RE 18136-21/2021-08-05
Replaces: 06.2012

rexroth
A Bosch Company

3/2 directional seat valve, direct-operated, with solenoid actuation KSDE.1


H6805

- Size 1
- Series B
- Maximum working pressure 500 bar
- Maximum flow 20 l/min

Features

- Direct operated directional seat valve with solenoid actuation, both sides tightly sealed
- Mounting cavity R/T-11A
- Blocked connection leak-free, tightly sealed
- Secure switching, even in the case of long service lives
- DC voltage solenoids switching in oil
- Rotatable solenoid coil

Contents

2 **KSDE.1** | 3/2 directional seat valve
Type code (valve without coil)1)

Type code (valve without coil)[1)]

01	02	03	04	05		06	07	08	09	10
KSDE		**1**		**B**	**/**	**H**		**V**		*****

Valve type

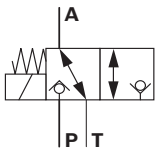
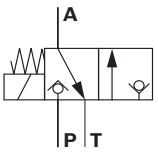
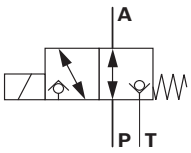
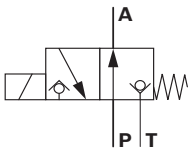
01	Directional seat valve, direct-operated, electrically actuated	**KSDE**

Maximum working pressure

02	350 bar	**R**
	500 bar	**U**

03	Size 1	**1**

Symbol – 3 main ports

04	**R** (350 bar)	**U** (500 bar), **R...–17** (350 bar)	
	Normally closed 		**C**
	Normally open 		**U**

05	Series B	**B**

06	Mounting cavity R/T-11A (see page 9)	**H**

Auxiliary actuation

07	Without auxiliary actuation	**N0**
	With concealed auxiliary actuation	**N9**
	With screwable auxiliary actuation	**N11**

	Symbol C			Symbol U		
Version	**N0**	**N9**	**N11**	**N0**	**N9**	**N11**
R (350 bar)	●	–	●	●	●[2)]	–
U (500 bar)	●	–	–	●	–	–

Sealing material

08	FKM (fluorocarbon rubber), other seals on request	**V**

Special number

09	Standard	**No code**
	Flow-optimized[3)]	**–17**

10	Further details in plain text	*****

See page 3 for footnotes

● = Available – = Not available

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Preferred types (valve without coil)[1)]

▼ **Working pressure 350 bar**

Symbol	Type	Material no.
C	KSDER1CB/HN0V	R901083205
	KSDER1CB/HN0V-17	R901176263
	KSDER1CB/HN11V	R901151279
	KSDER1CB/HN11V-17	R901206917
U	KSDER1UB/HN0V	R901083191
	KSDER1UB/HN0V-17	R901176251
	KSDER1UB/HN9V	R901151288
	KSDER1UB/HN9V-17	R901206909

▼ **Working pressure 500 bar**

Symbol	Type	Material no.
C	KSDEU1CB/HN0V	R901083198
U	KSDEU1UB/HN0V	R901083200

Available coils (order separately)

	Material no. for coil with device connector[4)]		
DC voltage[5)]	**"K4"** 03pol (2+PE) DIN EN 175301-803	**"K40"** 02pol K40 DT 04-2PA, Fa. DEUTSCH	**"C4"** 02pol C4/Z30 AMP Junior Timer
12 V	R900991678	R900729189	R900315818
24 V	R900991121	R900729190	R900315819

1) Complete valves with mounted coil on request.
2) Screwable auxiliary actuation "N10" (actuation through hexagon socket with lock nut) possible as a separate order, material no. R901051231; ordering code "N9"!
3) Only version "R" (flow-through on one side!)
4) Plug-in connectors are not included in the scope of delivery and must be ordered separately, see data sheet 08006.
5) Additional voltages available on request.

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Functional description

General

The 3/2 directional seat valves are direct operated, pressure-compensated cartridge valves. They essentially consist of a screw-in part (**4**) with valve seat (**1**), solenoid (**5**), closing element (**3**) and compression spring (**2**).

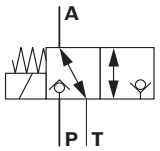
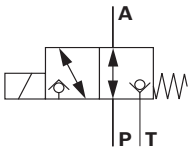
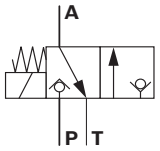
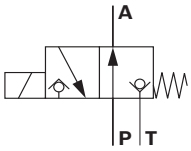
Function

The initial position of the valve (normally open **"U"** or normally closed **"C"**) is determined by the position of the closing element (**3**) and the arrangement of the compression spring (**2**). Owing to the structural design, the 3/2 directional seat valves are always pressure-compensated with the actuating forces. The ports **P** and **A** can be loaded with 350 bar/500 bar working pressure (see technical data, page 5) and are blocked and leak-free in their respective end positions. The main ports are connected for connected in the short-term during switching (negative overlap).

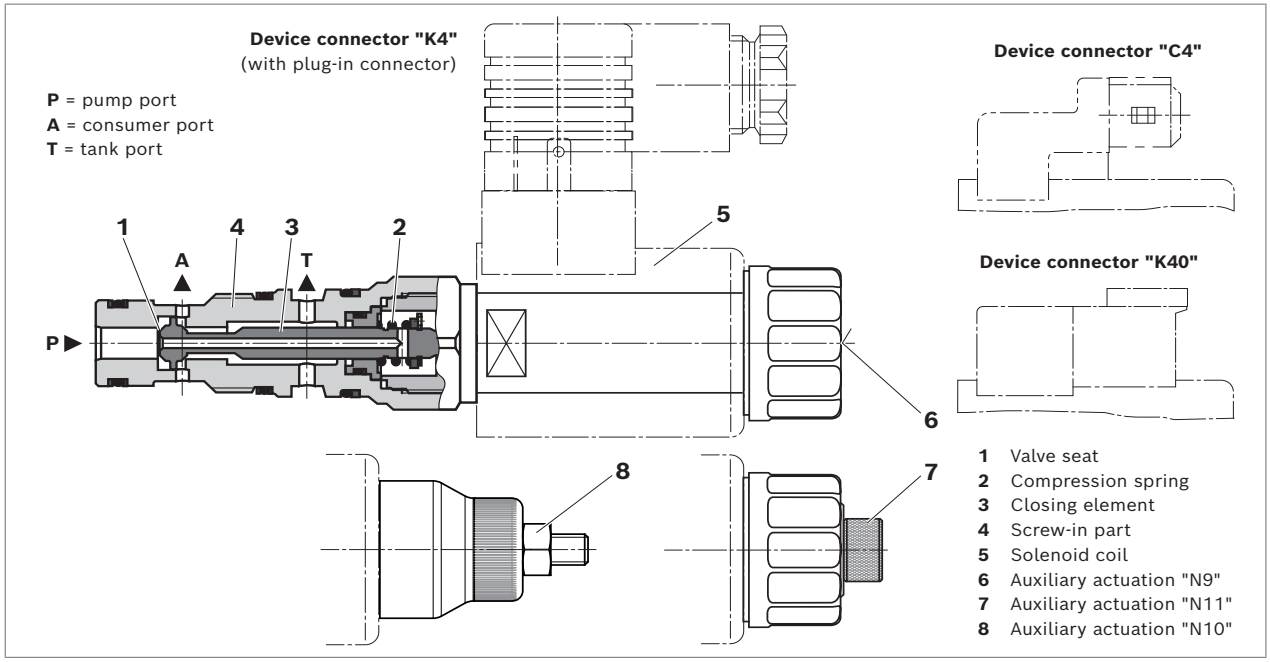
Notice

Flow is only permissible in the direction of the arrow (see symbols)! For version **"U"** (working pressure 500 bar) and version **"R...–17"**, the port **P** must be connected with the pump! Valves with version **"R...–17"** are flow-optimized and thus reach a higher switching capacity.

The auxiliary actuation enables the switching of the valve without solenoid excitation. It is also available as a concealed version **"N9"** (**6**) or as a screwable version **"N11"** (**7**).
The screwable auxiliary actuation (7) must be screwed back into the initial position after actuation.

Symbol "C" Normally closed	**Symbol "U"** Normally open
Version "R" (350 bar)	
	
Version "U" (500 bar) and "R...-17" (350 bar)	
	

▼ **Sectional view KSDER1UB/HN9V**



Technical data

General				
Weight (approx.)	Valve		kg	0.30
	Solenoid coil		kg	0.25
Installation position				Any
Ambient temperature range			°C	–40 ... +110

Hydraulic				
Maximum working pressure	Version **U**	p	bar	500 (at port **P** and **A**, if **P** ≥ **A** ≥ **T**; based on structure)
	Version **R**	p	bar	350 (at port **P** and **A**)
	Version **R...–17**	p	bar	350 (at port **P** and **A**, if **P** ≥ **A** ≥ **T**; based on structure)
Maximum tank pressure			bar	≤50 (at port **T**)
Maximum flow	Version **U**	q_V	l/min	6 (see performance limits on page 7)
	Version **R**	q_V	l/min	12 (see performance limits on page 7)
	Version **R...–17**	q_V	l/min	20 (see performance limits on page 7)
Hydraulic fluid				See table on page 6
Hydraulic fluid temperature range		ϑ	°C	–40 ... +80
Viscosity range		ν	mm²/s	4 ... 500
Maximum admissible degree of contamination of hydraulic fluid, cleanliness level as per ISO 4406 (c)				Level 20/18/15 [1]
Load cycles	Version **U**			5 Mio.
	Version **R**			10 Mio.

Electric			
Voltage type			DC voltage
Supply voltage[2]		V	12 DC; 24 DC
Voltage tolerance over ambient temperature			See characteristic curve on page 7
Power consumption		W	22
Duty cycle		%	See characteristic curve on page 7
Maximum coil temperature[3]		°C	150
Switching time according to ISO 6403 (Horizontal solenoid)	ON (**P** → **A**)	ms	≤60 (≤95 for version "**R...–17**")
	OFF (**A** → **P**)	ms	≤60 (≤95 for version "**R...–17**")
Maximum switching frequency	Version **U**	1/h	3600
	Version **R**	1/h	9000
Type of protection according to ISO 20653	Connector version "K4"		IP6K5[4]
	Connector version "C4"		IP6K6K[4]
			IP6K9K[4] (only with Rexroth type R901022127)
	Connector version "K40"		IP6K7 and IP6K9K[4]

Notice
For applications outside these values, please consult us!

Notice
For the electrical connection, a protective earth (PE ⏚) connection is mandatory based on the specification.

1) Cleanliness levels specified for the components must be maintained in the hydraulic systems. Effective filtration prevents malfunctions and simultaneously extends the service life of the components.
We recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$.

2) Additional voltages available on request
3) Due to the occurring surface temperatures of the solenoid coils, the standards ISO 13732-1 and ISO 4413 must be observed!
4) With installed and locked plug-in connector. Plug-in connectors are not included in the scope of delivery and must be ordered separately, see data sheet 08006.

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Hydraulic fluid

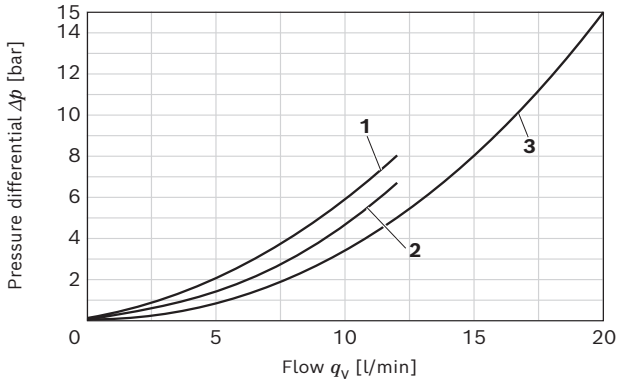
Hydraulic fluid		Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils		HL, HLP	FKM	DIN 51524	90220
Environmentally acceptable	Insoluble in water	HEES	FKM	ISO 15380	90221
	Soluble in water	HEPG	FKM	ISO 15380	90221

Notice

- Further information and details on using other hydraulic fluids are available in the above data sheets or on request.
- Restrictions are possible with the technical valve data (temperature, pressure range, service life, maintenance intervals, etc.)!
- The flash point of the hydraulic fluid used must be 40 K above the maximum solenoid surface temperature.
- **Environmentally acceptable:** If environmentally acceptable hydraulic fluids are used that are also zinc-dissolving, there may be an accumulation of zinc.

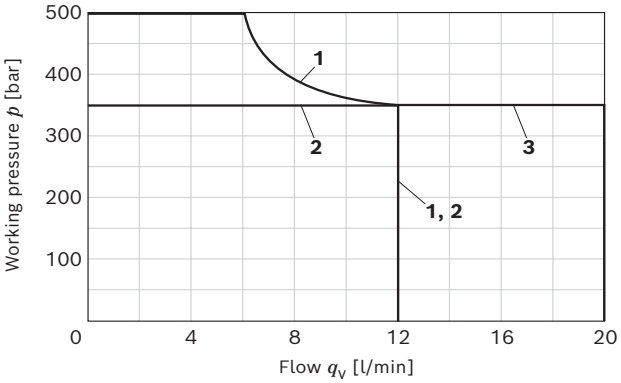
Characteristic curves

▼ **Δp-q_V characteristic curve**



1 Version "**R**" and "**U**" (**A** → **T**)
2 Version "**R**" and "**U**" (**P** → **A**; **A** → **P**)
3 Version "**R...-17**" (**P** → **A**; **A** → **T**)

▼ **Performance limit**



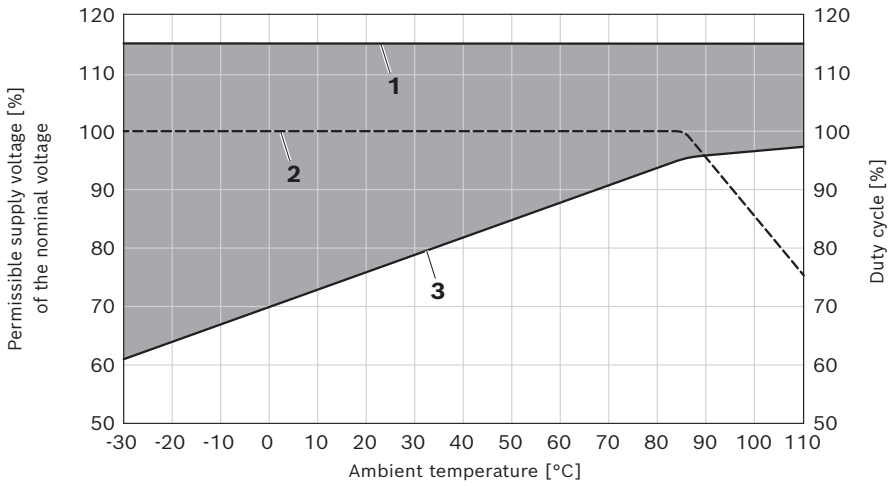
1 Version "**U**" (**P** → **A**)
2 Version "**R**" (**P** → **A**; **A** → **P**)
3 Version "**R...-17**" (**P** → **A**)

Notice

- The characteristic curves have been measured with HLP46, ϑ_{oil} = 40±5 °C and 24 V coil.
- The performance limit was determined with solenoids at operating temperature and 10 % undervoltage.

Permissible working range

▼ **Voltage tolerance and duty cycle depending on the ambient temperature**



1 Maximum voltage
2 Duty cycle
3 Minimum response voltage

= Permissible supply voltage range

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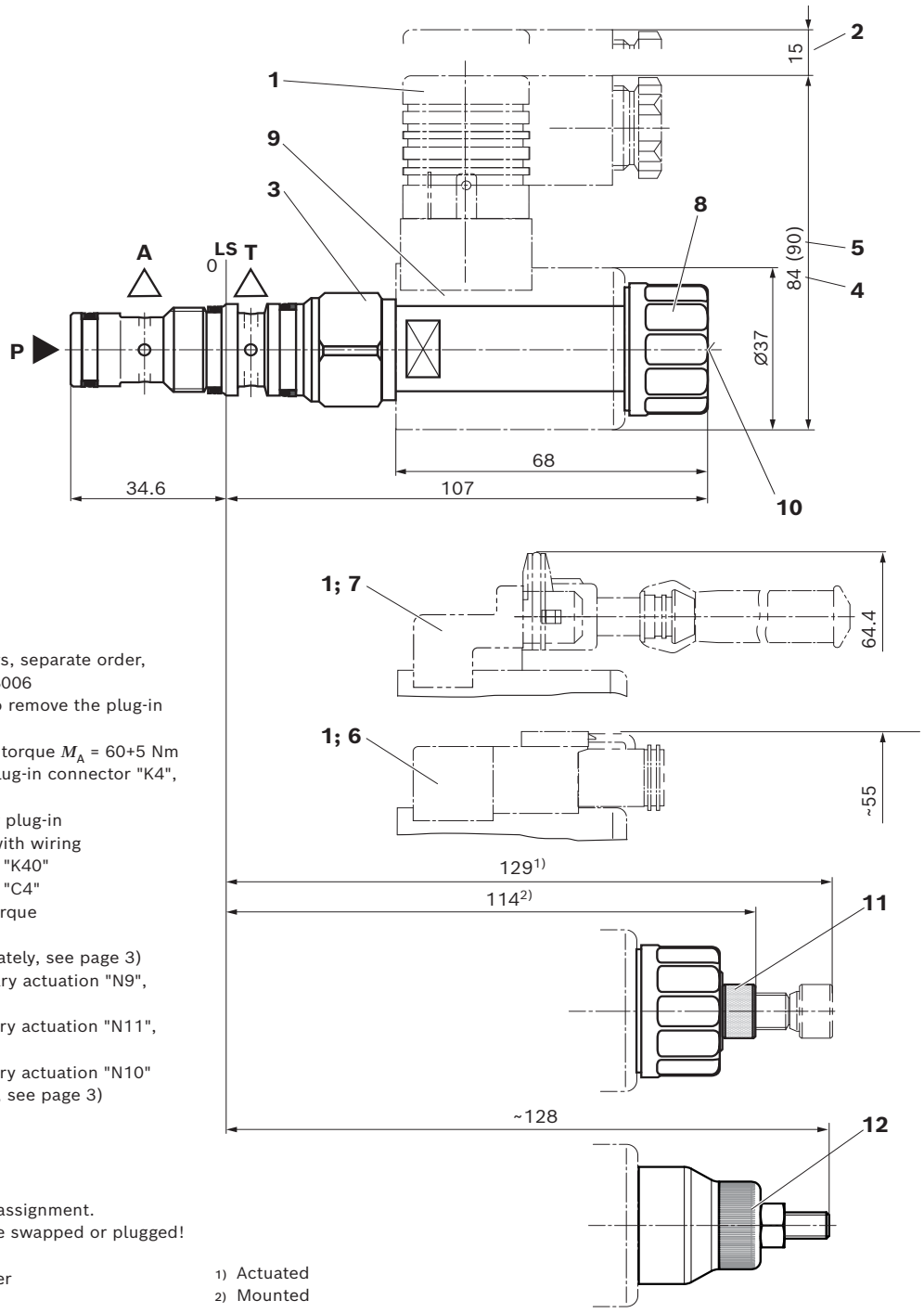
Dimensions

▼ **KSDE.1**



1 Plug-in connectors, separate order, see data sheet 08006
2 Space required to remove the plug-in connector
3 SW24, tightening torque M_A = 60+5 Nm
4 Dimensions for plug-in connector "K4", without wiring
5 Dimensions () for plug-in connector "K4", with wiring
6 Device connector "K40"
7 Device connector "C4"
8 Nut, tightening torque M_A = 5+1 Nm
9 Coil (order separately, see page 3)
10 Concealed auxiliary actuation "N9", optional
11 Screwable auxiliary actuation "N11", optional
12 Screwable auxiliary actuation "N10" (order separately, see page 3)

P = pump port
A = consumer port
T = tank port
Attention! Clear pin assignment.
P, A and **T** may not be swapped or plugged!

LS = location shoulder

1) Actuated
2) Mounted

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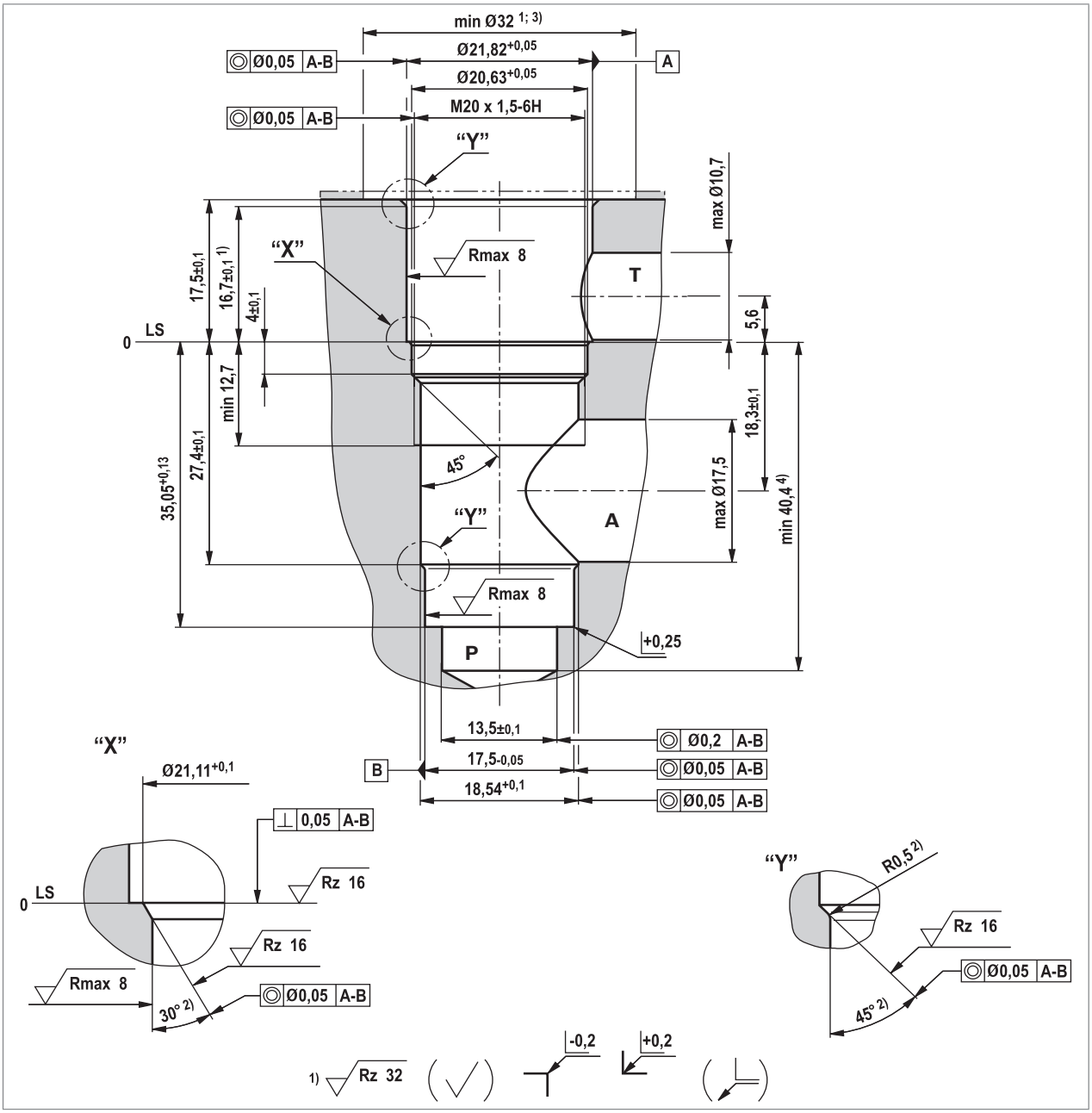
Mounting cavity

▼ **Version R/T-11A – 3 main ports; thread M20×1.5**



1) Deviating from T-11A
2) All seal ring insertion faces are rounded and free of burrs
3) At counterbore
4) Depth for movable parts

Tolerance for all angles ±0.5°
LS = location shoulder
P = pump port
A = consumer port
T = tank port

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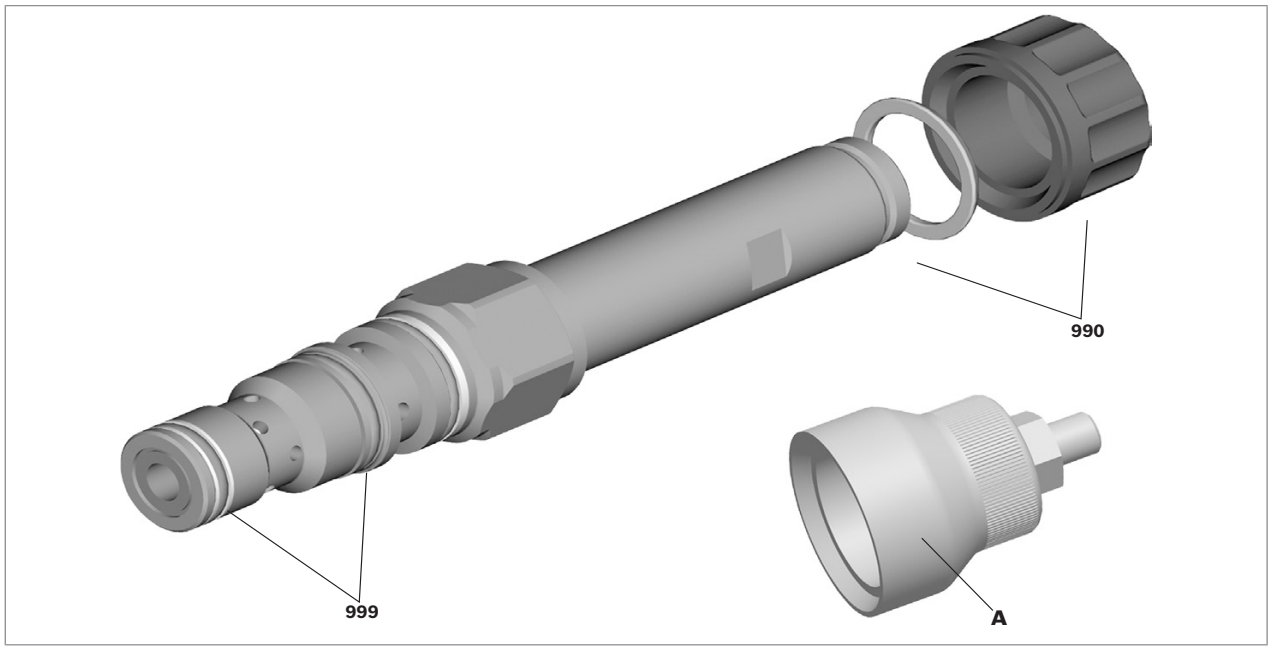
Available individual components



Item	Denomination		DC voltage	Material number
	Coil for single connection	K4	12 V 24 V	R900991678 R900991121
		K40	12 V 24 V	R900729189 R900729190
		C4	12 V 24 V	R900315818 R900315819
A	Auxiliary actuation "N10" [1]			R901051231
990	Nut and O-ring for pole tube			R961012130
999	Seal kit of the valve			R961003235

1) Only for ordering code "N9", see page 2

Related documentation

- Mineral oil-based hydraulic fluids — Data sheet 90220
- Environmentally acceptable hydraulic fluids — Data sheet 90221
- $MTTF_D$ values — Data sheet 90294