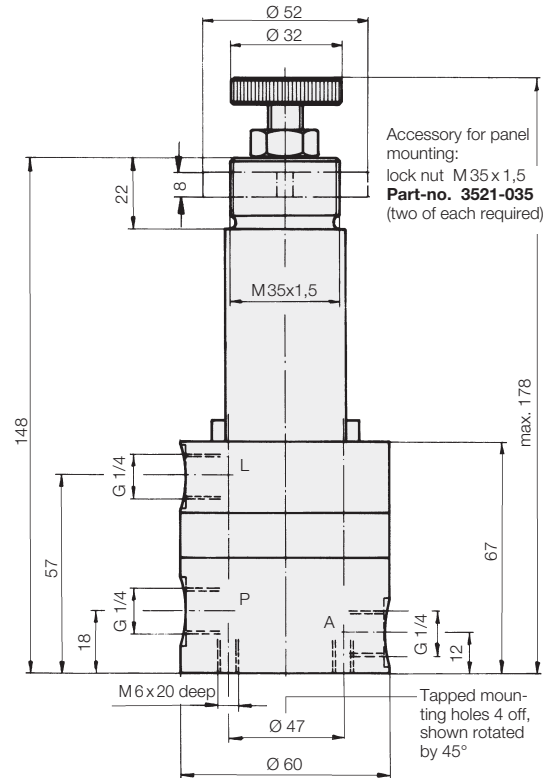
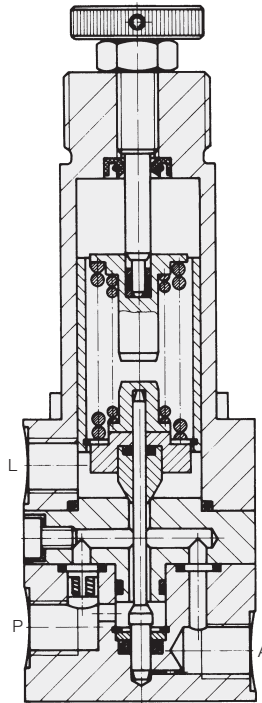




Pressure Reducing Valve
max. operating pressure 500 bar



General characteristics

In hydraulic clamping systems it is often necessary to pressurise single clamping elements or groups of clamping elements with reduced pressure. For such applications a leakage-free pressure reducing valve has been developed which compensates differences in pressure and possibly generated pressure peaks on the secondary side by means of a built-in pressure relief valve.

Function

A pressure increase at port A (cylinder port) moves the small piston upwards against the force of the smaller diameter coil spring, and the poppet closes the flow off from P to A. A decreasing pressure reverses this motion and opens the valve again. When external circumstances cause the set pressure to be exceeded, the upper poppet will open against the force of larger diameter coil spring and acts as a pressure relief valve. When control valve switching causes port P to be connected to the return line, oil will return from A to P via the built-in check valve.

General characteristics

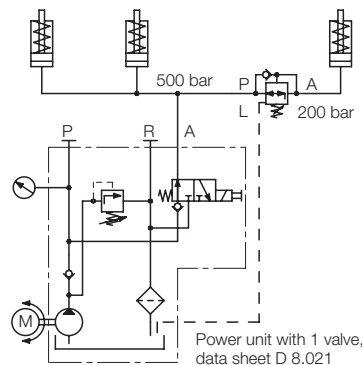
Type	Poppet valve
Type of mounting	Flange or thread
Connection	Thread G 1/4
Nominal size	ND 4
Weight	1.8 kg
Mounting position	any

Hydraulic characteristics

Oper. pressure range	0 – 500 bar
Range of adjustment	80 – 450 bar
Max. hysteresis	+30 bar / –50 bar
Repeatability	±10 bar
Hydraulic oil	HLP 22 as per DIN 51524
Adm. flow rate	P → A 6 l/min A → P 10 l/min

Part-no. 2953-600

Application example



Limits of application

The pressure reducing valve is exclusively designed for hydraulic power workholding. The connected elements must be leakage-free in static mode.

If there is a leakage due to a damaged sealing, the pressure reducing valve prevents the clamping pressure from dropping by more than 50 bar (according to the leakage rate). If the valve seat in the pressure reducing valve is damaged, the clamping pressure can increase by max. 30 bar.

Due to the possible leaking at the valve it is necessary to return the leakage without pressure from the leakage port to the reservoir. If you leave open the leakage port, the oil will spill out in case of a defect. However it would be even worse to close the port, since the spring cap could burst.

Therefore this valve cannot be used in hydraulic power workholding systems that will be uncoupled from the power source, e.g. on pallets.

If this valve is used together with other control elements, the installation recommendations on the reverse are to be considered.

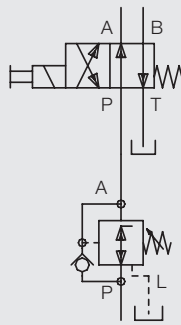
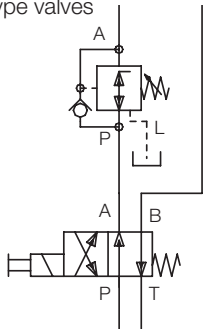
Mounting instructions

Correct

Incorrect

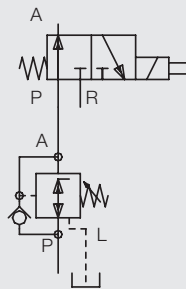
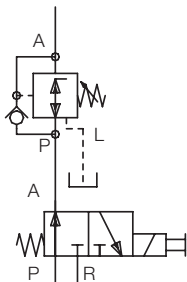
Comments to wrong application

1. Spool-type valves



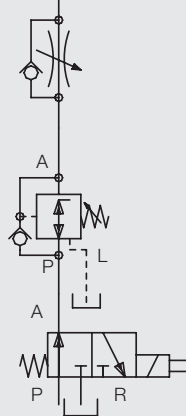
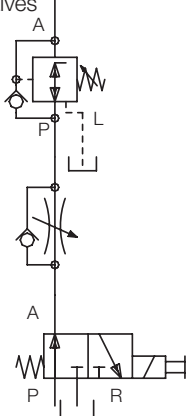
Leakage occurring in spool-type valve must be compensated by a poppet-type pressure reducing valve. Small annulus is always open at valve seat (μm -dimensions). Pressure fluctuations and possible damage by dirt-accumulation.
Wear acceleration.

2. Poppet-type valves



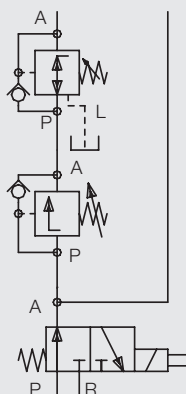
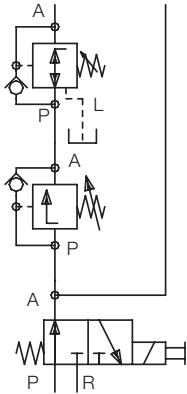
Danger of needle sticking for control pressures below 200 bar.

3. Flow control valves



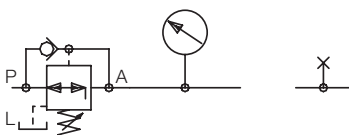
Throttling and low control pressure causes closing of the pressure reducing valve down to a very small annulus (μm -dimensions).
This additional undefined throttling and possible dirt-accumulation prevents valve closing.
Danger of damage to the valve seat.

4. Sequence valves



A low control pressure and small pressure differential relative to the set pressure of the sequence valve result in the same disadvantage as stated under 3.

5. Pressure gauge



A gauge is required for a precise pressure adjustment. At least one gauge port should be provided in the line.