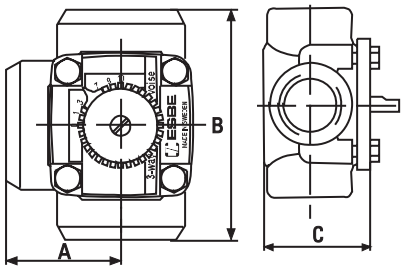
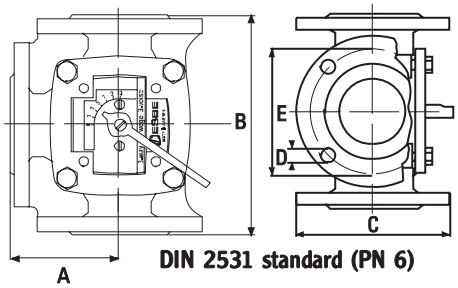
3-way mixing valves type G and F

Type G
with threaded connections



Type F
with flanged connections.



DIN 2531 standard (PN 6)

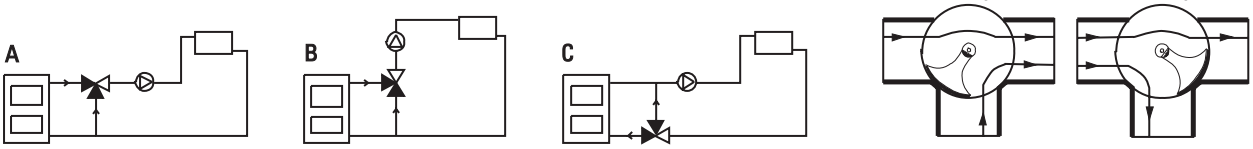
Dimensions

Art. No.	Reference*	Kv-value*	Connections	A	B	C	D	E	Weight kg
101	3 G 20	8	3/4" BSP	52.5	105	66	–	–	1.6
102	3 G 25	12	1" BSP	54	108	66	–	–	1.8
103	3 G 32	18	1 1/4" BSP	57.5	115	70	–	–	2.2
104	3 G 40	28	1 1/2" BSP	60	120	74	–	–	2.5
105	3 G 50	44	2" BSP	78	156	93	–	–	4.4
110S	3 F 20	12	20 mm Flange	70	140	90	4x11,5	65	3.5
111S	3 F 25	18	25 mm Flange	75	150	100	4x11,5	75	4.0
112S	3 F 32	28	32 mm Flange	80	160	120	4x15	90	5.9
113S	3 F 40	44	40 mm Flange	87.5	175	130	4x15	100	6.8
114S	3 F 50	60	50 mm Flange	97.5	195	140	4x15	110	9.1
115S	3 F 65	90	65 mm Flange	100	200	160	4x15	130	10.0
116S	3 F 80	150	80 mm Flange	120	240	190	4x18	150	16.2
117S	3 F 100	225	100 mm Flange	132.5	265	210	4x18	170	21.0
118S	3 F 125	280	125 mm Flange	150	300	240	8x18	200	27.0
119S	3 F 150	400	150 mm Flange	175	350	265	8x18	225	37.0

* Kv-value in m³/h at a pressure drop of 1 bar. Flow chart see page 6.

Example of installations

All the examples of installations can be reversed.
The valve position plate is graduated on both sides and shall at the installation be fitted in the correct position as shown in the instruction for installation.



Valves 3-way mixing valves type G and F

3 G, DN 20-50, cast iron, PN 6. Internal thread. *3 F, DN 20-150, cast iron, PN 6. Flange.*

Operation

The ESBE 3-Way valve is intended for use in heating and cooling systems to control and distribute the medium to the different radiator groups.
The required system temperature is obtained by adding a suitable proportion of return water to the boiler flow.
The mixing proportions are adjusted manually or, in automatically controlled plants, by means of a actuator.
The scale is graduated on both sides and can be turned, allowing a choice of mounting positions. The valve is usually connected as a mixing valve, but it may also be used as a diverting valve, see examples.

Service and maintenance

All major parts are replaceable. Two O-rings, one of which can be replaced without the need for draining down the system or dismantling the valve.

Required actuator torque

Valve size max.

25	Min. 3 Nm
50	Min. 5 Nm
80	Min. 10 Nm
150	Min. 15 Nm

Operation angle = 90°.

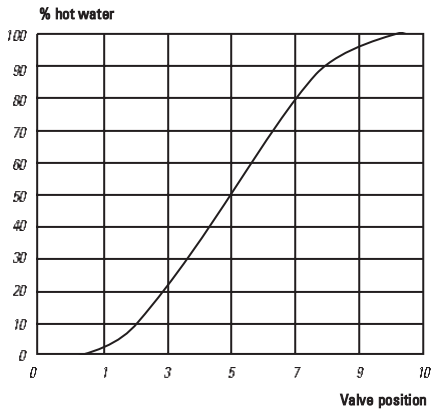
Material

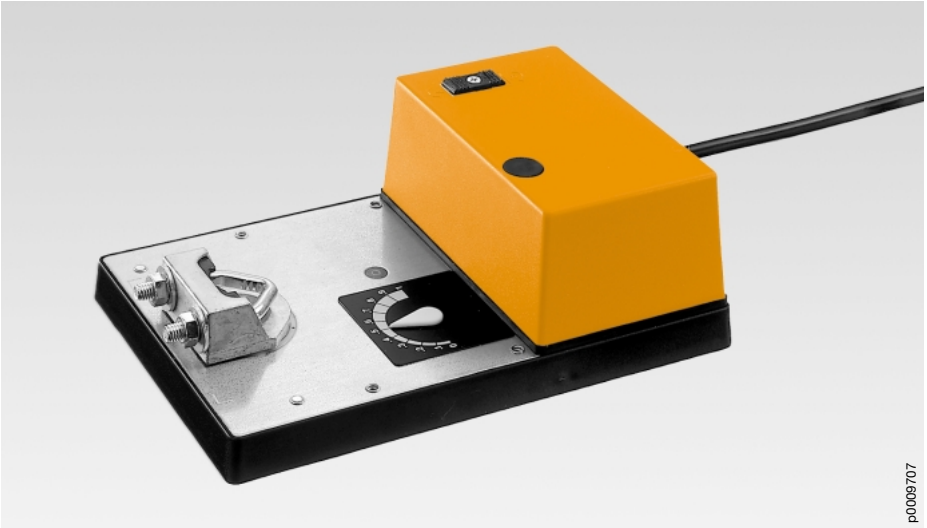
Valve body: . . . . . .Cast iron SIS 0120
Slide: . . . . . .Brass SIS 5170
O-rings: . . . . . .EPDM

Technical Data

Max. static pressure: . . . . . .600 kPa (6 bar)
Max. temperature: . . . . . .110°C
Max. pressure drop Type G: . . . . . .50 kPa
Max. pressure drop Type F: . . . . . .30 kPa
Leakage in % of flow: . . . . . .Mixing max. 1,5%
. . . . . .Diverting max. 0,5%
Rangeability (Kv/Kv min.): 100

Valve characteristic





Dampers up to approx. 3 m²

Open/Close actuator (AC 230 V)

2-wire control

Improved functional safety
The damper actuator has no limit switches and is overload-proof. It stops automatically when it reaches the damper or actuator end stop.

Easy functional check
A functional check of damper operation is simplicity itself: the gearing can be disengaged by simply pressing a pushbutton on top of the case. While the pushbutton remains depressed, the damper can be operated by hand.

Simple installation
The damper actuator is fitted with a universal spindle clamp for quick and easy mounting directly on the damper spindle. The actuator is supplied with an anti-rotation strap for fixing it in position.

Electrical accessories

S1, S2	Auxiliary switches, page 13
SZS	Mid-position switch, page 14
P…	Feedback potentiometer, page 15

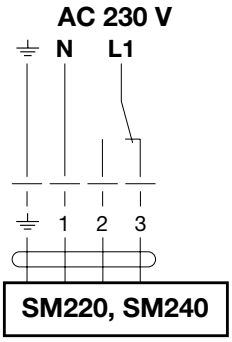
Mechanical accessories

ZG-SM2	Damper linkage kit, page 17
ZDB	Limit stop, page 17

Mounting instructions, page 18

Important
Read the notes about the use and torque requirements of the damper actuators on page 3.

Wiring diagram



To isolate from the main power supply, the system must incorporate a device which disconnects the phase conductors (with at least a 3 mm contact gap).

Parallel connection of several actuators is possible (up to 20).

w0351805

Technical data	SM220, SM240
Nominal voltage	AC 230 V 50/60 Hz
Nominal voltage range	AC 198…264 V
For wire sizing	13 VA @ 50 Hz, 14 VA @ 60 Hz
Power consumption	13 W @ 50 Hz, 14 W @ 60 Hz
Connecting cable	0.9 m, 4×0.75 mm²
Direction of rotation	reversible with switch A/B
Torque at rated voltage	min. 15 Nm @ 50 Hz min. 10 Nm @ 60 Hz
Angle of rotation	mechanically limited to 95°
Running time	≈ 80 s
Sound power level	max. 45 dB (A)
Position indication	0…10 (0 = stop ↶) and reversible indicator
Protection class	I (with PE conductor)
Degree of protection	IP 54 (bottom cable entry)
Ambient temp. range Non-operating temp. Humidity test	– 30… + 50 °C – 40… + 80 °C to EN 60335-1
EMC Low Voltage Directive	CE according to 89/336/EEC, 92/31/EEC, 93/68/EEC CE according to 73/23/EEC
Maintenance	maintenance free
Weight	1600 g

Dimensions