



2 WAY FLOW CONTROL VALVE TYPE 2FRM

**WK
450 570**

Size 10,16

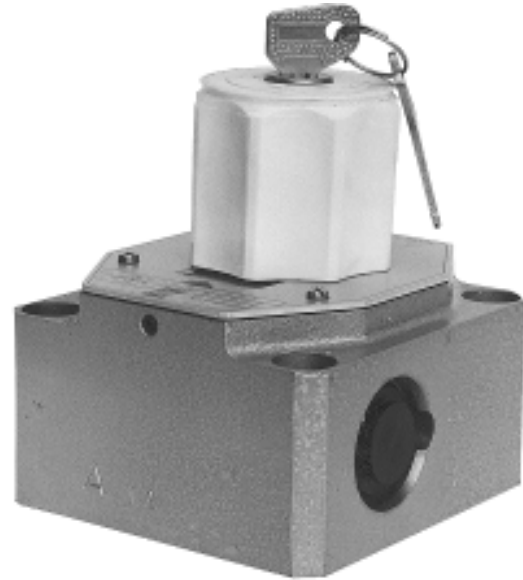
up to 31,5 MPa

up to 160 dm³/min

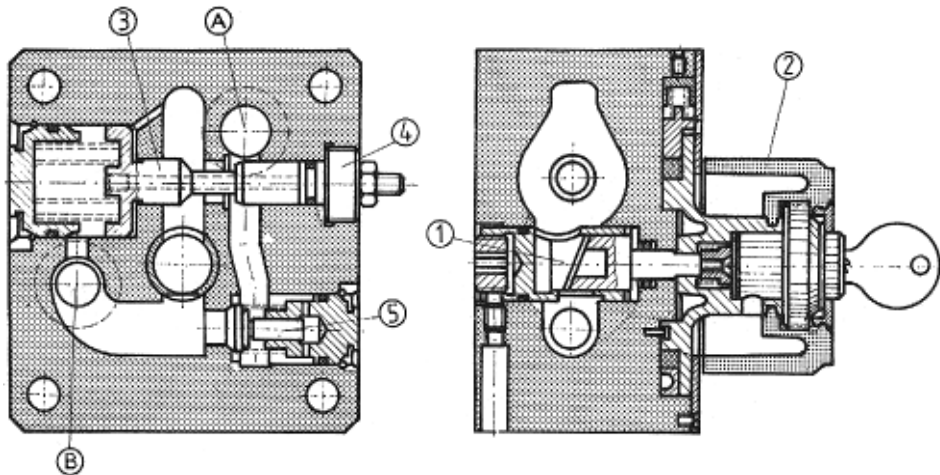
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2 way flow control valves serve to set the fluid flow constant in one direction and allow free flow in the opposite direction independently of the pressure and temperature changes.

The valve is fixed to a subplate by 4 bolts (not included with the valve). O-rings are fitted between the valve and the subplate to assure the sealing of the mating surfaces. The flow control valves can be mounted in hydraulic systems in any position.



DESCRIPTION OF OPERATION



In order to fix a flow rate, the fluid has to be supplied under pressure to line A. The fluid is throttled at the orifice bush 1 with adjustable aperture. The aperture is set by turning the lockable handknob 2 in the range of 0 - 300° (that corresponds with 10 scale graduations).

The set flow is independent of the pressure due to the pressure compensator 3 fitted in the housing on the way to the orifice bush 1.

The independence of the fluid temperature variations is achieved by means the suitable shaped orifice.

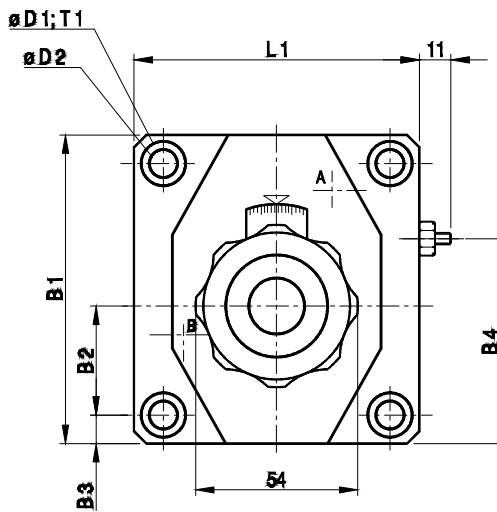
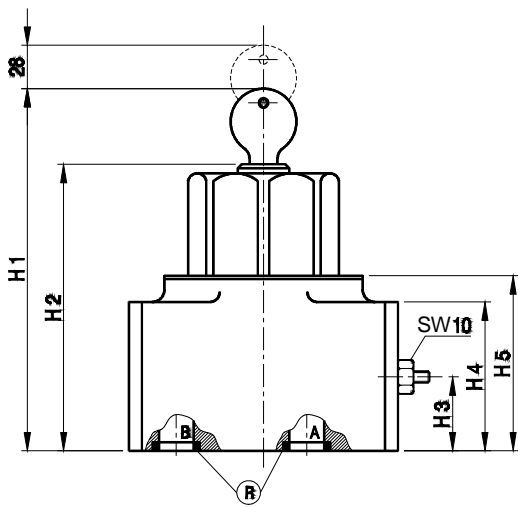
To avoid undesirable troubles at starting, pressure compensator stroke limiter 4 is available.

An additional check valve 5 is mounted to secure free flow from B to A.

TECHNICAL DATA

Hydraulic fluid	Mineral oil or phosphate ester	
Nominal fluid viscosity	37 mm ² /s at the temperature of 328 K	
Viscosity range	2.8 to 380 mm ² /s	
Optimum working temperature (fluid in a tank)	313 - 328 K	
Fluid temperature range	253 - 343 K	
Filtration	up to 16 μm when Q < 5 dm ³ /min up to 10 μm when Q < 0.5 dm ³ /min	
Flow control tolerance for constant temp. and pressure	± 2 %	
Min. pressure drop Q _{max} related	0.3 - 0.7 MPa for size 10 0.5 - 1.5 MPa for size 16	
Operating pressure in port A	up to 31.5 MPa	
Weight	Size 10	Size 16
	5.6 kg	11.3 kg

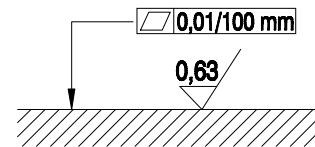
OVERALL DIMENSIONS



A - inlet

B - outlet

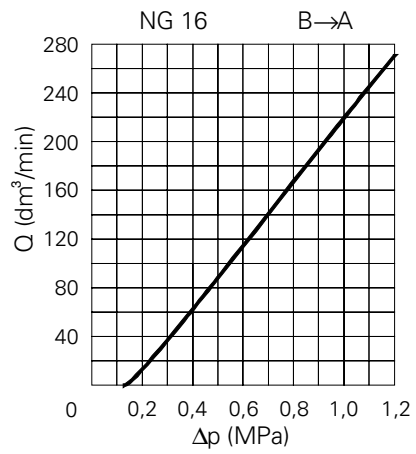
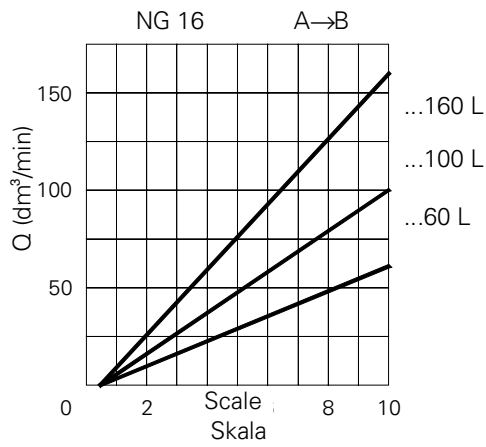
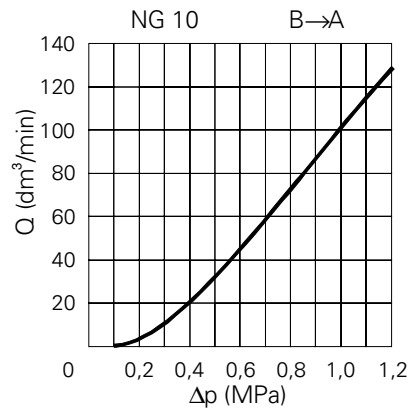
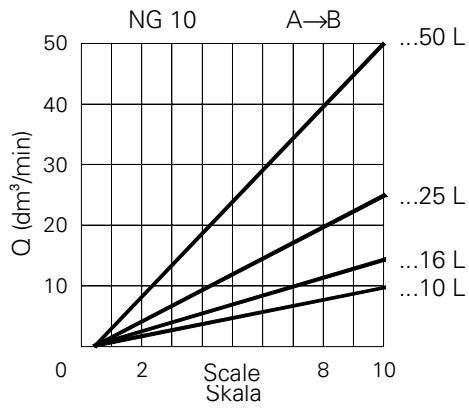
R - o-ring 18.7 × 3.5 - 2 pcs for size 10
26.6 × 3.5 - 2 pcs for size 16



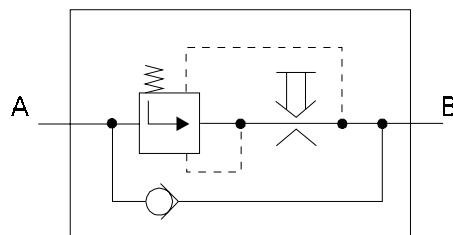
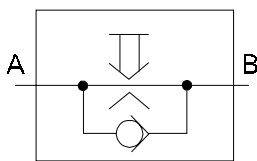
Available surface roughness and flatness deviation for a subplate face.

Size	B1	B2	B3	B4	D1	D2	H1	H2	H3	H4	H5	L1	T1	Weight
Size 10	101.5	35.5	9.5	68	15	9.0	125.5	107	26	51	60	95	13	5.6 kg
Size 16	123.5	41.5	11	81.5	18	11	147.5	129	34	72	82	123.5	12	11.3 kg

PERFORMANCE CURVES, measured at $v = 41 \text{ mm}^2/\text{s}$ and $T = 323 \text{ K}$



SCHEMES :



HOW TO ORDER

Orders coded in the way showed below should be forwarded to the manufacturer.



Nominal size
 Size 10 = 10
 Size 16 = 16

Series number
 22 = 22
 (20 - 29) - installation and connection dimensions remain unchanged

Further requirements in clear text
 (to be agreed upon with the manufacturer)

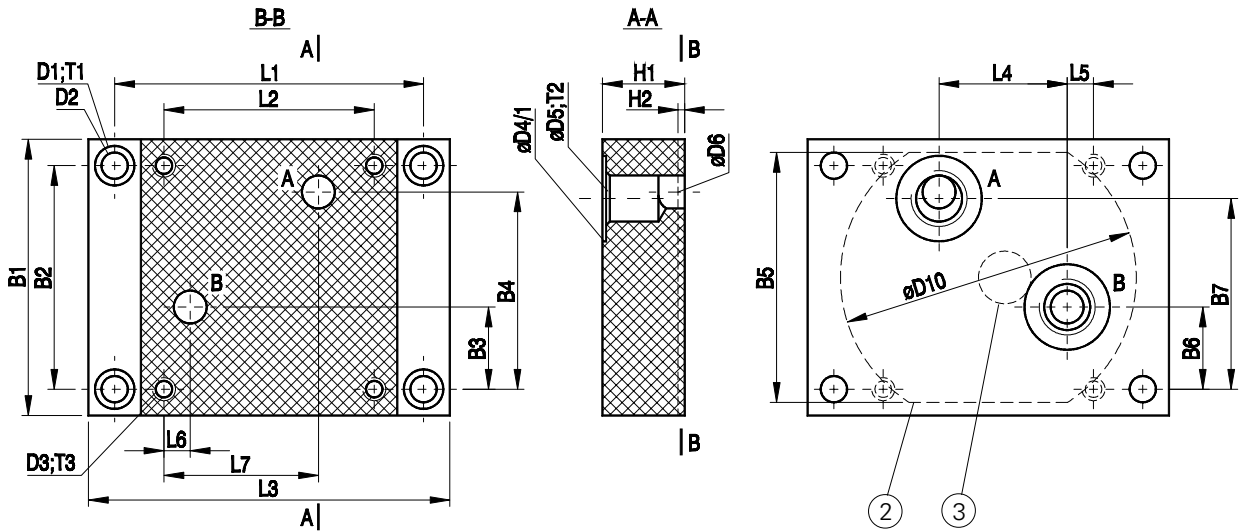
Sealing
 Fluids on mineral oil base = no code
 Fluids on phosphate ester base = V

Flow range (A to B)		
Size 10		Size 16
Linear	Non-linear	Linear
2 dm ³ /min =2L	1 dm ³ /min =1Q	40 dm ³ /min =40L
5 dm ³ /min =5L	2 dm ³ /min =2Q	60 dm ³ /min =60L
10 dm ³ /min =10L	10 dm ³ /min =10Q	80 dm ³ /min =80L
16 dm ³ /min =16L	25 dm ³ /min =25Q	100 dm ³ /min =100L
25 dm ³ /min =25L		125 dm ³ /min =125L
35 dm ³ /min =35L		160 dm ³ /min =160L
50 dm ³ /min =50L		

Accessories
 Without pressure compensator stroke limiter = no code
 With pressure compensator stroke limiter = B

Coding example : 2FRM 10 - 22/10 L

CONNECTION DIMENSIONS FOR SUBPLATE



- 1 - Valve mounting surface
- 2 - Recess in subplate face
- 3 - Dia.20 - for orifice support for size 10
Dia. 30 - for orifice support for size 16

Subplate	Type	B1	B2	B3	B4	B5	B6	B7	D1	D2	D3	D4	D5	D6
Size 10	G279/01	101.5	82.5	30.1	71.6	92+1	30.1	67.5	15	9	M8	34	G1/2	12
	G280/01												G3/4	
Size 16	G281/01	123.5	101.5	15	90.5	115+1	21	80.5	18	11	M10	47	G1	20
	G282/01												G1 1/4	

Subplate	Type	D10	H1	L1	L2	L3	L4	L5	L6	L7	T1	T2	T3	H2
Size 10	G279/01	115	30	114.5	76	133.5	55.1	9.6	9.6	55.	1	15	13	1.5
	G280/01											17		
Size 16	G281/01	150	40	146	101.	168	75	20.5	20.	75	1	19	20	2
	G282/01											21		

Subplate	Type	Mounting bolts - 4 pcs	Torque	Weight
Size 10	G279/01	M8 x 50 - 10.9 PN - 74/M - 82302 (DIN 912 - 10.9)	35 Nm	~ 2.3 kg
	G280/01			
Size 16	G281/01	M10 x 80 - 10.9 PN - 74/M - 82302 (DIN 912 - 10.9)	70 Nm	~ 4.0 kg
	G282/01			

Note : Subplate and mounting bolts must be ordered separately.



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