ESBE 4-way valve and mixing unit with Grundfos pump - Off-set 210mm

The off-set capabilities of this mixing unit gives it unique potential for installers. Used with underfloor heating manifolds, this mixing valve is adjustable between 20°C - 55°C which complies with the requirement B51264. This makes it suitable for force screed drying.

- 210mm between the centres of flow and return arms.
- Max output of 18kW.
- Max supply pressure of 10 bar.
- 'A' rated pump.
- Integrated check valves for easy filling.
- Temperature gauge.
- Assembled in the UK: Pre-tested, packaged and ready for instant installation.
- Fully reversible (left or right sided manifold).

Product Code	Product Description
TIOMIX-OC-15	ESBE 4-way valve and mixer with Grundfos pump - offset 210mm

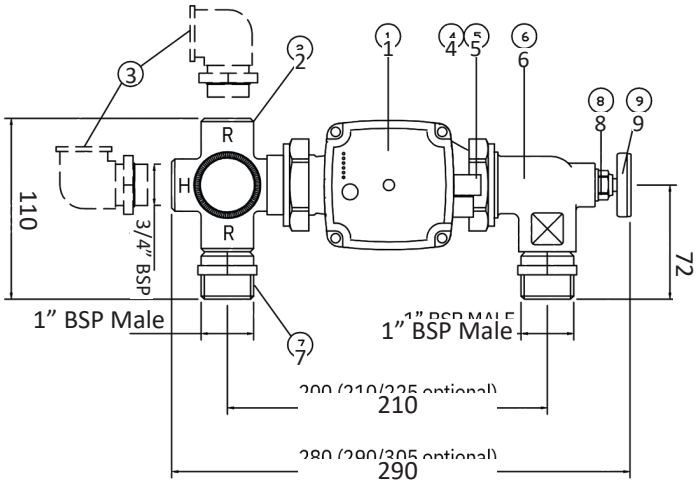
General

1.1 Provides control of flow and return water temperature in an underfloor heating system. Pre-assembled and tested to ensure that it can be fitted with minimum on-site labour required and commissioned immediately once fitted.

1.2 Designed to connect to the right-hand side of a manifold with 210mm as standard between the centres of the flow and return arms. The control group can also be altered to fit to the left-hand side of a manifold simply by turning the control group elbows through 180 degrees, using the union fittings at the top and bottom of the pump. The pump motor may need to be rotated through 180 degrees to minimise the space occupied by the control group. Primary connections can be applied from the side or bottom of the control pack.

Connections & Dimensions

1	Grundfos UPM3 Auto Pump	1
2	ESBE Thermostatic Mixing Valve	1
3	Flow / Return Elbow 1" Female	1
4	2mm Rubber Washer	2
5	1 1/2" Rapid Connection Nut	2
6	Elbow Flanged	1
7	3/4" Female BSP Flow and Return	2
8	3/8" Pocket	1
9	Temperature Guage	1
R	Return from Manifold / Flow to Heat Source	N/A
H	Flow from Heat Source	N/A



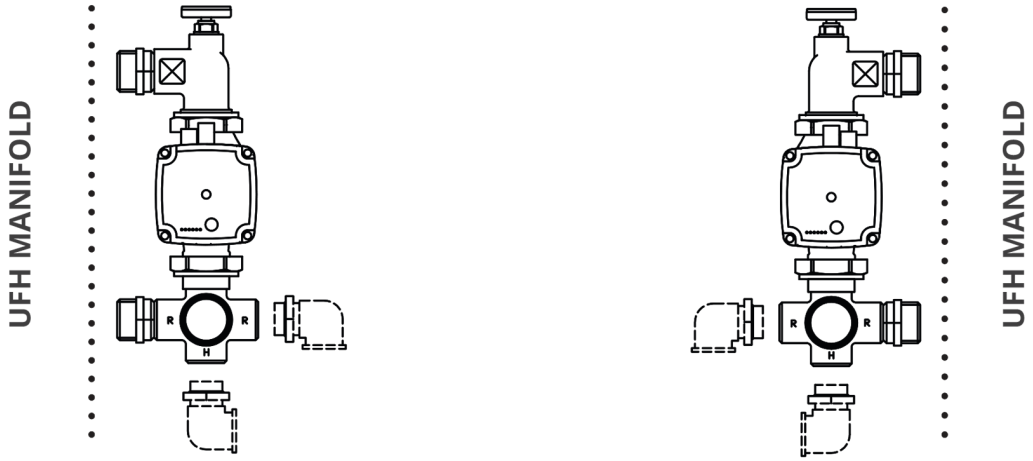
Technical Data

Maximum static pressure: 10 Bar
Maximum differential pressure: 3 Bar
Maximum temperature: 95°C
Operating temperature range adjustable between 20°C to 55°C (8S2164)
Overall dimensions (mm): 290 x 150 x 140 (excluding item 3)
KVs: 3.4 Material: Nickel plated brass
Inlet connections: 2 x 3/4" BSPF
Outlet connections: 2 x 1" BSPM swivel joint
Power: 18kW

Pre-Installation

Prior to installation, manifold configuration must be determined as left or right handed.

Left-handed: (Manifold on left side) Right-handed: (Manifold on right side)



Installation

5.1 Carefully remove from the packaging and check that all components are in place and that nothing has been damaged during delivery.

5.2 The pump mixer is supplied for connection to the right-hand side of the manifold but can be altered very simply for connection to the left-hand side. (See above)

5.3 To change orientation:
a) Remove swivel nut (7) from the TMV and move to opposite connection.
(These joints use o-ring seals and should not be overtightened)
b) Loosen the pump rotating nuts (5) on the elbow (6) and rotate through 180 degrees. Re-tighten nut (5) after rotation.

5.4 Pipe connection orientation can be altered to suit using flow / return elbow (3) (supplied loose) fitted in either flow or return.

5.5 A swivel joint is fitted to each side of the control group for connecting to the 1” F manifold tappings. Carefully offer up and screw the swivel joint threads evenly into the manifold using a 37mm A/F spanner: the use of a 31 mm A/F spanner will also ensure that the connection to the pump mixer is kept tight. The joints use o-ring seals and care should be taken not to over-tighten them.

5.6 Once connected, finish securing the manifold and large area mixer to the wall if not already completed.

5. 7 The primary flow and return pipework can now be connected to the 2 x 3/4” F connections. The flow connection is at the H and the return connection is at the R. It is recommended that ball valves are used to isolate this pipework where it is connected to the pump mixer.

Commissioning

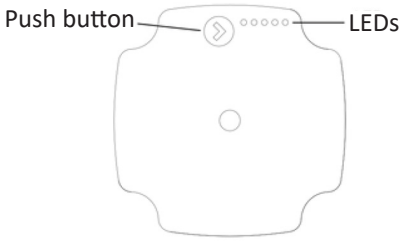
6.1 Filling the UFH system - The inbuilt non-return valve in the flow elbow allows you to fill the circuits from the upper flow rail drain and fill valve only. Be aware that you cannot get the benefit of this feature when filling via the primary flow and return connections or the lower manifold rail drain and fill valve.

6.2 The mixer, manifold and underfloor circuits can now be filled and commissioned in accordance with the manifold instructions. Prior to filling, a final check of all joints should be made to ensure no connections have loosened during transit.

6.3 The pump is supplied with a pre-connected 1” M long 3-core lead assembly ready for connection to the electrical control system. Ensure that the pump is filled and vented, operate the control system to call for heat then select the desired pump setting. This control pack comes pre-assembled ready for installation, please ensure the pump connections are tightened before commissioning. These connections are equipped with seals.

Pump control modes and functions

The user interface is designed with a single push button, one red/green LED and four yellow LEDs.



The User Interface Shows:

- Performance view (during operation)
- Operation status
- Alarm status
- Settings view {after pressing the button)

During operation, the display shows the performance view. If you press the button, the user interface switches the view or runs in the setting selection mode.

Alarm status

If the circulator has detected one or more alarms, the bi-colored LED 1 switches from green to red. When an alarm is active, the LEDs indicate the alarm type as defined in the table below. If multiple alarms are active at the same time, the LEDs only show the error with the highest priority. The priority is defined by the sequence of the table. When there is no longer an active alarm, the user interface switches back to operation mode.

Display	Indication	Pump operation/Counter action
One red LED + one yellow LED (LED 5)	Rotor is blocked	Restart attempt every 1.33 seconds. Wait or unblock shaft.
One red LED + one yellow LED (LED 4)	Supply voltage too high	Only warning, pump runs. Control the supply voltage.
One red LED + one yellow LED (LED 3)	Low electrical error	Pump is stopped because of low supply voltage or serious failure. Exchange the pump.

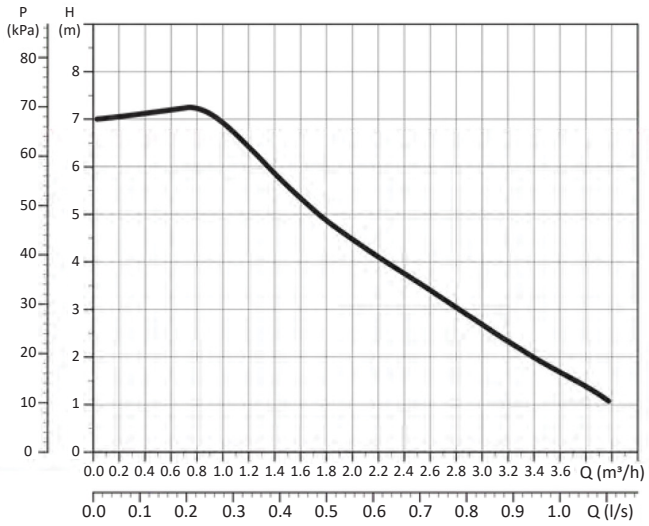
Setting Number	1	2	3	4	5	6
Temperature (°C)	2	2	3	4	4	5
	0	7	4	1	8	5

Performance view

The performance view shows either the operation status or the alarm status.

Operation status

When the circulator is running, LED 1 is green. The four yellow LEDs indicate the current power consumption (P1) as shown in the table below. When the operation mode is active, all active LEDs are constantly on in order to differentiate this mode from the select setting mode. If the circulator is stopped by an external signal, LED 1 flashes green.



Display	Indication	Performance in % of P1 MAX
One green LED (flashing)	Standby (only externally controlled)	0
One green LED + one yellow LED	Low performance	0-25
One green LED + two yellow LED	Medium low performance	25-50
One green LED + three yellow LED	Medium high performance	50-75
One green LED + four yellow LED	High performance	75-100