

3-way Control Valves type G3FM

Nodular cast iron, DN 80 – 300 mm

2.5.10-Z

GB-1

Characteristics

- Nominal pressure
 - 80-200 G3FM: PN 16 max. 120°C / 160°C
 - 300/250-300 G3FM: PN 10 max. 120°C / 160°C
 - 80-300 G3FM: JIS 10K (option)
- 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 or Clorius pneumatic actuators.

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 (JIS B 2210 option).

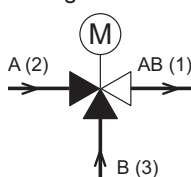
Quality assurance

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.

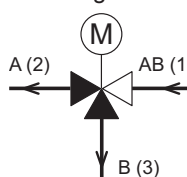
Port numbering

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



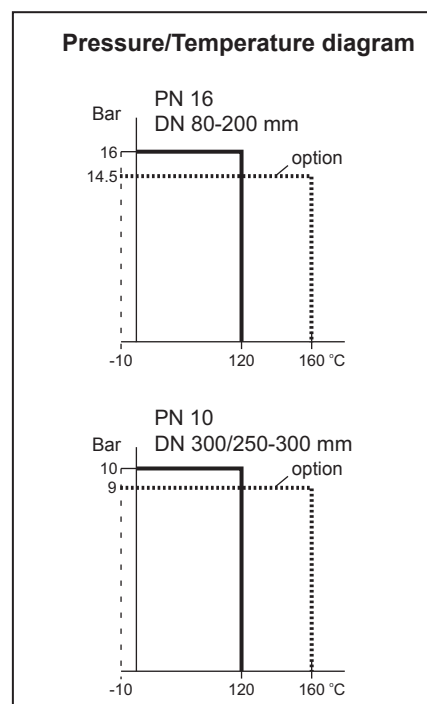
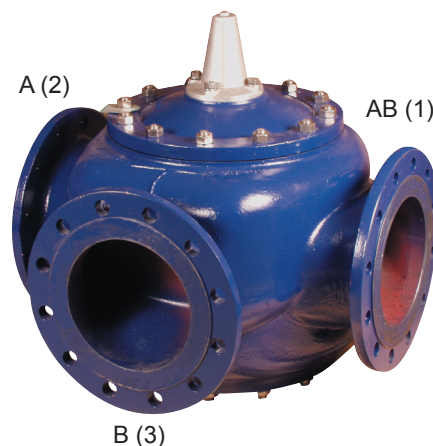
Diverting valve



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.



Specifications						
Type	Flange connection DN in mm	Opening 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	44	
125 G3FM	125	125	215	18	72	
150 G3FM	150	150	310	20	111	
200/175 G3FM	200	200	425	22	165	
200 G3FM	200	200	555	28	160	
300/250 G3FM	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 x (k_{vs} -values for mixing valves).

Subject to change without notice.



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3-way Control Valves type G3FM

Nodular cast iron, DN 80 – 300 mm

2.5.10-Z

GB-2

Technical data

Materials:

- Valve body	Nodular cast iron EN-GJS-400-15
- Trim	Gun metal RG 5 CuSn5Zn5Pb5-C
- Valve spindle	Stainless steel (W.no. 1.4436)

Nominal pressure

80-200 G3FM:	PN 16 (max.120/160°C)
300/250-300 G3FM:	PN 10 (max.120/160°C)
80-300 G3FM:	JIS 10K (option)

Seats 2 balanced single seats

Valve characteristic Almost linear

Leakage $\leq 0.5\%$

Temperature range Max. 120°C / 160°C

Mounting See below

Flanges According to EN 1092-2,
PN 16 & PN 10

- option: According to JIS B 2210 10K

Note ! Valve type 200/175 G3FM has outer measures and flanges drilled as valve type 200 G3FM.
Valve type 300/250 G3FM has outer measures and flanges drilled as valve type 300 G3FM.

Counter flanges (suggested for EN 1092-2)

80-200 G3FM:	DIN 2633 – PN 16
300/250-300 G3FM:	DIN 2632 – PN 10

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 m³/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

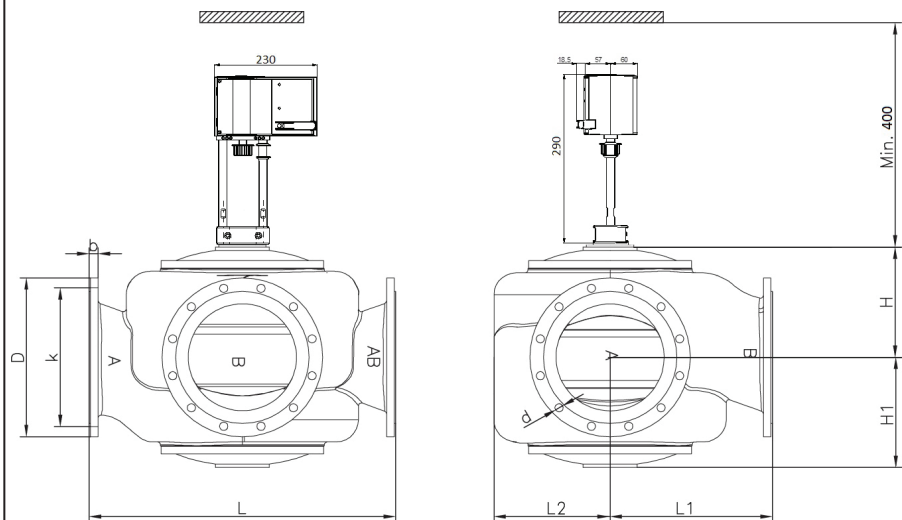
The valves can be installed vertical as well as horizontal. The valves must be mounted in a way that the valve motor will be exposed to a minimum of moisture and unnecessary vibrations.

Free height above / below the valve must be minimum 645 mm for mounting and operation of the MT90 Marine motor, otherwise minimum 745 mm for pneumatic actuators.

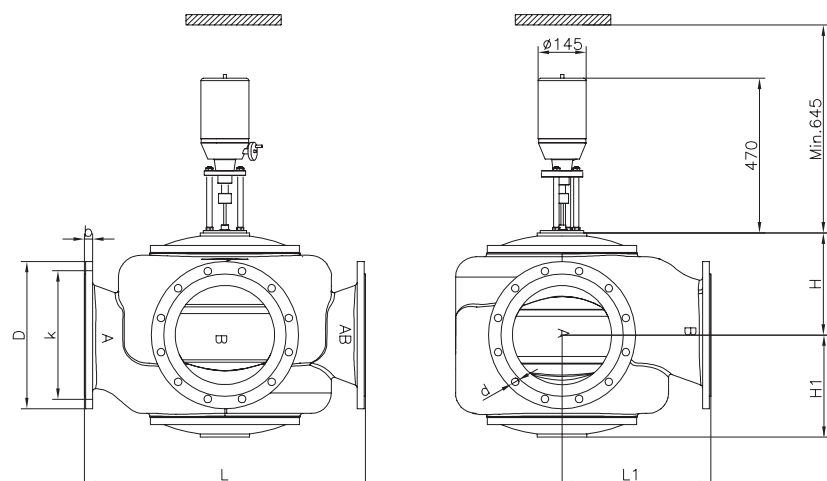
Strainer It is recommended to use a strainer in front of the control valve if the liquid contains suspended particles.

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Dimension sketch incl. AVF/M 234



Dimension sketch incl. MT90



Dimensions

Type	EN 1092-2							JIS B 2210 10K				
	L	L1	L2	H	H1	b	D (dia.)	k (dia.)	d mm (dia.)	D (dia.)	k (dia.)	d mm (dia.)
	mm	mm	mm	mm	mm	mm	mm	mm	mm (number)	mm	mm	mm (number)
80 G3FM	310	155	102	117	127	19	200	160	19x(8)	185	150	19x(8)
100 G3FM	350	175	112	132	141	19	220	180	19x(8)	210	175	19x(8)
125 G3FM	400	240	138	181	171	19	250	210	19x(8)	250	210	23x(8)
150 G3FM	480	270	165	216	189	24	285	240	23x(8)	280	240	23x(8)
200/175 G3FM	600	325	230	238	238	20	340	295	23x(12)	330	290	23x(12)
200 G3FM	600	325	230	238	238	20	340	295	23x(12)	330	290	23x(12)
300/250 G3FM	850	450	325	305	305	25	445	400	23x(12)	445	400	25x(16)
300 G3FM	850	450	325	305	305	25	445	400	23x(12)	445	400	25x(16)

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