

Bosch Rexroth 2FRM6B36-3X/1,5QRV pressure-compensated flow control valve

Manufacturer: Bosch Rexroth
Manufacturer part number / published order designation: R900205507
Published model: 2FRM6B36-3X/1,5QRV

About this compilation

Prepared by Hydmaster from selected manufacturer documentation. Original technical pages follow without cropped drawings, rewritten data or altered units. This cover and index are Hydmaster editorial material, not a manufacturer-issued exact-execution datasheet.

Coverage: selected pages relevant to the identified size and configuration. Other options or neighbouring models retained on an original page apply only where explicitly identified.

Execution notes and conditions

Actual delivery flow settings and application suitability are not established by the factory material number.

Individual operating-pressure rating withheld: current 350 bar family edition does not establish applicability to older 315 bar executions.

Source-page index

Source page numbers below are physical pages of each complete original PDF. The original printed page labels and technical content remain unchanged. Compiled page numbers count this cover/index.

Source A: Bosch Rexroth 2Frm6 Re28163 2025 Original

Original pages	Compiled pages	Relevant content
1-4	2-5	NG6 manufacturer flow-control overview and edition; Exact B mechanical adjustment, coded flow range, check and seal options; Actual B...R flow-control/check circuit; optional Z4S not included; B execution downstream-compensator function and regulated flow direction
6-10	6-10	Selected-edition fluid and flow-range conditions; pressure upgrade not assigned; Required fluid restrictions; optional rectifier plate ratings are separate; Actual adjustment, pressure/temperature and reverse-check curves with conditions; Actual NG6 subplate mounting and adjustment-element geometry; Required drawing legend, mounting screws and subplates, separately ordered

2-way flow control valves

Type 2FRM



R0022

- Size 6
- Component series 3X
- Maximum operating pressure 350 bar
- Maximum flow 32 l/min

Features

- Porting pattern according to ISO 4401-03-02-0-05
- External closing of the pressure compensator, optional
- Check valve, optional
- 2 adjustment types, optional:
 - Rotary knob with scale
 - Lockable rotary knob with scale

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Ordering code: 2-way flow control valve

01	02	03	04	05	06	07	08	09	10	11
2FRM	6			6	-	3X	/			*

01	2-way flow control valve	2FRM
02	Size 6	6
03	With closing of the pressure compensator (suppression of the start-up jump)	A
	Without closing of the pressure compensator	B ◇

Adjustment type

04	Lockable rotary knob with scale ¹⁾	3 ◇
	Rotary knob with scale	7
05	Zero position of the marking at port P	6
06	Component series 30 ... 39 (30 ... 39: Unchanged installation and connection dimensions)	3X

Flow (A→B)

07	up to 0,2 l/min	0,2Q
	up to 0,6 l/min	0,6Q
	up to 1,5 l/min	1,5Q
	up to 3,0 l/min	3Q
	up to 6,0 l/min	6Q
	up to 10,0 l/min	10Q
	up to 16,0 l/min	16Q
	up to 25,0 l/min	25Q
	up to 32,0 l/min	32Q

Corrosion resistance

08	None	no code ◇
	Improved corrosion protection (240 h salt spray test according to EN ISO 9227); (version „7“ only)	J3
09	With check valve	R ◇
	Without check valve	M

Seal material (observe compatibility of seals with hydraulic fluid used, see page 7)

10	NBR seals	no code ◇
	FKM seals	V
11	Further details in the plain text	*

¹⁾ Key with the material no. **R900008158** is included in the scope of delivery.

 **Notice:** ◇ = Preferred type

Ordering code: Rectifier sandwich plate (only version „B“)

01	02	03	04	05
Z4S	6	-	1X	/

01	Rectifier sandwich plate	Z4S
02	Size 6	6
03	Component series 10 ... 19 (10 ... 19: Unchanged installation and connection dimensions)	1X

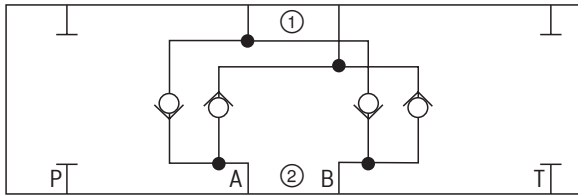
Seal material (observe compatibility of seals with hydraulic fluid used, see page 7)

04	NBR seals	no code
	FKM seals	V
05	Further details in the plain text	*

Symbols: 2-way flow control valves

	Simplified	Detailed
Without check valve; without external closing Type 2FRM 6 B...M...		
With check valve; without external closing Type 2FRM 6 B...R...		
Without check valve; with external closing Type 2FRM 6 A...M...		
With check valve; with external closing Type 2FRM 6 A...R...		

Symbol: Rectifier sandwich plate (① = component side, ② = plate side)



Function, section: Type 2FRM 6 B...

General

Flow control valves type 2FRM are 2-way flow control valves. They are used for maintaining a constant flow, independent of pressure and temperature.

The valves basically comprises a housing (1), a rotary knob (2), orifice bush (3), pressure compensator (4) and an optional check valve.

Version „B ... M“

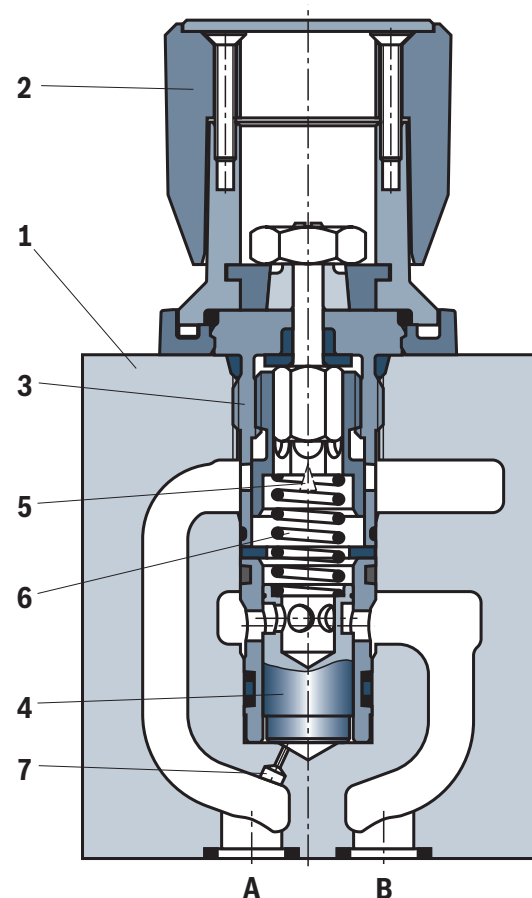
(**without** external closing, **without** check valve)

The flow from channel A→B is throttled at the throttling point (5). The throttle cross-section is set by turning the rotary knob (2).

In order to keep the flow in channel B constant, independent of the pressure, a pressure compensator (4) is fitted downstream of the throttling point (5).

The compression spring (6) presses the pressure compensator (4) downwards against its stop and keeps the pressure compensator (4) in the open position when there is no flow through the valve. When fluid flows through the valve, the pressure acting in channel A applies a force to the pressure compensator (4) via nozzle (7).

The pressure compensator (4) moves into the controlled position until the forces balance. If the pressure in channel A rises, the pressure compensator (4) moves in the closing direction until a balance of forces is once again attained. Due to this continuous compensation of the pressure compensator (4), a constant flow is obtained. In order to control a flow through the valve in both directions, a rectifier sandwich plate type Z4S 6 may be fitted below this flow control valve.



Type 2FRM 6 B76-3X/.M...

Technical data: 2-way flow control valve
 (For applications outside these values, please consult us!)

general	
Type of connection	Subplate mounting
Porting pattern	ISO 4401-03-02-0-05
Weight	kg Approx. 1.3
Installation position	Any
Ambient temperature range	°C -20 ... +80 (NBR seals) -15 ... +80 (FKM seals)

hydraulic	
Maximum operating pressure	bar 350
Hydraulic fluid	See table page 7
Hydraulic fluid temperature range	°C -20 ... +80 (NBR seals) -15 ... +80 (FKM seals)
Viscosity range	mm²/s 10 ... 800
Maximum admissible degree of contamination of the hydraulic fluid; cleanliness class according to ISO 4406 (c)	Class 20/18/15 ¹⁾
Maximum flow	l/min 0,2 0,6 1,5 3,0 6,0 10,0 16,0 25,0 32,0
Minimum flow	► up to 100 bar cm³/min 15 15 15 15 25 50 70 100 250 ► up to 350 bar cm³/min 25 25 25 25 25 50 70 100 250
Minimum pressure differential range	bar 6 ... 14
Flow control (Pressure stable / Thermally stable) up to Δp = 350 bar	% ±2 (q_{Vmax})

¹⁾ The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and simultaneously increases the life cycle of the components.

Technical data: 2-way flow control valve

(For applications outside these values, please consult us!)

Hydraulic fluid	Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils	HL, HLP, HLPD, HVLP, HVLDP	NBR, FKM	DIN 51524	90220
Bio-degradable	► Insoluble in water	HETG	ISO 15380	90221
		HEES		
	► Soluble in water	HEPG	ISO 15380	
Flame-resistant	► Water-free	HFDU (glycol base)	ISO 12922	90222
		HFDU (ester base))		
		HFDR		
	► Containing water	HFC (Fuchs: Hydrotherm 46M, Renosafe 500; Petrofer: Ultra Safe 620; Houghton: Safe 620; Union: Carbide HP5046)	ISO 12922	90223



Important information on hydraulic fluids:

- For further information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.
- There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.).
- The ignition temperature of the hydraulic fluid used must be 50 K higher than the maximum surface temperature.
- **Bio-degradable and flame-resistant – containing water:**
If components with galvanic zinc coating (e.g., version „J3“ or „J5“) or parts containing zinc are used, small amounts of dissolved zinc may get into the hydraulic system and cause accelerated aging of the hydraulic fluid. Zinc soap may form as a chemical reaction product, which may clog filters, nozzles and solenoid valves – particularly in connection with local heat input.

► Flame-resistant – containing water:

Due to increased cavitation tendency with HFC hydraulic fluids, the life cycle of the component may be reduced by up to 30% as compared to the use with mineral oil HLP. In order to reduce the cavitation effect, it is recommended - if possible specific to the installation - to back up the return flow pressure in ports-T to approx. 20% of the pressure differential at the component.

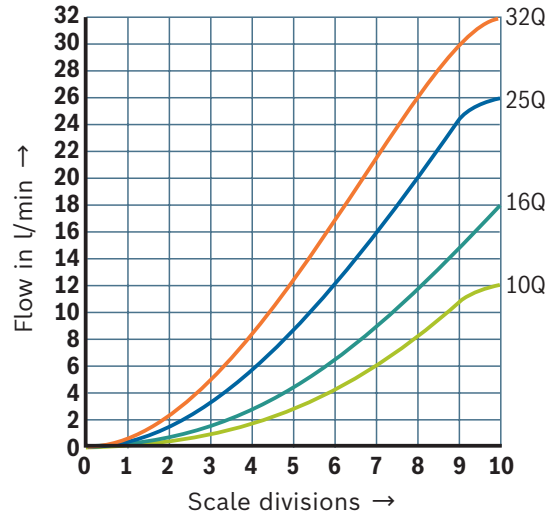
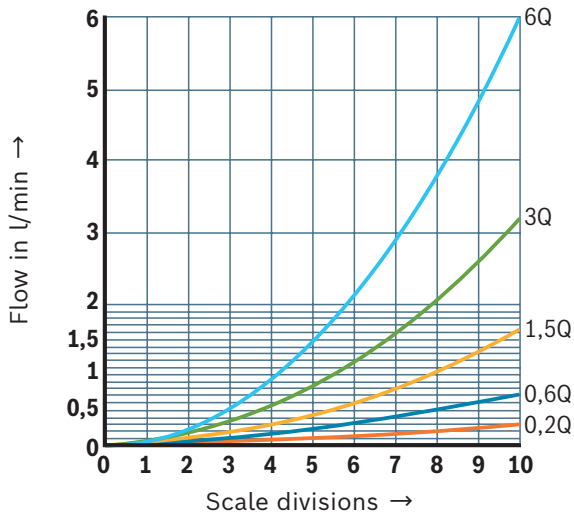
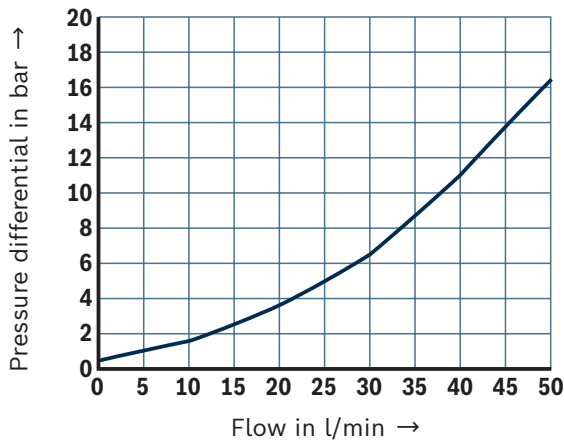
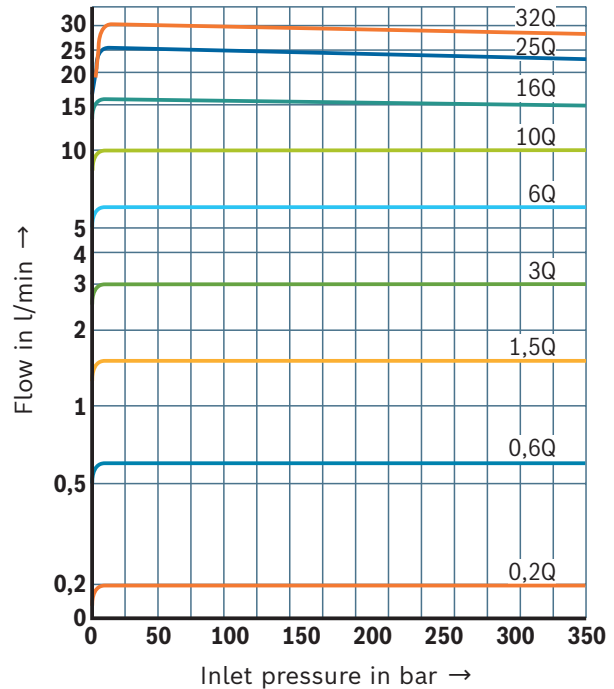
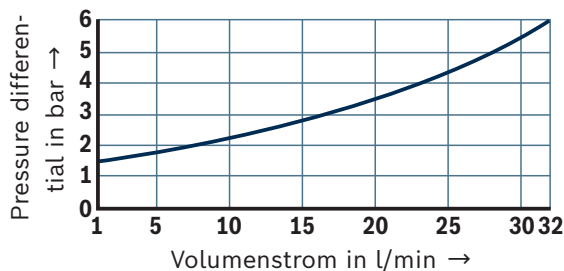
Technical data: Rectifier sandwich plate

(For applications outside these values, please consult us!)

general		
Weight	kg	ca. 0,9
hydraulic		
Maximum operating pressure	bar	210
Cracking pressure	bar	0,7
Maximum flow	l/min	32

Characteristic curves

(measured with HLP46, $\vartheta_{\text{öl}} = 40 \pm 5 \text{ °C}$)

Flow dependency on the scale setting (flow control A→B)

 Δp - q_v characteristic curves via check valve B→A;
(orifice closed)

 p_E - q_v characteristic curves

 Δp - q_v characteristic curves
Rectifier sandwich plate

Notice:

Typical characteristic curves which are subject to tolerance variations.

Dimensions

- 1 Adjustment type „3“ (lockable rotary knob with scale)
- 2 Adjustment type „7“ (rotary knob with scale)
- 3 Identical seal rings for ports A, B, P, and T
- 4 Space required to remove the key
- 5 Ø3 bore in version „B“ not bored (without external closing)
- 6 Name plate
- 7 Position of the marking at port P
- 8 Porting pattern according to ISO 4401-03-02-0-05

Valve mounting screws (separate order)

	Quantity	Hexagon socket head cap screws	Material number
Without rectifier sandwich plate	4	ISO 4762 - M5 x 30 - 10.9-fLZn-240h-L Friction coefficient μ_{total} = 0,09 ... 0,14; Tightening torque M_A = 7 Nm $\pm$ 10 %	R913000316
With rectifier sandwich plate	4	ISO 4762 - M5 x 70 - 10.9-fLZn-240h-L Friction coefficient μ_{total} = 0,09 ... 0,14; Tightening torque M_A = 7 Nm $\pm$ 10 %	R913000325

Subplates (separate order) with porting pattern according to ISO 4401-03-02-0-05 see data sheet 45100