Balanced 2-way Regulating Valves Type M1FB
Cast Iron, PN 16, DN 25...80 mm∅

Characteristics

- Pressure balanced
- Single seated, tight closing
- Quadratic valve characteristic
- Regulating capability $\frac{k_{vs}}{k_{vr}} > 25$

Applications

The pressure balanced regulating valves type M1FB are designed for regulating low and medium pressure hot water, steam and lubricating liquids, where the system pressure and the valve size makes it necessary to choose a balanced valve in order to be able to use a single seated valve, which means less leakage.
The valves are installed combined with one of our temperature regulators in control systems for heating of domestic premises, district heating, industrial processes or marine installations.

Dimensioning

For sizing of control valves and selection of actuators, please see “Quick Choice” leaflet No. 9.0.00.

Design

The valve components - spindle, seat, cone and bellows - are made of stainless steel.
The bellows for balancing the pressure is fitted on the valve spindle and it reduces the power necessary for closing the valve, as the upstream pressure of the medium through the hollow valve spindle acts outside and the pressure after the valve acts inside the bellows system.
The valve body is made of cast iron EN-GJL-250 with connection flanges drilled according to EN 1092-2.
The connection thread for the actuator is ISO 228 - G1B.
The valves are single-seated and, by design, tight closing. The leakage is less than 0.05% of full flow (see VDI/VDE 2174).

Function

Without an actuator being connected, the valve is held in open position by means of a spring and the bellow system.With pressure on the spindle the valve will close.
In connection with our thermostats or electronic actuators, the valves will close at rising temperatures. For cooling circuits a reverse acting valve can be used.
The quadratic characteristic will not cease until the flow has dropped below 4% of the full flow.

Quality assurance

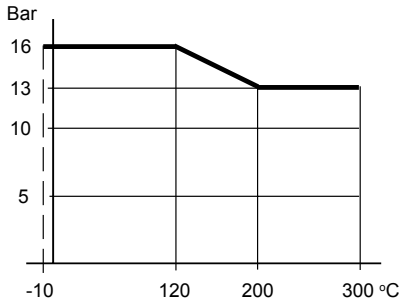
All valves are manufactured under an ISO 9001 certification and are pressure and leakage tested before shipment.
For marine applications the valves can be supplied with relevant test certificates from recognized classification societies.

Technical Data

Materials:	
- valve body	Cast iron EN-GJL-250
- components	Stainless steel
- nuts and bolts	24 CrMo 5 / A4
Nominal pressure	PN 16
Seating	Single seated
Valve characteristic	Quadratic
Regulating capability	$\frac{k_{vs}}{k_{vr}} > 25$
Function	Closing with pressure on spindle
Leakage	≤ 0.05% of k_{vs}
Temperature range	See pressure/temperature diagram
Mounting	See page 2
Flanges	EN 1092-2 PN 16

Subject to changes without notice.

Pressure/Temperature Diagram
According to DIN 2401



Specifications

Type	Opening DN mm	k_{vs}-value m^3/h	Lifting height mm
25 M1FB	25	7.5	7
32 M1FB	32	12.5	8
40 M1FB	40	20	9
50 M1FB	50	30	10
65 M1FB	65	50	13
80 M1FB	80	80	16

Clorius Controls A/S
Tempovej 27 · DK-2750 Ballerup · Denmark
Tel.: +45 77 32 31 30 · Fax: +45 77 32 31 31
E-mail: mail@cloriuscontrols.com
Web: www.cloriuscontrols.com

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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, Δp_V of 1 bar.

Mounting

The valves should be installed with vertical spindles in order to reduce wear and tear. For valve temperatures of **max.** 150°C, the thermostat/actuator can be fitted below or above the valve.
For valve temperatures **above** 150°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
150°C - 250°C	KS-4	All actuators
250°C - 300°C	KS-5	Thermostats
250°C - 300°C	KS-6	Valve Motors

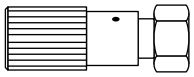
KS-5 or KS-6 must be applied to hot oil systems.

Strainer

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

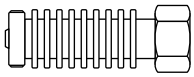
Accessories

Manual Adjusting Device



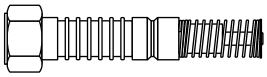
The device has a built-in stuffing box.
For tightening and manual operation of valves when an actuator has not been fitted, e.g. during periods of construction.

Cooling Unit KS-4

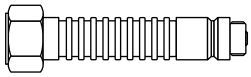


Cooling Unit protecting the stuffing box of the motor/thermostat. To be applied at valve temperatures between 150°C and 250°C.

Cooling Unit KS-5



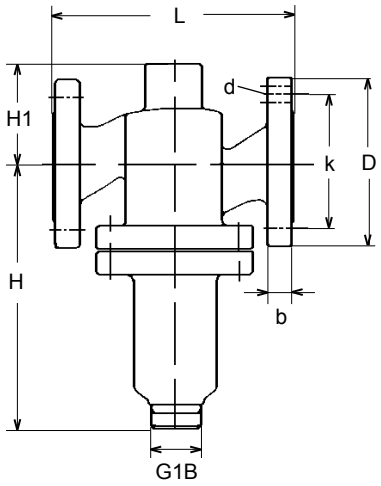
Cooling Unit KS-6



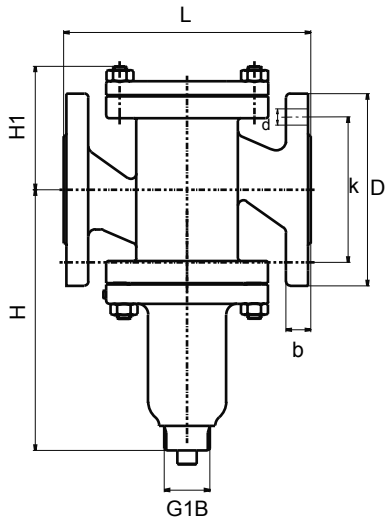
Cooling units with built-in bellow glands, replacing stuffing box of thermostat (KS-5) or valve motor (KS-6). Must be applied at valve temperatures above 250°C and in hot oil systems, regardless the temperature of oil.

Dimension Sketch

Valve size DN 25-65 mm



Valve size DN 80 mm



Dimensions

Type	L mm	H mm	H1 mm	b mm	D (dia.) mm	k (dia.) mm	d mm dia. (number)	Weight kg
25 M1FB	160	180	70	16	115	85	14x(4)	6
32 M1FB	180	195	75	18	140	100	18x(4)	9
40 M1FB	200	205	85	18	150	110	18x(4)	13
50 M1FB	230	225	95	20	165	125	18x(4)	16
65 M1FB	290	260	110	20	185	145	18x(8)	23
80 M1FB	310	275	115	22	200	160	18x(8)	38

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Clorius Controls A/S
Tempovej 27 · DK-2750 Ballerup · Denmark
Tel.: +45 77 32 31 30 · Fax: +45 77 32 31 31
E-mail: mail@cloriuscontrols.com
Web: www.cloriuscontrols.com