

VRI/VRE/MRC

Compact Brass Mixing Valves and Actuator

APPLICATION

The VRI/VRE Three-Way Rotary Mixing Valve provides water temperature control in heating and air-conditioning applications. These valves are designed for accurate mixing control of supply water temperature and return-flow temperature. The sturdy construction and brass material ensure long operating life and high reliability when used in combination with MRC actuator.

The MRC actuator is designed to provide floating control in heating and air-conditioning systems. High control performance and rugged design are standard for that actuators. In combination with the VRI/VRE valves, it is possible to control very exact heating and cooling water temperatures. The mechanical interface between actuator and valve is designed for reliable operation.

SPECIAL FEATURES

- Compact design
- Internally and externally threaded valve versions
- Direct mounted actuator on the valve
- Pre-wired actuator with clear position indication

METHOD OF OPERATION

The valve controls a mixing water temperature by means of a rotating plug. The plug adjusts the water flow of two inputs with two control curves. The required flow water temperature is achieved by adding a proportion of return water to the boiler/chiller.

The actuator is powered by a synchronous motor. The stem rotates through a range of 90°. The motor is switched off in the end position by end switches. The manual operation declutches the valve from the gear. No adjustment necessary. The actuators are maintenance-free.



TECHNICAL DATA

VRI



VRE



Media

Controlled medium:	Chilled or hot water according to VDI2035 with up to 50 % Glycol (oxygen concentration less than 0.2 g/m ³ , pH 8 - 9.5).
--------------------	--

Pressure values

Nominal pressure rating:	PN10
Maximum pressure drop:	1 bar

Operating temperatures

Ambient temperature:	1 °C...+60 °C
Media temperature:	+2 °C...+110 °C

Specifications

Leakage rate:	< 0.5 % of kvs
Valve type:	3-way mixing, compact
Connection type:	Internal BSPT (VRI) External BSPP, flat sealing (VRE)
Angle of rotation:	90 °

CONSTRUCTION

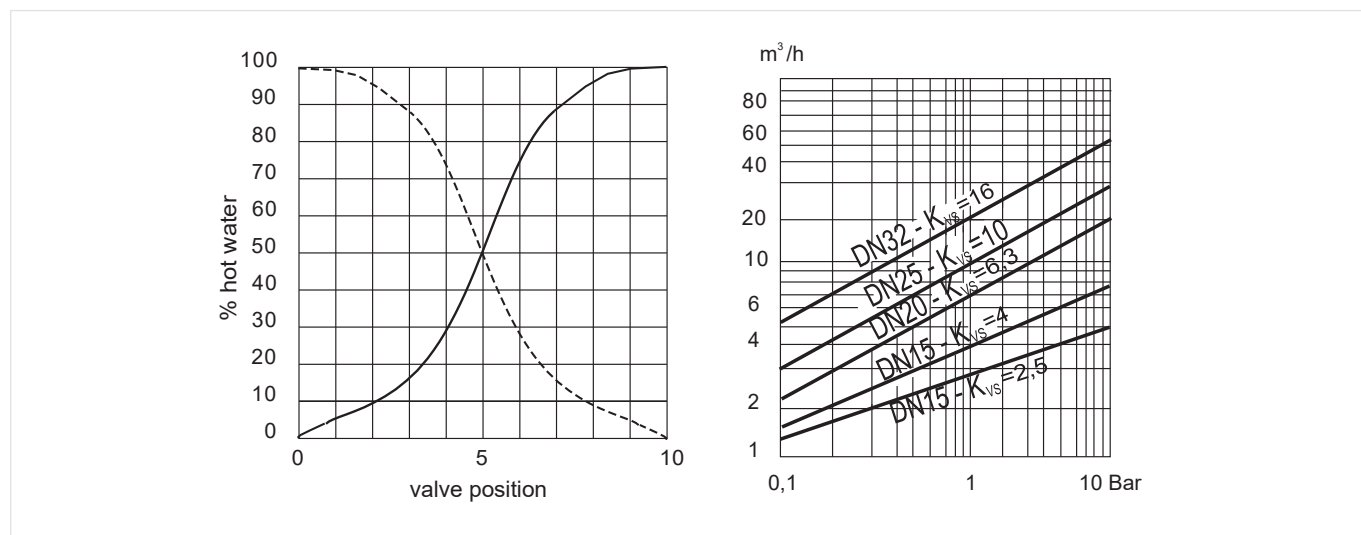
Overview	Components	Materials
	Material body	Brass
	Spacers	Galvanized steel
	Not depicted components:	
	Inner parts	Brass
	O-rings	EPDM, FKM
	Packaging	Separate unit pack

TECHNICAL CHARACTERISTICS

kvs-Values

Connection sizes:	15	15	20	25	32	15	15	20	25	32
k _{VS} -value (m ³ /h):	2.5	4	6.3	10	16	2.5	4	6.3	10	16
O.S. no. :	VRI-15-2.5	VRI-15-4	VRI-20-6.3	VRI-25-10	VRI-32-16	VRE-15-2.5	VRE-15-4	VRE-20-6.3	VRE-25-10	VRE-32-16

Flow Diagram and kvs values



ORDERING INFORMATION

The following tables contain all the information you need to make an order of an item of your choice. When ordering, please always state the type, the ordering or the part number.

Options

Valves

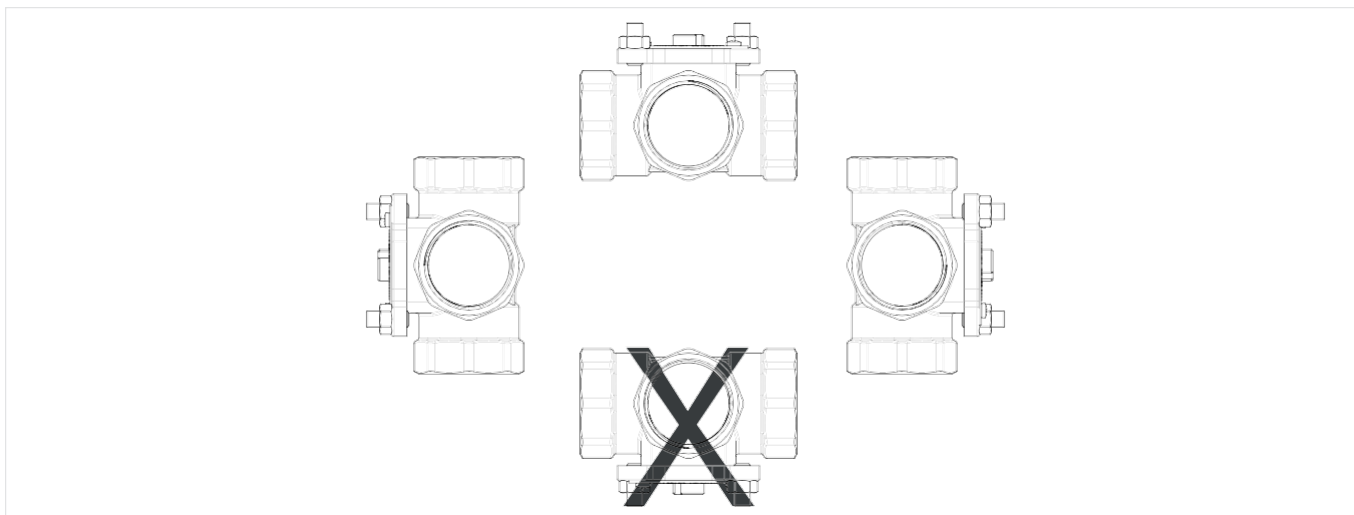
Description:	O.S. no. :	Connection sizes:
Compact brass mixing valve, Internal thread, DN15, R ¹ / ₂ ", K _{VS} 2.5	VRI-15-2.5	15
Compact brass mixing valve, Internal thread, DN15, R ¹ / ₂ ", K _{VS} 4	VRI-15-4	15
Compact brass mixing valve, Internal thread, DN20, R ³ / ₄ ", K _{VS} 6.3	VRI-20-6.3	20
Compact brass mixing valve, Internal thread, DN25, R1", K _{VS} 10	VRI-25-10	25
Compact brass mixing valve, Internal thread, DN32, R1 ¹ / ₄ ", K _{VS} 16	VRI-32-16	32
Compact brass mixing valve, External thread, DN15, G ³ / ₄ ", K _{VS} 2.5	VRE-15-2.5	15
Compact brass mixing valve, External thread, DN15, G ³ / ₄ ", K _{VS} 4	VRE-15-4	15
Compact brass mixing valve, External thread, DN20, G1", K _{VS} 6.3	VRE-20-6.3	20
Compact brass mixing valve, External thread, DN25, G1 ¹ / ₄ ", K _{VS} 10	VRE-25-10	25
Compact brass mixing valve, External thread, DN32, G1 ¹ / ₂ ", K _{VS} 16	VRE-32-16	32

ACCESSORIES

For threaded connections according to ISO 7/1 for steel pipes or malleable iron, (ACS-...T) or (ACS-...W)

	Description	Dimension	Part No.
	ACS-xxT Connection Set		
	threaded connection (consisting of 1 union nut, 1 tailpiece and 1 gasket)	DN15, G ³ / ₄ ", R ¹ / ₂ "	ACS-15T
		DN20, G1", R ³ / ₄ "	ACS-20T
		DN25, G1 ¹ / ₄ ", R1"	ACS-25T
		DN32, G1 ¹ / ₂ ", R1 ¹ / ₄ "	ACS-32T
	ACS-xxW Connection Set		
	welding connection (consisting of 1 union nut, 1 tailpiece and 1 gasket)	DN15, G ³ / ₄ ", R ¹ / ₂ ", Ø16	ACS-15W
		DN20, G1", R ³ / ₄ ", Ø20	ACS-20W
		DN25, G1 ¹ / ₄ ", R1", Ø27	ACS-25W
		DN32, G1 ¹ / ₂ ", R1 ¹ / ₄ ", Ø32	ACS-32W

INSTALLATION GUIDELINES



Adjustments for Mixing Applications

Mounting option 1

Mounting option 2

Position indication

Possibility

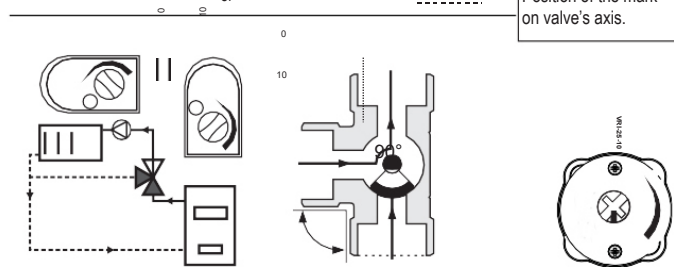
or

Top view

FACTORY DEFAULT

Possibility/ 1

Position of the mark
on valve's axis.

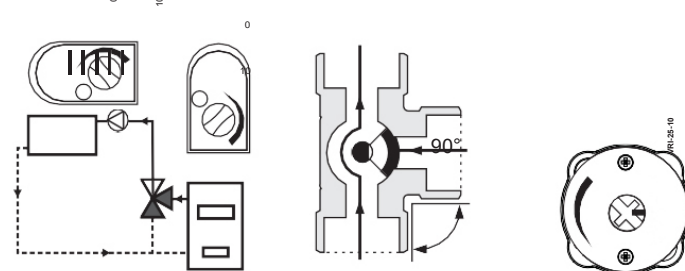


Possibility

or

Top view

Position of the mark
on valve's axis.



Mounting option 3

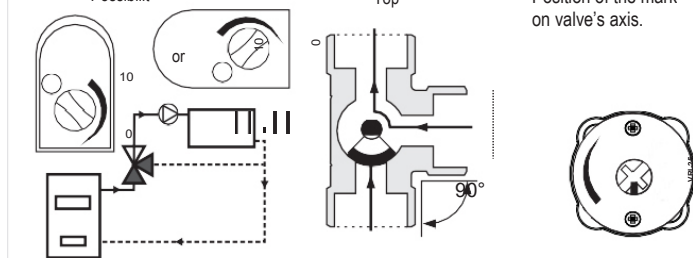
Mounting option 4

Possibility

or

Top

Position of the mark
on valve's axis.

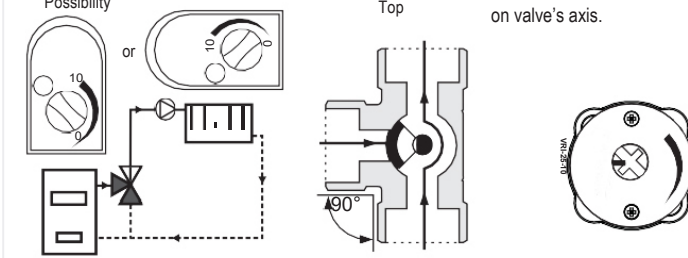


Possibility

or

Top

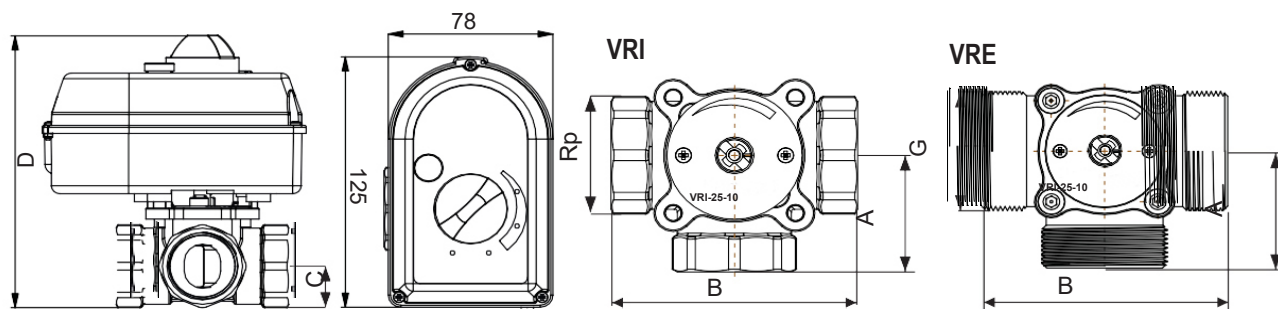
Position of the mark
on valve's axis.



DIMENSIONS

Valves

Overview



Parameter		Values									
Connection size:		15	15	20	25	32	15	15	20	25	32
Dimensions:	A	36	36	36	41	47	36	36	36	41	47
	B	72	72	72	82	94	72	72	72	82	94
	C	17.5	17.5	18.5	20.5	24.5	17.5	17.5	18.5	20.5	24.5
	D	132	132	133	135	142	132	132	133	135	142
Weight:	kg	0.8	0.8	0.9	1.0	1.4	0.8	0.8	0.9	1.0	1.4
Rp / G:		Rp 1/2"	Rp 1/2"	Rp 3/4"	RP 1"	Rp 1 1/4"	G 3/4"	G 3/4"	G 1"	G 1 1/4"	G 1 1/2"

Note: All dimensions in mm unless stated otherwise.

TRANSPORTATION AND STORAGE

Keep parts in their original packaging and unpack them shortly before use.

The following parameters apply during transportation and storage:

Parameter	Value
Environment:	clean, dry and dust free
Min. ambient temperature:	-20 °C
Max. ambient temperature:	60 °C
Min. ambient relative humidity:	0 % *
Max. ambient relative humidity:	80 % *

*non condensing

ACTUATOR MRC

TECHNICAL DATA



Operating temperatures	
Ambient temperature:	1 °C...+55 °C
Media temperature:	+2 °C...+110 °C
Specifications	
Actuator type:	Rotary actuator for VRI/VRE
Power supply:	230 VAC+/-10 %, 50 Hz
Control signal:	Floating
Power consumption:	3.5 VA Driving, 0 VA Holding
Nominal torque:	5 Nm
Operating humidity range:	0 %...80 %, non-condensing
Runtime:	105 sec/90°
Nominal operation angle:	90°
Cable specification:	2 m fixed cable, 3x0.5 mm ²
IP Rating / Protection degree:	IP44
Environmental conditions:	For use in home (residential, commercial, and light-industrial) environments
Protection class:	II
Approvals:	CE

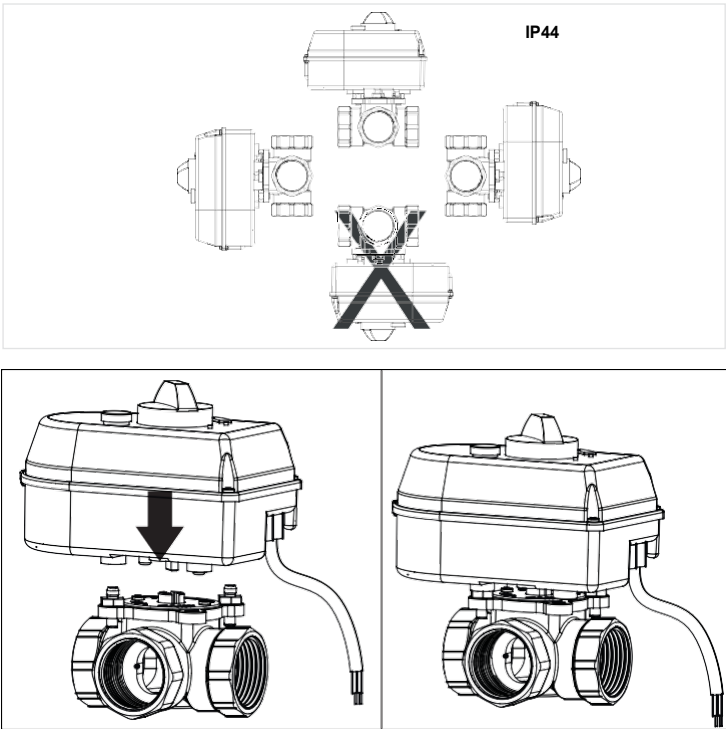
ORDERING INFORMATION

Actuator

O.S. no. :	Power supply:	Control signal:	Cable length:	Running time:	Weight [kg]:
MRC-230-2M	230 Vac	Floating	2 meter	105 sec/90°	0.5

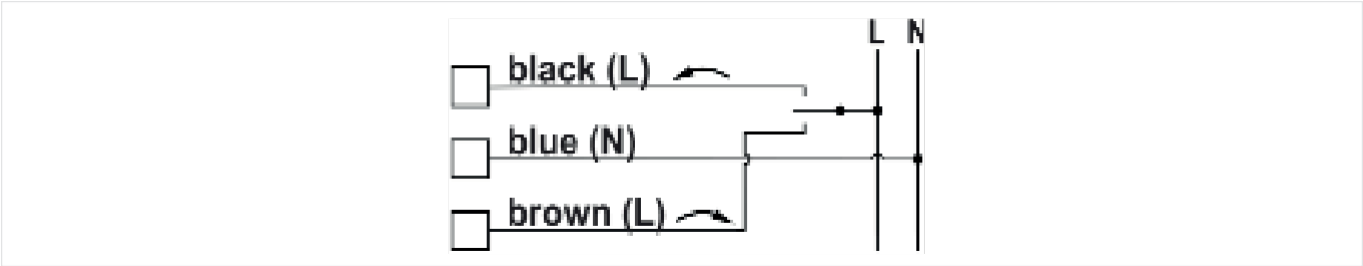
INSTALLATION GUIDELINES

Mounting



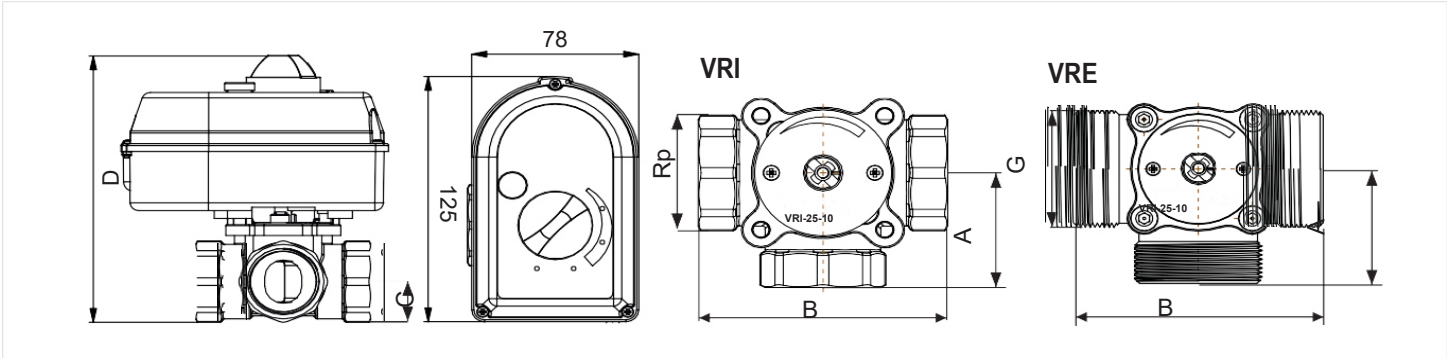
Actuator can be mount on the valve in all 4-position depending on the application.
For more information please check Mounting Instructions.

Actuator Wiring



DIMENSIONS

Overview



Parameter		Values									
Connection size:		15	15	20	25	32	15	15	20	25	32
Dimensions:	A	36	36	36	41	47	36	36	36	41	47
	B	72	72	72	82	94	72	72	72	82	94
	C	17.5	17.5	18.5	20.5	24.5	17.5	17.5	18.5	20.5	24.5
	D	132	132	133	135	142	132	132	133	135	142
Weight:	kg	0.8	0.8	0.9	1.0	1.4	0.8	0.8	0.9	1.0	1.4
Rp / G:		Rp 1/2"	Rp 1/2"	Rp 3/4"	RP 1"	Rp 1 1/4"	G 3/4"	G 3/4"	G 1"	G 1 1/4"	G 1 1/2"

Note: All dimensions in mm unless stated otherwise.

TRANSPORTATION AND STORAGE

Keep parts in their original packaging and unpack them shortly before use.

The following parameters apply during transportation and storage:

Parameter	Value
Environment:	clean, dry and dust free
Min. ambient temperature:	-20 °C
Max. ambient temperature:	70 °C
Min. ambient relative humidity:	0 % *
Max. ambient relative humidity:	80 % *

*non condensing