Pressure cut-off valve, pilot operated, with mechanical actuation

RE 18107-01/05.08 1/8
Replaces: 07.07

Type KAV (High Performance)


H7200

Component size 2
Component series A
Maximum operating pressure 350 bar
Maximum flow 140 l/min

Table of contents

Features

- Mounting cavity R/KAV.2
- High switching performance
- Available in 4 pressure ratings (50, 100, 200, 350 bar)
- Infinitely adjustable switching pressure differential
- Hexagon with protective cap
- Pilot control unit with main spool

Information on available spare parts:
www.boschrexroth.com/spc

Ordering code

KAV	2		2	A	A / A		–	V

Pressure cut-off valve, pilot operated

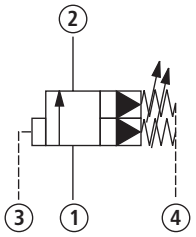
Adjustment element
Hexagon with protective cap **= 2**

Pressure rating
50 bar **= C**
100 bar **= F**
200 bar **= K**
350 bar **= R**

Component size **= 2**

4 main ports

Symbol



= A

Seal material
V = FKM seals

… = Lower switching pressure in bar [1)]

… = Upper switching pressure in bar [1)]

No code = Without pressure pre-setting
– = With pressure pre-setting
P = with pressure pre-setting, lead-sealed

A = High Performance and mounting cavity R/KAV.2 (see page 7)

A = Component series

[1)] Please enter values, see characteristic curves of “switching pressure differential” on page 5; required only for variant with pressure pre-setting (**“–“** or **“P“**):

The pressure is pre-set at
– a pump flow of approx. 10 l/min
– an actuator flow of approx. 2 l/min

Standard types

Pressure rating	Type	Material number
C	KAV2C2AA/AV	R901058924
F	KAV2F2AA/AV	R901058926
K	KAV2K2AA/AV	R901058929
R	KAV2R2AA/AV	R901058934

Function, section, symbol

General

Pressure control valves of type KAV are pilot operated pressure cut-off valves with infinitely variable switching pressure differentials.

They basically consist of a pilot stage (1) and main stage (2).

Function

The pump flow (main port ①) is fed via main port ③ to the accumulator of the system. When the actuator pressure in main port ③ rises above the set upper switching pressure, the connections to Y (main port ④) and T (main port ②) open, and the pump flow is changed over to pressureless circulation (① to ②). When the actuator pressure (main port ③) falls below the set lower switching pressure, the connections to Y (main port ④) and T (main port ②) close, the pump flow is again directed to the accumulator of the system.

When used as accumulator charging valve, a check valve (7) is required additionally, which closes the connection between main port ③ and main port ① in order to prevent the oil in the accumulator from flowing back.

When used for pressureless pump start-up, an additional bore Z is required in the mounting cavity (see page 6) in order to utilize port Z of the valve. A directional valve (8) must be connected between Z and Y (main port ④), which allows a remotely controlled cut-off (from main port ① to main port ②) below the set switching pressure.

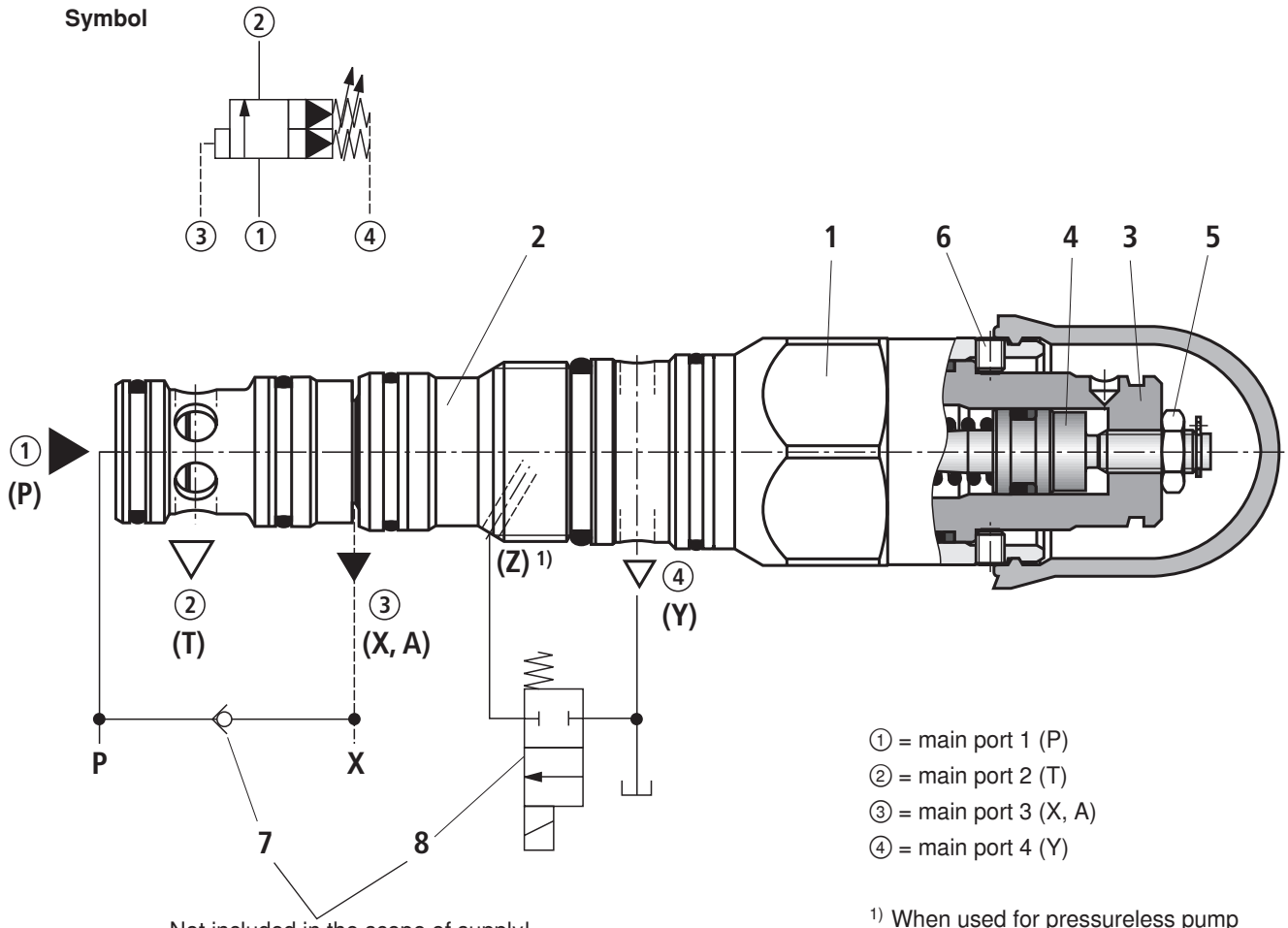
Adjustment of the switching pressure differential:

☞ **Note!** The valves are factory-set to a switching pressure differential of approx. 10 % to 12 % at nominal pressure. Settings of 8 % to 50 % of the nominal pressure are possible.

Adjustment spindle (3) is factory-set to the minimum upper switching pressure, i.e. the adjustment spindle is turned out to the mechanical limit stop. The upper switching pressure can be increased by turning adjustment spindle (3) in. The lower switching pressure differential is increased by turning adjustment spindle (4) in, which results in a reduction in the switching pressure differential. Turning adjustment spindle (4) out results in a reduction in the lower switches and hence in an increase in the switching pressure differential. The pressure setting is secured by clamping screw (6) and locknut (5).

For the adjustment range, see characteristic curve “switching pressure differential” on page 5.

Symbol



① = main port 1 (P)
② = main port 2 (T)
③ = main port 3 (X, A)
④ = main port 4 (Y)

1) When used for pressureless pump start-up, port Z can be utilized in conjunction with a directional valve (see Mounting cavity on page 6).

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

General

Weight		kg	0.42
Installation position			Optional

Hydraulic

Maximum operating pressure		bar	350
Maximum set pressure	– Variant “C“	bar	50
	– Variant “F“	bar	100
	– Variant “K“	bar	200
	– Variant “R“	bar	350
Permissible maximum return line pressure	– Main port ② (T)	bar	200
	– Main port ④ (Y)	bar	100 [1)]
Maximum flow		l/min	140
Hydraulic fluid			Mineral oil (HL, HLP) to DIN 51524; fast bio-degradable hydraulic fluids to VDMA 24568 (see also RE 90221); HETG (rape seed oil); HEPG (polyglycols); HEES (synthetic esters); other hydraulic fluids on request
Hydraulic fluid temperature range		°C	–20 to +80
Viscosity range		mm^2/s	10 to 800
Permissible max. degree of contamination of the hydraulic fluid - cleanliness class to ISO 4406 (c)			Class 20/18/15 [2)]
Load cycles			10 million

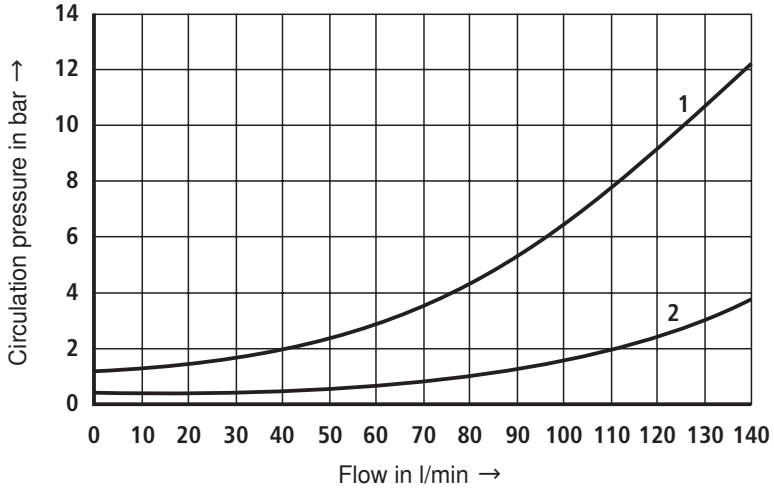
[1)] ⚠ **Attention!**
The applied pressure is added to the set pressure!
The switching pressure differential remains unchanged within the adjustment range.

[2)] The cleanliness classes specified for components must be adhered to in hydraulic systems. Effective filtration prevents malfunction and, at the same time, prolongs the service life of components.

For the selection of filters, see data sheets RE 50070, RE 50076, RE 50081, RE 50086, RE 50087 and RE 50088.

Characteristic curves (measured with HLP46, ϑ_{oil} = 50 °C ±5 °C)

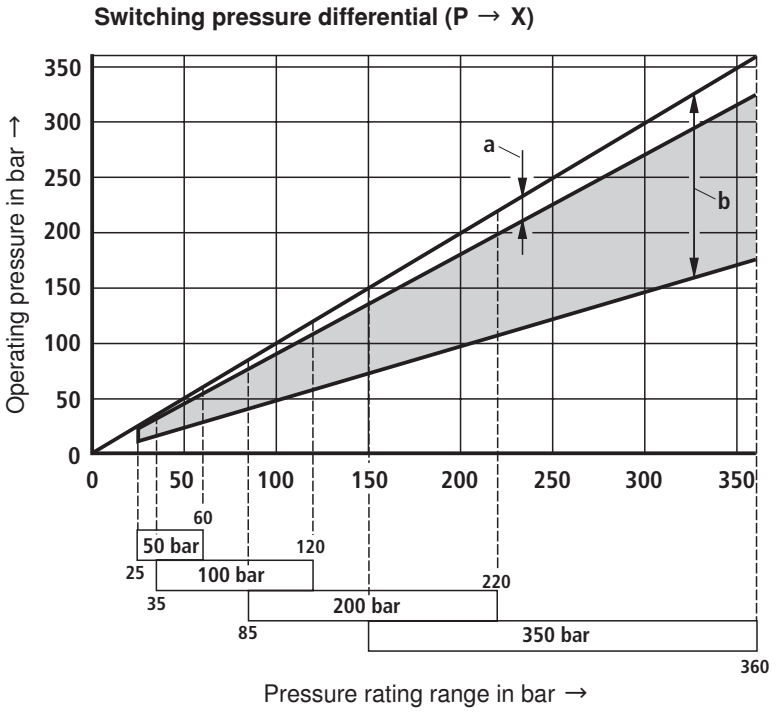
Circulation pressure in dependence on pump flow $q_{V\,P}$



1 Circulation pressure for housing with supply and return diameter of 13 mm

2 Circulation pressure for pure cartridge resistance

Characteristic curves (measured with HLP46, ϑ_{oil} = 50 °C ±5 °C)

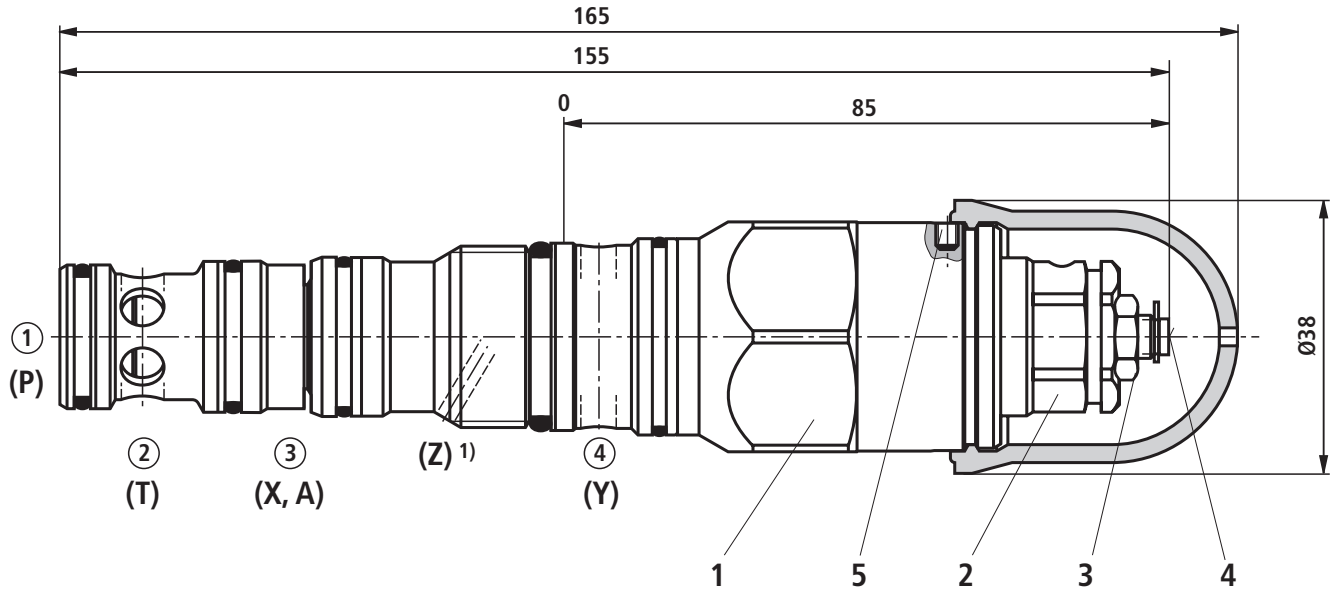


a Minimum switching pressure differential (8 % of nominal value)

b Maximum switching pressure differential (50 % of nominal value)

Adjustment range of switching pressure differential

Unit dimensions (dimensions in mm)



1 Hexagon A/F32
Tightening torque M_T = 60 Nm

2 Adjustment element "2"
Hexagon with protective cap A/F19

3 Hexagon A/F10

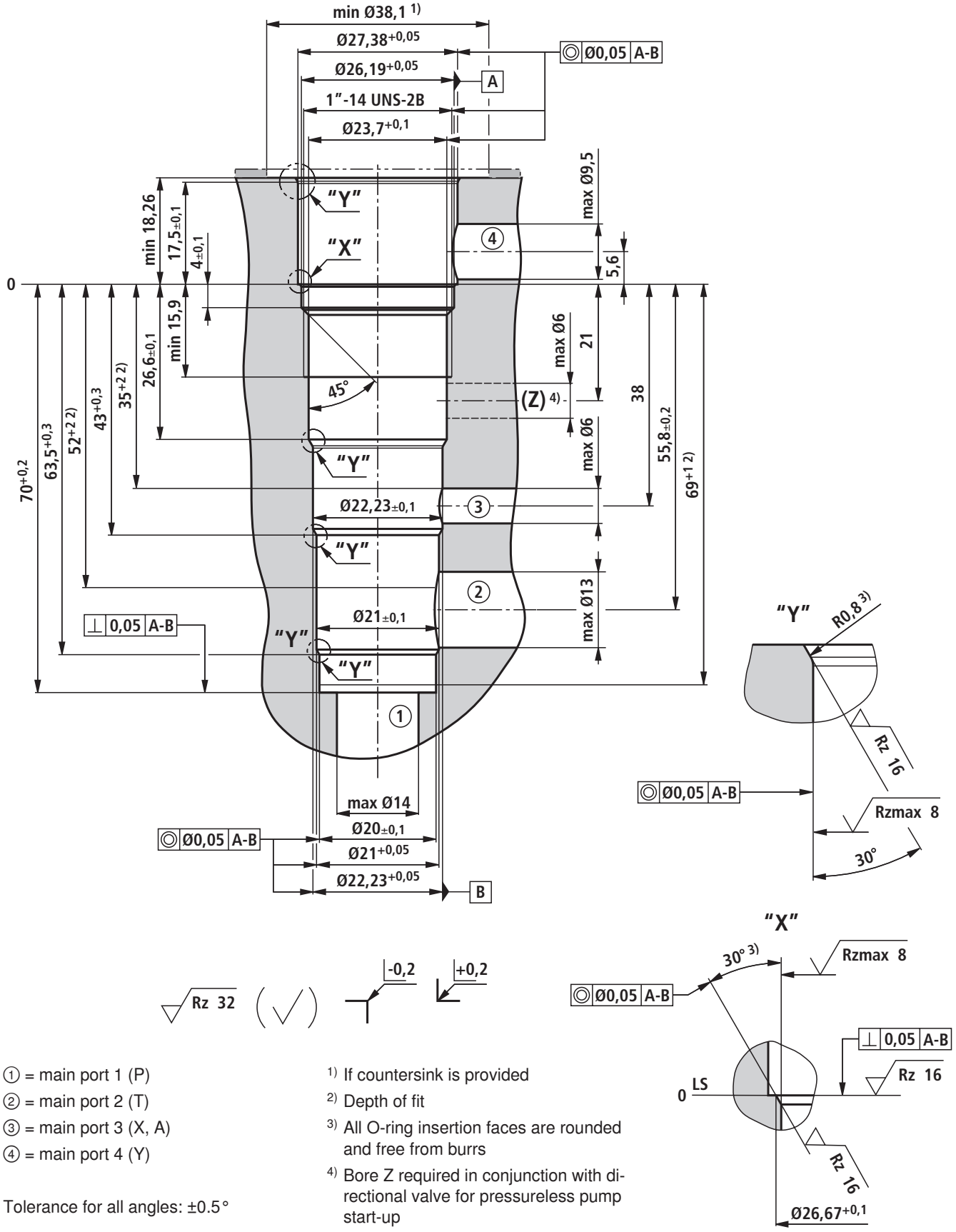
4 Hexagon socket A/F3

5 Lock screw A/F2

① = main port 1 (P)
② = main port 2 (T)
③ = main port 3 (X, A)
④ = main port 4 (Y)

1) When used for pressureless pump start-up, port Z can be utilized in conjunction with a directional valve (see Mounting cavity on page 6).

Mounting cavity R/KAV.2: 4 main ports; thread 1“-14 UNS-2B (dimensions in mm)



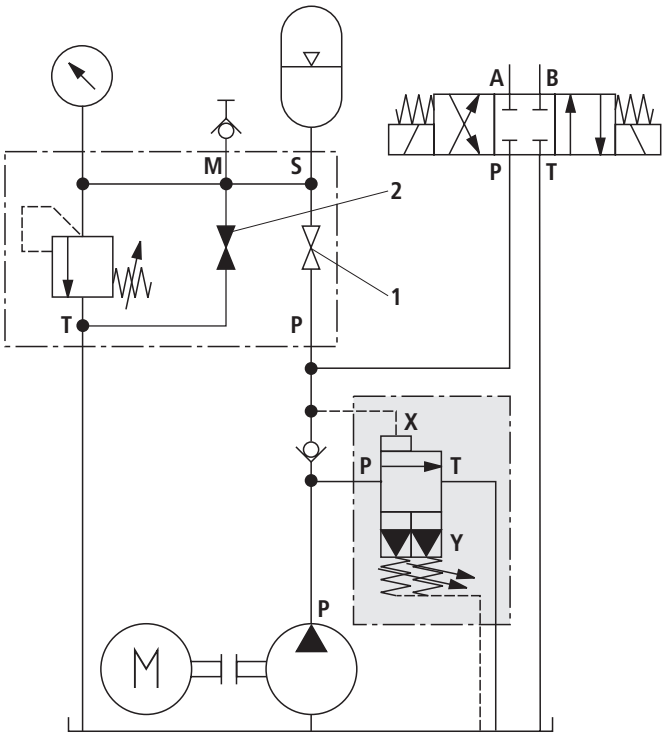
① = main port 1 (P)
② = main port 2 (T)
③ = main port 3 (X, A)
④ = main port 4 (Y)

Tolerance for all angles: ±0.5°

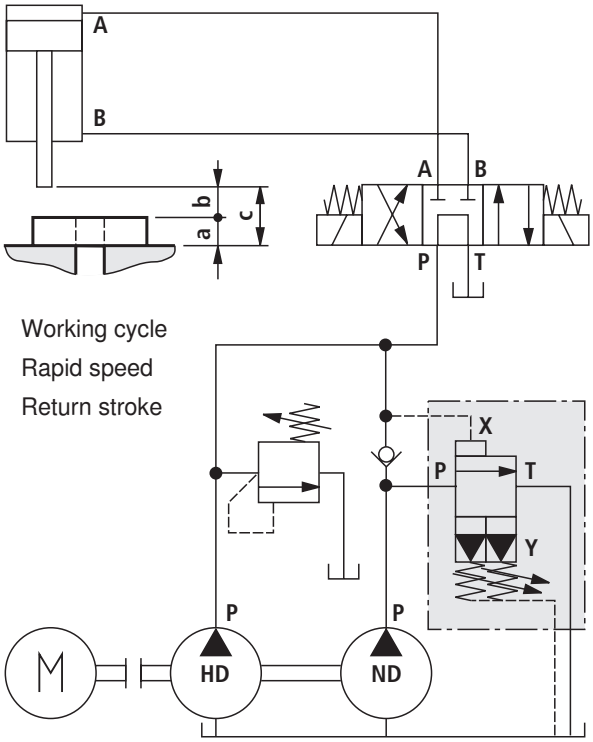
1) If countersink is provided
2) Depth of fit
3) All O-ring insertion faces are rounded and free from burrs
4) Bore Z required in conjunction with directional valve for pressureless pump start-up

Circuit examples

Hydraulic system with pressure accumulator

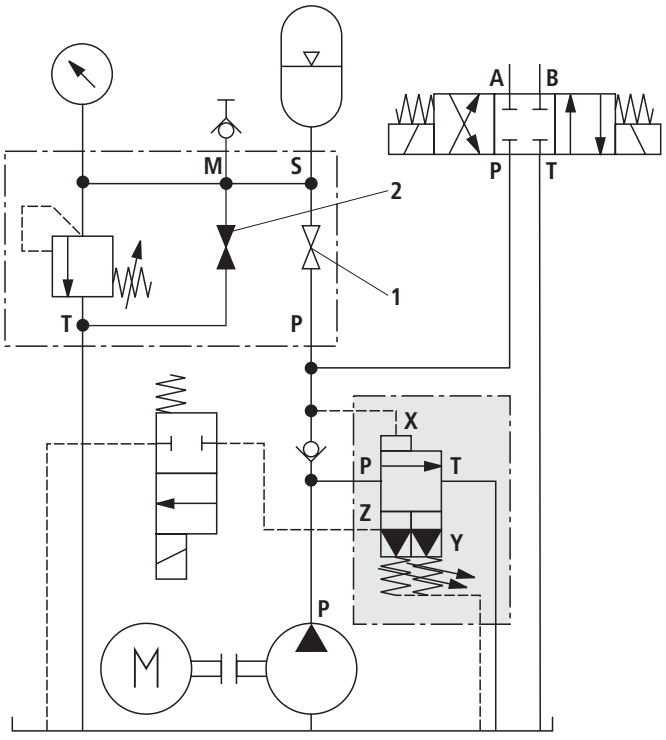


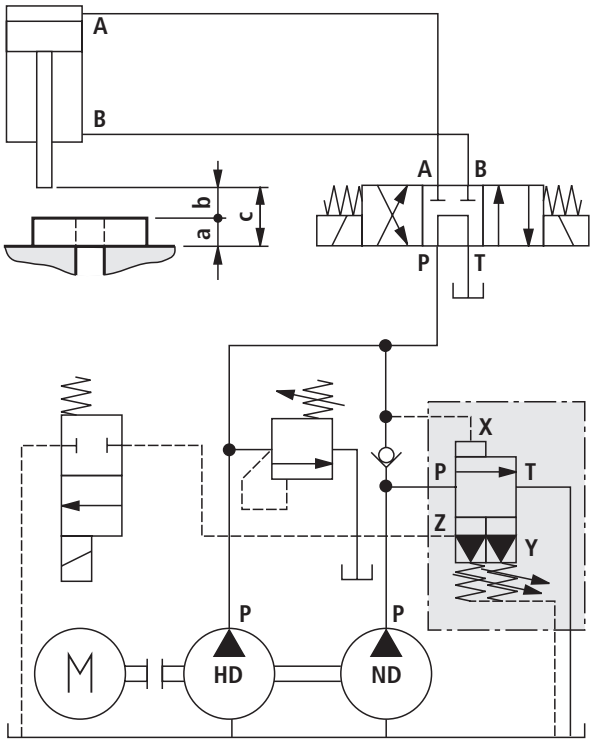
Hydraulic system with high and low pressure pump



a Working cycle
b Rapid speed
c Return stroke

… with directional valve (not included in the scope of supply!)





1 Keep always open!
Close only for maintenance work!

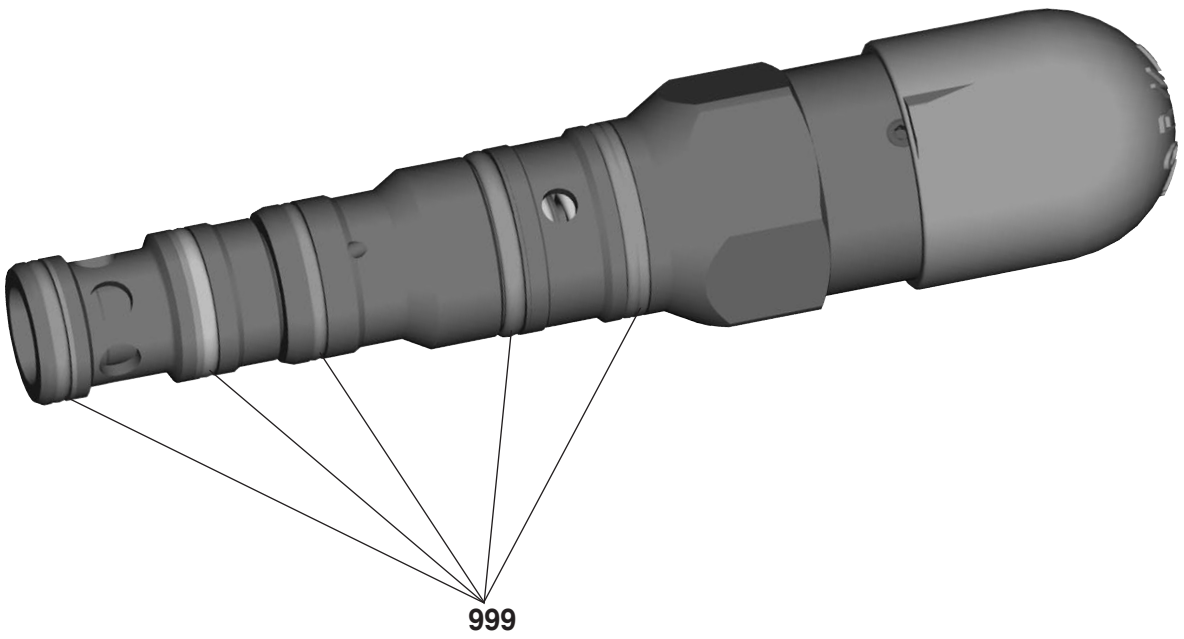
2 Keep always closed!
Open only for maintenance work!

☞ **Application note!**

Connect DA valve and hydraulic accumulators with short pipes

ensuring low resistance!

Available individual components



Item	Designation	Material no.
999	Valve seal kit	R961001575

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