

### Characteristics

- Nominal pressure PN 16
- Pressure balanced valve
- Regulating capability  $\frac{k_{vs}}{k_{vr}} > 25$
- Single-seated, balanced
- Quadratic characteristic

### Applications

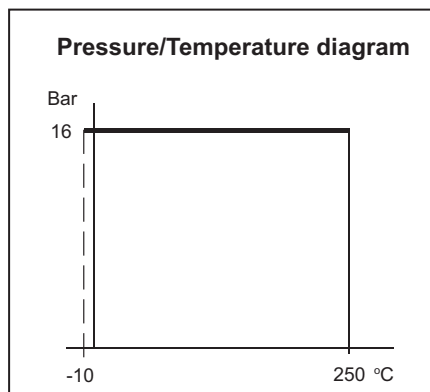
Balanced control valves type M1FBN are designed for regulating hot water, steam and hot oil systems.

Balanced valves are used in installations where the system pressure necessitates a closing force greater than available in the actuator programme for a standard single seated valve, and where the leakage rate for a double-seated valve is unacceptable.

The valves are used in conjunction with our temperature- or pressure differential regulators for controlling industrial processes, district or central heating plants or marine installations.

### Design

The valve components - spindle, seat, cone - are made of stainless steel.



The valve body is made of cast iron EN-GJS-400-15 with flanges drilled according to EN 1092-2 or ANSI B16.5 Class 150. The thread for the actuator connection is G1B ISO 228.

The valves are single-seated and designed for tight closure. The leakage rate is less than 0.05% 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.

For marine applications the valves can be supplied with relevant test certificates from recognized classification societies.

### Function

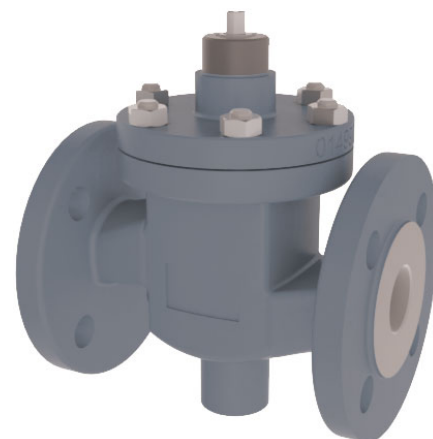
Without an actuator being connected, the valve is held in open position by means of a spring. With force on the spindle the valve will close.

In connection with our thermostats or electric actuators, the valves will close at rising temperatures. For cooling circuits a reverse acting double-seated valve can be used.

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

### Technical data

Materials:	
- Valve body	Cast iron
	EN-GJS-400-15
- Components	Stainless steel
- Nuts, bolts	24 CrMo 5/A4
Nominal pressure	PN 16
Seating	Single-seated
Valve characteristic	Quadratic
Regulating capability	$\frac{k_{vs}}{k_{vr}} > 25$



Leakage	≤ 0.05% of $k_{vs}$
Temperature range	See pressure/temperature diagram
Flanges drilled according to	EN 1092-2 PN 16 or ANSI B16.5 Class 150
Colour	Grey

### 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  $m^3/h$  through the fully open valve by a constant differential pressure,  $\Delta p_v$ , of 1 bar.

### Mounting

Up to 170°C the valve can be installed vertically as well as horizontally. For media temperature above 170°C, a cooling unit of type KS-4 has to be applied. It must then be installed with electric actuator/ thermostat downwards.

### Strainer

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

Specifications					
Type	Flange connection DN in mm	Opening mm	$k_{vs}$ -value $m^3/h$	Lifting height mm	Weight kg
15 M1FBN	15	15	4	7.5	4
20 M1FBN	20	20	6.3	7.5	5
25 M1FBN	25	25	10	9	6
32 M1FBN	32	32	16	10	9
40 M1FBN	40	40	25	11	13
50 M1FBN	50	50	35	11.5	16
65 M1FBN	65	65	58	14.5	23
80 M1FBN	80	80	80	16	38

Subject to changes without notice.

# Balanced 2-way Control Valves type M1FBN

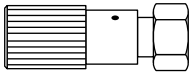
## Cast iron, PN 16, DN 15 – 80 mm

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GB-2

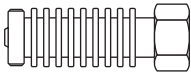
### Accessories

#### Manual adjusting device



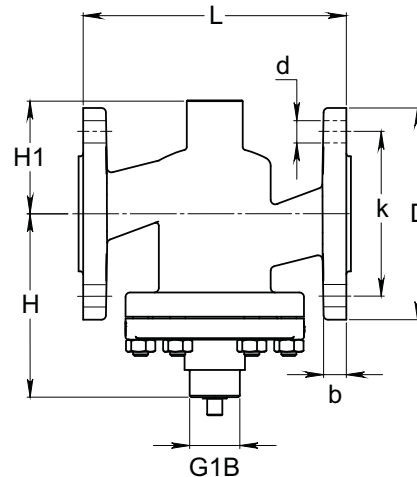
The device has a built-in stuffing box. For sealing and manual operation of valves when an actuator has not been fitted, e.g. during periods of construction.

#### Cooling unit KS-4



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

### Dimension sketch



### Dimensions

Type	L mm	H mm	H1 mm	D (dia.) mm	b mm	k (dia.) mm	d mm dia. (number)
15 M1FBN	130	101	80	95	14	65	14x(4)
20 M1FBN	150	107	85	105	16	75	14x(4)
25 M1FBN	160	112	70	115	16	85	14x(4)
32 M1FBN	180	122	75	140	18	100	18x(4)
40 M1FBN	200	125	85	150	19	110	18x(4)
50 M1FBN	230	140	95	165	19	125	18x(4)
65 M1FBN	290	154	110	185	19	145	18x(4)
80 M1FBN	310	164	115	200	19	160	19x(8)

### Dimensioning

Type	Water / Steam	Thermostats			Valve actuators		Pressure differential controllers	
		V2	V4	V8	V / AV	VB / VBA	TD66-4	TD66-8
15 M1FBN	Water: $\Delta p_1$ & max. $p_1$ bar	10	16	16	16	16	16	16
	Steam: $\Delta p_1$ & max. $p_1$ bar	9						
20 M1FBN	Water: $\Delta p_1$ & max. $p_1$ bar	9						
	Steam: $\Delta p_1$ & max. $p_1$ bar	8						
25 M1FBN	Water: $\Delta p_1$ & max. $p_1$ bar	8						
	Steam: $\Delta p_1$ & max. $p_1$ bar	7						
32 M1FBN	Water: $\Delta p_1$ & max. $p_1$ bar	7						
	Steam: $\Delta p_1$ & max. $p_1$ bar	6						
40 M1FBN	Water: $\Delta p_1$ & max. $p_1$ bar	-	10					
	Steam: $\Delta p_1$ & max. $p_1$ bar	-	9					
50 M1FBN	Water: $\Delta p_1$ & max. $p_1$ bar	-	9					
	Steam: $\Delta p_1$ & max. $p_1$ bar	-	8					
65 M1FBN	Water: $\Delta p_1$ & max. $p_1$ bar	-	7					
	Steam: $\Delta p_1$ & max. $p_1$ bar	-	6					
80 M1FBN	Water: $\Delta p_1$ & max. $p_1$ bar	-	5					
	Steam: $\Delta p_1$ & max. $p_1$ bar	-	4					

$p_1$  = absolute pressure

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