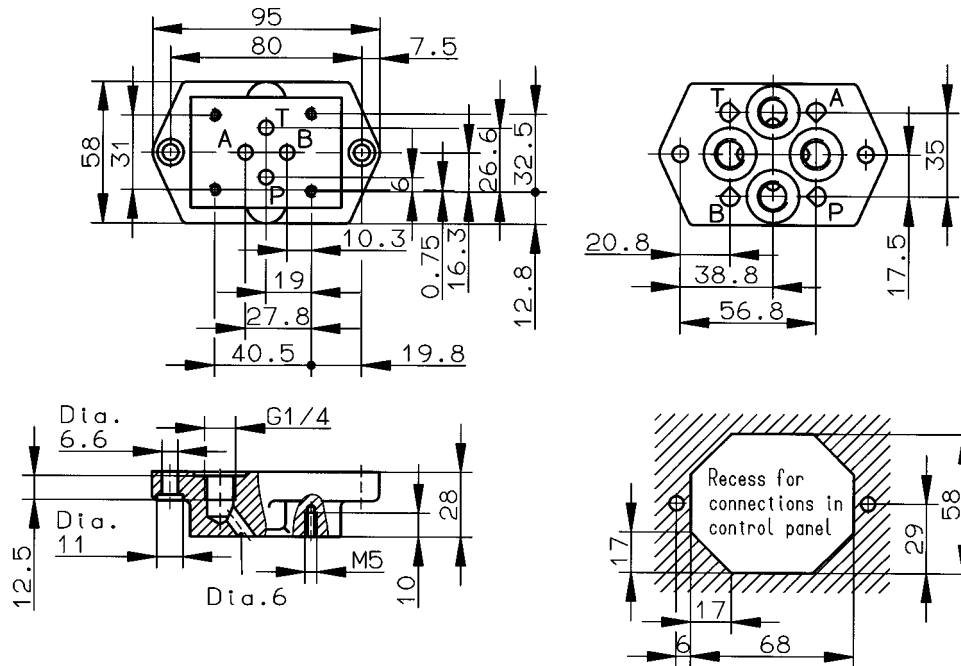
S 6 UP 10 G 193 ... 4 O V



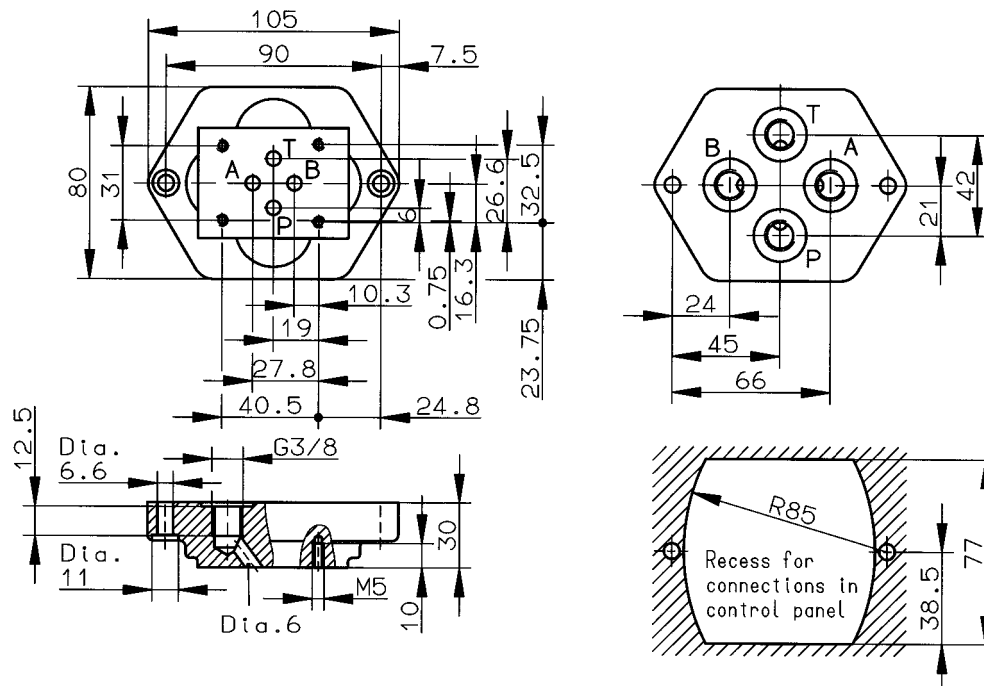
Dimensional drawings [mm]

Subplate with interface to DIN 24 340-A6 and ISO 4401-AB-03-4-A

G 1/4



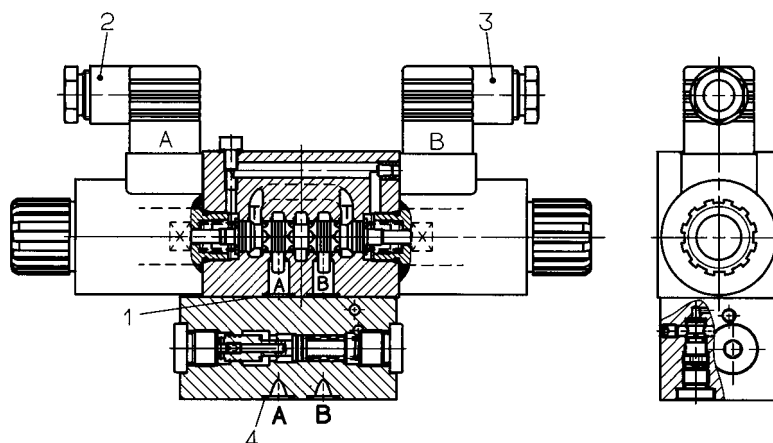
G 3/8



Proportional directional control valve

S 6 UP 10 G 187 ... 4 O V
S 6 UP 10 G 233 ... 4 O V

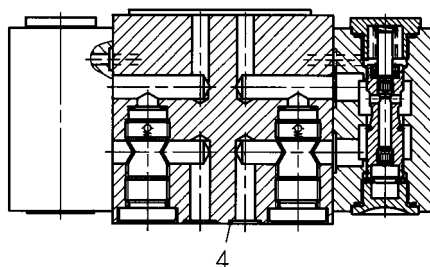
With pressure balance in port P



Proportional directional control valve

S 6 UP 10 G 212 ... 4 O V

With pressure balance
in port A → T or B → T
(return flow)



Spare parts (number of pieces) for proportional directional control valve

Part	Description	S 6 UP 10 G 187 ... 4 O V S 6 UP 10 G 233 ... 4 O V	S 6 UP 10 G 212 ... 4 O V	S 6 UP 10 G 212 ... 4 O V	Cat. No.
		With pressure balance in port P	With pressure balance in port B → T	With pressure balance in port A → T; B → T	
1	O-ring (9.2 x 1.8)	4	4	4	0701728
2	Connector	1	1	1	0657859
3	Connector	1	1	1	0570275

for pressure balance

-	Pressure balance II	1	-	-	6015189
-	Pressure balance III	1	-	-	6015190
-	Pressure balance II	-	1	-	0723311
-	Pressure balance V	-	-	1	6015532
-	Pressure balance VI	-	-	1	6015533
4	O-ring (9.2 x 1.8)	4	4	4	0701728

Spare parts (number of pieces)**for proportional directional control valve**

Part	Description	S 6 UP 10 G 193 ... 4 O V	Cat. No.
		With plate type pressure balance in port A	
1	O-ring (9.2 x 1.8)	4	0701728
2	Connector	1	0657859

for pressure balance

Part	Description	Pressure balance II	Pressure balance III	Cat. No.
-	Pressure balance II	1	-	0723116
-	Pressure balance III	-	1	0723065
3	O-ring (9.2 x 1.8)	2	2	0701728

Throttle Check Valves

Size 8, 10, 12, 16, 20 and 25



Systemtechnik
GmbH

For inline and switchboards installation

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

7500718.06.01.06

Description (standard units)

Construction

The throttle check valve throttles the flow in one direction A to B while allowing free passage in the other direction via the incorporated check valve (B to A). The throttling is effected by a longitudinal notch worked into the adjusting spindle. The cross-sectional area of the restrictor is in a linear relation to the adjusting path. The last turn of the knob fully opens the passage.

Actuation

Adjust flow means of the rotary knob. The colored scale makes it easy to repeat the set values. The area of the colored triangle indicates the size of the cross-section of the passage. A set screw prevents inadvertent adjustment.

Mounting

The check valves are mounted inline or in switchboard.

Pipe connection

Ports threaded.



Features

- fine adjustment thanks to the big rotary knob
- when turning, rotary knob remains in the same height
- good repeatability due to large range of adjustment (10 turns)
- easy reading from all sides

Type key

Throttle check valve

M	U	...	H	R	...	001	...	O	...
		1			2		3		

1 Size: **8**
 10
 12
 16
 20
 25

2 Pipe connection:

Size 8: **2** - G 1/4
Size 10: **3** - G 3/8
Size 12: **4** - G 1/2 (Internal thread acc.
Size 16: **5** - G 3/4 to DIN ISO 228/1)
Size 20: **6** - G 1
Size 25: **7** - G 1 1/4

3 Engineering version: **3**

HERION Systemtechnik GmbH

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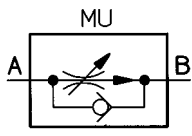
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Parameters acc. to VDI 3268

Type designation	M U 8 ...	M U 10 ...	M U 12 ...	M U 16 ...	M U 20 ...	M U 25 ...
------------------	-----------	------------	------------	------------	------------	------------

General parameters

Designation	Throttle check valve						
Symbol							
Construction	V-shaped throttle						
Type of mounting	Thread						
Pipe connection	Threaded connection acc. to DIN 259 (pipe mounting)						
Mounting position	Any						
Flow direction	Throttle-function from A to B Free flow via check valve from B to A						
Actuation	By hand						
Weight of throttle check valve	[kg]	0.3	0.45	0.8	1.3	2.4	3.5
Ambient temperature	ϑ_u	[°C]					-20 to +50
Size		8	10	12	16	20	25

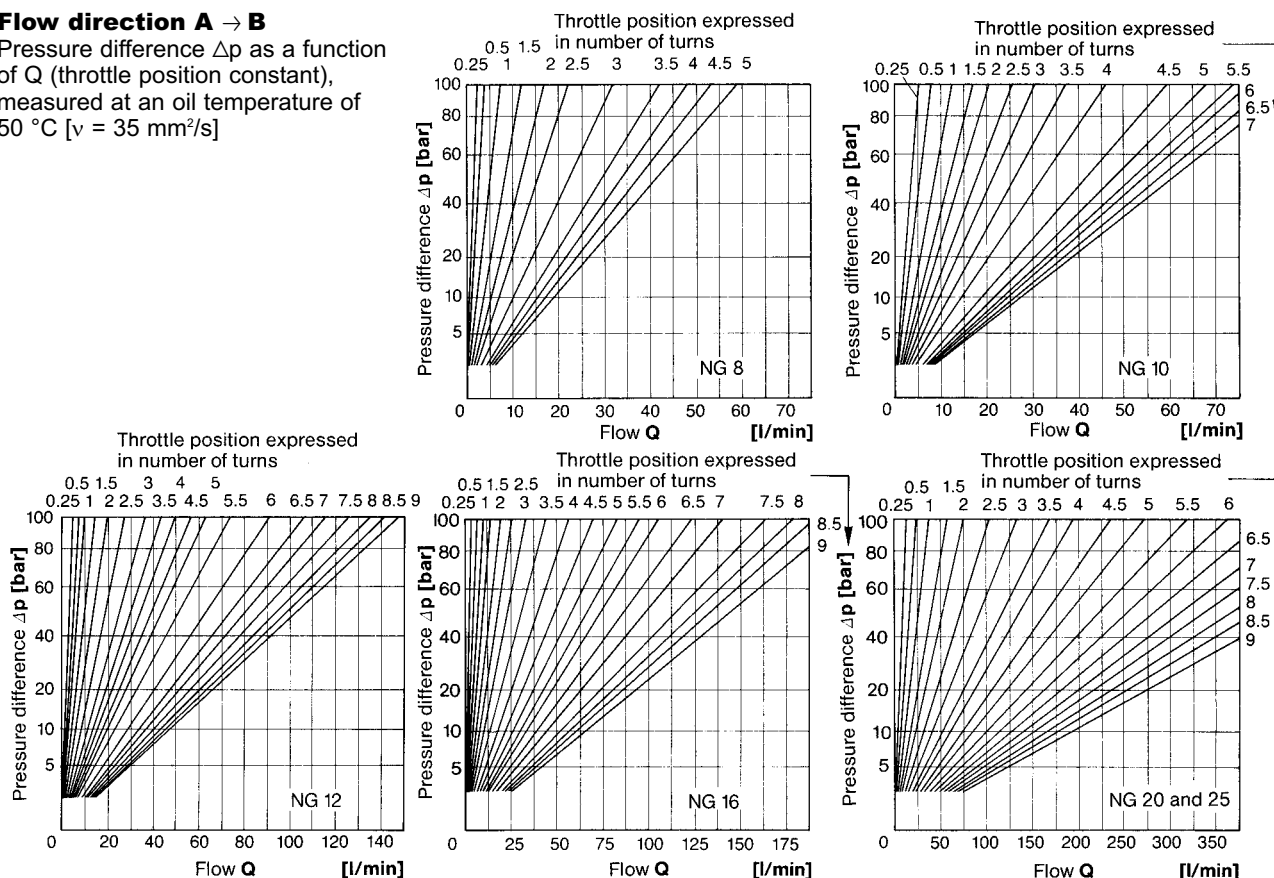
Hydraulic parameters

Operating pressure range	p_e	[bar]	0 to 350
Opening pressure	p_o	[bar]	0.5
Pressure fluid temperature	ϑ_m max.	[°C]	+ 100
Viscosity	ν	[mm ² /s]	12 to 500
Flow	Q	[l/min]	See characteristic curves

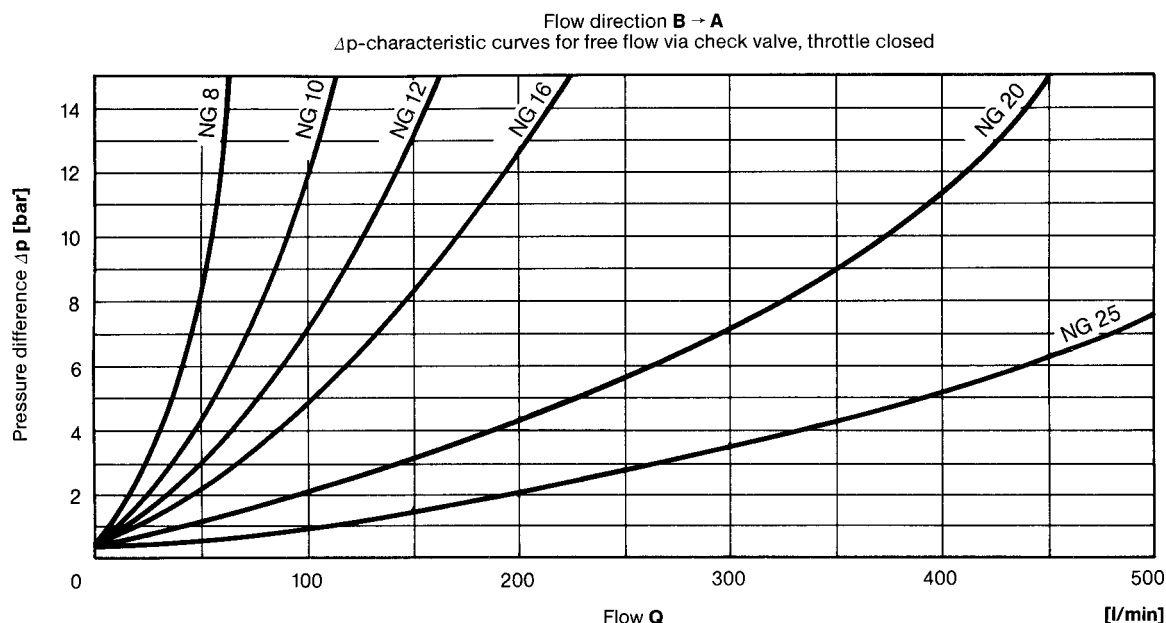
Characteristic curves

Flow direction A → B

Pressure difference Δp as a function of Q (throttle position constant), measured at an oil temperature of 50 °C [$\nu = 35 \text{ mm}^2/\text{s}$]



Characteristic curves



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 numbers 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 key, however, will do. The corresponding catalog number will then be stated in our confirmation of order.

Example of how to order

Wanted: Throttle check valve size 10, threaded connection G 3/8, manually actuated.

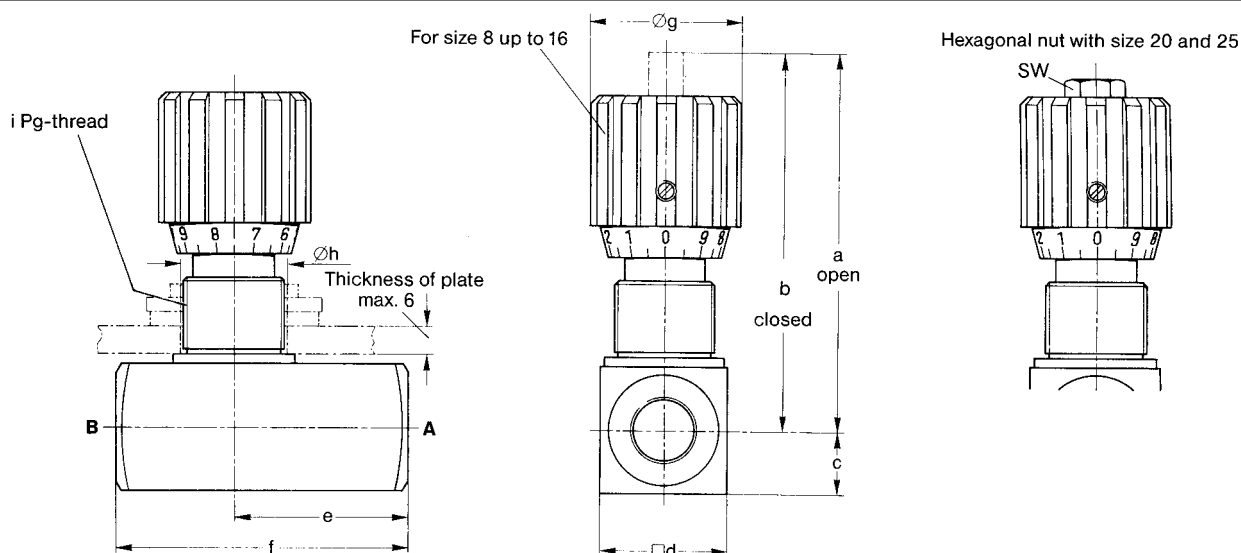
Throttle check valve:

Type-No.: M U 10 H R 3 001 3 O O
 Cat. No.: **1065004**

Type survey (standard versions)

Size	Q [l/min]	p [bar]	Actuation	Pipe connection	Type	Cat. No.
8	See Δp -Q-characteristic curve	350	By hand	G 1/4	M U 8 H R 2 001 3 O V	1065027
10				G 3/8	M U 10 H R 3 001 3 O V	1065086
12				G 1/2	M U 12 H R 4 001 3 O V	1065051
16				G 3/4	M U 16 H R 5 001 3 O V	1065114
20				G 1	M U 20 H R 6 001 3 O V	1065083
25				G 1 1/4	M U 25 H R 7 001 3 O V	1065084

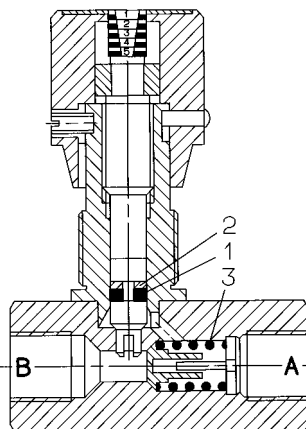
Dimensional drawings



Dimensions in mm

Cat. No.	a	b	c	d	e	f	g	h	i	SW	Cat. No.	a	b	c	d	e	f	g	h	i	SW
1065003	72	65	12.5	25	33.5	55	29	19	Pg11	-	1065005	106	96	22.5	45	57	88	38	23	Pg16	-
1065004	74	67	15	30	41	65	29	19	Pg11	-	1065006	145	128	25	50	77	127	49	38	Pg29	19
1065007	92	82	17.5	35	44	73	38	23	Pg16	-	1065084	150	133	30	60	93	143	49	38	Pg29	19

Spare parts drawing



Spare parts (number of pieces)

Part	Designation	Size 8	Size 10	Size 12	Size 16	Size 20	Size 25	Cat. No.
1	O-ring (2.9 x 1.8)	1	-	-	-	-	-	0701246
1	O-ring (4.5 x 1.8)	-	1	-	-	-	-	0701248
1	O-ring (5.3 x 2.4)	-	-	1	-	-	-	0661639
1	O-ring (7.3 x 2.4)	-	-	-	1	-	-	0661596
1	O-ring (10.3 x 2.4)	-	-	-	-	1	1	0661597
2	Thrust ring (SRA-6-1.45-1)	1	-	-	-	-	-	0661592
2	Thrust ring (SRA-8-1.45-1)	-	1	-	-	-	-	0661593
2	Thrust ring (SRA-10-2.05-1)	-	-	1	-	-	-	0661640
2	Thrust ring (SRA-12-2.05-1)	-	-	-	1	-	-	0661594
2	Thrust ring (SRA-15-2.05-1)	-	-	-	-	1	1	0661595

Part	Designation	Size 8	Size 10	Size 12	Size 16	Size 20	Size 25	Cat. No.
3	Spring	1	-	-	-	-	-	0661644
3	Spring	-	1	-	-	-	-	0661643
3	Spring	-	-	1	-	-	-	0661641
3	Spring	-	-	-	1	-	-	0661646
3	Spring	-	-	-	-	1	-	0661645
3	Spring	-	-	-	-	-	1	0724257

Set of spare parts

1 set of spare parts consists of parts:	1 to 3	-	-	-	-	-	-	0721968
	-	1 to 3	-	-	-	-	-	0721969
	-	-	1 to 3	-	-	-	-	0722025
	-	-	-	1 to 3	-	-	-	0721970
	-	-	-	-	1 to 3	-	-	0721971
	-	-	-	-	-	1 to 3	-	0724258

These spare parts are not available separately.

Throttle Check Valves

Size 8, 10, 12, 16, 20 and 25



Systemtechnik
GmbH

For inline and switchboards installation

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

7500718.06.01.06

Description (standard units)

Construction

The throttle check valve throttles the flow in one direction A to B while allowing free passage in the other direction via the incorporated check valve (B to A). The throttling is effected by a longitudinal notch worked into the adjusting spindle. The cross-sectional area of the restrictor is in a linear relation to the adjusting path. The last turn of the knob fully opens the passage.

Actuation

Adjust flow means of the rotary knob. The colored scale makes it easy to repeat the set values. The area of the colored triangle indicates the size of the cross-section of the passage. A set screw prevents inadvertent adjustment.

Mounting

The check valves are mounted inline or in switchboard.

Pipe connection

Ports threaded.



Features

- fine adjustment thanks to the big rotary knob
- when turning, rotary knob remains in the same height
- good repeatability due to large range of adjustment (10 turns)
- easy reading from all sides

Type key

Throttle check valve

M	U	...	H	R	...	001	...	O	...
		1			2		3		

1 Size: **8**
 10
 12
 16
 20
 25

2 Pipe connection:

Size 8: **2** - G 1/4
Size 10: **3** - G 3/8
Size 12: **4** - G 1/2 (Internal thread acc.
Size 16: **5** - G 3/4 to DIN ISO 228/1)
Size 20: **6** - G 1
Size 25: **7** - G 1 1/4

3 Engineering version: **3**

HERION Systemtechnik GmbH

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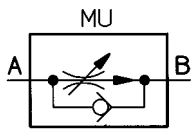
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Parameters acc. to VDI 3268

Type designation	M U 8 ...	M U 10 ...	M U 12 ...	M U 16 ...	M U 20 ...	M U 25 ...
------------------	-----------	------------	------------	------------	------------	------------

General parameters

Designation	Throttle check valve						
Symbol							
Construction	V-shaped throttle						
Type of mounting	Thread						
Pipe connection	Threaded connection acc. to DIN 259 (pipe mounting)						
Mounting position	Any						
Flow direction	Throttle-function from A to B Free flow via check valve from B to A						
Actuation	By hand						
Weight of throttle check valve	[kg]	0.3	0.45	0.8	1.3	2.4	3.5
Ambient temperature	ϑ_u	[°C]					-20 to +50
Size		8	10	12	16	20	25

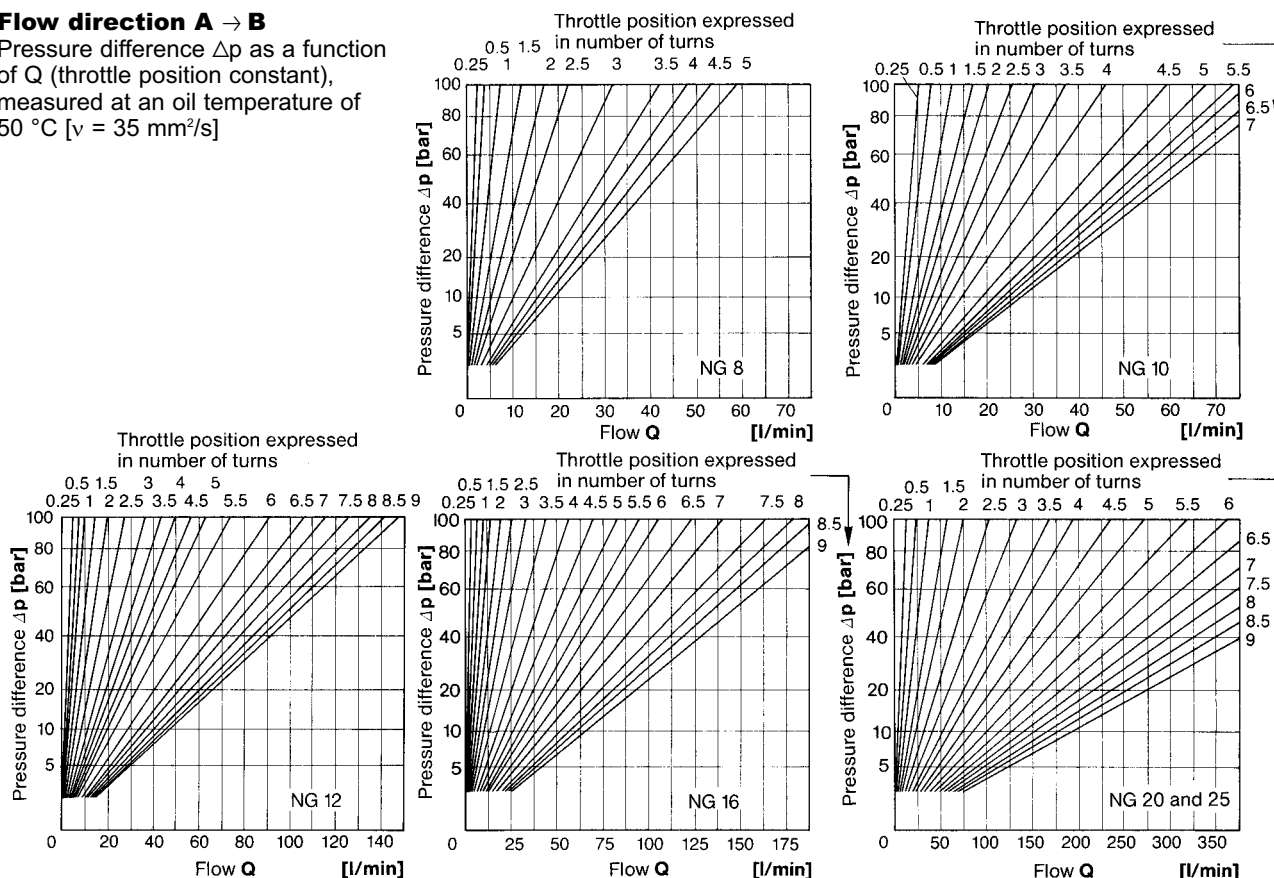
Hydraulic parameters

Operating pressure range	p_e	[bar]	0 to 350
Opening pressure	p_o	[bar]	0.5
Pressure fluid temperature	ϑ_m max.	[°C]	+ 100
Viscosity	ν	[mm ² /s]	12 to 500
Flow	Q	[l/min]	See characteristic curves

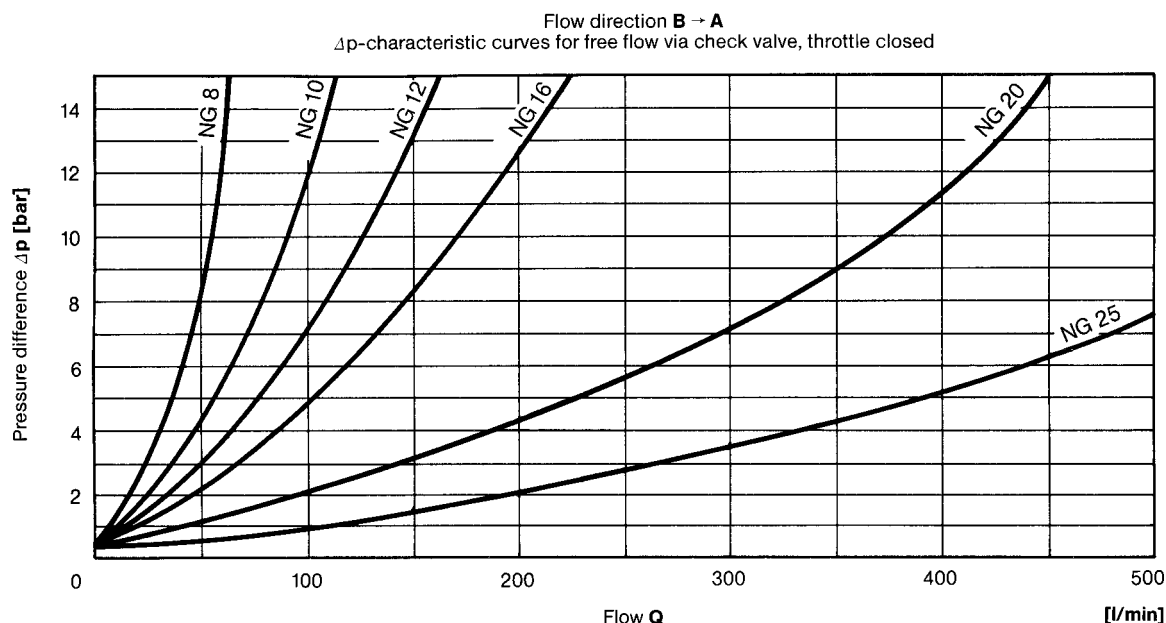
Characteristic curves

Flow direction A → B

Pressure difference Δp as a function of Q (throttle position constant), measured at an oil temperature of 50 °C [$\nu = 35 \text{ mm}^2/\text{s}$]



Characteristic curves



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 numbers 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 key, however, will do. The corresponding catalog number will then be stated in our confirmation of order.

Example of how to order

Wanted: Throttle check valve size 10, threaded connection G 3/8, manually actuated.

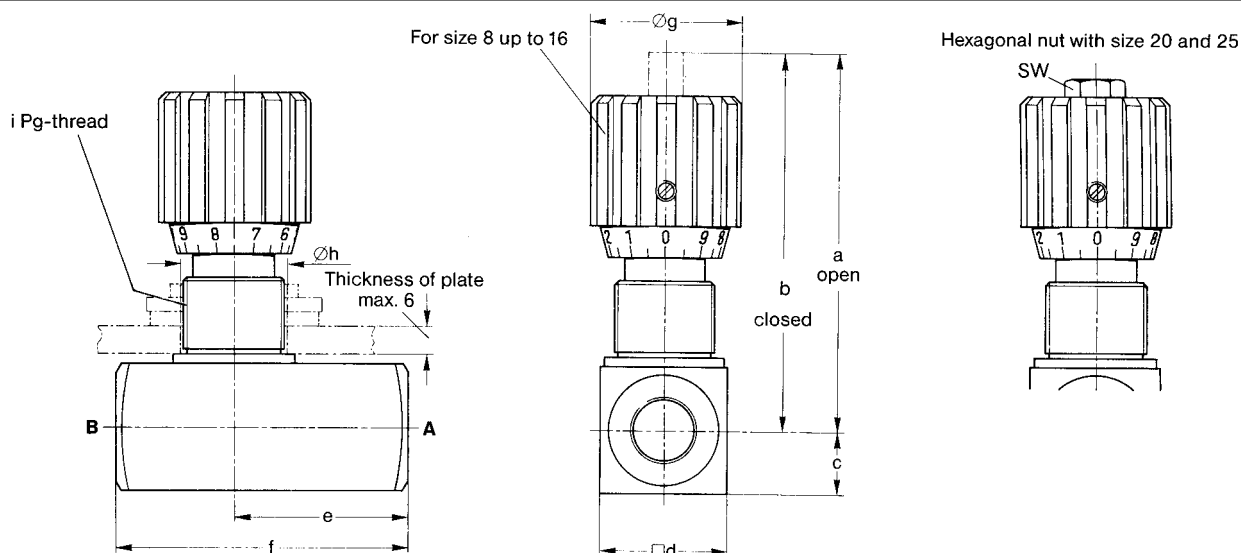
Throttle check valve:

Type-No.: M U 10 H R 3 001 3 O O
 Cat. No.: **1065004**

Type survey (standard versions)

Size	Q [l/min]	p [bar]	Actuation	Pipe connection	Type	Cat. No.
8	See Δp -Q-characteristic curve	350	By hand	G 1/4	M U 8 H R 2 001 3 O V	1065027
10				G 3/8	M U 10 H R 3 001 3 O V	1065086
12				G 1/2	M U 12 H R 4 001 3 O V	1065051
16				G 3/4	M U 16 H R 5 001 3 O V	1065114
20				G 1	M U 20 H R 6 001 3 O V	1065083
25				G 1 1/4	M U 25 H R 7 001 3 O V	1065084

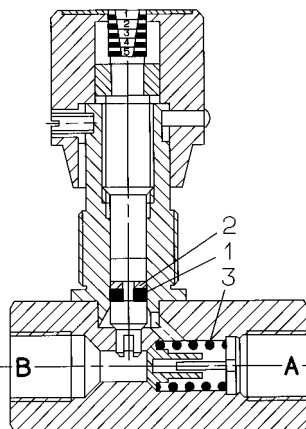
Dimensional drawings



Dimensions in mm

Cat. No.	a	b	c	d	e	f	g	h	i	SW	Cat. No.	a	b	c	d	e	f	g	h	i	SW
1065003	72	65	12.5	25	33.5	55	29	19	Pg11	-	1065005	106	96	22.5	45	57	88	38	23	Pg16	-
1065004	74	67	15	30	41	65	29	19	Pg11	-	1065006	145	128	25	50	77	127	49	38	Pg29	19
1065007	92	82	17.5	35	44	73	38	23	Pg16	-	1065084	150	133	30	60	93	143	49	38	Pg29	19

Spare parts drawing



Spare parts (number of pieces)

Part	Designation	Size 8	Size 10	Size 12	Size 16	Size 20	Size 25	Cat. No.
1	O-ring (2.9 x 1.8)	1	-	-	-	-	-	0701246
1	O-ring (4.5 x 1.8)	-	1	-	-	-	-	0701248
1	O-ring (5.3 x 2.4)	-	-	1	-	-	-	0661639
1	O-ring (7.3 x 2.4)	-	-	-	1	-	-	0661596
1	O-ring (10.3 x 2.4)	-	-	-	-	1	1	0661597
2	Thrust ring (SRA-6-1.45-1)	1	-	-	-	-	-	0661592
2	Thrust ring (SRA-8-1.45-1)	-	1	-	-	-	-	0661593
2	Thrust ring (SRA-10-2.05-1)	-	-	1	-	-	-	0661640
2	Thrust ring (SRA-12-2.05-1)	-	-	-	1	-	-	0661594
2	Thrust ring (SRA-15-2.05-1)	-	-	-	-	1	1	0661595

Part	Designation	Size 8	Size 10	Size 12	Size 16	Size 20	Size 25	Cat. No.
3	Spring	1	-	-	-	-	-	0661644
3	Spring	-	1	-	-	-	-	0661643
3	Spring	-	-	1	-	-	-	0661641
3	Spring	-	-	-	1	-	-	0661646
3	Spring	-	-	-	-	1	-	0661645
3	Spring	-	-	-	-	-	1	0724257

Set of spare parts

1 set of spare parts consists of parts:	1 to 3	-	-	-	-	-	-	0721968
	-	1 to 3	-	-	-	-	-	0721969
	-	-	1 to 3	-	-	-	-	0722025
	-	-	-	1 to 3	-	-	-	0721970
	-	-	-	-	1 to 3	-	-	0721971
	-	-	-	-	-	1 to 3	-	0724258

These spare parts are not available separately.

2-way flow control valves NG 6



Systemtechnik
GmbH

with jump start suppression
Interface to DIN 24 340 and ISO

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

7500990.06.02.06

Description (standard units)

Design

Control function from A to B by means of two restrictors connected in series - a variable throttle (differential pressure piston) in front of a fixed restrictor (orifice). Due to the triangle-shaped cross section of the throttle it is possible to regulate even small streams of oil.

Efficient suppression of jumping starts:

The restrictors are axially arranged and work in the same direction against the regulating spring. With no flow passing through the valve there is a fixed aspect ratio between the two restrictors. This ratio keeps the throttled area of the differential pressure piston from opening more than absolutely necessary.

Actuation

The flow is set by hand, or by roller rocker. The setting can, if desired, be safeguarded by means of locking (E 10-closure).

Mounting

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

Line connection

Subplate, interface to DIN 24 340 and ISO.



Features

- Jump start suppression (standard)
- Regulating range from 20 up to 16000 cm³/min with an inlet pressure range from 5 to 315 bar
- Space saving, vertical mounting on subplate
- Incorporated by-pass check-valve

Type code

Flow control valve

M	...	6	...	G	...	001	...	O	...
	1		2		3		4		5

1 Operating characteristics: **RU** – Regulator (2-way) with check-valve

2 Actuation: **H** – By hand
HV – By hand, lockable
R – By roller rocker

3 Flow rate: **1** – 2 l/min
2 – 4 l/min
3 – 8 l/min
4 – 16 l/min
024 – 24 l/min

4 Engineering version: **1**

5 Sealing material: **V** – Viton

Subplate

P	S	6	G	...	...	...	O	O
				1	2	3		

1 Line connection: **2** – G 1/4 (Internal thread)
3 – G 3/8 to DIN ISO 228/1)

2 Code No.: **024** – G 1/4
001 – G 3/8

3 Engineering version: **2**

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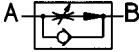


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Parameters according to VDI 3268

Type designation	2-way flow control valve
------------------	--------------------------

General parameters

Symbol	
Design	Orifice behind a differential pressure piston
Type of mounting	Flange
Line connection	Subplate
Mounting position	Optional
Flow direction	From A to B flow regulating function. From B to A free flow via check valve
Weight [kg]	1.5
Weight of subplate	G 1/4 0.7 G 3/8 1.0
Ambient temperature range ϑ_u [°C]	-20 ... +50
Nominal diameter NG	6

Type	[l/min]	2	4	8	16	24
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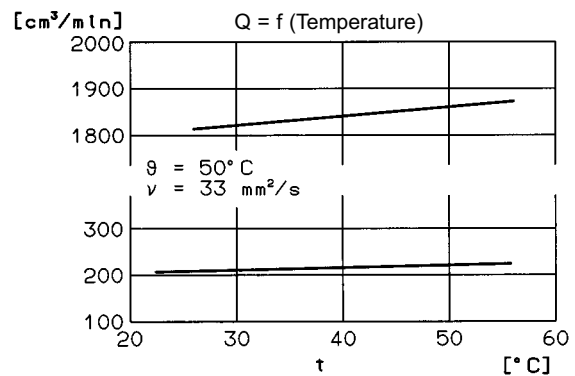
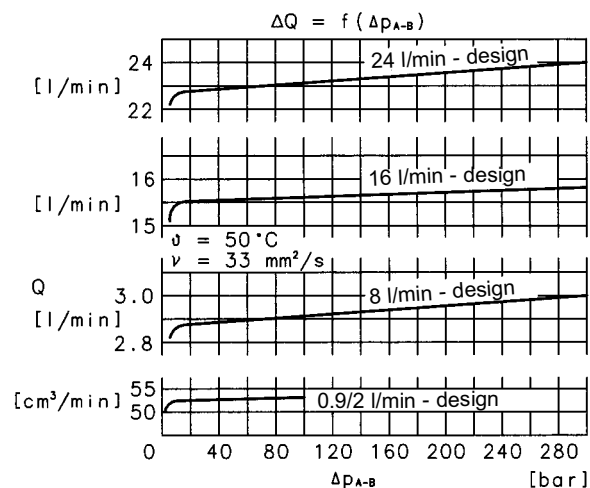
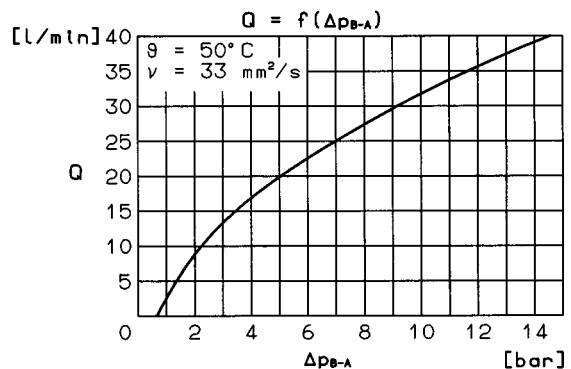
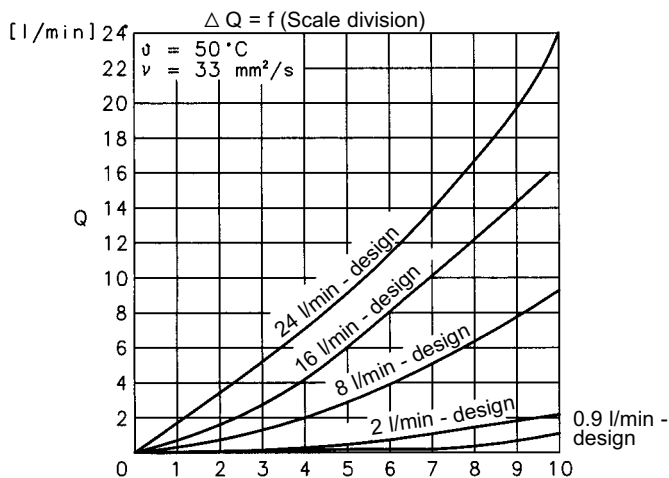
Hydraulic parameters

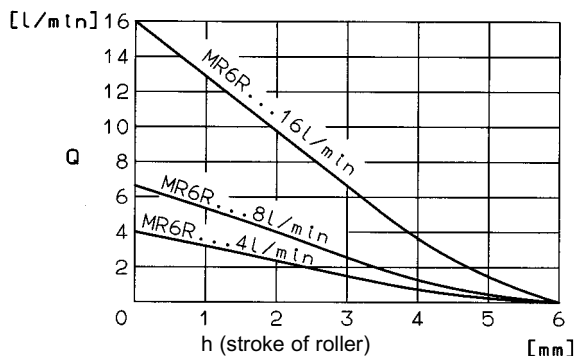
Operating pressure-range [bar]	... 100		... 315		
Operating pressure drop at $Q_{\max}$ [l/min] Δp_{A-B} min. [bar] max. [bar]	2	4	8	16	24
	4		12.5	20	
	100		305		
Pressure medium temperature ϑ_m max. [°C]	+70				
Viscosity range ν [mm ² /s]	12 ... 500				
Actuation	By hand				
Adjusting torque M_b [cmN]	10 when actuated by hand				
Flow rate $Q_{\min}$ [l/min]	0.05		0.07	0.10	
$Q_{\max}$ [l/min]	2	4	8	16	24
Angle of rotation α [°]	Approx. 345				

Filter

Filter size s [mm]	
at Q up to 0.5 l/min	0.01
at Q higher than 0.5 l/min	0.05

Characteristic curves





Ordering

The units are designated by their type number. The composition of this number can be drawn from 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. Mounting bolts and O-rings are included in the delivery. The subplate is to be ordered separately.

Example of order

Wanted: 2-way flow control valve. Flow 0.03 to 8 l/min, with manual adjustment, lockable and corresponding subplate, screwed connection G 1/4.

Flow control valve:

Type No.: M RU 6 HV G 3 001 1 O V
Cat-No.: **5100028**

Subplate:

Type No.: P S 6 G 2 024 2 O O
Cat-No.: **1065173**

Mounting screws: (2 pieces needed)

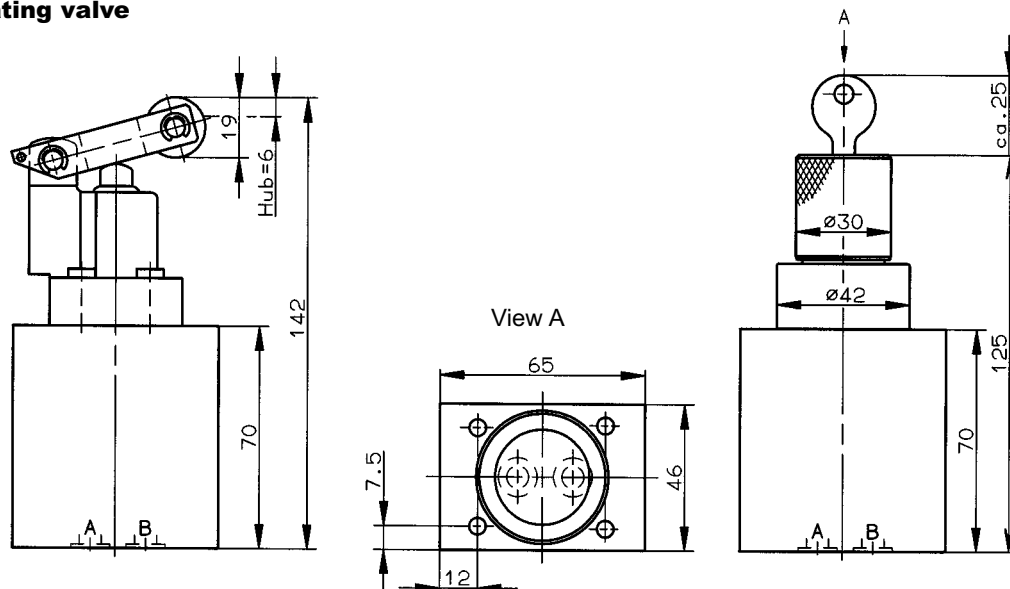
Cylinder bolt: (M 5 x 65 DIN 912-10.9)
Cat-No.: **0700394**

Type survey (standard designs)

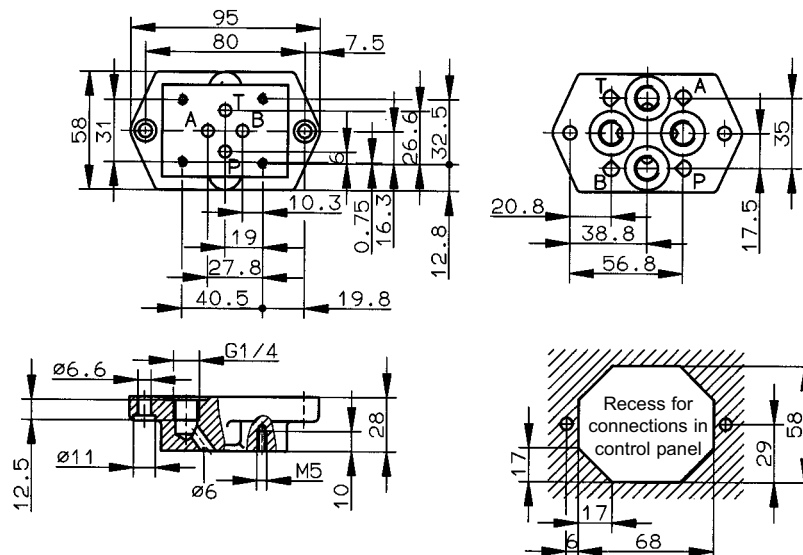
Size	Q [l/min]	Δp_{A-B} [bar]	Actuation	Line connection	Type	Cat. No.
6	0,03 ... 2	4 ... 100	By hand (lockable)	Subplate G 1/4 P S 6 G 2 024 2 O O Cat. No. 1065173 Subplate G 3/8 P S 6 G 3 001 2 O O Cat No. 1065183	M RU 6 HV G 1 001 1 O V	5100026
	0,03 ... 4	4 ... 100			M RU 6 HV G 2 001 1 O V	5100163
	0,07 ... 8	12,5 ... 315			M RU 6 HV G 3 001 1 O V	5100028
	0,10 ... 16	20 ... 315			M RU 6 HV G 4 001 1 O V	5100030
	0,10 ... 24	20 ... 315			M RU 6 HV G 024 001 1 O V	5100165
	0,03 ... 4	4 ... 100	By roller rocker		M RU 6 R G 2 001 1 O V	5100139
	0,07 ... 8	12,5 ... 315			M RU 6 R G 3 001 1 O V	5100141
	0,10 ... 16	20 ... 315			M RU 6 R G 4 001 1 O V	5100143

Dimensional drawings

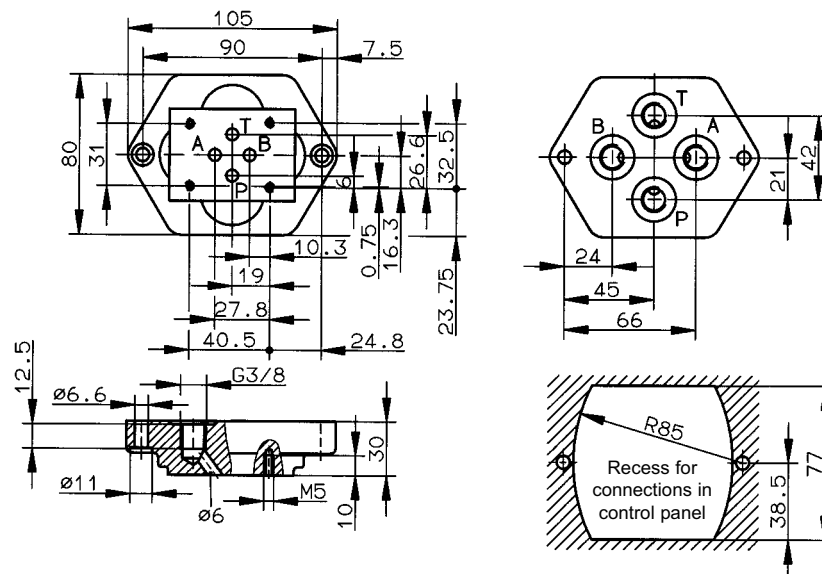
Flow regulating valve



Subplate G 1/4

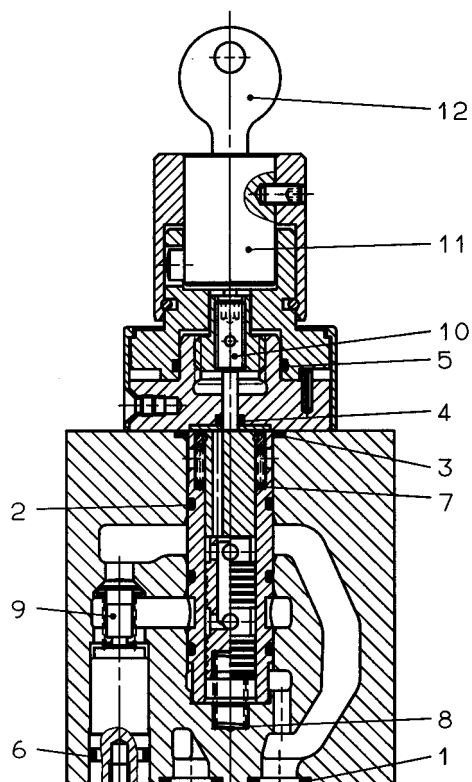


Subplate G 3/8

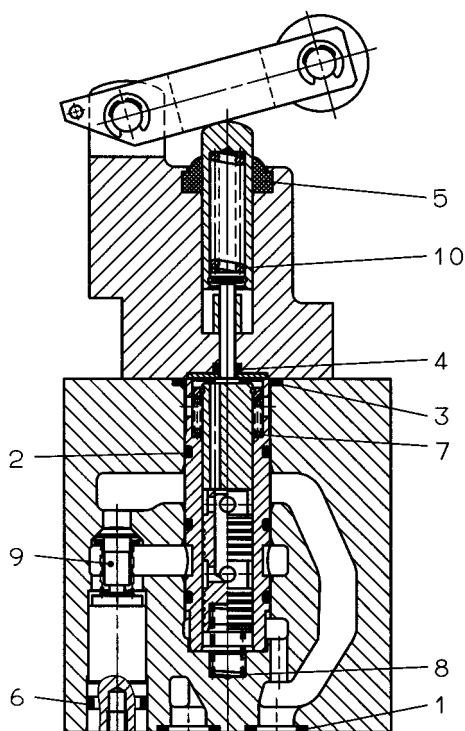


For corresponding plate-type rectifying unit, see 7500991

M RU 6 HV G 1..
M RU 6 HV G 024..
M RU 6 HV G 3..
M RU 6 HV G 4..



M RU 6 R G 2..
M RU 6 R G 3..
M RU 6 R G 4..



Note:

The surface onto which the rectifying unit is to be flanged must not contain any other bores than those needed for connection and fastening of the valve.

Spare parts (Number of pieces)

Part	Designation	MR6HV G2 : MR6HV G1 :	MRU6HV G2 : MRU6HV G1 :	MR6HV G3 : MR6HV G4 : MR6HV G024 :	MRU6HV G3 : MRU6HV G4 : MRU6HV G024 :	MR6RG2 :	MRU6RG2 :	MR6RG3 : MR6RG4 :	MRU6RG3 : MRU6RG4 :	Cat. No.
1	O-ring (9.2 x 1.8)	2	2	2	2	2	2	2	2	0701728
2	O-ring (12.4 x 1.8)	3	3	3	3	3	3	3	3	0701623
3	O-ring (18.7 x 1.8)	1	1	1	1	1	1	1	1	0701627
4	O-ring (2.8 x 1.6)	1	1	1	1	1	-	1	-	0657483
5	O-ring (20.3 x 1.8)	1	1	1	1	-	-	-	-	0701259
5	Seal part (10 x 18 x 7)	-	-	-	-	1	1	1	1	0701017
6	O-ring (7.66 x 1.78)	-	1	-	1	-	1	-	1	0701621
7	Pressure spring	1	1	1	1	1	1	1	1	0721725
8	Pressure spring	1	1	-	-	1	1	-	-	0721723
8	Pressure spring	-	-	1	1	-	-	1	1	0721724
9	Check valve	-	1	-	1	-	1	-	1	0658937
10	Stop screw	1	1	1	1	-	-	-	-	0498749
10	Pressure spring	-	-	-	-	1	1	1	1	0725909
11	Lock with key	1	1	1	1	-	-	-	-	0568519
12	Key	1	1	1	1	-	-	-	-	0660051

Mounting bolts

-	Cylinder bolt (M5 x 65 DIN 912-10.9)	4	4	4	4	4	4	4	4	0700394
---	---	---	---	---	---	---	---	---	---	----------------

Set of spare parts

1 Set of spare parts consists of parts:	1 ... 5	1	-	1	-	-	-	-	-	0726556
	1 ... 6	-	1	-	1	-	-	-	-	0726558
	1 ... 5	-	-	-	-	1	-	1	-	0726560
	1 ... 6	-	-	-	-	-	1	-	1	0726562

2-Way Flow Control Valves Size 10



**Systemtechnik
GmbH**

Interface to DIN 24 340 and ISO

PN [p_{max.}] = 315 bar

7500994.06.02.06

Description (standard units)

Construction

Control function from P to A by means of two throttles connected in series, i.e. a firmly adjustable throttle behind a variable one (differential pressure piston) which maintains the pressure drop across the firmly adjustable throttle - and thus the oil flow - at a constant level. In the opposite direction from A to P the oil is allowed to flow freely via a check valve.

Actuation

Thre pressure is set manually with a rotary knob. The setting can, if desired, be safeguarded by means of locking (E-10-closure) or by means of a lead seal.

Mounting

The units are bolted on subplates and sealed by O-rings or installed in switchboards. This version has threaded connections.

Line connection

Threaded connection, interface to DIN 24 340 and ISO.



Features

- Favorable flow control thanks to triangle-shaped cross section of the orifice plate and to the wide angle of adjustment of the control button
- Possibility of calibration
- Designs available with roller actuation, installation in switchboard possible
- By-pass check valve incorporated

Type code

Flow control valve

M	R	10	...	...	...	001	3	O	...
			1	2	3				4

- 1 Actuation: **HV** – By hand, lockable
R – Roller
- 2 Line connection: **G** – Subplate, interface to DIN 24340 and ISO
C4 – Threaded connection G 1/2 switchboard installation (internal thread to DIN ISO 228/1)
- 3 Flow: **4** – 16 l/min
5 – 32 l/min
52 – 50 l/min
- 4 Sealing material: **O** – Perbunan
V – Viton

Subplate

P	MR	10	G	4	001	...	O	O
						1		

- 1 Engineering version: **1**

HERION Systemtechnik GmbH

Untere Talstraße 65
D-71263 Weil der Stadt-Merklingen

Tel.: +49 (0) 70 33/30 18-0
Fax: +49 (0) 70 33/30 18-10

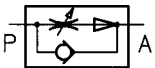


www.herion-systemtechnik.de
info@herion-systemtechnik.de

Parameters according to VDI 3268

Type designation	2-way flow control valve
------------------	--------------------------

General parameters

Symbol	
Design	Orifice plate-type throttle behind differential pressure piston
Type of mounting	Flange
Line connection	Subplate
Mounting position	Optional
Flow direction	P to A flow control function A to P free flow via check valve
Weight [kg]	3.8
Weight of subplate [kg]	2
Ambient temperature range ϑ_u [°C]	-20 ... +50
Size [NG]	10

Design [l/min]	16	32	50
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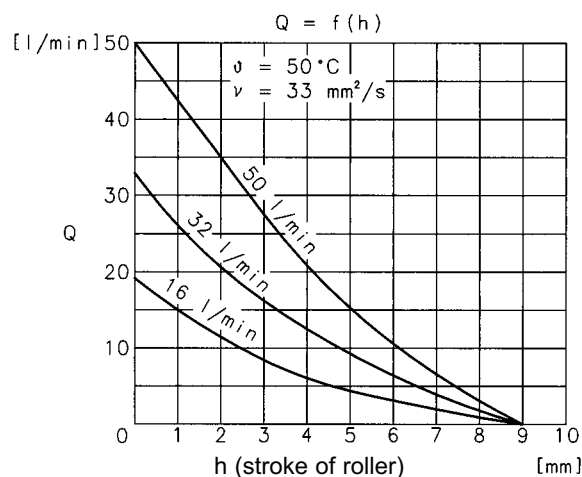
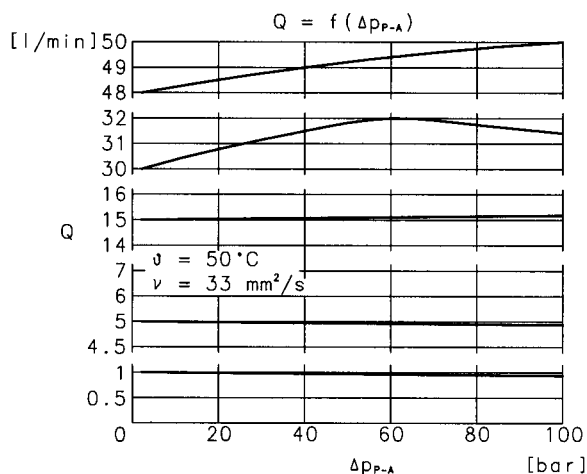
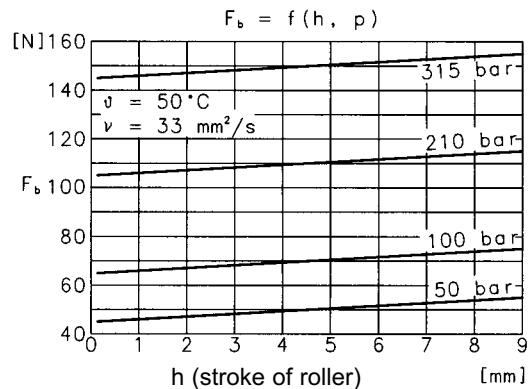
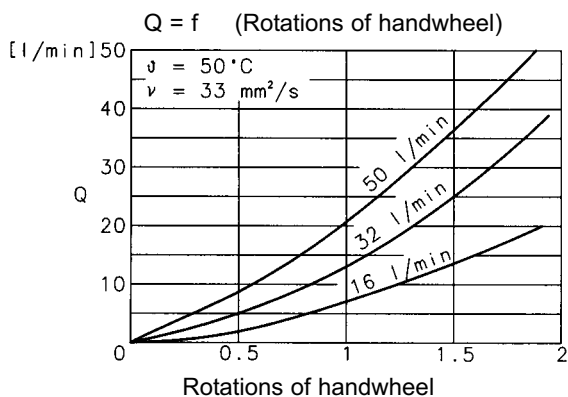
Hydraulic parameters

Operating pressure range	[bar]	... 315			
Operating pressure drop	Δp_{p-A} min.	[bar]	5		
	max.	[bar]	310		
Pressure fluid temperature	ϑ_m max.	[°C]	+70		
Viscosity range	ν	[mm ² /s]	12 ... 500		
Actuation	By hand or roller lever				
Actuation force	F_b	[N]	For roller lever see characteristic curve $F_b = f(h, p)$		
Twisting moment when manually actuated	M_b	[cm N]	10		
Flow	Q_{min}	[l/min]	0.1	0.1	0.1
	Q_{max}	[l/min]	16	32	50
Angle of rotation α	[°]	approx. 700			

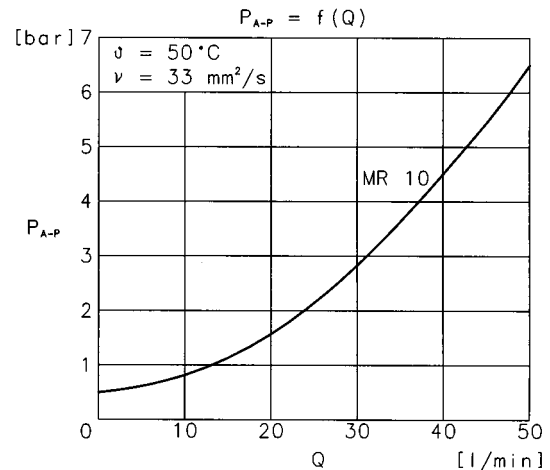
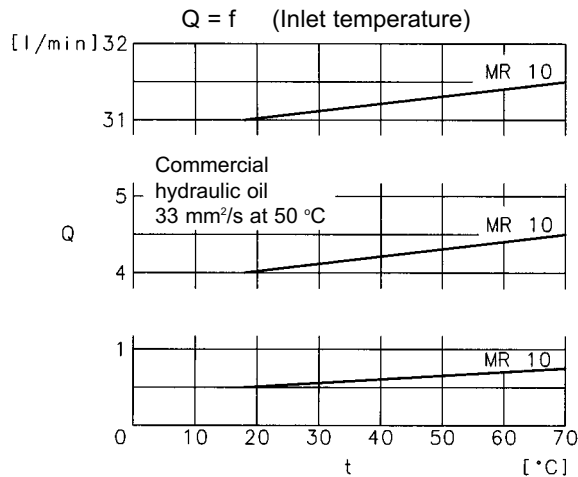
Filter

Filter size s [mm]	0.01 (for Q up to 0.5 l/min) 0.05 (for Q exceeding 0.5 l/min)
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Characteristic curves



Characteristic curves



Ordering

The units are designated by their type number. The composition of this number can be drawn from the type survey. 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.

Units with flanged connection are delivered complete with mounting bolts and O-rings. The subplate must be ordered separately.

Example of order

2-way flow control valve size 10. Flow up to 32 l/min, with manual adjustment, lockable and corresponding subplate, screwed connection G 1/2.

Flow control valve:

Type No.: M R 10 HV G 5 001 3 O O
Cat. No.: **5100185**

Subplate:

Type No.: P MR 10 G 4 001 1 O O
Cat. No.: **2854200**

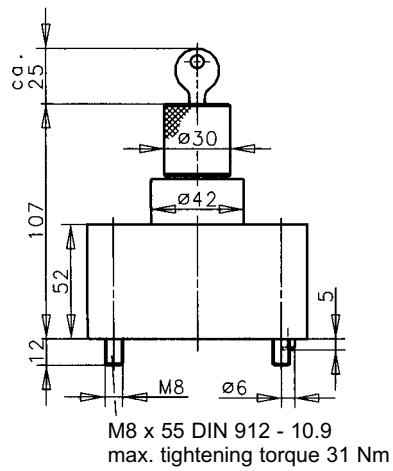
For corresponding plate-type rectifying unit, see publication 7500995.

Type survey (standard versions)

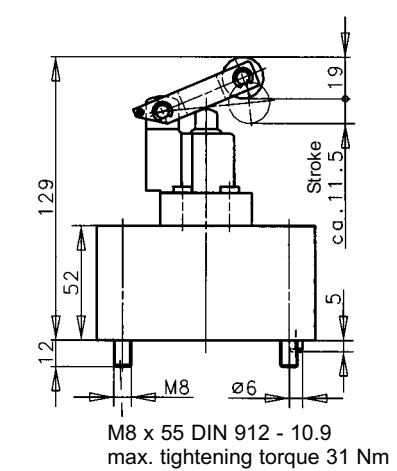
Size NG	Q [l/min]	Δp_{p-A} [bar]	Actuation	Line connection	Type	Cat. No.
10	0.1 ... 16	5 ... 310	By hand lockable	Subplate G 1/2 P MR 10 G 4 001 1 O O Cat.No. 2854200	M R 10 HV G 4 001 3 O O	5100184
	0.1 ... 32				M R 10 HV G 5 001 3 O O	5100185
	0.1 ... 50				M R 10 HV G 52 001 3 O O	5100186
	0.1 ... 16				M R 10 R G 4 001 3 O O	5100187
	0.1 ... 32		By roller lever		M R 10 R G 5 001 3 O O	5100188
	0.1 ... 50				M R 10 R G 52 001 3 O O	5100189
	0.1 ... 16		By hand	Subplate G 1/2 for switchboard installation	M R 10 HV C4 4 001 3 O O	5100210
	0.1 ... 32				M R 10 HV C4 5 001 3 O O	5100209

Dimensional drawings

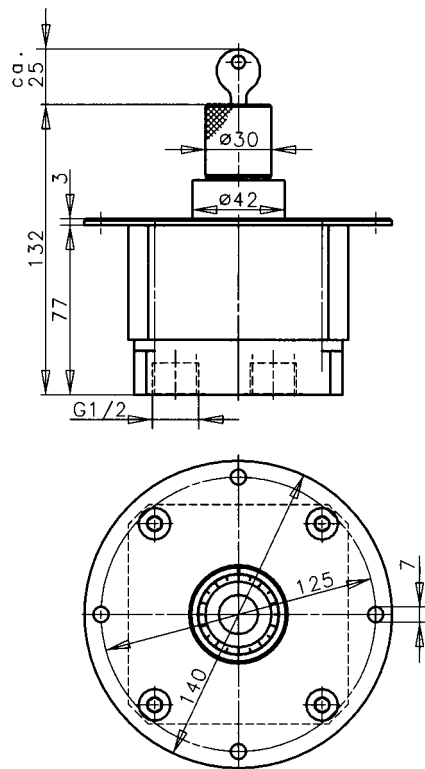
Flow regulation valves M R 10 HV ...



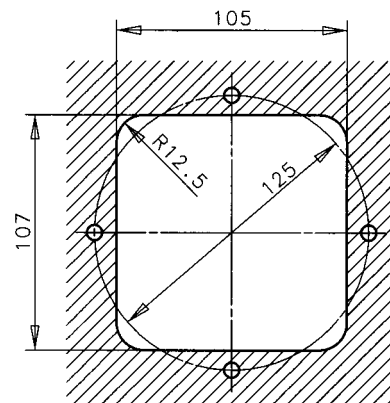
M R 10 R ...



M R 10 HV C ...

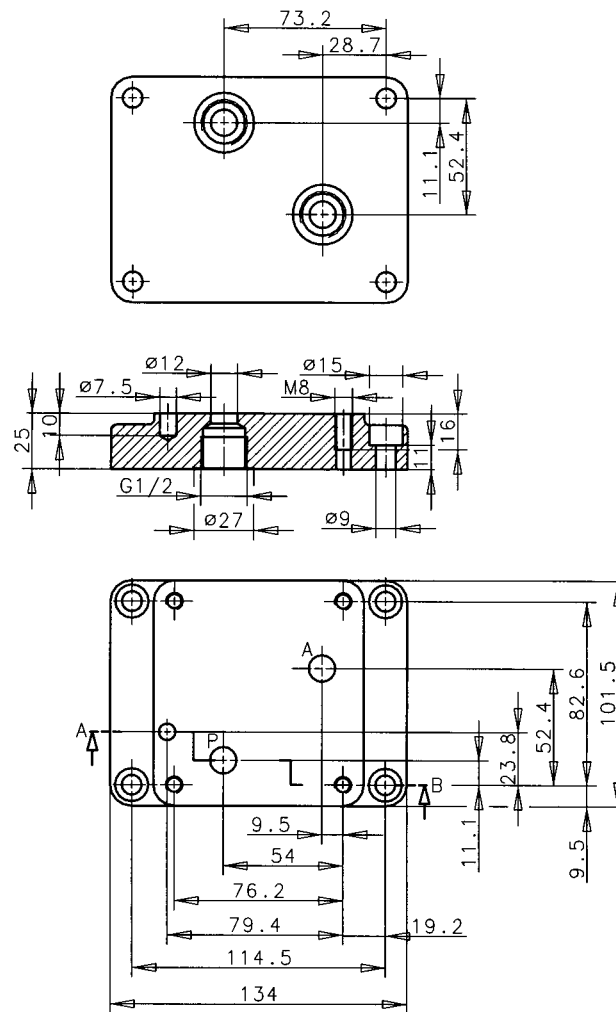


Recess in mounting wall

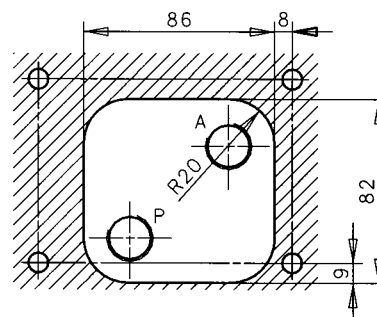


Dimensional drawings

Subplate G 1/2

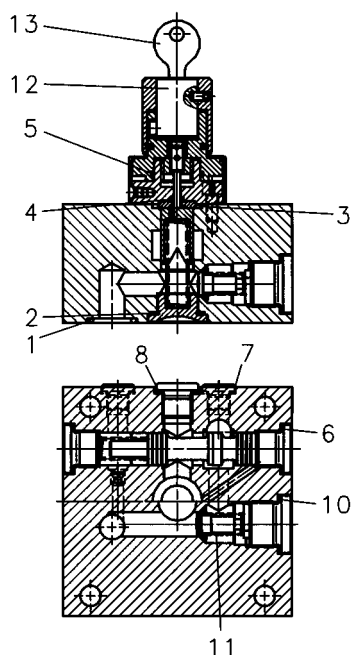


Recess in mounting wall

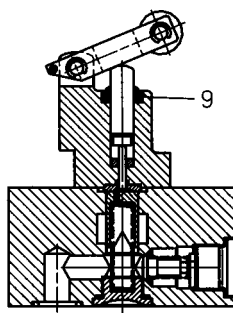


Spare parts drawings

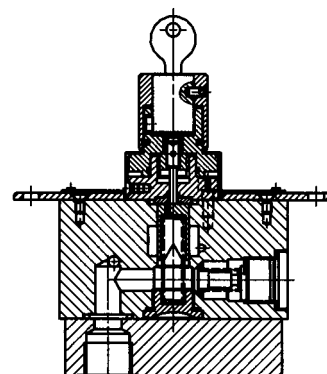
M R 10 HV G ...



M R 10 R G ...



M R 10 HV C ...



Spare parts (Number of pieces)

Part	Designation	M R 10 HV G M R 10 HV C	M R 10 R G	Cat. No.
1	O-ring (17.1 x 2.6)	2	2	0701290
2	O-ring (20.3 x 1.8)	1	1	0701259
3	O-ring (17.1 x 2.6)	1	1	0701290
4	O-ring (2.8 x 1.6)	1	1	0655263
5	O-ring (20.3 x 1.8)	1	-	0701259
6	Sealing ring (A 16 x 20 DIN 7603-Cu)	2	2	0700834
7	Sealing ring (A 10 x 14 x 1)	1	1	0700829
8	Sealing ring (14 x 18 x 1.5 DIN 7603-Cu)	1	1	0700832
9	Sealing ring (10 x 18 x 7)	-	1	0701017

Part	Designation	M R 10 HV G M R 10 HV C	M R 10 R G	Cat.No.
10	Sealing ring (A 20 x 24 DIN 7603-Cu)	1	1	0700836
11	Check valve	1	1	0657371
12	Lock cylinder with key	1	-	0568519
13	Key	1	-	0660051

Mounting bolts

-	Cylinder bolt (M 8 x 55 DIN 912-10.9)	4	4	0700442
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Spare parts kits

1 set of spare parts consists of parts:	1 to 5	1 to 4, 9	0729137 0729138
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Proportional Pressure Relief Valves Nominal size 6



Systemtechnik
GmbH

Directly controlled
Interface to DIN 24 340 and ISO

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

7501247.06.02.06

Description (standard units)

Design

With these proportional pressure valves, the pressure is controlled by means of a variable magnetic force which acts on the piston. The directly controlled design consists of a small seat piston to which the proportional solenoid is fitted.

The hydraulic pressure can be controlled by varying the current I which is fed to the proportional solenoid; this is carried out with the aid of a potentiometer and an amplifier.

Application

In hydraulic control circuits, there is often a requirement to control the pressure by means of an electrical signal, e.g. for pure remote control, in order to avoid long hydraulic lines, or for program controls where the pressures must be automatically adjusted. These proportional relief valves are very often fitted in process-controlled plastic moulding machines.

Mounting

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

Line connection

Subplate, interface to DIN 24 340 and ISO.



Features

- Simple electrical programmed control and remote control
- Adjustable transient characteristics
- Suitable for use as remote pilot valve

Type code

Proportional pressure relief valve

D	B	C	6	UP	G	...	...	...	O	...
						1	2	3		4

- 1 Adjustable pressure range: **50** - Up to 50 bar
 70 - Up to 100 bar
 80 - Up to 210 bar
 90 - Up to 315 bar
- 2 Code No.: **101** - Solenoid 800 mA
 201 - Solenoid 1600 mA
- 3 Engineering version: **3**
- 4 Sealing material: **V** - Viton

Subplate

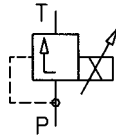
P	S	6	G	...	...	...	O	O
				1	2	3		

- 1 Line connection: **2** - G 1/4 (internal thread to ISO 228/1)
 3 - G 3/8
- 2 Code No.: **024** - G 1/4
 001 - G 3/8
- 3 Engineering version: **2**

Parameters to VDI 3276

Type designation	D B C 6 UP G... 101 3 O V	D B C 6 UP G... 201 3 O V
------------------	---------------------------	---------------------------

General parameters

Designation	Proportional pressure relief valve		
Symbol			
Design	Seat valve, directly controlled		
Type of mounting	Flange		
Line connection	Subplate		
Mounting position	Free		
Flow direction	From P to T		
Actuator	Proportional solenoid		
Weight of valve	[kg]	1.7	
Weight of subplate	[kg]	G 1/4 = 0.7 G 3/8 = 1.0	
Ambient temperature	ϑ_u	[°C]	-20 ... +50
Nominal size	6		

Hydraulic parameters

Operating pressure	p_e	[bar]	... 315
Adjustable pressure range ¹⁾	p_v	[bar]	p_v min.: See characteristic curve ¹⁾ p_v max.: Pressure stage 50: ... 50 Pressure stage 70: ... 100 Pressure stage 80: ... 210 Pressure stage 90: ... 315
Pressure fluid temperature	$\vartheta_{max.}$	[°C]	+70
Viscosity range	ν	[mm ² /s]	12 ... 500
Flow	Q	[l/min]	See characteristic curves
Regulating time for adjustable pressure range from p_v min. to p_v max.		[ms]	Appr. 20
Hysteresis ²⁾		[% I_N]	<3
Repeatability ²⁾		[% p_v max.]	
		Pressure stage 50 and 70:	Appr. ±2
		Pressure stage 80 and 90:	Appr. ±1
Sensitivity of response ²⁾	I_N	[%]	<1
Filtering, absolute		[µm]	25

Electrical parameters/Proportional solenoid

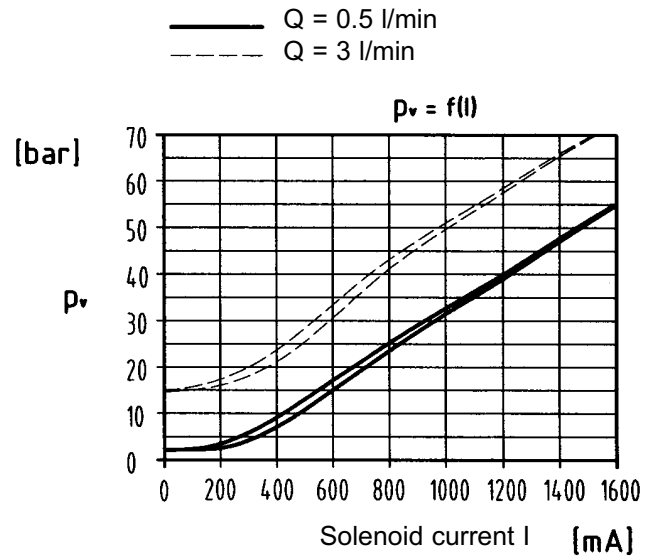
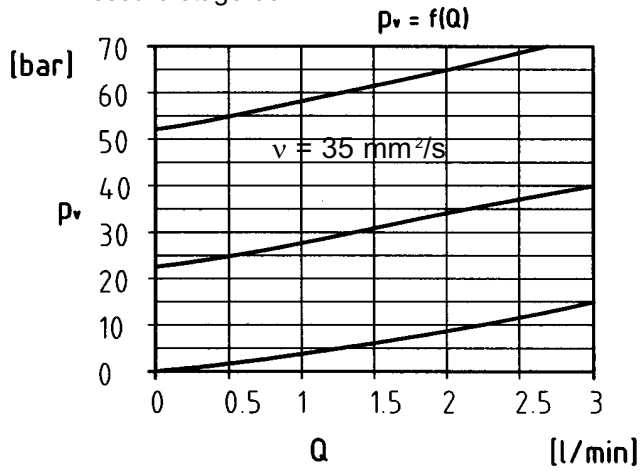
Solenoid Cat. No.			7289	7292
Rated current	I _N	[mA]	800	1600
Nominal power input	P ₂₀	[W]	14	14.6
Resistance	R ₂₀	[Ω]	21.3	5.7
Duty cycle	ED	[%]	100	100
Protection class of solenoid and electrical connection according to DIN 40 050			IP 65	
Drive electronics			DC 05 / DC 05-XLT see table page 5 pQ 11 und pQ 12 see table page 6	

¹⁾ Smaller p_v max. value can be set at amplifier.

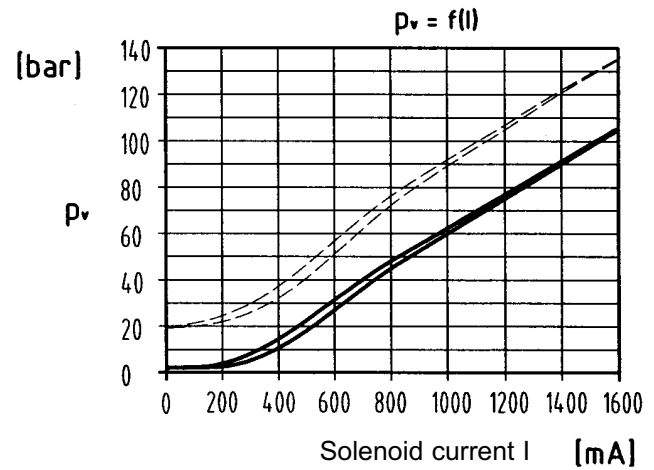
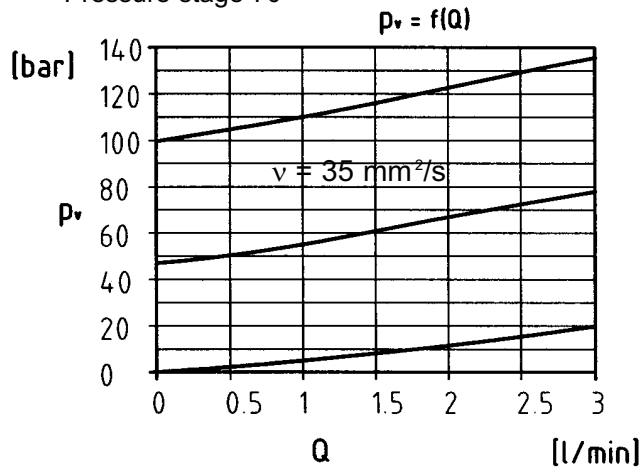
²⁾ With dither: Frequency 50 Hz, amplitude 15 % I_N .

Characteristic curves

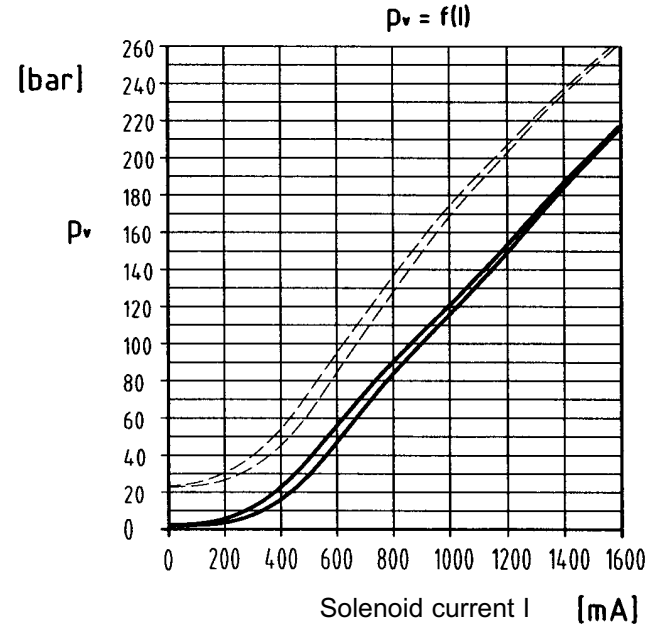
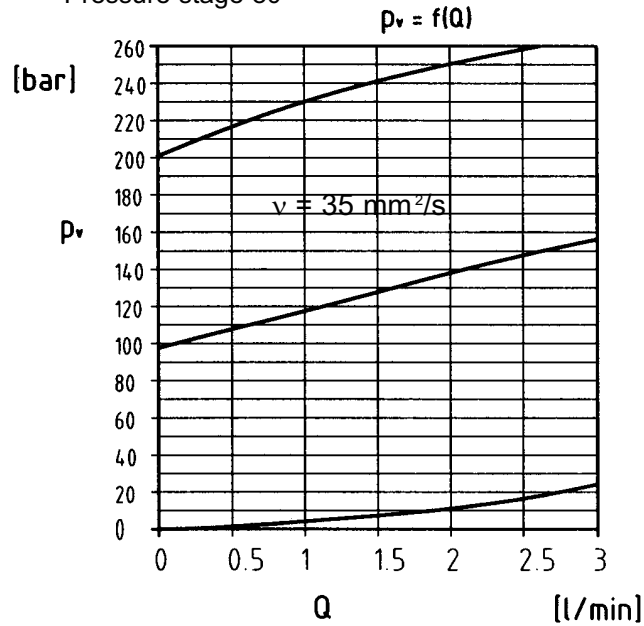
Pressure stage 50



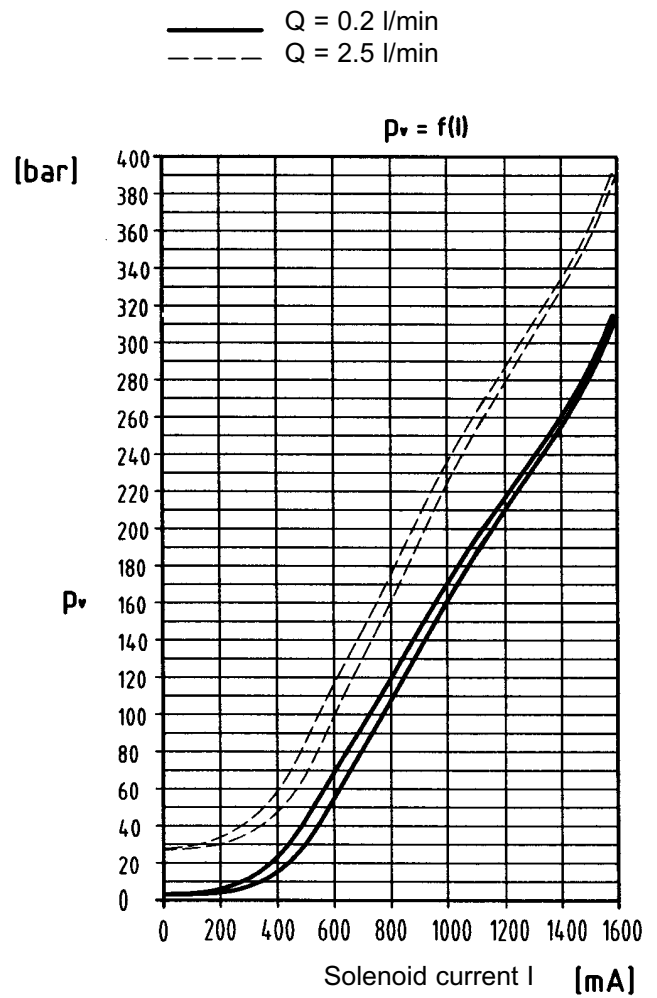
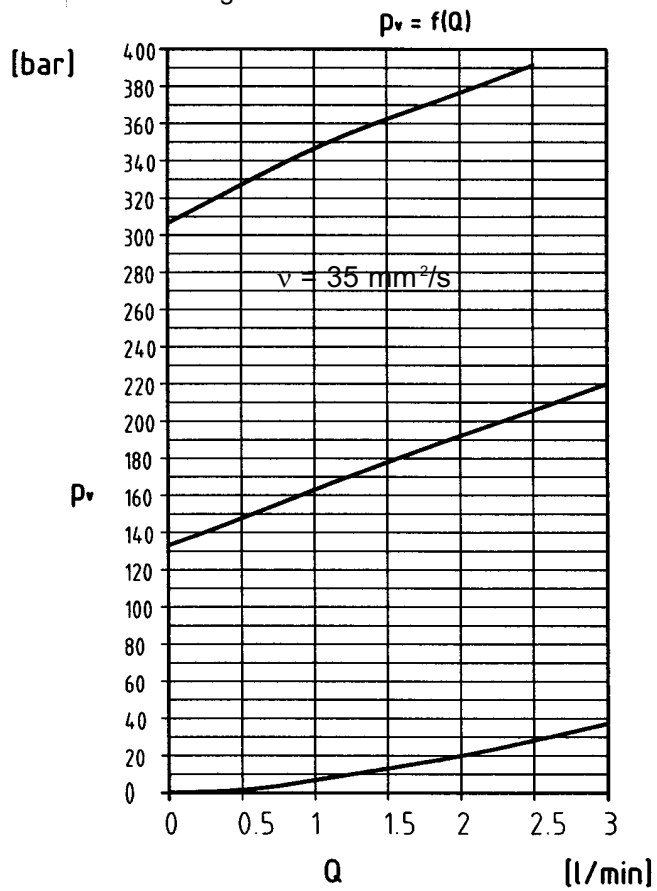
Pressure stage 70



Pressure stage 80



Pressure stage 50



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. Mounting bolts and O-rings are included in the delivery. The subplate, amplifier and setpoint potentiometer are to be ordered separately.

Example of order

Wanted: Proportional pressure relief valve, nominal size 6, electrically-adjustable, for flanged mounting. Setting pressure max. 50 bar, with mating subplate.

Proportional pressure relief valve:

Type-No.: D B C 6 UP G 50 201 3 O V
Cat. No.: **6016071.7292**

Subplate G 1/4:

Type-No.: P S 6 G 2 024 2 O O
Cat No.: **1065173**

Drive electronics must be ordered separately.

Type survey (standard design)

Nominal size	p _V max. [bar]	Proportional solenoid current	Drive electronics	Line connection	Type	Cat. No.
6	50	0 ... 1600 mA	DC 05, DC 05-XLT, pQ 11 or pQ 12 see table below	Subplate G 1/4 P S 6 G 2 024 2 OO Cat. No. 1065173	D B C 6 UP G 50 201 3 O V	6016071.7292
	100				D B C 6 UP G 70 201 3 O V	6016073.7292
	210				D B C 6 UP G 80 201 3 O V	6016075.7292
	315				D B C 6 UP G 90 201 3 O V	6016077.7292
	50	0 ... 800 mA		Subplate G 3/8 P S 6 G 3 001 2 OO Cat No. 1065183	D B C 6 UP G 50 101 3 O V	6016072.7289²⁾
	100				D B C 6 UP G 70 101 3 O V	6016074.7289²⁾
	210				D B C 6 UP G 80 101 3 O V	6016076.7289²⁾
	315				D B C 6 UP G 90 101 3 O V	6016078.7289²⁾

²⁾ Not for new developments

Drive electronics

Drive electronics DC 05 / DC 05-XLT

Digital amplifier with constant current regulator PWM
Power supply: 18 ... 30 VDC, incl. residual ripple
Ambient temperature ϑ_a : 0 ... +50 °C
Weight: 0,4 kg
Mounting position: Upright
Free air circulation must be ensured
Space requirement for installation of 19" card rack: 50 mm
European format: 100 x 160 mm



Type	Setpoint input (switchable)		Internal setpoints	Ramps	Terminal strip Form F DIN 41612	PID controller for external control loops	Cat. No.	For Further information, see script
	[V]	[mA]	Pcs.	Pcs.	Number of pins			
For proportional directional control valves Rated current I_N: 0 ... 1600 mA								
DC 05	2x0...±10V	0(4)...20 mA	4	4	48	● / ○ (switchable)	5150000¹⁾	7503503
DC 05-XLT	0...±10V		4	2	48	○	5150001¹⁾	7503504
			Functional compatible to pQ 03					

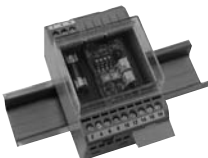
¹⁾ Pre-parametred electronics on request.

Drive electronics

Drive electronics pQ 11 Plug-in amplifier with constant current regulator PWM Degree of protection: IP 65 Power supply: 18 ... 32 VDC, Residual ripple: ≤ 10 % Ambient temperature ϑ_{u}: -20 ... +50 °C Mounting position: Optional  	Setpoint input (switchable)		Type of connection		Weight	Cat. No.	For Further information, see script HERION 7502961
	[V]	[mA]	Connecting cable, 2 m	Connector acc. to DIN 43651	[kg]		
	For proportional valves with 2 solenoids 2 pQ 11 necessary Rated current I_{N}: 0 ... 2400 mA, allowed resistance of solenoid R_{20}: 2,5...4,5 Ω						
	0 ... 10	0 (4)...20	●	○	0,18	5980085	
	0 ... 10	0 (4)...20	○	●	0,18	5980081¹⁾	

Mark in table: ○ without, ● with

1) Cable connector to be ordered separately. Cat. No. **0660689**

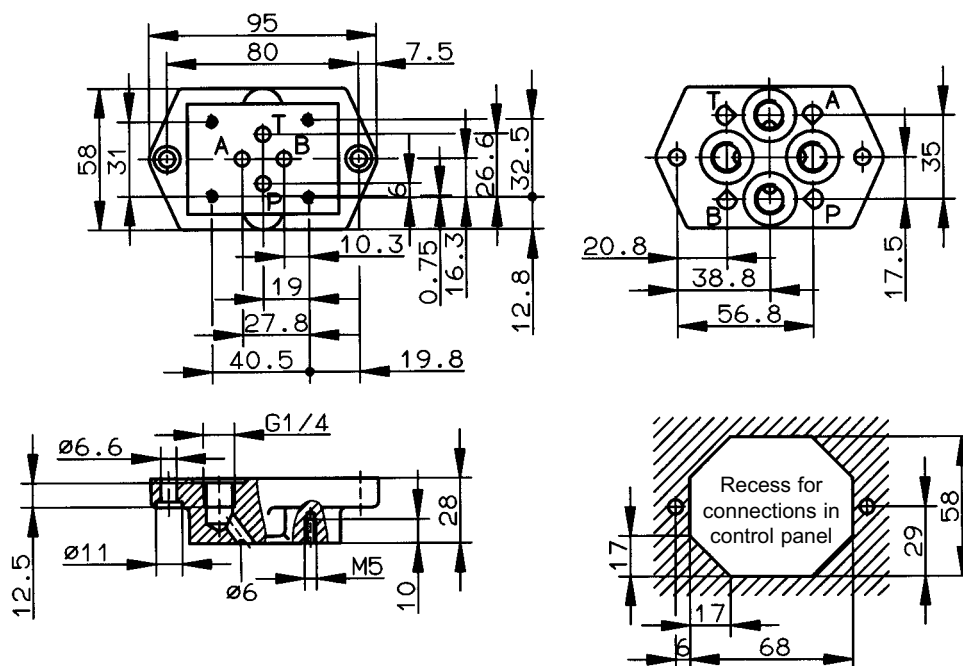
Drive electronics pQ 12 Amplifier module with constant current regulator PWM Degree of protection: IP 65 Power supply: 18 ... 32 VDC, Residual ripple: ≤ 10 % Ambient temperature ϑ_{U} : -20 ... +50 °C Mounting position: Optional For attachment on mounting rail acc. to EN 50022  	Setpoint input (switchable)	Output currents		Cat. No.	For Further information, see script HERION 7503109
	[V]	[mA]	[mA]		
	For proportional valves with 2 solenoids 2 pQ 11 necessary				
	0 ... 10	0 (4)...20	0 ... 1600 / 2400	5980126	

Dimensional drawings

Subplate with interface according to DIN 24 340-A and ISO 4401-AB-03-4-A

Cat. No.: 1065173

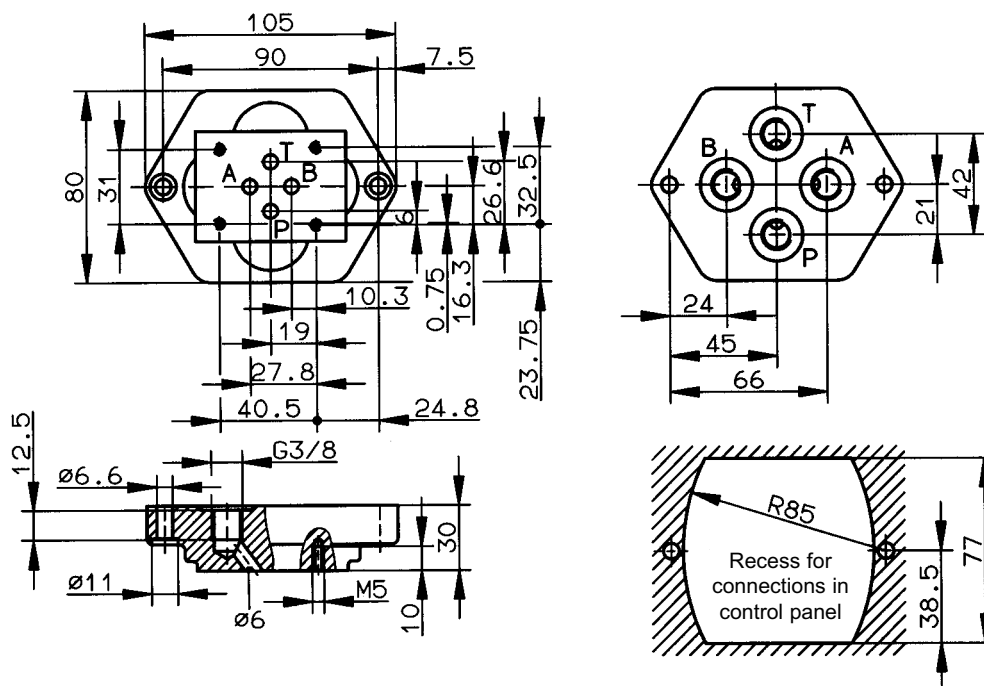
G 1/4



Subplate with interface according to DIN 24 340-A and ISO 4401-AB-03-4-A

Cat. No.: 1065183

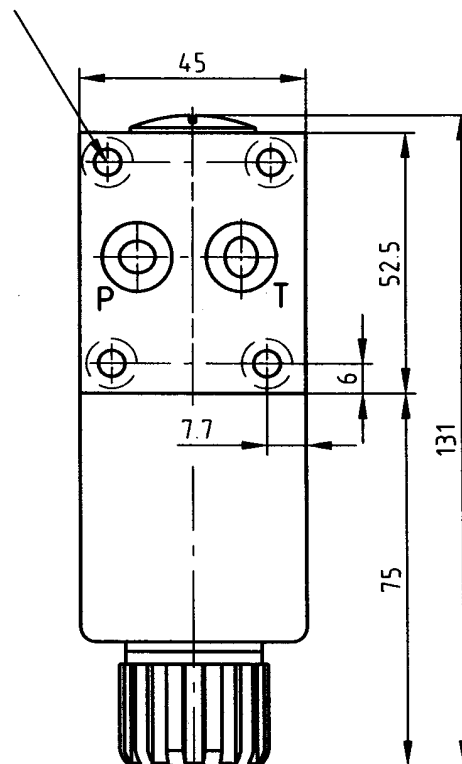
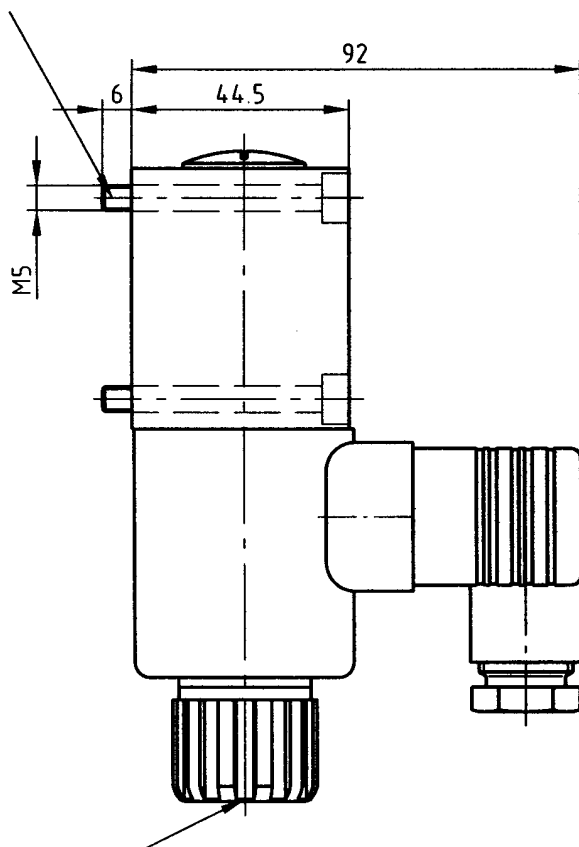
G 3/8



Dimensional drawings

Tightening torque
Appr. 7.6 Nm

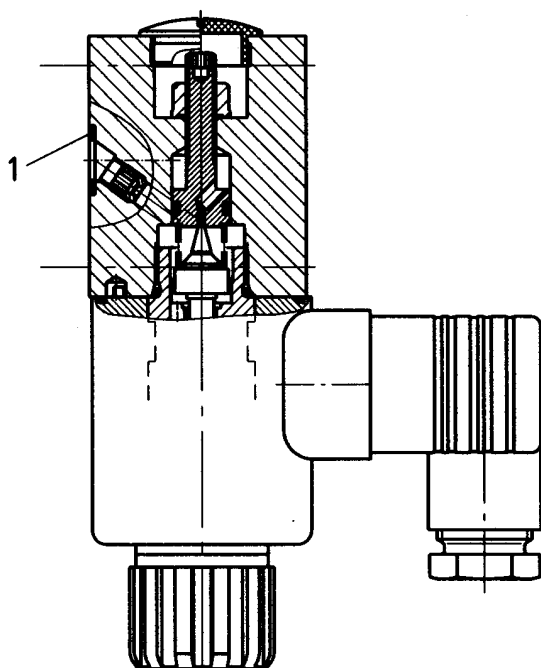
Interface according to DIN 24 340-A6
and ISO 4401



Vent screw
Vent prior to putting into operation
(if solenoid is in horizontal position or
vertical on upside)

Automatic venting if solenoid
is on vertical downside position

Spare part drawing



Spare parts / Accessories

Spare parts

Part	No. of pcs.	Designation	Cat. No.
1	2	O-ring (10.8 x 1.8)	0701622

Accessories

-	1	Electrical connector	0570275
---	---	----------------------	---------

Mounting bolts

-	4	Cylinder bolt (M5 x 45 DIN 912-10.9) Tightening torque $M_A = 7.6 \text{ Nm}$	0700390
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Proportional Pressure Relief Valves Nominal sizes 10 and 25



Systemtechnik
GmbH

Indirectly controlled
Interface to DIN 24 340 and ISO 6264

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

7501248.06.01.06

Description (standard units)

Design

With these proportional pressure valves, the pressure is controlled by means of a variable magnetic force which acts on the piston. The indirectly controlled design consists of the pilot stage with the proportional solenoid, and the main stage, which is controlled by the pilot stage.

The hydraulic pressure can be controlled by varying the current I which is fed to the proportional solenoid; this is carried out with the aid of a potentiometer and amplifier.

Application

In hydraulic control circuits, there is often a requirement to control the pressure by means of an electrical signal, e.g. for pure remote control, in order to avoid long hydraulic lines, or for program controls where the pressure must be automatically adjusted. These proportional relief valves are very often fitted in process-controlled plastic moulding machines.

Mounting

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

Line connection

Subplate, interface to DIN 24 340 and ISO 6264.



Features

- Simple electrical programmed control and remote control
- Adjustable transient characteristics

Type key

Proportional pressure relief valve

D	B	S	...	UP	G	90	...	...	O	...
			1				2	3		4

- 1 Nominal sizes: **10**
25
- 2 Code No.: **101** - Solenoid 7289
201 - Solenoid 7292
- 3 Engineering version: **4** - (size 25)
5 - (size 10)
- 4 Sealing material: **O** - Perbunan
V - Viton

Subplates

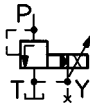
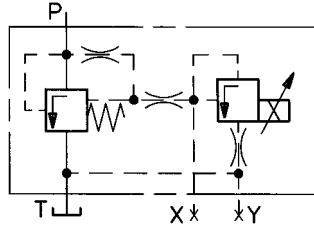
P	DB	...	G	...	001	...	O	O
		1		2		3		

- 1 Nominal sizes: **10**
25
- 2 Line connection: **4** - G 1/2 Size 10
6 - G 1 Size 25
- 3 Engineering version: **1**

Parameters

Type designation	D B S 10 UP G...	D B S 25 UP G...
------------------	------------------	------------------

General parameters

Designation		Proportional pressure relief valve	
Symbol		simplified	complete
			
Design		Seat valve, indirectly controlled	
Type mounting		Flange	
Line connection		Subplate	
Mounting position		Preferably vertical (solenoid on top)	
Flow direction		From P to T	
Actuation		Proportional solenoid	
Weight	[kg]	7.2	9.3
Weight of subplate	[kg]	2.0	4.7
Ambient temperature range	ϑ_u	[°C]	-20 ... +50
Nominal size	ND	10	25

Hydraulic parameters

Operating pressure range	p_e	[bar]	... 315
Adjustable pressure range	p_v	[bar]	p_v min.: see characteristic curve p_v max.: 315 ¹⁾
Pressure fluid temperature	$\vartheta_{m,max.}$	[°C]	+70
Viscosity range	ν	[mm ² /s]	12 ... 500
Flow	Q	[l/min]	See characteristic curve
Control oil	Q_{ST}	[l/min]	0.5
Hysteresis ²⁾		[% I_N]	<4
Repeatability ²⁾		[% p_v max.]	approx. ± 1
Sensitivity of response ²⁾	I_N	[%]	<1
Filtering, absolute		[μ m]	25

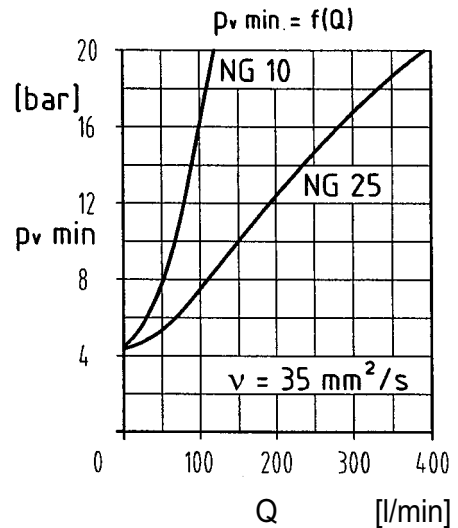
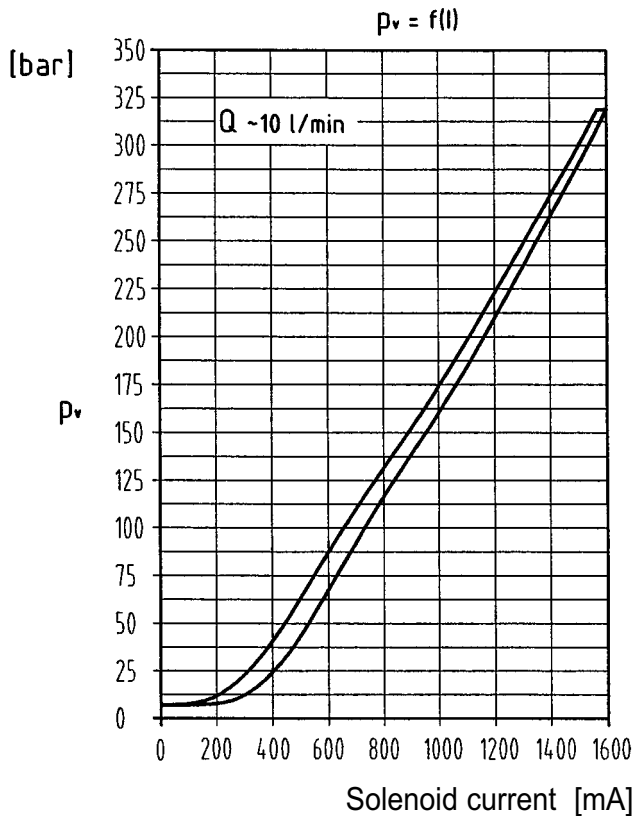
Electrical parameters proportional solenoids

Solenoid Cat. No.			7289	7292
Rated current	I_N	[mA]	800	1600
Max. input		[W]	21	21
Resistance	R_{20}	[Ω]	17.6	4.6
Duty cycle		[%]	100	100
Electrical connection			Connector acc. to DIN 43 650 A	
Degree of protection and electric connection acc. to DIN 40 050			IP 65	IP 65
Drive electronics			DC 05 / DC 05-XLT, pQ 11 and pQ 12 see table, Page 4	

¹⁾ Smaller p_v max. value can be set at amplifier.

²⁾ With dither: Frequency 50 Hz, amplitude 15 % I_N .

Characteristic curves



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. Mounting bolts and O-rings are included in the delivery. The subplate, amplifier and drive electronics are to be ordered separately.

Example of order

Wanted: Proportional pressure relief valve nominal size 10, electrically adjustable, for flanged mounting. Setting pressure range max. 315 bar, with mating subplate. Drive electronics to be ordered separately.

Proportional pressure relief valve:

Type No.: D B S 10 UP G 90 201 5 O O
Cat. No. **6016060.7292.01200**

Subplate:

Type No.: P DB 10 G 4 001 1 O O
Cat No.: **2852600**

Valve survey

Nominal size	$p_{v \text{ max}}$ [bar]	Proportional solenoid current	Drive electronics	Line connection	Type	Cat No.
10	315	0 ... 1600 mA	DC 05, DC 05-XLT or pQ 11 or pQ 12 see table Page 4	Subplate: Nominal size 10, G 1/2 P DB 10 G 4 001 1 OO Cat. No. 2852600	D B S 10 UP G 90 201 5 O O	6016060.7292.01200
25					D B S 25 UP G 90 201 4 O O	6016027.7292.01200
10	315	0 ... 800 mA	DC 05, DC 05-XLT	Nominal size 25, G 1 P DB 25 G 6 001 1 OO Cat No. 2852400	D B S 10 UP G 90 101 5 O O	6016061.7289.02400
25					D B S 25 UP G 90 101 4 O O	6016062.7289.02400

Note: Valve delivered with **internal** control oil return via Y
For units with **external** control oil return via X, please observe instructions given in spare parts drawings

Drive electronics

Drive electronics DC 05 / DC 05-XLT

Digital amplifier with constant current regulator PWM
Power supply: 18 ... 30 VDC, incl. residual ripple
Ambient temperature ϑ_a : 0 ... +50 °C
Weight: 0,4 kg
Mounting position: Upright
Free air circulation must be ensured
Space requirement for installation of 19" card rack: 50 mm
European format: 100 x 160 mm



Type	Setpoint input (switchable)		Internal setpoints	Ramps	Terminal strip Form F DIN 41612	PID controller for external control loops	Cat. No.	For Further information, see script
	[V]	[mA]	Pcs.	Pcs.	Number of pins			
For proportional directional control valves Rated current I_N: 0 ... 1600 mA								
DC 05	2x0...±10V	0(4)...20 mA	4	4	48	● / ○ (switchable)	5150000 ¹⁾	7503503
DC 05-XLT	0...±10V		4	2	48	○	5150001 ¹⁾	7503504
			Functional compatible to pQ 03					

¹⁾ Pre-parametred electronics on request.

Drive electronics pQ 11

Plug-in amplifier with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC,
Residual ripple: ≤ 10 %
Ambient temperature ϑ_a : -20 ... +50 °C
Mounting position: Optional



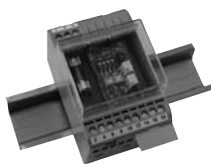
Setpoint input (switchable)		Type of connection		Weight	Cat. No.	For Further information, see script
[V]	[mA]	Connecting cable, 2 m	Connector acc. to DIN 43651	[kg]		
For proportional valves with 2 solenoids 2 pQ 11 necessary Rated current I_N: 0 ... 2400 mA, allowed resistance of solenoid R_{20}: 2,5...4,5 Ω						HERION 7502961
0 ... 10	0 (4)...20	●	○	0,18	5980085	
0 ... 10	0 (4)...20	○	●	0,18	5980081 ¹⁾	

Mark in table: ○ without, ● with

¹⁾ Cable connector to be ordered separately. Cat. No. **0660689**

Drive electronics pQ 12

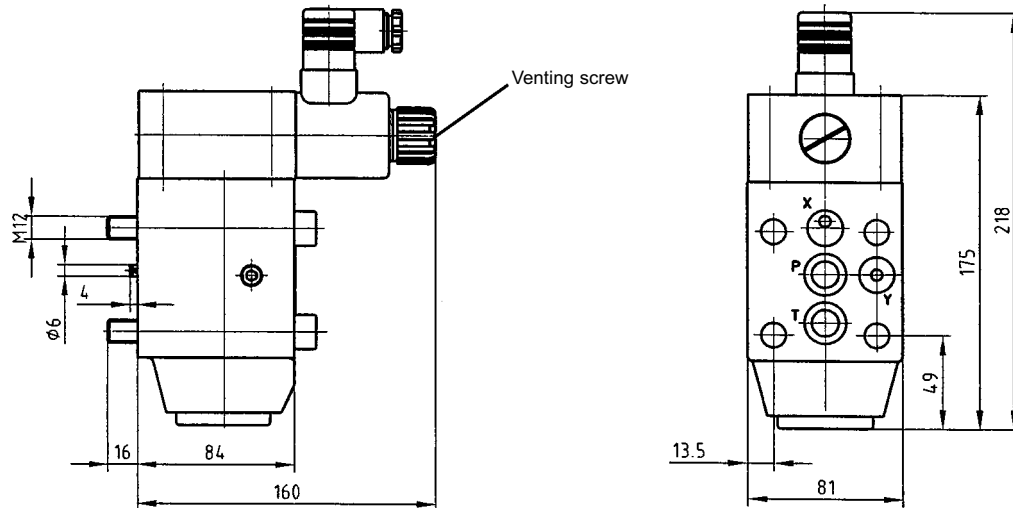
Amplifier module with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC,
Residual ripple: ≤ 10 %
Ambient temperature ϑ_a : -20 ... +50 °C
Mounting position: Optional
For attachment on mounting rail acc. to EN 50022



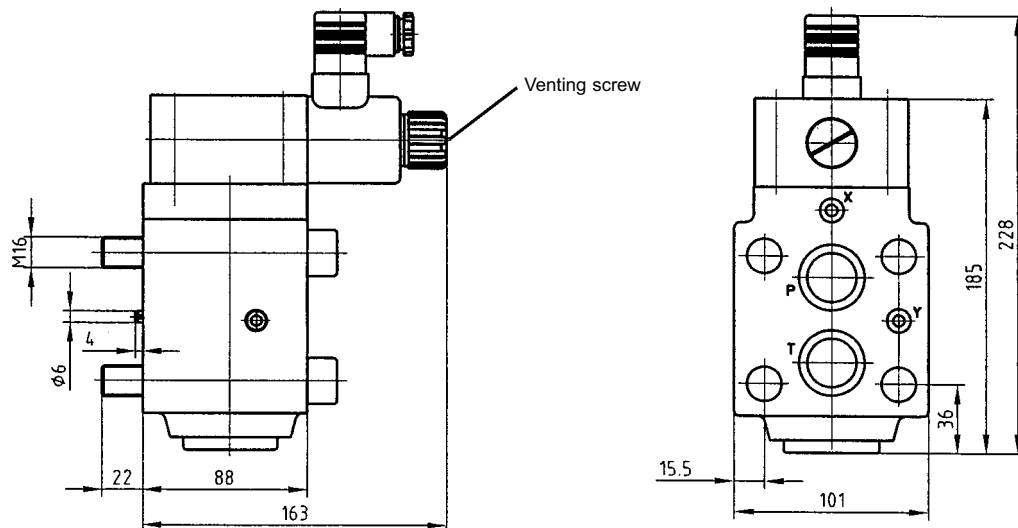
Setpoint input (switchable)		Output currents	Cat. No.	For Further information, see script
[V]	[mA]	[mA]		
For proportional valves with 2 solenoids 2 pQ 11 necessary				HERION 7503109
0 ... 10	0 (4)...20	0 ... 1600 / 2400	5980126	

Dimensional drawing

D B S 10 UP ...



D B S 25 UP ...



Dimensional drawings

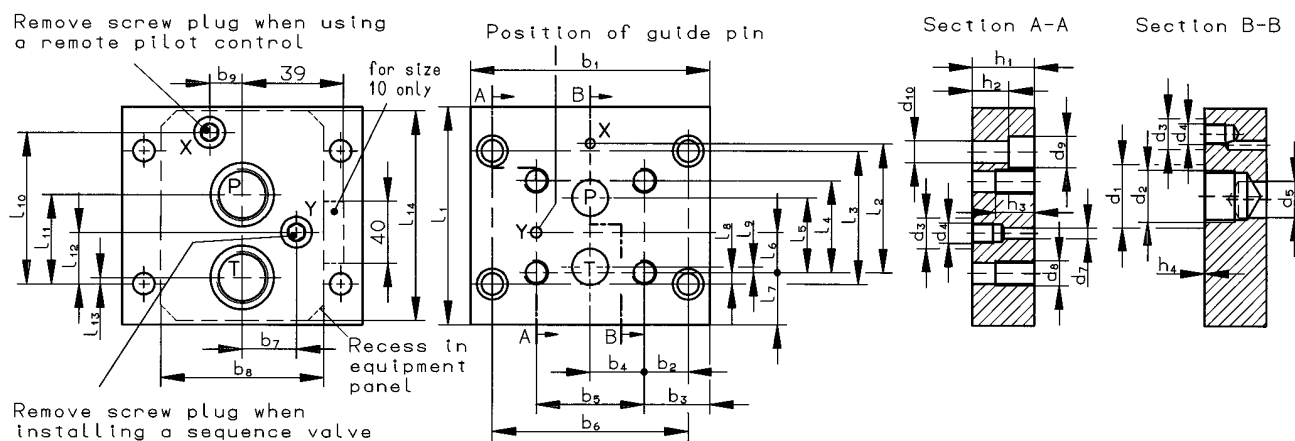
Subplates

Size 10

Interface to DIN 24340-E10 and ISO 6264-AR-06-2-A

Size 25

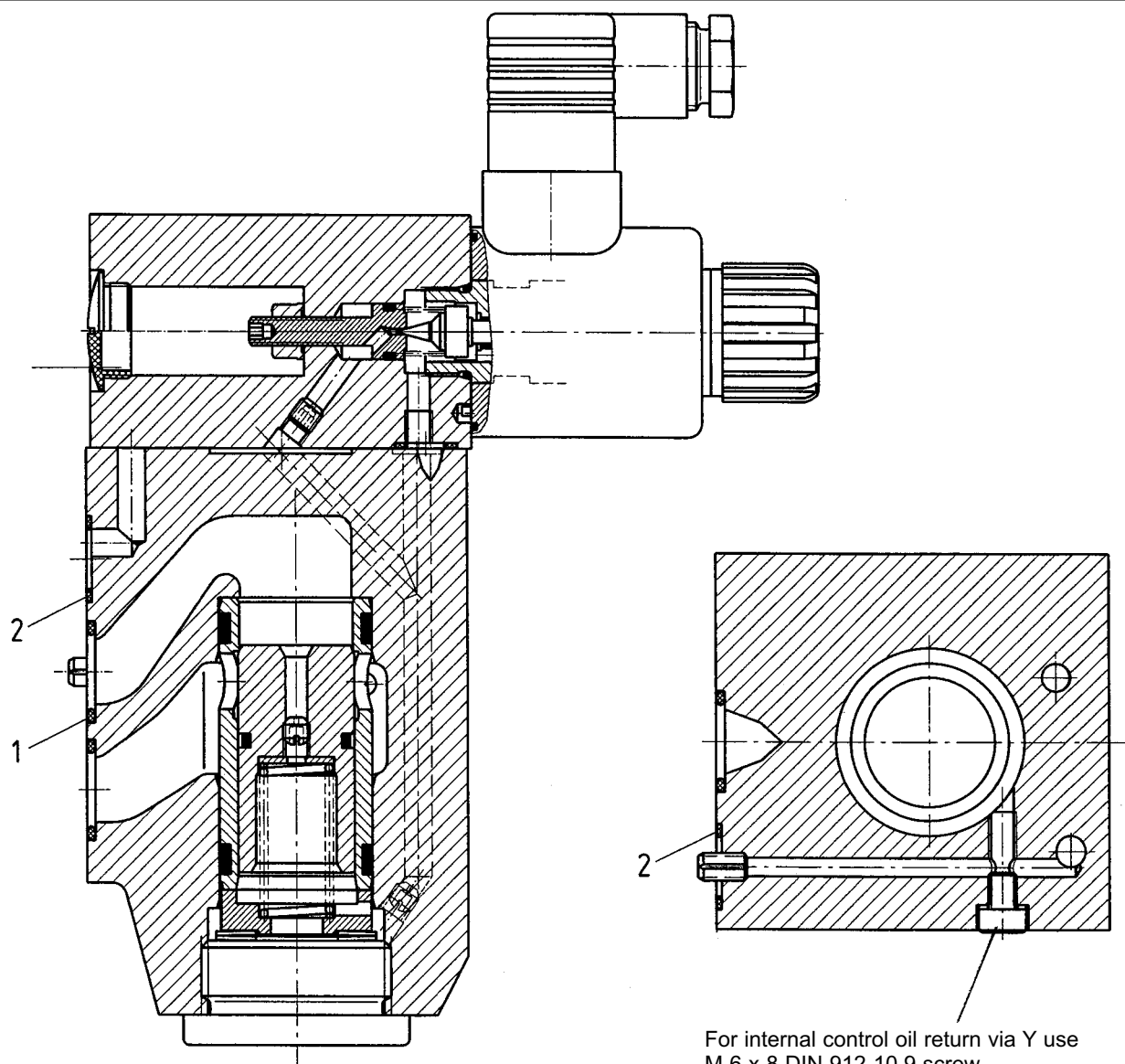
Interface to DIN 24340-E25 and ISO 6264-AS-08-2-A



Dimensional table [mm]

Nom. size	b1	b2	b3	b4	b5	b6	b7	b8	b9	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10
10	80	4	13	27	54	62	27	42	0	27	G 1/2	19	G 1/4	12	5	7.3	M 12	17.5	11
25	155	28.5	42.5	35	70	127	35	105	0	40	G 1	19	G 1/4	23.4	6	7.3	M 16	20	14

Nom. size	h1	h2	h3	h4	l1	l2	l3	l4	l5	l6	l7	l8	l9	l10	l11	l12	l13	l14
10	32	18	20	0.5	121	54	103	54	31.8	31.8	33.5	24.5	6.4	83.3	52.8	63	15.8	117
25	40	23.5	25	0.5	140	90.5	85.7	66.7	55.6	33.3	27	0	11.1	97.5	57.5	33.3	4.1	135



For internal control oil return via Y use
M 6 x 8 DIN 912-10.9 screw,
Cat. No. **0700399**

For external control oil return via Y use
M 6 x 18 DIN 912-10.9 screw,
Cat. No. **0700403**

Spare parts (Number of pieces)

Part	Designation	Size 10	Size 25	Cat. No.
1-2	Spare parts	1	-	0726881
1-2	Spare parts	-	1	0726882
3	Connector, black	1	1	0570275

Mounting screws

-	Socket-head screw (M12 x 100 DIN 912-10.9)	4	-	0700480
-	Socket-head screw (M16 x 110 DIN 912-10.9)	-	4	0700500

1 set of spare parts consists of parts 1 and 2.

Proportional Pressure Relief Valves Nominal sizes 10 and 25



Systemtechnik
GmbH

Indirectly controlled
Interface to DIN 24 340 and ISO 6264

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

7501248.06.01.06

Description (standard units)

Design

With these proportional pressure valves, the pressure is controlled by means of a variable magnetic force which acts on the piston. The indirectly controlled design consists of the pilot stage with the proportional solenoid, and the main stage, which is controlled by the pilot stage.

The hydraulic pressure can be controlled by varying the current I which is fed to the proportional solenoid; this is carried out with the aid of a potentiometer and amplifier.

Application

In hydraulic control circuits, there is often a requirement to control the pressure by means of an electrical signal, e.g. for pure remote control, in order to avoid long hydraulic lines, or for program controls where the pressure must be automatically adjusted. These proportional relief valves are very often fitted in process-controlled plastic moulding machines.

Mounting

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

Line connection

Subplate, interface to DIN 24 340 and ISO 6264.



Features

- Simple electrical programmed control and remote control
- Adjustable transient characteristics

Type key

Proportional pressure relief valve

D	B	S	...	UP	G	90	...	...	O	...
			1				2	3		4

- 1 Nominal sizes: **10**
25
- 2 Code No.: **101** - Solenoid 7289
201 - Solenoid 7292
- 3 Engineering version: **4** - (size 25)
5 - (size 10)
- 4 Sealing material: **O** - Perbunan
V - Viton

Subplates

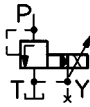
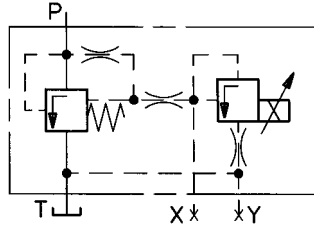
P	DB	...	G	...	001	...	O	O
		1		2		3		

- 1 Nominal sizes: **10**
25
- 2 Line connection: **4** - G 1/2 Size 10
6 - G 1 Size 25
- 3 Engineering version: **1**

Parameters

Type designation	D B S 10 UP G...	D B S 25 UP G...
------------------	------------------	------------------

General parameters

Designation		Proportional pressure relief valve	
Symbol		simplified	complete
			
Design		Seat valve, indirectly controlled	
Type mounting		Flange	
Line connection		Subplate	
Mounting position		Preferably vertical (solenoid on top)	
Flow direction		From P to T	
Actuation		Proportional solenoid	
Weight	[kg]	7.2	9.3
Weight of subplate	[kg]	2.0	4.7
Ambient temperature range	ϑ_u	[°C]	-20 ... +50
Nominal size	ND	10	25

Hydraulic parameters

Operating pressure range	p_e	[bar]	... 315
Adjustable pressure range	p_v	[bar]	p_v min.: see characteristic curve p_v max.: 315 ¹⁾
Pressure fluid temperature	$\vartheta_{m,max.}$	[°C]	+70
Viscosity range	ν	[mm ² /s]	12 ... 500
Flow	Q	[l/min]	See characteristic curve
Control oil	Q_{ST}	[l/min]	0.5
Hysteresis ²⁾		[% I_N]	<4
Repeatability ²⁾		[% p_v max.]	approx. ± 1
Sensitivity of response ²⁾	I_N	[%]	<1
Filtering, absolute		[μ m]	25

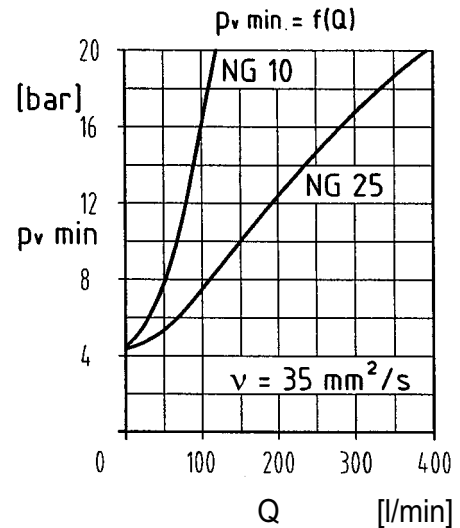
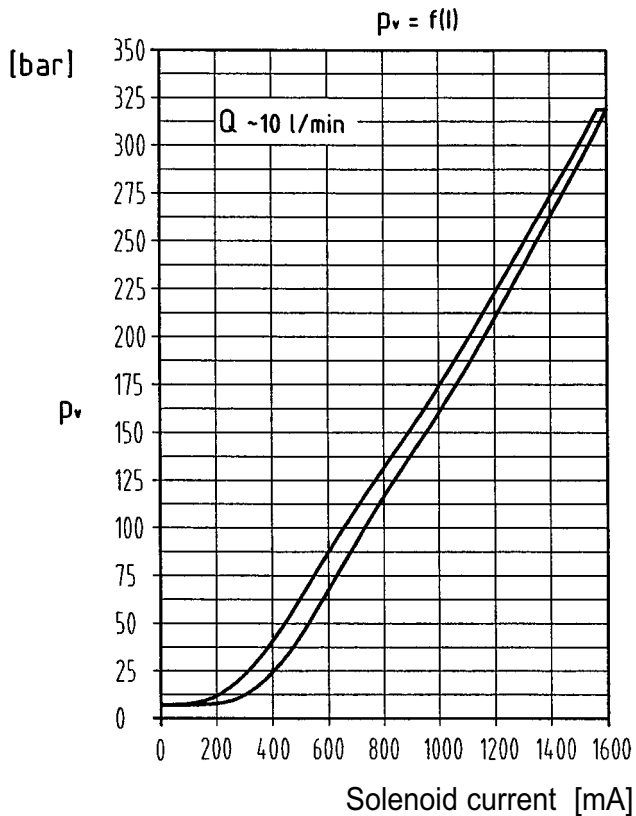
Electrical parameters proportional solenoids

Solenoid Cat. No.			7289	7292
Rated current	I _N	[mA]	800	1600
Max. input		[W]	21	21
Resistance	R ₂₀	[Ω]	17.6	4.6
Duty cycle		[%]	100	100
Electrical connection			Connector acc. to DIN 43 650 A	
Degree of protection and electric connection acc. to DIN 40 050			IP 65	IP 65
Drive electronics			DC 05 / DC 05-XLT, pQ 11 and pQ 12 see table, Page 4	

¹⁾ Smaller p_v max. value can be set at amplifier.

²⁾ With dither: Frequency 50 Hz, amplitude 15 % I_N .

Characteristic curves



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. Mounting bolts and O-rings are included in the delivery. The subplate, amplifier and drive electronics are to be ordered separately.

Example of order

Wanted: Proportional pressure relief valve nominal size 10, electrically adjustable, for flanged mounting. Setting pressure range max. 315 bar, with mating subplate. Drive electronics to be ordered separately.

Proportional pressure relief valve:

Type No.: D B S 10 UP G 90 201 5 O O
Cat. No. **6016060.7292.01200**

Subplate:

Type No.: P DB 10 G 4 001 1 O O
Cat No.: **2852600**

Valve survey

Nominal size	$p_{v \text{ max}}$ [bar]	Proportional solenoid current	Drive electronics	Line connection	Type	Cat No.
10	315	0 ... 1600 mA	DC 05, DC 05-XLT or pQ 11 or pQ 12 see table Page 4	Subplate: Nominal size 10, G 1/2 P DB 10 G 4 001 1 OO Cat. No. 2852600	D B S 10 UP G 90 201 5 O O	6016060.7292.01200
25					D B S 25 UP G 90 201 4 O O	6016027.7292.01200
10	315	0 ... 800 mA	DC 05, DC 05-XLT	Nominal size 25, G 1 P DB 25 G 6 001 1 OO Cat No. 2852400	D B S 10 UP G 90 101 5 O O	6016061.7289.02400
25					D B S 25 UP G 90 101 4 O O	6016062.7289.02400

Note: Valve delivered with **internal** control oil return via Y

For units with **external** control oil return via X, please observe instructions given in spare parts drawings

Drive electronics

Drive electronics DC 05 / DC 05-XLT

Digital amplifier with constant current regulator PWM
Power supply: 18 ... 30 VDC, incl. residual ripple
Ambient temperature ϑ_a : 0 ... +50 °C
Weight: 0,4 kg
Mounting position: Upright
Free air circulation must be ensured
Space requirement for installation of 19" card rack: 50 mm
European format: 100 x 160 mm



Type	Setpoint input (switchable)		Internal setpoints	Ramps	Terminal strip Form F DIN 41612	PID controller for external control loops	Cat. No.	For Further information, see script
	[V]	[mA]	Pcs.	Pcs.	Number of pins			
For proportional directional control valves Rated current I_N: 0 ... 1600 mA								
DC 05	2x0...±10V	0(4)...20 mA	4	4	48	● / ○ (switchable)	5150000 ¹⁾	7503503
DC 05-XLT	0...±10V		4	2	48	○	5150001 ¹⁾	7503504
			Functional compatible to pQ 03					

¹⁾ Pre-parametred electronics on request.

Drive electronics pQ 11

Plug-in amplifier with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC,
Residual ripple: ≤ 10 %
Ambient temperature ϑ_a : -20 ... +50 °C
Mounting position: Optional



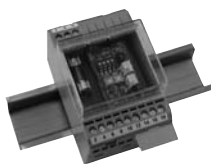
Setpoint input (switchable)		Type of connection		Weight	Cat. No.	For Further information, see script
[V]	[mA]	Connecting cable, 2 m	Connector acc. to DIN 43651	[kg]		
For proportional valves with 2 solenoids 2 pQ 11 necessary Rated current I_N: 0 ... 2400 mA, allowed resistance of solenoid R_{20}: 2,5...4,5 Ω						HERION 7502961
0 ... 10	0 (4)...20	●	○	0,18	5980085	
0 ... 10	0 (4)...20	○	●	0,18	5980081 ¹⁾	

Mark in table: ○ without, ● with

¹⁾ Cable connector to be ordered separately. Cat. No. **0660689**

Drive electronics pQ 12

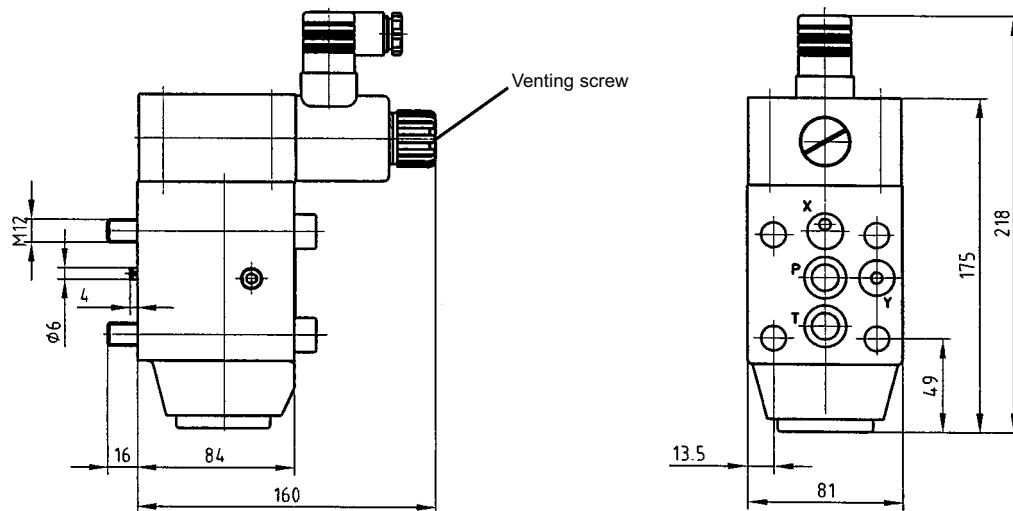
Amplifier module with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC,
Residual ripple: ≤ 10 %
Ambient temperature ϑ_a : -20 ... +50 °C
Mounting position: Optional
For attachment on mounting rail acc. to EN 50022



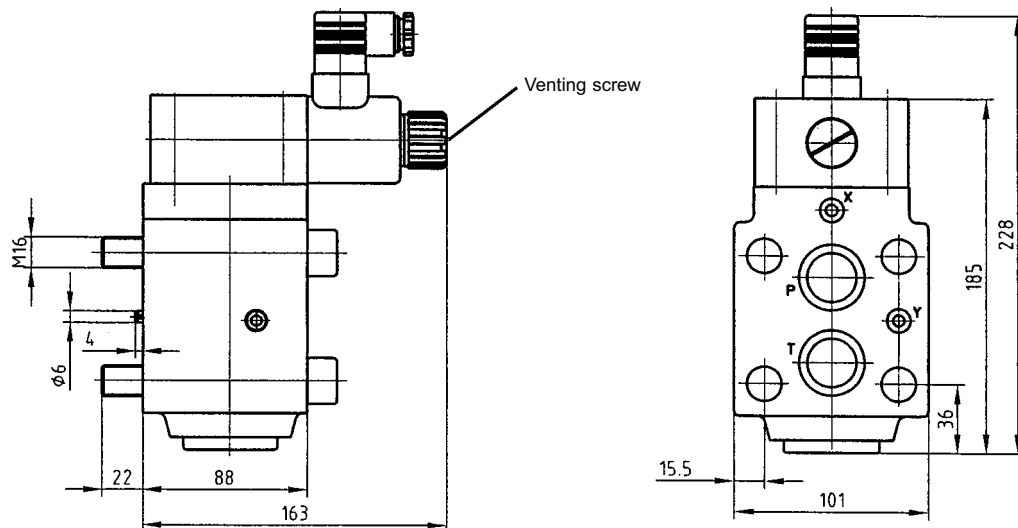
Setpoint input (switchable)		Output currents	Cat. No.	For Further information, see script
[V]	[mA]	[mA]		
For proportional valves with 2 solenoids 2 pQ 11 necessary				HERION 7503109
0 ... 10	0 (4)...20	0 ... 1600 / 2400	5980126	

Dimensional drawing

D B S 10 UP ...



D B S 25 UP ...



Dimensional drawings

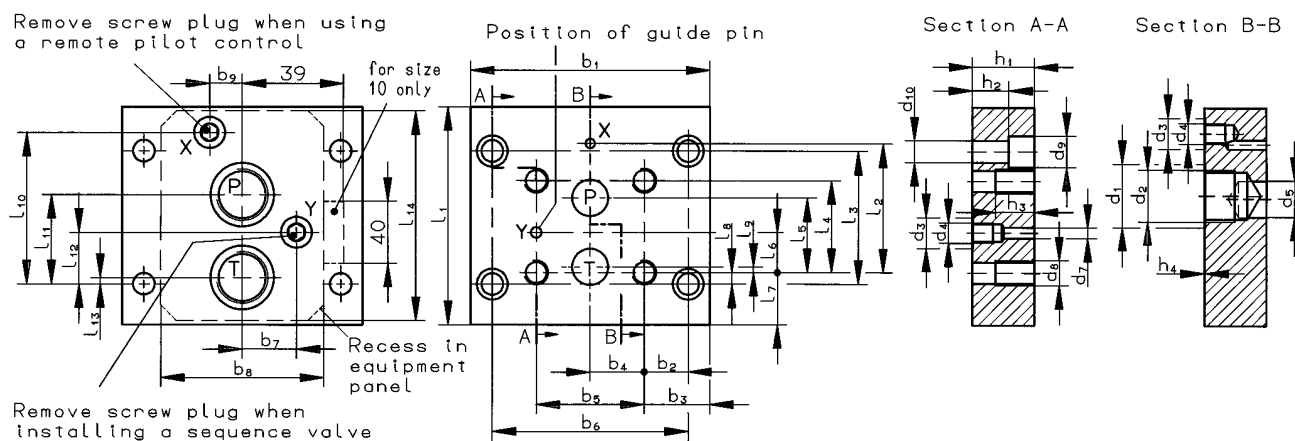
Subplates

Size 10

Interface to DIN 24340-E10 and ISO 6264-AR-06-2-A

Size 25

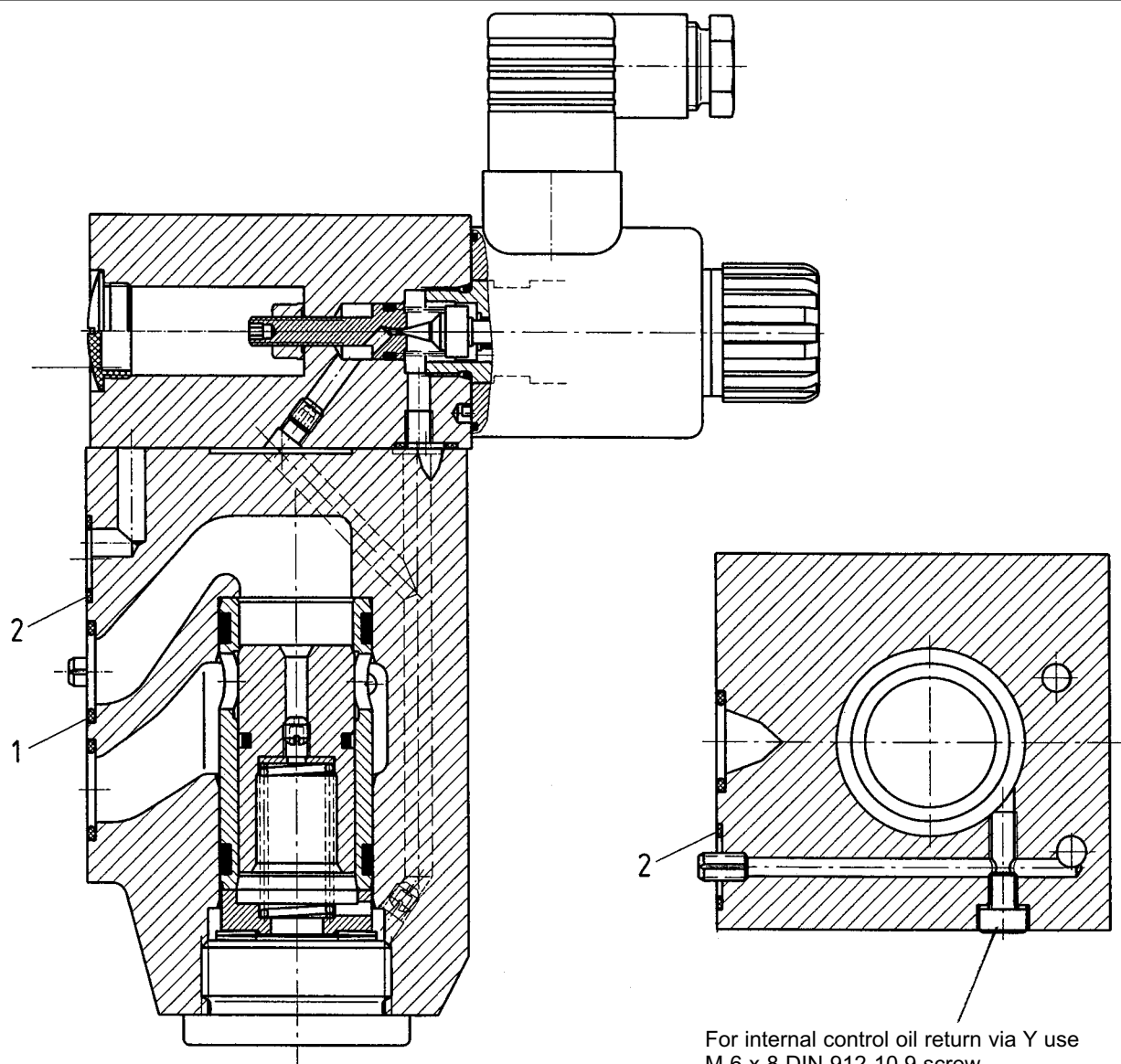
Interface to DIN 24340-E25 and ISO 6264-AS-08-2-A



Dimensional table [mm]

Nom. size	b1	b2	b3	b4	b5	b6	b7	b8	b9	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10
10	80	4	13	27	54	62	27	42	0	27	G 1/2	19	G 1/4	12	5	7.3	M 12	17.5	11
25	155	28.5	42.5	35	70	127	35	105	0	40	G 1	19	G 1/4	23.4	6	7.3	M 16	20	14

Nom. size	h1	h2	h3	h4	l1	l2	l3	l4	l5	l6	l7	l8	l9	l10	l11	l12	l13	l14
10	32	18	20	0.5	121	54	103	54	31.8	31.8	33.5	24.5	6.4	83.3	52.8	63	15.8	117
25	40	23.5	25	0.5	140	90.5	85.7	66.7	55.6	33.3	27	0	11.1	97.5	57.5	33.3	4.1	135



For internal control oil return via Y use
M 6 x 8 DIN 912-10.9 screw,
Cat. No. **0700399**

For external control oil return via Y use
M 6 x 18 DIN 912-10.9 screw,
Cat. No. **0700403**

Spare parts (Number of pieces)

Part	Designation	Size 10	Size 25	Cat. No.
1-2	Spare parts	1	-	0726881
1-2	Spare parts	-	1	0726882
3	Connector, black	1	1	0570275

Mounting screws

-	Socket-head screw (M12 x 100 DIN 912-10.9)	4	-	0700480
-	Socket-head screw (M16 x 110 DIN 912-10.9)	-	4	0700500

1 set of spare parts consists of parts 1 and 2.

3-Way Proportional Pressure Reducing Valves

Nominal size 10



Systemtechnik
GmbH

Indirectly controlled
HERION interface

PN [p_{max.}] = 315 bar

7501249.06.03.06

Description (standard units)

Design

With these proportional pressure valves, the pressure is controlled by means of a variable magnetic force which acts on the piston. The indirectly controlled design consists of the pilot stage with the proportional solenoid, and the main stage, which is controlled by the pilot stage.

The hydraulic pressure can be controlled by varying the current I which is fed to the proportional solenoid; this is carried out with the aid of a potentiometer and amplifier.

Application

In hydraulic control circuits, there is often a requirement to control the pressure by means of an electrical signal, e.g. for pure remote control, in order to avoid long hydraulic lines, or for program controls where the pressure must be automatically adjusted. These proportional relief valves are very often fitted in process-controlled plastic moulding machines.

Mounting

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

Line connection

Subplate, interface to HERION.
(Similar to 2-way pressure reducing valve to DIN 24 340).



Features

- High flow rate
- Simple electrical programmed control and remote pilot
- Stable control characteristics

Type key

Proportional pressure reducing valve

D	Y	K	10	UP	A	90	...	...	O	...
						1	2			3

1 Code No.: **101** - Solenoid 800 mA
 201 - Solenoid 1600 mA

2 Engineering version: **3**

3 Sealing material: **O** - Perbunan
 V - Viton

Subplate

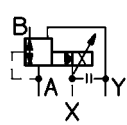
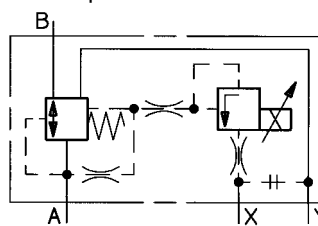
P	DY	10	A	4	001	...	O	O
						1		

1 Engineering version: **1**

Parameters

Type designation	D Y K 10 UP A90 101 3 O O	D Y K 10 UP A90 201 3 O O
------------------	---------------------------	---------------------------

General parameters

Description	3-way proportional pressure reducing valve	
Symbol	simplified	complete
		
Design	Piston valve, indirectly controlled	
Type mounting	Flange	
Line connection	Subplate	
Mounting position	free, preferably vertical (solenoid on top), to be vented at installation via screw at solenoid actuation system	
Flow direction	From B to A and A to Y	
Actuation	Proportional solenoid	
Weight pressure reducing valve	[kg]	6.4
Weight of subplate	[kg]	1.6
Ambient temperature	ϑ_u [°C]	-20 ... +50
Nominal size	10	

Hydraulic parameters

Operating pressure	p_e	[bar]	... 315
Adjustable pressure range	p_v	[bar]	p_v min.: 10 (at $Q = 0$ l/min) p_v max.: Pressure stage 90: Up to 315 ¹⁾
Pressure fluid temperature	$\vartheta_{max.}$	[°C]	+70
Viscosity range	ν	[mm ² /s]	12 ... 500
Flow	Q	[l/min]	See characteristic curves
Regulating time for adjustable pressure range from p_v min. to p_v max.		[ms]	See characteristic curve
Hysteresis ²⁾		[% I_N]	<4
Repeatability ²⁾		[% p_v max.]	approx. ± 1
Sensitivity of response ²⁾		[% I_N]	<1
Filtering, absolute		[μm]	25

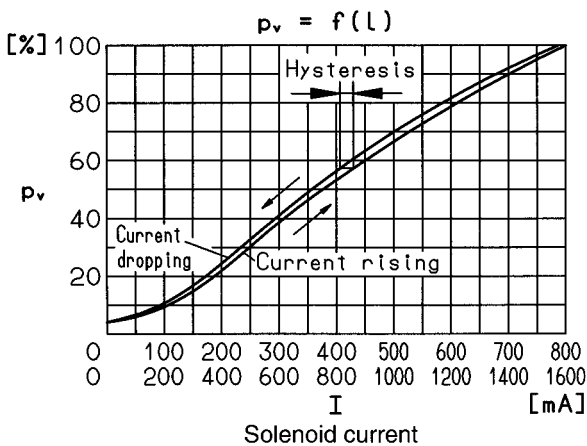
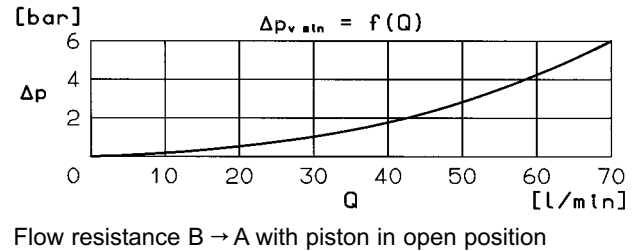
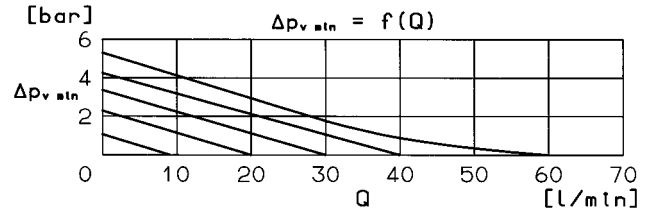
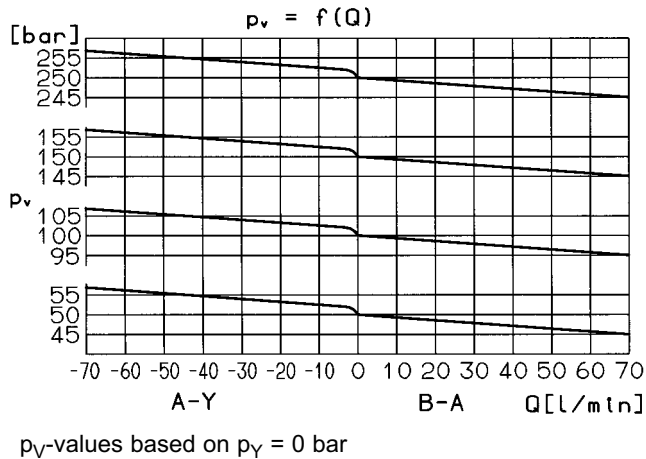
Electrical parameters of proportional solenoids

Solenoid Cat. No.		7289	7292
Rated current	I _N [mA]	800	1600
Max. input	[W]	21	21
Resistance	R ₂₀ [Ω]	21,3	5,7
Duty cycle	[%]	100	100
Degree of protection and electric connection acc. to DIN 40 050		IP 65	IP 65
Drive electronics	DC 05 / DC 05-XLT, pQ 11 and pQ 12 see table, Page 4		

¹⁾ Smaller p_v max. can be set at amplifier.

²⁾ With dither: Frequency 50 Hz, amplitude 15 % I_N .

Characteristic curves



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. Mounting bolts and O-rings are included in the delivery. Subplate and drive electronics to be ordered separately.

Example of order

Wanted: 3-way proportional pressure reducing valve nominal size 10, electrically adjustable, for flanged mounting. Setting pressure range max. 315 bar, with mating subplate.
Drive electronics to be ordered separately.

3-way proportional pressure reducing valve:
Type No.: D Y K 10 UP A 90 201 3 O O
Cat. No. **6016063.7292**

Subplate:
Type No.: P DY 10 A 4 001 1 O O
Cat. No. **2840007**

Valve survey

Nominal size	p_v max. [bar]	Proportional solenoid current	Drive electronics	Line connection	Type	Cat. No.
10	315	0 ... 1600 mA	DC 05, DC 05-XLT or pQ 11 / pQ 12 (see tables below)	Subplate G 1/2 P DY 10 A 4 001 1 O O Cat. No. 2840007	D Y K 10 UP A 90 201 3 O O ¹⁾	6016063.7292
		0 ... 800 mA			D Y K 10 UP A 90 101 3 O O ¹⁾	6016064.7289

¹⁾ Note: Valve delivered with "internal" control oil return via Y
For units with external control oil return via X, please observe instructions given in spare parts drawings

²⁾ Not for new constructions.

Drive electronics

Drive electronics DC 05 / DC 05-XLT

Digital amplifier with constant current regulator PWM
Power supply: 18 ... 30 VDC, incl. residual ripple
Ambient temperature ϑ_a : 0 ... +50 °C
Weight: 0,4 kg
Mounting position: Upright
Free air circulation must be ensured
Space requirement for installation of 19" card rack: 50 mm
European format: 100 x 160 mm



Type	Setpoint input (switchable)		Internal setpoints	Ramps	Terminal strip Form F DIN 41612	PID controller for external control loops	Cat. No.	For Further information, see script
	[V]	[mA]	Pcs.	Pcs.	Number of pins			
For proportional directional control valves Rated current I_N: 0 ... 1600 mA								
DC 05	2x0...±10V	0(4)...20 mA	4	4	48	● / ○ (switchable)	5150000 ¹⁾	7503503
DC 05-XLT	0...±10V		4	2	48	○	5150001 ¹⁾	7503504
			Functional compatible to pQ 03					

¹⁾ Pre-parametered electronics on request.

Drive electronics pQ 11

Plug-in amplifier with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC,
Residual ripple: ≤ 10 %
Ambient temperature ϑ_a : -20 ... +50 °C
Mounting position: Optional



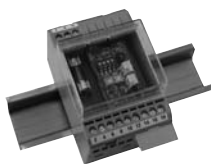
Setpoint input (switchable)		Type of connection		Weight	Cat. No.	For Further information, see script
[V]	[mA]	Connecting cable, 2 m	Connector acc. to DIN 43651	[kg]		
For proportional valves with 2 solenoids 2 pQ 11 necessary Rated current I_N: 0 ... 2400 mA, allowed resistance of solenoid R_{20}: 2,5...4,5 Ω						HERION 7502961
0 ... 10	0 (4)...20	●	○	0,18	5980085	
0 ... 10	0 (4)...20	○	●	0,18	5980081 ¹⁾	

Mark in table: ○ without, ● with

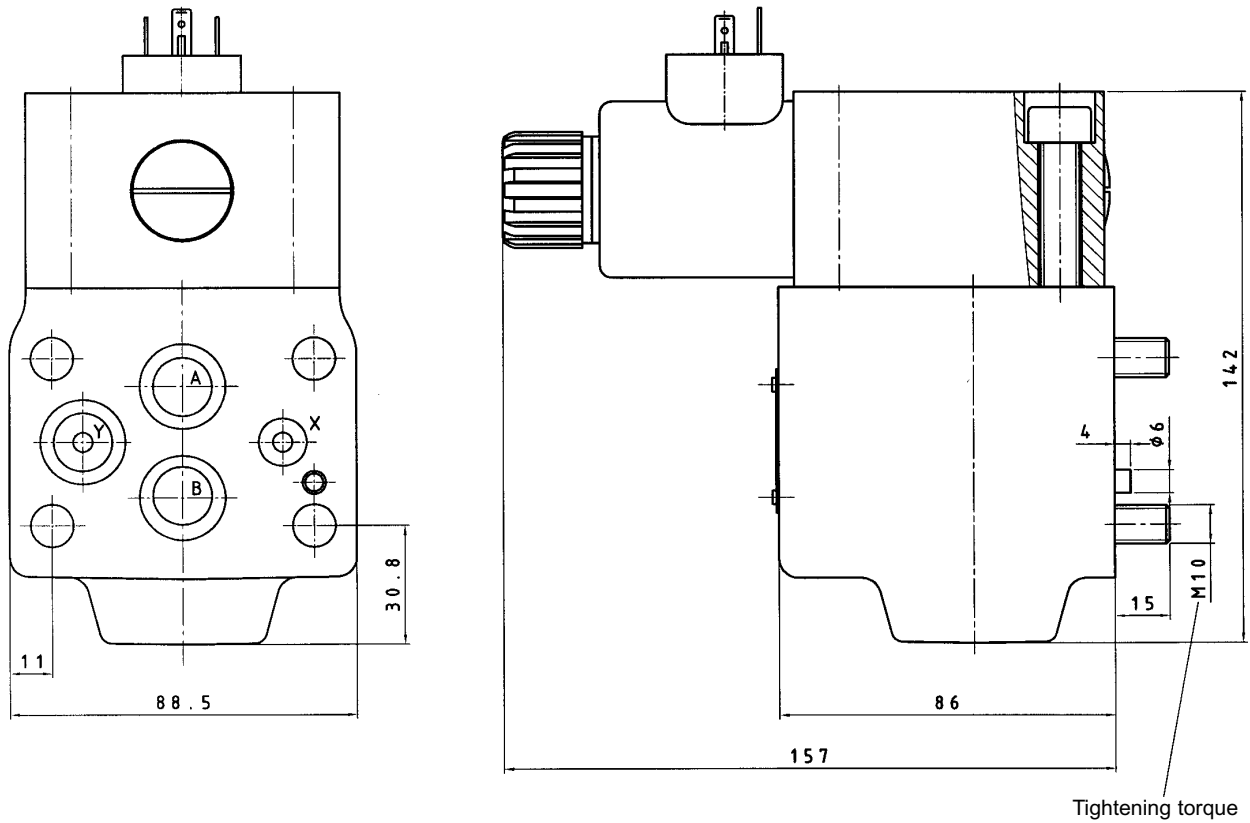
¹⁾ Cable connector to be ordered separately. Cat. No. **0660689**

Drive electronics pQ 12

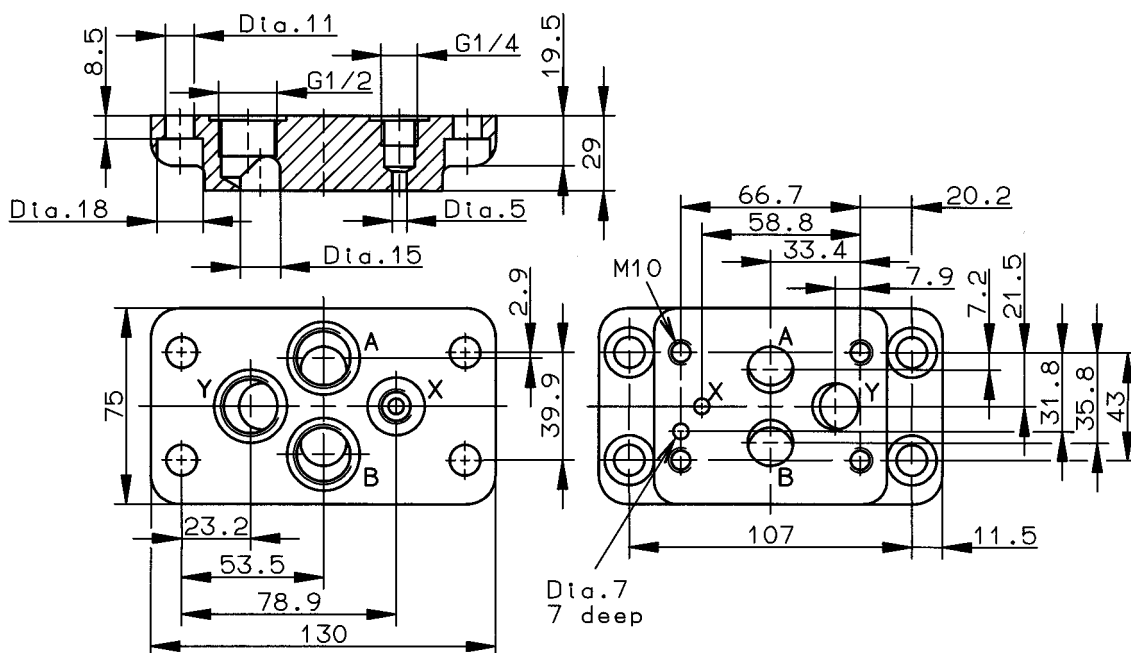
Amplifier module with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC,
Residual ripple: ≤ 10 %
Ambient temperature ϑ_a : -20 ... +50 °C
Mounting position: Optional
For attachment on mounting rail acc. to EN 50022

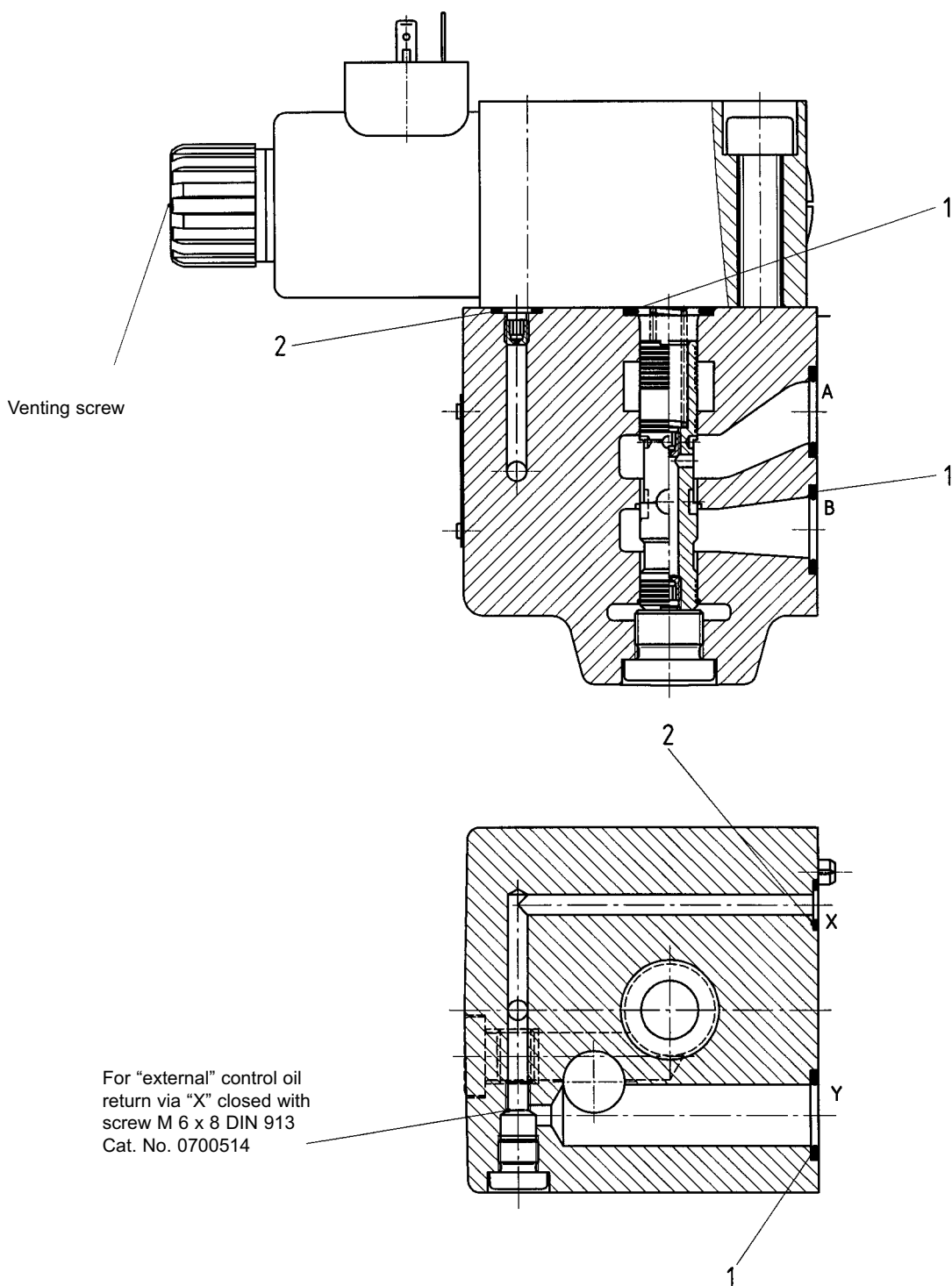


Setpoint input (switchable)		Output currents	Cat. No.	For Further information, see script
[V]	[mA]	[mA]		
For proportional valves with 2 solenoids 2 pQ 11 necessary				HERION 7503109
0 ... 10	0 (4)...20	0 ... 1600 / 2400	5980126	



**Subplate with HERION hole pattern
(acc. to DIN 24 340-D 10-1)**





Spare parts

Part	Qty.	Description	Cat. No.
1	3	O-ring (17.1 x 2.6)	0701290
2	1	O-ring (9.2 x 1.8)	0701252

Mountings screws

-	4	Socket-head screw (M10 x 90 DIN 912-10.9)	0700462
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1 set of spare parts consists of parts 1 and 2.

Directional control valves DN 6 (NG 6)



**Systemtechnik
GmbH**

Directly actuated
Interface to DIN 24 340 and ISO 4401

PN [p_{max.}] = 315 bar

7501292.06.03.05

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. Therefore the units are suitable for rough operating conditions.

Actuation

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

Mounting

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

Line connection

Subplate, interface to DIN 24340-A6 and ISO 4401-AB-03-4-A.



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

Type key

Directional control valve

S	6	...	...	G	...	001	...	...	...
		1	2		3		4	5	6

- 1 Actuation: **VH** – DC-type solenoid, pressure-tight, with manual override
V – Without manual override
- 2 Electrical connection: **10** – Connector Pg 11 to DIN 43650 on solenoid
11 – Connector Pg 11 with rectifier insert on solenoid
12 – Connector Pg 11 with rectifier insert and function indicator on solenoid
13 – Connector Pg 11 with function indicator on solenoid
- 4 Engineering version: **6** – Wet solenoid provided with central thread
- 5 Additional data: **O** – Standard design
M⁽¹⁾ – Mechanical detent
C⁽²⁾ – Switching delay by means of nozzle
- 6 Sealing material: **V** – FKM (e.g. Viton)

¹⁾ 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.

²⁾ Port T of valves with a delayed switching time, must be pressurized with approx. 5 bar.

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

3 Symbol

Symbol	Symbol No.	Overlap	Symbol	Symbol No.	Overlap
	001 ³⁾	+		031 ³⁾	+
	003	-		038	+
	020	+		035	+
	004	+		002	-
	005	+		008	+
	044 ³⁾	+		009	+
	039	+		010	+
	021 ³⁾	+		011	-
	019	+		013	-
	025	+		016	+

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www.herion-systemtechnik.de
info@herion-systemtechnik.de

Type key

Subplate

P	S	6	G	...	...	...	O	O
				1	2	3		

1 Line connection: **2** - G 1/4 (internal thread
 3 - G 3/8 to DIN ISO 228/1)

2 Code: **024** - G 1/4
 001 - G 3/8

3 Engineering version: **2**

Parameter to VDI 3267

Type designation	VH 10	VH 11
------------------	-------	-------

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]	1.9
	2 actuators		2.7
Weight of	G 1/4	[kg]	0.7
subplate	G 3/8		1
Ambient temperature range	ϑ_u	[°C]	-20 to +50
Size	DN		6

Hydraulic parameters

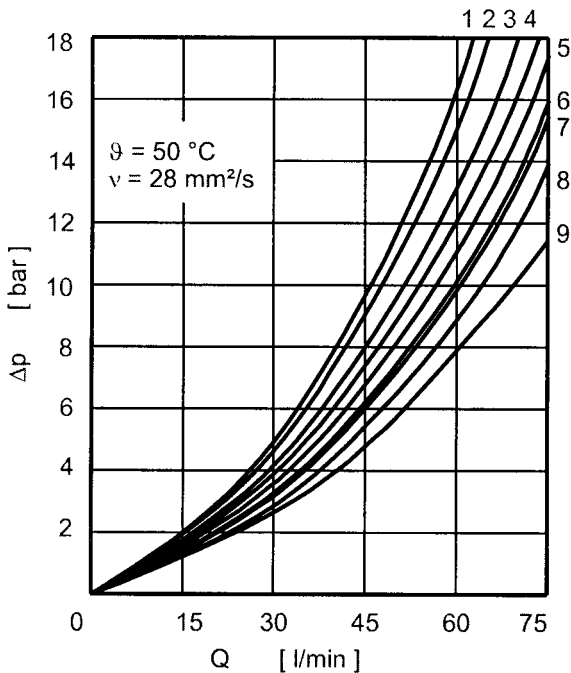
Operating pressure	p_e max.	[bar]	up to 315
at port P, A, B			up to 160
at port T			
Pressure fluid temperature	ϑ_m max.	[°C]	+70
Viscosity range	ν	[mm²/s]	12 to 500
Flow	Q_{max}	[l/min]	See characteristic curves
Filtration	Oil purity class to ISO 4406: 18/15		

Further parameters

Manual override	Standard		
Switching times, approx.		[ms]	
	t_{on}		50 to 80
	t_{off}		30 to 55
Number of switchings/h, approx.	15000		
Rated voltage	U_N	[V]	Standard voltages
Connector input			24 VDC
			±10%
			230 VAC / 40 ... 60 HZ
			+5%/-10%
			Further voltages on request
Power consumption	P_{20}	[W]	31
Duty cycle		[%]	100
Degree of protection for solenoid and electrical connection to DIN 40050	IP 65		

Characteristic curves

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

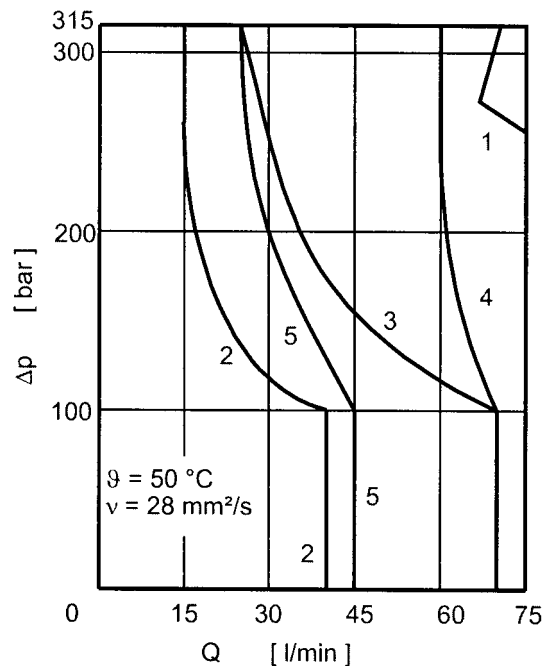


Symbol	Flow direction				
	P-A	P-B	A-T	B-T	P-T
001	7	7	-	-	-
003	8	8	3	3	-
008	8	8	6	6	-
009	5	5	9	9	-
013	5	5	4	4	2
019	5	5	1	1	-
020	5	5	1	1	-

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. The catalog number of these devices you will get on request. Flanges valves are provided with O-rings and connector (type 10 or 11, Page 2). Subplate and mounting screws must be ordered separately.

Power limits



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

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. Further valves with different switching symbols available on request.

Example of order

Wanted: 4/3 directional control valve DN 6, 24 VDC, connector on solenoid, Symbol 008, along with corresponding subplate.

Directional control valve:

Type No.: S 6 VH 10 G 008 001 6 O V
Cat. No.: **5203943.7234**

Subplate:

Type No.: P S 6 G 2 024 2 O O
Cat. No.: **1065173**

Mounting screws: (4 pcs. required)

Socket-head screw: (M 5 x 30 DIN 912-10.9)
Cat. No.: **0700387**

Type survey (standard versions)

Symbol	Symbol-No.	Overlap	Actuation	Electrical connection	Line connection	Voltage	Type	Cat. No.	
								Valve	Solenoid
	001 ¹⁾	++	Solenoid-actuated, pressure-tight	No. 10: Connector to DIN 43650 (Pg 11) mounted on solenoid or No. 11: Connector to DIN 43650 (Pg 11) with rectifier insert mounted on solenoid	Subplate G 1/4 P S 6 G 2 024 2 O O Cat. No. 1065173	VDC	S6VH10 G 001 001 6 O V	5203939.7234	
	003	-				VAC	S6VH11 G 001 001 6 O V	5204084.7234	
	020	++			Subplate G 3/8 P S 6 G 3 001 2 O O Cat. No. 1065183	VDC	S6VH10 G 020 001 6 O V	5203941.7234	
	019	++				VAC	S6VH11 G 020 001 6 O V	5204082.7234	
	008	++				VDC	S6VH10 G 008 001 6 O V	5203943.7234	
	009	++				VAC	S6VH11 G 008 001 6 O V	5204092.7234	
	013	-				VDC	S6VH10 G 013 001 6 O V	5203945.7234	
						VAC	S6VH11 G 013 001 6 O V	5204094.7234	

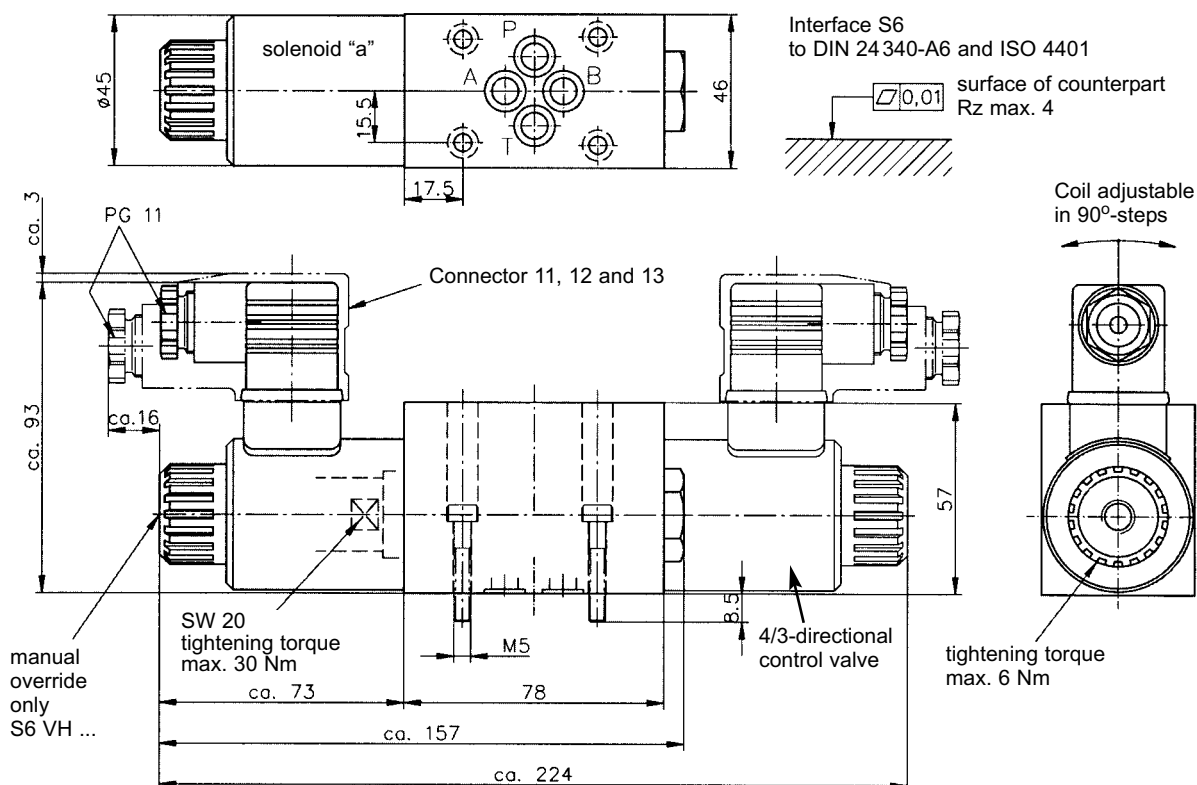
1) Port T of this 3/2 directional control valves is used as leak oil connection.

Dimensional drawings (mm)

Directional control valves

S 6 V ...

S 6 VH ...

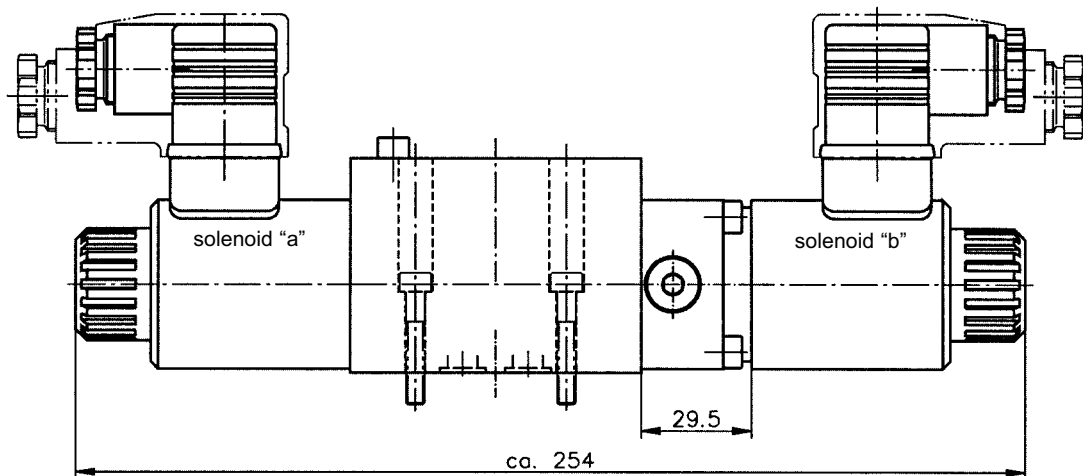


Dimensional drawings (mm)

Directional control valves

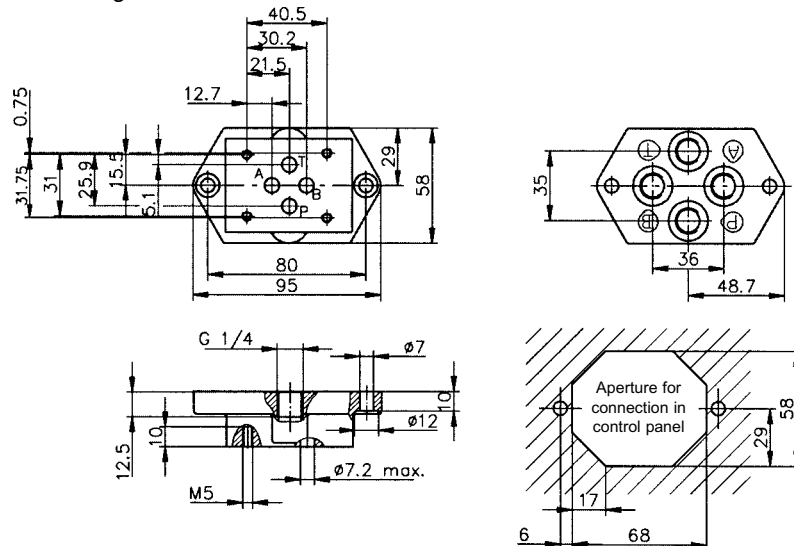
S 6 V ... M ...

S 6 VH ... M ...

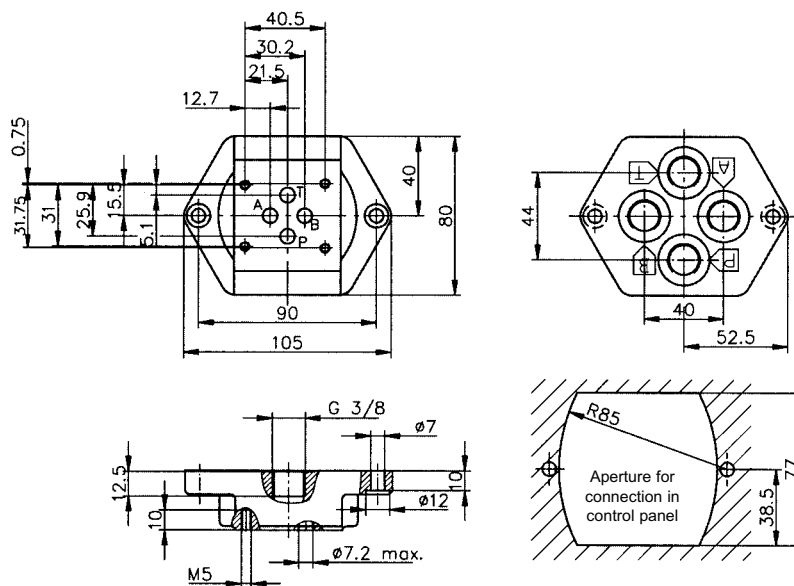


Subplates with interface according to DIN 24 340-A 6 and ISO 4401-AB-03-4-A

G 1/4

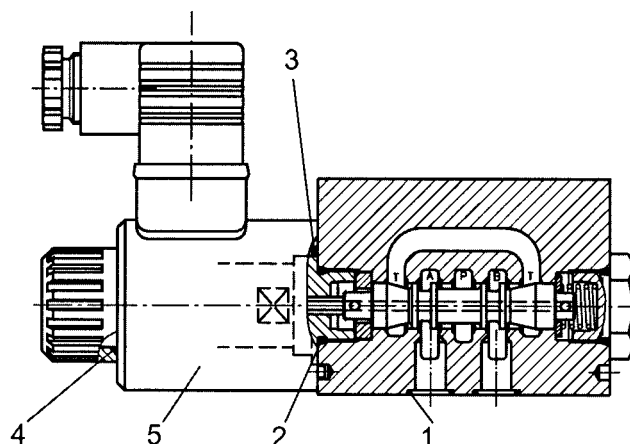


G 3/8



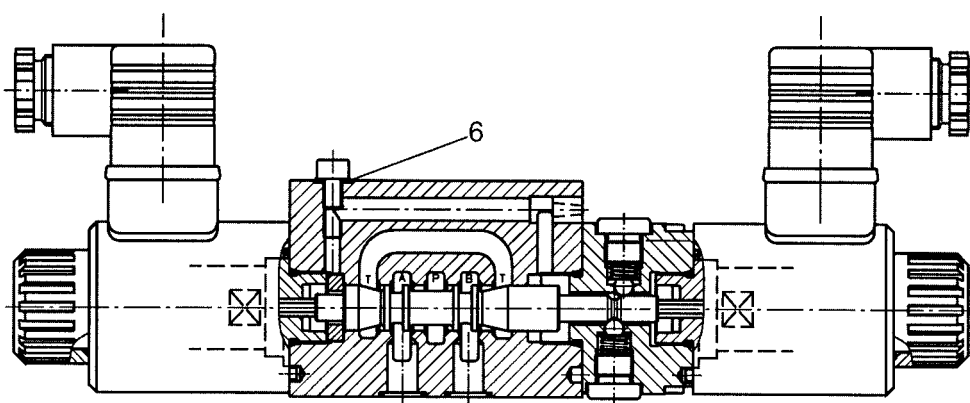
Spare parts drawing

S 6 V ...
S 6 VH ...



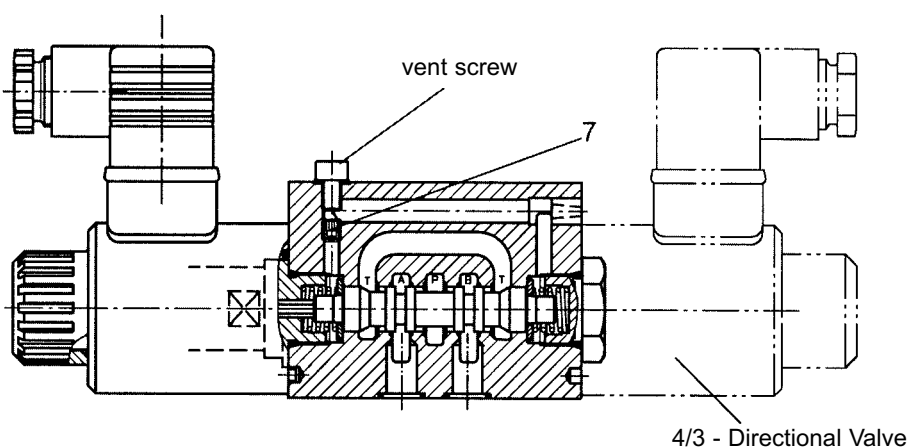
S 6 V ... M
S 6 VH ... M

with mechanical
detent



S 6 V ... C ...
S 6 VH ... C ...

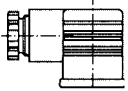
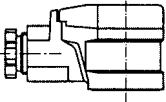
Switching time delay with
nozzle

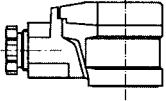
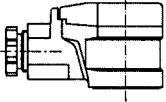


Spare parts (pieces)

Part	Designation	S 6 VH 10 ... S 6 VH 11 ...		S 6 VH 10 ... M ... S 6 VH 11 ... M ...		S 6 VH 10 ... C ... S 6 VH 11 ... C ...	
		pcs	spare part kit	pcs	spare part kit	pcs	spare part kit
1	O-ring (9.2 x 1.8)	4	0615057	4	0615760	4	0615381
2	O-ring (17 x 2)	2		2		2	
3	O-ring (26.7 x 1.78)	2		2		2	
4	O-ring (22 x 1.5)	2		2		2	
5	DC solenoid (state voltage!)	1 or 2	7234	1 or 2	7234	1 or 2	7234
6	Sealing ring (U 5.7 x 9 x 1)	-		1		1	
7	Nozzle M 5 x 6 (0.5 mm)	-		-		1	

Electrical spare parts

Electrical connection, Symbol 10	Cat. No.
 Connector: Design A (grey) 0657859 Design B (black) 0570275	
Electrical connection, Symbol 11	Cat. No.
 Connector with rectifier insert 230V/50Hz Design A (grey) 0570322 Design B (black) 0570819	

Electrical connection, Symbol 12	Cat. No.
 Connector with rectifier insert 230V/50Hz and function indicator Design A (grey) 0571501 Design B (black) 0571502	
Electrical connection, Symbol 13	Cat. No.
 Connector with function indicator Design A (grey) 0570256 Design B (black) 0570818	

Commissioning

Turn out vent screw and fill in foam-free oil while valves is in neutral position. It is not necessary to remove the unit which may remain in pressurized condition. Pressurize Port P with approx. 5 br. Screw in vent screw (approx. 2 to 3 turns) and switch valve approx. 10 times. Turn out vent screw again and refill oil (with valve remaining in neutral position). Tighten vent screw when air bubbles are no longer visible. To ensure a proper function, the pressure space of the solenoid must be deaerated and filled with oil.

Notes:

Directional Control Valves

Size 6



**Systemtechnik
GmbH**

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

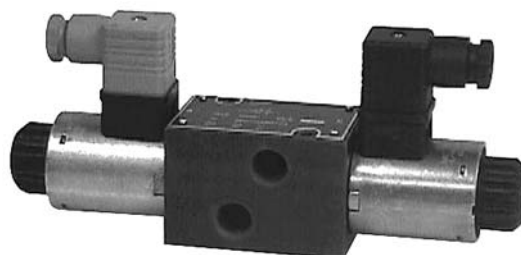
The directional control valves can be actuated either electromagnetically, electropneumatically, hydraulically, pneumatically, mechanically or by spring.

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

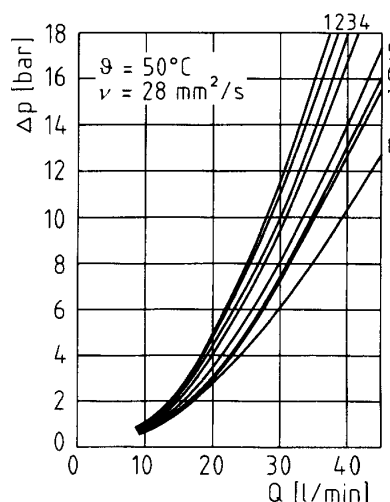
Operating pressure range	p_e max.	[bar]
at port P, A, B	... 315	
at port T	... 160	
Pressure fluid temperature	ϑ_m max.	[°C]
	+ 70	
Viscosity range	ν	[mm ² /s]
	12 ... 500	
Flow	Q_{max}	(l/min)
	See characteristic curve	
Filtering	Oil class according to ISO 4406: 18/15	

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]
(other voltages available on request)	Standard voltages 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

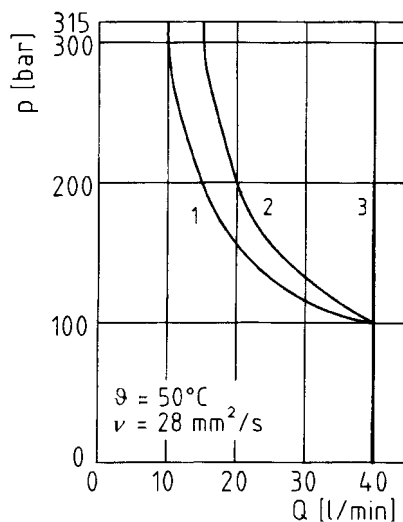
Symbol	Flow direction				
	P-A	P-B	A-T	B-T	P-T
001	5	5	-	-	-
008	6	6	3	3	-
009	5	5	4	4	-
013	3	3	1	1	8
019	7	7	2	2	-
020	7	7	2	2	-



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)

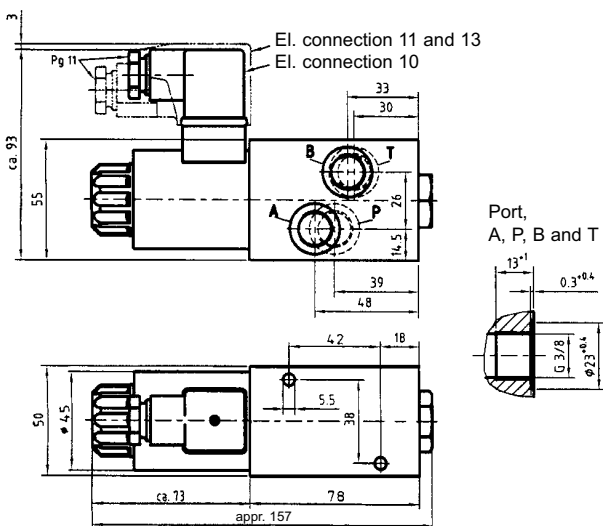
Symbol	Symbol No.	Overlap	Actuation	Dimensional drawing	Spare part drawing	Electrical connection	Line connection	Voltage	Type	Cat. No.
										Valve Sole-noid
	001 ¹⁾	+	Solenoid actuated pressure tight	01	01	No. 10: Plug socket to DIN 43650 (Pg 11) on solenoid or No. 11: Plug socket to DIN 43650 (Pg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

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

Dimensional drawings

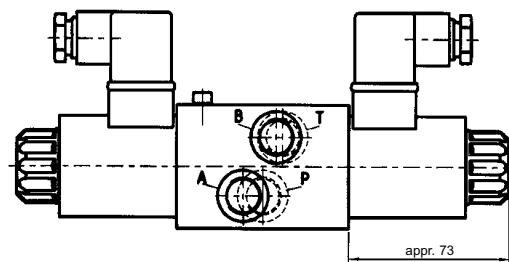
S 6 VH 10
S 6 VH 11

01



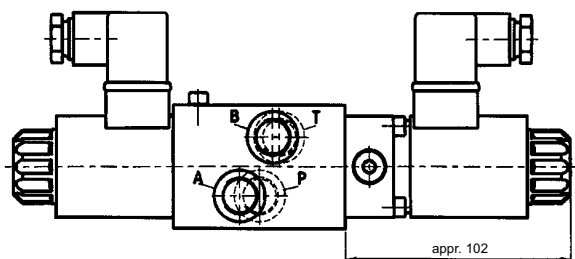
S 6 VH 10
S 6 VH 11

02



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

03



Spare parts drawings

S 6 VH 10

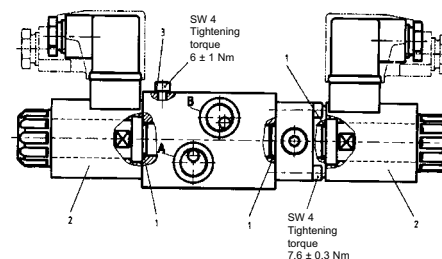
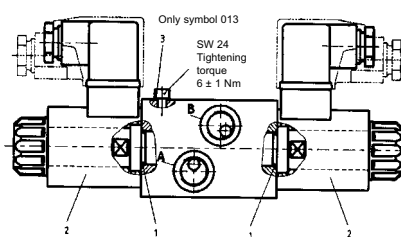
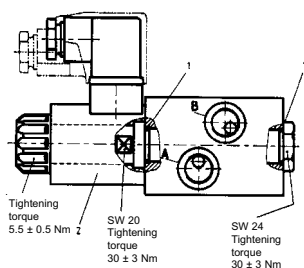
S 6 VH 11

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	0656553
90 to 130 V AC or 100 to 130 V DC	
150 to 250 V AC/DC	0656552
Design B (black) Connector + lamp	
15 to 30 V DC	0570818
15 to 60 V AC	0570816
90 to 130 V AC or 100 to 130 V DC	
150 to 250 V AC/DC	0570817

Directional control valves



**Systemtechnik
GmbH**

Size 6
direct controlled
with inductive switching position monitoring
inductive limit switch
Interface to DIN 24 340 and ISO 4401



PN [p_{max.}] = 315 bar

7501294.06.03.05

Description (standard units)

Design

These directional control valves are based on the **5-chamber system**, and are designed in the form of spool valves. A spool of hardened steel slides in an housing made of high-strength cast iron. The units are therefore suitable for rough operating conditions. The switch contact at the end positions of the spool can be used, for example, for acknowledgements in safety circuits. When the selected switching position is reached, a pin which is rigidly connected to the steel spool enters the electrical field created by the electronic limit switch. The signal thus produced represents an acknowledgement from the spool.

Actuation

The directional control valves are actuated electro-magnetically and by means of a spring.

Mounting

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

Line connection

Subplate, hole pattern to DIN 24340 - A6 and ISO 4401 - AB - 03 - 4 - A.



Features

- Good guidance of the spool - this means reliable switching, even with long rest periods
- Axial forces acting on the spool are reduced by an amount equal to the pulse forces encountered in the 3-chamber system and caused by the uncompensated ring surfaces in this system
- Increased degree of safety, thanks to the electrical switching positions monitoring

Type code

Directional control valve

S	6	...	...	G	...	...	...	...	...
		1	2		3	4	5	6	7

- 1 Actuation: **VH** – DC solenoid, pressure-tight with manual override
V – DC solenoid, pressure-tight without manual override
- 2 Electrical connection: **10** – Connector Pg 11 to DIN 43650 on solenoid
11 – Connector Pg 11 with rectifier insert on solenoid
13 – Connector Pg 11 with function indicator on solenoid
- 3 Symbol: **001** – See type survey
- 4 Code: **210** – limit switch on side b position a monitored
216¹⁾ – 2 limit switches on sides a and b position a and b monitored

- 4 Code: **217** – limit switch on side b spring returned position a or b monitored
220 – limit switch on side b position b monitored
222 – limit switch on side a mechanical detent position a monitored
223 – limit switch on side a mechanical detent position b monitored
- 5 Engineering version: **6** – Wet solenoid provided with central thread
- 6 Additional data: **O** – Standard design
M – Mechanical detent
- 7 Sealing material: **V** – FKM (e.g. Viton)

Type code

Subplate

P	S	6	G	...	...	...	O	O
				1	2	3		

1 Line connection: **2** - G 1/4 (Internal thread
 3 - G 3/8 to DIN ISO 228/1)

2 Code: **024** - G 1/4
 001 - G 3/8

3 Engineering version: **2**

Parameters

Type designation	S 6 V 10 G ...	S 6 VH 10 G ...	S 6 VH 11 G ...
------------------	----------------	-----------------	-----------------

General parameters

Designation	Directional control valve		
Symbol	See type survey		
Design	Spool-type valve		
Type of mounting	Flange		
Line connection	Subplate		
Mounting position	Preferably horizontal		
Weight		[kg]	
	1 actuator		2,1
	2 actuators		3,1
Weight of subplate		[kg]	
	G 1/4		0,7
	G 3/8		1
Ambient temperature range	ϑ_u	[°C]	-20 ... +50
Size		NG	6

Hydraulic parameters

Operating pressure range	p_e	[bar]	
at port P, A, B			... 315
at port T			... 50
Pressure fluid temperature	ϑ_m max.	[°C]	+70
Viscosity range	ν	[mm²/s]	12 ... 500
Flow	$Q_{max.}$	[l/min]	See characteristic curve
Filtration	Oil purity class to ISO 4406: 18/15		

Other parameters

Manual override		no	yes
Switching times	t approx.	[ms]	
	t_{on}		50 ... 80
	t_{off}		30 ... 55
Approx. number of switchings/h	15000		
Rated voltage	U_N	[V] DC	24 ±10%
			AC 230 V 50 HZ +5%-10%
			Other voltages available on request
Power consumption	P_{N20}	[W]	31
Duty cycle	ED_{rel}	[%]	100
Degree of protection for solenoid and electrical connection to DIN 40050	IP 65		

Parameters

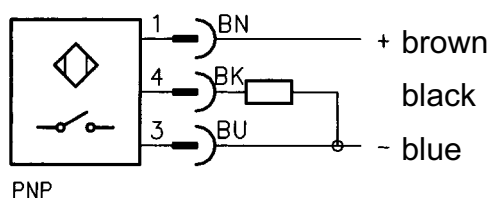
Type designation	S 6 V 10 G ...	S 6 VH 10 G ...	S 6 VH 11 G ...
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Electrical parameters (electronic limit switch)

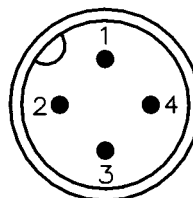
Electronical limit switch M 12 x 1			PNP output/active area green/loose cable end
Rated operational voltage	U_e	[V] DC	24
Supply voltage	U_B	[V] DC	10 ... 30
Voltage drop	U_d at I_e	[V]	$\leq 1,5$
Rated operational current	I_e	[mA]	200
Protection against polarity reversal			yes
Short circuit protected/overload protected			yes / yes
Load capacitance		[μ F]	$\leq 1,0$
Degree of protection per IEC 529			IP 68 to BWN Pr. 20 (IP 67 connector kompl.)
Connection			Connector
pressure rated up to		[bar]	50

Electrical parameters (electronic limit switch)

Wiring diagram



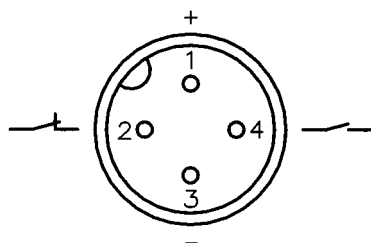
Pin assignment limit switch



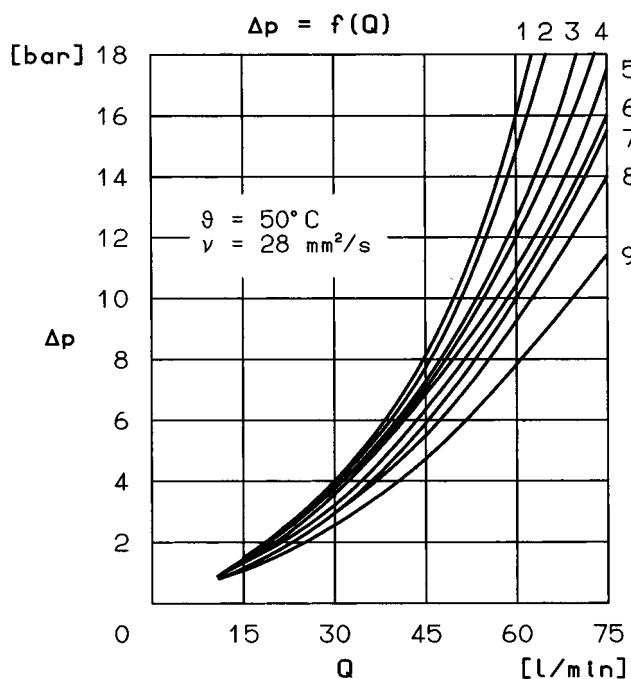
Electrical parameters (electronic limit switch)

Connector type	angle, female, 4-pin
Cable gland	Pg 7, cable $\varnothing$ 4 to 6 mm
Degree of protection	IP 67
Indicator LED	yes (2)
- Power on	green
- Function	yellow

Pin assignment connector



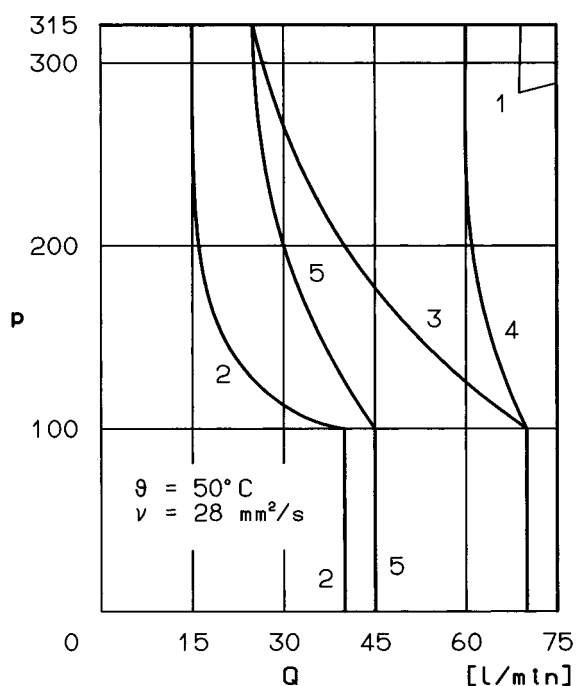
Characteristic curves



Symbol	Flow direction				
	P-A	P-B	A-T	B-T	P-T
001	7	7	-	-	-
003	8	8	3	3	-
008	8	8	6	6	-
009	5	5	9	9	-
010	9	9	4	4	-
013	5	5	4	4	2
019	5	5	1	1	-
020	5	5	1	1	-
039	5	5	1	1	-
044	7	7	-	-	-
138	-	7	1	-	-
230	5	-	-	6	-
231	-	5	4	-	2

Power limits

Maximum valves 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. Further valves with different switching symbols available on request.



Symbol	Characteristic curve
001	2
003	4
008	1
009	3
010	4
013	5
019	1
020	1
039	1
044	2
138	4
230	4
231	5

Type survey (standard versions)

Läufer-Nr.	Symbol ¹⁾	Symbol-No.	Overlap	Actuation	Electrical connection	Line connection	Voltage	Type	Cat-No.		
									Valve	Solenoid	
210		001 ²⁾	+	Solenoid-actuated, pressure-tight	No. 10: Connect or to DIN 43650 (Pg 11) mounted on solenoid	Subplate G 1/4 P S 6 G 2 024 2 O O Cat. No. 1065173	VDC	S6VH10 G 001 210 6 O V	5205076.7234		
		020	+				VDC	S6VH10 G 020 210 6 O V	5205042.7234		
		039	+				VDC	S6VH10 G 039 210 6 O V	5205160.7234		
		138	+		VDC	S6V10 G 138 210 6 O V	5205151.7238				
216		008	+		No. 11: Connect or to DIN 43650 (Pg 11) with rectifier insert mounted on solenoid	No. 13: Connect or to DIN 43650 (Pg 11) with function indicator mounted on solenoid	Subplate G 3/8 P S 6 G 3 001 2 O O Cat. No. 1065183	VDC	S6VH10 G 008 216 6 O V	5205196.7234	
		020	+					VDC	S6VH10 G 020 216 6 O V	5205046.7234	
		011	-					VDC	S6VH13 G 011 216 6 O V	5205106.7234	
		013	-					VDC	S6VH10 G 013 216 6 O V	5205098.7234	
217		020	+					VDC	S6VH11 G 020 217 6 O V	5205122.7234	
								VDC	S6VH10 G 020 217 6 O V	5205045.7234	
		044 ²⁾	+					VDC	S6V10 G 044 217 6 O V	5205095.7238	
		138	+					VDC	S6V10 G 138 217 6 O V	5205096.7238	
		230	-					VDC	S6VH10 G 230 217 6 O V	5205157.7234	
		231	-					VDC	S6VH10 G 231 217 6 O V	5205158.7234	
220		008	+							VDC	S6V10 G 008 220 6 O V
222		019	+				VDC	S6VH10 G 019 222 6 M V	5205129.7234		
223		019	+				VDC	S6VH10 G 019 223 6 M V	5205208.7234		

1) For other symbols, see Publication 7501292.

2) The T-port of the valve is used for leakage drain.

Ordering

The units are designed 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. Units with flanged connection are delivered complete with O-rings. The subplate and mounting bolts must be ordered separately.

Example of how to order

Wanted: 4/3-way directional control valve NG 6, 24 V DC. Electrical connection: Plug socket on solenoid, Symbol 020, switching position monitoring for 2 switching positions and associated subplate.

Directional control valve:

Type No.: S 6 VH 10 G 020 216 6 O V
Cat. No.: **5205046.7234**

Subplate:

Type No.: P S 6 G 2 024 2 O O
Cat. No.: **1065173**

Mounting bolt:

(4 ea. needed)
Cylinder bolts: (M 5 x 30 DIN 912-10.9)
Cat. No.: **0700387**

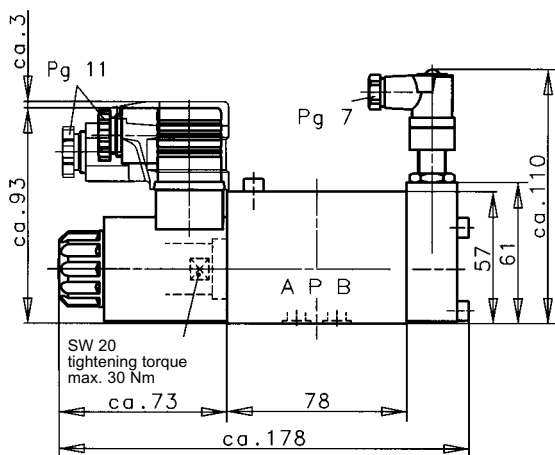
Dimensional drawings

Directional control valves

S 6 VH 10 ...

S 6 VH 11 ...

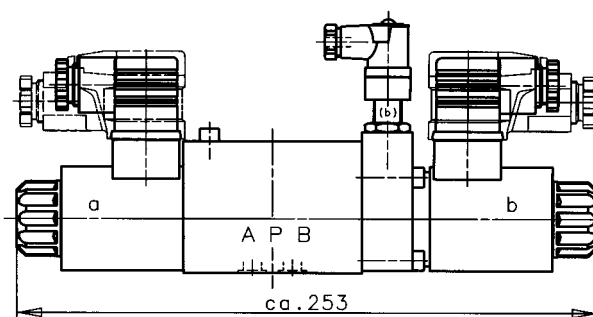
S 6 VH 13 ... code 210 and 217



S 6 VH 10 ...

S 6 VH 11 ...

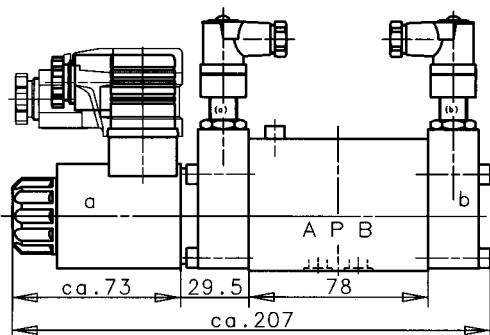
S 6 VH 13 ... code 220



S 6 VH 10 ...

S 6 VH 11 ...

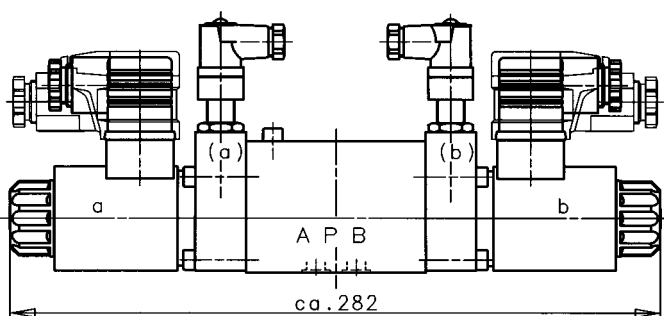
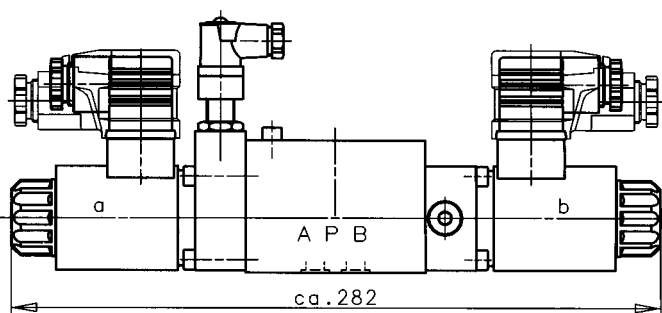
S 6 VH 13 ... code 216



S 6 VH 10 ... M

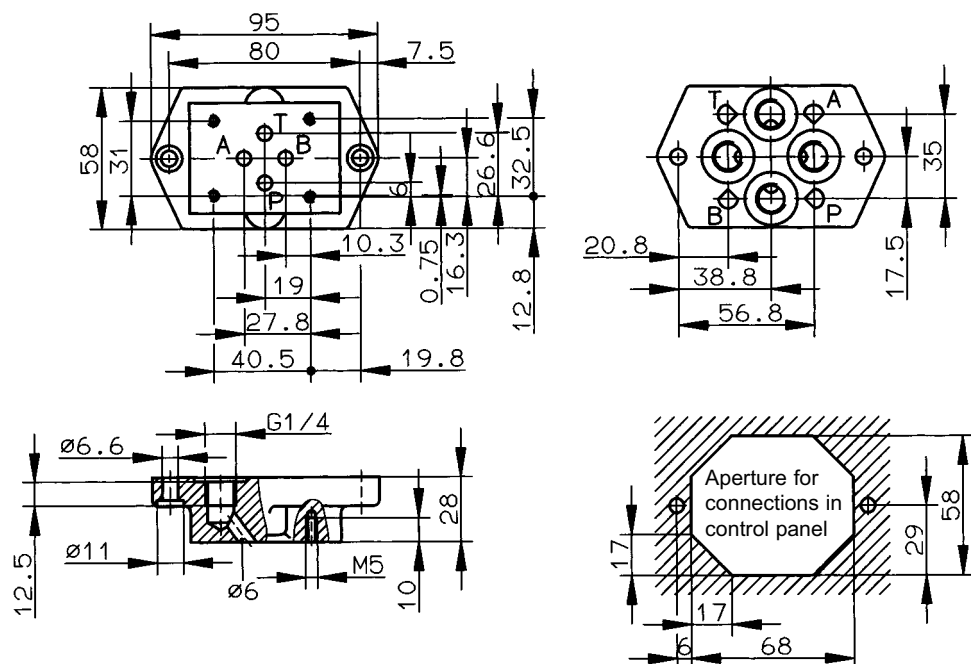
S 6 VH 11 ... M

S 6 VH 13 ... M with mechanical detent code 222 und 223

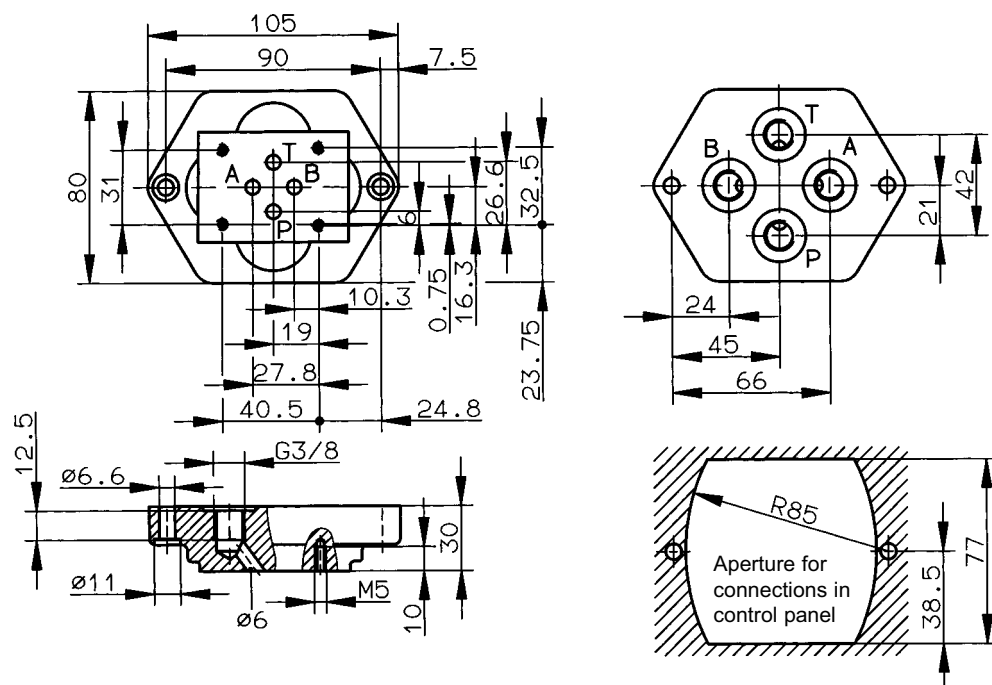


Subplate with hole pattern to DIN 24 340-A 6 and ISO 4401-AB-03-4-A

G 1/4



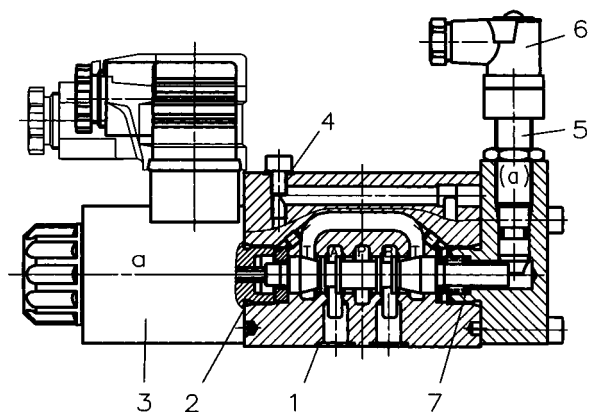
G 3/8



S 6 V ...

3/2-way directional control valve
4/2-way directional control valve

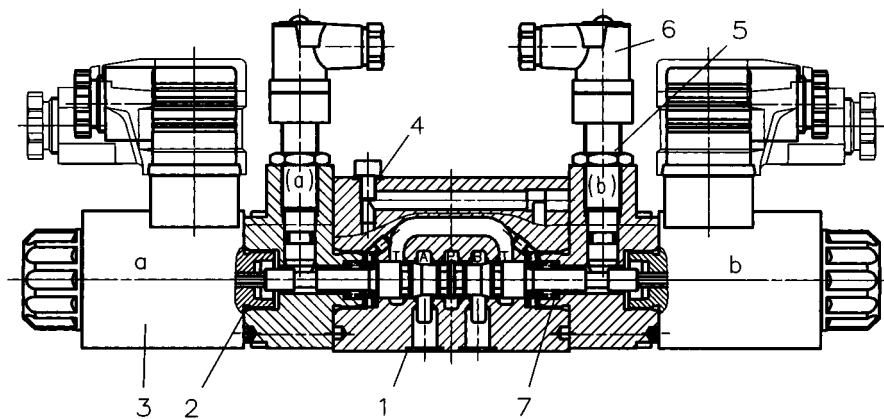
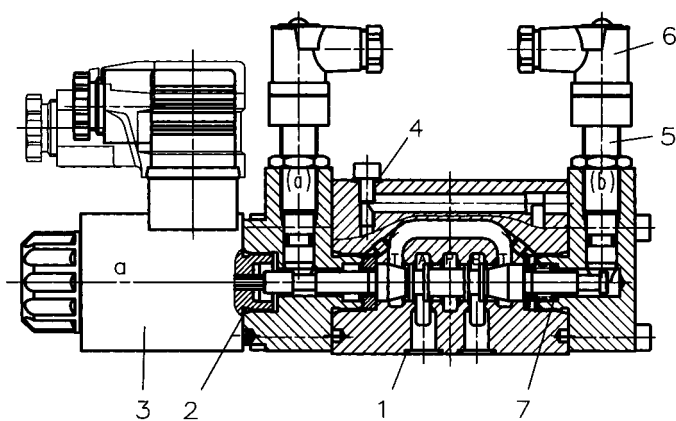
Code 210



S 6 V ...

4/2-way directional control valve
4/3-way directional control valve

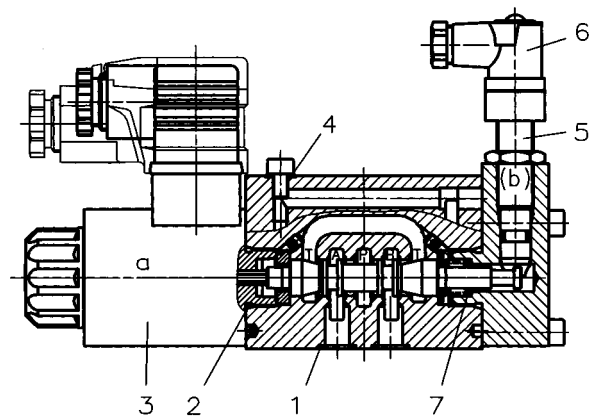
Code 216



S 6 V ...

4/2-way directional control valve
4/3-way directional control valve

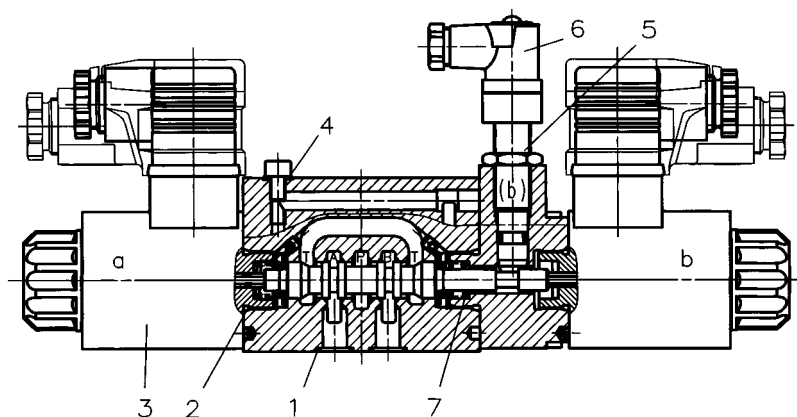
Code 217



S 6 V ...

4/3-way directional control valve

Code 220

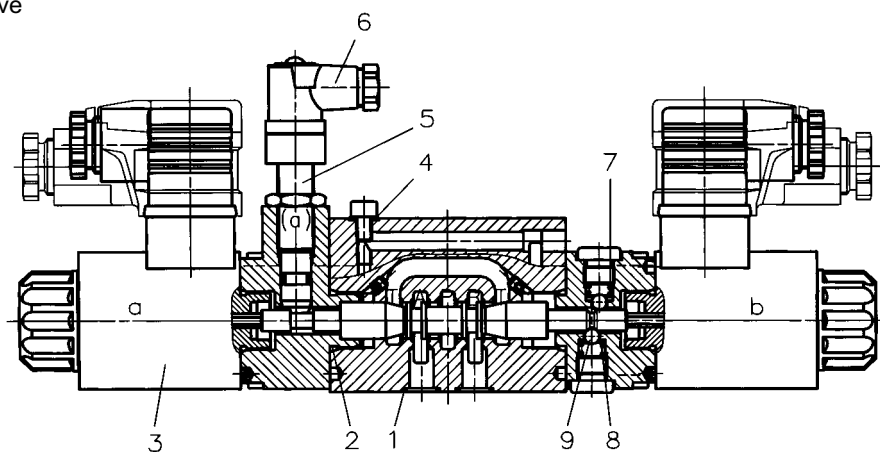


S 6 V ...

3/2-way directional control valve

4/2-way directional control valve
with mechanical detent

Code 222

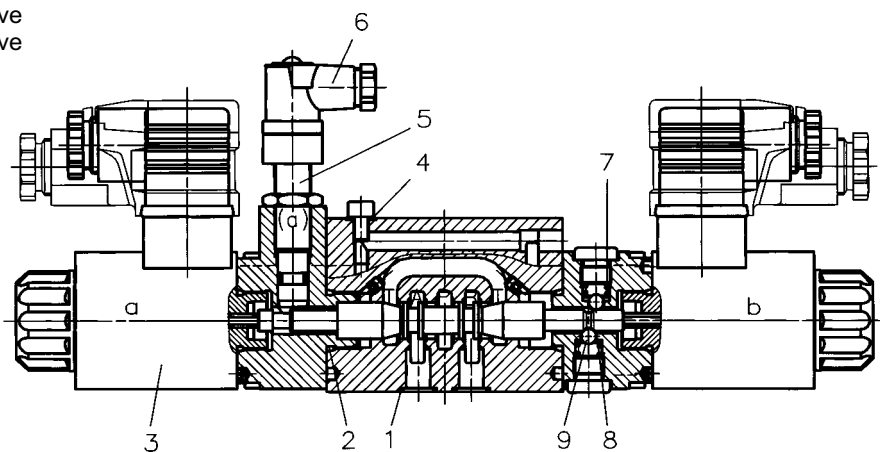


S 6 V ...

3/2-way directional control valve

4/2-way directional control valve
with mechanical detent

Code 223



Spare parts (Number of pieces)

Part	Designation	S 6 VH 10 ... S 6 VH 11 ... S 6 VH 13 ... Code 210 and 217	S 6 VH 10 ... S 6 VH 11 ... S 6 VH 13 ... Code 216	S 6 VH 10 ... S 6 VH 11 ... S 6 VH 13 ... Code 220	S 6 VH 10 ... S 6 VH 11 ... S 6 VH 13 ... with mechanical detent Code 222 and 223	Cat. No.
1	O-ring (9,2 x 1,8)	4	4	4	4	0701728
2	O-ring (16 x 2)	2	3 or 4	3	4	0661476
3	DC solenoid (state voltage)	1	1 or 2	2	2	7234¹⁾
3	For AC applications use DC solenoid with rectifier insert in connector (state voltage)	(Connector with rectifier insert see electrical spare parts)				7234¹⁾
4	Seal (U 5,7 x 9 x 1)	1	1	1	1	0660227
5	Inductive limit switch	1	2	1	1	0615392
6	Connector	1	2	1	1	0615517
7	Spring	1	1 or 2	2	-	0615050
7	Spring	-	-	-	2	0615763
8	Washer	-	-	-	2	0661509
9	Ball ø 5	-	-	-	2	0700753

Mounting bolts (valve) tightening torque $M_A = 7,6$ Nm

-	Cylinder bolt (M 5 x 30 DIN 912-10.9)	4	4	4	4	0700387
---	--	---	---	---	---	----------------

Electrical spare parts

1 set of spare parts consists of parts:	1,2 and 4	1,2 and 4	1,2 and 4	1,2 and 4	-
--	-----------	-----------	-----------	-----------	---

¹⁾ Solenoid without manual override Cat. No. **7238**

Directional control valves DN 10 (NG 10)



**Systemtechnik
GmbH**

Directly actuated
Interface to DIN 24 340 and ISO 4401

PN [p_{max.}] = 315 bar

7501296.06.08.05

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. Therefore the units are suitable for rough operating conditions.

Actuation

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

Mounting

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

Line connection

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



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.

Type key

Directional control valve

S	10	...	...	G	...	001	...	...	...
		1	2		3		4	5	6

- 1 Actuation: **VH** – DC-type solenoid, pressure-tight, with manual override
V – Without manual override
- 2 Electrical connection: **10** – Connector Pg 11 to DIN 43650 on solenoid
11 – Connector Pg 11 with rectifier insert on solenoid
12 – Connector Pg 11 with rectifier insert and function indicator on solenoid
13 – Connector Pg 11 with function indicator on solenoid
- 4 Engineering version: **6** – Wet solenoid provided with central thread
- 5 Additional data: **O** – Standard design
M⁽¹⁾ – Mechanical detent
C⁽²⁾ – Switching delay by means of nozzle
- 6 Sealing material: **V** – FKM (e.g. Viton)

⁽¹⁾ 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.

⁽²⁾ Port T of valves with a delayed switching time, must be pressurized with approx. 5 bar.

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

3 Symbol

Symbol	Symbol No.	Overlap	Symbol	Symbol No.	Overlap
	001 ⁽³⁾	+		031 ⁽³⁾	+
	003	-		038	+
	020	+		035	+
	004	+		002	-
	005	+		008	+
	044 ⁽³⁾	+		009	+
	039	+		010	+
	021 ⁽³⁾	+		011	-
	019	+		013	-
	025	+		016	+

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Type key

Subplate

P	S	10	G	...	001	...	O	O
				1		2		

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

- 2 Code: **2**

Parameter to VDI 3267

Type designation	(Actuation)	V(H) 10	V(H) 11
------------------	-------------	---------	---------

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		7,3
Weight of subplate	G 1/2	[kg]	2
	G 3/4		3,4
Ambient temperature range	ϑ_u	[°C]	-20 to +50
Size	DN		10

Hydraulic parameters

Operating pressure at port P, A, B	p_e max.	[bar]	up to 315
at port T			up to 160
Pressure fluid temperature	ϑ_m max.	[°C]	+70
Viscosity range	ν	[mm²/s]	12 to 500
Flow	Q_{max}	[l/min]	See characteristic curves
Filtration	Oil purity class to ISO 4406: 18/15		

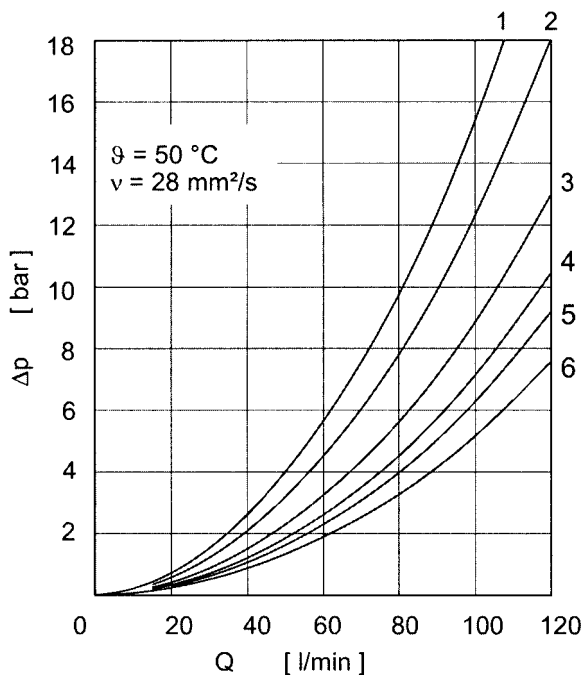
Further parameters

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	U_N	[V]	Standard voltages
Connector input			24 VDC
			$\pm 10\%$
			230 VAC / 40 ... 60 Hz ¹⁾
			+5%/-10%
			Further voltages on request
Power consumption	P_{20}	[W]	42
Duty cycle		[%]	100
Degree of protection for solenoid and electrical connection to DIN 40050	IP 65		

¹⁾ DC-type coil 205V and connector with rectifier

Characteristic curves

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

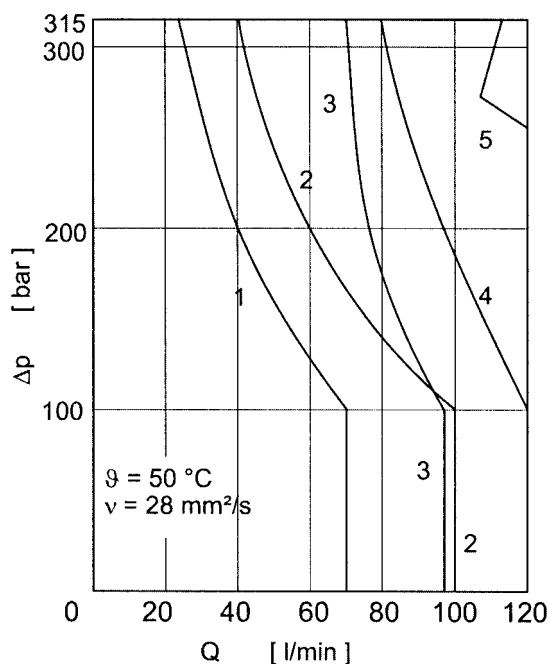


Symbol	Flow direction				
	P-A	P-B	A-T	B-T	P-T
001	6	6	-	-	-
003	6	6	4	4	-
008	6	6	5	5	-
009	6	6	3	3	-
013	4	4	3	2	1
019	6	6	4	4	-
020	6	6	4	4	-

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. The catalog number of these devices you will get on request. Flanges valves are provided with O-rings and connector (type 10 or 11, Page 2). Subplate and mounting screws must be ordered separately.

Power limits



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. Further valves with different switching symbols available on request.

Example of order

Wanted: 4/3 directional control valve DN 10, 24 VDC, connector on solenoid, Symbol 008, along with corresponding subplate G 1/4.

Directional control valve:

Type No.: S 10 VH 10 G 008 001 6 O V
Cat. No.: **5204819.7908**

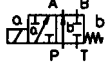
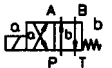
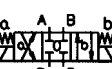
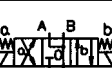
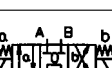
Subplate:

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

Mounting screws: (4 pcs. required)

Socket-head screw: (M 6 x 60 DIN 912-10.9)
Cat. No.: **0700416**

Type survey (standard versions)

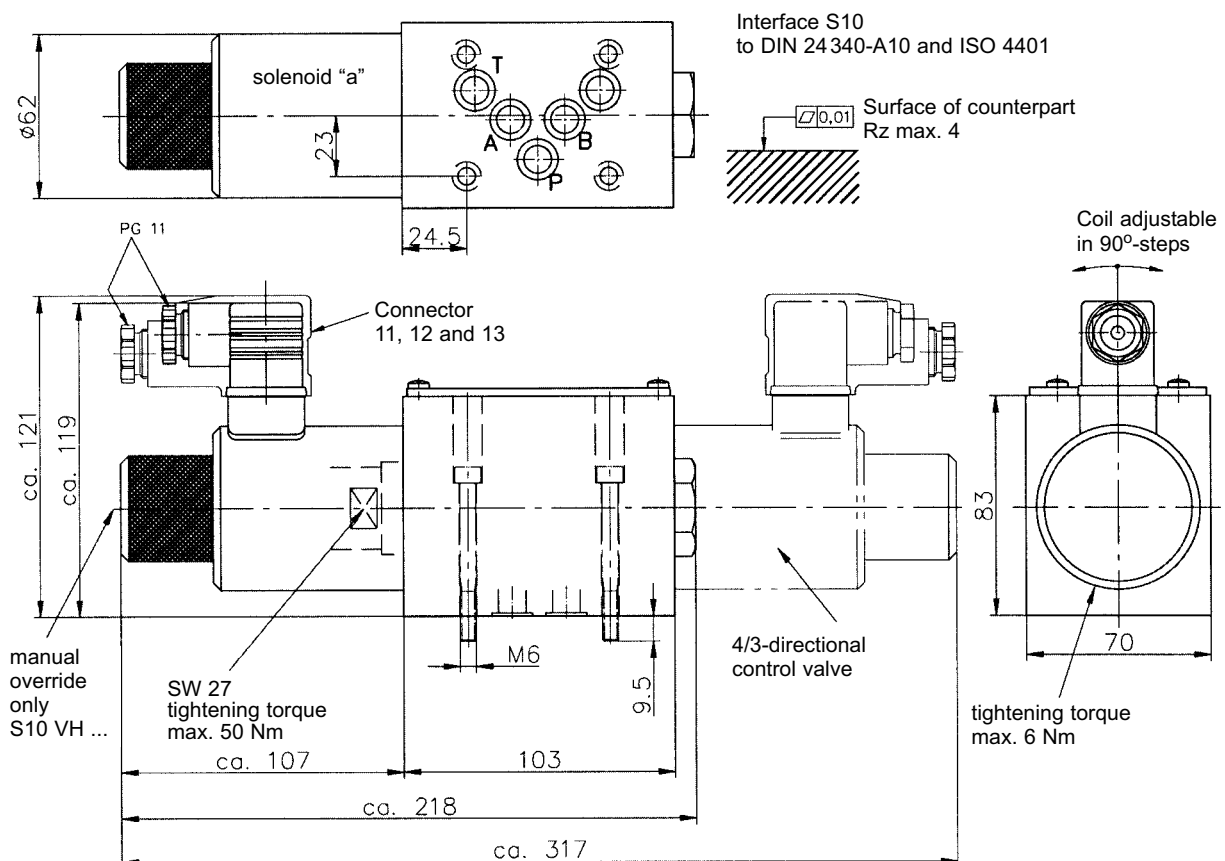
Symbol	Symbol-No.	Overlap	Actuation	Electrical connection	Line connection	Voltage	Type	Cat. No.	
								Valve	Solenoid
	001 ¹⁾	++	Solenoid-actuated, pressure-tight or No. 11 Connector to DIN 43650 (Pg 11) with rectifier insert mounted on solenoid	No. 10 Connector to DIN 43650 (Pg 11) mounted on solenoid or No. 11 Connector to DIN 43650 (Pg 11) with rectifier insert mounted on solenoid	Subplate G 1/4 P S 10 G 4 001 2 O O Cat. No. 1065184 Subplate G 3/4 P S 10 G 5 001 2 O O Cat. No. 1065185	VDC VAC	S10VH10 G 001 001 6 O V S10VH11 G 001 001 6 O V	5204867.7908	5204941.7908
	003	-						S10VH10 G 003 001 6 O V S10VH11 G 003 001 6 O V	5204869.7908 5204940.7908
	020	++						S10VH10 G 020 001 6 O V S10VH11 G 020 001 6 O V	5204820.7908 5204961.7908
	019	++						S10VH10 G 019 001 6 M V S10VH11 G 019 001 6 M V	5204963.7908 5204964.7908
	008	++						S10VH10 G 008 001 6 O V S10VH11 G 008 001 6 O V	5204819.7908 5204962.7908
	009	++						S10VH10 G 009 001 6 O V S10VH11 G 009 001 6 O V	5204927.7908 5204943.7908
	013	-						S10VH10 G 013 001 6 O V S10VH11 G 013 001 6 O V	5204933.7908 5204949.7908

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

Dimensional drawings (mm)

Directional control valves

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

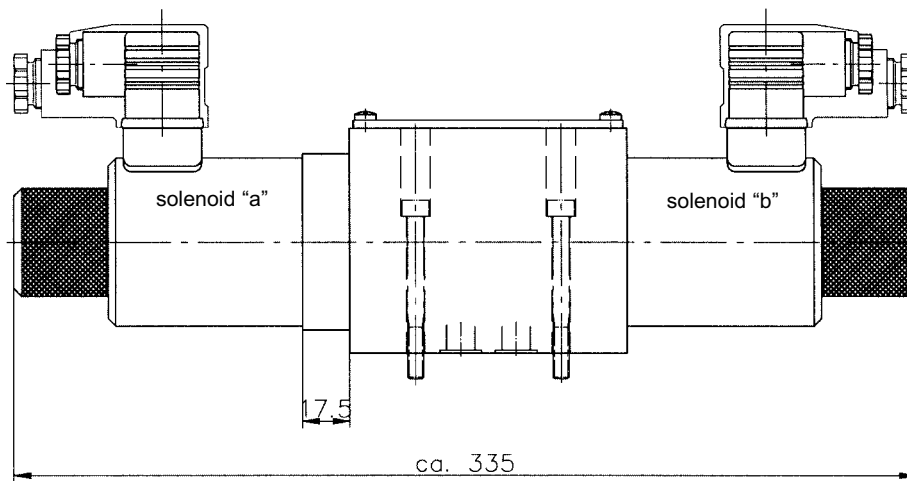


Dimensional drawings (mm)

Directional control valves

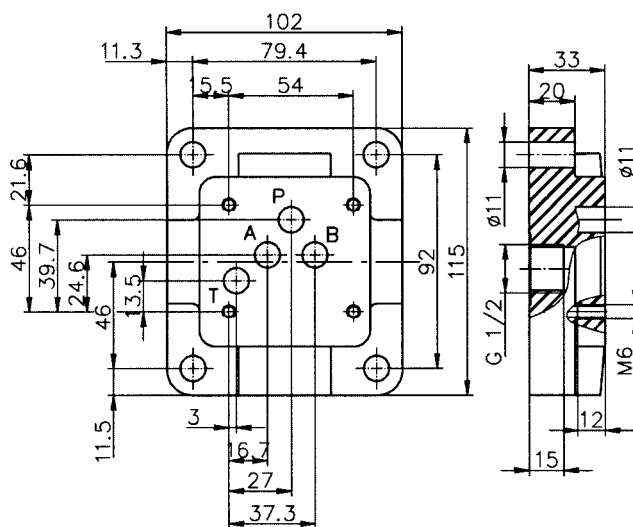
S 10 V ... M ...

S 10 VH ... M ...

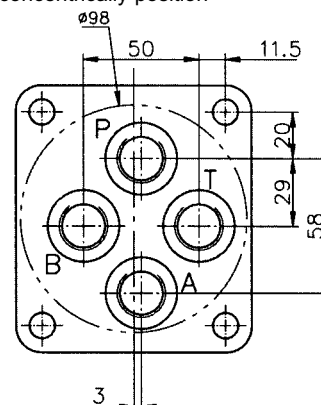


Subplates with interface according to DIN 24 340-A 10 and ISO 4401-AC-05-4-A

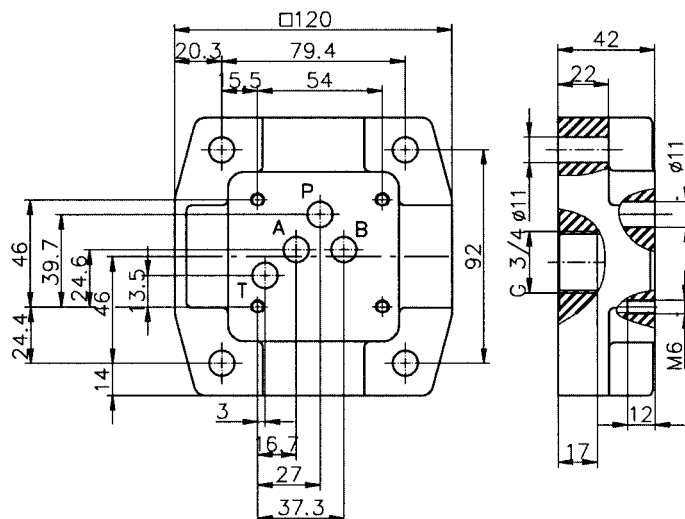
G 1/2



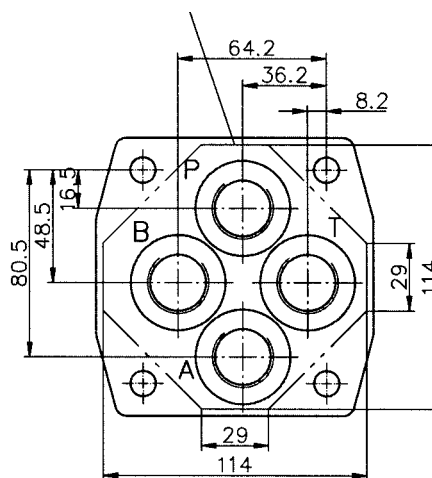
Aperture for connection in control panel
concentrically position



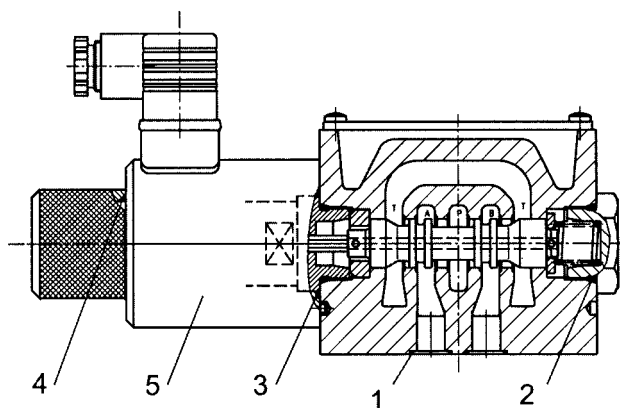
G 3/4



Aperture for connection in control panel

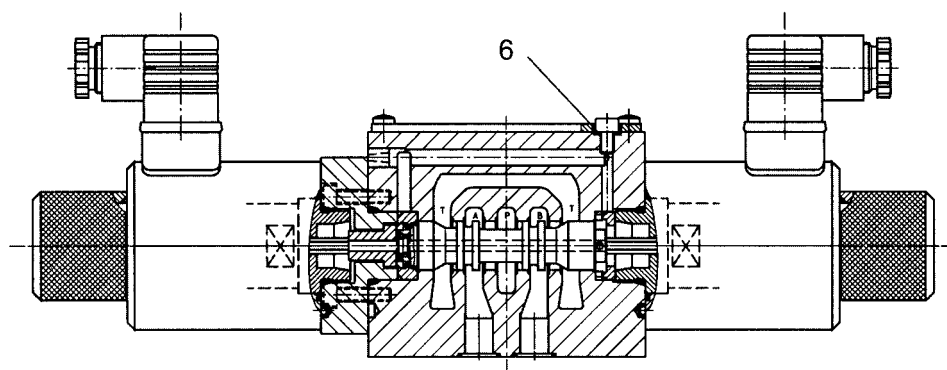


S 10 V ...
S 10 VH ...



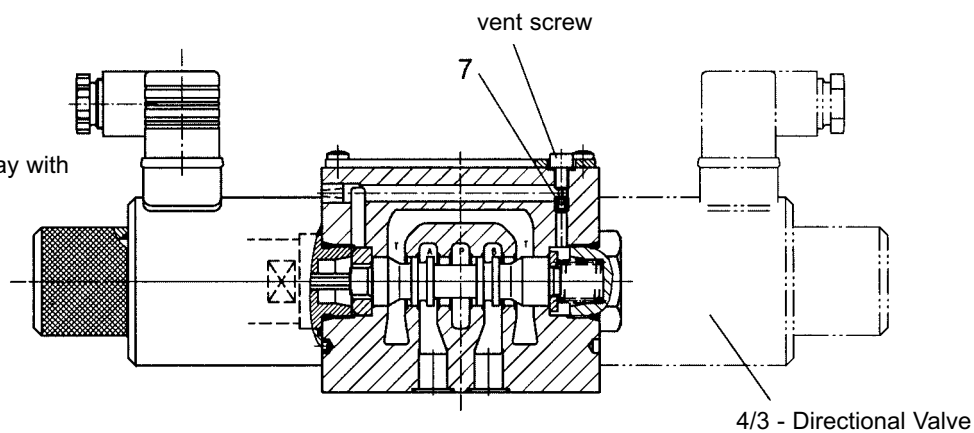
S 10 V ... M
S 10 VH ... M

with mechanical
detent



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

Switching time delay with
nozzle

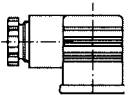
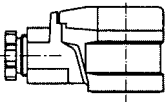


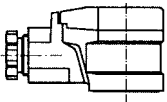
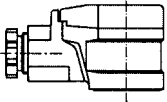
Spare parts (pieces)

Part	Designation	S 10 V ... S 10 VH ...		S 10 V ... M ... S 10 VH ... M ...		S 10 V ... C ... S 10 VH ... C ...	
		pcs	spare part kit	pcs	spare part kit	psc	spare part kit
1	O-ring (12,4 x 1,78)	5	0615125	5	0615739	5	0615739
2	O-ring (23,5 x 2,6)	2		3		2	
3	O-ring (36 x 2)	2		2		2	
4	O-ring (31,5 x 1,8)	2		2		2	
5	Coil 24 V DC	1 or 2	06174530000024	1 or 2	06174530000024	1 or 2	06174530000024
	Coil 205 V DC ¹⁾		061745300000205		061745300000205		061745300000205
6	Sealing ring (U 5,7 x 9 x 1)	-		1		1	
7	Nozzle M 5 x 6 (0,8 mm)	-		-		1	

¹⁾ with connector with rectifier for AC 230V/50 Hz

Electrical spare parts

Electrical connection, Symbol 10	Cat. No.
 Connector Design A (grey) 0657859 Design B (black) 0570275	
Electrical connection, Symbol 11	Cat. No.
 Connector with rectifier insert 230V/50Hz Design A (grey) 0570322 Design B (black) 0570819	

Electrical connection, Symbol 12	Cat. No.
 Connector with rectifier insert 230V/50Hz and function indicator Design A (grey) 0571501 Design B (black) 0571502	
Electrical connection, Symbol 13	Cat. No.
 Connector with function indicator Design A (grey) 0570256 Design B (black) 0570818	

Commissioning

Turn out vent screw and fill in foam-free oil while valves is in neutral position. It is not necessary to remove the unit which may remain in pressurized condition. Pressurize Port P with approx. 5 br. Screw in vent screw (approx. 2 to 3 turns) and switch valve approx. 10 times. Turn out vent screw again and refill oil (with valve remaining in neutral position). Tighten vent screw when air bubbles are no longer visible. To ensure a proper function, the pressure space of the solenoid must be deaerated and filled with oil.

Notes:

Directional control valves DN 10 (NG 10)



**Systemtechnik
GmbH**

**Directly actuated
with switching position monitoring
Interface to DIN 24 340 and ISO 4401**

7501297.06.08.05

Description (standard units)

Design

These directional control valves are based on the **5-chamber system**, and are designed in the form of spool valves. A spool of hardened steel slides in an housing made of high-strength cast iron. Therefore the units are suitable for rough operating conditions. Depending on the design of the device the end switching position of the spool is monitored via inductive or mechanical proximity switches.

Actuation

The directional control valves are actuated electromagnetically and by means of a spring or operated by hand lever.

Mounting

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

Line connection

Subplate, hole pattern to DIN 24340 - A10 and ISO 4401-AC-05-4-A.



Features

- Valves with Viton seals standard
- Leakage port on request
- Via drain of leakage oil into spring space (additional hole in housing and subplate is needed - not included in international standard subplate) the port T can be pressurized up to p_{max} , what leads to a larger range of application
- Good guidance of the spool - this means reliable switching, even with long rest periods

Type code

Directional control valve

S	10	...	...	G	...	...	...	...	...
		1	2		3	4	5	6	7

- 1 Actuation:
- G** – DC solenoid (with dry operation system) with manual override
 - B** – DC solenoid (with dry operation system) without manual override
 - V** – DC solenoid, pressure-tight without manual override
 - VH** – DC solenoid, pressure-tight with manual override
 - H** – manually operated

2 Electrical connection:

Actuation	Code Number	Symbol	Description
G, B	10		Connector Pg 11 to DIN 43 650 on solenoid
G, B	56		Connector (Tuchel) at connection box

- 3 Symbol: **020** – See type survey
- 4 Code: **Mechanical end switch**
- 039** – Position monitoring of switching position directly at spool, 1 end switch. Electrical connection: Tuchel-connector
 - 061** – Position monitoring of 3 switching positions at the solenoid, 3 end switches. Electrical connection: Harting-connector R 15

4 Code:

- 066** – Position monitoring of 2 switching positions at the solenoid, 2 end switches. Electrical connection: Tuchel-connector

Inductive proximity switches

- 221** – Position monitoring of 1 switching position switch at side b → spool position b damped switch at side a → spool position a damped with 4/3-directional control valves spool position 0 damped
- 222** – Position monitoring of 2 switching positions 1 switch at side a spool position a damped 1 switch at side b spool position b damped
- 224** – Position monitoring of 1 switching position (2 switches) spool position 0 damped
- 225** – Position monitoring of 1 switching position 1 switch at side b spool position a damped

5 Engineering version: **5**

6 Additional data: **O** – Standard design
M – Mechanical detent

7 Sealing material: **V** – FKM (e.g. Viton)

Subplate

P	S	10	G	...	...	...	...	O	O
				1	2	3			

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

2 Code: **001** – Standard design

3 Engineering version: **2**

Parameters according to VDI 3267

Type designation	G	B	VH	V
------------------	---	---	----	---

General parameters

Designation	Directional control valve		
Symbol	See type survey		
Design	Spool-type valve		
Type of mounting	Flange		
Line connection	Subplate		
Mounting position	Preferably horizontal		
Weight	1 actuator [kg]	7,2	6,5
	2 actuators	8,8	7,3
Weight of subplate	G 1/2 [kg]	2	
	G 3/4	2,7	
Ambient temperature range ϑ_u [°C]	–20 to +50		
Size	DN	10	

Type designation	G	B	VH	V
------------------	---	---	----	---

Hydraulic parameters

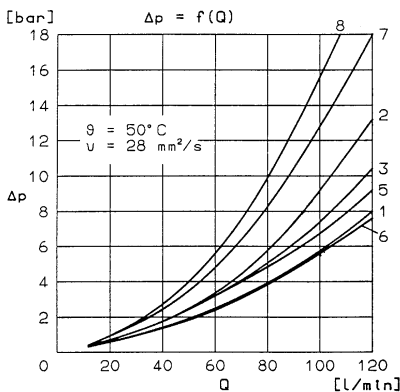
Operating pressure range p_e max. [bar]	... 315			
at port P, A, B	... 100			
at port T (without leakage port)	... 50 ²⁾			
at port T (with leakage port)	... 315 ¹⁾			
Pressure fluid temperature ϑ_m max. [°C]	+70			
Viscosity range ν [mm ² /s]	12 ... 500			
Flow Q_{max} (l/min)	See characteristic curve			
Filtration	Oil purity class to ISO 4406: 18/15			

Other parameters

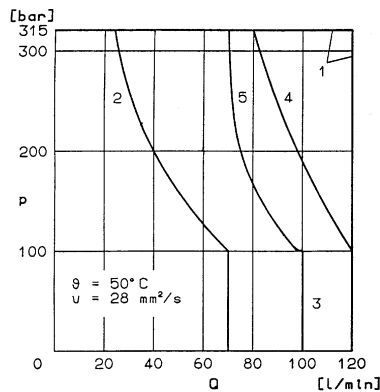
1) on request; 2) > 50 bar on request

PIN assignment for Tuchel-connection:			
Valve with 1 solenoid		Solenoid "a" at 1 and 2 or Solenoid "b" at 3 and 4 Ground wire at $\oplus$	—
Valve with 2 solenoids		Solenoid "a" at 1 and 2 Solenoid "b" at 3 and 4 Ground wire at $\oplus$	—
Switching times	t approx.	[ms]	
(measured at 315 bar,	t _{on}		70 ... 95 ¹⁾
60 l/min)	t _{off}		70 ... 80 ¹⁾
Approx. number of switchings/h			15.000 (3600 for symbol 039)
Rated voltage	U _N	[V]	DC 24 ± 10 % (Other voltages available on request)
Power consumption	P ₂₀	[W]	3642
Duty cycle	ED _{rel}	[%]	100
Degree of protection for solenoid and electrical connection to DIN 40 050			IP 54IP 65
Manual override			yesnoyesno

Characteristic curves: flow curves: $\Delta p = f(Q)$



Power limits Q_{max} :



Symbol	Flow direction				
	P-A	P-B	A-T	B-T	P-T
001	6	6	-	-	-
003	1	1	3	3	-
008, 004, 094	1	1	5	5	-
013	3	3	2	7	8
017	-	6	2	-	8
019	1	1	3	3	-
020, 039	1	1	3	3	-
177	1	1	3	-	-

Symbol	Characteristic curve
001, 117	2
003	4
008, 004, 094, 017, 019	1
013, 020, 039	5

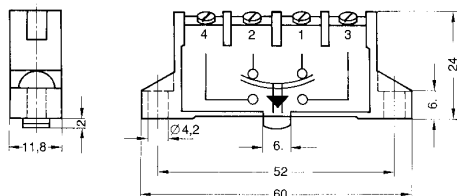
Electrical parameters and pin-plan (inductive proximity switches)

Code 039

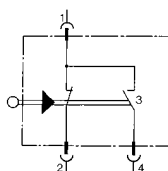
Precision switch according to DIN 43 695

Isolation		Group "C" according to VDE 0110
Nominal voltage	~[V]	250
Continuous current	[A]	6
Contact system		Dual-circuit directional contact with 2 galvanical and thermal separated contact bridges
Switching system		Snap system with friction contacts
Switching force	[N] max.	4,4
Reset force	[N] min.	1,3
Duration of bounce (at 10 mm/min contact velocity)	[ms]	≤ 1,5
Circuit time (at 10 mm/min contact velocity)	[ms]	≤ 10
Number of switching max. switching/min		300
mechanical at 1,6 switchings/s		> 50 million switching cycles (VDE 0660 E3)
electrical		dependance on load cycles/min
Reproduceability of switching point	[μm]	± 2
Allowable ambient temperature	t [°C]	– 30 ... + 90
Contact material		Fine silver, system gold plated
Contact arrangement normally closed contact		1 + 2
normally open contact		3 + 4

Dimensional drawing



Pin plan (switch with Tuchel connector)

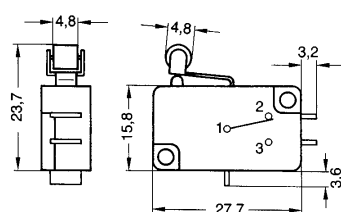


Code 061 und 066

Micro switch (mechanical end switch according to DIN 41 635)

Type	VCS
Directional contact	single line
Reset force [N] max.	1,1
Switching force [N] max.	3,3
Allowable ambient temperature t [°C]	– 20 ... + 85

Dimensional drawing



Switching performance

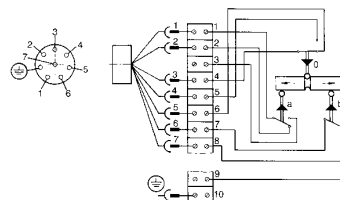
DC ===			AC ~		
Resistive load	24 V	6 A	Resistive load	125 V	10 A
	125 V	0,5 A		250 V	10 A
	250 V	0,25 A			
Inductive load	24 V	6 A	Inductive load	25 V	6 A
	125 V	0,07 A		125 V	0,07 A
	250 V	0,03 A		250 V	0,03 A

- 1 = common
- 2 = normally closed
- 3 = normally open

Pin plan (switch with Harting-connector R15)

Code 061

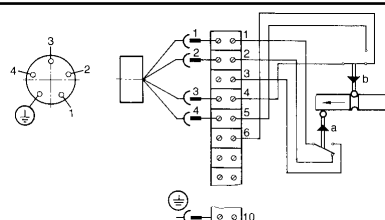
Valve with 3 switching positions



Pin plan (switch with Tuchel-connector)

Code 066

Valve with 2 switching positions



Electrical parameters and pin-plan (inductive proximity switches)

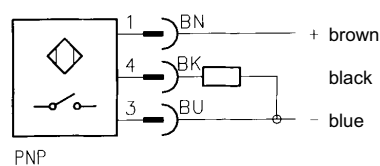
Code 221, 222, 224, 225

Inductive proximity switch (pressure tight)

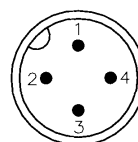
Inductive proximity switch M 12 x 1			PNP-normally opened
Rated voltage	U_e	[V] DC	24
Normal voltage	U_B	[V] DC	10 to 30
Voltage drop	U_D at I_e	[V]	$\leq 1,5$
Rated current	I_e	[mA]	200
Safety against reverse polarity			yes
Short circuit proof			yes / yes
Allowable load		[μ F]	$\leq 1,0$
Protection class according to IEC 529			IP 68 according to BWN Pr. 20 (IP 67 plug compl.)
Type of connection			Connector M 12 x 1
Pressure-tight up to		[bar]	50 at active face

Attention! Switches will be adjusted before delivery.

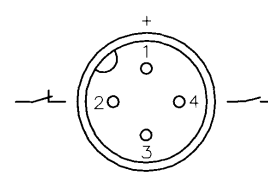
Circuit diagram



Pin assignment end switch



Pin assignment connector



Female connector M 12 x 1 incl. beard with LED

Type	angled connector 4 line
Wire pull relief	Pg 7 for wire $\varnothing$ 4 to 6 mm
Protection class	IP 67
LED-Indication	yes (2)
– Power on	green
– Function	yellow

Type survey (standard)

Code 039

Symbol ¹⁾	Symbol-No.	Overlap	Actuation	Dimensional drawing	Spare part drawing	Electrical connection (Solenoid)	Line connection	Voltage	Type	Cat. No.	
										Valve	Solenoid
	001 ⁵⁾	+	Solenoid-actuated, dry op. system	01	01	No. 10 Connector (Pg 11) to DIN 43650 on solenoid	Subplate G 1/2 P S 10 G 4 001 2 O O Cat. No. 1065184	VDC	S 10 G 10 G 001 039 5 OV	5205219.7623	
	003	+		01	01		Subplate G 3/4 P S 10 G 5 001 2 O O Cat. No. 1065185	VDC	S 10 G 10 G 003 039 5 OV	5205236.7623	
	020	+		01	01			VDC	S 10 G 10 G 020 039 5 OV	5205118.7623	
								VDC	S 10 B 10 G 020 039 5 OV	5205210.7624	

Code 061

	008	+	Solenoid-actuated, dry op. system	02	02	No. 56 Connector (Tuchel) at connection box	Subplate G 1/2 P S 10 G 4 001 2 O O Cat. No. 1065184	VDC	S 10 G 56 G 008 061 5 OV	5204988.9000 ²⁾	
	009	+		02	02		Subplate G 3/4 P S 10 G 5 001 2 O O Cat. No. 1065185	VDC	S 10 G 56 G 009 061 5 OV	5204989.9000 ²⁾	
	013	-		02	02			VDC	S 10 G 56 G 013 061 5 OV	5204990.9000 ²⁾	
								VDC	S 10 B 56 G 013 061 5 OV	5204991.9000 ³⁾	

Code 066

	001 ⁵⁾	+	Solenoid-actuated, dry op. system	03	03	No. 56 Connector (Tuchel) at connection box	Subplate G 1/2 P S 10 G 4 001 2 O O Cat. No. 1065184	VDC	S 10 G 56 G 001 066 5 OV	5205101.7639	
	003	-		03	03		Subplate G 3/4 P S 10 G 5 001 2 O O Cat. No. 1065185	VDC	S 10 G 56 G 003 066 5 OV	5205121.7639	
	020	+		03	03			VDC	S 10 G 56 G 020 066 5 OV	5205192.7639	
	019	+		04	02			VDC	S 10 G 56 G 019 066 5 MV	5204987.9000 ⁴⁾	

1) For other symbols, see Publication 7503297

2) Solenoid-Cat.- No. 9000 means: Solenoid a = 7637, Solenoid b = 7601

3) Solenoid-Cat.- No. 9000 means: Solenoid a = 7638, Solenoid b = 7605

4) Solenoid-Cat.- No. 9000 means: Solenoid a = 7639, Solenoid b = 7601

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

Type survey (standard)

Code-No.	Symbol	Symbol-No.	Overlap	Actuation	Dimensional drawing	Spare part drawing	Electrical connection (Solenoid)	Line connection	Voltage	Type	Cat. No.	
											Valve	Solenoid
221		001 ²⁾	+	Solenoid-actuated, pressure tight	05	04	No. 10 Connector (Pg 11) to DIN 43650 on solenoid	Subplate G 1/2 P S 10 G 4 001 2 O O Cat. No. 1065184 Subplate G 3/4 P S 10 G 5 001 2 O O Cat. No. 1065185	VDC	S 10 V 10 G 001 221 5 O V	5205145.7911	
		003	-		05	04			VDC	S 10 V 10 G 003 221 5 O V	5205080.7911	
		020	+		05	04			VDC	S 10 VH 10 G 003 221 5 O V	5205092.7908	
		004	+		05	04			VDC	S 10 VH 10 G 020 221 5 O V	5205079.7908	
		005	+		06	04			VDC	S 10 V 10 G 004 221 5 O V	5205054.7911	
		039	+		06	04			VDC	S 10 V 10 G 005 221 5 O V	5205476.7911	
		094	+		06	04			VDC	S 10 VH 10 G 039 221 5 O V	5205191.7908	
		166	+		06	04			VDC	S 10 V 10 G 094 221 5 O V	5205040.7911	
		008	+		05	04			VDC	S 10 V 10 G 166 221 5 C V	5205070.7911	
		117	+		07	05			VDC	S 10 V 10 G 008 221 5 O V	5205085.7911	
		138	+		07	05			VDC	S 10 V 10 G 008 221 5 C V	5205398.7911	
		198	+						VDC	S 10 V 10 G 117 221 5 O V	5205086.7911	
		241	+						VDC	S 10 V 10 G 138 221 5 O V	5205380.7911	
		241	+						VDC	S 10 VH 10 G 198 221 5 O V	5205331.7908	
222		019	+		08	06			VDC	S 10 V 10 G 241 221 5 O V	5205345.7911	
		013	-		08	06			VDC	S 10 VH 10 G 019 222 5 M V	5205139.7908	
		001	+						VDC	S 10 V 10 G 013 222 5 C V	5205071.7911	
		008	+						VDC	S 10 V 10 G 013 222 5 O V	5205346.7911	
		009	+						VDC	S 10 V 10 G 001 222 5 O V	5205279.7911	
		011	-						VDC	S 10 V 10 G 008 222 5 O V	5205409.7911	
		003	-						VDC	S 10 V 10 G 009 222 5 O V	5205311.7911	
		020	+						VDC	S 10 VH 10 G 011 222 5 O V	5205332.7908	
		184	-						VDC	S 10 V 10 G 003 222 5 O V	5205315.7911	
		271	+						VDC	S 10 VH 10 G 020 222 5 O V	5205273.7908	
		271	+						VDC	S 10 V 10 G 184 222 5 O V	5205340.7911	
224		013	-		08	06			VDC	S 10 VH 10 G 271 222 5 O V	5205464.7908	
225		166	+		05	04			VDC	S 10 V 10 G 013 224 5 C V	5205185.7911	
		019	+		09	07			VDC	S 10 V 10 G 166 225 5 C V	5205186.7911	
		019	+	manually operated	10	09				S 10 H 00 G 019 225 5 M V	5205090.7911	
		019	+								5205546.0000	

1) For other symbols, see Publication 7503297.

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

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. The catalog number of these devices you will get on request. Flanges valves are provided with O-rings and connector. Subplate and mounting screws must be ordered separately.

Example of order

Wanted: 4/2 directional control valve DN 10, 24 VDC, connector on solenoid, Symbol 020, along with corresponding subplate.

Directional control valve:

Type No.: S 10 G 10 G 020 039 5 O V
Cat. No.: **5205118.7623**

Subplate:

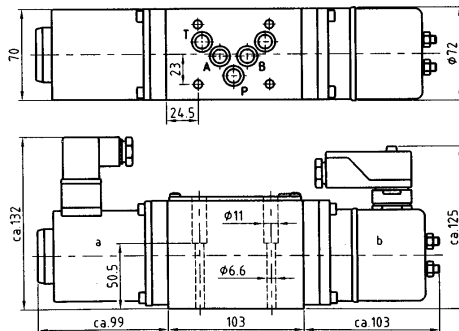
Type No.: P S 10 G 4 001 2 O O
Cat. No.: **1065184**

Mounting screws: (4 pcs. required)

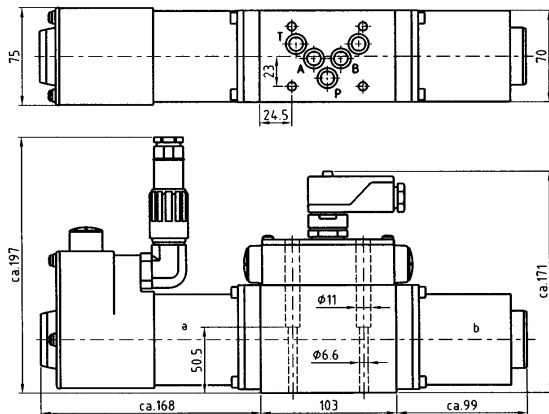
Socket-head screw: (M 6 x 60 DIN 912-10.9)
Cat. No.: **0700416**

Dimensional drawings

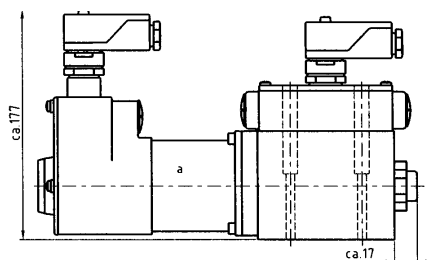
01 Code 039: S 10 G, S 10 B, 3/2- and 4/2-directional control valve



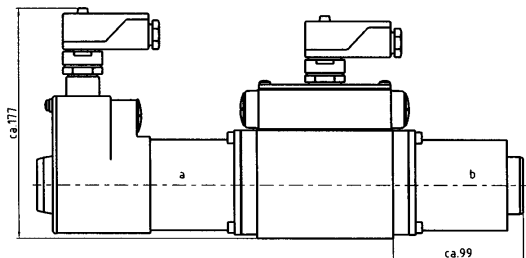
02 Code 061: S 10 G, S 10 B, 4/3-directional control valve



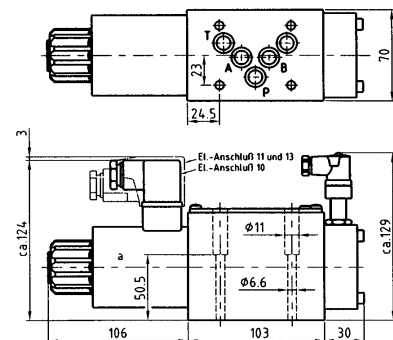
03 Code 066: S 10 G, 3/2- and 4/2-directional control valve



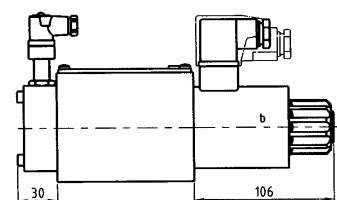
04 Code 066: S 10 G with mechanical detent, 4/2-directional control valve



05 Code 221: S 10 V, S 10 VH, 3/2- and 4/2-directional control valve,
Code 225: S 10 V, S 10 VH, 4/2-directional control valve

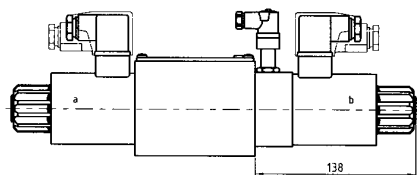


06 Code 221: S 10 V, S 10 VH, 4/2-directional control valve

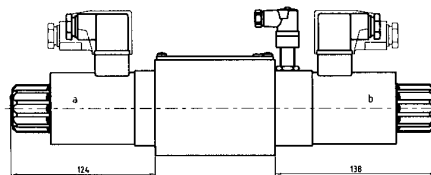


Dimensional drawings

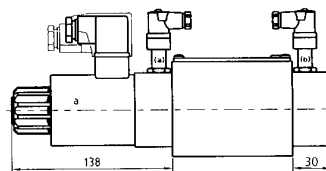
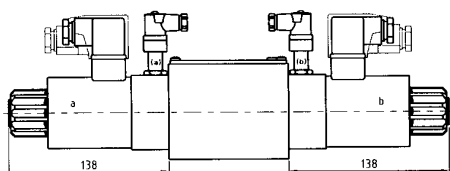
07 Code 221: S 10 V, S 10 VH, 3/2- and 4/3-directional control valve



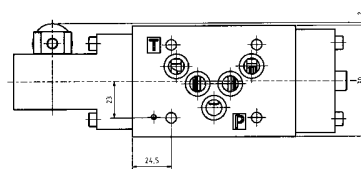
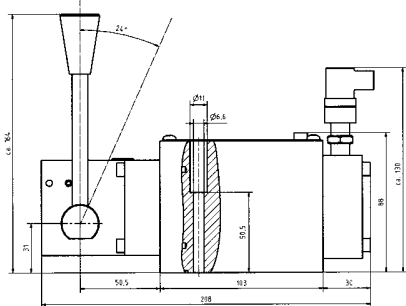
09 Code 225: S 10 V, S 10 VH, 4/2-directional control valve with mechanical detent



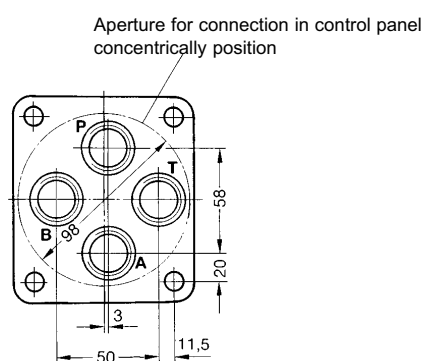
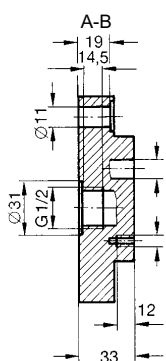
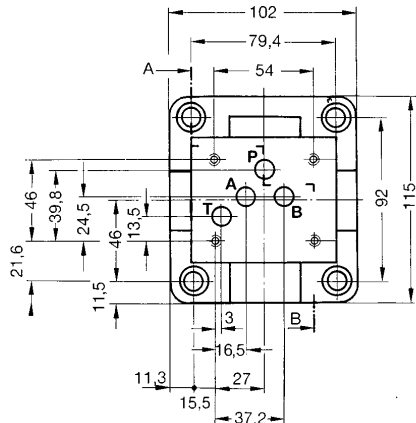
08 Code 222: S 10 V, S 10 VH, 4/2-directional control valve with and without mechanical detent
S 10 V, S 10 VH, 4/3-directional control valve
Code 224: S 10 V, S 10 VH, 4/3-directional control valve



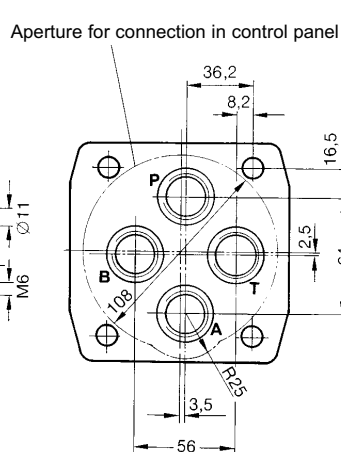
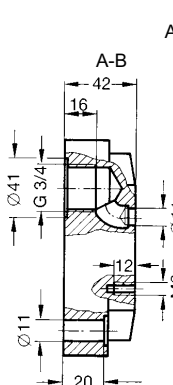
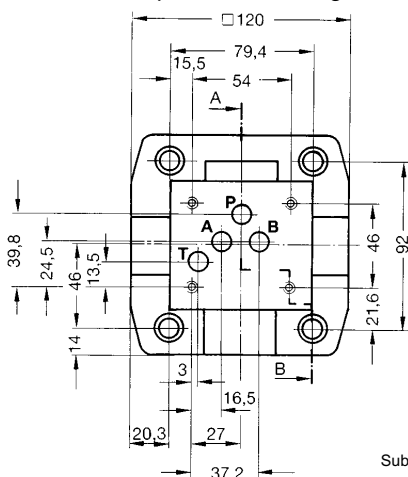
10 Code 225: S 10 H, 4/2-directional control valve



Subplate G 1/2 with hole pattern according to DIN 24 340-A 10 and ISO 4401-AC-05-4-A



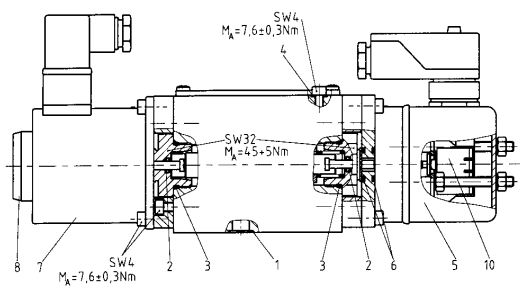
Subplate G 3/4 with hole pattern according to DIN 24 340-A 10 and ISO 4401-AC-05-4-A



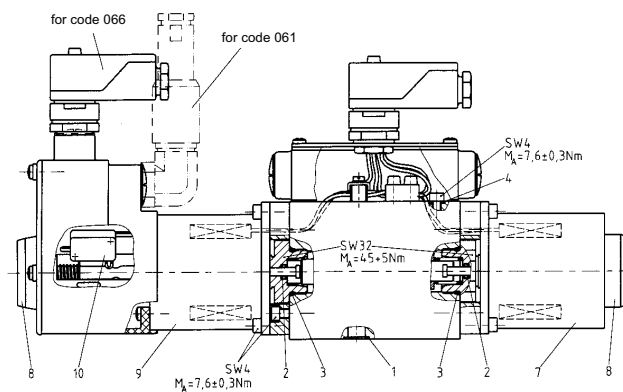
Subplate with leakage port on request

Spare parts drawings

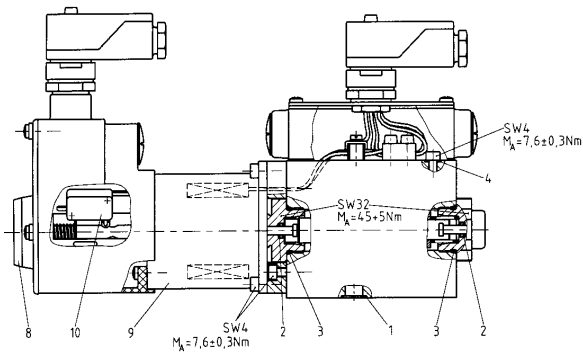
01 Code 039: S 10 G, S 10 B, 3/2- and 4/2-directional control valve



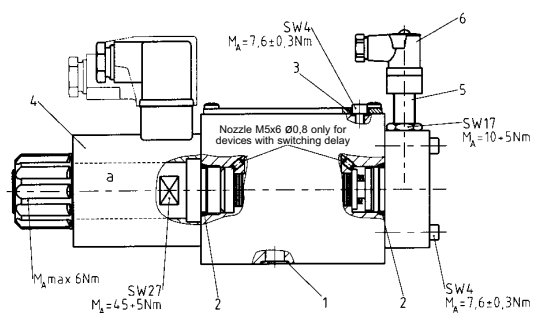
08 Code 061: S 10 G, S 10 B, 4/3-directional control valve
Code 066: S 10 G, 4/2-directional control valve with mechanical detent



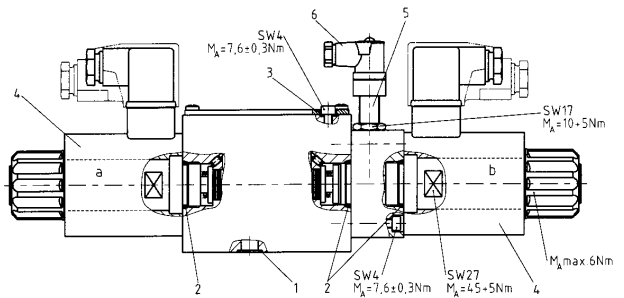
03 Code 066: S 10 G, S 10 B, 3/2- and 4/2-directional control valve



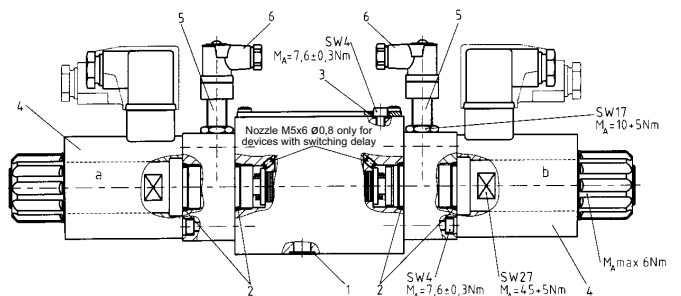
04 Code 221: S 10 V, S 10 VH, 3/2- and 4/2-directional control valve
Code 225: S 10 V, S 10 VH, 4/2-directional control valve



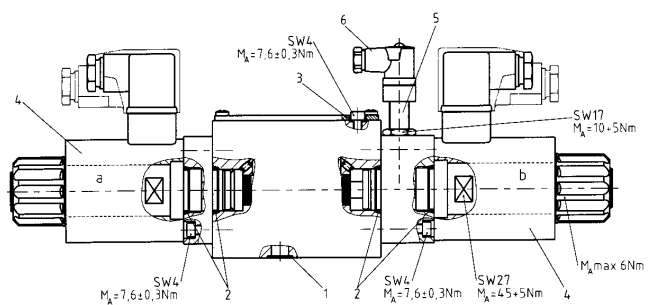
05 Code 221: S 10 V, S 10 VH, 4/3-directional control valve



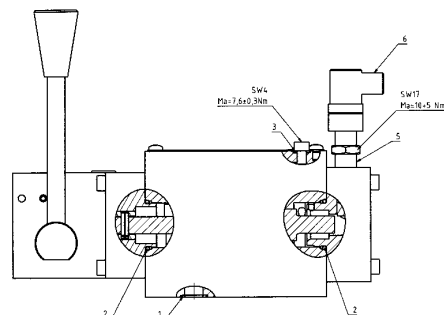
06 Code 222: S 10 V, S 10 VH, 4/2-directional control valve with mechanical detent
S 10 V, S 10 VH, 4/3-directional control valve
Code 224: S 10 V, S 10 VH, 4/3-directional control valve



07 Code 225: S 10 V, S 10 VH, 4/2-directional control valve with mechanical detent



09 Code 225: S 10 H, 4/2-directional control valve



Spare parts (Number of pieces)

Spare part drawing		01	01	02	02	03	02	Cat. No.
Code		039	039	061	061	066	066	
Part	Designation	S 10 G ... 3/2- and 4/2 directional control valve	S 10 B ... 3/2- and 4/2 directional control valve	S 10 G ... 4/3 directional control valve	S 10 B ... 4/3 directional control valve	S 10 G ... 3/2- and 4/2-directional control valve with mech. detent		
1	O-ring (12,42 x 1,78)	5	5	5	5	5	5	0701623
2	Lip seal (Pr. 41; 5 x 9 x 2,5)	2	2	2	2	2	2	0655794
3	O-ring (23,47 x 2,62)	2	2	2	2	2	2	0701650
4	Sealing ring (5,7 x 9 x 1)	1	1	1	1	1	1	0660227
5	Position monitoring	1	1	—	—	—	—	0722742
6	O-ring (15,54 x 2,62)	2	2	—	—	—	—	0651939
7	DC solenoid with manual override (voltage)	—	—	1	—	—	1	7601
		1	—	—	—	—	—	7623
	DC solenoid without manual override (voltage)	—	1	—	—	—	—	7624
		—	—	—	1	—	—	7605
8	Lap	1	—	2	—	1	2	0570117
9	DC solenoid with manual override (voltage)	—	—	1	—	—	—	7637
		—	—	—	—	1	1	7639
	DC solenoid without manual override	—	—	—	1	—	—	7638
10	Micro switch	—	—	3	3	2	2	0659953
		1	1	—	—	—	—	0662451

Mounting bolts (valve) tightening torque $M_A = 13 \text{ Nm}$

—	Cylinder bolt (M 6 x 60 DIN 912-10.9)	4	0700416
---	--	---	----------------

Spare part set

Set of wearing parts consisting of:	1, 2, 3, 4, 6, 8,	0999316
--	-------------------	----------------

Spare parts (Number of pieces)

Spare part drawing		04	05	06	06	04	07	09	Cat. No.
Code		221	221	222	224	225	225	225	
Part	Designation	S 10 V ... S 10 VH ... 3/2- and 4/2 directional control valve	S 10 V ... S 10 VH ... 4/3 directional control valve	S 10 V ... S 10 VH ... 4/2-directional control valve with and without mech. detent	S 10 V ... S 10 VH ... 4/3-- directional control valve	S 10 V ... S 10 VH ... 3/2- directional control valve	S 10 V ... S 10 VH ... 3/2- and 4/2-directional control valve with mech. detent	S 10 H ... 4/2-directional control valve with mech. detent	Cat. No.
1	O-ring (12,42 x 1,78)	5	5	5	5	5	5	5	
2	O-ring (23,47 x 2,62)	2	3	4	4	2	4	2	0701650
3	Sealing ring (5,7 x 9 x 1)	1	1	1	1	1	1	1	0660227
4	DC solenoid without manual override (voltage)	1	2	2	2	1	2	-	7911
	DC solenoid with manual override (voltage)	1	2	2	2	1	2	-	7908
5	Inductive proximity switch	1	1	2	2	1	1	1	0615392
6	Angled socket compl.	1	1	2	2	1	1	1	0615517

Mounting bolts (valve) tightening torque $M_A = 13 \text{ Nm}$

–	Cylinder bolt (M 6 x 60 DIN 912-10.9)	4	0700416
---	--	---	----------------

Spare part set

Set of wearing parts consisting of:	1, 2, 3	0999317
--	---------	----------------

Electrical spare parts

Electrical connection, Symbol 10	Cat. No.
Female connector	0657859 0570275
Design A (grey)	
Design B (black)	
e. g. at solenoid 7637 or 7638	Cat. No.
Circular plug-in connector:	0570722
Number of poles: 7 + PE	

Electrical connection, Symbol 56	Cat. No.
Flange connector:	0499980
Number of poles: 4 + PE	
Male connector: ¹⁾	0570290
Number of poles: 4 + PE	

¹⁾ not included

Notes:

Pressure relief valves

Size 6



**Systemtechnik
GmbH**

direct controlled

Interface to DIN 24 340 and ISO 6264

PN [p_{max.}] = 350 bar

7501400.06.01.06

Description (standard units)

Design

The pressure relief valves of Type D B C 6 are directcontrolled seat valves.

Actuation

The pressure is set manually by means of a rotary knob. The setting can, if desired, be safeguarded by means of locking (E 10-closure) or by means of a lead seal.

Line connection and mounting

The mounting of the units depends on the line connection and type:

Line connection:	Mounting:
Subplate	On subplate by means of bolts Sealing by means of O-rings
Threaded port	On equipment rack, etc. by means of bolts
Plug-in design	Complete unit is screwed into threaded bore



Features

- High flow rating
- Insensitive to vibration
- Suitable for use as remote pilot valve

Type code

Pressure relief valve

D	B	C	6	...	...	...	001	...	O	...
				1	2	3		4		5

- 1 Actuation: **H** – Manual setting
HV – Manual setting (lockable)
HK – Set-screw with cover (can be lead sealed)
- 2 Line connection: **S4** – Threaded port - flange mounting
G 1/2 internal threaded to ISO 228/1
C4 – Threaded port - control-panel installation
G 1/2 internal threaded to ISO 228/1
E – Plug-in design
G – Subplate, interface to DIN 24 340 and ISO 6264
- 3 Pressure setting range: **50** – up to 50 bar
70 – up to 100 bar
80 – up to 210 bar
90 – up to 315 bar
91 – up to 350 bar
- 4 Engineering version: **1**
- 5 Sealing material: **O** – Perbunan
V – Viton

Subplate

P	S	6	G	...	001	...	O	O
				1		2		

- 1 Line connection: **2** – G 1/4 (internal threaded to ISO 228/1)
3 – G 3/8
- 2 Engineering version: **2**

HERION Systemtechnik GmbH

Untere Talstraße 65
D-71263 Weil der Stadt-Merklingen

Tel.: +49 (0) 70 33/30 18-0
Fax: +49 (0) 70 33/30 18-10

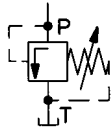


www.herion-systemtechnik.de
info@herion-systemtechnik.de

Parameters to VDI 3276

Type designation	D B C 6..S4..	D B C 6..C4..	D B C 6..E..	D B C 6..G..
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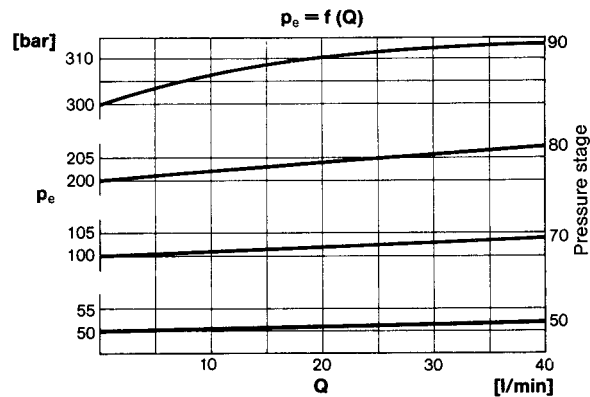
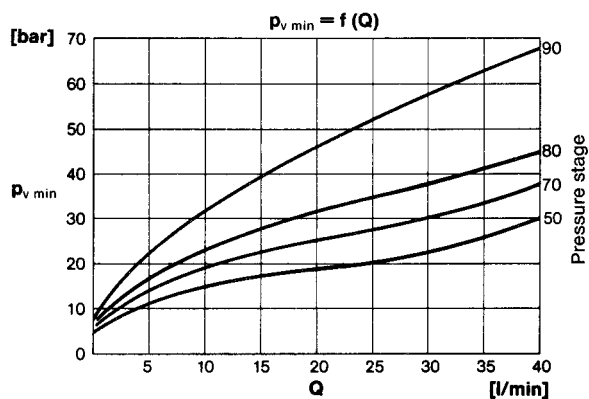
General parameters

Designation	Pressure relief valve			
Symbol				
Design	Seat valve, direct-controlled			
Type of mounting	Flange	Switch board installation	Plug-in design	Flange
Line connection	Thread			Subplate
Mounting position	Optional			
Flow direction	From P to T			
Actuation	By hand			
Weight [kg]	2.4	3.0	0.7	2
Weight of subplate [kg]	-			0.7
Ambient temperature range ϑ_u [°C]	-20 to +50			
Size NG	6			

Hydraulic parameters

Operating pressure range p_e max. [bar]	up to 350			
Adjustable pressure range p_v [bar]	p_v min.: see characteristic curve p_v max.: Pressure stage: 50: 50 Pressure stage: 70: 100 Pressure stage: 80: 210 Pressure stage: 90: 315 Pressure stage: 91: 350			
Pressure fluid temperature ϑ_m max. [°C]	+70			
Viscosity range ν [mm²/s]	12 to 500			
Flow Q [l/min]	See characteristic curve			

Characteristic curves



p_v min. = smallest adjustable pressure under which valve remains closed by pressure spring $Q = 0$ (l/min).

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. Units with flanged connection are delivered complete with mounting bolts and O-rings. The subplate must be ordered separately.

Example of order

Wanted: Pressure relief valve size 6 with threaded port for switch board installation, with manual setting, setting pressure max. 315 bar

Pressure relief valve:

Type No.: D B C 6 H C4 90 001 1 O O

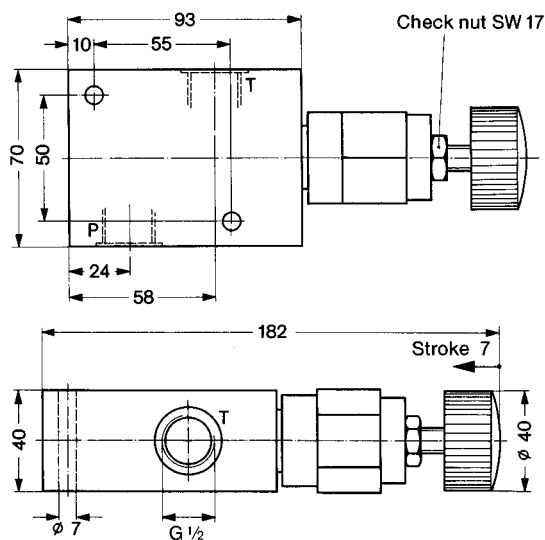
Cat. No.: **6014167**

Type survey (standard versions)

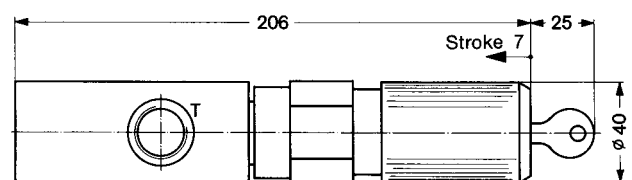
Size	Q [l/min]	p _v max. [bar]	Actuation	Line connection	Type	Cat. No.
6	See charac- teristic curve	25	Manual setting	Threaded connection Flange mounting	D B C 6 H S4 25 001 1 O O	6014578
		50			D B C 6 H S4 50 001 1 O O	6014198
		100			D B C 6 H S4 70 001 1 O O	6014199
		210			D B C 6 H S4 80 001 1 O O	6014201
		315			D B C 6 H S4 90 001 1 O O	6014166
		350			D B C 6 H S4 91 001 1 O O	6014407
		50		Threaded connection Switch board installation	D B C 6 H C4 50 001 1 O O	6014202
		100			D B C 6 H C4 70 001 1 O O	6014203
		210			D B C 6 H C4 80 001 1 O O	6014204
		315			D B C 6 H C4 90 001 1 O O	6014167
		350			D B C 6 H C4 91 001 1 O O	auf Anfrage
		50		Plug-in connection	D B C 6 H E 50 001 1 O O	6014192
		100			D B C 6 H E 70 001 1 O O	6014193
		210			D B C 6 H E 80 001 1 O O	6014194
		315			D B C 6 H E 90 001 1 O O	6014164
		350			D B C 6 H E 91 001 1 O O	6014473
		50		Subplate G 1/4 P S 6 G 2 001 2 O O 1065173 Subplate G 3/8 P S 6 G 3 001 2 O O 1065183	D B C 6 H G 50 001 1 O O	6014443
		100			D B C 6 H G 70 001 1 O O	6014444
		210			D B C 6 H G 80 001 1 O O	6014445
		315			D B C 6 H G 90 001 1 O O	6014439
		350			D B C 6 H C4 91 001 1 O O	6015310

Dimensional drawings

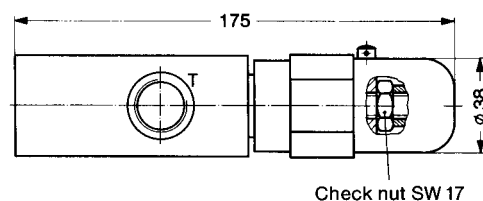
D B C 6 H S4...

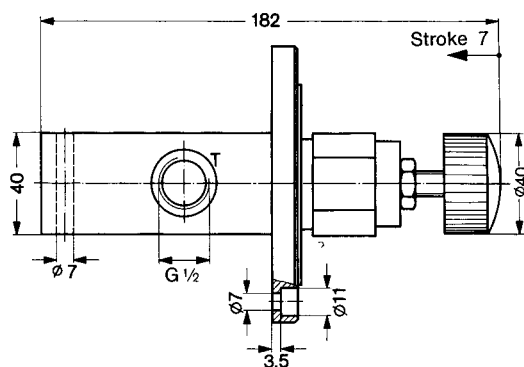


D B C 6 HV S4...

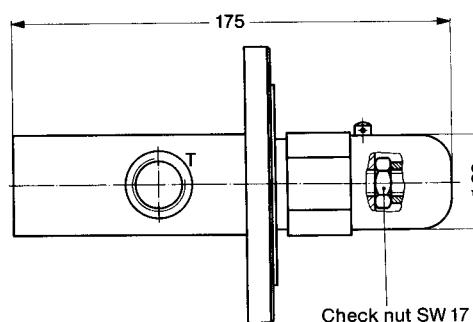


D B C 6 HK S4...

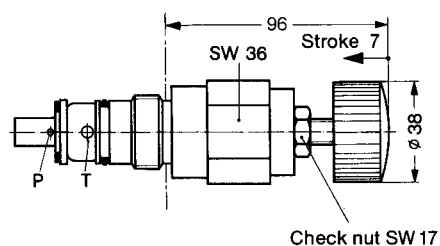




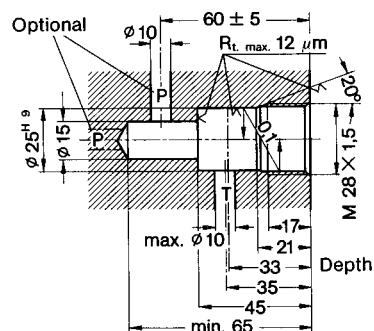
D B C 6 HK C4...



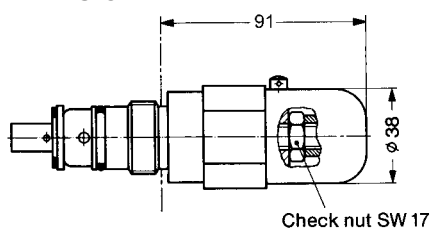
Tightening torque 50...60 Nm



Mounting bore for D B C 6...E...



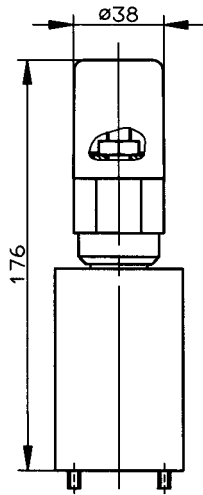
D B C 6 HK E...



Dimensional drawings

Pressure relief valve

D B C 6 HK G...

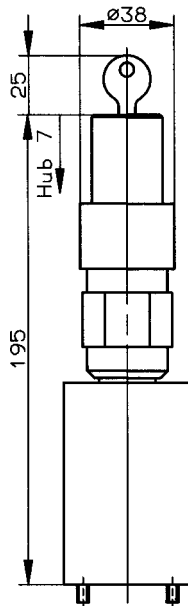


Subpalte

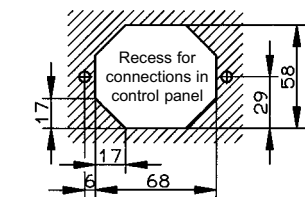
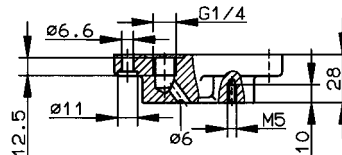
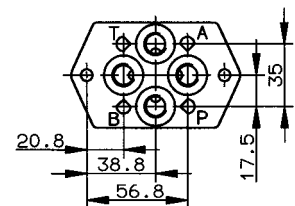
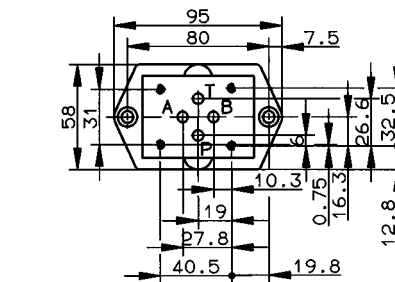
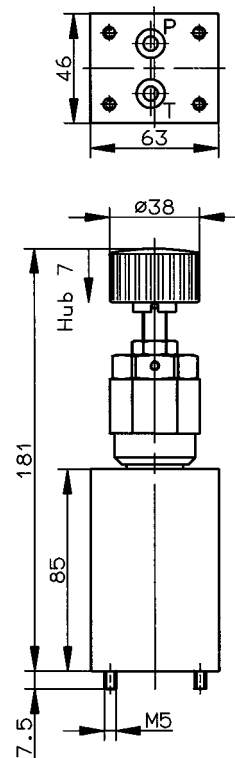
with hole pattern to DIN 24340-C6-2
and ISO 2664-AB-03-4-C

G 1/4

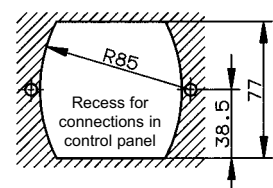
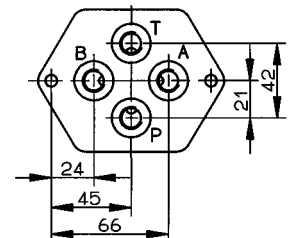
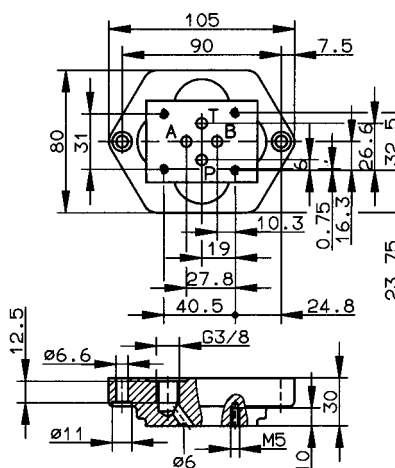
D B C 6 HV G...



D B C 6 H G...

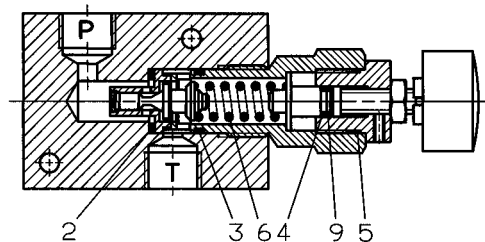


G 3/8

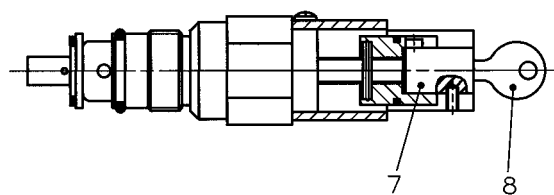


Spare parts drawings

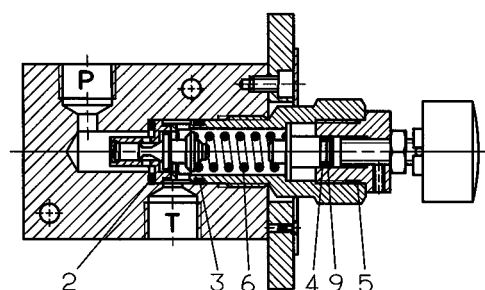
DBC 6 H S4...



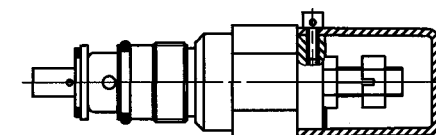
DBC 6 HV...



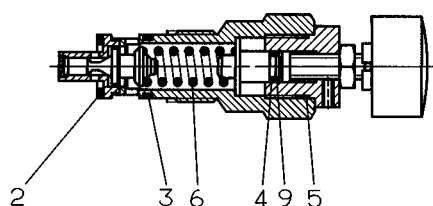
DBC 6 H C4...



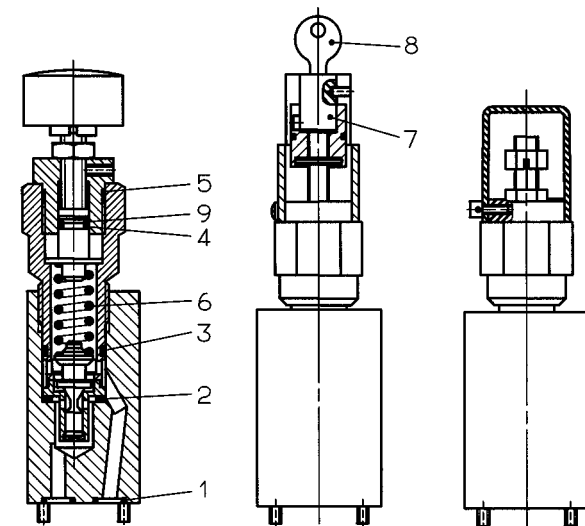
DBC 6 HK...



DBC 6 H E...



DBC 6 H G... DBC 6 HV G... DBC 6 HK G...



Spare parts (Quantities)

Part	Designation	DBC 6 H S4... DBC 6 H C4... DBC 6 H E... DBC 6 HK S4... DBC 6 HK E...	DBC 6 HV S4... DBC 6 HV C4... DBC 6 HV E...	DBC 6 H G... DBC 6 HK G...	DBC 6 HV G...	Cat. No.
1	O-ring (9.2 x 1.8)	-	-	2	2	0701252
2	Usit-ring (17.4 x 24 x 1.5)	1	1	1	1	0657121
3	O-ring (20.3 x 2.6)	1	1	1	1	0701514
4	O-ring (7.6 x 1.8)	1	1	1	1	0701484
5	O-ring (20.3 x 1.8)	1	1	1	1	0701259
6	Spring - pressure stage 50: - pressure stage 70: - pressure stage 80: - pressure stage 90: - pressure stage 91:	1 1 1 1 1	1 1 1 1 1	1 1 1 1 1	1 1 1 1 1	0720114 0720115 0720116 0569442 0720880
7	Lock cylinder with key	-	1	-	1	0568519
8	Key	-	1	-	1	0660051
Mounting bolts						
-	4 Cylinder bolts (M 5 x 80 DIN 912-10.9)	-	-	4	4	0700397

1 Set of spare parts consists of parts 1 to 5.

Pressure Relief Valves NG 10, 25 and 32



Systemtechnik
GmbH

indirectly-controlled, interface to DIN 24 340 and ISO 6264

Sequence Valves NG 10, 25 and 32

indirectly-controlled, interface of pressure relief valve
to DIN 24 340 and ISO 6264

PN [p_{max.}] = 315 bar

7501401.06.01.06

Description (standard units)

Design

The pressure relief valves of Type D B S and the sequence valves of Type D Z S are indirectly-controlled seat valves.

Actuation

The pressure is set manually by means of a rotary knob. The setting can, if desired, be safeguarded by means of locking (E-10-closure) or by means of a lead seal.

Mounting

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

Line connection

Subplate, interface to DIN 24 340 and ISO 6264.



Features

- High flow rating
- Insensitive to vibration
- Seat design insensitive to dirt

Type code

Pressure relief valve

D	...	S	...	...	...	...	001	...	O	...
	1		2	3	4	5		6		7

- 1 Operating characteristics: **B** – Pressure relief valve
Z – Sequence valve
- 2 Nominal size NG: **10**
25
32
- 3 Actuation: **H** – Manual setting
HV – Manual setting, lockable
HK – Set-screw with cover (can be lead sealed)
- 4 Line connection: **G** – Subplate, interface to DIN ISO
D – Subplate, interface to DIN ISO (valve interface not to DIN ISO)
- 5 Pressure setting range: **70** – Up to 100 bar
90 – Up to 315 bar
- 6 Engineering version: **3** – NG 10
2 – NG 25
5 – NG 32
- 7 Sealing material **O** – Perbunan
V – Viton

Subplate

P	DB ¹⁾	...	G	...	001	...	O	O
		1		2		3		

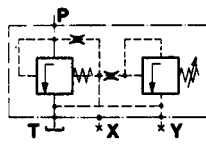
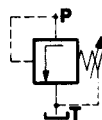
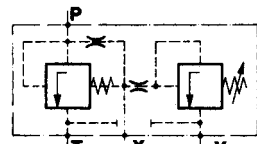
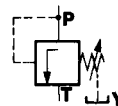
- 1 Nominal size NG: **10**
25
32
- 2 Line connection: **4** – G 1/2 NG 10
6 – G 1 NG 25
8 – G 1 1/2 NG 32
(Internal to DIN ISO 228/1)
- 3 Engineering version: **1**

¹⁾ When using subplate for the installation of sequence valves, make sure to remove screw plug at port „Y“.

Parameters according to VDI 3276

Type designation	D B S 10..G.	D B S 25..G.	D B S 32..G.	D Z S 10..G.	D Z S 25..G.	D Z S 32..G.
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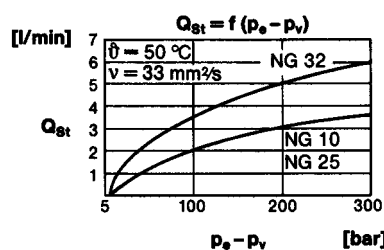
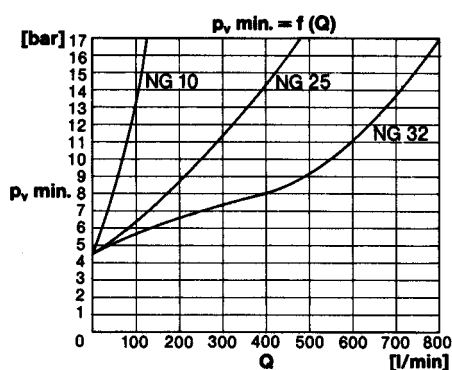
General parameters

Designation		Pressure relief valve			Sequence valve		
Symbol		complete  simplified 			complete  simplified 		
Design		Seat valve, indirectly-controlled					
Type of mounting		Flange					
Line connection		Subplate					
Mounting position		Optional					
Flow direction		From P to T					
Actuation		Manual setting					
Weight	[kg]	6,5	8,6	14,2	6,5	8,6	14,2
Weight of subplate	[kg]	2	4,7	7,5	2	4,7	7,5
Ambient temperature range	ϑ_u [°C]	-20 ... +50					
Nominal size	NG	10	25	32	10	25	32

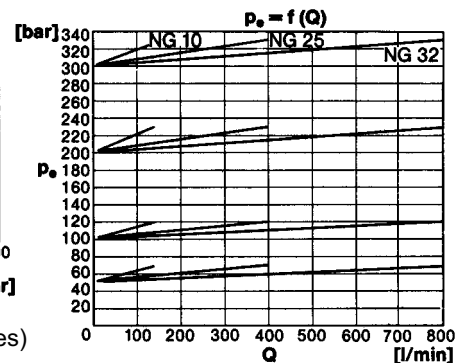
Hydraulic parameters

Operating pressure range p_e [bar]	... 315					
Adjustable pressure range p_v [bar]	p_v min.: see characteristic curve p_v max.: pressure stage 70: ... 100 pressure stage 90: ... 315					
Pressure fluid temperature ϑ_m max. [°C]	+70					
Viscosity range ν [mm²/s]	12 ... 500					
Flow Q [l/min]	See characteristic curves					
Control oil Q_{St} [l/min]	0,5			See characteristic curve Q_{St}		

Characteristic curves



(Only for sequence valves)



Values for p_v min. refer to external drain of control oil, e.g. when using a remote pilot control and pressure at $T = 0$ bar.

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.

The subplate and, if necessary, mounting material for valve combinations must be ordered separately. Only O-rings are included in the delivery.

Example of how to order

Wanted: Sequence valve NG 10 for flanged mounting with manual setting. Setting pressure max. 315 bar, with mating subplate.

Sequence valve:

Type No.: D Z S 10 H D 90 001 3 OO
Cat. No.: **6015324**

Subplate:

Type No.: P DB 10 G 4 001 1 OO
Cat. No.: **2852600**

Type survey (standard design)

Pressure relief valves

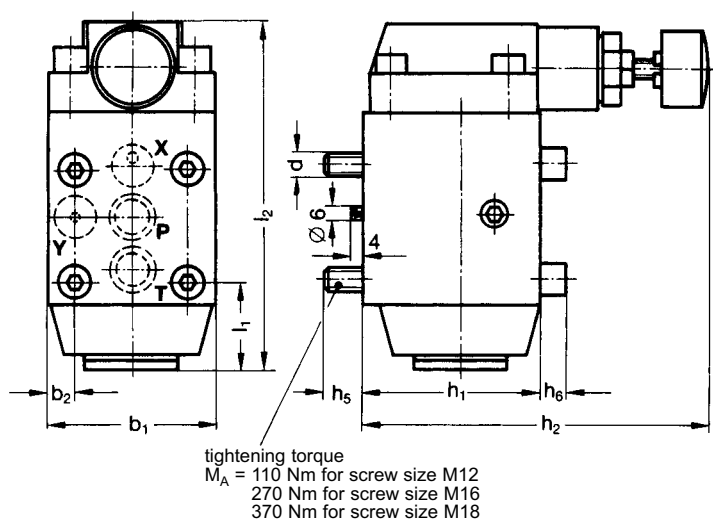
NG	Q [l/min]	p _v max. [bar]	Actuation	Line connection	Type	Cat. No.
10	See characteristic curve	100 315	Manual setting	Subplate G 1/2 P DB 10 G 4 001 1 O O 2852600	D B S 10 H G 70 001 3 OO D B S 10 H G 90 001 3 OO	6015321 6015322
25		100 315		Subplate G 1 P DB 25 G 6 001 1 O O 2852400	D B S 25 H G 70 001 2 OO D B S 25 H G 90 001 2 OO	6015389 6015390
32		100 315		Subplate G 1 1/2 P DB 32 G 8 001 1 O O 2840125	D B S 32 H G 70 001 5 OO D B S 32 H G 90 001 5 OO	6015459 6015460

Sequence valves

NG	Q [l/min]	p _v max. [bar]	Actuation	Line connection	Type	Cat. No.
10	See characteristic curve	100 315	Manual setting	Subplate G 1/2 P DB 10 G 4 001 1 O O 2852600	D Z S 10 H D 70 001 3 OO D Z S 10 H D 90 001 3 OO	6015323 6015324
25		100 315		Subplate G 1 P DB 25 G 6 001 1 O O 2852400	D Z S 25 H D 70 001 2 OO D Z S 25 H D 90 001 2 OO	6015391 6015392
32		100 315		Subplate G 1 1/2 P DB 32 G 8 001 1 O O 2840125	D Z S 32 H D 70 001 5 OO D Z S 32 H D 90 001 5 OO	6015461 6015462

Dimensional drawings

DBS .. H ... / DZS .. H ...

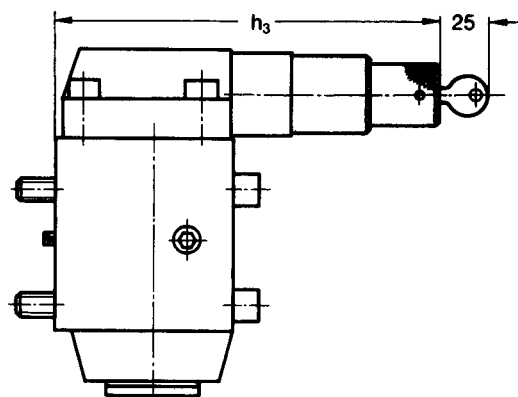


NG	b1	b2	d	h1	h2	h3	h4	h5	h6	l1	l2
10	80	13	M12	84	165	187	167	16	12	49	174
25	101	15,5	M16	88	168	190	170	22	16	36	184
32	120	18,7	M18	98	179	201	181	22	18	50	227

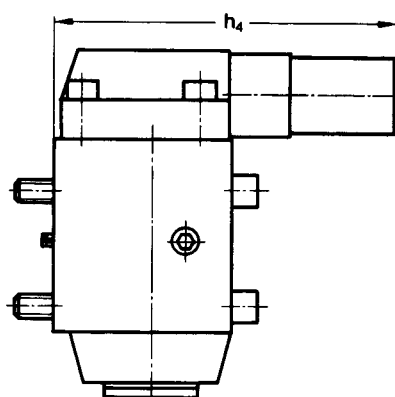
Subplates

G 1/2 with interface to DIN 24340-E10 and ISO 6264-AR-06-2-A
 G 1 with interface to DIN 24340-E25 and ISO 6264-AS-08-2-A
 G 1 1/2 with interface to DIN 24340-E32 and ISO 6264-AT-10-2-A

DBS .. HV ... / DZS .. HV ...



DBS .. HK ... / DZS .. HK ...



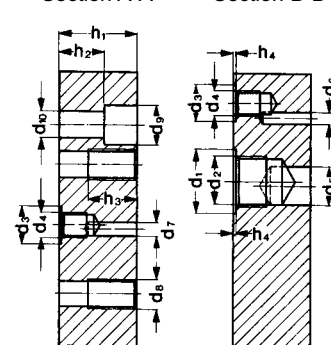
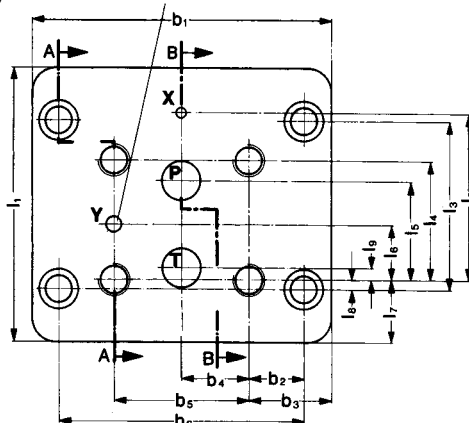
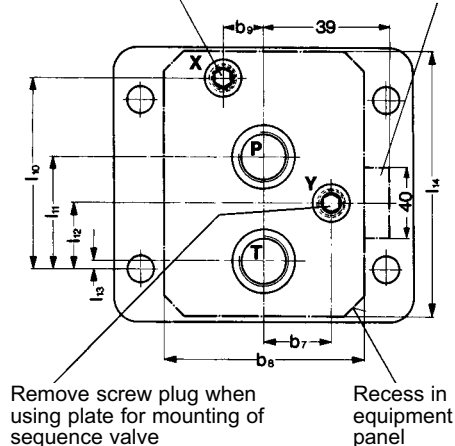
Remove screw plug when using
a remote pilot control

Only for
NG 10

Position of guide pin

Section A-A

Section B-B



NG	b1	b2	b3	b4	b5	b6	b7	b8	b9	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10
10	80	4	13	27	54	62	27	42	0	27	G 1/2	19	G 1/4	10	5	7,3	M 12	17,5	11
25	155	28,5	42,5	35	70	127	35	105	0	40	G 1	19	G 1/4	20	6	7,3	M 16	20	14
32	173,5	31,8	45,5	41,3	82,6	146	41,3	110	45	56	G 1 1/2	19	G 1/4	32	6	7,3	M 18	20	14

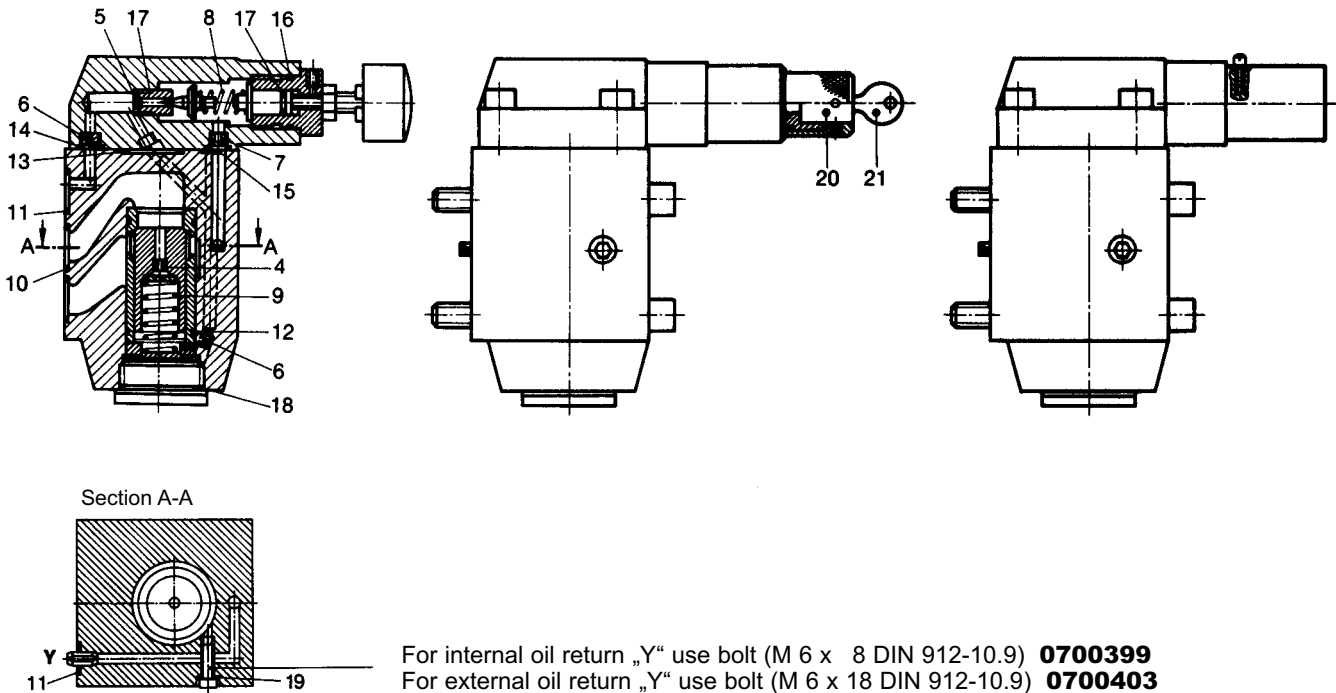
NG	h1	h2	h3	h4	l1	l2	l3	l4	l5	l6	l7	l8	l9	l10	l11	l12	l13	l14
10	32	18	20	0,5	121	54	103	54	31,8	31,8	33,5	24,5	6,4	83,3	52,8	63	15,8	117
25	40	23,5	25	0,5	140	90,5	85,7	66,7	55,6	33,3	27	0	11,1	97,5	57,5	33,3	4,1	135
32	55	25	25	0,5	153,5	120,7	114,3	88,9	76,2	44,5	20	0	12,7	113,7	93,2	47	21,7	150

Spare part drawings

D B S .. H ... / D Z S .. H ...

D B S .. HV ... / D Z S .. HV ...

D B S .. HK ... / D Z S .. HK ...



Spare parts (Number of pieces)

Part	Designation	NG 10	NG 25	NG 32	Cat. No.
4	Nozzle (Ø 0,7) perm. glued	1	1	-	0498419
4	Nozzle (Ø 0,8) perm. glued	-	-	1	0498416
5	Nozzle (Ø 1,1)	1	1	1	0568648
6	Nozzle (Ø 1,0)	2	2	2	0567675
7	Nozzle (Ø 1,2)	1	1	1	0567676
8	Spring for pressure stage 70: for pressure stage 90:	1 1	1 1	1 1	0701810 0701853
9	Spring	1	1	-	0720773
9	Spring	-	-	1	0721767
10	O-ring (17,1 x 2,6)	2	-	-	0701290
10	O-ring (29,8 x 2,6)	-	2	-	0701298
10	O-ring (40,9 x 2,6)	-	-	2	0701305
11	O-ring (15,6 x 1,8)	2	-	-	0701256
11	O-ring (9,2 x 1,8)	-	2	2	0701252
12	O-ring (28,3 x 2,6)	2	2	-	0701519
12	O-ring (39,4 x 2,6)	-	-	2	0701524
13	O-ring (29,9 x 1,8)	1	1	1	0701265
14	O-ring (10,8 x 1,8)	2	2	2	0701253
15	O-ring (7,7 x 1,8)	1	1	1	0701251
16	O-ring (20,4 x 1,8)	1	1	1	0701259
17	O-ring (7,7 x 1,8)	2	2	2	0701621

Part	Designation	NG 10	NG 25	NG 32	Cat. No.
18	Screw plug G 1 1/4	1	1	-	0701227
18	Screw plug M 48 x 2	-	-	1	0659745
19	Usit-ring (6,7 x 10 x 1)	1	1	1	0655254
20	Lock cylinder with key	1	1	1	0568519
21	Key	1	1	1	0660051

Mounting bolts

-	Cylinder bolt (M 12 x 100 DIN 912-10.9)	4	-	-	0700480
-	Cylinder bolt (M 16 x 110 DIN 912-10.9)	-	4	-	0700500
-	Cylinder bolt (M 18 x 120 DIN 912-10.9)	-	-	4	0700508

Spare parts kits

1 set of spare parts consists	NG 10	-	-	0727816
of parts 10 to 18	-	NG 25	-	0727817
	-	-	NG 32	0727818

Notes:

Pressure Relief Valves NG 10, 25 and 32



Systemtechnik
GmbH

indirectly-controlled, interface to DIN 24 340 and ISO 6264

Sequence Valves NG 10, 25 and 32

indirectly-controlled, interface of pressure relief valve
to DIN 24 340 and ISO 6264

PN [p_{max.}] = 315 bar

7501401.06.01.06

Description (standard units)

Design

The pressure relief valves of Type D B S and the sequence valves of Type D Z S are indirectly-controlled seat valves.

Actuation

The pressure is set manually by means of a rotary knob. The setting can, if desired, be safeguarded by means of locking (E-10-closure) or by means of a lead seal.

Mounting

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

Line connection

Subplate, interface to DIN 24 340 and ISO 6264.



Features

- High flow rating
- Insensitive to vibration
- Seat design insensitive to dirt

Type code

Pressure relief valve

D	...	S	...	...	...	...	001	...	O	...
	1		2	3	4	5		6		7

- 1 Operating characteristics: **B** – Pressure relief valve
Z – Sequence valve
- 2 Nominal size NG: **10**
25
32
- 3 Actuation: **H** – Manual setting
HV – Manual setting, lockable
HK – Set-screw with cover (can be lead sealed)
- 4 Line connection: **G** – Subplate, interface to DIN ISO
D – Subplate, interface to DIN ISO (valve interface not to DIN ISO)
- 5 Pressure setting range: **70** – Up to 100 bar
90 – Up to 315 bar
- 6 Engineering version: **3** – NG 10
2 – NG 25
5 – NG 32
- 7 Sealing material **O** – Perbunan
V – Viton

Subplate

P	DB ¹⁾	...	G	...	001	...	O	O
		1		2		3		

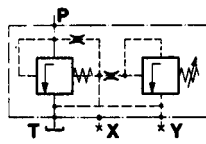
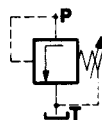
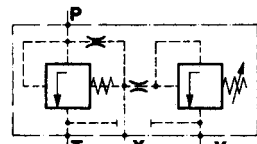
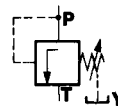
- 1 Nominal size NG: **10**
25
32
- 2 Line connection: **4** – G 1/2 NG 10
6 – G 1 NG 25
8 – G 1 1/2 NG 32
(Internal to DIN ISO 228/1)
- 3 Engineering version: **1**

¹⁾ When using subplate for the installation of sequence valves, make sure to remove screw plug at port „Y“.

Parameters according to VDI 3276

Type designation	D B S 10..G.	D B S 25..G.	D B S 32..G.	D Z S 10..G.	D Z S 25..G.	D Z S 32..G.
------------------	--------------	--------------	--------------	--------------	--------------	--------------

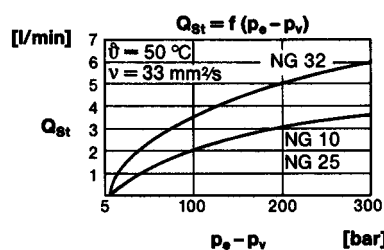
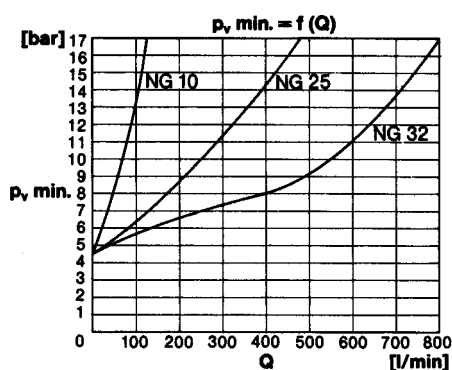
General parameters

Designation		Pressure relief valve			Sequence valve		
Symbol		complete  simplified 			complete  simplified 		
Design		Seat valve, indirectly-controlled					
Type of mounting		Flange					
Line connection		Subplate					
Mounting position		Optional					
Flow direction		From P to T					
Actuation		Manual setting					
Weight	[kg]	6,5	8,6	14,2	6,5	8,6	14,2
Weight of subplate	[kg]	2	4,7	7,5	2	4,7	7,5
Ambient temperature range	ϑ_u [°C]	-20 ... +50					
Nominal size	NG	10	25	32	10	25	32

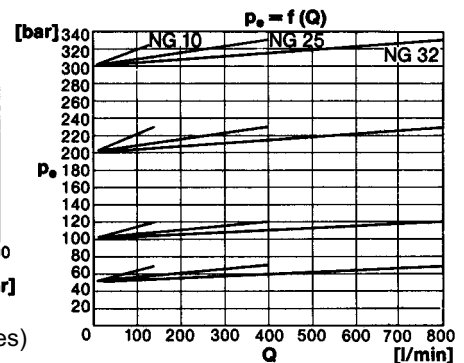
Hydraulic parameters

Operating pressure range p_e [bar]	... 315					
Adjustable pressure range p_v [bar]	p_v min.: see characteristic curve p_v max.: pressure stage 70: ... 100 pressure stage 90: ... 315					
Pressure fluid temperature ϑ_m max. [°C]	+70					
Viscosity range ν [mm²/s]	12 ... 500					
Flow Q [l/min]	See characteristic curves					
Control oil Q_{St} [l/min]	0,5			See characteristic curve Q_{St}		

Characteristic curves



(Only for sequence valves)



Values for p_v min. refer to external drain of control oil, e.g. when using a remote pilot control and pressure at T = 0 bar.

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.

The subplate and, if necessary, mounting material for valve combinations must be ordered separately. Only O-rings are included in the delivery.

Example of how to order

Wanted: Sequence valve NG 10 for flanged mounting with manual setting. Setting pressure max. 315 bar, with mating subplate.

Sequence valve:

Type No.: D Z S 10 H D 90 001 3 OO
Cat. No.: **6015324**

Subplate:

Type No.: P DB 10 G 4 001 1 OO
Cat. No.: **2852600**

Type survey (standard design)

Pressure relief valves

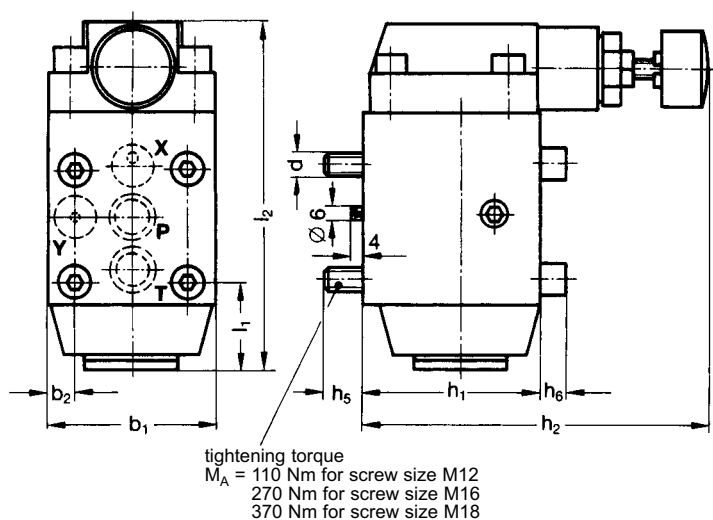
NG	Q [l/min]	p _v max. [bar]	Actuation	Line connection	Type	Cat. No.
10	See characteristic curve	100 315	Manual setting	Subplate G 1/2 P DB 10 G 4 001 1 O O 2852600	D B S 10 H G 70 001 3 OO D B S 10 H G 90 001 3 OO	6015321 6015322
25		100 315		Subplate G 1 P DB 25 G 6 001 1 O O 2852400	D B S 25 H G 70 001 2 OO D B S 25 H G 90 001 2 OO	6015389 6015390
32		100 315		Subplate G 1 1/2 P DB 32 G 8 001 1 O O 2840125	D B S 32 H G 70 001 5 OO D B S 32 H G 90 001 5 OO	6015459 6015460

Sequence valves

NG	Q [l/min]	p _v max. [bar]	Actuation	Line connection	Type	Cat. No.
10	See characteristic curve	100 315	Manual setting	Subplate G 1/2 P DB 10 G 4 001 1 O O 2852600	D Z S 10 H D 70 001 3 OO D Z S 10 H D 90 001 3 OO	6015323 6015324
25		100 315		Subplate G 1 P DB 25 G 6 001 1 O O 2852400	D Z S 25 H D 70 001 2 OO D Z S 25 H D 90 001 2 OO	6015391 6015392
32		100 315		Subplate G 1 1/2 P DB 32 G 8 001 1 O O 2840125	D Z S 32 H D 70 001 5 OO D Z S 32 H D 90 001 5 OO	6015461 6015462

Dimensional drawings

DBS .. H ... / DZS .. H ...

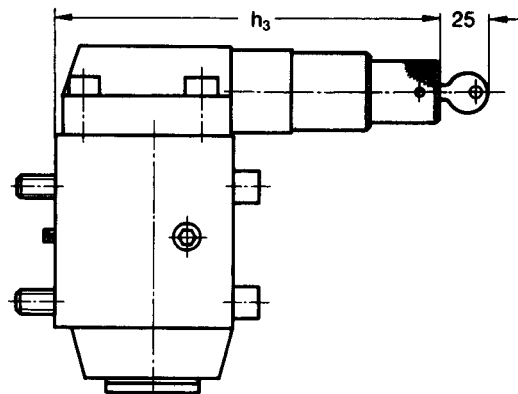


NG	b1	b2	d	h1	h2	h3	h4	h5	h6	l1	l2
10	80	13	M12	84	165	187	167	16	12	49	174
25	101	15,5	M16	88	168	190	170	22	16	36	184
32	120	18,7	M18	98	179	201	181	22	18	50	227

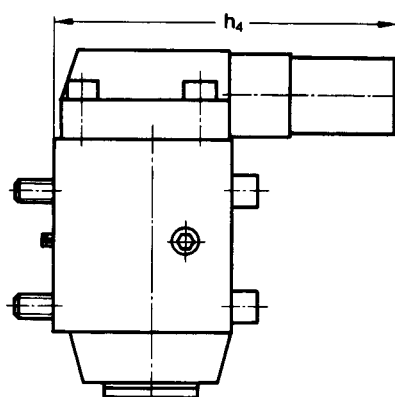
Subplates

G 1/2 with interface to DIN 24340-E10 and ISO 6264-AR-06-2-A
 G 1 with interface to DIN 24340-E25 and ISO 6264-AS-08-2-A
 G 1 1/2 with interface to DIN 24340-E32 and ISO 6264-AT-10-2-A

DBS .. HV ... / DZS .. HV ...



DBS .. HK ... / DZS .. HK ...



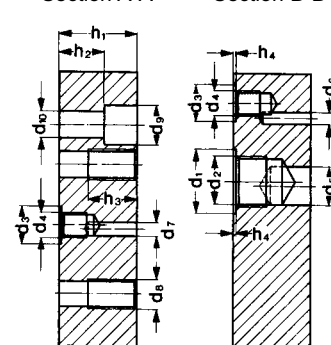
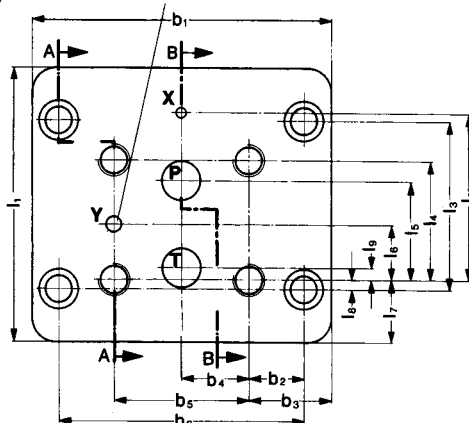
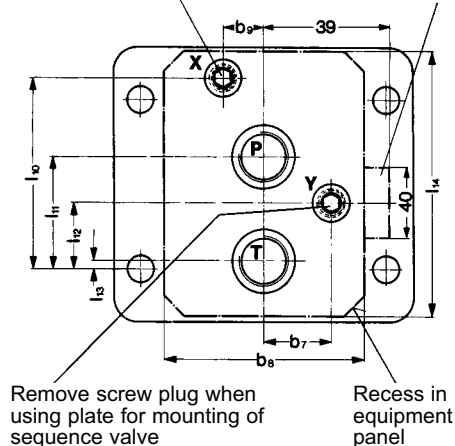
Remove screw plug when using
a remote pilot control

Only for
NG 10

Position of guide pin

Section A-A

Section B-B



NG	b1	b2	b3	b4	b5	b6	b7	b8	b9	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10
10	80	4	13	27	54	62	27	42	0	27	G 1/2	19	G 1/4	10	5	7,3	M 12	17,5	11
25	155	28,5	42,5	35	70	127	35	105	0	40	G 1	19	G 1/4	20	6	7,3	M 16	20	14
32	173,5	31,8	45,5	41,3	82,6	146	41,3	110	45	56	G 1 1/2	19	G 1/4	32	6	7,3	M 18	20	14

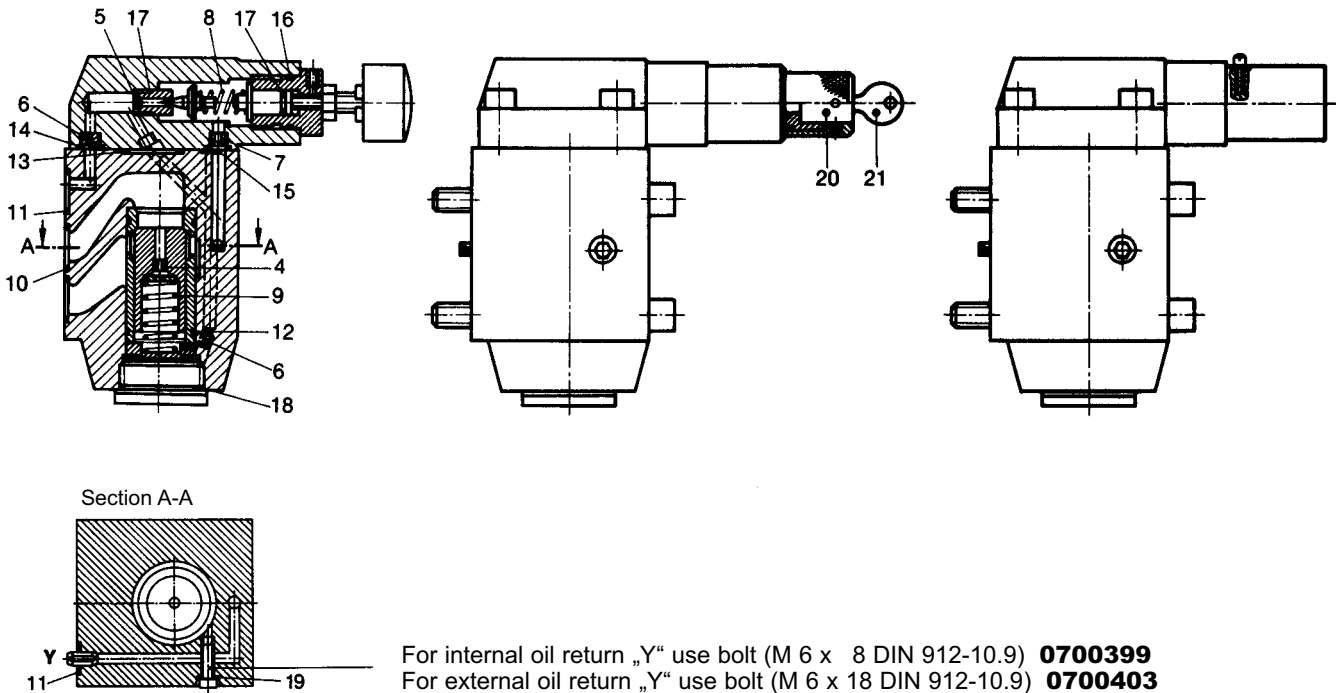
NG	h1	h2	h3	h4	l1	l2	l3	l4	l5	l6	l7	l8	l9	l10	l11	l12	l13	l14
10	32	18	20	0,5	121	54	103	54	31,8	31,8	33,5	24,5	6,4	83,3	52,8	63	15,8	117
25	40	23,5	25	0,5	140	90,5	85,7	66,7	55,6	33,3	27	0	11,1	97,5	57,5	33,3	4,1	135
32	55	25	25	0,5	153,5	120,7	114,3	88,9	76,2	44,5	20	0	12,7	113,7	93,2	47	21,7	150

Spare part drawings

D B S .. H ... / D Z S .. H ...

D B S .. HV ... / D Z S .. HV ...

D B S .. HK ... / D Z S .. HK ...



Spare parts (Number of pieces)

Part	Designation	NG 10	NG 25	NG 32	Cat. No.
4	Nozzle (Ø 0,7) perm. glued	1	1	-	0498419
4	Nozzle (Ø 0,8) perm. glued	-	-	1	0498416
5	Nozzle (Ø 1,1)	1	1	1	0568648
6	Nozzle (Ø 1,0)	2	2	2	0567675
7	Nozzle (Ø 1,2)	1	1	1	0567676
8	Spring for pressure stage 70: for pressure stage 90:	1 1	1 1	1 1	0701810 0701853
9	Spring	1	1	-	0720773
9	Spring	-	-	1	0721767
10	O-ring (17,1 x 2,6)	2	-	-	0701290
10	O-ring (29,8 x 2,6)	-	2	-	0701298
10	O-ring (40,9 x 2,6)	-	-	2	0701305
11	O-ring (15,6 x 1,8)	2	-	-	0701256
11	O-ring (9,2 x 1,8)	-	2	2	0701252
12	O-ring (28,3 x 2,6)	2	2	-	0701519
12	O-ring (39,4 x 2,6)	-	-	2	0701524
13	O-ring (29,9 x 1,8)	1	1	1	0701265
14	O-ring (10,8 x 1,8)	2	2	2	0701253
15	O-ring (7,7 x 1,8)	1	1	1	0701251
16	O-ring (20,4 x 1,8)	1	1	1	0701259
17	O-ring (7,7 x 1,8)	2	2	2	0701621

Part	Designation	NG 10	NG 25	NG 32	Cat. No.
18	Screw plug G 1 1/4	1	1	-	0701227
18	Screw plug M 48 x 2	-	-	1	0659745
19	Usit-ring (6,7 x 10 x 1)	1	1	1	0655254
20	Lock cylinder with key	1	1	1	0568519
21	Key	1	1	1	0660051

Mounting bolts

-	Cylinder bolt (M 12 x 100 DIN 912-10.9)	4	-	-	0700480
-	Cylinder bolt (M 16 x 110 DIN 912-10.9)	-	4	-	0700500
-	Cylinder bolt (M 18 x 120 DIN 912-10.9)	-	-	4	0700508

Spare parts kits

1 set of spare parts consists of parts 10 to 18	NG 10	-	-	0727816
	-	NG 25	-	0727817
	-	-	NG 32	0727818

Notes:

Pressure Relief Valves Size 10 and 25



Systemtechnik
GmbH

with solenoid-actuated relief, oilot operated
Interface to DIN 24 340 and ISO 6264

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

7501402.06.01.06

Description (standard units)

Design

The relief valves of Type D F are pilot-operated poppet valves. The fitted directional control valve can be used to relieve pressure on the pressure valve. Pressure relief with deenergized directional control valves (types D F S and D FW S) or energized directional control valves (types D FG S and D FA S).

Actuation

The pressure is set manually by means of a rotary knob. The setting can, if desired, be safeguarded by means of locking (E 10-closure) or by means of a lead seal.

Mounting

The units are bolted on subplates.

Line connection

Subplate, interface to DIN 24 340 and ISO 6264



Features

- High flow rating
- Insensitive to vibration
- Seat design insensitive to dirt

Type key

Relief valve

D	...	S	...	...	G	...	001	...	O	...
	1		2	3		4		5		6

- 1 Operating characteristics:
- F** – Pressure relief valve
Pressure relief with de-energized directional control valve.
DC-operated
- FG** – Pressure relief valve
Pressure relief with energized directional control valve.
DC-operated
- FW** – Pressure relief valve
Pressure relief with de-energized directional control valve.
AC-operated
- FA** – Pressure relief valve
Pressure relief with energized directional control valve.
AC-operated

2 Size: **10, 25**

3 Actuation:

H – Manual adjustment

HV – Manual adjustment, lockable

HK – Set-screw with cover (lead-sealed)

4 Pressure-setting range:

70 – Up to 100 bar

90 – Up to 315 bar

5 Engineering version:

2 – NG 25

4 – NG 10

6 Sealing-material:

O – Perbunan

V – Viton

Subplate

P	DB	...	G	...	001	...	O	O
		1		2		3		

- 1 Size: **10, 25**
- 2 Line connection:
- 4** – G 1/2 (internal-thread to Size 10)
- 6** – G 1 (internal-thread to Size 25 DIN ISO 228/1)
- 3 Engineering version: **1**

HERION Systemtechnik GmbH

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D-71263 Weil der Stadt-Merklingen

Tel.: +49 (0) 70 33/30 18-0
Fax: +49 (0) 70 33/30 18-10

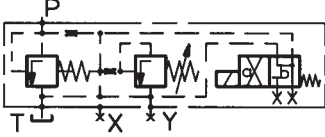
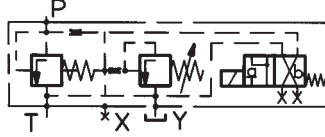
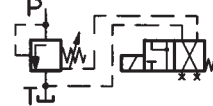


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Parameters according to VDI 3276

Type designation	D F S 10 ... G ...	D F S 25 ... G ...
------------------	--------------------	--------------------

General parameters

Designation	Pressure relief valve	
Symbol	D F S ... , D F W S ...	D F G S ... , D F A S ...
complete		
simplified		

Design	Poppet valve, pilot operated	
Type of mounting	Flange	
Line connection	Subplate	
Mounting position	Optional	
Flow direction	From P to T	
Actuation	Manual setting, pressure relief via directional control valve	
Weight [kg]	6	10
Weight of subplate [kg]	2	4.7
Ambient temperature range ϑ_u [°C]	From -20 ... +50	
Size	10	25

Hydraulic parameters

Operating pressure range p_e [bar]	... 315	
Adjustable pressure range p_v [bar]	p_v min.: See characteristic curve p_v max.: Pressure stage 70: ... 100 Pressure stage 90: ... 315	
Pressure fluid temperature ϑ_m max. [°C]	+70	
Viscosity range v [mm²/s]	From 12 ... 500	
Flow Q [l/min]	See characteristic curves	
Control oil Q_{St} [l/min]	0.5	

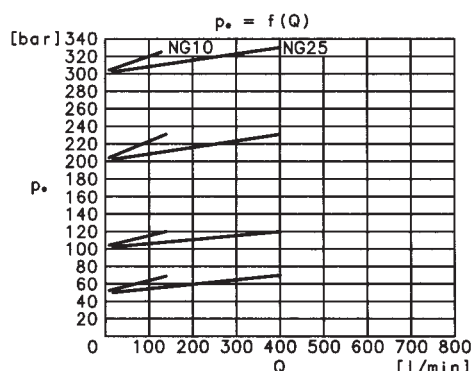
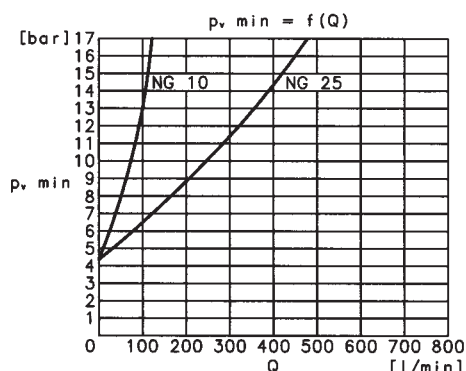
Parameters of fitted directional control valve

Type designation (pressure relief valve)	D F S ...	D F G S ...	D F W S ...	D F A S ...
Type designation (directional control valve)	S 6 VH 10 G 088 001 6 O V	S 6 VH 10 G 159 001 6 O V	S 6 VG 11 G 088 001 6 O V	S 6 VG 11 G 159 001 6 O V
Cat. No.	5204101.7234	5204097.7234	5204729.7234	5201083.7234
Designation	Directional control valve			
Design	Spool valve			
Type of mounting	Flange			
Line connection	Subplate			
Ambient-temperature-range ϑ_u [°C]	From -20 ... +50			
Size	6			

Electrical parameters

Response times	t_e	[ms]	30 to 50	30 to 40
	t_a	[ms]	10 to 50	30 to 40
Number of switchings/hour			15000	
Rated voltage	U_N	[V]	24 $\pm 10\%$	230 V 40 ... 60 Hz $\pm 10\%$
			Other voltages upon request	
Current draw	DC P_{20}	[W]	32	-
	AC P_{20}	[VA]	-	39
Duty cycle	$ED_{rel.}$	[%]	100	
Degree of protection for solenoids and electrical connection to DIN 40050			IP 00, with connector IP 65	
Electrical connection			Connector to DIN 43650 on solenoid	

Characteristic curves - Pressure valves



Values for $p_{v, min}$ apply to external return of control oil, e.g. when a remote pilot control is being used and pressure at $T = 0$ bar

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. Units with flanged connection are delivered complete with fixing bolts and O-rings. The subplate must be ordered separately.

Example of order

Wanted: Pressure relief valve with solenoid-actuated relief size 10, flanged with manual adjustment. Pressure setting up to max. 315 bar, with matching subplate.

Pressure relief valve:

Type No.: D F S 10 H G 90 001 4 O O
Cat No.: **6015326.7234.02400**
Voltage: 24 VDC

Subplate:

Type No.: P DB 10 G 4 001 1 O O
Cat No.: **2852600**

Type survey (standard designs)

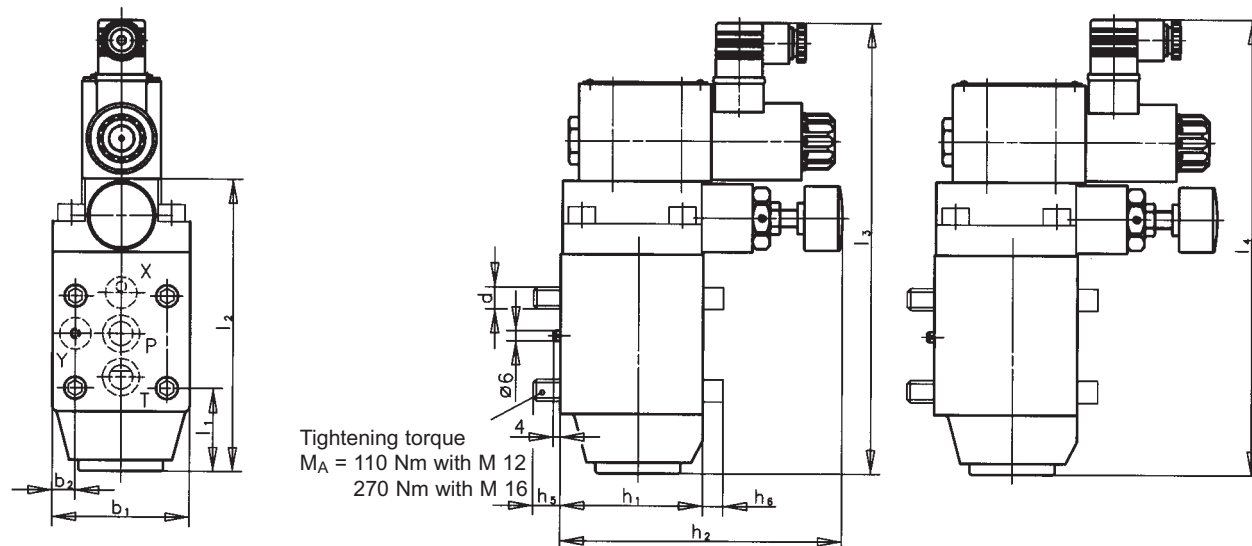
Size	Q [l/min]	p_v max. [bar]	Actuation	Line connection	Type	Cat No.
10	See characteristic curve	100	Manual setting	Subplate G 1/2	D F S 10 H G 70 001 4 O O	6015325.7234
		315		P DB 10 G 4 001 1 O O 2852600	D F S 10 H G 90 001 4 O O	6015326.7234
25		100		Subplate G 1	D F S 25 H G 70 001 2 O O	6015393.7234
		315		P DB 25 G 6 001 1 O O 2852400	D F S 25 H G 90 001 2 O O	6015394.7234

Dimensional drawings

Pressure relief valves

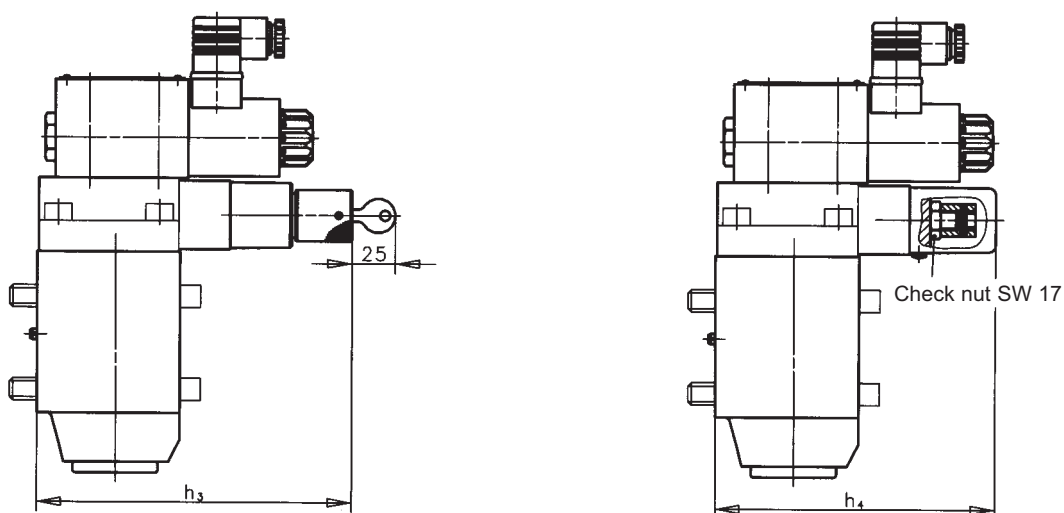
D F S .. H ...
D F G S .. H ...

D F W S .. H ...
D F A S .. H ...



D F S .. HV ...
D F G S .. HV ...
D F W S .. HV ...
D F A S .. HV ...

D F S .. HK ...
D F G S .. HK ...
D F W S .. HK ...
D F A S .. HK ...



Size	b_1	b_2	d	h_1	h_2	h_3	h_4	h_5	h_6	l_1	l_2	l_3	l_4
10	80	13	M 12	84	165	187	167	16	12	49	174	266	271
25	101	15.5	M 16	88	168	190	170	22	16	36	184	276	281

Spare parts

Part	Designation	Size 10	Size 25	Cat. No.
4	Nozzle (dia. 0.7) eingeklebt	1	1	0498419
5	Nozzle (dia. 1.1)	1	1	0568648
6	Nozzle (dia. 1.0)	2	2	0567675
7	Nozzle (dia. 1.2)	1	1	0567676
8	Spring Pressure stage 70: Pressure stage 90:	1	1	0701810
		1	1	0701853
9	Spring	1	1	0720791
10	O-ring (17.1 x 2.6)	2	-	0701290
10	O-ring (29.8 x 2.6)	-	2	0701298
11	O-ring (15.6 x 1.8)	2	-	0701256
11	O-ring (9.2 x 1.8)	-	2	0701252
12	O-ring (28.3 x 2.6)	2	2	0701297
13	O-ring (29.9 x 1.8)	1	1	0701265
14	O-ring (10.8 x 1.8)	2	2	0701253
15	O-ring (7.7 x 1.8)	1	1	0701251
16	O-ring (20.4 x 1.8)	1	1	0701259
17	O-ring (7.7 x 1.8)	1	1	0701484
18	Plug G 1 1/4	1	1	0701227
19	Usit-ring (6.7 x 10 x 1)	1	1	0655254
20	Lock cylinder with key	1	1	0568519
21	Key	1	1	0660051
Mounting bolts				
-	Bolt (M 12 x 100 DIN 912-10.9)	4	-	0700480
-	Bolt (M 16 x 110 DIN 912-10.9)	-	4	0700500

1 set of spare parts consists of parts 10 to 18.

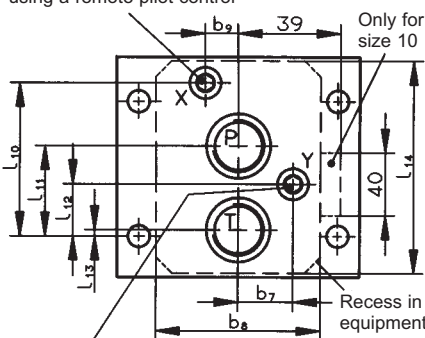
Dimensional drawings

Subplates

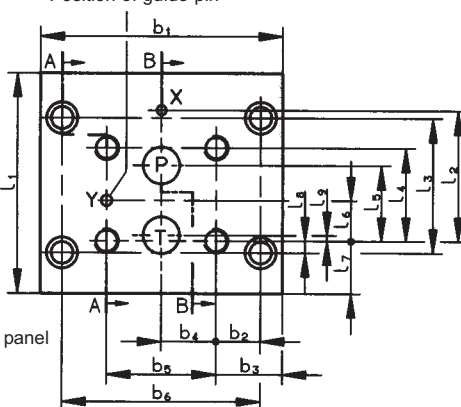
G 1/2 with hole pattern to DIN 24340-E 10 and ISO 6264-AR-06-2-A

G 1 with hole pattern to DIN 24340-E 25 and ISO 6264-AS-08-2-A

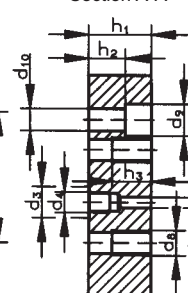
Remove screw plug when using a remote pilot control



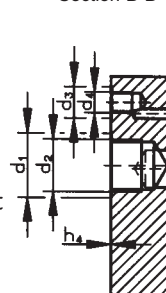
Position of guide pin



Section A-A



Section B-B



Size	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	b ₇	b ₈	b ₉	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	d ₇	d ₈	d ₉	d ₁₀
10	80	4	13	27	54	62	27	42	0	27	G 1/2	19	G 1/4	10	5	7.3	M 12	17.5	11
25	155	28.5	42.5	35	70	127	35	105	0	40	G 1	19	G 1/4	20	6	7.3	M 16	20	14

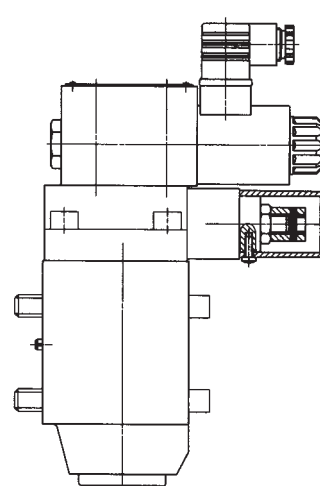
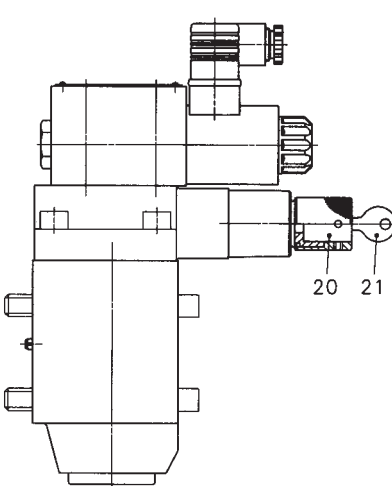
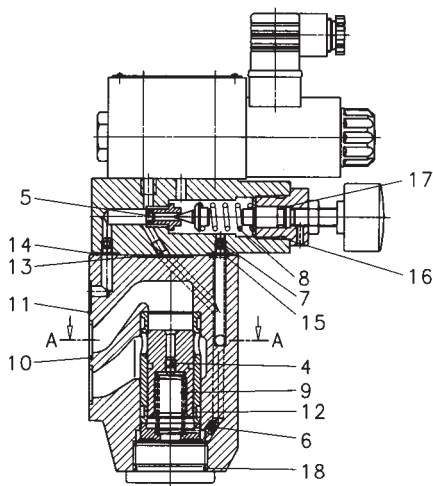
Size	h ₁	h ₂	h ₃	h ₄	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆	l ₇	l ₈	l ₉	l ₁₀	l ₁₁	l ₁₂	l ₁₃	l ₁₄
10	32	18	20	0.5	121	54	103	54	31.8	31.8	33.5	24.5	6.4	83.3	52.8	63	15.8	117
25	40	23.5	25	0.5	140	90.5	85.7	66.7	55.6	33.3	27	0	11.1	97.5	57.5	33.3	4.1	135

Spare part drawings

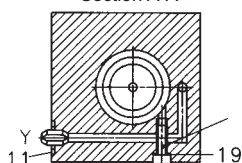
D F S .. H ...
D F G S .. H ...
D F W S .. H ...
D F A S .. H ...

D F S .. HV ...
D F G S .. HV ...
D F W S .. HV ...
D F A S .. HV ...

D F S .. HK ...
D F G S .. HK ...
D F W S .. HK ...
D F A S .. HK ...



Section A-A



For internal oil return Y use bolt M 6 x 8 DIN 912 **0700399**
For external oil return Y use bolt M 6 x 18 DIN 912 **0700403**

Note: Designs shown are D F S and D F W S

Pressure Relief Valves Size 10 and 25



**Systemtechnik
GmbH**

with solenoid-actuated relief, oilot operated
Interface to DIN 24 340 and ISO 6264

PN [p_{max.}] = 315 bar

7501402.06.01.06

Description (standard units)

Design

The relief valves of Type D F are pilot-operated poppet valves. The fitted directional control valve can be used to relieve pressure on the pressure valve. Pressure relief with deenergized directional control valves (types D F S and D FW S) or energized directional control valves (types D FG S and D FA S).

Actuation

The pressure is set manually by means of a rotary knob. The setting can, if desired, be safeguarded by means of locking (E 10-closure) or by means of a lead seal.

Mounting

The units are bolted on subplates.

Line connection

Subplate, interface to DIN 24 340 and ISO 6264



Features

- High flow rating
- Insensitive to vibration
- Seat design insensitive to dirt

Type key

Relief valve

D	...	S	...	...	G	...	001	...	O	...
	1		2	3		4		5		6

- 1 Operating characteristics:
- F** – Pressure relief valve
Pressure relief with de-energized directional control valve.
DC-operated
- FG** – Pressure relief valve
Pressure relief with energized directional control valve.
DC-operated
- FW** – Pressure relief valve
Pressure relief with de-energized directional control valve.
AC-operated
- FA** – Pressure relief valve
Pressure relief with energized directional control valve.
AC-operated

2 Size: **10, 25**

3 Actuation:

H – Manual adjustment

HV – Manual adjustment, lockable

HK – Set-screw with cover (lead-sealed)

4 Pressure-setting range:

70 – Up to 100 bar

90 – Up to 315 bar

5 Engineering version:

2 – NG 25

4 – NG 10

6 Sealing-material:

O – Perbunan

V – Viton

Subplate

P	DB	...	G	...	001	...	O	O
		1		2		3		

- 1 Size: **10, 25**
- 2 Line connection:
- 4** – G 1/2 (internal-thread to Size 10)
- 6** – G 1 (internal-thread to Size 25 DIN ISO 228/1)
- 3 Engineering version: **1**

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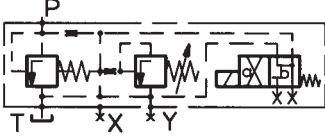
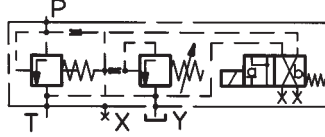
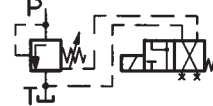


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Parameters according to VDI 3276

Type designation	D F S 10 ... G ...	D F S 25 ... G ...
------------------	--------------------	--------------------

General parameters

Designation	Pressure relief valve	
Symbol	D F S ... , D F W S ...	D F G S ... , D F A S ...
complete		
simplified		

Design	Poppet valve, pilot operated	
Type of mounting	Flange	
Line connection	Subplate	
Mounting position	Optional	
Flow direction	From P to T	
Actuation	Manual setting, pressure relief via directional control valve	
Weight	[kg]	6 10
Weight of subplate	[kg]	2 4.7
Ambient temperature range	ϑ_u [°C]	From -20 ... +50
Size	10	25

Hydraulic parameters

Operating pressure range	p_e [bar]	... 315
Adjustable pressure range	p_v [bar]	p_v min.: See characteristic curve p_v max.: Pressure stage 70: ... 100 Pressure stage 90: ... 315
Pressure fluid temperature	ϑ_m max. [°C]	+70
Viscosity range	v [mm²/s]	From 12 ... 500
Flow	Q [l/min]	See characteristic curves
Control oil	Q_{St} [l/min]	0.5

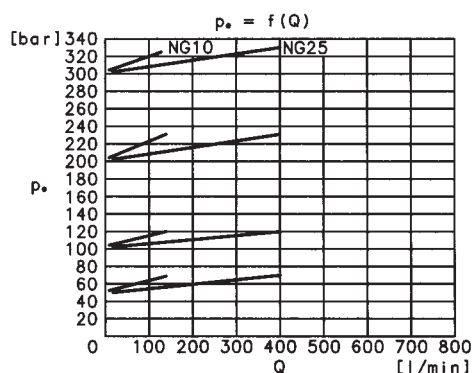
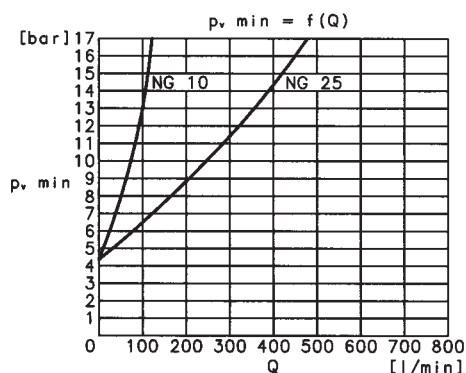
Parameters of fitted directional control valve

Type designation (pressure relief valve)	D F S ...	D F G S ...	D F W S ...	D F A S ...
Type designation (directional control valve)	S 6 VH 10 G 088 001 6 O V	S 6 VH 10 G 159 001 6 O V	S 6 VG 11 G 088 001 6 O V	S 6 VG 11 G 159 001 6 O V
Cat. No.	5204101.7234	5204097.7234	5204729.7234	5201083.7234
Designation	Directional control valve			
Design	Spool valve			
Type of mounting	Flange			
Line connection	Subplate			
Ambient-temperature-range	ϑ_u [°C]	From -20 ... +50		
Size	6			

Electrical parameters

Response times	t_e	[ms]	30 to 50	30 to 40
	t_a	[ms]	10 to 50	30 to 40
Number of switchings/hour			15000	
Rated voltage	U_N	[V]	24 $\pm 10\%$	230 V 40 ... 60 Hz $\pm 10\%$
			Other voltages upon request	
Current draw	DC P_{20}	[W]	32	-
	AC P_{20}	[VA]	-	39
Duty cycle	$ED_{rel.}$	[%]	100	
Degree of protection for solenoids and electrical connection to DIN 40050			IP 00, with connector IP 65	
Electrical connection			Connector to DIN 43650 on solenoid	

Characteristic curves - Pressure valves



Values for $p_{v, min}$ apply to external return of control oil, e.g. when a remote pilot control is being used and pressure at $T = 0$ bar

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. Units with flanged connection are delivered complete with fixing bolts and O-rings. The subplate must be ordered separately.

Example of order

Wanted: Pressure relief valve with solenoid-actuated relief size 10, flanged with manual adjustment. Pressure setting up to max. 315 bar, with matching subplate.

Pressure relief valve:

Type No.: D F S 10 H G 90 001 4 O O
Cat No.: **6015326.7234.02400**
Voltage: 24 VDC

Subplate:

Type No.: P DB 10 G 4 001 1 O O
Cat No.: **2852600**

Type survey (standard designs)

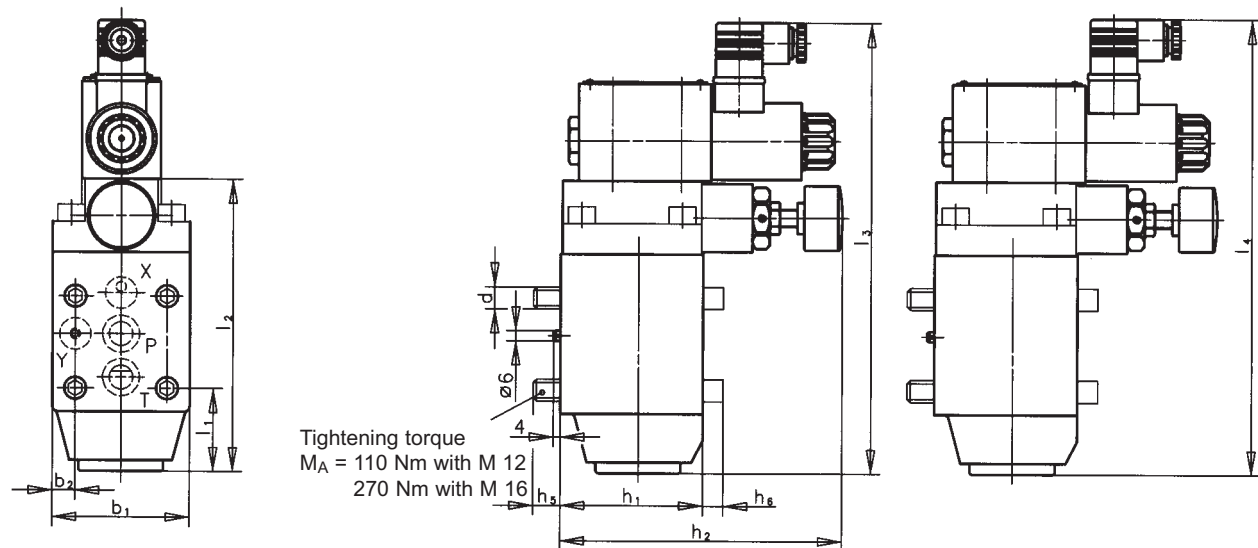
Size	Q [l/min]	$p_{v, max.}$ [bar]	Actuation	Line connection	Type	Cat No.
10	See characteristic curve	100	Manual setting	Subplate G 1/2	D F S 10 H G 70 001 4 O O	6015325.7234
		315		P DB 10 G 4 001 1 O O 2852600	D F S 10 H G 90 001 4 O O	6015326.7234
25		100		Subplate G 1	D F S 25 H G 70 001 2 O O	6015393.7234
		315		P DB 25 G 6 001 1 O O 2852400	D F S 25 H G 90 001 2 O O	6015394.7234

Dimensional drawings

Pressure relief valves

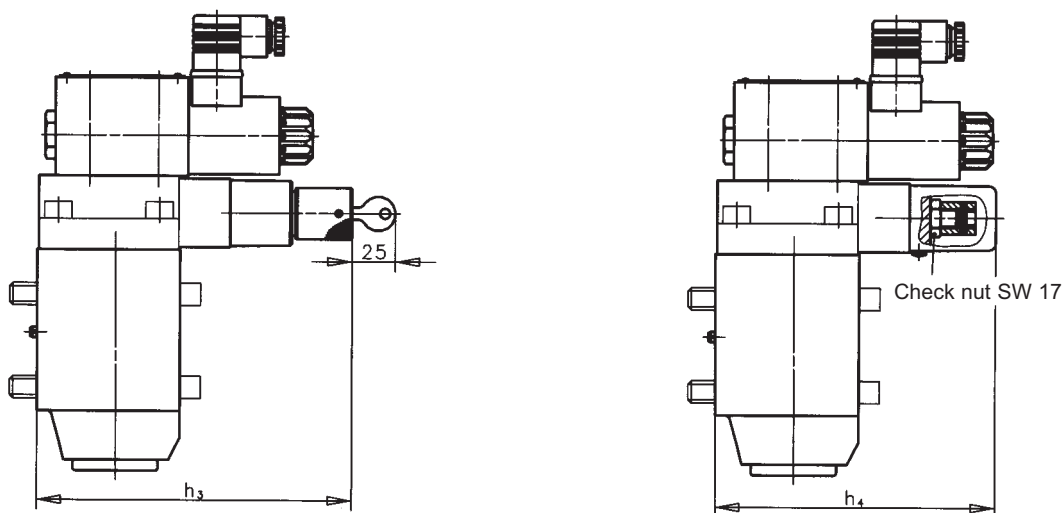
D F S .. H ...
D F G S .. H ...

D F W S .. H ...
D F A S .. H ...



D F S .. HV ...
D F G S .. HV ...
D F W S .. HV ...
D F A S .. HV ...

D F S .. HK ...
D F G S .. HK ...
D F W S .. HK ...
D F A S .. HK ...



Size	b_1	b_2	d	h_1	h_2	h_3	h_4	h_5	h_6	l_1	l_2	l_3	l_4
10	80	13	M 12	84	165	187	167	16	12	49	174	266	271
25	101	15.5	M 16	88	168	190	170	22	16	36	184	276	281

Spare parts

Part	Designation	Size 10	Size 25	Cat. No.
4	Nozzle (dia. 0.7) eingeklebt	1	1	0498419
5	Nozzle (dia. 1.1)	1	1	0568648
6	Nozzle (dia. 1.0)	2	2	0567675
7	Nozzle (dia. 1.2)	1	1	0567676
8	Spring Pressure stage 70: Pressure stage 90:	1	1	0701810
		1	1	0701853
9	Spring	1	1	0720791
10	O-ring (17.1 x 2.6)	2	-	0701290
10	O-ring (29.8 x 2.6)	-	2	0701298
11	O-ring (15.6 x 1.8)	2	-	0701256
11	O-ring (9.2 x 1.8)	-	2	0701252
12	O-ring (28.3 x 2.6)	2	2	0701297
13	O-ring (29.9 x 1.8)	1	1	0701265
14	O-ring (10.8 x 1.8)	2	2	0701253
15	O-ring (7.7 x 1.8)	1	1	0701251
16	O-ring (20.4 x 1.8)	1	1	0701259
17	O-ring (7.7 x 1.8)	1	1	0701484
18	Plug G 1 1/4	1	1	0701227
19	Usit-ring (6.7 x 10 x 1)	1	1	0655254
20	Lock cylinder with key	1	1	0568519
21	Key	1	1	0660051
Mounting bolts				
-	Bolt (M 12 x 100 DIN 912-10.9)	4	-	0700480
-	Bolt (M 16 x 110 DIN 912-10.9)	-	4	0700500

1 set of spare parts consists of parts 10 to 18.

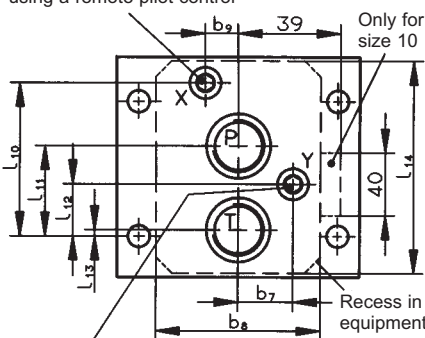
Dimensional drawings

Subplates

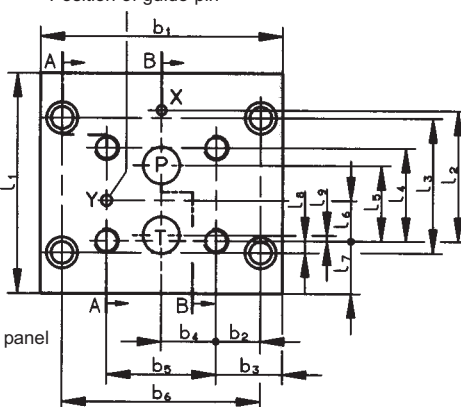
G 1/2 with hole pattern to DIN 24340-E 10 and ISO 6264-AR-06-2-A

G 1 with hole pattern to DIN 24340-E 25 and ISO 6264-AS-08-2-A

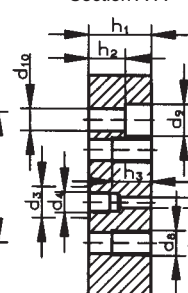
Remove screw plug when using a remote pilot control



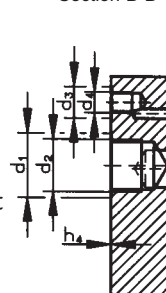
Position of guide pin



Section A-A



Section B-B



Size	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	b ₇	b ₈	b ₉	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	d ₇	d ₈	d ₉	d ₁₀
10	80	4	13	27	54	62	27	42	0	27	G 1/2	19	G 1/4	10	5	7.3	M 12	17.5	11
25	155	28.5	42.5	35	70	127	35	105	0	40	G 1	19	G 1/4	20	6	7.3	M 16	20	14

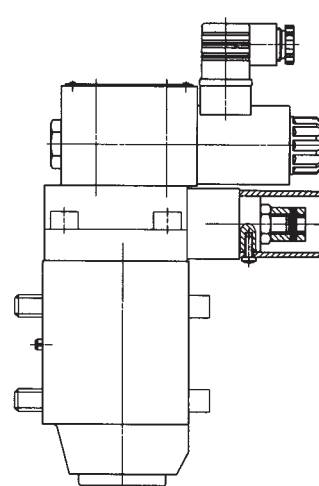
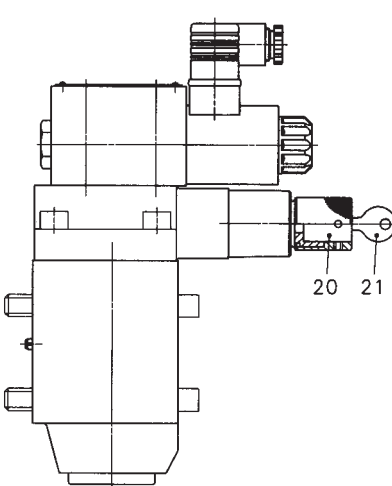
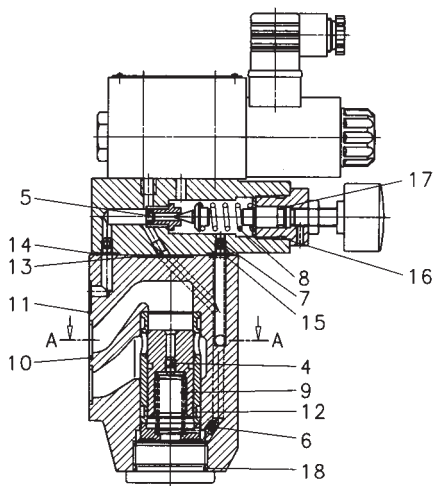
Size	h ₁	h ₂	h ₃	h ₄	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆	l ₇	l ₈	l ₉	l ₁₀	l ₁₁	l ₁₂	l ₁₃	l ₁₄
10	32	18	20	0.5	121	54	103	54	31.8	31.8	33.5	24.5	6.4	83.3	52.8	63	15.8	117
25	40	23.5	25	0.5	140	90.5	85.7	66.7	55.6	33.3	27	0	11.1	97.5	57.5	33.3	4.1	135

Spare part drawings

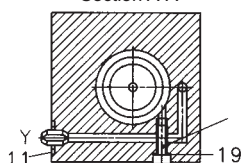
D F S .. H ...
D FG S .. H ...
D FW S .. H ...
D FA S .. H ...

D F S .. HV ...
D FG S .. HV ...
D FW S .. HV ...
D FA S .. HV ...

D F S .. HK ...
D FG S .. HK ...
D FW S .. HK ...
D FA S .. HK ...



Section A-A



For internal oil return Y use bolt M 6 x 8 DIN 912 **0700399**
 For external oil return Y use bolt M 6 x 18 DIN 912 **0700403**

Note: Designs shown are D F S and D FW S

Accumulator safety valves

Size 6 and 10



**Systemtechnik
GmbH**

**Directly-controlled
with TÜV type approval according to DGR 97/23/EG, cartridge-type**



PN [$p_{max.}$] = 10 to 350 bar

7501406.06.01.06

Description (standard units)

Design

The accumulator safety valves of Type D B C are directly-operated seat valves, and have TÜV type approval. The maximum pressure is limited by a lead-sealed stop. The setting of the maximum pressure is carried out in the factory. To prevent unauthorized resetting to another pressure, the cover hood is secured by a lead seal. Accumulator safety valves are used to protect the hydraulic accumulator against excessive pressure. The accumulator safety valve should be chosen such that the pump delivery is equal to or less than the permissible blowoff of the particular valve, taking into account the operating pressure.



Features

- High blowoff
- Tightly-closing seat valve

Type key

Accumulator safety valve

D	B	C	...	HK	E	...	017	...	O	...
			1			2		3		4

1 Size: **6** see table

10

2 Operating-pressure: **10** – 10 bar

61 – 63 bar

70 – 100 bar

75 – 150 bar

80 – 210 bar

85 – 250 bar

89 – 300 bar

90 – 315 bar

3 Engineering version: **1**

4 Sealing material: **O** – Perbunan

Ordering

When ordering, please state type No. along with catalog No. listed in the type survey overleaf.

Example of how to order

Wanted: Accumulator safety valve size 6, pressure setting 210 bar, blowoff max. 61 l/min.

Order: Accumulator safety valve,

Type No.: D B C 6 HK E 80 017 1 O O

Cat. No.: **6014339**

Parameters according to VDI 3276

Type designation	D B C 6 ..	D B C 10 ..
------------------	------------	-------------

General parameters

Designation	Accumulator safety valve
Symbol	
Design	Seat valve, directly controlled
Mounting position	Optional
Flow direction	From P to T
Ambient temperature range ϑ_u max. [°C]	–10 bis +50
Size	NG 6 10

Hydraulic parameters

Operating pressure range p_e [bar]	Pressure stage 10: 10 Pressure stage 61: 63 Pressure stage 70: 100 Pressure stage 75: 150 Pressure stage 80: 210 Pressure stage 81: 235 Pressure stage 85: 250 Pressure stage 89: 300 Pressure stage 90: 315 Pressure stage 91: 350
Pressure fluid temperature ϑ_m max. [°C]	+70
Viscosity range ν [mm²/s]	From 12 to 500
Blowoff G [l/min]	See type survey

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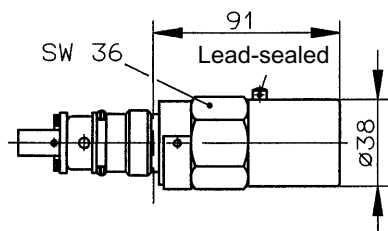
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Type survey (standard designs)

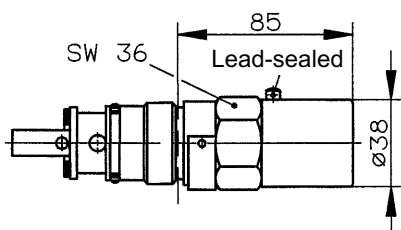
Size	Operating pressure p _e [bar]	Blowoff G [l/min]	TÜV type approval	Type	Cat. No.
6	30-39	5			will be compiled when ordering
	40-49	10			will be compiled when ordering
	50-62	13			will be compiled when ordering
	63	20	TÜV.SV.00.527.6.F.63.20	D B C 6 HK E 61 017 1 O O	6014336
	64-69	13			will be compiled when ordering
	70-79	14			will be compiled when ordering
	80-89	17			will be compiled when ordering
	90-99	23			will be compiled when ordering
	100	45	TÜV.SV.00.527.6.F.100.45	D B C 6 HK E 70 017 1 O O	6014337
	101-110	45			will be compiled when ordering
	111-129	17			will be compiled when ordering
	130-149	25			will be compiled when ordering
	150	40	TÜV.SV.00.527.6.F.150.40	D B C 6 HK E 75 017 1 O O	6014338
	151-159	39			will be compiled when ordering
	160	39	TÜV.SV.00.527.6.F.160.39	D B C 6 HK E 76 017 1 O O	6016119
	160-174	39			will be compiled when ordering
	175-189	46			will be compiled when ordering
	190-209	52			will be compiled when ordering
	210	61	TÜV.SV.00.527.6.F.210.61	D B C 6 HK E 80 017 1 O O	6014339
	211-219	35			will be compiled when ordering
	220-229	40			will be compiled when ordering
	230-239	45			will be compiled when ordering
	235	50	TÜV.SV.00.527.6.F.235.50	D B C 6 HK E 81 017 1 O O	6014753
	240-249	50			will be compiled when ordering
	250	55	TÜV.SV.00.527.6.F.250.55	D B C 6 HK E 85 017 1 O O	6014340
	250-274	55			will be compiled when ordering
	275-299	60			will be compiled when ordering
	300	65	TÜV.SV.00.527.6.F.300.65	D B C 6 HK E 89 017 1 O O	6014341
	300-329	65			will be compiled when ordering
	330-350	70			will be compiled when ordering
	350	70	TÜV.SV.00.527.6.F.350.70	D B C 6 HK E 91 017 1 O O	6015209
10	10	24	TÜV.SV.00.620.10.F.24.10	D B C 10 HK E 10 017 1 O O	6015871
	63	90	TÜV.SV.00.620.10.F.90.63	D B C 10 HK E 61 017 1 O O	6014744
	100	110	TÜV.SV.00.620.10.F.110.100	D B C 10 HK E 70 017 1 O O	6014745
	150	130	TÜV.SV.00.620.10.F.130.150	D B C 10 HK E 75 017 1 O O	6014610
	210	150	TÜV.SV.00.620.10.F.150.210	D B C 10 HK E 80 017 1 O O	6014746
	250	160	TÜV.SV.00.620.10.F.160.250	D B C 10 HK E 85 017 1 O O	6014747
	300	150	TÜV.SV.00.620.10.F.150.300	D B C 10 HK E 89 017 1 O O	6014748
	310	150	TÜV.SV.00.620.10.F.150.310	D B C 10 HK E 99 017 1 O O	6015799
	315	150	TÜV.SV.00.620.10.F.150.315	D B C 10 HK E 90 017 1 O O	6015810

Dimensional drawings

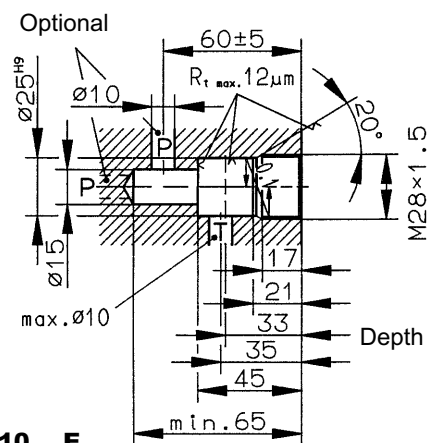
Pressure valve D B C 6 .. E ..



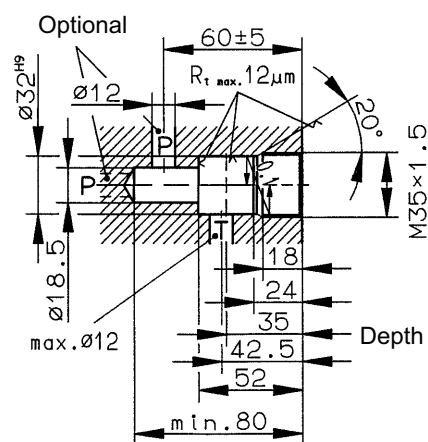
D B C 10 .. E ..



Receiving bore For D B C 6 .. E ..

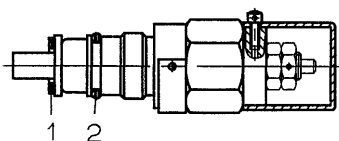


For D B C 10 .. E ..

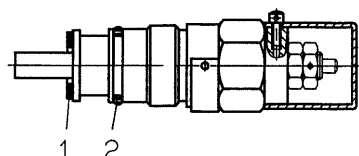


Spare parts drawings

D B C 6 HK ..



D B C 10 HK ..



Spare parts

Part	Qty.	Designation	Cat. No.
1	1	Usit-ring (17,4 x 24 x 1,5)	0657121
2	1	O-ring (20,3 x 2,6)	0701514

1 Set of spare parts consists of parts 1 and 2.
These spare parts are not available separately.

Part	Qty.	Designation	Cat. No.
1	1	Usit-ring (22,7 x 30 x 2)	0659044
2	1	O-ring (26,7 x 2,6)	0701518

1 Set of spare parts consists of parts 1 and 2.
These spare parts are not available separately.

Notice:

Accumulator safety valves

Size 6 and 10



**Systemtechnik
GmbH**

**Directly-controlled
with TÜV type approval according to DGR 97/23/EG, cartridge-type**



PN [p_{max.}] = 10 to 350 bar

7501406.06.01.06

Description (standard units)

Design

The accumulator safety valves of Type D B C are directly-operated seat valves, and have TÜV type approval. The maximum pressure is limited by a lead-sealed stop. The setting of the maximum pressure is carried out in the factory. To prevent unauthorized resetting to another pressure, the cover hood is secured by a lead seal. Accumulator safety valves are used to protect the hydraulic accumulator against excessive pressure. The accumulator safety valve should be chosen such that the pump delivery is equal to or less than the permissible blowoff of the particular valve, taking into account the operating pressure.



Features

- High blowoff
- Tightly-closing seat valve

Type key

Accumulator safety valve

D	B	C	...	HK	E	...	017	...	O	...
			1			2		3		4

1 Size: **6** see table

10

2 Operating-pressure: **10** – 10 bar

61 – 63 bar

70 – 100 bar

75 – 150 bar

80 – 210 bar

85 – 250 bar

89 – 300 bar

90 – 315 bar

3 Engineering version: **1**

4 Sealing material: **O** – Perbunan

Ordering

When ordering, please state type No. along with catalog No. listed in the type survey overleaf.

Example of how to order

Wanted: Accumulator safety valve size 6, pressure setting 210 bar, blowoff max. 61 l/min.

Order: Accumulator safety valve,

Type No.: D B C 6 HK E 80 017 1 O O

Cat. No.: **6014339**

Parameters according to VDI 3276

Type designation	D B C 6 ..	D B C 10 ..
------------------	------------	-------------

General parameters

Designation	Accumulator safety valve
Symbol	
Design	Seat valve, directly controlled
Mounting position	Optional
Flow direction	From P to T
Ambient temperature range ϑ_u max. [°C]	–10 bis +50
Size	NG 6 10

Hydraulic parameters

Operating pressure range p_e [bar]	Pressure stage 10: 10 Pressure stage 61: 63 Pressure stage 70: 100 Pressure stage 75: 150 Pressure stage 80: 210 Pressure stage 81: 235 Pressure stage 85: 250 Pressure stage 89: 300 Pressure stage 90: 315 Pressure stage 91: 350
Pressure fluid temperature ϑ_m max. [°C]	+70
Viscosity range ν [mm²/s]	From 12 to 500
Blowoff G [l/min]	See type survey

HERION Systemtechnik GmbH

Untere Talstraße 65

D-71263 Weil der Stadt-Merklingen

Tel.: +49 (0) 70 33/30 18-0

Fax: +49 (0) 70 33/30 18-10



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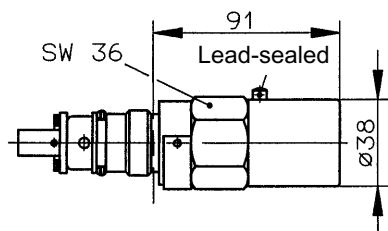
info@herion-systemtechnik.de

Type survey (standard designs)

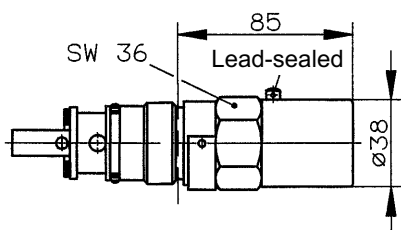
Size	Operating pressure p _e [bar]	Blowoff G [l/min]	TÜV type approval	Type	Cat. No.
6	30-39	5			will be compiled when ordering
	40-49	10			will be compiled when ordering
	50-62	13			will be compiled when ordering
	63	20	TÜV.SV.00.527.6.F.63.20	D B C 6 HK E 61 017 1 O O	6014336
	64-69	13			will be compiled when ordering
	70-79	14			will be compiled when ordering
	80-89	17			will be compiled when ordering
	90-99	23			will be compiled when ordering
	100	45	TÜV.SV.00.527.6.F.100.45	D B C 6 HK E 70 017 1 O O	6014337
	101-110	45			will be compiled when ordering
	111-129	17			will be compiled when ordering
	130-149	25			will be compiled when ordering
	150	40	TÜV.SV.00.527.6.F.150.40	D B C 6 HK E 75 017 1 O O	6014338
	151-159	39			will be compiled when ordering
	160	39	TÜV.SV.00.527.6.F.160.39	D B C 6 HK E 76 017 1 O O	6016119
	160-174	39			will be compiled when ordering
	175-189	46			will be compiled when ordering
	190-209	52			will be compiled when ordering
	210	61	TÜV.SV.00.527.6.F.210.61	D B C 6 HK E 80 017 1 O O	6014339
	211-219	35			will be compiled when ordering
	220-229	40			will be compiled when ordering
	230-239	45			will be compiled when ordering
	235	50	TÜV.SV.00.527.6.F.235.50	D B C 6 HK E 81 017 1 O O	6014753
	240-249	50			will be compiled when ordering
	250	55	TÜV.SV.00.527.6.F.250.55	D B C 6 HK E 85 017 1 O O	6014340
	250-274	55			will be compiled when ordering
	275-299	60			will be compiled when ordering
	300	65	TÜV.SV.00.527.6.F.300.65	D B C 6 HK E 89 017 1 O O	6014341
	300-329	65			will be compiled when ordering
	330-350	70			will be compiled when ordering
	350	70	TÜV.SV.00.527.6.F.350.70	D B C 6 HK E 91 017 1 O O	6015209
10	10	24	TÜV.SV.00.620.10.F.24.10	D B C 10 HK E 10 017 1 O O	6015871
	63	90	TÜV.SV.00.620.10.F.90.63	D B C 10 HK E 61 017 1 O O	6014744
	100	110	TÜV.SV.00.620.10.F.110.100	D B C 10 HK E 70 017 1 O O	6014745
	150	130	TÜV.SV.00.620.10.F.130.150	D B C 10 HK E 75 017 1 O O	6014610
	210	150	TÜV.SV.00.620.10.F.150.210	D B C 10 HK E 80 017 1 O O	6014746
	250	160	TÜV.SV.00.620.10.F.160.250	D B C 10 HK E 85 017 1 O O	6014747
	300	150	TÜV.SV.00.620.10.F.150.300	D B C 10 HK E 89 017 1 O O	6014748
	310	150	TÜV.SV.00.620.10.F.150.310	D B C 10 HK E 99 017 1 O O	6015799
	315	150	TÜV.SV.00.620.10.F.150.315	D B C 10 HK E 90 017 1 O O	6015810

Dimensional drawings

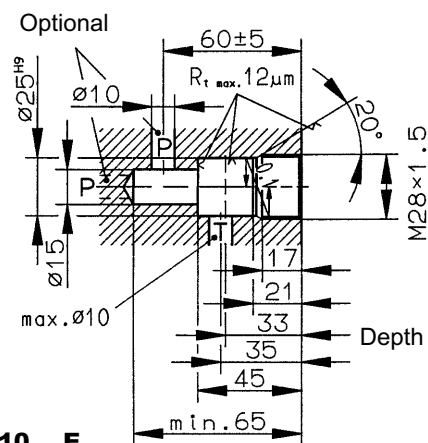
Pressure valve D B C 6 .. E ..



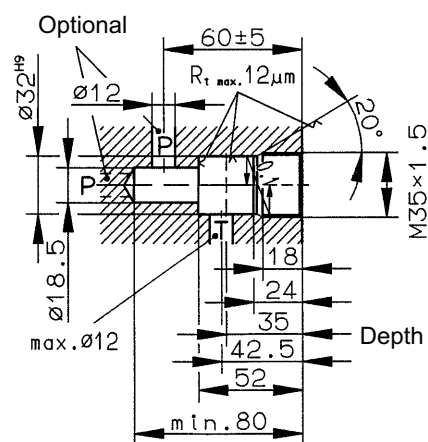
D B C 10 .. E ..



Receiving bore For D B C 6 .. E ..

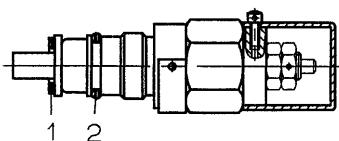


For D B C 10 .. E ..

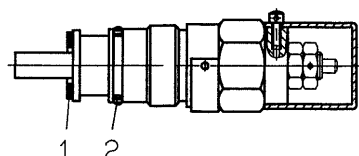


Spare parts drawings

D B C 6 HK ..



D B C 10 HK ..



Spare parts

Part	Qty.	Designation	Cat. No.
1	1	Usit-ring (17,4 x 24 x 1,5)	0657121
2	1	O-ring (20,3 x 2,6)	0701514

1 Set of spare parts consists of parts 1 and 2.
These spare parts are not available separately.

Part	Qty.	Designation	Cat. No.
1	1	Usit-ring (22,7 x 30 x 2)	0659044
2	1	O-ring (26,7 x 2,6)	0701518

1 Set of spare parts consists of parts 1 and 2.
These spare parts are not available separately.

Notice:

2-way pressure reducing valve NG 10, 25 and 32



Systemtechnik
GmbH

indirectly-controlled
Interface to DIN 24 340 and ISO

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

7501407.06.01.06

Description (standard units)

Design

The pressure reducing valves of Type D M K are indirectly-controlled spool-type valves.

Actuation

The pressure is set manually by means of a rotary knob. The setting can, if desired, be safeguarded by means of locking (E 10-closure) or by means of a lead seal.

Mounting

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

Line connection

Subplate, interface to
DIN 24 340 and ISO.



Features

- High flow rating
- Sensitive adjustment
- Stable control characteristics

Type code

Pressure reducing valve

D	M	K	...	...	G	...	001	...	O	...
			1	2		3		4		5

1 Nominal size NG: **10**

25
32

2 Actuation: **H** – Manual setting
HV – Manual setting (lockable)
HK – Set-screw with cover
(can be lead sealed)

3 Pressure-setting range: **70** – Up to 100 bar
90 – Up to 315 bar

4 Engineering version: **2**

5 Sealing material: **O** – Perbunan
V – Viton

Subplate

P	DM	...	G	...	001	...	O	O
		1		2		3		

1 Nomin: **10**

25
32

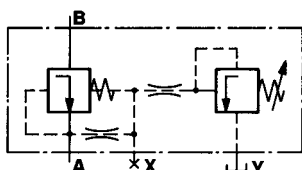
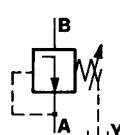
2 Line connection: **4** – G 1/2 (Internal- NG 10
6 – G 1 thread NG 25
8 – G 1 1/2 to NG 32
DIN ISO 228/1)

3 Engineering version: **1**

Parameters according to VDI 3276

Type designation	D M K 10..G...	D M K 25..G...	D M K 32..G...
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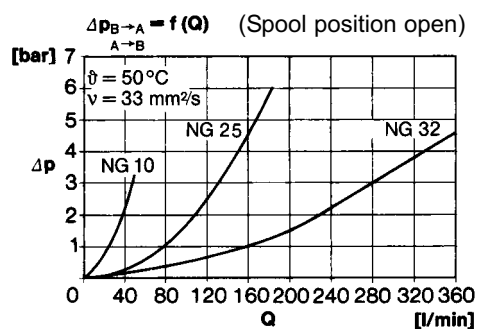
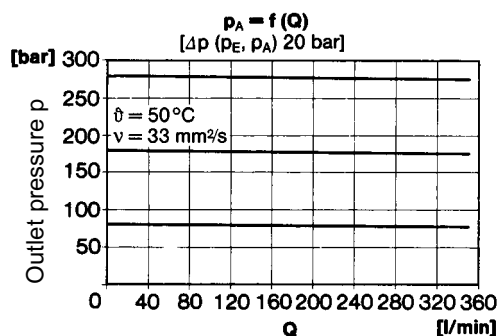
General parameters

Designation			Pressure reducing valve		
Symbol					
complete					
simplified					
Design			Spool-type valve, indirectly-controlled		
Type of mounting			Flange		
Line connection			Subplate		
Mounting position			Optional		
Flow direction			From B to A		
Actuation			Manual setting		
Weight of pressure reducing valve		[kg]	4,9	8,2	10
Weight of subplate		[kg]	1,6	3,7	5,9
Ambient temperature			-20 ... +50		
Size		v NG	10	25	32

Hydraulic parameters

Operating pressure range	p_e	[bar]	... 315
Adjustable pressure range	p_v	[bar]	Pressure stage 70: 5 bis 100 Pressure stage 90: 5 bis 315
Pressure medium temperature	ϑ_m max.	[°C]	+70
Viscosity range	v	[mm²/s]	12 ... 500
Flow	Q	[l/min]	See characteristic curves
Control oil flow	Q_{St}	[l/min]	0,5

Characteristic curves



Note: If flow is from A → B, setting pressure p_v must be higher than the max. return pressure at port B and corresponding Δp of diagram.

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. Units with flanged connection are delivered complete with fixing bolts and O-rings. The subplate must be ordered separately.

Example of how to order

Wanted: Pressure reducing valve NG 10 for flanged mounting with manual setting. Setting pressure max. 315 bar, with mating subplate.

Pressure reducing valve:

Type-No.: D M K 10 H G 90 001 2 O O
Cat. No.: **6058600**

Subplate:

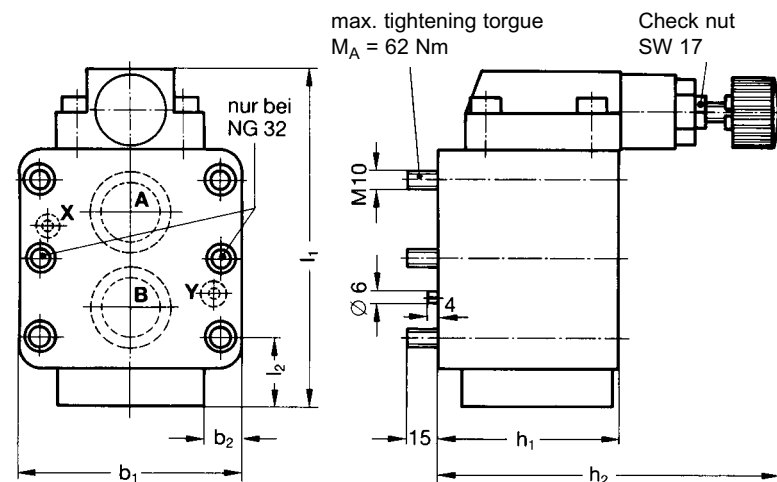
Type-No.: P DM 10 G 4 001 1 O O
Cat. No.: **2840002**

Type survey (standard versions)

NG	Q [l/min]	p _v max. [bar]	Actuation	Line connection	Typ	Cat. No.
10	40	100 315	Manual setting	Subplate G 1/2 P DM 10 G 4 001 1 O O 2840002	D M K 10 H G 70 001 2 OO D M K 10 H G 90 001 2 OO	6058400 6058600
25	150	100 315		Subplate G 1 P DM 25 G 6 001 1 O O 2840003	D M K 25 H G 70 001 2 OO D M K 25 H G 90 001 2 OO	6058800 6059000
32	350	100 315		Subplate G 1 1/2 P DM 32 G 8 001 1 O O 2840004	D M K 32 H G 70 001 2 OO D M K 32 H G 90 001 2 OO	6059200 6059400

Dimensional drawings

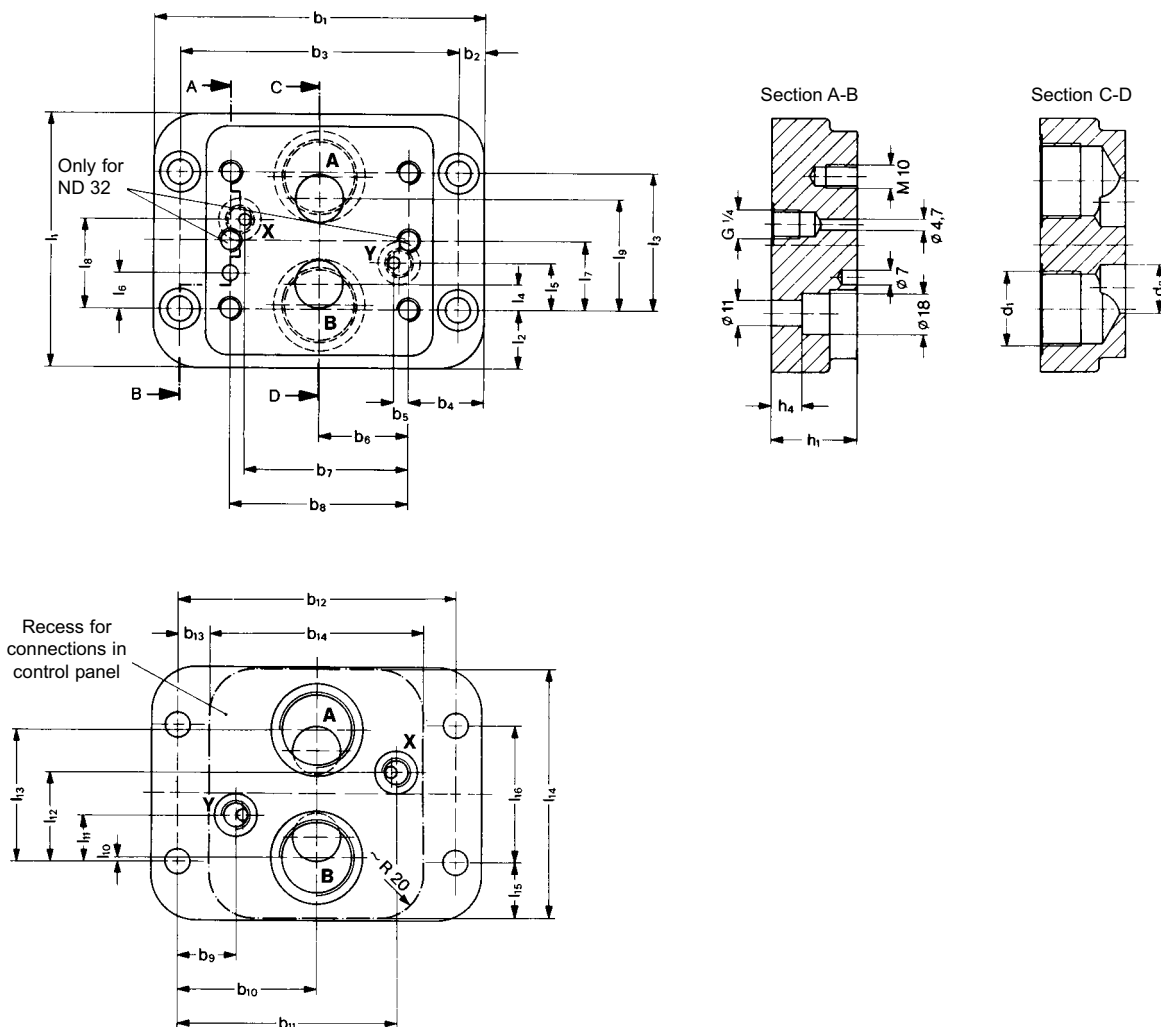
Pressure reducing valves D M K..H...



Dimensional drawings

Subplates

- G 1/2 with hole pattern according to DIN 24340-D 10-1 and ISO 5781-AG-06-2-A
 G 1 with hole pattern according to DIN 24340-D 25-1 and ISO 5781-AH-08-2-A
 G 1 1/2 with hole pattern according to DIN 24340-D 32-1 and ISO 5781-AJ-10-2-A

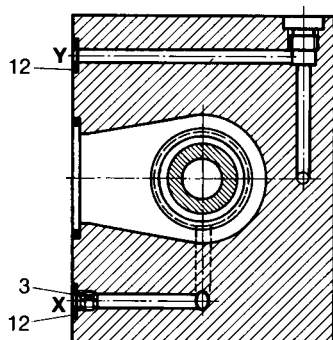
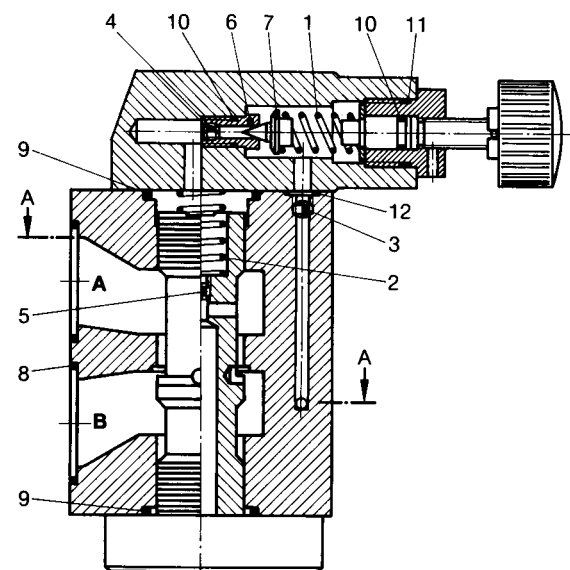


NG	b_1	b_2	b_3	b_4	b_5	b_6	b_7	b_8	b_9	b_{10}	b_{11}	b_{12}	b_{13}	b_{14}	d_1	d_2
10	130	11,5	107	31,7	7,9	33,3	58,7	66,6	28	53,5	79	107	12	83	G 1/2	10
25	147	11,5	124	33,8	6,4	39,7	73	79,4	26,7	62	97,3	124	10	103	G 1	20
32	160	10,8	138,5	31,6	3,9	48,4	92,9	96,8	24,7	69,2	113,7	138,5	9	120	G1 1/2	32

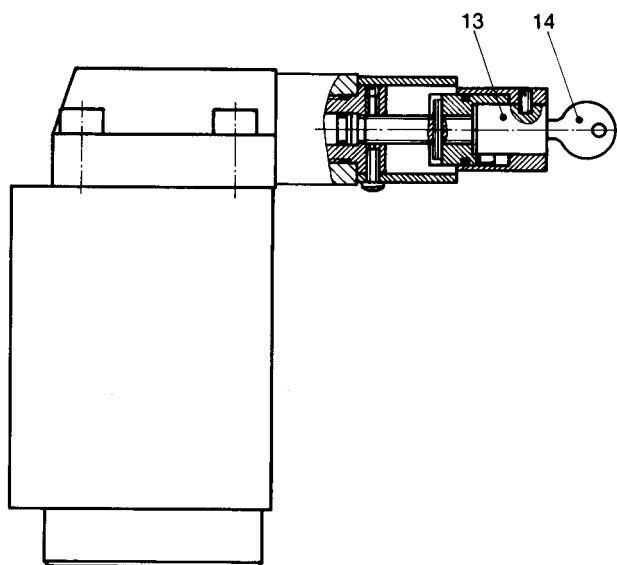
NG	h_1	h_4	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	l_{10}	l_{11}	l_{12}	l_{13}	l_{14}	l_{15}	l_{16}
10	29	8,5	75	16,1	42,8	7,1	21,4	11	-	21,4	35,7	3	21,4	21,4	39,8	73	15	42,8
25	38	13,5	112	25,8	60,4	11,2	20,6	15,8	-	39,7	49,2	2,2	20,6	39,7	58,2	110	25	60,4
32	43	18,5	145	30,5	84	16,6	24,5	21,3	42	59,5	67,7	6	24,5	59,5	78	142	29	84

Spare parts drawings

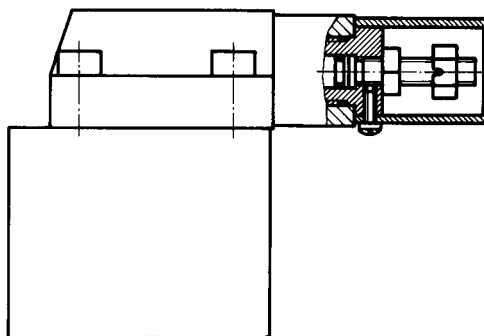
D M K..H...



D M K..HV...



D M K..HK...



Spare parts (Numer of pieces)

Part	Designation	NG 10	NG 25	NG 32	Cat. No.
1	Spring				
	Pressure stage 70	1	1	1	0701810
	Pressure stage 90:	1	1	1	0701853
2	Spring	1	-	-	0722318
2	Spring	-	1	-	0722319
2	Spring	-	-	1	0722320
3	Nozzle (ø 1,2 mm)	2	2	2	0567676
4	Nozzle (ø 1,1 mm)	1	1	1	0568648
5	Nozzle (ø 0,8 mm)	1	1	1	0498416
6	Valve seat	1	1	1	0726179
7	Cone	1	1	1	0499833
8	O-ring (17,1 x 2,6)	2	-	-	0701290
8	O-ring (28,2 x 2,6)	-	2	-	0701297
8	O-ring (37,7 x 3,5)	-	-	2	0701350
9	O-ring (20,4 x 1,8)	1	-	-	0701259
9	O-ring (28,2 x 3,5)	-	2	-	0701344
9	O-ring (36,1 x 3,5)	-	-	2	0701349

Part	Designation	NG 10	NG 25	NG 32	Cat. No.
10	O-ring (77,7 x 1,8)	2	2	2	0701621
11	O-ring (20,4 x 1,8)	1	1	1	0701259
12	O-ring (9,2 x 1,8)	3	3	3	0701252
13	Lock cylinder with key	1	1	1	0568519
14	Key	1	1	1	0660051

Spare parts kits

8...12	Spare parts	1	-	-	0726550
8...12	Spare parts	-	1	-	0726699
8...12	Spare parts	-	-	1	0726645

Mounting bolts

-	Cylinder bolt (M10 x 90 DIN 912-10.9)	4	4	-	0700462
-	Cylinder bolt (M10 x 100 DIN 912-10.9)	-	-	6	0700465

Notes:

2-way pressure reducing valve NG 10, 25 and 32



Systemtechnik
GmbH

indirectly-controlled
Interface to DIN 24 340 and ISO

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

7501407.06.01.06

Description (standard units)

Design

The pressure reducing valves of Type D M K are indirectly-controlled spool-type valves.

Actuation

The pressure is set manually by means of a rotary knob. The setting can, if desired, be safeguarded by means of locking (E 10-closure) or by means of a lead seal.

Mounting

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

Line connection

Subplate, interface to
DIN 24 340 and ISO.



Features

- High flow rating
- Sensitive adjustment
- Stable control characteristics

Type code

Pressure reducing valve

D	M	K	...	...	G	...	001	...	O	...
			1	2		3		4		5

1 Nominal size NG: **10**

25
32

2 Actuation: **H** – Manual setting
HV – Manual setting (lockable)
HK – Set-screw with cover
(can be lead sealed)

3 Pressure-setting range: **70** – Up to 100 bar
90 – Up to 315 bar

4 Engineering version: **2**

5 Sealing material: **O** – Perbunan
V – Viton

Subplate

P	DM	...	G	...	001	...	O	O
		1		2		3		

1 Nomin: **10**

25
32

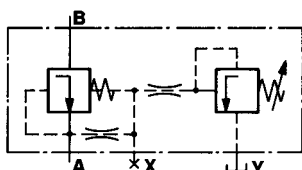
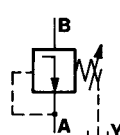
2 Line connection: **4** – G 1/2 (Internal- NG 10
6 – G 1 thread NG 25
8 – G 1 1/2 to NG 32
DIN ISO 228/1)

3 Engineering version: **1**

Parameters according to VDI 3276

Type designation	D M K 10..G...	D M K 25..G...	D M K 32..G...
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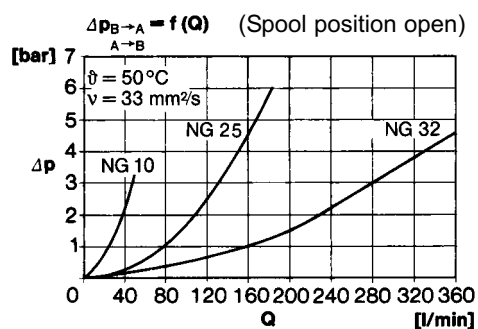
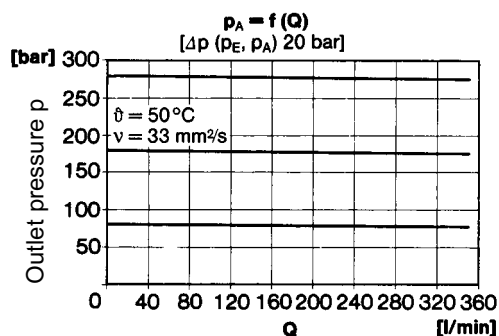
General parameters

Designation			Pressure reducing valve		
Symbol					
complete					
simplified					
Design			Spool-type valve, indirectly-controlled		
Type of mounting			Flange		
Line connection			Subplate		
Mounting position			Optional		
Flow direction			From B to A		
Actuation			Manual setting		
Weight of pressure reducing valve		[kg]	4,9	8,2	10
Weight of subplate		[kg]	1,6	3,7	5,9
Ambient temperature			ϑ_u [°C] -20 ... +50		
Size		v NG	10	25	32

Hydraulic parameters

Operating pressure range	p_e	[bar]	... 315	
Adjustable pressure range	p_v	[bar]	Pressure stage 70: 5 bis 100 Pressure stage 90: 5 bis 315	
Pressure medium temperature	ϑ_m max.	[°C]	+70	
Viscosity range	v	[mm²/s]	12 ... 500	
Flow	Q	[l/min]	See characteristic curves	
Control oil flow	Q_{St}	[l/min]	0,5	

Characteristic curves



Note: If flow is from A → B, setting pressure p_v must be higher than the max. return pressure at port B and corresponding Δp of diagram.

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. Units with flanged connection are delivered complete with fixing bolts and O-rings. The subplate must be ordered separately.

Wanted: Pressure reducing valve NG 10 for flanged mounting with manual setting. Setting pressure max. 315 bar, with mating subplate.

Type-No.: D M K 10 H G 90 001 2 O O
Cat. No.: **6058600**

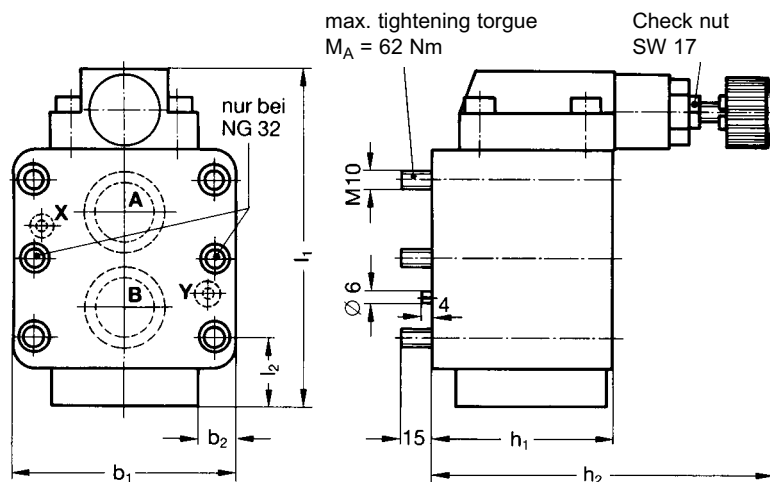
Type-No.: P DM 10 G 4 001 1 O O
Cat. No.: **2840002**

Type survey (standard versions)

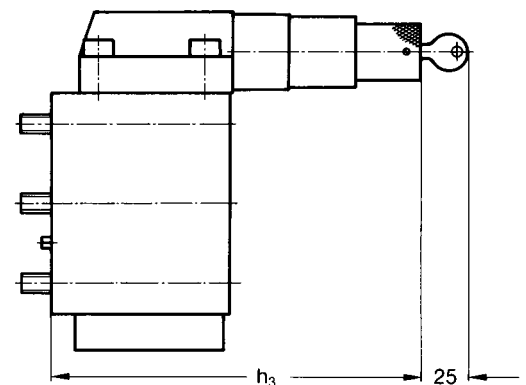
NG	Q [l/min]	p _v max. [bar]	Actuation	Line connection	Typ	Cat. No.
10	40	100 315	Manual setting	Subplate G 1/2 P DM 10 G 4 001 1 O O 2840002	D M K 10 H G 70 001 2 OO D M K 10 H G 90 001 2 OO	6058400 6058600
25	150	100 315		Subplate G 1 P DM 25 G 6 001 1 O O 2840003	D M K 25 H G 70 001 2 OO D M K 25 H G 90 001 2 OO	6058800 6059000
32	350	100 315		Subplate G 1 1/2 P DM 32 G 8 001 1 O O 2840004	D M K 32 H G 70 001 2 OO D M K 32 H G 90 001 2 OO	6059200 6059400

Dimensional drawings

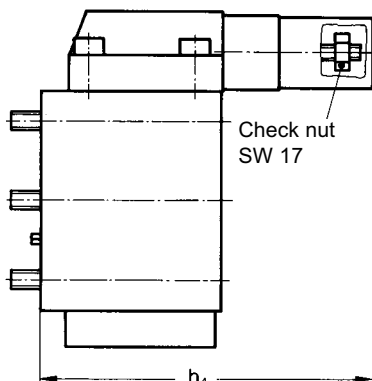
Pressure reducing valves D M K..H...



D M K..HV...



D M K..HK...

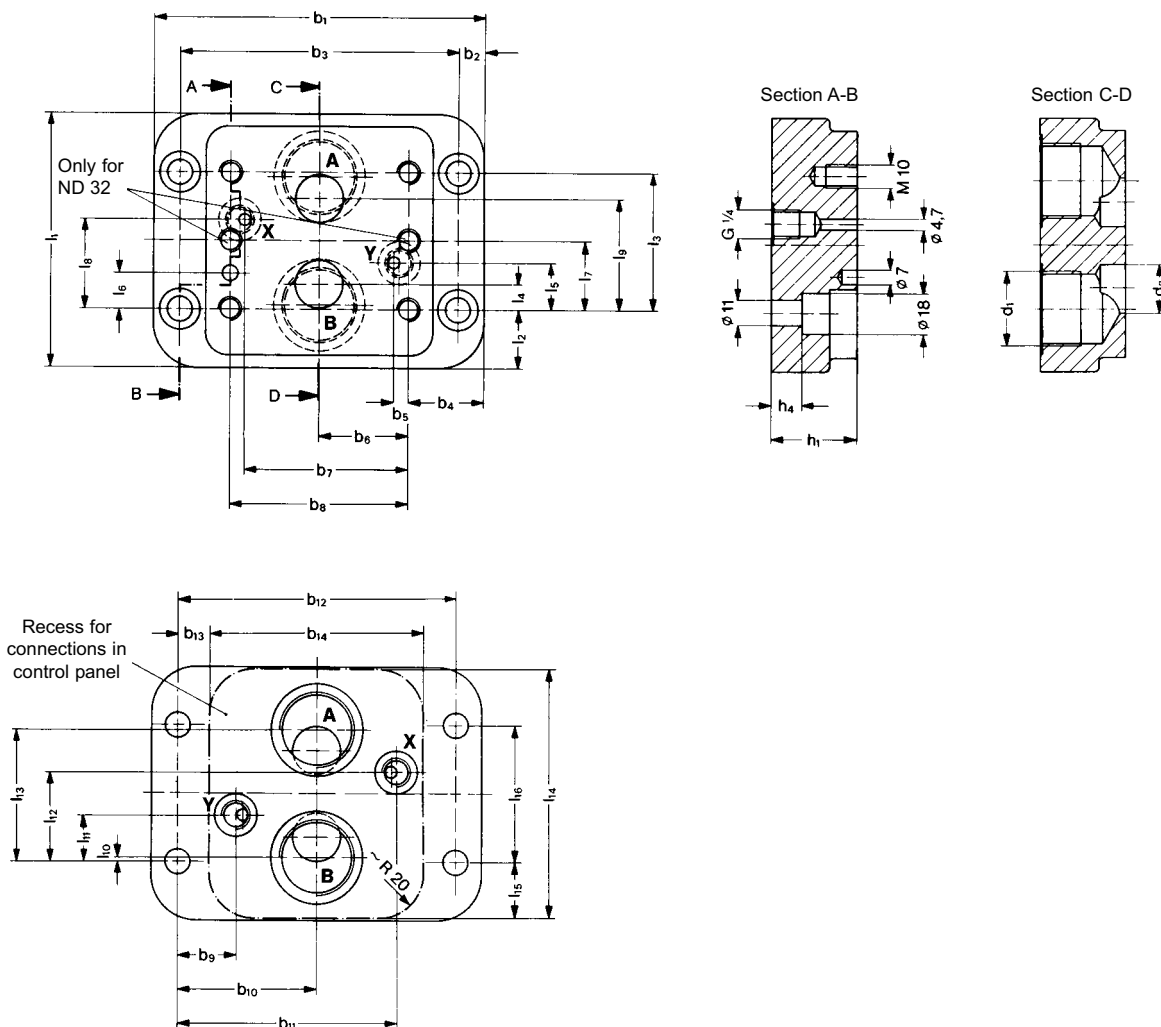


NG	b ₁	b ₂	h ₁	h ₂	h ₃	h ₄	l ₁	l ₂
10	88,5	11	86	168	183	163	135	31
25	103,5	12	86	168	183	163	176	51
32	119	11	98	182	197	177	178	37

Dimensional drawings

Subplates

- G 1/2 with hole pattern according to DIN 24340-D 10-1 and ISO 5781-AG-06-2-A
 G 1 with hole pattern according to DIN 24340-D 25-1 and ISO 5781-AH-08-2-A
 G 1 1/2 with hole pattern according to DIN 24340-D 32-1 and ISO 5781-AJ-10-2-A

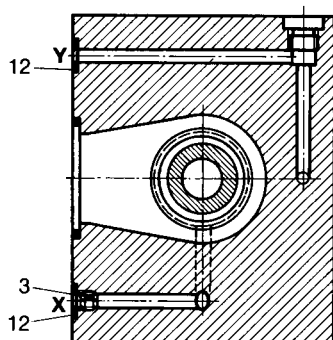
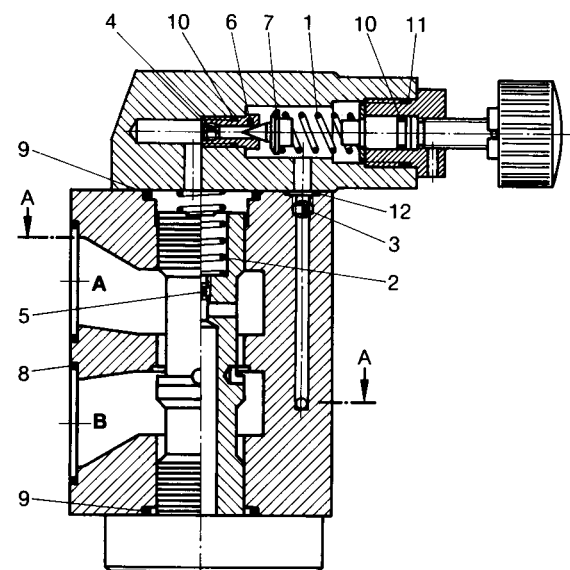


NG	b_1	b_2	b_3	b_4	b_5	b_6	b_7	b_8	b_9	b_{10}	b_{11}	b_{12}	b_{13}	b_{14}	d_1	d_2
10	130	11,5	107	31,7	7,9	33,3	58,7	66,6	28	53,5	79	107	12	83	G 1/2	10
25	147	11,5	124	33,8	6,4	39,7	73	79,4	26,7	62	97,3	124	10	103	G 1	20
32	160	10,8	138,5	31,6	3,9	48,4	92,9	96,8	24,7	69,2	113,7	138,5	9	120	G1 1/2	32

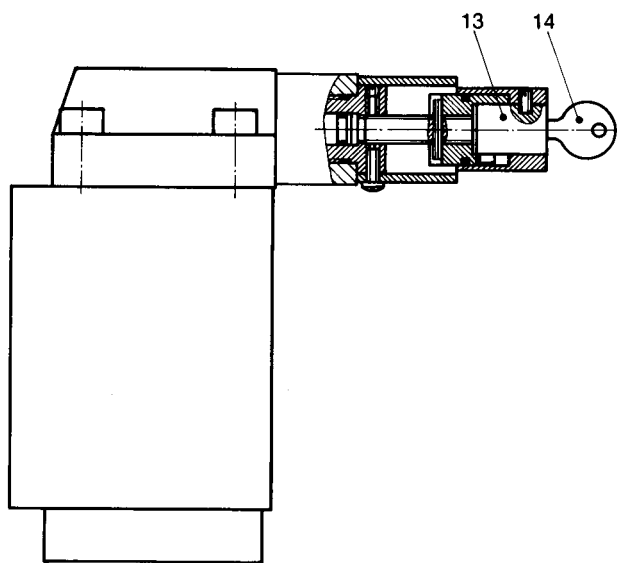
NG	h_1	h_4	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	l_{10}	l_{11}	l_{12}	l_{13}	l_{14}	l_{15}	l_{16}
10	29	8,5	75	16,1	42,8	7,1	21,4	11	-	21,4	35,7	3	21,4	21,4	39,8	73	15	42,8
25	38	13,5	112	25,8	60,4	11,2	20,6	15,8	-	39,7	49,2	2,2	20,6	39,7	58,2	110	25	60,4
32	43	18,5	145	30,5	84	16,6	24,5	21,3	42	59,5	67,7	6	24,5	59,5	78	142	29	84

Spare parts drawings

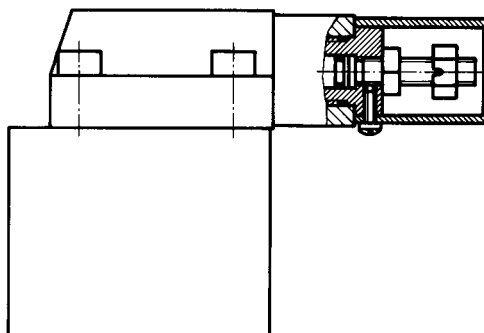
D M K..H...



D M K..HV...



D M K..HK...



Spare parts (Numer of pieces)

Part	Designation	NG 10	NG 25	NG 32	Cat. No.
1	Spring				
	Pressure stage 70	1	1	1	0701810
	Pressure stage 90:	1	1	1	0701853
2	Spring	1	-	-	0722318
2	Spring	-	1	-	0722319
2	Spring	-	-	1	0722320
3	Nozzle (ø 1,2 mm)	2	2	2	0567676
4	Nozzle (ø 1,1 mm)	1	1	1	0568648
5	Nozzle (ø 0,8 mm)	1	1	1	0498416
6	Valve seat	1	1	1	0726179
7	Cone	1	1	1	0499833
8	O-ring (17,1 x 2,6)	2	-	-	0701290
8	O-ring (28,2 x 2,6)	-	2	-	0701297
8	O-ring (37,7 x 3,5)	-	-	2	0701350
9	O-ring (20,4 x 1,8)	1	-	-	0701259
9	O-ring (28,2 x 3,5)	-	2	-	0701344
9	O-ring (36,1 x 3,5)	-	-	2	0701349

Part	Designation	NG 10	NG 25	NG 32	Cat. No.
10	O-ring (77,7 x 1,8)	2	2	2	0701621
11	O-ring (20,4 x 1,8)	1	1	1	0701259
12	O-ring (9,2 x 1,8)	3	3	3	0701252
13	Lock cylinder with key	1	1	1	0568519
14	Key	1	1	1	0660051

Spare parts kits

8...12	Spare parts	1	-	-	0726550
8...12	Spare parts	-	1	-	0726699
8...12	Spare parts	-	-	1	0726645

Mounting bolts

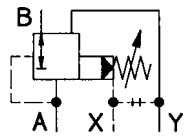
-	Cylinder bolt (M10 x 90 DIN 912-10.9)	4	4	-	0700462
-	Cylinder bolt (M10 x 100 DIN 912-10.9)	-	-	6	0700465

Notes:

Parameters according to VDI 3276

Type designation	D Y K 10 ...
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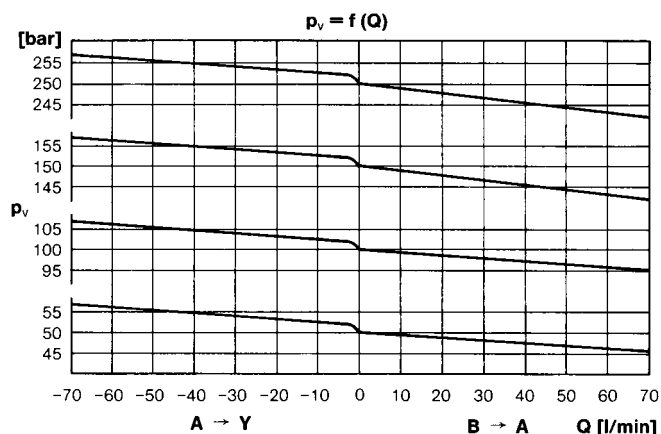
General parameters

Designation	Pressure reducing valve		
Symbol			
Design	Spool-type valve, pilot controlled		
Type of mounting	Flange		
Line connection	Subplate		
Mounting position	Optional		
Flow direction	from B to A, from A to Y		
Actuation	Manual setting		
Weight	[kg]	4.9	
Weight of subplate	[kg]	1.6	
Ambient temperature	ϑ_u	[°C]	-20 to +50
Size	NG	10	

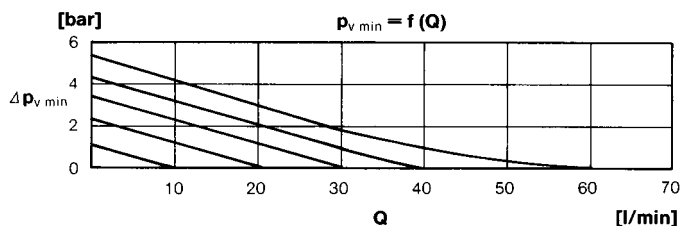
Hydraulic parameters

Operating pressure range	p_e	[bar]	up to 315
Adjustable pressure range	p_v	[bar]	Pressure stage 70: 5 to 100 Pressure stage 90: 5 to 315
Pressure fluid temperature	ϑ_m max.	[°C]	+70
Viscosity range	ν	[mm²/s]	12 to 500
Flow	Q	[l/min]	See characteristic curves
Control oil flow	Q_{St}	[l/min]	0.5

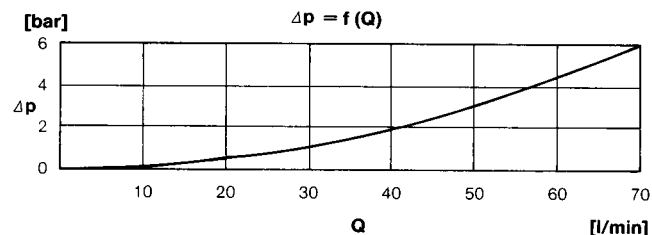
Characteristic curves



p_v values valid if $p_Y = 0$ bar



Increase of outlet pressure



Flow resistance B → A with piston in open position

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. Units with flanged connection are delivered complete with mounting bolts and O-rings. The subplate must be ordered separately.

Example of order

2-way pressure reducing valve size 10 for flanged mounting with manual setting. Setting pressure max. 315 bar, with mating subplate.

3-way pressure reducing valve:

Type No.: D Y K 10 H A 90 001 2 O O
Cat. No.: **6014254**

Subplate:

Type No.: P DY 10 A 4 005 1 O O
Cat. No.: **2840085**

Type survey (standard versions)

Size	Q [l/min]	p _v max. [bar]	Actuation	Line connection	Type	Cat No.
10	70	100 315	Manual	Subplate G 1/2 P DY 10 A 4 005 1 O O (Port X closed) 2840085	1) D Y K 10 H A 70 001 2 O O 1) D Y K 10 H A 90 001 2 O O	6014253 6014254

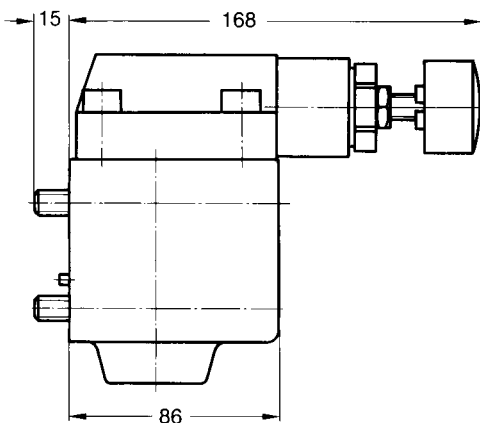
1) Note: Unit is furnished with internal control oil return via port Y (standard version).

For units with external control oil return via port X, not instructions on spare parts drawings.

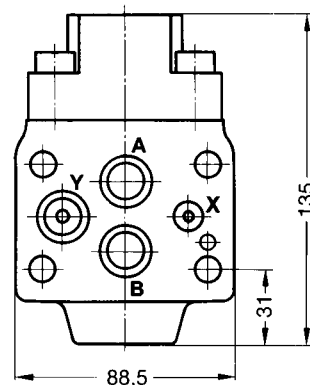
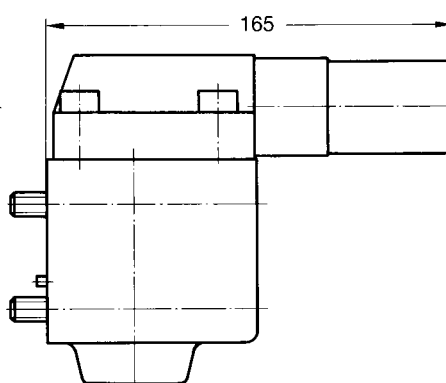
Dimensional drawings (in mm)

Pressure reducing valves

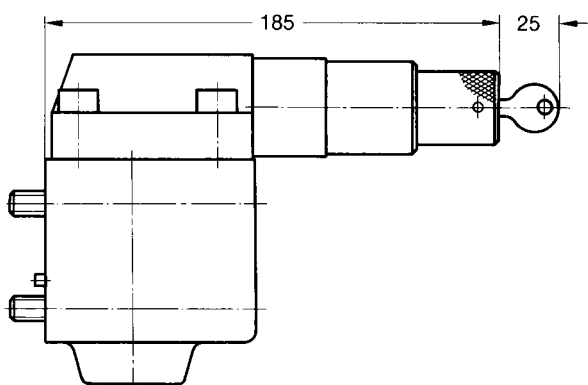
D Y K..H...



D Y K..HK...



D Y K..HV...



Pressure relief valves

Size 10



Systemtechnik
GmbH

direct operated
interface to DIN 24 340 and ISO 6264

PN [p_{max.}] = 315 bar

7501410.06.02.06

Description (standard units)

Design

The pressure relief valves of type D B C 10 are direct-operated seat valves.

Actuation

The pressure is set manually by means of a rotary knob. The setting can, if desired, be locked (E10-closure) or lead sealed.

Line connection and mounting

The mounting of the units depends on the line connection and type:

Line connection:	Mounting:
Subplate	On subplate by means of bolts Sealing by means of O-rings
Threaded port	On equipment rack, etc. by means of bolts
Plug-in design	Complete unit is screwed into threaded bore



Features

- High flow rating
- Insensitive to vibration

Type key

Pressure relief valve

D	B	C	10	...	...	...	...	001	...	O	...
				1	2	3	4		5		6

- 1 Actuation: **H** – Manual setting
HV – Manual setting (lockable)
HK – Set-screw with cover (can be lead sealed)
- 2 Line connection: **S5** – Threaded port - flange mounting
E – Plug-in design
G – Subplate, interface to DIN 24 340-E10 and ISO 6264-AR-06-2-A
- 3 Port size: **5** – G 3/4 (Internal thread to DIN ISO 228/1)
(except plug-in-design and subplate)
- 4 Pressure setting range: **50** – up to 50 bar
70 – up to 100 bar
80 – up to 210 bar
90 – up to 315 bar
- 5 Engineering version: **1**
2 – (with subplate)
- 6 Sealing material: **O** – Perbunan
V – Viton

Subplate

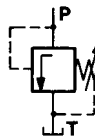
P	DB	10	G	...	001	...	O	O
				1		2		

- 1 Line connection: **4** – G 1/2 (Internal thread to DIN ISO 228/1)
¹⁾ **5** – G 3/4
- 2 Engineering version: **1**
- ¹⁾ Upon request

Parameters according to VDI 3276

Type designation	D B C 10...S5..	D B C 10...G..	D B C 10...E..
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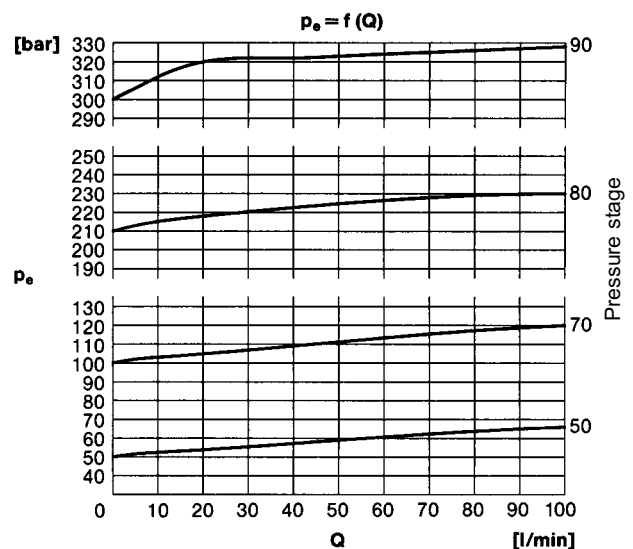
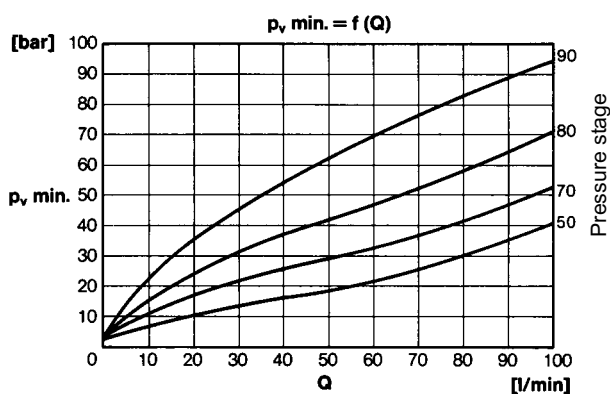
General parameters

Designation	Pressure relief valve			
Symbol				
Design	Seat valve, directoperated			
Type mounting	Flange			Plug-in design
Line connection	Thread	Subplate		
Mounting position	Optional			
Flow direction	From P to T			
Actuation	By hand			
Weight	[kg]	2.6	2.6	0.7
Weight of subplate	[kg]	-	2	-
Ambient temperature range	ϑ_u	[°C]	-20 to +50	
Size	NG	10		

Hydraulic parameters

Operating pressure range p_e max. [bar]	Up to 315		
Adjustable pressure range p_v [bar]	p_v min.: see characteristic curve p_v max.: Pressure stage 50: 50 Pressure stage 70: 100 Pressure stage 80: 210 Pressure stage 90: 315		
Pressure fluid temperature ϑ_m max. [°C]	+70		
Viscosity range ν [mm²/s]	12 bis 500		
Flow Q [l/min]	See characteristic curve		

Characteristic curve



p_v min. = smallest adjustable pressure under which valve remains closed by pressure spring $Q = 0$ (l/min).

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. Units with flanged connection are delivered complete with mounting bolts and O-rings. The subplate must be ordered separately.

Wanted: Pressure relief valve size 10, with threaded port for switch board installation, with manual setting, setting pressure max. 315 bar

Type No.: D B C 10 H S 5 90 001 1 O O
Cat. No.: **6014598**

Size	Q [l/min]	p _v max. [bar]	Actuation	Line connection	Type	Cat. No.
10	See charac- teristic curve	50	By hand	Threaded connection Flange mounting	D B C 10 H S5 50 001 1 O O	6014621
		100			D B C 10 H S5 70 001 1 O O	6014622
		210			D B C 10 H S5 80 001 1 O O	6014623
		315			D B C 10 H S5 90 001 1 O O	6014598
		50		Plug-in connection	D B C 10 H E 50 001 1 O O	6014601
		100			D B C 10 H E 70 001 1 O O	6014624
		210			D B C 10 H E 80 001 1 O O	6014625
		315			D B C 10 H E 90 001 1 O O	6014574
		50		Subplate G 1/2 P D B 10 G 4 001 1 O O 2852600	D B C 10 H G 50 001 2 O O	6014626
		100			D B C 10 H G 70 001 2 O O	6014627
		210			D B C 10 H G 80 001 2 O O	6014628
		315			D B C 10 H G 90 001 2 O O	6014597

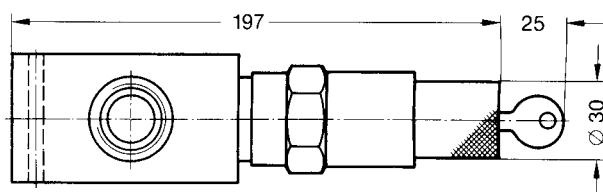
Technical drawing of a mechanical part, likely a bracket or support, showing dimensions and labels. The part is rectangular with a total width of 90 and a total height of 80. Key dimensions include:

- Top edge: 10 (left offset), 55 (distance to center of hole T).
- Left edge: 80 (total height), 60 (distance to center of hole P).
- Bottom edge: 20 (left offset), 47.5 (distance to center of hole P).
- Right edge: 10 (distance to center of hole T).

Labels and features:

- T**: Top hole, located 55 units from the left edge and 10 units from the top edge.
- P**: Bottom hole, located 47.5 units from the left edge and 20 units from the bottom edge.
- L**: A label near the top hole, possibly indicating a length or distance.
- 10**: A dimension line indicating a distance of 10 units from the right edge to the center of hole T.
- 60**: A dimension line indicating a distance of 60 units from the top edge to the center of hole P.
- 20**: A dimension line indicating a distance of 20 units from the bottom edge to the center of hole P.
- 47.5**: A dimension line indicating a distance of 47.5 units from the left edge to the center of hole P.
- 55**: A dimension line indicating a distance of 55 units from the left edge to the center of hole T.
- 90**: A dimension line indicating the total width of the part.
- 80**: A dimension line indicating the total height of the part.

The drawing also shows a cross-section of a cylindrical component attached to the right side of the main rectangular part, with a flange and a central shaft.

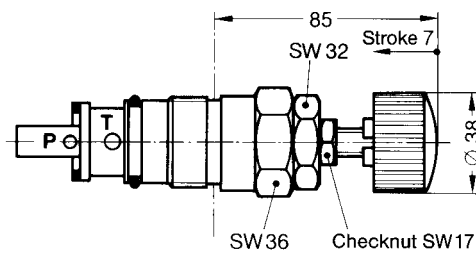


Dimensional drawings

Pressure relief valve

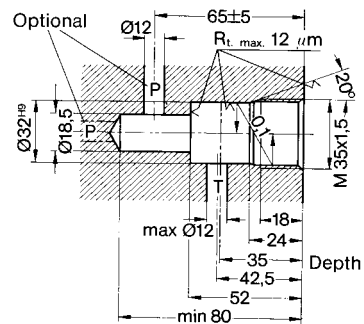
D B C 10 H E...

Tightening torque approx. 140 Nm

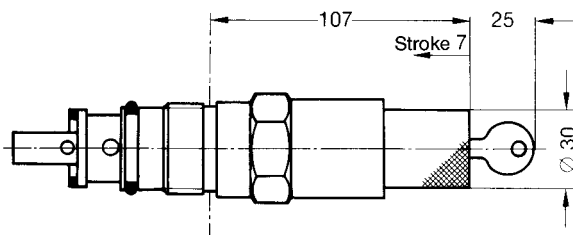


Mounting bore

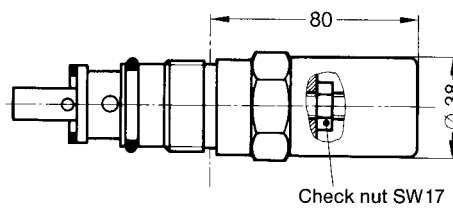
to D B C 10..E...



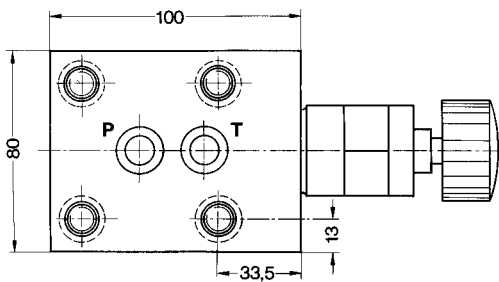
D B C 10 HV E...



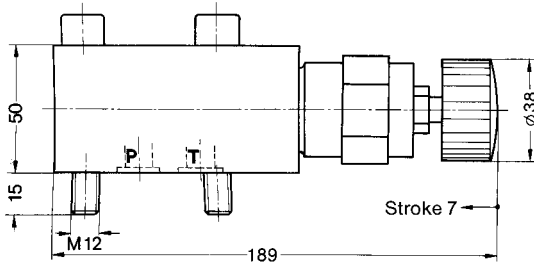
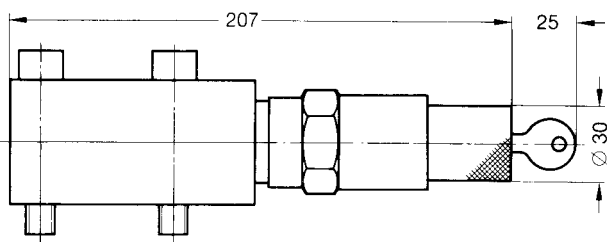
D B C 10 HK E...



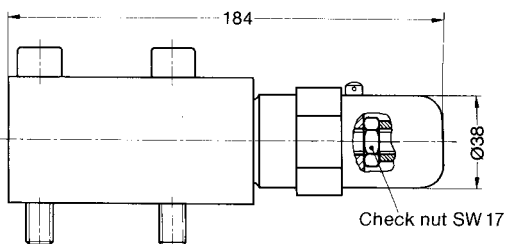
D B C 10 H G...



D B C 10 HV G...

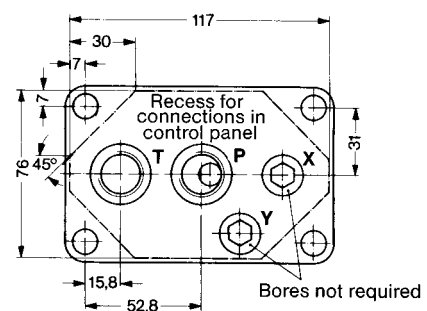
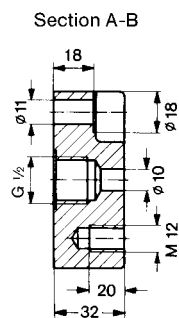
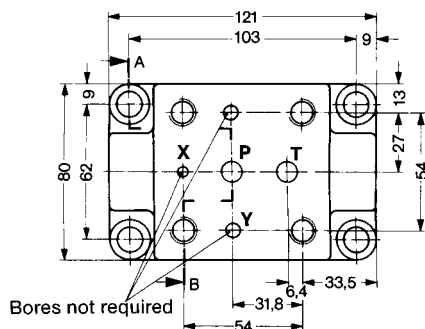


D B C 10 HK G...



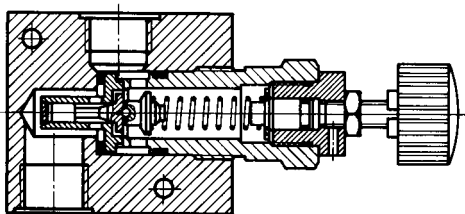
Tightening torque
approx 110 Nm

Subplate with hole pattern to DIN 24 340-E10 and ISO 6264-AR-06-2-A G 1/2

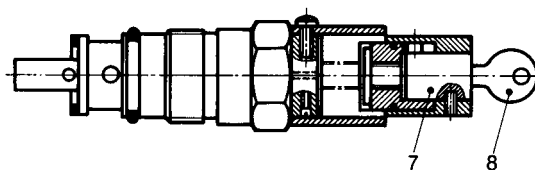


Spare part drawings

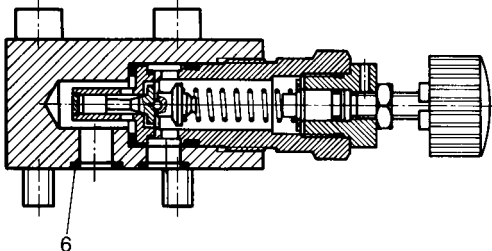
D B C 10 H S5...



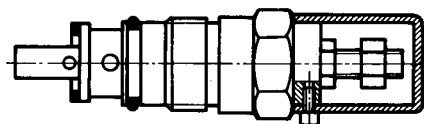
D B C 10 HV...



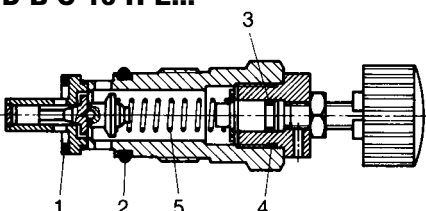
D B C 10 H G...



D B C 10 HK...



D B C 10 H E...



Spare parts (Number of pieces)

Part	Designation	D B C 10 H S5... D B C 10 HK S5... D B C 10 H E... D B C 10 HK E...	D B C 10 HV S5... D B C 10 HV E...	D B C 10 H G... D B C 10 HK G...	D B C 10 HV G...	Cat. No.
1	Usit-ring (22.7 x 30 x 2)	1	1	1	1	0659044
2	O-ring (26.7 x 2.6)	1	1	1	1	0701518
3	O-ring (7.6 x 1.8)	1	1	1	1	0701484
4	O-ring (20.3 x 1.8)	1	1	1	1	0701259
5	Spring Pressure stage 50 Pressure stage 70 Pressure stage 80 Pressure stage 90	1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0720691 0720692 0720693 0720403
6	O-ring (13.9 x 2.6)	-	-	2	2	0701289
7	Lock cylinder with key	-	1	-	1	0568519
8	Key	-	1	-	1	0660051

Mounting bolts

-	Cylinder bolt (M 12 x 65 DIN 912-10.9)	-	-	4	4	0700476
Spare parts sets		1	1	-	-	0727599
		-	-	1	1	0727600
1 set consisting of parts:		1...4	1...4	1...4 and 6	1...4 and 6	-

2-Way Flow Control Valves

Nominal sizes 6 and 10



Systemtechnik
GmbH

as intermediate device for directional control valves NG 6 and 10
Interface to DIN 24 340 and ISO 4401

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

7501416.06.05.06

Description (standard units)

Design

The standard flow control valves are fitted to support plates, and can therefore be used as intermediate devices.

Actuation

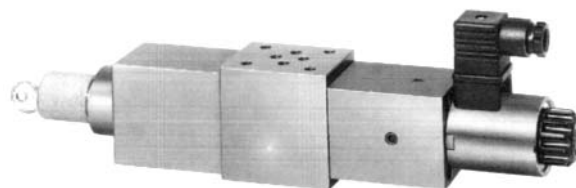
The flow rate is adjusted manually by means of a rotary knob. The setting can if desired be safeguarded by means of a lock (Type E 10).

Mounting

The devices are bolted into position between the directional control valve and subplate and sealed by means of O-rings. For dimensions and mounting material please see 7501421.

Line connection

Subplate, interface to DIN 24 340 and ISO 4401, intermediate connection.



Features

- Simple mounting, thanks to tubeless connection
- Space-saving design
- Allows control to be extended at low cost

Type key

2-way flow control valve

M	...	S	...	HV	GZ	...	...	...	O	V
	1		2			3	4	5		

1 Operating

- characteristics: **R0** - Flow control at B (NG 6 only)
R1 - Flow control at A (NG 6 only)
R2 - Flow control at A and B (NG 6 and NG 10)
R3 - Flow control at P (NG 10 only)
R4 - Flow control at A_Z or B_R (NG 10 only)
R5 - Flow control at A_R or B_Z (NG 10 only)
R7 - Flow control at T (NG 10 only)
R8 - Flow control at P or T (NG 6 only)

2 Nominal size NG: **6**
10

3 Flow rate: **1** - 2 l/min
3 - 8 l/min
4 - 16 l/min
024 - 24 l/min

4 Code No.: **001** - Standard design
002 - With quick-motion slide DC

5 Engineering version: **1**

6 Sealing material: **V** - Viton

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Fax: +49 (0) 70 33/30 18-10



www.herion-systemtechnik.de
info@herion-systemtechnik.de

Parameters according to VDI 3268

General parameters

Designation	2-way flow control valve		
Symbol	See type survey		
Design	Orifice-type restrictor with upstream differential-pressure piston		
Type of mounting	Intermediate mounting		
Line connection	Intermediate connection		
Mounting position	Any		
Flow direction	See symbol in type survey		
Actuation	Manual adjustment		
Ambient temperature range	ϑ_u	[°C]	-20 ... +50
Nominal size	NG	6	10

Hydraulic parameters for flow control valves

Operating pressure range	p_e max.	[bar]	... 315			
Operating pressure gradient	Q	[l/min]	2	8	16	24
with Δp_{A-B} min/max		[bar]	4/100	12.5/300	20/300	
Pressure fluid temperature	ϑ_m max.	[°C]	+70			
Viscosity range	ν	[mm²/s]	12 ... 500			
Flow	Q_{max}	[l/min]	0.02 ... 16			
Actuating moment	Mb	[Ncm]	10			
Angle of rotation	α	[°]	Approx. 345			
Grade of filtration upstream of flow control valve	s	[mm]	0.01 ... Q = 500 cm³/min 0.05 from Q > 500 cm³/min onwards			

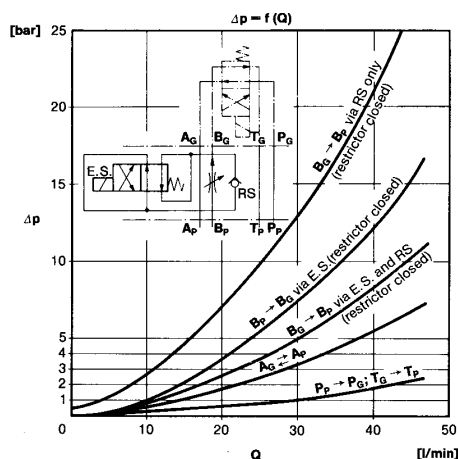
Electrical parameters for the directional control valve

			DC
Switching time t approx.	t_{on}	[ms]	50
	t_{off}	[ms]	30
Number of switchings/h	approx.		15000
Rated voltage	U_N	[V]	Standard voltages
(other voltages available on request)			24
Power consumption	P_{20}	[W] DC	32
	P_{20}	[VA] AC	-
Duty cycle	ED _{rel}	[%]	100
Degree of protection for solenoid an electrical connection to DIN 40050			IP 54
Electrical connection			Plug socket to DIN 43 650

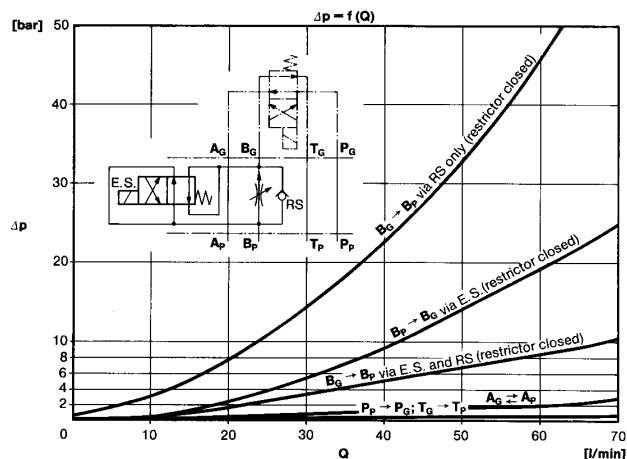
For other parameters, see 7500990 for the flow control valve and 7501295 for the directional control valve.

Characteristic curves

NG 6



NG 10



Type survey (standard design)

NG	Q [l/min]	Δp_{A-B} [bar]	Symbol ¹⁾	Type	Cat. No.
6	0,02 ... 2	3,5 ... 100		M R0 S 6 HV GZ 1 001 1 O V	5100037
	0,03 ... 8	10 ... 305		M R0 S 6 HV GZ 3 001 1 O V	5100071
	0,03 ... 16	10 ... 305		M R0 S 6 HV GZ 4 001 1 O V	5100095
	0,03 ... 24	15 ... 300		M R0 S 6 HV GZ 024 001 1 O V	5100195
10	0,02 ... 2	3,5 ... 100		M R4 S 10 HV GZ 1 001 1 O V	5100093
	0,03 ... 8	10 ... 305		M R4 S 10 HV GZ 3 001 1 O V	5100041
	0,03 ... 16	10 ... 305		M R4 S 10 HV GZ 4 001 1 O V	5100166
6	0,02 ... 2	3,5 ... 100		M R1 S 6 HV GZ 1 001 1 O V	5100036
	0,03 ... 8	10 ... 305		M R1 S 6 HV GZ 3 001 1 O V	5100063
	0,03 ... 16	10 ... 305		M R1 S 6 HV GZ 4 001 1 O V	5100067
10	0,03 ... 8	10 ... 305		M R5 S 10 HV GZ 3 001 1 O V	5100040
	0,03 ... 16	10 ... 305		M R5 S 10 HV GZ 4 001 1 O V	5100085
6	0,02 ... 2	3,5 ... 100		M R2 S 6 HV GZ 1 001 1 O V	5100038
	0,03 ... 8	10 ... 305		M R2 S 6 HV GZ 3 001 1 O V	5100065
	0,03 ... 16	10 ... 305		M R2 S 6 HV GZ 4 001 1 O V	5100106
10	0,03 ... 8	10 ... 305		M R2 S 10 HV GZ 3 001 1 O V	5100042
	0,03 ... 16	10 ... 305		M R2 S 10 HV GZ 4 001 1 O V	5100112
6	0,02 ... 2	3,5 ... 100		M R1 S 6 HV GZ 1 001 1 O V	5100036
	0,03 ... 8	10 ... 305		M R1 S 6 HV GZ 3 001 1 O V	5100063
	0,03 ... 16	10 ... 305		M R1 S 6 HV GZ 4 001 1 O V	5100067
10	0,02 ... 2	3,5 ... 100		M R4 S 10 HV GZ 1 001 1 O V	5100093
	0,03 ... 8	10 ... 305		M R4 S 10 HV GZ 3 001 1 O V	5100041
	0,03 ... 16	10 ... 305		M R4 S 10 HV GZ 4 001 1 O V	5100166
6	0,02 ... 2	3,5 ... 100		M R0 S 6 HV GZ 1 001 1 O V	5100037
	0,03 ... 8	10 ... 305		M R0 S 6 HV GZ 3 001 1 O V	5100071
	0,03 ... 16	10 ... 305		M R0 S 6 HV GZ 4 001 1 O V	5100095
	0,03 ... 24	15 ... 300		M R0 S 6 HV GZ 024 001 1 O V	5100195
10	0,03 ... 8	10 ... 305		M R5 S 10 HV GZ 3 001 1 O V	5100040
	0,03 ... 16	10 ... 305		M R5 S 10 HV GZ 4 001 1 O V	5100085
6	0,02 ... 2	3,5 ... 100		M R8 S 6 HV GZ 1 001 1 O V	5100039
	0,03 ... 8	10 ... 305		M R8 S 6 HV GZ 3 001 1 O V	5100073
	0,03 ... 16	10 ... 305		M R8 S 6 HV GZ 4 001 1 O V	5100084
10	0,03 ... 8	10 ... 305		M R3 S 10 HV GZ 3 001 1 O V	5100043
	0,03 ... 16	10 ... 305		M R3 S 10 HV GZ 4 001 1 O V	5100086
6	0,02 ... 2	3,5 ... 100		M R8 S 6 HV GZ 1 001 1 O V	5100039
	0,03 ... 8	10 ... 305		M R8 S 6 HV GZ 3 001 1 O V	5100073
	0,03 ... 16	10 ... 305		M R8 S 6 HV GZ 4 001 1 O V	5100084
10	0,03 ... 8	10 ... 305		M R7 S 10 HV GZ 3 001 1 O V	5100044

Note: Index letters as follows; R = Return flow control, Z = Feed flow control, G = Equipment side, P = Subplate side.
Other combinations on request.

¹⁾ Connection R = NG 10 only

Type survey (standard design)

NG	Q [l/min]	Δp_{A-B} [bar]	Symbol ¹⁾	Type	Cat. No.
6	0,02 ... 2	3,5 ... 100		M R1 S 6 HV GZ 1 002 1 O V	5100050.7234
	0,03 ... 8	10 ... 305		M R1 S 6 HV GZ 3 002 1 O V	5100074.7234
	0,03 ... 16	10 ... 305		M R1 S 6 HV GZ 4 002 1 O V	5100119.7234
10	0,03 ... 8	10 ... 305		M R5 S 10 HV GZ 3 002 1 O V	5100052.7234
	0,03 ... 16	10 ... 305		M R5 S 10 HV GZ 4 002 1 O V	5100088.7234
6	0,02 ... 2	3,5 ... 100		M R1 S 6 HV GZ 1 002 1 O V	5100050.7234
	0,03 ... 8	10 ... 305		M R1 S 6 HV GZ 3 002 1 O V	5100074.7234
	0,03 ... 16	10 ... 305		M R1 S 6 HV GZ 4 002 1 O V	5100119.7234
10	0,02 ... 2	3,5 ... 100		M R4 S 10 HV GZ 1 002 1 O V	5100145.7234
	0,03 ... 8	10 ... 305		M R4 S 10 HV GZ 3 002 1 O V	5100053.7234
	0,03 ... 16	10 ... 305		M R4 S 10 HV GZ 4 002 1 O V	5100087.7234
6	0,02 ... 2	3,5 ... 100		M R0 S 6 HV GZ 1 002 1 O V	5100051.7234
	0,03 ... 8	10 ... 305		M R0 S 6 HV GZ 3 002 1 O V	5100066.7234
	0,03 ... 16	10 ... 305		M R0 S 6 HV GZ 4 002 1 O V	5100129.7234
10	0,02 ... 2	3,5 ... 100		M R4 S 10 HV GZ 1 002 1 O V	5100145.7234
	0,03 ... 8	10 ... 305		M R4 S 10 HV GZ 3 002 1 O V	5100053.7234
	0,03 ... 16	10 ... 305		M R4 S 10 HV GZ 4 002 1 O V	5100087.7234
6	0,02 ... 2	3,5 ... 100		M R0 S 6 HV GZ 1 002 1 O V	5100051.7234
	0,03 ... 8	10 ... 305		M R0 S 6 HV GZ 3 002 1 O V	5100066.7234
	0,03 ... 16	10 ... 305		M R0 S 6 HV GZ 4 002 1 O V	5100129.7234
10	0,03 ... 8	10 ... 305		M R5 S 10 HV GZ 3 002 1 O V	5100052.7234
	0,03 ... 16	10 ... 305		M R5 S 10 HV GZ 4 002 1 O V	5100088.7234
6	0,02 ... 2	3,5 ... 100		M R8 S 6 HV GZ 1 002 1 O V	5100061.7234
	0,03 ... 8	10 ... 305		M R8 S 6 HV GZ 3 002 1 O V	5100076.7234
	0,03 ... 16	10 ... 305		M R8 S 6 HV GZ 4 002 1 O V	5100091.7234
10	0,02 ... 2	10 ... 305		M R3 S 10 HV GZ 3 002 1 O V	5100059.7234
	0,03 ... 8	10 ... 305		M R3 S 10 HV GZ 4 002 1 O V	5100169.7234
	0,03 ... 16	10 ... 305			
6	0,02 ... 2	3,5 ... 100		M R8 S 6 HV GZ 1 002 1 O V	5100061.7234
	0,03 ... 8	10 ... 305		M R8 S 6 HV GZ 3 002 1 O V	5100076.7234
	0,03 ... 16	10 ... 305		M R8 S 6 HV GZ 4 002 1 O V	5100091.7234
10	0,02 ... 2	10 ... 305		M R7 S 10 HV GZ 3 002 1 O V	5100058.7234
	0,03 ... 8	10 ... 305		M R7 S 10 HV GZ 4 002 1 O V	5100183.7234
	0,03 ... 16	10 ... 305			

Note: Index letters as follows; R = Return flow control, Z = Feed flow control, G = Equipment side, P = Subplate side.

Other combinations on request.

¹⁾ Connection R = NG 10 only

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.

The subplate and, if necessary, mounting material for valve combinations must be ordered separately. Only O-rings are included in the delivery.

Example of order

2-way flow control valve as intermediate device nominal size 6 for flow rates from 0.02 to 2 l/min, return flow control at B.

2-way flow control valve:

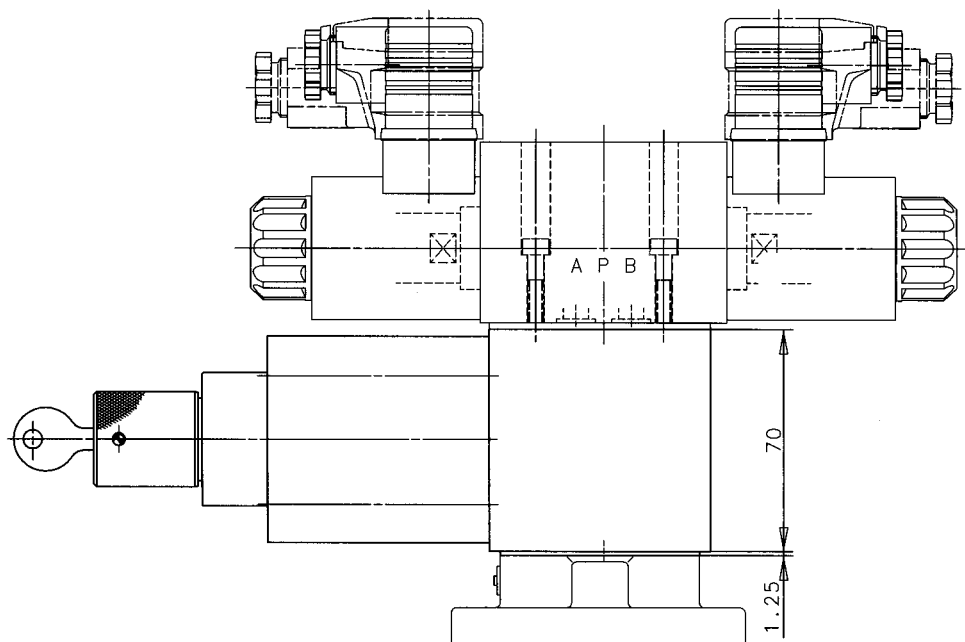
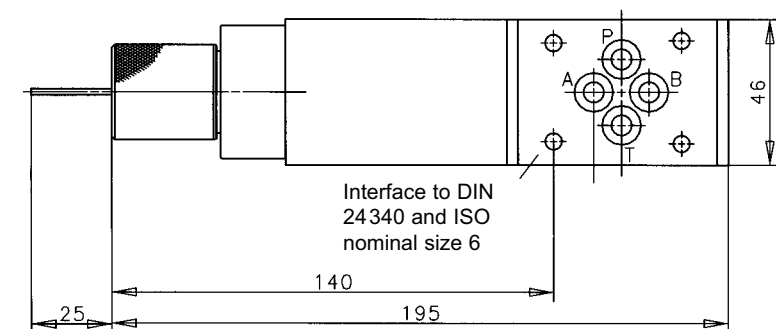
Type No.: M R0 S 6 HV GZ 1 001 1 O V

Cat. No.: **5100037**

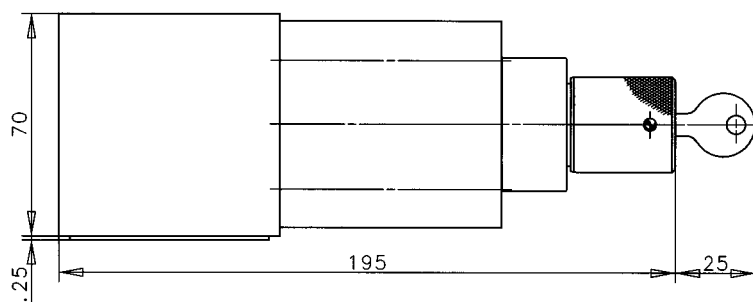
Dimensional and spare parts drawings for nominal size 6

M R1 S 6 ... 001

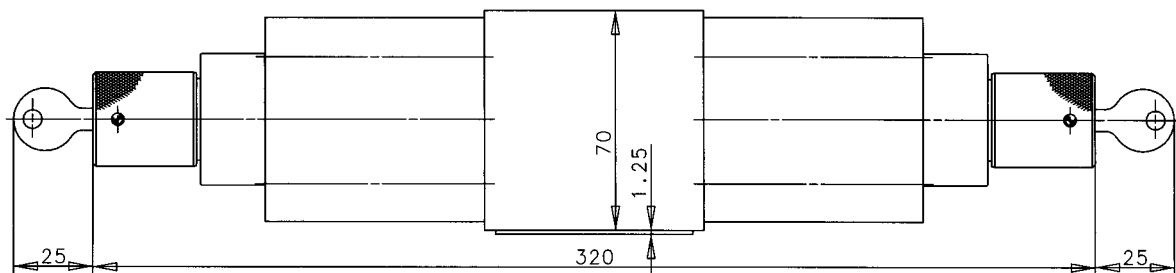
M R8 S 6 ... 001

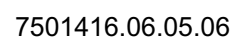
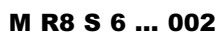


M R0 S 6 ... 001



M R2 S 6 ... 001

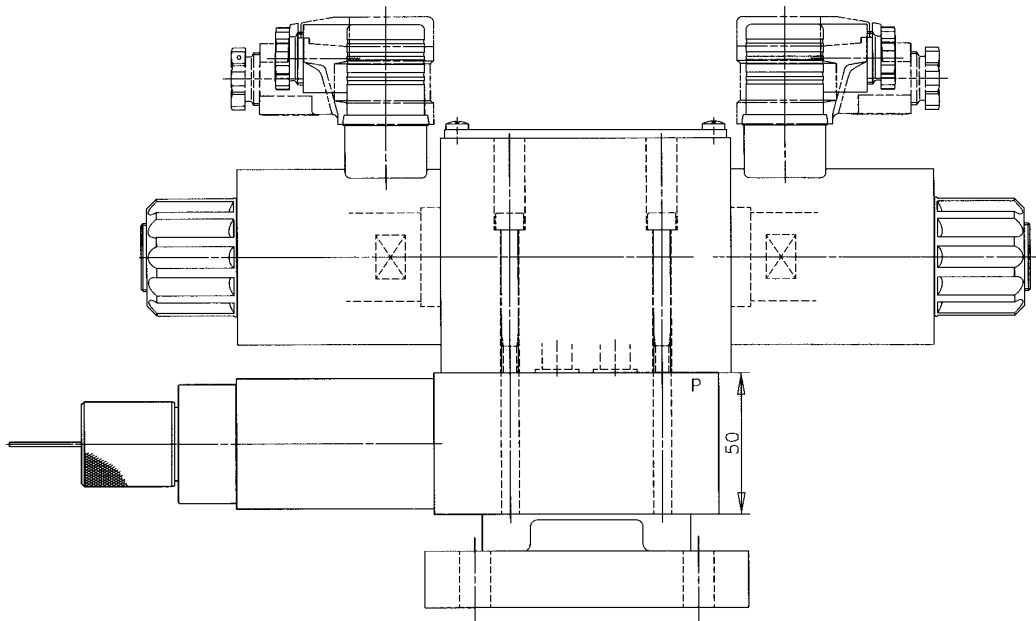
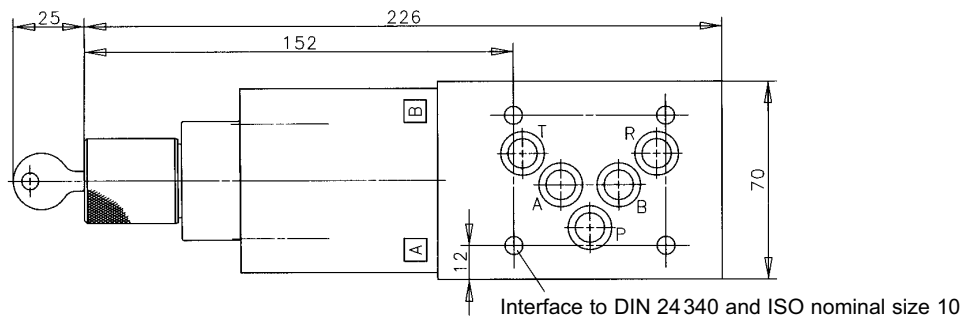




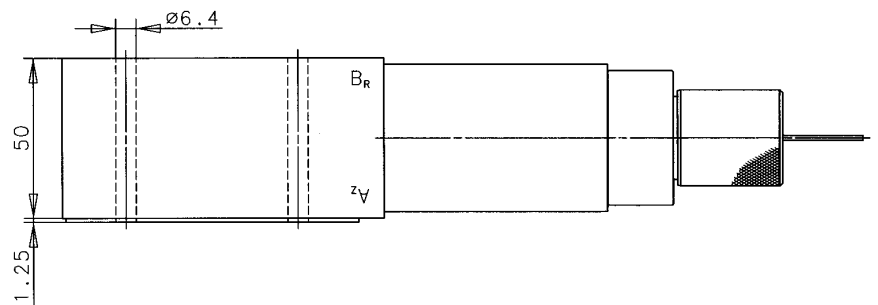
Dimensional and spare parts drawings for nominal size 10

M R3 S 10 ... 001

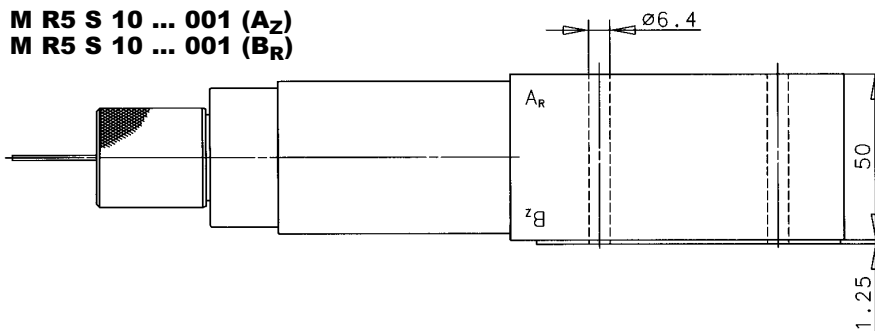
M R7 S 10 ... 001



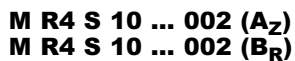
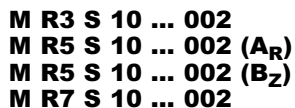
M R4 S 10 ... 001 (A_Z)
M R4 S 10 ... 001 (B_R)



M R5 S 10 ... 001 (A_Z)
M R5 S 10 ... 001 (B_R)



M R2 S 10 ... 001



2-Way Flow Control Valves

Nominal sizes 6 and 10



Systemtechnik
GmbH

as intermediate device for directional control valves NG 6 and 10
Interface to DIN 24 340 and ISO 4401

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

7501416.06.05.06

Description (standard units)

Design

The standard flow control valves are fitted to support plates, and can therefore be used as intermediate devices.

Actuation

The flow rate is adjusted manually by means of a rotary knob. The setting can if desired be safeguarded by means of a lock (Type E 10).

Mounting

The devices are bolted into position between the directional control valve and subplate and sealed by means of O-rings. For dimensions and mounting material please see 7501421.

Line connection

Subplate, interface to DIN 24 340 and ISO 4401, intermediate connection.



Features

- Simple mounting, thanks to tubeless connection
- Space-saving design
- Allows control to be extended at low cost

Type key

2-way flow control valve

M	...	S	...	HV	GZ	...	...	...	O	V
	1		2			3	4	5		

1 Operating

characteristics: **R0** - Flow control at B (NG 6 only)
R1 - Flow control at A (NG 6 only)
R2 - Flow control at A and B (NG 6 and NG 10)
R3 - Flow control at P (NG 10 only)
R4 - Flow control at A_Z or B_R (NG 10 only)
R5 - Flow control at A_R or B_Z (NG 10 only)
R7 - Flow control at T (NG 10 only)
R8 - Flow control at P or T (NG 6 only)

2 Nominal size NG: **6**
10

3 Flow rate: **1** - 2 l/min
3 - 8 l/min
4 - 16 l/min
024 - 24 l/min

4 Code No.: **001** - Standard design
002 - With quick-motion slide DC

5 Engineering version: **1**

6 Sealing material: **V** - Viton

HERION Systemtechnik GmbH

Untere Talstraße 65
D-71263 Weil der Stadt-Merklingen

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Fax: +49 (0) 70 33/30 18-10



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info@herion-systemtechnik.de

Parameters according to VDI 3268

General parameters

Designation	2-way flow control valve		
Symbol	See type survey		
Design	Orifice-type restrictor with upstream differential-pressure piston		
Type of mounting	Intermediate mounting		
Line connection	Intermediate connection		
Mounting position	Any		
Flow direction	See symbol in type survey		
Actuation	Manual adjustment		
Ambient temperature range	ϑ_u	[°C]	-20 ... +50
Nominal size	NG	6	10

Hydraulic parameters for flow control valves

Operating pressure range	p_e max.	[bar]	... 315			
Operating pressure gradient	Q	[l/min]	2	8	16	24
with Δp_{A-B} min/max		[bar]	4/100	12.5/300	20/300	
Pressure fluid temperature	ϑ_m max.	[°C]	+70			
Viscosity range	ν	[mm²/s]	12 ... 500			
Flow	Q_{max}	[l/min]	0.02 ... 16			
Actuating moment	Mb	[Ncm]	10			
Angle of rotation	α	[°]	Approx. 345			
Grade of filtration upstream of flow control valve	s	[mm]	0.01 ... Q = 500 cm³/min 0.05 from Q > 500 cm³/min onwards			

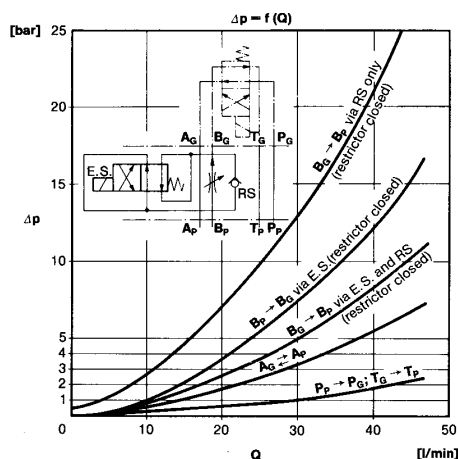
Electrical parameters for the directional control valve

			DC
Switching time t approx.	t_{on}	[ms]	50
	t_{off}	[ms]	30
Number of switchings/h	approx.		15000
Rated voltage	U_N	[V]	Standard voltages
(other voltages available on request)			24
Power consumption	P_{20}	[W] DC	32
	P_{20}	[VA] AC	-
Duty cycle	ED _{rel}	[%]	100
Degree of protection for solenoid an electrical connection to DIN 40050			IP 54
Electrical connection			Plug socket to DIN 43 650

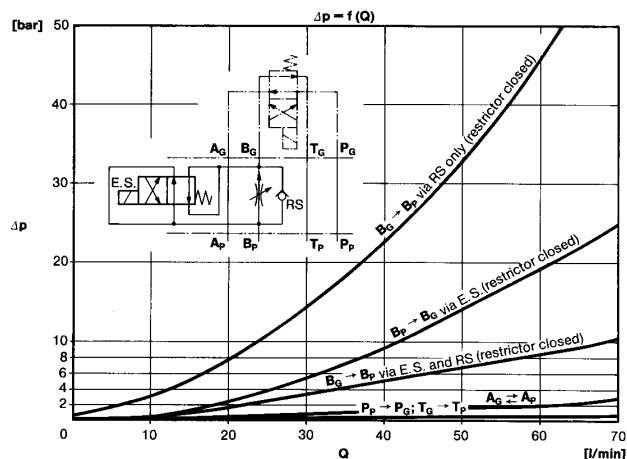
For other parameters, see 7500990 for the flow control valve and 7501295 for the directional control valve.

Characteristic curves

NG 6



NG 10



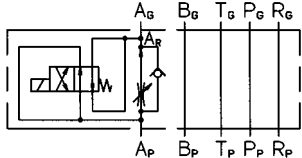
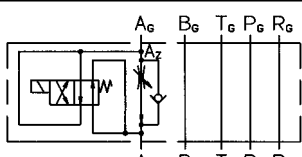
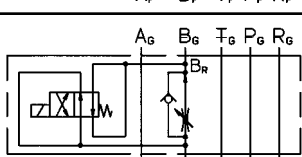
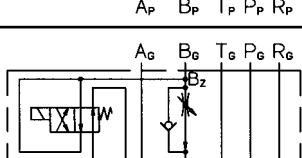
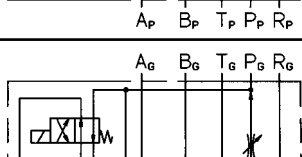
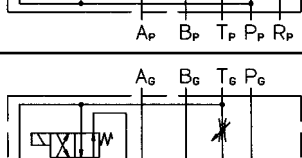
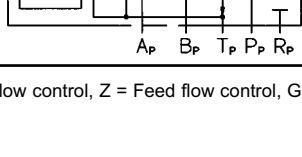
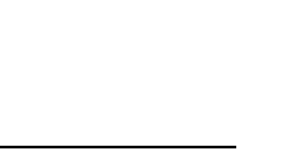
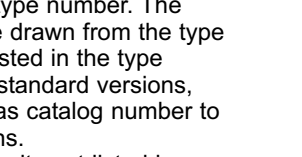
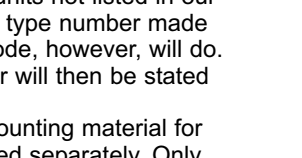
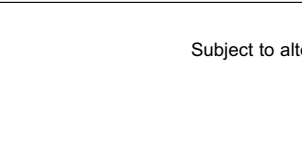
Type survey (standard design)

NG	Q [l/min]	Δp_{A-B} [bar]	Symbol ¹⁾	Type	Cat. No.
6	0,02 ... 2	3,5 ... 100		M R0 S 6 HV GZ 1 001 1 O V	5100037
	0,03 ... 8	10 ... 305		M R0 S 6 HV GZ 3 001 1 O V	5100071
	0,03 ... 16	10 ... 305		M R0 S 6 HV GZ 4 001 1 O V	5100095
	0,03 ... 24	15 ... 300		M R0 S 6 HV GZ 024 001 1 O V	5100195
10	0,02 ... 2	3,5 ... 100		M R4 S 10 HV GZ 1 001 1 O V	5100093
	0,03 ... 8	10 ... 305		M R4 S 10 HV GZ 3 001 1 O V	5100041
	0,03 ... 16	10 ... 305		M R4 S 10 HV GZ 4 001 1 O V	5100166
6	0,02 ... 2	3,5 ... 100		M R1 S 6 HV GZ 1 001 1 O V	5100036
	0,03 ... 8	10 ... 305		M R1 S 6 HV GZ 3 001 1 O V	5100063
	0,03 ... 16	10 ... 305		M R1 S 6 HV GZ 4 001 1 O V	5100067
10	0,03 ... 8	10 ... 305		M R5 S 10 HV GZ 3 001 1 O V	5100040
	0,03 ... 16	10 ... 305		M R5 S 10 HV GZ 4 001 1 O V	5100085
6	0,02 ... 2	3,5 ... 100		M R2 S 6 HV GZ 1 001 1 O V	5100038
	0,03 ... 8	10 ... 305		M R2 S 6 HV GZ 3 001 1 O V	5100065
	0,03 ... 16	10 ... 305		M R2 S 6 HV GZ 4 001 1 O V	5100106
10	0,03 ... 8	10 ... 305		M R2 S 10 HV GZ 3 001 1 O V	5100042
	0,03 ... 16	10 ... 305		M R2 S 10 HV GZ 4 001 1 O V	5100112
6	0,02 ... 2	3,5 ... 100		M R1 S 6 HV GZ 1 001 1 O V	5100036
	0,03 ... 8	10 ... 305		M R1 S 6 HV GZ 3 001 1 O V	5100063
	0,03 ... 16	10 ... 305		M R1 S 6 HV GZ 4 001 1 O V	5100067
10	0,02 ... 2	3,5 ... 100		M R4 S 10 HV GZ 1 001 1 O V	5100093
	0,03 ... 8	10 ... 305		M R4 S 10 HV GZ 3 001 1 O V	5100041
	0,03 ... 16	10 ... 305		M R4 S 10 HV GZ 4 001 1 O V	5100166
6	0,02 ... 2	3,5 ... 100		M R0 S 6 HV GZ 1 001 1 O V	5100037
	0,03 ... 8	10 ... 305		M R0 S 6 HV GZ 3 001 1 O V	5100071
	0,03 ... 16	10 ... 305		M R0 S 6 HV GZ 4 001 1 O V	5100095
	0,03 ... 24	15 ... 300		M R0 S 6 HV GZ 024 001 1 O V	5100195
10	0,03 ... 8	10 ... 305		M R5 S 10 HV GZ 3 001 1 O V	5100040
	0,03 ... 16	10 ... 305		M R5 S 10 HV GZ 4 001 1 O V	5100085
6	0,02 ... 2	3,5 ... 100		M R8 S 6 HV GZ 1 001 1 O V	5100039
	0,03 ... 8	10 ... 305		M R8 S 6 HV GZ 3 001 1 O V	5100073
	0,03 ... 16	10 ... 305		M R8 S 6 HV GZ 4 001 1 O V	5100084
10	0,03 ... 8	10 ... 305		M R3 S 10 HV GZ 3 001 1 O V	5100043
	0,03 ... 16	10 ... 305		M R3 S 10 HV GZ 4 001 1 O V	5100086
6	0,02 ... 2	3,5 ... 100		M R8 S 6 HV GZ 1 001 1 O V	5100039
	0,03 ... 8	10 ... 305		M R8 S 6 HV GZ 3 001 1 O V	5100073
	0,03 ... 16	10 ... 305		M R8 S 6 HV GZ 4 001 1 O V	5100084
10	0,03 ... 8	10 ... 305		M R7 S 10 HV GZ 3 001 1 O V	5100044

Note: Index letters as follows; R = Return flow control, Z = Feed flow control, G = Equipment side, P = Subplate side.
Other combinations on request.

¹⁾ Connection R = NG 10 only

Type survey (standard design)

NG	Q [l/min]	Δp_{A-B} [bar]	Symbol ¹⁾	Type	Cat. No.
6	0,02 ... 2	3,5 ... 100		M R1 S 6 HV GZ 1 002 1 O V	5100050.7234
	0,03 ... 8	10 ... 305		M R1 S 6 HV GZ 3 002 1 O V	5100074.7234
	0,03 ... 16	10 ... 305		M R1 S 6 HV GZ 4 002 1 O V	5100119.7234
10	0,03 ... 8	10 ... 305		M R5 S 10 HV GZ 3 002 1 O V	5100052.7234
	0,03 ... 16	10 ... 305		M R5 S 10 HV GZ 4 002 1 O V	5100088.7234
6	0,02 ... 2	3,5 ... 100		M R1 S 6 HV GZ 1 002 1 O V	5100050.7234
	0,03 ... 8	10 ... 305		M R1 S 6 HV GZ 3 002 1 O V	5100074.7234
	0,03 ... 16	10 ... 305		M R1 S 6 HV GZ 4 002 1 O V	5100119.7234
10	0,02 ... 2	3,5 ... 100		M R4 S 10 HV GZ 1 002 1 O V	5100145.7234
	0,03 ... 8	10 ... 305		M R4 S 10 HV GZ 3 002 1 O V	5100053.7234
	0,03 ... 16	10 ... 305		M R4 S 10 HV GZ 4 002 1 O V	5100087.7234
6	0,02 ... 2	3,5 ... 100		M R0 S 6 HV GZ 1 002 1 O V	5100051.7234
	0,03 ... 8	10 ... 305		M R0 S 6 HV GZ 3 002 1 O V	5100066.7234
	0,03 ... 16	10 ... 305		M R0 S 6 HV GZ 4 002 1 O V	5100129.7234
10	0,02 ... 2	3,5 ... 100		M R4 S 10 HV GZ 1 002 1 O V	5100145.7234
	0,03 ... 8	10 ... 305		M R4 S 10 HV GZ 3 002 1 O V	5100053.7234
	0,03 ... 16	10 ... 305		M R4 S 10 HV GZ 4 002 1 O V	5100087.7234
6	0,02 ... 2	3,5 ... 100		M R0 S 6 HV GZ 1 002 1 O V	5100051.7234
	0,03 ... 8	10 ... 305		M R0 S 6 HV GZ 3 002 1 O V	5100066.7234
	0,03 ... 16	10 ... 305		M R0 S 6 HV GZ 4 002 1 O V	5100129.7234
10	0,03 ... 8	10 ... 305		M R5 S 10 HV GZ 3 002 1 O V	5100052.7234
	0,03 ... 16	10 ... 305		M R5 S 10 HV GZ 4 002 1 O V	5100088.7234
6	0,02 ... 2	3,5 ... 100		M R8 S 6 HV GZ 1 002 1 O V	5100061.7234
	0,03 ... 8	10 ... 305		M R8 S 6 HV GZ 3 002 1 O V	5100076.7234
	0,03 ... 16	10 ... 305		M R8 S 6 HV GZ 4 002 1 O V	5100091.7234
10	0,02 ... 2	10 ... 305		M R3 S 10 HV GZ 3 002 1 O V	5100059.7234
	0,03 ... 8	10 ... 305		M R3 S 10 HV GZ 4 002 1 O V	5100169.7234
	0,03 ... 16	10 ... 305			
6	0,02 ... 2	3,5 ... 100		M R8 S 6 HV GZ 1 002 1 O V	5100061.7234
	0,03 ... 8	10 ... 305		M R8 S 6 HV GZ 3 002 1 O V	5100076.7234
	0,03 ... 16	10 ... 305		M R8 S 6 HV GZ 4 002 1 O V	5100091.7234
10	0,02 ... 2	10 ... 305		M R7 S 10 HV GZ 3 002 1 O V	5100058.7234
	0,03 ... 8	10 ... 305		M R7 S 10 HV GZ 4 002 1 O V	5100183.7234
	0,03 ... 16	10 ... 305			

Note: Index letters as follows; R = Return flow control, Z = Feed flow control, G = Equipment side, P = Subplate side.

Other combinations on request.

¹⁾ Connection R = NG 10 only

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.

The subplate and, if necessary, mounting material for valve combinations must be ordered separately. Only O-rings are included in the delivery.

Example of order

2-way flow control valve as intermediate device nominal size 6 for flow rates from 0.02 to 2 l/min, return flow control at B.

2-way flow control valve:

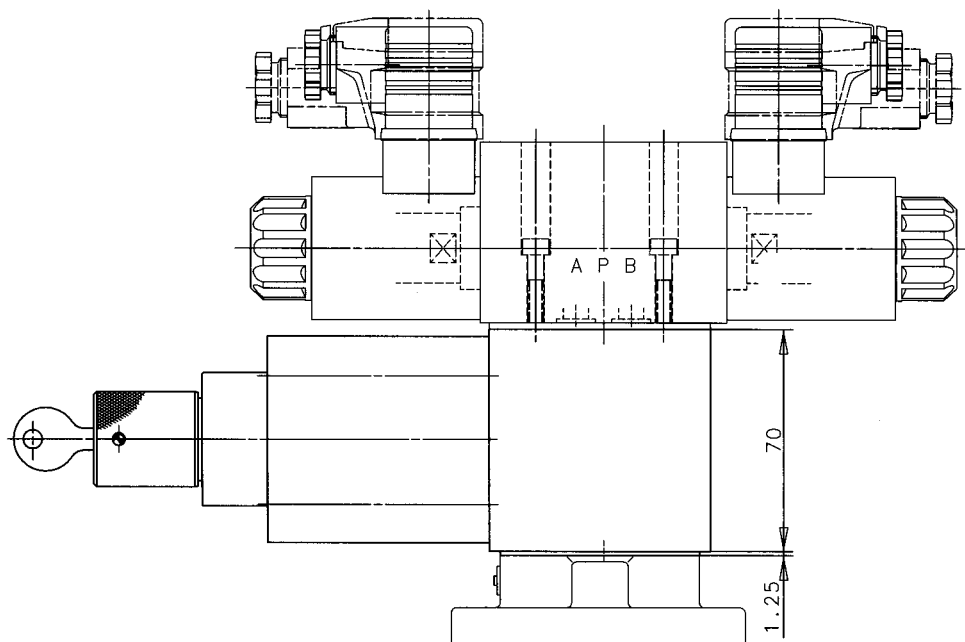
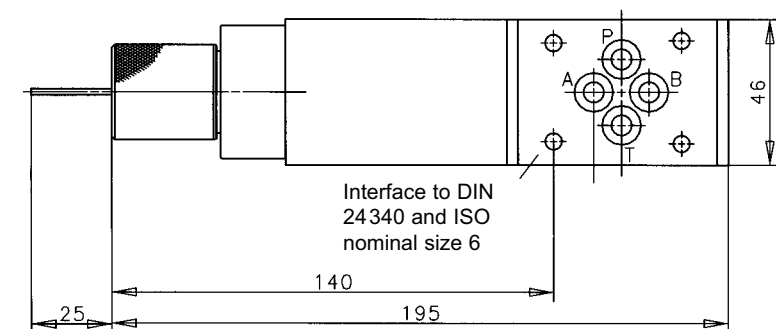
Type No.: M R0 S 6 HV GZ 1 001 1 O V

Cat. No.: **5100037**

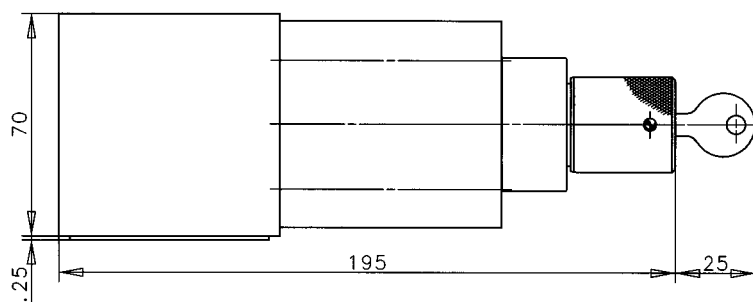
Dimensional and spare parts drawings for nominal size 6

M R1 S 6 ... 001

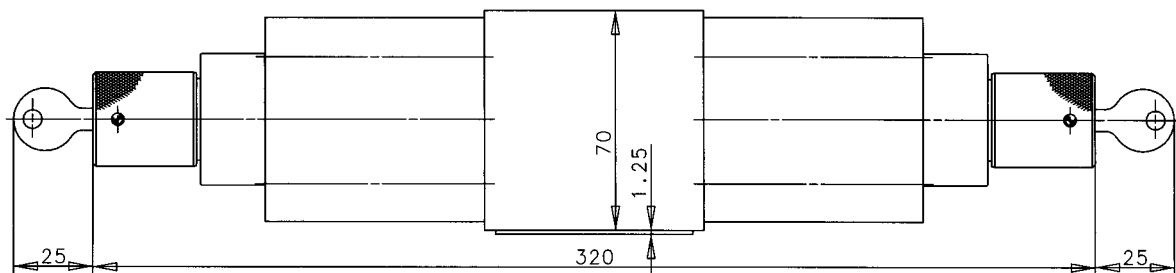
M R8 S 6 ... 001



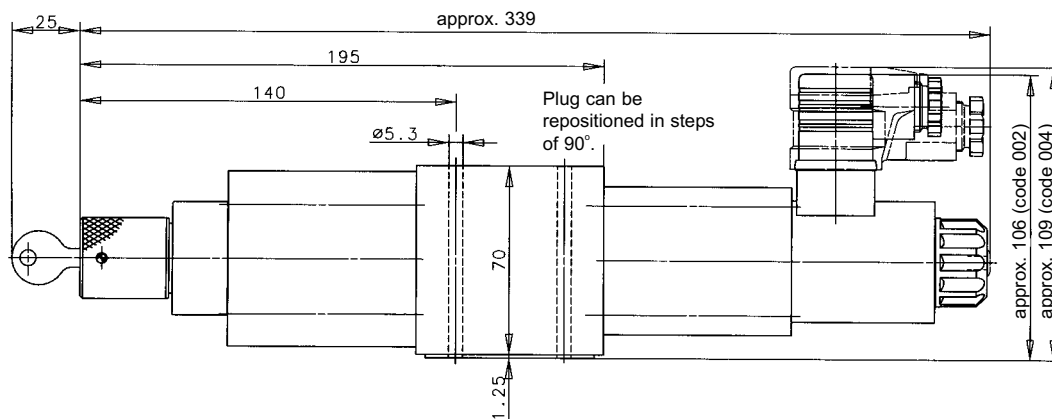
M R0 S 6 ... 001



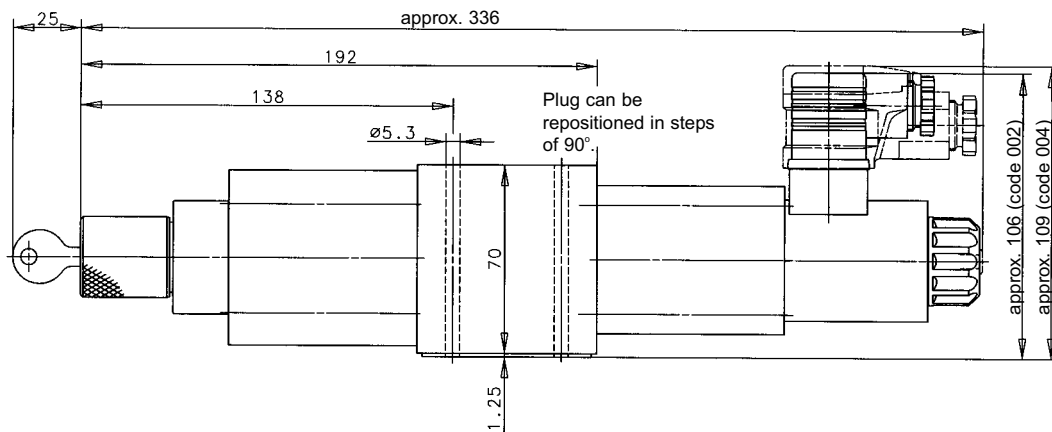
M R2 S 6 ... 001



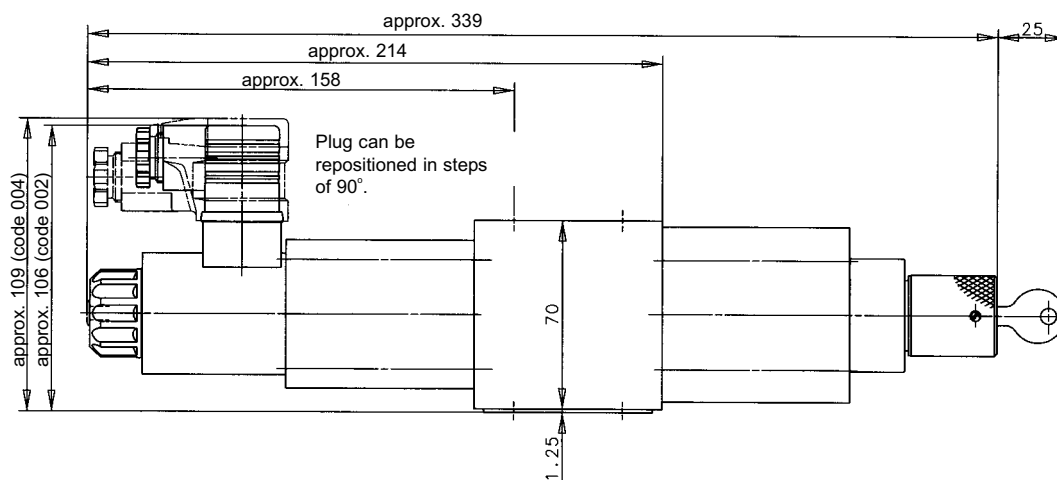
M R1 S 6 ... 002



M R8 S 6 ... 002



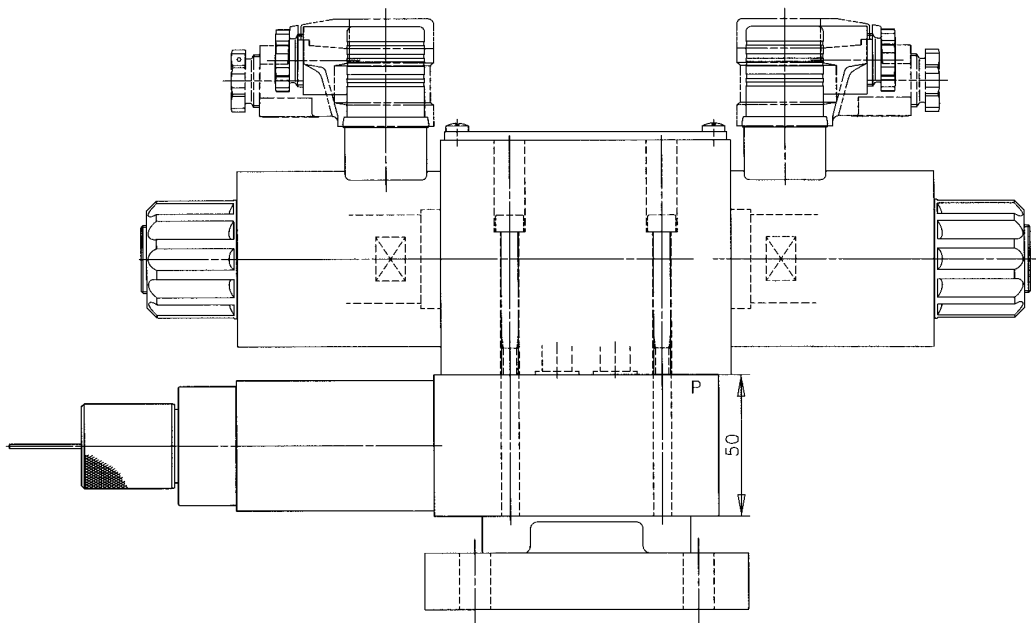
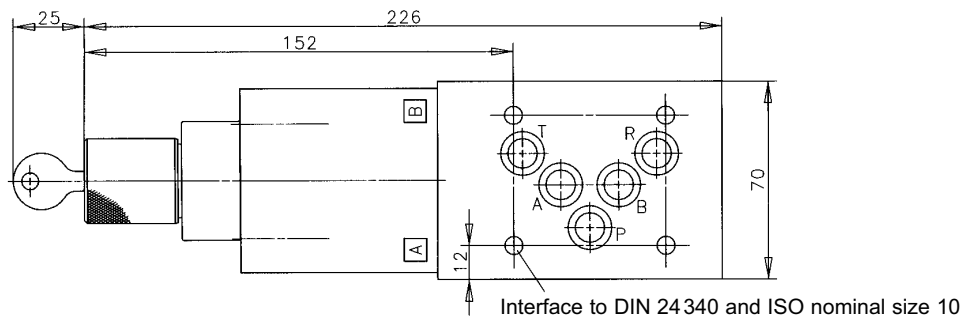
M R0 S 6 ... 002



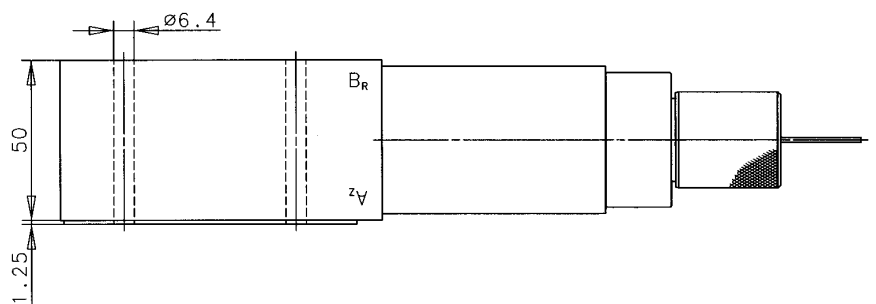
Dimensional and spare parts drawings for nominal size 10

M R3 S 10 ... 001

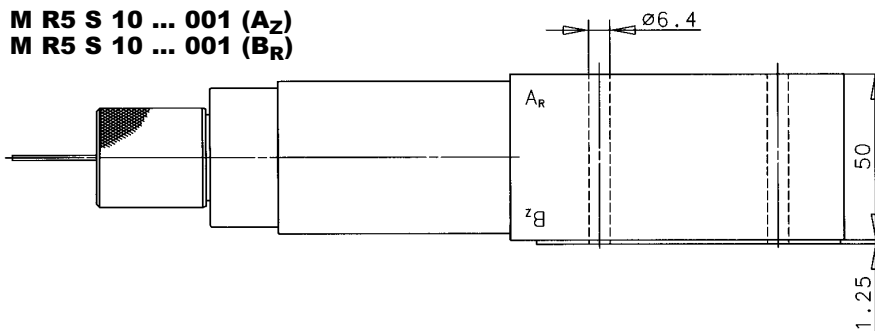
M R7 S 10 ... 001



M R4 S 10 ... 001 (A_Z)
M R4 S 10 ... 001 (B_R)

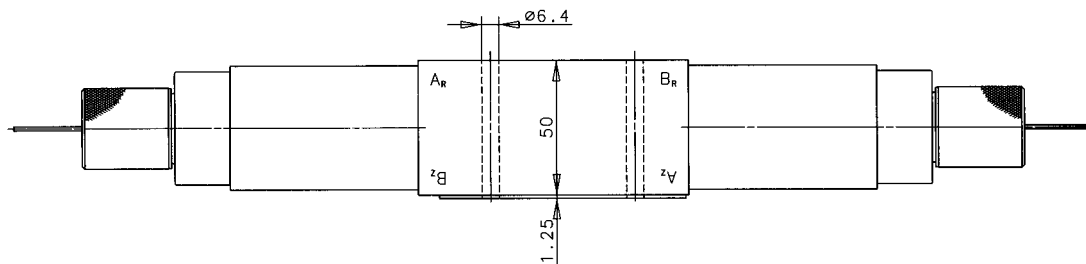


M R5 S 10 ... 001 (A_Z)
M R5 S 10 ... 001 (B_R)



Dimensional and spare parts drawings for nominal size 10

M R2 S 10 ... 001

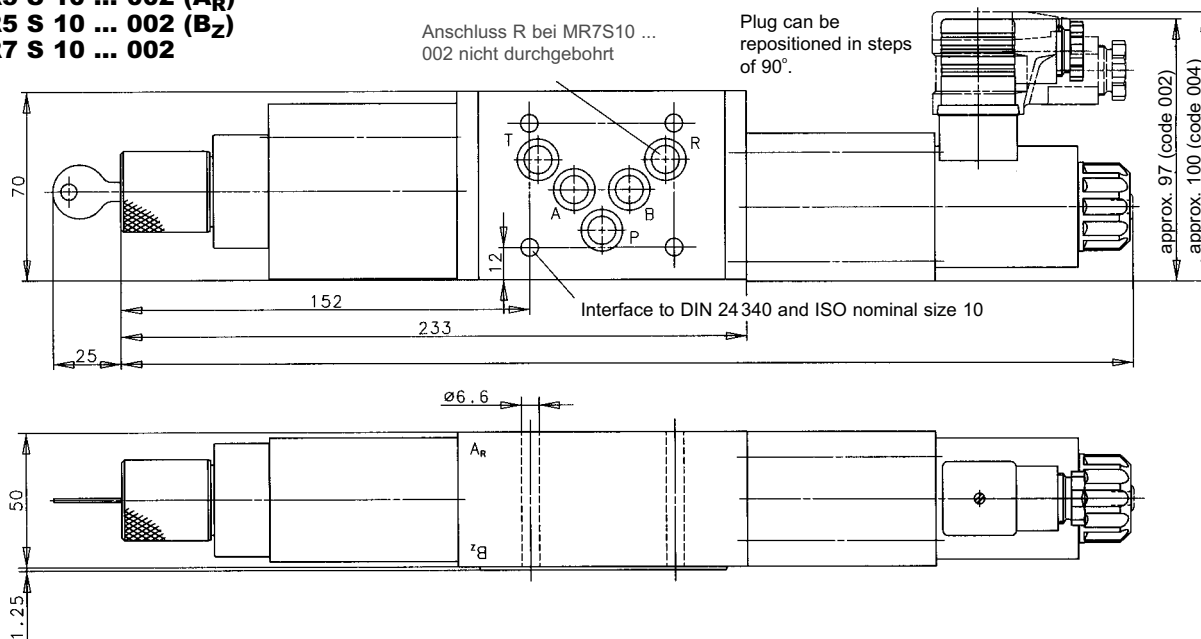


M R3 S 10 ... 002

M R5 S 10 ... 002 (A_R)

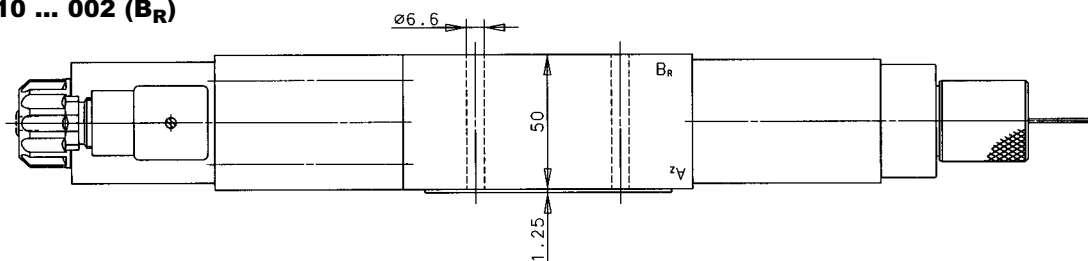
M R5 S 10 ... 002 (B_Z)

M R7 S 10 ... 002



M R4 S 10 ... 002 (A_Z)

M R4 S 10 ... 002 (B_R)

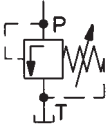
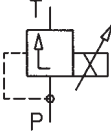
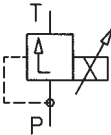
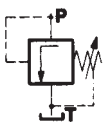


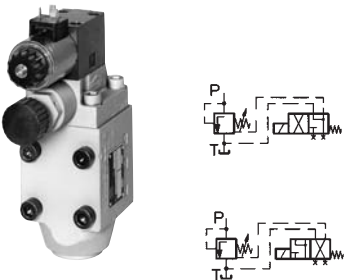
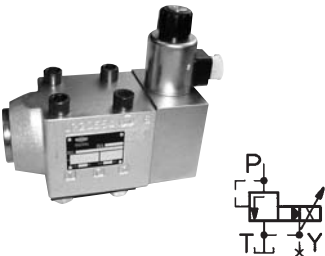
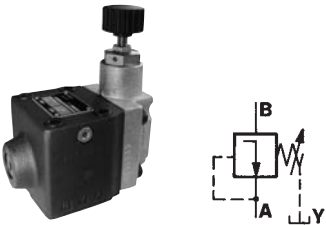
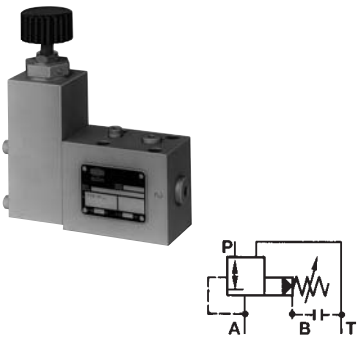
Spare parts (Number of pieces)

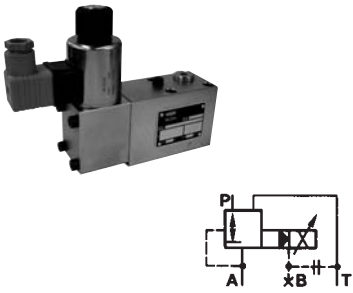
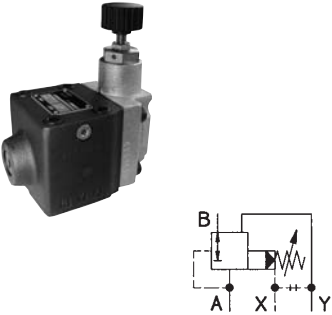
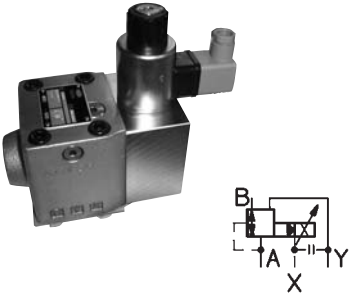
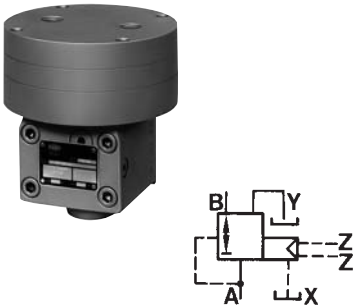
Part	Designation	Nominal size 6	Nominal size 10	Cat. No.
1	Flow control valve M R6 see 7500990	1	1	-
2	O-ring (9.2 x 1.8)	4	-	0701798
2	O-ring (12.4 x 1.8)	-	5	0701623
3	Directional control valve, nominal size 6, Cat. No. 5204085.7234 see 7501295			

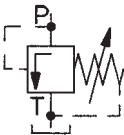
1 set of wear parts (for nominal sizes 6 and 10), consisting of part 2. These wear parts are not available separately.

7501427.06.01.07

Picture/Symbol/Designation	Actuation	Size	Flow max. [l/min]	Line connection	Operating pressure range max. [bar]	For further information see script
Pressure relief valve  	direct operated Seat valve (suitable for use as remote pilot valve)	6 10	40 100	screw-in design Threaded connection mounting plate, interface to DIN 24340 and ISO 6264	315	7501400 7501410
Proportional- Pressure relief valve  	direct operated Seat valve (suitable for use as remote pilot valve)	6	3	mounting plate, interface to DIN 24340 and ISO 6264	315	7501247
Proportional- Pressure relief valve  	direct operated Seat valve with damping	6 10	50 70	mounting plate, interface to DIN 24340 and ISO 6264	315	7501489
Pressure relief valve  	pilot operated Seat valve	10 25 32	100 400 800	mounting plate, interface to DIN 24340 and ISO 6264	315	7501401

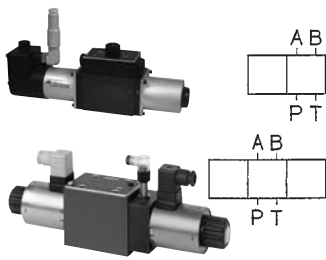
Picture/Symbol/Designation	Actuation	Size	Flow max. [l/min]	Line connection	Operating pressure range max. [bar]	For further information see script
Pressure relief valve 	electromagnetically release pilot operated Seat valve	10 25 32	100 400 800	mounting plate, interface to DIN 24340 and ISO 6264	315	7501402
Proportional- Pressure relief valve 	pilot operated Seat valve	10 25	100 400	mounting plate, interface to DIN 24340 and ISO 6264	315	7501248
Pressure reducing valve 	2-way pilot operated	10 25 32	40 150 360	mounting plate, interface to DIN 24340 and ISO 5781	315	7501407
Pressure reducing valve 	3-way pilot operated	6	40	mounting plate, interface to DIN 24340 and ISO 5781	315	7502831

Picture/Symbol/Designation	Actuation	Size	Flow max. [l/min]	Line connection	Operating pressure range max. [bar]	For further information see script
Proportional- Pressure reducing valve 	3-way pilot operated	6	40	mounting plate, interface to DIN 24340 and ISO 5781	315	7502263
Pressure reducing valve 	3-way pilot operated	10	70	mounting plate, interface to HERION	315	7501409
Proportional- Pressure reducing valve 	3-way pilot operated	10	70	mounting plate, interface to HERION	315	7501249
Pressure reducing valve 	3-way pilot operated pneumatically operated	10	70	mounting plate, interface to HERION	315	7502517

Picture/Symbol/Designation	Actuation	Size	Flow max. [l/min]	Line connection	Operating pressure range max. [bar]	For further information see script
Accumulator safety valves  	direct operated Seat valve TÜV type approval screw-in type valve	6 10	70 160	screw-in design	350	7501406

7501428.06.02.07

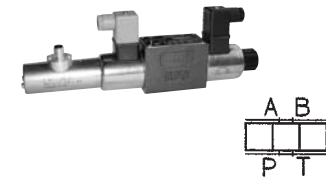
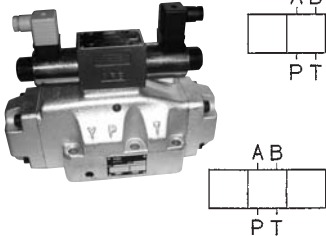
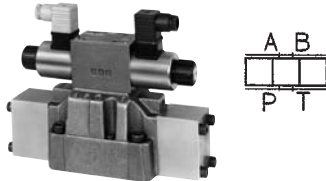
Picture/Symbol/Designation	Actuation	Size	Flow max. [l/min]	Line connection	Operating pressure range max. [bar]	Notes	For further information see script
Directional control spool type valves							
 	direct operated solenoid operated	6	40	Subplate, interface to DIN 24340 and ISO 4401	315	vertical, flange mounted	7501295
 	direct operated solenoid operated	6	45	Port size G 3/8 internal thread to DIN ISO 228/1	315	-	7501293
 	direct operated solenoid operated	6 10	80 120	Subplate, interface to DIN 24340 and ISO 4401	315	-	7503291 7503292
 	direct operated solenoid operated	6	80	Subplate, interface to DIN 24340 and ISO 4401	315	with inductive switching position monitoring 12 to 24 V	7501294
 	direct operated hydraulically, pneumatically roller lever hand lever	6 10	80 120	Subplate, interface to DIN 24340 and ISO 4401	315 315	-	7503312 7503313

Picture/Symbol/Designation	Actuation	Size	Flow max. [l/min]	Line connection	Operating pressure range max. [bar]	Notes	For further information see script
	direct operated solenoid operated	10	120	Subplate, interface to DIN 24340 and ISO 4401	315	with electro- mechanical switching position monitoring with in- ductive switching position monitoring	7501297

Directional control seat valves

	direct operated solenoid operated	6	20	Subplate, interface to DIN 24340 and ISO 4401	315	-	7501856
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Proportional directional control valves

	direct operated solenoid operated, with proportional valve with pressure balance flow control function	6 10	40 85	Subplate, interface to DIN 24340 and ISO 4401	315	-	7500455 7502255
	direct operated solenoid opera- ted, with propor- tional valve position - controlled with pressure balance flow control function	6 10	60 150	Subplate, interface to DIN 24340 and ISO 4401	315	-	7501719 7502257
	pilot operated by proportional solenoid valve	16 25	250 400	Subplate, interface to DIN 24340 and ISO 4401	315	-	7500901 7501298
	pilot operated by proportional solenoid valve	16 25	480 750	Subplate, interface to DIN 24340 and ISO 4401	315	-	7502968

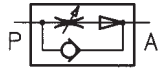
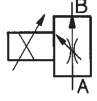
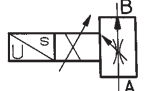
Survey

2-way-flow control valves



**Systemtechnik
GmbH**

7501430.06.02.07

Picture/Symbol/Designation	Actuation	Size	Flow max. [l/min]	Line connection	Operating pressure range max. [bar]	For further information see script
2-way-flow control valves  	with jump start suppression	6	0.02 to 24	Subplate, interface to DIN 24340, part 4 and ISO 4401	315	7500990
2-way-flow control valves  		10	0.2 to 50	Subplate, interface to DIN 24340, part 4 and ISO 4401	315	7500994
Proportional-control valves   	2-way direct controlled with electrical position feedback with pressure balance	6	30	Subplate, interface to DIN 24340 and ISO 4401	210	7502022

Proportional Pressure Relief Valves Sizes 6 and 10



**Systemtechnik
GmbH**

Poppet valve, direct actuated, with damping
Interface to DIN 24 340 and ISO 4401

PN [p_{max.}] = 315 bar

7501489.06.01.06

Description (standard units)

Design

With these proportional pressure valves, the pressure is adjusted by means of a variable magnetic force acting on the piston. The direct controlled design consists of a small seat which is connected with the proportional solenoid. The hydraulic pressure can be adjusted by increasing or decreasing the current I which is fed to the proportional solenoid, by means of a potentiometer and amplifier.

Application

With hydraulic control circuits there is often the requirement to influence the current by means of an electrical signal, e.g. for remote control in order to avoid long hydraulic pipe lines or for program controls where the different pressures are adjusted automatically. These proportional pressure valves are also very often used in process-controlled plastics injection moulding machines.

Mounting

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

Line connection

Subplate size 6, interface to DIN 24 340-A 6 and ISO 4401-AB-03-4-A

Subplate size 10, interface to DIN 24 340-E 10 and ISO 6264-AR-06-2-A



Features

- Simple electrical program and remote control
- Adjustable transient response

Type key

Proportional pressure relief valves

D	B	C	...	UP	G	...	...	...	O	...
			1			2	3	4		5

- 1 Nominal size: **6** - Size 6
10 - Size 10
- 2 Setting pressure: **50** - Up to 50 bar
range **99** - Up to 170 bar
90 - Up to 315 bar
- 3 Code: **002** - Size 6
301 - Size 10
- 4 Engineering version: Solenoid 7994 2400 mA
4 - Size 6
3 - Size 10
- 5 Sealing material: **O** - Perbunan
V - Viton

Subplate size 6

P	S	6	G	...	...	...	O	O
				1	2	3		

- 1 Line connection: **2** - G 1/4
3 - G 3/8
- 2 Code: **024** - G 1/4
001 - G 3/8
- 3 Engineering version: **2**

Subplate size 10 G 1/2

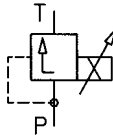
P	DB	10	G	4	001	...	O	O
						1		

- 1 Engineering version: **1**

Parameters

Type	D B C 6 UP G... 002 2 O O	D B C 10 UP G... 301 3 O O
------	---------------------------	----------------------------

General parameters

Description	Proportional pressure relief valves	
Symbol		
Design	Seat valve, direct actuated	
Type of mounting	Flange	
Line connection	Subplate	
Mounting position	Valve axis preferably horizontal	
Flow direction	From P to T	
Actuator type	Proportional solenoid	
Weight of valve [kg]	3.2	4.3
Weight of subplate [kg]	G 1/4 = 0.7 G 3/8 = 1.0	G 1/2 = 2.0
Ambient temperature range ϑ_u [°C]	-20 ... +50	
Nominal size	6	10

Hydraulic parameters

Operating pressure range p_e [bar]	... 315	
Setting pressure range ¹⁾ p_v [bar]	p_v min.: See characteristic curve ²⁾ p_v max.: Pressure stage 50: up to 50 Pressure stage 99: up to 170 Pressure stage 90: up to 315	
Pressure fluid temperature ϑ_{max} [°C]	+70	
Viscosity range ν [mm ² /s]	12 ... 500	
Flow Q [l/min]	See characteristic curve	
Regulating time for adjustable pressure range ⁴⁾ from p_v min. to 0.9 p_v max. [ms]	≈ 35	
Hysteresis ³⁾ [% I_N]	Range I < 7.5 / Range II < 3.5 at $Q = 0.5$ l/min Range I < 3 / Range II < 3 at $Q = 20$ l/min	
Repeatability ³⁾ [bar]	Pressure stage 50 < ±1 Pressure stage 99 < ±2 (at $Q = \text{const.}$) Pressure stage 90 < ±3	
Sensitivity of response ³⁾ I_N [%]	< 1	
Filtration, absolute	Oil purity class to ISO 4406: 17/15/12	

Electrical parameters of proportional solenoid

Solenoid Cat. No.	7994	
Rated current I_N [mA]	2400	
Rated power P_{20} [W]	19	
Resistance R_{20} [Ω]	3.3	
Duty cycle ED [%]	100	
Degree of protection and electric connection acc. to DIN 40 050	IP 65	
Drive electronics	DC 05/ DC 05-XLT, pQ 11 and pQ 12 See table, Page 5	

¹⁾ If the valve is used as pilot valve for large pressure valves, measures must be taken to dampen the complete hydraulic system.

²⁾ Smaller p_v max. value can be set at amplifier

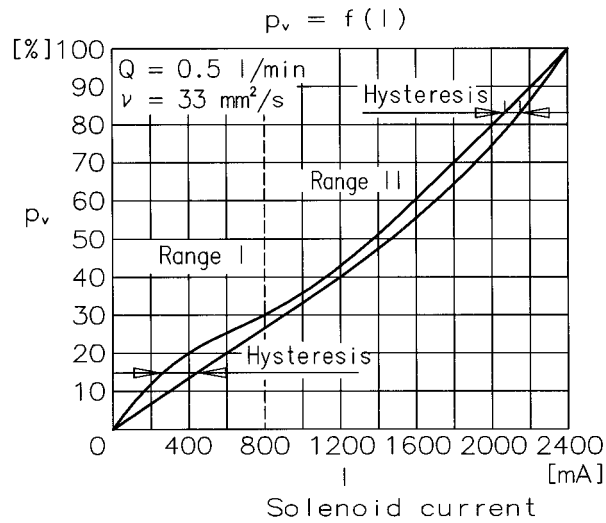
³⁾ With dither: Frequency 50 Hz, amplitude 15 % I_N .

⁴⁾ For size 6, 15l/min, DC 05 (lab arrangement)

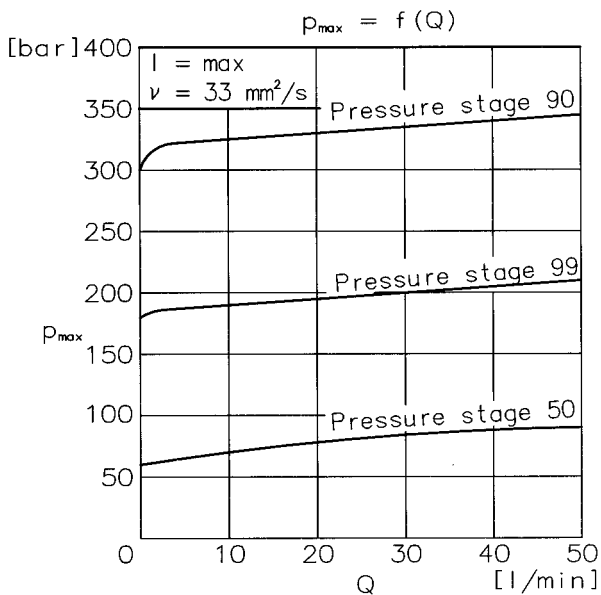
Characteristic curves

Proportional pressure relief valve, sizes 6 and 10, all pressure stages

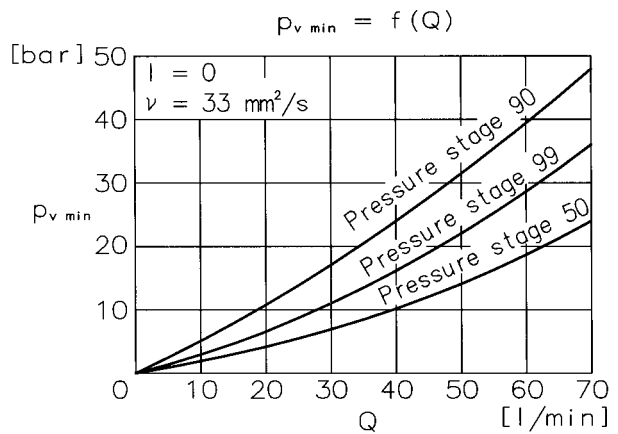
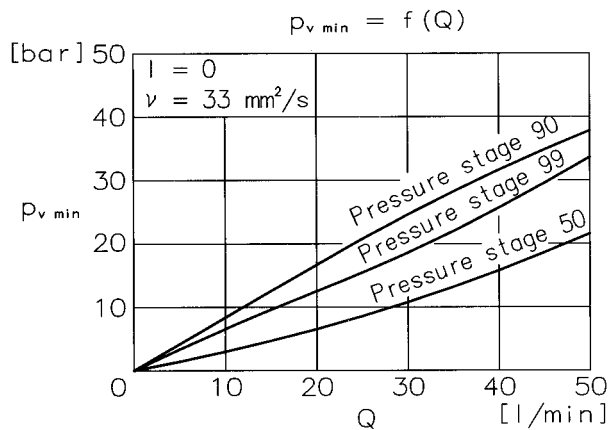
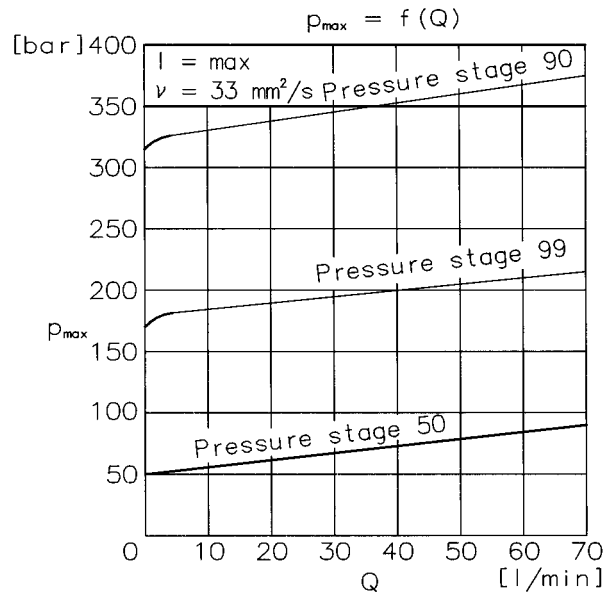
DBC 6 UP ... and DBC 10 UP ...



DBC 6 UP ...



DBC 10 UP ...



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. O-rings are enclosed with flanged units. The subplate, mounting screws and drive electronics must be ordered separately.

Example of order

Electrically adjustable proportional pressure relief valve, size 6, flanged version. Max. setting pressure = 315 bar, with additional subplate and mounting screws. The electronic control unit must be ordered separately.

Proportional pressure relief valve:

Type: D B C 6 UP G 90 002 4 O O
Cat. No.: **6015983.7994**

Subplate:

Type: P S 6 G 2 024 2 O O
Cat. No.: **1065173**

Mounting screws:

(4 bolts required)
Socket head screw (M 5 x 70 DIN 912-10.9)
Cat. No.: **0662315**

Type survey (standard versions)

Size	p _V max. [bar]	Proportional solenoid current	Drive electronics	Line connection	Type	Cat. No.
6	50	0 ... 2400 mA	DC 05, DC 05-XLT, pQ 11 or pQ 12 (see tables)	Subplate G 1/4 P S 6 G 2 024 2 OO Cat. No. 1065173	D B C 6 UP G 50 002 4 O O	6015980.7994
	170				D B C 6 UP G 99 002 4 O O	6015999.7994
	315			Subplate G 3/8 P S 6 G 3 001 2 OO Cat. No. 1065183	D B C 6 UP G 90 002 4 O O	6015983.7994
10	50			Subplate G 1/2 P DB 10 G 4 001 1 OO Cat. No. 2852600	D B C 10 UP G 50 301 3 O O	6015976.7994
	170				D B C 10 UP G 99 301 3 O O	6015998.7994
	315				D B C 10 UP G 90 301 3 O O	6015979.7994

Subplates

Size	Port size	Subplate with interface to	Type	Cat. No.
6	G 1/4	DIN 24 340-A 6 and ISO 4401-AB-03-4-A	P S 6 G 2 024 2 OO	1065173
6	G 3/8	DIN 24 340-A 6 and ISO 4401-AB-03-4-A	P S 6 G 3 001 2 OO	1065183
10	G 1/2	DIN 24 340-E 10 and ISO 6264-AB-06-2-A	P DB 10 G 4 001 1 O O	2852600

Drive electronics

Drive electronics DC 05 / DC 05-XLT

Digital amplifier with constant current regulator PWM
Power supply: 18 ... 30 VDC, incl. residual ripple
Ambient temperature ϑ_a : 0 ... +50 °C
Weight: 0,4 kg
Mounting position: Upright
Free air circulation must be ensured
Space requirement for installation of 19" card rack: 50 mm
European format: 100 x 160 mm



Type	Setpoint input (switchable)	Internal setpoints	Ramps	Terminal strip Form F DIN 41612	PID controller for external control loops	Cat. No.	For Further information, see script
	[V] [mA]	Pcs.	Pcs.	Number of pins			
For proportional directional control valves Rated current I_N: 0 ... 1600 mA							
DC 05	2x0...±10V	0(4)...20 mA	4	4	48	● / ○ (switchable)	5150000 ¹⁾ 7503503
DC 05-XLT	0...±10V		4	2	48	○	5150001 ¹⁾ 7503504
			Functional compatible to pQ 03				

¹⁾ Pre-parametred electronics on request.

Drive electronics pQ 11

Plug-in amplifier with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC,
Residual ripple: ≤ 10 %
Ambient temperature ϑ_a : -20 ... +50 °C
Mounting position: Optional



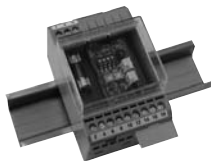
Setpoint input (switchable)	Type of connection	Weight	Cat. No.	For Further information, see script
[V] [mA]	Connecting cable, 2 m Connector acc. to DIN 43651	[kg]		
For proportional valves with 2 solenoids 2 pQ 11 necessary Rated current I_N: 0 ... 2400 mA, allowed resistance of solenoid R_{20}: 2,5...4,5 Ω				HERION 7502961
0 ... 10	0 (4)...20 ●	○	0,18	5980085
0 ... 10	0 (4)...20 ○	●	0,18	5980081 ¹⁾

Mark in table: ○ without, ● with

¹⁾ Cable connector to be ordered separately. Cat. No. **0660689**

Drive electronics pQ 12

Amplifier module with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC,
Residual ripple: ≤ 10 %
Ambient temperature ϑ_a : -20 ... +50 °C
Mounting position: Optional
For attachment on mounting rail acc. to EN 50022



Setpoint input (switchable)	Output currents	Cat. No.	For Further information, see script
[V] [mA]	[mA]		
For proportional valves with 2 solenoids 2 pQ 11 necessary			HERION 7503109
0 ... 10	0 (4)...20	0 ... 1600 / 2400	5980126

[illegible]

Size 10

[illegible]

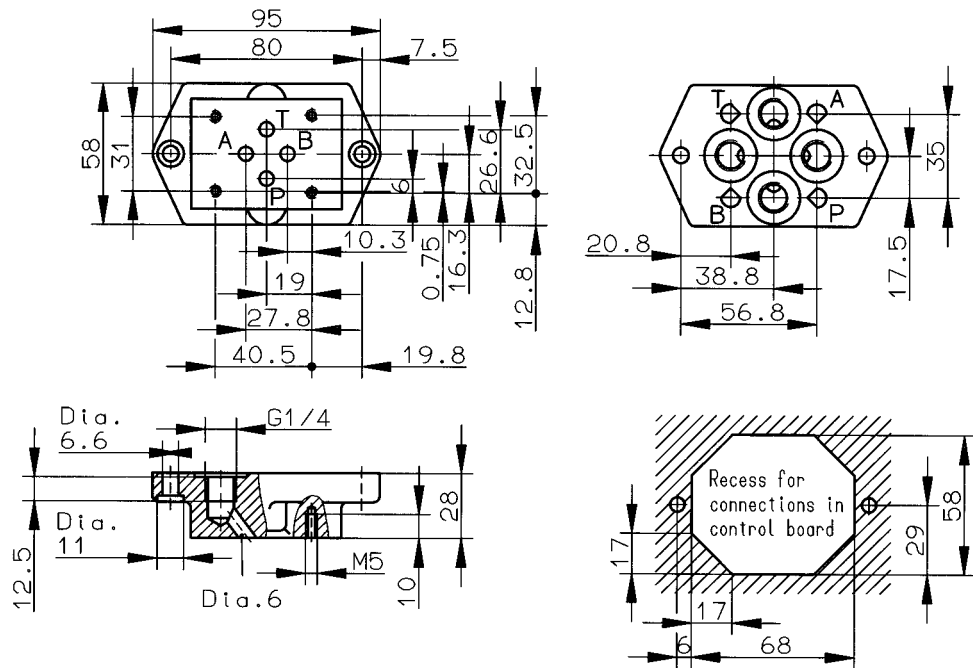
7501489.06.01.06

Dimensional drawings [mm]

Subplates size 6 with interface to DIN 24 340-A 6 and ISO 4401-AB-03-4-A

Cat. No. 1065173

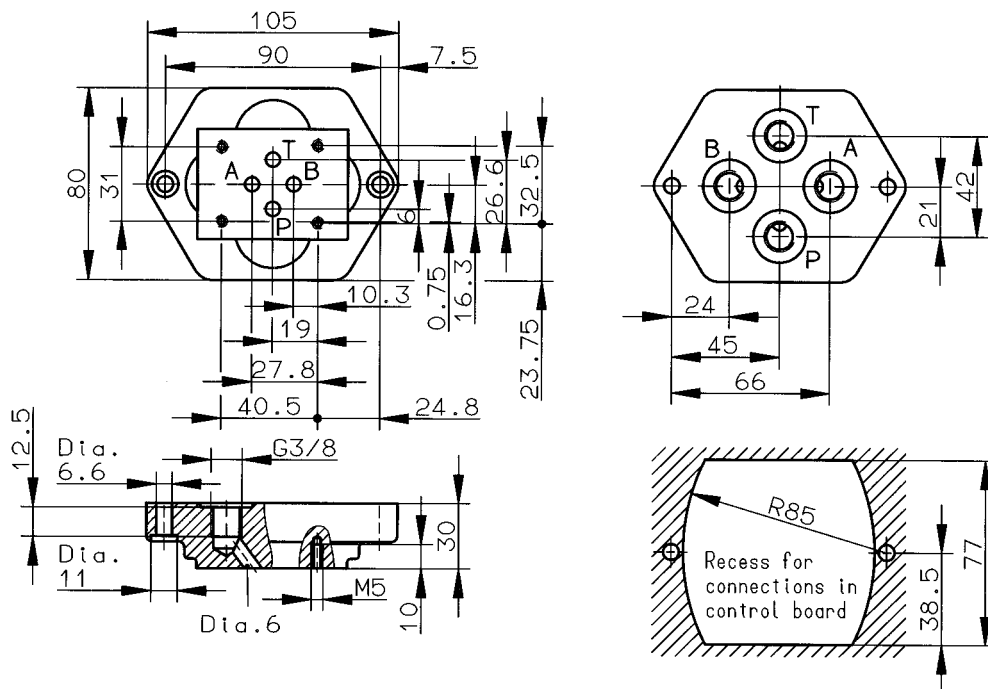
G 1/4



Subplates size 6 with interface to DIN 24 340-A 6 and ISO 4401-AB-03-4-A

Cat. No. 1065183

G 3/8

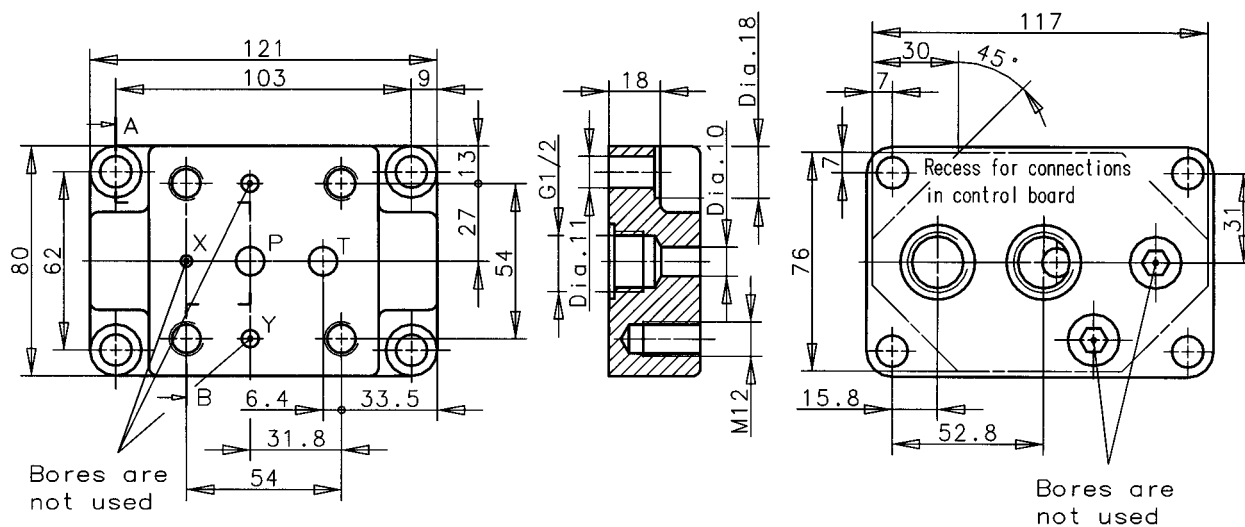


Dimensional drawings [mm]

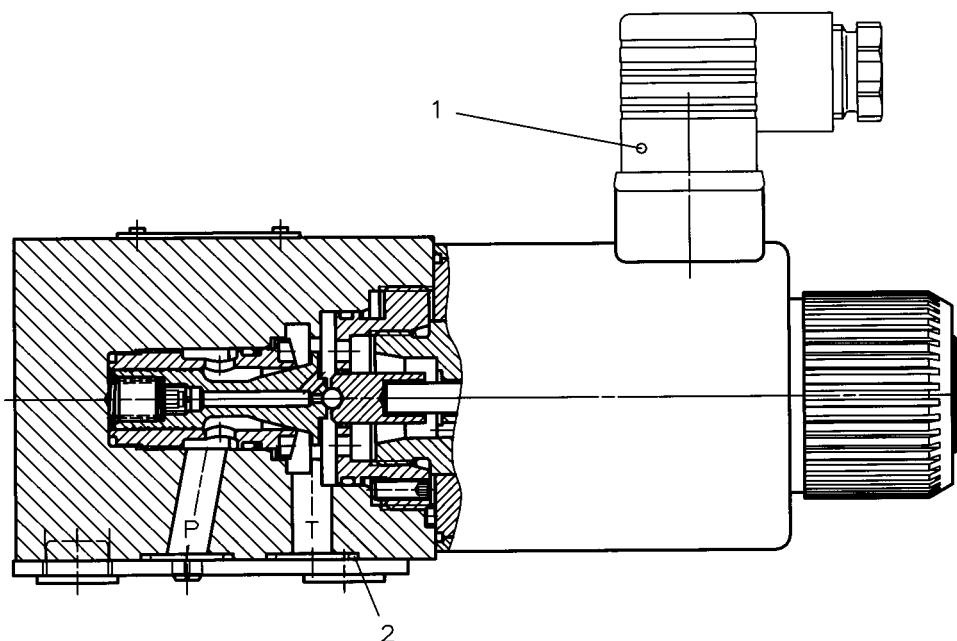
Subplates size 10 with interface to DIN 24 340-E 10 and ISO 6264-AB-06-2-A

Cat. No. 2852600

G 1/2



Spare parts drawing



Spare parts and mounting screws / Accessories

Spare parts

Part	Size	Qty.	Description	Cat. No.
2	6	2	O-ring (9.25 x 1.78)	0701252
2	10	2	O-ring (15.6 x 1.78)	0701256

Accessories

1	-	1	Connector	0657859
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Mounting screws¹⁾

Part	Size	Qty.	Description	Cat. No.
-	6	4	Socket head screw (M5 x 70 DIN 912-10.9) Tightening torque MA = 7.6 Nm	0662315
-	10	4	Socket head screw (M12 x 80 DIN 912-10.9) Tightening torque MA = 110 Nm	0700479

¹⁾ The mounting screws are not included in the delivery

Proportional Pressure Relief Valves Sizes 6 and 10



**Systemtechnik
GmbH**

Poppet valve, direct actuated, with damping
Interface to DIN 24 340 and ISO 4401

PN [p_{max.}] = 315 bar

7501489.06.01.06

Description (standard units)

Design

With these proportional pressure valves, the pressure is adjusted by means of a variable magnetic force acting on the piston. The direct controlled design consists of a small seat which is connected with the proportional solenoid. The hydraulic pressure can be adjusted by increasing or decreasing the current I which is fed to the proportional solenoid, by means of a potentiometer and amplifier.

Application

With hydraulic control circuits there is often the requirement to influence the current by means of an electrical signal, e.g. for remote control in order to avoid long hydraulic pipe lines or for program controls where the different pressures are adjusted automatically. These proportional pressure valves are also very often used in process-controlled plastics injection moulding machines.

Mounting

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

Line connection

Subplate size 6, interface to DIN 24 340-A 6 and ISO 4401-AB-03-4-A

Subplate size 10, interface to DIN 24 340-E 10 and ISO 6264-AR-06-2-A



Features

- Simple electrical program and remote control
- Adjustable transient response

Type key

Proportional pressure relief valves

D	B	C	...	UP	G	...	...	...	O	...
			1			2	3	4		5

- 1 Nominal size: **6** - Size 6
10 - Size 10
- 2 Setting pressure: **50** - Up to 50 bar
range **99** - Up to 170 bar
90 - Up to 315 bar
- 3 Code: **002** - Size 6
301 - Size 10
- 4 Engineering version: Solenoid 7994 2400 mA
4 - Size 6
3 - Size 10
- 5 Sealing material: **O** - Perbunan
V - Viton

Subplate size 6

P	S	6	G	...	...	...	O	O
				1	2	3		

- 1 Line connection: **2** - G 1/4
3 - G 3/8
- 2 Code: **024** - G 1/4
001 - G 3/8
- 3 Engineering version: **2**

Subplate size 10 G 1/2

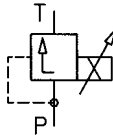
P	DB	10	G	4	001	...	O	O
						1		

- 1 Engineering version: **1**

Parameters

Type	D B C 6 UP G... 002 2 O O	D B C 10 UP G... 301 3 O O
------	---------------------------	----------------------------

General parameters

Description	Proportional pressure relief valves	
Symbol		
Design	Seat valve, direct actuated	
Type of mounting	Flange	
Line connection	Subplate	
Mounting position	Valve axis preferably horizontal	
Flow direction	From P to T	
Actuator type	Proportional solenoid	
Weight of valve [kg]	3.2	4.3
Weight of subplate [kg]	G 1/4 = 0.7 G 3/8 = 1.0	G 1/2 = 2.0
Ambient temperature range ϑ_u [°C]	-20 ... +50	
Nominal size	6	10

Hydraulic parameters

Operating pressure range p_e [bar]	... 315	
Setting pressure range ¹⁾ p_v [bar]	p_v min.: See characteristic curve ²⁾ p_v max.: Pressure stage 50: up to 50 Pressure stage 99: up to 170 Pressure stage 90: up to 315	
Pressure fluid temperature ϑ_{max} [°C]	+70	
Viscosity range ν [mm ² /s]	12 ... 500	
Flow Q [l/min]	See characteristic curve	
Regulating time for adjustable pressure range ⁴⁾ from p_v min. to 0.9 p_v max. [ms]	≈ 35	
Hysteresis ³⁾ [% I_N]	Range I < 7.5 / Range II < 3.5 at $Q = 0.5$ l/min Range I < 3 / Range II < 3 at $Q = 20$ l/min	
Repeatability ³⁾ [bar]	Pressure stage 50 < ±1 Pressure stage 99 < ±2 (at $Q = \text{const.}$) Pressure stage 90 < ±3	
Sensitivity of response ³⁾ I_N [%]	< 1	
Filtration, absolute	Oil purity class to ISO 4406: 17/15/12	

Electrical parameters of proportional solenoid

Solenoid Cat. No.	7994	
Rated current I_N [mA]	2400	
Rated power P_{20} [W]	19	
Resistance R_{20} [Ω]	3.3	
Duty cycle ED [%]	100	
Degree of protection and electric connection acc. to DIN 40 050	IP 65	
Drive electronics	DC 05/ DC 05-XLT, pQ 11 and pQ 12 See table, Page 5	

¹⁾ If the valve is used as pilot valve for large pressure valves, measures must be taken to dampen the complete hydraulic system.

²⁾ Smaller p_v max. value can be set at amplifier

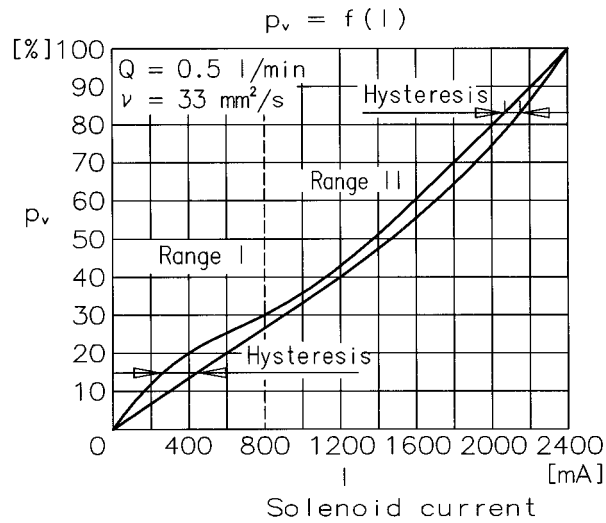
³⁾ With dither: Frequency 50 Hz, amplitude 15 % I_N .

⁴⁾ For size 6, 15l/min, DC 05 (lab arrangement)

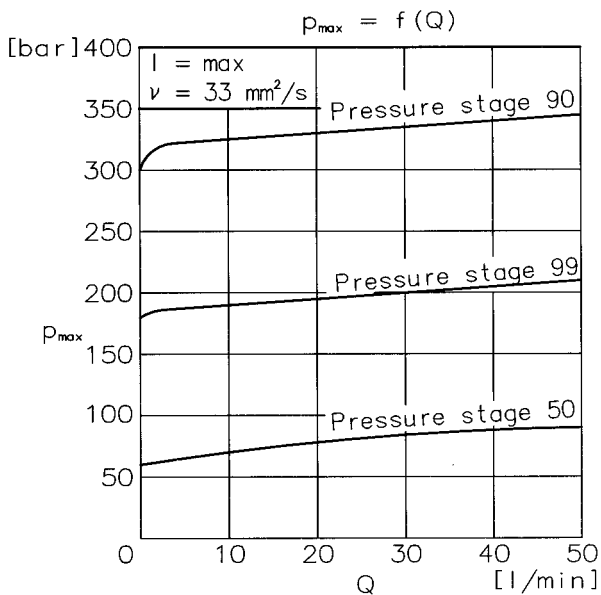
Characteristic curves

Proportional pressure relief valve, sizes 6 and 10, all pressure stages

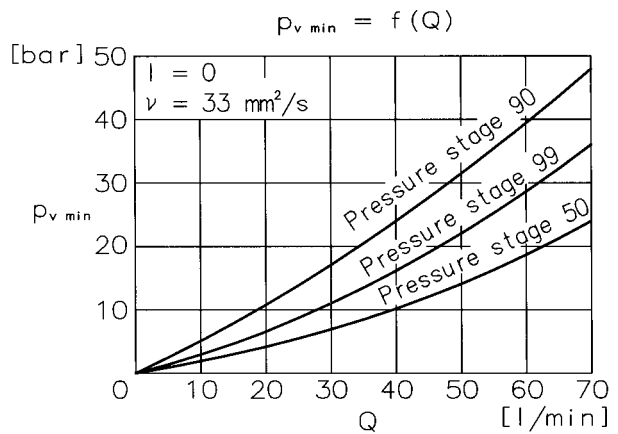
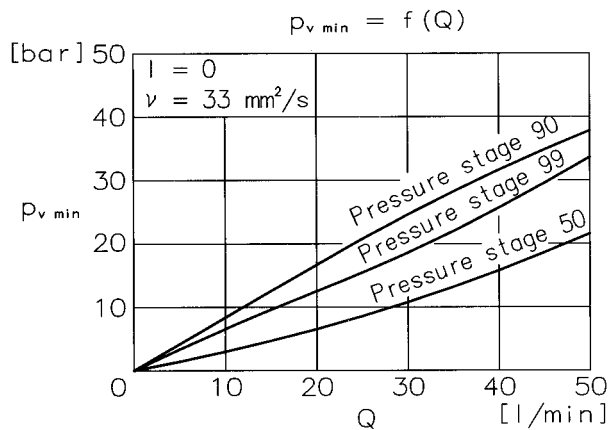
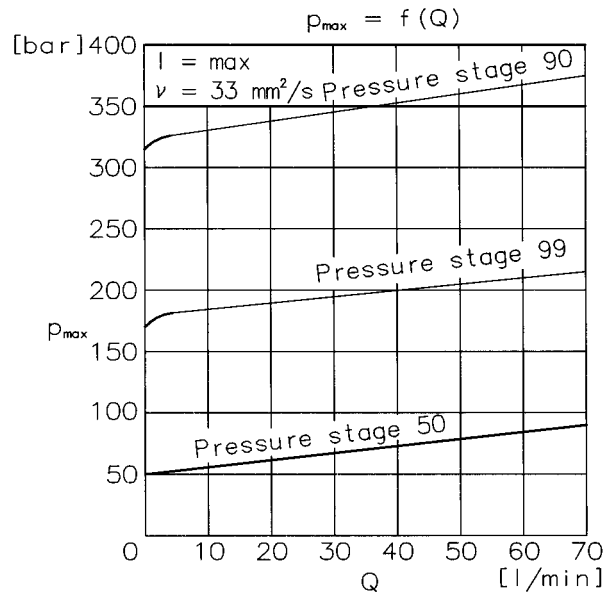
DBC 6 UP ... and DBC 10 UP ...



DBC 6 UP ...



DBC 10 UP ...



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. O-rings are enclosed with flanged units. The subplate, mounting screws and drive electronics must be ordered separately.

Example of order

Electrically adjustable proportional pressure relief valve, size 6, flanged version. Max. setting pressure = 315 bar, with additional subplate and mounting screws. The electronic control unit must be ordered separately.

Proportional pressure relief valve:

Type: D B C 6 UP G 90 002 4 O O
Cat. No.: **6015983.7994**

Subplate:

Type: P S 6 G 2 024 2 O O
Cat. No.: **1065173**

Mounting screws:

(4 bolts required)
Socket head screw (M 5 x 70 DIN 912-10.9)
Cat. No.: **0662315**

Type survey (standard versions)

Size	p _v max. [bar]	Proportional solenoid current	Drive electronics	Line connection	Type	Cat. No.
6	50	0 ... 2400 mA	DC 05, DC 05-XLT, pQ 11 or pQ 12 (see tables)	Subplate G 1/4 P S 6 G 2 024 2 OO Cat. No. 1065173	D B C 6 UP G 50 002 4 O O	6015980.7994
	170				D B C 6 UP G 99 002 4 O O	6015999.7994
	315			Subplate G 3/8 P S 6 G 3 001 2 OO Cat. No. 1065183	D B C 6 UP G 90 002 4 O O	6015983.7994
10	50			Subplate G 1/2 P DB 10 G 4 001 1 OO Cat. No. 2852600	D B C 10 UP G 50 301 3 O O	6015976.7994
	170				D B C 10 UP G 99 301 3 O O	6015998.7994
	315				D B C 10 UP G 90 301 3 O O	6015979.7994

Subplates

Size	Port size	Subplate with interface to	Type	Cat. No.
6	G 1/4	DIN 24 340-A 6 and ISO 4401-AB-03-4-A	P S 6 G 2 024 2 OO	1065173
6	G 3/8	DIN 24 340-A 6 and ISO 4401-AB-03-4-A	P S 6 G 3 001 2 OO	1065183
10	G 1/2	DIN 24 340-E 10 and ISO 6264-AB-06-2-A	P DB 10 G 4 001 1 O O	2852600

Drive electronics

Drive electronics DC 05 / DC 05-XLT

Digital amplifier with constant current regulator PWM
Power supply: 18 ... 30 VDC, incl. residual ripple
Ambient temperature ϑ_a : 0 ... +50 °C
Weight: 0,4 kg
Mounting position: Upright
Free air circulation must be ensured
Space requirement for installation of 19" card rack: 50 mm
European format: 100 x 160 mm



Type	Setpoint input (switchable)		Internal setpoints	Ramps	Terminal strip Form F DIN 41612	PID controller for external control loops	Cat. No.	For Further information, see script
	[V]	[mA]	Pcs.	Pcs.	Number of pins			
For proportional directional control valves Rated current I_N: 0 ... 1600 mA								
DC 05	2x0...±10V	0(4)...20 mA	4	4	48	● / ○ (switchable)	5150000 ¹⁾	7503503
DC 05-XLT	0...±10V		4	2	48	○	5150001 ¹⁾	7503504
			Functional compatible to pQ 03					

¹⁾ Pre-parametred electronics on request.

Drive electronics pQ 11

Plug-in amplifier with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC,
Residual ripple: ≤ 10 %
Ambient temperature ϑ_a : -20 ... +50 °C
Mounting position: Optional



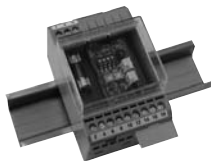
Setpoint input (switchable)		Type of connection		Weight	Cat. No.	For Further information, see script
[V]	[mA]	Connecting cable, 2 m	Connector acc. to DIN 43651	[kg]		
For proportional valves with 2 solenoids 2 pQ 11 necessary Rated current I_N: 0 ... 2400 mA, allowed resistance of solenoid R_{20}: 2,5...4,5 Ω						HERION 7502961
0 ... 10	0 (4)...20	●	○	0,18	5980085	
0 ... 10	0 (4)...20	○	●	0,18	5980081 ¹⁾	

Mark in table: ○ without, ● with

¹⁾ Cable connector to be ordered separately. Cat. No. **0660689**

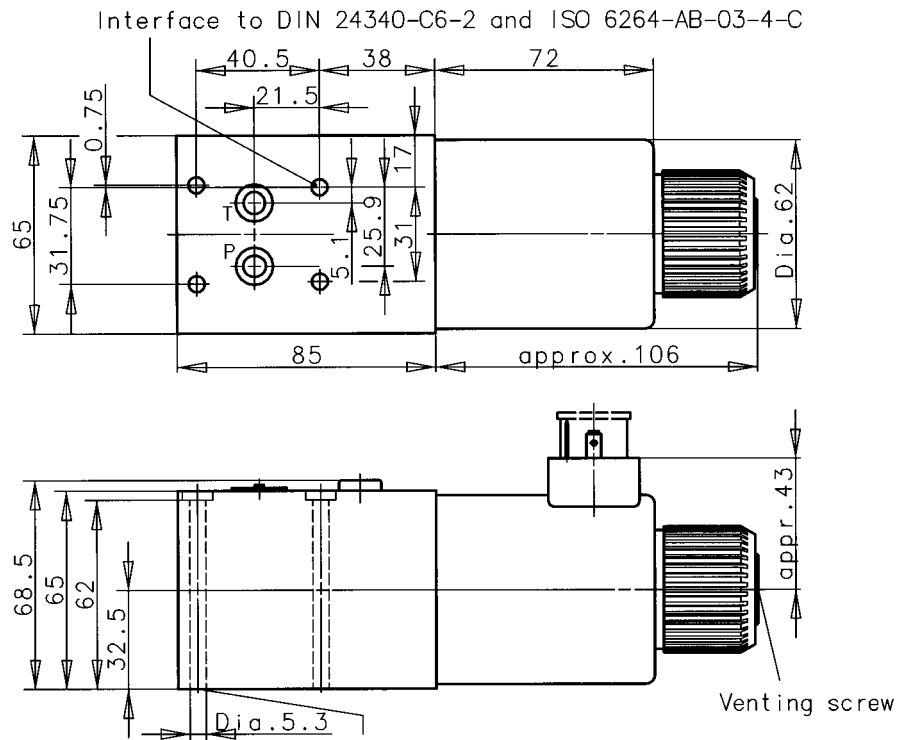
Drive electronics pQ 12

Amplifier module with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC,
Residual ripple: ≤ 10 %
Ambient temperature ϑ_a : -20 ... +50 °C
Mounting position: Optional
For attachment on mounting rail acc. to EN 50022

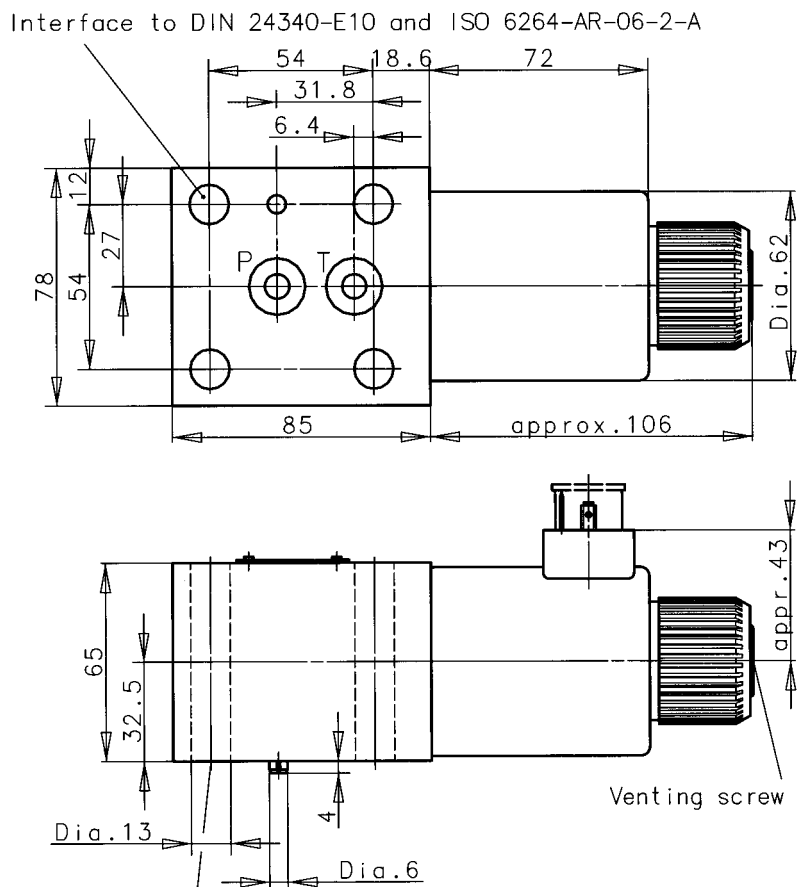


Setpoint input (switchable)		Output currents	Cat. No.	For Further information, see script
[V]	[mA]	[mA]		
For proportional valves with 2 solenoids 2 pQ 11 necessary				HERION 7503109
0 ... 10	0 (4)...20	0 ... 1600 / 2400	5980126	

Size 6



Size 10

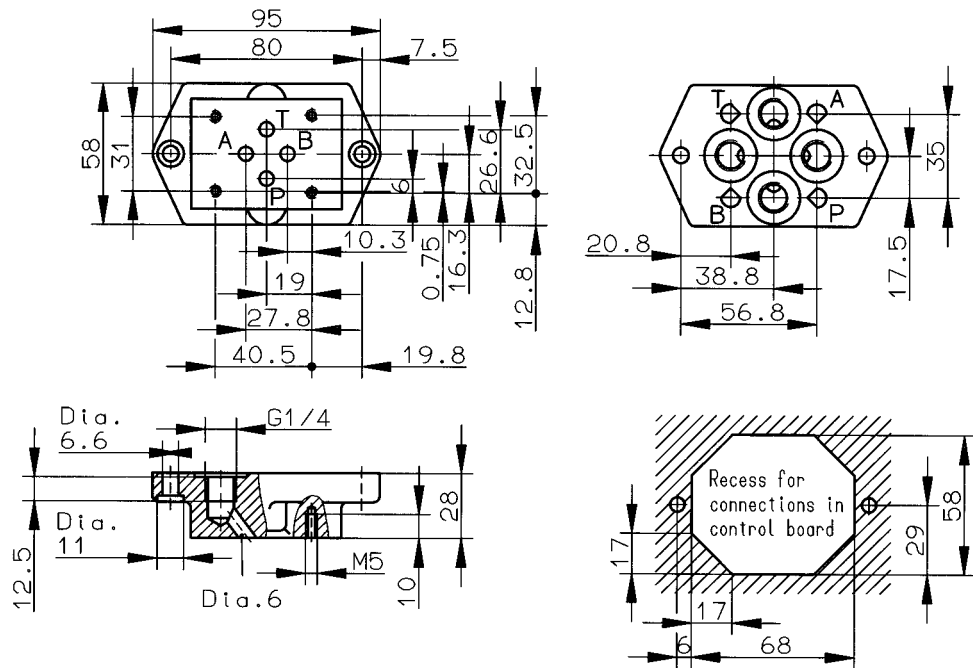


Dimensional drawings [mm]

Subplates size 6 with interface to DIN 24 340-A 6 and ISO 4401-AB-03-4-A

Cat. No. 1065173

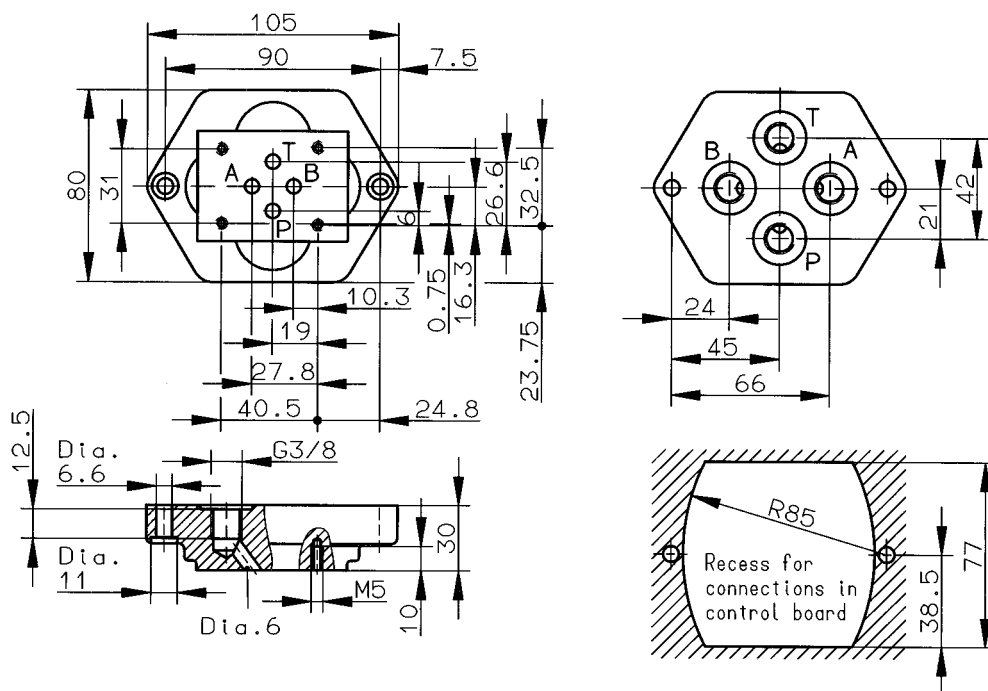
G 1/4



Subplates size 6 with interface to DIN 24 340-A 6 and ISO 4401-AB-03-4-A

Cat. No. 1065183

G 3/8

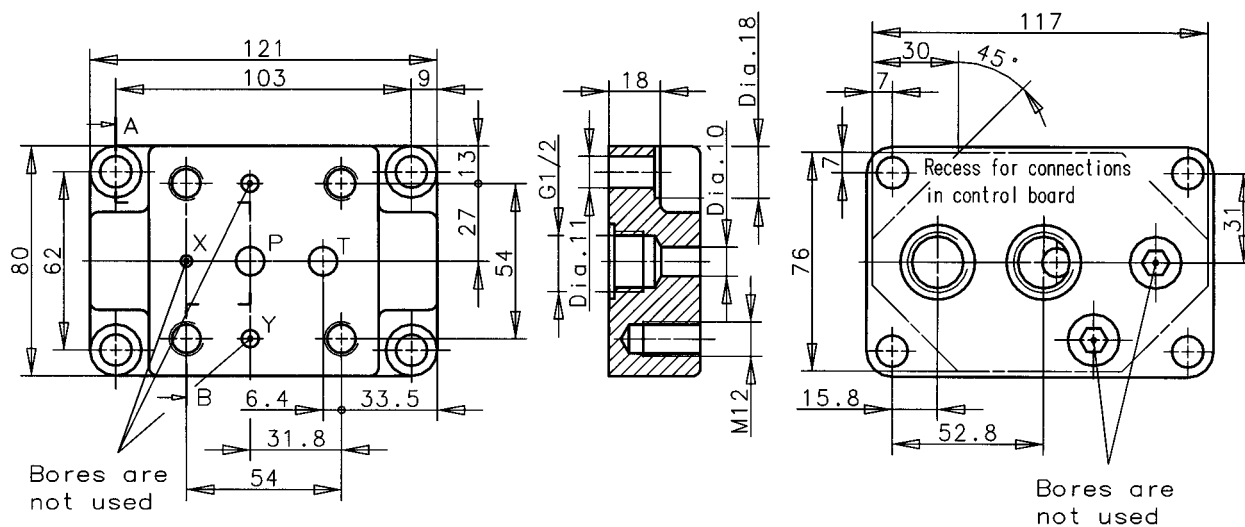


Dimensional drawings [mm]

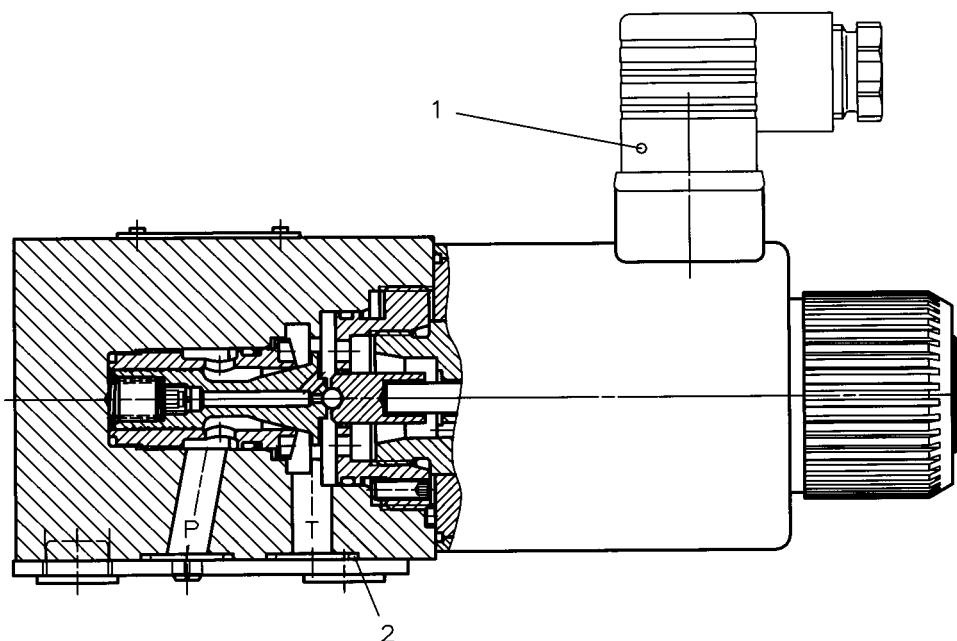
Subplates size 10 with interface to DIN 24 340-E 10 and ISO 6264-AB-06-2-A

Cat. No. 2852600

G 1/2



Spare parts drawing



Spare parts and mounting screws / Accessories

Spare parts

Part	Size	Qty.	Description	Cat. No.
2	6	2	O-ring (9.25 x 1.78)	0701252
2	10	2	O-ring (15.6 x 1.78)	0701256

Accessories

1	-	1	Connector	0657859
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Mounting screws¹⁾

Part	Size	Qty.	Description	Cat. No.
-	6	4	Socket head screw (M5 x 70 DIN 912-10.9) Tightening torque MA = 7.6 Nm	0662315
-	10	4	Socket head screw (M12 x 80 DIN 912-10.9) Tightening torque MA = 110 Nm	0700479

¹⁾ The mounting screws are not included in the delivery

Pressure Switches Series 18D



**Systemtechnik
GmbH**

**Hydraulic Pressure Switches
G 1/4, 7/16-20 UNF (SAE 4), 1/4 NPT
Flange**

7501629.06.03.06

- Gold-plated contacts in microswitch
- High number of switching cycles
- Vibration resistant to 15g
- Microswitch approved by UL and CSA
- Intrinsically safe operation

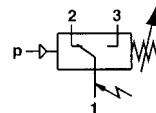


Technical Data

Fluid:	Hydraulic, lubricating and light fuel oils Soft seal for neutral Self lubricating fluids
Operation:	Piston type sensor system
Port sizes:	G 1/4 (BSP), 7/16-20 UNF (SAE-4), 1/4 NPT, Flange
Operating pressure ranges:	5-420 bar
Ambient temperature:	-10 to +80°C
Fluid Temperature:	-10 to +80°C
Maximum temperature at switching element:	+80°C
Operating Viscosity:	Up to 1000 mm ² /s (±450ssu)
Repeatability:	±3%
Electrical Connection:	- Acc. to DIN 43650 A - Acc. to IEC 947-5-2 (M 12 x 1)
Switching Element:	Microswitch (gold plated contacts)
Degree of Protection:	IP 65 for conn. DIN 43650 IP 67 for conn. M 12 x 1
Mounting:	Optional
Material:	Sensor and seal see table overleaf

Ordering information

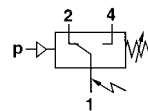
To order, quote part number from table overleaf, e.g. a G 1/4" ported switch with a pressure range of 5-70 bar is **0882100**.



Switching function:
Microswitch SPDT

Terminals 1-3:
Contacts close on rising pressure.

Terminals 1-2:
Contacts open on rising pressure.



Switching function M 12 x 1:
Microswitch SPDT

Terminals 1-4:
Contacts close on rising pressure.

Terminals 1-2:
Contacts open on rising pressure.

General Information:**18 D variations with electrical connection DIN 43650 A**

Part Number	Pressure Range (bar)	Switching Pressure Difference ** (bar)		Maximum Over Pressure * (bar)	Switching (Cycles per min)	Pressure Sensor Materials		Fluid Connection		Weight (kg)	Dimension Drawing No.
		Lower Range †	Upper Range †			Housing Piston	Seal Dyn./Static	Type	Size		
0882100	5-70	10,5	15	400	100	AL/Steel	PTFE/NBR	Female	G 1/4	0,2	01
0883100	5-70	10,5	15	400	100	AL/Steel	PTFE/NBR	Flange	-	0,2	02
0882119	5-70	10,5	15	400	100	AL/Steel	PTFE/NBR	Female	7/16-20 UNF	0,2	01
0882120	5-70	10,5	15	400	100	AL/Steel	PTFE/NBR	Female	1/4 NPT	0,2	01
0871200	10-100	8	16	250	100	CN/Steel	NBR	Flange	-	0,3	03
0882200	10-160	11	17	400	100	AL/Steel	PTFE/NBR	Female	G 1/4	0,2	01
0883200	10-160	11	17	400	100	AL/Steel	PTFE/NBR	Flange	-	0,2	02
0882219	10-160	11	17	400	100	AL/Steel	PTFE/NBR	Female	7/16-20 UNF	0,2	01
0882220	10-160	11	17	400	100	AL/Steel	PTFE/NBR	Female	1/4 NPT	0,2	01
0871300	12-160	8	16	250	100	CN/Steel	NBR	Flange	-	0,3	03
0870400	15-250	7	20	500	100	CN/Steel	PU	Flange	-	0,3	03
0870500	20-350	6	25	500	100	CN	POM	Flange	-	0,3	03
0882300	25-250	11	17	400	100	AL/Steel	PTFE/NBR	Female	G 1/4	0,2	01
0883300	25-250	11	17	400	100	AL/Steel	PTFE/NBR	Flange	-	0,2	02
0882319	25-250	11	17	400	100	AL/Steel	PTFE/NBR	Female	7/16-20 UNF	0,2	01
0882320	25-250	11	17	400	100	AL/Steel	PTFE/NBR	Female	1/4 NPT	0,2	01
0882400	40-420	17	38	600	100	AL/Steel	PTFE/NBR	Female	G 1/4	0,2	01
0883400	40-420	17	38	600	100	AL/Steel	PTFE/NBR	Flange	-	0,2	03
0882419	40-420	17	38	600	100	AL/Steel	PTFE/NBR	Female	7/16-20 UNF	0,2	01
0882420	40-420	17	38	600	100	CN/Brass	PTFE/NBR	Female	1/4 NPT	0,2	01

18 D variations with electrical connection M 12 x 1 (max allowable voltage 30 V) ***

Part Number	Pressure Range (bar)†	Switching Pressure Difference ** (bar)		Maximum Over Pressure * (bar)	Switching (Cycles per min)	Pressure Sensor Materials		Fluid Connection		Weight (kg)	Dimension Drawing No.
		Lower Range	Upper Range			Housing Piston	Seal Dyn./Static	Type	Size		
0882160	5-70	10,5	15	400	100	AL/Steel	PTFE/NBR	Female	G 1/4	0,2	04
0882260	10-160	11	17	400	100	AL/Steel	PTFE/NBR	Female	G 1/4	0,2	04
0882360	25-250	11	17	400	100	AL/Steel	PTFE/NBR	Female	G 1/4	0,2	06
0882460	40-420	17	35	600	100	AL/Steel	PTFE/NBR	Female	G 1/4	0,2	06
0883160	5-70	10,5	15	400	100	CN/Steel	PTFE/NBR	Flange	-	0,3	05
0883260	10-160	11	17	400	100	AL/Steel	PTFE/NBR	Flange	-	0,2	05
0883360	25-250	11	17	400	100	AL/Steel	PTFE/NBR	Flange	-	0,2	05
0883460	40-420	17	35	600	100	AL/Steel	PTFE/NBR	Flange	-	0,2	05

* Observe switching range. Do not subject switch to max. allowable pressure during normal operation. Even short pressure peaks must not exceed this value.

** Max. values.

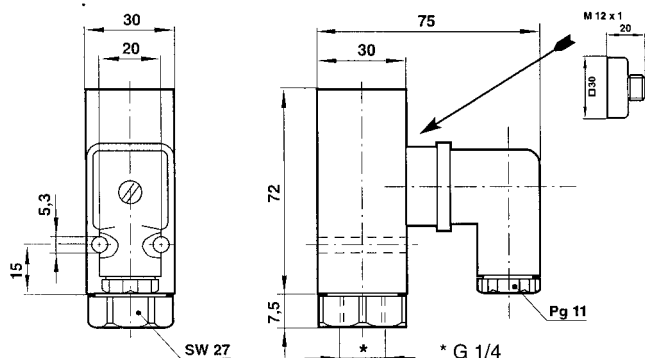
*** M 12 plug not included. If required, please order separately. Table on page 3.

† 1 bar = 14.503 psi.

Key to materials: AL = Aluminium
NBR = Perbunan
PTFE = Teflon
CN = Zinc die cast
PU = Polyurethane
POM = Delrin

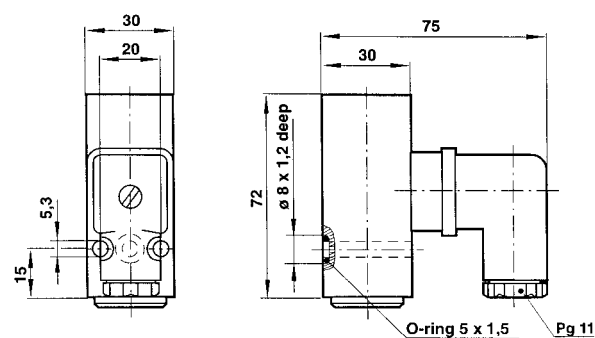
Dimensional drawing

Dimensional drawing 01

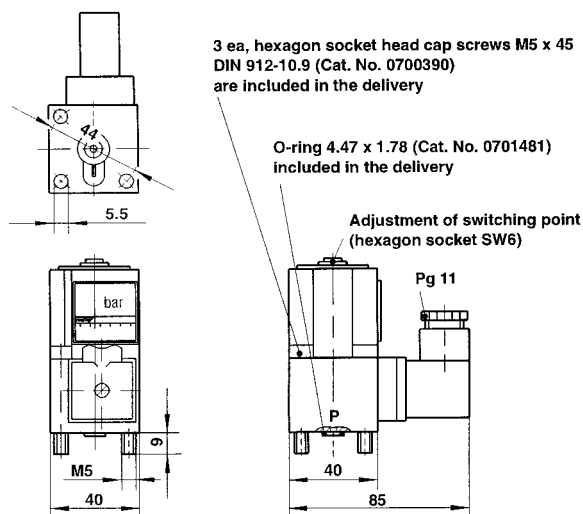


Dimensional drawing 06

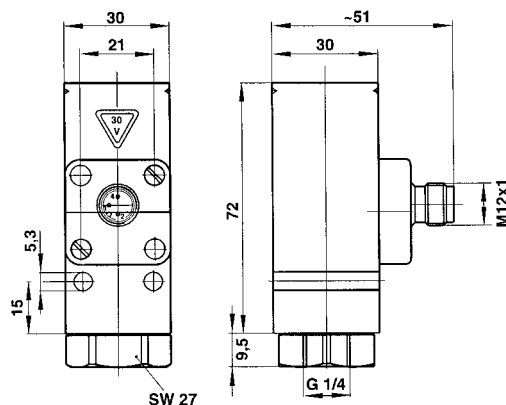
Dimensional drawing 02



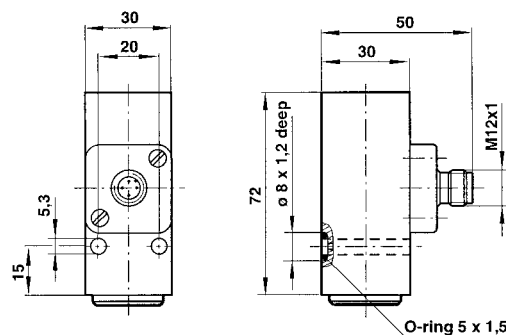
Dimensional drawing 03



Dimensional drawing 04



Dimensional drawing 05



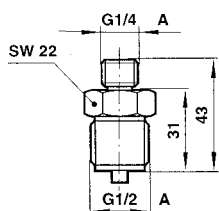
Connector M 12 x 1

Type 0523056 90° without cable,
Type 0523053 90° 5 m cable, 4-core

Accessories

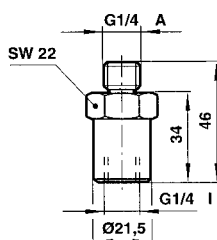
Reducer G 1/2 to G 1/4, external thread

Part No. 0574767



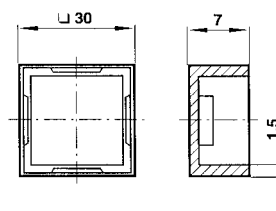
Snubber G 1/4

Part No. 0574773



Cover

Part No. 0554737

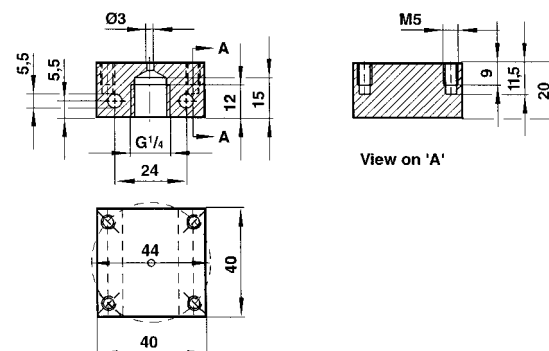


Accessories

Subplate G 1/4

Part No. 0522259 Material 3.1645 (aluminium)
for max. 400 bar

Part No. 0522233 Material 1.4301 (stainless steel)
for max. 1200 bar



Making and/or breaking capacity

Change-over switch with gold-plated contacts				M 12 x 1 only					
Load Level	Type of Current	Type of Load	U _{min} [V]	Maximum Permanent Current I _{max} [A] at U [V]					Contact life
				30	48	60	125	250	
Standard * (e.g. contractors, solenoids)	AC	Resistive load	12	5	5	5	5	5	≥ 10 ⁷ switching cycles
	AC	Induktive load, cos φ = 0.7	12	3	3	3	3	3	
	DC	Resistive load	12	5	1,2	0,8	0,4	-	
	DC	Induktive load, L/R ≈ 10 ms	12	3	0,5	0,35	0,05	-	
Low ** (e.g. electronic circuits)	AC	Resistive load	5 [†]	0,34	0,2	0,17	0,08	0,04	≥ 10 ⁷ switching cycles
	DC	Induktive load, L/R ≈ 10 ms	5 [†]	0,1	0,01	-	-	-	

Reference number of switchings: 30/min. Reference temperature: +30°C

Spark quenching with diode with DC and inductive load:
I_{max} = 1.5 x I_{max} of table.
I_{min} = 1 [mA]

Creepage and air paths correspond to insulation group B according to VDE Reg. 0110 (except contact clearance of microswitch).

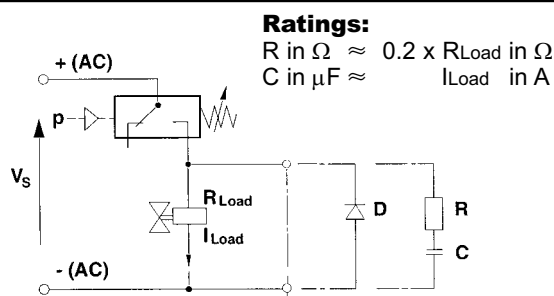
* Gold-plating not required as it would decay. Max. perm. in-rush current (appr. 30 ms)
AC_{make} = max. 15A.

** Gold-plating required (will not decay).

† Lower value of critical voltage guarantees sufficient contact safety.
Lower voltages permissible under favourable conditions.

Spark quenching with DC voltage (proposal)

- Diode D in parallel to inductive load.
Observance of correct polarity (positive pole to cathode).
Dimensioning specifications for quenching diode:
Rated voltage at diode: U_D ≥ 1.4 x U_v.
Selection of a quick switching diode (recovery time t_{rr} ≤ 200 [ms]).
Rated current at diode: I_R ≥ I_{Load}
- RC link in parallel to load in parallel to switching contact.
Suited for DC and AC voltage.



Proportional Directional Control Valves Size 6



**Systemtechnik
GmbH**

**Direct operated, position-controlled
Interface to DIN 24 340 and ISO 4401**

PN [p_{max.}] = 315 bar

7501719.06.03.06

Description (standard units)

Design

The proportional directional control valve, size 6, is based on the 5-chamber system and is in the form of a slide valve. The valve setting is monitored by a displacement measurement system and fed to the position control loop as an actual value. Interference variables are eliminated, ensuring that the selected setpoint is always precisely achieved. The actual position value is monitored by an inductive differential transformer with built-in electronic circuitry.

Application

The proportional directional control valve can be used to control the direction and speed of hydraulic cylinders and hydraulic motors and is employed in cases where a servo valve would be too expensive and a normal directional control valve would not offer a sufficient range of functions. The electrical control allows the wide variety of motions to be executed simply and extremely precisely by means of the continuously-controllable signal.

Mounting

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

Line connection

Subplate, interface to DIN 24 340-A 6 and ISO 4401-AB-03-4-A.



Features

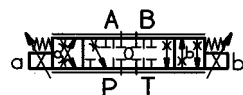
- Speed and direction control in accordance with setpoint specification
- Program control, remote control
- Spring-centred, robust design
- Inexpensive system solution
- High repetition accuracy and low hysteresis, thanks to position control

Type key

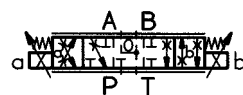
Proportional directional control valve

S	6	UR	10	G	...	...	...	O	...
					1	2	3		4

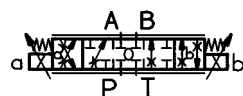
1 Symbol: **187**



233



212



2 Code No.: **018** - See characteristic curve
019 - See characteristic curve

3 Engineering version: **4**

4 Sealing material: **V** - FKM (e.g. Viton)

Subplate

P	S	6	G	...	001	...	O	O
				1		2		

1 Line connection: **2** - G 1/4 (Internal thread)
3 - G 3/8 to DIN ISO 228/1)

3 Engineering version: **2**

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Fax: +49 (0) 70 33/30 18-10



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info@herion-systemtechnik.de

Parameters

Type designation	S 6 UR ...
------------------	------------

General parameters

General parameters			
Designation			Proportional directional control valve
Symbol			See type survey
Design			Spool-type valve, direct operated, position-controlled
Type of mounting			Flange
Line connection			Subplate
Mounting position			Valve axis horizontal (see mounting drawings)
Type of actuator			Proportional solenoid, position-controlled
Weight - Valve		[kg]	2.8
Weight - Subplate	G 1/4	[kg]	1
	G 3/8	[kg]	1
Ambient temperature	ϑ_u	[°C]	−20 ... +50
Nominal size	NG		6

Hydraulic parameters

Operating pressure range at P, A and B at T	p_{max}	[bar]	up to 315
	p_{max}		up to 160
Pressure fluid temperature	ϑ_m max.	[°C]	+70
Viscosity range	ν	[mm²/s]	12 ... 500
Zero flow ($\Delta p = 100$ bar)	Q_l	[cm³/min]	< 30
Max. flow	Q_{max}		See characteristic curve
Repeatability ¹⁾		[%]	< 1
Hysteresis ¹⁾		[%]	< 1
Sensitivity of response ¹⁾		[%]	< 0,1
Width of backlash ¹⁾		[%]	< 0,1
Floating time	Q = 0%...100%	[ms]	30
	Q = 100%...0%	[ms]	40
Filtration, absolute		[µm]	25

Electrical parameters of proportional solenoid

Rated current	I_N	[mA]	1600
Resistance	R_{20}	[Ω]	5.7
Duty cycle	ED	[%]	100
Electric connection			Connector to DIN 43 650 A
Degree of protection to DIN 40 050			IP 65 (with connector)
Drive electronics with module for position control			See Page 5

Electrical parameters of displacement sensor

System			Inductive differential transformer with integrated electronics
Supply voltage		[V]	19.2 ... 28.8
Residual ripple			< 5%
Current consumption	max.	[mA]	40
Output voltage		[V]	7,5 ± 3,9
Temperature range		[°C]	0 ... 50

Connection of displacement sensor

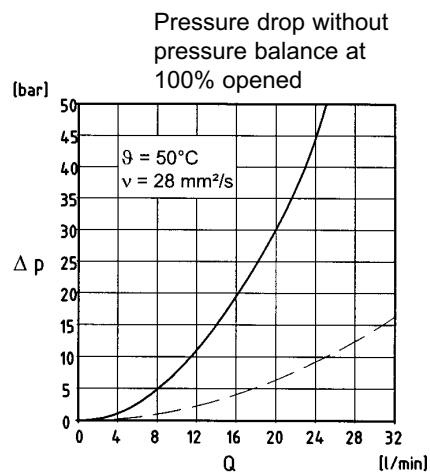
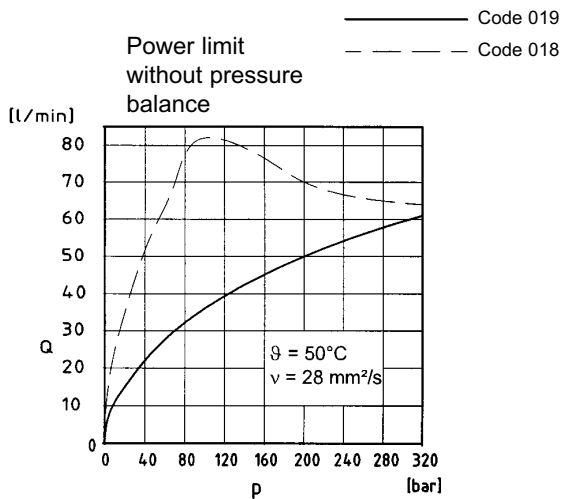
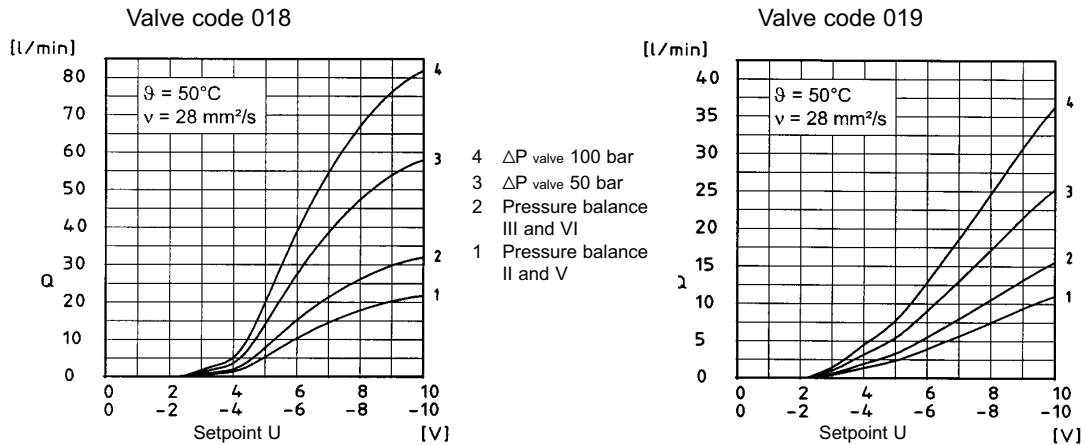
Connector	4-pin
Cable gland	M 12 x 1
Degree of protection to DIN 40 050	IP 65
Connector/Metal 90°	Cat. No. 0661748
(connector with cable, 2 m)	Cat. No. 0681824

¹⁾ referred to max. setpoint U = 10 V

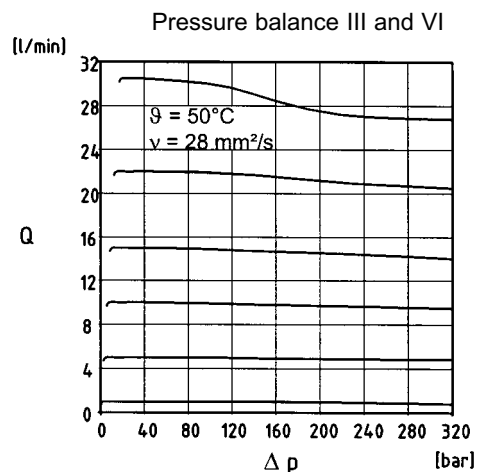
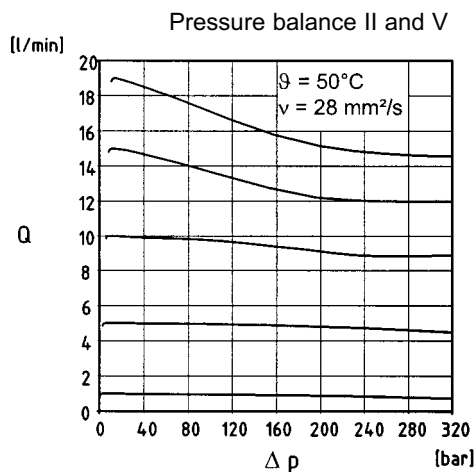
Connecting cable for displacement sensor

Cable	Displacement sensor-Amplifier	
Type of cable	Screened, 3-core	
Cable length	max.	[m] 75
Cross-section	min per core	[mm ²] 0.5
Resistance	max.	[Ω /m] 0.05
Capacitance max.	Core - core	[pF/m] 160
	Core - screen	[pF/m] 350
Type	e.g. LIYCY	

Characteristic curves



Valve code 018



Ordering

The units are designated by their type number. The composition of this number can be drawn from the type key. 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. O-rings are enclosed with flanged units. The pressure balance, subplate, drive electronics and mounting screws must be ordered separately.

Example of order

Proportional directional control valve, Size 6, Symbol 187, with characteristic curve Code No. 018, pressure balance, subplate G 1/4 and drive electronics.

Proportional directional control valve:

Type: S 6 UR 10 G 187 018 4 O V
Cat. No. **5205002.9000**

Pressure balance:

Cat. No. **6015190**

Subplate:

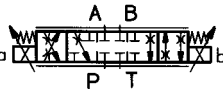
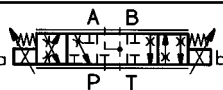
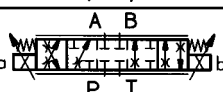
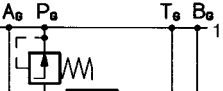
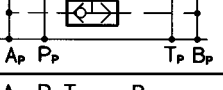
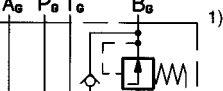
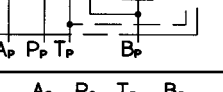
Type: P S 6 G 2 024 2 O O
Cat. No. **1065173**

Mounting screws: (4 bolts required)

Cylinder screws (M 5 x 70 DIN 912-10.9)
Cat. No. **0662315**

Drive electronics to be ordered separately, see Page 5.

Type survey and possibilities of combination (standard versions)

Designation	Symbol	Symbol-No.	Type	Cat. No.	Combination ²⁾		
Proportional directional control valve		187	S 6 UR 10 G 187 018 4 O V S 6 UR 10 G 187 019 4 O V	5205002.9000³⁾ 5205003.9000³⁾	X	X	
		233	S 6 UR 10 G 233 018 4 O V S 6 UR 10 G 233 019 4 O V	5205009.9000³⁾ 5205010.9000³⁾	X	X	
		212	S 6 UR 10 G 212 018 4 O V S 6 UR 10 G 212 019 4 O V	5205007.9000³⁾ 5205008.9000³⁾	X		X
Pressure balance II		Pressure balance at port P		6015189		X	
Pressure balance III				6015190		X	
Pressure balance II		Pressure balance at port B → T (return flow)		0723311			X
Pressure balance V		Pressure balance at port A → T; B → T (return flow)		6015532			X
Pressure balance VI				6015533			X
Subplates G 1/4	-	-	P S 6 G 2 024 2 O O	1065173	X	X	X
G 3/8	-	-	P S 6 G 3 001 2 O O	1065183	X	X	X
Mounting screws	Socket head screws (M 5 x 30 DIN 912-10.9) Socket head screws (M 5 x 70 DIN 912-10.9) Socket head screws (M 5 x 110 DIN 912-10.9)			0700387 0662315 0661664	X		X

¹⁾ Port designation at symbol subscript "G" = device side, Index "P" = plate side

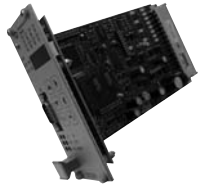
²⁾ Possibilities of combination between proportional directional control valve, subplate and mounting screws

³⁾ Solenoid Cat. No. **9000** comprises solenoid a = 7293, solenoid b = 7298

Drive electronics

Drive electronics DC 05 / DC 05-XLT

Digital amplifier with constant current regulator PWM
Power supply: 18 ... 30 VDC, incl. residual ripple
Ambient temperature ϑ_a : 0 ... +50 °C
Weight: 0,4 kg
Mounting position: Upright
Free air circulation must be ensured
Space requirement for installation of 19" card rack: 50 mm
European format: 100 x 160 mm



Type	Setpoint input (switchable)		Internal setpoints	Ramps	Terminal strip Form F DIN 41612	PID controller for external control loops	Cat. No.	For Further information, see script
	[V]	[mA]	Pcs.	Pcs.	Number of pins			
For proportional directional control valves Rated current I_N: 0 ... 1600 mA								
DC 05	2x0...±10V	0(4)...20 mA	4	4	48	● / ○ (switchable)	5150000 ¹⁾	7503503
DC 05-XLT	0...±10V		4	2	48	○	5150001 ¹⁾	7503504
			Functional compatible to pQ 03					

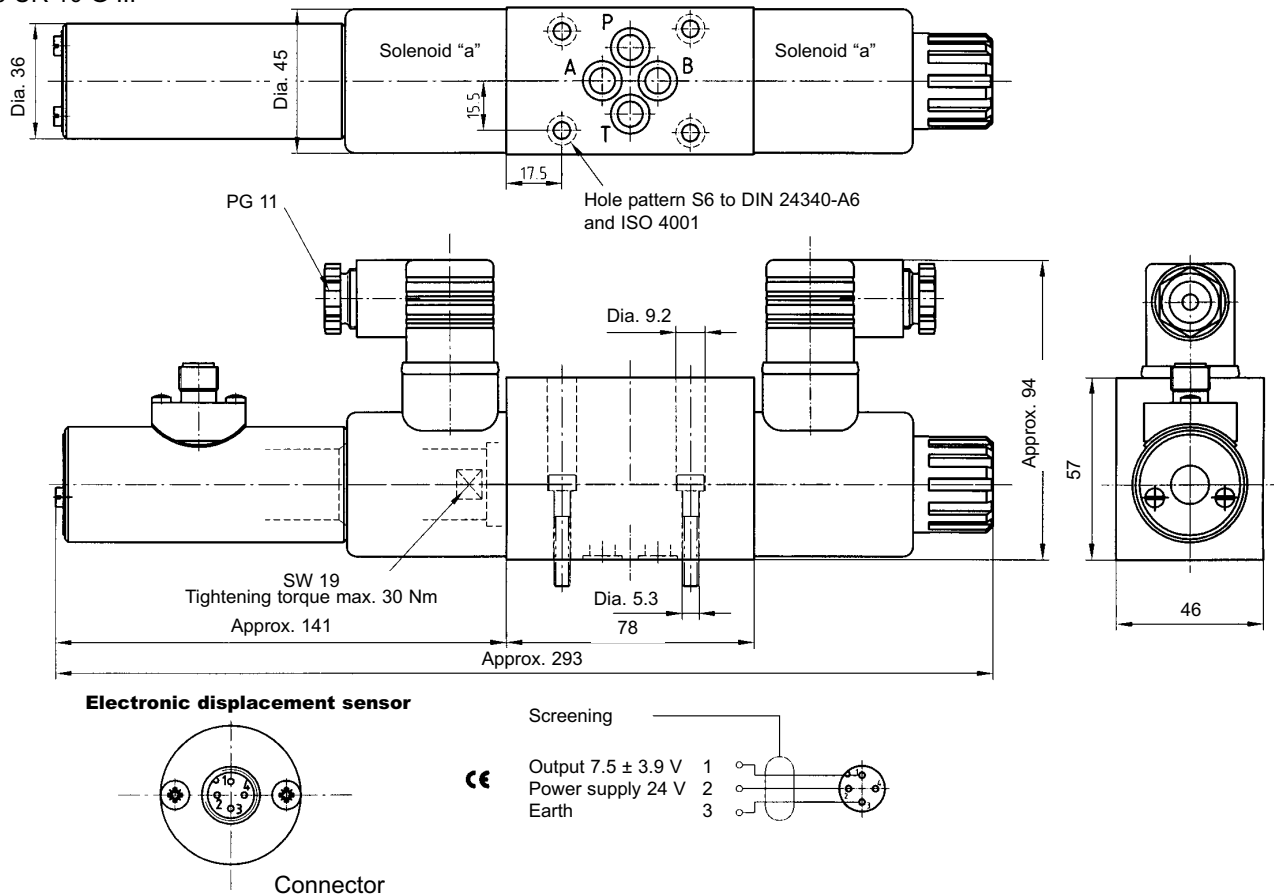
1) Pre-parametered electronics on request.

Mounting and dimensional drawings [mm]

Flange-mounting design, horizontal

Proportional directional control valve

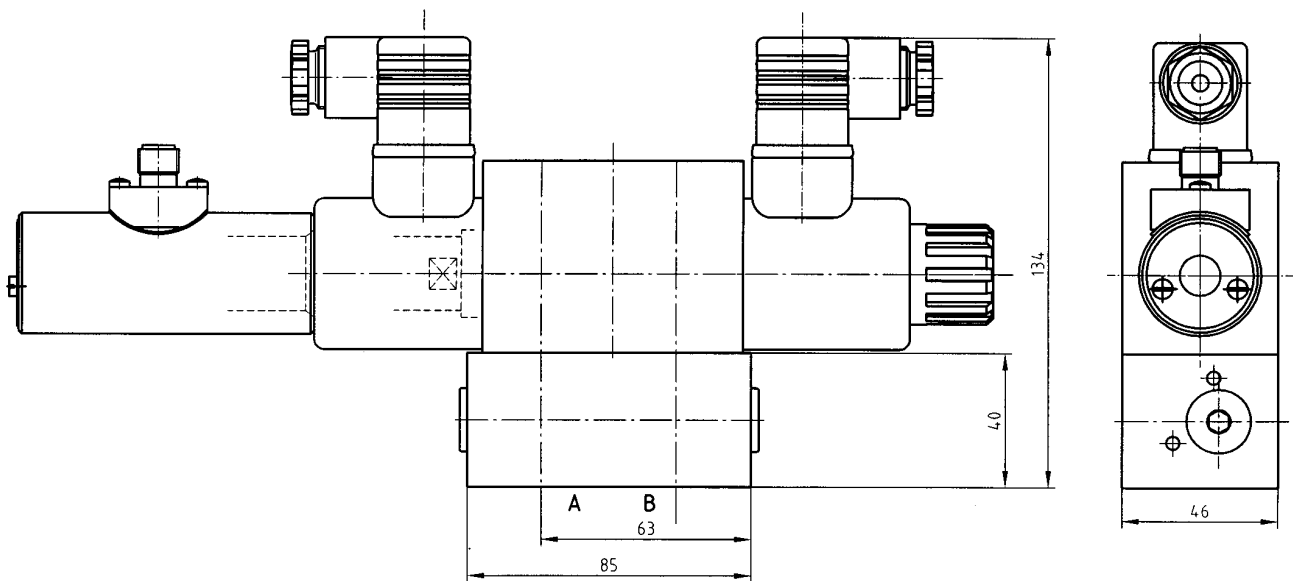
S 6 UR 10 G ...



Dimensional drawings [mm]

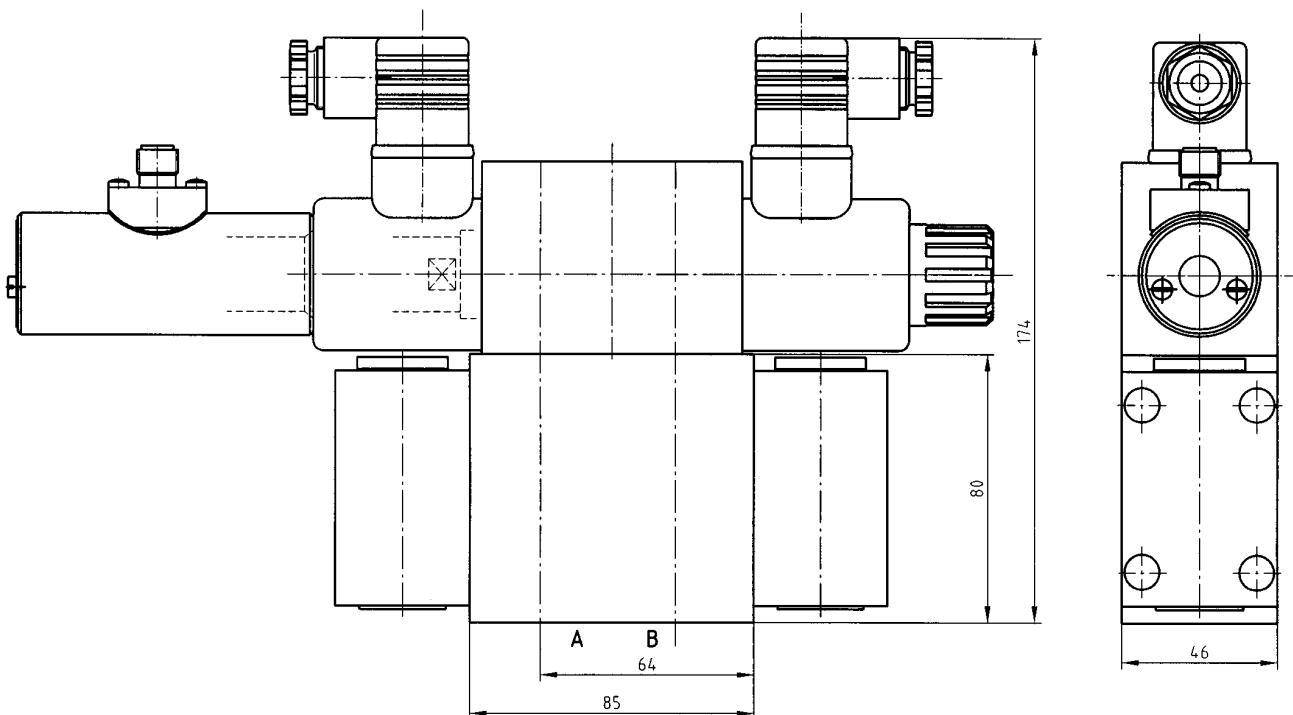
Proportional directional control valve with pressure balance in port P or B → T

S 6 UR 10 G 187 ... 4 O V
S 6 UR 10 G 233 ... 4 O V
S 6 UR 10 G 212 ... 4 O V



Proportional directional control valve with pressure balance in port A → T or B → T (return flow)

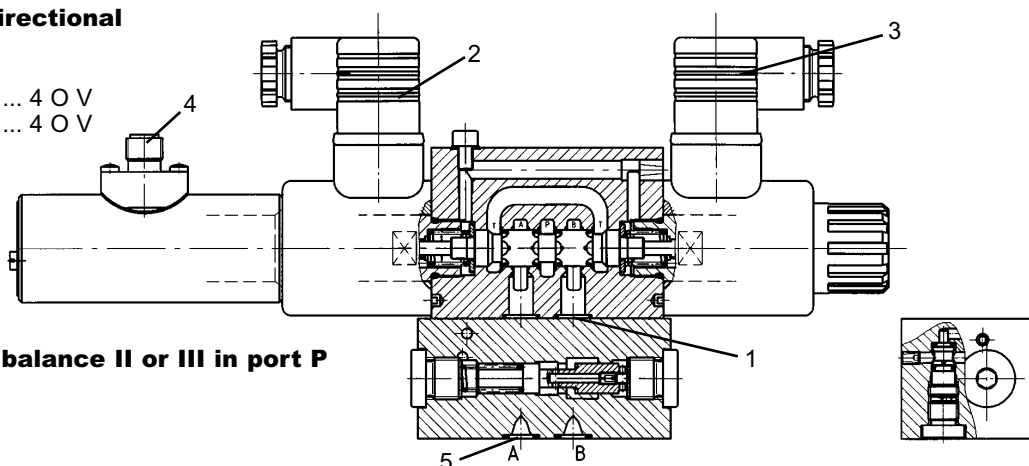
S 6 UR 10 G 212 ... 4 O V



Spare parts drawing

Proportional directional control valve

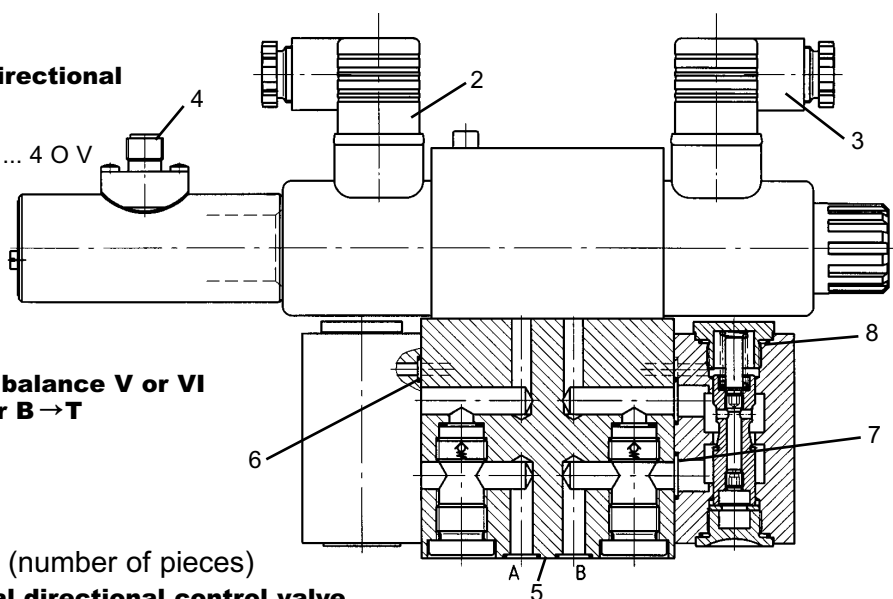
S 6 UR 10 G 187 ... 4 O V
S 6 UR 10 G 233 ... 4 O V



With pressure balance II or III in port P

Proportional directional control valve

S 6 UR 10 G 212 ... 4 O V



With pressure balance V or VI
in port A → T or B → T
(return flow)

Spare parts (number of pieces) for proportional directional control valve

Part	Description	S 6 UR 10 G 187 ... 4 O V S 6 UR 10 G 233 ... 4 O V	S 6 UR 10 G 212 ... 4 O V	S 6 UR 10 G 212 ... 4 O V	Cat. No.
		With pressure balance in port P	With pressure balance in port B → T	With pressure balance in port A → T; B → T	
1	O-ring (9.2 x 1.8)	4	4	4	0701728
2	Connector	1	1	1	0657859
3	Connector	1	1	1	0570275
4	Connector for displacement sensor 90°/metal	1	1	1	0661748
4	Connector for displacement sensor 90° with 2 m cable	1	1	1	0681824
Spare part kits					
Cat. No.		0726676	0726676	0726676	-
Wearing parts per set		1	1	1	-

With pressure balance

-	Pressure balance II	1	-	-	6015189
-	Pressure balance III	1	-	-	6015190
-	Pressure balance II	-	1	-	0723311
-	Pressure balance V	-	-	1	6015532
-	Pressure balance VI	-	-	1	6015533
5	O-ring (9,2 x 1,8)	4	4	4	0701728
Spare part kits					
Cat. No.		0726871	0726871	0726872	-
Wearing parts per set		5	5	5 to 8	-

Proportional Directional Control Valves Size 10



**Systemtechnik
GmbH**

**Direct actuated, electrically adjustable
Interface to DIN 24 340 and ISO 4401**

PN [p_{max.}] = 315 bar

7502255.06.03.06

Description (standard units)

Design

The proportional directional control valve, size 10, is based on the 5-chamber system and is in the form of a slide valve. The valve is actuated by proportional solenoids.

Application

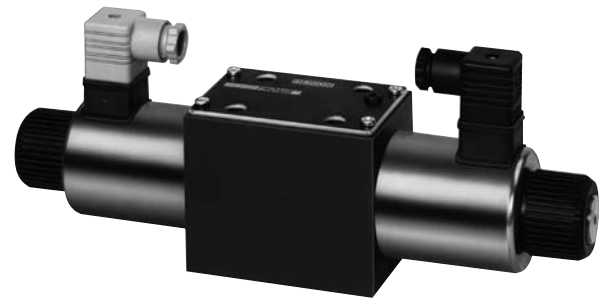
The proportional directional control valve can be used to control the direction and speed of hydraulic cylinders and hydraulic motors and is employed in cases where a servo valve would be too expensive and a normal directional control valve would not offer a sufficient range of functions. The electrical control allows the wide variety of motions to be executed simply and extremely precisely by means of the continuously-controllable signal. When using a pressure balance as intermediate unit, the proportional directional control valve can take over a flow control function.

Mounting

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

Line connection

Subplate, interface to DIN 24 340-A 10 and ISO 4401-AC-05-4-A.



Features

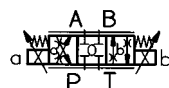
- Speed and direction control in accordance with setpoint specification
- Program control, remote control
- Spring-centred, pressure-controlled, robust design
- Inexpensive system solution
- With pressure balance, load-independent speed control
- Full pressure drop across valve is available also without pressure balance (up to 315 bar)

Type key

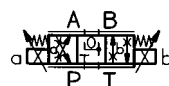
Proportional directional control valves

S	10	UP	10	G	...	...	...	O	...
					1	2	3		4

1 Symbol: **187**



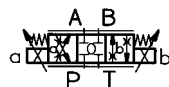
233



205



212



2 Code: **016** - See characteristic curves
019 - See characteristic curves

3 Engineering version: **2**

4 Sealing material: **V** - FKM (e.g. Viton)

Subplate

P	S	10	G	...	001	...	O	O
				1		2		

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

2 Engineering version: **2**

Parameters

Type	S 10 UP... 10 G...
------	--------------------

General parameters

Description	Proportional directional control valve
Symbol	See equipment survey
Design	Direct operated spool valve
Type of mounting	Flange
Line connection	Subplate
Mounting position	Valve axis horizontal
Actuator type	Proportional solenoid
Weight of valve	1 solenoid [kg] 5.2 2 solenoids 6.6
Weight of pressure balance I to III IV to VI	[kg] 3.25 7.85
Weight of subplate	G 1/2 [kg] 2.0 G 3/4 3.4
Ambient temperature range	ϑ_{amb} [°C] -20 ... +50
Size	10

Hydraulic parameters

Operating pressure range at P, A and B at T	p_{max} [bar]	up to 315 up to 160
Pressure fluid temperature	ϑ_{max} [°C]	+70
Viscosity range	ν [mm²/s]	12 ... 500
Max. flow	Q_{max} [cm³/min]	See characteristic curve
Zero flow ($\Delta p = 100$ bar)	Q_{min} [cm³/min]	100
Flow with pressure balance I and IV		200
with pressure balance II and V		300
with pressure balance III and VI		500
Pressure drop with pressure balance I and IV	Δp [bar]	5
with pressure balance II and V		10
with pressure balance III and VI		20
Repeatability with dither ¹⁾ (referred to I_N)	[%]	≤ 3
Hysteresis		
S 10 UP, with pressure balance and dither ¹⁾	I_N [%]	≤ 4
S 10 UP, without pressure balance with dither ¹⁾		≤ 4
Sensitivity of response with dither ¹⁾	I_N [%]	≤ 1
Regulating time	0% ... 80% [ms]	50
Filtration, absolute	[μm]	25

Electrical parameters of proportional solenoid

Solenoid Cat. No.	7998
Rated current	I_N [mA] 2400
Rated power	P_{20} [W] 19
Resistance	R_{20} [Ω] 3.3
Duty cycle	[%] 100
Electrical connection	Connection to DIN 43 650 A
Degree of protection to DIN 40 050	IP 65 with connector
Electronic control unit	DC 05 / DC 05-XLT, pQ 11 and pQ 12 See Page 5

¹⁾ Dither: Frequency 50 Hz, amplitude 15 % I_N

Characteristic curves

Proportional directional control valves

— with pressure balance II and V

- - - with pressure balance III and VI

S 10 UP 10 G 187 016 2 O V

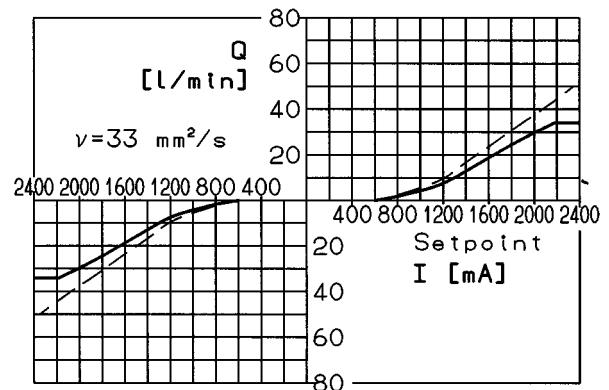
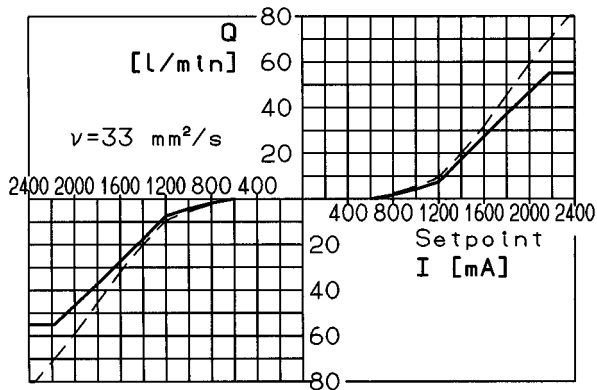
S 10 UP 10 G 233 016 2 O V

S 10 UP 10 G 212 016 2 O V

S 10 UP 10 G 187 019 2 O V

S 10 UP 10 G 233 019 2 O V

S 10 UP 10 G 212 019 2 O V

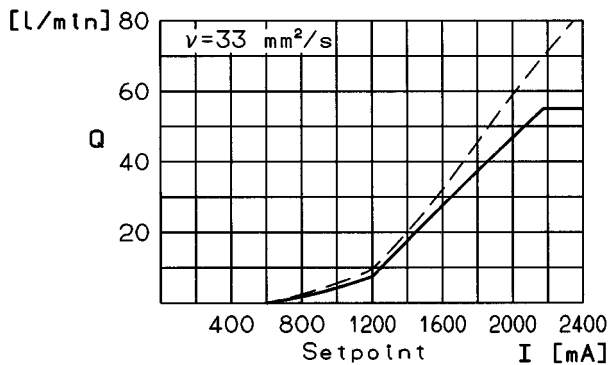


S 10 UP 10 G 205 016 2 O V

Proportional directional control valve

— with pressure balance II

- - - with pressure balance III

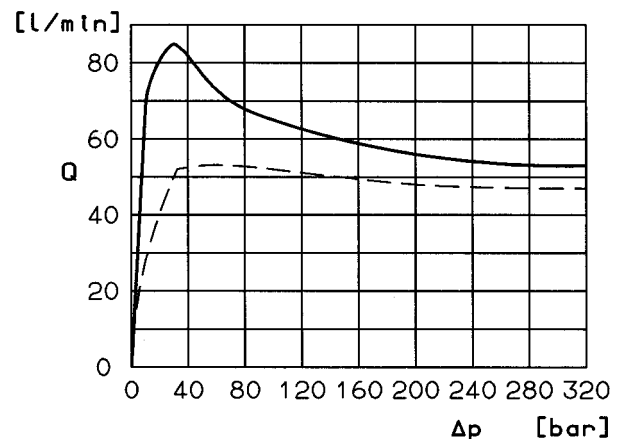


Limit of capacity without pressure balance

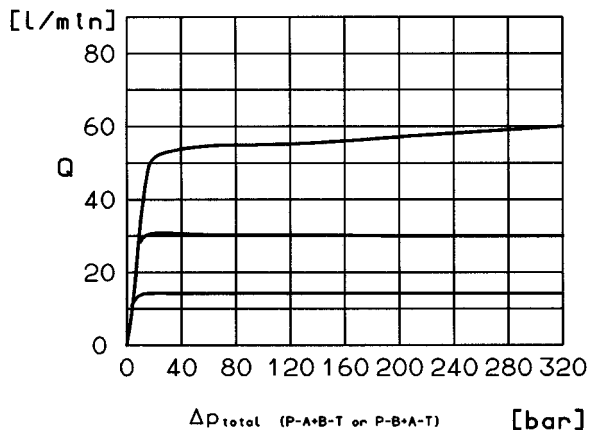
Proportional directional control valve

— with code 016

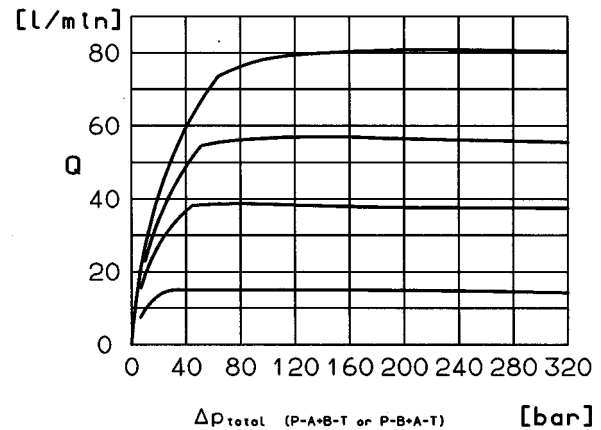
- - - with code 019



S 10 UP 10 G ... 016 2 O V
with pressure balance II and V



S 10 UP 10 G ... 016 2 O V
with pressure balance III and VI



Ordering

The units are designated by their type number. The composition of this number can be drawn from the type key. 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 key, however, will do. The corresponding catalog number will then be stated in our confirmation of order. O-rings are enclosed with flanged units. The pressure balance, subplate, drive electronics and mounting screws must be ordered separately.

Example of order

Proportional directional control valve Size 10, Symbol 187, Code 016, with pressure balance, corresponding subplate G 3/4 and electronic control unit.

Proportional directional control valve:

Type: S 10 UP 10 G 187 016 2 O V
Cat. No. **5204813.7998**

Pressure balance:

Cat. No. **6015529**

Subplate:

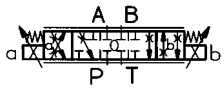
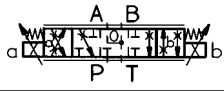
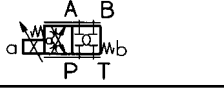
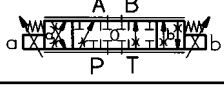
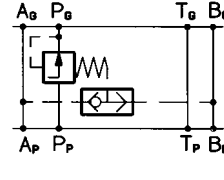
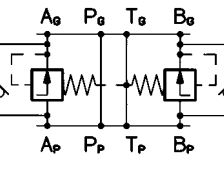
Type: P S 10 G 5 001 1 O O
Cat. No. **2840036**

Mounting screws: (4 bolts required)

Socket head screws (M 6 x 110 DIN 912-10.9)
Cat. No. **0659221**

Electronic control unit see Page 5.

Equipment survey and possibilities of combination (standard versions)

Description	Symbol	Symbol-No.	Type	Cat. No.	Combination ¹⁾		
Proportional directional control valve		187	S 10 UP 10 G 187 016 2 O V S 10 UP 10 G 187 019 2 O V	5204813.7998 5205020.7998	X	X	
		233	S 10 UP 10 G 233 016 2 O V S 10 UP 10 G 233 019 2 O V	5204815.7998 5205021.7998	X	X	
		205	S 10 UP 10 G 205 016 2 O V	5205065.7998	X	X	
		212	S 10 UP 10 G 212 016 2 O V S 10 UP 10 G 212 019 2 O V	5204814.7998 5205022.7998	X		X
Pressure balance I		Pressure balance at port P	Pressure drop per control edge Δp approx. 2,5 bar	6015528		X	
Pressure balance II			Pressure drop per control edge Δp ca. 5 bar	6015529		X	
Pressure balance III			Pressure drop per control edge Δp ca. 10 bar	6015530		X	
Pressure balance IV		Pressure balance at port A→T or B→T (return)	Pressure drop per control edge Δp ca. 2,5 bar	6015525			X
Pressure balance V			Pressure drop per control edge Δp ca. 5 bar	6015526			X
Pressure balance VI			Pressure drop per control edge Δp ca. 10 bar	6015527			X
Subplates G 1/2	-	-	P S 10 G 4 001 2 O O	1065184	X	X	X
G 3/4	-	-	P S 10 G 5 001 1 O O	2840036			
Mounting screws	Socket head screws (M 6 x 60 DIN 912-10.9) Socket head screws (M 6 x 110 DIN 912-10.9) Socket head screws (M 6 x 160 DIN 912-10.9)			0700411 0659221 0681899	X		X

¹⁾ Possibilities of combination between proportional directional control valve, pressure balance, subplate and mounting screws.

Drive electronics DC 05 / DC 05-XLT

Digital amplifier with constant current regulator PWM
Power supply: 18 ... 30 VDC, incl. residual ripple
Ambient temperature ϑ_{a} : 0 ... +50 °C
Weight: 0,4 kg
Mounting position: Upright
Free air circulation must be ensured
Space requirement for installation of 19" card rack: 50 mm
European format: 100 x 160 mm



Type	Setpoint input (switchable)		Internal setpoints	Ramps	Terminal strip Form F DIN 41612	PID controller for external control loops	Cat. No.	For Further information, see script
	[V]	[mA]	Pcs.	Pcs.	Number of pins			
For proportional directional control valves Rated current I_N: 0 ... 1600 mA								
DC 05	2x0...±10V	0(4)...20 mA	4	4	48	● / ○ (switchable)	5150000 ¹⁾	7503503
DC 05-XLT	0...±10V		4	2	48	○	5150001 ¹⁾	7503504
			Functional compatible to pQ 03					

1) Pre-parametrized electronics on request.

Drive electronics pQ 11

Plug-in amplifier with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC, Residual ripple: ≤ 10 %
Ambient temperature ϑ_{a} : -20 ... +50 °C
Mounting position: Optional



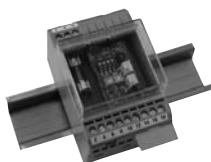
Setpoint input (switchable)		Type of connection		Weight	Cat. No.	For Further information, see script
[V]	[mA]	Connecting cable, 2 m	Connector acc. to DIN 43651	[kg]		
For proportional valves with 2 solenoids 2 pQ 11 necessary Rated current I_N: 0 ... 2400 mA, allowed resistance of solenoid R_{20}: 2,5...4,5 Ω						HERION 7502961
0 ... 10	0 (4)...20	●	○	0,18	5980085	
0 ... 10	0 (4)...20	○	●	0,18	5980081 ¹⁾	

Mark in table: ○ without, ● with

1) Cable connector to be ordered separately. Cat. No. **0660689**

Drive electronics pQ 12

Amplifier module with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC, Residual ripple: ≤ 10 %
Ambient temperature ϑ_{a} : -20 ... +50 °C
Mounting position: Optional
For attachment on mounting rail acc. to EN 50022



Setpoint input (switchable)		Output currents	Cat. No.	For Further information, see script
[V]	[mA]	[mA]		
For proportional valves with 2 solenoids 2 pQ 11 necessary				HERION 7503109
0 ... 10	0 (4)...20	0 ... 1600 / 2400	5980126	

Proportional directional control valve

Approx. 315

Dia. 62

23

24.5

Interface S10 to DIN 24340 - A10 and ISO 4401

Approx. 120

Dia. 11

A

B

Pg 11

Tightening torque max. 4 Nm

Manual override

50.5

Dia. 6.6

Tightening torque 13 Nm

SW 27 Tightening torque 30+4 Nm

Approx. 106

103

86

max. 73

Approx. 217

Dia. 62

23

24.5

Interface S10 to DIN 24340 - A10 and ISO 4401

Pg 11

Tightening torque max. 4 Nm

Manual override

SW 27

Tightening torque 30+4 Nm

Approx. 106

103

Dia. 11

50.5

Dia. 6.6

Tightening torque 13 Nm

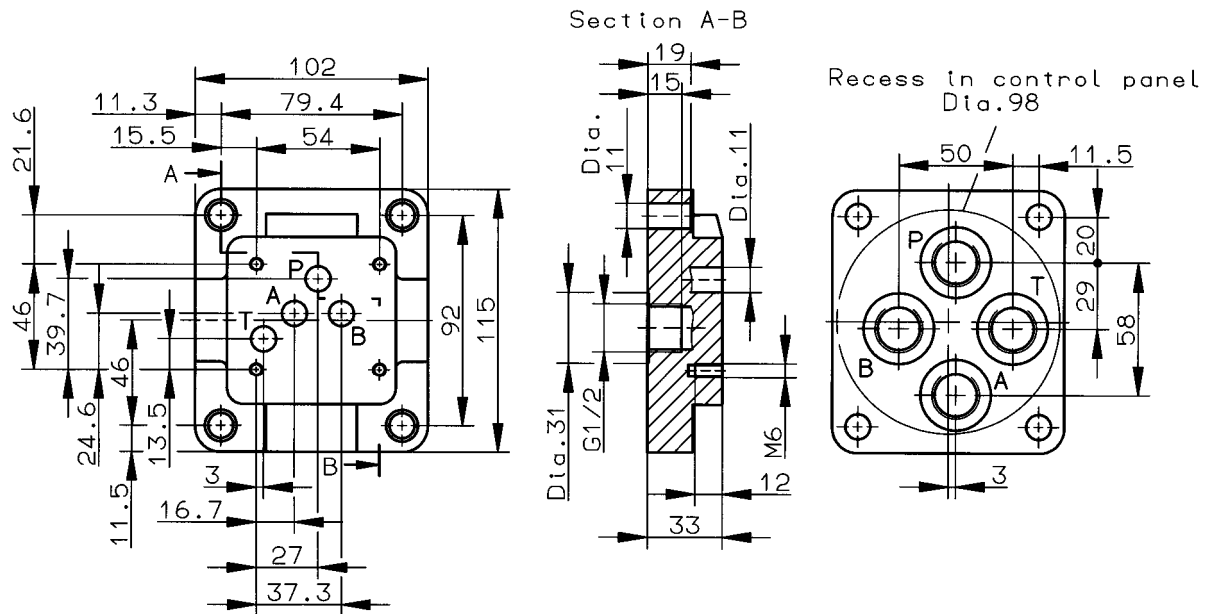
86

max. 73

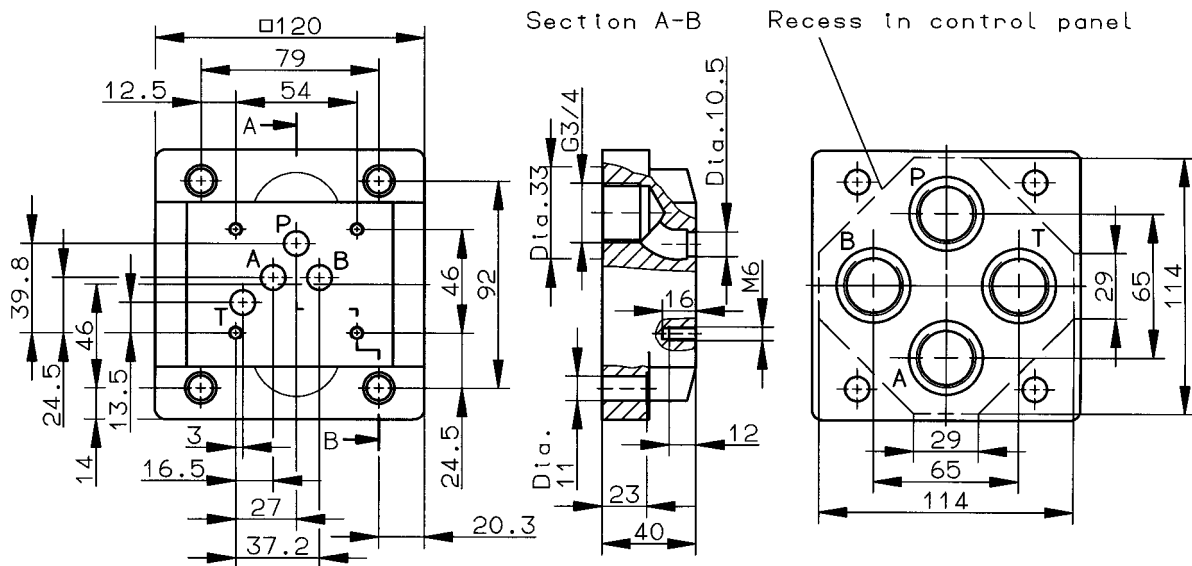
Dimensional drawings [mm]

Subplate, Size 10 with interface to DIN 24 340-A10 and ISO 4401-AC-05-4-A

Subplate 1
Cat. No. 1065184
G 1/2



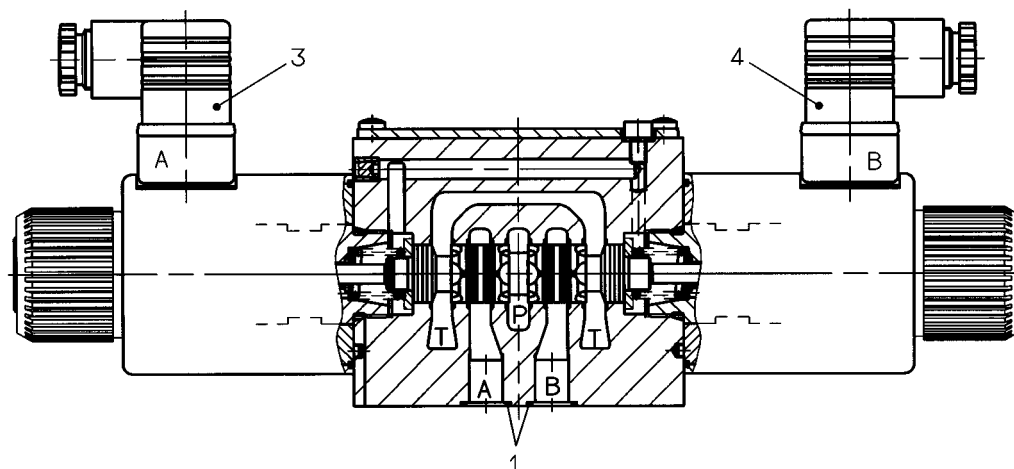
Subplate 2
Cat. No. 2840036
G 3/4



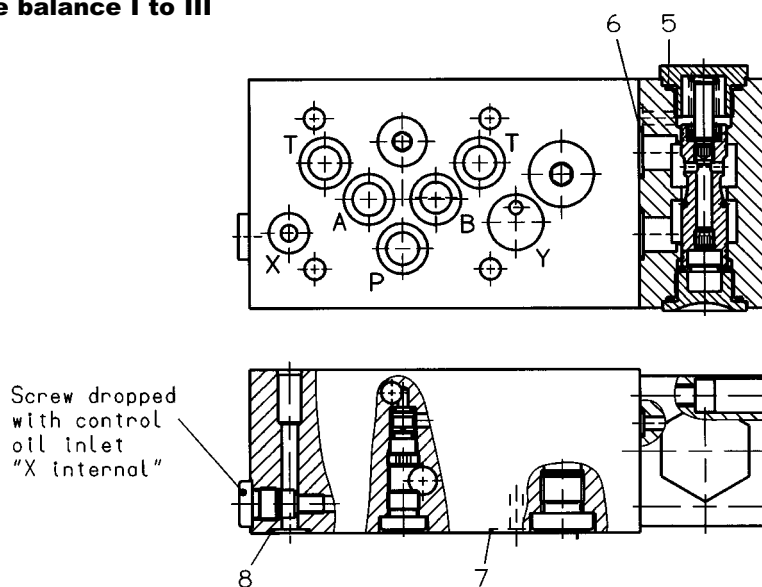
Spare part drawings

Proportional directional control valve

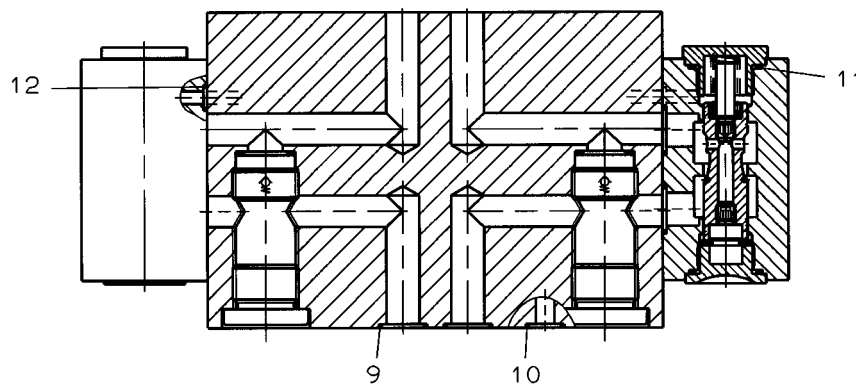
S 10 UP 10 G 187 ... 2 O V
S 10 UP 10 G 233 ... 2 O V
S 10 UP 10 G 212 ... 2 O V



**With pressure balance I to III
in port P**



**With pressure balance IV to VI
in port B**



Spare parts and mounting screws

Spare parts for directional control valve

Part	Qty.	Description	Cat. No.
1	5	O-ring (12.4 x 1.8)	0701623
3	1	Connector to DIN 43 650 Form A	0657859
4	1	Connector to DIN 43 650 Form B	0570275

Mounting screws without pressure balance

-	4	Socket head screws (M6 x 40 DIN 912-10.9)	0700411
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Mounting screws with pressure balance I to III

-	4	Socket head screws (M6 x 90 DIN 912-10.9)	0659221
---	---	--	----------------

Mounting screws with pressure balance IV to VI

-	4	Socket head screws (M6 x 140 DIN 912-10.9)	0681899
---	---	---	----------------

1 set of spare parts consists of parts 1, 3 and 4

Spare part kit for pressure balance

Part	Qty.	Description	Cat. No.
------	------	-------------	----------

Pressure balance I to III

Cat. No.: **6015528**

6015529

6015530

5-8	1	Spare part kit	0726874
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Pressure balance IV to VI

Cat. No.: **6015525**

6015526

6015527

9-12	1	Spare part kit	0726875
------	---	----------------	----------------

Notes:

Proportional Directional Control Valves Size 10



**Systemtechnik
GmbH**

**Direct actuated, electrically adjustable, position-controlled
Interface to DIN 24 340 and ISO 4401**

PN [p_{max.}] = 315 bar

7502257.06.03.06

Description (standard units)

Design

The proportional directional control valve, size 10, is based on the 5-chamber system and is in the form of a slide valve. The valve is actuated by proportional solenoids. The valve setting is monitored by a displacement measurement system and fed to the position control loop as an actual value. Interference variables are eliminated, ensuring that the selected setpoint is always precisely achieved. The actual position value is monitored by an inductive differential transformer with integrated electronic circuitry.

Application

The proportional directional control valve can be used to control the direction and speed of hydraulic cylinders and hydraulic motors and is employed in cases where a servo valve would be too expensive and a normal directional control valve would not offer a sufficient range of functions. The electrical control allows the wide variety of motions to be executed simply and extremely precisely by means of the continuously-controllable signal.

Mounting

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

Line connection

Subplate, interface to DIN 24 340-A 10 and ISO 4401-AC-05-4-A.



Features

- Speed and direction control in accordance with setpoint specification
- Program control, remote control
- Spring-centred, robust design
- Inexpensive system solution
- High repetition accuracy and low hysteresis, thanks to position control
- With pressure balance, load-independent speed control
- Full pressure drop across valve is available also without pressure balance (up to 315 bar)

Type key

Proportional directional control valves

S	10	UR	10	G	...	...	...	O	...
					1	2	3		4

1 Symbol:	187	
	233	
	212	

- 2 Code: **016** - see characteristic curves
019 - see characteristic curves
- 3 Engineering version: **2**
- 4 Sealing material: **V** - FKM (e.g. Viton)

Subplate

P	S	10	G	...	001	...	O	O
				1		2		

- 1 Line connection: **4** - G 1/2 (Internal thread)
5 - G 3/4 to DIN ISO 228/1)
- 2 Engineering version: **2**

Parameters

Type	S 10 UR...
------	------------

General parameters

Description	Proportional directional control valve		
Symbol	See equipment survey		
Design	Direct operated spool valve, position-controlled		
Type of mounting	Flange		
Line connection	Subplate		
Mounting position	Valve axis horizontal		
Actuator type	Proportional solenoid, position-controlled		
Weight of valve		[kg]	7
Weight of subplate	G 1/2	[kg]	2.0
	G 3/4		3.4
Ambient temperature range	ϑ_{amb}	[°C]	−20 ... +50
Size	10		

Hydraulic parameters

Operating pressure range at P, A and B at T	p_{max}	[bar]	up to 315 up to 160
Pressure fluid temperature	ϑ_{max}	[°C]	+70
Viscosity range	ν	[mm²/s]	12 ... 500
Max. flow	Q_{max}		See characteristic curve
Zero flow ($\Delta p = 100$ bar)	Q_l	[cm³/min]	100
Repeatability		[%]	≤ 1
Hysteresis		[%]	≤ 1
Sensitivity of response		[%]	≤ 0.5
Regulating time	0% ... 80%	[ms]	45
	80% ... 0%	[ms]	60
Filtration, absolute		[µm]	25

Electrical parameters of proportional solenoid

Cat. No. solenoid	7998/7999 with displacement sensor		
Rated current	I_N	[mA]	2400
Rated power	P_{20}	[W]	19
Resistance	R_{20}	[Ω]	3.3
Duty cycle		[%]	100
Electrical connection	Connection to DIN 43 650 A		
Degree of protection to DIN DIN 40 050	IP 65 (with connector)		

Electrical parameters of displacement sensor

System	Inductive differential transformer with integrated electronics		
Supply voltage		[V]	19.2 ... 28.8
Residual ripple		[%]	< 5
Current consumption		[mA]	< 40
Output voltage		[V]	7.5 ± 4.5

Parameters

Connection of displacement sensor

Connector	4-pin
Cable gland	M12 x 1
Degree of protection to DIN 40 050	IP 65
Connector bent 90°, metal	Cat. No. 0661748
connector with cable, 2 m	Cat. No. 0681824

Connecting cable for displacement sensor

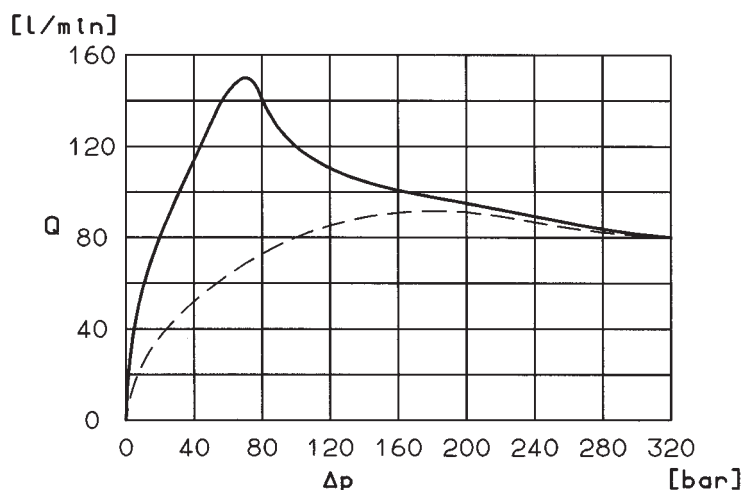
Cable	Displacement sensor-amplifier		
Type of cable	Screened, 3-core		
Cable length	max.	[m]	75
Cross-section	min. per core	[mm ²]	0.5
Resistance	max.	[Ω/m]	0.05
Capacitance max.	Core - core	[pF/m]	160
	Core - screen	[pF/m]	350
Type	e.g. LIYCY		

Characteristic curves

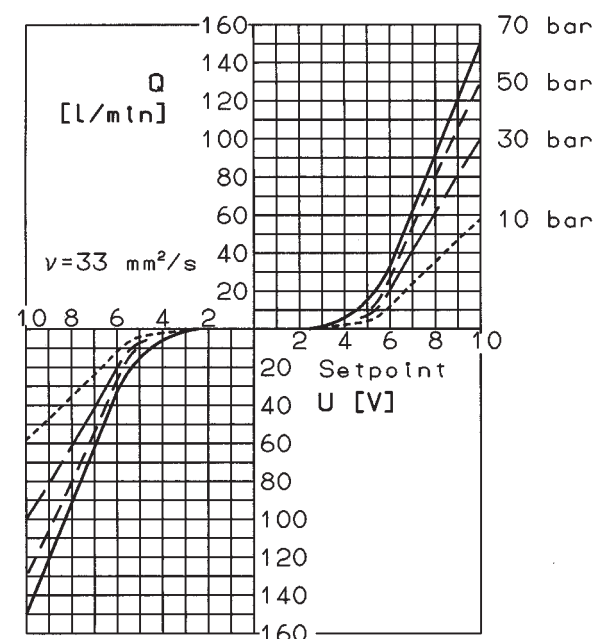
Proportional directional control valve, position controlled

Power limit

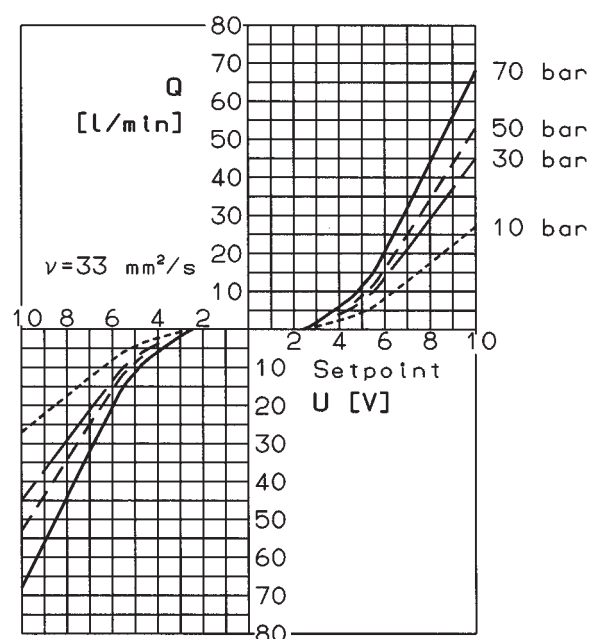
— S 10 UR 016
 - - - S 10 UR 019



S 10 UR ... 016



S 10 UR ... 019



Ordering

The units are designated by their type number. The composition of this number can be drawn from the type key. 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 key, however, will do. The corresponding catalog number will then be stated in our confirmation of order. O-rings are enclosed with flanged units. The pressure balance, subplate, drive electronics and mounting screws must be ordered separately.

Example of order

Proportional directional control valve, Size 10 for flange mounting. Symbol 187, with Code 016, pressure balance, with corresponding subplate G 1/2 and drive electronics.

Proportional directional control valve:

Type: S 10 UR 10 G 187 016 2 O V
Cat. No.: **5204816.9000**

Subplate:

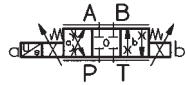
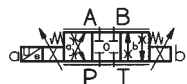
Type: P S 10 G 4 001 2 O O
Cat No.: **1065184**

Mounting screws: (4 bolts required)

Socket head screws (M 6 x 60 DIN 912-10.9)
Cat. No.: **0700416**

The electronic control unit is to be ordered separately, see table on page 5.

Type survey (standard versions)

Description	Symbol	Symbol No.	Type	Cat. No.
Proportional directional control valve		187	S 10 UR 10 G 187 016 2 O V S 10 UR 10 G 187 019 2 O V	5204816.9000¹⁾ 5205023.9000¹⁾
		233	S 10 UR 10 G 233 016 2 O V S 10 UR 10 G 233 019 2 O V	5204818.9000¹⁾ 5205024.9000¹⁾
		212	S 10 UR 10 G 212 016 2 O V S 10 UR 10 G 212 019 2 O V	5204817.9000¹⁾ 5205025.9000¹⁾
Subplate				
G 1/2	-	-	P S 10 G 4 001 2 O O	1065184
G 3/4	-	-	P S 10 G 5 001 1 O O	2840036
Mounting screws	Socket head screws (M 6 x 60 DIN 912 - 10.9)			0700416

Accessories

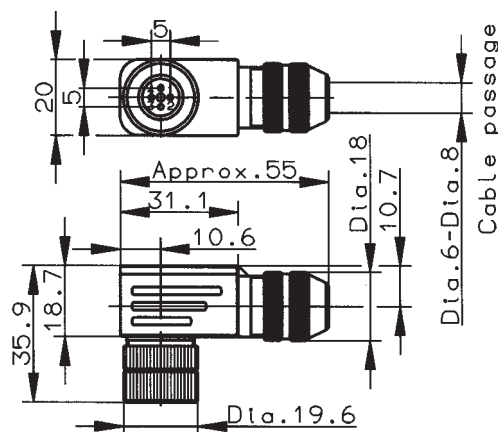
Description	Cat. No.
Connector to DIN 43 650 Form A	0657859
Connector to DIN 43 650 Form B	0570275
Connector for displacement sensor, bent 90°, metal	0661748
Connector for displacement sensor, bent 90°, with cable, 2 m	0681824

Connector are not enclosed in the scope of delivery. Please order them separately.

¹⁾ Solenoid Cat. No. **9000** includes solenoid a = 7999 and solenoid b = 7998

Dimensional drawing [mm]

Connector for displacement sensor, bent 90°, metal
Cat. No. **0661748**



Proportional directional control valve S 10 UR 10 G ...

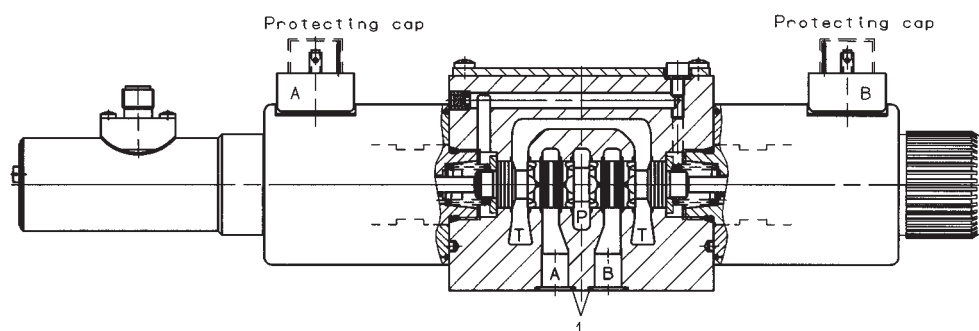


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Spare part drawing

Proportional directional control valves

S 10 UR 10 G 187 ... 2 O V
S 10 UR 10 G 233 ... 2 O V
S 10 UR 10 G 212 ... 2 O V



Spare parts and mounting screws / Accessories

Spare parts for directional control valve

Part	Qty.	Description	Cat. No.
1	5	O-ring (12,4 x 1,8)	0701623

Mounting screws

-	4	Socket head screw (M6 x 60 DIN 912-10.9)	0700416
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Accessories

2	1	Connector to DIN 43 650 Form A	0657859
3	1	Connector to DIN 43 650 Form B	0570275
4	1	Connector for displacement sensor, bent 90°, metal	0661748
5	1	Connector for displacement sensor, bent 90°, with cable, 2 m	0681824

Notes:

Proportional Directional Control Valves

Nominal sizes 16 and 25



**Systemtechnik
GmbH**

Pilot operated, electrically adjustable
Interface acc. to DIN 24 340 and ISO 4401

PN [p_{max.}] = 315 bar

7502968.06.01.06

Description

Design

The proportional directional control valves, Sizes 16 and 25, consist of a hydraulic main stage which is indirectly operated by the hydraulic solenoid actuated pilot stage mounted on top.

The main piston is centered by means of two springs, so the piston is held in mid-position in case of power failure or breakdown of the pump pressure.

Application

The proportional directional control valve serves for directional or speed control of hydraulic cylinders and hydraulic motors. It is used in cases where a servo valve would be too costly and a conventional directional control valve would not be sufficient in terms of functions. A continuously controllable signal enables a most simple and precise remote control of the required movements.

Mounting

The valves are mounted on the subplates by means of screws and sealed by O-rings.

Line connection

Subplate size 16, interface to DIN 24 340-A 16 and ISO 4401-AD-07-4-A.

Subplate size 25, interface to DIN 24 340-A 25 and ISO 4401-AE-08-4-A.



Features

- Speed and directional control by preallocated setpoint
- Program control, remote control
- Inexpensive system solution
- Spring-centered, pressure-controlled, robust design

Parameters

Typ designation			S 16 UP... 10 G	S 25 UP ... 10 G		
General parameters						
Description			Proportional directional control valve			
Symbol			See Type survey			
Design			Spool-type valve, pilot operated			
Type of mounting			Flange			
Line connection			Subplate			
Mounting position			Valve axis horizontal			
Type of actuator			Proportional solenoid			
Nominal size			16	25		
Weight - Valve			[kg]	10.9	20.7	
Weight - Subplate	G 1/2	[kg]	-	-		
	G 3/4		9	-		
	G 3/4		-	-		
	G 1		9	9.2		
	G 1 1/4		-	9.2		
	G 1 1/2		-	24.2		
Ambient temperature range			ϑ _u	[°C]	-20 ... +50	
Hydraulic parameters						
Operating pressure range at ports P, B, A and T			p _{max}	[bar]	up to 315	
p _{min} at P (control oil inlet „X“ internal)			[bar]	Return pressure p _T +40 (p _y +40)		
p _{min} at P (control oil inlet„X“ external)			[bar]	0		
Control pressure range			p _{St}	[bar]	40 ... 315	
Temperature of pressure medium			ϑ _m max.	[°C]	+70	
Viscosity range			ν	[mm²/s]	12 ... 500	
Zero flow	at „X“ internal	Q _O	[l/min]	0.5	0.6	
	(Δp = 300 bar) at „X“ external	Q _O	[l/min]	0.25	0.3	
Control volume			[cm³]	4	8	
Flow volume			Q _{max}	[l/min]	See characteristic curve	
Flow volume bei Δp = 20 bar			Q _{min}	[l/min]	0.1	0.2
Repeatability with dither ¹)		at Q _{min}	[%]	10	10	
		at 50% I _N	[%]	1	1	
Hysteresis ¹)			[% I _N]	3	3	
Floating time	at Δp = 100 bar	Q = 0%...80%	[ms]	60	65	
	at p _{St} = 100 bar	Q = 80%...0%	[ms]	50	60	
Filtration, absolute			[µm]	25		
Electrical parameters of proportional solenoid						
Solenoid Cat. No.			7297	7298		
Rated current			I _N	[mA]	800	1600
Resistance			R ₂₀	[Ω]	21.3	5.7
Duty cycle			ED	[%]	100	100
Electrical connection			Connector to DIN 43 650 A			
Degree of protection to DIN 40 050			IP 65 (with connector)			
Drive electronics			DC 05 / DC 05-XLT, pQ 11 and pQ 12 see Page 12			

¹⁾ Dither: Frequency 50 Hz, amplitude 240 mA_{SS} (solenoid 7298), 120 mA_{SS} (solenoid 7297)

Type key

Proportional directional control valve

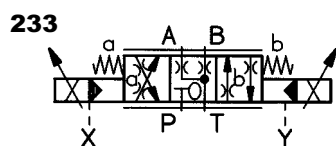
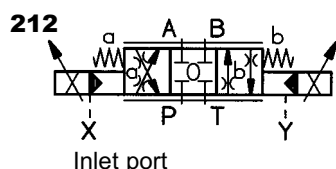
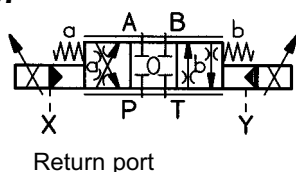
S	...	UP	...	10	G	...	...	...	O	...
	1		2			3	4	5		6

1 Size: **16**
25

2 Control mode: Control by
proportional pressure
reducing valve

	Control oil inlet X	Control oil outlet Y
41	- external	internal
43	- internal	internal
44	- external	external
45	- internal	external

3 Symbol: **187**



4 Code: - Size 16: **005** - Nominal flow rate
Q = 150 l/min
with pressure drop
across valve
of $\Delta p = 10$ bar
006 - Area ratio A : B
approx. 2 : 1
- Size 25: **206** - Nominal flow rate
Q = 270 l/min
with pressure drop
across valve
of $\Delta p = 10$ bar
007 - Area ratio A : B
approx. 2 : 1

5 Engineering version: **3** - Size 16, 25

6 Sealing material: **O** - Perbunan
V - Viton

Subplate

P	S	...	G	...	...	...	O	O
		1		2	3	4		

1 Size: **16**
25

2 Line connection: **5** - G 3/4 Size 16
6 - G 1 Size 16/25
7 - G 1 1/4 Size 25
8 - G 1 1/2 Size 25

3 Code: **001** - Standard design
X internal Y internal
020 - X external Y internal
023 - X external Y external

4 Engineering version: **1** - New design
2 - See survey

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. Mounting bolts and O-rings are included in the delivery. The subplate, amplifier card and setpoint potentiometer must be ordered separately.

Example of order

Proportional directional control valve Size 16, with flanged connection, Symbol 187, control oil inlet "X" external, control oil outlet "Y" external, with corresponding subplate G 3/4.

Proportional directional control valve:

Type designation: S 16 UP 44 10 G 187 005 3 O O
Cat. No. **5204182.7298**

Subplate:

Type designation: P S 16 G 5 001 2 O O
Cat. No. **1065186**

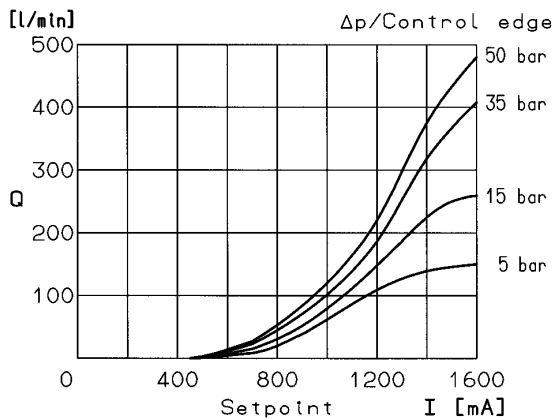
Drive electronics to be ordered separately.
Please see page 12.

Characteristic curves

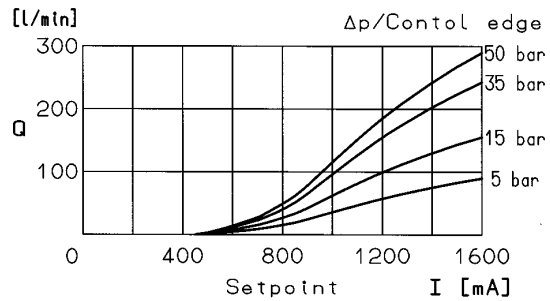
Proportional directional control valves Size 16

S 16 UP ... 005

S 16 UP ... 006 Side A



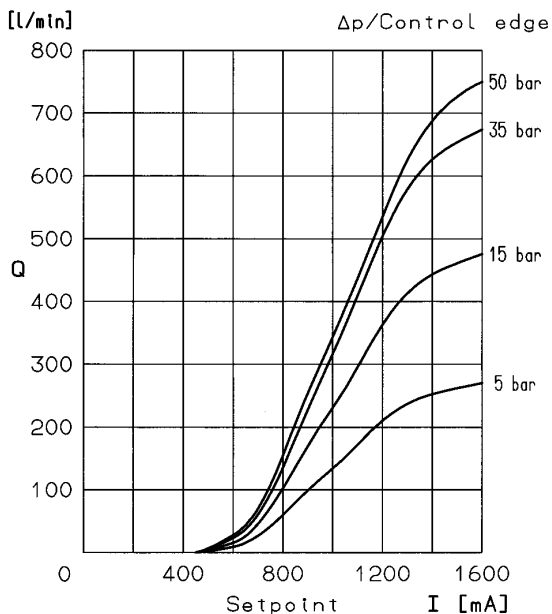
S 16 UP ... 006 Side B



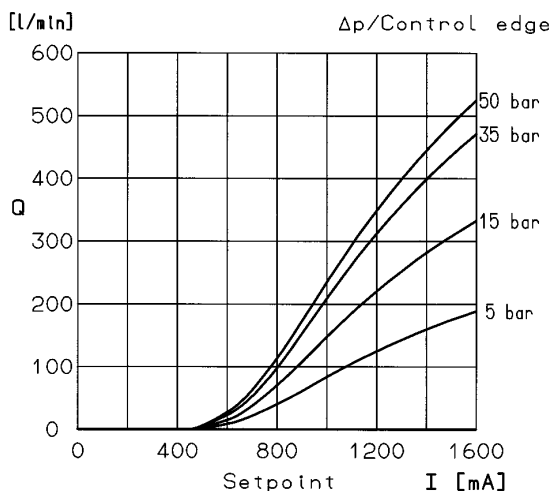
Proportional directional control valves Size 25

S 25 UP ... 206

S 25 UP ... 007 Side A



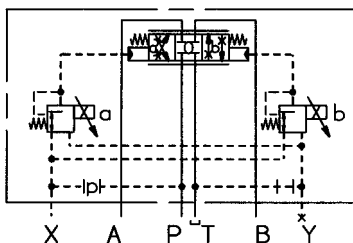
S 25 UP ... 007 Side B



Control modes of Sizes 16 and 25

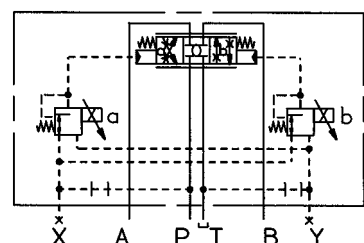
Proportional
directional
control valve
Control mode 41

"x" external
"y" internal



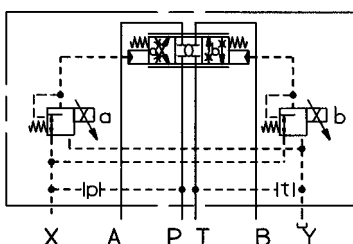
Proportional
directional
control valve
Control mode 43

"x" internal
"y" internal



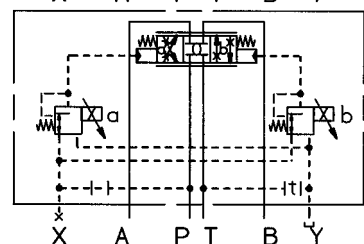
Proportional
directional
control valve
Control mode 44

"x" external
"y" external



Proportional
directional
control valve
Control mode 45

"x" internal
"y" external



Equipment survey for proportional directional control valves Size 16 (Standard design in control mode 43)

Cat. No. for valves with different control mode on request

Symbol	Neutral position	Control mode	Line connection	Type	Cat. No.
187 	Return Adv. opening	43	Sub-plates	S 16 UP 43 10 G 187 005 3 O O S 16 UP 43 10 G 187 006 3 O O	5204677.7298 5204678.7298
212 	Inlet Adv. opening			S 16 UP 43 10 G 212 005 3 O O S 16 UP 43 10 G 212 006 3 O O	5204679.7298 5204680.7298
233 	Leakage oil return			S 16 UP 43 10 G 233 005 3 O O S 16 UP 43 10 G 233 006 3 O O	5204681.7298 5204682.7298

Equipment survey for proportional directional control valves Size 25 (Standard design in control mode 43)

Cat. No. for valves with different control mode on request

Symbol	Neutral position	Control mode	Line connection	Type	Cat. No.
187 	Return Adv. opening	43	Sub-plates	S 25 UP 43 10 G 187 206 3 O O S 25 UP 43 10 G 187 007 3 O O	5204684.7298 5204685.7298
212 	Inlet Adv. opening			S 25 UP 43 10 G 212 206 3 O O S 25 UP 43 10 G 212 007 3 O O	5204686.7298 5204687.7298
233 	Leakage oil return			S 25 UP 43 10 G 233 206 3 O O S 25 UP 43 10 G 233 007 3 O O	5204688.7298 5204689.7298

Subplates

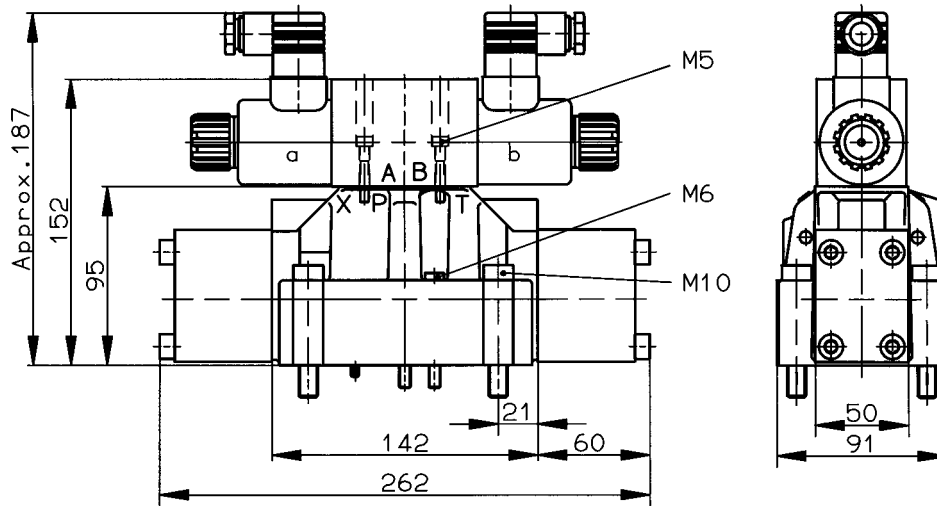
Port size	Nom. size	Type	Cat. No.
G 3/4	16	P S 16 G 5 001 2 O O	1065186
G 1	16	P S 16 G 6 001 2 O O	1065187
G 1	25	P S 25 G 6 001 2 O O	1065188
G 1 1/4	25	P S 25 G 7 001 2 O O	1065189
G 1 1/2	25	P S 25 G 8 001 2 O O	1065190

Dimensional drawings [mm]

Proportional directional control valve Size 16

Tightening torque:

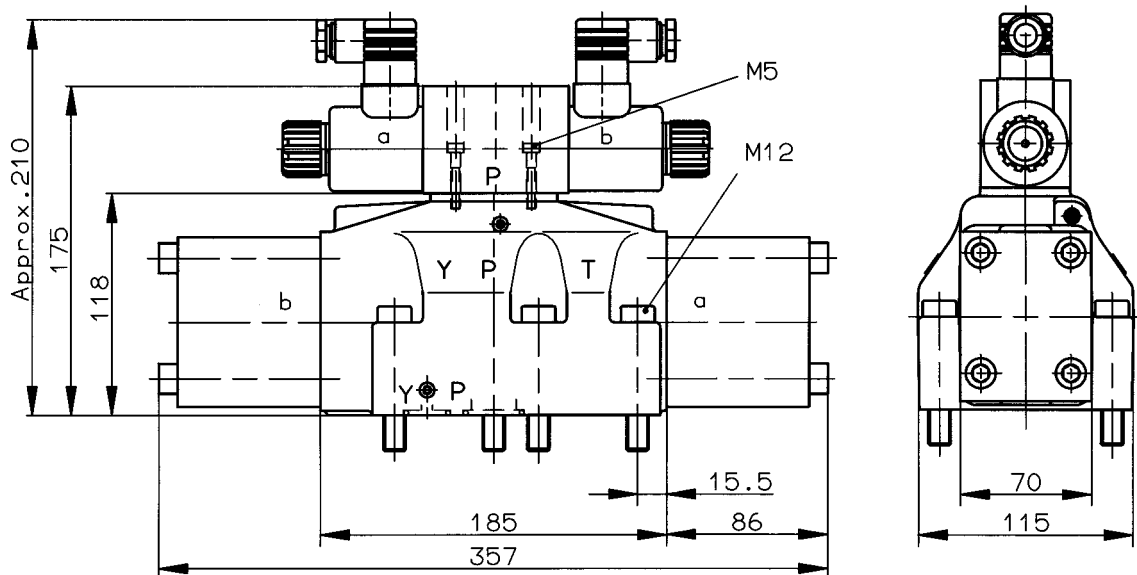
M 5 DIN 912 - 10.9 = 7.6 Nm
M 6 DIN 912 - 10.9 = 13 Nm
M 10 DIN 912 - 10.9 = 62 Nm



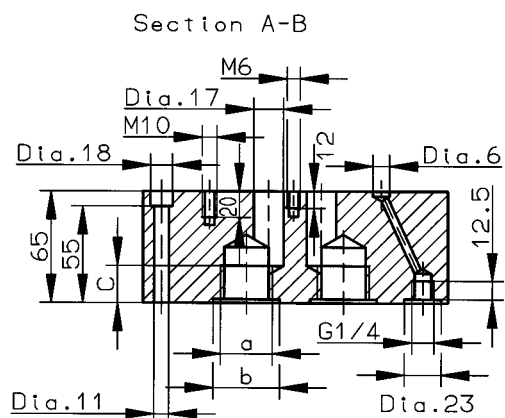
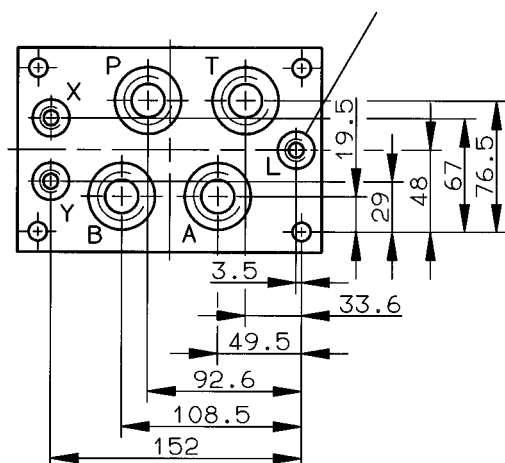
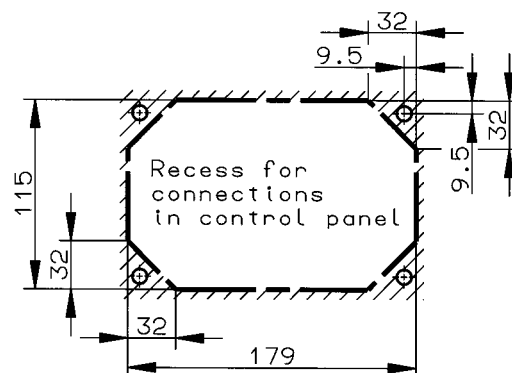
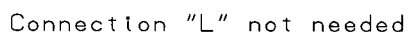
Proportional directional control valve Size 25

Tightening torque:

M 5 DIN 912 - 10.9 = 7.6 Nm
M 12 DIN 912 - 10.9 = 110 Nm



Subplates Size 16 with interface to DIN 24 340-A 16 and ISO 4401-AD-07-4-A
Cat. No. 1065186 G 3/4
Cat. No. 1065187 G 1



Cat. No.	a	b	c
1065186	G 3/4	Dia. 41	16.5
1065187	G 1	Dia. 47	18.5

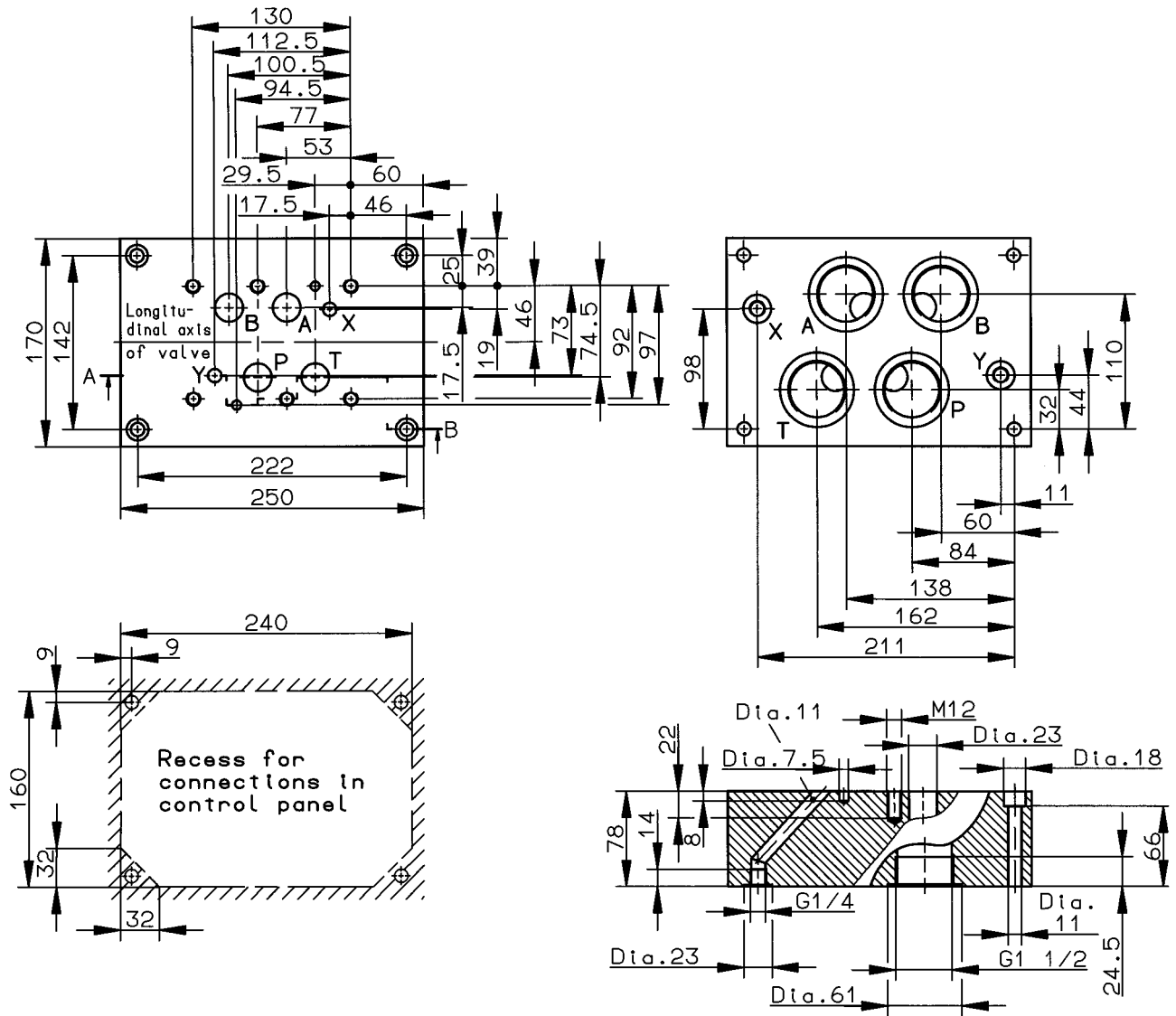
Subplates Size 25 with interface to DIN 24 340-A 25 and ISO 4401-AE-08-4-A
Cat. No. 1065188 G 1
Cat. No. 1065189 G 1 1/4



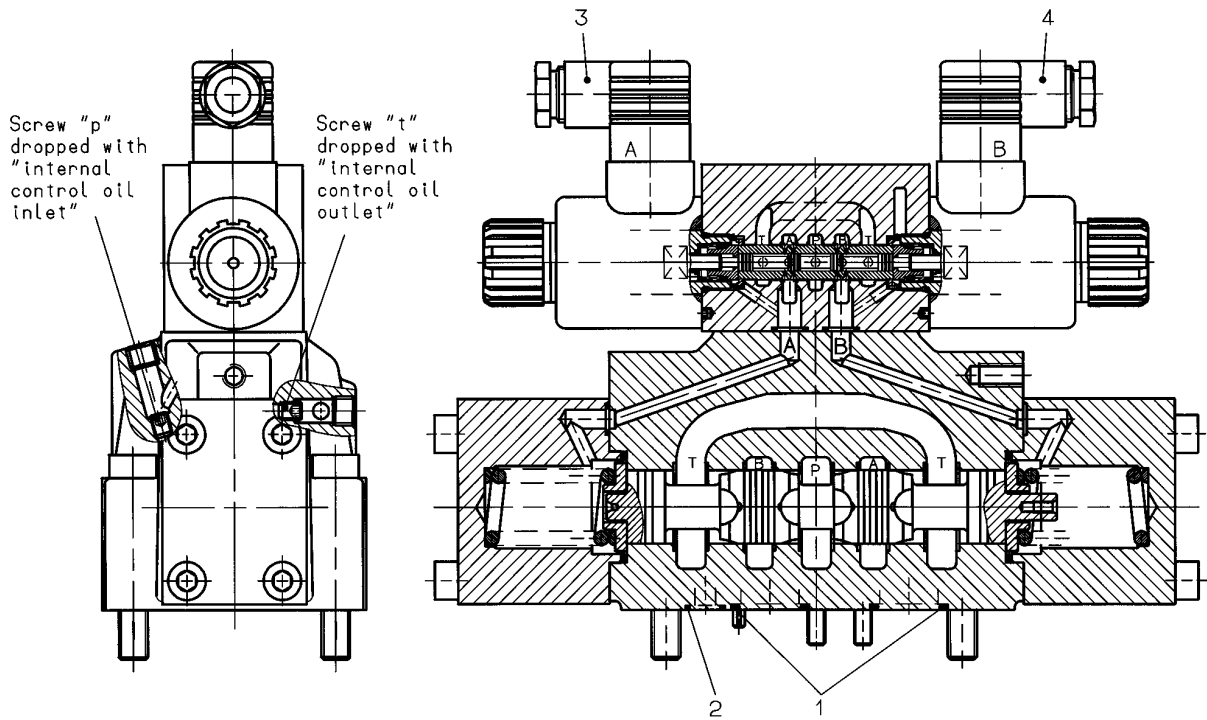
Cat. No.	b ₁	b ₂	d ₁	d ₂	h ₁	l ₁
1065188	114	26	G 1	Dia. 47	19	26
1065189	121	30	G 1 1/4	Dia. 56	21	30

Dimensional drawings [mm]

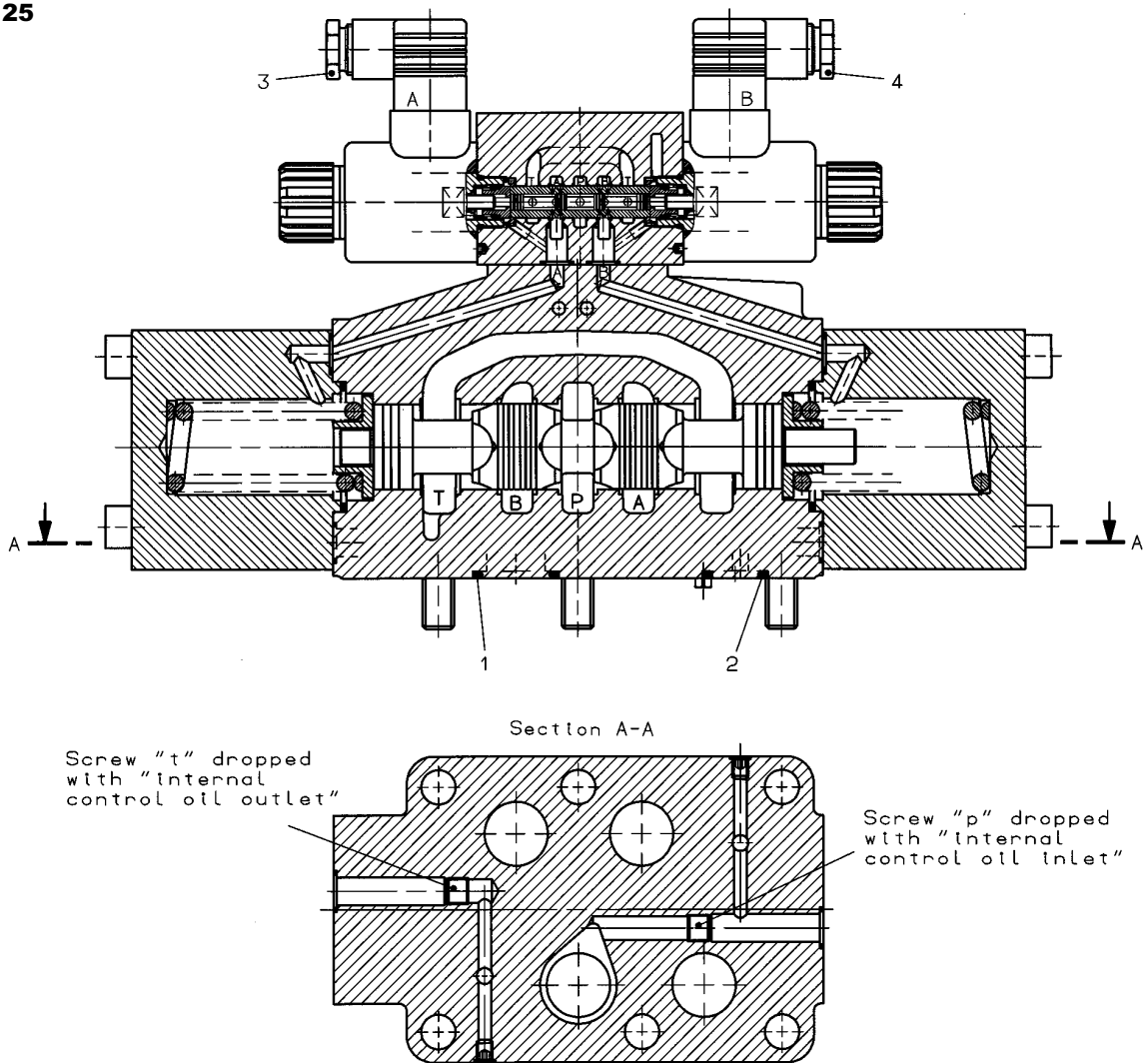
Subplates Size 25 with interface to DIN 24 340-A 25 and ISO 4401-AE-08-4-A
Cat. No. 1065190 G 1 1/2



Size 16



Size 25



Spare parts and mounting screws

Spare parts for directional control valve Size 16

Part	Qty.	Description	Cat. No.
1	4	O-ring (22.4 x 2.5)	0662256
2	2	O-ring (10 x 2)	0659116
3	1	Connector	0657859
4	1	Connector	0570275

Mounting screws

-	2	Socket head screw (M6 x 55 DIN 912-10.9)	0700415
-	4	Socket head screw (M10 x 60 DIN 912-10.9)	0700457

1 set of spare parts consists of parts 1 and 2

Spare parts for directional control valve Size 25

Part	Qty.	Description	Bestell-Nr.
1	4	O-ring (26.6 x 3.5)	0701343
2	2	O-ring (18.6 x 3.5)	0701338
3	1	Connector	0657859
4	1	Connector	0570275

Mounting screws

-	6	Socket head screw (M12 x 65 DIN 912-10.9)	0700476
---	---	--	----------------

1 set of spare parts consists of parts 1 and 2

Drive electronics DC 05 / DC 05-XLT

Digital amplifier with constant current regulator PWM
Power supply: 18 ... 30 VDC, incl. residual ripple
Ambient temperature ϑ_a : 0 ... +50 °C
Weight: 0,4 kg
Mounting position: Upright
Free air circulation must be ensured
Space requirement for installation of 19" card rack: 50 mm
European format: 100 x 160 mm



Type	Setpoint input (switchable)		Internal setpoints	Ramps	Terminal strip Form F DIN 41612	PID controller for external control loops	Cat. No.	For Further information, see script
	[V]	[mA]	Pcs.	Pcs.	Number of pins			
For proportional directional control valves Rated current I_N: 0 ... 1600 mA								
DC 05	2x0...±10V	0(4)...20 mA	4	4	48	● / ○ (switchable)	5150000 ¹⁾	7503503
DC 05-XLT	0...±10V		4	2	48	○	5150001 ¹⁾	7503504
			Functional compatible to pQ 03					

1) Pre-parametrred electronics on request.

Drive electronics pQ 11

Plug-in amplifier with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC, Residual ripple: ≤ 10 %
Ambient temperature ϑ_a : -20 ... +50 °C
Mounting position: Optional



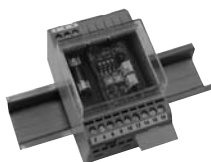
Setpoint input (switchable)		Type of connection		Weight	Cat. No.	For Further information, see script
[V]	[mA]	Connecting cable, 2 m	Connector acc. to DIN 43651	[kg]		
For proportional valves with 2 solenoids 2 pQ 11 necessary Rated current I_N: 0 ... 2400 mA, allowed resistance of solenoid R_{20}: 2,5...4,5 Ω						HERION 7502961
0 ... 10	0 (4)...20	●	○	0,18	5980085	
0 ... 10	0 (4)...20	○	●	0,18	5980081 ¹⁾	

Mark in table: ○ without, ● with

1) Cable connector to be ordered separately. Cat. No. **0660689**

Drive electronics pQ 12

Amplifier module with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC, Residual ripple: ≤ 10 %
Ambient temperature ϑ_a : -20 ... +50 °C
Mounting position: Optional
For attachment on mounting rail acc. to EN 50022



Setpoint input (switchable)	Output currents		Cat. No.	For Further information, see script
[V] [mA]	[mA]			
For proportional valves with 2 solenoids 2 pQ 11 necessary				HERION 7503109
0 ... 10	0 (4)...20	0 ... 1600 / 2400	5980126	

Proportional Directional Control Valves

Nominal sizes 16 and 25



**Systemtechnik
GmbH**

Pilot operated, electrically adjustable
Interface acc. to DIN 24 340 and ISO 4401

PN [p_{max.}] = 315 bar

7502968.06.01.06

Description

Design

The proportional directional control valves, Sizes 16 and 25, consist of a hydraulic main stage which is indirectly operated by the hydraulic solenoid actuated pilot stage mounted on top.

The main piston is centered by means of two springs, so the piston is held in mid-position in case of power failure or breakdown of the pump pressure.

Application

The proportional directional control valve serves for directional or speed control of hydraulic cylinders and hydraulic motors. It is used in cases where a servo valve would be too costly and a conventional directional control valve would not be sufficient in terms of functions. A continuously controllable signal enables a most simple and precise remote control of the required movements.

Mounting

The valves are mounted on the subplates by means of screws and sealed by O-rings.

Line connection

Subplate size 16, interface to DIN 24 340-A 16 and ISO 4401-AD-07-4-A.

Subplate size 25, interface to DIN 24 340-A 25 and ISO 4401-AE-08-4-A.



Features

- Speed and directional control by preallocated setpoint
- Program control, remote control
- Inexpensive system solution
- Spring-centered, pressure-controlled, robust design

Parameters

Typ designation			S 16 UP... 10 G	S 25 UP ... 10 G		
General parameters						
Description			Proportional directional control valve			
Symbol			See Type survey			
Design			Spool-type valve, pilot operated			
Type of mounting			Flange			
Line connection			Subplate			
Mounting position			Valve axis horizontal			
Type of actuator			Proportional solenoid			
Nominal size			16	25		
Weight - Valve			[kg]	10.9	20.7	
Weight - Subplate	G 1/2	[kg]	-	-		
	G 3/4		9	-		
	G 3/4		-	-		
	G 1		9	9.2		
	G 1 1/4		-	9.2		
	G 1 1/2		-	24.2		
Ambient temperature range			ϑ _u	[°C]	-20 ... +50	
Hydraulic parameters						
Operating pressure range at ports P, B, A and T			p _{max}	[bar]	up to 315	
p _{min} at P (control oil inlet „X“ internal)			[bar]	Return pressure p _T +40 (p _y +40)		
p _{min} at P (control oil inlet„X“ external)			[bar]	0		
Control pressure range			p _{St}	[bar]	40 ... 315	
Temperature of pressure medium			ϑ _m max.	[°C]	+70	
Viscosity range			ν	[mm²/s]	12 ... 500	
Zero flow	at „X“ internal	Q _O	[l/min]	0.5	0.6	
	(Δp = 300 bar) at „X“ external	Q _O	[l/min]	0.25	0.3	
Control volume			[cm³]	4	8	
Flow volume			Q _{max}	[l/min]	See characteristic curve	
Flow volume bei Δp = 20 bar			Q _{min}	[l/min]	0.1	0.2
Repeatability with dither ¹)		at Q _{min}	[%]	10	10	
		at 50% I _N	[%]	1	1	
Hysteresis ¹)			[% I _N]	3	3	
Floating time	at Δp = 100 bar	Q = 0%...80%	[ms]	60	65	
	at p _{St} = 100 bar	Q = 80%...0%	[ms]	50	60	
Filtration, absolute			[μm]	25		
Electrical parameters of proportional solenoid						
Solenoid Cat. No.			7297	7298		
Rated current			I _N	[mA]	800	1600
Resistance			R ₂₀	[Ω]	21.3	5.7
Duty cycle			ED	[%]	100	100
Electrical connection			Connector to DIN 43 650 A			
Degree of protection to DIN 40 050			IP 65 (with connector)			
Drive electronics			DC 05 / DC 05-XLT, pQ 11 and pQ 12 see Page 12			

¹⁾ Dither: Frequency 50 Hz, amplitude 240 mA_{SS} (solenoid 7298), 120 mA_{SS} (solenoid 7297)

Type key

Proportional directional control valve

S	...	UP	...	10	G	...	...	...	O	...
	1		2			3	4	5		6

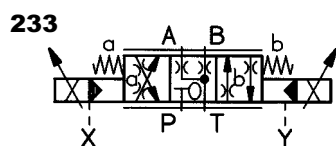
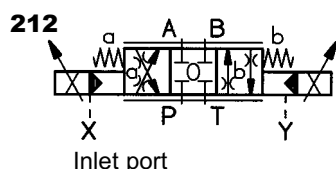
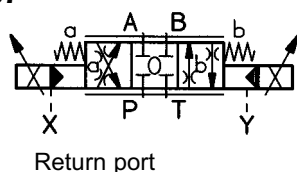
1 Size: **16**
25

2 Control mode: Control by
proportional pressure
reducing valve

Control oil inlet X Control oil outlet Y

41 - external internal
43 - internal internal
44 - external external
45 - internal external

3 Symbol: **187**



4 Code: - Size 16: **005** - Nominal flow rate
Q = 150 l/min
with pressure drop
across valve
of $\Delta p = 10$ bar

- Size 25: **006** - Area ratio A : B
approx. 2 : 1

206 - Nominal flow rate
Q = 270 l/min
with pressure drop
across valve
of $\Delta p = 10$ bar

007 - Area ratio A : B
approx. 2 : 1

5 Engineering version: **3** - Size 16, 25

6 Sealing material: **O** - Perbunan
V - Viton

Subplate

P	S	...	G	...	...	...	O	O
		1		2	3	4		

1 Size: **16**
25

2 Line connection: **5** - G 3/4 Size 16
6 - G 1 Size 16/25
7 - G 1 1/4 Size 25
8 - G 1 1/2 Size 25

3 Code: **001** - Standard design
X internal Y internal
020 - X external Y internal
023 - X external Y external

4 Engineering version: **1** - New design
2 - See survey

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. Mounting bolts and O-rings are included in the delivery. The subplate, amplifier card and setpoint potentiometer must be ordered separately.

Example of order

Proportional directional control valve Size 16, with flanged connection, Symbol 187, control oil inlet "X" external, control oil outlet "Y" external, with corresponding subplate G 3/4.

Proportional directional control valve:

Type designation: S 16 UP 44 10 G 187 005 3 O O
Cat. No. **5204182.7298**

Subplate:

Type designation: P S 16 G 5 001 2 O O
Cat. No. **1065186**

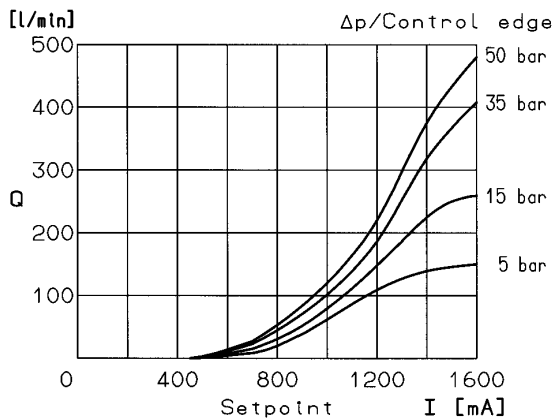
Drive electronics to be ordered separately.
Please see page 12.

Characteristic curves

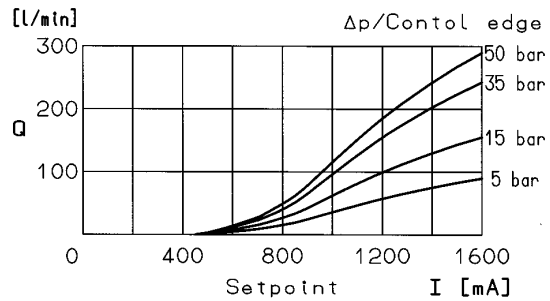
Proportional directional control valves Size 16

S 16 UP ... 005

S 16 UP ... 006 Side A



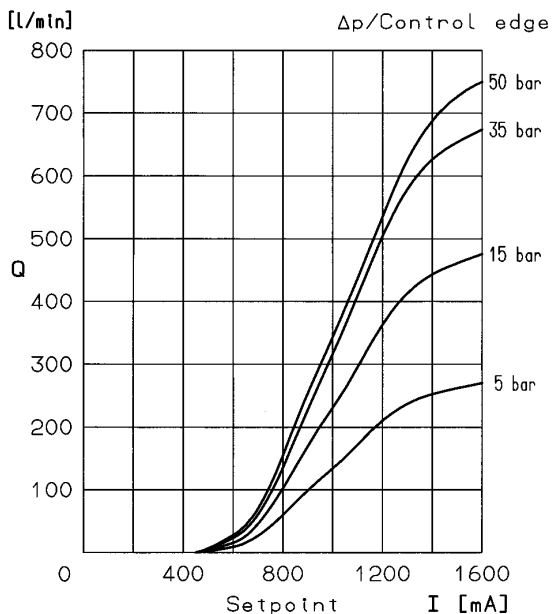
S 16 UP ... 006 Side B



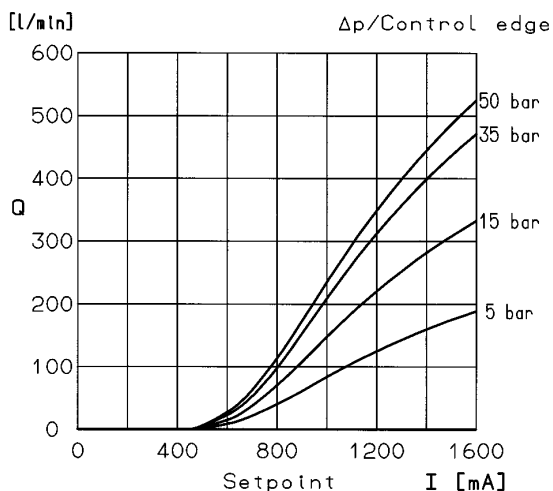
Proportional directional control valves Size 25

S 25 UP ... 206

S 25 UP ... 007 Side A



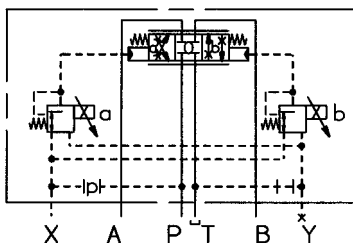
S 25 UP ... 007 Side B



Control modes of Sizes 16 and 25

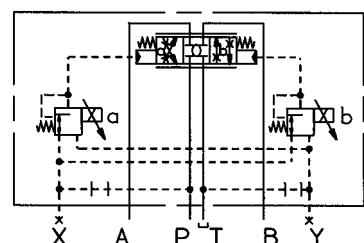
Proportional
directional
control valve
Control mode 41

"x" external
"y" internal



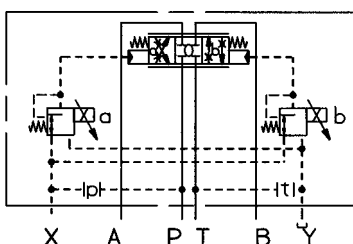
Proportional
directional
control valve
Control mode 43

"x" internal
"y" internal



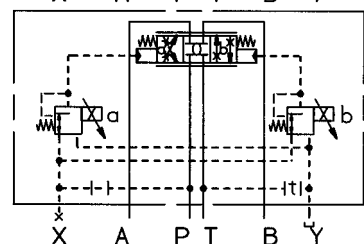
Proportional
directional
control valve
Control mode 44

"x" external
"y" external



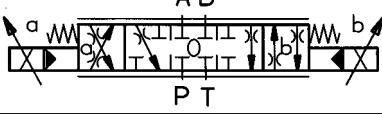
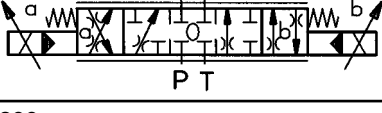
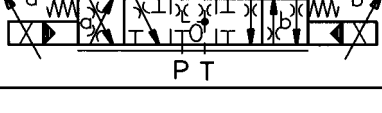
Proportional
directional
control valve
Control mode 45

"x" internal
"y" external



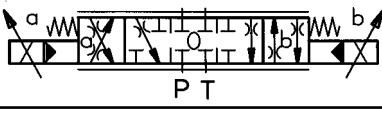
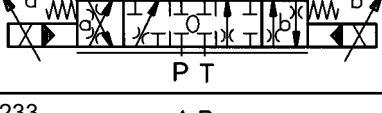
Equipment survey for proportional directional control valves Size 16 (Standard design in control mode 43)

Cat. No. for valves with different control mode on request

Symbol	Neutral position	Control mode	Line connection	Type	Cat. No.
187 	Return Adv. opening	43	Sub-plates	S 16 UP 43 10 G 187 005 3 O O S 16 UP 43 10 G 187 006 3 O O	5204677.7298 5204678.7298
212 	Inlet Adv. opening			S 16 UP 43 10 G 212 005 3 O O S 16 UP 43 10 G 212 006 3 O O	5204679.7298 5204680.7298
233 	Leakage oil return			S 16 UP 43 10 G 233 005 3 O O S 16 UP 43 10 G 233 006 3 O O	5204681.7298 5204682.7298

Equipment survey for proportional directional control valves Size 25 (Standard design in control mode 43)

Cat. No. for valves with different control mode on request

Symbol	Neutral position	Control mode	Line connection	Type	Cat. No.
187 	Return Adv. opening	43	Sub-plates	S 25 UP 43 10 G 187 206 3 O O S 25 UP 43 10 G 187 007 3 O O	5204684.7298 5204685.7298
212 	Inlet Adv. opening			S 25 UP 43 10 G 212 206 3 O O S 25 UP 43 10 G 212 007 3 O O	5204686.7298 5204687.7298
233 	Leakage oil return			S 25 UP 43 10 G 233 206 3 O O S 25 UP 43 10 G 233 007 3 O O	5204688.7298 5204689.7298

Subplates

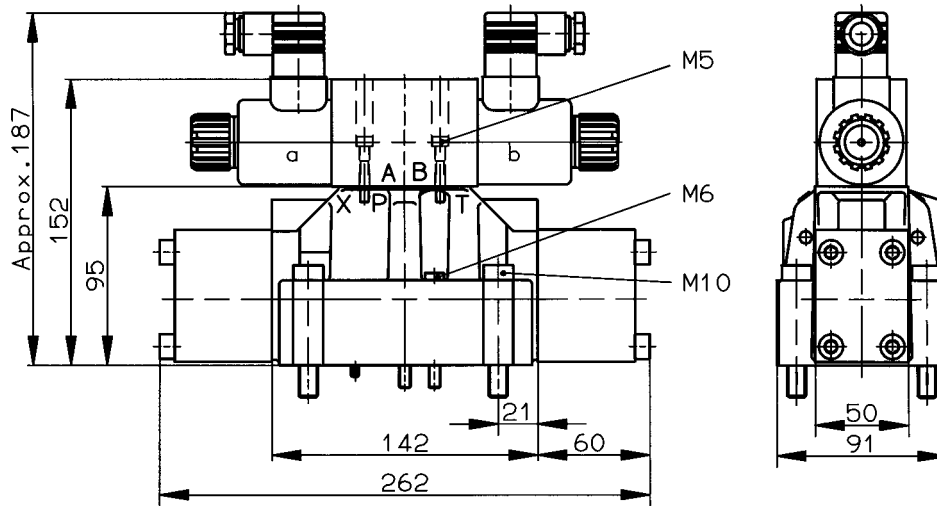
Port size	Nom. size	Type	Cat. No.
G 3/4	16	P S 16 G 5 001 2 O O	1065186
G 1	16	P S 16 G 6 001 2 O O	1065187
G 1	25	P S 25 G 6 001 2 O O	1065188
G 1 1/4	25	P S 25 G 7 001 2 O O	1065189
G 1 1/2	25	P S 25 G 8 001 2 O O	1065190

Dimensional drawings [mm]

Proportional directional control valve Size 16

Tightening torque:

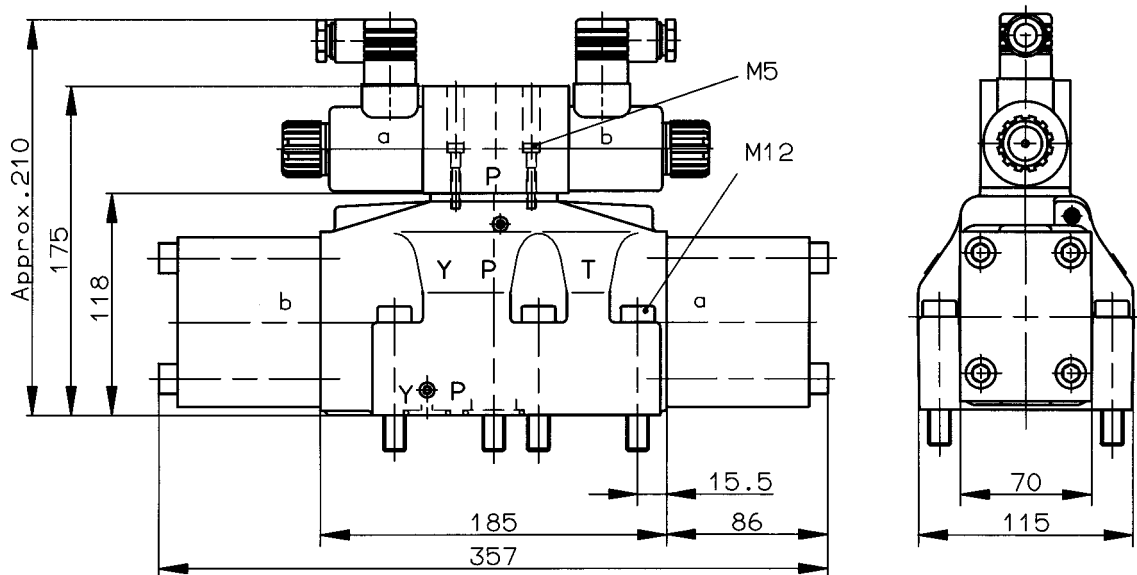
M 5 DIN 912 - 10.9 = 7.6 Nm
M 6 DIN 912 - 10.9 = 13 Nm
M 10 DIN 912 - 10.9 = 62 Nm



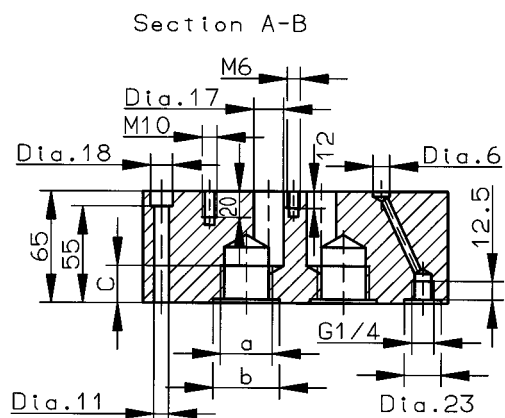
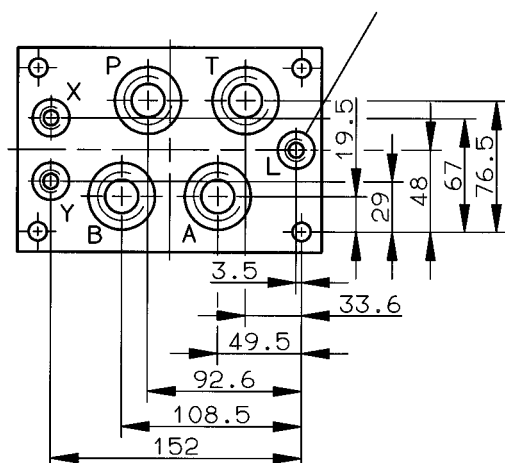
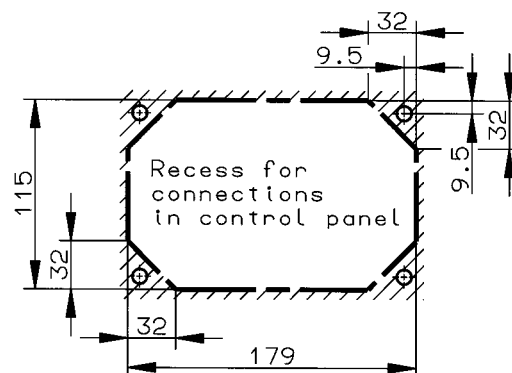
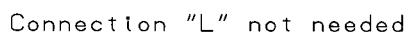
Proportional directional control valve Size 25

Tightening torque:

M 5 DIN 912 - 10.9 = 7.6 Nm
M 12 DIN 912 - 10.9 = 110 Nm



Subplates Size 16 with interface to DIN 24 340-A 16 and ISO 4401-AD-07-4-A
Cat. No. 1065186 G 3/4
Cat. No. 1065187 G 1



Cat. No.	a	b	c
1065186	G 3/4	Dia. 41	16.5
1065187	G 1	Dia. 47	18.5

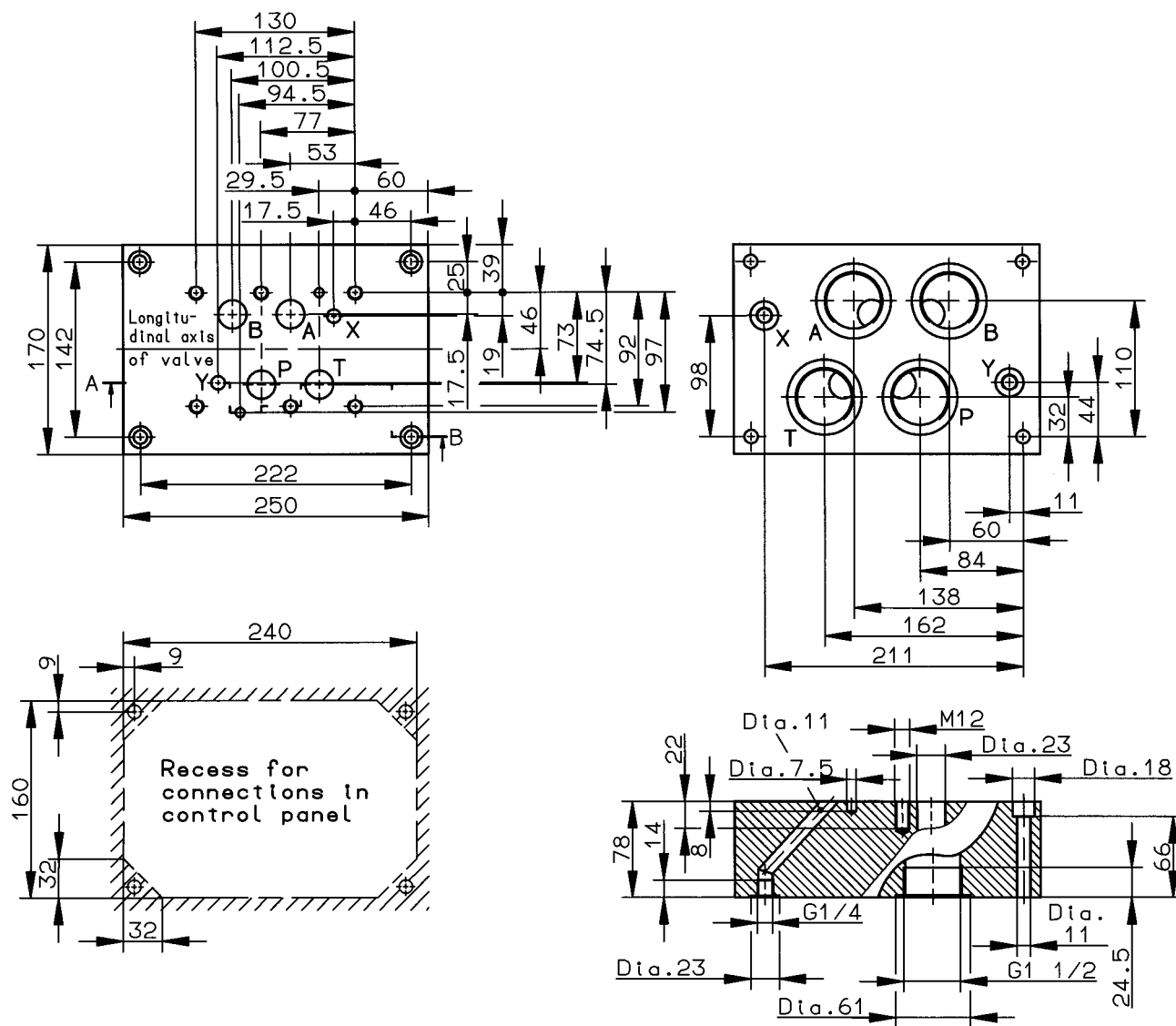
Subplates Size 25 with interface to DIN 24 340-A 25 and ISO 4401-AE-08-4-A
Cat. No. 1065188 G 1
Cat. No. 1065189 G 1 1/4



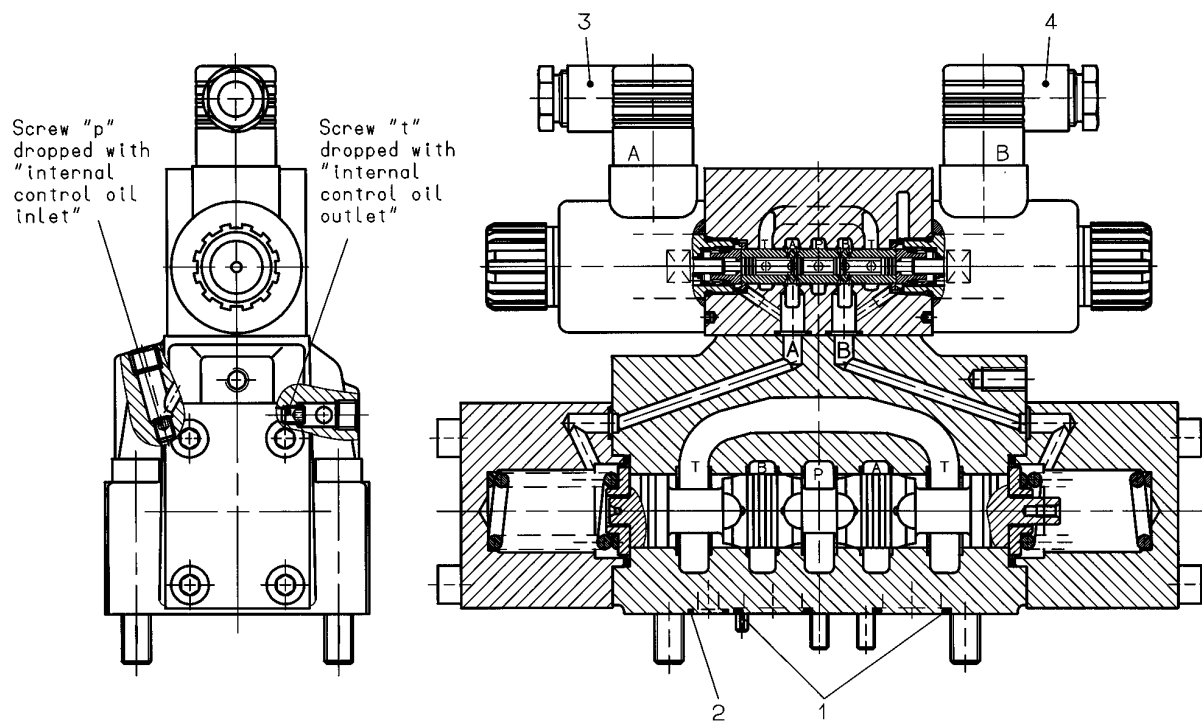
Cat. No.	b ₁	b ₂	d ₁	d ₂	h ₁	l ₁
1065188	114	26	G 1	Dia. 47	19	26
1065189	121	30	G 1 1/4	Dia. 56	21	30

Dimensional drawings [mm]

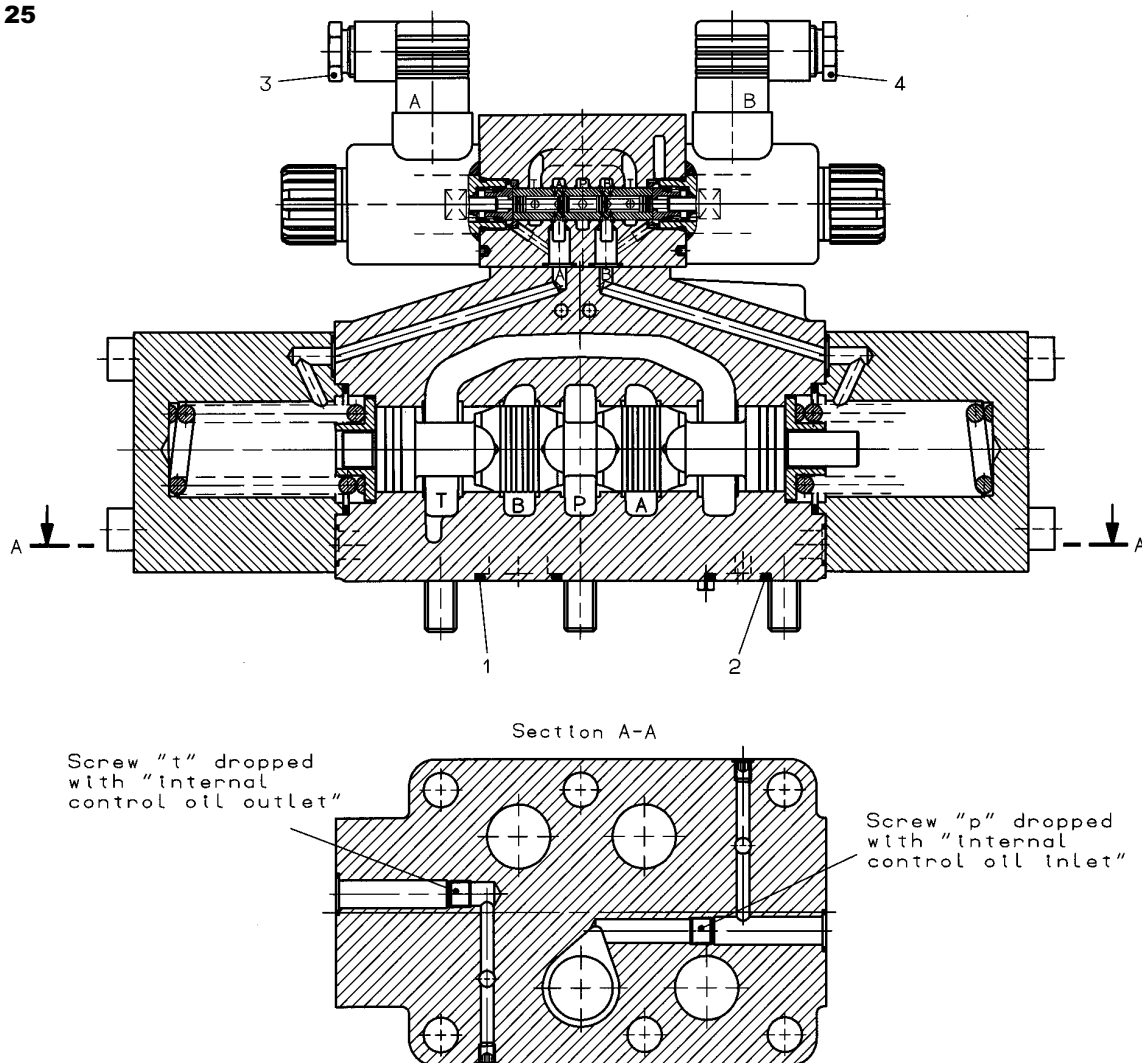
Subplates Size 25 with interface to DIN 24 340-A 25 and ISO 4401-AE-08-4-A
Cat. No. 1065190 G 1 1/2



Size 16



Size 25



Spare parts and mounting screws

Spare parts for directional control valve Size 16

Part	Qty.	Description	Cat. No.
1	4	O-ring (22.4 x 2.5)	0662256
2	2	O-ring (10 x 2)	0659116
3	1	Connector	0657859
4	1	Connector	0570275

Mounting screws

-	2	Socket head screw (M6 x 55 DIN 912-10.9)	0700415
-	4	Socket head screw (M10 x 60 DIN 912-10.9)	0700457

1 set of spare parts consists of parts 1 and 2

Spare parts for directional control valve Size 25

Part	Qty.	Description	Bestell-Nr.
1	4	O-ring (26.6 x 3.5)	0701343
2	2	O-ring (18.6 x 3.5)	0701338
3	1	Connector	0657859
4	1	Connector	0570275

Mounting screws

-	6	Socket head screw (M12 x 65 DIN 912-10.9)	0700476
---	---	--	----------------

1 set of spare parts consists of parts 1 and 2

Drive electronics DC 05 / DC 05-XLT

Digital amplifier with constant current regulator PWM
Power supply: 18 ... 30 VDC, incl. residual ripple
Ambient temperature ϑ_{a} : 0 ... +50 °C
Weight: 0,4 kg
Mounting position: Upright
Free air circulation must be ensured
Space requirement for installation of 19" card rack: 50 mm
European format: 100 x 160 mm



Type	Setpoint input (switchable)		Internal setpoints	Ramps	Terminal strip Form F DIN 41612	PID controller for external control loops	Cat. No.	For Further information, see script
	[V]	[mA]	Pcs.	Pcs.	Number of pins			
For proportional directional control valves Rated current I_N: 0 ... 1600 mA								
DC 05	2x0...±10V	0(4)...20 mA	4	4	48	● / ○ (switchable)	5150000 ¹⁾	7503503
DC 05-XLT	0...±10V		4	2	48	○	5150001 ¹⁾	7503504
			Functional compatible to pQ 03					

1) Pre-parametrized electronics on request.

Drive electronics pQ 11

Plug-in amplifier with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC, Residual ripple: ≤ 10 %
Ambient temperature ϑ_{a} : -20 ... +50 °C
Mounting position: Optional



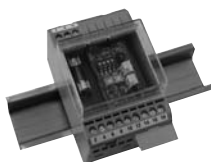
Setpoint input (switchable)		Type of connection		Weight	Cat. No.	For Further information, see script
[V]	[mA]	Connecting cable, 2 m	Connector acc. to DIN 43651	[kg]		
For proportional valves with 2 solenoids 2 pQ 11 necessary Rated current I_N: 0 ... 2400 mA, allowed resistance of solenoid R_{20}: 2,5...4,5 Ω						HERION 7502961
0 ... 10	0 (4)...20	●	○	0,18	5980085	
0 ... 10	0 (4)...20	○	●	0,18	5980081 ¹⁾	

Mark in table: ○ without, ● with

1) Cable connector to be ordered separately. Cat. No. **0660689**

Drive electronics pQ 12

Amplifier module with constant current regulator PWM
Degree of protection: IP 65
Power supply: 18 ... 32 VDC, Residual ripple: ≤ 10 %
Ambient temperature ϑ_{a} : -20 ... +50 °C
Mounting position: Optional
For attachment on mounting rail acc. to EN 50022



Setpoint input (switchable)		Output currents	Cat. No.	For Further information, see script
[V]	[mA]	[mA]		
For proportional valves with 2 solenoids 2 pQ 11 necessary				HERION 7503109
0 ... 10	0 (4)...20	0 ... 1600 / 2400	5980126	

Air Cylinders Type LPA for Ram Weight Compensation



**Systemtechnik
GmbH**

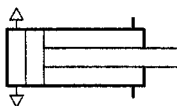
**Single acting, pull stroke version
Dia. 100 to 500 mm**

PN [$p_{\max.}$] = 16 bar

7503155.06.01.07

Description

Mounting:	See characteristic data
Line connection:	Internal thread, DIN ISO 228/1
Mounting position:	Vertical
Cushioning:	Without
Fluid:	Filtered air
Temperature range:	-20 °C to +80 °C
Operating pressure:	Max. 16 bar ¹⁾



Features

- Grease chamber - Lubrication of dynamic seal
- Piston velocity up to max. 0.8 m/sec.
- Long service life, traveling performance approx. 20 000 km ³⁾
- Continuous diameter graduation from 100 through 500 mm. Further diameters on request
- Stroke length according to customer's specification
- Tie rod type cylinder
- Optionally available in push stroke version, single-acting

Materials ²⁾

Flanges ⁴⁾	Aluminium
Tube	- Piston dia. 100 to 200 mm Anodized aluminium - Piston dia. 250 to 500 mm Steel, honed inside, surface varnished
Piston rod	- Piston dia. 100 to 500 mm Hardened steel, hard chromium plated
Tie rods	- Piston dia. 100 to 200 mm Stainless steel - Piston dia. 250 to 500 mm Steel, varnished
Tie rod nuts	Steel
Seals	Perbunan/Polyurethane
Other materials	On request

¹⁾ Versions with higher pressures available on request

²⁾ Other materials available on request

³⁾ The statement is valid under the following preconditions:

- Application in closed rooms
- Ambient temperature from 0 to 40 °C
- No lateral forces exerted on piston rod
- Speed $\leq$ 0.5 m/s

⁴⁾ Design with spherical pivot bearing,
piston dia. 250 to 500 mm, rear flange steel

Characteristic data

Piston dia [mm]	Piston rod dia. [mm]	Line connection in head end	Annular area of piston [cm ²]	Basic No.	Different versions			
					Basic design	Cap end flange	Head end flange	Spherical pivot bearing
100	25	2 x G 3/4	73.63	43 170	10	34	30	20
125	30	2 x G 3/4	115.65	43 170	11	35	31	21
160	32	2 x G 1	193.02	43 170	12	36	32	22
200	40	2 x G 1 1/4	301.59	43 170	13	37	33	23
250	40	2 x G 1 1/4	478.30	43 170	14	-	-	24
320	50	2 x G 1 1/2	784.61	43 170	15	-	-	25
400	63	2 x G 1 1/2	1225.46	43 170	16	-	-	26
500	80	2 x G 2	1913.23	43 170	18	-	-	28

Example of order: LPA cylinder, 500 mm (dia.) x 150 mm (stroke), basic design.

	Basic number	Basic design	Stroke length
Order No.:	43 170	18	150

Stroke tolerances [mm]

Piston dia.	Stroke ≤ 500	Stroke > 500 to 1250
100	+2.5 0	+4 0
125 - 320	+4 0	+5 0
400 - 500	+6 0	+7 0

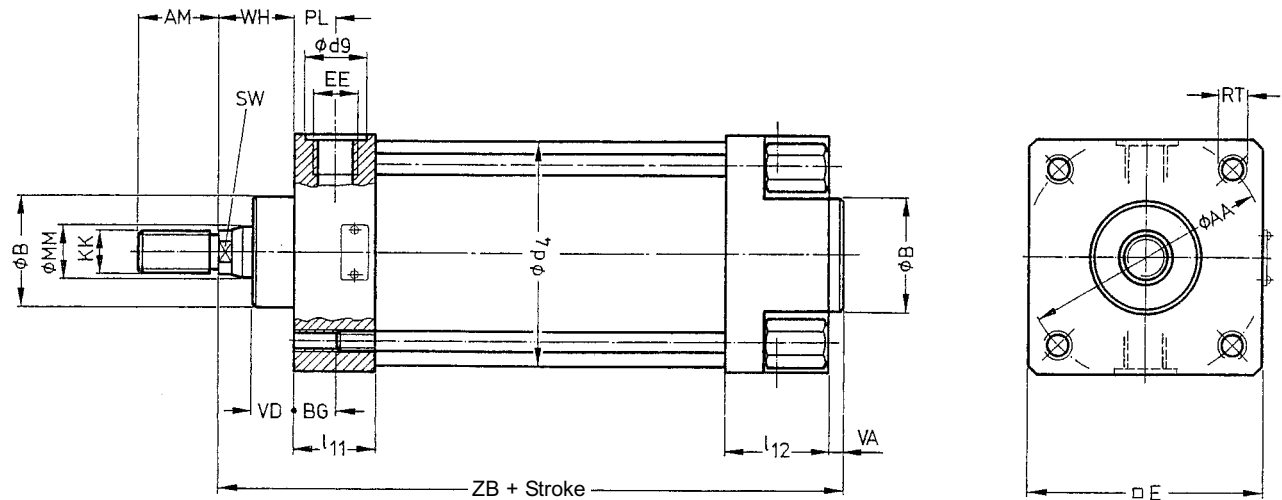
Over-all tolerances [mm]

Piston dia.	Dimensions like ZB, ZF, ZJ, XN (see Page 3)
100	±1.6
125 - 250	±2
320 - 500	±2.5

Dimensional drawings and tables [in mm]

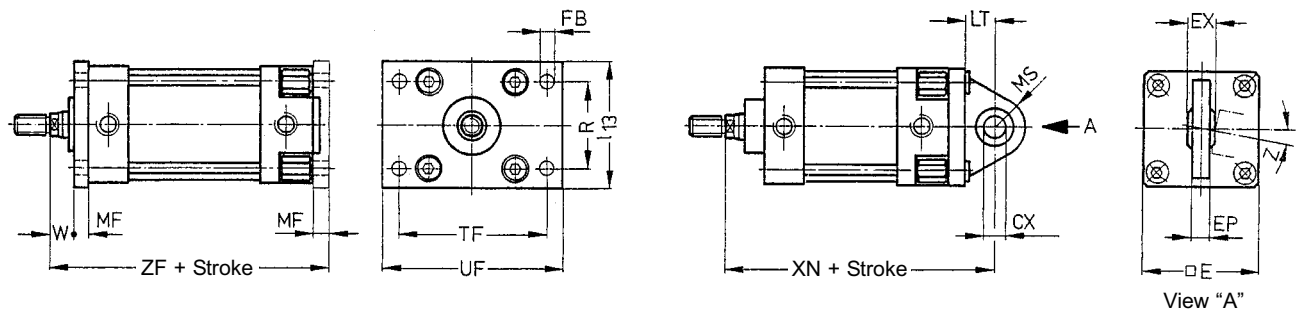
Piston dia. 100 to 200

Basic design



Mounting flange for cap end/head end

Pivot bearing, spherical



Tolerance	± 0.5		d11		H8	-1			-0.1	H13	6g		± 0.2	h9			JS 14
Piston dia.	Dia.AA	AM	Dia.B	BG	Dia.CX	$\square E$	EE	EP	EX	Dia.FB	KK	LT	MF	Dia.MM	MS	PL	R
100	120	40	55	17	20	116	G 3/4	18	25	14	M20x1.5	28	16	25	34	20	75
125	150	48	60	17	25	140	G 3/4	22	31	16	M24x2	35	16	30	39	20	90
160	190	54	80	23	30	180	G 1	25	37	18	M27x2	42	20	32	53	24	115
200	232	54	80	27	30	220	G 1 1/4	25	37	22	M27x2	42	20	40	53	30	135

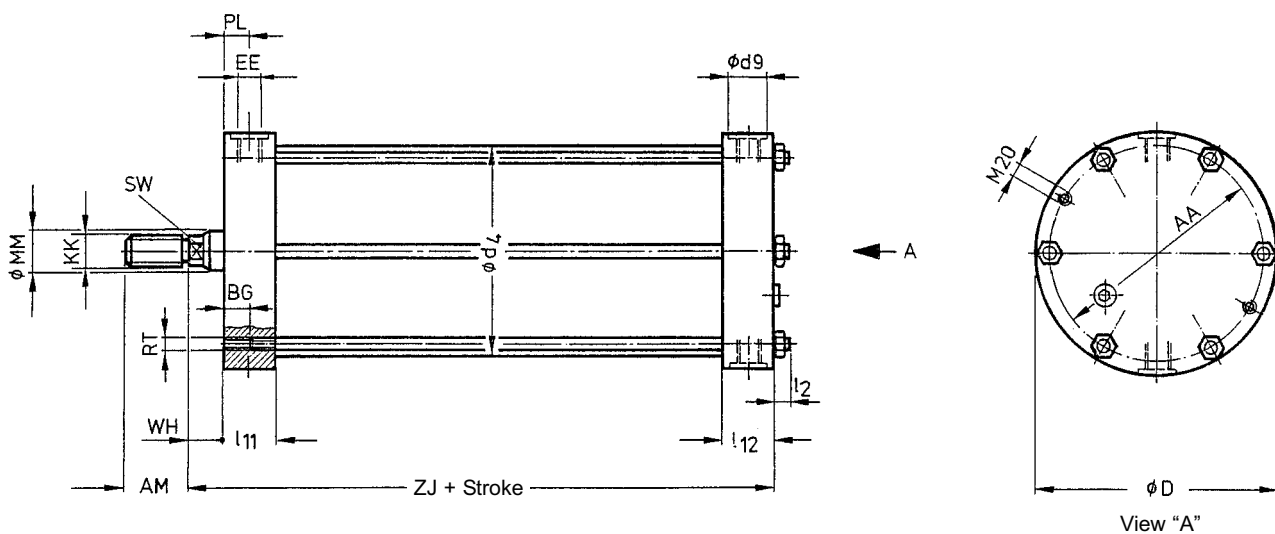
Tolerance	6H		JS 14						*	max.	*	*		+0.4			
Piston dia.	RT	SW	TF	UF	VA	VD	W	WH	XN	Z [°]	ZB	ZF	Dia. d_4	Dia. d_9	l_{11}	l_{12}	l_{13}
100	M10	22	150	180	4	20	20	36	199	10	160	170	107	33	40	40	120
125	M10	24	180	222	5	20	20	36	210	10	165	176	132	33	40	40	140
160	M12	30	230	278	5	25	25	45	249	10	194	209	170	40	48	48	180
200	M14	32	270	318	5	25	25	45	284	10	225	240	210	50	60	60	235

* For tolerances, see Page 2

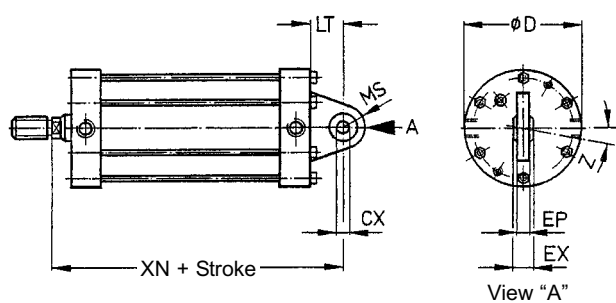
Dimensional drawings and tables [in mm]

Piston dia. 250 to 500

Basic design



Pivot bearing, spherical



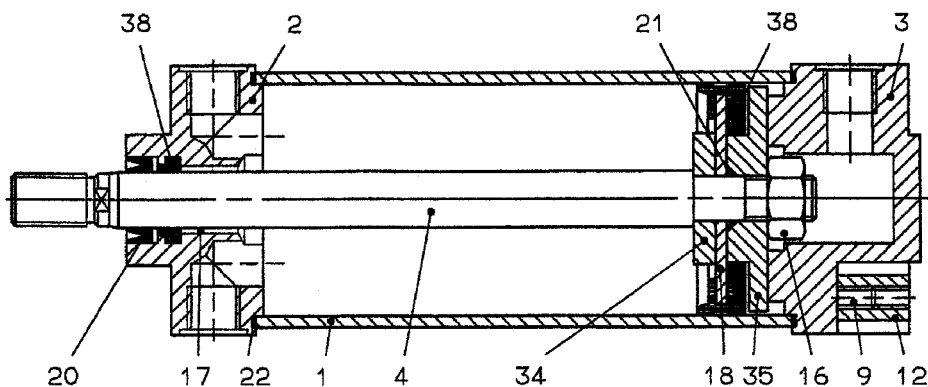
Tolerance	±0.5			H8	-1			±0.3	6g		f7	
Piston dia.	Dia. AA	AM	BG	Dia. CX	Dia. D	EE	EP	EX	KK	LT	Dia. MM	MS
250	285	65	24	40	320	G 1 1/4	30	40	M33 x 2	85	40	50
320	360	70	24	50	395	G 1 1/2	40	50	M42 x 2	100	50	60
400	445	80	30	63	485	G 1 1/2	50	63	M48 x 2	115	63	70
500	560	100	42	80	620	G 2	65	80	M64 x 3	150	80	90

Tolerance		6H			*	*	max.					
Piston dia.	PL	RT	SW	WH	XN	ZJ	Z [°]	Dia. d ₄	l ₂	l ₁₁	l ₁₂	
250	34	M16	32	25	320	232	4	262	15	65	52	
320	37.5	M16	41	30	370	270	4	336	15	75	60	
400	37.5	M20	50	35	400	285	4	419	18	75	60	
500	42.5	M30	65	40	500	350	4	521	25	85	75	

* For tolerances, see Page 2

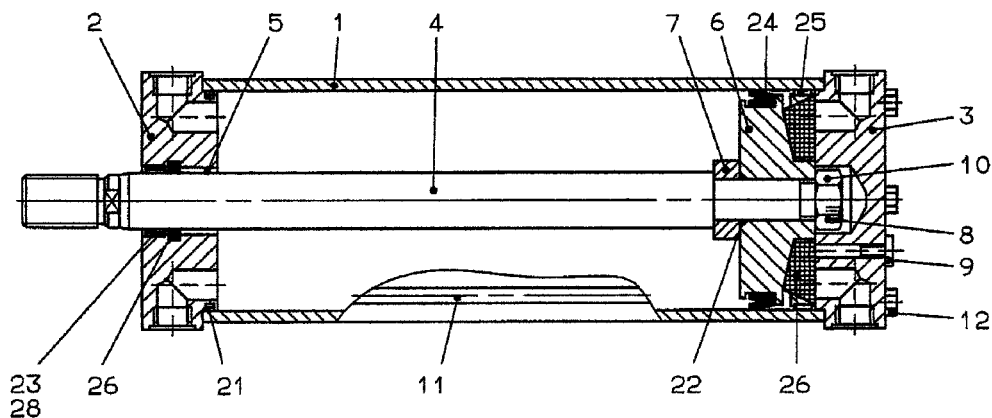
Sectional drawings

Piston dia. 100 to 200



- | | | | |
|-----------------|-----------|-------------|-------------|
| 1 Cylinder tube | 9 Tie rod | * 18 Piston | 34 Disc |
| 2 Head end | 12 Nut | * 20 Seal | 35 Disc |
| 3 Cap end | 16 Nut | * 21 O-ring | * 38 Grease |
| 4 Piston rod | 17 Bush | * 22 Seal | |

Piston dia. 250 to 500



- | | | | |
|-----------------|------------|---------------------------|---|
| 1 Cylinder tube | 7 Disc | * 21 O-ring | * 28 Piston rod wiper
(dia. 500 mm only) |
| 2 Head end | 8 Screw | * 22 O-ring | |
| 3 Cap end | 9 Screw | * 23 Seal | |
| 4 Piston rod | 10 Nut | * 24 Seal | |
| 5 Bush | 11 Tie rod | * 25 Guide strip | |
| 6 Piston | 12 Nut | * 26 Grease ³⁾ | |

All parts marked with an asterisk * are enclosed in the respective spare parts kit.

When ordering other parts, please state all data contained in type plate (Order No., date of delivery, etc.)

Spare parts kits¹⁾

Piston dia. (mm)	Kit Order No.	Tightening torque, lubricated, Item 12 ²⁾
100	1114300	20 Nm
125	1114301	28 Nm
160	1114302	50 Nm
200	1114303	80 Nm

¹⁾ After replacement of wearing parts, the grease chambers of the head end and the piston must be refilled with grease in addition to the routine lubrication of the sealing surfaces. The grease required is enclosed in the respective spare parts kit.

²⁾ With long strokes, identical distances between cylinder tube and tie rods must be ensured. Alternately tighten, a little at a time, two tie rod nuts across from each other. Then tighten to full torque given in table.

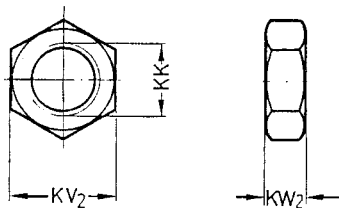
Piston dia. (mm)	Kit Order No.	Tightening torque, lubricated, Item 12 ²⁾
250	1114304	75 Nm
320	1114305	75 Nm
400	1114306	150 Nm
500	1114308	350 Nm

³⁾ The grease (Centoplex GLP 500, manufactured by Klüber) for grease chamber of cylinder piston/dia. 250 to 500 mm, is furnished separately. Prior to commissioning, fill up required quantity at Item 9. The grease chamber is to be checked every 3 months (Item 9).

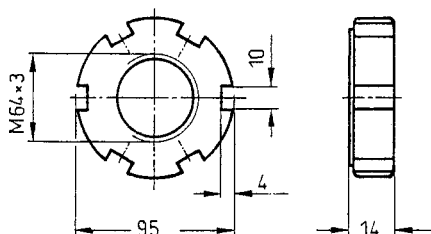
Accessories

Nut for piston rod

Version up to piston dia. 450 mm



Version with piston dia. 500 mm



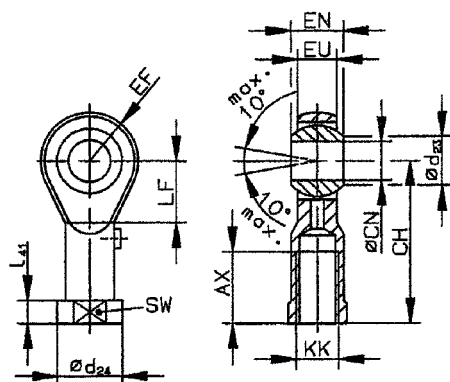
Material: Galvanized steel

Tolerance

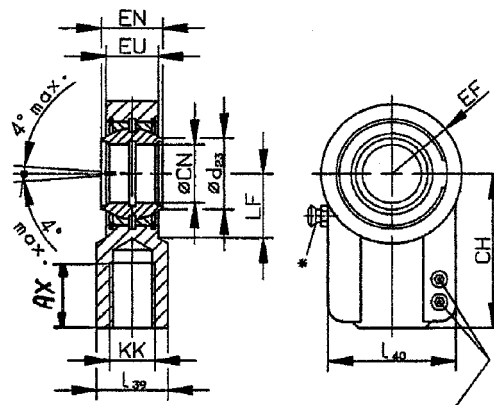
Piston dia.	KK	KV ₂	KW ₂	Weight [kg]	Cat. No.
100	M20 x 1,5	30	10	0.040	1106269
125	M24 x 2	36	12	0.070	1107965
160, 200	M27 x 2	41	13,5	0.101	1106270
250	M33 x 2	50	16,5	0.167	1150829
320	M42 x 2	65	16	0.278	1100514
400	M48 x 2	75	18	0.426	1100515
500	M64 x 3	see drawing			1150830

Rod eye, spherical

Versions with piston dia. 100 mm and 125 mm
(connecting dimensions acc. to CETOP RP 103 P and ISO 8140)



Versions from piston dia. 160 mm up
(connecting dimensions acc. to CETOP)



* Cone head DIN 71412 Tightening screws

Material: Steel

Tolerance			H7		h12		6H									
Piston dia.	AX	CH	Dia. CN	EF	EN	EU	KK	LF	SW1	Dia d ₂₃	Dia d ₂₄	l ₃₉	l ₄₀	l ₄₁	Weight [kg]	Cat. No.
100	33	77	20	25	25	18	M20 x 1,5	26	30	24.3	34	-	-	10	0.39	4315410
125	42	94	25	30	31	22	M24 x 2	30	36	29.6	42	-	-	12	0.66	4315411
160, 200	37	80	32	35	32	27	M27 x 2	32	-	37	-	38	66	-	1.10	4329103
250	46	97	40	44.5	40	32	M33 x 2	41	-	46	-	47	80	-	2.05	4329104
320	57	120	50	54	50	40	M42 x 2	50	-	57	-	58	96	-	4.45	4329105
400	64	140	63	66	63	52	M48 x 2	62	-	71.5	-	70	114	-	7.60	4329106
500	86	180	80	84	80	66	M64 x 3	78	-	91	-	90	148	-	14.5	4329107