

### Characteristics

- Nominal pressure
  - 80-150 mm: PN 10 max. 120°C
  - 200/175-200 mm: PN 16 max. 120°C
  - 300/250-300 mm: PN 10 max. 120°C
- Regulating capability  $\frac{k_{vs}}{k_{vr}} > 25$
- Two single seats
- For cooling and heating purposes

### Applications

Control valves type M3FM 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 designed for use in conjunction with Clorius valve motor type MT90 Marine.

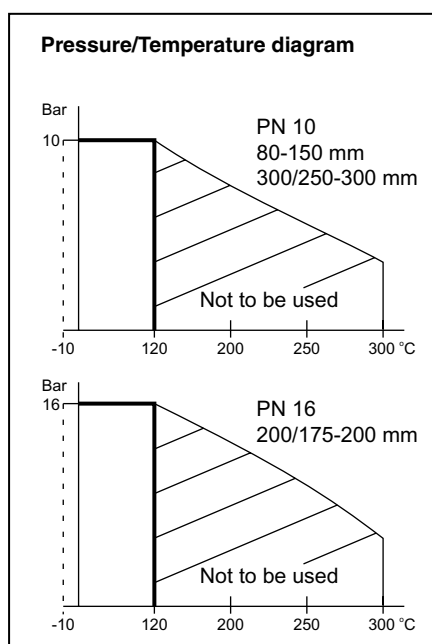
### Dimensioning

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 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 data sheet 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 cast iron and the valve flanges are drilled according to EN 1092-2.

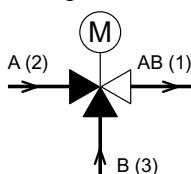
### Quality assurance

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.

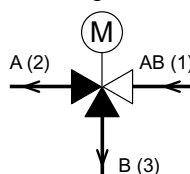
### Port numbering

The ports of valves type M3FM are marked with the letters AB, B and A.

#### Mixing valve



#### Diverting valve

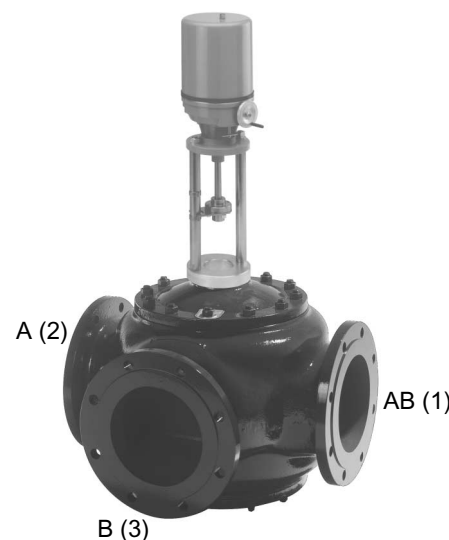


Port AB	common port always open
Port A	closes at load on spindle
Port B	opens at load on spindle

### 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:	80 M3FM Cast iron EN-GJL-250
	100 – 300 M3FM 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 – 300 M3FM : PN 10 (max. 120°C)
	200/175 – 200 M3FM : PN 16 (max. 120°C)
Seats	2 balanced single seats
Valve characteristic	Almost linear
Leakage	0.5%
Temperature range	Max. 120°C
Mounting	See page 2
Flanges	EN 1092-2 PN 10/16

**Note !** Valve type 200/175 M3FM has outer measures and flanges drilled as valve type 200 M3FM.  
Valve type 300/250 M3FM has outer measures and flanges drilled as valve type 300 M3FM.

Counter flanges (suggested)	80 – 150 M3FM: DIN 2632 – PN 10
	200/175 – 200 M3FM: DIN 2633 – PN 16
	300/250 – 300 M3FM: DIN 2632 – PN 10

Subject to change without notice.

### Specifications

Type	Flange connection DN in mm	Opening mm	$k_{vs}$ -value <sup>1)</sup> m <sup>3</sup> /h	Lifting height mm	Weight kg
80 M3FM	80	80	80	11	35
100 M3FM	100	100	125	13	44
125 M3FM	125	125	215	18	72
150 M3FM	150	150	310	20	111
200/175 M3FM	200	200	425	22	165
200 M3FM	200	200	555	28	160
300/250 M3FM	300	300	865	28	306
300 M3FM	300	300	1250	45	290

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

### 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.

### 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

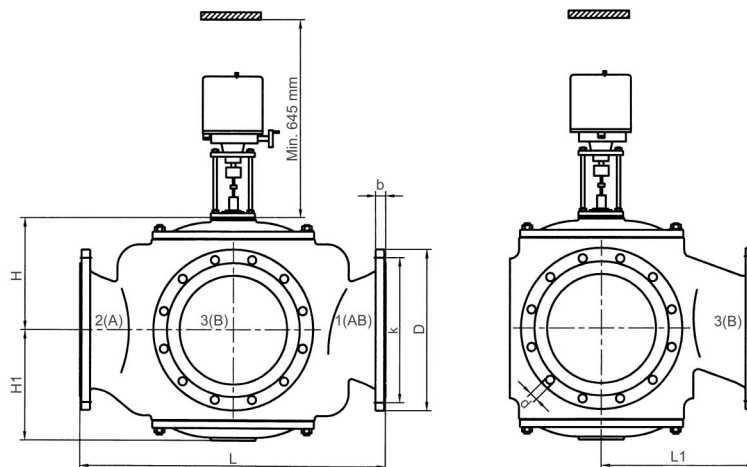
The valves can be installed with vertical as well as horizontal spindles. The valves must be mounted in a way that the valve motor will be exposed to a minimum of moisture and unnecessary vibrations. Free height above / below the valve must be minimum 645 mm for mounting and operation of the MT 90 Marine 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 M3FM	310	155	117	127	20	200	160	18 x (8)
100 M3FM	350	175	132	141	22	220	180	18 x (8)
125 M3FM	400	240	181	171	24	250	210	18 x (8)
150 M3FM	480	270	216	189	24	285	240	23 x (8)
200/175 M3FM	600	325	238	238	20	340	295	23 x (12)
200 M3FM	600	325	238	238	20	340	295	23 x (12)
300/250 M3FM	850	450	305	305	25	445	400	23 x (12)
300 M3FM	850	450	305	305	25	445	400	23 x (12)