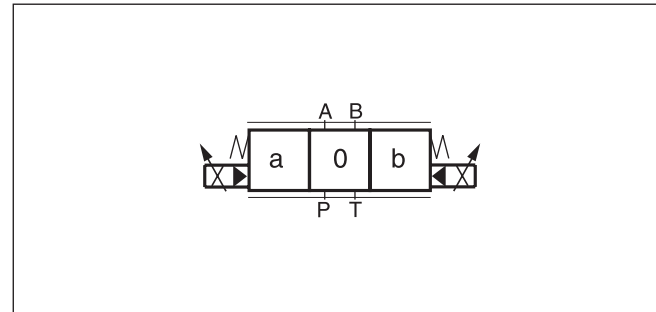


Characteristics

The D*1FW pilot-operated proportional DC valve is available in size NG10 (CETOP5), NG16 (CETOP7) and NG25 (CETOP8).

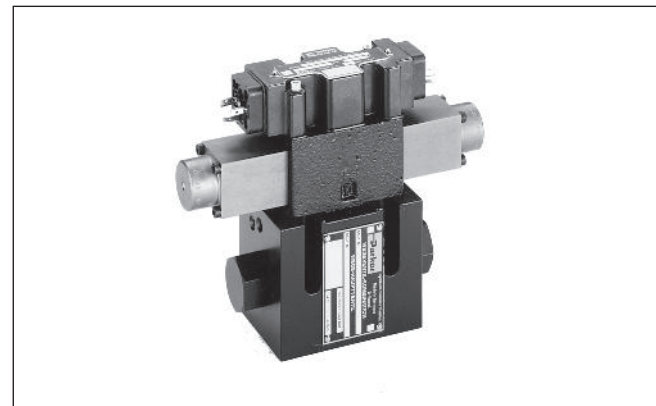
Typical applications include reproducible control of actuator speed in rapid / slow speed profiling, and smooth acceleration and deceleration performance.

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

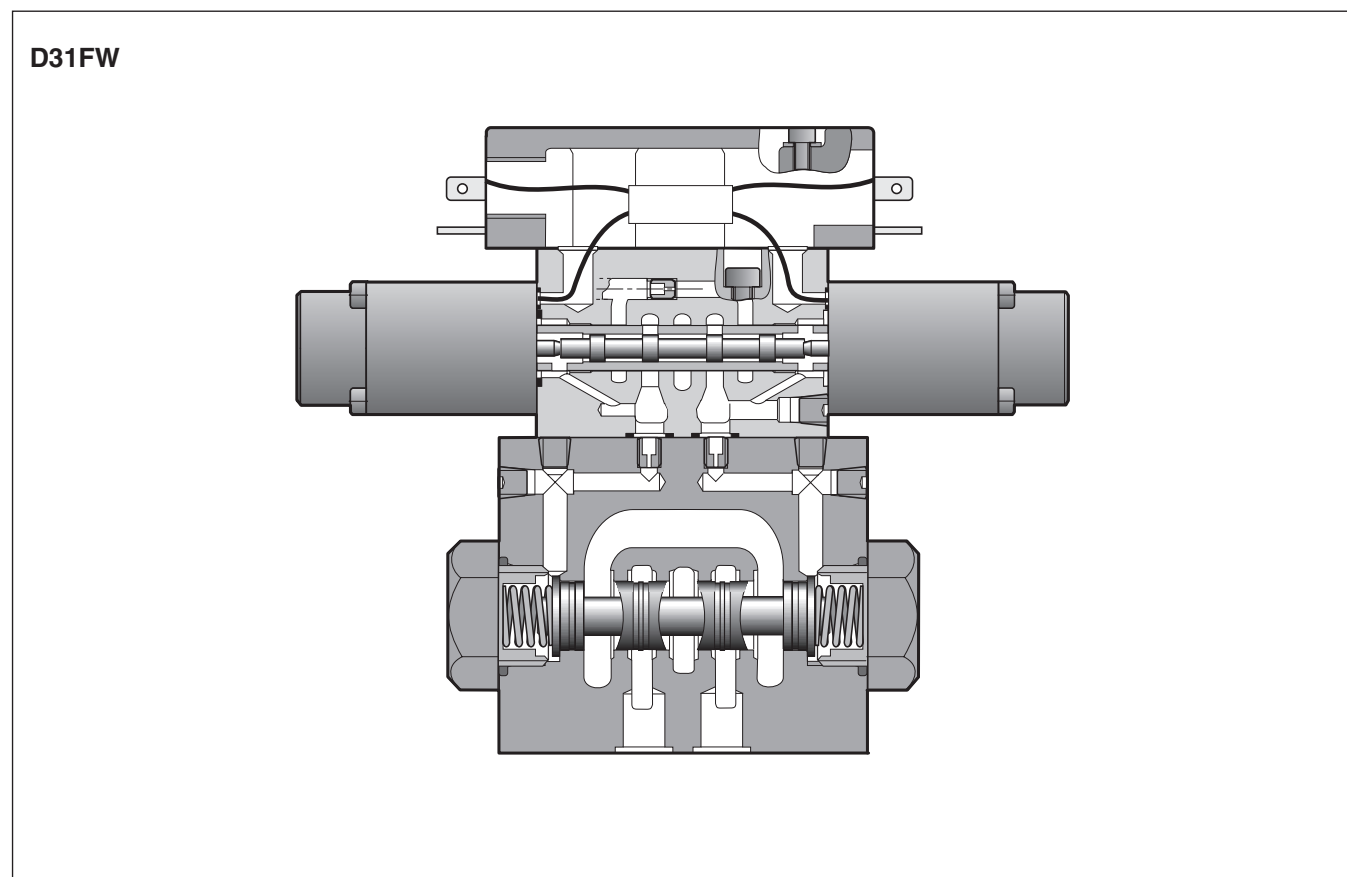


Technical features

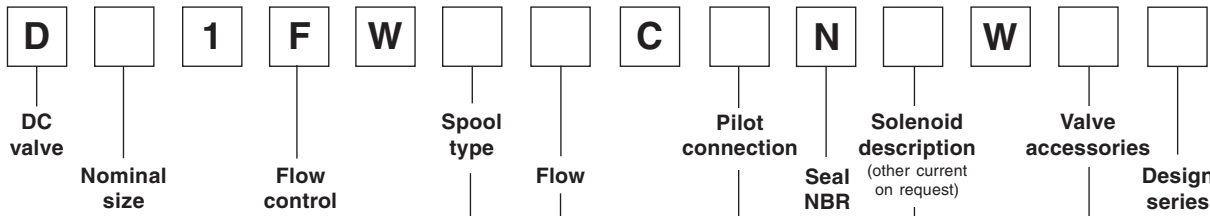
- Progressive flow characteristics for sensitive adjustment of flow rate
- Fail-safe centre position
- Center position monitoring optional



3



3



Code	Nominal size
3	NG10 / CETOP 5
4	NG16 / CETOP 7
9 *	NG25 / CETOP 8

* with enlarged connections
 Ø 32 mm

Code	Spool type
E01	
E02	
B31	 $Q_B = Q_A / 2$
B32	 $Q_B = Q_A / 2$

Code	Flow [l/min] at $\Delta p = 5\text{bar}$ per metering edge		
	D31	D41	D91
C	75	-	-
F	-	200	-
H	-	-	400

Code	Valve accessories
0	Standard
8	Monitor switch

Code	Solenoid description
L	6 V/2.5A

Code	Inlet	Drain
1	Internal	External
2	External	External
4	Internal	Internal
5	External	Internal

**Bold letters =
 Short-term availability**

Please order plug/s separately.
 See chapter 3 accessories.

Technical Data

General		Pilot-operated DC Valve		
Design		Proportional solenoid		
Actuation		Proportional solenoid		
Size		NG10 (CETOP 5)	NG16 (CETOP 7)	NG25 (CETOP 8)
Mounting interface		DIN 24340 / ISO 4401 / CETOP RP121 / NFPA		
Mounting position		Any		
Ambient temperature [°C]		-20...+60		
Weight [kg]		7.1	10.8	19
Hydraulic				
Max. operating pressure [bar]		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 [°C]		-20...+60		
Viscosity permitted [mm²/s]		20...380		
Viscosity recommended [mm²/s]		30...80		
Filtration		ISO 4406 (1999) 18/16/13 (acc. NAS 1683: 7)		
Flow nominal at ΔP=5 bar per control edge * [l/min]		75	200	400
Leakage at 100 bar [ml/min]		100	200	600
Pilot supply pressure [bar]		20-350 (optimal dynamics at 50)		
Pilot flow at 100bar [l/min]		<1.2		
Pilot flow, step response [l/min]		0.8	1.7	3.8
Static / Dynamic				
Step response at 100% step [ms]		60	75	100
Hysteresis [%]		<5		
Electrical characteristics				
Duty ratio [%]		100%		
Protection class		IP54		
Solenoid		Code L		
Supply voltage [V]		6		
Current consumption [A]		2.5		
Resistance [Ohm]		2.2		
Coil insulation class		F (155 °C)		
Electrical connection		2+PE acc. EN 175301-801		
Wiring min. [mm²]		3x1.5 (AWG 16) overall braid shield		
Wiring lenght max. [m]		50		
Electrical monitor switch				
Protection class		IP65		
Ambient temperature [°C]		0-70		
Supply voltage/ripple [V]		18...42, ripple <10% eff.		
Current consumption without load [mA]		<30		
Max. output current per channel, ohmic [mA]		400		
Min. output load per channel, ohmic [kOhm]		100		
Max. output drop at 0.2A [V]		<1.1		
Max. output drop at 0.4A [V]		<1.6		
EMC		EN 50081-1 / EN50082-2		
Max. tol. ambient field strength [A/m]		1200		
Min. distance to next AC solenoid [m]		0.1		
Interface		4+PE acc. IEC 61076-2-101 (M12)		
Wiring min. [mm²]		5x0.5 (AWG 20) overall braid shield		
Wiring lenght max. [m]		50		

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* Flow rate for different Δp per control edge:

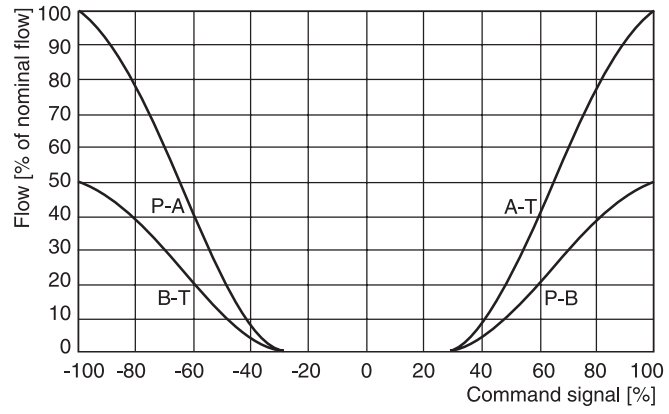
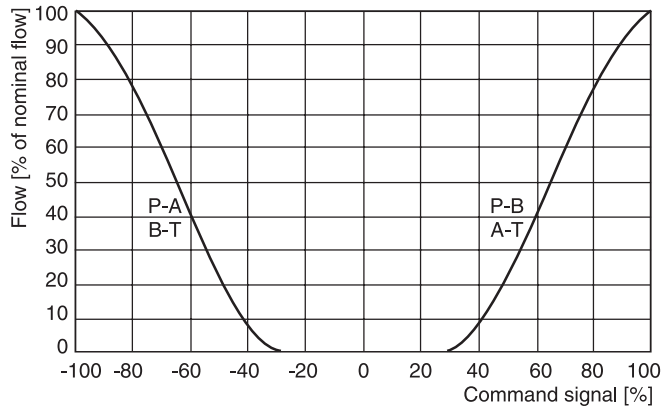
$$Q_x = Q_{Nom.} \cdot \sqrt{\frac{\Delta p_x}{\Delta p_{Nom.}}}$$

Flow characteristics
 at $\Delta p = 5$ bar per metering edge

D*1FW
 Spool code **E***

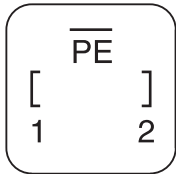
Spool code **B***

3



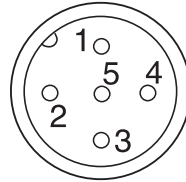
Plugs

Solenoid coil



- 1 = coil connection
- 2 = coil connection
- PE = ground potential

Monitor switch

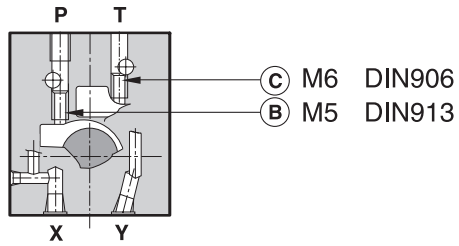


- 1 = output B (normally closed)
- 2 = supply (18...42 VDC)
- 3 = output A (normally closed)
- 4 = GND (0V)
- 5 = PE

Dimensions

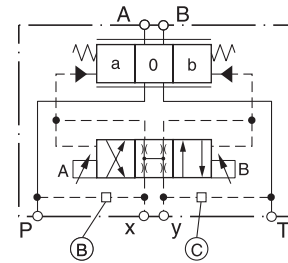
Pilot oil inlet (supply) and outlet (drain)

D31FW

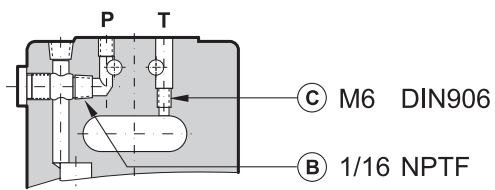


○ open, ● closed

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

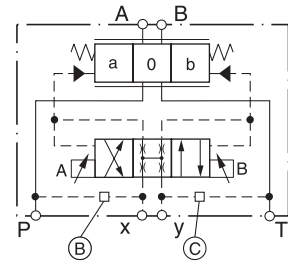


D41FW

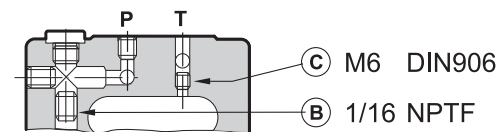


○ open, ● closed

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

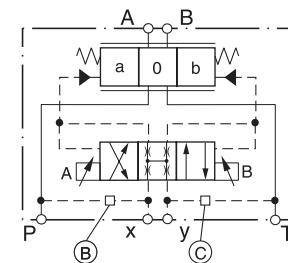


D91FW



○ open, ● closed

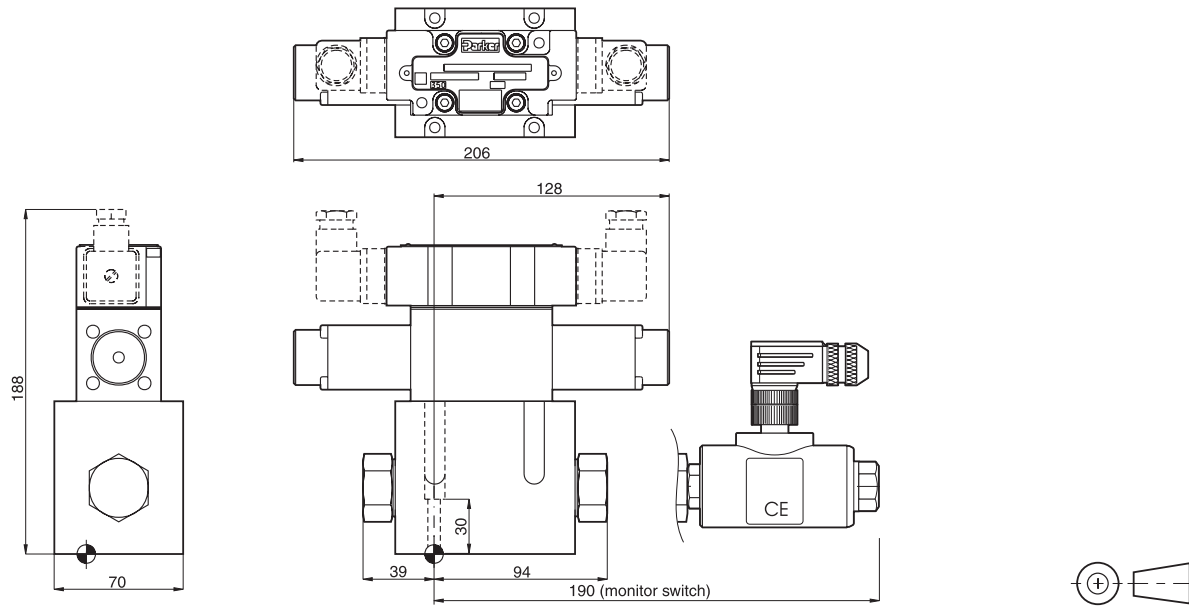
Pilot oil		B	C
Inlet	Drain		
internal	external	○	●
external	external	●	●
internal	internal	○	○
external	internal	●	○



3

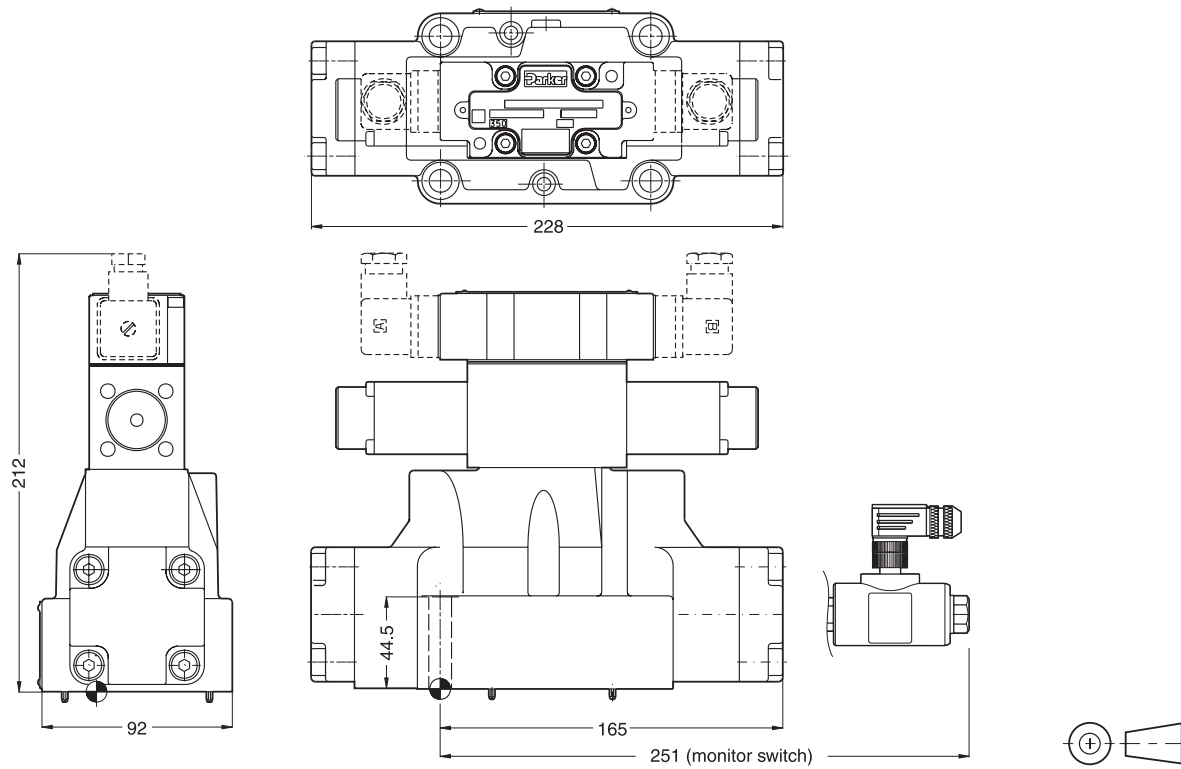
Dimensions

D31FW



Surface finish	Kit			Kit NBR
	BK385	4x M6x40 DIN 912 12.9	13.6 Nm ±15 %	SK-D31FW-N20

D41FW

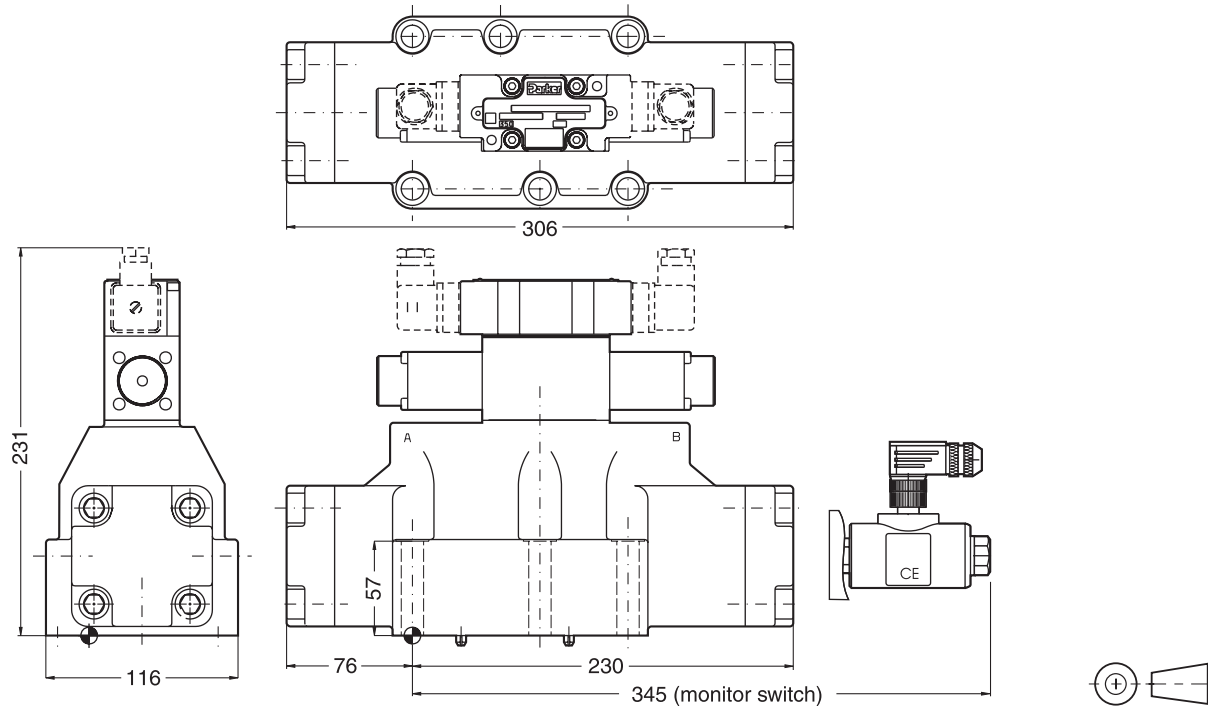


Surface finish	Kit			Kit NBR
	BK320	2x M6x55 4x M10x60 DIN 912 12.9	11 Nm 54 Nm ±15 %	SK-D41FW-N20

D_1FW.PMD CM

3

D91FW



3

Surface finish	Kit			Kit NBR
	BK360	6 x M12x95 DIN 912 12.9	94 Nm ±15 %	SK-D91FW-N20

