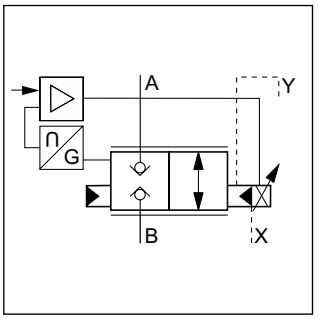
The 2-way high performance proportional throttle valves series TDC are used in applications where high flow has to be precisely controlled at high dynamics. Typical applications are die casting, injection moulding and hydraulic presses.



TDC040

Function

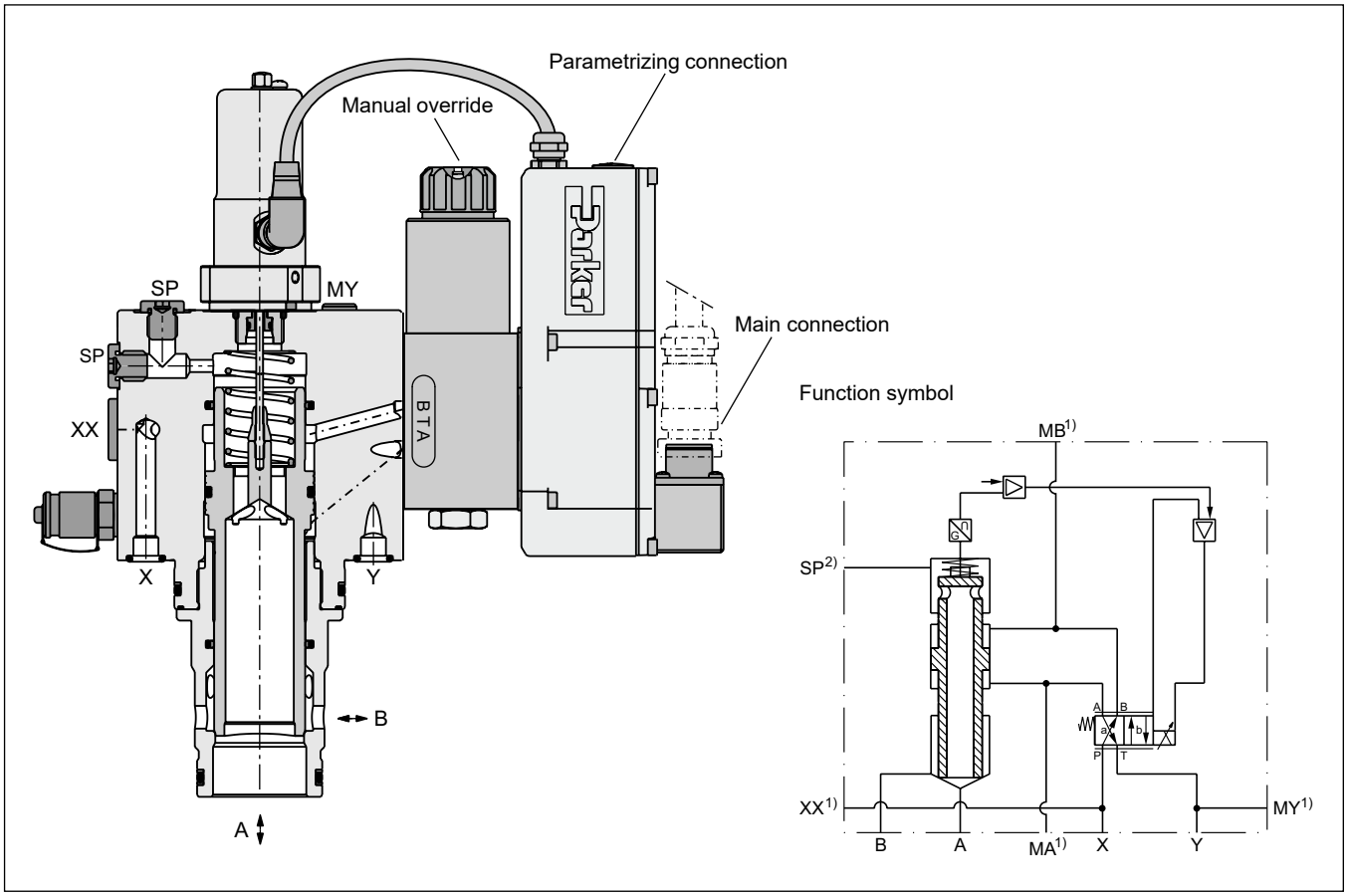
The 2-way high performance proportional throttle valves TDC have a 2-stage design consisting of a proportional pilot valve and a main stage with poppet and LVDT.

With the pilot valve the TDC achieves fast response times: from 20 ms (NG25) up to 31 ms (NG50) with an accuracy of <0.7 % of the nominal flow. The pilot valve actively controls the poppet - independent of the pressure conditions in the main ports.
It is basically required that the pilot pressure is at the level of the system pressure. At low system pressure the pilot pressure should be min. 140 bar, when high valve dynamics are desired.

Features

- Active pilot operated 2-way high performance proportional throttle valve
- Cavity and mounting pattern according to ISO 7368
- Fast step response
- Flow direction B to A and A to B
- Completely mounted and adapted unit with integrated electronics
- In order to ensure the closed position, pilot pressure is required.
- 4 sizes NG25 up to NG50

TDC040



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

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Ordering code

TDC		E	S		9	C	2				0	
2-way high performance proportional throttle valves	**Nominal size**	**Slip-in cartridge**	**Performance standard response for controlled applications**	**Flow characteristics**	**Nominal flow**	**Flow direction B → A A → B**	**Pilot oil** (supply external, drain external)	**Seal**	**Command signal**	**Standard electronics**	**Design series** (not required for ordering)

Code	Nominal size
025	NG25
032	NG32
040	NG40
050	NG50

Code	Flow characteristics
7	progressive
9	linear

Code	Command signal
B	0...+10 V
E	0...+20 mA

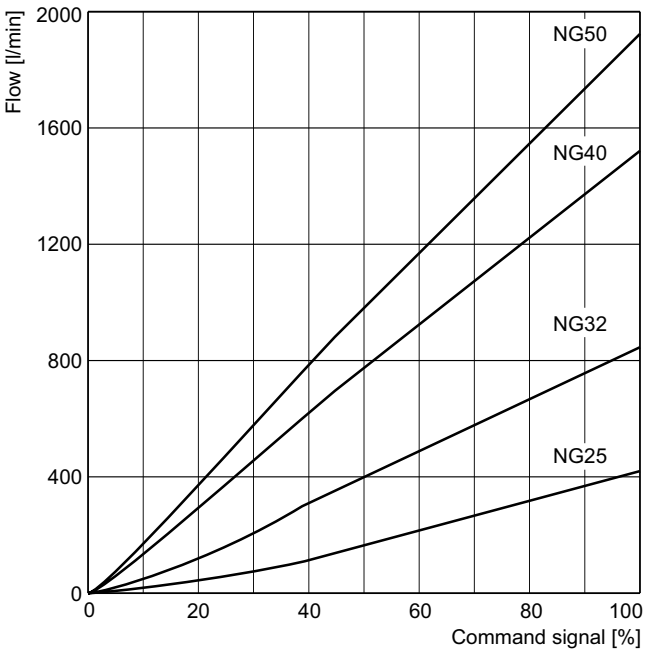
Code	Seal
N [1)]	NBR
V	FPM

[1)] HFC fluids suitable

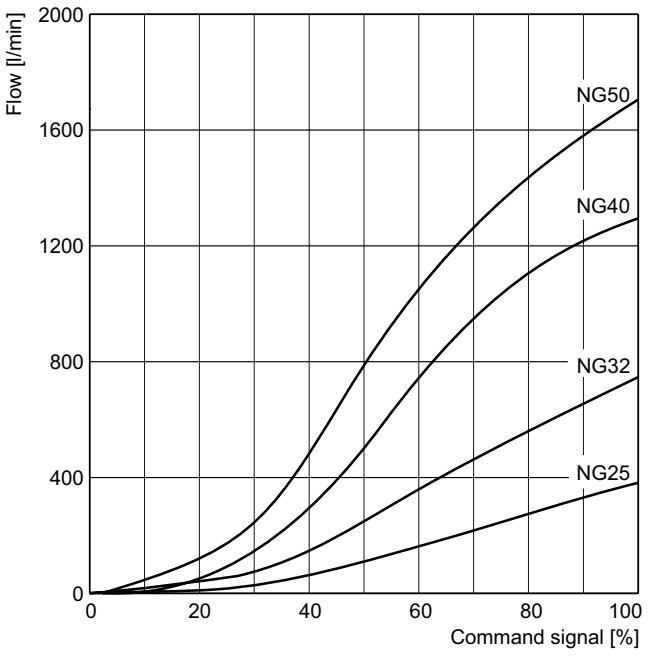
Please order connector separately.

Characteristic flow/signal lines
Δp = 5 bar

Linear (code 9)



Progressive (code 7)



Opening point factory set to 3 %

Flow at different Δp $Q_{actual} = Q_{nominal} \cdot \sqrt{\Delta p_{actual} / \Delta p_{nominal}}$

Characteristic curve measured with HLP46 at 50 °C.

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General					
Design		Proportional throttle valve with LVDT and integrated electronics, slip-in cartridge according to ISO 7368			
Nominal size	DIN	**NG25**	**NG32**	**NG40**	**NG50**
Mounting position		unrestricted			
Ambient temperature	[°C]	-20...+60			
Weight	[kg]	11	13	15	26
Vibration resistance	[g]	10 sinus 5...2000 Hz acc. IEC 68-2-6 10 (RMS) random noise 20...2000 Hz acc. IEC 68-2-36 15 shock acc. IEC 68-2-27			
Hydraulic					
Max. operating pressure	[bar]	Ports A, B, X and SP up to 350, XX observe accumulator pressure rating; port Y: max. 210			
Fluid		Hydraulic oil according to DIN 51524			
Fluid temperature	[°C]	-20...+60 (NBR: -25...+60)			
Viscosity recommended	[cSt] / [mm²/s]	30 ... 80			
Viscosity permitted	[cSt] / [mm²/s]	20 ... 400			
Filtration		ISO 4406; 18/16/13			
Nominal flow at Δp = 5 bar (linear)	[l/min]	420	850	1500	1900
Recommended max. flow (linear)	[l/min]	800	2000	3000	4500
Nominal flow at Δp = 5 bar (progressive)	[l/min]	380	750	1300	1700
Recommended max. flow (progressive)	[l/min]	700	1750	2600	4000
Flow direction		B to A / A to B			
Pilot pressure	[bar]	must be as high as system pressure			
Pilot oil supply		external via X			
Pilot oil drain		external via Y			
Leakage in pilot valve at 100 bar	[ml/min]	<400			
Pilot valve size		**NG06**			
Max. pilot flow at 140 bar pilot pr.	[l/min]	23	30	40	40
Static/dynamic					
(for optimal dynamics see installation recommendation)					
Step response at pilot press. >140 bar	[ms]	20	22	27	31
Hysteresis	[%]	< 0.1			
Sensitivity	[%]	< 0.05			

Electrical		
Duty ratio	[%]	100
Protection class		IP65 in accordance with EN 60529 (with correctly mounted plug-in connector)
Supply voltage / ripple	[V]	DC 18 ... 30, electric shut-off at < 17, ripple < 5 % eff., surge free
Current consumption max.	[A]	2.0
Pre-fusing	[A]	2.5 A medium lag
Input signal		
Code B Voltage	[V]	0...+10, ripple < 0,01 % eff., surge free
Impedance	[kOhm]	100
Code E Current	[mA]	0...+20, ripple <0,01 % eff., surge free
Impedance	[Ohm]	< 250
Differential input max.	[V]	30 for terminal D and E against PE (terminal G) 11 for terminal D and E against 0V (terminal B)
Adjustment ranges Min.	[%]	0...50
Max.	[%]	50...100
Ramp	[s]	0...32.5
Enable signal	[V]	5...30
Diagnostic signal	[V]	0...+10 / +12.5 error detection, rated max. 5 mA
EMC		EN 61000-6-2, EN 61000-6-4
Electrical connection		6 + PE acc. EN 175201-804
Wiring min.	[mm²]	7 x 1.0 (AWG16) overall braid shield
Wiring length max.	[m]	50

Installation recommendation (NG40 + NG50)

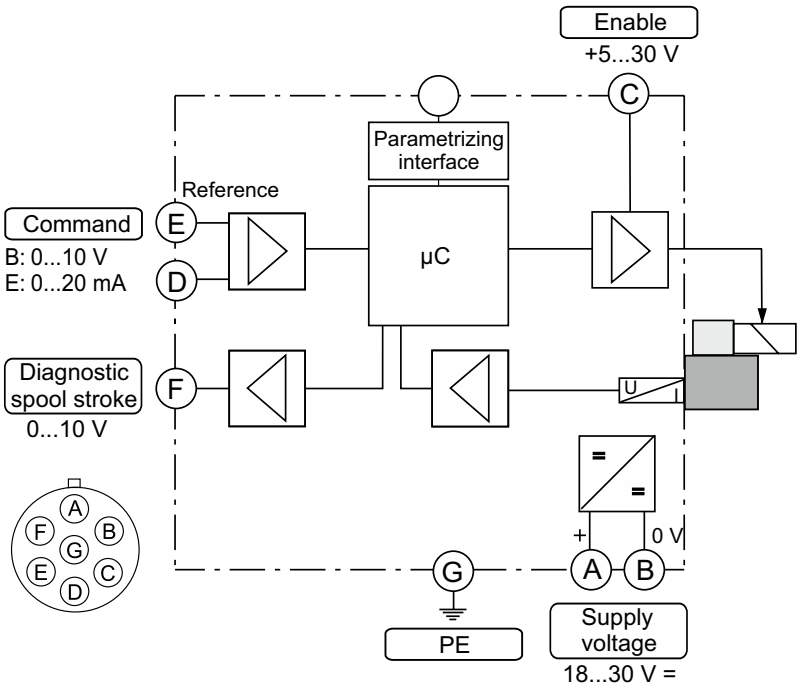
An insufficient pilot oil supply (e.g. due to long distances and/or small diameters) can negatively influence the dynamics of the TDC valve.

To avoid this, an accumulator can be connected to port XX at the valve body of the TDC. A short-term undersupply with pilot oil can be compensated via this accumulator.

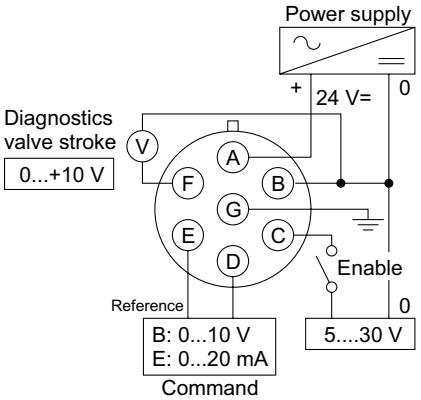
Sizing data: see operation manual.

Please also consider the Parker accumulator product range and the Parker Accumulator Sizing Software.

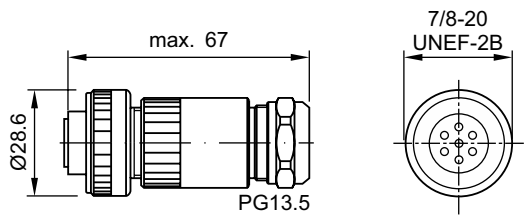
Block circuit diagram electronics



Connection diagrams electronics

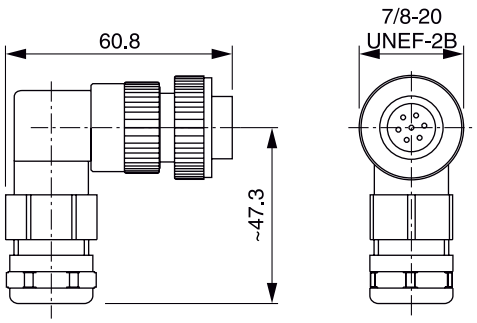


Female connector
(EMC conform)



ID no. 5004072

Angle female connector
(EMC conform)



ID no. 5005160

Please order plugs separately.

ProPxD interface program

The ProPxD software allows quick and easy setting of the digital valve electronics. Individual parameters as well as complete settings can be viewed, changed and saved via the comfortable user interface. Parameter sets saved in the non-volatile memory can be loaded to other valves of the same type or printed out for documentation purposes.

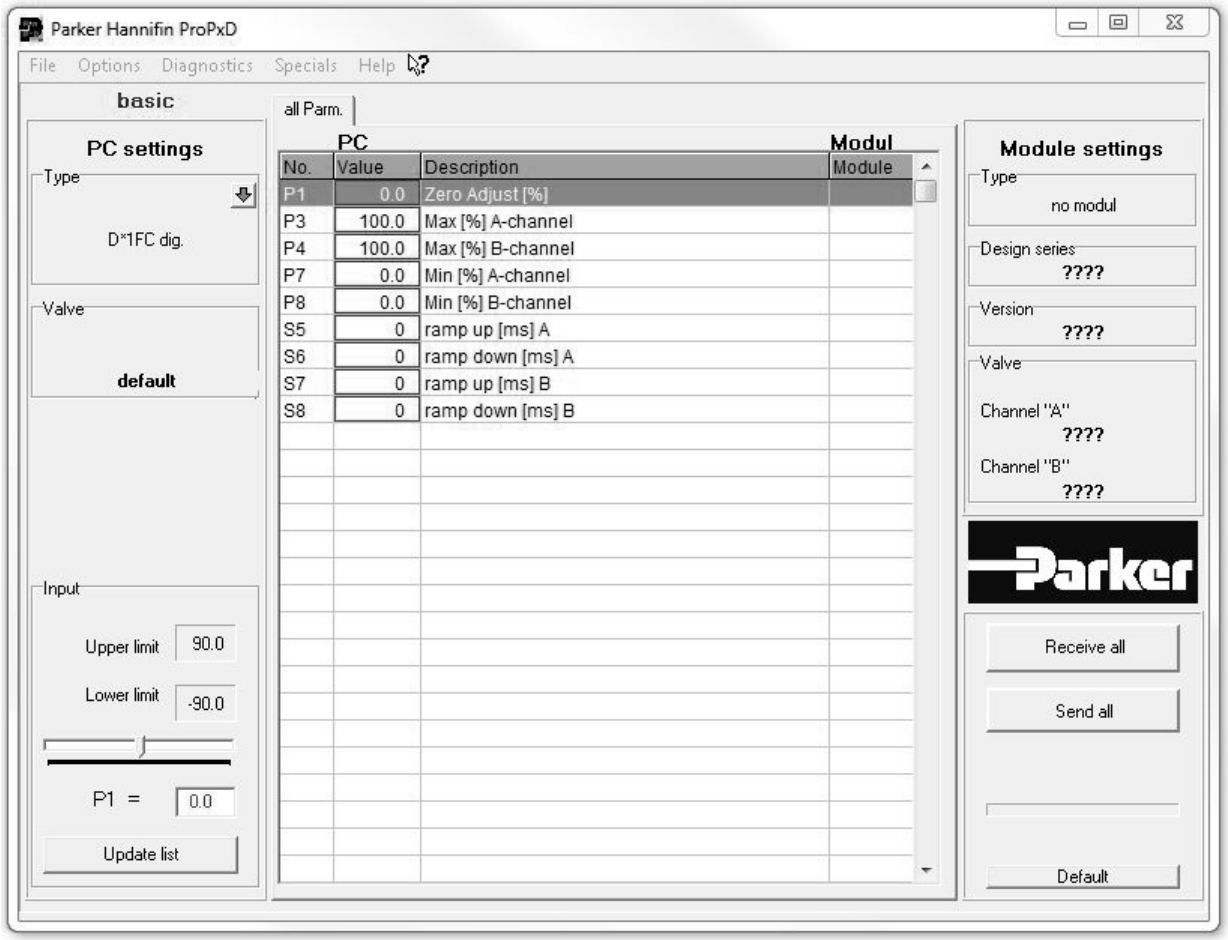
The PC software can be downloaded free of charge at www.parker.com/isde – see page “Support" or directly at www.parker.com/propxd.

Features

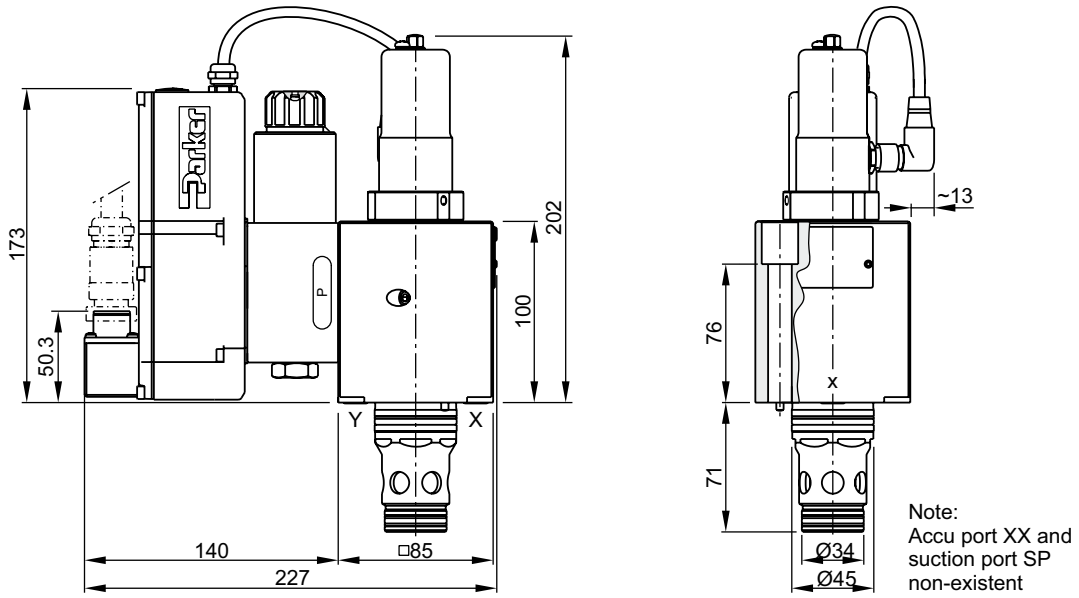
- Comfortable editing of valve parameters
- Saving and loading of customized parameter sets
- Executable with all Windows® operating systems from Windows® XP upwards
- Simple communication between PC and valve electronics via serial interface RS232C

The valve electronics cannot be connected to a PC with a standard USB cable – this can result in damages of PC and/or valve electronics.

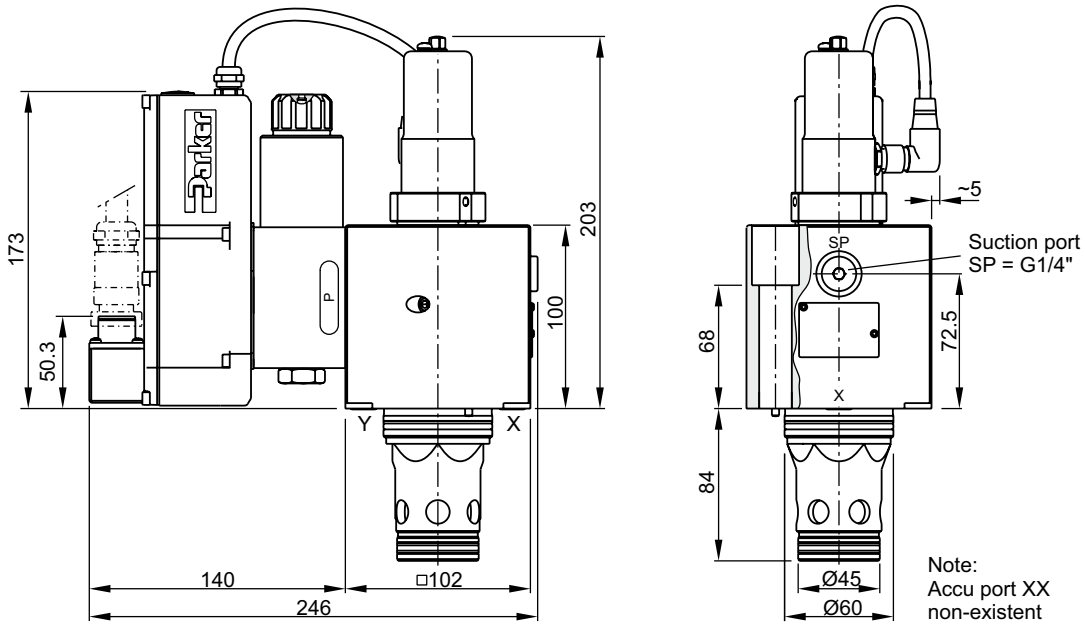
The parametrizing cable may be ordered under item no. 40982923.

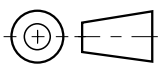


NG25



NG32





Suction port SP: Contact Parker for installation recommendation.

NG	Bolt kit -		Kit	
			NBR	FPM
25	BK504 4 x M12x100 ISO 4762-12.9	108 Nm	SK-TDP025EN30	SK-TDP025EV30
32	BK529 4 x M16x100 ISO 4762-12.9	264 Nm	SK-TDP032EN30	SK-TDP032EV30

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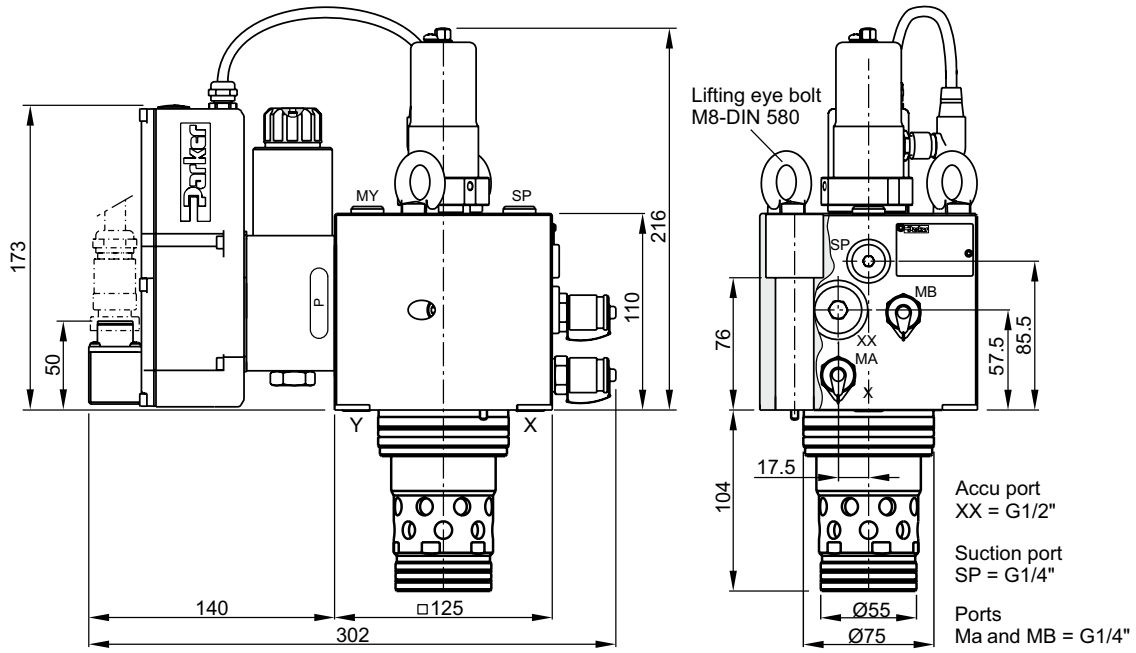
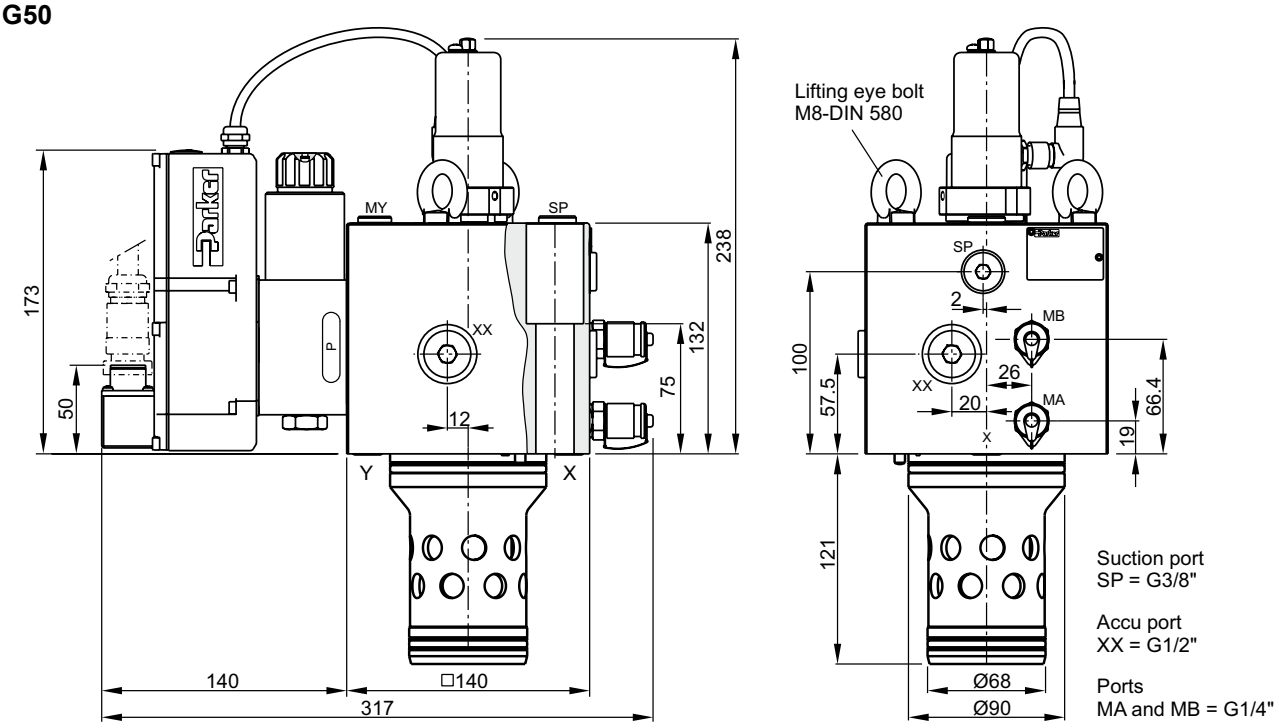
NG40



NG50



Lifting thread for disassembly M12

Suction port SP: Contact Parker for installation recommendation.

NG	Bolt kit -		Kit NBR	Kit FPM
40	BK481 4 x M20x110 ISO 4762-12.9	517 Nm	SK-TDP040EN30	SK-TDP040EV30
50	BK481 4 x M20x110 ISO 4762-12.9	517 Nm	SK-TDP050EN30	SK-TDP050EV30

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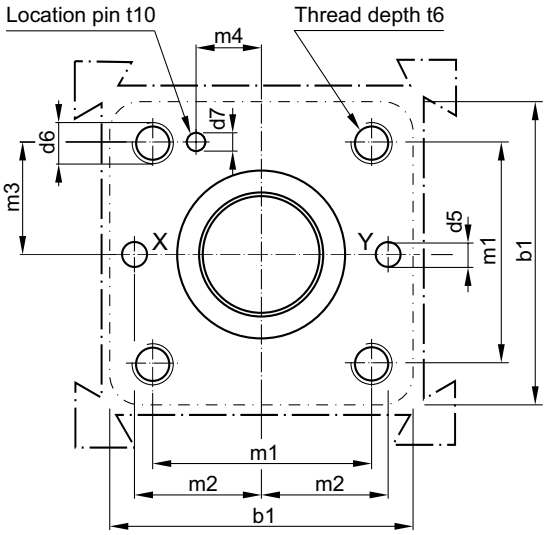
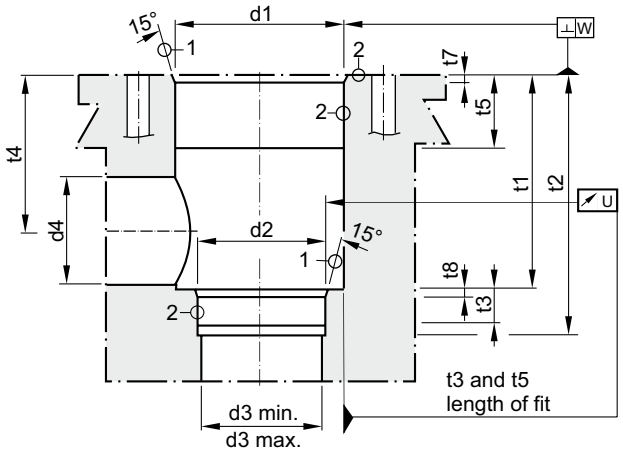
Code: ISO 7368-B*-*-2-A/B

NG25 to NG50





Required surface finish:

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

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

8

Size	b1	d1 H7	d2 H7	d3 / d4	d3 max	d4 max[1)]	d5	d6	d7 H13	m1±0.2	m2±0.2	m3±0.2
25	85	45	34	25	27	32	6	M12	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

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	25	25	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

[1)] d4 max. only in combination with t4 max.

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