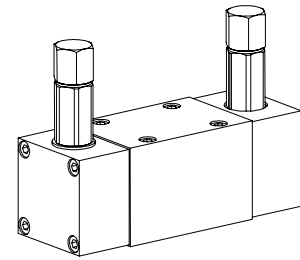


Accumulator loading valve
Flange construction

- 2-point-adjustment
- $Q_{max} = 80 \text{ l/min}$
- $p_{max} = 400 \text{ bar}$
- $p_{Nmax} = 350 \text{ bar}$

NG10
 ISO 4401-05


DESCRIPTION

Flange typ pilot operated accumulator loading valve. Mounting interface acc. to ISO 4401-05. 3 pressure ranges are available. The upper and lower shifting pressure are adjustable in dependently from each other. A minimum pressure difference must be observed. Spools are of hardened steel, body is of high grade hydraulic cast iron for long service life.

FUNCTION

The accumulator loading valve diverts pump flow back to tank at low Δp after upper working pressure of the accumulator has been reached and to load the accumulator when pressure of the stored fluid drops to the lower working pressure. Hydraulic circuits with short time peak consumption of fluids may be built by combining a pump with relatively low delivery and an accumulator. Energy input will be reduced.

Important:

For loading an accumulator a check valve for free flow from P to B line is necessary (sandwich plate NG10: ARV6/P-B must be ordered separately).

APPLICATION

Accumulator loading valves are used in hydraulic systems with accumulator. Systems with low energy consumption and reduced installation costs may be built where oil demand of a cylinder varies or for load holding functions eg. clamping functions.

Important:

- An additional relief valve for system protection has to be installed. The relief valve setting must be above the upper shifting pressure of the accumulator loading valve.
- Drain port A needs a separate tank line as back pressure influences the pressure settings.
- Gas charge of the accumulator may not exceed 90 % of lower shifting pressure.

TYPE CODE

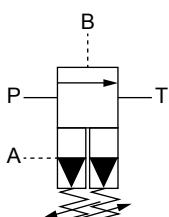
International mounting interface ISO	A	SPLV	10	2	/	<input type="checkbox"/>	#	<input type="checkbox"/>
Accumulator loading valve								
Nominal size 10								
2 adjustable shifting pressures								
Pressure range p_N	63 bar	<input type="checkbox"/>	$p1$					
	160 bar	<input type="checkbox"/>	$p2$					
	350 bar	<input type="checkbox"/>	$p3$					
Design-Index (Subject to change)								

GENERAL SPECIFICATIONS

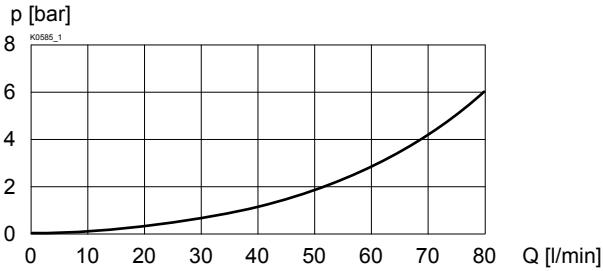
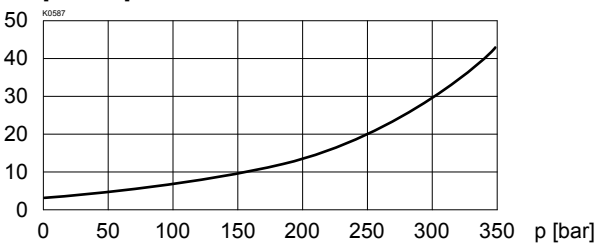
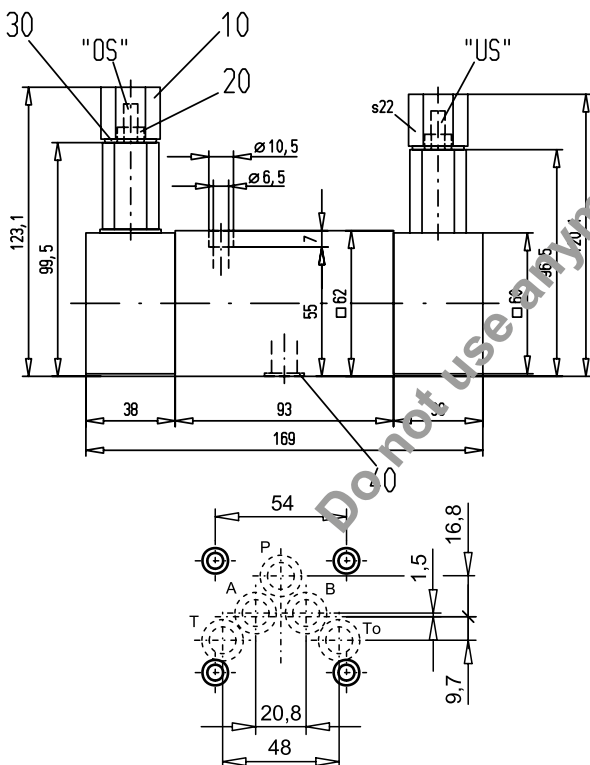
Description	Pilot operated accumulator loading valve
Normalinal size	NG10 acc. to ISO 4401-05
Construction	Flange construction
Mounting	Flange
	4 fixing holes for head cap screws M6x65 (with in addition ARV10/P-B: studs M6x141 plus step nuts M6)
Connections	Connection plates Multi-station flange subplate Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any
Fastening torque	$M_D = 9,5 \text{ Nm}$ (quality 8.8)
Weight	$m = 4,5 \text{ kg}$

HYDRAULIC SPECIFICATIONS

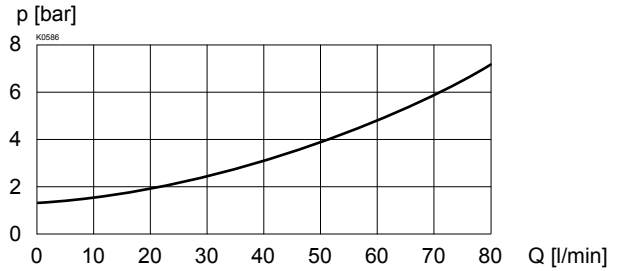
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 18/16/13...21/19/15 (Required filtration grade $\beta_{6...25} \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Peak pressure	$p_{max} = 400 \text{ bar}$
Normalinal pressure p_N	$p1 = 63 \text{ bar}$, $p2 = 160 \text{ bar}$, $p3 = 350 \text{ bar}$
Minimum pressure p_{min}	$p1: 20 \text{ bar}$, $p2/p3: 25 \text{ bar}$
Min. shifting pressure diff.	$p1: 15 \text{ bar}$, $p2: 25 \text{ bar}$, $p3: 30 \text{ bar}$
Pressure adjustment	$p1: 12 \text{ bar/turn}$, $p2: 20 \text{ bar/turn}$ $p3: 40 \text{ bar/turn}$
Volume flow	$Q = 1...80 \text{ l/min}$
Leakage volume flow	see characteristics

SYMBOL


P: Pressure port
 T: Tank port
 A: Drain port
 B: Pilot port

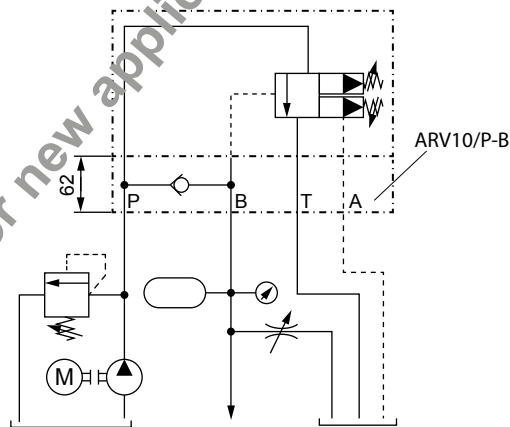
CHARACTERISTICS oilviscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $\Delta p = f(Q)$ Pressure-flow characteristics curve
 (Accumulator operation- pump unloading)

 $Q_L = f(p)$ Leakage volume flow-characteristics
 Q_L [cm³/min]

DIMENSIONS

PARTS LIST

Position	Article	Designation
10	154.7200	Cap nut M6x23
20	153.1301	Hexagonal nut 0,8 D M6
30	049.1180	Cop. seal ring NG 18x22x1,5 DIN 7603
40	160.2120 160.2156	O-ring ID 12,42x1,78 (A and B) O-ring ID 15,60x1,78 (P, T and To)

 $\Delta p = f(Q)$ Pressure-drop flow characteristics curve
 (over check valve ARV10/P-B)

Setting procedure
Adjusting the shifting pressures

To adjust the acc. v. a drain cock (B to tank) is required.

The accumulator loading valve has 2 adjusting screws, and lock nuts, to ensure that the set pressures are maintained. The „OS“ adjusting screw is used to set the upper shifting point, and the „US“ adjusting screw to set the lower shifting point.


Procedure

1. Open drain cock to by-pass flow to tank when pump gets started.
2. Adjustment screw „US“: turn anti clockwise to relief spring completely.
3. Adjustment screw „OS“: turn clockwise to the stop, then 2 turns back.
4. Start pump. Close drain cock. Check relief valve setting (min 10 bar higher than desired upper shifting pressure of accumulator for loading valve).
5. Close drain cock partially and let pressure rise to the desired upper working pressure.
6. Turn adjustment „OS“ anti clockwise to the point where the valve shifts into unloading function.
7. Open drain cock slowly and let pressure drop until valve shifts into loading function.
8. Turn adjustment „US“ clockwise to the specified lower shifting pressure.
9. Lock adjustments with lock nuts. Check set pressures by simulating varying oil demands with drain cock.
10. Mount caps and close drain cock.

ACCESSORIES

 Connection plates, multi-station flange subplate and longitudinal stacking system Register 2.9
 Check sandwich valve NG10 ARV6/P-B Article no. 662.4013

Technical explanation see data sheet 1.0-100