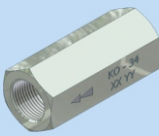
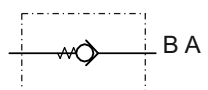
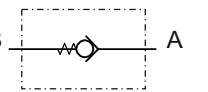
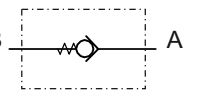
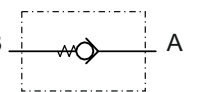
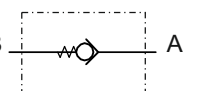
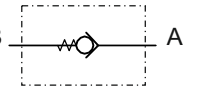
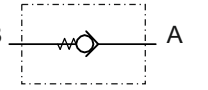
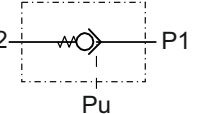
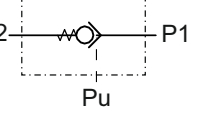
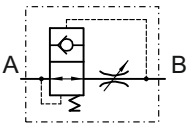
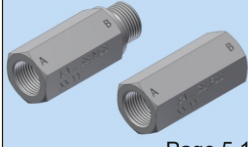
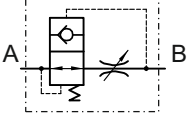
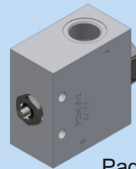
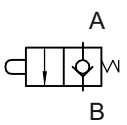
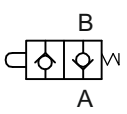




CHECK VALVES

 Page 5.1	KO- .. 
 Page 5.2	CV1 - ... 
 Page 5.3	CV3 - ... 
 Page 5.4	CV13 - ... 
 Page 5.5	CV15 - ... 
 Page 5.6	CV20 - ... 
 Page 5.7	CV081 - ... 
 Page 5.8	CVP08 - 3A 
 Page 5.9	CVP146 - 3 

 Page 5.10	KA 
 Page 5.13	KA / .. 
 Page 5.14	FC .. NF- 
 Page 5.16	FC 38 A 



CHECK VALVES

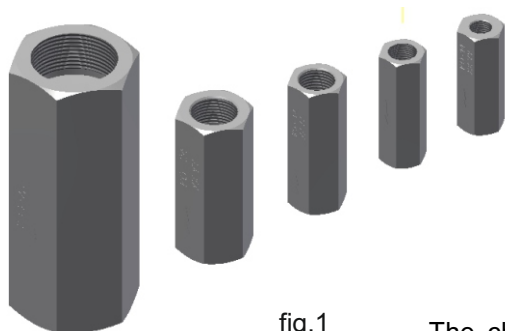
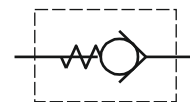


fig.1



The check valves (see fig. 1) are used to control the flow through them – they block the flow in one direction and allow it in the reverse one. Frequently used schemes of connection are presented below in fig. 2:

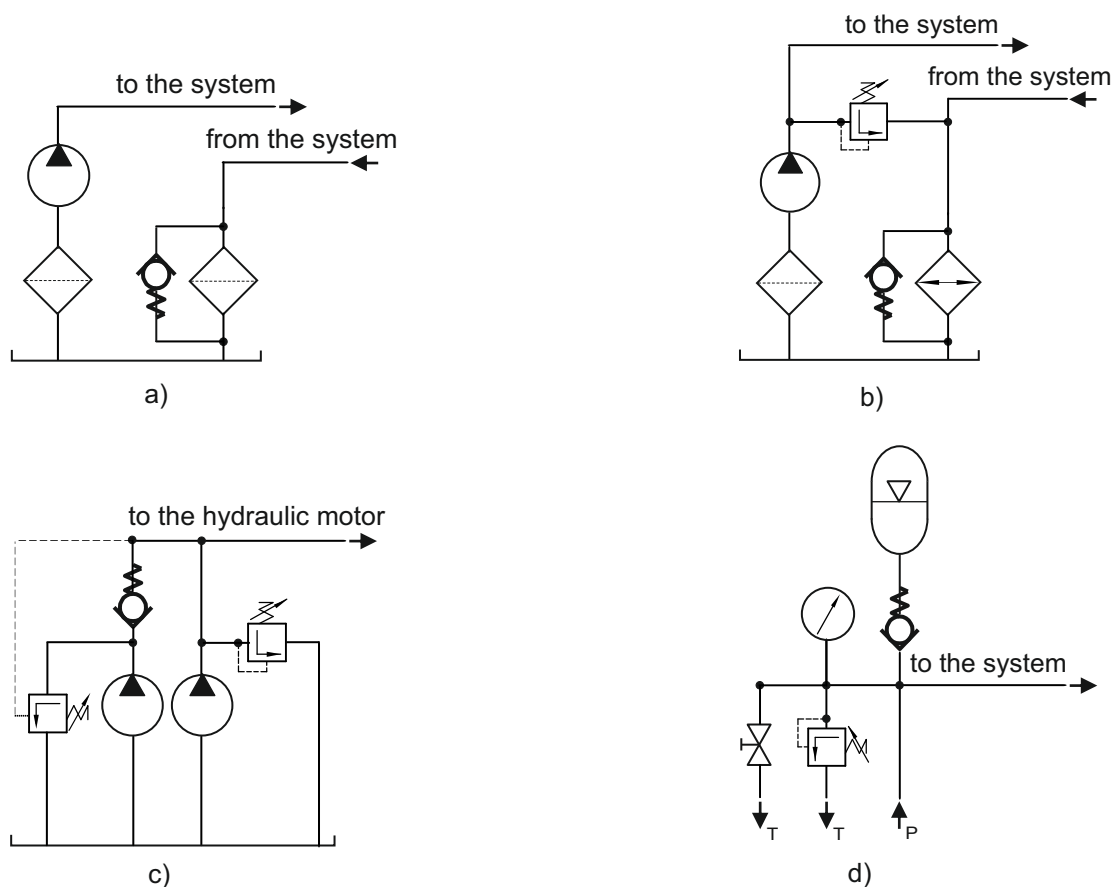


fig.2

The check valves in the production list of HIDROPNEVMOTEHNIKA AD include:

- KO-... type –poppet valves with spool lock and a spring, which acts in the direction of closing the valve and determines the pressure, at which the valve will open. They are mounted in bodies for in-line assembly in the hydraulic systems.

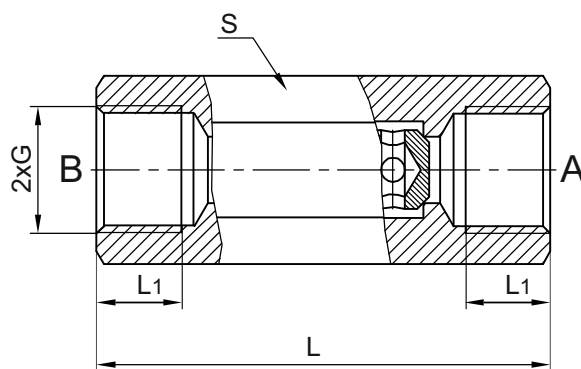
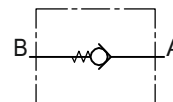
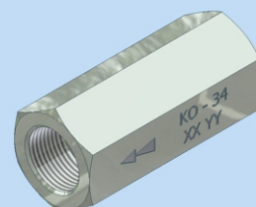


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CHECK VALVES

KO- ..



Type	Q _{max} L/min	P _{max.} bar	Opening pressure of the check valve bar	L mm	L1 mm	S mm	G
KO-14	20	320	0,5	60	12	22	G1/4"
KO-38	20		0,5	65	12	22	G3/8"
KO-12	40		0,5	75	14	27	G1/2"
KO-12/4	40		4	75	14	27	G1/2"
KO-34	100		0,5	83	16	27	G3/4"
KO-112	360		0,5	150	22	60	G1 1/2"
KO-112/4	360		4	150	22	60	G1 1/2"
KO-112/6	360		6	150	22	60	G1 1/2"
KO-112/10	360		10	150	22	60	G1 1/2"

All performances and calibration are carried out by using hydraulic oil with viscosity approx. 46 cSt at 50 °C
Temperature range: -20°C...+80°C
Filtration absolute: 63 µm

ORDERING CODE

KO-14 / ..

Type

Port treads "G1" - code:

G1/4" - 14
G3/8" - 38
G1/2" - 12
G3/4" - 34
G1 1/2" - 112

Opening pressure - code:
0,5 bar - Omit
4 bar - 4
6 bar - 6
10 bar - 10

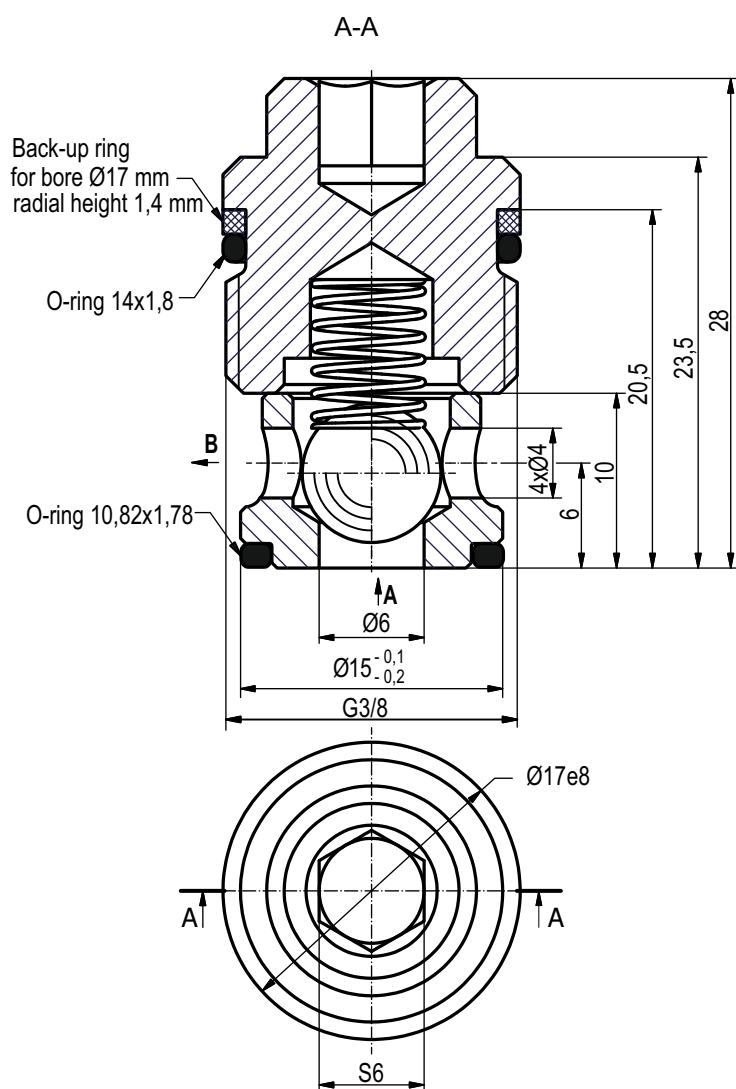
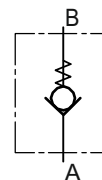


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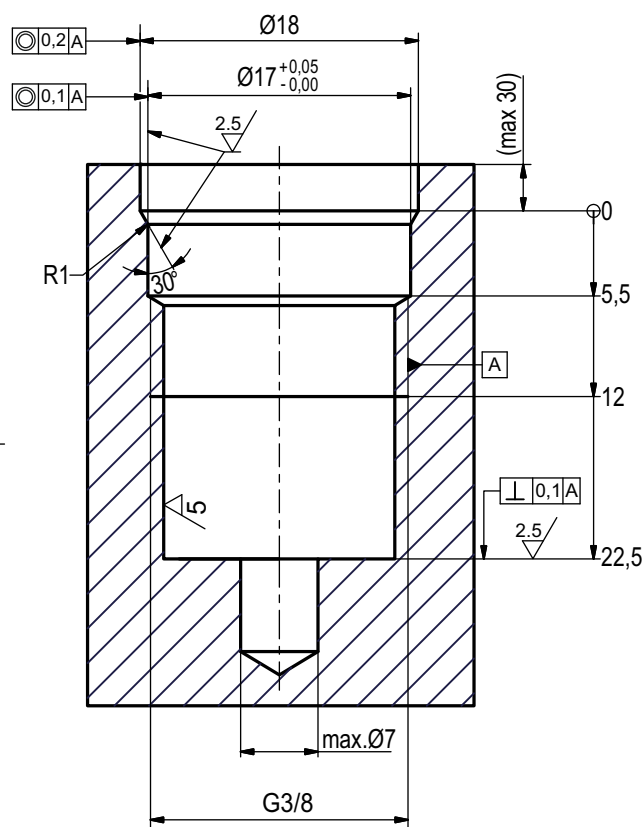
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CHECK VALVES cartridge type

CV1- ..



An opening for building-in
of check valve CV1



Type	Q _{nom.}	P _{max.}	Opening pressure of the check valve	Tightening torque
	L/min	bar	bar	Nm
CV1	16	250	0.5	35

All performances and calibration are
carried out by using hydraulic oil with
viscosity approx. 46 cSt at 50 °C
Temperature range: -20°C...+80°C
Filtration absolute: 63 µm

ORDERING CODE

CV1

Type

Opening pressure - code:
0.5 bar - Omit

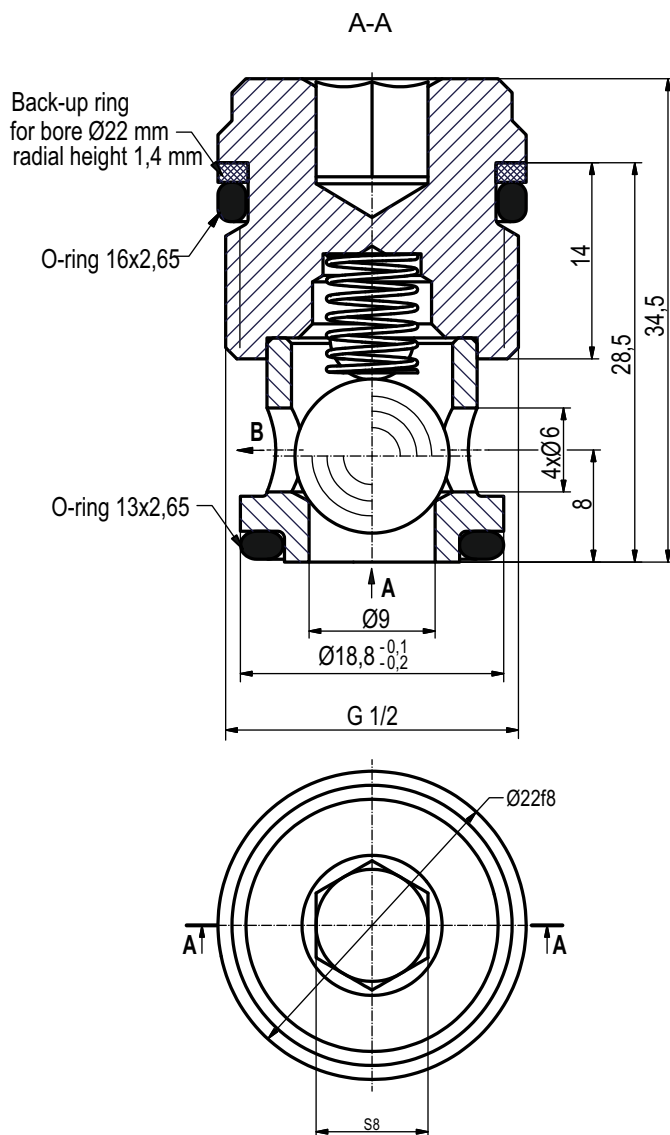
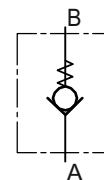


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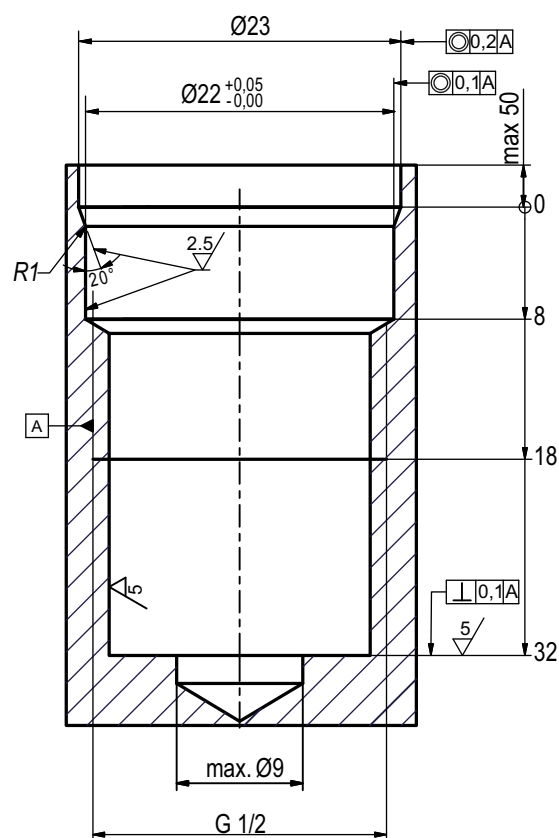
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CHECK VALVES cartridge type

CV3- ..



An opening for building-in
of check valve CV3



Type	Q _{nom.}	P _{max.}	Opening pressure of the check valve	Tightening torque
	L/min	bar	bar	Nm
CV3	40	350	0.8	40

All performances and calibration are
carried out by using hydraulic oil with
viscosity approx. 46 cSt at 50 °C
Temperature range: -20°C...+80°C
Filtration absolute: 63 µm

ORDERING CODE

CV3

Type

Opening pressure - code:
0.8 bar - Omit

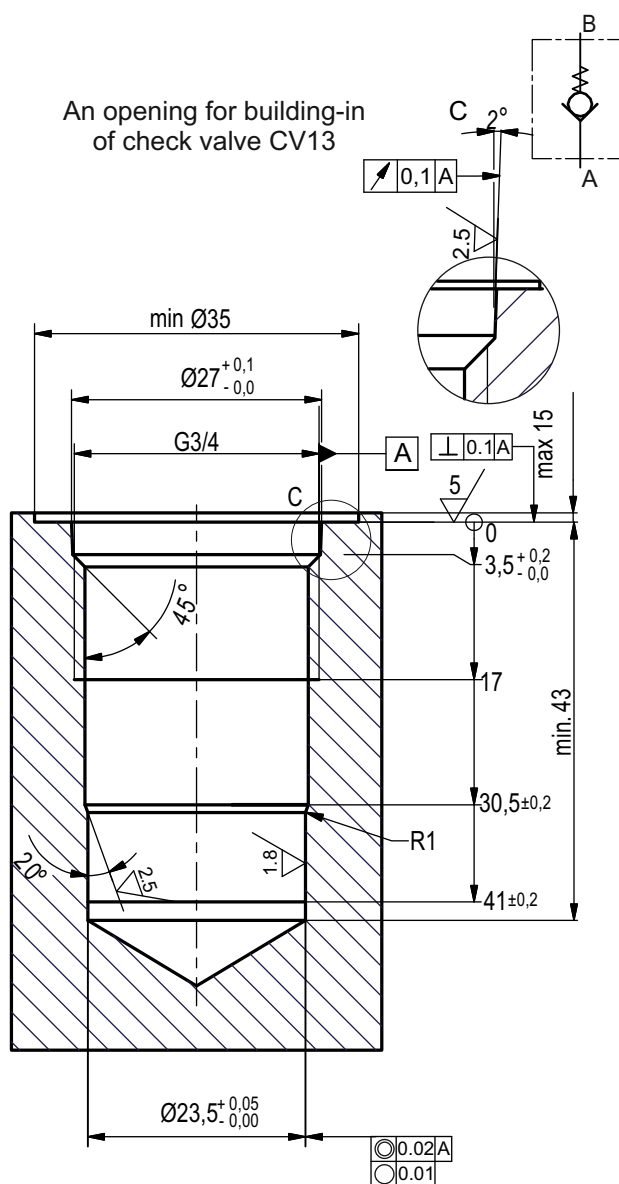
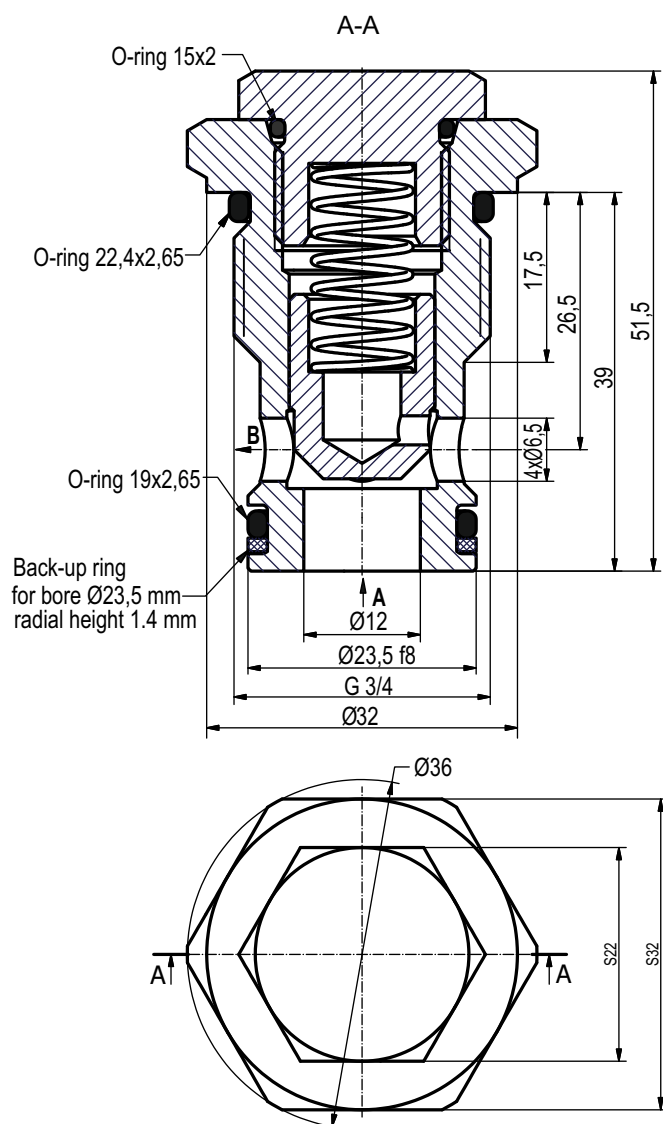


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CHECK VALVES cartridge type

CV13- ..



Type	Q _{nom.} L/min	P _{max.} bar	Opening pressure of the check valve bar	Tightening torque Nm
CV13	40	200	0.5	45
CV13-1.5			1.5	

All performances and calibration are carried out by using hydraulic oil with viscosity approx. 46 cSt at 50 °C
Temperature range: -20°C...+80°C
Filtration absolute: 63 µm

ORDERING CODE

CV13-1.5

Type

Opening pressure - code:
0.5 bar - Omit
1.5 bar - 1.5

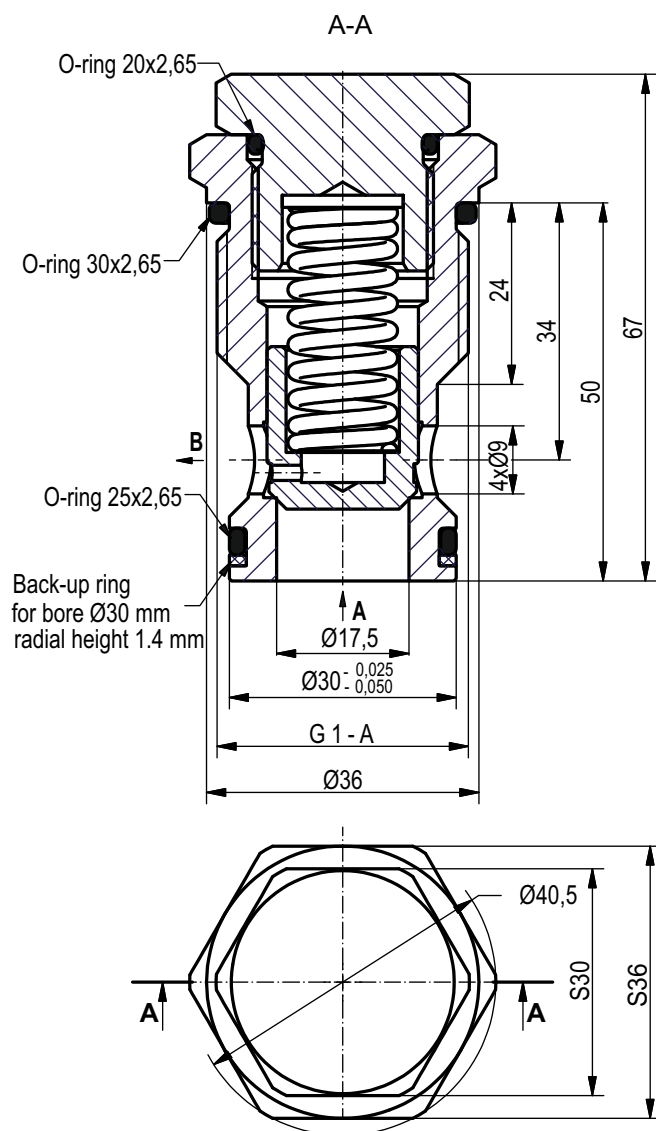


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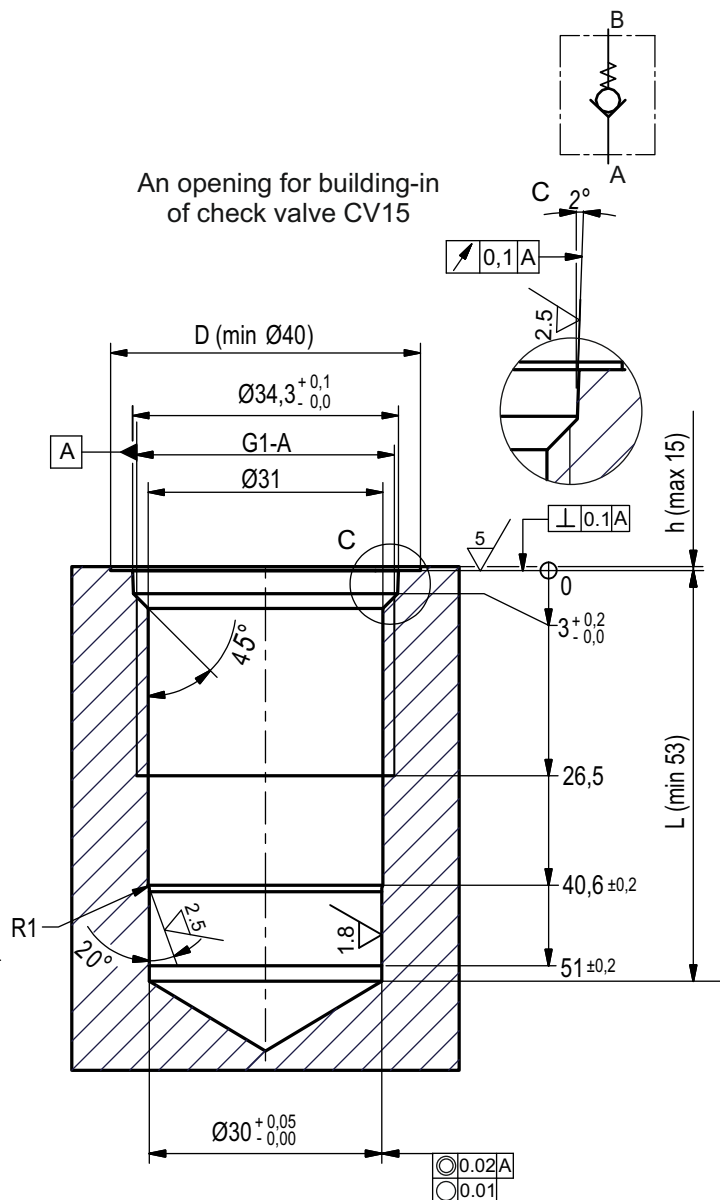
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CHECK VALVES cartridge type

CV15- ..



An opening for building-in
of check valve CV15



Type	Q _{nom.}	P _{max.}	Opening pressure of the check valve	Tightening torque
	L/min	bar	bar	Nm
CV15-0.5	120	250	0.5	70
CV15-3.5			3.5	
CV15-4.5			4.5	

All performances and calibration are
carried out by using hydraulic oil with
viscosity approx. 46 cSt at 50 °C
Temperature range: -20°C...+80°C
Filtration absolute: 63 µm

ORDERING CODE

CV15-0.5

Type

Opening pressure - code:
0.5 bar - 0.5
3.5 bar - 3.5
4.5 bar - 4.5

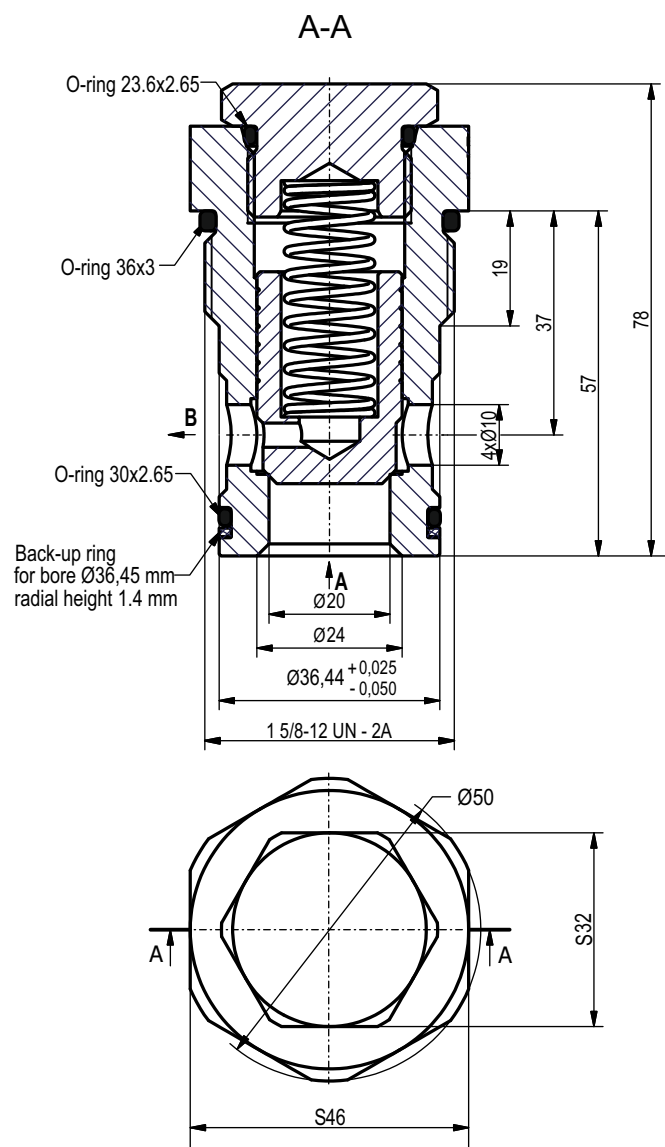
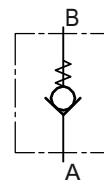


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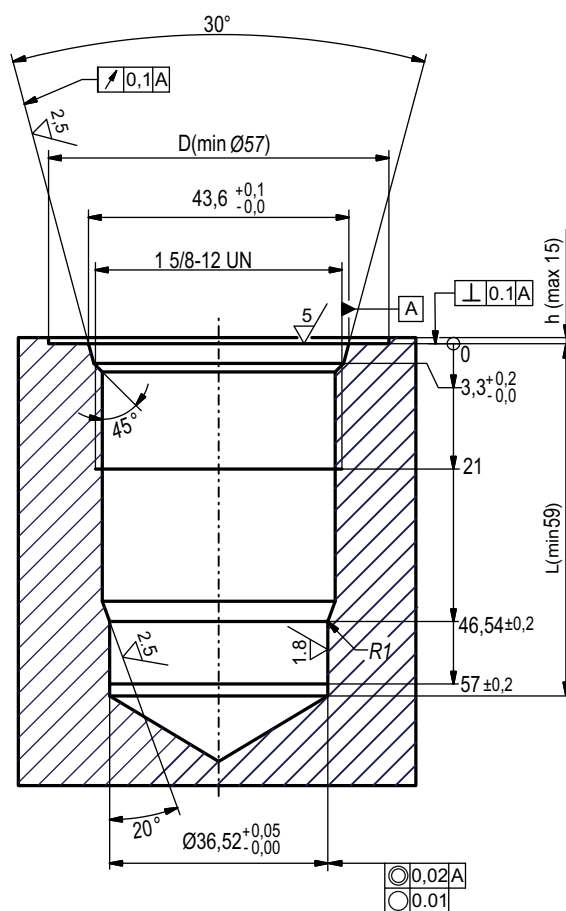
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CHECK VALVES cartridge type

CV20- ..



An opening for building-in
of check valve CV20



Type	Q _{nom.} L/min	P _{max.} bar	Opening pressure of the check valve bar	Tightening torque Nm
CV20-0.3	240	250	0.3	110
CV20-4.5			4.5	

All performances and calibration are
carried out by using hydraulic oil with
viscosity approx. 46 cSt at 50 °C
Temperature range: -20°C...+80°C
Filtration absolute: 63 µm

ORDERING CODE

CV20-0.3

Type

Opening pressure - code:
0.3 bar - 0.3
4.5 bar - 4.5

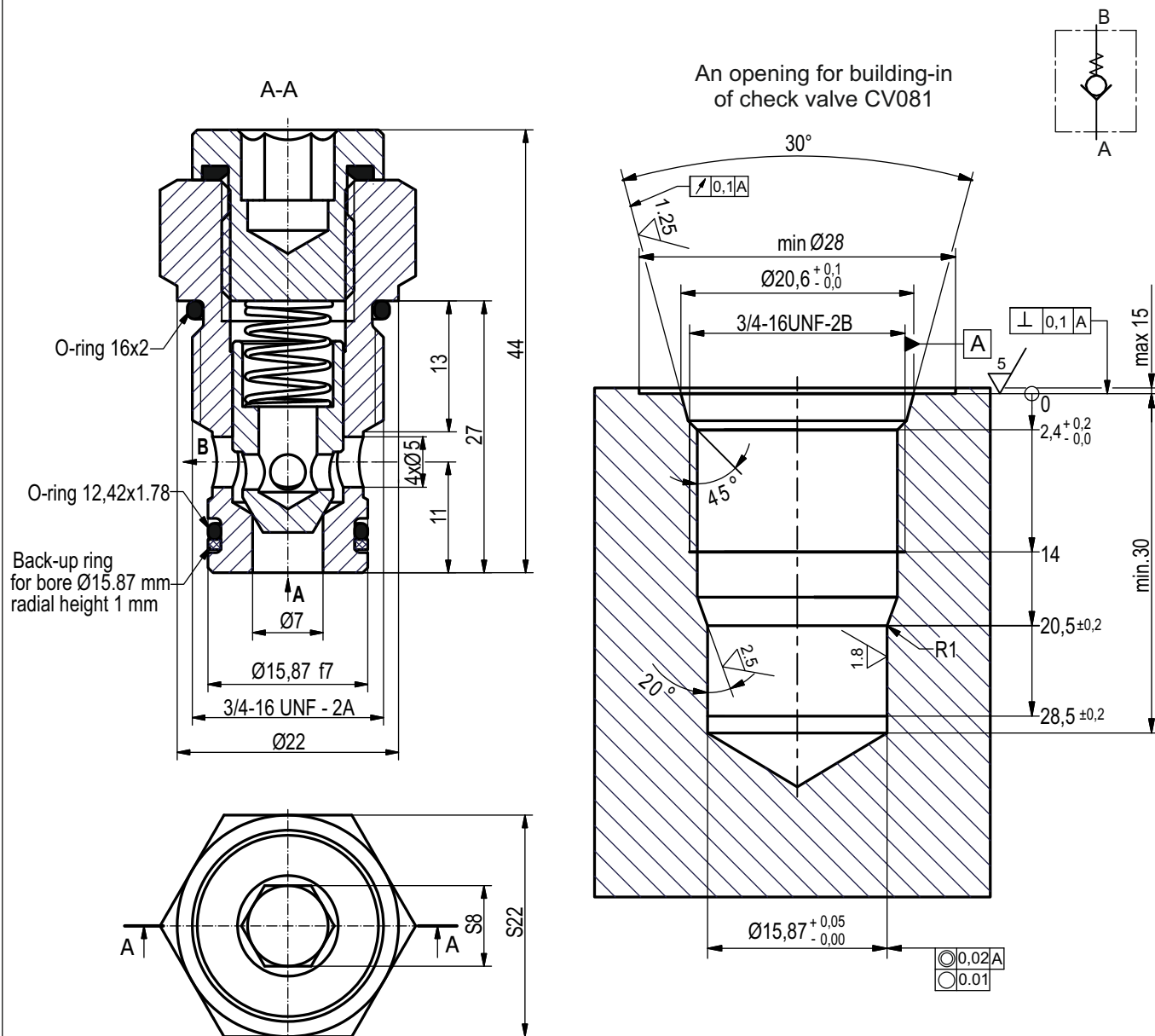


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CHECK VALVES cartridge type

CV081- ..



Type	Q _{nom.}	P _{max.}	Opening pressure of the check valve	Tightening torque
	L/min	bar	bar	Nm
CV081	35	350	0.5	35

All performances and calibration are carried out by using hydraulic oil with viscosity approx. 46 cSt at 50 °C
Temperature range: -20°C...+80°C
Filtration absolute: 63 µm

ORDERING CODE

CV081

Type

Opening pressure - code:
0.5 bar - Omit

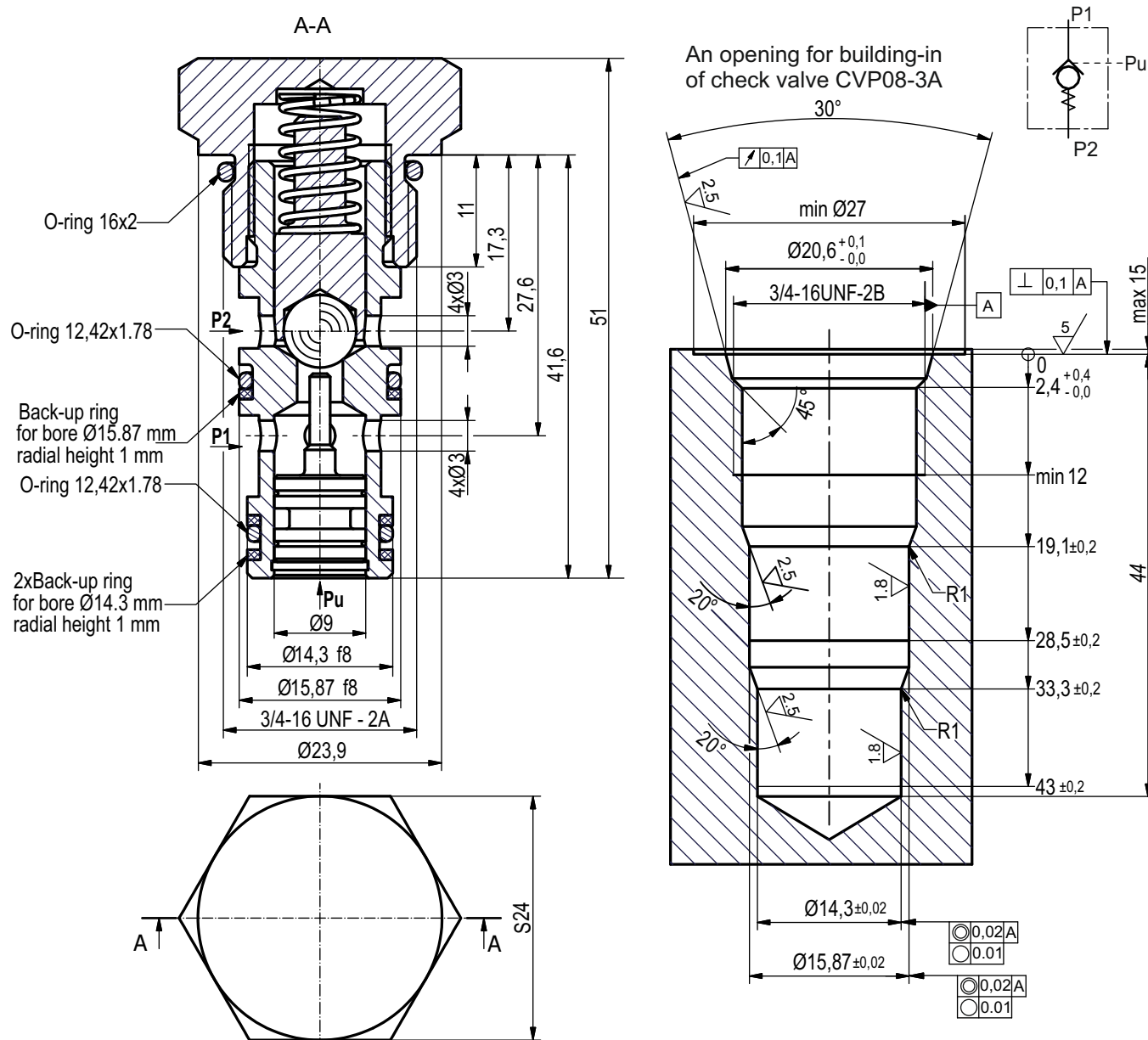


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PILOT OPERATED CHECK VALVES cartridge type

CVP08- 3A



Type	Q _{nom.}	P _{max.}	Pilot ratio	Opening pressure of the check valve	Tightening torque
	L/min	bar	-	bar	Nm
CVP08-3A	10	250	4:1	5	30

All performances and calibration are carried out by using hydraulic oil with viscosity approx. 46 cSt at 50 °C
Temperature range: -20°C...+80°C
Filtration absolute: 63 µm

ORDERING CODE

CVP08-3A

Type

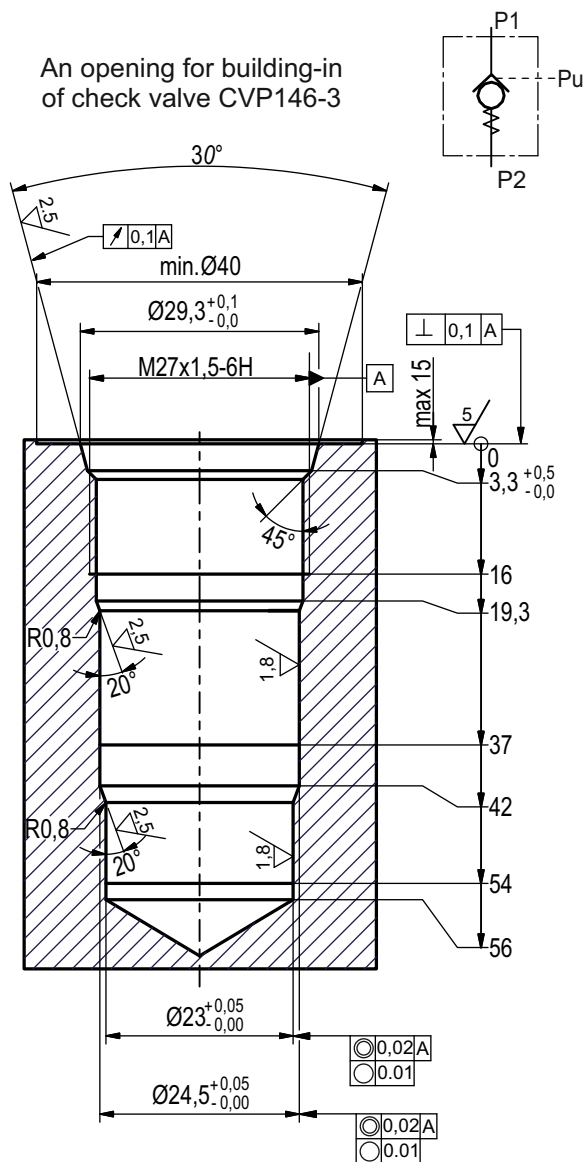
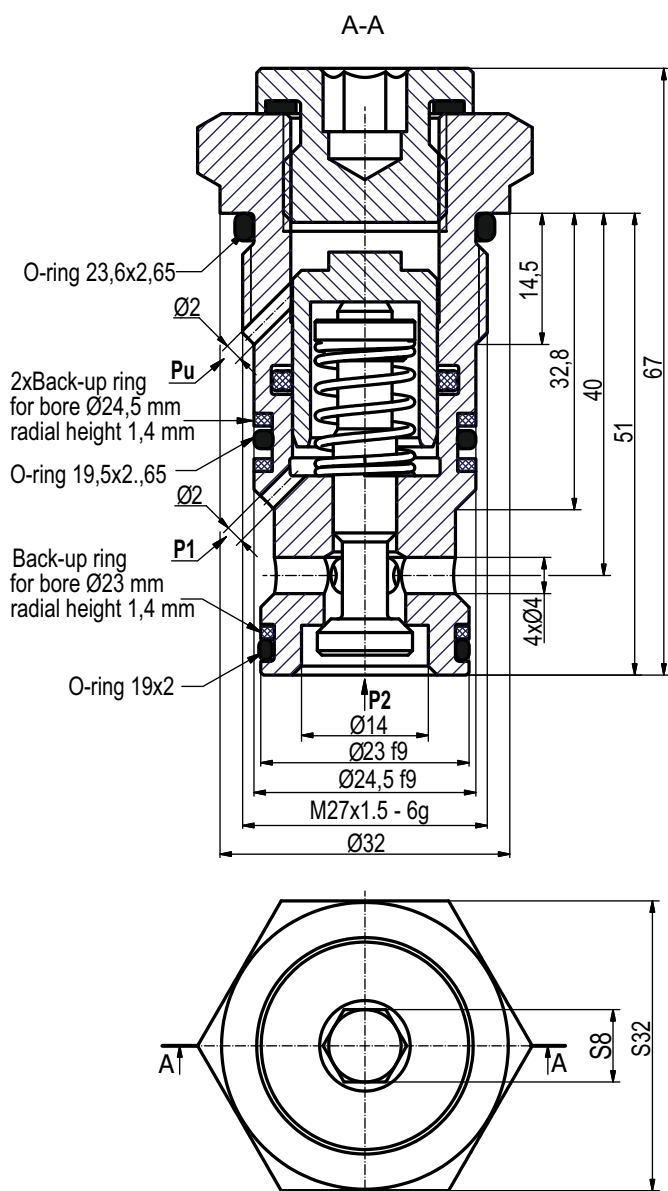


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PILOT OPERATED CHECK VALVES cartridge type

CVP146-3



Type	Q _{nom.} L/min	P _{max.} bar	Pilot ratio	Opening pressure of the check valve bar	Tightening torque Nm
CVP146-3	100	350	3,2:1	2	45

All performances and calibration are carried out by using hydraulic oil with viscosity approx. 46 cSt at 50 °C
Temperature range: -20°C...+80°C
Filtration absolute: 63 µm

ORDERING CODE

CVP146-3

Type

LINE RUPTURE PROTECTION VALVES

KA ...



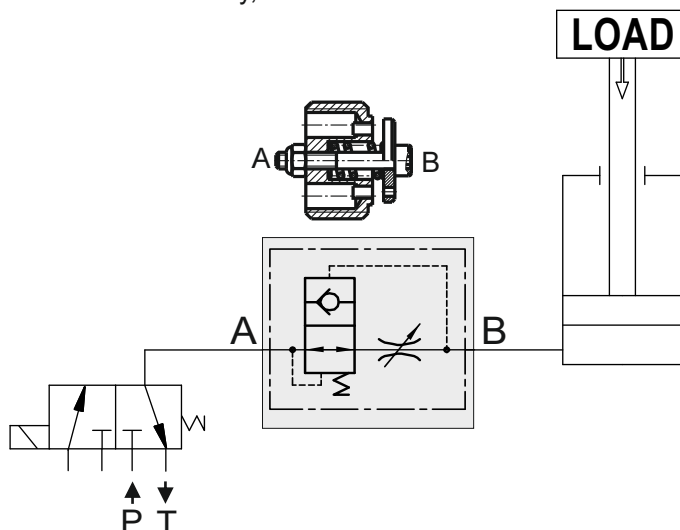
Line rupture protection valves are mounted in hydraulic systems, driving cylinders or hydraulic motors, used to lift heavy weights. When a pressure hose, or a pressure pipe to the cylinder (hydraulic motor), is ruptured, the movement of the unit is accelerated under the force of the weight which acts in the direction of its descending. This may lead to serious damages to the installation, and to unwanted oil leakage as well. The role of the line rupture protection valve in this case is to close the flow of oil in the direction from the cylinder to the system. The valve is adjusted to close when the flow through it is increased with 15...20 % more than the volume during the normal work of the system. In this way the valve will be activated only when there is a breach in the integrity of the pipes from the valve to the tank, as this is the moment when a reduction of the pressure drop to the tank occurs and the flow is increased over the volume calculated for the normal work of the system. In certain cases it is advisable not to lock the cylinder when it breaks down, but to retract it slowly to its initial position under the pressure of the weight. To achieve this, a hole is drilled in the dish of the valve. The diameter of this hole determines the speed of descending after the valve is closed. The existence of such a hole changes the graphic of the valve adjustment. You can contact us for a more precise selection of the parameters.

When a valve is mounted, it is advisable to comply with the following rules:

- the valve can close when the adjusted flow of the fluid is exceeded only in one of the directions of this flow. In the other direction the flow of the fluid cannot lead to a closure, irrespective of the volume of the flow. The direction of closure must be from the cylinder to the system.

- when the cylinder performs an action only in one direction, it is enough to mount only one valve in its discharge end.

- the valve must be mounted directly on the threaded feeder of the cylinder (under the orifice). To make that possible it is made with a longer thread or within a body, screwed in the feeder.



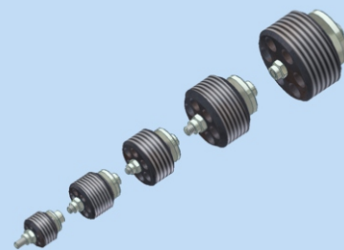


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LINE RUPTURE PROTECTION VALVES

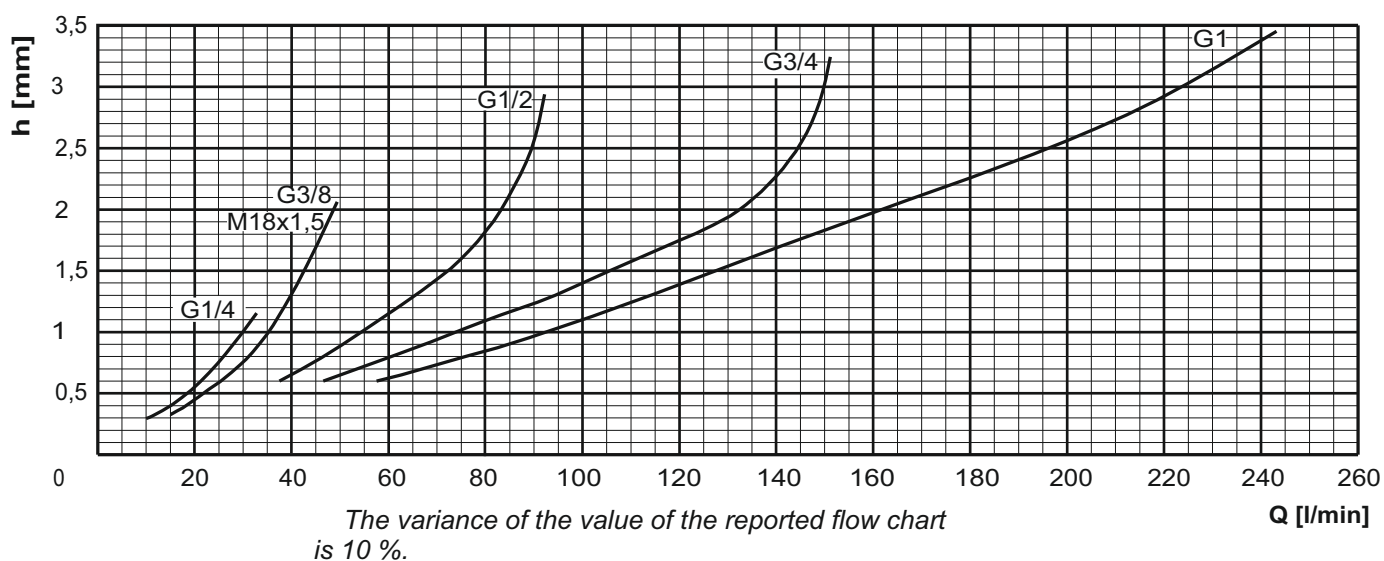
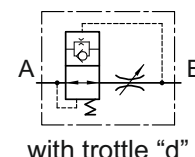
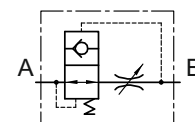
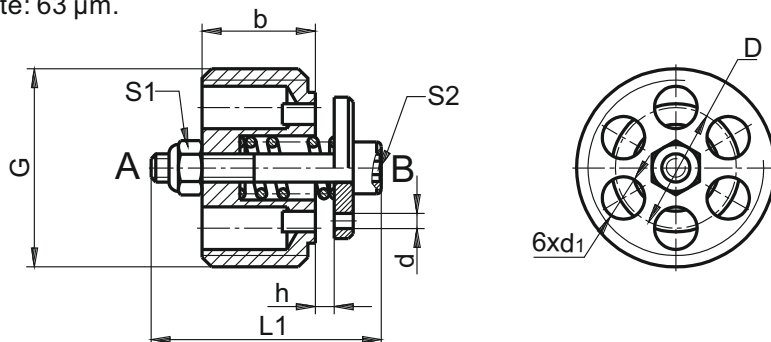
KA ...



The valve is screwed directly into the pressurized inlet port of the hydraulic cylinder.

The required flow rate is adjusted by the clearance "h".

All performances and calibration are carried out by using hydraulic oil with viscosity approx. 46 cSt at 50°C Temperature range: -20 °C...+80 °C. Filtration absolute: 63 µm.



Type	Adj. flow range L/min	P _{max.} bar	G	L1 mm	b mm	h _{max.} mm	S1 mm	S2 mm	D mm	d1 mm	Tightening torque Nm
KA..14	10...30	350	G1/4	19	8,7	1,2	5,5	2,5	8,3	2,2	8
KA..38	15...50		G3/8	25	12	2			10	3,5	12
KA..M18	15...50		M18x1,5	25	12	2			10	2,5	12
KA..12	35...100		G1/2	25	12	2,5	7	3	12,8	4,5	18
KA..34	45...150		G3/4	32	16,5	2,8			16	6	23
KA..1	55...260		G1	34	18,5	3,5			21,5	7	25

ORDERING CODE

KA 10 14 0.6

Type

Closing flow value (l/min)
/under client's order/

Treads "G" - code:

G1/4" - 14

G3/8" - 38

G1/2" - 12

G3/4" - 34

G 1" - 1

M18x1,5 - M18

Diameter d [mm] : ...
/under client's order/
Without hole : **Omit**

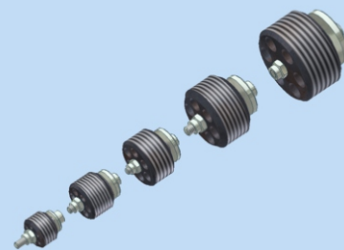


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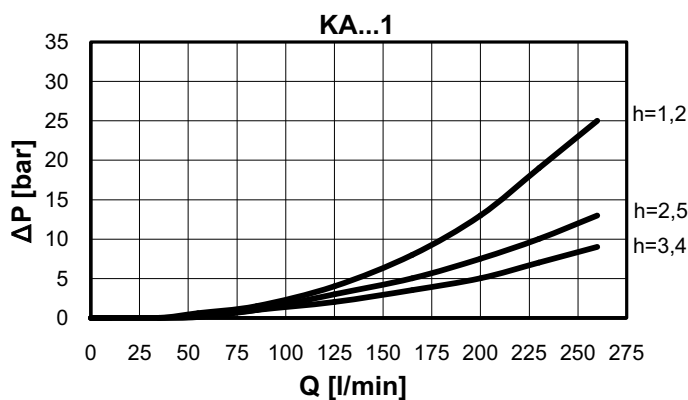
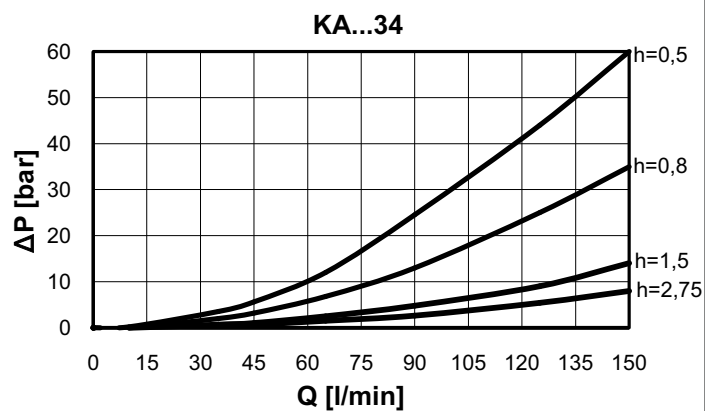
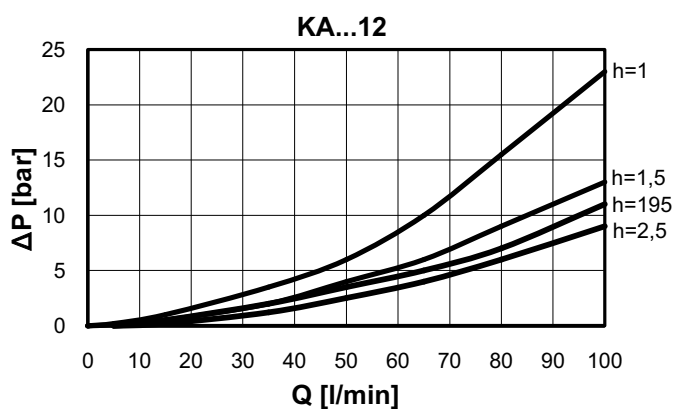
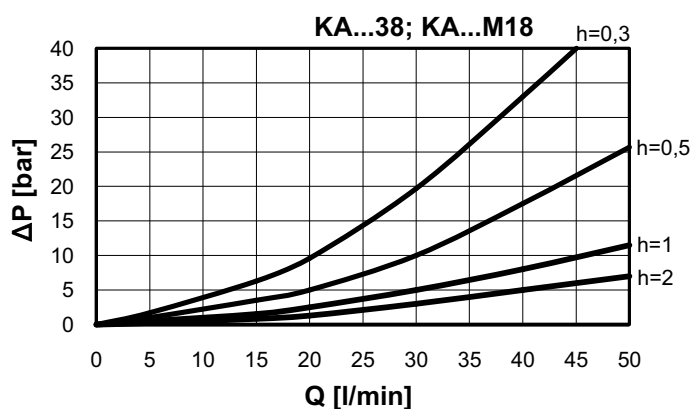
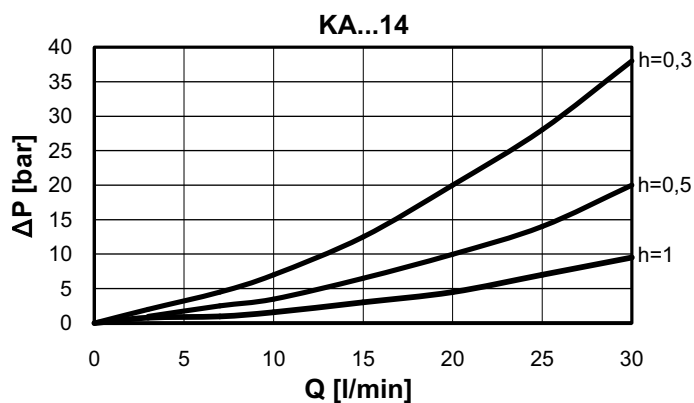
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LINE RUPTURE PROTECTION VALVES

KA ...



$\Delta P=f(Q)$ - diagrams the flow from "A" to "B" at a different set values for "h"



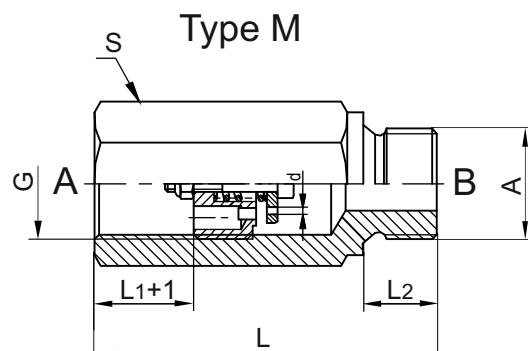
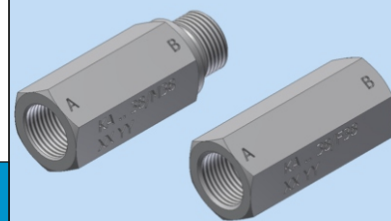


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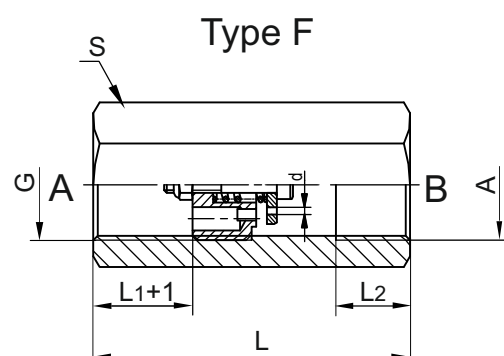
LINE RUPTURE PROTECTION VALVES

KA ... / ...



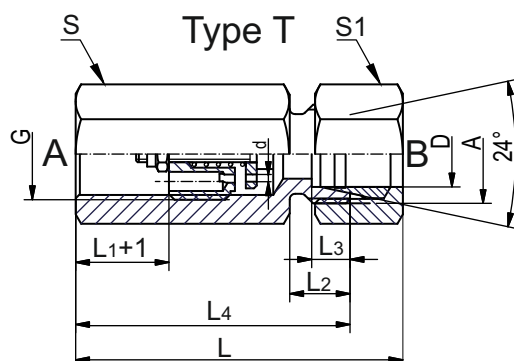
Tab. 1

Type	P _{max.} bar	G	L	S	A	L1	L2
KA .. 14M..	350	G1/4"	50	19	G1/4"	13	12
KA .. 38M..		G3/8"	58	22	G3/8"	15	12
KA .. 12M..		G1/2"	65	27	G1/2"	19	14
KA .. 34M..		G3/4"	78	36	G3/4"	23	16



Tab. 2

Type	P _{max.} bar	G	L	S	A	L1	L2
KA ..14/F..	350	G1/4"	48	19	G1/4"	13	12
KA ..38/F..		G3/8"	52	22	G3/8"	15	13
KA ..12/F..		G1/2"	60	27	G1/2"	18	14
KA ..34/F..		G3/4"	72	36	G3/4"	23	16
KA ..1/F..		1"	80	41	G1"	25	18



Tab. 3

Type	P _{max.} bar	G	L	S	S1	A	L1	L2	L3	L4	D
KA ..38/T12L	350	G3/8"	59	22	22	M18x1,5	17	11	7	50	12

Tab. 4

Type	KA1/4	KA3/8	KA1/2	KA3/4	KA1
Tightening torque N.m	10	15	20	25	30

Note:

For more information and technical data see pages 5.6 to 5.8

ORDERING CODE

Type

KA 10 14 0.6 / F 14 12 L

Series: **L, S**
only type T

Threads "G" - code:

G1/4" - 14
G3/8" - 38
G1/2" - 12
G3/4" - 34
G1" - 1

Diameter d [mm] : ...
/under client's order/
Without hole : **Omit**

Type : **M, F, T**

Threads "A" - code :

G1/4" - 14
G3/8" - 38
G1/2" - 12
G3/4" - 34
G1" - 1
for type T-Omit

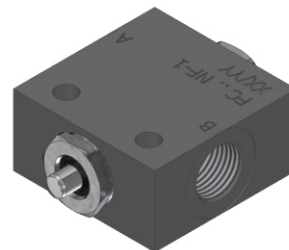
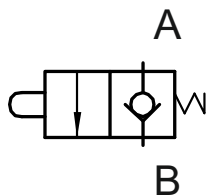
Tube O.D.:
Diameter D
/see tab.3/
only type T

Closing flow value
(l/min)

/under client's order/

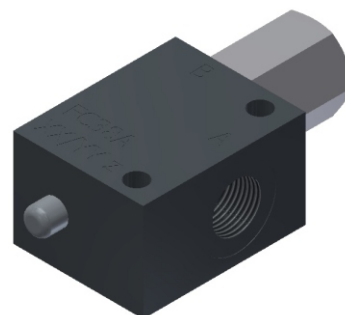
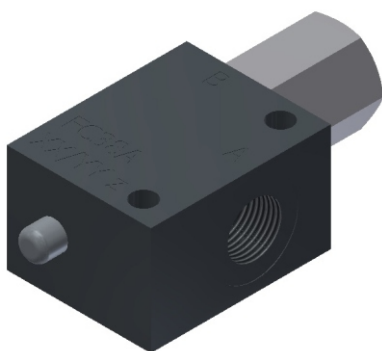
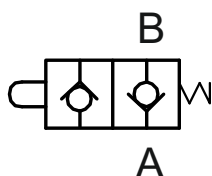


END OF STROKE VALVES



The end of stroke valves are hydraulic valves used to indicate a certain position of the movement of an actuator. Most often these are 2-way valves. To activate the valve the pusher must be pressed, this allows the oil to pass through the valve if it had been closed before that or blocks the oil if the valve had been open. The end of stroke valves can be used as pilot valves, in which case the flow is used to hydraulically activate other valves of the circuit, or as valves for direct control, for example to unload the flow of the pump to the tank.

In general the activation of the valve is achieved by a hump with a certain profile. To provide a problem-free work of the end of stroke valve, it is good to reduce the movement transmitted from the hump by a roller mechanism. In this way only an axial force will be conveyed to the pusher.



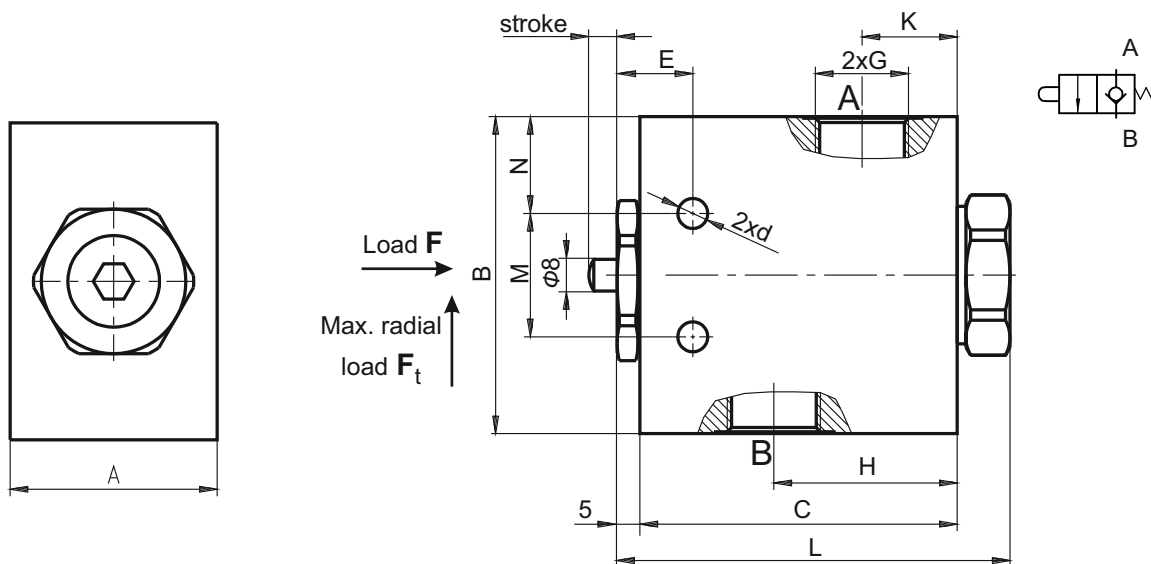
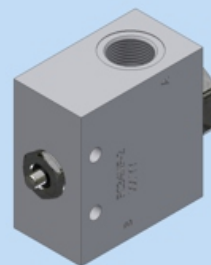


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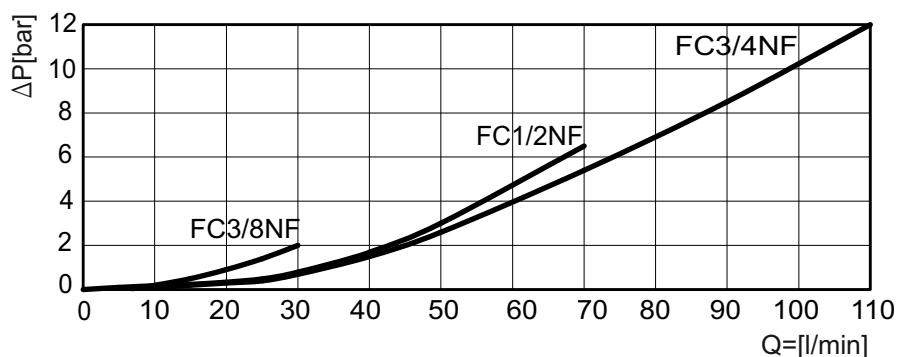
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END OF STROKE VALVES

FC .. NF-



$\Delta P = f(Q)$
46 cst oil at 50 °C



Type	Q _{max.} l/min	P _{max.} bar	max. Load		L mm	A mm	B mm	C mm	M mm	N mm	E mm	K mm	H mm	G	d mm	stroke mm
			F [N]	F _φ [N]												
FC38NF-1	30	350	F=11,5.P/bar/	80	71	30	60	60	35	12,5	15	18	32	G3/8"	8,5	8.5±1
FC12NF-1														G1/2"		8.5±1
FC34NF-2	100		F=15,4.P/bar/	100	105	47	90	85	35	27,5	15	27	52	G3/4"		8±1

All performances and calibration are carried out by using hydraulic oil with viscosity approx. 46 cSt at 50 °C
Temperature range: -20 °C...+80 °C. Filtration absolute: 20 μm

ORDERING CODE

FC 12 NF - .

Series

Type

Port treads "G1" - code:
G3/8" - 38
G1/2" - 12
G3/4" - 34

Modification

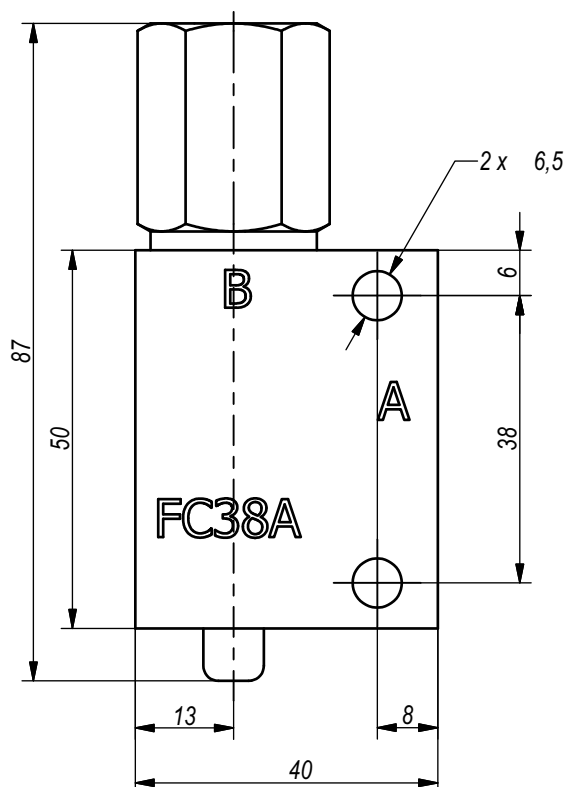
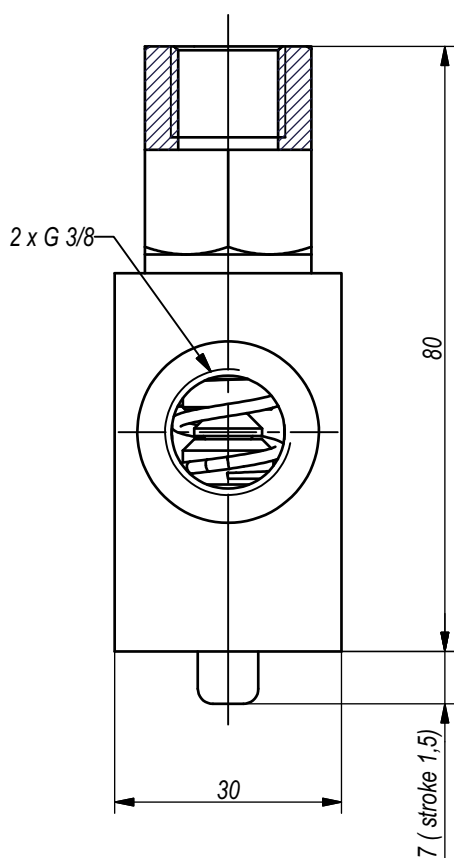
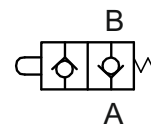
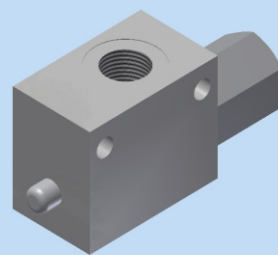


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END OF STROKE VALVES

FC 38 A



Type	P max. bar.	Q nom. L/min.
FC 38 A	250	10

All performances and calibration
are carried out by using hydraulic oil
with viscosity approx 46 cSt at 50°C
Temperature range: -20...+80°C
Filtration absolute: 25 μ m

ORDERING CODE

FC 38 A

Type

Port threads "G" - code:
G 3/8" - 38

Modification