

Check valve, cartridge design

Type M-SR

RE 20380

Edition: 2018-05

Replaces: 2017-07



- ▶ Size 6 ... 30
- ▶ Component series 1X
- ▶ Maximum operating pressure 420 bar
- ▶ Maximum flow 400 l/min

Features

- ▶ For installation in block designs
 - As angle valve
 - As straight-through valve
- ▶ Leakage-free blocking in one direction
- ▶ Various cracking pressures, optional (see ordering codes)

Contents

Features	1
Ordering code	2
Symbols	2
Sections	3
Technical data	4
Characteristic curves	5, 6
Installation bore	7 ... 10
Further information	11

Ordering code

01	02	03	04	05	06	07	08
M-SR				-	1X	/	*

01	Check valve, cartridge design	M-SR
02	Size 6 (not version "KE")	6
	Size 8	8
	Size 10	10
	Size 15	15
	Size 20	20
	Size 25	25
	Size 30	30

Unit design

03	Angle valve	KE
	Straight-through valve	KD

Cracking pressure (see characteristic curves on page 5 and 6)

04	0 bar, without spring (not version "KD")	00
	0.2 bar	02
	0.5 bar (standard)	05
	1.5 bar	15
	3.0 bar	30
	5.0 bar	50
	05	Component series 10 ... 19 (10 ... 19: unchanged installation and connection dimensions)

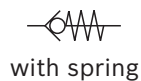
Orifice in channel B (version "KD" only)

06	Without orifice	no code
	Core hole M4	B00
	Orifice Ø 1.0 mm	B10
	Orifice Ø 1.2 mm	B12

Seal material (version "KE" only)

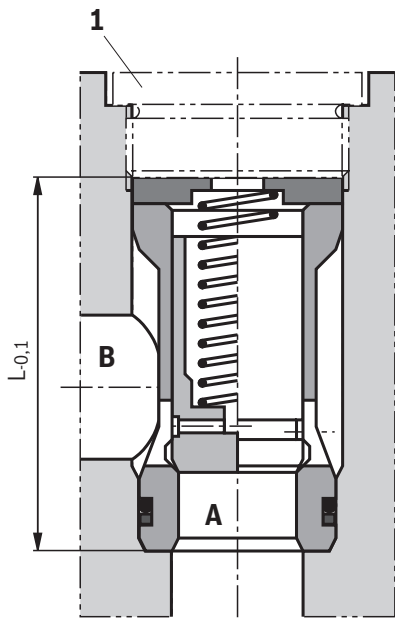
07	NBR seals	no code
	FKM seals	V
	Observe compatibility of seals with hydraulic fluid used. (Other seals upon request)	
08	Further details in the plain text	

Symbols

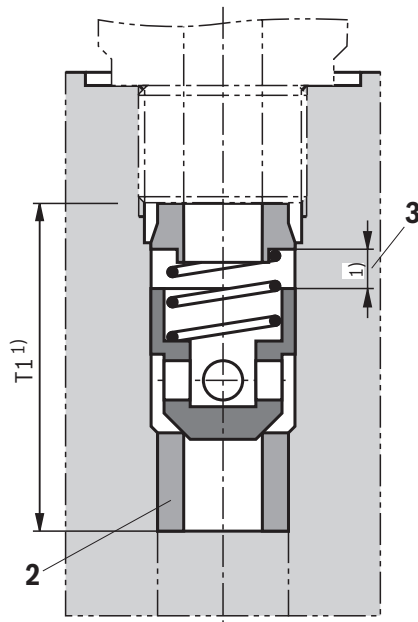


Sections

Angle valve "KE"



Straight-through valve "KD"



NG	L _{-0,1}
8	36.3
10	39.3
15	45.8
20	55.3
25	74.3
30	83.3

1 Plug screws, separate order, see page 7 and 9

2 Seat shrink-fitted with -60 °C

3 Poppet stroke

¹⁾ For dimensions, see installation bores

Technical data

(for applications outside these values, please consult us!)

general									
Sizes	NG	6	8	10	15	20	25	30	
Weight	▶ Angle valve "KE"	kg	–	0.03	0.05	0.08	0.14	0.32	0.47
	▶ Straight-through valve "KD"	kg	0.05	0.05	0.05	0.1	0.2	0.25	0.3
Installation position	any								
Ambient temperature range	°C	–20 ... +80 (NBR seals) –20 ... +80 (FKM seals)							
MTTF _d value according to EN ISO 13849	Years	150 (for further details see data sheet 08012 and 90294)							

hydraulic	
Maximum operating pressure	bar 420
Cracking pressure	bar see characteristic curves on page 5 and 6
Maximum flow	l/min see characteristic curves on page 5 and 6
Hydraulic fluid	see table below
Hydraulic fluid temperature range	°C –30 ... +80 (for NBR seals) –20 ... +80 (for FKM seals)
Viscosity range	mm ² /s 2.8 ... 500
Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)	class 20/18/15 ¹⁾

Hydraulic fluid	Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils	HL, HLP	NBR, FKM	DIN 51524	90220
Bio-degradable	▶ Insoluble in water	HETG	ISO 15380	90221
		HEES		
	▶ Soluble in water	HEPG	ISO 15380	
Flame-resistant	▶ water-free	HFDU (glycol base)	ISO 12922	90222
		HFDU (ester base)		
	▶ containing water	HFC (Fuchs Hydrotherm 46M, Petrofer Ultra Safe 620)	NBR	ISO 12922

**Important information on hydraulic fluids:**

- ▶ For further information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.
- ▶ There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.).

▶ Flame-resistant – containing water:

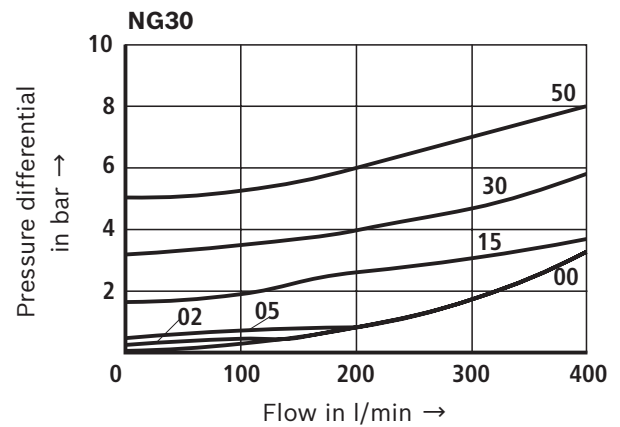
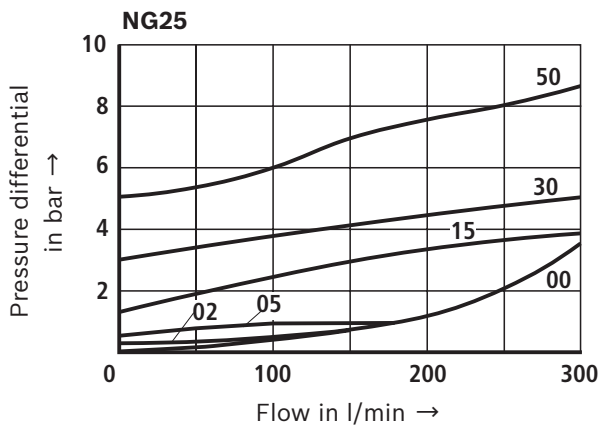
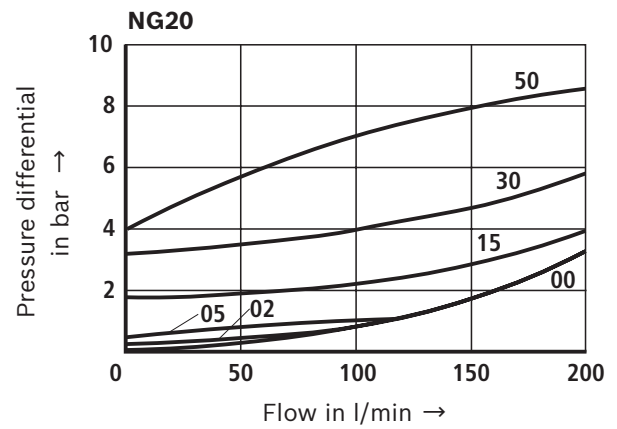
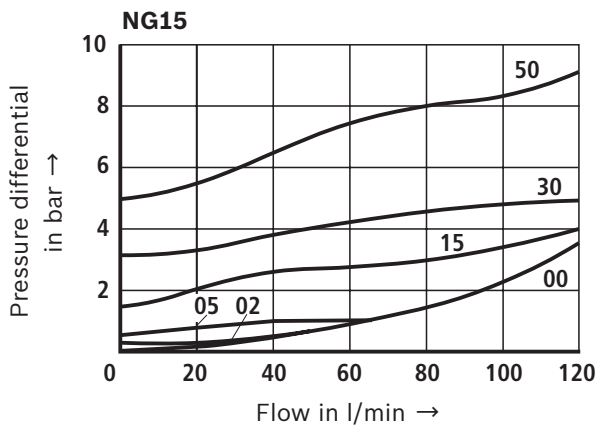
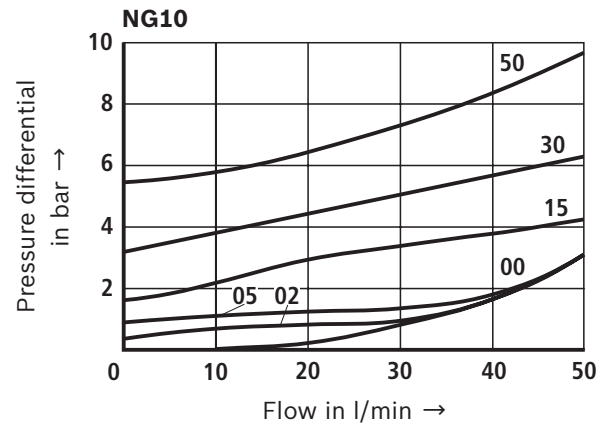
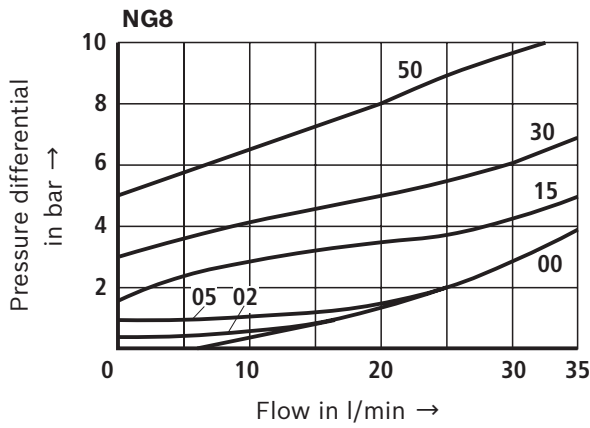
- Life cycle as compared to operation with mineral oil HL, HLP 30 ... 100%
- Maximum hydraulic fluid temperature 60 °C

¹⁾ The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and simultaneously increases the life cycle of the components.

For the selection of filters, see www.boschrexroth.com/filter.

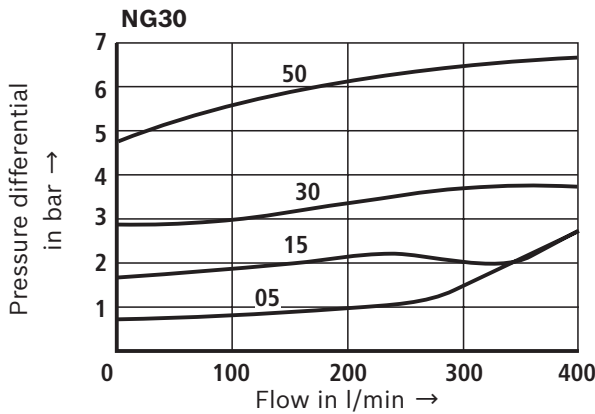
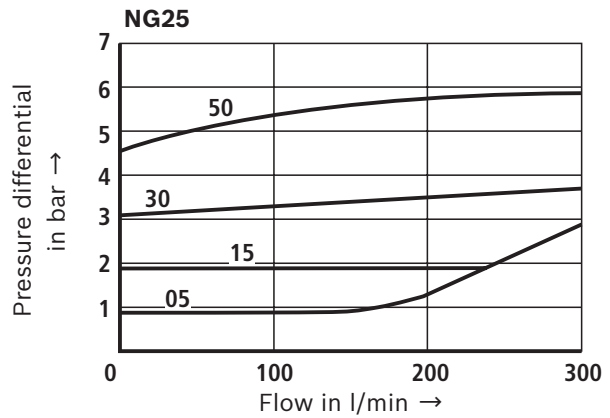
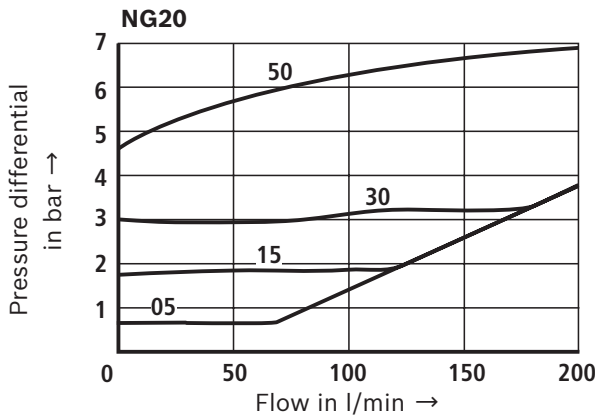
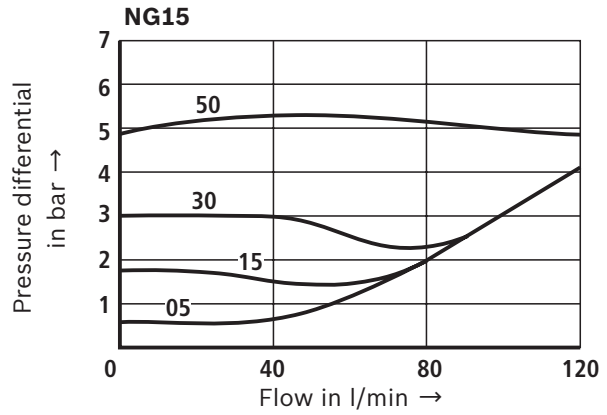
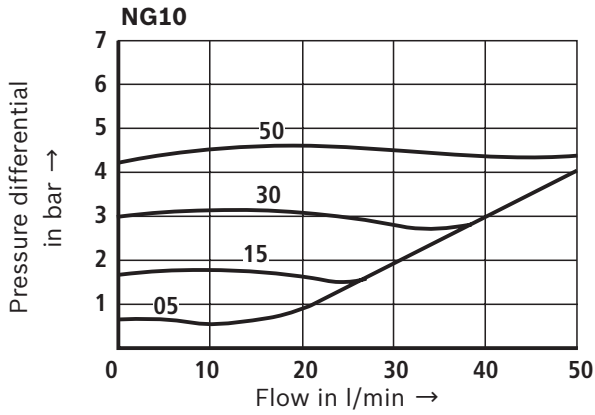
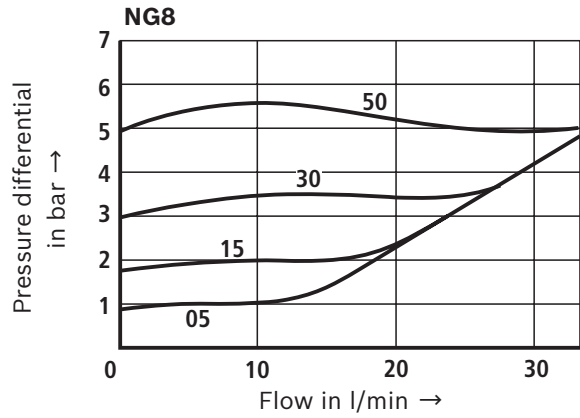
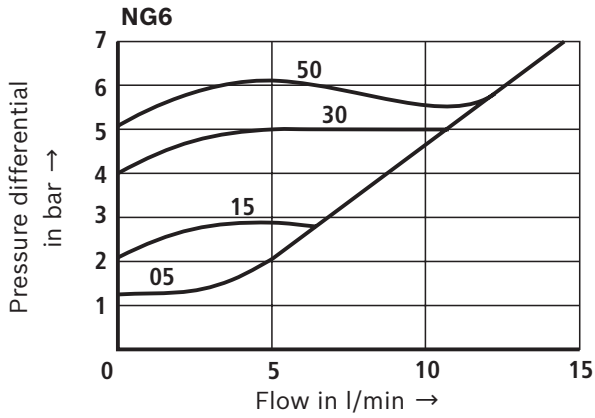
Characteristic curves: "KE" version
(measured with HLP46, $\vartheta_{oil} = 40 \pm 5 \text{ }^\circ\text{C}$)

Pressure differential Δp dependent on the flow q_v at cracking pressure

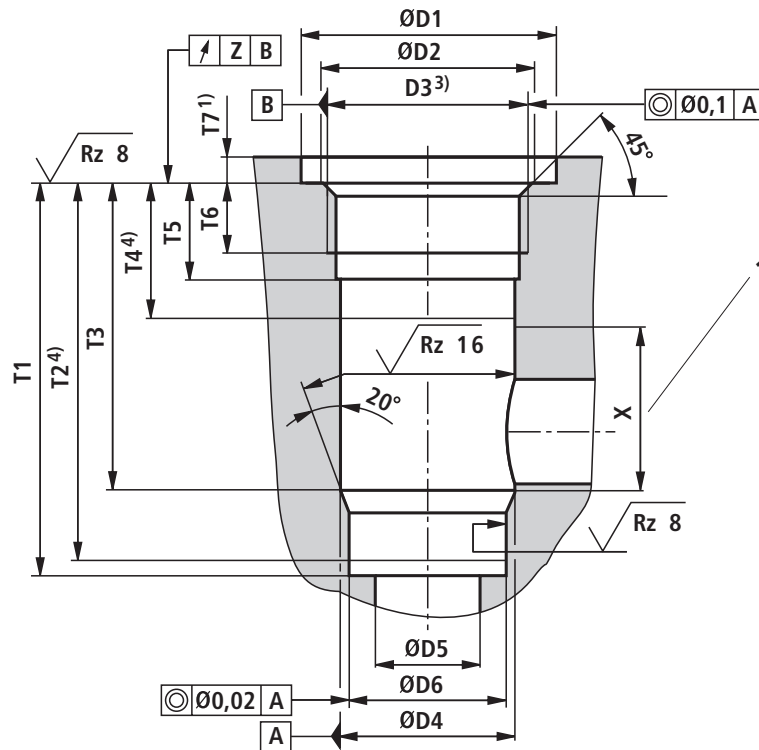


Characteristic curves: Version "KD"
(measured with HLP46, $\vartheta_{oil} = 40 \pm 5 \text{ }^\circ\text{C}$)

Pressure differential Δp dependent on the flow q_v at cracking pressure



Installation bore: Angle valve "KE" for plug screw acc. to ZN 10001
(dimensions in mm)



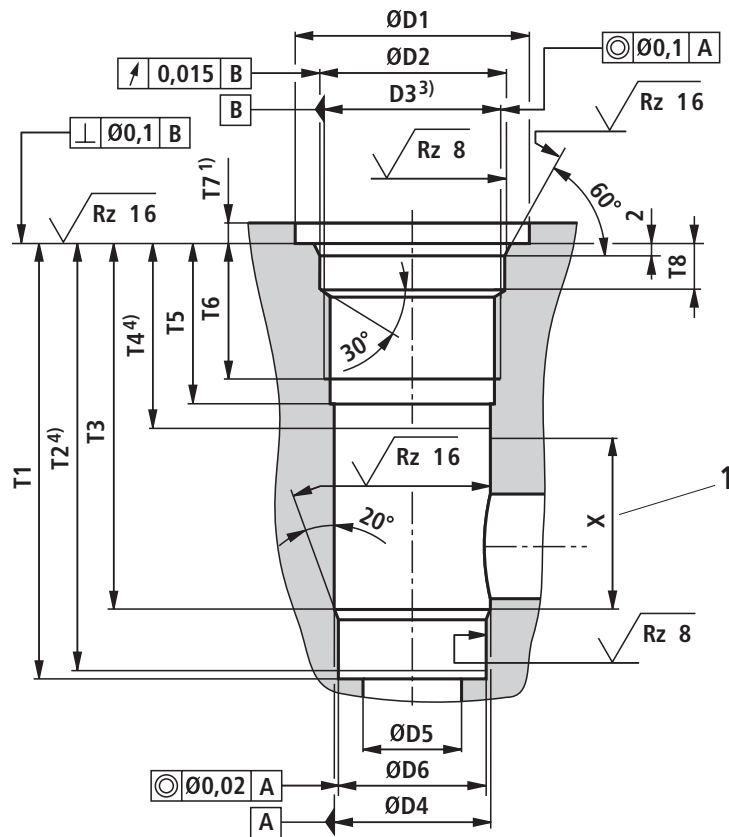
1 Range for outlet bore

NG	Plug screws – Material no. 2)			p_N in bar	ØD1	ØD2	D3	ØD4H8	ØD5	ØD6H7
	NBR	FKM	$M_A \pm 10\%$ in Nm							
8	R913011602	R913011610	55	420	23	17.1	G3/8 ³⁾	14	8	13
10	R913011603	R913011611	80	420	28	21.4	G1/2 ³⁾	18	10	17
15	R913011604	R913011612	135	420	33	26.8	G3/4 ³⁾	24	15	22
20	R913011605	R913011613	225	420	41	33.8	G1 ³⁾	30	20	28
25	R913011606	R913011614	360	250	51	42.5	G1 1/4 ³⁾	38	25	36
30	R913011607	R913011615	400	250	56	48.5	G1 1/2 ³⁾	44	30	42

NG	T1 ^{+0.1}	T2	T3	T4	T5	T6	T7 ^{+0.5}	T8 ^{+0.2}	X	Z
8	48.5	47.5	38.5	20	15	12	6	–	18	0.05
10	53.5	52.5	43.5	24	18	14	6	–	19	0.05
15	62	60.5	50	26	20.5	16	6	–	24	0.05
20	71.5	70	56.5	26	20.5	16	7	–	30	0.05
25	90.5	88	72.5	28	22	16	7	–	43	0.1
30	99.5	96.5	79.5	31	22	16	7	–	48	0.1

- 1) Dimensions for countersinking the screw head. For lower installation of the installation kit, dimension T7 has to be extended accordingly.
- 2) Separate order. Oiling of plug screws prior to installation is recommended.
- 3) Pipe thread "G..." according to ISO 228/1
- 4) Depth of fit

Installation bore: Angle valve "KE" for plug screw acc. to RN 143.28 – up to 315 bar
(dimensions in mm)



1 Range for outlet bore

Plug screws – Material no. ²⁾				p_N	$\varnothing D1$	$\varnothing D2H8$	D3	$\varnothing D4H8$	$\varnothing D5$	$\varnothing D6H7$
NG	NBR	FKM	$M_A \pm 10\%$ in Nm	in bar						
25	R900323609	R900301957	300	315	56+0.5	44	M42 x 1.5 ³⁾	38	25	36
30	R900323610	R900301958	325	315	62+0.5	50	M48 x 1.5 ³⁾	44	30	42

NG	$T1^{+0.1}$	T2	T3	T4	T5	T6	$T7^{+0.5}$	$T8^{+0.2}$	X	Z
25	106.5	104	88.5	45	39	33	5	12	43	–
30	115.5	112.5	95.5	48	39	33	5	12	48	–

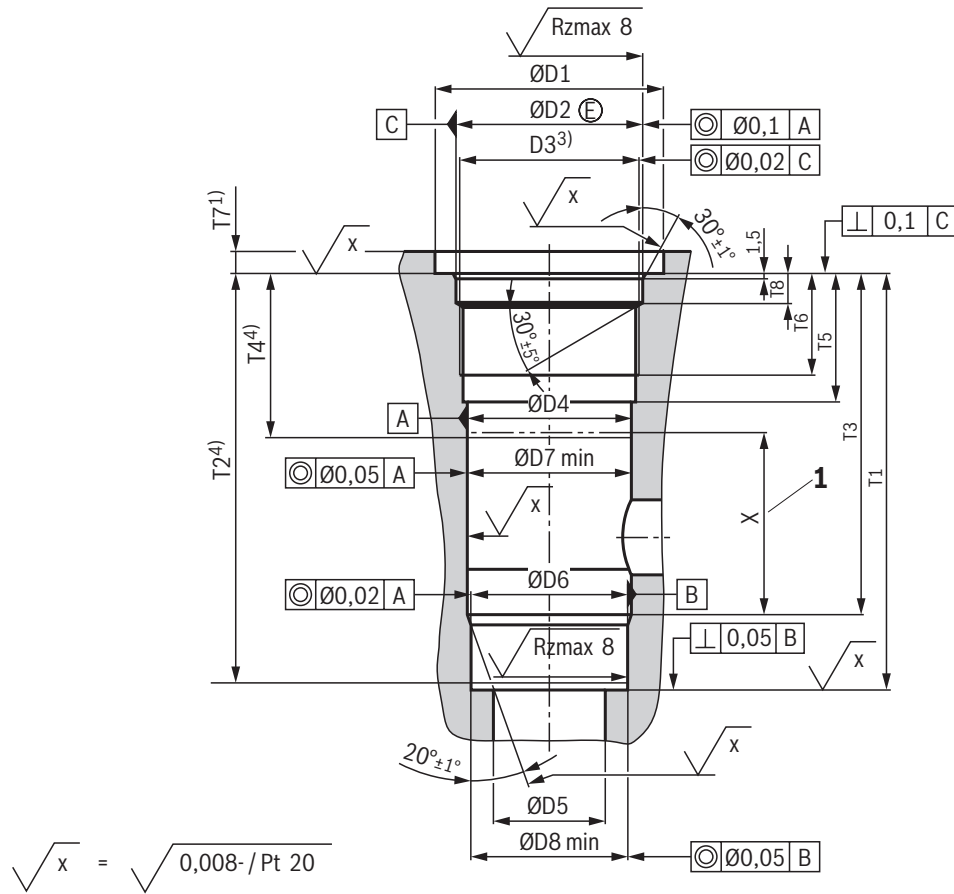
1) Dimensions for countersinking the screw head. For lower installation of the installation kit, dimension T7 has to be extended accordingly.

2) Separate order, to be replaced in case of maintenance.

3) Metric ISO fine thread according to DIN 13

4) Depth of fit

Installation bore: Angle valve "KE" for plug screws acc. to RN 143.28 – up to 420 bar
(dimensions in mm)



1 Range for outlet bore

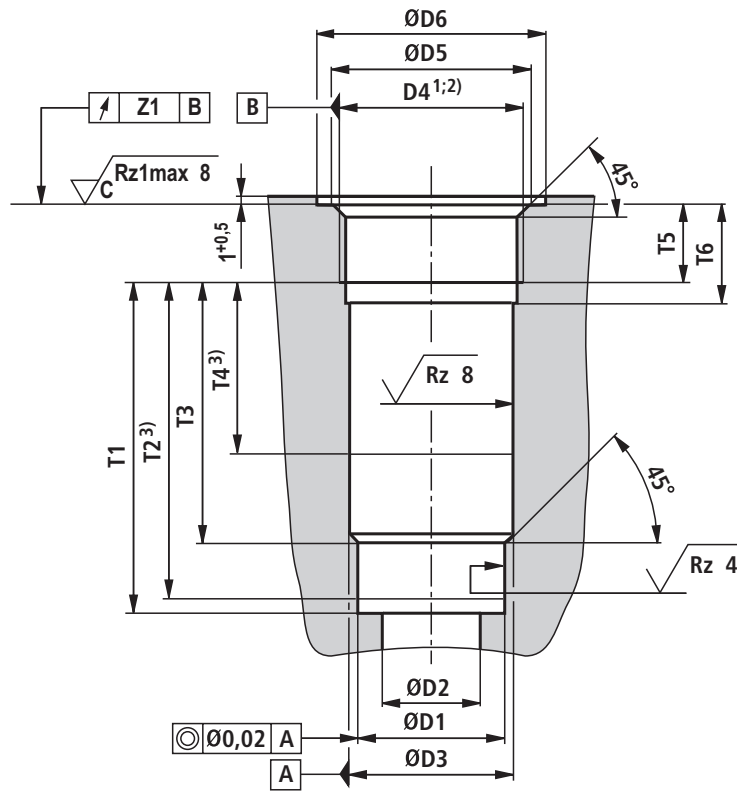
NG	Plug screws – Material no. 2)			p _N in bar	ØD1	ØD2H8	D3	ØD4H8	ØD5	ØD6H7	ØD7	ØD8
	NBR	FKM	M _A ±10% in Nm									
25	R901183335	R901253503	300	420	51+0.5	44	M42x2	38	25	36	37.58	35.58
30	R901183336	R901253504	325	420	61+0.5	50	M48x2	44	30	42	43.58	41.58

NG	T1 ^{+0.1}	T3	T2 min	T4 min	T5	T6 ⁺¹	T7 ^{+0.5}	T8 ^{+0.2}	X
25	101.5	83.5	100	40	34	27	6	7.8	43
30	110.5	90.5	108.5	43	34	27	6	7.8	48

- 1) Dimensions for countersinking the screw head. For lower installation of the installation kit, dimension T7 has to be extended accordingly.
- 2) Separate order, to be replaced in case of maintenance.
- 3) Metric ISO fine thread according to DIN 13
- 4) Depth of fit

Notice:
From an operating pressure larger 350 bar, the plug screw has to be glued by means of Loctite 243 over the complete thread circumference.

Installation bore: Straight-through valve "KD"
(dimensions in mm)



NG	ØD1H7	ØD2	ØD3H8	$\text{D4}^{1)}$	$\text{ØD5}\pm 0.1^{1)}$	$\text{D4}^{2)}$	$\text{ØD5}\pm 0.1^{2)}$	ØD6
6	10	6	11	G1/4	13.6	M14 x 1.5	14.4	25
8	13	8	14	G3/8	17.1	M18 x 1.5	18.4	28
10	17	10	18	G1/2	21.4	M22 x 1.5	22.4	34
15	22	15	24	G3/4	26.8	M27 x 2	27.4	42
20	28	20	30	G1	33.8	M33 x 2	33.5	47
25	36	25	38	G1 1/4	42.5	M42 x 2	42.5	58
30	42	30	44	G1 1/2	48.5	M48 x 2	48.5	65

NG	$T1_{-0.1}$	T2	T3	T4	T5	T6	Z1	Poppet stroke
6	29.8	27.8	21.8	19	12	16	0.1	4
8	32.8	30.8	22.8	18	12	16	0.1	4
10	38.8	36.8	28.8	21	14	19	0.1	4
15	48.4	46.4	36.4	27	16	21	0.2	5
20	59	57	44	29	18	24	0.2	5
25	73	71	55	39	20	26	0.2	7
30	83	81	63	42	22	28	0.2	7

1) Pipe thread "G..." according to ISO 228/1

2) Metric ISO fine thread according to DIN 13

3) Depth of fit

Further information

- ▶ Hydraulic fluids on mineral oil basis
- ▶ Environmentally compatible hydraulic fluids
- ▶ Flame-resistant, water-free hydraulic fluids
- ▶ Flame-resistant hydraulic fluids - containing water (HFAE, HFAS, HFB, HFC)
- ▶ Reliability characteristics according to EN ISO 13849
- ▶ Hydraulic valves for industrial applications
- ▶ Selection of filters
- ▶ Information on available spare parts

Data sheet 90220

Data sheet 90221

Data sheet 90222

Data sheet 90223

Data sheet 08012 and 90294

Operating instructions 07600-B

www.boschrexroth.com/filter

www.boschrexroth.com/spc

Notes

Bosch Rexroth AG
Industrial Hydraulics
Zum Eisengießer 1
97816 Lohr am Main, Germany
Phone +49 (0) 93 52/40 30 20
my.support@boschrexroth.de
www.boschrexroth.de

© All rights reserved to Bosch Rexroth AG, also regarding any disposal, exploitation, reproduction, editing, distribution, as well as in the event of applications for industrial property rights.

The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification.
It must be remembered that our products are subject to a natural process of wear and aging.