RE 28 155/11.02

Replaces: 05.99

2-way flow control valve, Type 2FRM . K

Nominal sizes 6 and 10
Series 1X
Maximum operating pressure 315 bar
Maximum flow 60 L/min

H/A 5012/95r

Type 2FRM 6 K2-1X/6QRV

Overview of contents

Features

- Cartridge valve
- Adjustment element with internal hexagon
- With built-in check valve
- Low start-up jump

Ordering details, preferred types

2FRM		K	2	1X	/	R	V	*

2-way flow control valve

Nominal size 6 = **6**
Nominal size 10 = **10**

Cartridge valve = **K**

Adjustment element
Internal hexagon = **2**

Series 10 to 19 = **1X**
(10 to 19: unchanged installation and connection dimensions)

Further details in clear text

V = FKM seals (other seals on request)

⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

R = **With** check valve

Flow (A → B)
6Q = Up to 6.0 L/min (nom. size 6)
32Q = Up to 32.0 L/min (nom. size 6)
60Q = Up to 60.0 L/min (nom. size 10)

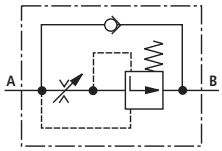
Preferred types:

Type	Material No.
2FRM 6 K2-1X/32QRV	R9000572182
2FRM 6 K2-1X/6QRV	R9000905886

Preferred types and standard components can be found in the EPS (Standard Price List).

Symbols (detailed and simplified)

Detailed



Simplified

Function, section

Flow control valves type 2FRM . K2 are 2-way flow control valves suitable for fitting into manifold systems. They are used for maintaining a constant flow, independent of pressure and temperature.

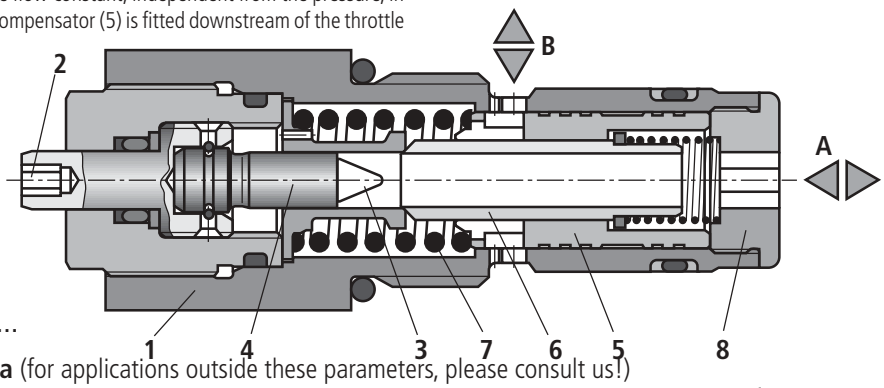
The valve basically consists of the housing (1), adjustment element (2), throttling area (3), throttle bolt (4), pressure compensator (5) and check valve (6).

Throttling of the flow from port A to port B occurs at the throttle area (3). The throttle cross-section is changed by turning the adjustment element (2). This takes place between the throttle area (3) and the throttle bolt (4).

In order to hold the flow constant, independent from the pressure, in port B a pressure compensator (5) is fitted downstream of the throttle area (3).

The pressure compensator (5) is pressed against the plug (8) by the compression spring (7) and so stays in the open position as long as there is no flow through the valve. When flow takes place through the valve the pressure, which is present in port A, applies a force onto the pressure compensator (5). The pressure compensator moves into the compensating position until the forces are balanced. If the pressure increases in port A, then the pressure compensator (5) moves towards its closed position until the forces are balanced. Due to this continuous compensating action a constant flow is obtained.

Free return flow from port B to port A is obtained via the check valve (6).



Type 2FRM . K2…

Technical data (for applications outside these parameters, please consult us!)

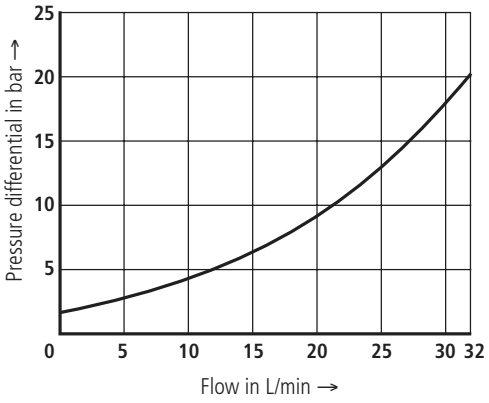
General			**NS 6**		**NS 10**
Installation			Optional		
Ambient temperature range		°C	–20 to + 50		
Weight		kg	0.19		0.6
Hydraulic					
Maximum operating pressure, port A		bar	315		210
Pressure differential Δp for free return flow B → A		bar	See characteristic curves on page 3		
Minimum pressure differential		bar	18		18
Pressure stable up to Δp = 315 bar / 210 bar		%	$\pm 3 (p_{V\,max})$		$\pm 3 (p_{V\,max})$
Flow	$p_{V\,max}$	L/min	6.0	32	60
	$p_{V\,min}$	cm³/min	50	250	500
Pressure fluid			Mineral oil (HL, HLP) to DIN 51 524; Fast bio de-gradable pressure fluids to VDMA 24 568 (also see RE 90 221); HETG (rape seed oil); HEPG (polyglycols); HEES (synthetic ester); other pressure fluids on request		
Pressure fluid temperature range		°C	–20 to +80		
Viscosity range		mm²/s	10 to 800		
Cleanliness class to ISO code			Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15[1)]		

[1)] The cleanliness class stated for the components must be adhered too in hydraulic systems. Effective filtration prevents faults from occurring and at the same time increases the component service life.

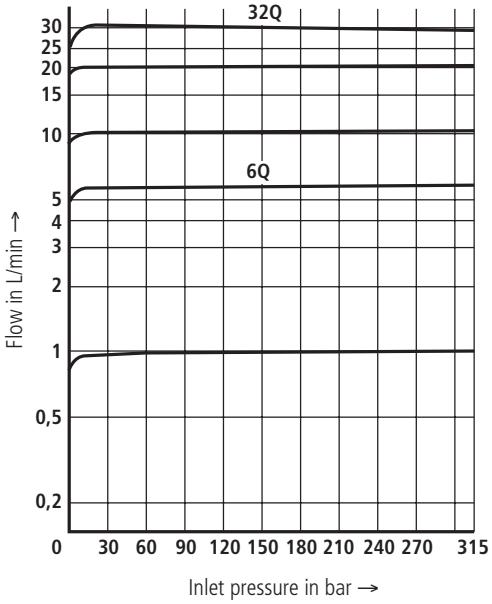
Characteristic curves (measured with HLP46 ϑ_{oil}= 40 °C ± 5°C)

Nominal size 6

Δp-q_V-characteristic curve via the check valve (B → A)
Orifice closed

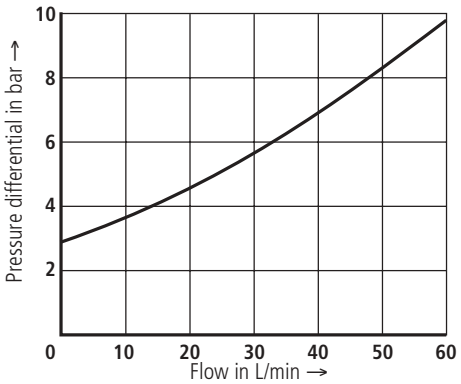


Flow q_V in relation to the inlet pressure p

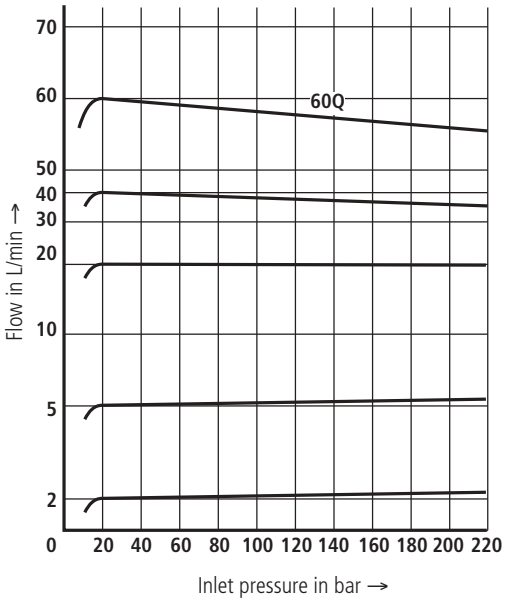


Nominal size 10

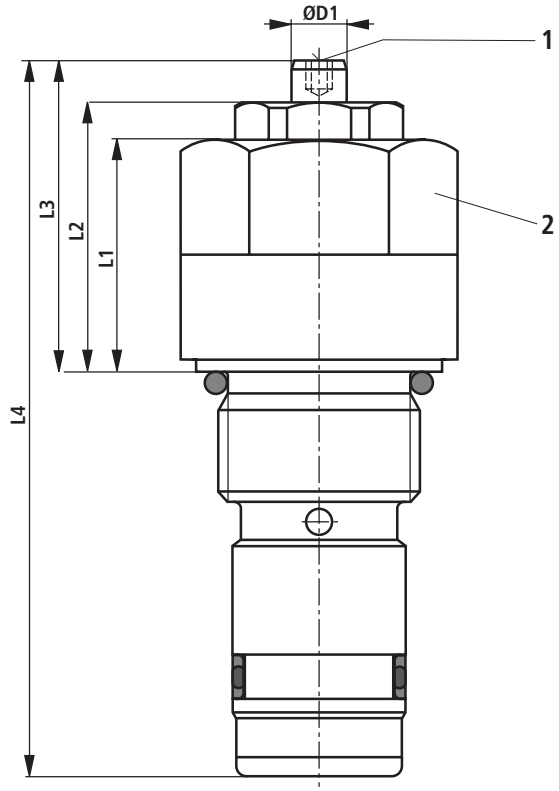
Δp-q_V-characteristic curve via the check valve (B → A)
Orifice closed



Flow q_V in relation to the inlet pressure p



Unit dimensions, cavities (dimensionsin mm)



1 Internal hexagon 3A/F

2 • NS 6: Hexagon 27A/F; M_A = 40 Nm
• NS 10: Hexagon 41A/F; M_A = 120 Nm

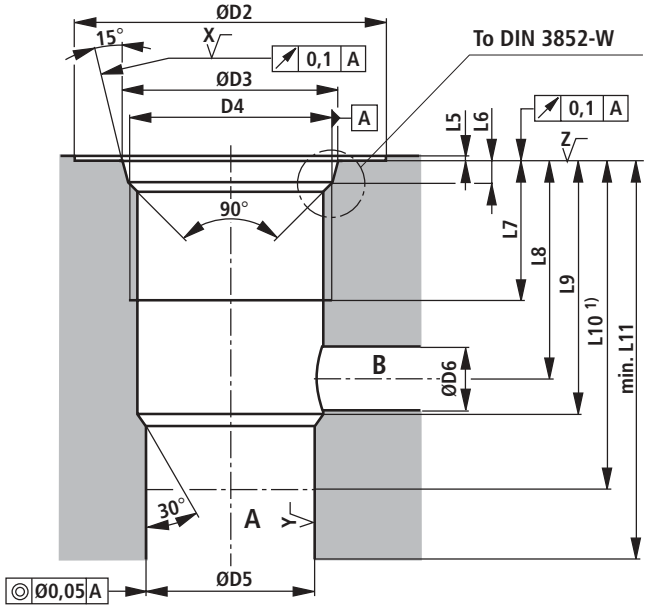
NS	ØD1	ØD2	ØD3	D4	ØD5	ØD6	L1
6	6	34	$23.8^{\pm0.1}$	M22 x 1.5	19^{H7}	7	25
10	6	46	$35.4^{\pm0.1}$	M33 x 2	29^{H8}	11	36

NS	L2	L3	L4	L5	L6	L7	L8	L9
6	29	33.5	77	0.5	$2.4^{+0.4}$	17	24_{-4}	$28^{\pm0.1}$
10	41	45.5	109	0.5	$3.1^{+0.4}$	23	32_{-4}	$39^{+0.4}$

NS	L10 [1]	L11
6	38.5	$45^{+0.2}$
10	55	65

[1] Depth of fit

Cavities to DIN ISO 7789



Nominal size 6

$\sqrt{X} = \sqrt{R_{max}\,8}$

$\sqrt{Y} = \sqrt{R_z\,8}$

$\sqrt{Z} = \sqrt{R_z\,16}$

Nominal size 10

$\sqrt{X} = \sqrt{R_z\,8}$

$\sqrt{Y} = \sqrt{R_z\,8}$

$\sqrt{Z} = \sqrt{R_z\,25}$