A

General Description

Series D3FB (NG10) proportional directional valves are available with and without onboard electronics (OBE).

D3FB 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.

D3FB for external electronics:

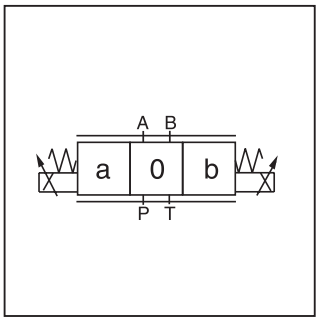
The parameters can be saved, changed and duplicated in combination with the digital power amplifier PWD00A-400.

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

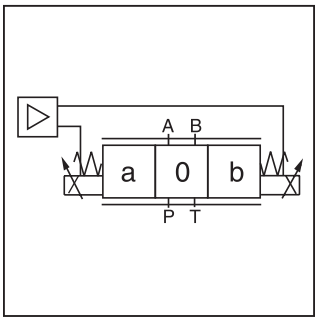
Series D3FB valves can be ordered with spool/sleeve design (D3FB*0) for maximum precision, as well as spool/body design (D3FB*3) for high nominal flow - see functional limit curves for maximum flow capability.

D3FB

D3FB OBE



D3FB



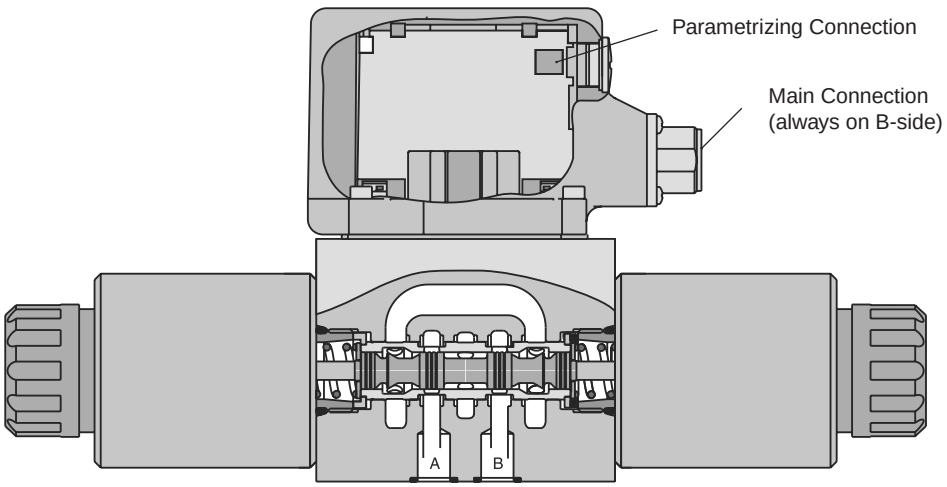
D3FB OBE

CE

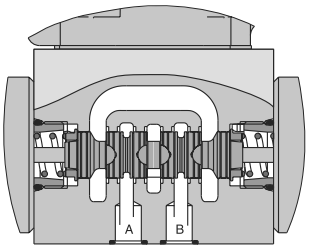
Features

- Spool/sleeve and spool/body.
- 3 command options for D3FB OBE: +/- 10V, 4…20mA, +/- 20mA
- High repeatability from valve to valve.
- Low hysteresis.
- Manual override.
- Digital onboard electronics.

D3FB*0 OBE
Spool/Sleeve Design



D3FB*3 OBE
Spool/Body Design



D	3	F	B			0			W		
Directional Control Valves	Size	Flow Control	Standard Dynamics Standard Repeatability	Spool	Style		Seal	Solenoid Voltage	Solenoid Accessories	Design	Design Series

NOTE: Not required when ordering.

Code	Description
3	DIN NG10 CETOP 5 NFPA D05

D3FB*0: Spool/Sleeve Design	
Code	**Solenoid**
K	12V / 2.95A

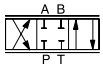
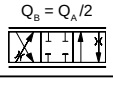
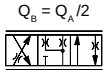
D3FB*3: Spool/Body Design	
Code	**Solenoid**
K	12V / 2.95A
J	24V / 1.5A

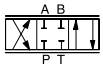
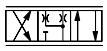
Code	Description
0	Spool/sleeve design
3	Spool/body design

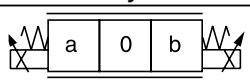
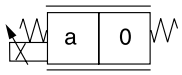
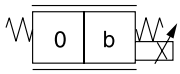
Code	Description
N	Nitrile
V	Fluorocarbon

Code	Description
W*	Connector as per DIN 43650 without plug

* Please order plugs separately. See Accessories.

D3FB*0: Spool/Sleeve Design		
Code	**Spool**	**Flow LPM (GPM) at Δp 5 Bar (72.5 PSI) per metering edge**
E01M E01S		40 (10.6) 60 (15.9)
E02M E02S		40 (10.6) 60 (15.9)
B31M B31S		40 / 20 (10.6 / 5.3) 60 / 30 (15.9 / 7.9)
B32M B32S		40 / 20 (10.6 / 5.3) 60 / 30 (15.9 / 7.9)

D3FB*3: Spool/Body Design		
Code	**Spool**	**Flow LPM (GPM) at Δp 5 Bar (72.5 PSI) per metering edge**
E01M E01S E01U		40 (10.6) 60 (15.9) 80 (21.2)
E02M E02S E02U		40 (10.6) 60 (15.9) 80 (21.2)

Code	Style
C	
E	
K	

Bolt Kit:

BK98	(4) 1/4-24x1.625 SHCS
BK385	(4) M6x40

Weight:

D3FB	6.5 kg (14.3 lbs.)

D	3	F	B	☐	☐	0	☐	☐	☐	☐	⌜⌝ ⌞⌟
Directional Control Valves	Size	Flow Control	Standard Dynamics Standard Repeatability	Spool	Style		Seal	Input Signal	Options	Design	Design Series

NOTE: Not required when ordering.

Code	Description
3	DIN NG10 CETOP 5 NFPA D05

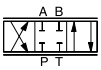
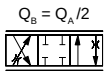
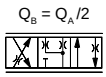
Code	Description
0	Spool/sleeve design
3	Spool/body design

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

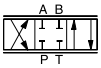
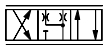
[1] Single solenoid always 0...+10V respectively 4...20 mA
[2] Factory set ± 10V on delivery

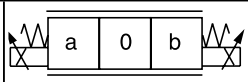
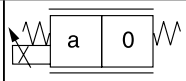
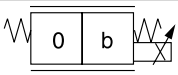
Code	Description
N	Nitrile
V	Fluorocarbon

D3FB*0: Spool/Sleeve Design

Code	Spool	Flow LPM (GPM) at Δp 5 Bar (72.5 PSI) per metering edge
E01M E01S		40 (10.6) 60 (15.9)
E02M E02S		40 (10.6) 60 (15.9)
B31M B31S		40 / 20 (10.6 / 5.3) 60 / 30 (15.9 / 7.9)
B32M B32S		40 / 20 (10.6 / 5.3) 60 / 30 (15.9 / 7.9)

D3FB*3: Spool/Body Design

Code	Spool	Flow LPM (GPM) at Δp 5 Bar (72.5 PSI) per metering edge
E01M E01S E01U		40 (10.6) 60 (15.9) 80 (21.2)
E02M E02S E02U		40 (10.6) 60 (15.9) 80 (21.2)

Code	Style
C	
E	
K	

Bolt Kit:

BK98	(4) 1/4-20x1.625 SHCS
BK385	(4) M6x40

Weight:

D3FB	7.2 kg (15.9 lbs.)

Please order plugs separately. See Accessories.

Parametrizing cable OBE => RS232
Item no. 40982923

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

General			
Design		Direct operated proportional DC valve	
Actuation		Proportional solenoid	
Size		NG10 / CETOP 5 / NFPA D05	
Mounting Interface		DIN 24340 / ISO 4401 / CETOP RP121 / NFPA	
Mounting Position		Unrestricted	
Ambient Temperature	**[°C]**	-20...+60; (-4°F...+140°F)	
$MTTF_D$ Value (OBE)	**[years]**	150 (75)	
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			
Maximum Operating Pressure		Ports P, A, B 350 Bar (5075 PSI); Port T 210 Bar (3045 PSI)	
Maximum Pressure Drop PABT / PBAT		350 Bar (5075 PSI)	
Fluid		Hydraulic oil as per DIN 51524...535, other on request	
Fluid Temperature	**[°C]**	-20...+60; (-4°F...+140°F)	
Viscosity **Permitted** **Recommended**	 **[cSt] / [mm²/s]** **[cSt] / [mm²/s]**	 20...380 (93...1761 SSU) 30...80 (139...371 SSU)	
Filtration		ISO 4406 (1999) 18/16/13 (acc. NAS 1638: 7)	
Nominal Flow at Δp=5 Bar (72.5 PSI) per Control Edge *		**D3FB*0 (Spool/sleeve)**	**D3FB*3 (Spool/body)**
		40 LPM (10.6 GPM) / 60 LPM (15.9 GPM)	40 LPM (10.6 GPM) 60 LPM (15.9 GPM) / 80 LPM (21.2 GPM)
Leakage at 100 Bar (1450 PSI)	**[ml/min]**	<100	<100
Overlap	**[%]**	25, electrically normalized at 10 (see flow characteristics)	
Static / Dynamic			
Step Response at 100% Step	**[ms]**	40	
Hysteresis	**[%]**	<4	<5
Temperature Drift Solenoid Current	**[%/K]**	<0.02	
Electrical			
Duty Ratio	**[%]**	100 ED; CAUTION: Coil temperature up to 155°C (331°F)	
Protection Class		IP65 in accordance with EN60529 (plugged and mounted)	
Solenoid		**Code "K"**	**Code "J"**
Supply Voltage	**[V]**	12	24
Current Consumption	**[A]**	2.95	1.5
Resistance	**[Ohm]**	3.84	16.5
Solenoid Connection		Connector as per EN 175301-803	
Wiring Minimum	**[mm²]**	3x1.5 recommended	
Wiring Length Maximum	**[m]**	50 (164 ft.)	

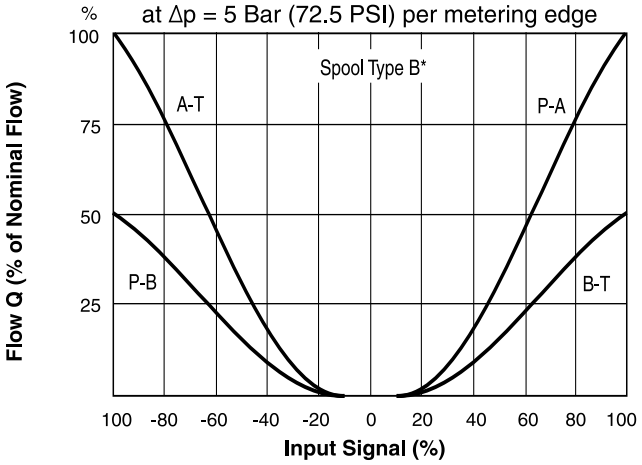
* Flow rate for different Δp per control edge: $Q_x = Q_{Nom.} \cdot \sqrt{\frac{\Delta p_x}{\Delta p_{Nom.}}}$

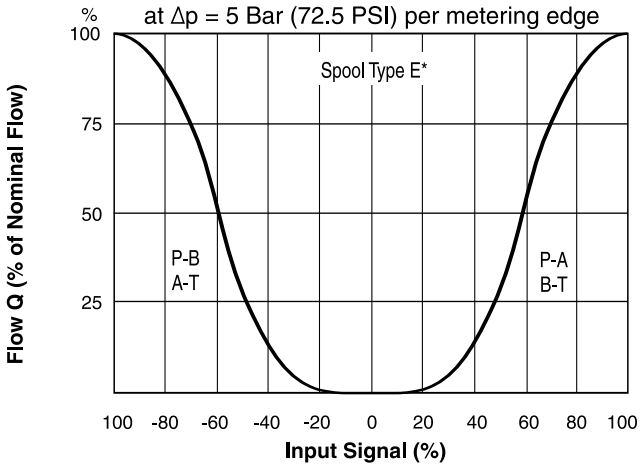
Continued on the next page

Electrical		
Duty Ratio	**[%]**	100
Protection Class		IP65 in accordance with EN 60529 (plugged and mounted)
Supply Voltage/Ripple **DC**	**[V]**	18...30, ripple < 5% eff., surge free
Current Consumption Maximum	**[A]**	3.5
Pre-fusing Medium Lag	**[A]**	4.0
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:		
Minimum	**[%]**	0...50
Maximum	**[%]**	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		6 + PE acc. to EN 175201-804
Code W5		11 + PE acc. to EN 175201-804
Wiring Minimum		
Codes F0, G0 & S0	**[mm²]**	7 x 1.0 (AWG16) overall braid shield
Code W5	**[mm²]**	11 x 1.0 (AWG20) overall braid shield
Wiring Length Maximum	**[m]**	50 (164 ft.)

A

(Electrically set to opening point 10%)



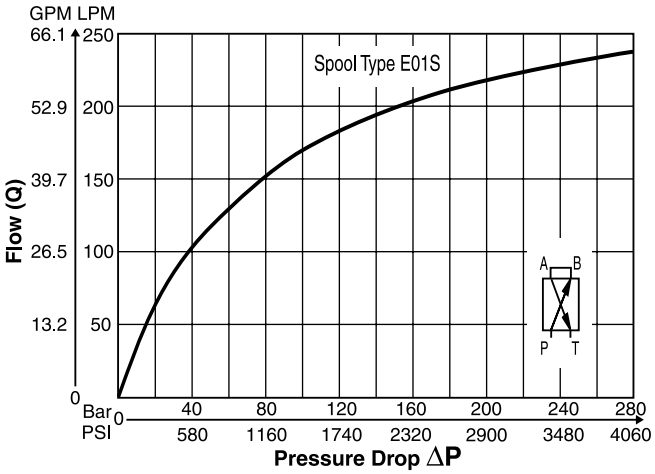


All performance curves measured with HLP46 at 50°C (122°F).

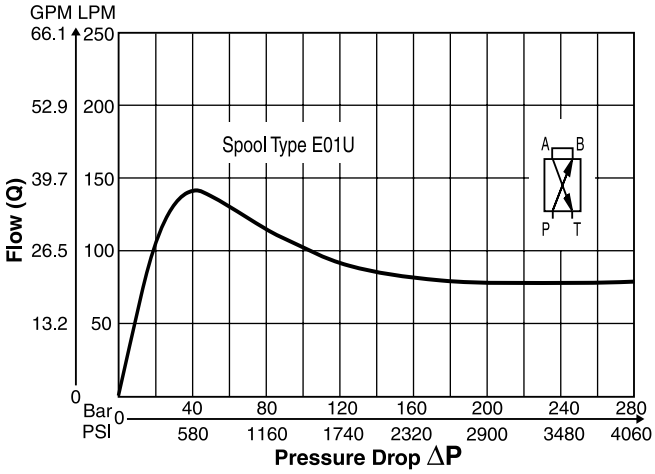
Functional Limits

100% command signal (symmetric flow). At asymmetric flow a reduced flow limit has to be considered – typically approx. 10% lower.

D3FB*0

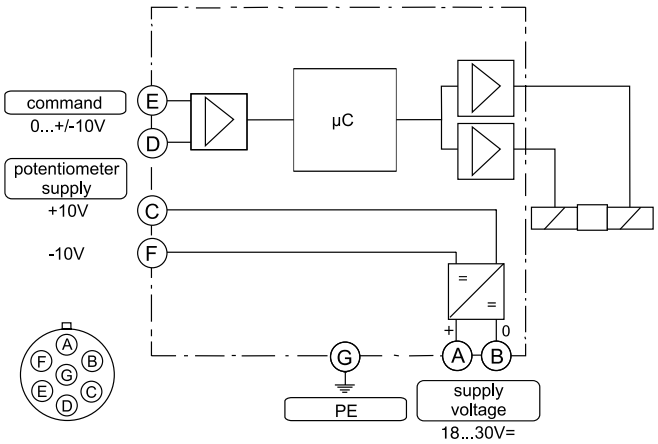


D3FB*3

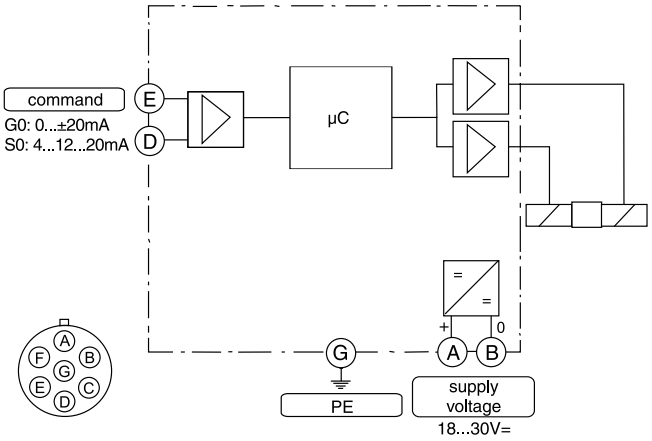


All performance curves measured with HLP46 at 50°C (122°F).

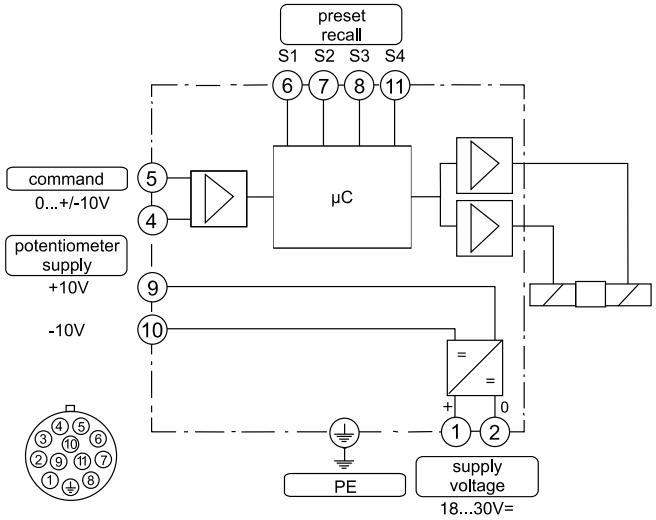
Code F0
6 + PE acc. to EN 175201-804



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



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



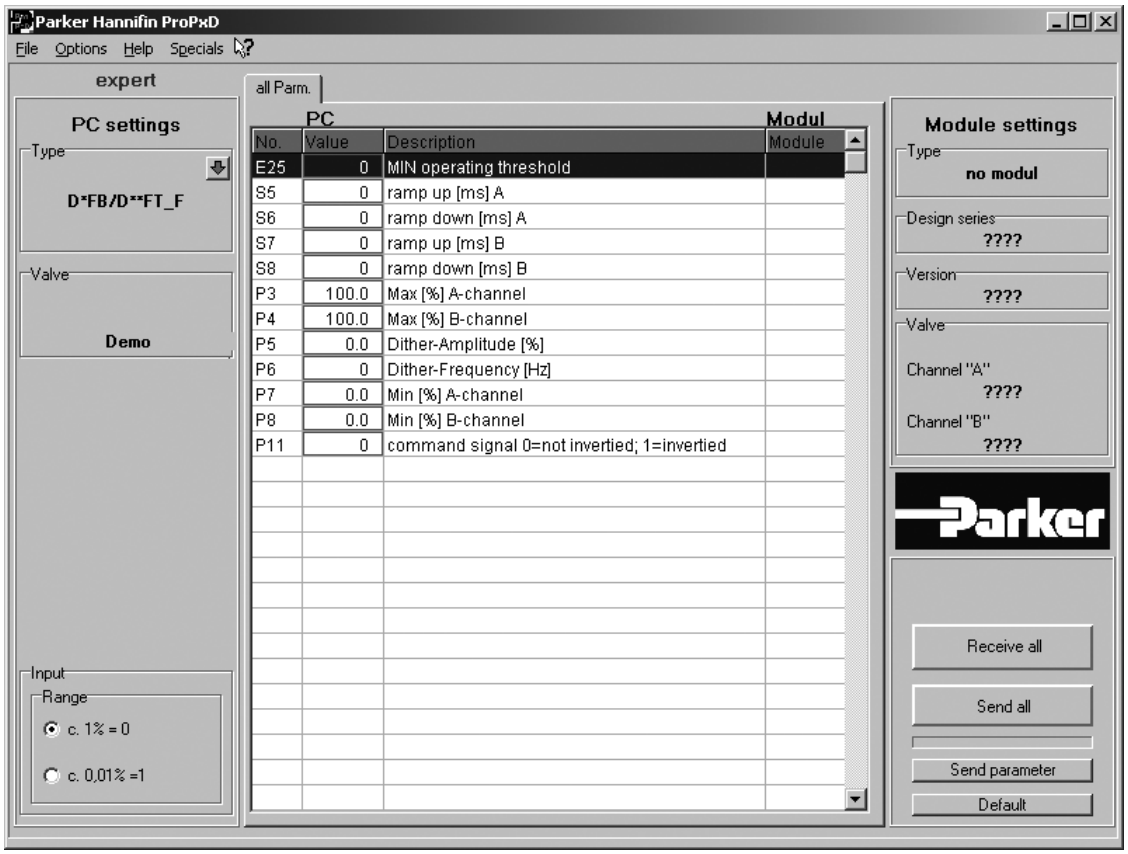
A

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 nonvolatile memory stores the data with the option for recalling or modification.

Features

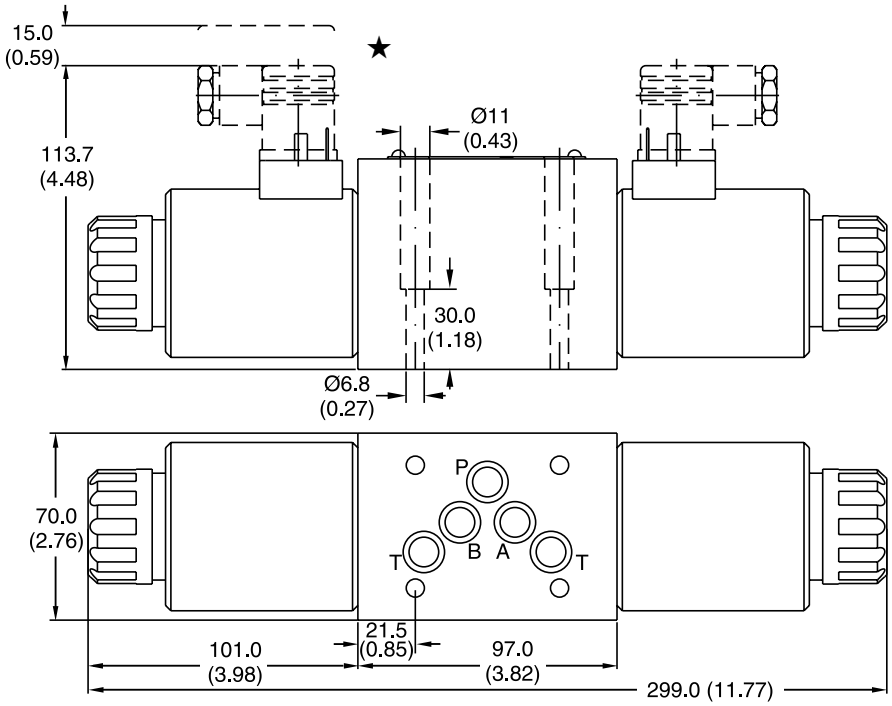
- Simple editing of all parameters.
- Storage and loading of optimized parameter adjustments.
- Executable with all Windows® operating systems from Windows® 95 upwards.
- Communication between PC and electronics via serial interface RS-232.
- Simple to use PC user software, free of charge: www.parker.com/euro_hcd – see "Software Downloads"



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

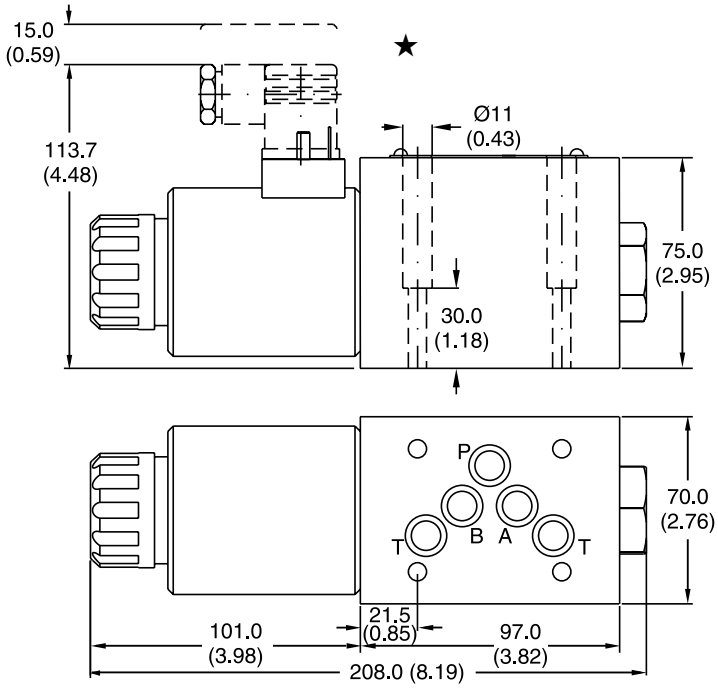
Inch equivalents for millimeter dimensions are shown in (**)

D3FB*C



D3FB*K

★ Order plugs separately.



Surface Finish	Kit			Seal Kit
R_{max}6.3 0.01/100	BK385 BK98	4x M6x40 DIN 912 12.9 4x 1/4-20x1.62	13.2 Nm (9.7 lb.-ft.) ±15 %	Nitrile: SK-D3FB Fluorocarbon: SK-D3FBV

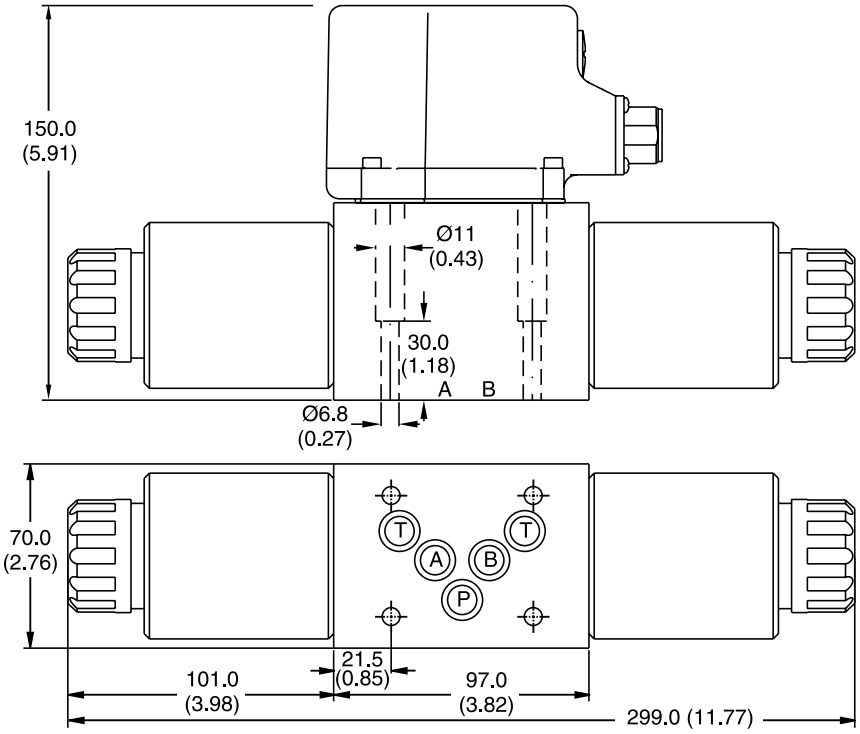
D3FB.indd, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

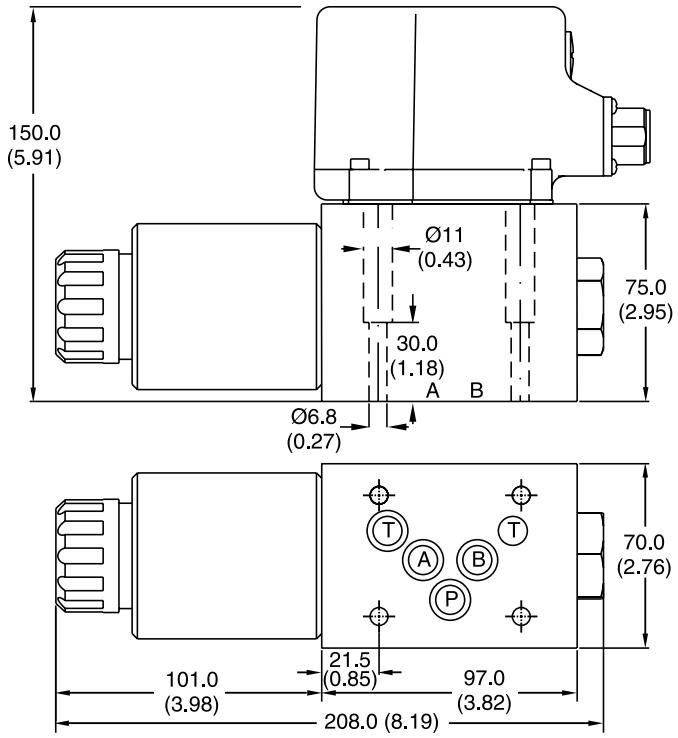
Inch equivalents for millimeter dimensions are shown in (**)

A

D3FB*C OBE



D3FB*E OBE



Surface Finish	Kit			Seal Kit
R_{max}6.3 0.01/100	BK385 BK98	4x M6x40 DIN 912 12.9 4x 1/4-20x1.62	13.2 Nm (9.7 lb.-ft.) ±15 %	Nitrile: SK-D3FB Fluorocarbon: SK-D3FBV