Rexroth
Bosch Group

Pressure relief valve, pilot operated

RE 25731/10.05 1/8
Replaces: 08.03

Type DB . K

K4278-1

Nominal sizes 6 and 10
Component series 4X
Maximum operating pressure 315 bar
Maximum flow 60 l/min (NS6)
100 l/min (NS10)

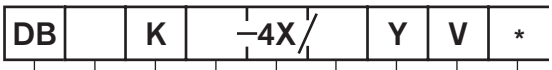
Overview of contents

Features

- Cartridge valve
- 4 pressure stages
- 4 adjustment types, optional:
  - Rotary knob
  - Sleeve with hexagon and protective cap
  - Lockable knob with scale
  - Rotary knob with scale

For information regarding the available spare parts see:
www.boschrexroth.com/spc

Ordering details



Pressure relief valve, pilot operated = **DB**

Nominal size 6 = **6**
Nominal size 10 = **10**

Cartridge valve = **K**

Adjustment type
Rotary knob = **1**
Sleeve with hexagon and protective cap = **2**
Lockable rotary knob with scale = **3** [1)]
Rotary knob with scale = **7**

Component series 40 to 49 = **4X**
(40 to 49: unchanged installation and connection dimensions)

50 = Settable pressure up to 50 bar
100 = Settable pressure up to 100 bar
200 = Settable pressure up to 200 bar
315 = Settable pressure up to 315 bar

Pressure stage

Y = Internal pilot oil supply, External pilot oil drain

Seal material
V = FKM seals (other seals on request)

⚠ Attention!
The compatibility of the seals and pressure fluid is to be taken into account!

Futher details in clear text

[1)] H key with material No. **R900008158** is included within the scope of supply.

Preferred types

Nominal size 6

Type	Material No.
DB 6 K2-4X/50YV	R900487903
DB 6 K2-4X/100YV	R900483440
DB 6 K2-4X/200YV	R900486196
DB 6 K2-4X/315YV	R900483441

Nominal size 10

Type	Material No.
DB 10 K2-4X/50YV	R900422817
DB 10 K2-4X/100YV	R900453240
DB 10 K2-4X/200YV	R900438123
DB 10 K2-4X/315YV	R900438126

Further preferred types and standard components can be found within the EPS (Standard Price List).

Function, section, symbol

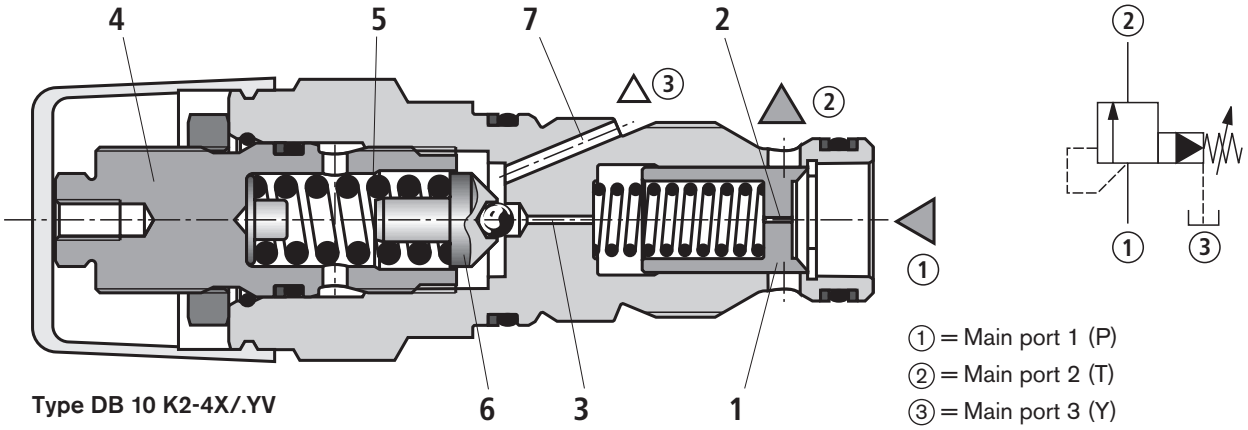
Pressure valves type DB..K.. are pilot operated pressure relief valves for installation in manifolds. They are used to limit the pressure in a hydraulic system. Setting of the system pressure is via adjustment element (4).

At rest, the valves are closed. Pressure in the main port 1 acts on the spool (1). At the same time, pressure is passed through orifice (2) onto the spring loaded side of the spool (1) and through orifice (3) to the pilot poppet (6). If the pressure in main port 1 rises above the value set at spring (5), then the pilot poppet opens (6). Pressure fluid can now flow from the spring loaded side of the spool (1), through the orifice (3) and channel (7) into main port 3. The resulting pressure drop moves piston (1) causing this to open the main port from 1 to 2, whilst the pressure set at spring (5) is maintained.

Pilot oil drain from the two spring chambers is taken externally via main port 3.

☞ **Note!**

Back pressures (main port 3) are added to the set pressure.



Type DB 10 K2-4X/.YV

① = Main port 1 (P)
② = Main port 2 (T)
③ = Main port 3 (Y)

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

General				
Nominal size			6	10
Weight		kg	Approx. 0.15	Approx. 0.2
Installation			Optional	
Ambient temperature range		°C	–20 to +80	

Hydraulic				
Max. operating pressure [1]	– Main port 1 (P)	bar	315	
Max. settable pressure	– Main port 1 (P)	bar	50; 100; 200; 315	
Max. permissible back pressure [1]	– Main port 2 (T)	bar	315	
	– Main port 3 (Y)	bar	315	
Maximum flow		l/min	60	100
Pressure fluid			Mineral oil (HL, HLP) to DIN 51524; fast bio-degradable pressue fluids to VDMA 24568 (also see RE 90221); HETG (rape seed oil); HEPG (polyglycole); HEES (synthetic ester); other pressure fluids on request	
Pressure fluid temperature range		°C	–20 to +80	
Viscosity range		mm^2/s	10 to 800	
Maximum permissible degree of pressure fluid contamination Cleanliness class to ISO 4406 (c)			Class 20/18/15 [2]	

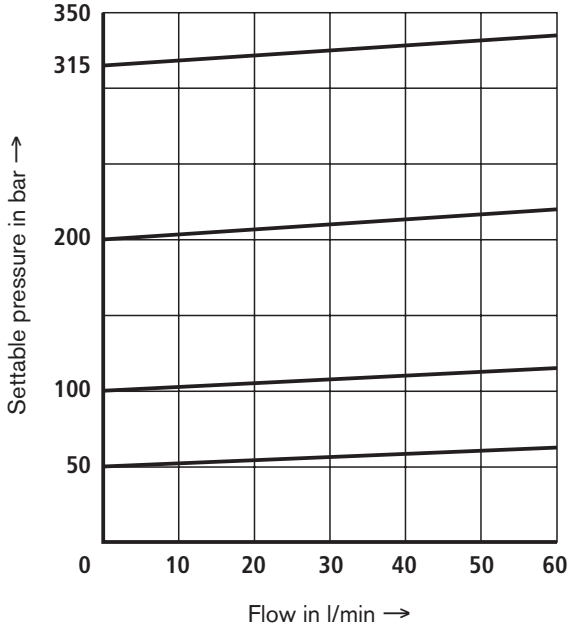
[1] ⚠ **Attention!** The maximum operating pressure results from the sum of the set pressure and the back pressure!

[2] The cleanliness class stated for the components must be adhered to in hydraulic systems. Effective filtration prevents faults from occurring and at the same time increases the component service life.

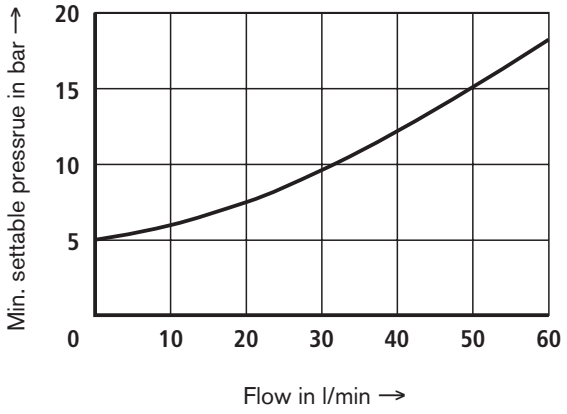
For the selection of filters see data sheets RE 50070, RE 50076, RE 50081, RE 50086 and RE 50088.

Characteristic curves – NS6 (measured with HLP46, $\vartheta_{oil} = 40\ °C \pm 5\ °C$)

p_E-q_V-characteristic curves



$p_{E\,min}$-q_V-characteristic curves

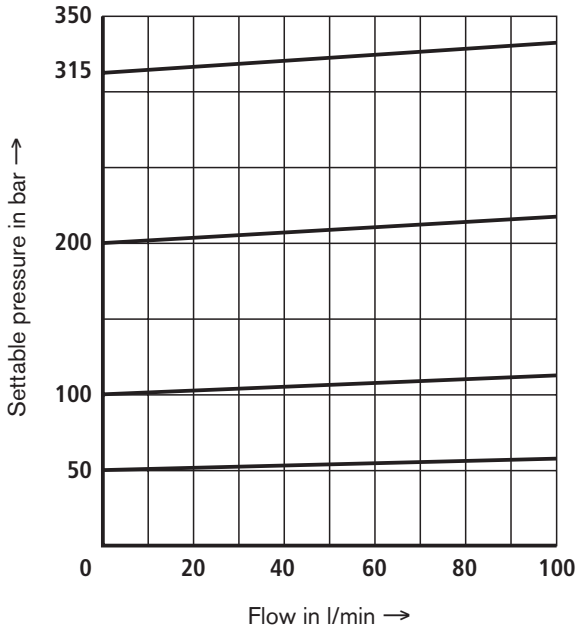


⚠ Attention!

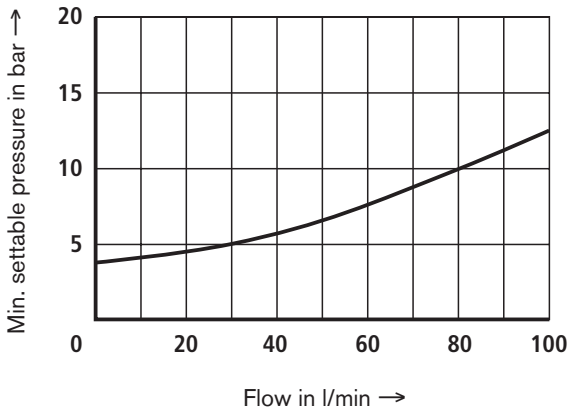
The characteristic curves are valid for an outlet pressure = zero over the entire flow range!

Characteristic curves – NS10 (measured with HLP46, $\vartheta_{oil} = 40\ °C \pm 5\ °C$)

p_E-q_V-characteristic curves



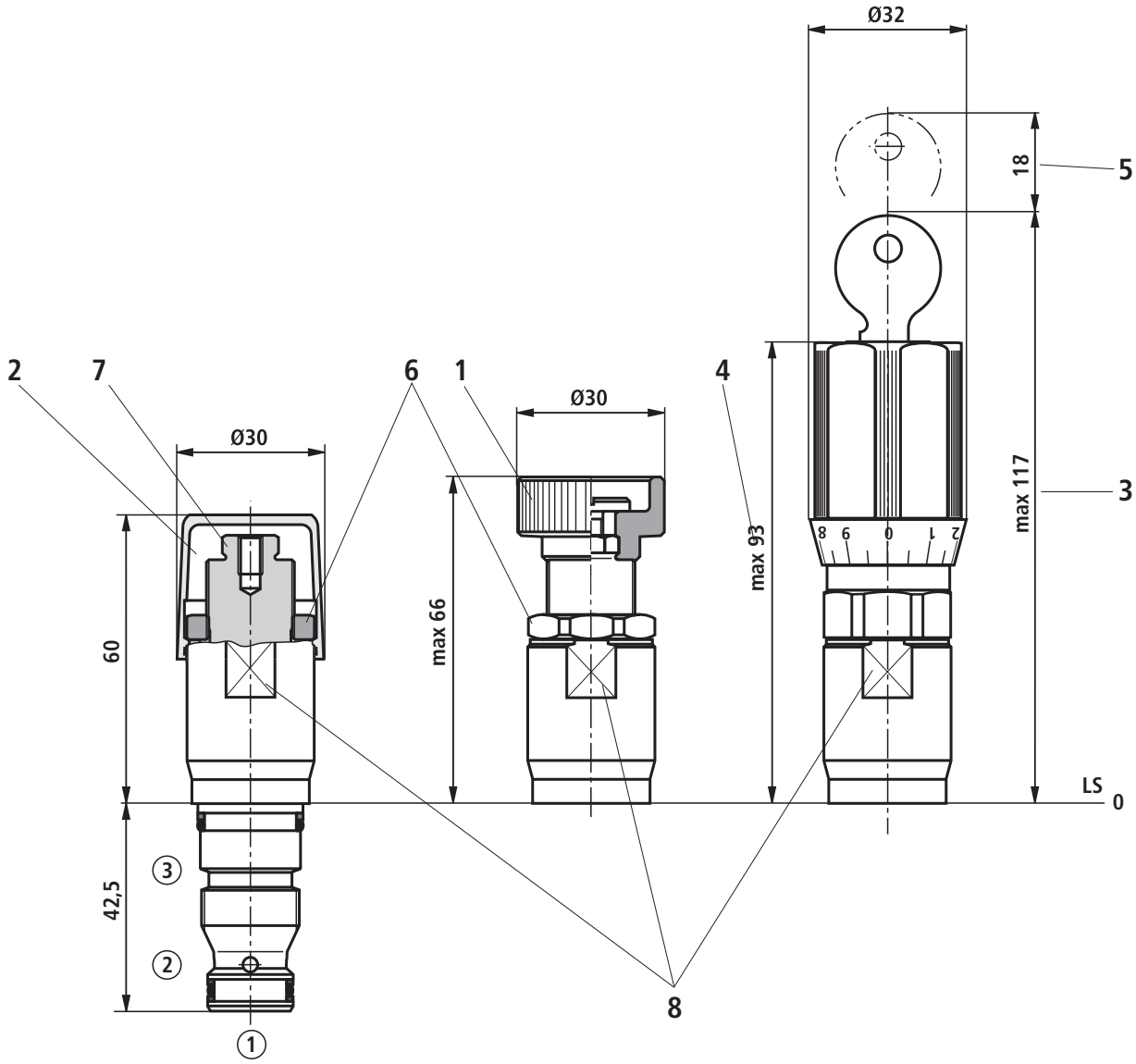
$p_{E\,min}$-q_V-characteristic curves



⚠ Attention!

The characteristic curves are valid for an outlet pressure = zero over the entire flow range!

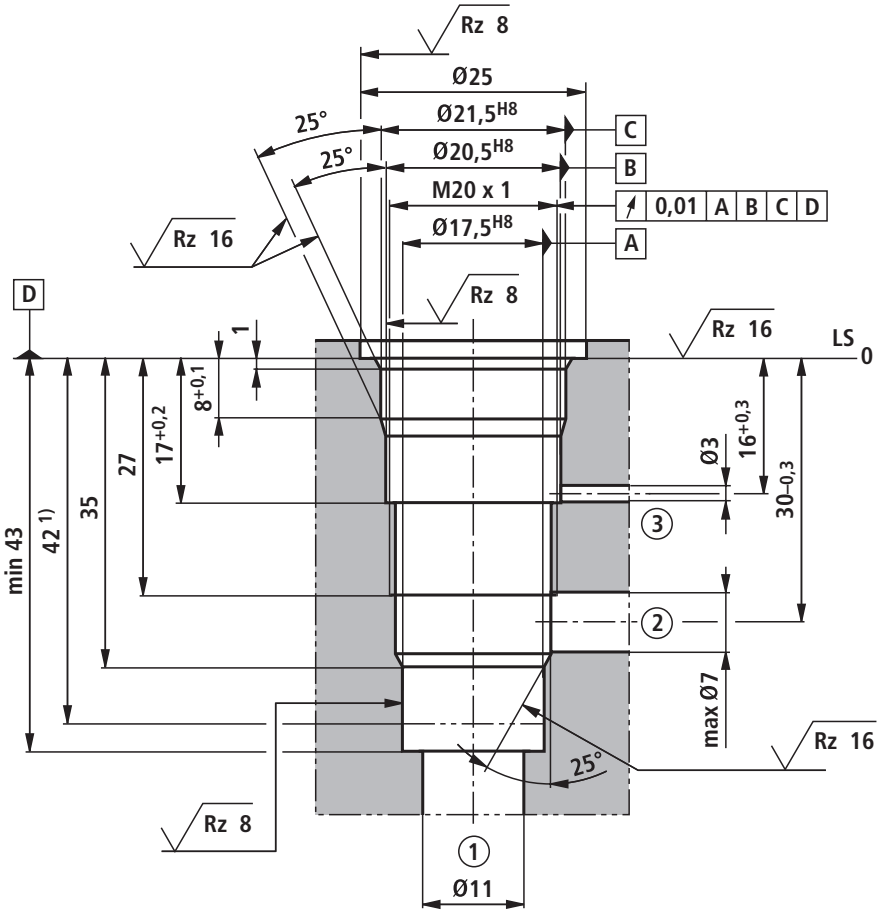
Unit dimensions – NS6 (nominal dimensions in mm)



1 Adjustment type "1"
2 Adjustment type "2"
3 Adjustment type "3"
4 Adjustment type "7"
5 Space required to remove the key
6 Locknut 24A/F
7 Hexagon 10A/F
8 Key width 24A/F, tightening torque $M_A = 50$ Nm

① = Main port 1 (P)
② = Main port 2 (T)
③ = Main port 3 (Y)
LS = Location Shoulder

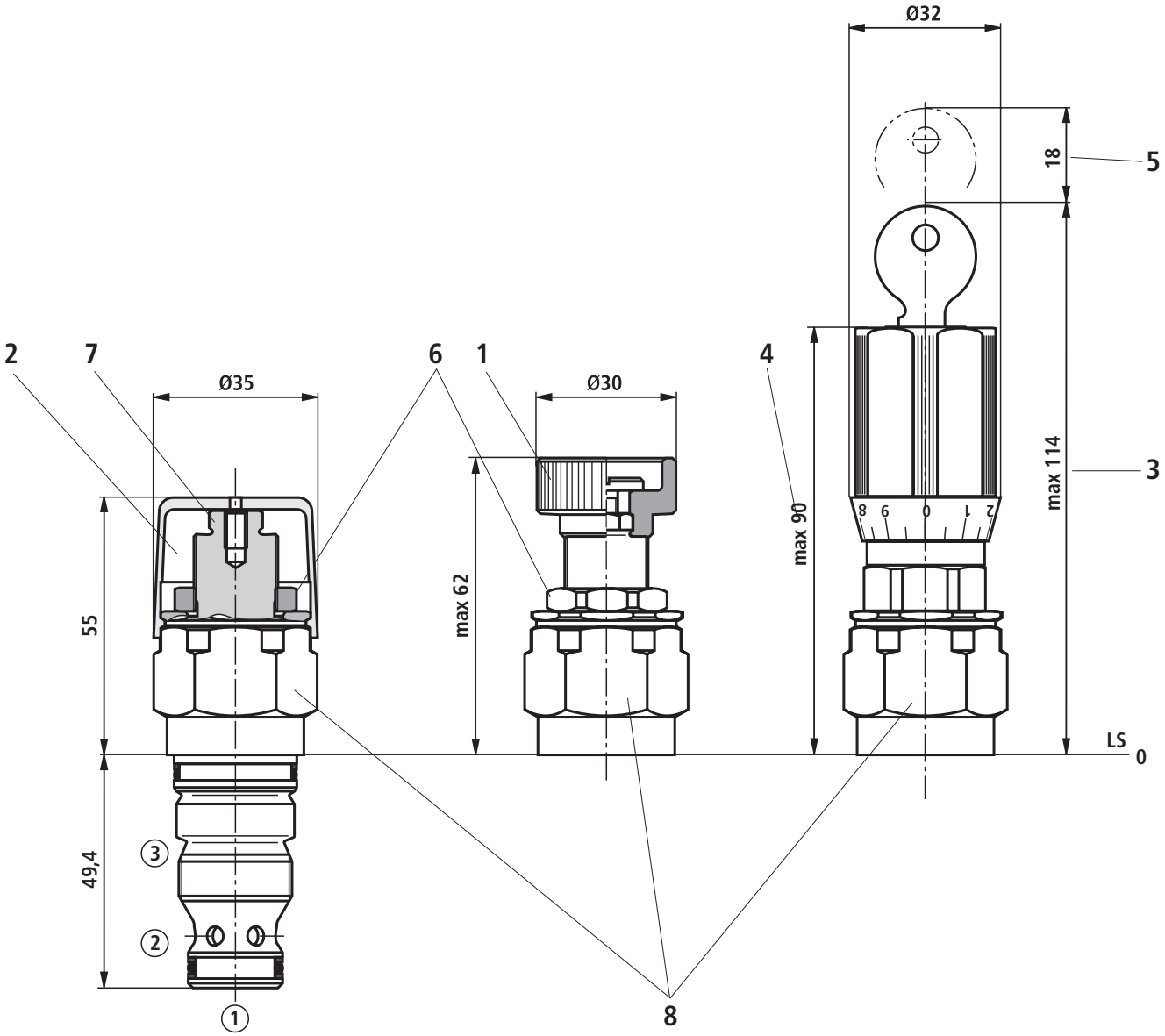
Cavity – NS6; 3 main ports; thread M20 x 1 (nominal size in mm)



① = Main port 1 (P)
② = Main port 2 (T), location; optional about the circumference
③ = Main port 3 (Y)
LS = Location Shoulder

1) Depth of fit

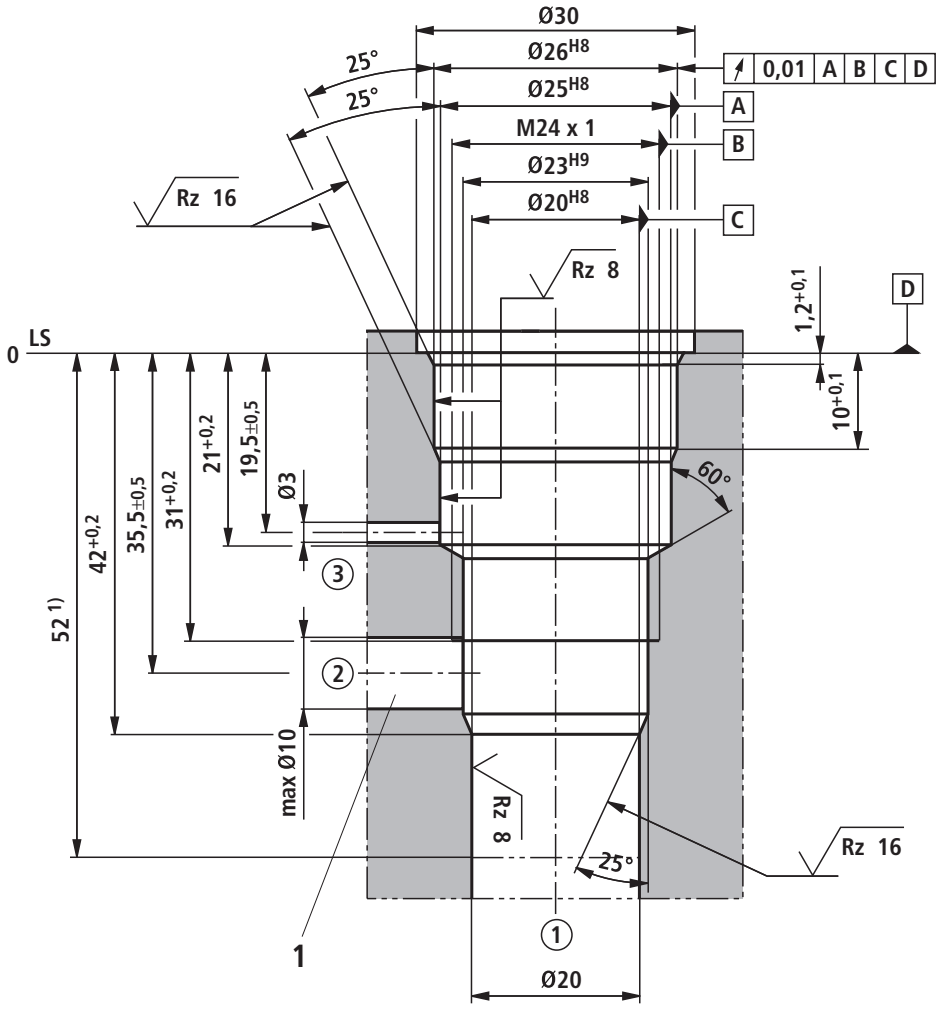
Unit dimensions – NS10 (nominal dimensions in mm)



1 Adjustment type "1"
2 Adjustment type "2"
3 Adjustment type "3"
4 Adjustment type "7"
5 Space required to remove the key
6 Locknut 24A/F
7 Hexagon 10A/F
8 Hexagon 30A/F, tightening torque M_A = 50 Nm

① = Main port 1 (P)
② = Main port 2 (T)
③ = Main port 3 (Y)
LS = Location Shoulder

Cavity – NS10; 3 main ports; thread M20 x 1 (nominal dimensions in mm)



① = Main port 1 (P)
② = Main port 2 (T), location: optional about the circumference
③ = Main port 3 (Y)
LS = Location Shoulder

1) Depth of fit

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