

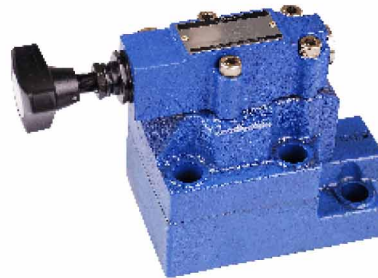
# Pressure unloading valve pilot operated type DA/DAW...30B

Sizes 10 20 30 up to 31.5MPa up to 250 L/min



## Features:

- For subplate mounting;
- 4 adjustment elements:
  - . Rotary knob
  - . Sleeve with internal hexagon and protective cap
  - . Lockable rotary knob with scale
  - . Rotary knob with scale
- 3 pressure ratings
- Solenoid actuated unloading via a built-in directional valve



## Functional description, 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.

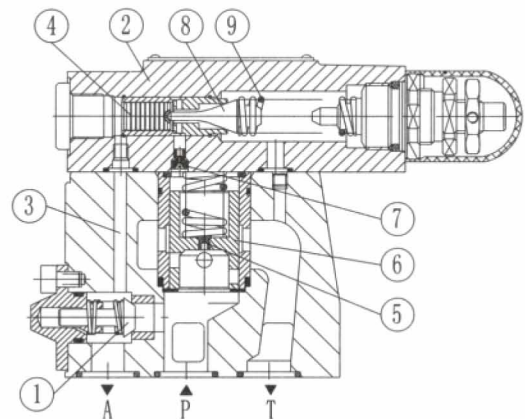
Pressure shut-off valves basically consist of the main valve with the main spool assembly, pilot valve with pressure adjustment element and check valve. In size 10 valves, the check valve is built into the main valve. In valve sizes 25 and 32 the check valve is built into a separate plate installed under the main Pressure shut-off valve type DA

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

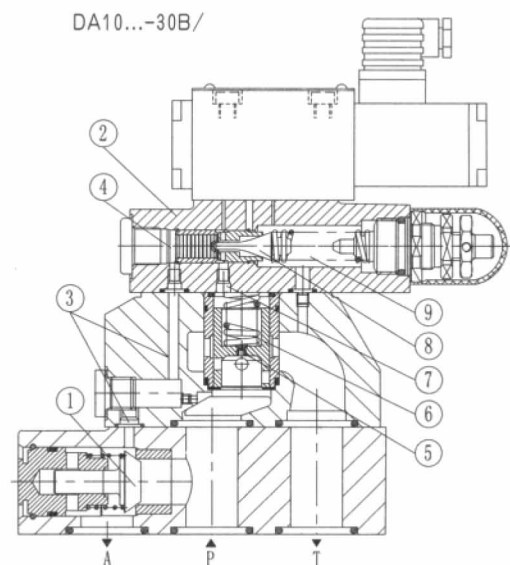
The pump delivers flow via check valve (1) into the hydraulic system (P to A). Pressure in port A acts via pilot line (3) on the pilot control spool (4). At the same time, pressure in port P passes via orifices (5) and (7) to the spring loaded side of the main spool (6) and poppet (8) in the pilot valve (2). As soon as the set cut-off pressure in the hydraulic system is reached, the poppet (8) lifts off against spring (9). Pressure fluid now flows via orifices (5) and (7) into spring chamber (11). From here, the fluid is returned to tank either internally via control line in valve type DA...30B/... or externally via control line in valve type DA...30B/..Y... Due to orifices (5) and (7), a pressure drop is now present at the main spool (6). The main spool (6) now lifts off its seat and opens the connection from P to T. The check valve (1) now closes the connection from A to P. The poppet (8) is now held open by the system pressure via pilot spool (4). Diverting pump flow from P to T to P to A.

The area of the pilot spool (4) is 17% greater than the effective area of the poppet (8). The effective force on the pilot spool (4) is, therefore, 17% greater than the effective force on the poppet (8). When the actuator pressure falls in relation to the cut-off pressure by a value which corresponds to the switching pressure differential, spring (9) pushes poppet (8) on to its seat. Pressure is then built up on the spring loaded side of the main spool (6). In conjunction with spring (10), this closes the main spool (6) and isolates the connection from P to T. The pump flow passes once more via the check valve (1) into the hydraulic system (P to A).

Pressure cut-off valve type DAW The function of this valve is basically the same as the DA valve. A solenoid actuated directional valve (12) 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.



DA10...-30B/



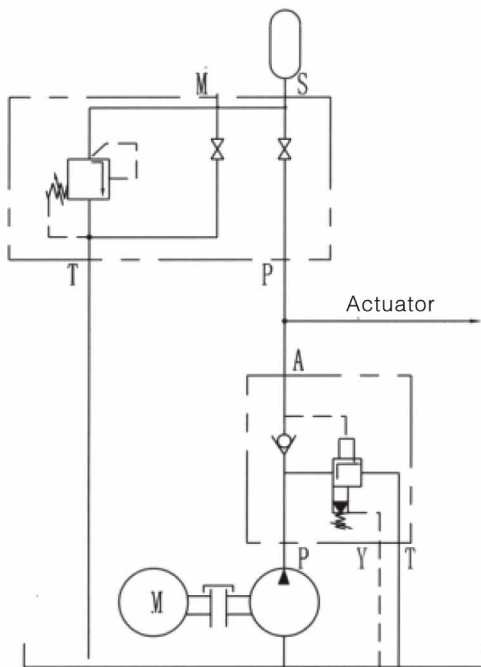
DAW20,30...-30B/

## Symbol

DA...-30B/...	DA...-30B/...Y...	DAW...-30B/...	DAW...-30B/...Y...

## Circuit examples

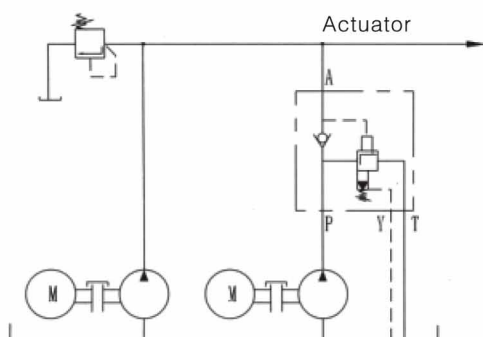
### Hydraulic system with accumulator



#### Application guidelines:

The connection between the DA valve and the hydraulic accumulator should be as possible and with a low pressure drop. With high pump flows as well as small switch differentials (10%) then preferable the "Y" version should be used.

### Hydraulic system with high and low pressure pumps



## Ordering Codes

DA - -30/ / \*

Without electrically operated valve =No code  
With electrically operated valve =W

Further details in clear text

Pilot operated valve =No code  
Pilot operated valve without main spool assembly  
(do not enter nom. size) =C  
Pilot operated valve with main spool assembly  
(enter valve size) =C

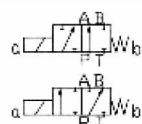
No code = Mineral oil  
V = Phosphate ester

No code = Port Y:G1/4"  
2 = Port Y:M14 x 1.5

Size 10 = 10  
Size 25 = 20  
Size 32 = 30

Z4= Plug-in connector  
Z5= Large plug-in connector  
Z5L= Large plug-in connector with light

No code = Without hand override  
2 = With hand override



Normally closed = A

Normally open = B

Adjusting element  
Rotary knob = 1  
Sleeve with hexagon and protective cap = 2  
Lockable rotary knob with scale = 3

G24 = AC24V  
W220-50 = DC220V, 50Hz  
W220R = DC Solenoid with built-in rectifier  
(only with "Z5" plug)

No code = Pilot oil feed internal, drain internal  
Y = Pilot oil feed internal, drain external

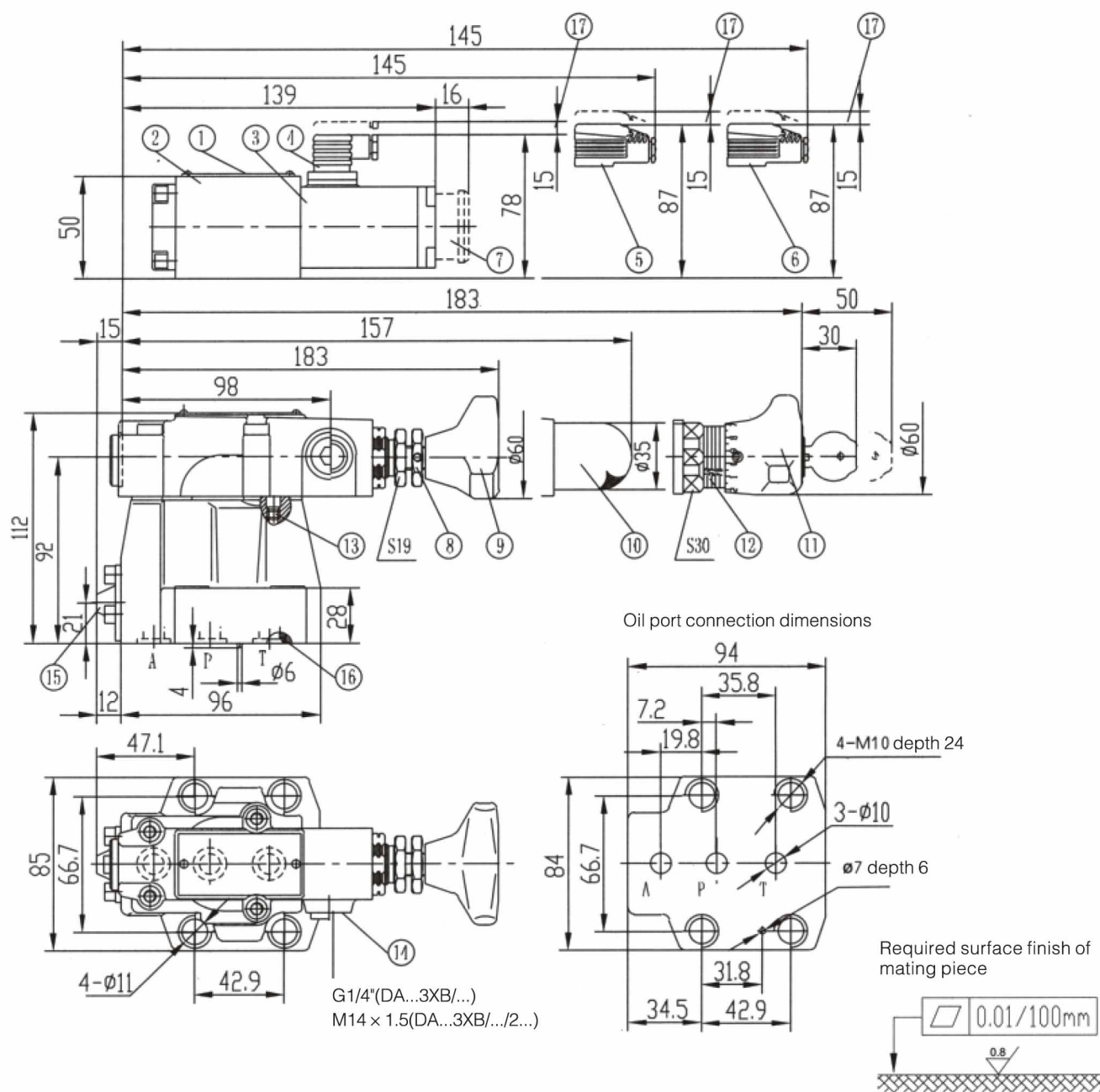
Series 30 =30  
(30 to 39: unchanged installation and connection dimensions)

Settable pressure range  
80= 2~8MPa  
160= 8~16MPa  
315= 16~31.5MPa

## Technical data

Size		10	20	13.4
Max. flow	L/min	40	100	250
Switch pressure range from P→T to P→A		Generally within the range of 17%.		
Operated pressure, port A	Mpa	to 31.5		
Max. settable pressure	Mpa	to 8, to 16, to 31.5		
Fluid		Mineral oil or Phosphate ester		
Viscosity range	mm <sup>2</sup> /s	10 ~ 800		
Oil temperature range	°C	-30~+80		
Filtration	μm)	Max. permissible degree of contamination of the fluid is to NAS 1638, class 9. β 10 ≥ 75		
Weight	DA	3.8	7.7	13.4
	DAW	4.9	8.8	14.5
direction valve characteristic		See WE5		

Size 10



1. Name plate
2. directional valve, type 4E5 solenoid directional valve
3. Solenoid
4. Plug-in connector "Z4"
5. Plug-in connector "Z5"
6. Plug-in connector "Z5L"
7. Hand override, optional

8. Lock nut  
(only apply to up to 31.5MPa)
9. Adjustment element 1
10. Adjustment element 2
11. Adjustment element 3
12. Repeat adjusting scale
13. Locating pin  
(To control the oil drain internal without this element)

14. Port Y for drain external
15. Integrated check valve O-ring
16. Space required to remove key
17. Valve fixing screws:  
4-M10X50-10.9(GB/T70.1-2000)  
G467/1 (G3/8") 12 (M18 x 1.5)  
G468/1 (G1/2") 12 (M22 x 1.5)



Dimensions in mm

Technical drawing of the 30B series hydraulic pump, showing front, side, and oil port connection views with dimensions and callouts.

**Front View Dimensions:**

- Overall width: 145
- Distance from left face to center of port 1: 139
- Port 1 diameter: 16
- Port 1 offset from centerline: 17
- Port 1 height from base: 15
- Port 1 height from mounting surface: 78
- Port 2 diameter: 15
- Port 2 offset from centerline: 17
- Port 2 height from base: 15
- Port 2 height from mounting surface: 87
- Port 3 diameter: 15
- Port 3 offset from centerline: 17
- Port 3 height from base: 15
- Port 3 height from mounting surface: 87

**Side View Dimensions:**

- Overall height: 183
- Distance from left face to center of port 8: 158
- Port 8 diameter: 98
- Port 8 offset from centerline: 17
- Port 8 height from base: 15
- Port 8 height from mounting surface: 78
- Port 9 diameter: 15
- Port 9 offset from centerline: 17
- Port 9 height from base: 15
- Port 9 height from mounting surface: 87
- Port 10 diameter: 15
- Port 10 offset from centerline: 17
- Port 10 height from base: 15
- Port 10 height from mounting surface: 87

**Oil Port Connection Dimensions:**

- Overall width: 145
- Distance from left face to center of port 1: 139
- Port 1 diameter: 16
- Port 1 offset from centerline: 17
- Port 1 height from base: 15
- Port 1 height from mounting surface: 78
- Port 2 diameter: 15
- Port 2 offset from centerline: 17
- Port 2 height from base: 15
- Port 2 height from mounting surface: 87
- Port 3 diameter: 15
- Port 3 offset from centerline: 17
- Port 3 height from base: 15
- Port 3 height from mounting surface: 87

**Callouts:**

- 1: Port 1
- 2: Port 2
- 3: Port 3
- 4: Port 4
- 5: Port 5
- 6: Port 6
- 7: Port 7
- 8: Port 8
- 9: Port 9
- 10: Port 10
- 11: Port 11
- 12: Port 12
- 13: Port 13
- 14: Port 14
- 15: Port 15
- 16: Port 16
- 17: Port 17

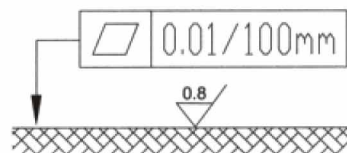
**Oil port connection dimensions:**

- Overall width: 145
- Distance from left face to center of port 1: 139
- Port 1 diameter: 16
- Port 1 offset from centerline: 17
- Port 1 height from base: 15
- Port 1 height from mounting surface: 78
- Port 2 diameter: 15
- Port 2 offset from centerline: 17
- Port 2 height from base: 15
- Port 2 height from mounting surface: 87
- Port 3 diameter: 15
- Port 3 offset from centerline: 17
- Port 3 height from base: 15
- Port 3 height from mounting surface: 87

**Technical Drawing Details:**

- Front view shows dimensions: 145, 139, 16, 17, 15, 78, 15, 87, 15, 87, 15, 87.
- Side view shows dimensions: 183, 158, 98, 17, 15, 87, 15, 87, 15, 87.
- Oil port connection view shows dimensions: 145, 139, 16, 17, 15, 78, 15, 87, 15, 87, 15, 87.
- Callouts: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17.
- Technical drawing details: 145, 139, 16, 17, 15, 78, 15, 87, 15, 87, 15, 87.

- Required surface finish of mating piece



Size	B3	H1	H2	H3	H4	H5	$\phi D1$	$\phi D2$	D
20	103	144	124	72	46	28	18	25	M16 depth 34
30	118.5	165	145	93	67	45	20	32	M18 depth 37

	DA/DAW20	DA/DAW30
Valve fixing screws	4-M16X100-10.9 2-M16X60-10.9 (GB/T70.1-2000)	4-M18X120-10.9 2-M18X80-10.9 (GB/T70.1-2000)
Subplate mounting	G469/01 (G3/4")	G471/01 (G1/4")
	G469/02 (M27 x 2)	G471/02 (M42 x 2)
	G470/01 (G1")	G472/01 (G1/2")
	G470/02 (M33 x 2)	G472/02 (M48x 2)