3 WAYS ROTOR MIXING VALVES

Threaded from 3/4" to 2"
Flanged from DN 40 to DN 100

de pala
Italian OEM technology

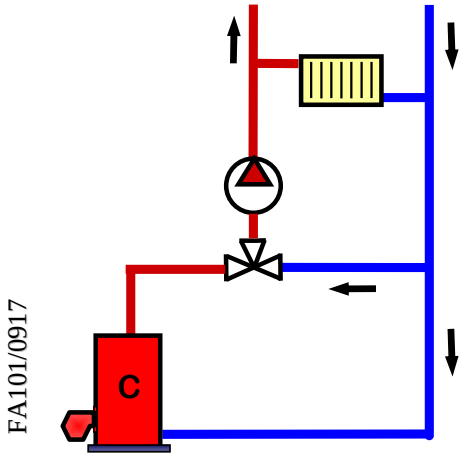
PN=6 bar; Operative temperature 2 ÷ 110° C;
Connection of servomotor: distance between centers 50mm; holes M6; sleeve Q8

OPERATING INSTRUCTIONS

INSTALLING

For every type of valve be very careful to line up the pipes which it is connected to, in order not to overload the valve causing the block of the internal rotor.
For a possible motorization of the valve, install it with the rod in horizontal or vertical position and the servomotor looking upwards.
There is a typical hydraulic layout:

LAYOUT FOR USING THE 3 WAYS ROTOR MIXING VALVE



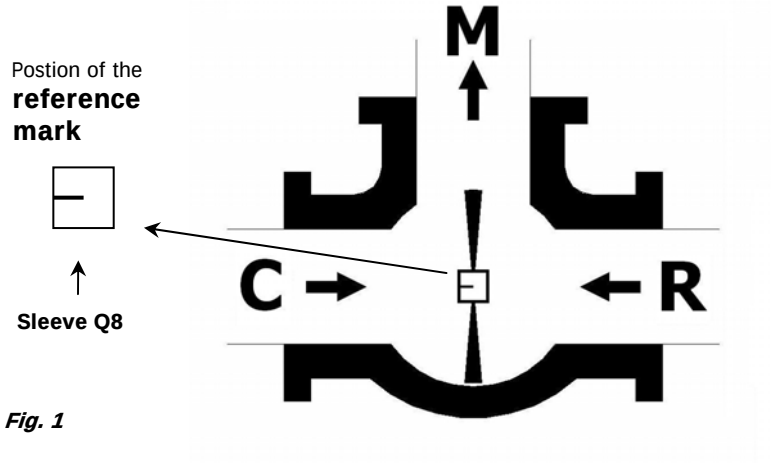


Fig. 1

3 ways rotor valve, used for mixing, placed on the delivery side; the outlet is always the central way. Boiler water (C) is mixed with the water returning (R) and sent to delivery (M)

Note that the shown layout lets the hydraulic circuit having constant flow rate: this is the primary condition for a good working.

In the example shown above, valve is placed to the right of the boiler. This position of course is not obligatory: for an installation of the valve to the left of the boiler it will be sufficient to rotate 180° the rotor, in order to put it in the correct condition of working.

To position correctly the rotor inside with the valve already installed, look at the rod and at the **mark** engraved on it:

- the **reference mark** pointing towards the water coming from boiler means "valve at half travel"(**fig. 3**)

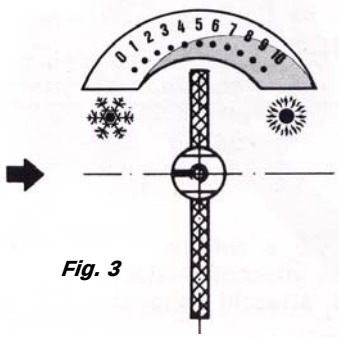


Fig. 3

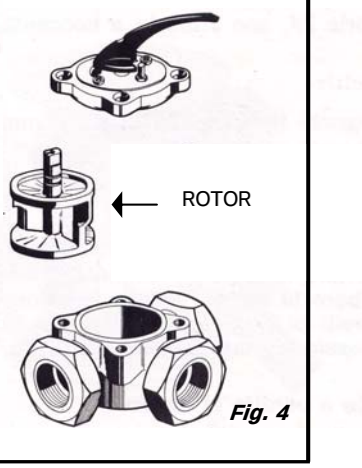


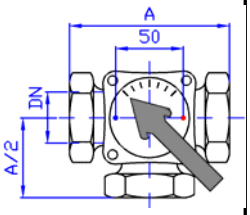
Fig. 4

After installing the valve and positioning its rod, the graduated plate (showing the adjustment) has to be placed on the cover. On one side of the plate there is the 0-10 scale, on the opposite side the 10-0 scale.

3 WAYS ROTOR MIXING VALVES WITH ROTOR

3 WAYS ROTOR VALVES – THREADED BODY VALVE – ISO 228

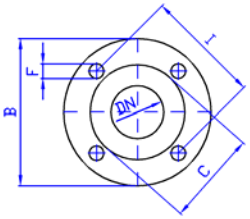
Code	DN	KV	Coupled servomotors			Overall dimensions	
			3 points	0 ÷ 10 V	4 ÷ 20 mA	**A** (brass)	**A** (cast iron)
303GR	3/4"	11.7	M7BE8 M7CE8 P7BE8 P7CE8	M7MV8 M7MV8L	M7MA8 M7MA8L	85	-
313GR	1"	16.0				85	-
323GR	1-1/4"	21.8				-	122
343GR	1-1/2"	40.0	M8MB9 M8MC9	M8MV9	M8MA9	-	135
353GR	2"	62.0				-	180



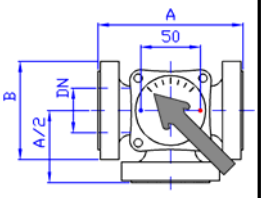
3 WAYS ROTOR VALVES – FLANGED BODY VALVE – EN 1092-1

(CAST IRON)

Code	DN	C	I	F	KV	Coupled servomotors			Overall dimensions	
						3 points	0 ÷ 10 V	4 ÷ 20 mA	**A**	**B**
343FR	40	80	100	14	40	M8MB9 M8MC9	M8MV9	M8MA9	180	130
353FR	50	90	110	14	62				200	140
363FR	65	110	130	14	100				200	160
373FR	80	128	150	18	185				234	190
383FR	100	148	170	18	330				260	210



FLANGE PN6 4 HOLES



COUPLED SERVOMOTORS FOR A MODULATING REGULATION

The valves can be motorised in every moment after installation, with a **bidirectional servomotor,** controlled by a control unit with a **3 points** output or by a control unit with a proportional output **0 ÷ 10 V** o **4 ÷ 20 mA**. In these two cases the supply voltage is **24 Vca.**

CODE	Control	Time for 90° rot.	Supply voltage	Electric protection
M7BE8	3 punti	120"	230 V	IP54
M7CE8			24 V	
P7BE8			230 V	IP65
P7CE8			24 V	
M8MB9		180"	230 V	IP42
M8MC9			24 V	
M7MV8	0 – 10 V	60"	24 V	IP40
M7MV8L		120"		
M8MV9		60"		IP42
M7MA8	4 - 20 mA	60"		IP40
M8MA9		120"		
		60"		IP42

M7/P7
7 Nm

M7M
13 Nm

M8M
25 Nm

DIMENSIONING

The correct dimensioning of mixing valves is necessary for their good working:

- A too big valve can't supply an efficient regulation because little shiftings produce great changes of flow rate and thus of temperature;
- On the other side a too small valve can't satisfy needs of the plant. Furthermore inside the valve high velocity gradients can originate: they can damage the crossing ports.

In order to correctly dimension a valve, first of all it is necessary to determine its pressure drop Δp; usually this must be between 15 and 25% of total pressure drop of the plant, otherwise valve cannot perform a good regulation. Dimensioning is done using the diagram with the curves Δp / Q or with calculus of Kv.

Dimensioning using the diagram (see Fig. 5)

Diameter of the valve is given by the intersection of the line of the flow rate with the line of the pressure drop.

Example: if flow rate is Q = 3,5m³/h and pressure drop is Δp = 250 mm of water column, valve must have a diameter DN32 (when intersection is between two curves, always the greater diameter must be choosen).

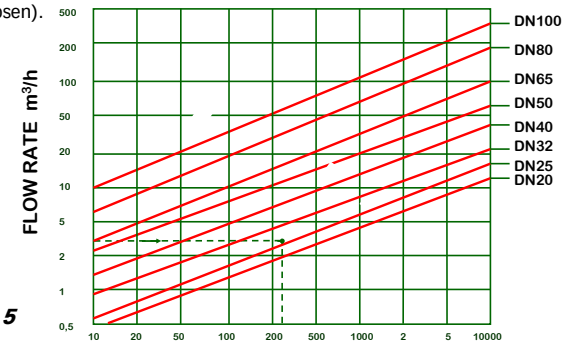


Fig. 5

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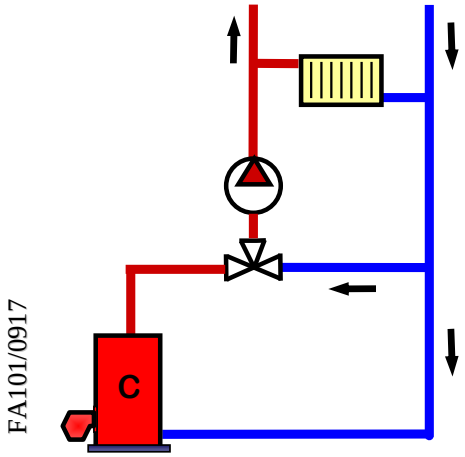

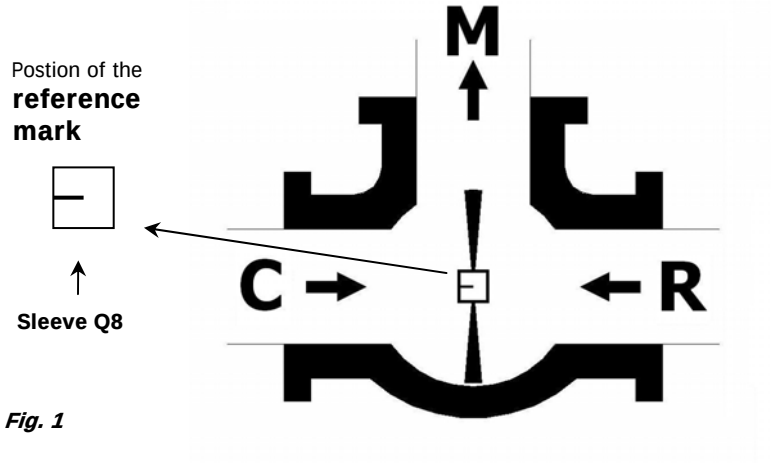

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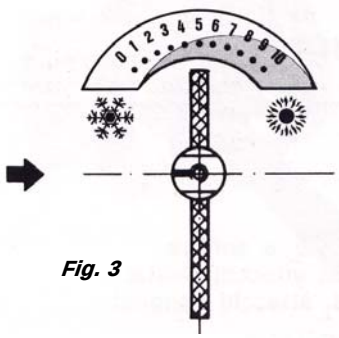

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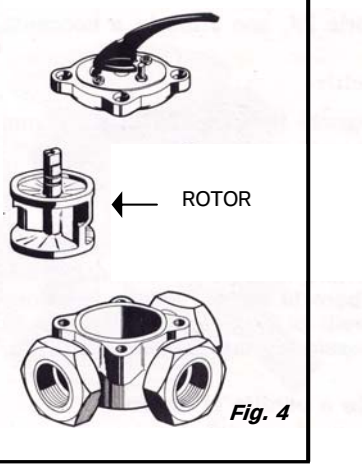

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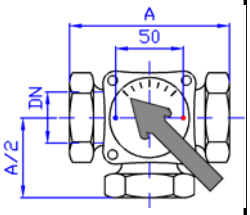

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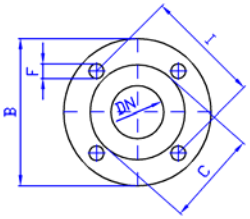

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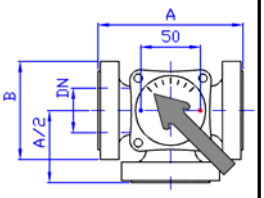

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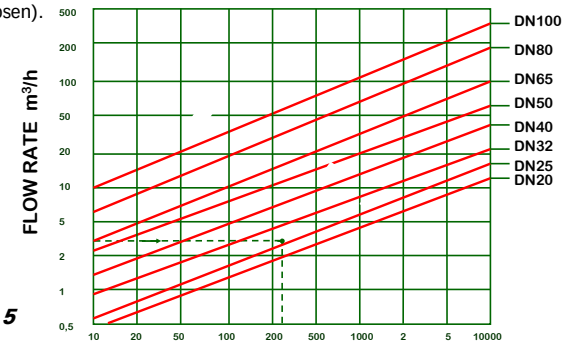

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