

The series of active pilot operated 2/2-way cartridge valves TDW enables to open and close the main poppet solely by pilot pressure, independent of pressure build-up in the main ports A and B.

The main poppet is designed hollow and mostly pressure balanced. The operation is accomplished via minimal control surfaces resulting in low pilot oil demand and fast switching operations.

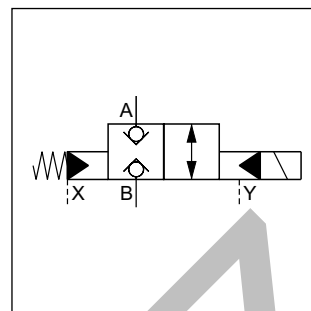
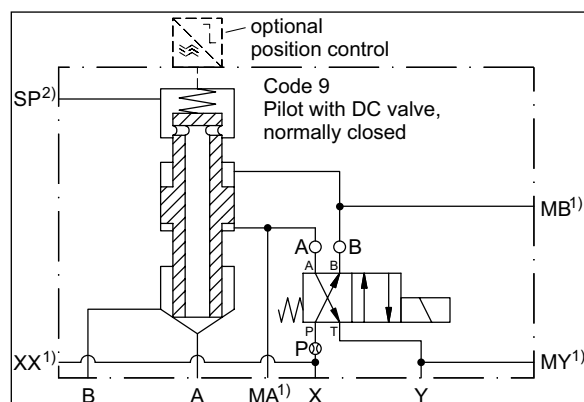
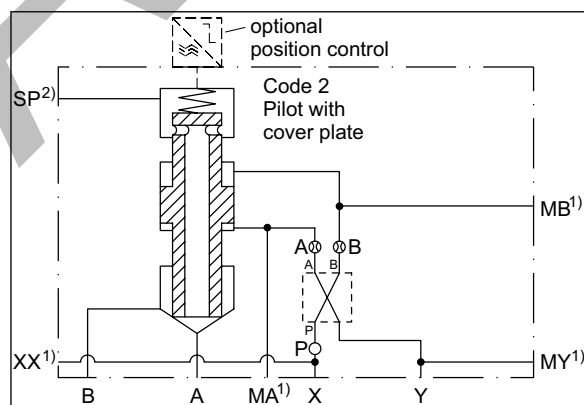
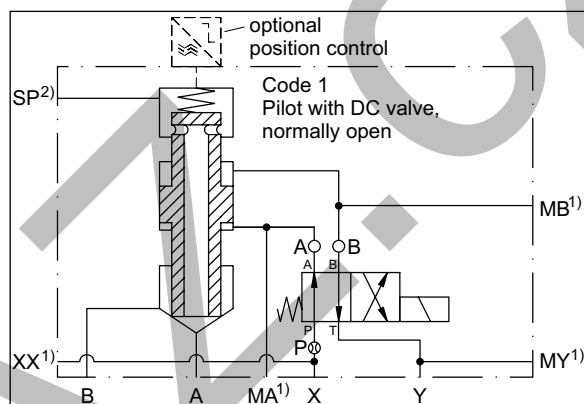
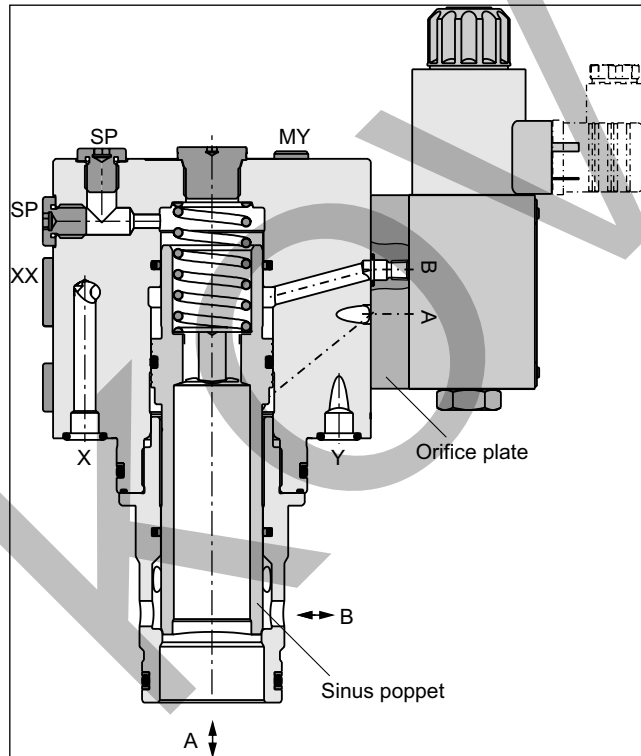
TDW is supplied as one unit to ensure easy installation – sleeve and body are screwed together. Additionally, the lower recess in the standardized mounting cavity is no longer required, providing the possibility to minimize pressure losses in the manifold block.

Features

- Active pilot operated 2/2-way cartridge valves
- Cavity and mounting pattern according to ISO 7368
- Flow direction B to A and A to B
- 7 sizes NG25 up to NG100
- Position monitoring optional
- Stroke limiter optional

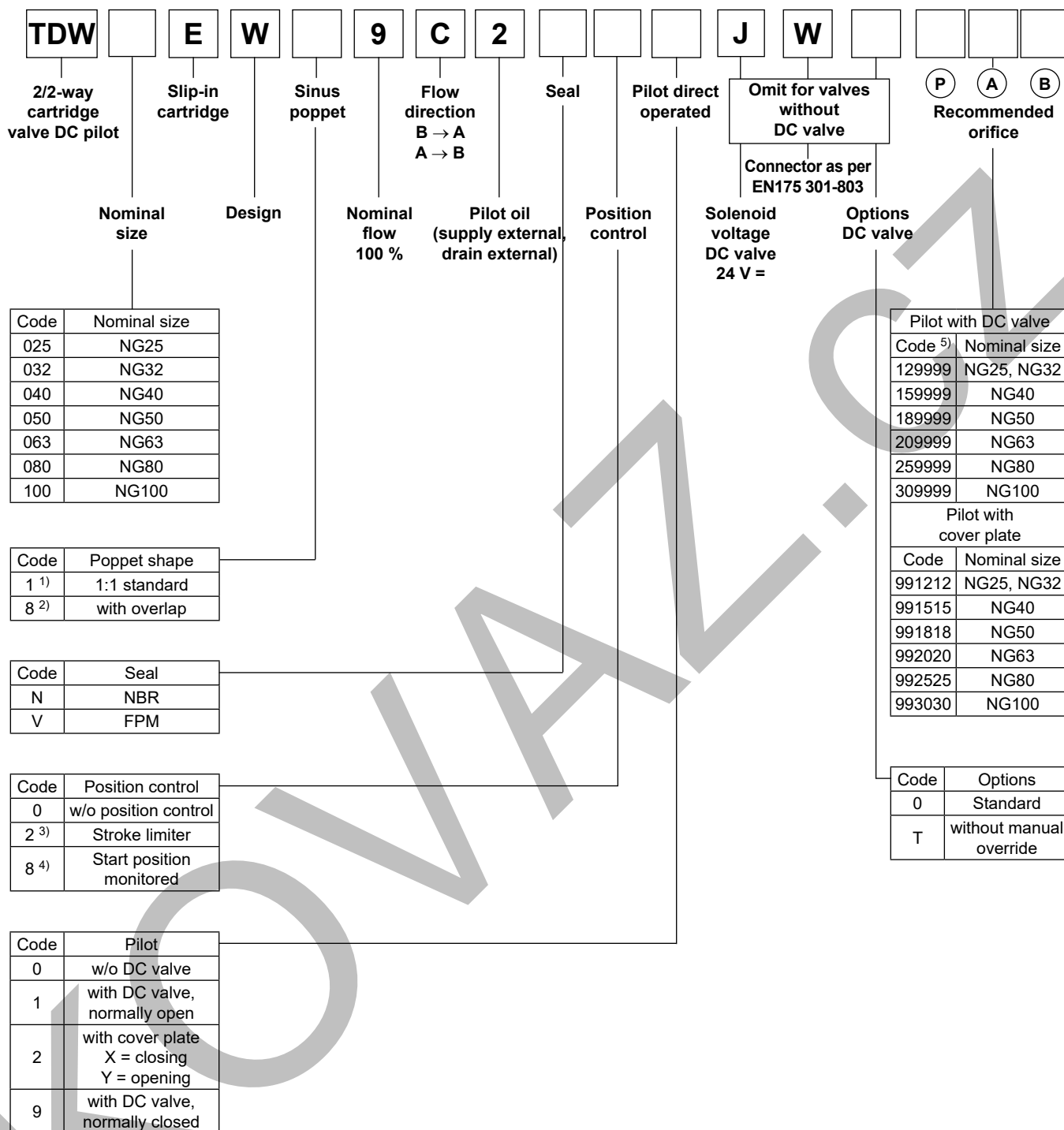


TDW025

**Function symbols****TDW040**

1) NG25 and NG32 without accu port XX and without ports MA, MB and MY.

2) NG25 without suction port SP.



1) Not for start position monitored, Code 8.

2) Only in combination with start position monitored, code 8).

3) Only for NG25 to NG63.

⁴⁾ Please order female connector M12x1 separately (see accessories directional control valves, female connector M12x1 (order no.: 5004109).

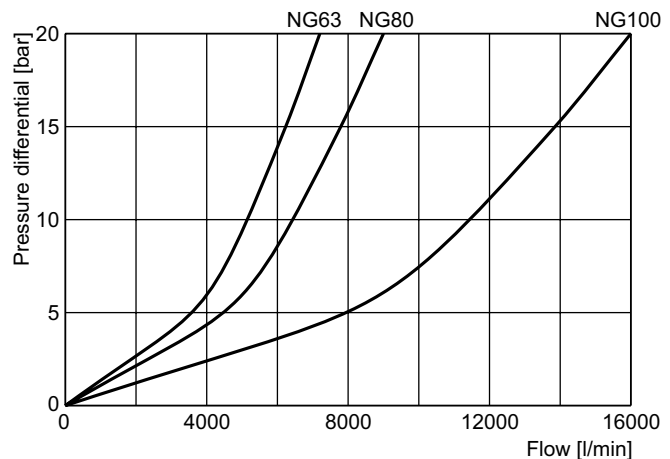
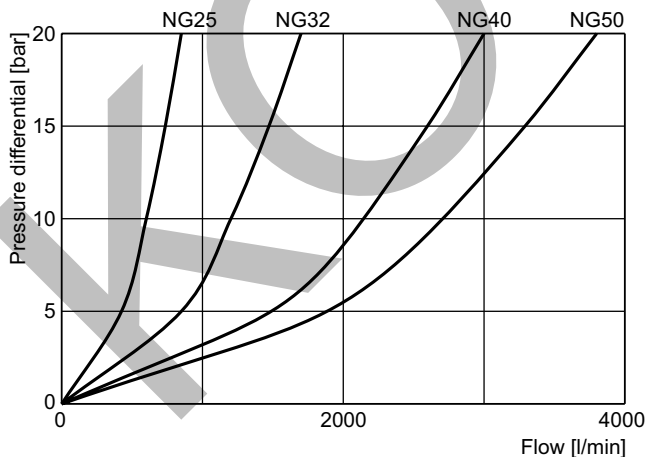
⁵⁾ Example code 129999: 12 = dia. 1.2 mm, 99 = without orifice.

General									
Design		2-way slip-in cartridge valve according to ISO 7368							
Nominal size		DIN	NG25	NG32	NG40	NG50	NG63	NG80	NG100
Mounting position		unrestricted							
Ambient temperature		[°C]	-20...+60						
MTTF _D value		[years]	75						
Weight		[kg]	8	10	12	23	49	102	154
Hydraulic									
Max. operating pressure		[bar]	Ports A, B, X up to 350, port Y: max. 210 (350 bar with cover plate)						
Fluid		Hydraulic oil according to DIN 51524							
Fluid temperature		[°C]	-25...+70 (NBR: -25...+60)						
Viscosity		permitted	[cSt]	[mm²/s]	20...400				
		recommended	[cSt]	[mm²/s]	30...80				
Filtration		ISO 4406 (1999); 18/16/13							
Nominal flow at Δp = 5 bar		[l/min]	420	850	1500	1900	3600	4500	8000
Recommended max. flow		[l/min]	800	2000	3000	4500	8000	13000	20000
Flow direction		B to A / A to B							
Pilot pressure		[bar]	must be as high as system pressure						
Overlap (for poppet code 8)		[mm]	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Electrical characteristics									
Duty ratio		100 % ED; CAUTION: coil temperature up to 150 °C possible							
Protection class		IP 65 in accordance with EN 60529 (with correctly mounted plug-in connector)							
		Code	J						
Supply voltage		[V]	24 V =						
Tolerance supply voltage		[%]	±10						
Current consumption		hold	[A]	1.29					
Current consumption		in rush	[A]	1.29					
Power consumption		hold	31 W						
Power consumption		in rush	31 W						
Solenoid connection		Connector as per EN 175301-803, solenoid identification as per ISO 9461 (code W).							
Wiring min.		[mm²]	3 x 1.5 recommended						
Wiring length max.		[m]	50 recommended						

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With electrical connections the protective conductor (PE ↓) must be connected according to the relevant regulations.

p/Q Performance curves (sinus poppet code 1 and 8)



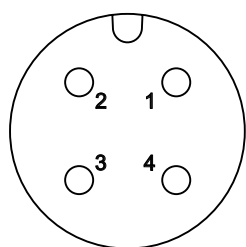
All characteristic curves measured with HLP46 at 50 °C.

Electrical characteristics of position control M12x1 as per IEC 61076-2-101, NG25 to NG100

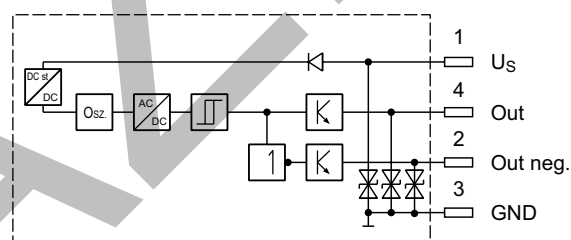
Supply voltage	[VDC]	24
Tolerance supply voltage	[%]	±20
Ripple supply voltage	[%]	≤10
Polarity protection	[V]	300
Current consumption without load	[mA]	≤20
Switching hysteresis	[mm]	<0.06
Max. output current per channel, ohmic	[mA]	250
Ambient temperature	[°C]	-20 ... +60
Protection		IP65 acc. EN 60529 (with correctly mounted plug-in connector)
Min. distance to next AC solenoid	[m]	0.1
Interface		M12x1 to IEC 61076-2-101
CE conform		EN 61000-4-2 / EN 61000-4-4 / EN 61000-4-6 ¹⁾ / ENV 50140 / ENV 50204

¹⁾ Only guaranteed with screened cable and female connector

M12 pin assignment



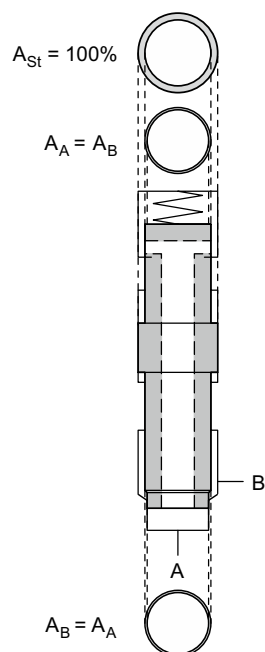
- 1 + U_S 19.2...28.8 V
- 2 Out B: normally open
- 3 0V
- 4 Out A: normally closed



Outputs: Open collector

Please order female connector M12x1 separately (see accessories directional control valves, female connector M12x1 (order no.: 5004109).

Control surfaces



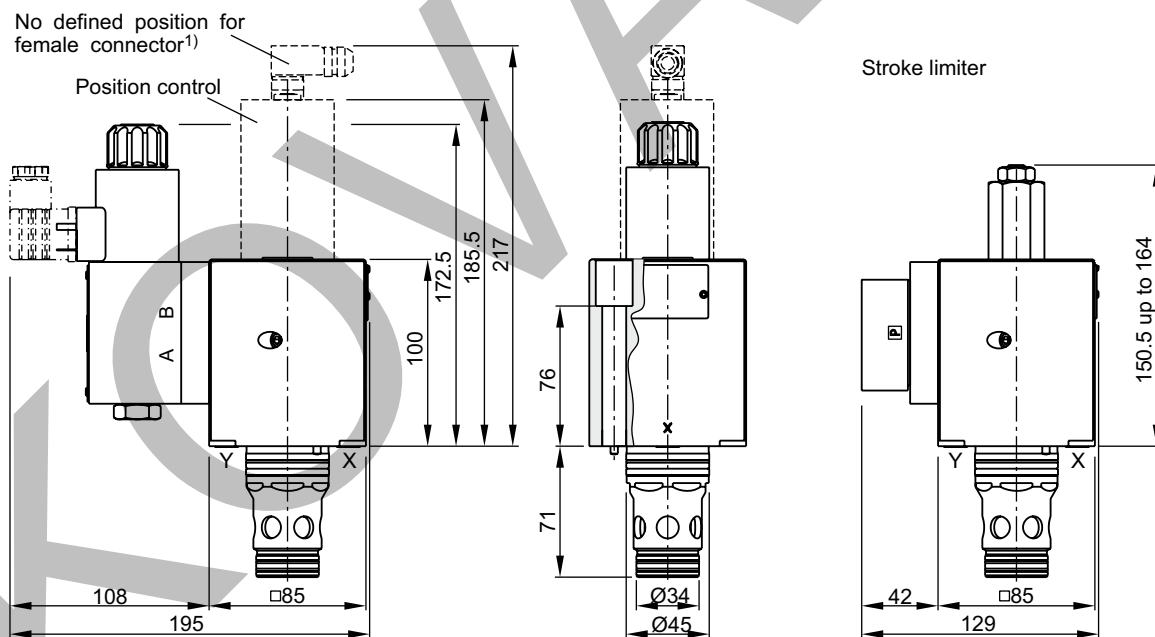
NG	Pilot oil volume for full stroke [cm ³]	A _{ST} [%]	Standard poppet 1 A _B / A _{ST} [%]	Overlapped poppet 8 A _B / A _{ST} [%]
25	4.7	100	0	10.6
32	5.3	100	0	10.9
40	8.3	100	0	11.2
50	12.9	100	0	11.5
63	18.9	100	0	11.7
80	28.5	100	0	11.8
100	35.3	100	0	12.0

The 1:1 standard poppet (Code 1) is pressure balanced. The overlapped poppet (Code 8) shows smaller areas A_A respectively A_B .

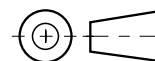
E.g. for NG100




$$\begin{aligned} A_{\text{Nom}} &= 7854 \text{ mm}^2 = 600 \% \\ A_{\text{St}} &= 1307 \text{ mm}^2 = 100 \% \\ A_A = A_B &= 157 \text{ mm}^2 = 12 \% \end{aligned}$$

Dimensions NG25

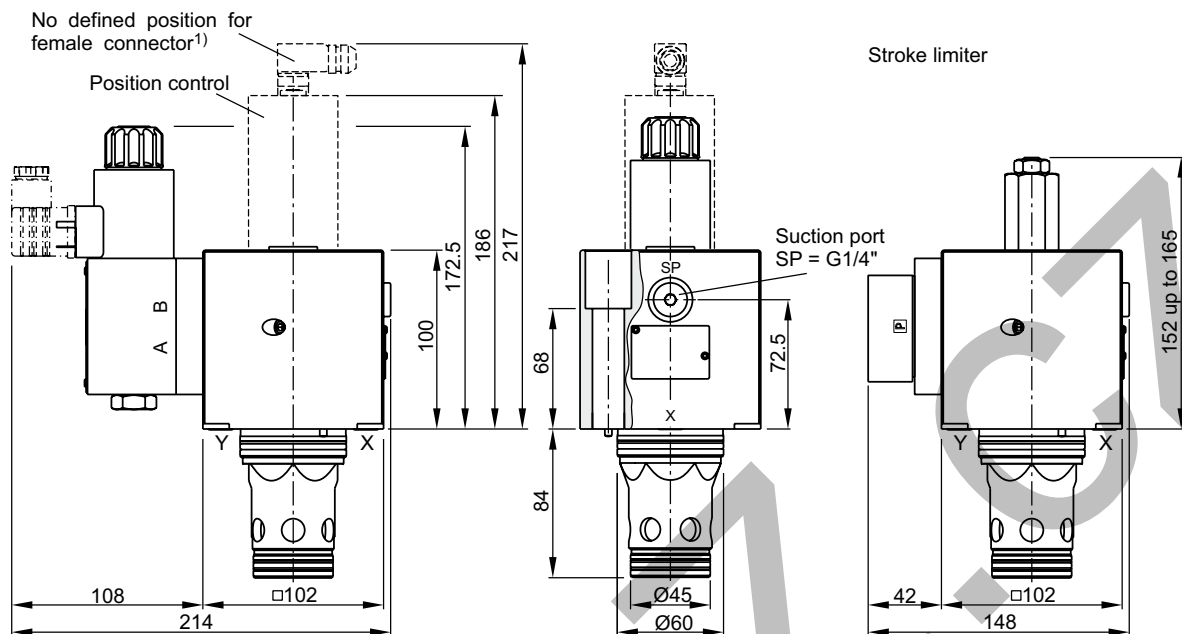


Note:
Accu port XX and suction port SP non-existent

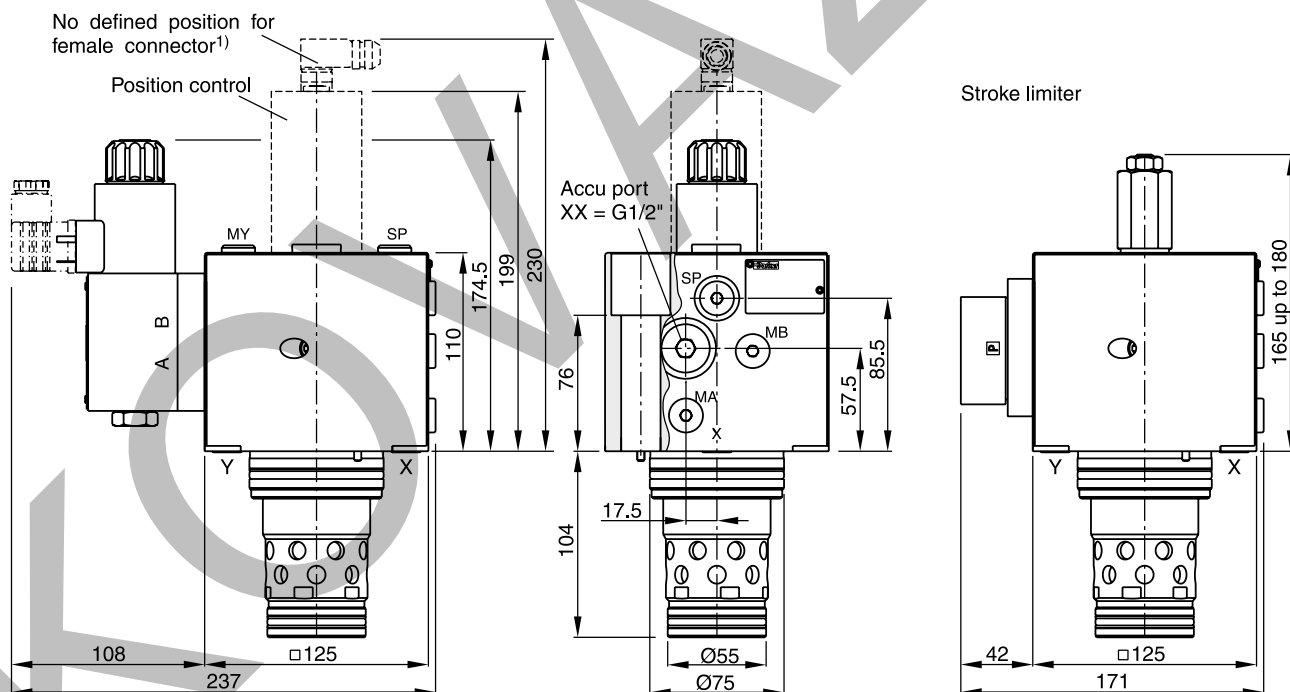


NG	Bolt kit 		NBR 	FPM
25	BK504 4x M12x100 ISO 4762-12.9	108 Nm	SK-TDW025EN	SK-TDW025EV

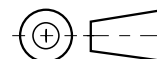
¹⁾ Please order female connector M12x1 separately (see accessories directional control valves, female connector M12x1 (order no.: 5004109)).

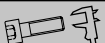


Dimensions**2/2-Way Active Slip-In Cartridge Valve
Series TDW****NG32**

Note:
Accu port XX non-existent

NG40

Suction port SP = G1/4" Ports MA and MB = G1/4"

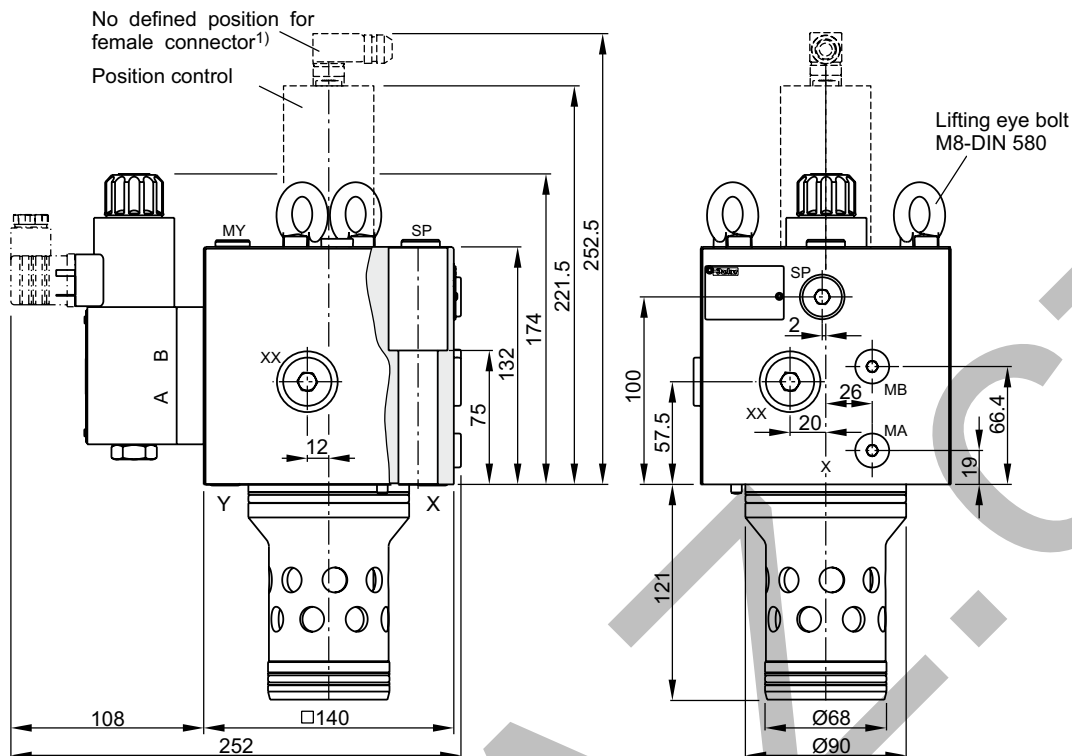


NG	Bolt kit 		NBR	Kit 	FPM
32	BK529 4 x M16x100 ISO 4762-12.9	264 Nm	SK-TDW032EN		SK-TDW032EV
40	BK481 4 x M20x110 ISO 4762-12.9	517 Nm	SK-TDW040EN		SK-TDW040EV

¹⁾ Please order female connector M12x1 separately (see accessories directional control valves, female connector M12x1 (order no.: 5004109).

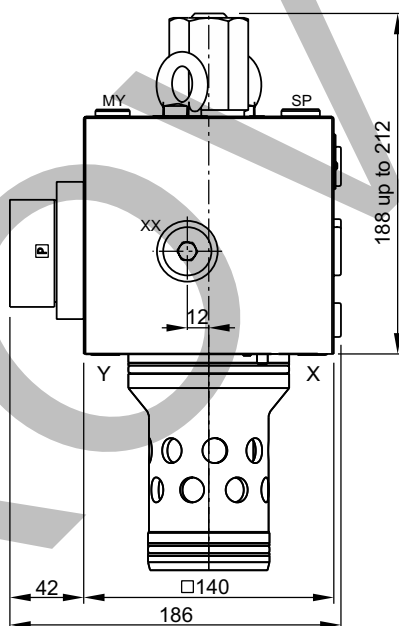
Dimensions




NG50



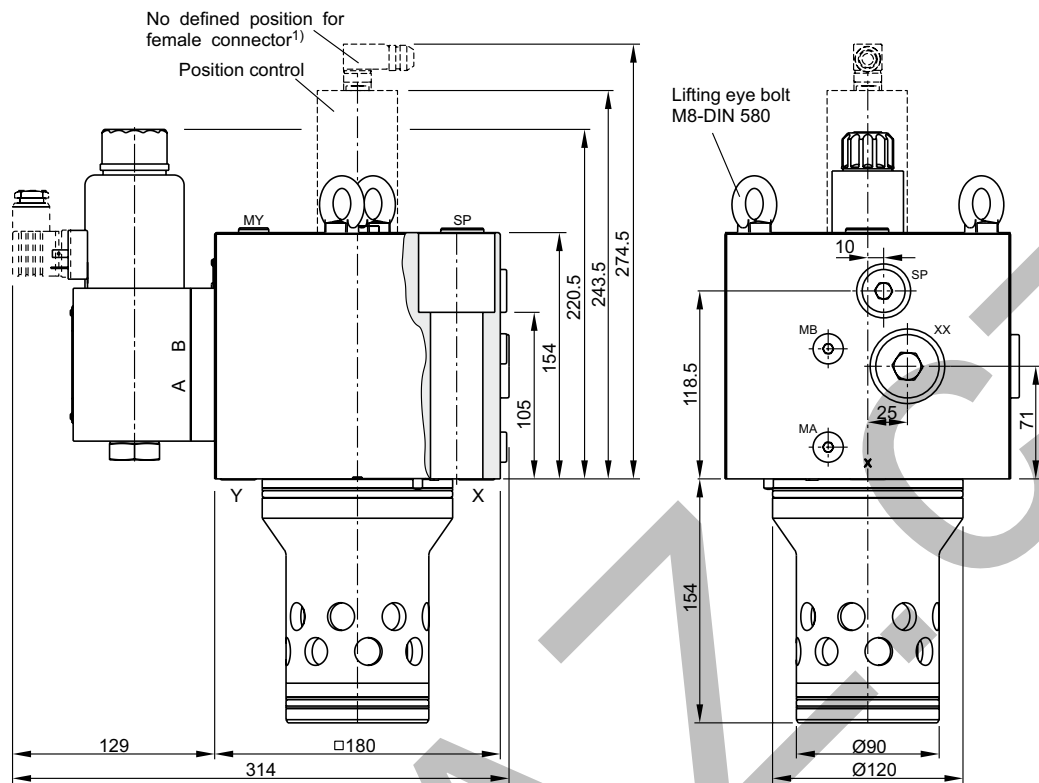
Lifting thread for disassembly M12

Stroke limiter

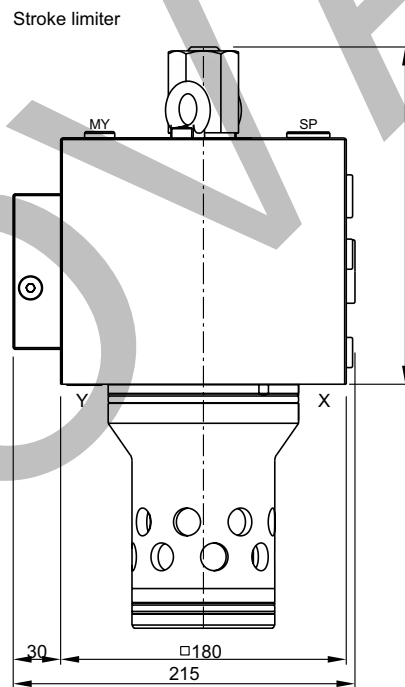
Suction port
SP = G3/8"Accu port
XX = G1/2"Ports
MA and MB = G1/4"

NG	Bolt kit 		NBR 	Kit	FPM
50	BK481 4 x M20x110 ISO 4762-12.9	517 Nm	SK-TDW050EN		SK-TDW050EV

¹⁾ Please order female connector M12x1 separately (see accessories directional control valves, female connector M12x1 (order no.: 5004109).

NG63

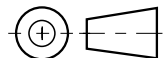
Lifting thread for disassembly M12






Suction port
SP = G1/2"

Accu port
XX = G3/4"

Ports
MA and MB = G1/4"



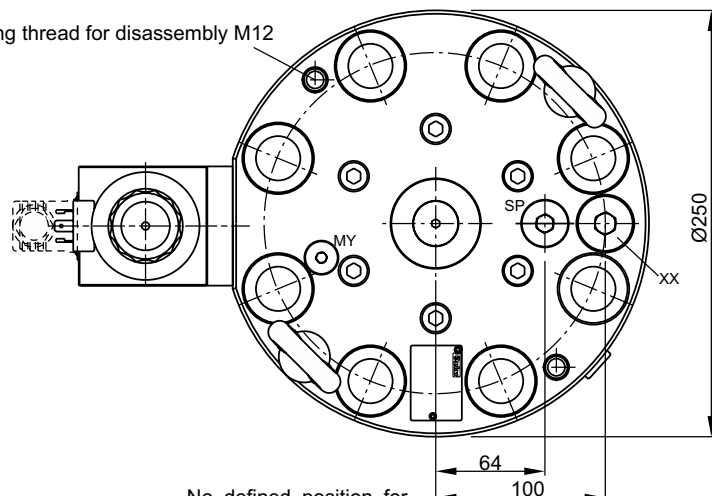
NG	Bolt kit 		NBR  Kit	FPM
63	BK518 4 x M30x160 ISO 4762-12.9	1775 Nm	SK-TDW063EN	SK-TDW063EV

¹⁾ Please order female connector M12x1 separately (see accessories directional control valves, female connector M12x1 (order no.: 5004109)).

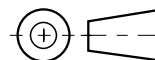
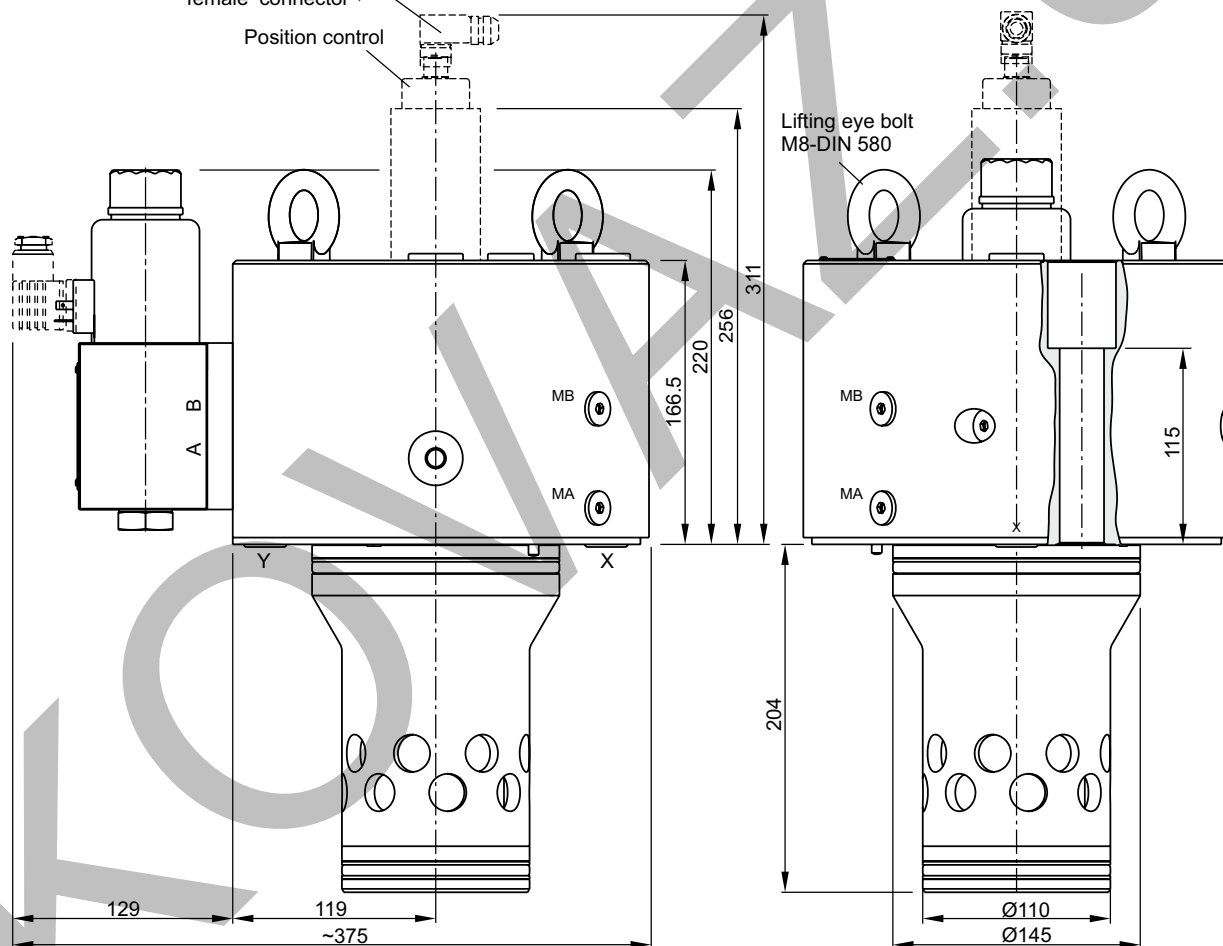
Dimensions




NG80

Lifting thread for disassembly M12

Accu port
XX = G3/4"Suction port
SP = G1/2"Ports
MA and MB = G1/4"No defined position for
female connector¹⁾

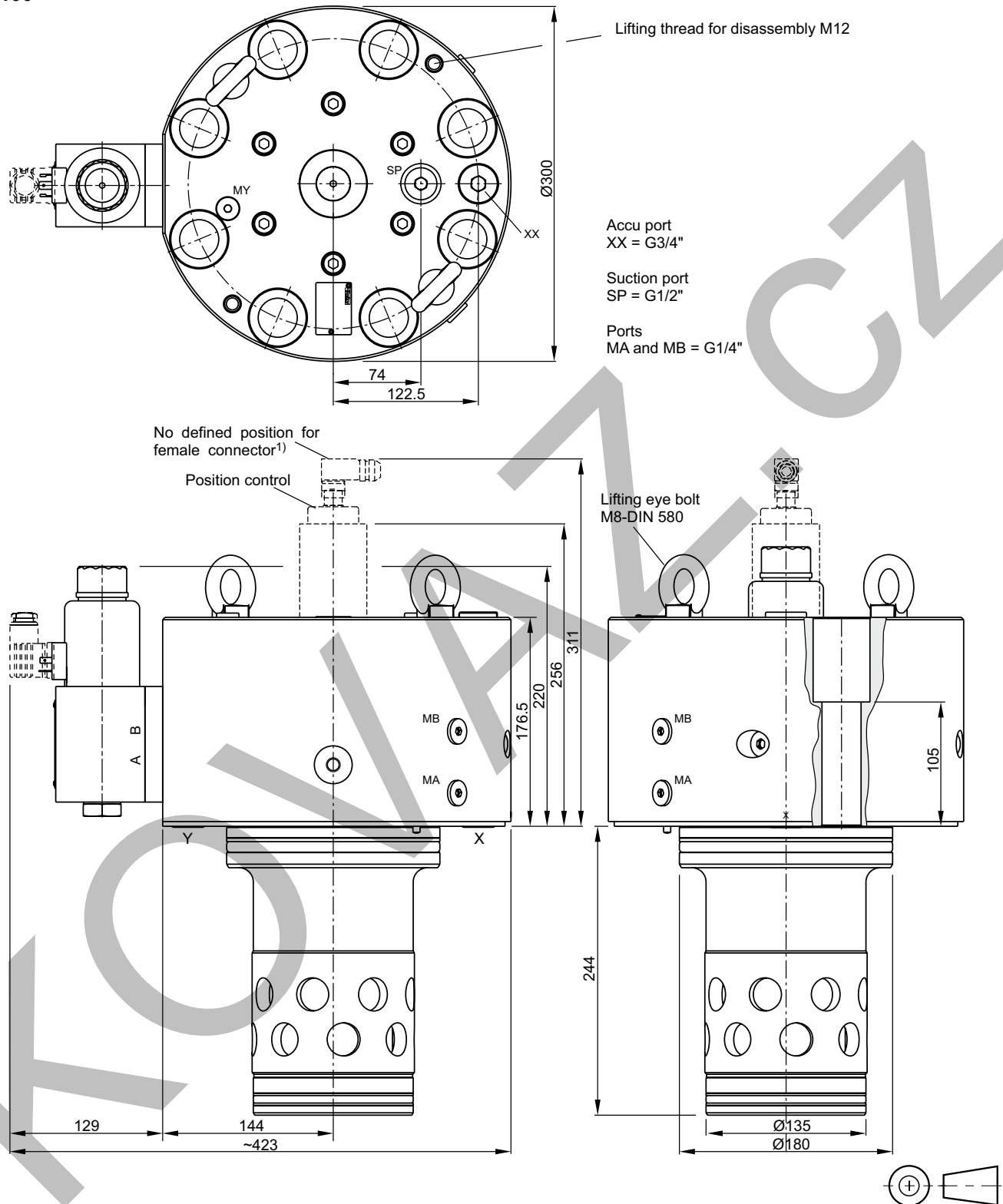
Position control




Lifting eye bolt
M8-DIN 580

NG	Bolt kit 		NBR	Kit 	FPM
80	BK530 8x M24x160 ISO 4762-12.9	890 Nm	SK-TDW080EN		SK-TDW080EV

¹⁾ Please order female connector M12x1 separately (see accessories directional control valves, female connector M12x1 (order no.: 5004109).

NG100

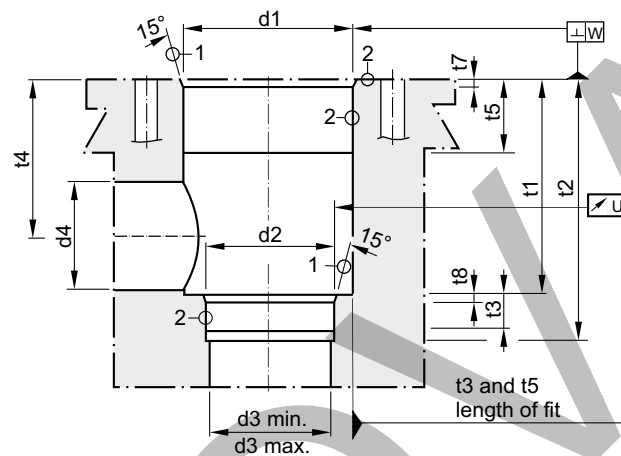
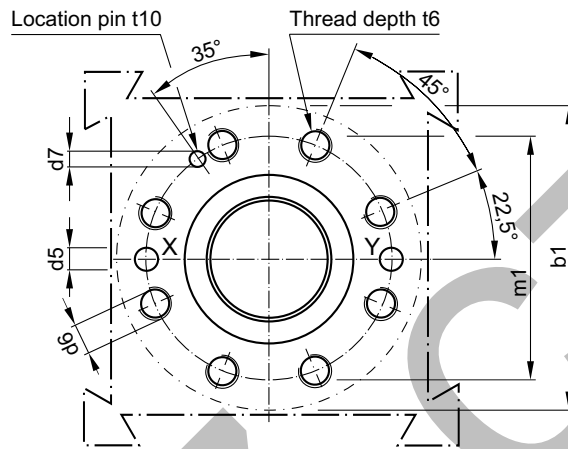
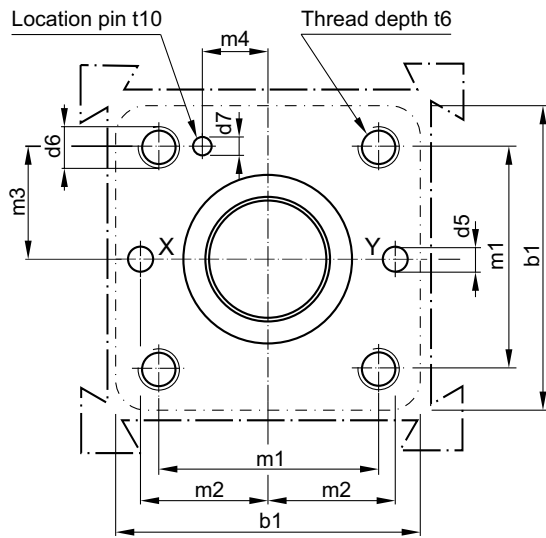


NG	Bolt kit 		NBR	Kit 	FPM
100	BK531 8x M30x150 ISO 4762-12.9	1775 Nm	SK-TDW100EN		SK-TDW100EV

¹⁾ Please order female connector M12x1 separately (see accessories directional control valves, female connector M12x1 (order no.: 5004109).

Code: ISO 7368-B*-2-A/B NG25 to NG63

Code: ISO 7368-B*-2-A NG80 to NG100



Required surface finish:

$$\textcircled{1} = \sqrt{R_{\max} 16}, \textcircled{2} = \sqrt{R_{\max} 8}$$

Deviating from ISO 7368 it is advisable to increase the diameters d3, d4 and d5.

Size	b1	d1 H7	d2 H7	d3	d3 max	d4 max ¹⁾	d5 max	d6	d7 H13	m1±0.2	m2±0.2	m3±0.2
25	85	45	34	25	27	32	6	M 12	4	58	33	29
32	102	60	45	32	44	50	8	M 16	6	70	41	35
40	125	75	55	40	54	63	10	M 20	6	85	50	42.5
50	140	90	68	50	67	80	10	M 20	8	100	58	50
63	180	120	90	63	89	100	12	M 30	8	125	75	62.5
80	250	145	110	80	109	110	16	M 24	10	200	—	—
100	300	180	135	100	134	150	20	M 30	10	245	—	—

Size	m4±0.2	t1±0.5	t2±1	t3	t4	t4 max ¹⁾	t5	t6	t7	t8	t10	U	W
25	16	58	72	12	44	40.5	30	35	2.5	2.5	10	0.03	0.05
32	17	70	85	13	52	44	15	35	2.5	2.5	10	0.03	0.1
40	23	87	105	15	64	54	15	45	3	3	10	0.05	0.1
50	30	100	122	17	72	59	17	45	4	3	10	0.05	0.1
63	38	130	155	20	95	78	19	65	4	4	10	0.05	0.2
80	—	175	205	25	130	115	32	50	5	5	10	0.05	0.2
100	—	210	245	29	155	133	32	53	5	5	10	0.05	0.2

¹⁾ Only in combination with d4max and t4max.