

4.8

# Sandwich flow control valve

Type Z2FRM6

## Flow control valve

Type 2FRM6K

Size 6  
Up to 315 bar  
Up to 32 L/min



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### Features

- Sandwich plate valve
- Porting pattern to DIN 24 340 Form A, without locating pin hole (standard)
- Porting pattern to ISO 4401 and CETOP-RP 121 H
- With 1 or 2 flow control cartridges
- Adjustment element with internal hexagon

# Function and configuration

The valve type Z2FRM is a 2-way flow control valve of sandwich plate design and type 2FRM6K is a 2-way flow control cartridge valve. The former is used for maintaining a constant flow and is independent of the pressure and temperature.

The valve basically consists of a housing (1) and one or two flow control cartridges type 2FRM6K (9).

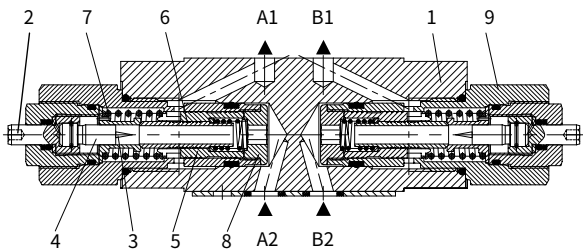
The throttling of the flow from port A2/B2 (A) to port A1/B1 (B) occurs at the throttle area (3). The throttle bolt (4) is driven by the adjustment element (2). To maintain a constant flow in port A1/B1(B) which is independent of pressure, a pressure compensator (5) is fitted downstream of the throttle area (3).

The pressure compensator (5) is pressed against the plug (8), via a compression spring (7). When there is no oil flow, pressure compensator (5) keeps in open position. If there is flow through the valve then the pressure in port A2/B2(A) acts on the pressure compensator (5). Then the pressure compensator (5) moves until the forces are balanced. If the pressure in port A2/B2 (A) increases, then the pressure compensator (5) moves in the closing direction until the forces are balanced again. Due to the continuous compensation by the pressure compensator, a constant flow is achieved.

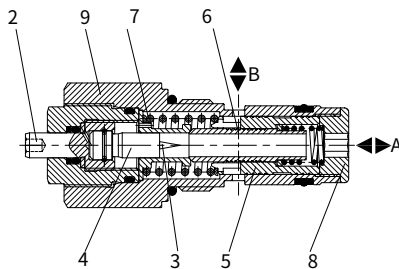
Free flow from port A1/B1 (B) to port A2/B2 (A) is via check valve (6).

04

**Type Z2FRM 6 C...**  
(meter-out flow control)



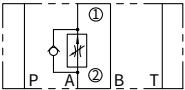
**Flow control valve**  
**Type 2FRM 6 K...**



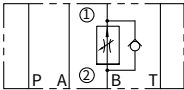
**Symbols** ( ① =valve side ② = sub-plate side)

• **Sandwich flow control valve Type Z2FRM6**

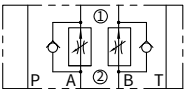
**Type Z2FRM 6 A...**  
(meter-out flow control)



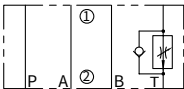
**Type Z2FRM 6 B...**  
(meter-out flow control)



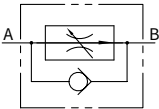
**Type Z2FRM 6 C...**  
(meter-out flow control)



**Type Z2FRM 6 T...**  
(port T flow control)



• **Flow control valve Type 2FRM6K...**



**Note:** Meter-in flow control refer to page 06/08.

**Ordering code**

• **Sandwich flow control valve Type Z2FRM6**

Z2FRM	6		B	2	L2X /		R		★
Sandwich plate 2-way Flow control valve								Further details in clear text	
Size 6 = 6								No code = NBR seals V = FKM seals	
Flow control function (meter-out control) in								R = With check valve	
Port A = A								Flow A to B	
Port B = B								up to 6.0 L/min	
Ports A and B = C								6Q = up to 6.0 L/min	
Port T <sup>1)</sup> = T								32Q = up to 32.0 L/min	
Without closing external of the pressure compensator = B								L2X = Series L20 to L29 (L20 to L29: unchanged installation and connection dimensions)	
Adjustment element with internal hexagon = 2									

• **Flow control valve Type 2FRM6K**

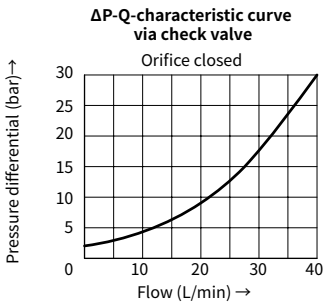
2FRM		6	K	2 – L1X /		R		*
Flow control valve								Further details in clear text
Size 6		= 6					No code =	NBR seals
Insert cartridge		=K					V =	FKM seals
Internal hexagon adjustment unit		=2					R =	With check valve
Series L10 to L19								Flow A to B
(L10 to L19: unchanged installation and connection dimensions)							6Q =	up to 6.0 L/min
							32Q =	up to 32.0 L/min

Technical data

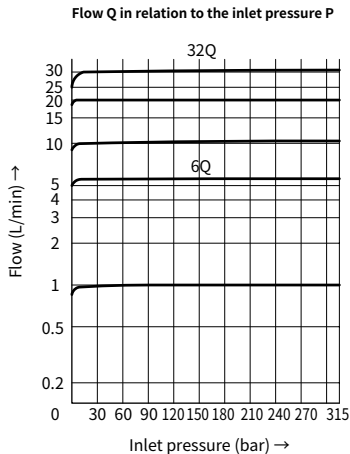
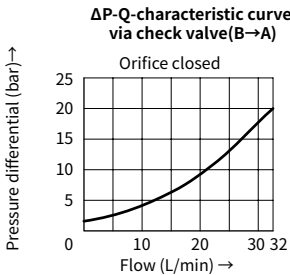
		Sandwich flow control valve type Z2FRM 6	Flow control valve type 2FRM6K
Mounting type		Flat mounting interface	Install position:optional
Connection type		Indirect connection via a subplate or block, porting pattern to DIN 24 340 form A, ISO 4401 and CETOP-RP 121 H	
Weight	kg	1.3 (flow control function in ports A, B or T) 1.5 (flow control function in ports A and B)	0.2
Nominal pressure	bar	315	
Fluid		Mineral oil,Phosphoric acid ester	
Fluid temperature range	°C	-20 to +80	
Viscosity range	mm²/s	10 to 800	
Flow range	L/min	0.05~6; 0.25~32	
Degree of contamination		Maximum permissible degree of fluid contamination: Class 9. NAS 1638 or 20/18/15, ISO4406	
Min.pressure drawdown	bar	18 (Flow control valve type 2FRM6K)	
Pressure stability to $\Delta P=315$ bar	%	$\pm 3$ (Qmax)	

Characteristic curves (Measured at  $\vartheta_{oil}=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$  , using HLP46)

• Sandwich flow control valve Type Z2FRM6



• Flow control valve Type 2FRM6K



(Dimensions in mm)

### Type Z2FRM6A... and Z2FRM 6 B...



Technical drawing of a 100mm diameter, 170mm long hydraulic cylinder. The drawing includes a side view (top) and a front view (bottom).

**Side View Dimensions:**

- Total Length: 170
- Body Diameter: 104
- End Cap Diameter: 40
- Mounting Flange Diameter: 11.5
- Central Port Diameter: 10.3
- 4xØ5.4 hole pattern
- 1.4mm gap between end caps

**Front View Dimensions:**

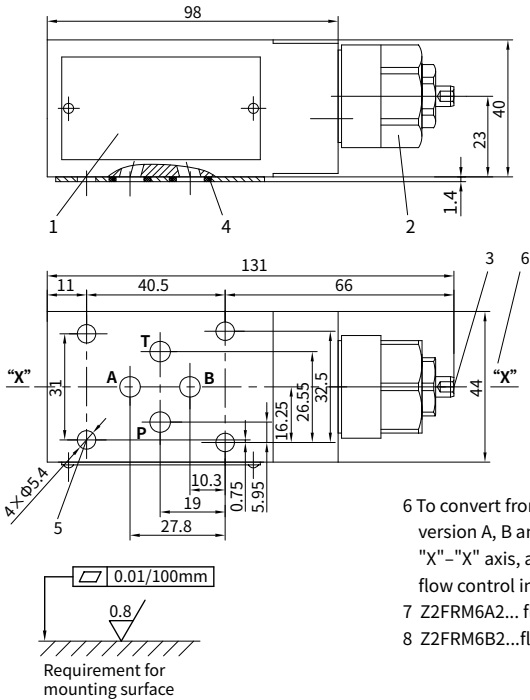
- Total Width: 66
- Mounting Flange Diameter: 11.5
- Central Port Diameter: 10.3
- 4xØ5.4 hole pattern
- 1.4mm gap between end caps

Unit dimensions:

(Dimensions in mm)

• Sandwich flow control valve Type Z2FRM6

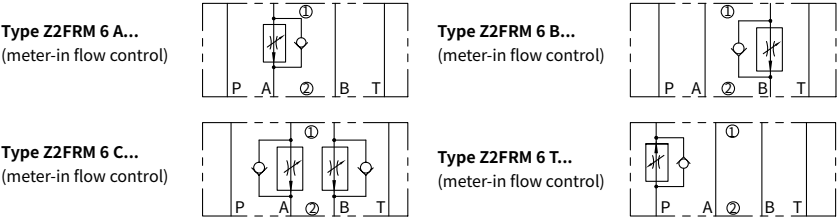
Type Z2FRM 6 T



- 1 Name plate
- 2 Flow control cartridge type 2FRM6K hexagon 27A/F,  $M_A = 50 \text{ Nm}$
- 3 Adjustment element with internal hexagon 3A/F
- 4 O-rings  $9.25 \times 1.78$  (Ports A2, B2, P2, T2)
- 5 Valve fixing holes  
Valve fixing screws  $M5 \times \text{**}$  GB/T70.1-10.9 tightening torque  $M_A = 50 \text{ Nm}$ , the screws length accords to the sandwich valves

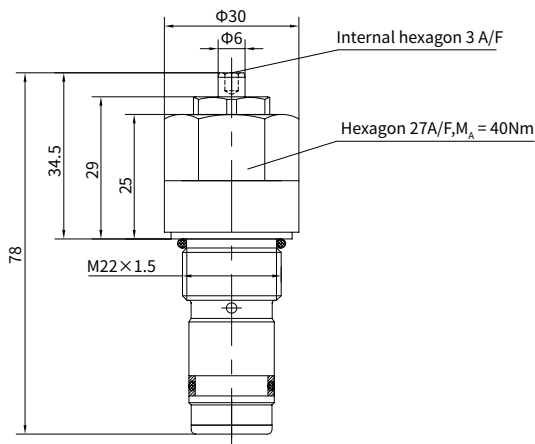
- 6 To convert from meter-out into meter-in control for version A, B and C, rotate the component about the "X" - "X" axis, and for version T, convert from Port T flow control into Port P flow control.
- 7 Z2FRM6A2... flow control in port A
- 8 Z2FRM6B2...flow control in port B

Symbols of rotation the component about the "X" - "X" axis  
( ① =valve side ② =sub-plate side)



(Dimensions in mm)

## 04



Insert hole DIN ISO 7789

