

MOOG

Proportional Throttle Cartridge Valve PCME/PCLME NG16, 25, 32, 40, 50



OVERVIEW

PCME/PCLME

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This catalog is for users with technical knowledge. To ensure that all necessary characteristics for function and safety of the system are given, the user has to check the suitability of the products described herein. In case of doubt, please contact Moog.

Technical Design

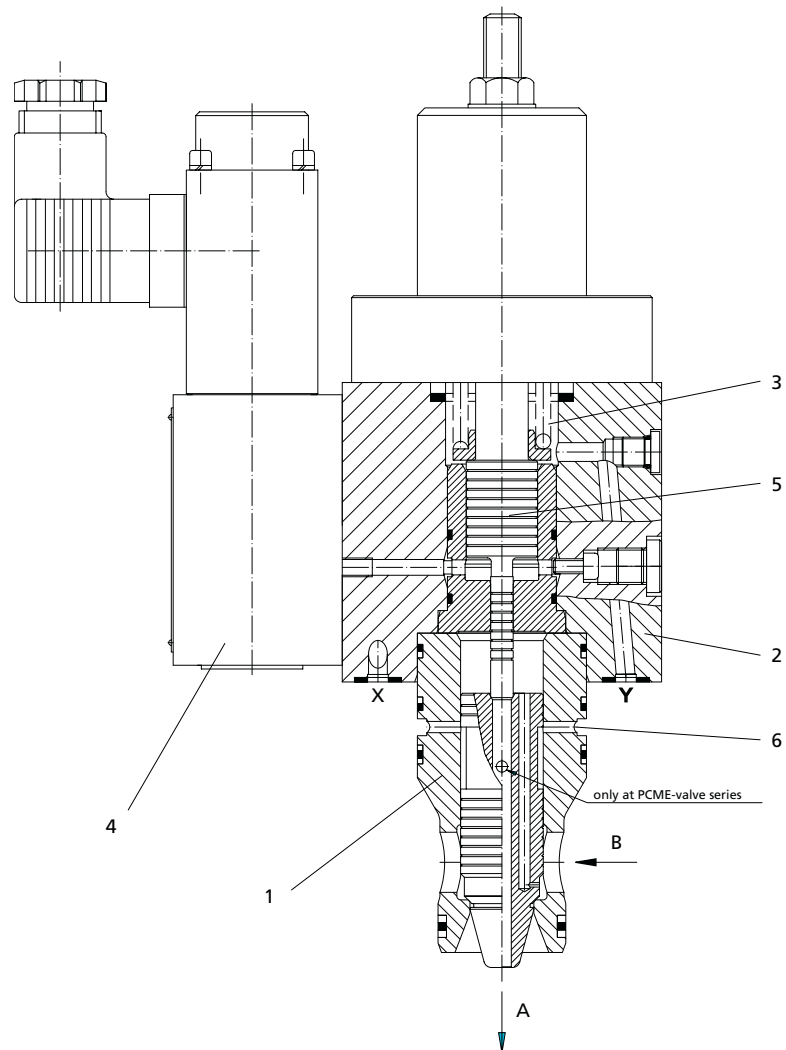
- ❶ Main stage cartridge
- ❷ Cover
- ❸ Pressure spring
- ❹ Proportional pressure reducing valve
- ❺ Pilot piston
- ❻ Load sensing

Proportional Throttle Cartridge Valve Solenoid Pilot Operated (PCME-Valve)

The proportional throttle valve of the PCME-series is a low pressure controlled, piloted throttle valve in cartridge version.

An integrated proportional pressure reducing valve ❹, electronically controlled by 200-800mA positions the pressure balanced pilot piston ❺ against a strong spring ❸. This pilot piston ❺ is followed by the main stage cone.

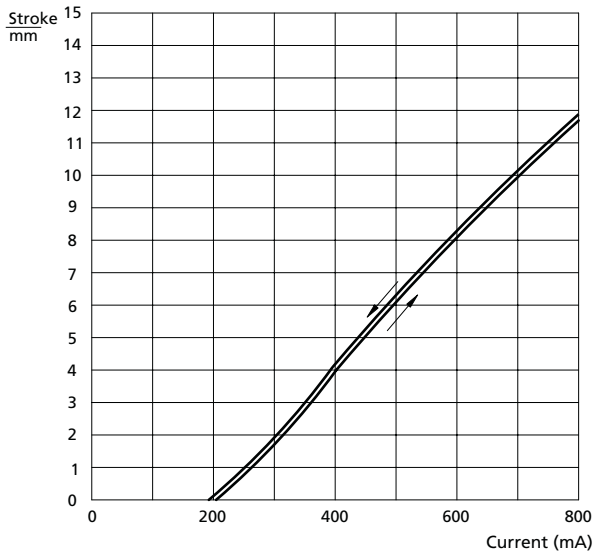
The PCME valve offers additionally the possibility of load sensing ❻ (PCLME-valve series, picture on right side) for example on applications as electro-hydraulic operated flow control valve.



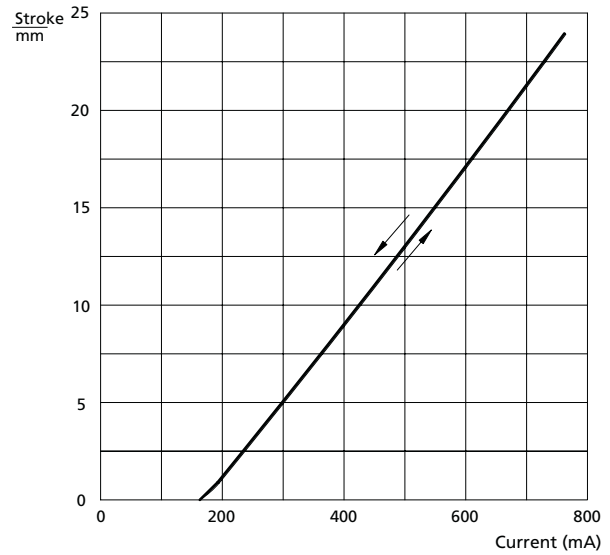
General Data	Value	Unit	Specifications
Designation and Symbol	–	–	Proportional throttle cartridge valve
Type Designation	–	–	see How to Order, page 13
Mode of Construction	–	–	pilot operated seat valve
Manner of Mounting	–	–	manifold cartridge mounting
Mounting Dimensions	–	mm	see Mounting Dimensions, pages 8 and 9
Mounting Position	–	–	any
Flow Direction	–	–	B -> A
Ambient Temperature Range	min.	°C	-25°
	max.	°C	+60°
Working pressure			
Input	min.	bar	0
	max.	bar	350
Output	min.	bar	0
	max.	bar	350
Temperature	min.	°C	-25
	max.	°C	+80
Viscosity range	min.	mm ² • s ⁻¹	2.8
	max.	mm ² • s ⁻¹	380
Operational Viscosity	v	mm ² • s ⁻¹	35
Size	–	–	NG16 NG25 NG32 NG40 NG50
Weight	m	kg	3.3 5.7 9.7 11.7 23.6
Nominal Flow at Δp = 10bar	Qn	l/min	see Characteristic Curves, page 6

SOLENOID CURRENT - STROKE CURVES

NG16-40

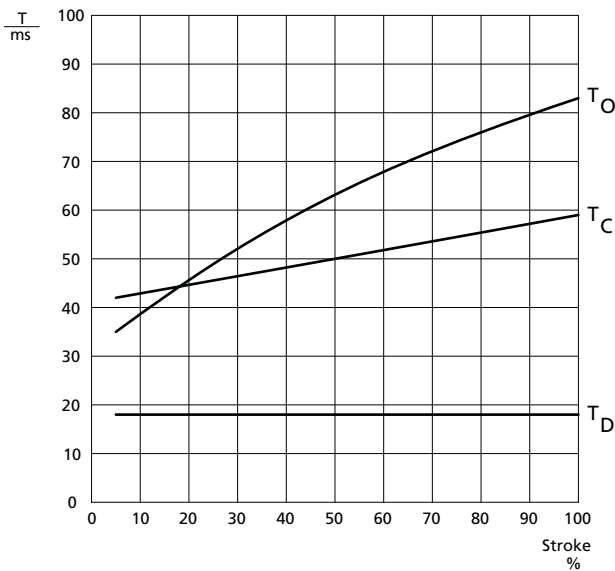


NG50

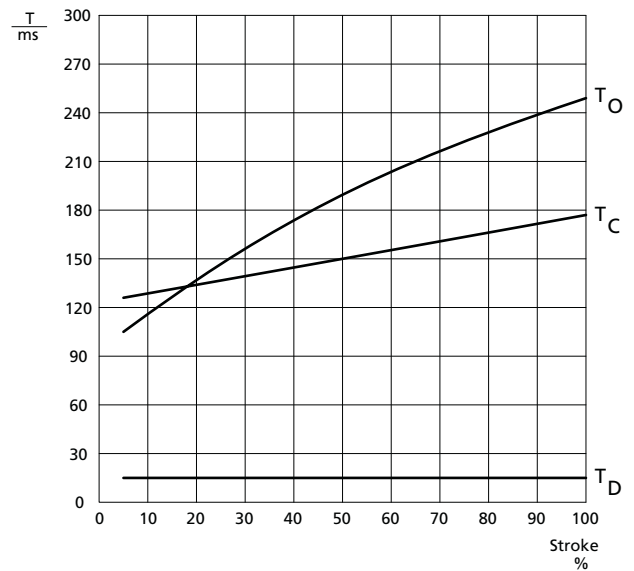


CLOSING TIME

Closing Time NG16-40



Closing Time NG50

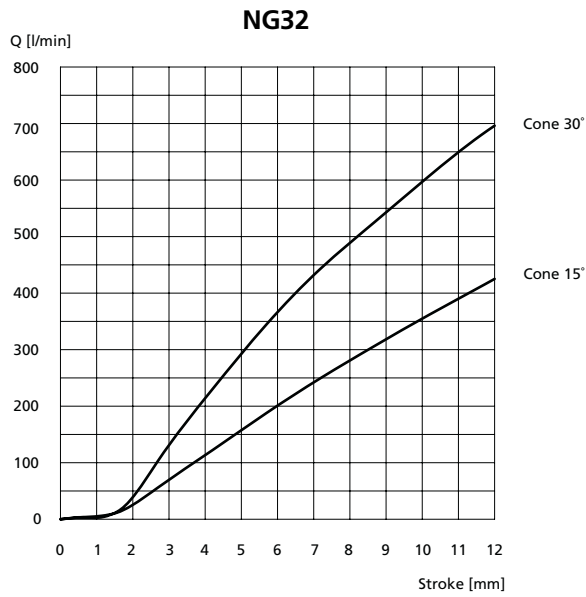
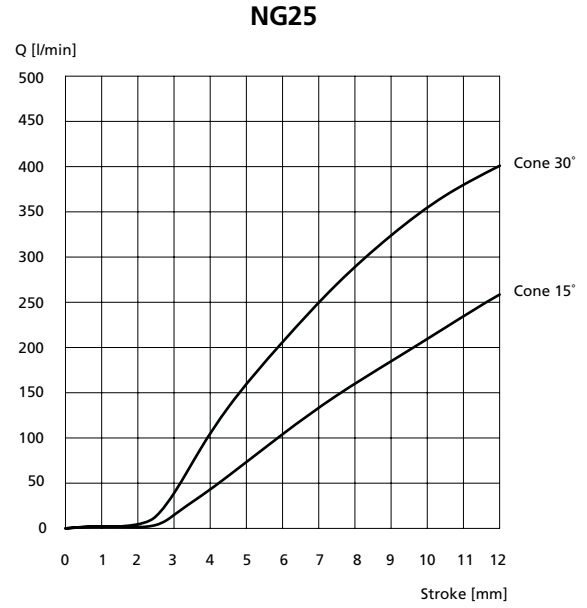
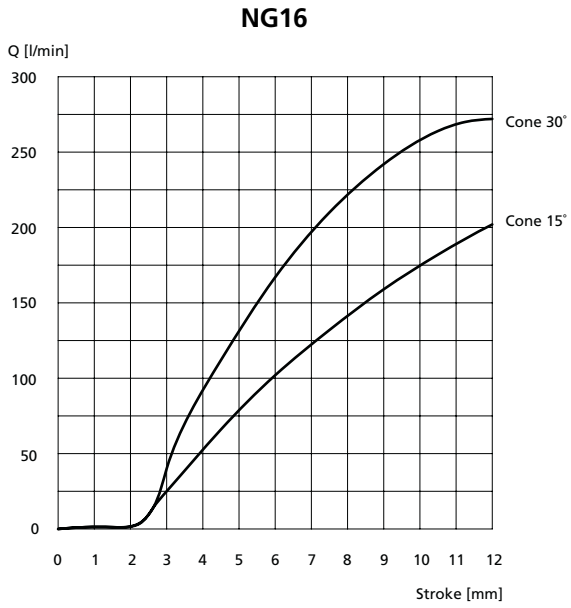


T_O = Opening time

T_C = Closing time

T_D = Dead band

Δp - Q CHARACTERISTIC CURVES AT Δp = 10 BAR

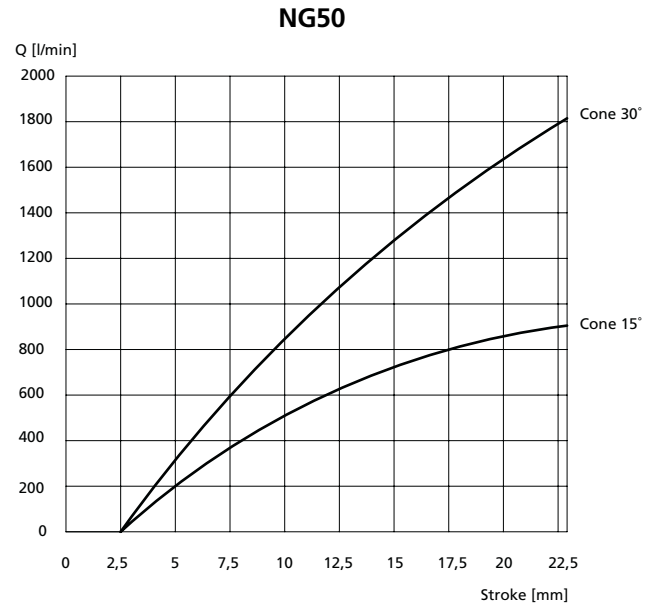
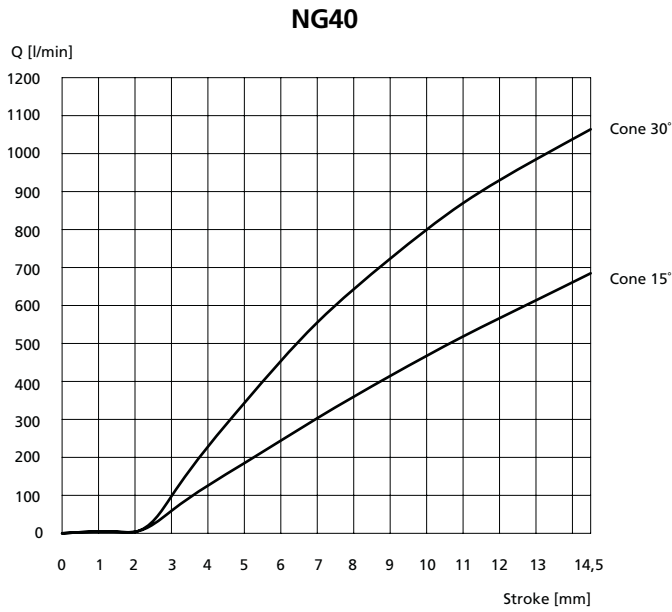


Oil Temperature 45°C

Calculation of the flow Q_x
for other pressure differences Δp_x :

$$Q_x = Q \cdot \sqrt{\frac{\Delta p_x}{10}}$$

Δp - Q CHARACTERISTIC CURVES AT $\Delta p = 10$ BAR

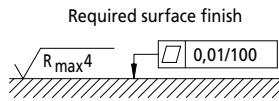
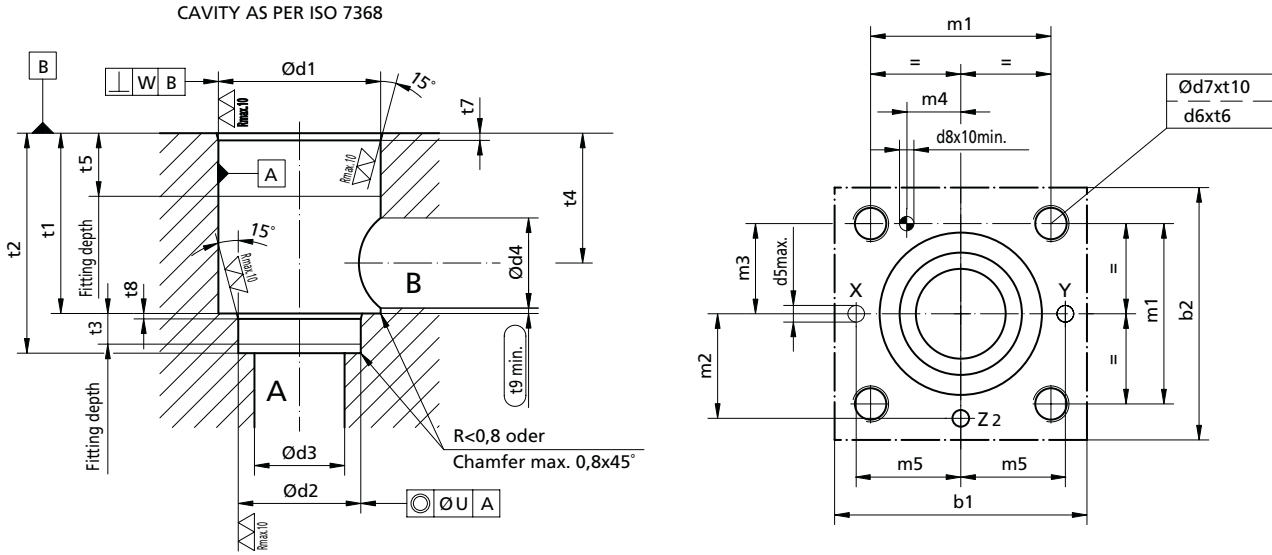


Oil Temperature 45°C

Calculation of the flow Q_x
for other pressure differences Δp_x :

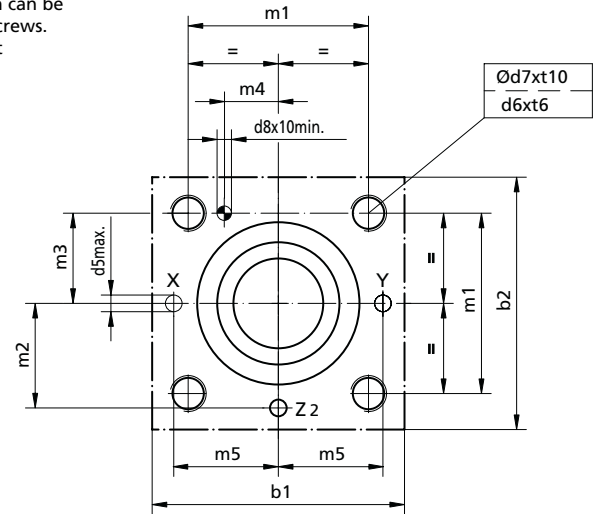
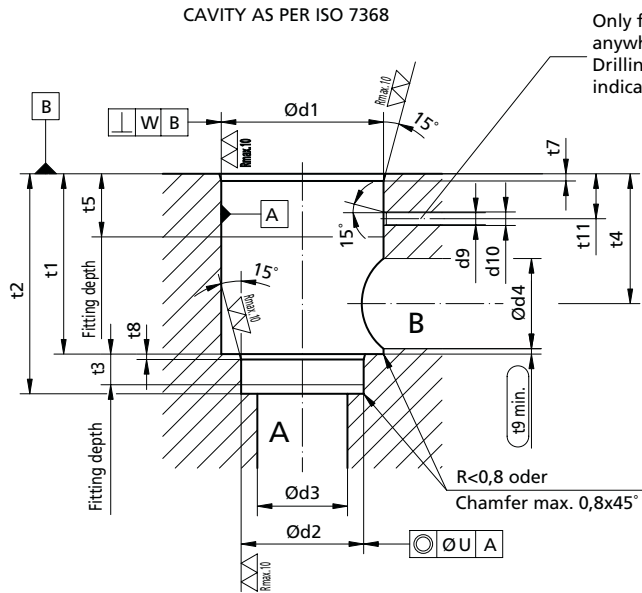
$$Q_x = Q \cdot \sqrt{\frac{\Delta p_x}{10}}$$

MOUNTING DIMENSIONS NG16-NG50 (WITHOUT LOAD SENSING)

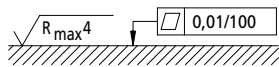


Dimensions mm	NG16	NG25	NG32	NG40	NG50
b1	65	85	102	125	140
b2	65	85	102	125	140
d1 ^{H7}	32	45	60	75	90
d2 ^{H7}	25	34	45	55	68
d3	16	25	32	40	50
d4	16	25	32	40	50
d4 max.	25	32	40	50	63
d5 max.	4	6	8	10	10
d6	M8	M12	M16	M20	M20
d7	6.8	10.2	14	17.5	17.5
d8 ^{H13}	4	6	6	6	8
m1 ^{±0.2}	46	58	70	85	100
m2 ^{±0.2}	25	33	41	50	58
m3 ^{±0.2}	23	29	35	42.5	50
m4 ^{±0.2}	10.5	16	17	23	30
m5 ^{±0.2}	25	33	41	50	58
t1 ^{+0.1}	43	58	70	87	100
t2 ^{+0.1}	56	72	85	105	122
t3	11	12	13	15	17
t4	34	44	52	64	72
t4 at d4 max.	29.5	40.5	48	59	65.5
t5	20	30	30	30	35
t6	14	20	26	33	33
t7	2	2.5	2.5	3	4
t8	2	2.5	2.5	3	4
t9	0.5	1.0	1.5	2.5	2.5
t10	17	24	31	38	38
U	0.03	0.03	0.03	0.05	0.05
W	0.05	0.05	0.1	0.1	0.1

MOUNTING DIMENSIONS NG25-NG50 (WITH LOAD SENSING)

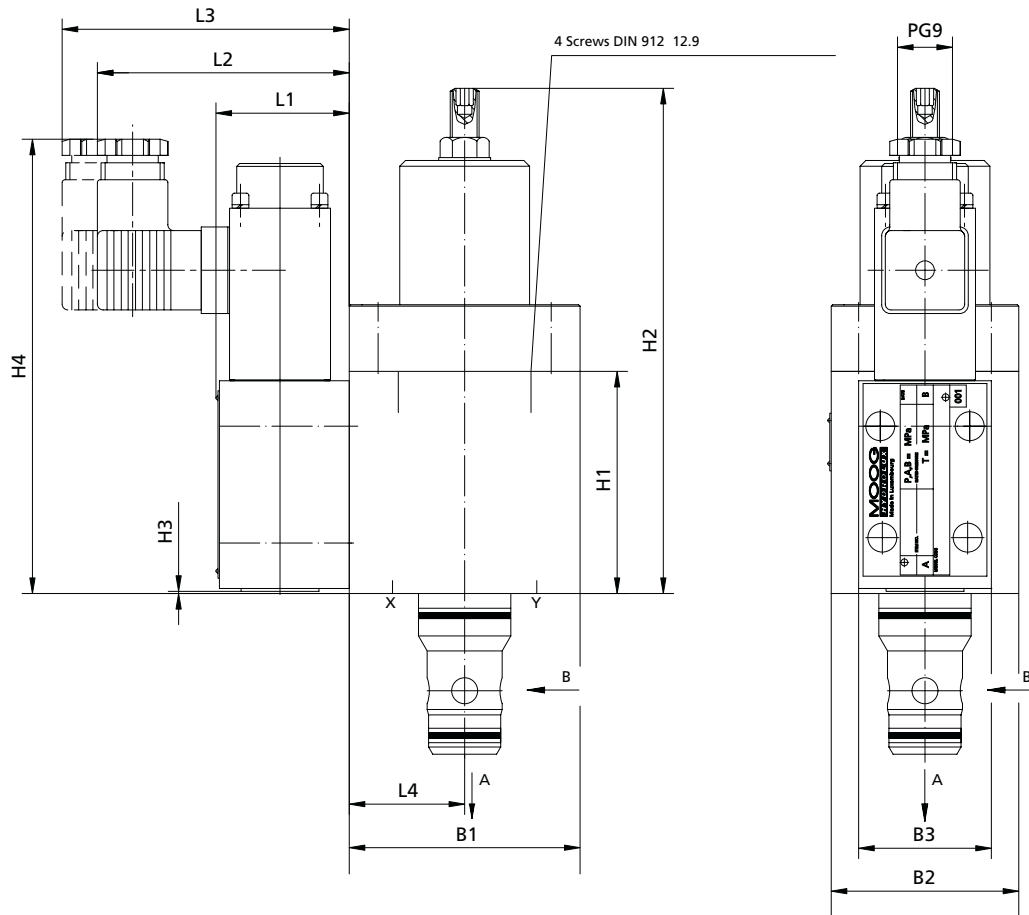


required surface finish



Dimensions mm	NG25	NG32	NG40	NG50
b1	85	102	125	140
b2	85	102	125	140
d1 ^{H7}	45	60	75	90
d2 ^{H7}	34	45	55	68
d3	25	32	40	50
d4	25	32	40	50
d4 max.	32	40	50	63
d5 max.	6	8	10	10
d6	M12	M16	M20	M20
d7	10.2	14	17.5	17.5
d8 ^{H13}	6	6	6	8
d9 max.	3	4	6	6
d10 max.	4	6	9	9
m1 ^{±0.2}	58	70	85	100
m2 ^{±0.2}	33	41	50	58
m3 ^{±0.2}	29	35	42.5	50
m4 ^{±0.2}	16	17	23	30
m5 ^{±0.2}	33	41	50	58
t1 ^{+0.1}	58	70	87	100
t2 ^{+0.1}	72	85	105	122
t3	12	13	15	17
t4	44	52	64	72
t4 at d4 max.	40.5	48	59	65.5
t5	30	30	30	35
t6	20	26	33	33
t7	2.5	2.5	3	4
t8	2.5	2.5	3	4
t9	1.0	1.5	2.5	2.5
t10	24	31	38	38
t11	12	13.4	16.7	17
U	0.03	0.03	0.05	0.05
W	0.05	0.1	0.1	0.1

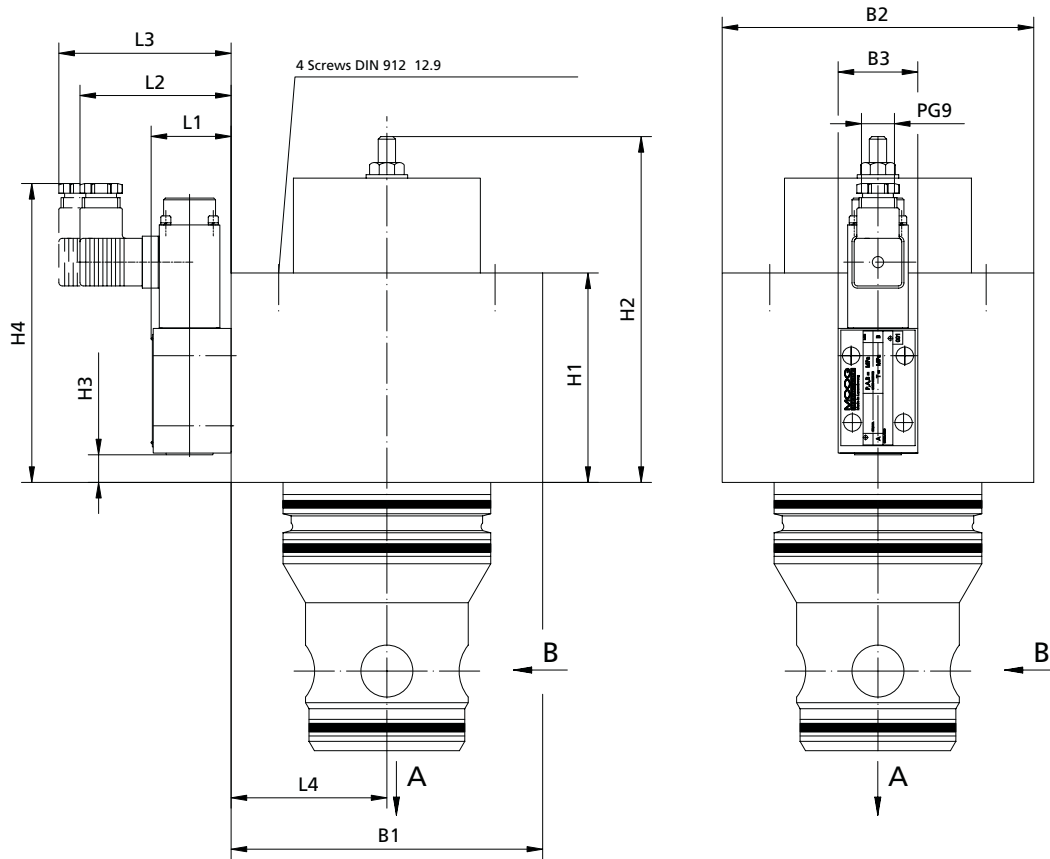
DIMENSIONS PC(L)ME VALVES NG16-NG40



Dimensions mm	NG16	NG25	NG32	NG40
H1	77	80	84	84
H2	177	180	84	184
H3	1	3	5	5
H4	158	160	159	159
L1	45	45	45	45]
L2	88	88	88	88
L3	100	100	100	100
L4	40	42.5	58	58
B1	80	85	116	125
B2	65	85	100	125
B3	45	45	45	45
*S = Screws	4x	4x	4x	4x
DIN EN ISO 4762-12.9	M8 x 100	M12 x 100	M16 x 90	M20 x 90
Tightening Torque M _A [Nm]	30	100	300	550

*not part of the delivery

DIMENSIONS PC(L)ME VALVES NG50



Dimensions mm	NG50
H1	123
H2	208
H3	18
H4	172
L1	45
L2	88
L3	100
L4	70
B1	140
B2	140
B3	45
*S = Screws	4x
DIN EN ISO 4762-12.9	M20 x 120
Tightening torque M_A [Nm]	550

*not part of the delivery

PCME STANDARD VALVES

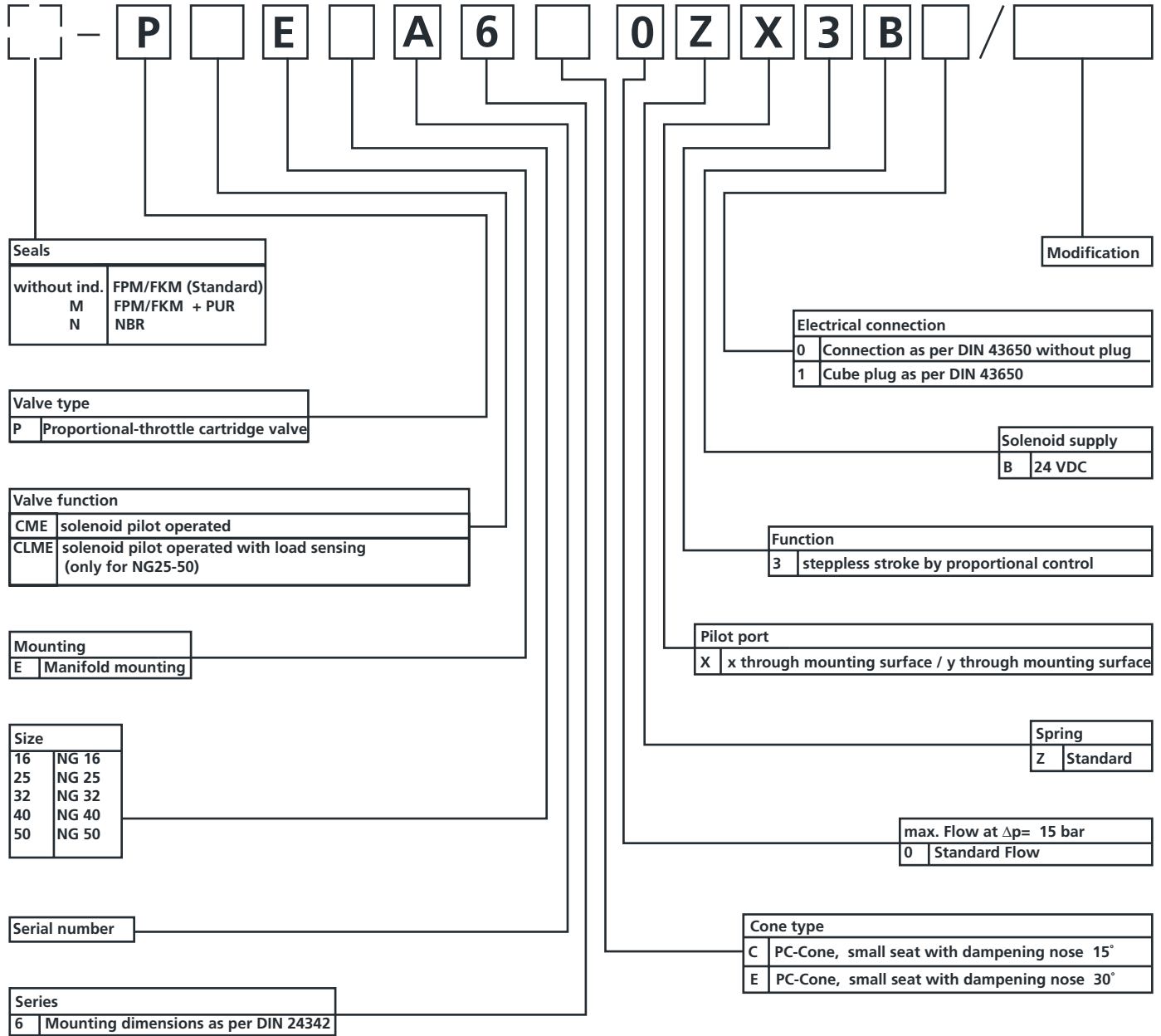
Symbol	Cone	Size NG mm	Weight kg	Part Designation	Part Number
	15° Cone	16	3.3	PCMEE16A6C0ZX3B	XPB10048-000-01
		25	5.7	PCMEE25A6C0ZX3B	XPB10077-000-01
		32	9.7	PCMEE32A6C0ZX3B	XPB10078-000-01
		40	11.7	PCMEE40A6C0ZX3B	XPB10025-000-01
		50	23.6	PCMEE50A6C0ZX3B	XPB10028-000-01
	30° Cone	16	3.3	PCMEE16A6E0ZX3B	XPB10049-000-01
		25	5.7	PCMEE25A6E0ZX3B	XPB10066-000-01
		32	9.7	PCMEE32A6E0ZX3B	XPB10046-000-01
		40	11.7	PCMEE40A6E0ZX3B	XPB10004-000-01
		50	23.6	PCMEE50A6E0ZX3B	XPB10059-000-01

PCLME STANDARD VALVES

Symbol	Cone	Size NG mm	Weight kg	Part Designation	Part Number
	15° Cone	25	5.7	PCLMEE25A6C0ZX3B	XPB10082-000-01
		32	9.7	PCLMEE32A6C0ZX3B	XPB10083-000-01
		40	11.7	PCLMEE40A6C0ZX3B	XPB10084-000-01
		50	23.6	PCLMEE50A6C0ZX3B	XPB10085-000-01
	30° Cone	25	5.7	PCLMEE25A6E0ZX3B	XPB10087-000-01
		32	9.7	PCLMEE32A6E0ZX3B	XPB10024-000-01
		40	11.7	PCLMEE40A6E0ZX3B	XPB10088-000-01
		50	23.6	PCLMEE50A6E0ZX3B	XPB10089-000-01

ORDERING INFORMATION

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