The proportional directional valves D1FB (NG06) are available with and without onboard electronics (OBE).

D1FB OBE:

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 cable connection to a serial RS232 interface is available as accessory.

D1FB for external electronics:

The parameters can be saved, changed and duplicated in combination with the digital power amplifier PWD00A-400.

The valve parameters can be edited with the common ProPxD software for both versions.

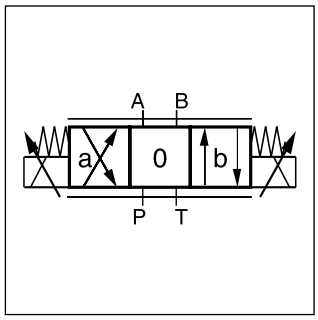
The D1FB valves can be ordered with spool/sleeve design (D1FB*0) for maximum precision as well as spool/body design (D1FB*3) for high nominal flow - see functional limit curves for maximum flow capability.

Technical Features

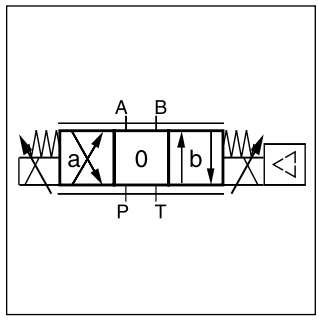
- Spool/sleeve and spool/body
- 3 command options for D1FB OBE: +/- 10V, 4…20mA, +/- 20mA
- High repeatability from valve to valve
- Low hysteresis
- Manual override
- Digital onboard electronics
- Zero lap spools for the usage of simple closed loop systems

D1FB

D1FB OBE



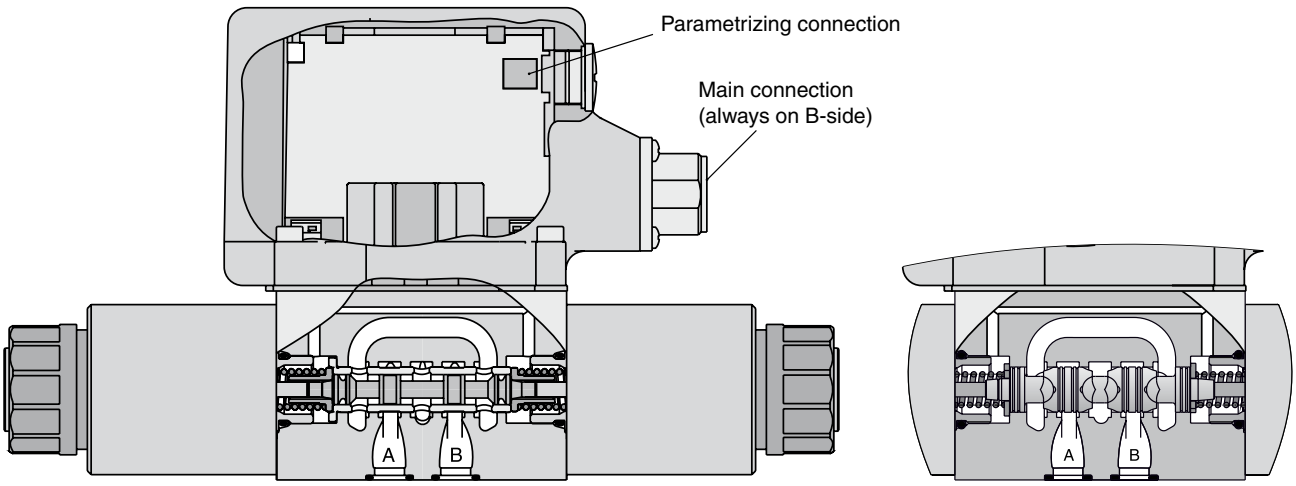
D1FB



D1FB OBE

D1FB*0 OBE
Spool/sleeve design

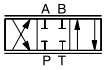
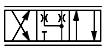
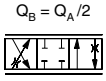
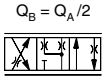
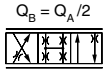
D1FB*3 OBE
Spool/body design

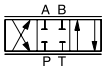


D1FB

D	1	F	B			0	N				
Directional control valve	**Size DIN NG06 CETOP 03 NFPA D03**	**Proportional control**	**Standard dynamics standard repeatability**	**Spool type**	**Spool position**		**Seals NBR** (other seal compounds on request)	**Solenoid**	**Connector**	**Design**	**Design series** (not required for ordering)

3

D1FB*0: Spool/sleeve design		
Overlap		
Code	Spool type	Flow [l/min] at Δp 5bar per metering edge
E01H E01F E01C		**20 12 6**
E02H E02F E02C		**20 12 6**
E03H E03F E03C		**20 12 6**
B31H B31F	$Q_B = Q_A/2$ 	**20 / 10 12 / 6**
B32H B32F	$Q_B = Q_A/2$ 	**20 / 10 12 / 6**
Zero lap [1]		
Code	Spool type	Flow [l/min] at Δp 35bar per metering edge
E50H E50F E50C		**20 12 6**
B60H B60F	$Q_B = Q_A/2$ 	**20 / 10 12 / 6**

D1FB*3: Spool/body design		
Overlap		
Code	Spool type	Flow [l/min] at Δp 5bar per metering edge
E01K E01H E01F		**30 20 10**
E02K E02H E02F		**30 20 10**

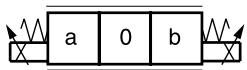
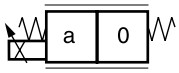
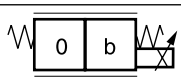
[1] only for spool position code C
No defined spool positioning at power down

Code	Design
0	Spool/sleeve design
3	Spool/body design

Code	Connector
W*	**Connector as per EN 175301-803**
J*	Connector DT04-2P "Deutsch"

D1FB*0: Spool/sleeve design	
Code	Solenoid
M	9V/2.7A
J	24V/0.8A

D1FB*3: Spool/body design	
Code	Solenoid
K	**12V / 2.2A**
J	**24V / 1.1A**

Code	Spool position
C	
E	
K	

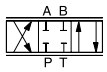
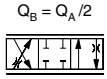
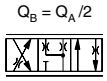
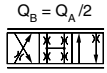
* Please order connector separately.
See chapter 3 accessories.

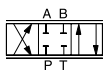
Bold letters =
Short-term availability

D1FB OBE (with onboard electronics)

D	1	F	B			0	N				
Directional control valve	**Size DIN NG06 CETOP 03 NFPA D03**	**Proportional control**	**Standard dynamics standard repeatability**	**Spool type**	**Spool position**		**Seals NBR** (other seal compounds on request)	**Input signal**	**Options**	**Design**	**Design series** (not required for ordering)

Code	Design
0	Spool/sleeve design
3	Spool/body design

D1FB*0: Spool/sleeve design		
Overlap		
Code	Spool type	Flow [l/min] at Δp 5bar per metering edge
E01H **E01F** **E01C**		**20** **12** **6**
E02H **E02F** **E02C**		**20** **12** **6**
E03H **E03F** **E03C**		**20** **12** **6**
B31H **B31F**	$Q_B = Q_A/2$ 	**20 / 10** **12 / 6**
B32H **B32F**	$Q_B = Q_A/2$ 	**20 / 10** **12 / 6**
Zero lap [1]		
Code	Spool type	Flow [l/min] at Δp 35bar per metering edge
E50H **E50F** **E50C**		**20** **12** **6**
B60H **B60F**	$Q_B = Q_A/2$ 	**20 / 10** **12 / 6**

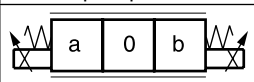
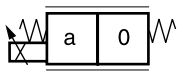
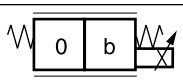
D1FB*3: Spool/body design		
Overlap		
Code	Spool type	Flow [l/min] at Δp 5bar per metering edge
E01K **E01H** **E01F**		**30** **20** **10**
E02K **E02H** **E02F**		**30** **20** **10**

[1] only for spool position code C
No defined spool positioning at power down

Code	Input signal [1]	Function	Port	Options
F0	0...+/-10V	0...+10V > P-A	6 + PE	Potentiometer supply
G0	0...+/-20mA	0...+20mA > P-A	6 + PE	—
S0	4...20mA	12...20mA > P-A	6 + PE	—
W5 [2]	0...+/-10V 4...20mA	0...+10V > P-A 12...20mA > P-A	11 + PE	Potentiometer supply & command preset channel

[1] single solenoid always 0...+10V respectively 4...20 mA

[2] Factory set ± 10V on delivery

Code	Spool position
C	
E	
K	

Please order connector separately.
See chapter 3 accessories.

Parametrizing cable OBE → RS232
Item no. 40982923

Bold letters =
Short-term availability

D1FB UK.INDD RH 06.09.2011

3

General				
Design		Direct operated proportional DC valve		
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		
$MTTF_D$ value (OBE)	[years]	150 (75)		
Weight (OBE)	[kg]	2.2 (2.9)		
Vibration resistance	[g]	10 Sinus 5...2000 Hz acc. IEC 68-2-6 30 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 210		
Max. pressure drop PABT / PBAT	[bar]	350		
Fluid		Hydraulic oil as per DIN 51524...535, other on request		
Fluid temperature	[°C]	-20...+60		
Viscosity permitted recommended	[cSt] / [mm^2/s] [cSt] / [mm^2/s]	20...380 30...80		
Filtration		ISO 4406 (1999) 18/16/13 (meet NAS 1638: 7)		
Nominal flow at Δp=5bar per control edge *	[l/min]	**D1FB*0 (Spool/sleeve)** 6 / 12 / 20	**D1FB*3 (Spool/body)** 10 / 20 / 30	
Leakage at 100 bar	[ml/min]	<50 (overlapped spool); <400 (zerolapped spool)	<60	
Overlap	[%]	25, electrically normalized at 10 (see flow characteristics)		
Static / Dynamic				
Step response at 100% step	[ms]	30	30	
Hysteresis	[%]	<4	<6	
Temperature drift solenoid current	[%/K]	<0.02		
Electrical characteristics				
Duty ratio	[%]	100		
Protection class		Standard (as per EN175301-803) IP65 in accordance with EN60529 (with correctly mounted plug-in connector) DT04-2P "Deutsch" IP69K (with correctly mounted plug-in connector)		
Solenoid		**Code "M"**	**Code "K"**	**Code "J" (Spool/sleeve)**
Supply voltage	[V]	9	12	24
Current consumption	[A]	2.7	2.2	1.1 (0.8)
Resistance	[Ohm]	2.7	4.4	18.6
Coil insulation class		F (155 °C)		
Solenoid connection		Connector as per EN 175301-803 (code W), DT04-2P "Deutsch" connector (code J). Solenoid identification as per ISO 9461.		
Wiring min.	[mm^2]	3x1.5 (AWG 16) overall braid shield (Code W), "Deutsch" connector DP4 2-Pin (Code J)		
Wiring lenght max.	[m]	50		

* Flow rate for different Δp per control edge:

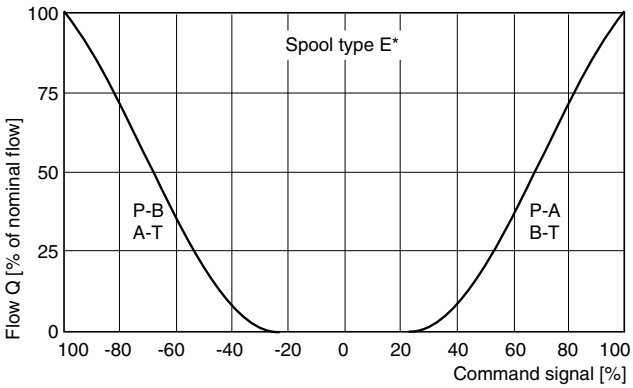
$$Q_x = Q_{Nom.} \cdot \sqrt{\frac{\Delta p_x}{\Delta p_{Nom.}}}$$

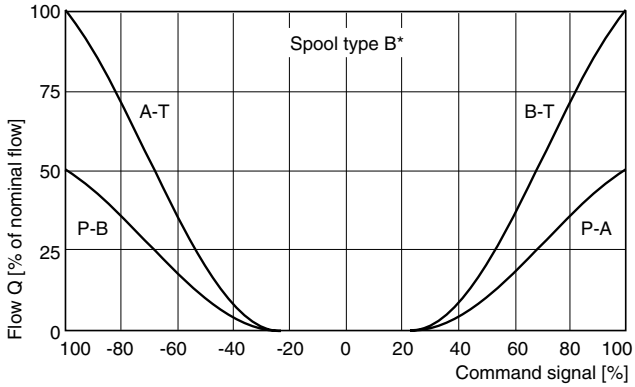
Electrical characteristics OBE		
Duty ratio	[%]	100
Protection class		IP65 in accordance with EN 60529 (with correctly mounted plug-in connector)
Supply voltage/ripple DC	[V]	18...30, ripple < 5% eff., surge free
Current consumption max.	[A]	2.0
Pre fusing medium lag	[A]	2.5
Input signal Codes F0 & W5 voltage	[V]	+10...0...-10, ripple < 0.01 % eff., surge free, Ri = 100kOhm, 0...+10V ⇒ P -> A
Codes S0 & W5 current	[mA]	4...12...20, ripple < 0.01 % eff., surge free, Ri = 200Ohm, 12...20mA ⇒ P -> A < 3.6 mA = enable off, > 3.8 mA = enable on (acc. to NAMUR NE43)
Code G0	[mA]	+20...0...-20, ripple < 0.01 % eff., surge free, Ri = 200Ohm, 0...+20mA ⇒ P -> A
Differential input max. Codes F0, G0 & S0	[V]	30 for terminal D and E against PE (terminal G) 11 for terminal D and E against 0V (terminal B)
Code W5	[V]	30 for terminal 4 and 5 against PE (terminal PE) 11 for terminal 4 and 5 against 0V (terminal 2)
Channel recall signal	[V]	0...2.5: off / 5...30: on / Ri = 100 kOhm
Adjustment ranges Min	[%]	0...50
Max	[%]	50...100
Ramp	[s]	0...32.5
Interface		RS 232, parametrizing connection 5pole
EMC		EN 61000-6-2, EN 61000-6-4
Central connection Codes F0, G0 & S0 Code W5		 6 + PE acc. to EN 175201-804 11 + PE acc. to EN 175201-804
Wiring min. Codes F0, G0 & S0 Code W5	 [mm²] [mm²]	 7 x 1.0 (AWG16) overall braid shield 11 x 1.0 (AWG16) overall braid shield
Wiring length max.		50

3

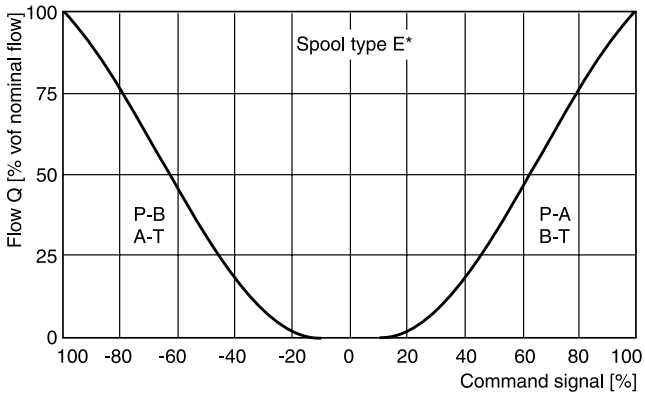
3

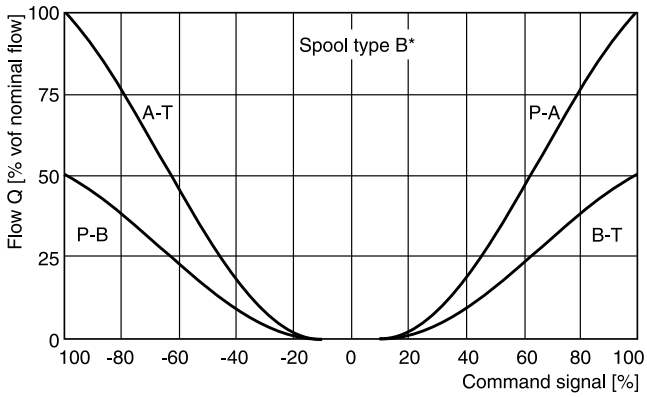
Flow characteristics
D1FB*0
at Δp = 5 bar per metering edge
Spool type E01/02/03, B31/32





D1FB*0 OBE
(electrically set to opening point 10%)
at Δp = 5 bar per metering edge
Spool type E01/02/03, B31/32



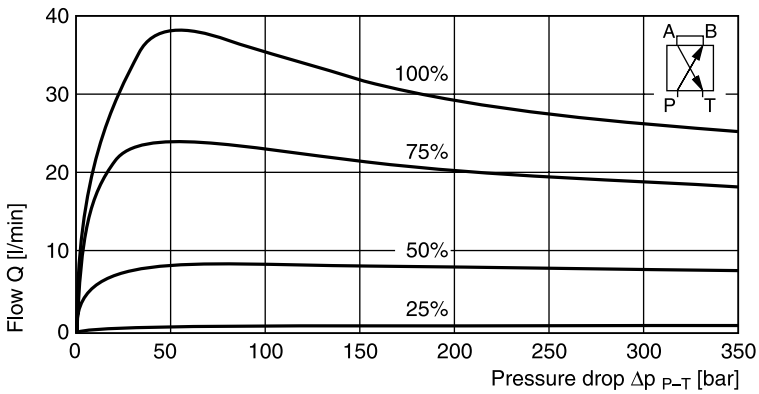


All characteristic curves measured with HLP46 at 50°C.

Functional limits
at 25%, 50%, 75% and 100% command signal (symmetric flow)

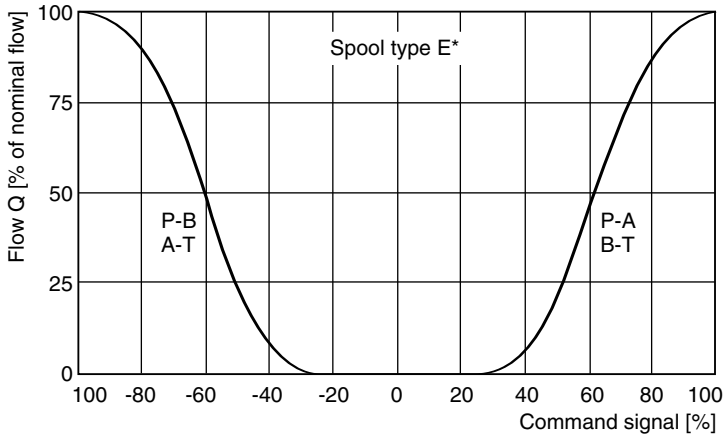
At asymmetric flow a reduced flow limit has to be considered – typically approx. 10% lower.

Spool type E01H

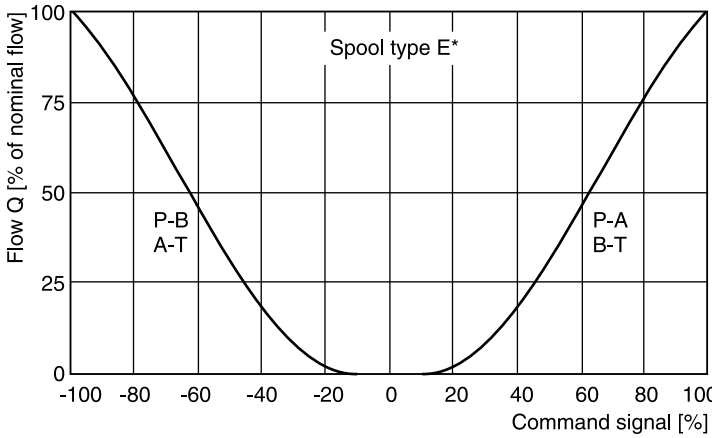


All characteristic curves measured with HLP46 at 50°C.

Flow characteristics
D1FB*3
at Δp = 5 bar per metering edge
Spool type E01/02



D1FB*3 OBE
(Electrically set to opening point 10%)
at Δp = 5 bar per metering edge
Spool type E01/02

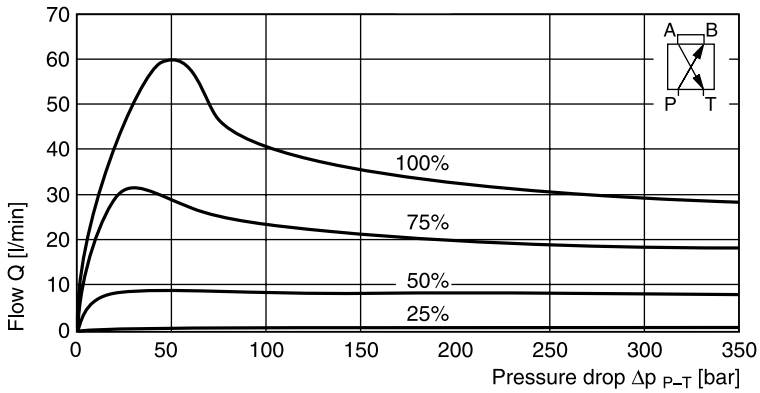


All characteristic curves measured with HLP46 at 50°C.

Functional limits
at 25%, 50%, 75% and 100% command signal (symmetric flow)

At asymmetric flow a reduced flow limit has to be considered – typically approx. 10% lower.

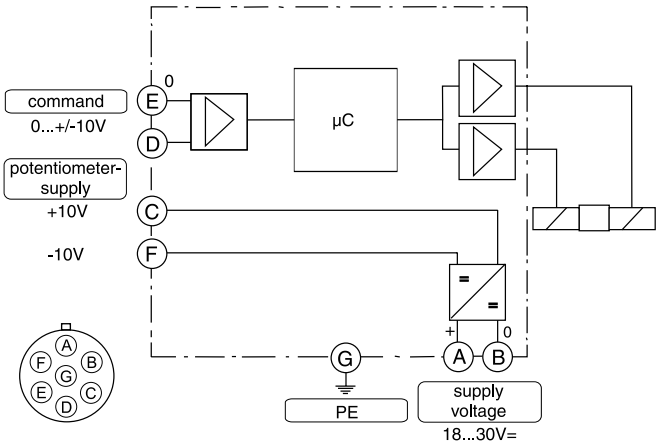
Spool type E01K



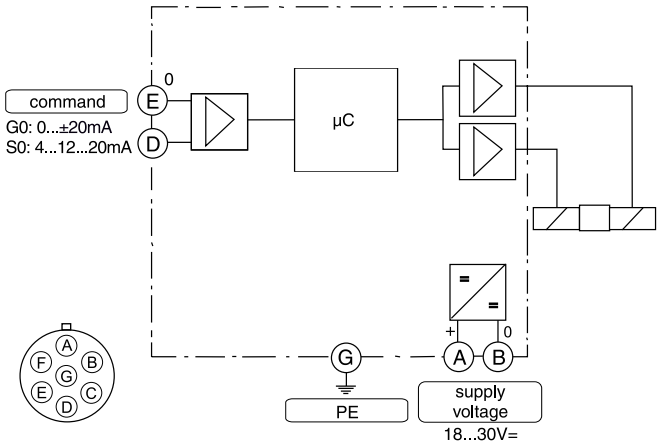
All characteristic curves measured with HLP46 at 50°C.

3

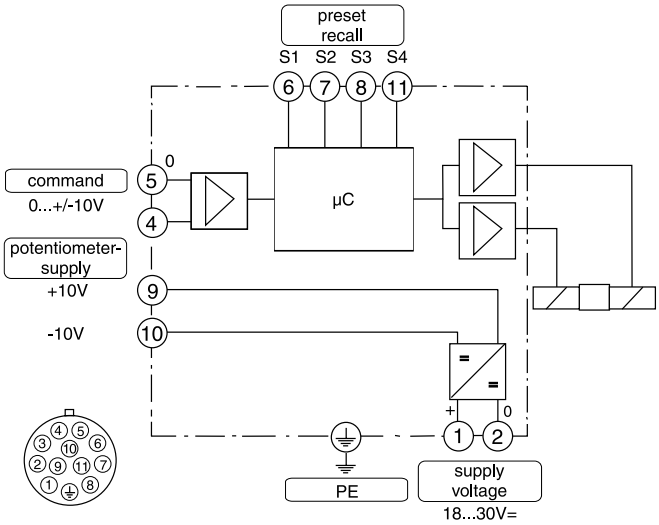
Code F0
6 + PE acc. to EN 175201-804



Code G0, S0
6 + PE acc. to EN 175201-804



Code W5
11 + PE acc. to EN 175201-804



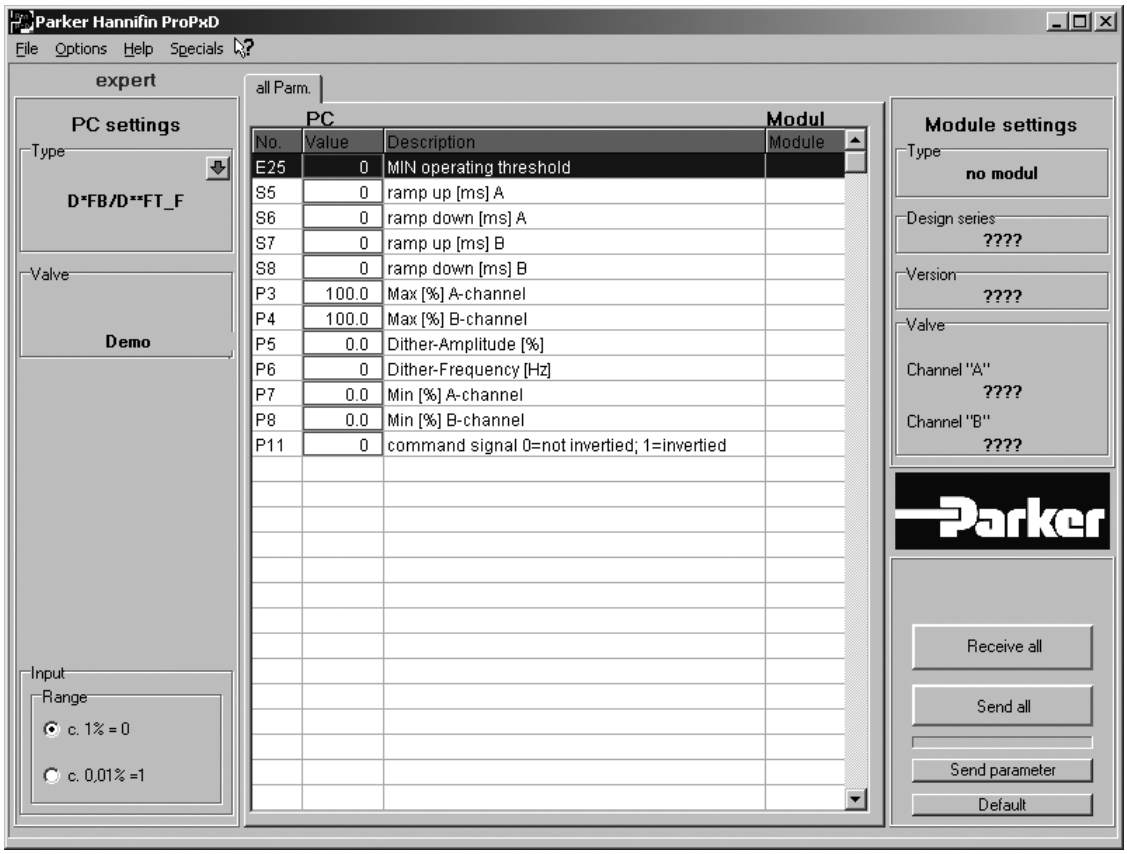
D1FB OBE

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.

Features

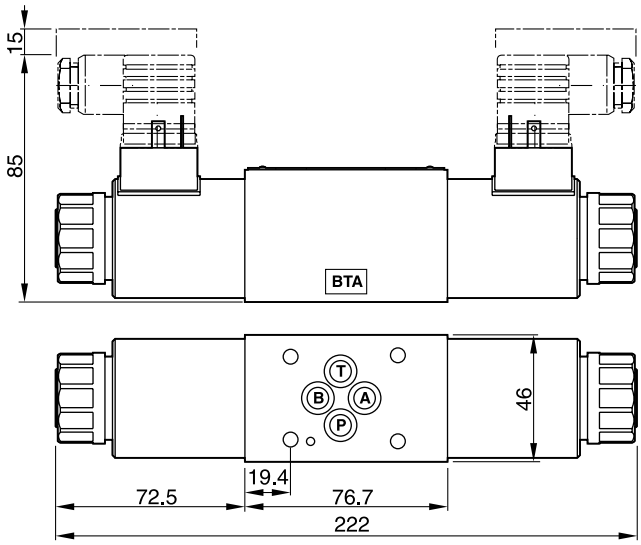
- Comfortable editing of all parameters
- Depiction and documentation of parameter sets
- Storage and loading of optimized parameter adjustments
- Executable with all actual Windows ® operating systems from Windows ® 95 upwards
- Plain communication between PC and electronics via serial interface RS-232.
- Comfortable PC user software, free of change: www.parker.com/euro_hcd
  – see "Support"



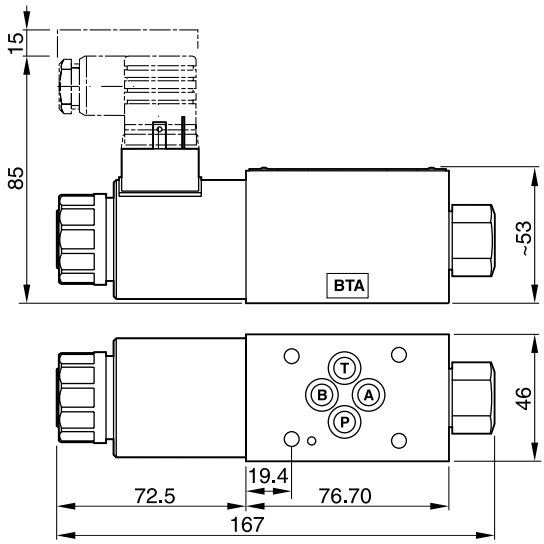
The parametrizing cable may be ordered under item no. 40982923.

3

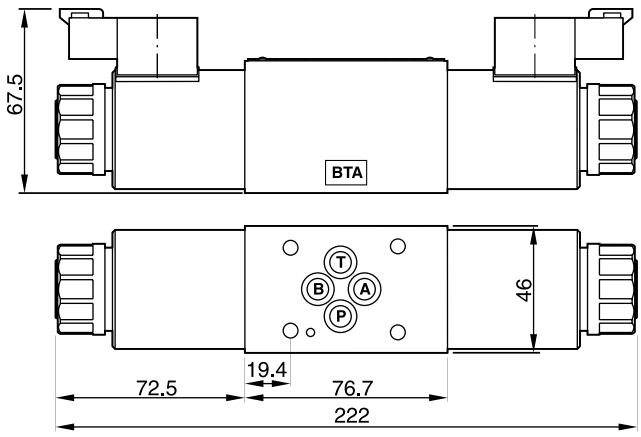
D1FB*C

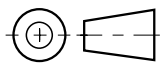


D1FB*K



D1FB*C with DT04-2P "Deutsch" connector
(only C style shown)

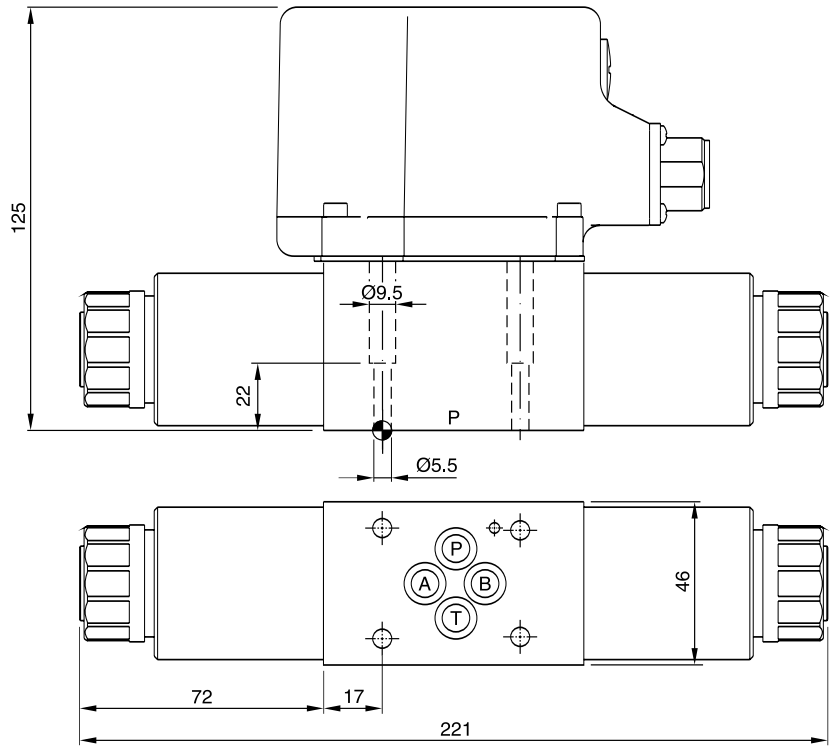




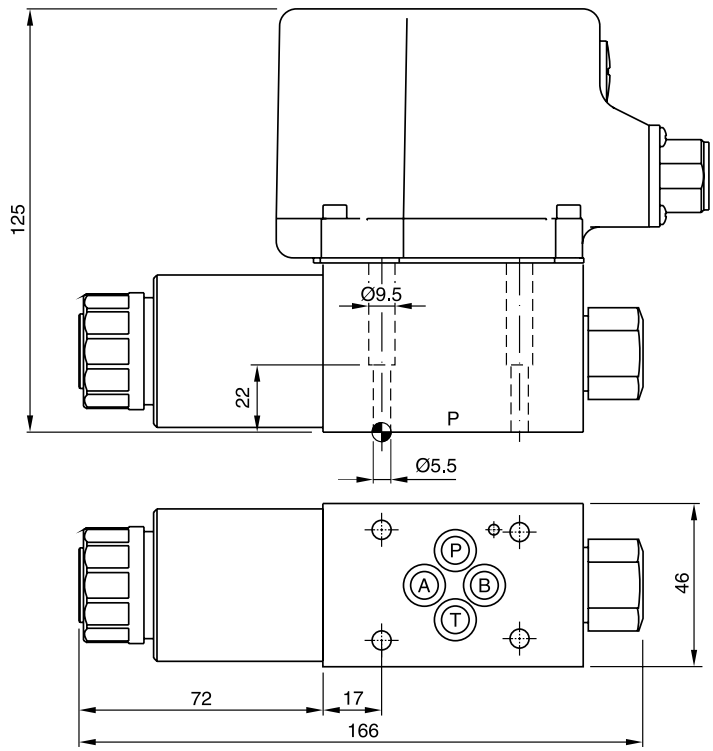
Surface finish	Kit			Kit NBR
R_{max}6.3 ⏥ 0.01/100	BK375	4x M5x30 DIN 912 12.9	7.6 Nm ±15%	SK-D1FB-N

D1FB UK.INDD RH 06.09.2011

D1FB*C OBE



D1FB*E OBE



Surface finish	Kit			Kit NBR
R_{max}6.3 ⏥ 0.01/100	BK375	4x M5x30 DIN 912 12.9	7.6 Nm ±15%	SK-D1FB-N

D1FB UK.INDD RH 06.09.2011

Notes