ROTARY MOTORIZED VALVES

MIXING VALVE
SERIES VRB240

The compact rotary mixing valve series VRB240 for bivalent heating systems is available in DN 20, and is made of DZR brass. Two types of connections are available; external thread and compression fittings. PN 10.



OPERATION

ESBE series VRB240 is a range of compact rotary mixing valve developed for bivalent systems, i.e. where two heat sources are connected in series or parallel. With an actuator and a control device, the ESBE VRB240 can be used to prioritize between heat sources. The VRB240 has the same port configuration and flow pattern as the old valve series BIV.

For easy manual operation the valves are equipped with non-slip knobs and end stops for an operation angle of 90°. The valve position scale can be turned over and rotated, allowing a wide choice of mounting positions. Together with actuator series ESBE ARA600, the VRB240 valves are also easily automated and have extraordinary regulating accuracy thanks to the unique valve-to-actuator interface. For more advanced control functions, the ESBE series 90 controllers allows even more applications.

ESBE VRB240 valves are available in dimensions DN15 with external thread and with compression fittings for pipe O.D. 22 mm.

FUNCTION

The BIV valve has two inlets to which the heat sources can be connected either in parallel or in series. The primary, i.e. the low grade heat source should be connected to port 1 and the secondary to port 2. When no heat is needed, both ports 1 and 2 are closed. When heat is needed, the supply from port 1 is used as long as the required temperature can be maintained. When this is no longer the case the valve provides initially a mixed flow from ports 1 and 2. Finally port 2 is fully open and port 1 closed. (The function is like a 3-way valve but with two inlets instead of one.)

The BIV valve may also be used on water storage tanks where two outlets from the tank are required. One outlet at the top of the tank and one half way down the tank serve the valve and the return line from the heating system is connected to the bottom of the tank. With this arrangement the hot water from the top of the tank will be used in conjunction with the cooler water drawn from the mid position.

SERVICE AND MAINTENANCE

The slender and compact design of the valve allows for easy tool access when assembling and disassembling the valve.

Repair kits are available for key components. An extra O-ring can also be installed as additional shaft seal without any need for draining the system or dismantling the valve, as long as the system is depressurized.

VALVE VRB240 DESIGNED FOR

- ● Heating
- ○ Comfort cooling
- ○ Potable water
- ● Floor heating
- ● Solar heating
- ○ Ventilation
- ○ Zone
- ○ District hot water
- ○ District heating
- ○ District cooling

SUITABLE ACTUATORS

The valve series VRB240 may most easily be fitted with ESBE actuators:

- ● Series ARA600
- ● Series 90*
- ● Series 90C
- ● Series 90K

*Adaptor kit necessary, see product page

TECHNICAL DATA

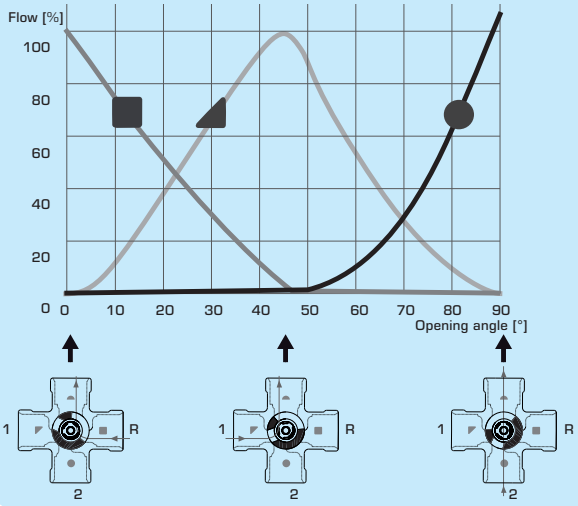
Pressure class: PN 10
Media temperature: max. (continuously) +110°C
max. (temporarily) +130°C
min. -10°C
Torque (at nominal pressure): < 5 Nm
Leakrate in % of flow*: < 0.5%
Working pressure: 1 MPa (10 bar)
Max. differential pressure drop: Mixing, 100 kPa (1 bar)
Diverting, 200 kPa (2 bar)
Close off pressure: 200 kPa
Rangeability Kv/Kv^{min}, A-AB: 100
Connections: Internal thread, ISO 7/1
External thread, ISO 228/1

* Differential pressure 50kPa (0.5 bar)

Material
Valve body and slide: Brass DZR, CW 602N
Shaft and bushing: PPS composite
O-rings: EPDM

PED 97/23/EC, article 3.3

VALVE CHARACTERISTICS

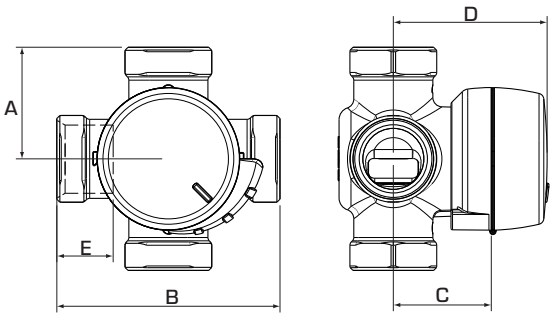


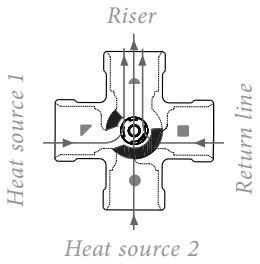
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ESBE®
NO.1 IN HYDRONIC SYSTEM CONTROL

ROTARY MOTORIZED VALVES

MIXING VALVE
SERIES VRB240





The flat-sided spindle top points towards the sleeve input.

4-WAY MIXING VALVE SERIES VRB242, EXTERNAL THREAD

Art. No.	Reference	DN	Kvs*	Connection	A	B	C	D	E	Weight [kg]	Note
1166 19 01	VRB242	15	4	G 3/4"	36	72	32	50	–	0.40	1), Multipack, 24pcs

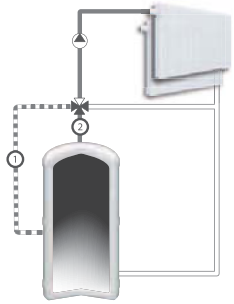
4-WAY MIXING VALVE SERIES VRB243, COMPRESSION FITTING

Art. No.	Reference	DN	Kvs*	Connection	A	B	C	D	E	Weight [kg]	Note
1166 18 01	VRB243	20	4	CPF 22 mm	36	72	32	50	18 (x4)	0.40	Multipack, 24pcs

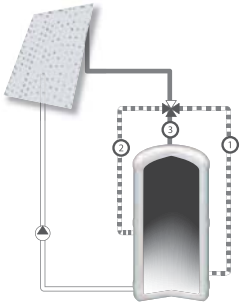
* Kvs-value in m^3/h at a pressure drop of 1 bar. See also flow chart in product catalogue. CPF = compression fitting
Note 1) Available only upon request.

INSTALLATION EXAMPLES

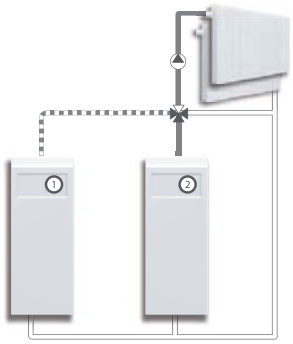
All the examples of installation can be mirrored. The valve position scale can be turned over and rotated to fit a number of installation layouts and shall at the installation be fitted in the correct position as shown in the instruction for installation. The symbol markings of the valve ports (■●▲◗) minimize the risk of incorrect installation.



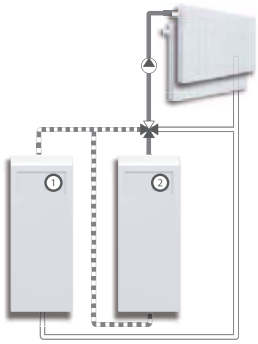
Storage tank mixing



Storage tank loading



Parallel heat sources



Serial heat sources

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