

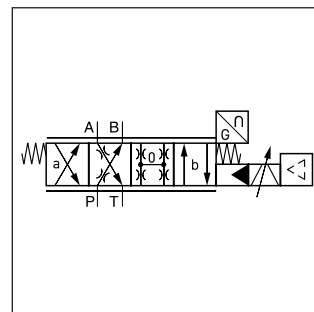
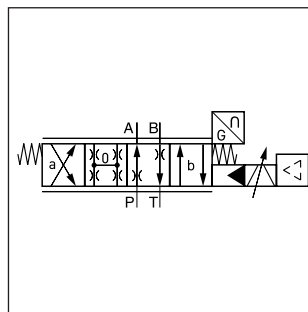
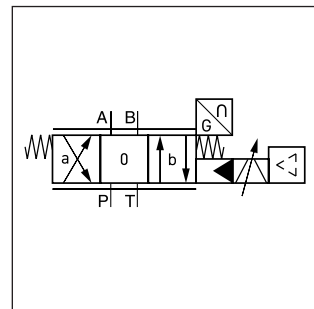
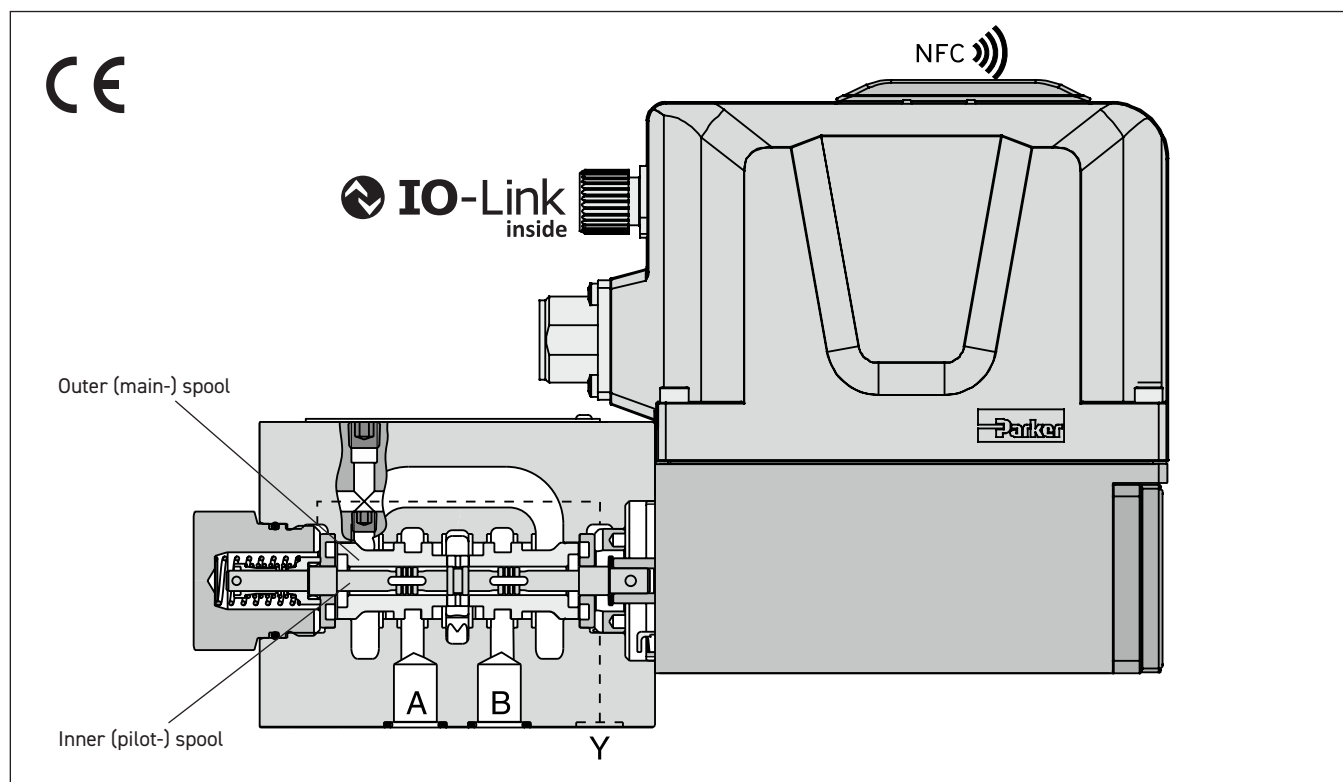
The series of pilot operated control valves D30FP closes the gap between the direct operated D3FP valves and the conventional pilot operated D31FP valves.

Providing high flow capacity and practically no flow limits like D31FP in the envelope size of the D3FP.

The valve works with the hydraulic follower principle, with a moving sleeve as main spool.

Features

- Pilot operated with hydraulic follower sleeve
- No flow limit up to 350 bar through the valve
- Defined spool positioning at power-down - optional P-A / B-T or P-B / A-T or center position (for overlapped spools)
- IO-Link Class A parameterization and communication
- interface included as standard
- IO-Link Class B interface available
- RGB Diode diode for optical status check
- NFC interface
- Adjustable setpoint signal


D30FP*3 with IO-Link Class A interface
 with hydraulic follower principle


Ordering Code

Pilot Operated Proportional DC Valve
Series D30FP

D	30	F	P							3	
Direct. control valve	Size DIN NG10 CETOP 05 NFFA D05	Proportional control	VCD	Spool type	Spool position on power down	Pilot connection	Seals	Command signal	Electronics option	Spool/ body design	Design series (not required for ordering)

Code	Spool type	Flow [l/min] at Δp 5 bar per metering edge
Zerolap		
E50U		80
B60U	$Q_B = Q_A / 2$ 	80 / 40
Overlap		
E01U		80
E02U		80
B31U	$Q_B = Q_A / 2$ 	80 / 40
B32U	$Q_B = Q_A / 2$ 	80 / 40

Code	Spool pos. at power down
A ¹⁾	
B ¹⁾	
C ²⁾	

Code	Command	Description
0	B; E; S; Y; W	6 + PE acc. EN175201-804
5	B; E; S; Y; W	11 + PE acc. EN175201-804
7	B; E; S; Y; W	6 + PE + Enable
0	I	IO-Link Class B

Code	Signal	Function
B	0...±10 V	0...+10 V -> P-A
E	0...±20 mA	0...+20 mA -> P-A
S	4...20 mA	12...20 mA -> P-A
Y	0...±50 mA	0...+20 mA -> P-A
W ⁴⁾	adjustable	Default +/-10V
I	IO-Link Class B	—

Code	Seals
N	NBR
V	FPM
H	for HFC fluid

Code	Inlet	Drain
1 ³⁾	internal	external
4	internal	internal

Short delivery time
for all variations

Please order connector separately, see chapter 3 accessories.

IO-LINK-MASTER-USB order no. 40983544

¹⁾ Approx. 10 % opening, only zerolapped spools.

²⁾ Only for overlapped spools.

³⁾ For tank pressure >35 bar.

⁴⁾ Available command signals – see technical data .

General			
Design			Pilot 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			horizontal mounting preferred (other mounting positions after consultation)
Ambient temperature	[°C]		-20...+60
MTTF _D value ¹⁾	[years]		75
Weight	[kg]		6.5
Vibration resistance	[g]		10 Sinus 5...2000 Hz acc. IEC 60068-2-6 20 (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
	[bar]		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 nom. at Δp=5 bar per control edge ³⁾	[l/min]		80
Flow maximum	[l/min]		250
Leakage at 100 bar	[ml/min]		<1800 (Zerolap spool); <1000 (Overlap spool)
Opening point	[°]		set to 9 commande signal (see flow characteristics)
Pilot supply pressure	[bar]		>5 higher than tank pressure (only internal pilot oil supply)
Static / Dynamic			
Step response at 100 % step ⁴⁾	[ms]		<7
Frequency response (±5 % signal) ⁴⁾	[Hz]		120 (amplitude ratio -3 dB), 120 (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 nominal (tolerance range 22 ... 30), electric shut-off at < 19, ripple < 5 % eff., surge free
Current consumption max.	[A]		3.5
Pre-fusing	[A]		4.0 medium lag
Command			Depending on choosen signal type
Voltage	signal	[V]	10...0...-10, ripple <0.01 % eff., surge free
	impedance	[kOhm]	100
Current	signal	[mA]	20...0...-20, ripple <0.01 % eff., surge free
	impedance	[Ohm]	<250
Current	signal	[mA]	*4...12...20, ripple <0.01 % eff., surge free <3.6 mA = disable, >3.8 mA = according to NAMUR NE43"
	impedance	[Ohm]	<250
Current	signal	[mA]	10...0...-10, ripple <0.01 % eff., surge free
	impedance	[Ohm]	<250
Current	signal	[mA]	50...0...-50, ripple <0.01 % eff., surge free
	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)		[V]	acc. EN 61131-2; Type 3; Low -3...+5; High 11...30; input current 3 mA
Diagnostic signal		[V]	+10...0...-10; 4...12...20 (max. 5mA)
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 18) overall braid shield
	Code 5	[mm²]	8 x 1.0 (AWG 18) overall braid shield
Wiring length max.		[m]	(analog Setpoint); 20 (IO-Link Class B)

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_r>35 bar (max. 250 bar) the Y-port has to be connected and the plug in the Y-port has to be removed.

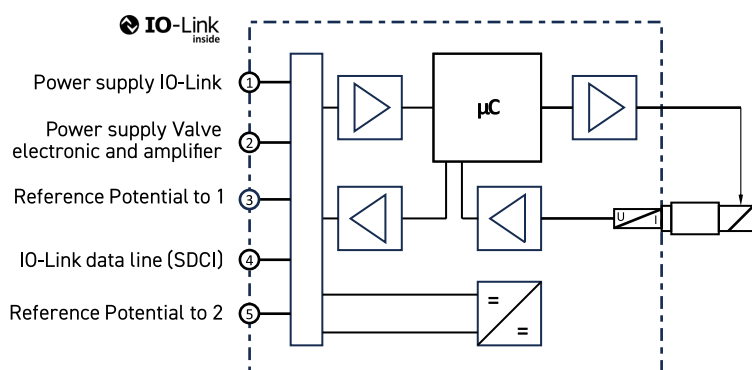
³⁾ Flow rate for different Δp per control edge: $Q_x = Q_{Nom.} \cdot \sqrt{\frac{\Delta p_x}{\Delta p_{Nom.}}}$

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

Technical Data

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
Directive		IO-Link Interface and System Specification Version 1.1.2
Valve amplifiers Supply voltage/ripple	[V]	24 V nominal (tolerance range 22 ... 30V), electric shut-off at < 19, ripple < 5 % eff., surge free
Valve amplifiers max. power consumption	[A]	3.5
Valve amplifiers Pre-fusing	[A]	4.0 medium lag
IO-Link Interface Supply voltage/ripple	[V]	24 V nominal (tolerance range 22 ... 30V), electric shut-off at < 19, ripple < 5 % eff., surge free
IO-Link Interface max. power consumption	[A]	1.2
Functional ground and screening		Provide via valve block
Required master port class		Class B
EMC		EN 61000-6-2, EN 61000-6-4
Electrical connection		M12 sensor/actuator connection line, 5-pole; M12 connector/bush, A-coded, without shield
Wiring min.	[mm ²]	0.34 mm ² for a cable length of up to 5 m
Wiring length max.	[m]	20

Block diagram



Pin	Signal	Signal - IO-Link B Class / viewing direction of the valve	
1	L+	Voltage Supply IO-Link	
2	P24	Voltage supply valve electronics and power part power consumption 4A	
3	L-	Reference potential pin 1	
4	C/Q	IO-Link data line (SDCI)	
5	N24	Reference potential pin 2	

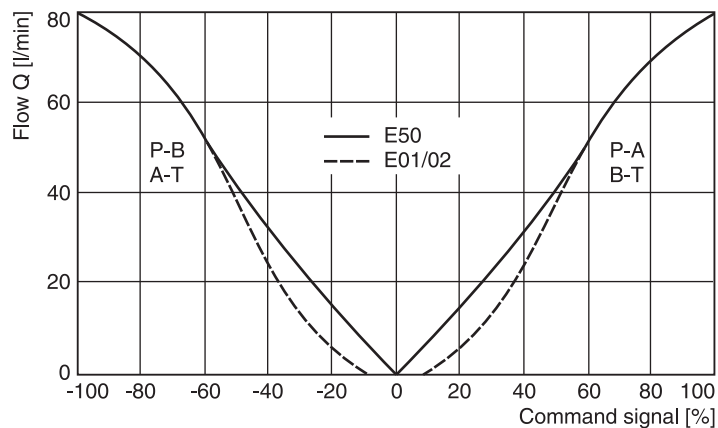
Pin 3 and 5 are linked with each other in the valve electronics. The reference potentials L- and N24 of the two supply voltages must also be linked with each other on the power supply unit side.

Flow curves

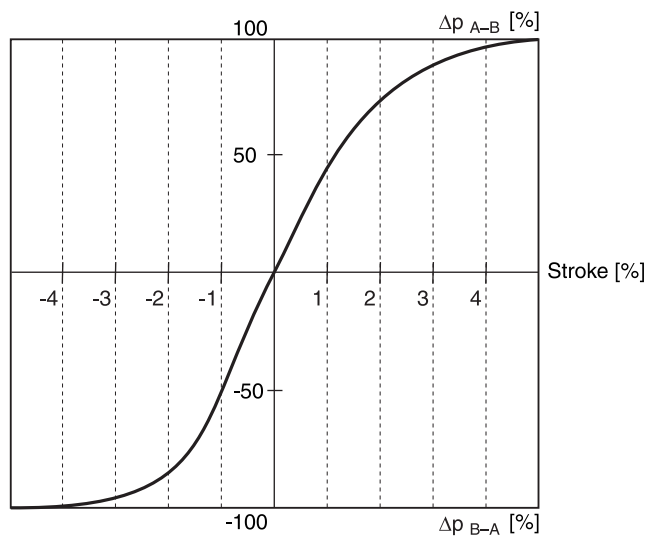
(Overlapped spool set to opening point 9 %)

at $\Delta p = 5$ bar per metering edge

Spool type **E01/02, E50**



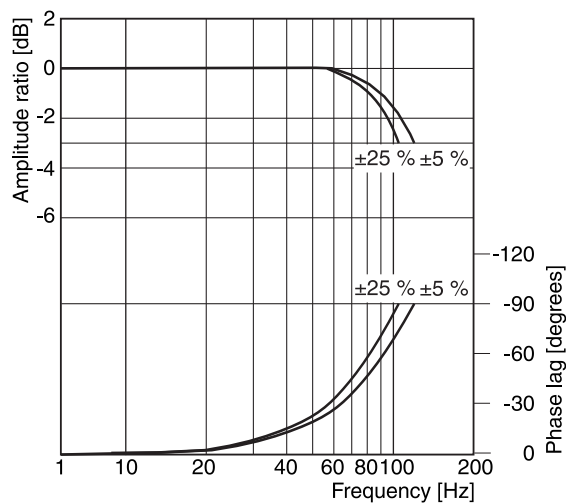
Pressure gain



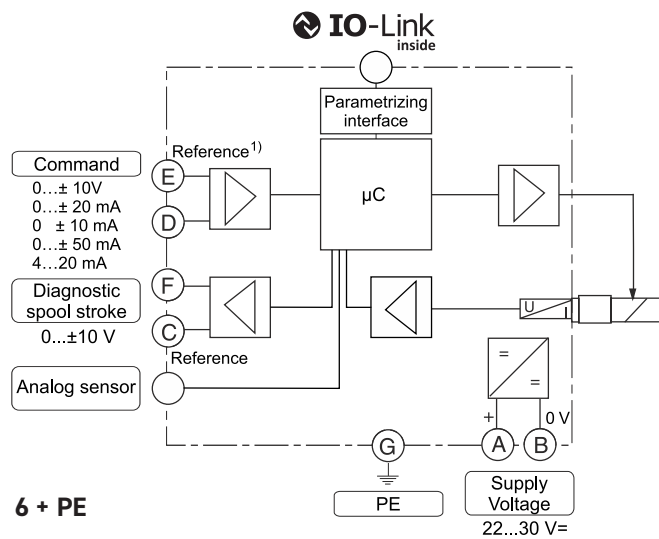
Frequency response

± 5 % command signal

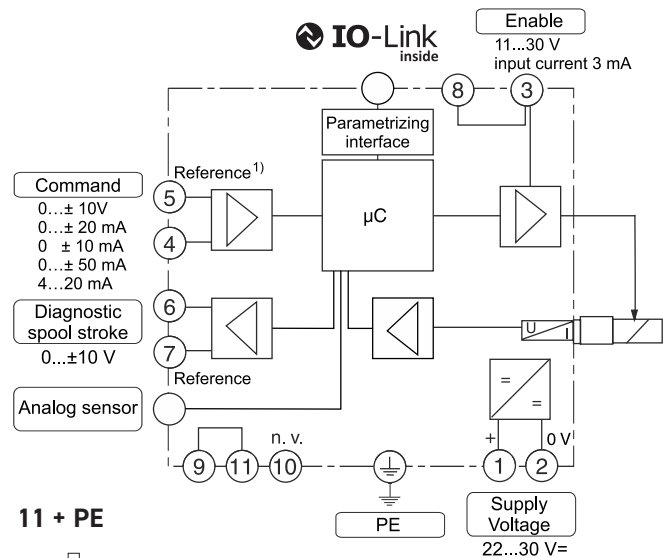
± 25 % command signal



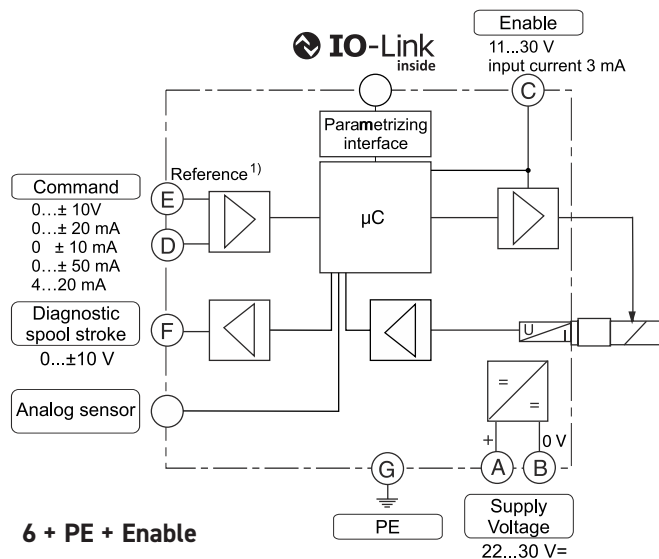
Code 0



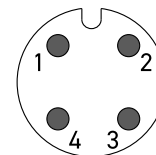
Code 5



Code 7



Pin assignment IO-Link (parametrizing) interface,
M12 socket / viewing direction of the valve



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 and power supply is provided via the M12 interface, which is accessible from the outside. The IO Link interface allows external access to the available and accessible valve parameters via an IO Link Master or via the ProPxD software and the Parker IO-LINK MASTER USB.

For reliable parameterization of the valve, it is necessary to connect the power supply of the Parker IO-Link Master. It is not possible to operate the IO-Link B Class valve via the Parker IO-Link Master, as there is no power supply to the amplifiers.

Parker IO-LINK-MASTER-USB Best. Nr. 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**.

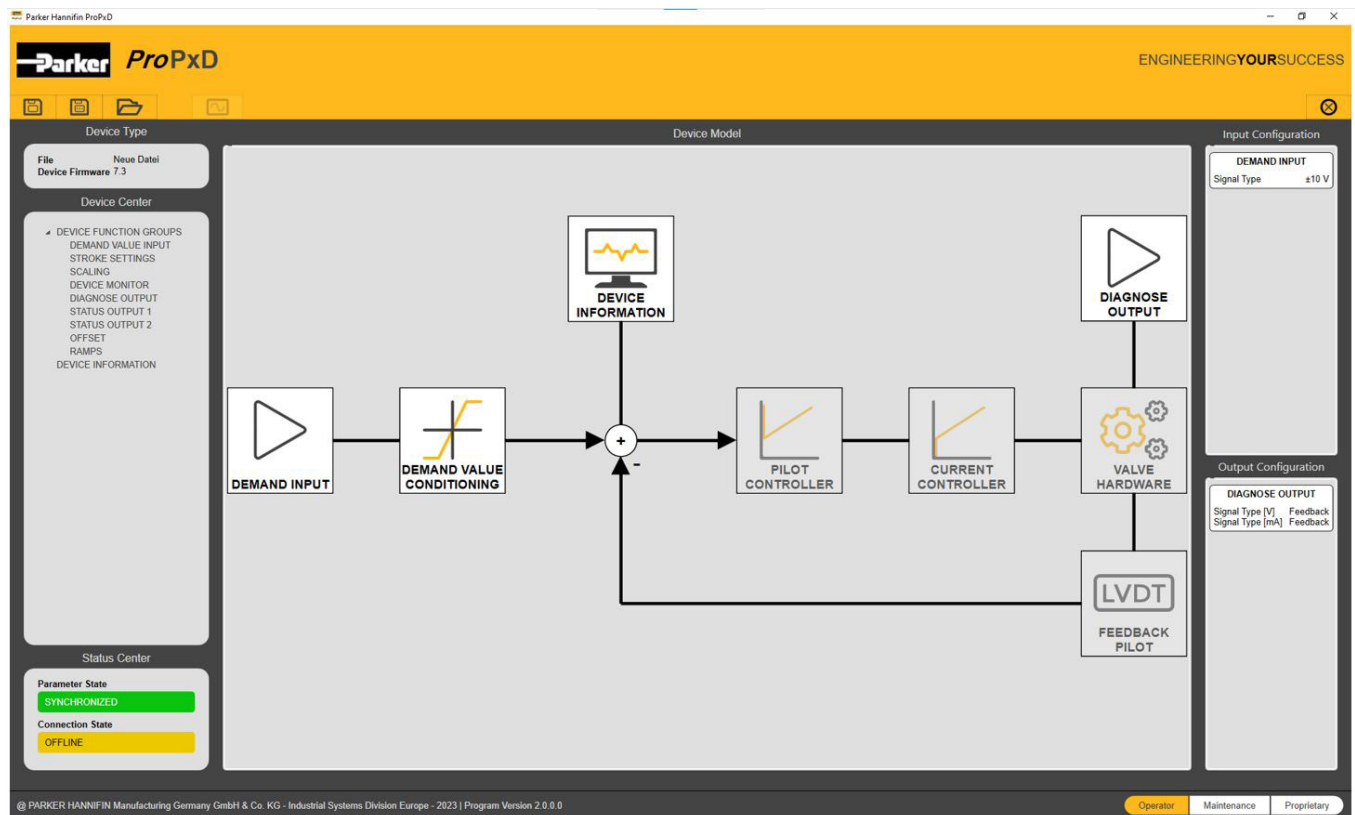
ProPxD parameterization software

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.

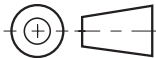
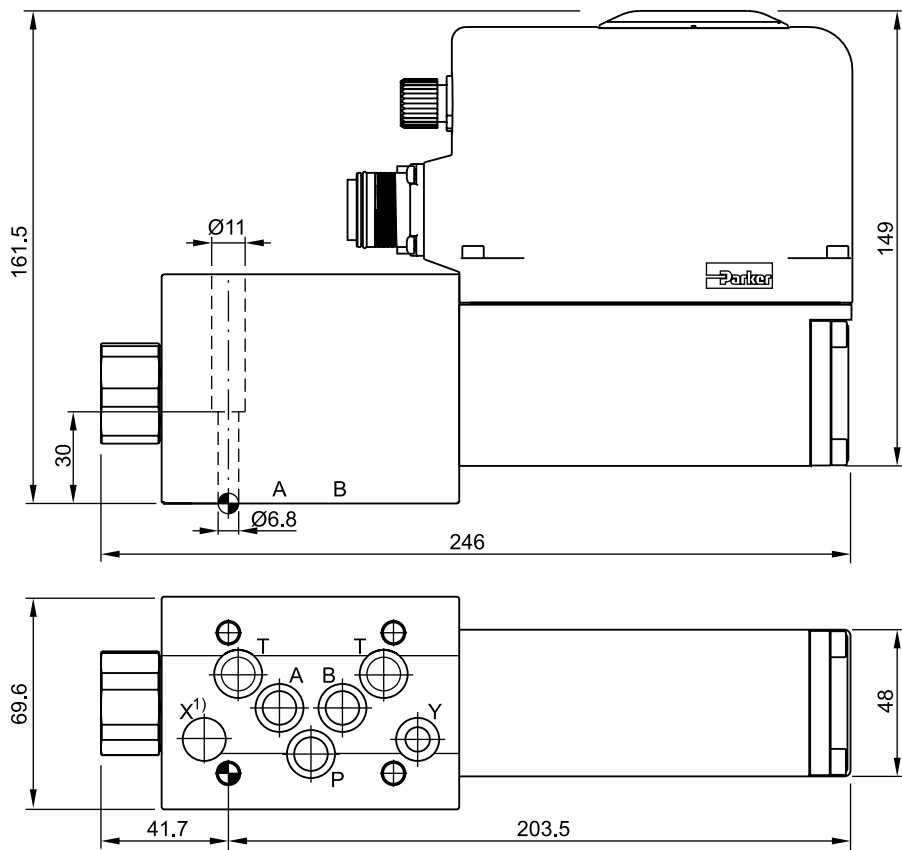
Parameter sets saved in the non-volatile memory can be loaded to other valves of the same type or saved for documentation purposes.

The PC software can be downloaded free of charge directly at www.parker.com/propxd.

3

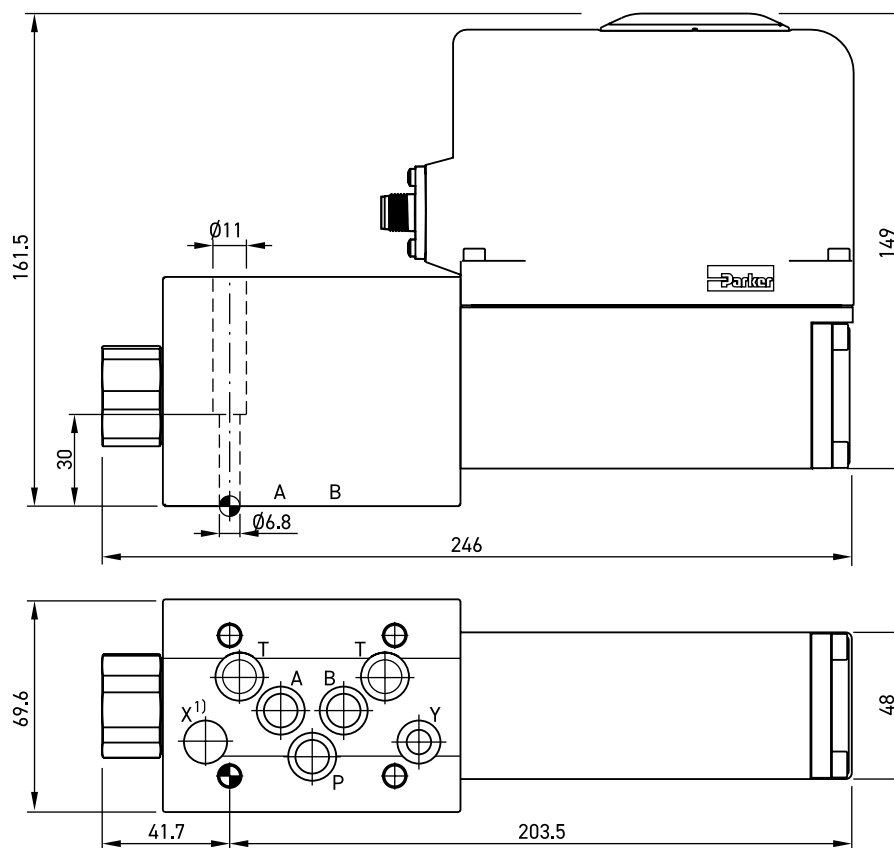


3



Surface finish	Kit	Kit	Kit	Kit
	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.



Surface finish	 Kit	 Kit	 Kit	 Kit
 $\sqrt{R_{max}6,3}$ $\square 0,01/100$	BK385	4x M6x40 ISO 4762-12.9	13.2 Nm $\pm 15\%$	NBR: SK-D3FP FPM: SK-D3FP-V HFC: SK-D3FP-H