

RE 26 411/02.03

Replaces: 26 412

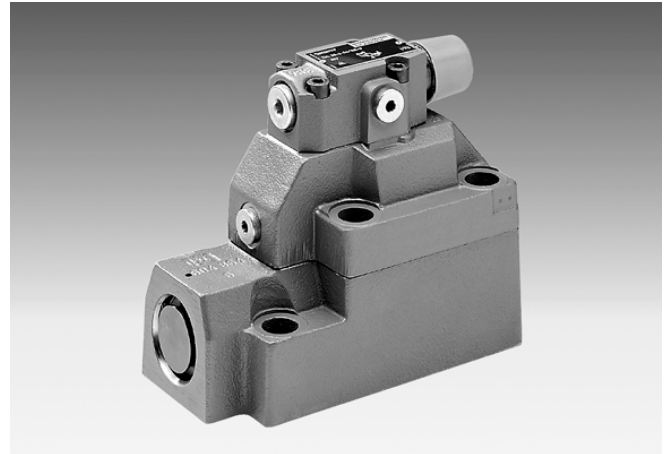
**Pressure shut-off valve,
Pilot operated
Types DA and DAW**

Nominal sizes 10, 25, 32

Series 5X

Maximum operating pressure 315 bar

Maximum flow 240 L/min



H5915/98

Typ DA 30 -2-5X/100-17

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11	

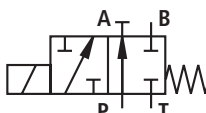
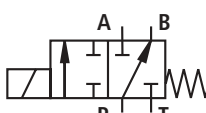
Features

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Ordering details

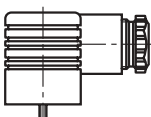
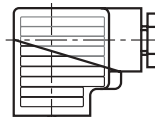
DA						-	-5X/	-		/					*
Without directional valve = No code															Further details in clear text
With built-on directional valve = W															No code = NBR seals
Pilot operated valve = No code															V = FPM seals
Pilot valve without main spool assembly (Do not state nominal size) = C															(other seals on request)
Pilot valve with main spool assembly (state nominal size 30) = C															⚠ Attention! The compatibility of the seals and pressure fluid has to be taken into account!
Nominal size 10 = 10															Electrical connection type K4 ³⁾ = Individual connection; with component plug to DIN 43 650-AM 2, without plug-in connector
Nominal size 25 = 20															
Nominal size 32 = 30															
		De-energised closed		= A ¹⁾											No code = Without hand override
		De-energised open		= B ¹⁾											N ¹⁾ = With hand override
															N9 ¹⁾ = With protected hand override
Adjustment elements															G24 ¹⁾ = 24 V DC
Rotary knob = 1															W230 ¹⁾ = 230 V 50/60 Hz AC
Sleeve with internal hexagon and protective cap = 2															No code = Without directional valve
Lockable rotary knob with scale = 3 ²⁾															6E ⁴⁾ = With directional valve (high performance valve)
Rotary knob with scale = 7															No code = Internal pilot oil drain
Series 50 to 59 = 5X															Y = External pilot oil drain
(50 to 59: unchanged installation and connection dimensions)															Switching pressure differential (P → A)
Settable pressure range															10 = In the mid range 10 %
0 to 50 bar = 50															17 = In the mid range 17 %
50 to 100 bar = 100															(also see characteristic curves on page 5)
100 to 200 bar = 200															
200 to 315 bar = 315															

¹⁾ Ordering details only required for the version with built-on directional valve „DAW“

²⁾ H-key to material no. 00008158 is included within the scope of supply

Preferred types and standard components are highlighted in the RPS (Rexroth Price list Standard).

Ordering details: plug-in connectors to DIN 43 650 A and ISO 4400 for component plug "K4"

For further plug-in connectors see RE 08 006					
		Material no.			
Valve side	Colour	Without circuitry	With indicator light 12 ... 240 V	With rectifier 12 ... 240 V	With dindicator light and Z diode protective circuitry 24 V
		R900074683	—	—	—
		—	R900057292	R900313933	R900310995

- ¹⁾ Ordering details only required for the version with built-on directional valve „DAW“
- ²⁾ H-key to material no. 00008158 is included within the scope of supply
- ³⁾ Plug-in connector must be ordered separately (see below).
- ⁴⁾ Catalogue sheet RE 23 178

Function, section

Pressure control valves type DA/DAW are pilot operated pressure shut-off valves.

They are used to switch a pump flow over to unpressurised by-pass as soon as the accumulator loading pressure is reached. Further applications for the valve are in systems that have high and low pressure pumps. In this case the low pressure pump is switched to unpressurised by-pass as soon as the set high pressure is reached.

Pressure shut-off valves basically consist of the main valve (1) with the main spool assembly (3), pilot valve (2) with pressure adjustment element and check valve (4). In size 10 valves, the check valve (4.1) is built into the main valve (1). In valve sizes 25 and 32 the check valve (4.2) is built into a separate plate installed under the main valve (1).

Pressure shut-off valve type DA

- *Diverting pump flow from P to A to P to T.*

The pump delivers flow via check valve (4) into the hydraulic system (P to A). Pressure in port A acts via pilot line (5) on the pilot control spool (6). At the same time, pressure in port P passes via orifices (7) and (8) to the spring loaded side of the main spool (3) and ball (9) in the pilot valve (2). As soon as the set cut-off pressure in the hydraulic system is reached, the ball (9) lifts off against spring (10). Pressure fluid now flows via orifices (7) and (8) into spring chamber (11). From here, the fluid is returned to tank either internally via control line (12) in valve type DA..5X/... or externally via control line (13) in valve type DA..5X/..Y... Due to orifices (7) and (8), a pressure drop is now present at the main spool (3). The main spool (3) now lifts off its seat and opens the connection from P to T. The check valve (4) now closes the connection from A to P. The ball (9) is now held open by the system pressure via pilot spool (6).

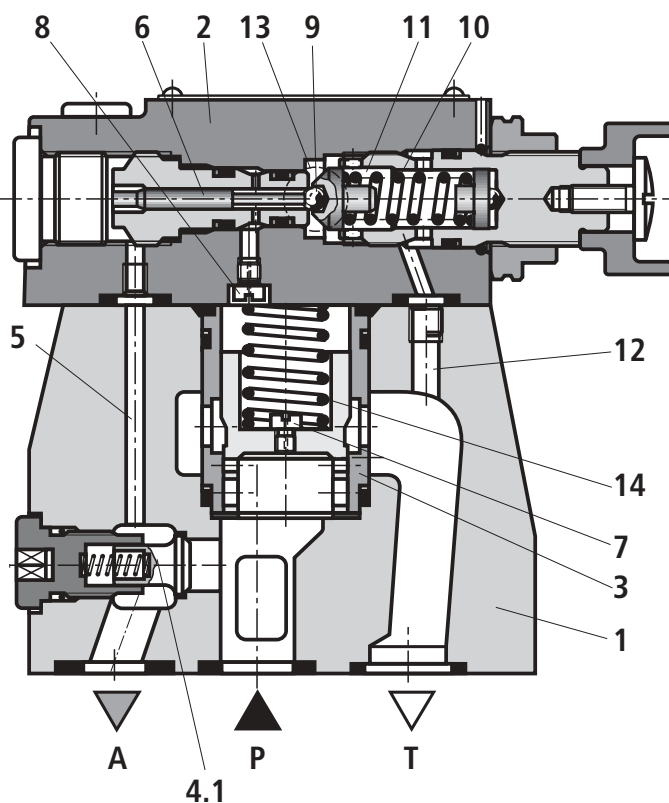
- *Diverting pump flow from P to T to P to A.*

The area of the pilot spool (6) is 10 % or optionally 17 % greater than the effective area of the ball (9). The effective force on the pilot spool (6) is, therefore, 10 or 17 % greater than the effective force on the ball (9).

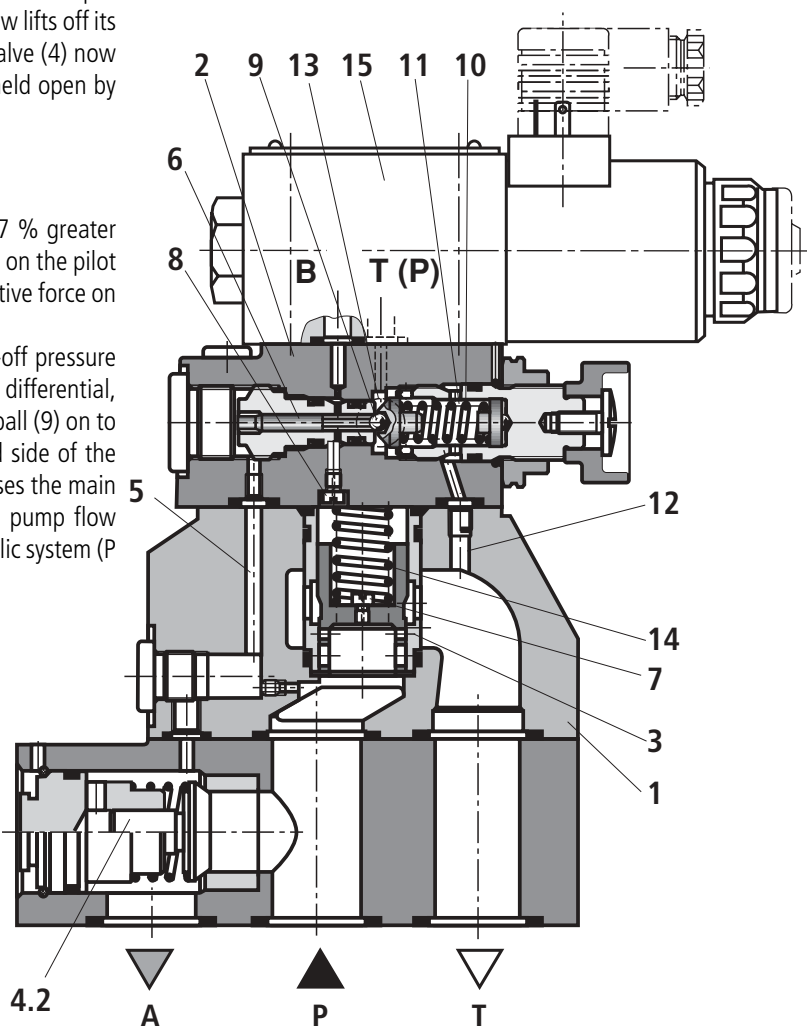
When the actuator pressure falls in relation to the cut-off pressure by a value which corresponds to the switching pressure differential, (see characteristic curve on page 5) spring (10) pushes ball (9) on to its seat. Pressure is then built up on the spring loaded side of the main spool (3). In conjunction with spring (14), this closes the main spool (3) and isolates the connection from P to T. The pump flow passes once more via the check valve (4) into the hydraulic system (P to A).

Pressure shut-off valve type DAW

The function of this valve is basically the same as the DA valve. A solenoid actuated directional valve (15) can, however switch the set cut-off pressure which is under the pilot valve (2) either from P to T or from P to A.

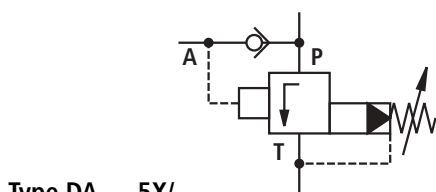


Type DA 10 -1-5X/...

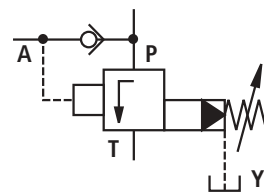


Type DAW 20 -1-5X/...6A...K4..

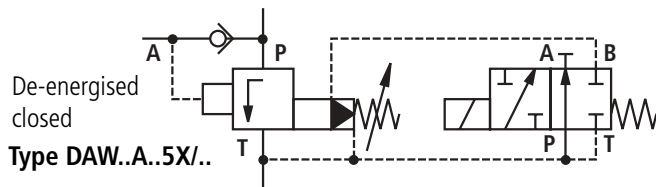
Symbols



Type DA...-5X/...-..

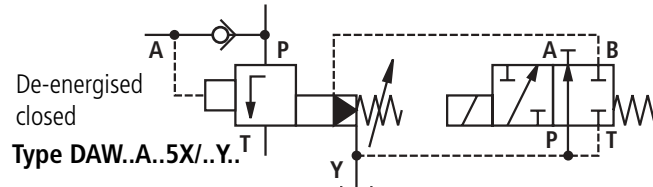


Type DA...-5X/...-..Y..



De-energised closed

Type DAW..A..5X/..



De-energised closed

Type DAW..A..5X/..Y..



De-energised open

Type DAW..B..5X/..



De-energised open

Type DAW..B..5X/..Y..

Technical data (for applications outside these parameters, please consult us!)

General

Nominal size			Size 10	Size 25	Size 32
Weight	DA...	kg	2.6	6.6	12.3
	DAW...	kg	3.8	7.8	13.5
	DAC...	kg	1.2		
	DAWC...	kg	2.4		
	DAC 30...	kg	1.5		
	DAWC 30...	kg	2.7		
Installation			optional		

Hydraulic technical data

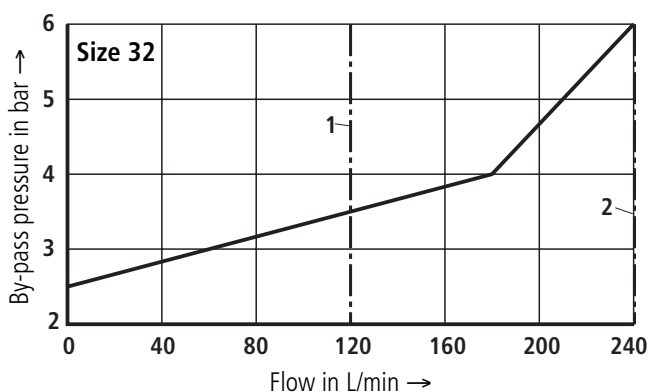
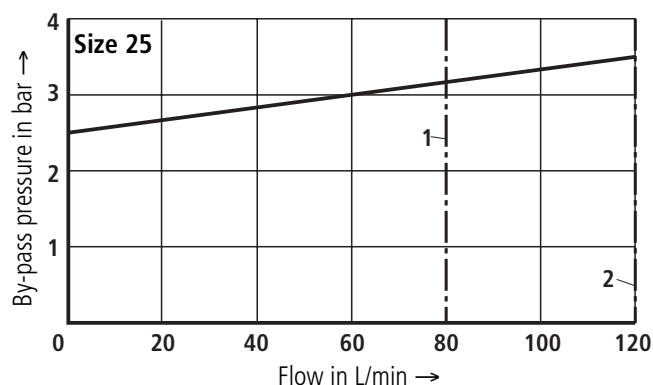
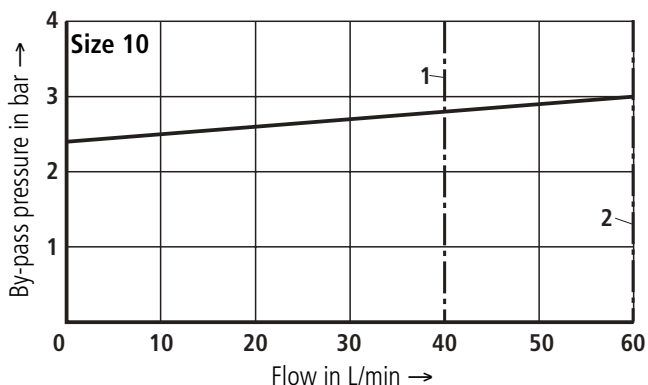
Nominal pressure		bar	315		
Maximum operating pressure at port A		bar	315 (after switching from P to T)		
Pressure fluid			Mineral oil (HL, HLP) to DIN 51 524 ¹⁾ ; Fast bio-degradable pressure fluids to VDMA 24 568 (also see RE 90 221); HETG (rape seed oil) ¹⁾ ; HEPG (polyglycole) ²⁾ ; HEES (synthetic ester) ²⁾ ; other pressure fluids on request		
Pressure fluid temperature range		°C	– 30 to + 80 for NBR seals		
		°C	– 20 to + 80 for FPM seals		
Viscosity range		mm²/s	10 to 800		
Maximum flow	10 % version	L/min	40	80	120
	17 % version	L/min	60	120	240
Degree of contamination			Maximum permissible degree of contamination of the pressure fluid is to NAS 1638 class 9. We, therefore, recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$.		
Maximum set pressure		bar	50; 100; 200; 315		

¹⁾ suitable for NBR **and** FPM seals

²⁾ **only** suitable for FPM seals

Characteristic curves (measured at $\nu = 41 \text{ mm}^2/\text{s}$ and $\vartheta = 50 \text{ }^\circ\text{C}$)

By-pass pressure in relation to the pump flow q_{VP} (P → T)

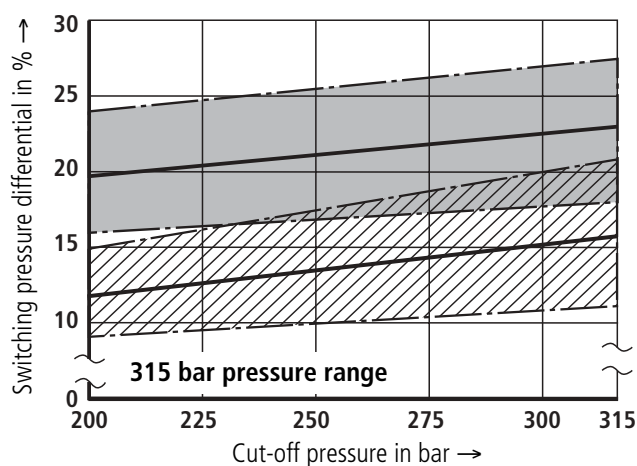
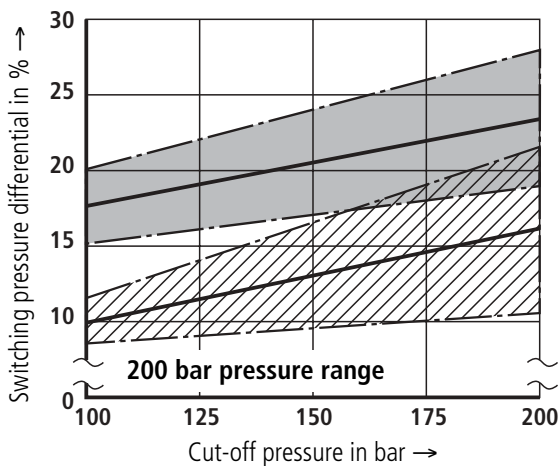
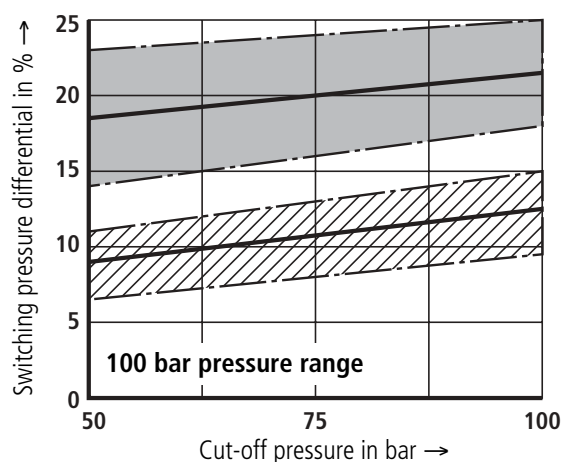
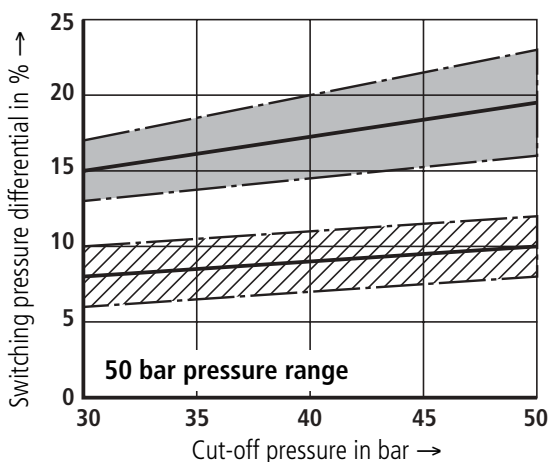


1 $q_{VP \text{ max}}$ for 10% version

2 $q_{VP \text{ max}}$ for 17% version

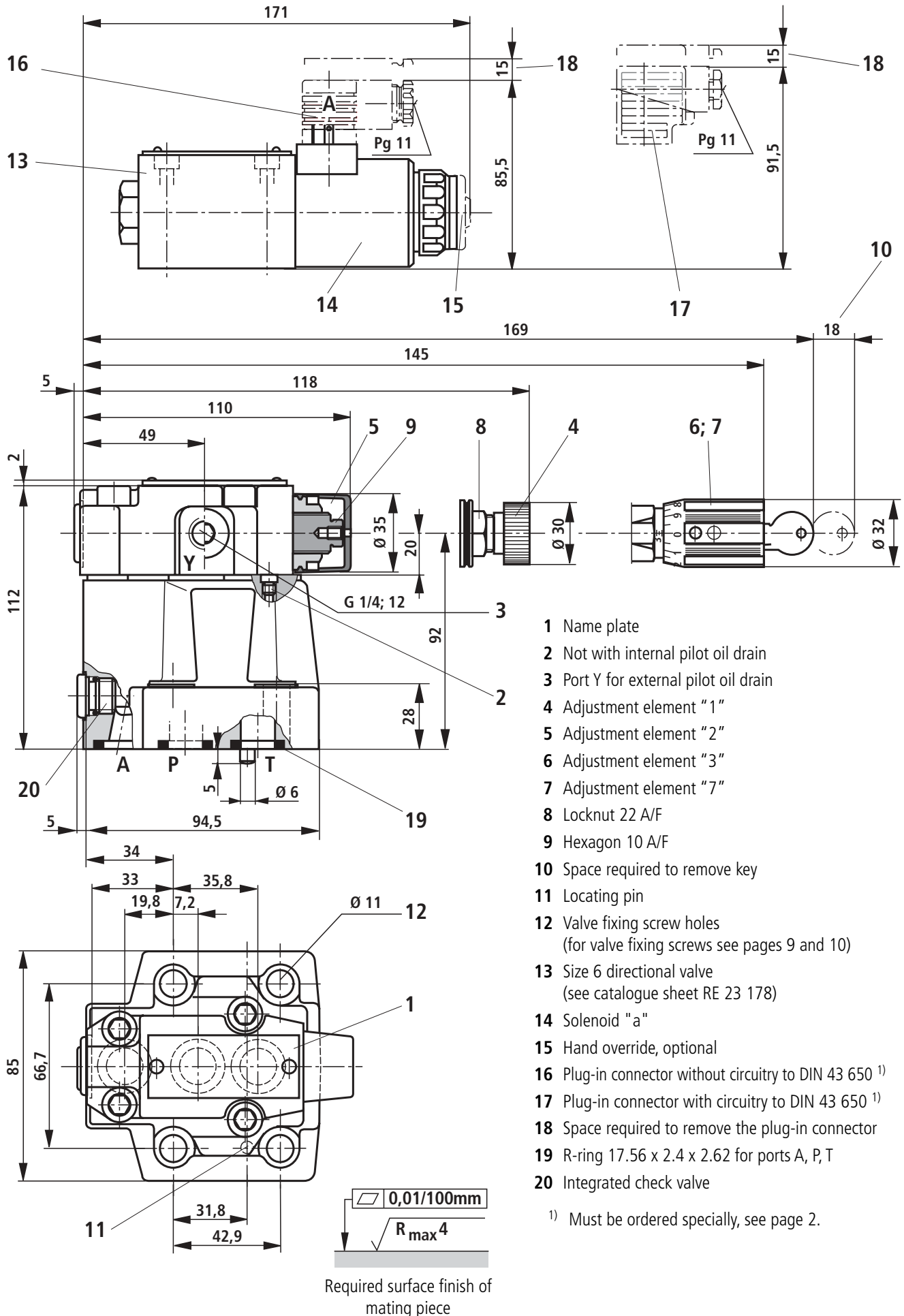
These characteristic curves are valid for an outlet pressure (T) = zero over the entire flow range.

Switching pressure differential in relation to the cut-off pressure (P → A)

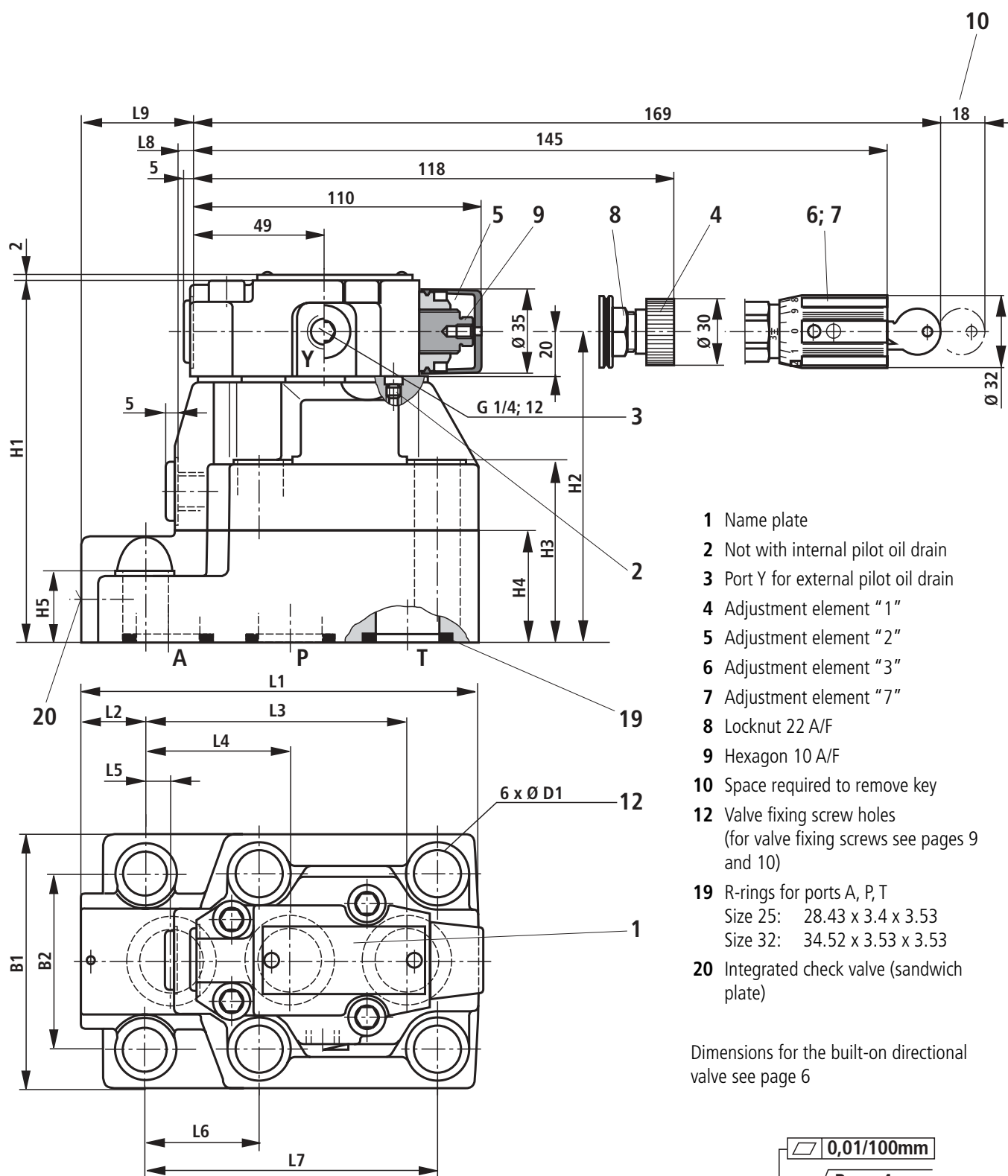


= Deviation range for the 10% version

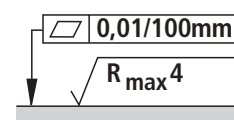
= Deviation range for the 17% version



¹⁾ Must be ordered specially, see page 2.

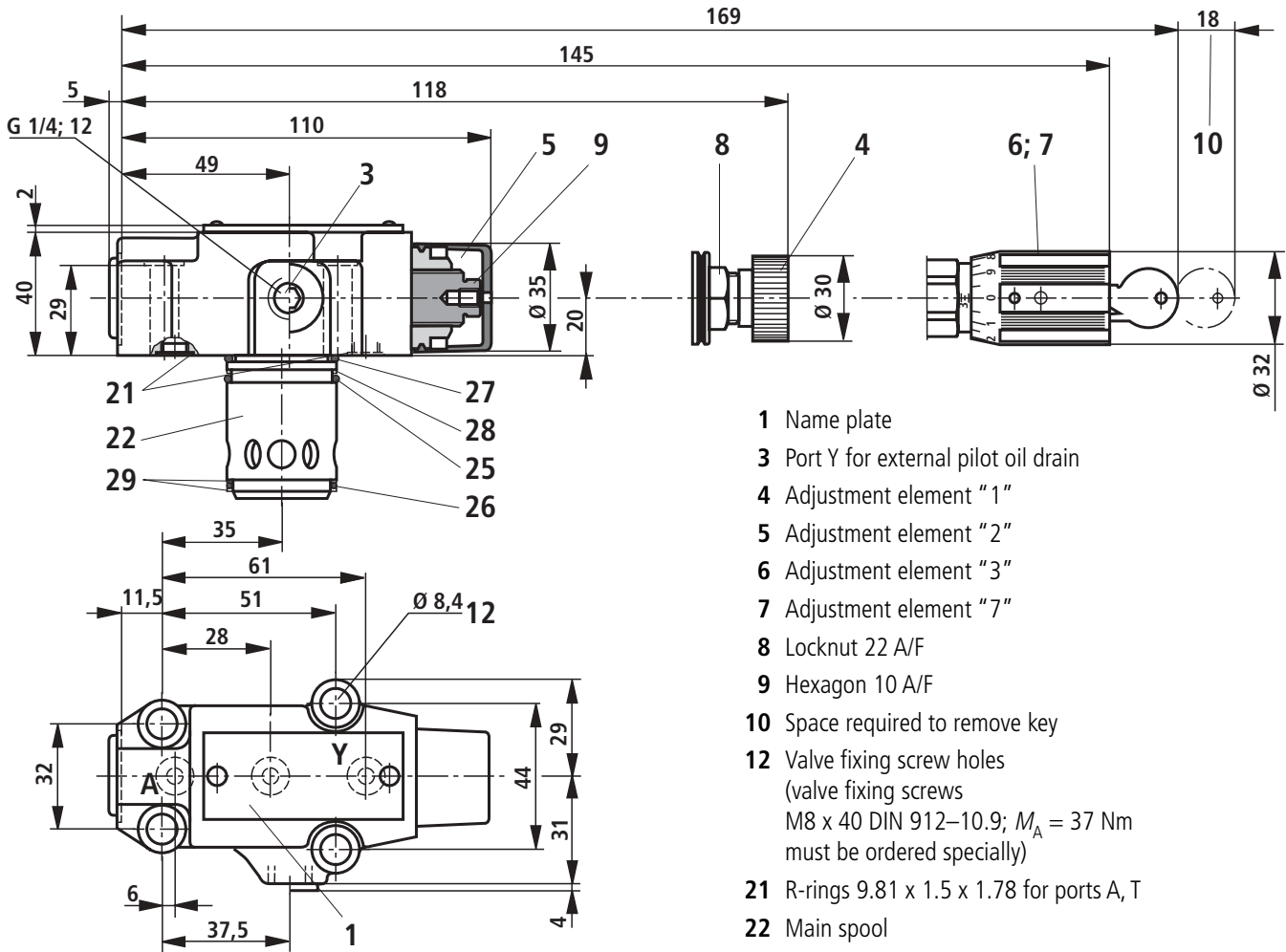


Dimensions for the built-on directional valve see page 6



Required surface finish of mating piece

Size	L1	L2	L3	L4	L5	L6	L7	L8	L9	B1	B2	H1	H2	H3	H4	H5	ØD1
25	153	25	101.6	57.1	12.7	46	112.7	10.5	48.2	100	70	144	124	72	46	28	18
32	198	41	127	63.5	12.7	50.8	139.7	21	69.8	115	82.5	165	145	93	67	45	20

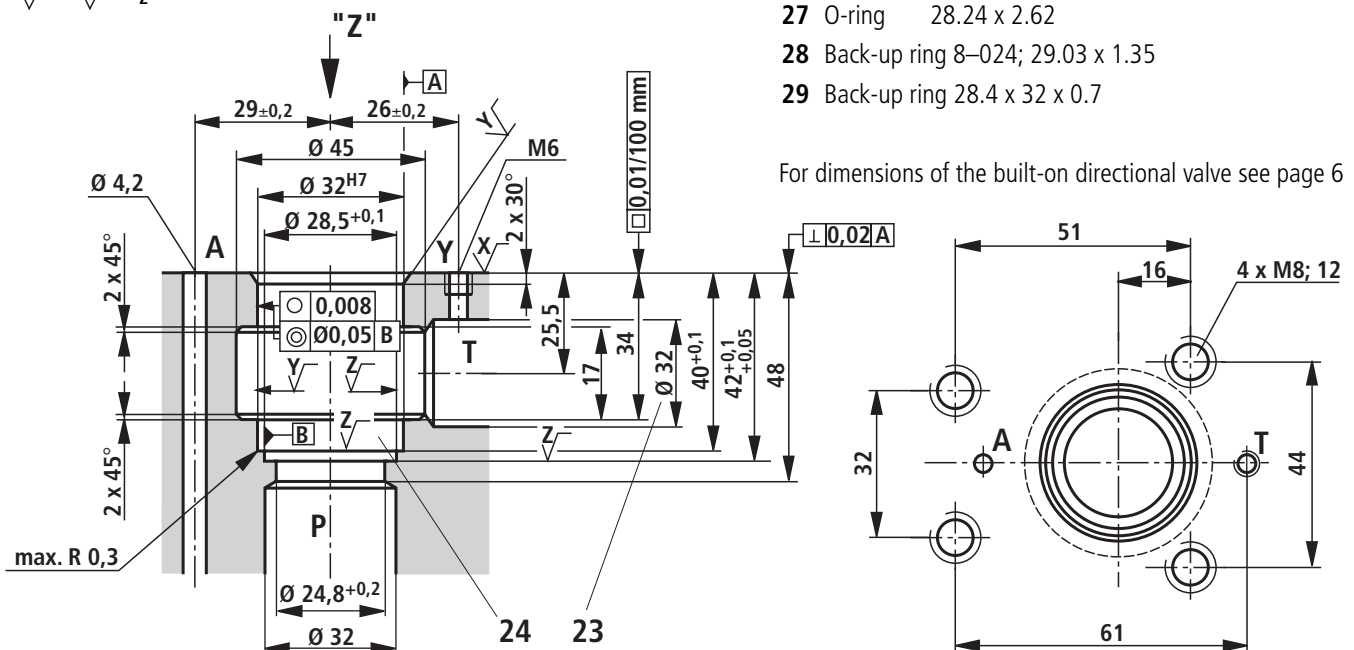


- 1 Name plate
- 3 Port Y for external pilot oil drain
- 4 Adjustment element "1"
- 5 Adjustment element "2"
- 6 Adjustment element "3"
- 7 Adjustment element "7"
- 8 Locknut 22 A/F
- 9 Hexagon 10 A/F
- 10 Space required to remove key
- 12 Valve fixing screw holes
(valve fixing screws
M8 x 40 DIN 912-10.9; $M_A = 37 \text{ Nm}$
must be ordered specially)
- 21 R-rings 9.81 x 1.5 x 1.78 for ports A, T
- 22 Main spool
- 23 The $\varnothing 32$ hole can intersect the $\varnothing 45$ hole in any position. Care, however, must be taken to ensure that the connection hole A and the fixing screw holes are not damaged.
- 24 The back-up ring and O-ring are to be fitted into this bore before the main spool assembly is fitted.
- 25 O-ring 28.3 x 1.78
- 26 O-ring 27.3 x 2.4
- 27 O-ring 28.24 x 2.62
- 28 Back-up ring 8-024; 29.03 x 1.35
- 29 Back-up ring 28.4 x 32 x 0.7

$$X/\sqrt{R_{\max} 4}$$

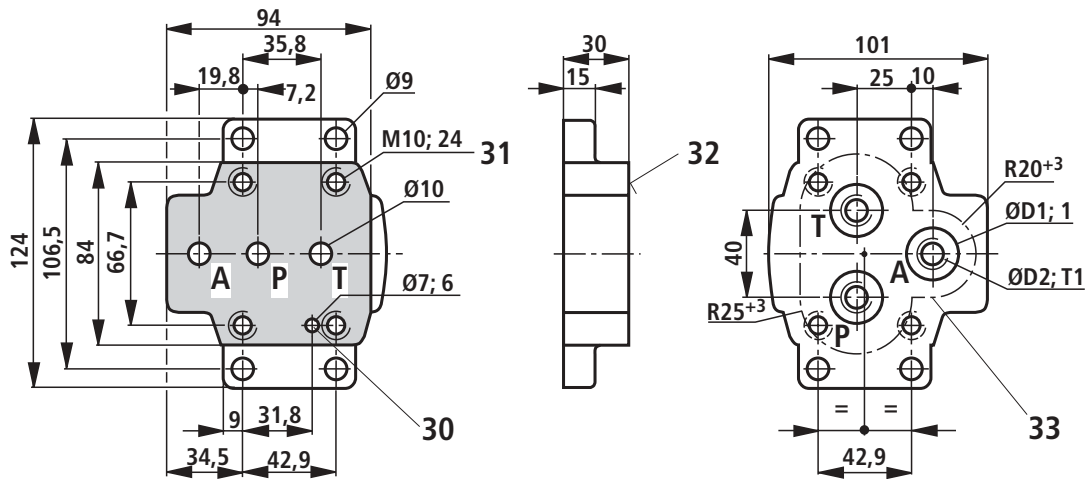
$$Y/\sqrt{R_z 8}$$

$$Z/\sqrt{R_z 16}$$



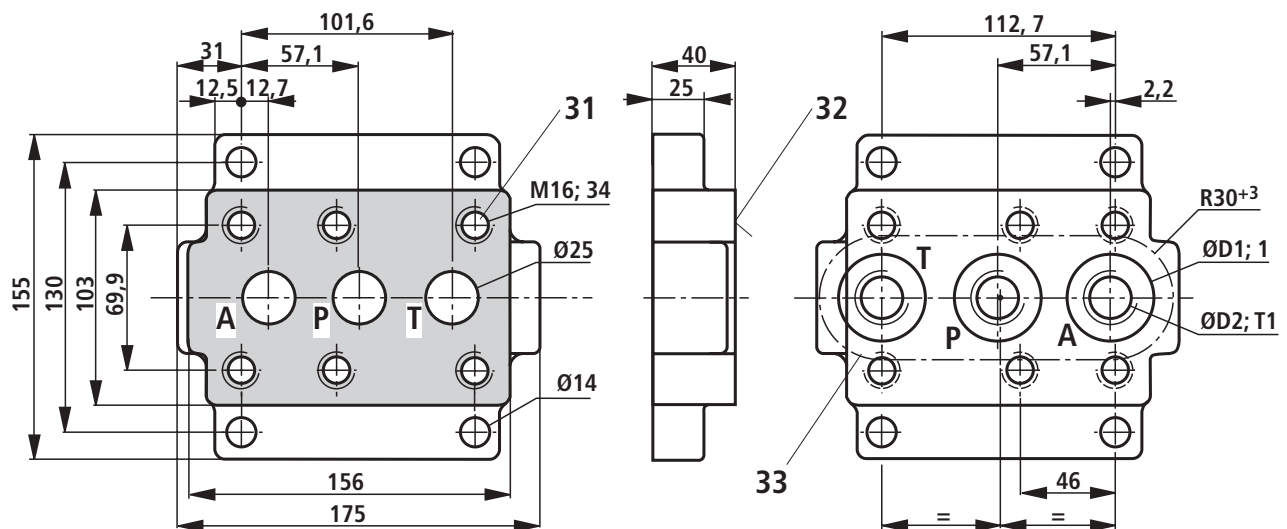
For dimensions of the built-on directional valve see page 6

Size 10



Size	Type	ØD1	D2	T1	Valve fixing screws ¹⁾	M_A	Weight
10	G467/01	28	G 3/8	12	4 off M10 x 50 DIN 912–10.9	75 Nm	1.7 kg
	G468/01	34	G 1/2	14			

Size 25



Size	Type	ØD1	D2	T1	Valve fixing screws ¹⁾	M_A	Weight
25	G469/01	42	G 3/4	16	4 off M16 x 100 DIN 912–10.9	310 Nm	5.2 kg
	G470/01	47	G 1	18	2 off M16 x 60 DIN 912–10.9		

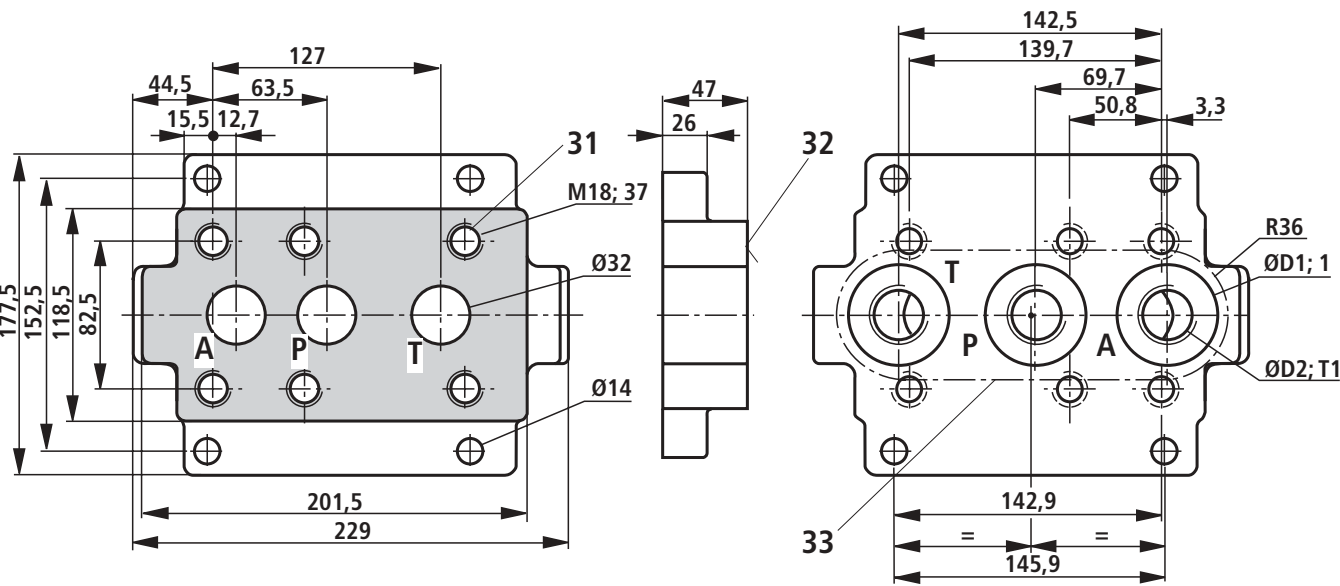
30 Hole for locating pin

31 Valve fixing screw holes

32 Valve mounting surface

33 Valve panel cut-out

¹⁾ Must be ordered separately



Size	Type	ØD1	D2	T1	Valve fixing screws ¹⁾	M _A	Weight
32	G471/01	56	G 1 1/4	20	4 off M18 x 120 DIN 912–10.9	430 Nm	8.2 kg
	G472/01	61	G 1 1/2	22	2 off M18 x 80 DIN 912–10.9		

- 30

Hole for locating pin
- 31

Valve fixing screw holes
- 32

Valve mounting surface
- 33

Valve panel cut-out
- ¹⁾

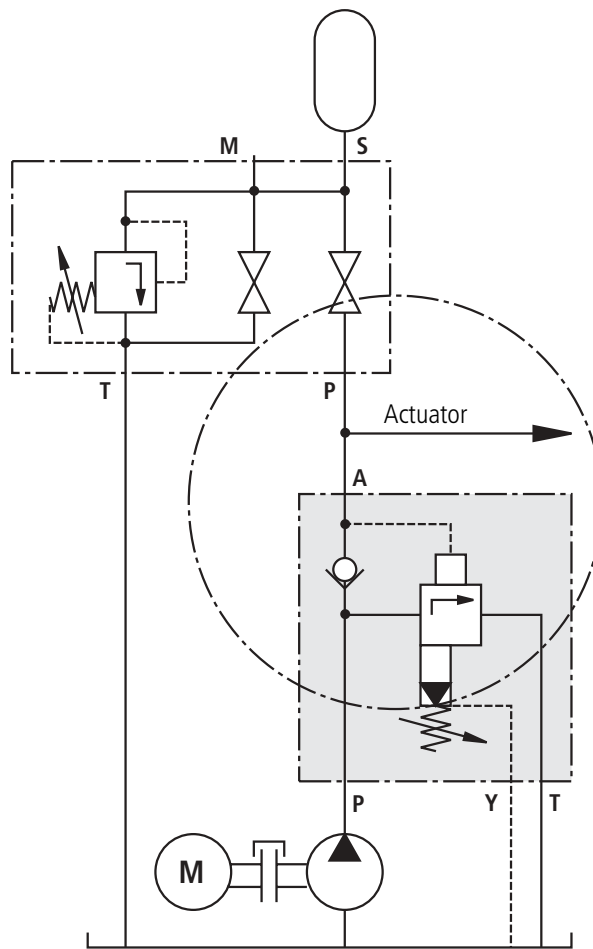
Must be ordered specially

Preferred types

Typ	Material-Nummer
DA 10-2-5X/100-10	R900597976
DA 10-2-5X/100-17	R900597357
DA 10-2-5X/200-10	R900504453
DA 10-2-5X/200-17	R900597015
DA 10-2-5X/315-10	R900596908
DA 10-2-5X/315-17	R900596998
DA 20-2-5X/100-17	R900596761
DA 20-2-5X/200-17	R900597135
DA 20-2-5X/315-17	R900590621
DA 30-2-5X/100-17	R900500791
DA 30-2-5X/200-17	R900501857
DA 30-2-5X/315-17	R900503396

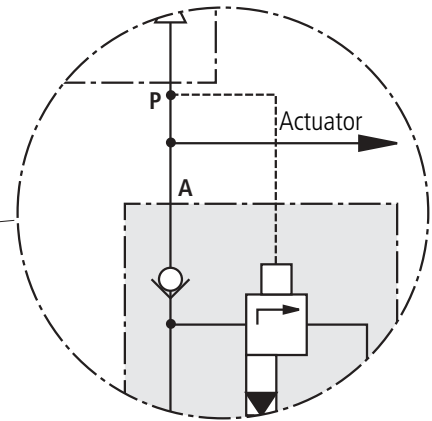
Circuit examples

Hydraulic system with accumulator

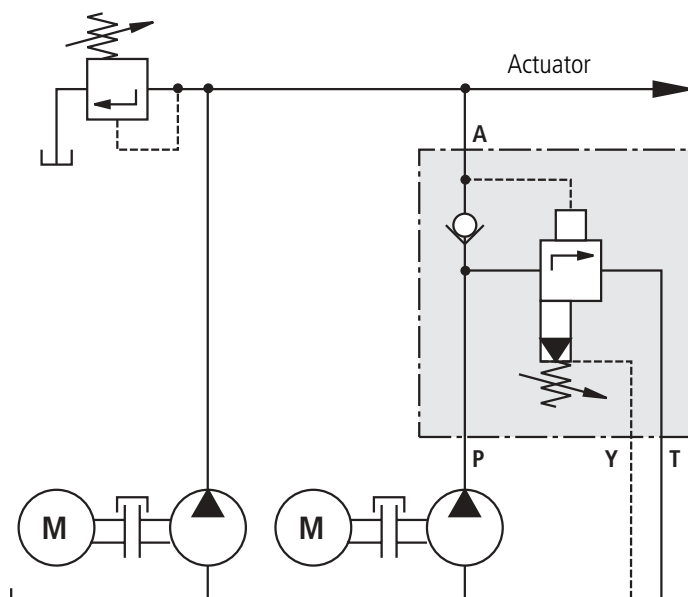


Application guidelines:

- The connection between the DA valve and the hydraulic accumulator should be as short as possible and with a low pressure drop!
- If there are high pressure drops in the piping then use the DA.../SO80 version of the valve. (Separate pilot line from the pilot valve to the hydraulic accumulator)!
- With high pump flows as well as small switching differentials (10%) then preferably the "Y" version should be used.



Hydraulic system with high and low pressure pumps



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