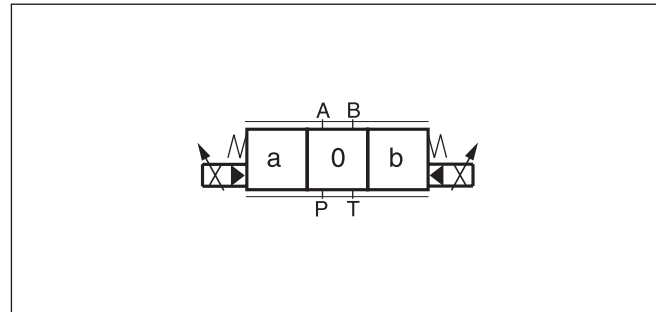


**Characteristics**

The D\*1FT pilot-operated proportional DC valves are available in sizes NG10 (CETOP5), NG16 (CETOP7) and NG25 (CETOP8).

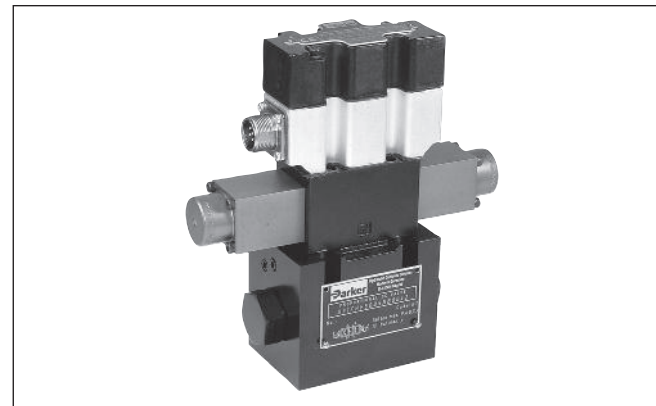
The D\*1FT onboard electronics includes features as adjustable ramps and overlap compensation.

Typical applications include reproducible control of actuator speed in rapid / slow speed profiling, and smooth acceleration and deceleration performance.



**Technical features**

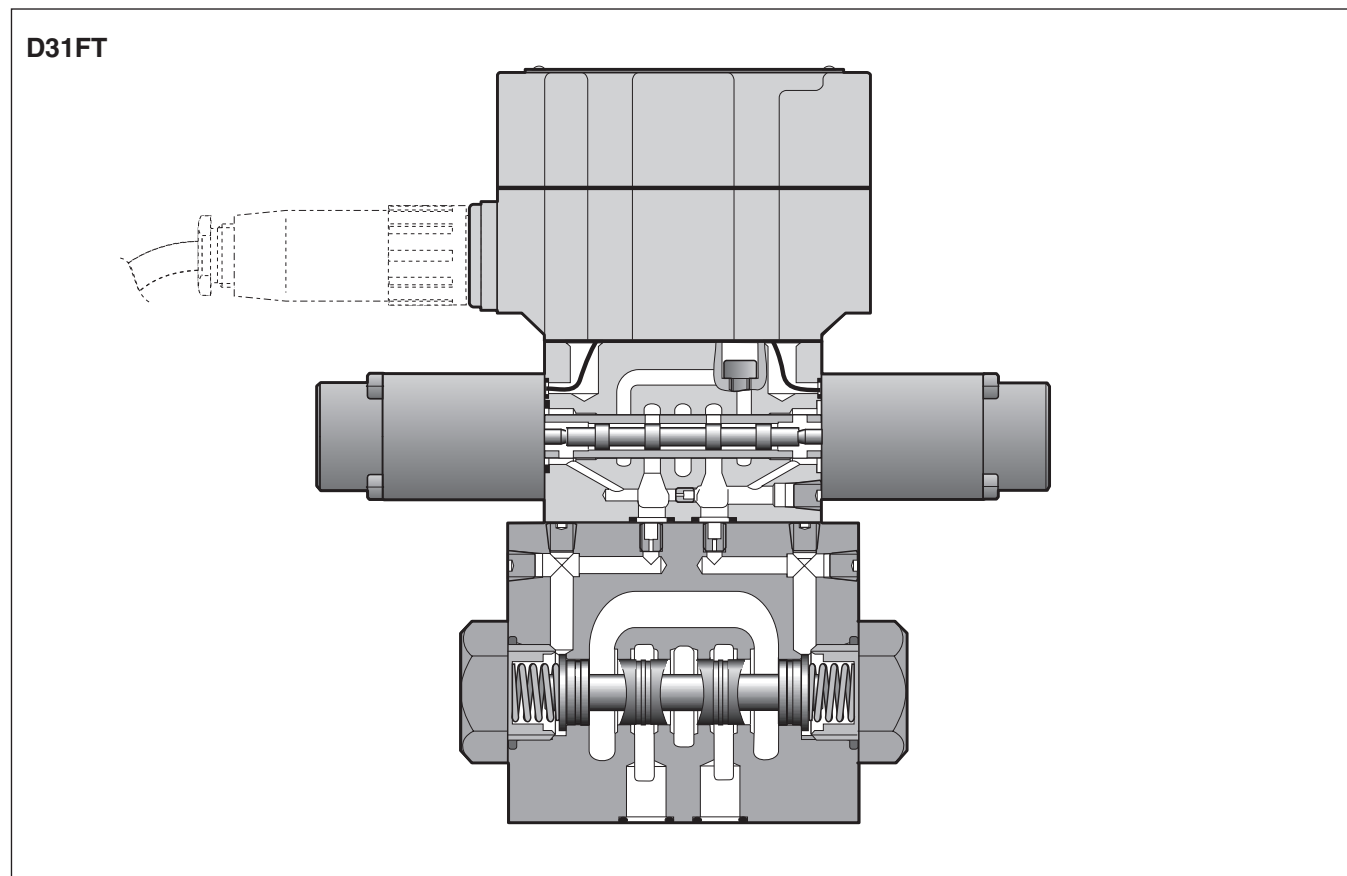
- Progressive flow characteristics for sensitive adjustment of flow rate
- Fail safe centre position
- Center position monitoring optional
- Onboard electronics with adjustable
  - ramps
  - overlap compensation
  - zero offset



**3**

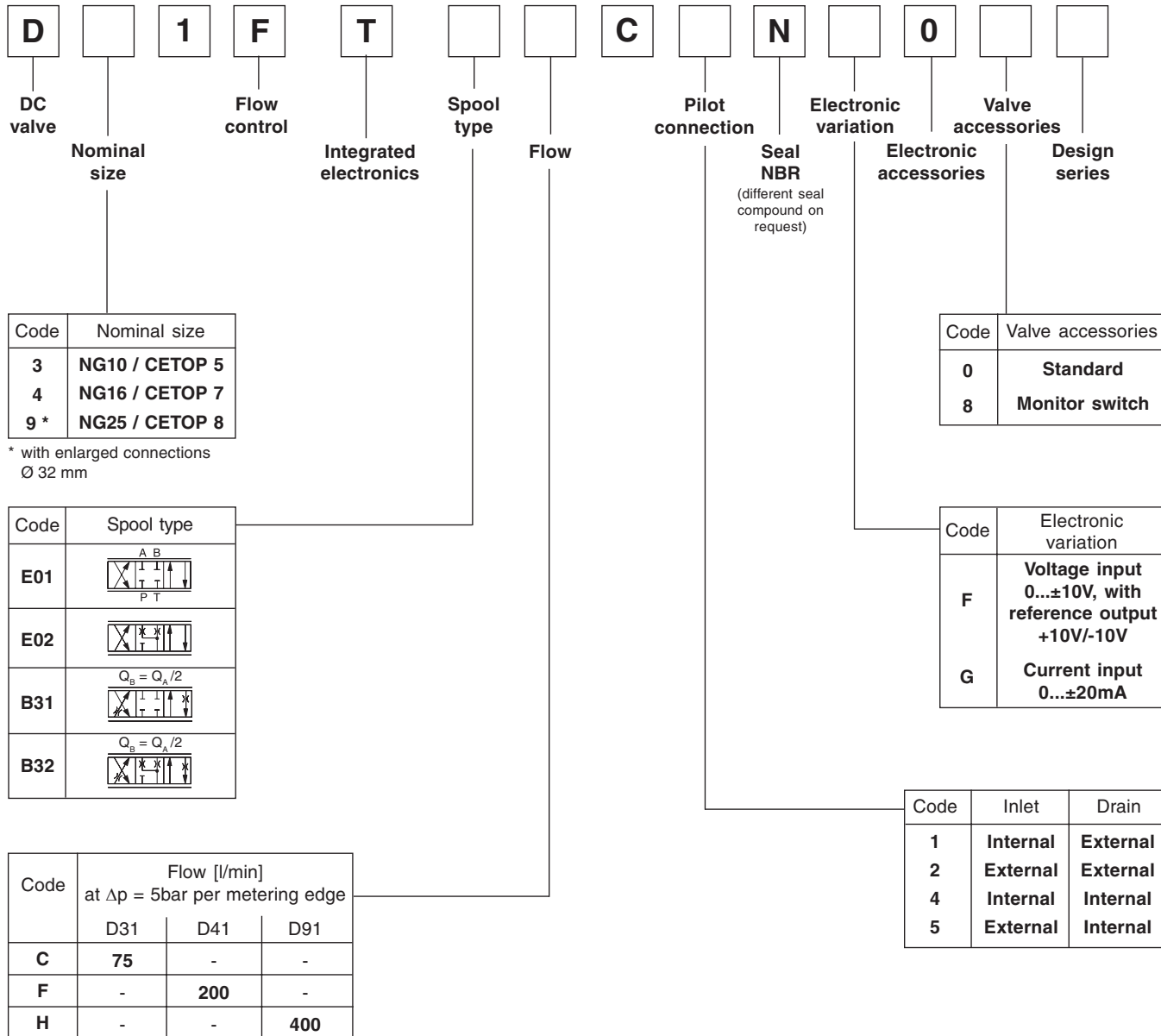


D31FT



D\_1FT.PMD CM





**Bold letters =  
 Short-term availability**

Please order plugs separately.  
 See chapter 3 accessories.

**Technical Data**

<b>General</b>		Pilot-operated DC Valve Proportional solenoid		
Design		Proportional solenoid		
Actuation		Proportional solenoid		
Size		<b>NG10 (CETOP 5)</b>	<b>NG16 (CETOP 7)</b>	<b>NG25 (CETOP 8)</b>
Mounting interface		DIN 24340 / ISO 4401 / CETOP RP121 / NFPA		
Mounting position		Any		
Ambient temperature		-20...+60		
Weight		7.3	11.1	19.3
<b>Hydraulic</b>				
Max. operating pressure		Ports P, A, B, T, X max. 350; Port Y max. 10		
Fluid		Hydraulic oil as per DIN 51524...535, other on request		
Fluid temperature		-20...+60		
Viscosity permitted		20...380		
Viscosity recommended		30...80		
Filtration		ISO 4406 (1999) 18/16/13 (acc. NAS 1683: 7)		
Flow nominal <sup>1)</sup>		75	200	400
Leakage at 100 bar		100	200	600
Pilot supply pressure		20-350 (optimal dynamics at 50)		
Pilot flow at 100bar		<1.2		
Pilot flow, step response		0.8	1.7	3.8
<b>Static / Dynamic</b>				
Step response at 100% step		60	75	100
Hysteresis		<5		
Sensitivity		<1		
<b>Electrical characteristics</b>				
Duty ratio		100		
Protection class		IP54		
Supply voltage/ripple		14.5 ... 30, ripple <5% eff.		
Current consumption max.		2.8		
Input signal <sup>2)</sup>				
Voltage		10...0...-10, ripple <0.01% eff., surge free, 0...+10V P→B		
Impedance		100		
Current		20...0...-20, ripple <0.01% eff., surge free, 0...+20mA P→B		
Impedance		500		
Differential input max.		30 for terminal D and E against PE		
Ramp		0...3		
Pre-fusing		6.3 medium lag		
EMC		EN 50081-2 / EN50082-2		
Coil insulation class		F (155 °C)		
Electrical connection		6+PE acc. DIN 43563		
Wiring min.		6x1.0 (AWG 18) overall braid shield		
Wiring lenght max.		50		
<b>Electrical monitor switch</b>				
Protection class		IP65		
Ambient temperature		0-70		
Supply voltage/ripple		18...42, ripple <10% eff.		
Current consumption without load		<30		
Max. output current per channel, ohmic		400		
Min. output load per channel, ohmic		100		
Max. output drop at 0.2A		<1.1		
Max. output drop at 0.4A		<1.6		
EMC		EN 50081-1 / EN50082-2		
Max. tol. ambient field strength		1200		
Min. distance to next AC solenoid		0.1		
Interface		4+PE acc. IEC 61076-2-101 (M12)		
Wiring min.		5x0.5 (AWG 20) overall braid shield		
Wiring lenght max.		50		

<sup>1)</sup> Flow rate for different Δp per control edge:

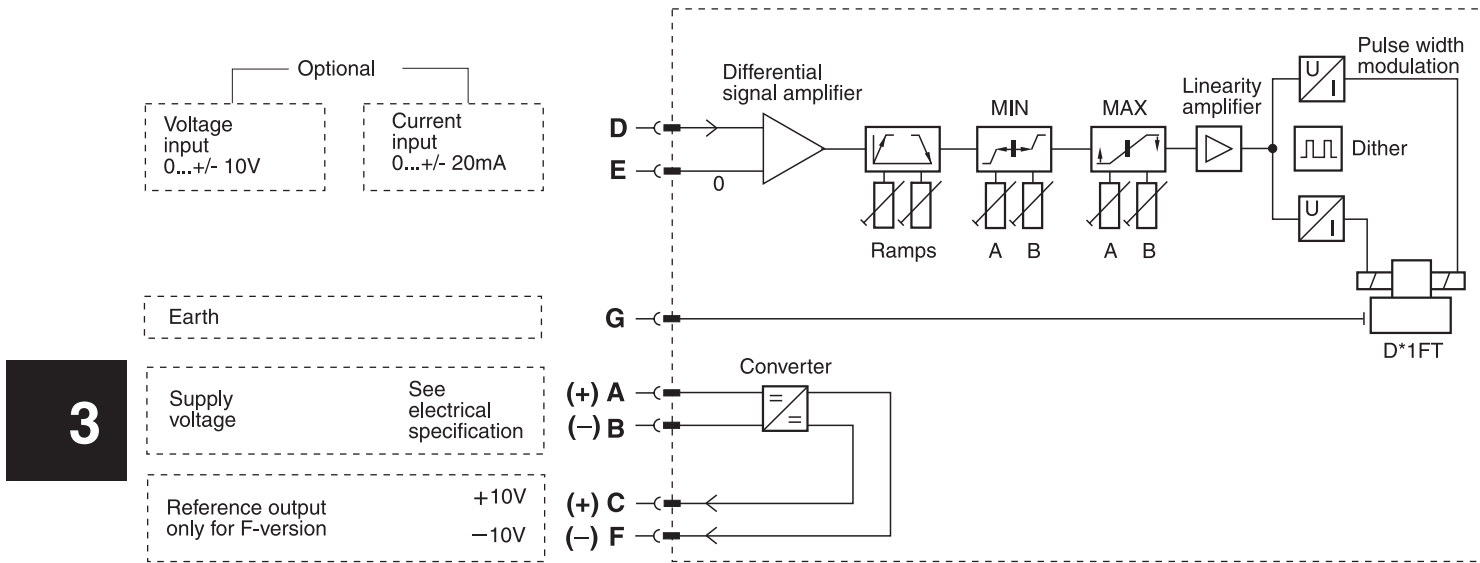
<sup>2)</sup> Inverse polarity on request

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

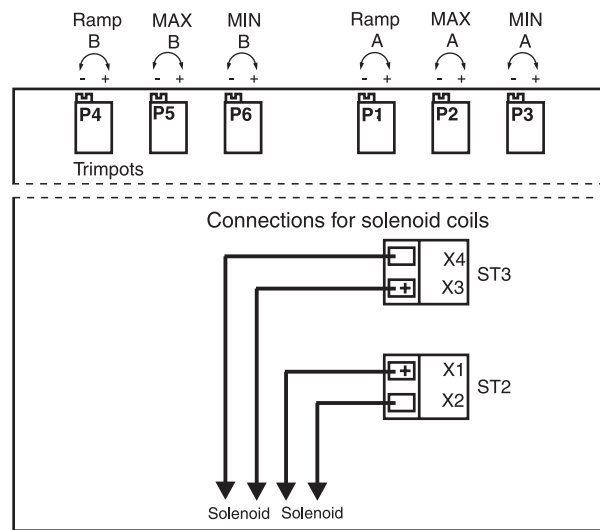
D\_1FT.PMD CM



**Block diagram**

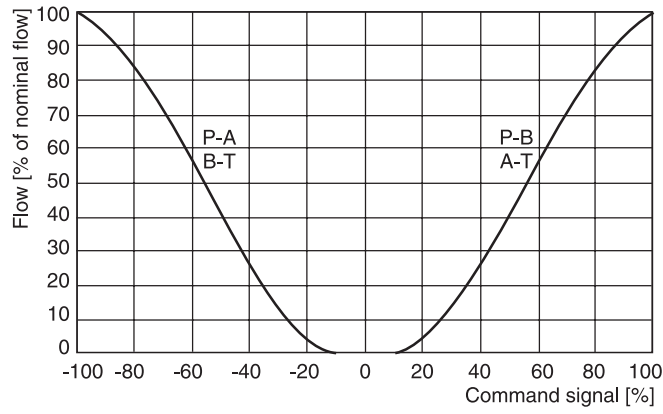


**Mechanical arrangement of the potentiometers**

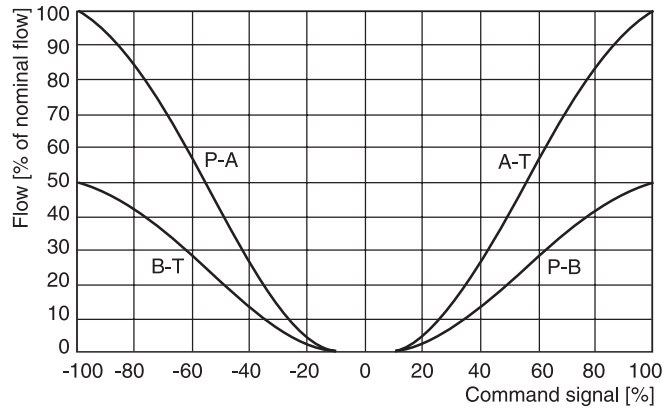


**Flow characteristics**  
 at  $\Delta p = 5\text{bar}$  per metering edge

**D\*1FT**  
 Spool code **E\***



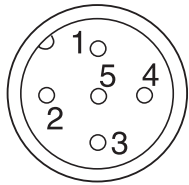
Spool code **B\***



**3**

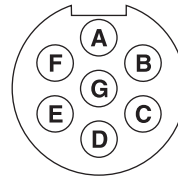
**Plugs**

**Monitor switch**



- 1 = output B (normally closed)
- 2 = supply (18...42 VDC)
- 3 = output A (normally closed)
- 4 = GND (0V)
- 5 = PE

**Central connector 6 + PE**

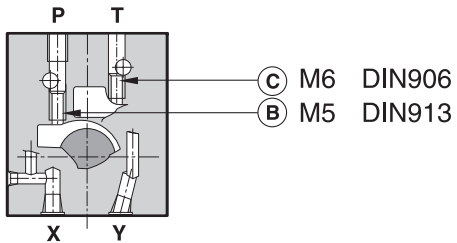


- A = supply (14.5...30 VDC)
- B = GND (0V)
- C = ref. +10 VDC
- D = input  $\left. \begin{array}{l} (-10...+10 \text{ VDC}) \\ (-20...+20 \text{ mA}) \end{array} \right\}$
- E = input
- F = ref. -10 VDC
- G = PE

**Dimensions**

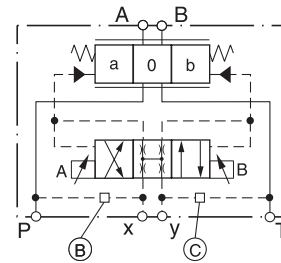
**Pilot oil inlet (supply) and outlet (drain)**

**D31FT**



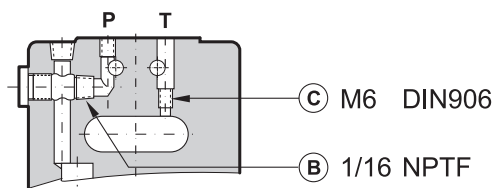
○ open, ● closed

Pilot oil		B	C
Inlet	Drain		
internal	external	○	●
external	external	●	●
internal	internal	○	○
external	internal	●	○



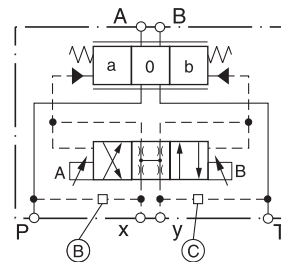
**3**

**D41FT**

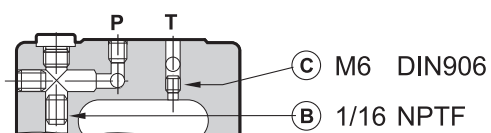


○ open, ● closed

Pilot oil		B	C
Inlet	Drain		
internal	external	○	●
external	external	●	●
internal	internal	○	○
external	internal	●	○

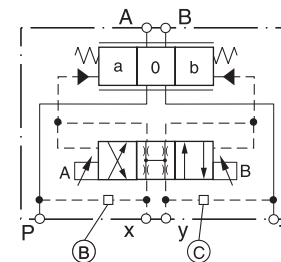


**D91FT**

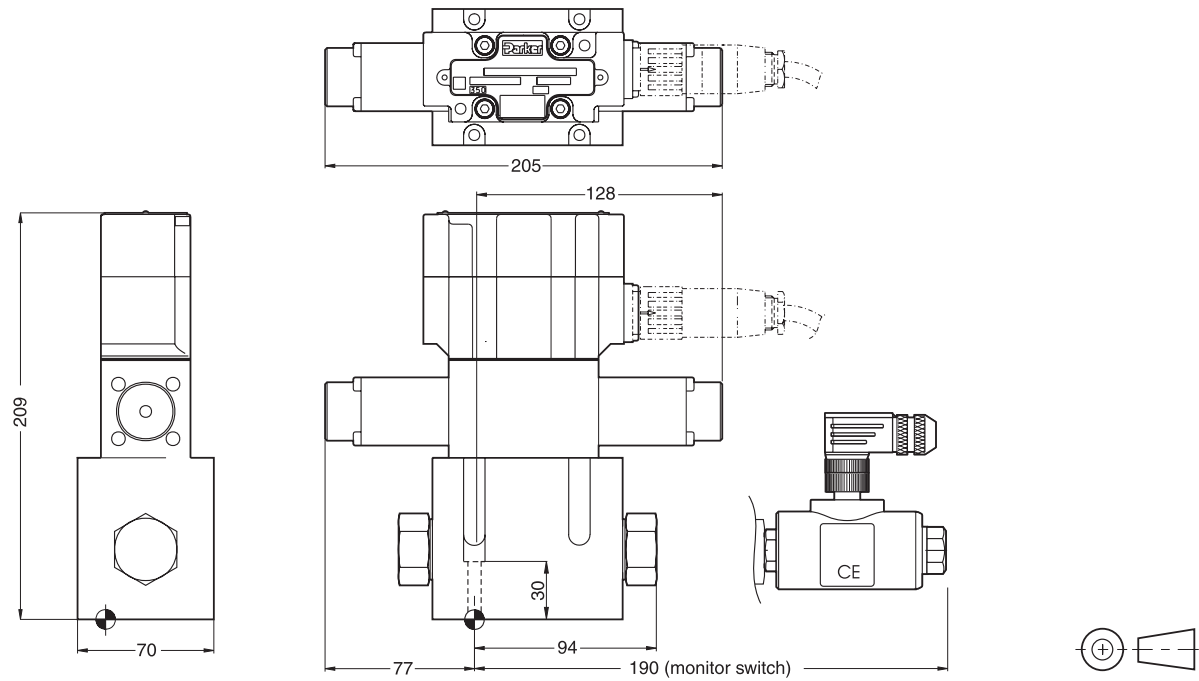


○ open, ● closed

Pilot oil		B	C
Inlet	Drain		
internal	external	○	●
external	external	●	●
internal	internal	○	○
external	internal	●	○



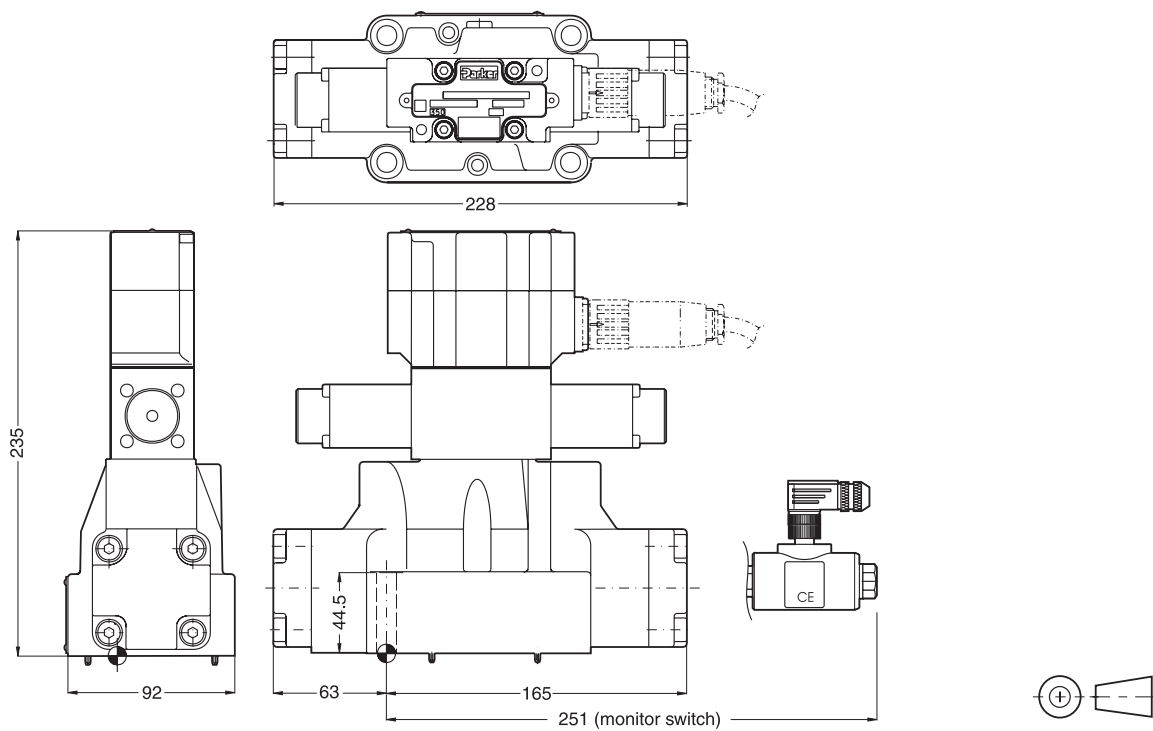
**D31FT**



**3**

Surface finish	Kit			Kit NBR
$\sqrt{R_{max}6.3}$ $\square 0.01/100$	BK385	4x M6x40 DIN 912 12.9	11 Nm $\pm 15\%$	SK-D31FT-N30

**D41FT**

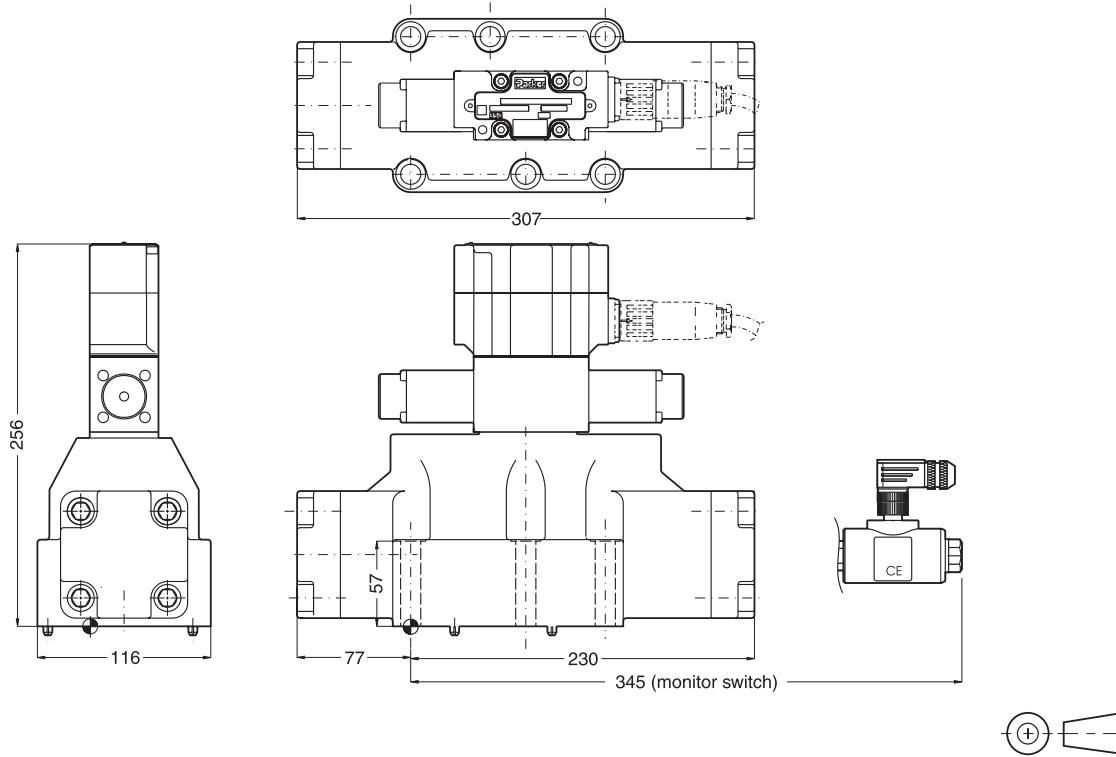






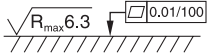
Surface finish	Kit			Kit NBR
$\sqrt{R_{max}6.3}$ $\square 0.01/100$	BK320	2x M6x55 4x M10x60 DIN 912 12.9	11 Nm 54 Nm $\pm 15\%$	SK-D41FT-N30

D\_1FT.PMD CM

**D91FT**

**3**



Surface finish	 Kit			 Kit NBR
	BK360	6 x M12x95 DIN 912 12.9	94 Nm ±15 %	SK-D91FT-N20