

Throttle and throttle check valve

RE 27226/11.11
Replaces: 03.09

1/8

Types FG and FK

Size 16 to 32
Component series 2X
Maximum operating pressure 315 bar
Maximum flow 400 l/min



H7471

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Features

- For block installation (cartridge valve, screw-in cartridge valve)
- 3 adjustment types, optionally:
 - Rotary knob
 - Lockable rotary knob with scale
 - Rotary knob with scale
- Different cracking pressures (type FK)

Ordering code

					-2X/	*	
Throttle valve	= FG						Further details in the plain text
Throttle check valve	= FK						Seal material
Size 16	= 16					no code =	NBR seals
Size 25	= 25					V =	FKM seals
Size 32	= 32						(other seals upon request)
Type of connection							Attention!
Cartridge valve	= K						Observe compatibility of the seals with the
Screw-in cartridge valve	= C						hydraulic fluid used!
Adjustment type					2X =		Component series 20 to 29
Rotary knob	= 1						(20 to 29: Unchanged installation and
Lockable rotary knob with scale	= 3						connection dimensions)
Rotary knob with scale	= 7						Cracking pressure (throttle check valve)
					0 ¹⁾ =		Without spring
					2 ²⁾ =		Cracking pressure 1.5 bar (standard)
					3 ²⁾ =		Cracking pressure 3 bar

1) Only with type FG

2) Only with type FK

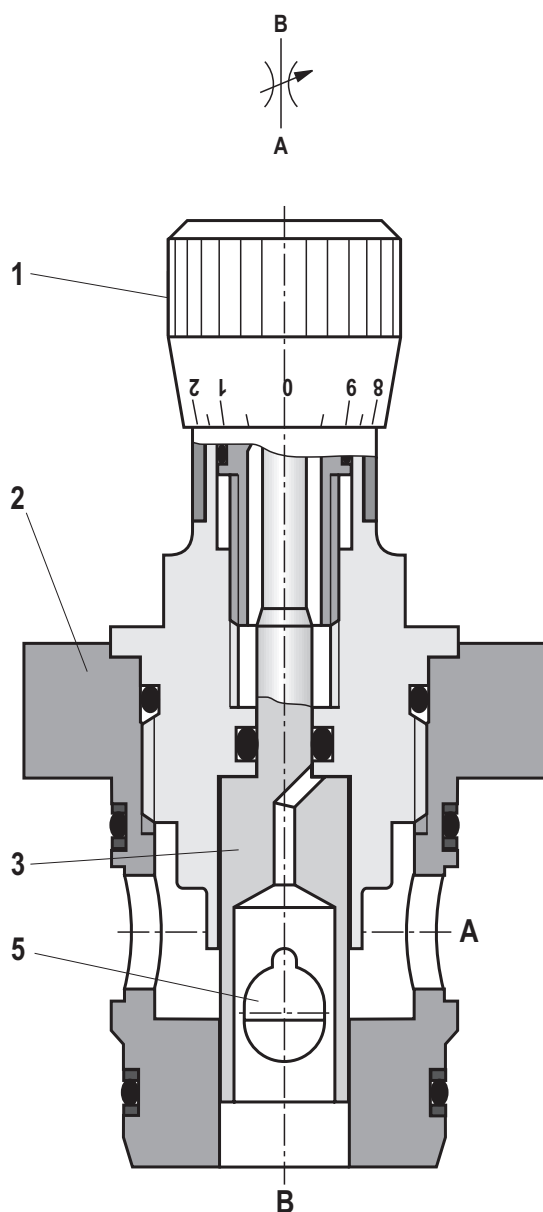
Function, symbols, sections

Type FG . K... and FK . K... (cartridge valve)

The valves of the types FG and FK are throttle and throttle check valves. The flow depends on the pressure differential between A and B and on the viscosity of the hydraulic fluid.

The valves mainly consist of adjustment type (1), housing (2), throttling pin (3) and check valve (4) with valve type FK.

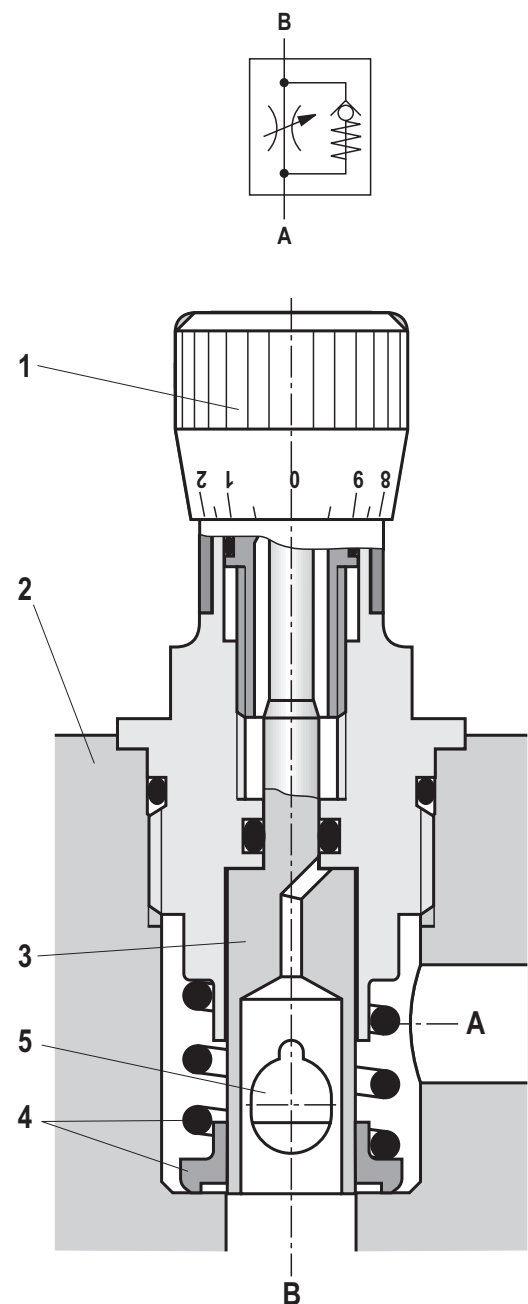
The flow is throttled from A to B. The throttle cross-section (5) is adjusted by displacing the throttling pin (3) in axial direction. For free flow back from B to A, a check valve (4) is installed with valve type FK.



Type FG . K1...

Type FG . C... and FK . C... (screw-in cartridge valve)

In principle, the function of these valves corresponds to the function of version "K". However, they are delivered without housing (2) and thus can be screwed into the block directly.



Type FK . C1...

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

Size	Size	16	25	32
Weight	– Cartridge valve "K"	kg	0.8	1.7
	– Screw-in cartridge valve "C"	kg	0.4	0.7
Installation position	Any			
Ambient temperature range	°C	–30 to +80 (NBR seals) –20 to +80 (FKM seals)		

hydraulic

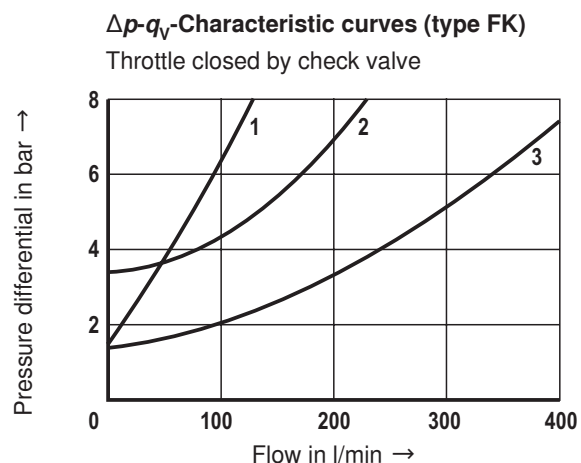
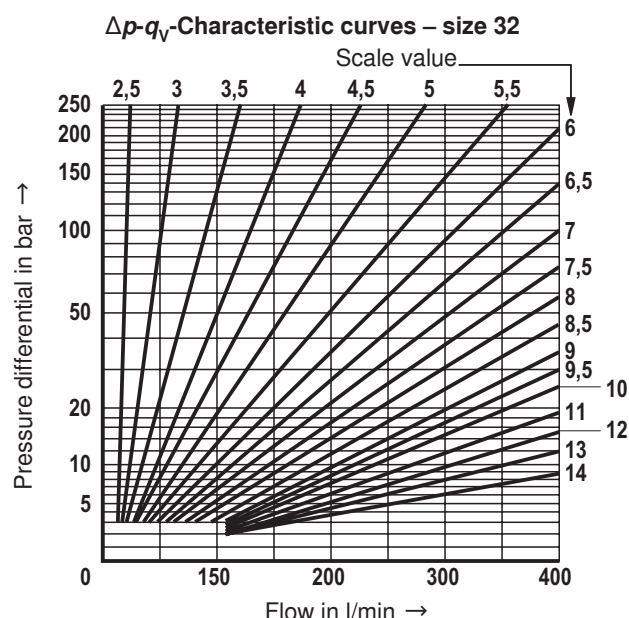
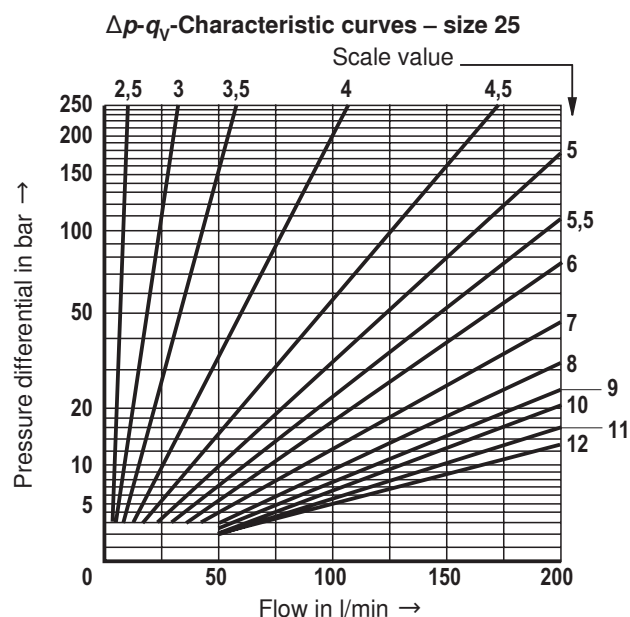
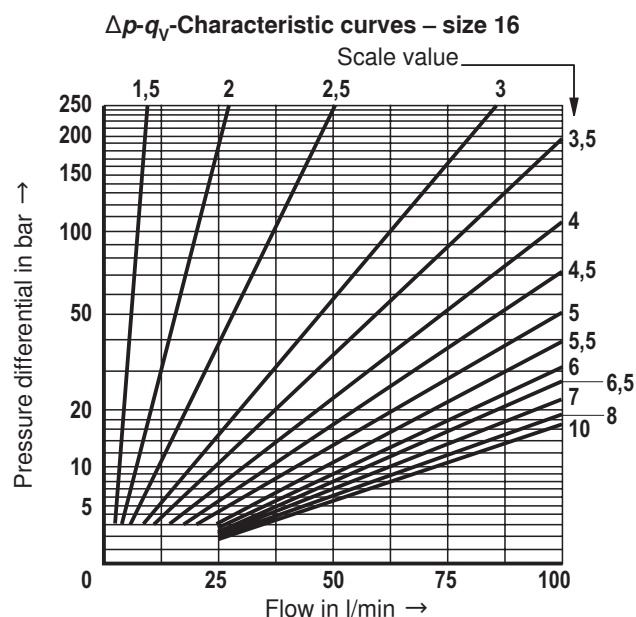
Maximum operating pressure	bar	315
Maximum flow (standard valves)	l/min	100
Hydraulic fluid	See table below	
Hydraulic fluid temperature range	°C	–30 to +80 (NBR seals) –20 to +80 (FKM seals)
Viscosity range	mm ² /s	10 to 800
Maximum permitted degree of contamination of the hydraulic fluid - cleanliness class according to ISO 4406 (c)	Class 20/18/15 ¹⁾	
Actuating torque (adjustment type)	Nm	Approx. 5

Hydraulic fluid	Classification	Suitable sealing materials	Standards
Mineral oils and related hydrocarbons	HL, HLP, HLPD, HVLP, HVLPD	NBR, FKM	DIN 51524
Environmentally compatible	– Insoluble in water	HETG	ISO 15380
		HEES	
	– Soluble in water	HEPG	ISO 15380
Flame-resistant	– Water-free	HFUD, HFDR	ISO 12922
 Important information on hydraulic fluids! – For more information and data on the use of other hydraulic fluids refer to data sheet 90220 or contact us!			
– There may be limitations regarding the technical valve data (temperature, pressure range, service life, maintenance intervals, etc.)!			

¹⁾ 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.

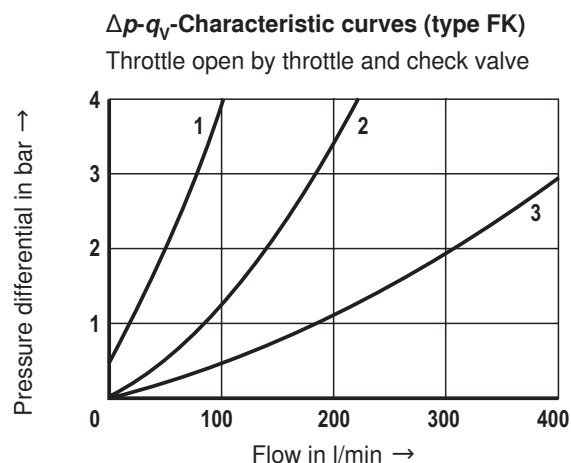
For the selection of the filters see
www.boschrexroth.com/filter.

Characteristic curves (measured with HLP46, $\vartheta_{\text{Oil}} = 40 \pm 5 \text{ }^{\circ}\text{C}$)



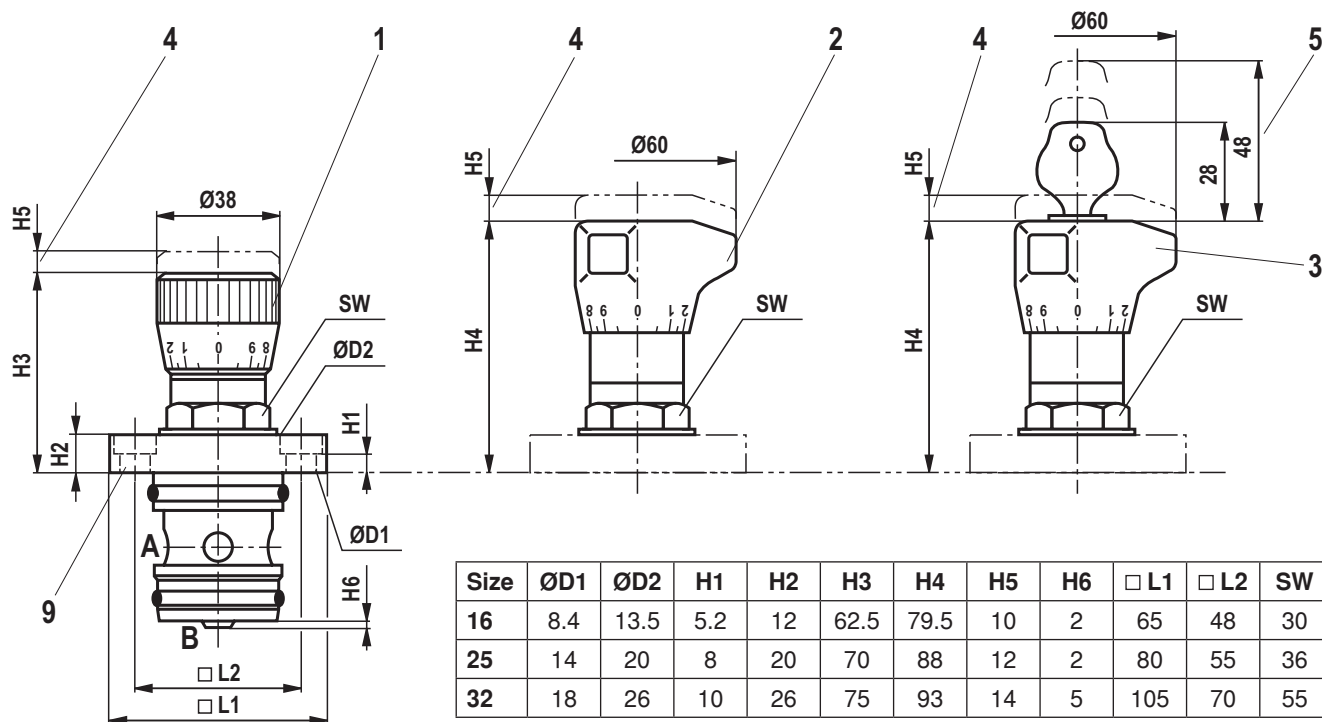
1 Size 16

2 Size 25

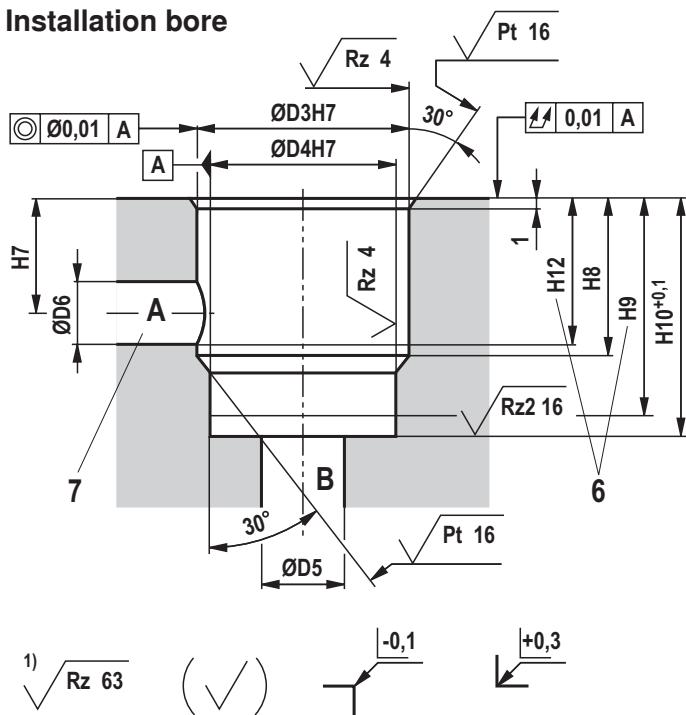


3 Size 32

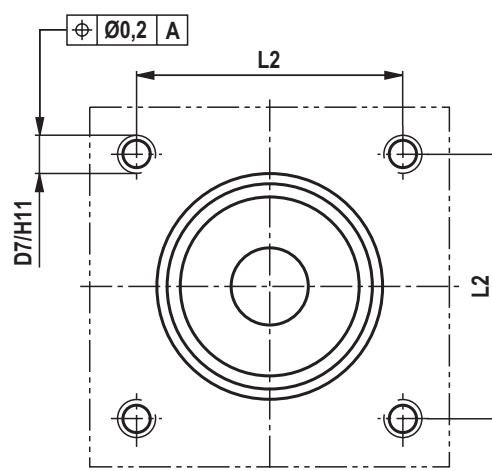
Unit dimensions: Cartridge valve "K" (dimensions in mm)



Installation bore



Contact surface



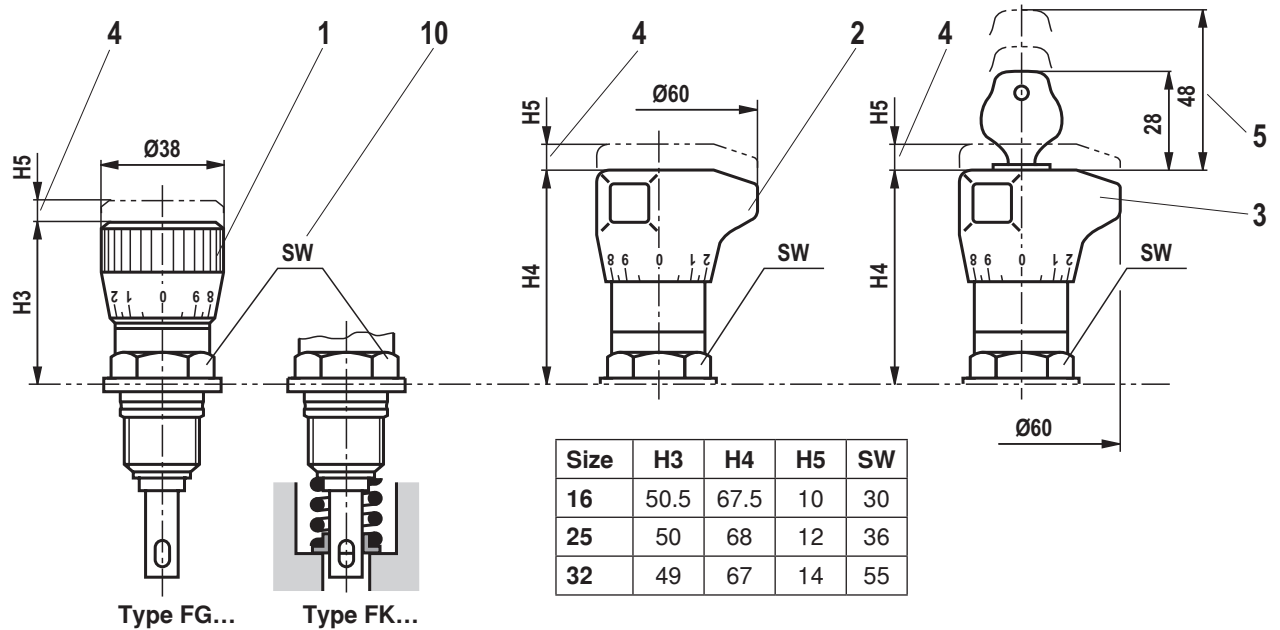
General tolerances ISO 2768-mK

Item explanations see page 8

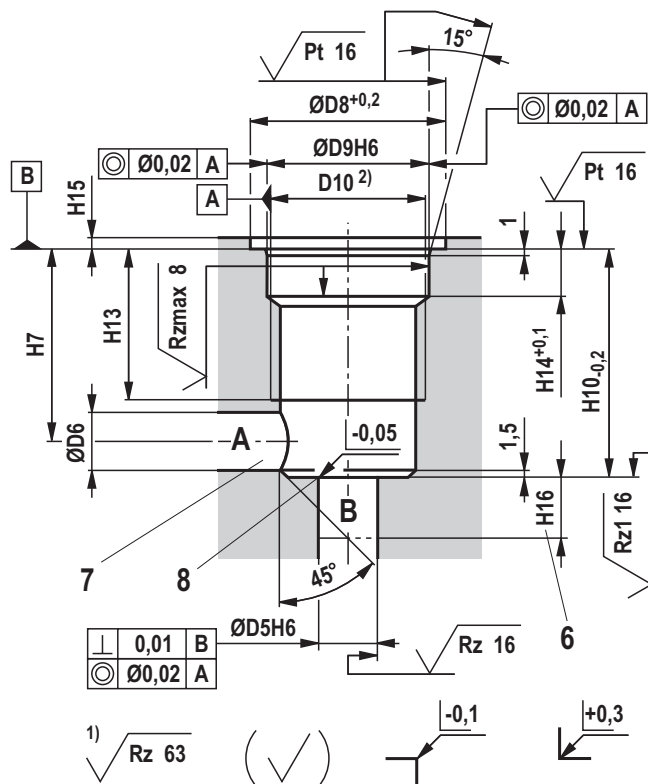
¹⁾ Visual inspection

Size	$\varnothing D3H7$	$\varnothing D4H7$	$\varnothing D5$	$\varnothing D6$	D7	H7	H8	H9	$H10^{+0,1}$	H11	H12	L2
16	38	36	15	15	M8	20.5	34	44	47	16	33	48
25	52	50	25	20	M12	24	40.5	55	60.5	19	39.5	55
32	72	70	35	30	M16	35	58	75	80.5	26	57.5	70

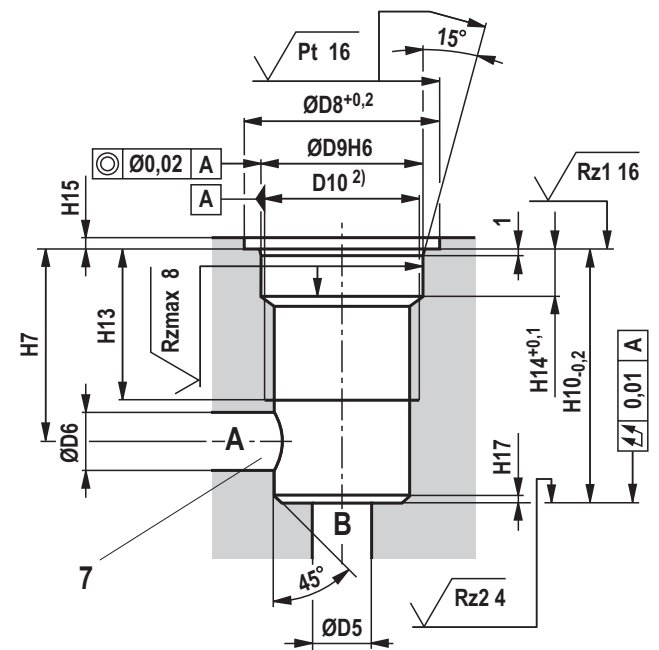
Unit dimensions: Screw-in cartridge valve "C" (dimensions in mm)



Mounting cavity type FG...



Mounting cavity type FK...



General tolerances ISO 2768-mK

1) Visual inspection

2) Pipe thread according to ISO 228/1

Item explanations see page 8

	Valve type							Valve type						
	FG	FK						FG	FK					
Size	ØD5H6	ØD5	ØD6	ØD8 ^{+0.2}	ØD9H6	D10 ²⁾	H7	H10 _{-0.2}		H13	H14 ^{+0.1}	H15	H16	H17
16	10	14	10	34.1	28	G3/4	33	39.5	48	26	8.2	2	22	1.5
25	18	25	20	51.1	44	G1 1/4	41.5	55	67.5	27	9.4	2.5	27	2
32	28	35	30	70.1	60	G2	56	73.5	93.5	29	8.5	2.5	36	3

Unit dimensions

- 1 Adjustment type "1"
- 2 Adjustment type "7"
- 3 Adjustment type "3"
- 4 Setting range
- 5 Space required to remove the key
- 6 Depth of fit
- 7 Port A can be positioned around the central axis of port B. (**Attention!** Observe the position of the mounting bores!)
- 8 Control edge
- 9 Valve mounting screws (cartridge valve "K") see to the right
- 10 Tightening torques (screw-in cartridge valve "C"):
 - Size 16
 $M_A = 170 \text{ Nm} \pm 10 \%$, moisten thread with hydraulic fluid
 - Size 25
 $M_A = 305 \text{ Nm} \pm 10 \%$, moisten thread with hydraulic fluid
 - Size 32
 $M_A = 600 \text{ Nm} \pm 10 \%$, moisten thread with hydraulic fluid

Notice!

The tightening torques refer to a housing tensile strength of at least 300 N/mm^2 (corresponds to GG30)

Valve mounting screws Screw-in valve "K" (separate order)

– Size 16

4 hexagon socket

Head cap screws ISO 4762 - M8 x 20 - 10.9-fIZn-240h-L

Friction coefficient $\mu_{\text{total}} = 0.09$ to 0.14 ,

Tightening torque $M_A = 30 \text{ Nm} \pm 10 \%$,

Material no. **R901021242**

– Size 25

4 hexagon socket

Head cap screws ISO 4762 - M12 x 25 - 10.9-fIZn-240h-L

Friction coefficient $\mu_{\text{total}} = 0.09$ to 0.14 ,

Tightening torque $M_A = 102 \text{ Nm} \pm 10 \%$,

Material no. **R913000128**

– Size 32

4 hexagon socket

Head cap screws ISO 4762 - M16 x 35 - 10.9-fIZn-240h-L

Friction coefficient $\mu_{\text{total}} = 0.09$ to 0.14 ,

Tightening torque $M_A = 250 \text{ Nm} \pm 10 \%$,

Material no. **R913000509**

Notice!

- The tightening torques refer to the maximum admissible operating pressure. Friction coefficients, tightening torques, and preload forces interact with each other. Thus, we recommend checking the mounting characteristics with genuine parts and boundary conditions.
- Tightening torques depend on the strength of the installation housing!