

# 2-way Control Valves type M2FR

## Cast iron, PN 16, DN 100 – 150 mm, Reverse acting

2.3.07-G

GB-1

### Characteristics

- Nominal pressure PN 16
- Regulating capability  $\frac{k_{vs}}{k_{vr}} > 25$
- Double seated
- Reverse acting (normally closed)
- For cooling water and lubrications

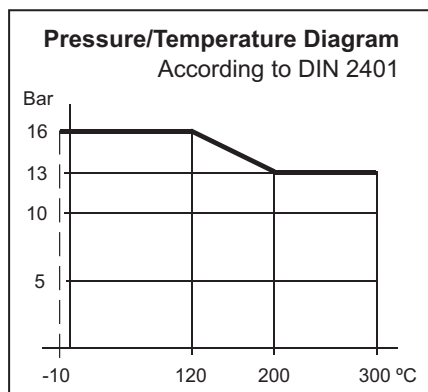
### Applications

Valves type M2FR are mainly intended for control of cooling systems.

The valves are used in conjunction with temperature or pressure differential regulators.

As the reverse acting valves are held in closed position by means of a built-in spring, the max. differential pressure,  $\Delta p_L$ , against which a valve can close depends on the spring and when opening the valve, the actuator has to overcome the spring force.

Please find below the max. allowable values of  $\Delta p_L$  as well as the max. allowable inlet pressures for opening the valves,  $p_{1max}$  for various actuator forces.



### Dimensioning

For sizing of control valves, please see "Quick Choice" leaflet no. 9.0.00.

### Design

The valve components - spindle, seats and cone - are made of stainless steel. The valve body is made of cast iron EN-GJL-250 with flanges drilled according to EN 1092-2. The connection thread for the actuator is G1B ISO 228.

The valves are double-seated and designed for tight closure. The leakage rate is less than 0.5% of the full flow (according to VDI/VDE 2174).

### Quality assurance

All valves are manufactured under an ISO 9001 certification and are pressure and leakage tested before shipment.

### Function

Without an actuator being connected, the valve is held in closed position by means of a spring. With pressure on the spindle the valve opens.

In connection with our thermostats, the valves act as "cooling" valves, i.e. they open at rising temperatures.

The linear characteristic will not cease until the flow has dropped below 4% of the full flow.



### Technical Data

Materials:

- Valve body	Cast iron EN-GJL-250
- Trim	Stainless steel
- Nuts, bolts	24 CrMo 4/A4
Nominal pressure	PN 16
Seating	Double seated
Flow characteristic	Linear
Regulating capability	$\frac{k_{vs}}{k_{vr}} > 25$
Function	Opening with pressure on spindle
Leakage rate	$\leq 0.5\%$ of $k_{vs}$
Temperature range	See pressure/temperature diagram
Mounting	See page 2
Flanges	EN 1092-2 PN 16
Counter flanges	DIN 2633 / DS623
Colour	Grey

Specifications							
Type	Flange connection DN in mm	Opening mm	$k_{vs}$ -value m <sup>3</sup> /h	Lifting height mm	Max. $\Delta p_L$ bar	Actuat. force N	Weight kg
100 M2FR	100	100	125	15	12.1	800	39
125 M2FR	125	125	215	18	9	800	53
150 M2FR	150	150	310	18	7.5	800	73

Subject to changes without notice.

# 2-way Control Valves type M2FR

## Cast iron, PN 16, DN 100 – 150 mm, Reverse acting

2.3.07-G

GB-2

### Definition of $k_{VS}$ -value

The  $k_{VS}$ -value is identical to the IEC flow coefficient  $k_V$  and defined as the water flow rate in m<sup>3</sup>/h through the fully open valve by a constant differential pressure,  $\Delta p_V$ , of 1 bar.

### Mounting

The valves can be installed with vertical as well as horizontal spindles. For valve temperatures of max. 170°C, the thermostat/actuator can be fitted below or above the valve. For valve temperatures above 170°C, a cooling unit of type KS has to be applied with connection downwards - according to the following instructions:

Valve Temperature	Cooling Unit	Suitable for
170°C - 250°C	KS-4	All actuators
250°C - 300°C	KS-5	Thermostats
250°C - 300°C	KS-6	Valve Motors

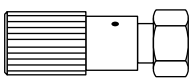
KS-5 or KS-6 must be applied to hot oil systems.

### Strainer

It is recommended to use a strainer in front of the control valve if the liquid contains suspended particles.

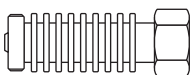
### Accessories

#### Manual Adjusting Device



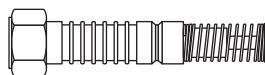
The device has a built-in stuffing box. For sealing and manual operation of valves when an actuator has not been fitted, e.g. during periods of construction.

#### Cooling Unit KS-4



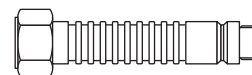
Cooling unit protecting the stuffing box of the motor / thermostat. To be applied at valve temperatures between 170°C and 250°C.

#### Cooling Unit KS-5



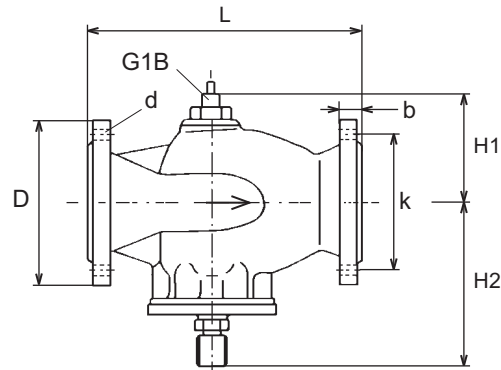
Cooling units with built-in bellow glands, replacing stuffing box of thermostat (KS-5) or valve motor (KS-6). Must be applied at valve temperatures above 250°C and in hot oil systems.

#### Cooling Unit KS-6



Subject to changes without notice.

### Dimension sketch



### Dimensions

Type	L mm	H1 mm	H2 mm	D (dia.) mm	b mm	k (dia.) mm	d mm dia. (number)
100 M2FR	350	145	240	220	24	180	18x(8)
125 M2FR	400	160	260	250	26	210	18x(8)
150 M2FR	400	180	293	285	26	240	22x(8)