

The new direct operated proportional DC valve series D3FC (NG10) with digital onboard electronics and position feedback provides high dynamics combined with high flow.

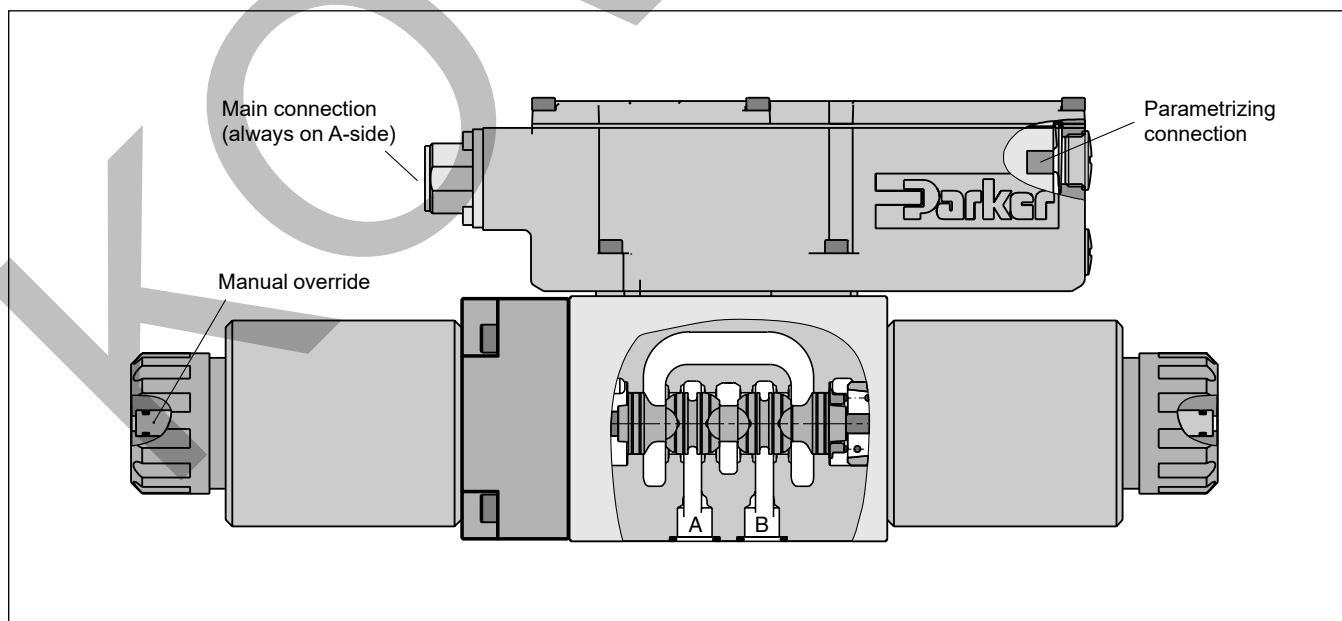
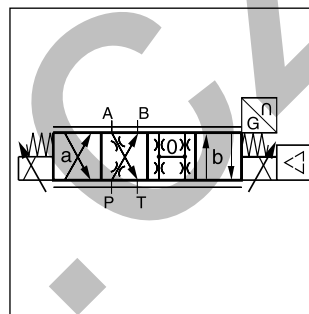
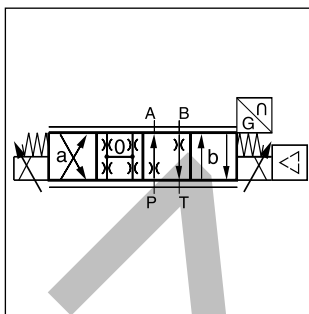
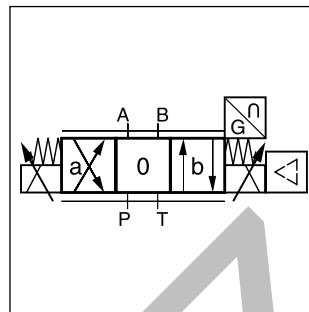
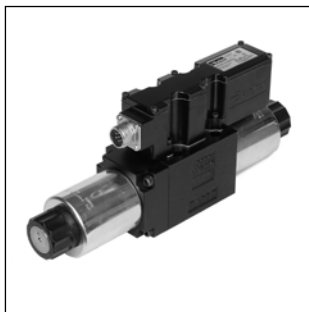
The D3FC is available with overlap spools for open loop applications as well as zero lap spools for closed loop control.

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



## Ordering Code

Direct Operated Proportional DC Valve  
Series D3FC

<b>D</b>	<b>3</b>	<b>F</b>	<b>C</b>			<b>9</b>				<b>3</b>	
Direct operated DC Valve	Size DIN NG10 CETOP 05 NFPA D05	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 $\Delta p$ 5 bar per metering edge
Zerolap		
E50M		35
E50S		55
E50U		75
B60M	$Q_B = Q_A/2$	17 / 35
B60S		27 / 55
B60U		37 / 75
Overlap		
E01M		35
E01S		55
E01U		75
E02M		35
E02S		55
E02U		75
B31M	$Q_B = Q_A/2$	17 / 35
B31S		27 / 55
B31U		37 / 75
B32M	$Q_B = Q_A/2$	17 / 35
B32S		27 / 55
B32U		37 / 75

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		NG10 / CETOP 05 / NFPA D05	
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]	7.7
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		35 / 55 / 75	
at Δp=5 bar per control edge <sup>2)</sup>		[l/min]	
Leakage at 100 bar		[ml/min]	<1000 (zerolap spool); <100 (overlap spool)
Opening point		-	set to 10 % command signal (see flow characteristics)
Static / Dynamic			
Step response at 100 % step		[ms]	40
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]	3.5
Pre fusing medium lag		[A]	4.0
Command Code B voltage		[V]	+10...0...-10, ripple < 0.01% eff., surge free, 0...+10 V P->A
Code S 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)
Code E impedance		[Ohm]	< 250
Code E current		[mA]	+20...0...-20, ripple < 0.01 % eff., surge free, 0...+20 mA P->A
Code E 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 0V (terminal B)
Code 5			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.		[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

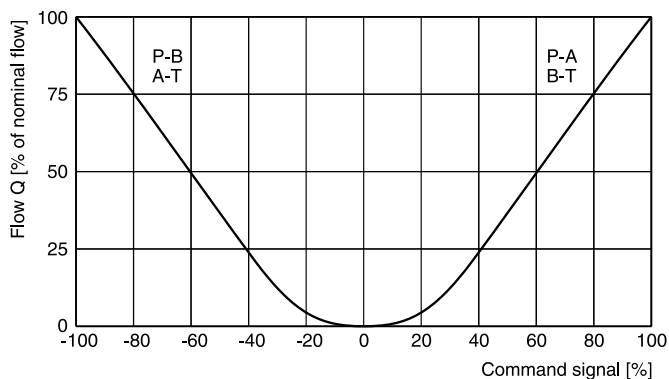
<sup>1)</sup> If valves with onboard electronics are used in safety-related parts of control systems, in case the safety function is requested, the valve electronics voltage supply is to be switched off by a suitable switching element with sufficient reliability.

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

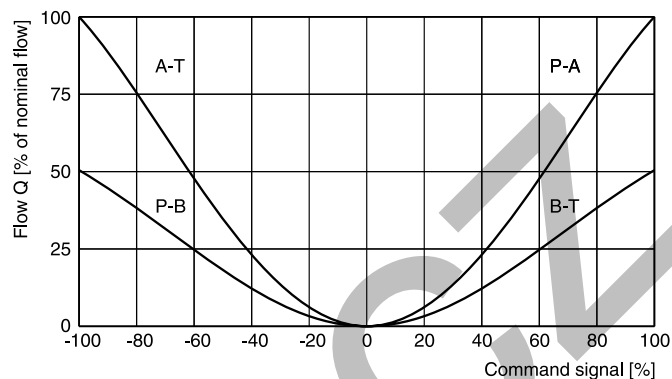
**Flow characteristics**

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

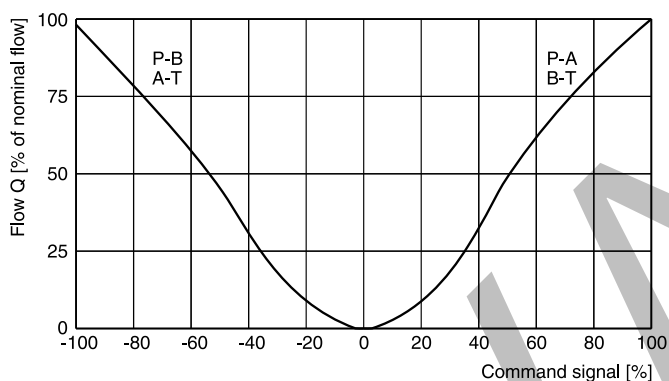
**Spool type E01**



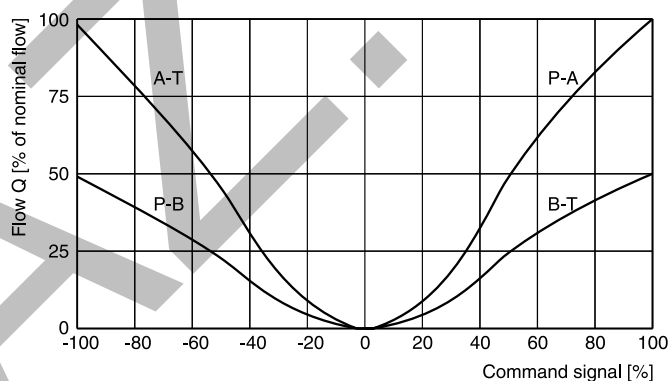
**Spool type B31**



**Spool type E50**



**Spool type B60**



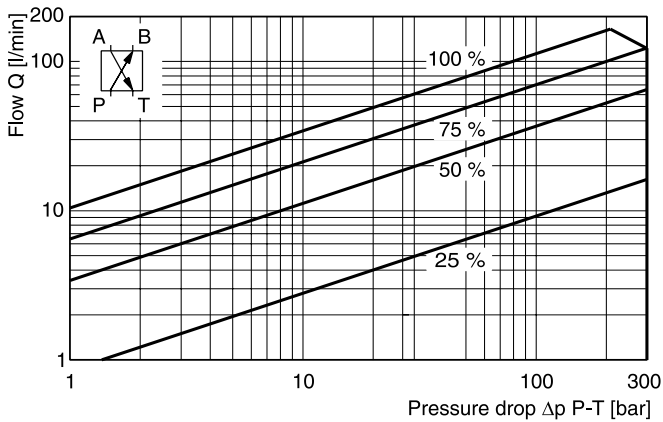
All characteristic curves measured with HLP46 at 50 °C.

D3FC UK.indd 27.07.22

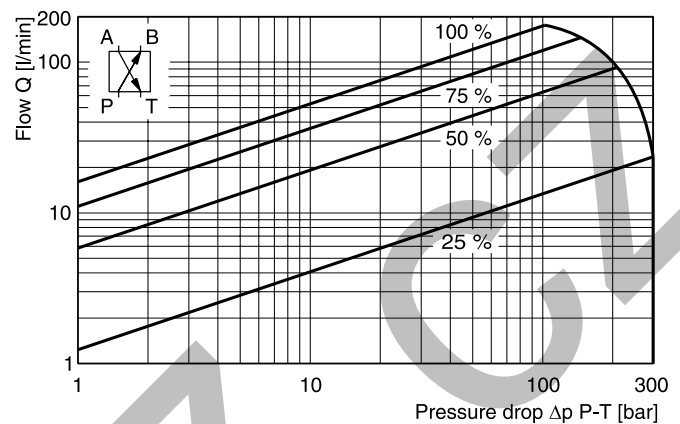
### Functional limits

25 %, 50 %, 75 % and 100 % command signal (symmetric flow).  
 At asymmetric flow a reduced flow limit has to be considered.

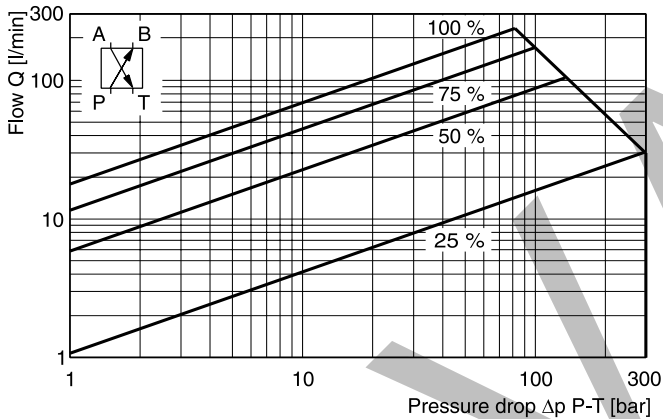
### Spool type E01M



### Spool type E01S

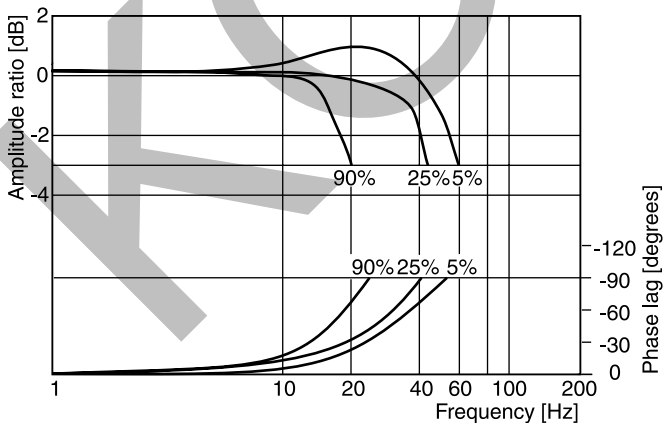


### Spool type E01U

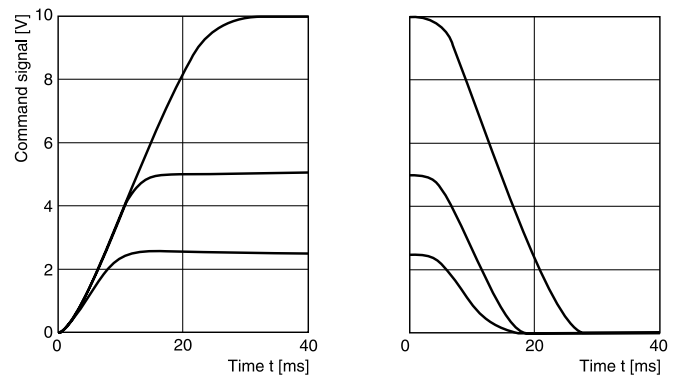


### Frequency

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

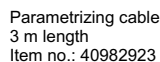


### Step response

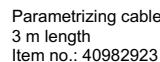


All characteristic curves measured with HLP46 at 50 °C.

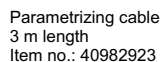
## 6 + PE acc. to EN 175201-804



## 11 + PE acc. to EN 175201-804



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.

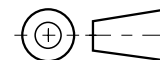
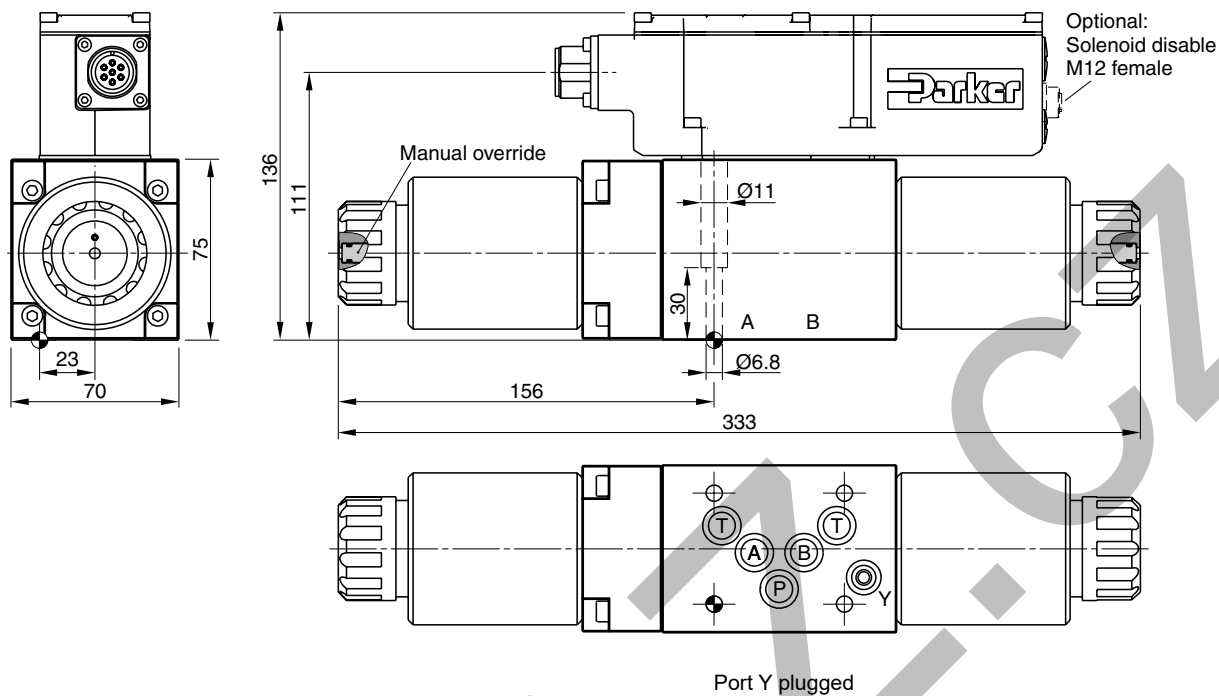
The PC software can be downloaded free of charge at [www.parker.com/propxd](http://www.parker.com/propxd).





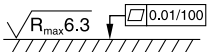
### Features

- 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 NBR
 $\sqrt{R_{max} 6.3}$ $\downarrow$ $\square 0.01/100$	BK385	4x M6x40 ISO 4762-12.9	13.2 Nm $\pm 15 \%$	NBR: SK-D3FC FPM: SK-D3FC-V