

The new direct operated proportional DC valve series D1FC (NG06) with digital onboard electronics and position feedback provides high dynamics combined with high flow.

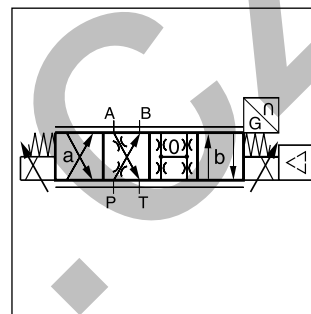
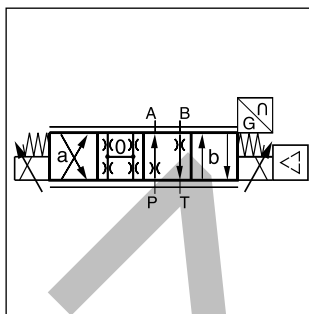
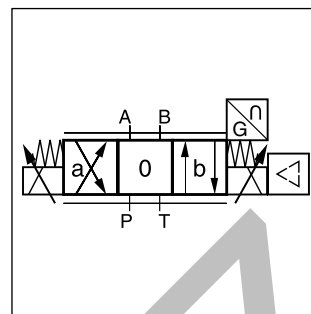
The D1FC is available with overlap spools for open loop applications as well as zero lap spools for closed loop control.

The LVDT is completely integrated into the housing and it does not require an exposed cable connection. Thus an unintended disconnection is impossible.

The digital onboard electronics is situated in a robust metal housing, which allows the usage under rough environmental conditions. The nominal values are factory set. The parametrizing cable to connect to a serial RS232 interface is available as accessory.

### Features

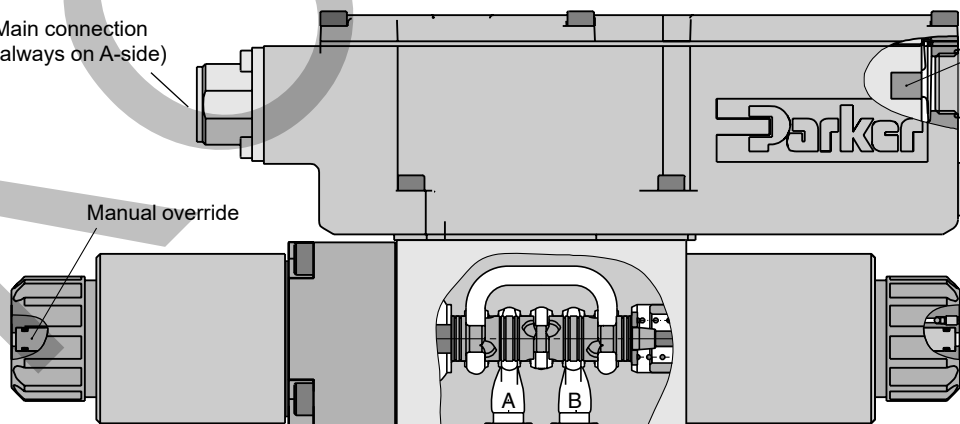
- Progressive flow characteristics for sensitive adjustment
- Low hysteresis
- High dynamics
- High flow capacity
- Compact dimensions
- Defined spool positioning at power-down for zero lap spools



Main connection  
(always on A-side)

Manual override

Parametrizing connection



## Ordering Code

Direct Operated Proportional DC Valve  
Series D1FC

<b>D</b>	<b>1</b>	<b>F</b>	<b>C</b>			<b>9</b>				<b>3</b>	
Direct operated DC Valve	Size DIN NG06 CETOP 03 NFPA D03	Proportional control	High dynamics	Spool type	Spool position on power down <sup>1)</sup>	Drain port Y plugged <sup>4)</sup>	Seal	Command signal	Electronic option	Spool/ body design	Design series (not required for ordering)

Code	Spool type	Flow [l/min] at Δp 5 bar per metering edge
Zerolap		
E50C		5
E50F		10
E50H		20
E50K		30
B60F	$Q_B = Q_A / 2$	5 / 10
B60H		10 / 20
B60K		15 / 30
Overlap		
E01C		5
E01F		10
E01H		20
E01K		30
E02C		5
E02F		10
E02H		20
E02K		30
B31F	$Q_B = Q_A / 2$	5 / 10
B31H		10 / 20
B31K		15 / 30
B32F		5 / 10
B32H		10 / 20
B32K		15 / 30

Code	Electronic option <sup>5)</sup>
0	6+PE acc. EN175201-804
5	11+PE acc. EN175201-804
7	6+PE + enable acc. EN175201-804

Code	Command 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

Code	Seal
N	NBR
V	FPM

Code	Spool pos. at power down
A <sup>2)</sup>	
B <sup>2)</sup>	
C <sup>3)</sup>	

Short delivery time  
for all variations

Parametrizing cable OBE → RS232, item no. 40982923

- <sup>1)</sup> 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.
- <sup>2)</sup> Approx. 10 % opening, only zero lap spools.
- <sup>3)</sup> Only for overlap spools.
- <sup>4)</sup> Plug in port Y needs to be removed at tank pressure >35 bar.
- <sup>5)</sup> Please order connector separately, see chapter 3 accessories.

General			
Design		Direct operated proportional DC valve with position feedback	
Actuation		Proportional solenoid	
Size		NG06 / CETOP 03 / NFPA D03	
Mounting interface		DIN 24340 / ISO 4401 / CETOP RP121 / NFPA	
Mounting position		unrestricted	
Ambient temperature		[°C]	-20...+60
MTTF <sub>D</sub> value <sup>1)</sup>		[years]	150
Weight		[kg]	3.4
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 P, A, B 350, port T max. 35; 210 (external drain); port Y max. 35
Max. pressure drop PABT / PBAT		[bar]	350
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
Viscosity recommended		[cSt] / [mm²/s]	30...80
Filtration		ISO 4406; 18/16/13	
Nominal flow		5 / 10 / 20 / 30	
at Δp=5 bar per control edge <sup>2)</sup>		[l/min]	
Leakage at 100 bar		[ml/min]	<800 (zerolap spool); <50 (overlap spool)
Opening point		set to 10 % command signal (see flow characteristics)	
Static / Dynamic			
Step response at 100 % step		[ms]	20
Hysteresis		[%]	<0.1
Temperature drift		[%/K]	<0.01
Electrical characteristics			
Duty ratio		[%]	100
Protection class		IP65 in accordance with EN 60529 (with correctly mounted plug-in connector)	
Supply voltage/ripple DC		[V]	18...30, electric shut-off at < 17, ripple < 5 % eff., surge free
Current consumption max.		[A]	2.0
Pre fusing medium lag		[A]	2.5
Command Code B		voltage [V]	+10...0...-10, ripple < 0.01% eff., surge free, 0...+10 V P->A
		impedance [kOhm]	100
Code S		current [mA]	4...12...20, ripple < 0.01 % eff., surge free, 12...20 mA P->A < 3.6 mA = enable off, > 3.8 mA = enable on (according to NAMUR NE43)
		impedance [Ohm]	<250
Code E		current [mA]	+20...0...-20, ripple < 0.01 % eff., surge free, 0...+20 mA P->A
		impedance [Ohm]	<250
Differential input max.		Code 0/7 [V]	30 for terminal D and E against PE (terminal G) 11 for terminal D and E against 0 V (terminal B)
		Code 5 [V]	30 for terminal 4 and 5 against PE (terminal PE) 11 for terminal 4 and 5 against 0 V (terminal 2)
Adjustment ranges		Min [%]	0...50
		Max [%]	50...100
		Ramp [s]	0...32.5
Parametrizing interface		RS232C, parametrizing connection 5pole	
Enable signal (code 5/7)		[V]	5...30
Diagnostic signal		[V]	+10...0...-10 / +12.5 error detection, rated max. 5 mA
EMC		EN 61000-6-2, EN 61000-6-4	
Electrical connection		Code 0/7	6 + PE acc. to EN 175201-804
		Code 5	11 + PE acc. to EN 175201-804
Wiring min.		Code 07 [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

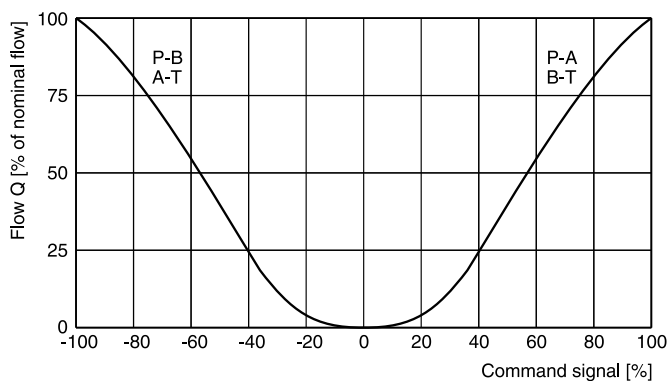
<sup>1)</sup> If valves with onboard electronics are used in safety-related parts of control systems, in case the safety function is requested, the valve electronics voltage supply is to be switched off by a suitable switching element with sufficient reliability.

<sup>2)</sup> Flow rate for different Δp per control edge:  $Q_x = Q_{Nom.} \cdot \sqrt{\frac{\Delta p_x}{\Delta p_{Nom.}}}$

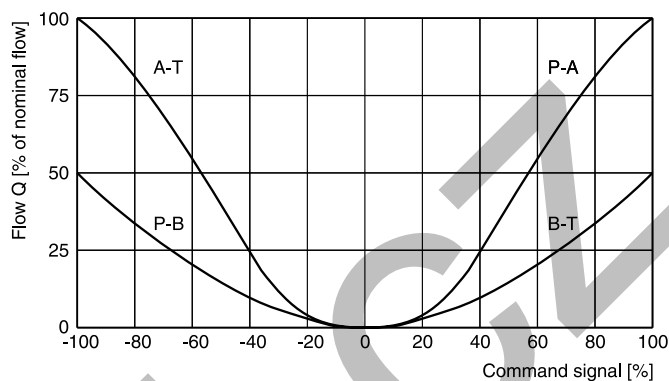
**Flow characteristics**

(set to opening point 10 %) at  $\Delta p = 5$  bar per metering edge

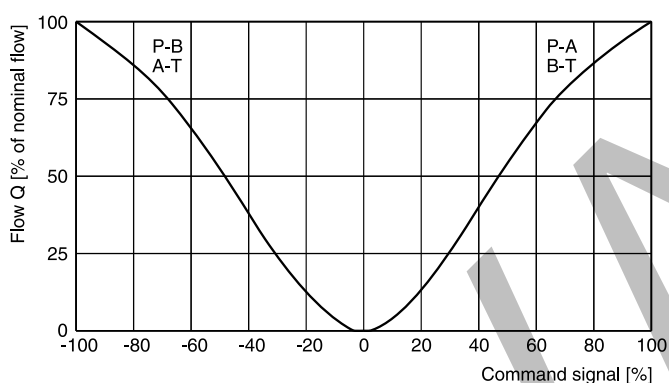
**Spool type E01**



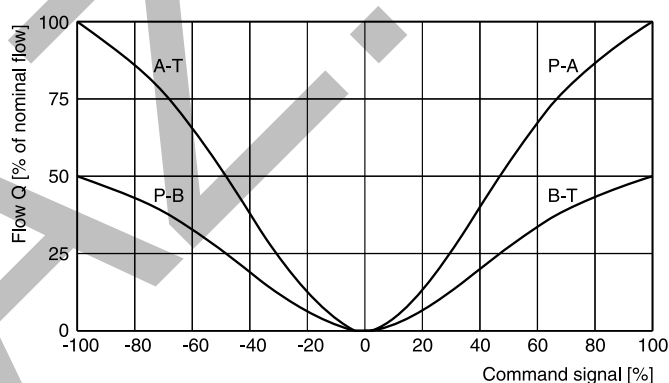
**Spool type B31**



**Spool type E50**



**Spool type B60**



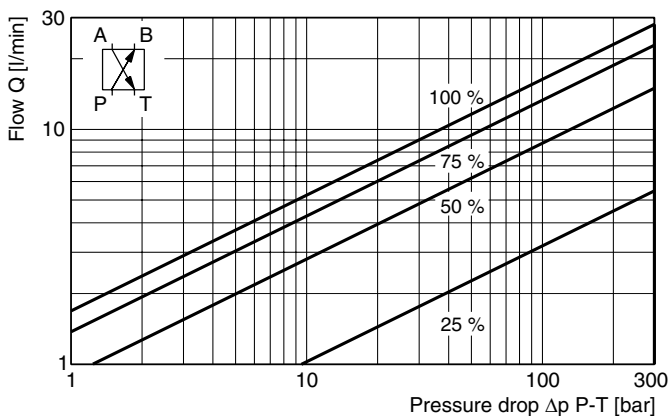
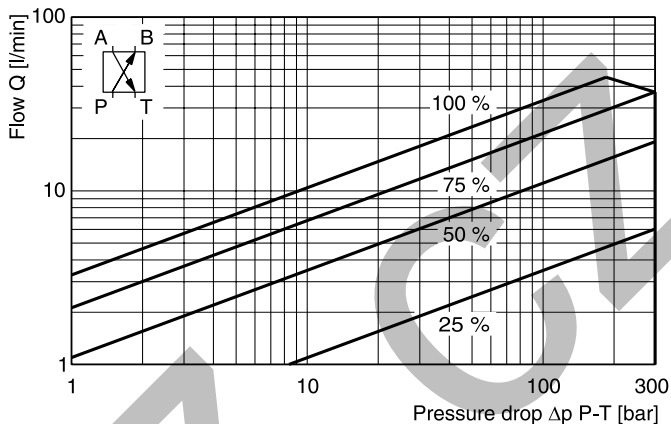
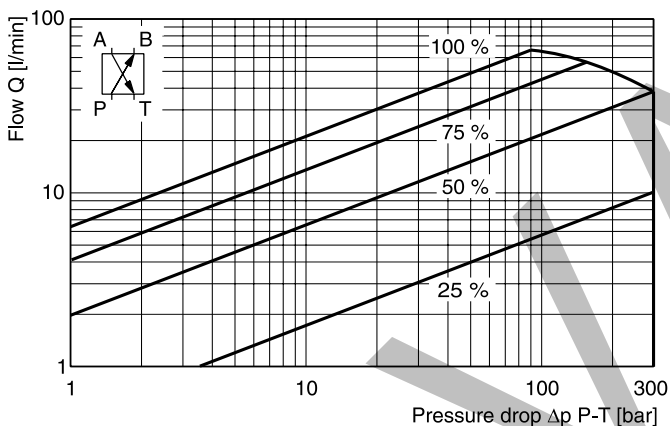
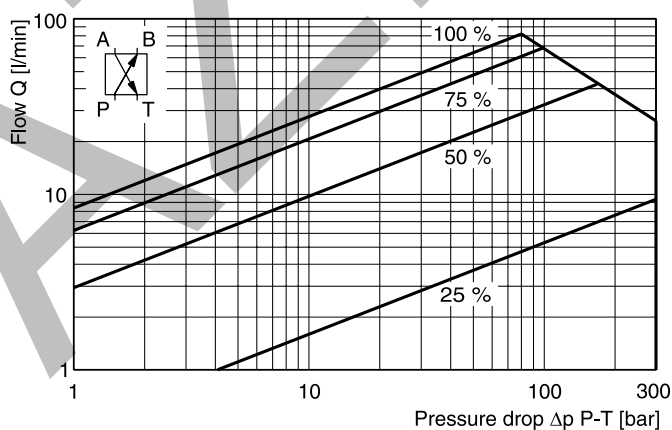
All characteristic curves measured with HLP46 at 50 °C.

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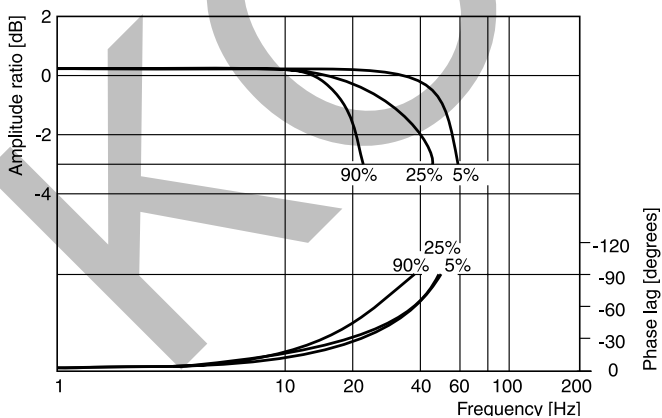
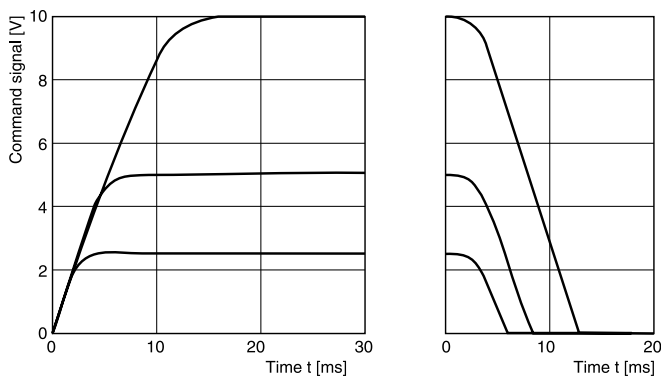
**Functional limits**

25 %, 50 %, 75 % and 100 % command signal (symmetric flow).

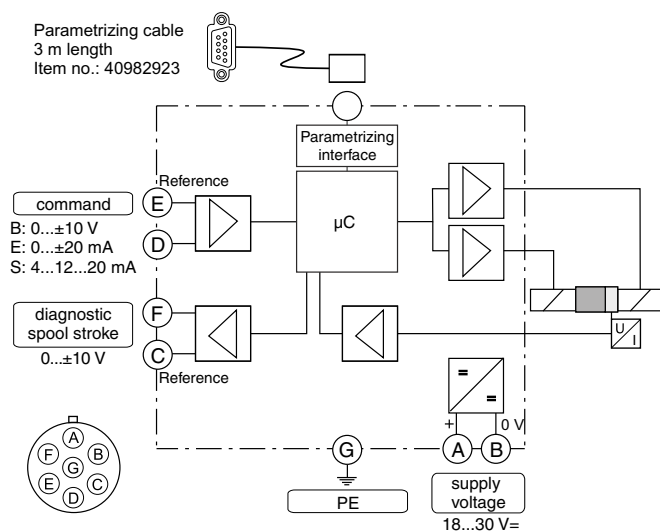
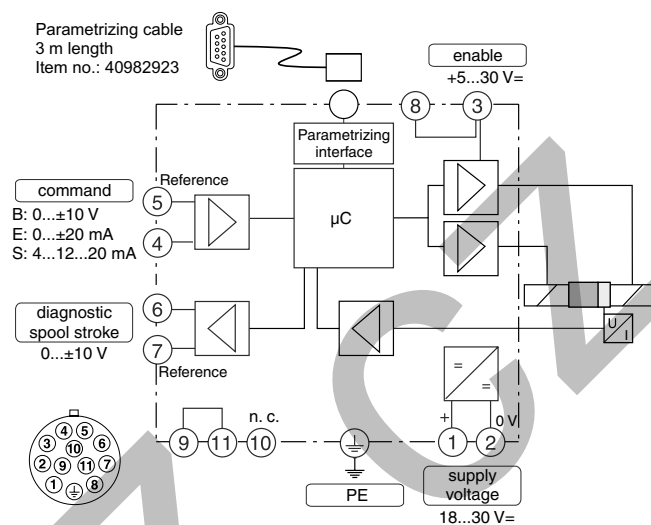
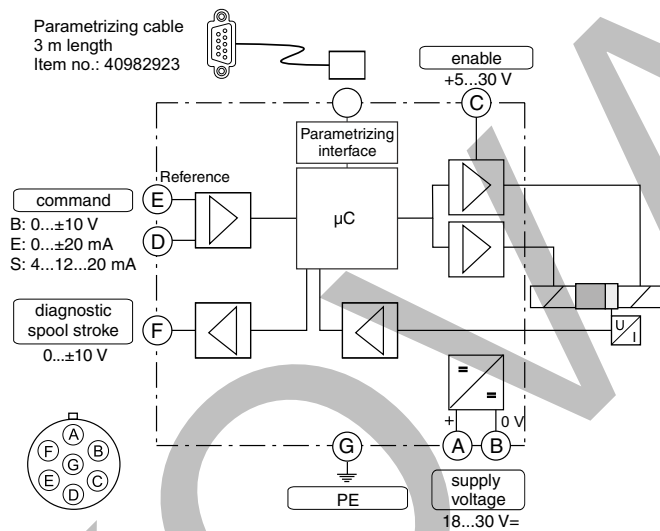
At asymmetric flow a reduced flow limit has to be considered.

**Spool type E01C****Spool type E01F****Spool type E01H****Spool type E01K****Frequency**

$\pm 5$  %,  $\pm 25$  %,  $\pm 90$  % input signal

**Step response**

All characteristic curves measured with HLP46 at 50 °C.

**Code 0, 3****6 + PE acc. to EN 175201-804****Code 5****11 + PE acc. to EN 175201-804****Code 1, 7****6 + PE acc. to EN 175201-804 + enable**

### ProPxD interface program

The ProPxD software permits comfortable parameter setting for the module electronics. Via the clearly arranged entry mask the parameters can be noticed and modified. Storage of complete parameter sets is possible as well as printout or record as a text file for further documentation. Stored parameter sets may be loaded anytime and transmitted to other valves. Inside the electronics a non-volatile memory stores the data with the option for recalling or modification.

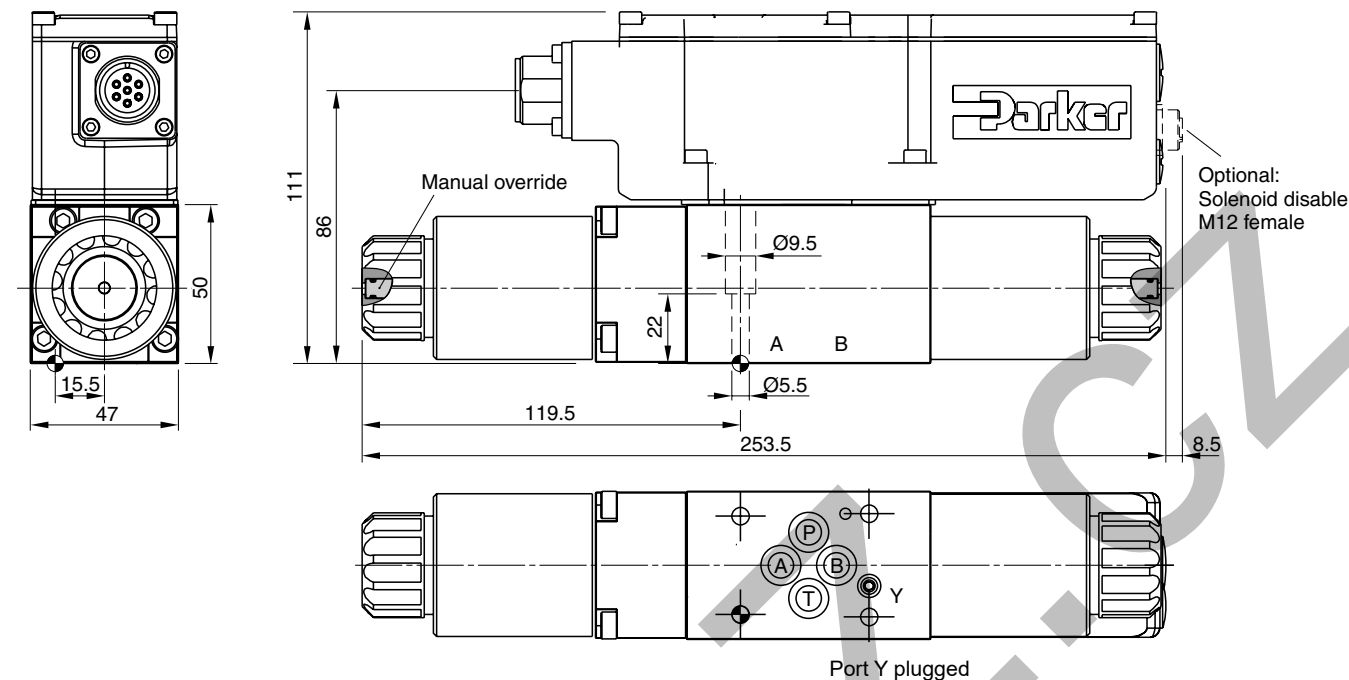
The PC software can be downloaded free of charge at [www.parker.com/propxd](http://www.parker.com/propxd).





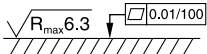
### Features

- Comfortable editing of all parameters
- Depiction and documentation of parameter sets
- Storage and loading of optimized parameter adjustments
- Executable with all actual Windows® operating systems from Windows® XP upwards
- Plain communication between PC and electronics via serial interface RS232C

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

No.	Value	Description
P1	0.0	zero adjustment [%]
P3	100.0	MAX A-channel [%]
P4	100.0	MAX B-channel [%]
P7	0.0	MIN A-channel [%]
P8	0.0	MIN B-channel [%]
S5	0	ramp up A-channel [ms]
S6	0	ramp down A-channel [ms]
S7	0	ramp up B-channel [ms]
S8	0	ramp down B-channel [ms]



Surface finish	 Kit	 Kit	 Kit	 Kit
	BK375	4x M5x30 ISO 4762-12.9	7.6 Nm ±15 %	NBR: SK-D1FC FPM: SK-D1FC-V