
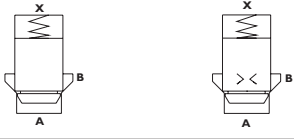

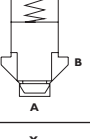
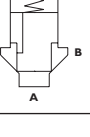
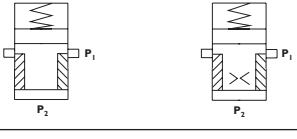


Standard Cartridge Valves – 2/2 Way
Series NG16 – NG100



Designation	Symbol	Page
General Description and Operating Principle		4
Specifications and Characteristic Parameters		5
Typical Characteristic Curves		6-7
2-way cartridge for Pressure Control without Damping		8
2-way cartridge for Pressure Control with Damping		9
2-way cartridge for Direction and Flow Control without Damping		10
2-way cartridge for Direction and Flow with Damping		11
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2-way cartridge for Pressure Reducing and Compensator		13
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Ordering Information		16-17

General Description and Operating Principle

General Description

Cartridge valves, also known as 2/2-way valves or logic valves, conform to DIN 24342 and ISO 7368 standards. They have two operational ports A and B. The flow path between these two connections is controlled hydraulically by a pilot pressure applied to X.

Depending on the control input, cartridge valves can be used as:

- Directional Control Valves
(start, stop, directional control)
- Pressure Control Valves
(pressure relief, pressure control, pressure sequence and unloading function)
- Check Valves
(check valve function and pilot operated check valve function)
- Flow Control Valves

The preferred mode of mounting is the manifold block, which can be equipped with several valves depending on the hydraulic circuit for the specific application. Each valve is connected to each other in the manifold block.

The Moog Hydrolux product line contains valves of nominal bores 16, 25, 32, 40, 50, 63, 80 and 100 as per DIN 24342,

for flows up to 10,000 lpm and sizes 125, 160 for flows to 24,000 lpm. Moreover, Moog Hydrolux offers cover plates and pilot valves for a wide variety of functions.

In addition to this, our product offering also contains cartridge housings for a great number of applications for subplate, pipe and flange mounting.

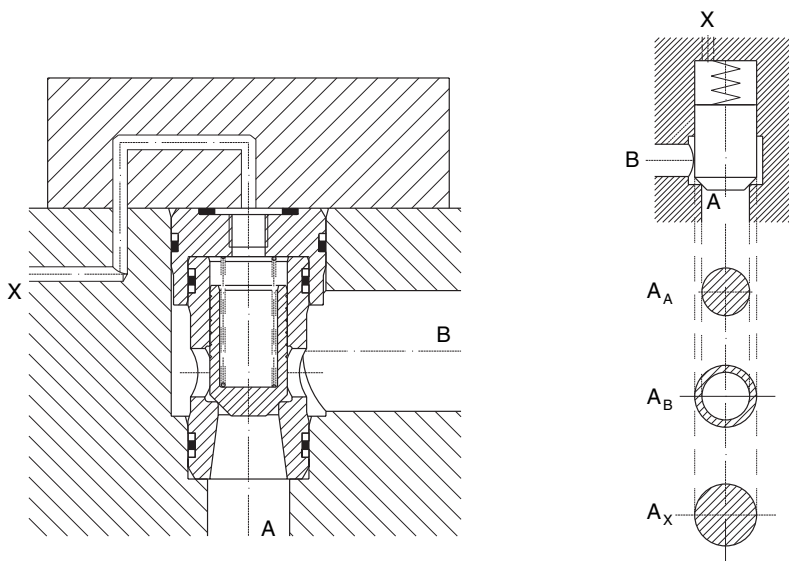
Operating Principle

Cartridge valves have two working connections A and B, where the main flow is hydraulically operated by a controlling pressure applied to the connection X. The basic cartridge valve includes a valve poppet and sleeve which is normally held in the closed position by a spring. The poppet valve has a seated cone, giving a leakage free (dependent upon pilot control) condition across the two ports. The closing spring is retained by the control cover which encloses the cartridge valve and provides pilot connections from the X port. Various types of pilot control can be mounted either to the control cover or to an adjacent manifold face to provide direct control of the cartridge valve.

The effective areas of the basic element are A_A , A_B and A_X . Pilot oil can be taken from port A, B or both A and B (with a shuttle valve) or an external source. Hydraulic fluid can flow through the 2-way cartridge valve from $A \rightarrow B$ or $B \rightarrow A$.

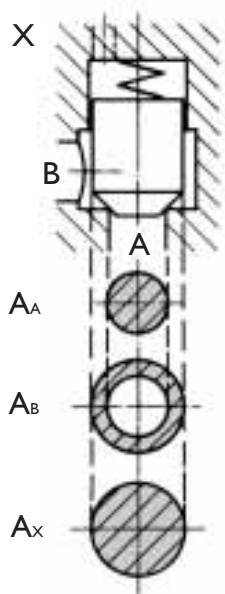
A pilot valve can be used to directly control the switching function of the cartridge valve, either between two extreme positions, open or closed, or in any number of intermediate positions. The exact position of the valve cone depends on the ratio of control surface A_X , to the pressures acting from the working connections A and B on the seating surface of A_A and the annular area of A_B .

If the valve cone is open, by reducing the pressure seen at X, then flow can move from A and B or vice-versa. By applying a control pressure at X, the working connections A to B are shut off as the valve cone is closed by the seat mounting. If there is a pressure difference between connection B and pilot connection X, as a result of clearance tolerance between the cone and sleeve, then leakage can be eliminated by using a leakproof seat valve and hooking up the pilot connection X to the working connection B. If the desired function does not permit such a switching operation, a cartridge valve with an additional sealing surface can be used to seal the connections A, B and X from each other.



General Data	Value	Unit	Specifications
Mode of Construction	-	-	2/2-way Seat Valve (Cartridge)
Mounting position	-	-	any
Manner of Mounting	-	-	Manifold Cartridge Mounting
Mounting Dimensions	-	mm	see page 15
Direction of flow	-	-	see pages 8 to 13
Ambient Temperature Range	min.	°C	-25
	max.	°C	+60
Hydraulic			
Inlet	min.	bar	0
	max.	bar	350
Outlet	min.	bar	0
	max.	bar	350
Temperature Range	min.	°C	-25
	max.	°C	+80
Viscosity Range	min.	mm ² · s ⁻¹ [cSt]	2,8
	max.	mm ² · s ⁻¹ [cSt]	380
Operational Viscosity	v	mm ² · s ⁻¹ [cSt]	35
Nominal Size	-	-	NB16 NB25 NB32 NB40 NB50 NB63 NB80 NB100
Pilot Volume (Area A _x) for Cone B, C & R	V _x	cm ³	1,18 4,4 10,13 19,3 50,9 101,5 187,8 331,42
Pilot Volume (Area A _x) for Cone A & D	V _x	cm ³	1,19 4,03 9,97 19,23 48,47 92,35 173,06 346,86

Characteristic Parameters

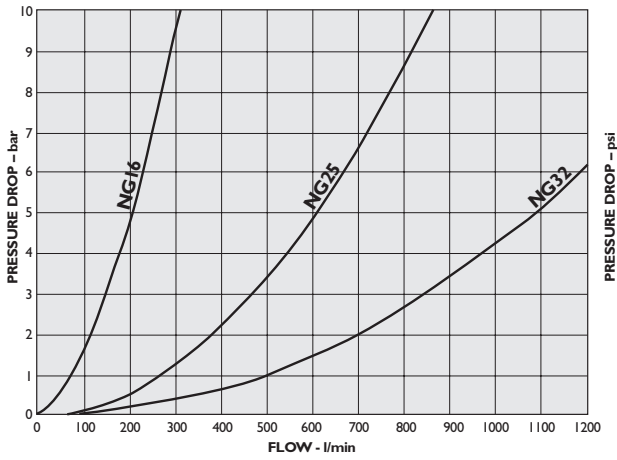


Reference Surface A _A		NG16	NG25	NG32	NG40	NG50	NG63	NG80	NG100
Cones B, C and R									
Stroke mm		6	12	14	15	20	24	30,5	36,5
A _A mm ²		123	227	452	804	1590	2642	3848	5675
A _A (Ref)		I	I	I	I	I	I	I	I
A _B		0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6
A _X		1,6	1,6	1,6	1,6	1,6	1,6	1,6	1,6
Cones A and D									
Stroke mm		5,9	10,6	14,1	15,3	20,4	24	30,5	36,5
A _A mm ²		201	380	707	1257	2376	3848	5674	9503
A _A (Ref)		I	I	I	I	I	I	I	I
A _B		/	/	/	/	/	/	/	/
A _X		I	I	I	I	I	I	I	I

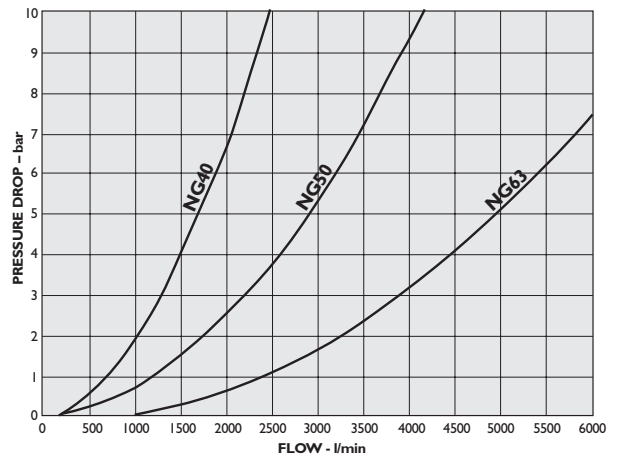
Performance Data

Pressure Control Function

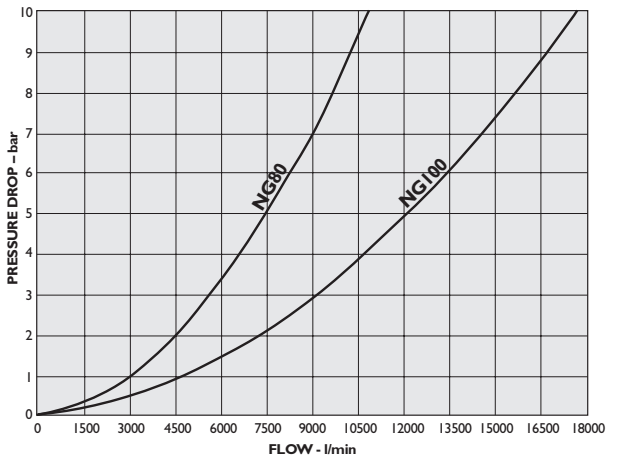
CONE-A, WITHOUT DAMPENING NOSE



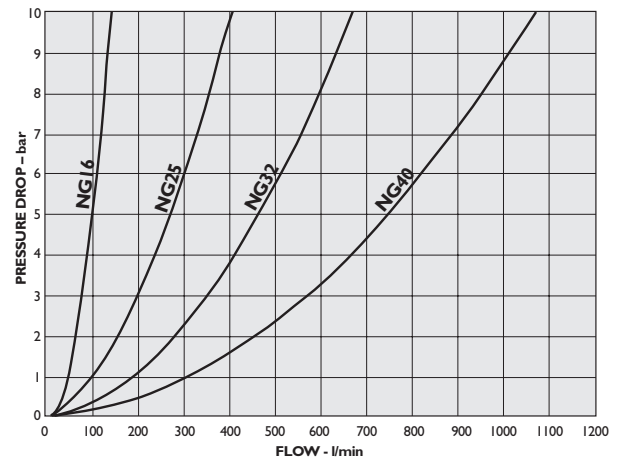
CONE-A, WITHOUT DAMPENING NOSE



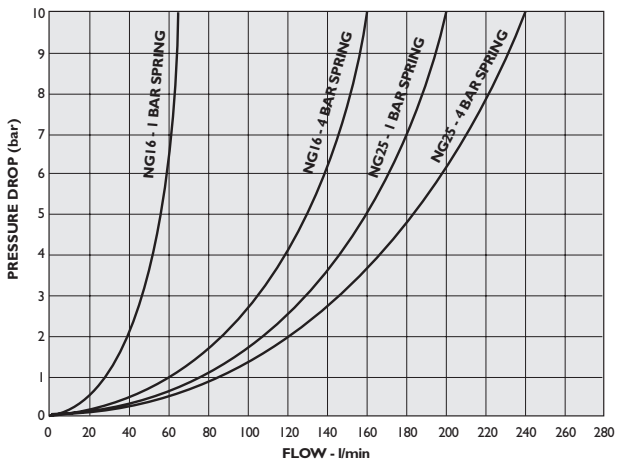
CONE-A, WITHOUT DAMPENING NOSE



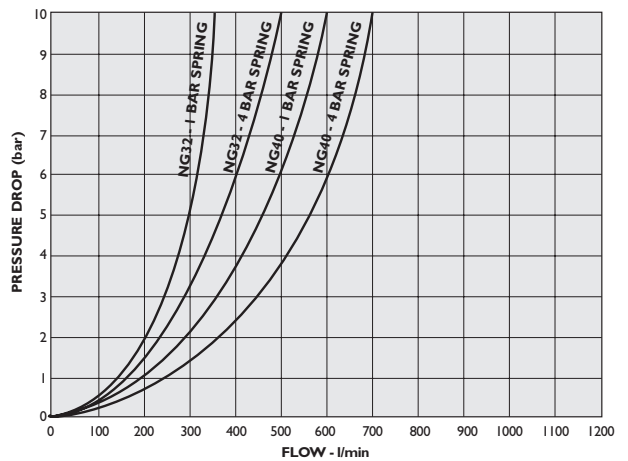
CONE-D, WITH DAMPENING NOSE



CONE-M,N, SPOOL TYPE

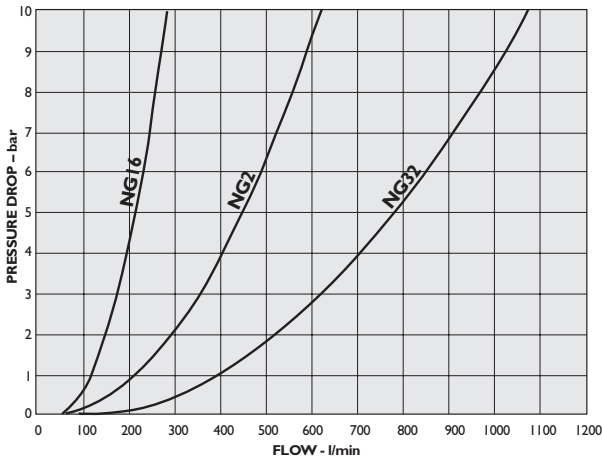


CONE-M,N, SPOOL TYPE

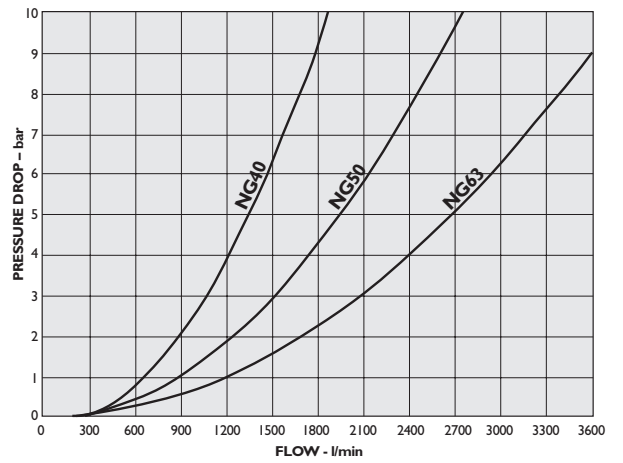


Flow; Direction and Check Functions

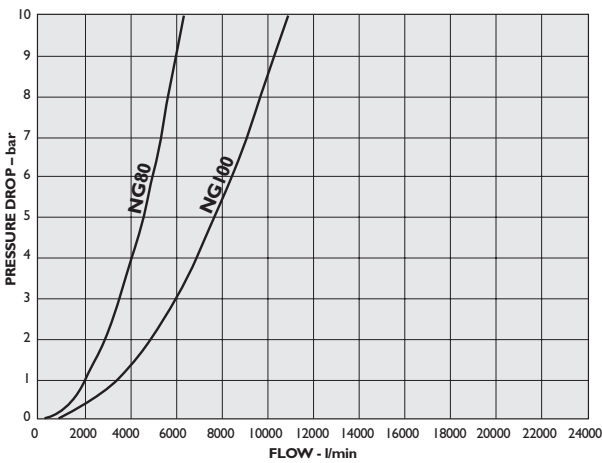
CONE-B/R, WITHOUT DAMPENING NOSE



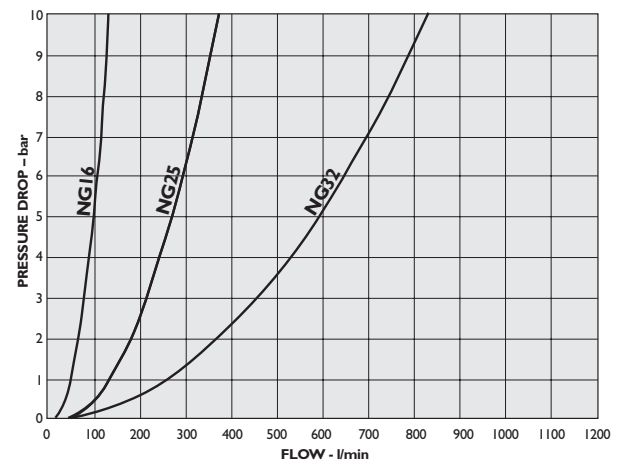
CONE-B/R, WITHOUT DAMPENING NOSE



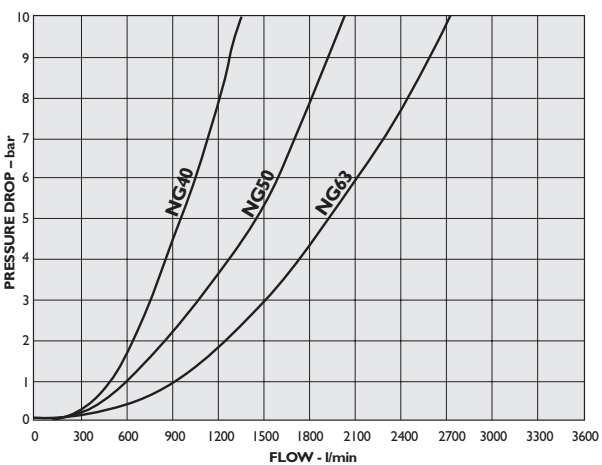
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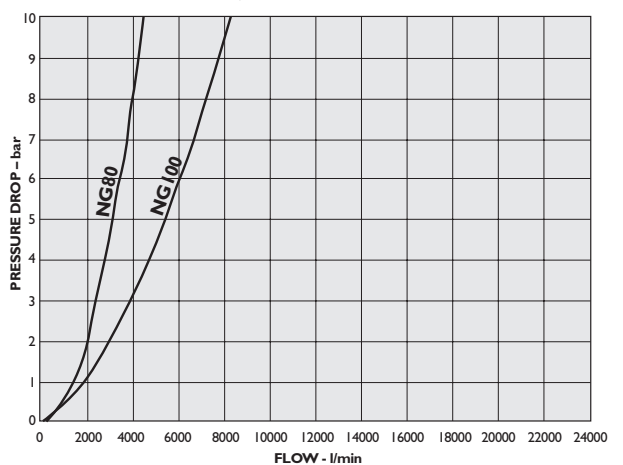
CONE-C, WITH DAMPENING NOSE



CONE-C, WITH DAMPENING NOSE

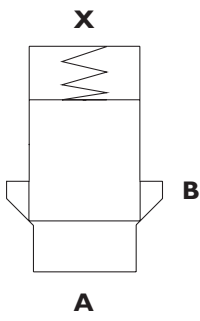
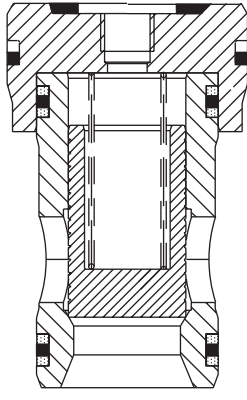
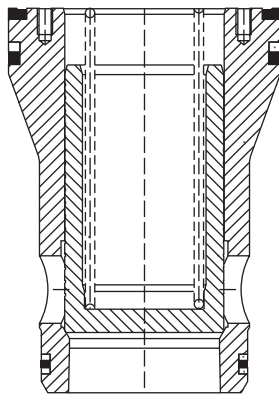


CONE-C, WITH DAMPENING NOSE



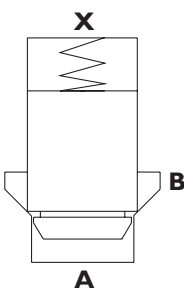
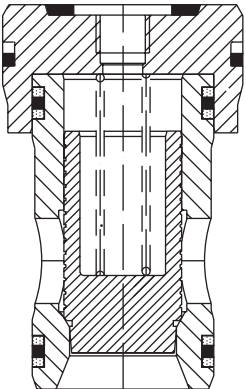
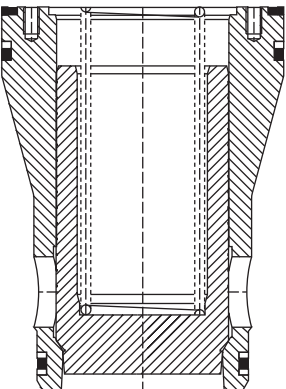
Standard Models

Pressure Control (without Dampening nose); area ratio = 1:1
Flow Direction A → B

Symbol	Function	Size NG [mm]	Weight [kg]	Spring* Rating [bar]	Part Designation	Part Number
		16	0,2	0,2	M-CEE16B6AP/KOB;DG15	XCBI1483-000-00
				0,6	M-CEE16B6AS/KOB;DG15	XCBI1276-000-00
				1,2	M-CEE16B6AT/KOB;DG15	XCBI1277-000-00
				2,4	M-CEE16B6AU/KOB;DG15	XCBI1278-000-00
		25	0,4	0,2	M-CEE25B6AP/KOB;DG15	XCBI1378-000-00
				0,6	M-CEE25B6AS/KOB;DG15	XCBI1273-000-00
				1,2	M-CEE25B6AT/KOB;DG15	XCBI1274-000-00
				2,4	M-CEE25B6AU/KOB;DG15	XCBI1275-000-00
		32	0,9	0,2	M-CEE32B6AP/KOB;DG15	XCBI1484-000-00
				0,6	M-CEE32B6AS/KOB;DG15	XCBI1290-000-00
				1,2	M-CEE32B6AT/KOB;DG15	XCBI1291-000-00
				2,4	M-CEE32B6AU/KOB;DG15	XCBI1292-000-00
		40	1,8	0,2	M-CEE40B6AP/KOB;DG15	XCBI1485-000-00
				0,6	M-CEE40B6AS/KOB;DG15	XCBI1295-000-00
				1,2	M-CEE40B6AT/KOB;DG15	XCBI1296-000-00
				2,4	M-CEE40B6AU/KOB;DG15	XCBI1297-000-00
		50	3,2	0,2	M-CEE50B6AP/KOB;DG15	XCBI1486-000-00
				0,6	M-CEE50B6AS/KOB;DG15	XCBI1306-000-00
				1,2	M-CEE50B6AT/KOB;DG15	XCBI1307-000-00
				2,4	M-CEE50B6AU/KOB;DG15	XCBI1308-000-00
63		6,9	0,2	M-CEE63B6AP/KOB;DG15	XCBI1487-000-00	
			0,6	M-CEE63B6AS/KOB;DG15	XCBI1309-000-00	
			1,2	M-CEE63B6AT/KOB;DG15	XCBI1310-000-00	
			2,4	M-CEE63B6AU/KOB;DG15	XCBI1311-000-00	
80		12	0,2	M-CEE80B6AP/KOB;DG15	XCBI1488-000-00	
			0,6	M-CEE80B6AS/KOB;DG15	XCBI1312-000-00	
			1,2	M-CEE80B6AT/KOB;DG15	XCBI1313-000-00	
			2,4	M-CEE80B6AU/KOB;DG15	XCBI1314-000-00	
100	24	0,2	M-CEE100B6AP/KOB;DG15	XCBI1489-000-00		
		0,6	M-CEE100B6AS/KOB;DG15	XCBI1429-000-00		
		1,2	M-CEE100B6AT/KOB;DG15	XCBI1430-000-00		
		2,4	M-CEE100B6AU/KOB;DG15	XCBI1431-000-00		

* 3,7 bar spring on request !

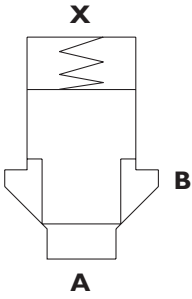
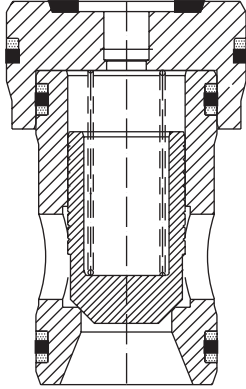
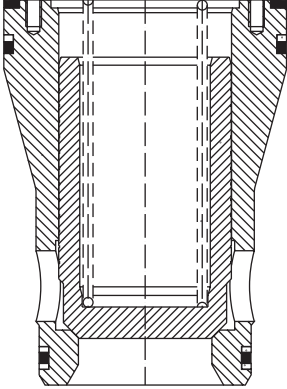
Pressure Control (with dampening nose); area ratio = 1:1
Flow Direction A → B

Symbol	Function	Size NG [mm]	Weight [kg]	Spring * Rating [bar]	Part Designation	Part Number
		16	0,2	0,2	M-CEE16B6DP/KOB;DG I5	XCB11490-000-00
				0,6	M-CEE16B6DS/KOB;DG I5	XCB11491-000-00
				1,2	M-CEE16B6DT/KOB;DG I5	XCB11492-000-00
				2,4	M-CEE16B6DU/KOB;DG I5	XCB11493-000-00
		25	0,4	0,2	M-CEE25B6DP/KOB;DG I5	XCB11444-000-00
				0,6	M-CEE25B6DS/KOB;DG I5	XCB11446-000-00
				1,2	M-CEE25B6DT/KOB;DG I5	XCB11447-000-00
				2,4	M-CEE25B6DU/KOB;DG I5	XCB11448-000-00
		32	0,9	0,2	M-CEE32B6DP/KOB;DG I5	XCB11352-000-00
				0,6	M-CEE32B6DS/KOB;DG I5	XCB11354-000-00
				1,2	M-CEE32B6DT/KOB;DG I5	XCB11355-000-00
				2,4	M-CEE32B6DU/KOB;DG I5	XCB11356-000-00
		40	1,8	0,2	M-CEE40B6DP/KOB;DG I5	XCB11494-000-00
				0,6	M-CEE40B6DS/KOB;DG I5	XCB11420-000-00
				1,2	M-CEE40B6DT/KOB;DG I5	XCB11421-000-00
				2,4	M-CEE40B6DU/KOB;DG I5	XCB11422-000-00
		50	3,2	0,2	M-CEE50B6DP/KOB;DG I5	XCB11495-000-00
				0,6	M-CEE50B6DS/KOB;DG I5	XCB11496-000-00
				1,2	M-CEE50B6DT/KOB;DG I5	XCB11497-000-00
				2,4	M-CEE50B6DU/KOB;DG I5	XCB11498-000-00
63		6,9	0,2	M-CEE63B6DP/KOB;DG I5	XCB11499-000-00	
			0,6	M-CEE63B6DS/KOB;DG I5	XCB11500-000-00	
			1,2	M-CEE63B6DT/KOB;DG I5	XCB11501-000-00	
			2,4	M-CEE63B6DU/KOB;DG I5	XCB11502-000-00	
80		12	0,2	M-CEE80B6DP/KOB;DG I5	XCB11503-000-00	
			0,6	M-CEE80B6DS/KOB;DG I5	XCB11504-000-00	
			1,2	M-CEE80B6DT/KOB;DG I5	XCB11505-000-00	
			2,4	M-CEE80B6DU/KOB;DG I5	XCB11506-000-00	
100	24	0,2	M-CEE100B6DP/KOB;DG I5	XCB11507-000-00		
		0,6	M-CEE100B6DS/KOB;DG I5	XCB11508-000-00		
		1,2	M-CEE100B6DT/KOB;DG I5	XCB11509-000-00		
		2,4	M-CEE100B6DU/KOB;DG I5	XCB11510-000-00		

* 3,7 bar spring on request !

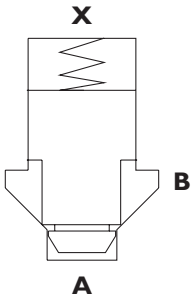
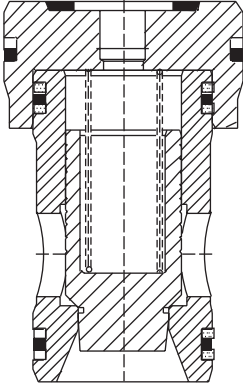
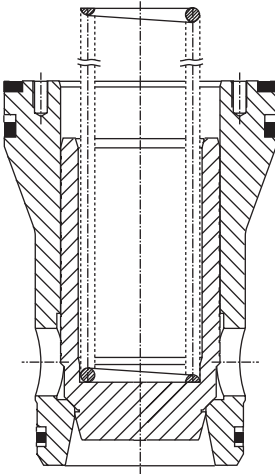
Standard Models

Directional Control (without dampening nose); area ratio = 1:1,6
Flow Direction A ↔ B

Symbol	Function	Size NG [mm]	Weight [kg]	Spring* Rating [bar]	Part Designation	Part Number
		16	0,2	0,3	M-CEE16B6BP/KOB	XCBI0170-000-00
				1,0	M-CEE16B6BS/KOB	XCBI0172-000-00
				2,0	M-CEE16B6BT/KOB	XCBI0173-000-00
				4,0	M-CEE16B6BU/KOB	XCBI0174-000-00
		25	0,4	0,3	M-CEE25B6BP/KOB	XCBI0198-000-00
				1,0	M-CEE25B6BS/KOB	XCBI0200-000-00
				2,0	M-CEE25B6BT/KOB	XCBI0201-000-00
				4,0	M-CEE25B6BU/KOB	XCBI0202-000-00
		32	0,9	0,3	M-CEE32B6BP/KOB	XCBI0226-000-00
				1,0	M-CEE32B6BS/KOB	XCBI0228-000-00
				2,0	M-CEE32B6BT/KOB	XCBI0229-000-00
				4,0	M-CEE32B6BU/KOB	XCBI0230-000-00
		40	1,8	0,3	M-CEE40B6BP/KOB	XCBI0253-000-00
				1,0	M-CEE40B6BS/KOB	XCBI0255-000-00
				2,0	M-CEE40B6BT/KOB	XCBI0256-000-00
				4,0	M-CEE40B6BU/KOB	XCBI0257-000-00
		50	3,2	0,3	M-CEE50B6BP/KOB	XCBI0277-000-00
				1,0	M-CEE50B6BS/KOB	XCBI0279-000-00
				2,0	M-CEE50B6BT/KOB	XCBI0280-000-00
				4,0	M-CEE50B6BU/KOB	XCBI0281-000-00
63	6,9	0,3	M-CEE63B6BP/KOB	XCBI0297-000-00		
		1,0	M-CEE63B6BS/KOB	XCBI0299-000-00		
		2,0	M-CEE63B6BT/KOB	XCBI0300-000-00		
		4,0	M-CEE63B6BU/KOB	XCBI0301-000-00		
80	12	0,3	M-CEE80B6BP/KOB	XCBI0317-000-00		
		1,0	M-CEE80B6BS/KOB	XCBI0319-000-00		
		2,0	M-CEE80B6BT/KOB	XCBI0320-000-00		
		4,0	M-CEE80B6BU/KOB	XCBI0321-000-00		
100	24	0,3	M-CEE100B6BP/KOB	XCBI0337-000-00		
		1,0	M-CEE100B6BS/KOB	XCBI0339-000-00		
		2,0	M-CEE100B6BT/KOB	XCBI0340-000-00		
		4,0	M-CEE100B6BU/KOB	XCBI034-000-00		

* 6 bar spring on request !

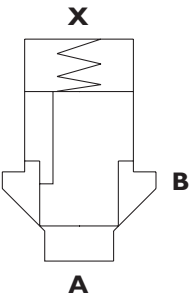
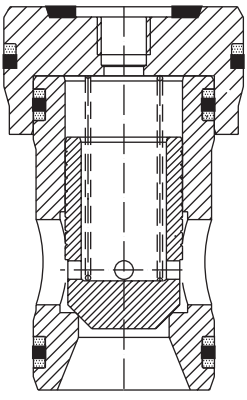
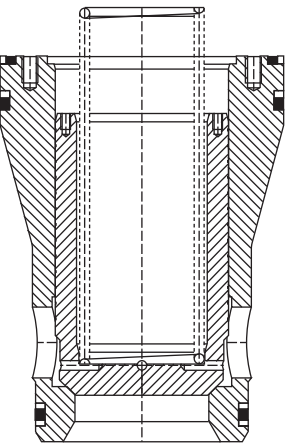
Directional Control (with dampening nose); area ratio = 1:1,6
Flow Direction A ↔ B

Symbol	Function	Size NG [mm]	Weight [kg]	Spring* Rating [bar]	Part Designation	Part Number
		16	0,2	0,3	M-CEE16B6CP/KOB	XCBI0177-000-00
				1,0	M-CEE16B6CS/KOB	XCBI0179-000-00
				2,0	M-CEE16B6CT/KOB	XCBI0180-000-00
				4,0	M-CEE16B6CU/KOB	XCBI0181-000-00
		25	0,4	0,3	M-CEE25B6CP/KOB	XCBI0205-000-00
				1,0	M-CEE25B6CS/KOB	XCBI0207-000-00
				2,0	M-CEE25B6CT/KOB	XCBI0208-000-00
				4,0	M-CEE25B6CU/KOB	XCBI0209-000-00
		32	0,9	0,3	M-CEE32B6CP/KOB	XCBI0233-000-00
	1,0			M-CEE32B6CS/KOB	XCBI0235-000-00	
	2,0			M-CEE32B6CT/KOB	XCBI0236-000-00	
	4,0			M-CEE32B6CU/KOB	XCBI0237-000-00	
		40	1,8	0,3	M-CEE40B6CP/KOB	XCBI0259-000-00
				1,0	M-CEE40B6CS/KOB	XCBI0261-000-00
				2,0	M-CEE40B6CT/KOB	XCBI0262-000-00
				4,0	M-CEE40B6CU/KOB	XCBI0263-000-00
		50	3,2	0,3	M-CEE50B6CP/KOB	XCBI0282-000-00
				1,0	M-CEE50B6CS/KOB	XCBI0284-000-00
				2,0	M-CEE50B6CT/KOB	XCBI0285-000-00
				4,0	M-CEE50B6CU/KOB	XCBI0286-000-00
		63	6,9	0,3	M-CEE63B6CP/KOB	XCBI0302-000-00
1,0				M-CEE63B6CS/KOB	XCBI0304-000-00	
2,0				M-CEE63B6CT/KOB	XCBI0305-000-00	
4,0				M-CEE63B6CU/KOB	XCBI0306-000-00	
80	12	0,3	M-CEE80B6CP/KOB	XCBI0332-000-00		
		1,0	M-CEE80B6CS/KOB	XCBI0324-000-00		
		2,0	M-CEE80B6CT/KOB	XCBI0325-000-00		
		4,0	M-CEE80B6CU/KOB	XCBI0326-000-00		
100	24	0,3	M-CEE100B6CP/KOB	XCBI0342-000-00		
		1,0	M-CEE100B6CS/KOB	XCBI0344-000-00		
		2,0	M-CEE100B6CT/KOB	XCBI0345-000-00		
		4,0	M-CEE100B6CU/KOB	XCBI0346-000-00		

* 6 bar spring on request !

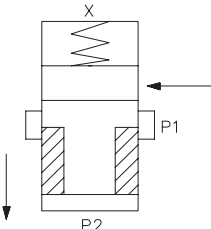
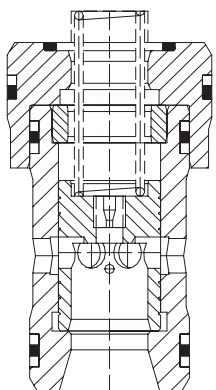
Standard Models

Check Valve; area ratio = 1:1,6
Flow Direction A → B

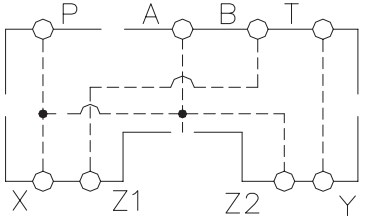
Symbol	Function	Size NG [mm]	Weight [kg]	Spring* Rating [bar]	Part Designation	Part Number
		16	0,2	0,3	M-CEE16B6RP	XCB10367-000-00
				1,0	M-CEE16B6RS	XCB10369-000-00
				2,0	M-CEE16B6RT	XCB10370-000-00
				4,0	M-CEE16R6U	XCB10371-000-00
		25	0,4	0,3	M-CEE25B6RP	XCB10402-000-00
				1,0	M-CEE25B6RS	XCB10404-000-00
				2,0	M-CEE25B6RT	XCB10405-000-00
				4,0	M-CEE25B6RU	XCB10406-000-00
		32	0,9	0,3	M-CEE32B6RP	XCB10437-000-00
	1,0			M-CEE32B6RS	XCB10439-000-00	
	2,0			M-CEE32B6RT	XCB10440-000-00	
		40	1,8	0,3	M-CEE40B6RP	XCB10469-000-00
				1,0	M-CEE40B6RS	XCB10471-000-00
				2,0	M-CEE40B6RT	XCB10472-000-00
4,0				M-CEE40B6RU	XCB10473-000-00	
50		3,2	0,3	M-CEE50B6RP	XCB10497-000-00	
			1,0	M-CEE50B6RS	XCB10499-000-00	
			2,0	M-CEE50B6RT	XCB10500-000-00	
63	6,9	4,0	M-CEE50B6RU	XCB10501-000-00		
		0,3	M-CEE63B6RP	XCB10522-000-00		
80	12,0	1,0	M-CEE63B6RS	XCB10524-000-00		
		2,0	M-CEE63B6RT	XCB10525-000-00		
		4,0	M-CEE63B6RU	XCB10526-000-00		
		0,3	M-CEE80B6RP	XCB10557-000-00		
100	24,0	1,0	M-CEE80B6RS	XCB10559-000-00		
		2,0	M-CEE80B6RT	XCB10560-000-00		
		4,0	M-CEE80B6RU	XCB10561-000-00		
		0,3	M-CEE100B6RP	XCB10572-000-00		
				1,0	M-CEE100B6RS	XCB10574-000-00
				2,0	M-CEE100B6RT	XCB10575-000-00
				4,0	M-CEE100B6RU	XCB10576-000-00

* 6 bar spring on request !

Pressure Reducing & compensator (spool type), normally open; area ratio = 1:1
Flow Direction P1 → P2

Symbol	Function	Size NG [mm]	Spring Rating [bar]	Part Designation	Part Number
 <p>Flow only P1=>P2</p>		16	2,0	M-CKE16B6MT/K99	XCBI1082-000-00
			4,0	M-CKE16B6MU/K99	XCBI1083-000-00
		25	2,0	M-CKE25B6MT/K99	XCBI1088-000-00
			4,0	M-CKE25B6MU/K99	XCBI1089-000-00
		32	2,0	M-CKE32B6MT/K99	XCBI1541-000-00
			4,0	M-CKE32B6MU/K99	XCBI1542-000-00
		40	2,0	M-CKE40B6MT/K99	XCBI0965-000-00
			4,0	M-CKE40B6MU/K99	XCBI0966-000-00

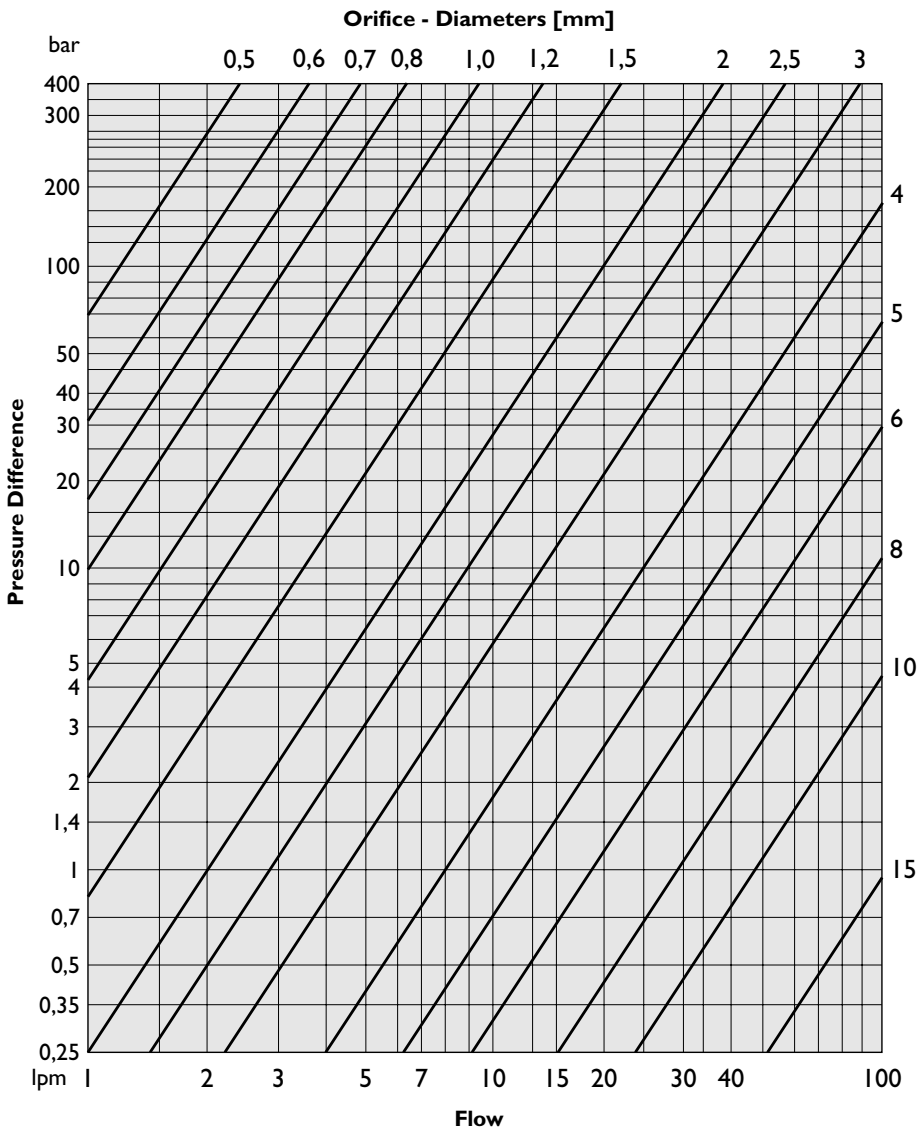
These CKE-Cartridge can be ordered only with the below covers ! They are only compatible with these covers !

Symbol	Size	Part Designation	Part Number
	16	CCE16B61WDBX06/DM	XEBI6399-000-01
	25	CCE25B61WDBX06/DM	XEBI6042-000-01
	32	CCE32B61WDBX06/DM	XEBI6102-000-01
	40	CCE40B61WDBX06/DM	XEBI3491-000-01

Typical Orifice Characteristics

The function and switching velocity of a cartridge-valve can be influenced by changes in the metering-in and metering-out flow through the pilot lines. This is achieved by changing mounting orifices as required.

The following diagram and table should be used for selecting the correct orifice diameter.



Order Numbers for Orifices

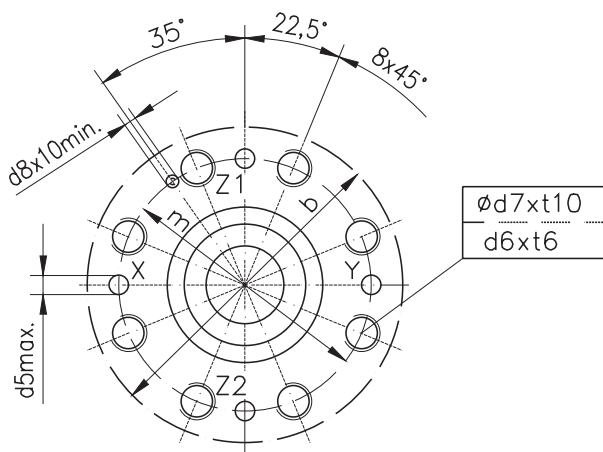
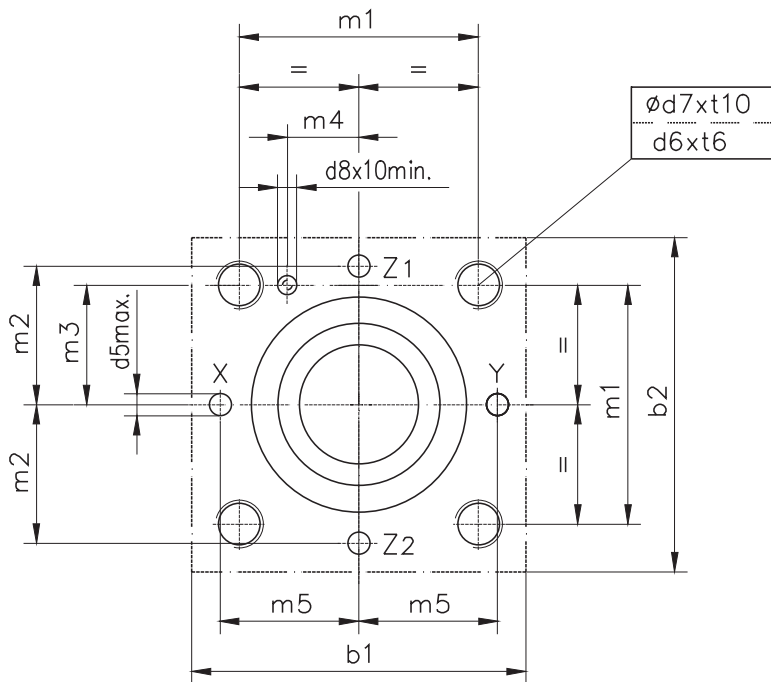
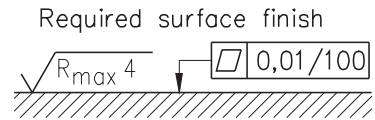
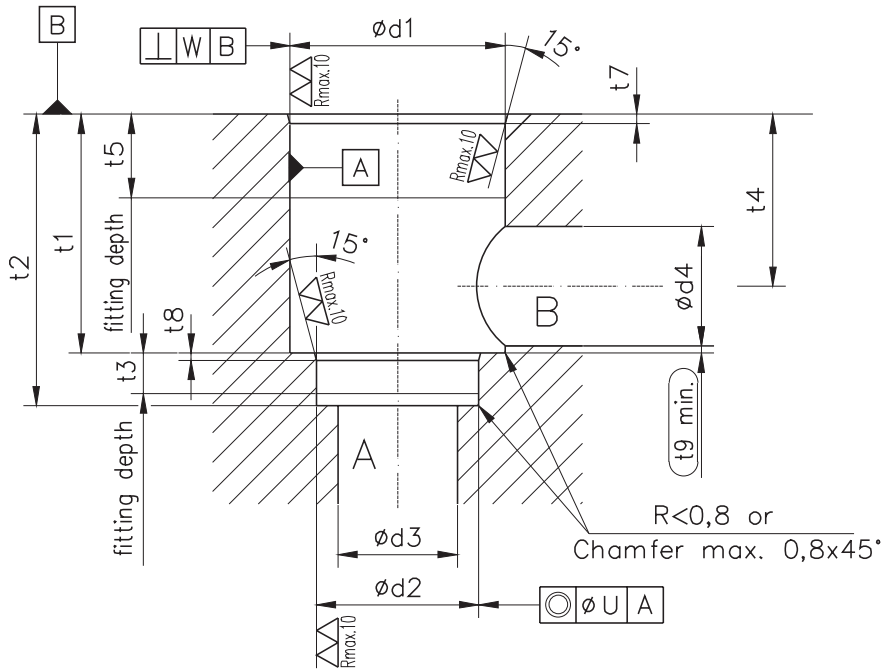
CEE	Orifice Choice	Order Number
	Plug M5x5x0,0	X78490500
	Orifice M5x5x0,6	X78490506
	Orifice M5x5x0,8	X78490508
E16	Orifice M5x5x0,9	X78490509
E25	Orifice M5x5x1,0	X78490510
E32	Orifice M6x6x1,2	X78490612
E40	Orifice M6x6x1,2	X78490612
	Orifice M6x6x1,4	X78490614
	Orifice M6x6x1,5	X78490615
	Orifice M6x6x1,8	X78490618
	Orifice M6x6x2,0	X78490620
	Orifice M6x6x2,4	X78490624
	Plug M8x8x0,0	X78490800
	Orifice M8x8x0,6	X78490806
	Orifice M8x8x0,8	X78490808
	Orifice M8x8x0,9	X78490809
E50	Orifice M8x8x1,0	X78490810
E63	Orifice M8x8x1,1	X78490811
E80	Orifice M8x8x1,2	X78490812
E100	Orifice M8x8x1,5	X78490815
	Orifice M8x8x1,8	X78490818
	Orifice M8x8x2,0	X78490820
	Orifice M8x8x2,5	X78490825
	Orifice M8x8x2,6	X78490826
	Orifice M8x8x3,0	X78490830
	Orifice M8x8x3,5	X78490835

Order example:
Orifice M5x5x0,8 NB16
Order Number: X78490508

Viscosity : 35 mm² · s⁻¹ [cSt]
Oil temperature : 50°C

Mounting Dimensions

CAVITY AS PER ISO 7368

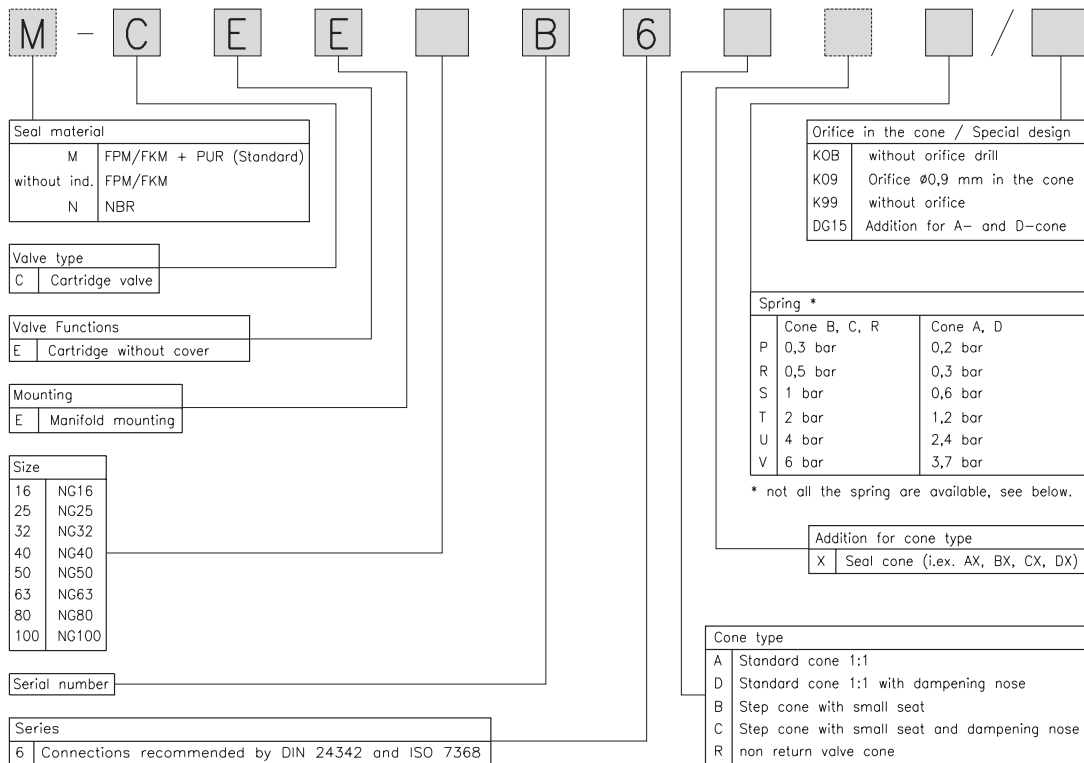


Dimension	NG16	NG25	NG32	NG40	NG50	NG63
b1	65	85	102	125	140	200
b2	65	85	102	125	140	180
d1 ^{H7}	32	45	60	75	90	120
d2 ^{H7}	25	34	45	55	68	90
d3	16	25	32	40	50	63
d4	16	25	32	40	50	63
d4 _{max.}	25	32	40	50	63	80
d5 _{max.}	4	6	8	10	10	12
d6	M8	M12	M16	M20	M20	M30
d7	6,8	10,2	14	17,5	17,5	26,5
d8 ^{H13}	4	6	6	6	8	8
m1 ±0,2	46	58	70	85	100	125
m2 ±0,2	25	33	41	50	58	75
m3 ±0,2	23	29	35	42,5	50	62,5
m4 ±0,2	10,5	16	17	23	30	38
m5 ±0,2	25	33	41	50	58	75
t1 +0,1	43	58	70	87	100	130
t2 +0,1	56	72	85	105	122	155
t3	11	12	13	15	17	20
t4	34	44	52	64	72	95
t4 at d4 _{max.}	29,5	40,5	48	59	65,5	86,5
t5	20	30	30	30	35	40
t6	14	20	26	33	33	50
t7	2	2,5	2,5	3	4	4
t8	2	2,5	2,5	3	3	4
t9	0,5	1,0	1,5	2,5	2,5	3
t10	17	24	31	38	38	56
U	0,03	0,03	0,03	0,05	0,05	0,05
W	0,05	0,05	0,1	0,1	0,1	0,2

Dimension	NG80	NG100
b _{max.}	250	300
d1 ^{H7}	145	180
d2 ^{H7}	110	135
d3	80	100
d4	80	100
d4 _{max.}	100	125
d5 _{max.}	16	20
d6	M24	M30
d7	21	26,5
d8 ^{H13}	10	10
t1	175	210
t2 +0,2	205	245
t3	25	29
t4	130	155
t4 at d4 _{max.}	120	142,5
t5	40	50
t6	39	50
t7	5	5
t8	5	5
t9	3	5
t10	45	56
m ±0,3	200	245
U	0,05	0,05
W	0,2	0,2

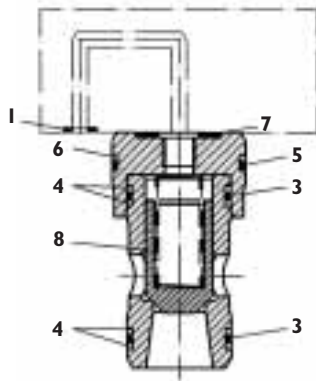
Ordering Information

Poppet Style Cartridge

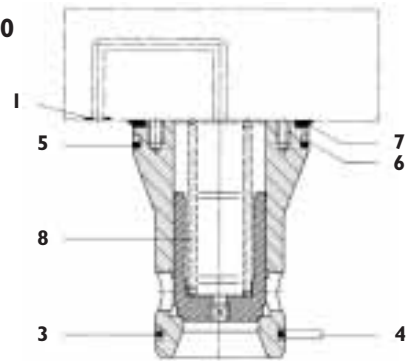


Subject to technical changes

NG16 – NG32



NG40 – NG100



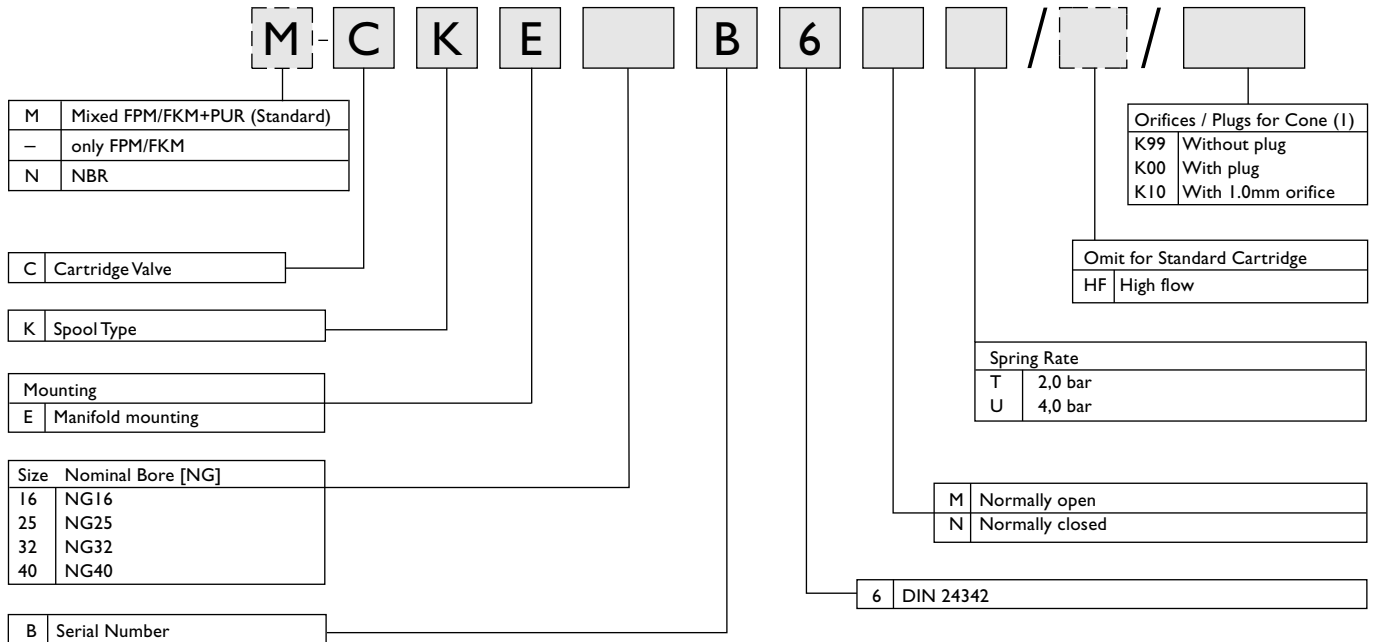
	Designation		Order Number							
			NG16	NG25	NG32	NG40	NG50	NG63	NG80	NG100
1	O-Ring 80 Shore	X980	02010	02012	02013	02112	02112	02116	02215	02220
	Seal Kit for Cartridge	XEB	12229	12230	12231	12232	12233	12234	12235	12236
3	O-Ring 80 Shore	X980	02020	02122	02222	02225	02229	02338	02344	02427
4	Back-Up Ring	X780	08020	18122	18222	18225	18229	18338	18344	18427
5	O-Ring 80 Shore	X980	02024	02129	02227	02231	02338	02347	02430	02439
6	Back-Up Ring	X780	18024	18129	08227	18231	18338	08348	08431	18439
7	Axial Seal	XE	16367	14823	14823	15224	15200	15161	15202	15223
Springs										
8	Spring P -0,3 bar	XEF	10004	10011	10244	10107	10035	10042	10049	10056
8	Spring R -0,5 bar	XEF	10005	10012	10239	10248	10036	10043	10050	10057
8	Spring S -1,0 bar	XEF	10006	10013	10138	10106	10037	10044	10051	10058
8	Spring T -2,0 bar	XEF	10007	10014	10140	10294	10038	10045	10052	10059
8	Spring U -4,0 bar	XEF	10008	10015	10170	10104	10173	10172	10052	10059
8	Spring V -6,0 bar	XEF	10009	10015	10171	10249	—	—	—	—
			10016**							

** Not possible with stroke limiter IH.

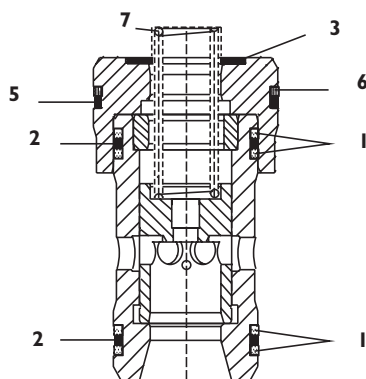
Order example:
O-Ring Pos.3 for NG32
Order number: X98002222

Spring 2,0 bar Pos. 8 for NG32
Order number: XEF10140

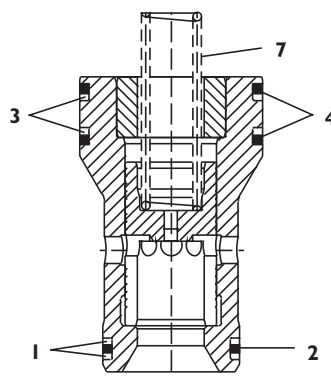
Spool Type Cartridge*



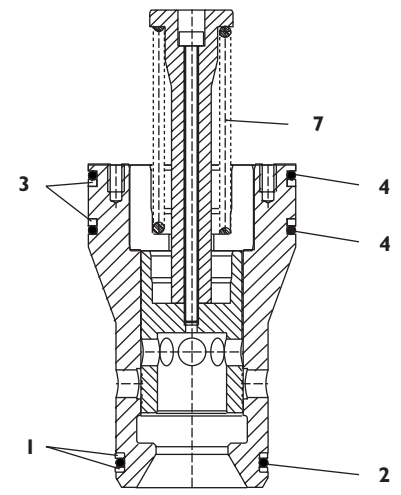
*These Cartridge can be ordered only with the covers on page 13 !



**Normally Open
NG16 – NG25**



**Normally Open
NG32**



**Normally Closed
NG16 – NG40**

Pos.	Designation	Order Number			
		Normally Open Type			
		NG16	NG25	NG32	NG40
1	Back-Up Ring	X780-08020	X780-18122	X780-18222	X780-18225
2	O-Ring	X980-02020	X980-02122	X980-02222	X980-02225
3	Axial Seal	XE16367	XE14450	-	-
3	Back-Up Ring	-	-	X780-08227	X78018231
4	O-Ring	-	-	X980-02227	X980-02231
5	O-Ring	X980-02024	X980-02129	-	-
6	Back-Up Ring	X780-18024	X780-18129	-	-
7	Springs				
7a	2,0 bar	XEF10237	XEF10014	XEF10140	XEF10105
7b	4,0 bar	XEF10109	XEF10015	XEF10191	XEF10104
8	Orifice	CONSULT FACTORY			



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