

3-way control valves type G3FM

2.5.10-O

Nodular cast iron, PN 16, DN 80 – 200 mm / PN 10, DN 300/250 – 300 mm

GB-1

Characteristics

- Nominal pressure
 - 80-200 mm: PN 16 max. 120°C
 - 300/250-300 mm: PN 10 max. 120°C
- Regulating capability $\frac{k_{vs}}{k_{vr}} > 25$
- Two balanced single seats
- For cooling and heating purposes

Applications

Control valves type G3FM are designed for regulating of fresh water, lubricating oil and other liquid media.

The valves are designed for use in conjunction with large industrial processes, district heating and marine installations, e.g. cooling of main and auxiliary engines. Is used in conjunction with Clorius valve motor type MT90 Marine.

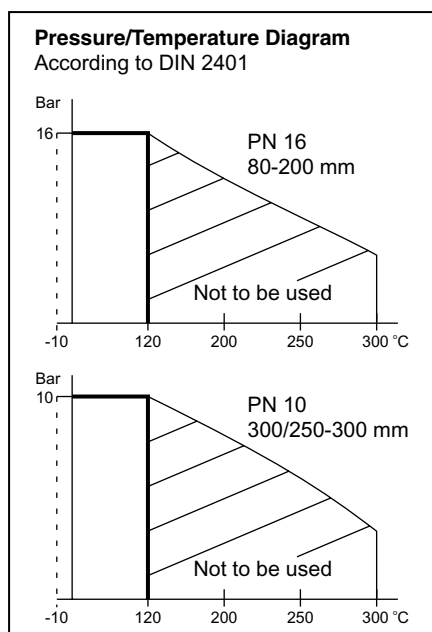
Dimensioning

For sizing of control valves up to DN 150 please see "Quick Choice" leaflet No. 9.0.00. For sizing of control valves bigger than DN 150 mm following equation can be used:

$$k_{vs} = \frac{G(m^3/h)}{\sqrt{\Delta p(\text{bar})}}$$

$$\Delta p(\text{bar}) = \left(\frac{G(m^3/h)}{k_{vs}} \right)^2$$

Please see datasheet 4.8.05, for max. differential pressure which the actuator type MT90 Marine, can close the valve against.



Design

The valve components (seats and cone) are made of gun metal, the spindle of stainless steel. The valve body is made of nodular cast iron and the valve flanges are drilled according to EN 1092-2.

Quality assurance

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

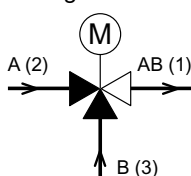
For marine applications the valves can be supplied with relevant test certificates from recognized classification societies.

Port numbering

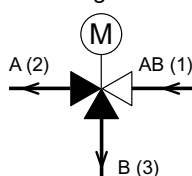
The ports of valves type G3FM are marked with the letters AB, A and B.

The letters in parentheses refer to the corresponding internationally adapted designations.

Mixing valve



Diverting valve



Port AB (1) common port always open

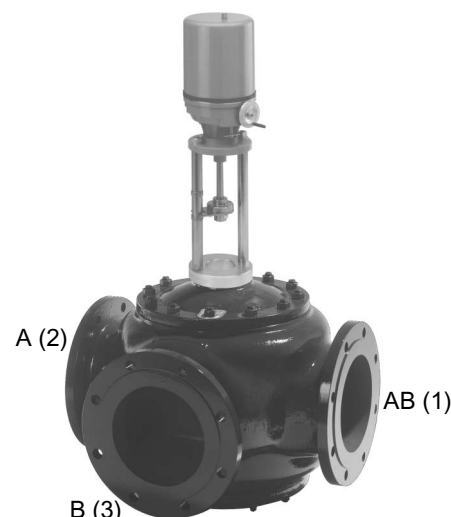
Port A (2) closes at load on spindle

Port B (3) opens at load on spindle

Function

The valve cone is firmly connected with the motor spindle. When the valve cone is in the one extreme position by draw on the spindle, connection A-AB is kept fully open and connection B-AB is fully closed.

In the other extreme position connection A-AB is fully closed and connection B-AB is fully open. In the intermediate positions the opening degrees change proportionally.



Technical data

Materials	
- Valve body	Nodular cast iron
- Trim	Gun metal RG 5
	CuSn5Zn5Pb5-C
- Valve spindle	Stainless steel
	(W.no. 1.4436)

Nominal pressure	
80 – 200 G3FM:	PN 16 (max. 120°C)
300/250 – 300 G3FM:	PN 10 (max. 120°C)

Seats	2 balanced single seats
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Valve characteristic	Almost linear
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Leakage	≤ 0.5%
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Temperature range	Max. 120°C
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Mounting	See page 2
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Flanges	According to EN 1092-2,
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PN 16 & PN 10

Note ! Valve type 300/250 G3FM has outer measures and flanges drilled as valve type 300 G3FM

Counter flanges (suggested)	
80 – 200 G3FM:	DIN 2633 – PN 16
300/250 – 300 G3FM:	DIN 2632 – PN 10

Subject to change without notice.

Specifications

Type	Flange connection mm	Opening DN in mm	k_{vs} -value ¹⁾ m ³ /h	Lifting height mm	Weight kg
80 G3FM	80	80	80	11	35
100 G3FM	100	100	125	13	49
125 G3FM	125	125	215	18	79
150 G3FM	150	150	310	20	111
200 G3FM	200	200	555	28	160
300/250 G3FM ²⁾	300	300	865	28	306
300 G3FM	300	300	1250	45	290

¹⁾ The stated k_{vs} values apply for mixing valves. Diverting valves: $0.86 \times (k_{vs}\text{-values for mixing valves})$.

²⁾ Valve type 300/250 G3FM has outer measures and flanges drilled as type 300 G3FM.

Definition of kvs-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.

Important note

In case the valves are applied as diverting valves, the pressure drop will increase by 35% and the k_{VS} -value will decrease by 14% as against mixing valves.

Mounting

The valves must always be mounted with vertical spindle, preferable with the motor connection over the valve. Besides, the valve should be mounted so that the valve motor is exposed to a minimum of moisture and unnecessary vibrations.

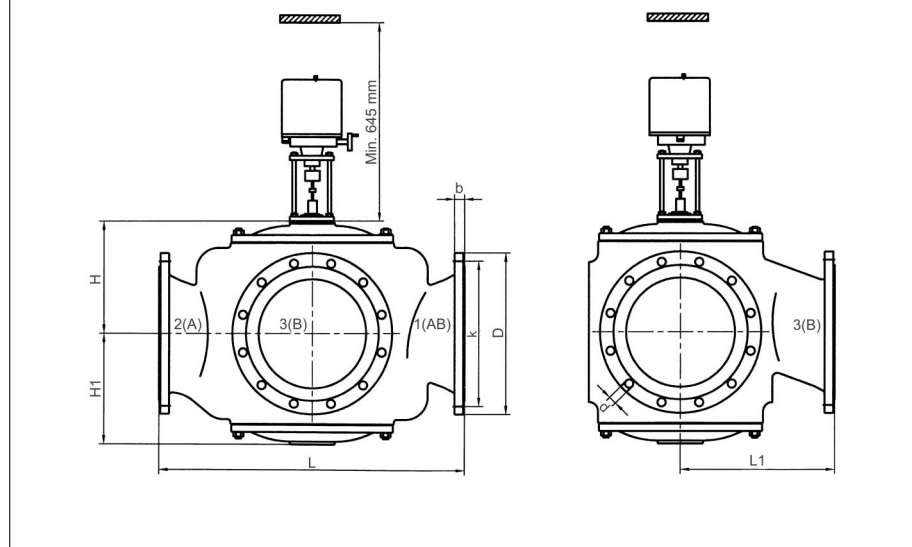
Free height above/below the valve must be minimum 645 mm for mounting and operating of the MT90 Marine motor, see drawing.

Strainer

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

Subject to change without notice.

Dimensions



Type	L mm	L1 mm	H mm	H1 mm	b mm	D (dia.) mm	k (dia.) mm	d mm dia. (number)
80 G3FM	310	155	117	127	19	200	160	19 x (8)
100 G3FM	350	175	132	141	19	220	180	19 x (8)
125 G3FM	400	240	181	171	19	250	210	19 x (8)
150 G3FM	480	270	216	189	24	285	240	23 x (8)
200 G3FM	600	325	238	238	20	340	295	23 x (12)
300/250 G3FM*	850	450	305	305	25	445	400	23 x (12)
300 G3FM	850	450	305	305	25	445	400	23 x (12)

* Valve type 300/250 G3FM has outer measures and flanges drilled as type 300 G3FM.