

General Description

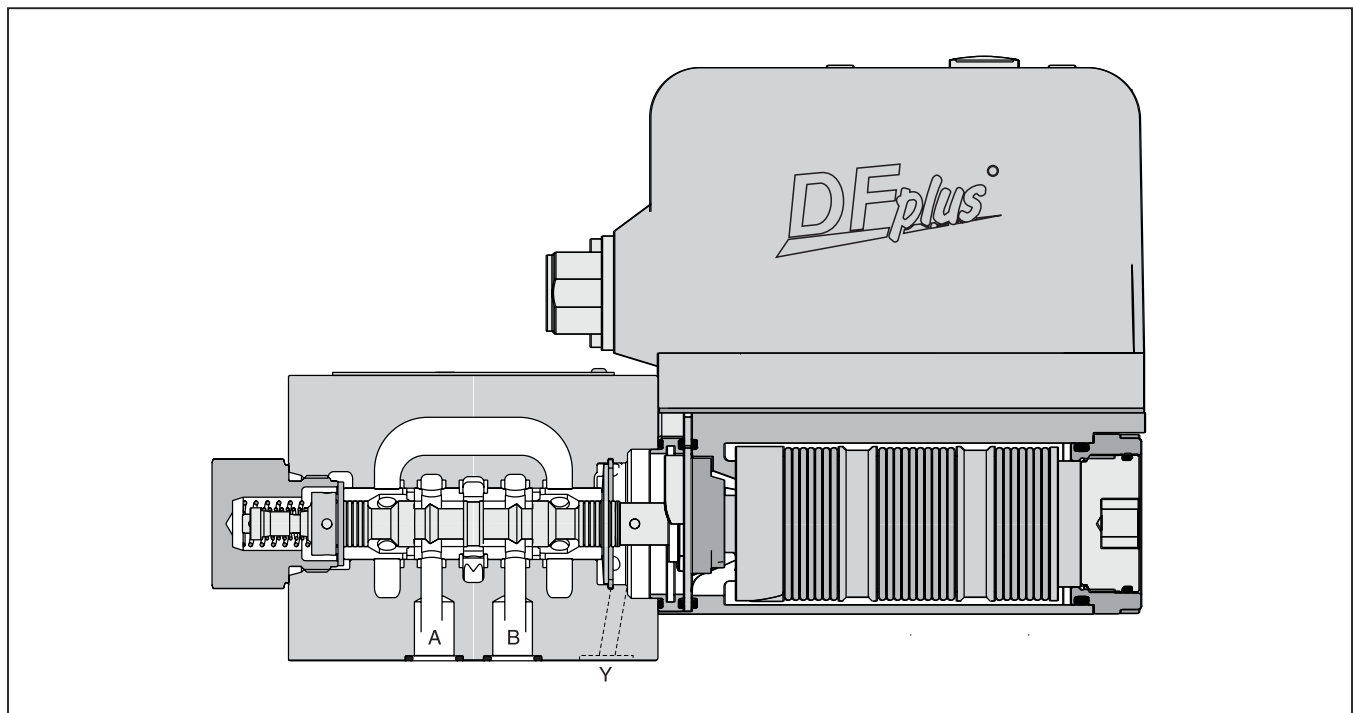
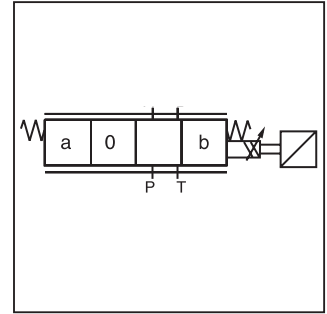
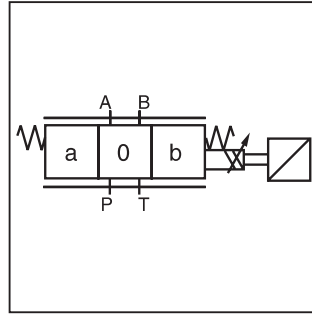
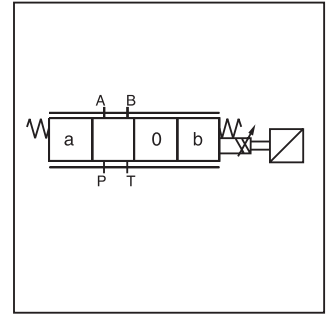
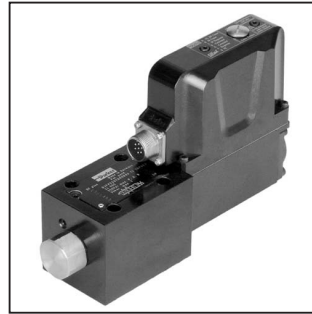
Series D3FP direct operated control NG10 (CETOP 5) valve features extremely high dynamics combined with maximum flow. It is used for high accuracy positioning of a hydraulic axis, and for controlling force and velocity.

Driven by the new patented VCD® actuator, the D3FP reaches the frequency response of servovalves.

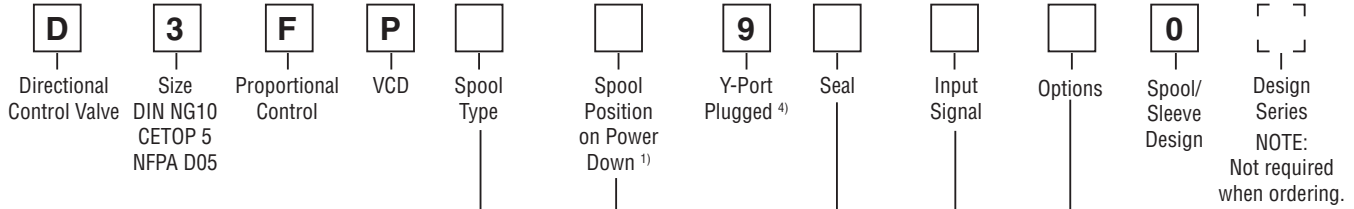
At power-down the spool moves in a defined position. All common input signals are available.

Features

- Extremely high dynamics.
- Maximum tank pressure 250 Bar (3600 PSI) with external drain Y-port.
- Defined spool positioning at power down.
- Onboard electronics.
- Spool/Sleeve design.



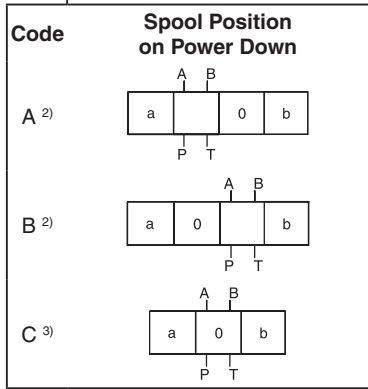
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Code	Spool	Flow LPM (GPM) at Δp 35 Bar (508 PSI) per metering edge
Zerolap		
E50Y		100 (26.5)
E50P		50 (13.2)
B60Y	$Q_B = Q_A / 2$ 	100 (26.5)
B60P	$Q_B = Q_A / 2$ 	50 (13.2)
Underlap approximately -0.5%		
E55Y		100 (26.5)
E55P		50 (13.2)
Overlap 18%		
E01Y E01P		100 (26.5) 50 (13.2)
E02Y E02P		100 (26.5) 50 (13.2)
B31Y B31P		100 / 50 (26.5 / 13.2) 50 / 25 (13.2 / 6.6)
B32Y B32P		100 / 50 (26.5 / 13.2) 50 / 25 (13.2 / 6.6)

Code	Description
N	Nitrile
V	Fluorocarbon
H	For HFC Fluid

Code	Description
0	6 + PE acc. EN175201-804
5	11 + PE acc. EN175201-804
7	6 + PE + Enable



Code	Signal	Flow Direction ⁵⁾
B	+/- 10V	0...+10V -> P-A
E	+/- 20mA	0...+20mA -> P-A
S	4...20mA	12...20mA -> P-A

- 1) 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 (1740 PSI) or contamination in the hydraulic fluid.
- 2) Approximately 10% opening, only available with zerolap spools and underlap spools.
- 3) Only available with overlap spools.
- 4) Needs to be removed at tank pressure >35 Bar (507.5 PSI).
- 5) Flow direction P→A with Pin D > Pin E.

Bolt Kit:

- BK98 (4) 1/4-20x1.62
- BK385 (4) M6x40

Weight: 6.5 kg (14.3 lbs.)

Please order plugs separately. See Accessories.

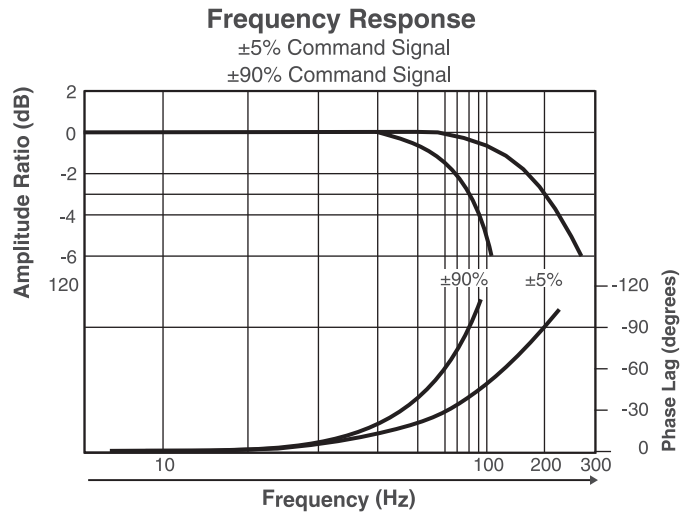
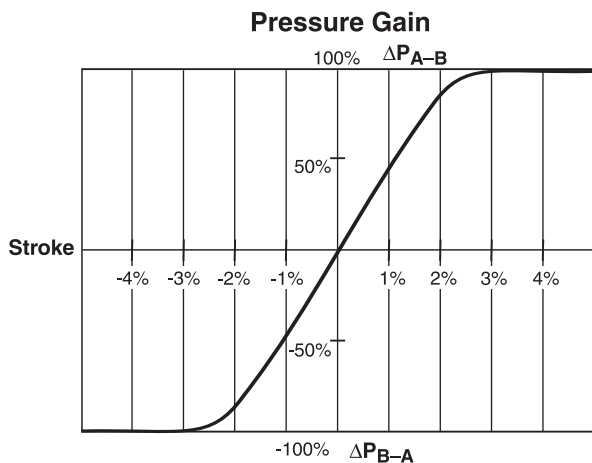
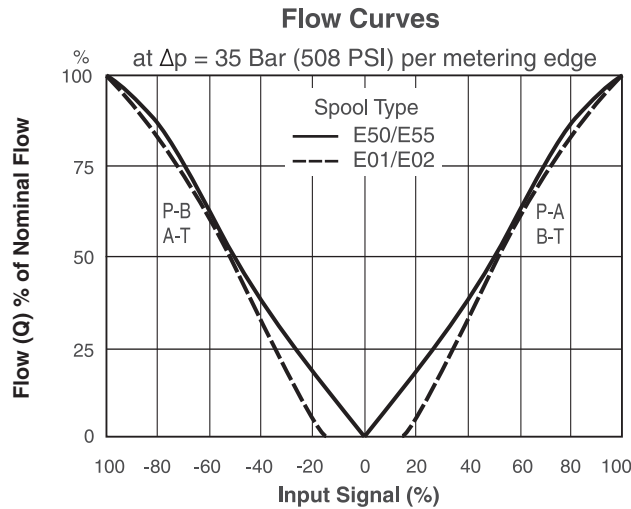
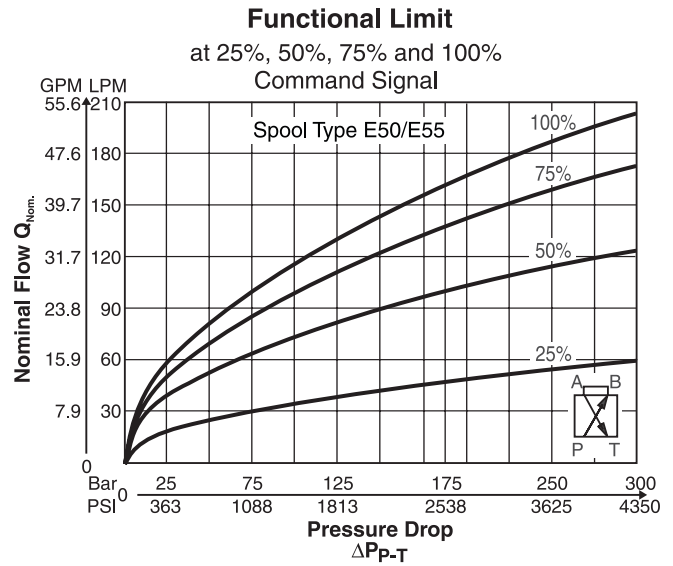
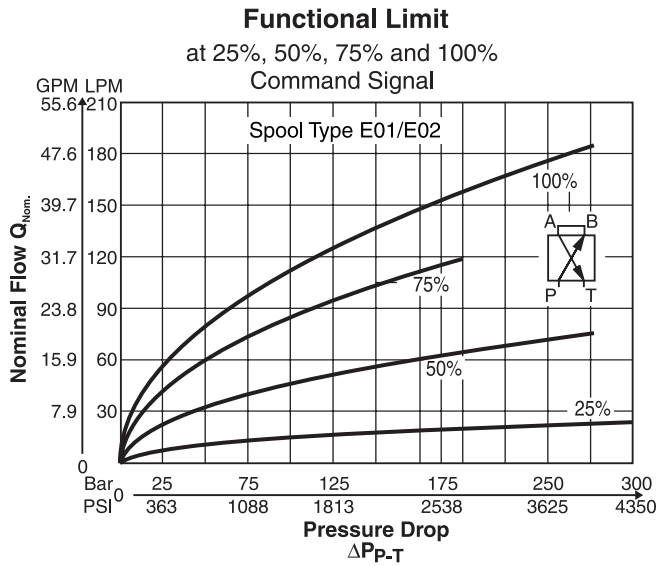
General	
Design	Direct operated proportional DC valve
Actuation	VCD® actuator
Size	NG10 / CETOP 5 / NFPA D05
Mounting Interface	DIN 24340 / ISO 4401 / CETOP RP121 / NFPA
Mounting Position	Unrestricted
Ambient Temperature [°C]	-20...+50; (-4°F...+122°F)
MTTF_D Value [years]	75
Vibration Resistance [g]	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 max. 250 Bar (3600 PSI), port Y max. 35 Bar (508 PSI) ¹⁾
Fluid	Hydraulic oil as per DIN 51524...51535, other on request
Fluid Temperature [°C]	-20...+60; (-4°F...+140°F)
Viscosity	
Permitted [cSt] / [mm ² /s]	20...380 (93...1761 SSU)
Recommended [cSt] / [mm ² /s]	30...80 (139...371 SSU)
Filtration	ISO 4406 (1999) 18/16/13 (acc. NAS 1638: 7)
Nominal Flow at Δp=35 Bar (508 PSI) per Control Edge ²⁾	50 LPM (13.2 GPM) / 100 LPM (26.5 GPM)
Flow Maximum	150 LPM (39.7 GPM)
Leakage at 100 Bar (1450 PSI) [ml/min]	<400 (zerolap spool); <50 (overlap spool)
Static / Dynamic	
Step Response at 100% Step ³⁾ [ms]	<6
Frequency Response (±5% signal) ³⁾ [Hz]	350 (amplitude ratio -3dB), 350 (phase lag -90°)
Hysteresis [%]	<0.05
Sensitivity [%]	<0.03
Temperature Drift [%/K]	<0.025
Electrical	
Duty Ratio [%]	100 ED; CAUTION: Coil temperature up to 150°C (302°F) possible
Protection Class	IP65 in accordance with EN 60529 (plugged and mounted)
Supply Voltage/Ripple [V]	DC 22 ... 30, ripple <5% eff., surge free
Current Consumption Maximum [A]	3.5
Pre-Fusing [A]	4.0 medium lag
Input Signal	
Voltage [V]	10...0...-10, ripple <0.01% eff., surge free, 0...+10V P->A
Impedance [kOhm]	100
Current [mA]	20...0...-20, ripple <0.01% eff., surge free, 0...+20mA P->A
Impedance [Ohm]	250
Current [mA]	4...12...20, ripple <0.01% eff., surge free, 12...20mA P->A <3.6 mA = disable, >3.8 mA = according to NAMUR NE43
Impedance [Ohm]	250
Differential Input Maximum	
Code 0 [V]	30 for terminal D and E against PE (terminal G)
Code 5 / 7 [V]	30 for terminal 4 and 5 against PE (terminal ↓)
Voltage References:	Not a powered output Only for 10K Ohm pots
Enable Signal (Only Code 5 / 7) [V]	5...30, Ri = 9 kOhm
Diagnostic Signal [V]	+10...0...-10 / +Ub, rated max. 5mA
EMC	EN61000-6-2 / EN61000-6-4
Electrical Connection	
Code 0	6 + PE acc. EN 175201-804
Code 5	11 + PE acc. EN 175201-804
Code 7	6 + PE + Enable
Wiring Minimum	
Code 0 [mm ²]	7x1.0 (AWG 18) overall braid shield
Code 5 [mm ²]	12x1.0 (AWG 20) overall braid shield
Code 7 [mm ²]	12x1.0 (AWG 18) overall braid shield
Wiring Length Maximum [m]	50 (164 ft.)

¹⁾ For applications with pT>35 Bar (508 PSI) the Y-port plug must be removed and the Y-port connected to tank.

²⁾ Flow rate for different Δp per control edge: $Q_x = Q_{Nom.} \cdot \sqrt{\frac{\Delta p_x}{\Delta p_{Nom.}}}$
 $\Delta P_{Nom.} \cdot \left(\frac{Q_x}{Q_{Nom.}}\right)^2 = \Delta P_x$

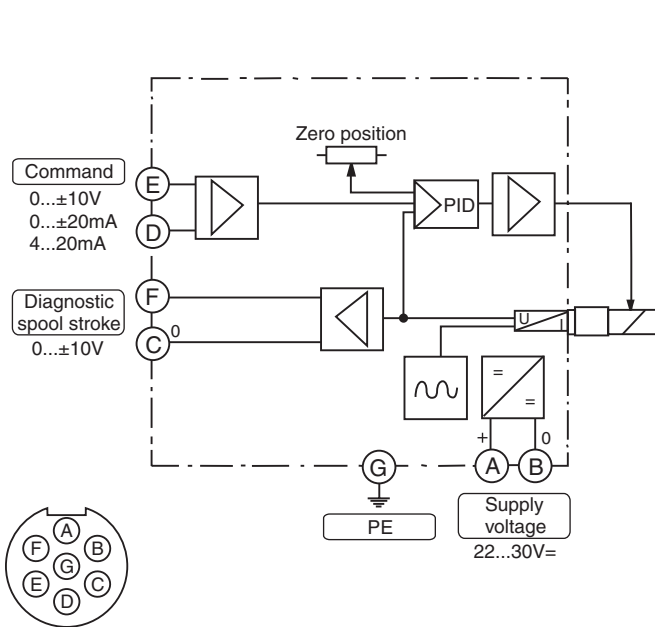
³⁾ Measured with load 100 Bar (1450 PSI) pressure drop/two control edges)

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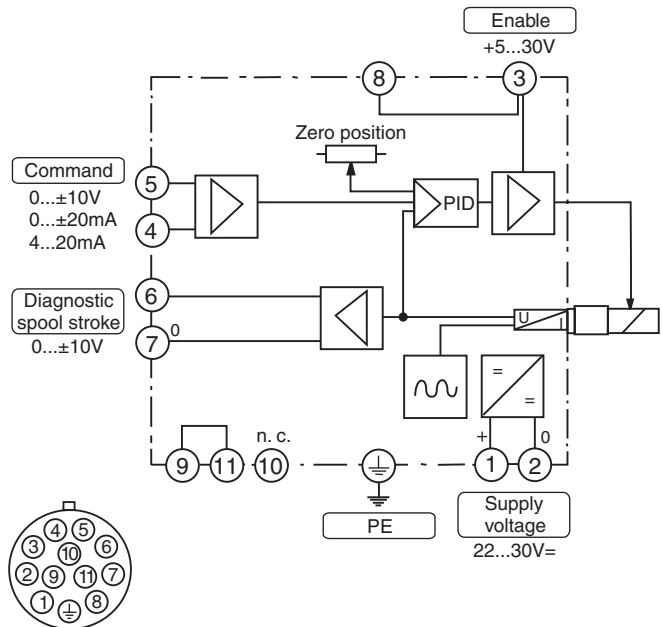
Code 0

6 + PE acc. to EN 175201-804



Code 5

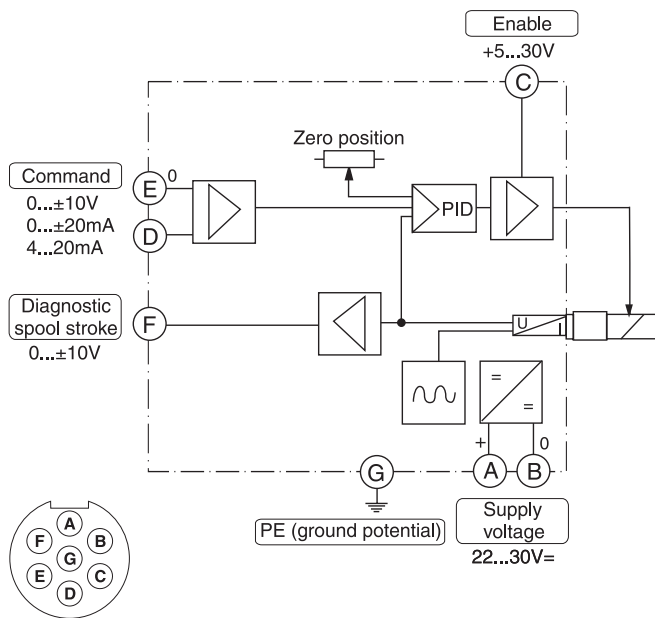
11 + PE acc. to EN 175201-804



Note: When replacing another valve, verify Pin C is 0 V and not wired as an enable.

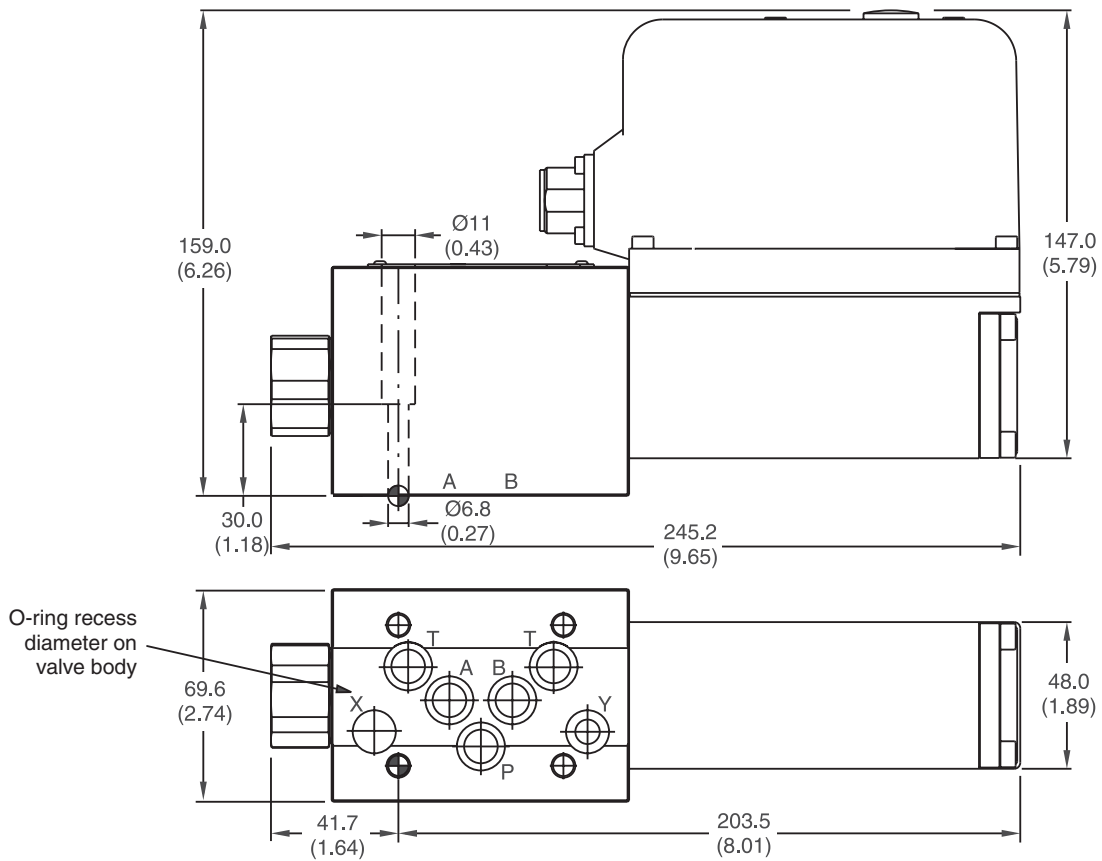
Code 7





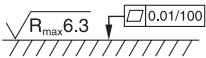
6 + PE + Enable acc. to EN 175201-804



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

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Surface Finish	 Kit	 Kit	 Kit	Seal  Kit
	BK385 BK98	4x M6x40 DIN 912 12.9 4x 1/4-20x1.62	13.2 Nm (9.7 lb.-ft.) ±15 %	Nitrile: SK-D3FP Fluorocarbon: SK-D3FP-V for HFC Fluid: SK-D3FP-H