

3/2 directional spool valve, direct operated with solenoid actuation

RE 18136-17/02.07 1/10
Replaces: 09.05

Type KKDE (Standard Performance)

Component size 8
Component series A
Maximum operating pressure 250 bar
Maximum flow 20 l/min



H7117

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Features

- Pilot valve
- Mounting cavity R/T-9A
- Direct operated directional spool valve with solenoid actuation
- Fluid can flow through the valve in both directions
- Positive overlap prevents switching shocks
- Wet-pin DC solenoids
- Solenoid coil can be rotated
- With concealed manual override, optional

Ordering code (valve without coil) ¹⁾

Directional spool valve, direct operated,
electrically operated

Maximum operating pressure 250 bar = N

Component size = 8

3 service ports

②

① ③

= C

②

① ③

= U

②

① ③

= G

Further details in clear text

Seal material

FKM seals
(other seals on enquiry)

⚠ Caution!
Observe compatibility of seals with hydraulic fluid used!

V =

N0 = Without manual override

N9 = With concealed manual override

S =

Standard Performance and mounting cavity R/T-9A (see page 9)

A =

Component series

Valve types (without coil) ¹⁾

Spool variant	Without manual override "N0"		With concealed manual override "N9"	
	Type	Material no.	Type	Material no.
C	KKDEN8CA/SN0V	R901070037	KKDEN8CA/SN9V	R901070044
U	KKDEN8UA/SN0V	R901070040	KKDEN8UA/SN9V	R901070045
G	KKDEN8GA/SN0V	R901070042	KKDEN8GA/SN9V	R901070046

Available coils (separate order) ¹⁾

DC voltage ³⁾	Material no. for coil with component plug ²⁾		
	"K4" 03-pin (2+PE) DIN EN 175301-803	"K40" 02-pin K40 DT 04-2PA, make: Deutsch	"C4" 02-pin C4/Z30 AMP Junior-Timer
12 V	R901017496	R901017590	R901017599
24 V	R901017511	R901017592	R901017601

¹⁾ Completely assembled valves with coil on enquiry

²⁾ Cable sockets (separate order), see RE 08006

³⁾ Further voltages on enquiry

Function, section, symbols

General

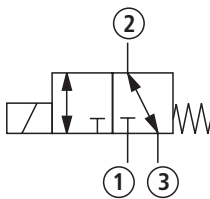
3/2 directional spool valves are direct operated, pressure-balanced cartridge valves. They control the start, stop and direction of a flow and basically consist of housing (1), pilot spool (2) and return spring (3).

Function

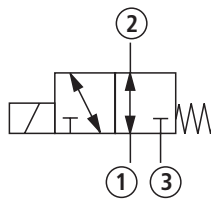
In the non-operated state, pilot spool (2) is held by return spring (3) in the initial position. Pilot spool (2) is operated by means of wet-pin DC solenoid (4). The various symbols refer to corresponding spools (C, U and G). Service ports 1, 2 and 3 can be continuously pressurised to an operating pressure of 250 bar, and the flow can be directed in both directions (see symbols).

With the help of manual override (5) the valve can be operated without energisation of the solenoid.

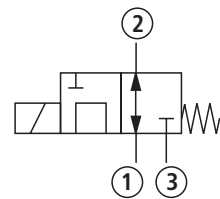
Symbol "C"



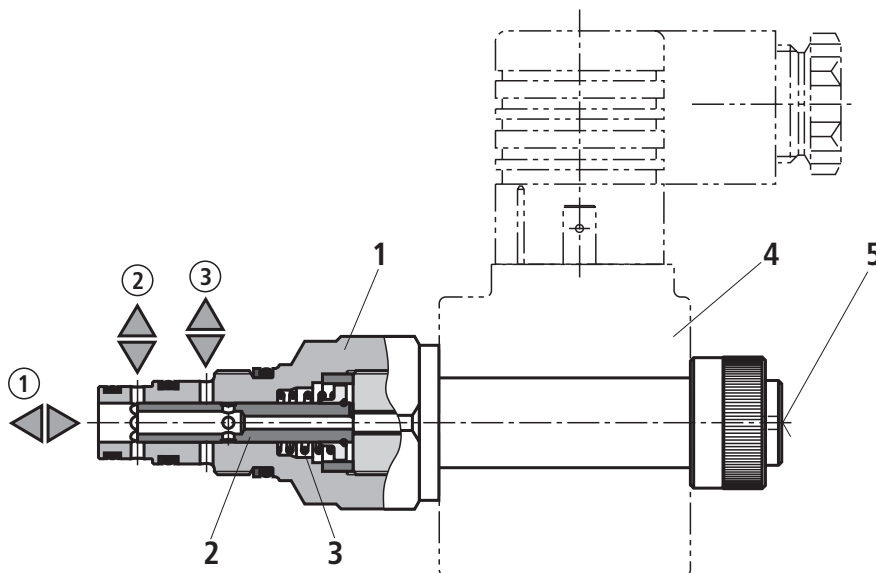
Symbol "U"



Symbol "G"

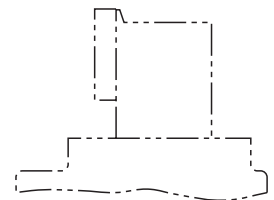


Version "K4"
(with cable socket)

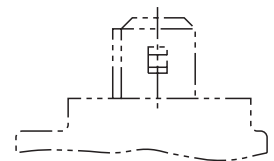


Type KKDEN8GA/SN9V

Version "K40"



Version "C4"



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

Weight	– Valve	kg	0.17
	– Coil	kg	0.20
Installation orientation			Optional
Ambient temperature range		°C	–40 to +120

Hydraulic

Maximum operating pressure	bar	250 (in all ports)
Maximum flow	l/min	20
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 enquiry	
Hydraulic fluid temperature range	°C	–40 to +80
Viscosity range	mm ² /s	4 to 500
Max. permissible degree of contamination of the hydraulic fluid - cleanliness class to ISO 4406 (c)	Class 20/18/15 ¹⁾	
Load cycles	1.5 million	

Electrical

Type of voltage	DC voltage	
Supply voltage ²⁾	V	12 DC; 24 DC
Voltage tolerance vs. ambient temperature	see characteristic curve on page 5	
Power consumption	W	18
Duty cycle	%	see characteristic curve on page 5
Maximum coil temperature ³⁾	°C	150
Switching time to ISO 6403 (solenoid horizontal)	– ON – OFF	ms ms
		≤ 80 ≤ 50
Maximum switching frequency	1/h	15000
Type of protection to VDE 0470-1 (DIN EN 60529) DIN 40050-9	– Version “K4” – Version “C4” – Version “K40”	IP 65 with cable socket mounted and locked IP 66 with cable socket mounted and locked IP 69K with Rexroth cable socket (material no. R901022127) IP 69K with cable socket mounted and locked

¹⁾ 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.

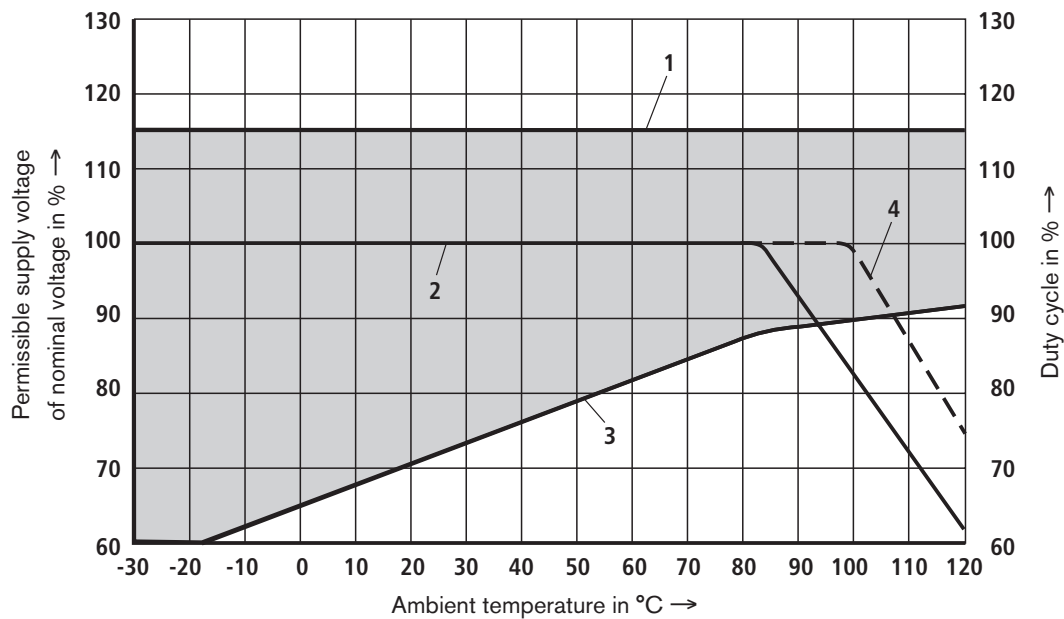
²⁾ Further voltages on enquiry

³⁾ Due to the surface temperatures of solenoid coils, observe European standards EN563 and EN982!

With electrical connection “K4”, the protective conductor (PE \perp) must be properly connected.

Voltage tolerance vs. ambient temperature; duty cycle

Voltage range and duty cycle in dependence on ambient temperature



- 1 Maximum voltage
- 2 Duty cycle
- 3 Minimum operate voltage
- 4 Extension of duty cycle possible in the case of better heat dissipation
- Permissible supply voltage range

Note!

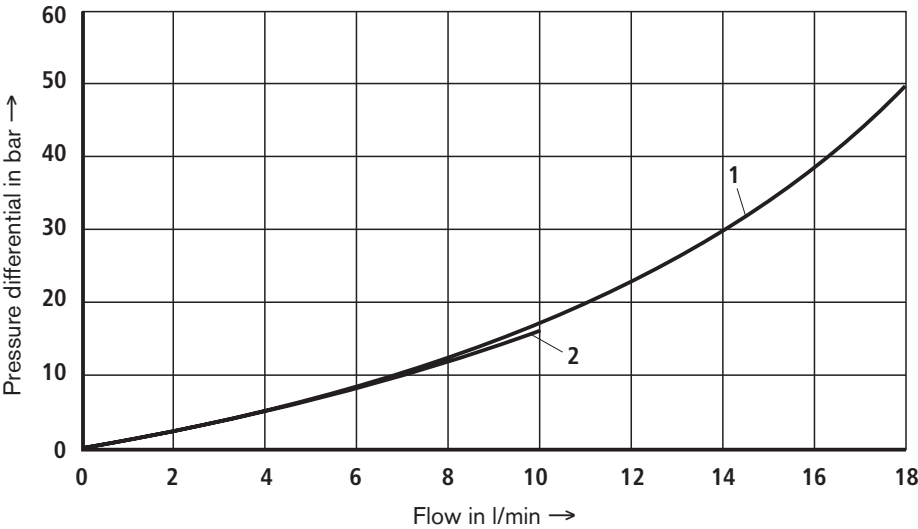
The diagram was determined for a coil with valve and medium test block size (110 x 70 x 66) without flow in static air.

Depending on the installation conditions (block size, flow, air circulation, etc.), a better heat dissipation may be achieved. This results in an extended operating range.

In individual cases, more unfavourable conditions may prevail, which result in a restriction of the operating range.

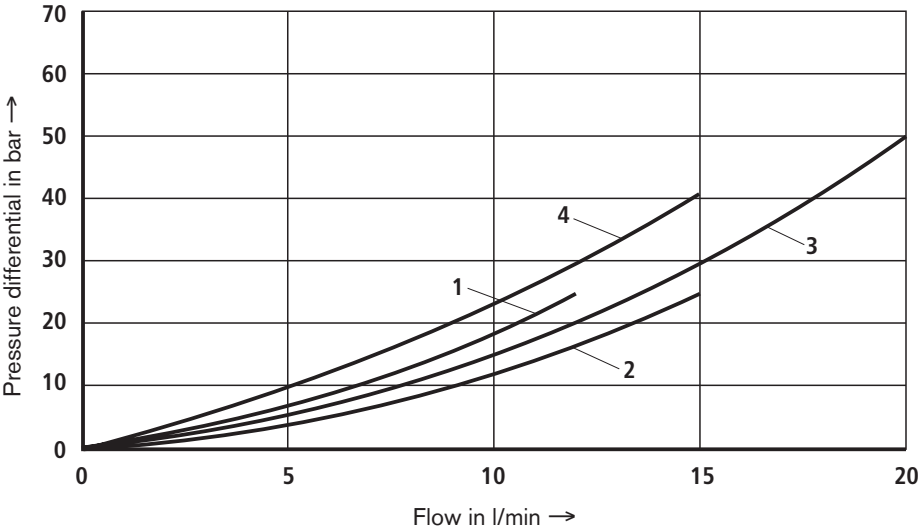
Characteristic curves (measured with HLP46, $\vartheta_{oil} = 40\text{ °C} \pm 5\text{ °C}$ and 24 V coil)

Δp - q_v characteristic curves – symbol C



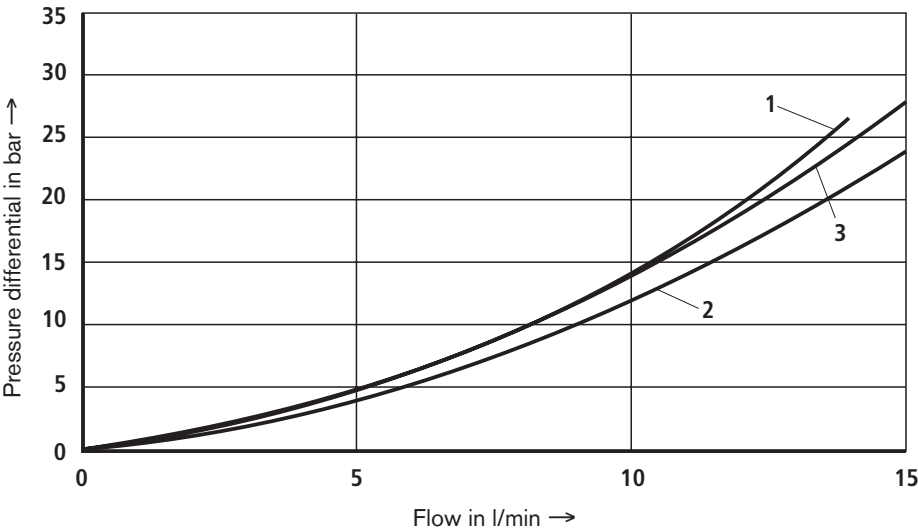
1	1 → 2 2 → 1
2	2 → 3 3 → 2

Δp - q_v characteristic curves – symbol U

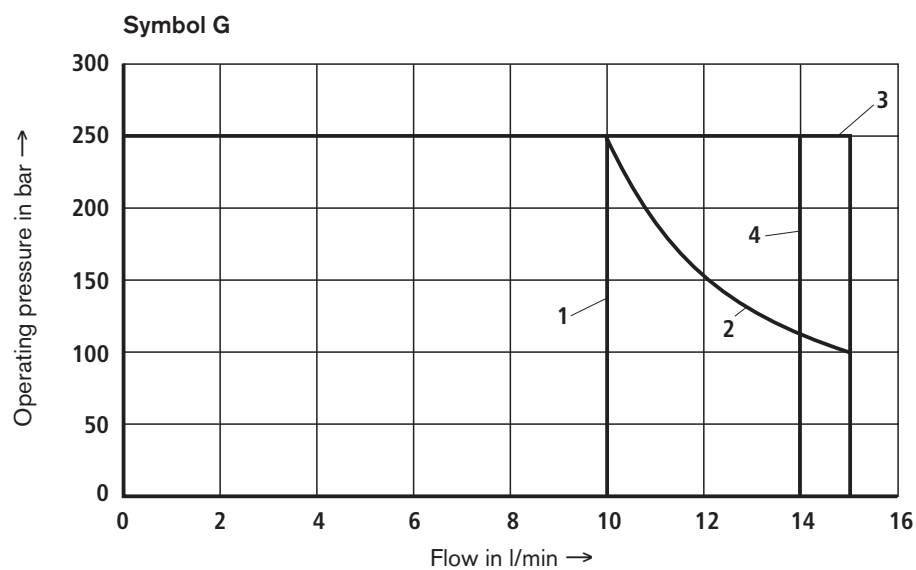
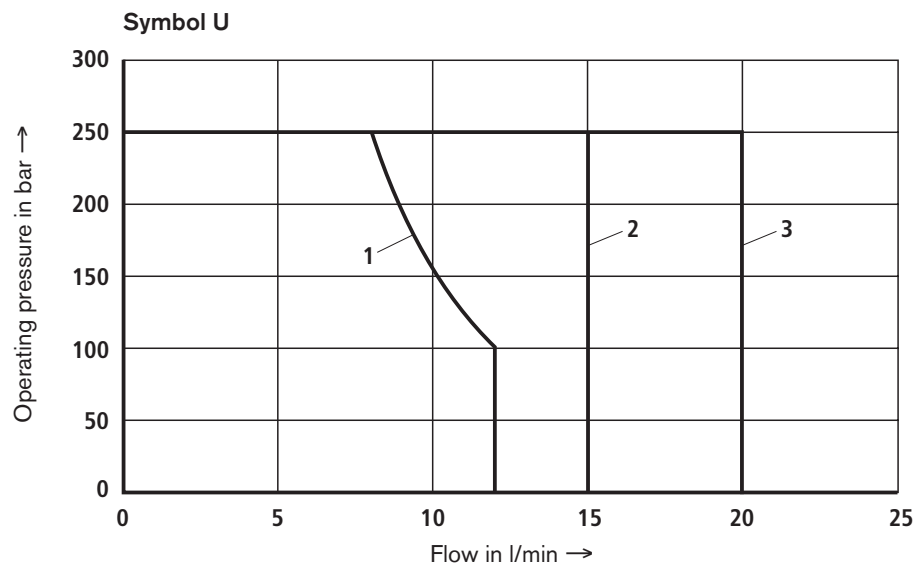
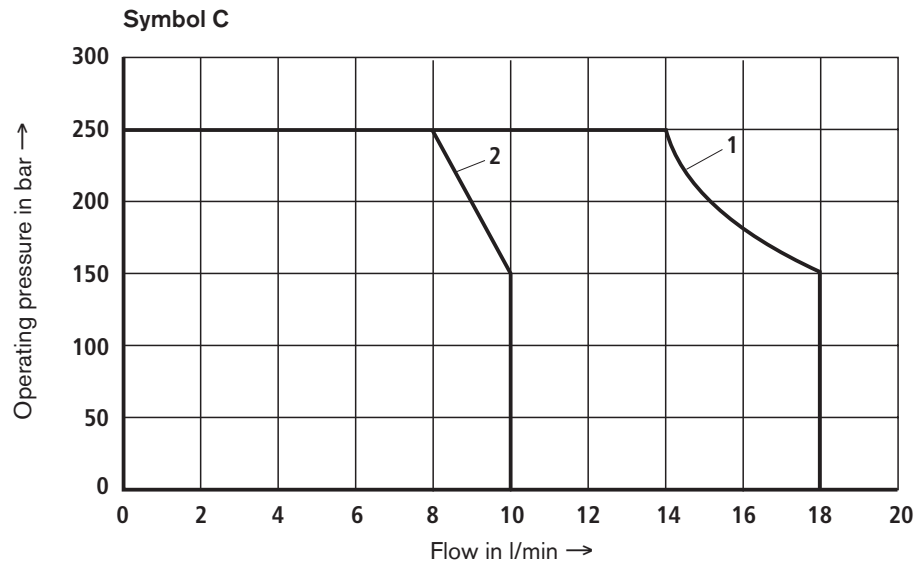


1	1 → 2
2	2 → 1
3	2 → 3
4	3 → 2

Δp - q_v characteristic curves – symbol G

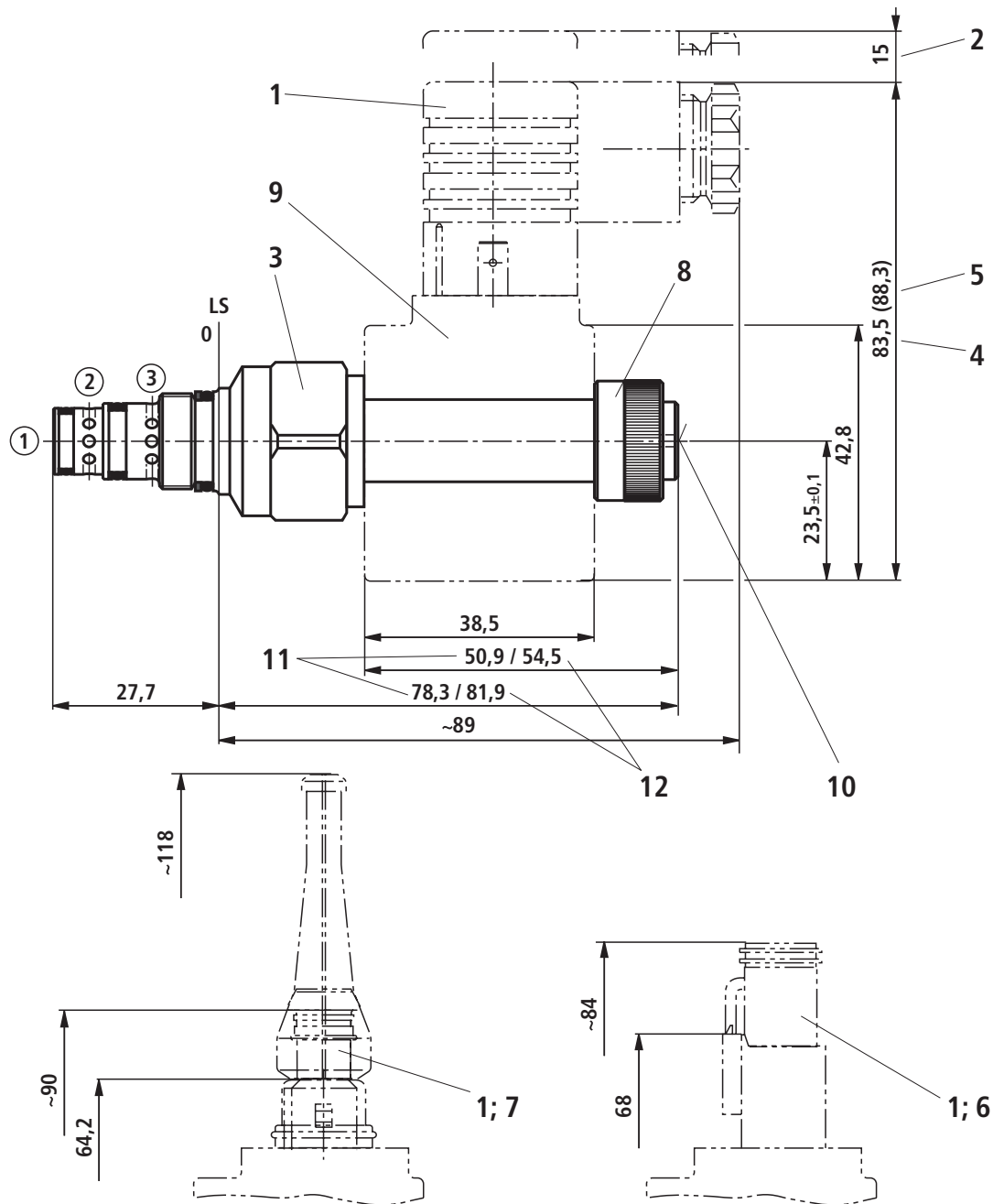


1	1 → 2 3 → 1
2	2 → 1
3	1 → 3

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


⚠ Caution! The performance limit was determined with minimum current.

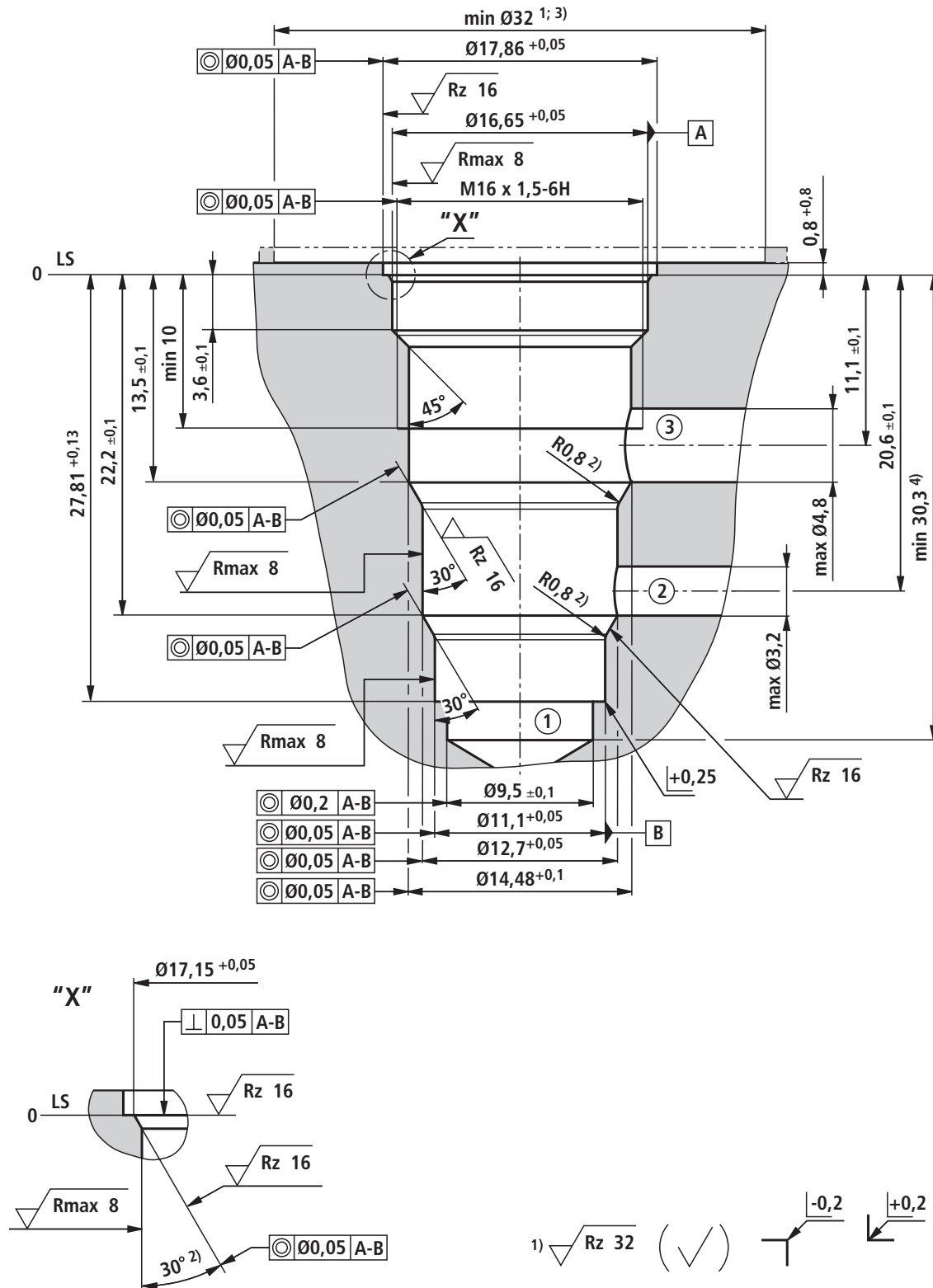
Unit dimensions (nominal dimensions in mm)



- 1 Cable sockets (separate order, see RE 08006)
- 2 Space required to remove cable socket
- 3 A/F 24, tightening torque $M_T = 34$ to 41 Nm
- 4 Dimension for cable socket "K4", without circuitry
- 5 Dimension () for cable socket "K4", with circuitry
- 6 Version "K40"
- 7 Version "C4"
- 8 Nut, tightening torque $M_T = 5^{+1}$ Nm
- 9 Coil; depth 36 ± 0.1 (separate order, see page 2)
- 10 Concealed manual override "N9"
- 11 Dimension for valve with version "N0"
- 12 Dimension for valve with version "N9"

- ① = Main port 1
- ② = Main port 2
- ③ = Main port 3
- LS = Location Shoulder

Mounting cavity R/T-9A; 3 service ports; thread M16 x 1.5 (nominal dimensions in mm)



1) Deviating from T-9A

2) All angled seal ring insertion faces are rounded and free from burrs

3) When countersunk

4) Depth for moving parts

① = Main port 1

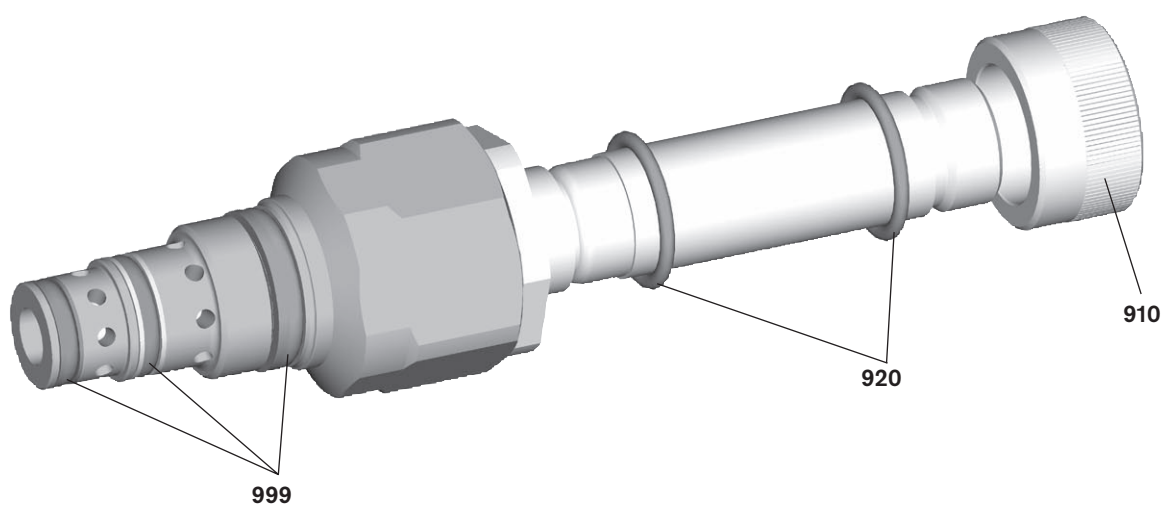
② = Main port 2

③ = Main port 3

LS = Location Shoulder

Tolerance for all angles $\pm 0,5^\circ$

Available individual components



Item	Designation	Material no.
910	Nut	R900754552
920	O-ring for pressure tube	R900004452
999	Valve seal kit	R961003414

Coils, separate order, see page 2