

Characteristics

The series of pilot operated proportional directional valves D*1FB*EE is offered in 4 sizes:

D31FB*EE - NG10 (CETOP 05)

D41FB*EE - NG16 (CETOP 07)

D91FB*EE - NG25 (CETOP 08)

D111FB*EE - NG32 (CETOP 10)

The D*1FB*EE series with explosion proof solenoids is based on the standard D*1FB series. The specific solenoid design allows the usage in hazardous environments. The explosion proof class is

CE  II 2 G

Ex e mb IIC T4 Gb

for use in zone 1 and 2 (conform to ATEX).

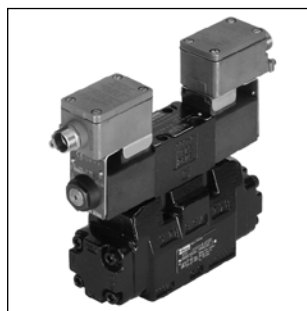
Additionally the solenoids have IECEx conformity.

The parameters can be saved, changed and duplicated in combination with the digital power amplifier PWD00A-400 (to be used in an explosion proof cabinet or outside of the hazardous area).

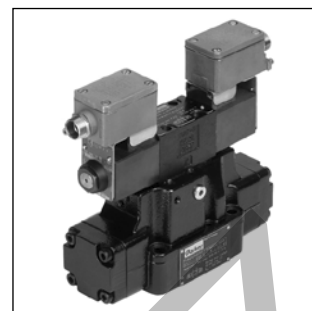
The valve parameters can be edited with the common ProPxD software.

Features

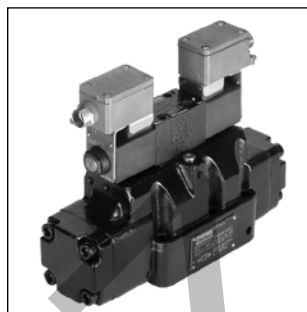
- Progressive flow characteristics for sensitive adjustment of flow rate
- High flow capacity
- Optional: coil to permit ambient temperature up to +60 °C, modification XG371



D31FB



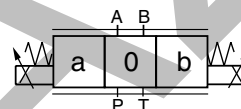
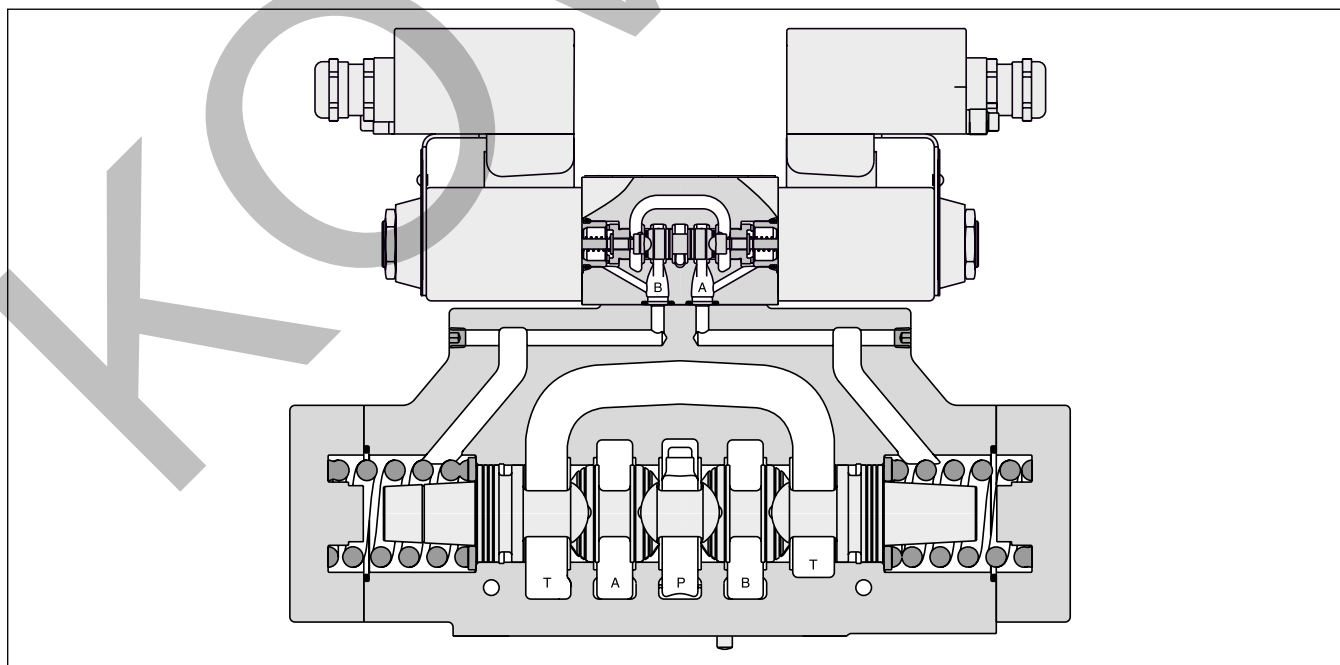
D41FB



D91FB



D111FB

**D91FB*EE**

MSG11-3343UK ATEX.indd 06.07.21

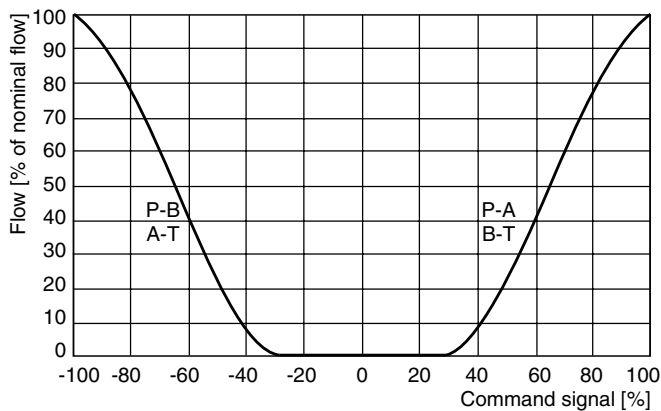
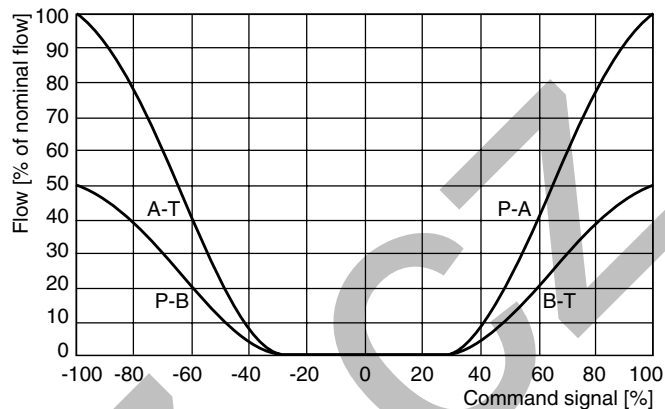
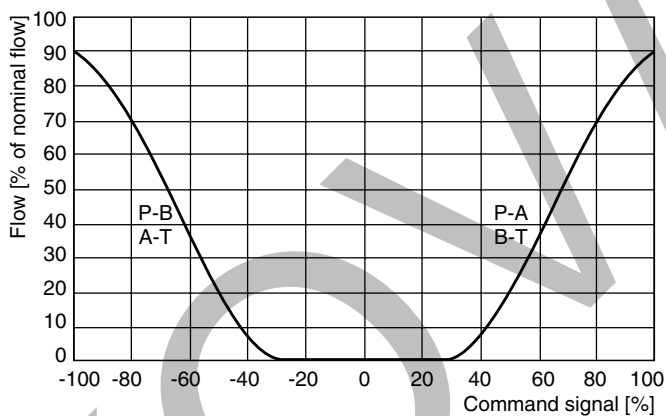
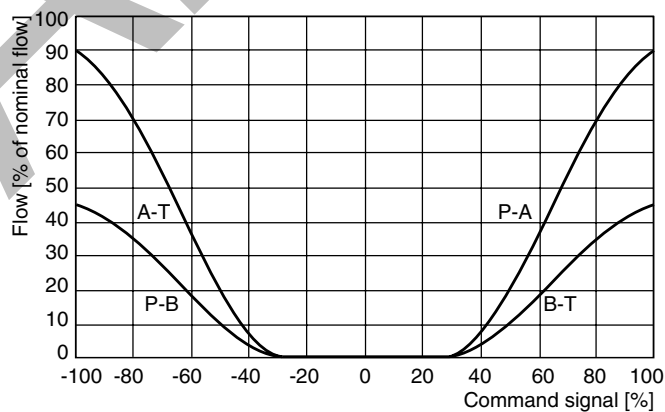
Technical Data

General					
Design		Pilot operated DC valve			
Actuation		Proportional solenoid			
Size		NG10 (CETOP 05)	NG16 (CETOP 07)	NG25 (CETOP 08)	NG32 (CETOP 10)
Mounting interface		DIN 24340 / ISO 4401 / CETOP RP121 / NFPA			
Mounting position		unrestricted			
Ambient temperature	[°C]	-20...+40 ; XG371: -20...+60			
MTTF _D value	[years]	75			
Weight	[kg]	9.4	12.8	20.3	69.3
Hydraulic					
Max. operating pressure	[bar]	Pilot drain internal: P, A, B, X 350; T, Y 185 (NG10: T, Y 15)			
	[bar]	Pilot drain external: P, A, B, T, X 350; Y 185 (NG10: Y 15)			
Fluid		Hydraulic oil as per DIN 51524...51535, other on request			
Fluid temperature	[°C]	-20...+40; XG371: -20...+60			
Viscosity					
permitted	[cSt] / [mm²/s]	20...400			
recommended	[cSt] / [mm²/s]	30...80			
Filtration		ISO 4406; 18/16/13			
Nominal flow at Δp = 5 bar per control edge *	[l/min]	75/90/120	130/200	250/400	1000
Leakage at 100 bar	[ml/min]	100	200	600	1000
Pilot supply pressure	[bar]	min. 30 (+ T/Y pressure)			
	[bar]	max. 350			
	[bar]	optimal dynamics at 50			
Pilot flow at 100bar	[l/min]	<0.5	<1.2	<1.2	<1.2
Pilot flow, step response	[l/min]	2.0	1.9	4.5	18
Static / Dynamic					
Step response at 100 % step	[ms]	50	75	100	180
Hysteresis	[%]	<5			
Electrical characteristics					
Duty ratio	[%]	100			
Protection class		CE ⚡ II 2 G , Ex e mb IIC T4 Gb, IP66 (plugged and mounted correctly)			
Solenoid	Code	J	K	K*XG371	
Supply voltage	[V]	24	12	12	
Current consumption	[A]	1.15	2.3	2.0	
Resistance	[Ohm]	12.0	3.0	3.0	
Solenoid connection		Box with M20x1.5 entry for cableglands. Solenoid identificationas per ISO 9461.			
Wiring min.	[mm²]	3 x 1.5 recommended			
Wiring lenght max.	[m]	50 recommended			

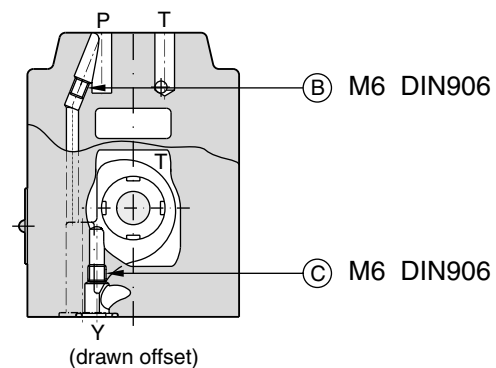
With electrical connections the protective conductor (PE ≡) must be connected according to the relevant regulations.

* Flow rate for different Δp per control edge:

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

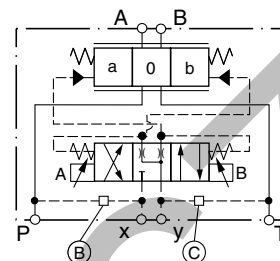
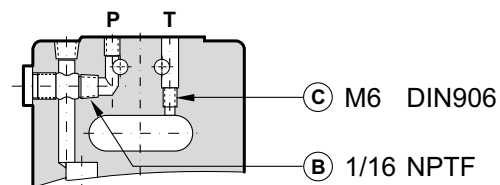
Curves**Flow characteristics D*1FB**at $\Delta p = 5$ bar per metering edgeSpool code **E***Spool code **B*****Flow characteristics D*1FB*XG371**Spool code **E***Spool code **B***

All characteristic curves measured with HLP46 at 50 °C.

Pilot oil inlet (supply) and outlet (drain)**D31FB**

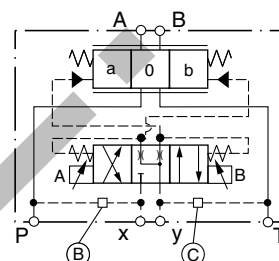
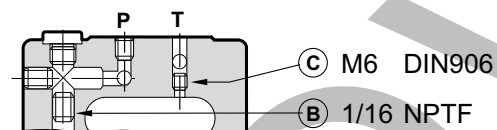
○ open, ● closed

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

**D41FB**

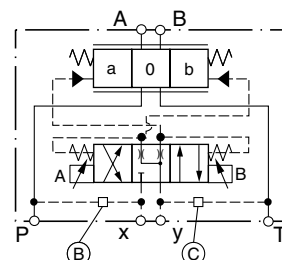
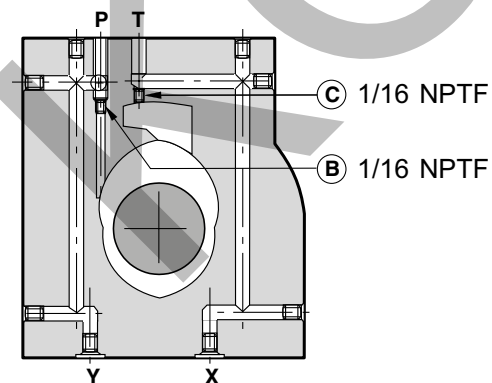
○ open, ● closed

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

**D91FB**

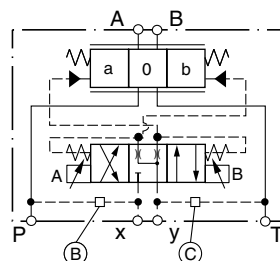
○ open, ● closed

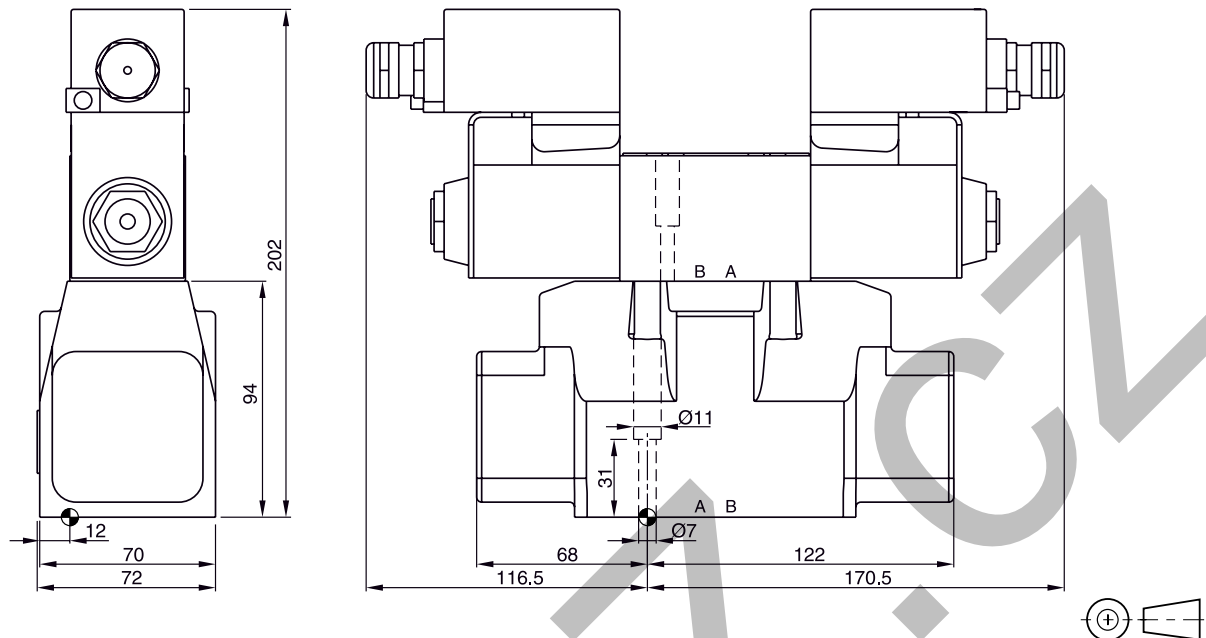
Pilot oil		B	C
Inlet	Drain		
internal	external	○	●
external	external	●	●
internal	internal	○	○
external	internal	●	○

**D111FB**

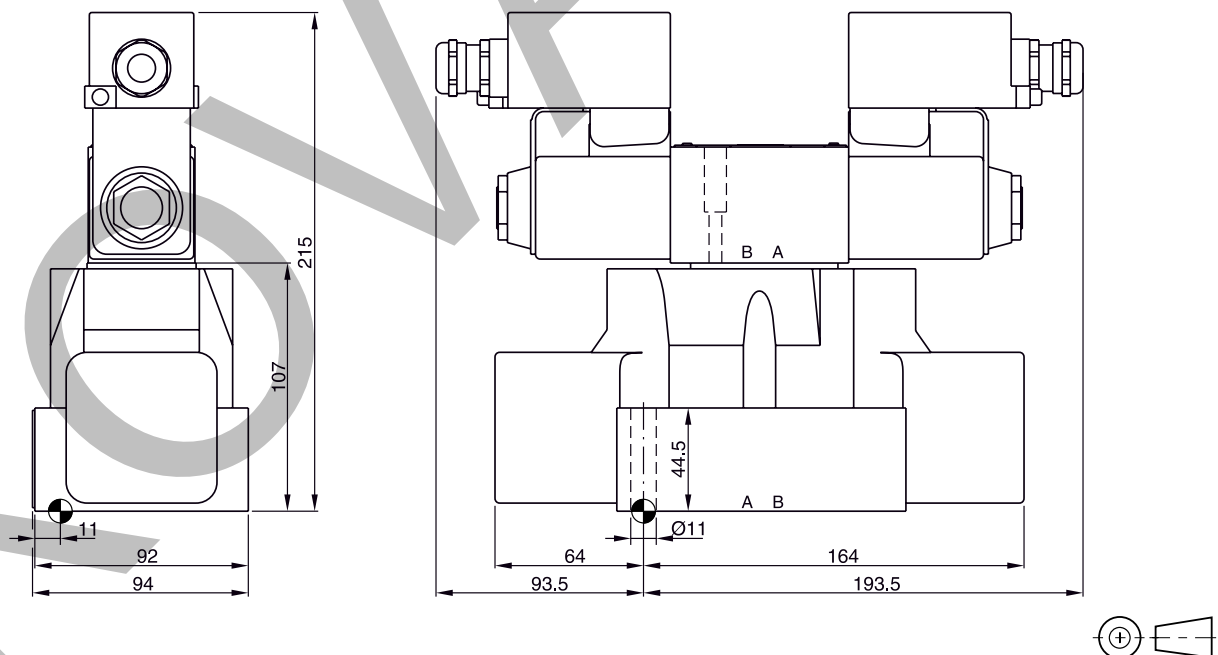
○ open, ● closed

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



Dimensions**D31FB**

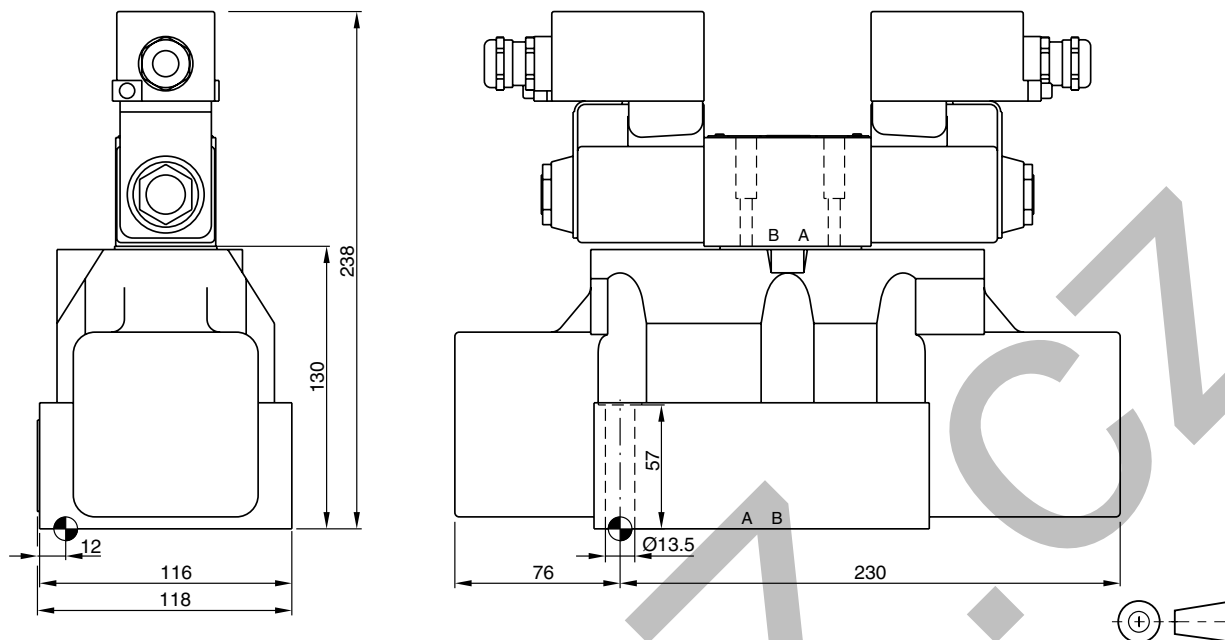
Surface finish	Kit	Kit	Kit	Kit
$\sqrt{R_{max} 6.3}$ 0.01/100	BK385	4x M6x40 ISO 4762-12.9	13.2 Nm ±15 %	NBR: SK-D31FB FPM: SK-D31FB-V






D41FB

Surface finish	Kit	Kit	Kit	Kit
$\sqrt{R_{max} 6.3}$ 0.01/100	BK320	2x M6x55 4x M10x60 ISO 4762-12.9	13.2 Nm ±15 % 63 Nm ±15 %	NBR: SK-D41FB FPM: SK-D41FB-V

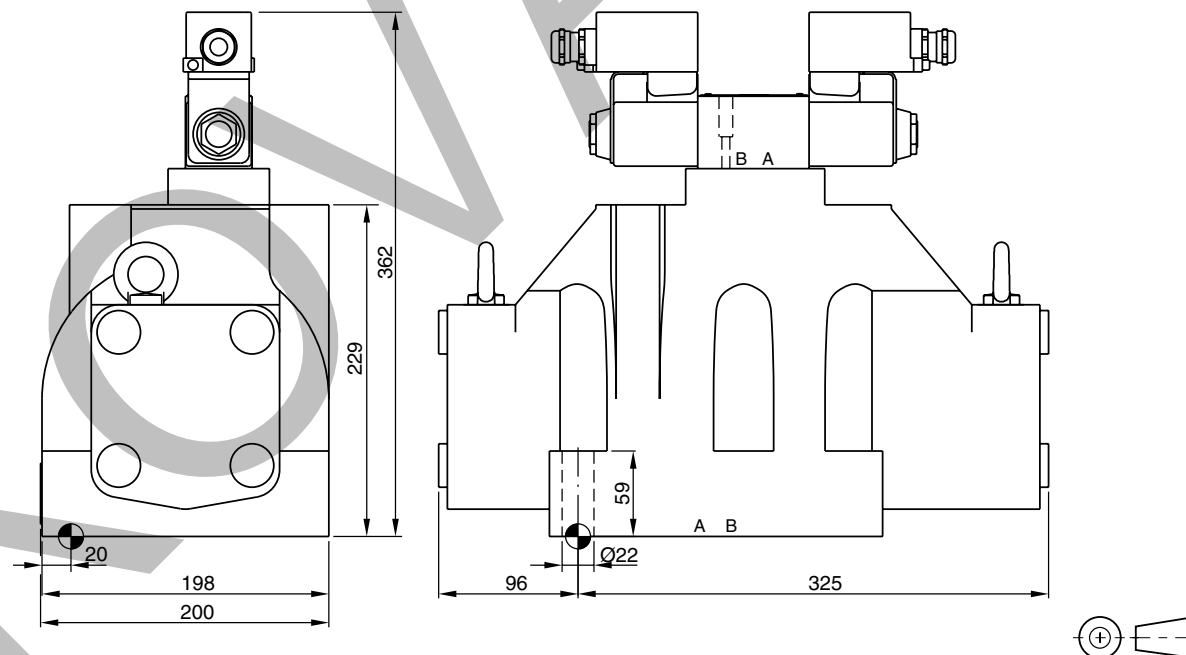
Dimensions






D91FB



Surface finish	 Kit	 Kit	 Kit	 Kit
$\sqrt{R_{\max} 6.3}$ 	BK360	6x M12x75 ISO 4762-12.9	108 Nm ±15 %	NBR: SK-D91FB FPM: SK-D91FB-V

D111FB



Surface finish	 Kit	 Kit	 Kit	 Kit
$\sqrt{R_{\max} 6.3}$ 	BK386	6x M20x90 ISO 4762-12.9	517 Nm ±15 %	NBR: SK-D111FB FPM: SK-D111FB-V