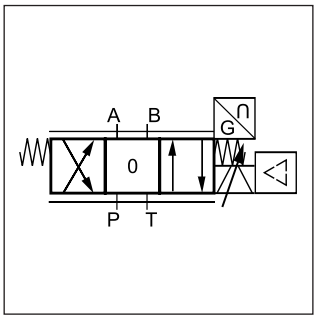
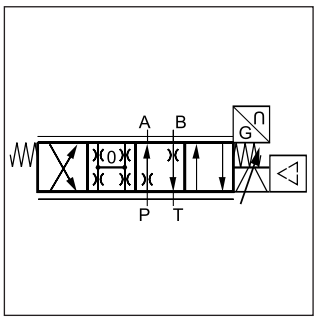
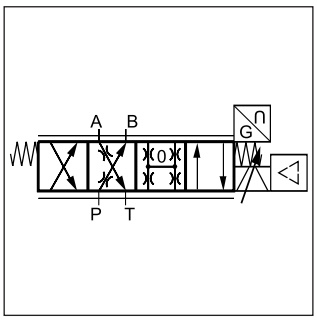
The direct operated control valve D3FP of the nominal size NG10 (CETOP 05) shows extremly high dynamics combined with high flow. It is the preferred choice for highest accuracy in positioning of hydraulic axis and controlling of pressure and velocity.

Driven by the patented VCD actuator the D3FP reaches the frequency response of real servovalves.

At power-down the spool moves in a defined position. All common input signals are available.

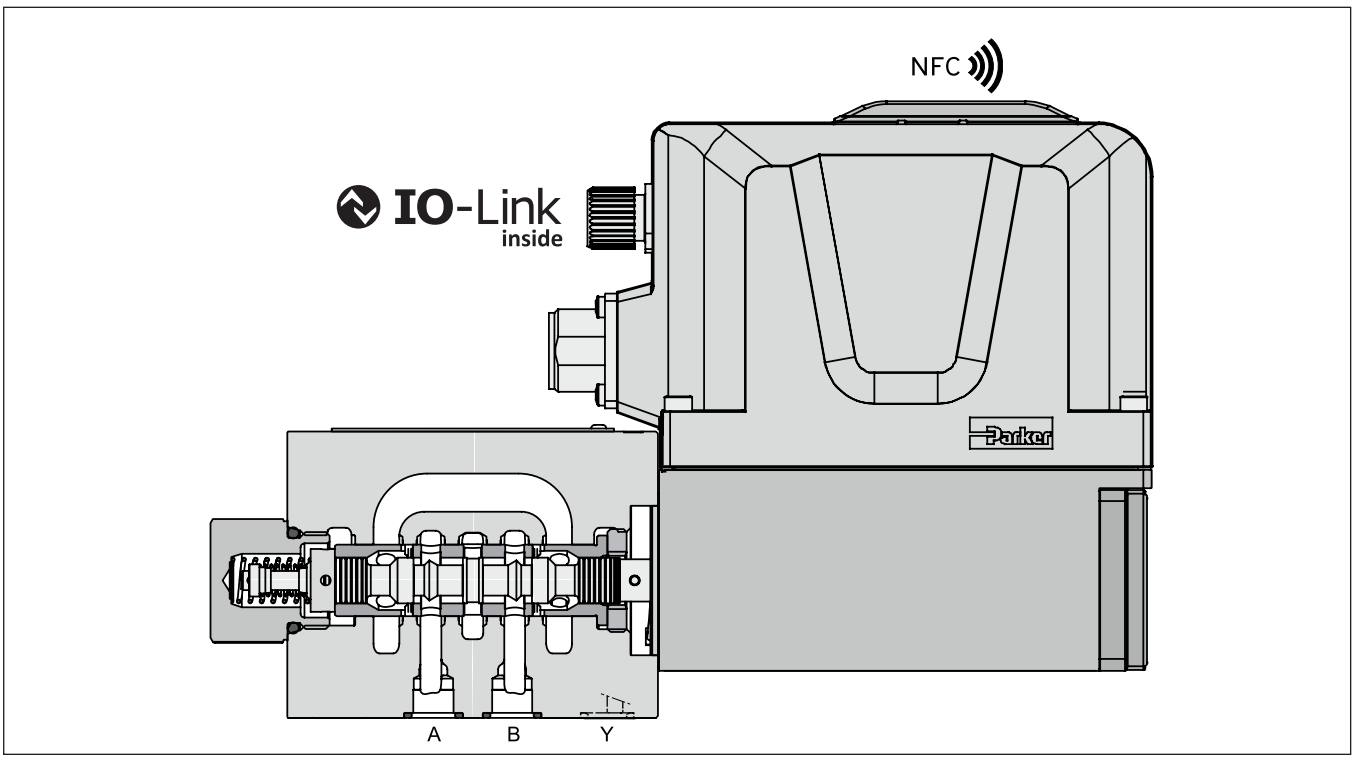




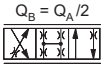
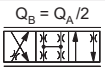
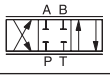
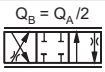
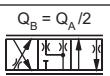


Features

- Real servovalve dynamics (-3 dB / 200 Hz at ±5 % input signal)
- Max. tank pressure 250 bar (with external drain port Y)
- Defined spool positioning at power-down – optional P-A/B-T or P-B/A-T or center position (for overlapped spools)
- Onboard electronics
- Spool / sleeve design
- IO-Link interface for parametrizing
- RGB diode for optical status check
- NFC interface



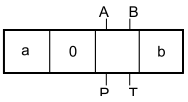
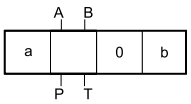
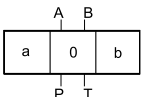
D	3	F	P			9				0	
Direct. control valve	Size DIN NG10 CETOP 05 NFPA D05	Proportional control	VCD	Spool type	Spool position on power down [1]	Y-port (plugged) [4]	Seals	Command signal	Electronics option	Spool/ sleeve design	Design series (not required for ordering)

Code	Spool type	Flow [l/min] at Δp 35 bar per metering edge
Zerolap		
E50P		**50**
E50Y		**100**
B60P	$Q_B = Q_A/2$ 	**50**
B60Y	$Q_B = Q_A/2$ 	**100**
Underlap approx. -0.5 %		
E55P		**50**
E55Y		**100**
Overlap		
E01P **E01Y**		**50** **100**
E02P **E02Y**		**50** **100**
B31P **B31Y**	$Q_B = Q_A/2$ 	**50 / 25** **100 / 50**
B32P **B32Y**	$Q_B = Q_A/2$ 	**50 / 25** **100 / 50**

Code	Connection type
0	**6 + PE acc. EN175201-804**
5	**11 + PE acc. EN175201-804**
7	**6 + PE + Enable**

Code	Signal	Function
B	**+/- 10 V**	**0...+10 V -> P-A**
E	**+/- 20 mA**	**0...+20 mA -> P-A**
S	**4...20 mA**	**12...20 mA -> P-A**

Code	Seals
N	**NBR**
V	**FPM**
H	**for HFC fluid**

Code	Spool pos. at power down
A [2]	
B [2]	
C [3]	

Short delivery time for all variations

Please order connector separately, see chapter 3 accessories.
IO-LINK-MASTER-USB order no. 40983544

[1] On power down the spool moves in a defined position. This cannot be guaranteed in case of single flow path on the control edge A – T resp. B – T with pressure drops above 120 bar or contamination in the hydraulic fluid.
[2] Approx. 10 % opening, only zerolapped spools and underlapped spools.
[3] Only for overlapped spools.
[4] Plug in the Y-port needs to be removed at tank pressure >35 bar.

3

General			
Design			Direct operated servo proportional DC valve
Actuation			VCD® actuator
Size			NG10 / CETOP 05 / NFPA D05
Mounting interface			DIN 24340 / ISO 4401 / CETOP RP121 / NFPA
Mounting position			unrestricted
Ambient temperature		[°C]	-20...+60
$MTTF_D$ value [1]		[years]	150
Weight		[kg]	6.5
Vibration resistance		[g]	10 Sinus 5...2000 Hz acc. IEC 60068-2-6 10 (RMS) Random noise 20...2000 Hz acc. IEC 60068-2-64 15 Shock acc. IEC 60068-2-27
Hydraulic			
Max. operating pressure		[bar]	Ports P, A, B 350, port T 35 for internal drain, 250 for external drain, port Y 35 [2]
Fluid			Hydraulic oil according to DIN 51524 ... 535, other on request
Fluid temperature		[°C]	-20...+60 (NBR: -25...+60)
Viscosity	permitted	[cSt]/[mm²/s]	20...400
	recommended	[cSt]/[mm²/s]	30...80
Filtration			ISO 4406; 18/16/13
Flow nominal at Δp=35 bar per control edge [3]		[l/min]	50 / 100
Flow maximum		[l/min]	150
Leakage at 100 bar		[ml/min]	<400 (zerolap spool); <100 (overlap spool)
Opening point		[%]	set to 19 command signal (see flow characteristics)
Static / Dynamic			
Step response at 100 % step [4]		[ms]	<6
Frequency response (±5 % signal) [4]		[Hz]	200 (amplitude ratio -3 dB), 200 (phase lag -90°)
Hysteresis		[%]	<0.05
Sensitivity		[%]	<0.03
Temperature drift		[%/K]	<0.025
Interfaces			
IO-Link			IEC 61131-9
NFC			ISO/IEC 15693 - NFC Forum Type 5 tag certified by the NFC Forum Frequency 13.56 MHz; -27.2 dBµA/m at 10 meters distance
Electrical characteristics			
Duty ratio		[%]	100
Protection class			IP65 in accordance with EN 60529 (with correctly mounted plug-in connector) 6 = Full protection against contact, dust tight 5 = Protection against water jets (nozzle) from any angle
Supply voltage/ripple		[V]	24 V nominal (tolerance range 22 … 30V), electric shut-off at < 19, ripple < 5 % eff., surge free
Current consumption max.		[A]	3.5
Pre-fusing		[A]	4.0 medium lag
Input signal			
Code B	Voltage	[V]	10...0...-10, ripple <0.01 % eff., surge free, 0...+10 V P->A
	Impedance	[kOhm]	100
Code E	Current	[mA]	20...0...-20, ripple <0.01 % eff., surge free, 0...+20 mA P->A
	Impedance	[Ohm]	<250
Code S	Current	[mA]	4...12...20, ripple <0.01 % eff., surge free, 12...20 mA P->A <3.6 mA = disable, >3.8 mA = according to NAMUR NE43
	Impedance	[Ohm]	<250
Differential input max.	Code 0	[V]	30 for terminal D and E against PE (terminal G)
	Code 5	[V]	30 for terminal 4 and 5 against PE (terminal ⏚)
	Code 7	[V]	30 for terminal D and E against PE (terminal G)
Enable signal	(only code 5/7)		acc. EN 61131-2; Type 3
		[V]	Low -3…+5; High 11…30; input current 3 mA
Diagnostic signal		[V]	+10...0...-10
EMC			EN 61000-6-2, EN 61000-6-4
Electrical connection		Code 0/7	6 + PE acc. EN 175201-804
		Code 5	11 + PE acc. EN 175201-804
Wiring min.	Code 0/7	[mm²]	7 x 1.0 (AWG 16) overall braid shield
	Code 5	[mm²]	8 x 1.0 (AWG 16) overall braid shield
Wiring length max.		[m]	50

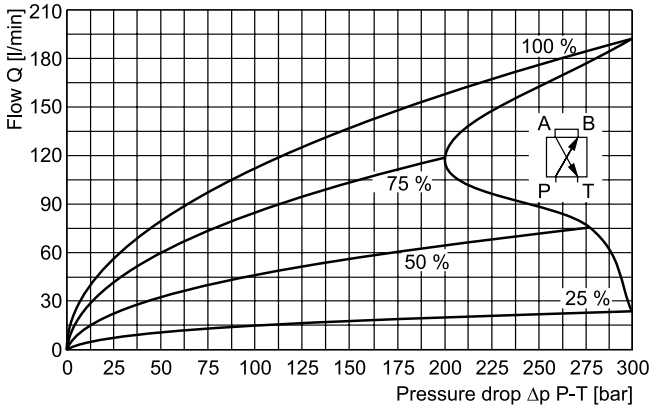
[1] If valves with onboard electronics are used in safety-related parts of control systems, in case the safety function is requested, the valve electronics voltage supply is to be switched off by a suitable switching element with sufficient reliability.

[2] For applications with p_T>35 bar (max. 250 bar) the Y-port has to be connected and the plug in the Y-port has to be removed.

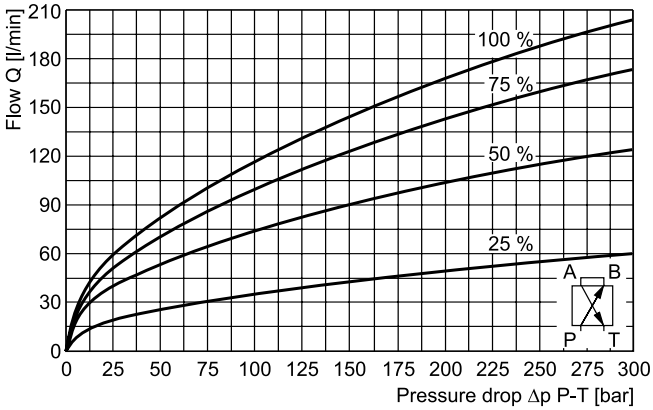
[3] Flow rate for different Δp per control edge: $Q_x = Q_{Nom.} \cdot \sqrt{\frac{\Delta p_x}{\Delta p_{Nom.}}}$

[4] Measured with load (100 bar pressure drop/two control edges).

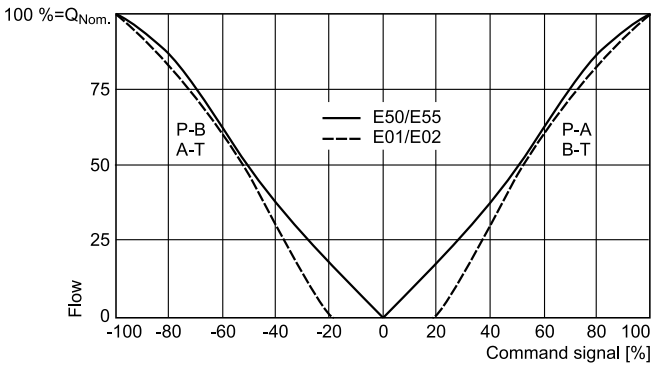
Functional limits [1)]
at 25 %, 50 %, 75 % and 100 % command signal
Spool type **E01Y/E02Y**



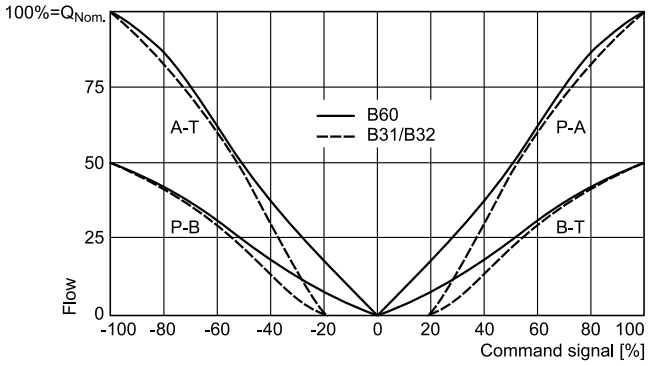
Functional limits [1)]
at 25 %, 50 %, 75 % and 100 % command signal
Spool type **E50Y/E55Y**



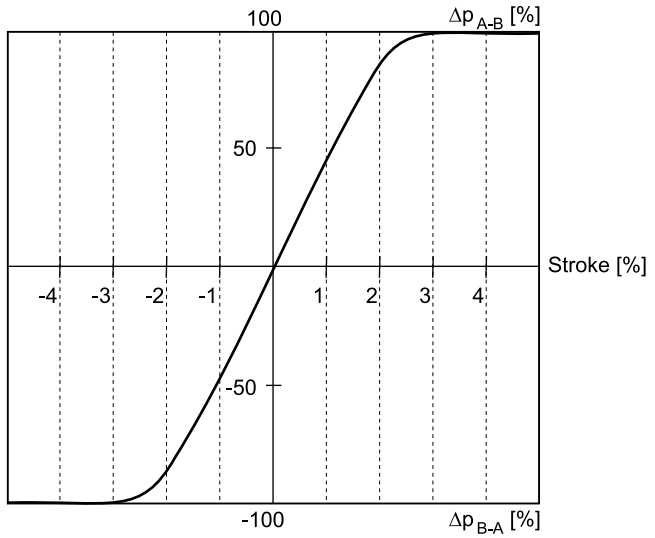
Flow curves
(Overlapped spool set to opening point 19 %)
at Δp = 35 bar per metering edge
Spool type **E50/E55, E01/E02**



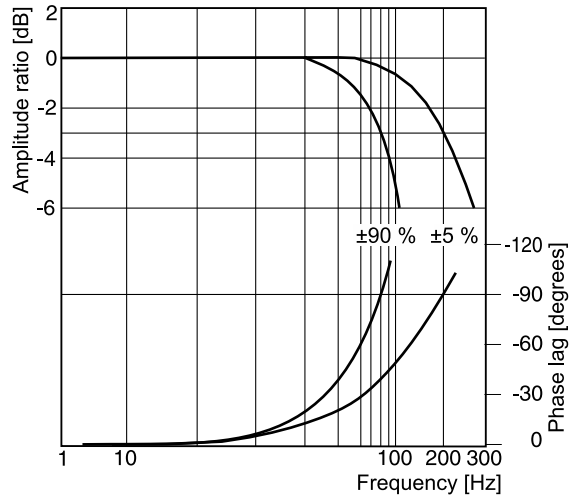
Spool type **B31/B32, B60**



Pressure gain



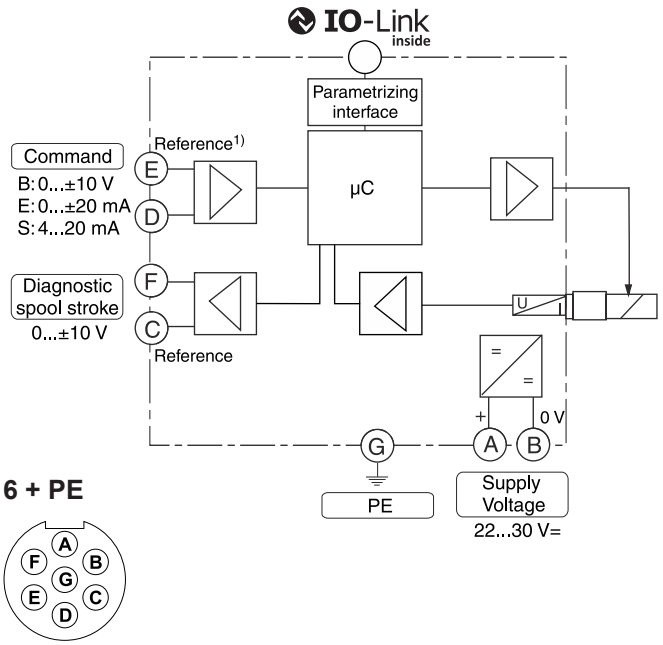
Frequency response
±5 % command signal
±90 % command signal



[1)] When exceeding the functional limits, for a period of time the valve will go into fail safe and power supply needs to be switched off/on to re-enable the valve.

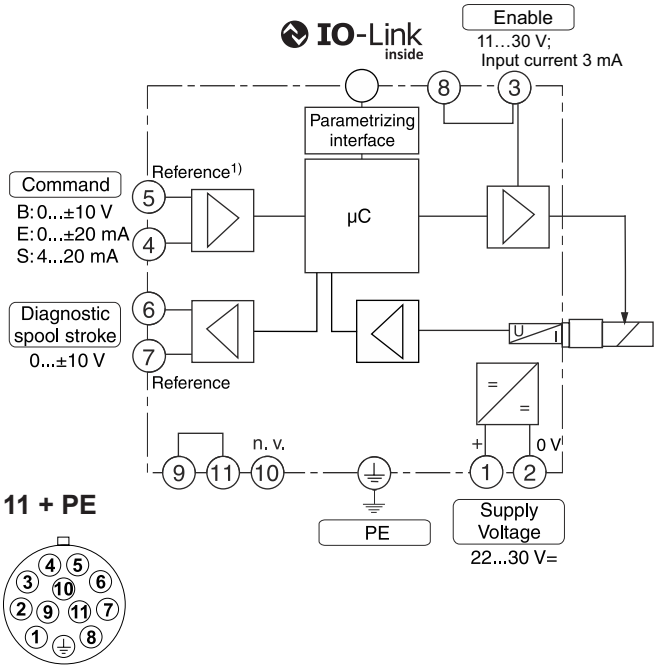
3

Code 0



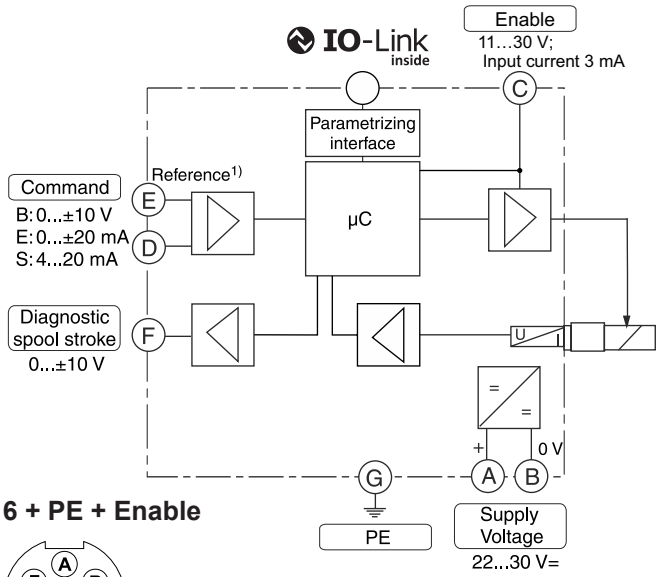
6 + PE

Code 5

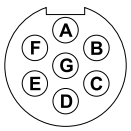


11 + PE

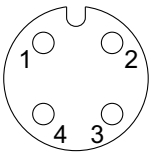
Code 7



6 + PE + Enable



Pin assignment IO-Link (parametrizing) interface, M12 socket



PIN assignment acc. IEC 60974-5-2

- Pin 1: 24 VDC
- Pin 3: GND
- Pin 4: IO-Link Communication (C/Q)

1) Do not connect with supply voltage zero.

IO-Link interface

IO-Link communication takes place via the externally accessible M12 interface.

The IO-Link interface allows an external access to the available valve parameters via an IO-Link master or via the ProPxD software.

Parker IO-LINK-MASTER-USB order no. 40983544 (Parameter overview in the operating instructions)

NFC-interface

The NFC interface allows a wireless access to valve data via the Parker APP Parker Device Control .

Available for free on the **App Store** and **Google Play Store**.

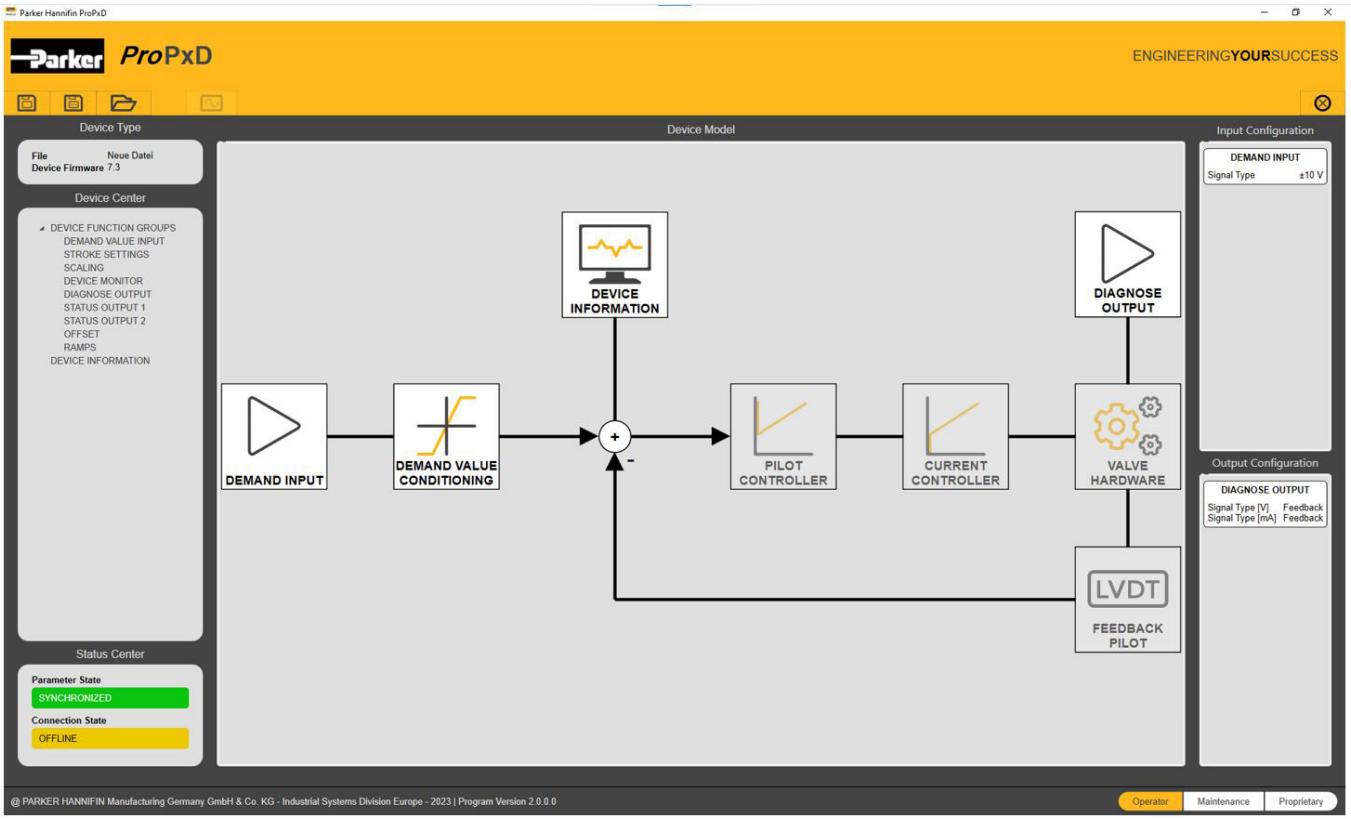
ProPxD parameterization software

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.

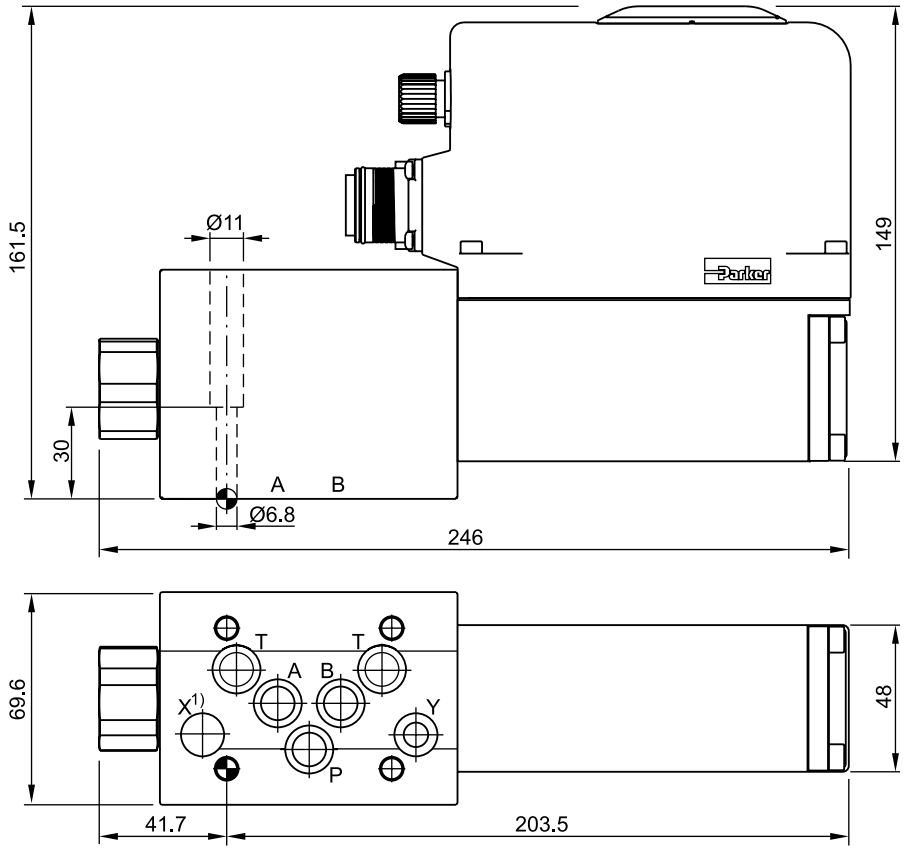
Parameter sets saved in the non-volatile memory can be loaded to other valves of the same type or saved for documentation purposes.

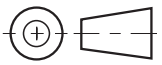
The PC software can be downloaded free of charge at www.parker.com/isde – see page “Support" or directly at www.parker.com/propxd.

Parker IO-LINK-MASTER-USB order no. 40983544



3





Surface finish	Kit			Kit
$\sqrt{R_{max}6.3}$ 0.01/100	BK385	4xM6x40 ISO 4762-12.9	13.2 Nm ±15 %	NBR: SK-D3FP FPM: SK-D3FP-V HFC: SK-D3FP-H

1) O-ring recess diameter on valve body.