

# 2/2 directional poppet valve, direct operated with solenoid actuation

**RE 18136-23/06.12** 1/8  
Replaces: 07.10**Type KSDE** (High Performance)Component size 0  
Component series A  
Maximum operating pressure 350 bar  
Maximum flow 20 l/min

H7739

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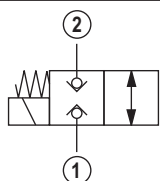
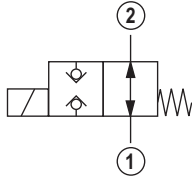
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## Features

- Two different mounting cavities R/B or R/C
- Direct operated directional poppet valve with solenoid actuation, tight on both sides
- Blocked connection tight in a leak-free form
- Safe switching also with longer standstill periods
- Wet-pin DC solenoids
- Rotatable solenoid coil

Information on available spare parts:  
[www.boschrexroth.com/spc](http://www.boschrexroth.com/spc)

### Ordering code (Valve without coil) <sup>1)</sup>

	<b>KSDE</b>	<b>R</b>	<b>0</b>	<b>A</b> /	<b>V</b>	<b>*</b>																		
Directional poppet valve, direct operated, electrically operated						Further details in the plain text																		
Maximum operating pressure 350 bar	= R					<b>V =</b>	<b>Seal material</b> FKM seals (other seals upon request) Attention! Observe compatibility of seals with hydraulic fluid used!																	
Component size	= 0																							
2 main ports																								
<b>Symbols</b>		Normally closed	= N																					
		Normally open	= P																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3" style="text-align: center;"><b>Symbol N</b></td> <td colspan="3" style="text-align: center;"><b>Symbol P</b></td> </tr> <tr> <td style="text-align: center;"><b>N0</b></td> <td style="text-align: center;"><b>N9</b></td> <td style="text-align: center;"><b>N11</b></td> <td style="text-align: center;"><b>N0</b></td> <td style="text-align: center;"><b>N9</b></td> <td style="text-align: center;"><b>N11</b></td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;">-</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X <sup>2)</sup></td> <td style="text-align: center;">-</td> </tr> </table>							<b>Symbol N</b>			<b>Symbol P</b>			<b>N0</b>	<b>N9</b>	<b>N11</b>	<b>N0</b>	<b>N9</b>	<b>N11</b>	X	-	X	X	X <sup>2)</sup>	-
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X	-	X	X	X <sup>2)</sup>	-																			
<b>N0 =</b> Without manual override																								
<b>N9 =</b> With concealed manual override																								
<b>N11 =</b> With screwable manual override																								
<b>B =</b> High Performance and mounting cavity R/B (see page 7)																								
<b>C =</b> High Performance and mounting cavity R/C (see page 7)																								
<b>A =</b> Component series																								

### Valve types (without coil) <sup>1)</sup>

Operating pressure 350 bar		
Spool symbol	Type	Material no.
<b>N</b>	KSDER0NA/BN0V	R901252718
	KSDER0NA/CN0V	R901252717
<b>P</b>	KSDER0PA/BN0V	R901252713
	KSDER0PA/CN0V	R901252712

### Available coils (separate order) <sup>1)</sup>

Direct voltage DC <sup>4)</sup>	Material no. for coil with connector <sup>3)</sup>		
	<b>"K4"</b>	<b>"K40"</b>	<b>"C4"</b>
	03pol (2+PE) DIN EN 175301-803	02pol K40 DT 04-2PA, make: Deutsch	02pol C4/Z30 AMP Junior-Timer
12 V	R900991678	R900729189	R900315818
24 V	R900991121	R900729190	R900315819

<sup>1)</sup> Complete valves with mounted coil upon request

<sup>2)</sup> Screwable manual override "N10" (actuation by means of internal hexagon with lock nut), possible as separate order, Material no. **R901051231**; ordering code "**N9**"!

<sup>3)</sup> Mating connectors (order separately), see data sheet 08006

<sup>4)</sup> Other voltages upon request

## Function, section, symbols

### General

The 2/2 directional poppet valves are direct operated, pressure compensated cartridge valves. They basically comprises of screw-in section (4) with valve seat (1), solenoid (5), as well as closing element (3) and compression spring (2).

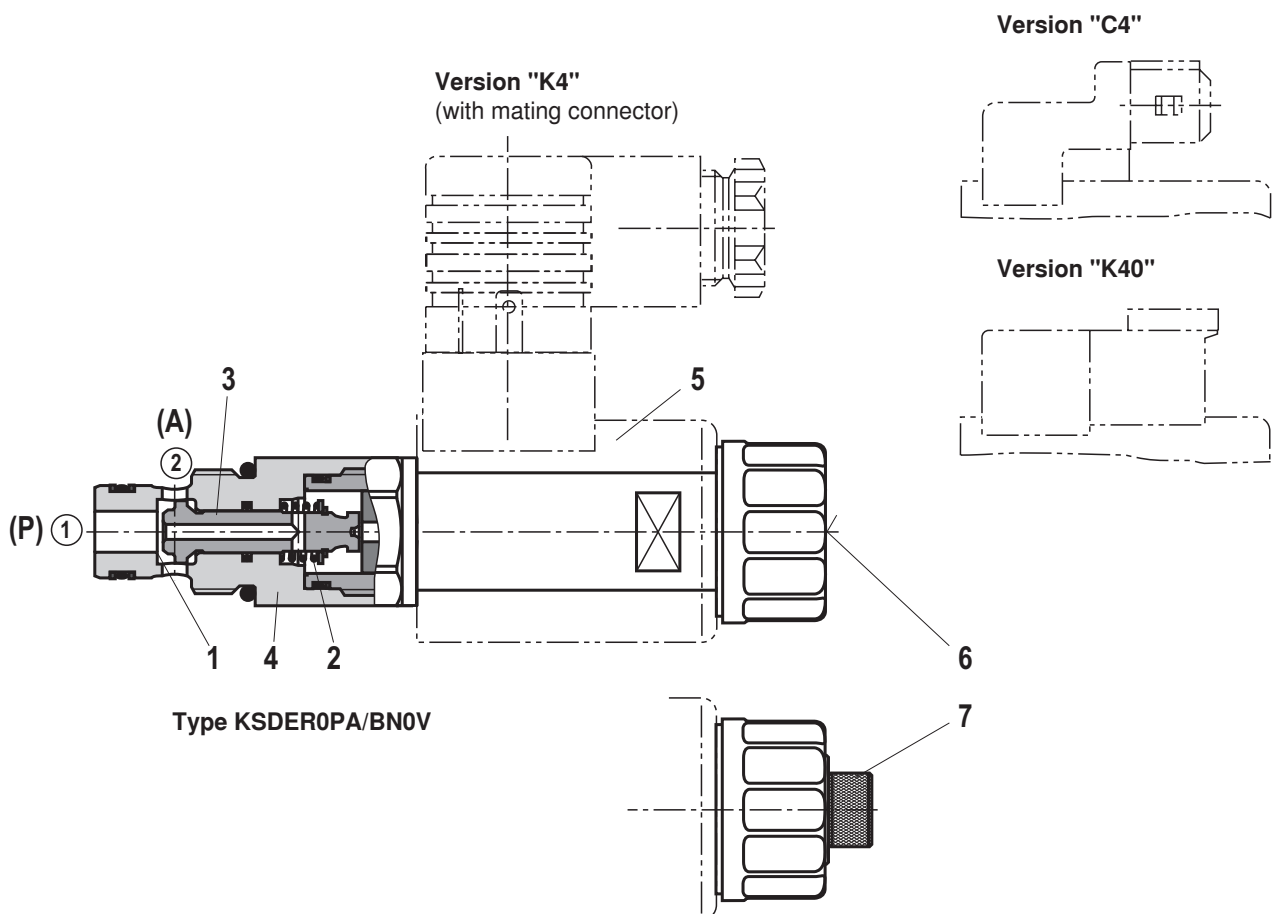
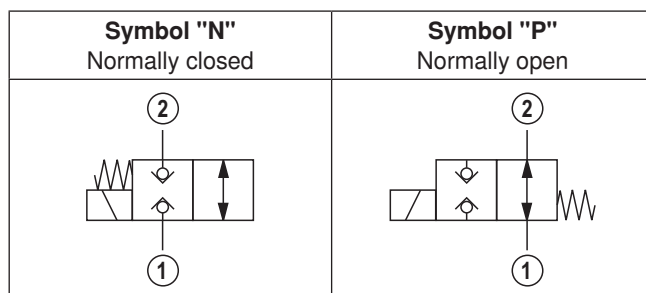
### Function

The initial position of the valve (normally open "P" or normally closed "N") is determined by the position of the closing element (3) and the arrangement of the compression spring (2). Due to the structural design, the 2/2 directional poppet valves are always pressure-compensated in relation to the actuating forces. The main ports ① and ② can be loaded with an operating pressure of 350 bar (see Technical Data, page 4).

With symbol "P", the closing element (3) is pressed onto the seat by the solenoid (5), with symbol "N" by the compression spring (2). The flow is blocked in a leak-free form.

The manual override allows for the the switching of the valve without solenoid energization. It is available in concealed version "N9" (6) or in screwable version "N11" (7) (see page 2).

The screwable manual override (7) must be screwed back into the initial position after actuation.



**Technical data** (For applications outside these parameters, please consult us!)**general**

Weight	- Valve	kg	0.30
	- Coil	kg	0.25
Installation position			Any
Ambient temperature range			°C -40 to +110

**hydraulic**

Maximum operating pressure		bar	350
Maximum flow		l/min	20 (see performance limits page 5)
Hydraulic fluid		Mineral oil (HL, HLP) according to DIN 51524; fast biodegradable hydraulic fluids according to VDMA 24568 (see also RE 90221); HETG (rape seed oil); HEPG (polyglycols); HEES (synthetic esters); other hydraulic fluids upon request	
Hydraulic fluid temperature range		°C	-40 to +80
Viscosity range	- Minimum	mm <sup>2</sup> /s	5
	- Optimum		10 to 100
	- Mmaximum		1000
Maximum permitted degree of contamination of the hydraulic fluid - cleanliness class according to ISO 4406 (c)		Class 20/18/15 <sup>1)</sup>	
Load cycles		10 million	

**electrical**

Voltage type		Direct voltage	
Supply voltage <sup>2)</sup>		V	12 DC; 24 DC
Voltage tolerance against ambient temperature		See characteristic curve page 5	
Power consumption		W	22
Duty cycle		%	See characteristic curve page 5
Maximum coil temperature <sup>3)</sup>		°C	150
Switching time according to ISO 6403 (solenoid horizontal)	- ON (① → ②)	ms	≤ 95
	- OFF (② → ①)	ms	≤ 95
Maximum switching frequency		1/h	9000
Protection class according to VDE 0470-1 (DIN EN 60529) DIN 40050-9	- Version "K4"	IP 65 with mating connector mounted and locked	
	- Version "C4"	IP 66 with mating connector mounted and locked	
	- Version "K40"	IP 69K with Rexroth mating connector (Material no. R901022127)	
			IP 69K with mating connector mounted and locked

<sup>1)</sup> The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and at the same time increases the service life of the components.

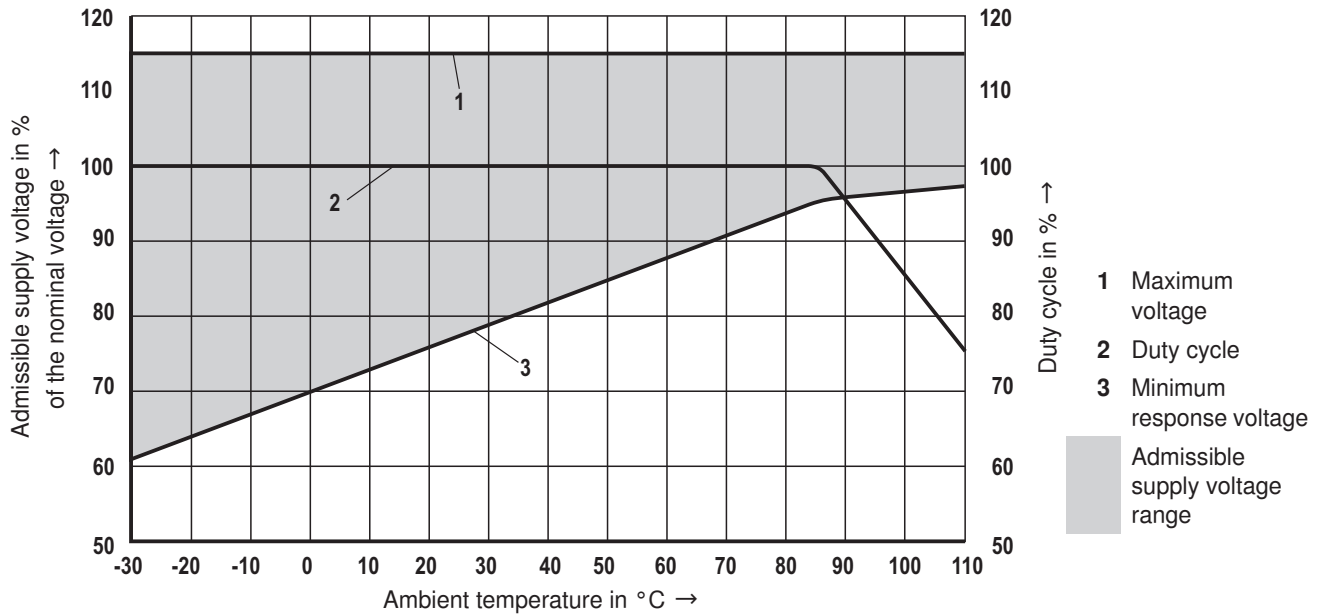
For the selection of the filters see [www.boschrexroth.com/filter](http://www.boschrexroth.com/filter).

<sup>2)</sup> Other voltages upon request

<sup>3)</sup> Due to the temperatures occurring at the surfaces of the solenoid coils, the standards ISO 13732-1 and EN 982 need to be adhered to!

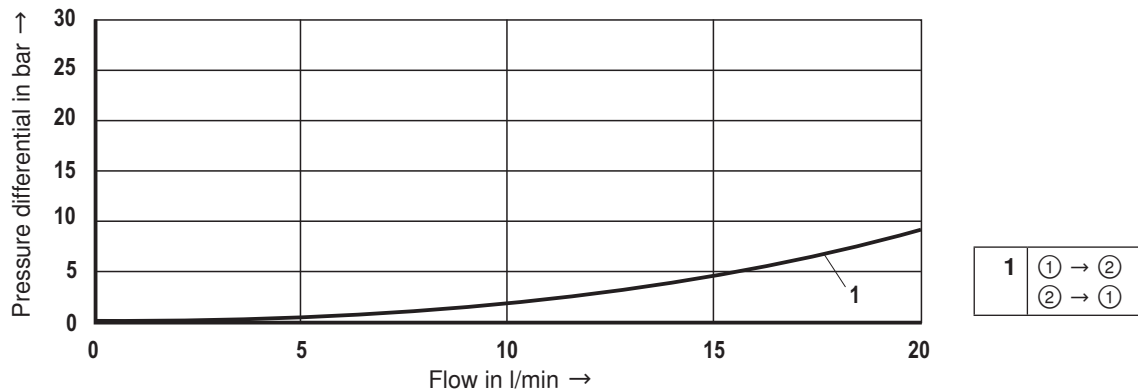
**At the electrical connection "K4", the protective earthing conductor (PE  $\perp$ ) has to be connected properly.**

### Voltage tolerance against ambient temperature; duty cycle

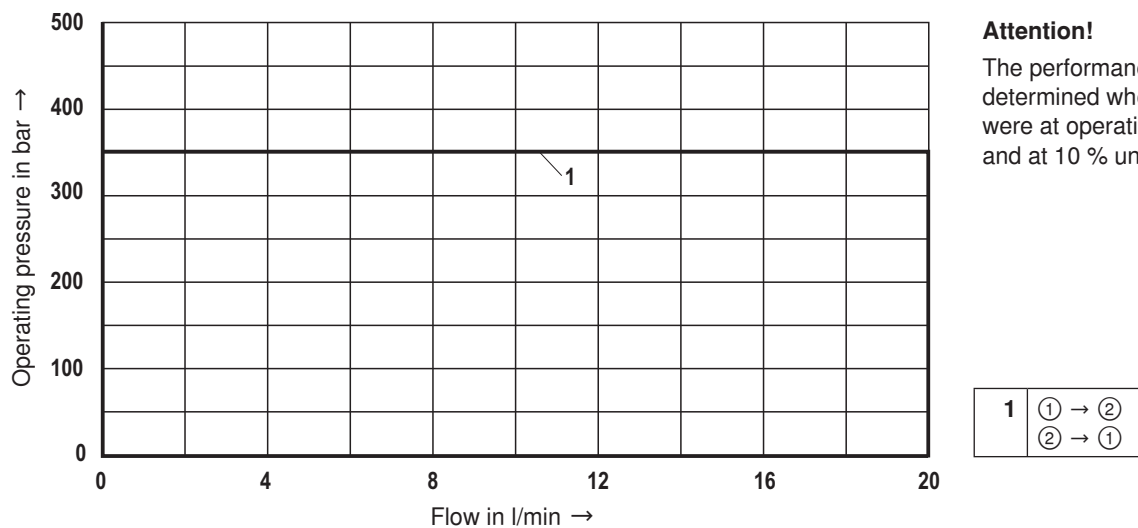


### Characteristic curves (measured with HLP46, $\vartheta_{oil} = 40\text{ °C} \pm 5\text{ °C}$ and 24 V coil)

$\Delta p$ - $q_v$  characteristic curves

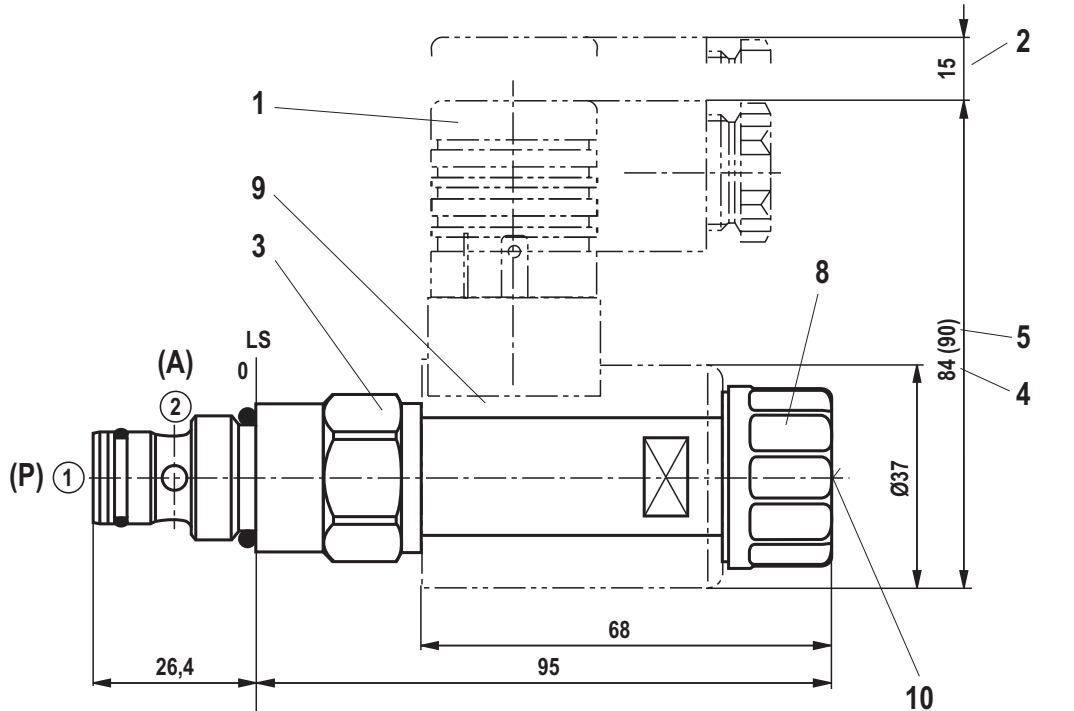


### Performance limits (measured with HLP46, $\vartheta_{oil} = 40\text{ °C} \pm 5\text{ °C}$ and 24 V coil)



**Attention!**  
The performance limits were determined when the solenoids were at operating temperature and at 10 % undervoltage.

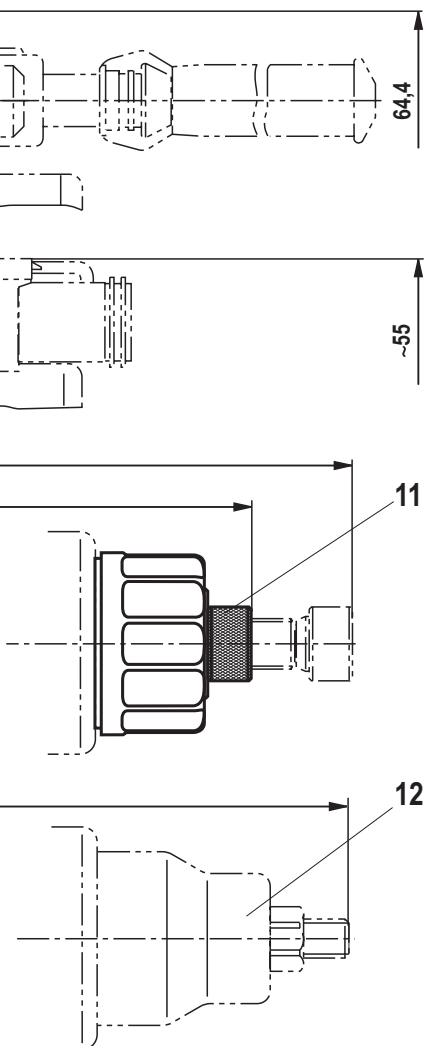
## Unit dimensions (dimensions in mm)



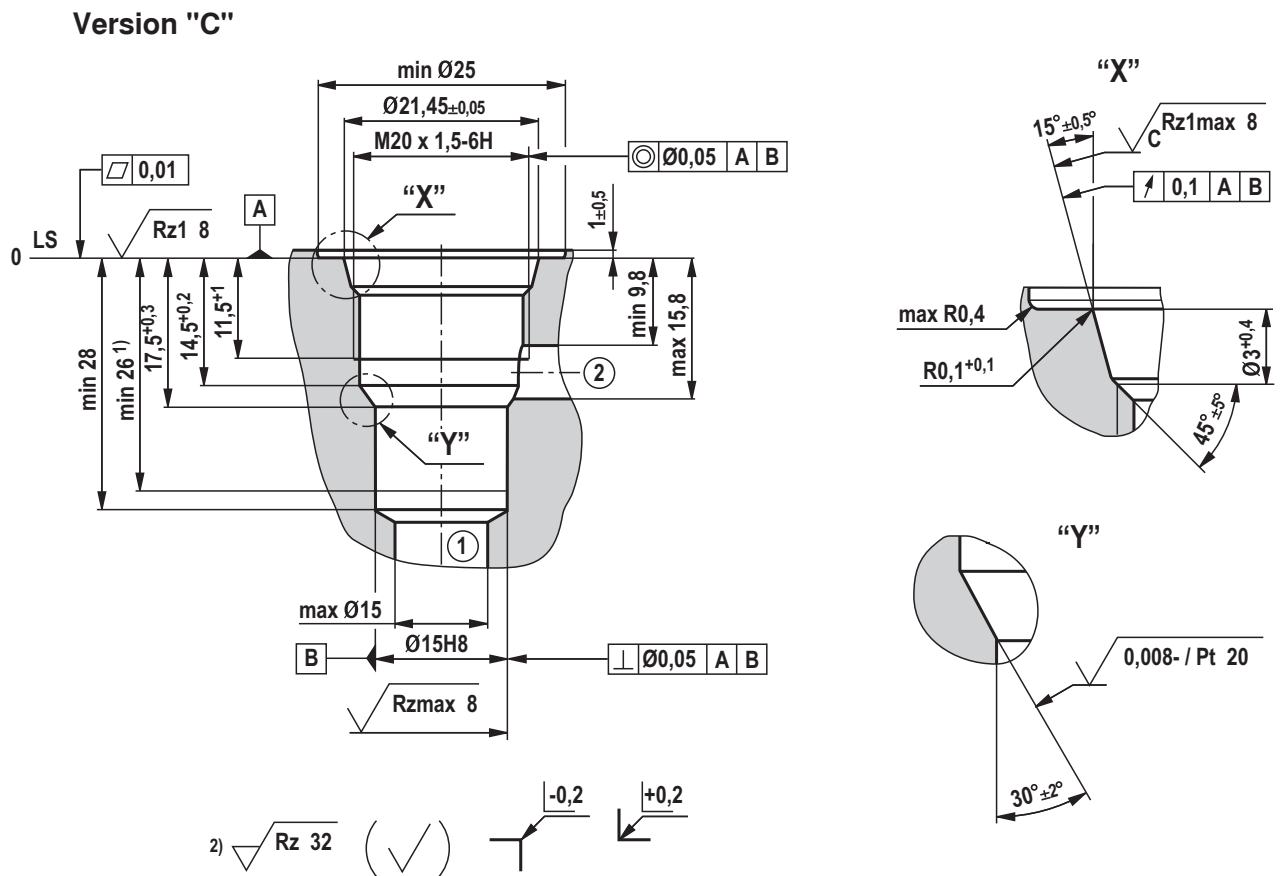
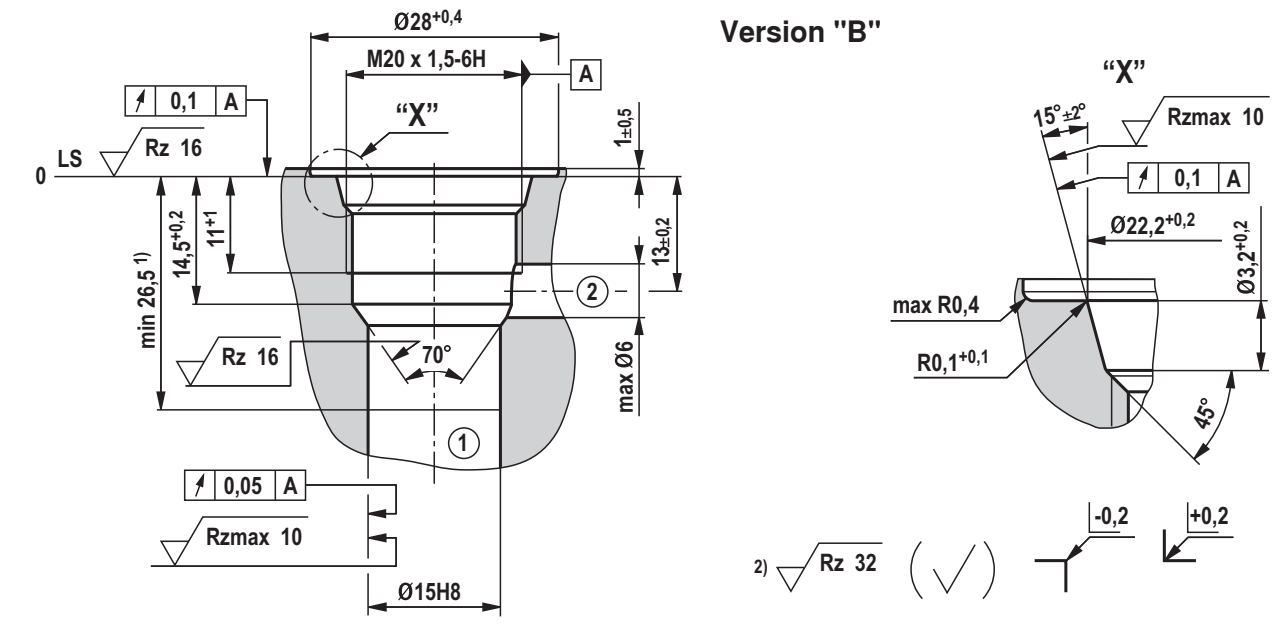
- 1 Mating connector (order separately, see data sheet 08006)
- 2 Space required for removing the mating connector
- 3 SW24, tightening torque  
 $M_A = 25^{+5}$  Nm
- 4 Dimension for "K4" mating connector, without circuitry
- 5 Dimension ( ) for "K4" mating connector, with circuitry
- 6 Version "K40"
- 7 Version "C4"
- 8 Nut, tightening torque  
 $M_A = 5^{+1}$  Nm
- 9 Coil (separate order, see page 2)
- 10 Concealed manual override "N9", optional
- 11 Screwable manual override "N11", optional
- 12 Screwable manual override "N10" (separate order, see page 2)

① = Main port 1, pump P<sup>3)</sup>  
 ② = Main port 2, actuator A<sup>3)</sup>  
 LS = Location shoulder

- 1) Actuated
- 2) Screwed in
- 3) **Attention!**  
Unambiguous pinout. P and A must not be exchanged or closed!



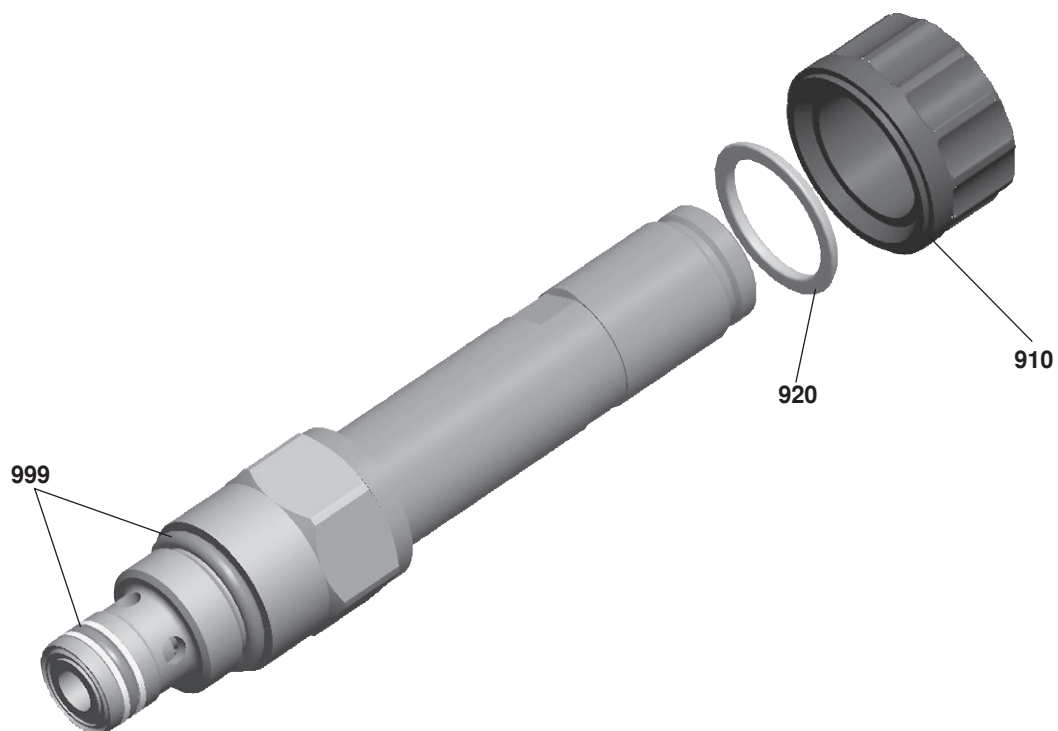
**Mounting cavity, 2 main ports; thread M20 x 1.5 (dimensions in mm)**



- 1) Depth of fit
- 2) Visual inspection
- ① = Main port 1
- ② = Main port 2

LS = Location Shoulder  
 All seal ring insertion faces are rounded and free of burrs  
 Tolerance for all angles ±0.5°

## Available individual components



Item	Denomination	Material no.
910	Nut	R900991453
920	O-ring for pole tube	R900007769
999	Seal kit of the valve (version "B")	R961005311
	Seal kit of the valve (version "C")	R961005312

Coils, separate order, see page 2