Engineered Water Solutions

Installation and Commissioning Instructions UFH Control Group with Thermostatic Mixing Valve and Pump U9700083

- Boxed set pre-assembled for immediate installation, including:
  - Thermostatic mixing valve adjustable from 35°C to 60°C with large setting knob and easy to see numbers
  - Temperature gauge measuring mixed water temperature
  - Wilo Yonos Para RS25/6-RKA circulating pump
  - 1" M swivel joints for fast connection to 1" F manifold tappings
  - All nickel plated for improved appearance
  - Supporting bracket with rubber supports for extra stability and noise reduction
- Built-in non-return valve in flow elbow to allow simple system filling when commissioning
- 1" M close coupled flow and return connections
- Suitable for Topway Type 2 manifolds or any manifold with connections on 210mm centres
- Optional ball valve set for fitting to 1" M connections
- Valve body kvs 3.4

T3 UFH Control Group Installation Guide

1. General

1.1 This T3 UFH control group has been designed for control of flow and water temperature in an underfloor heating system. It is pre-assembled and tested to ensure that it can be fitted with the minimum of on-site labour and commissioned immediately once fitted.

1.2 As supplied it is designed to connect to the left hand side of an Emmeti manifold with 210mm between the centres of the flow and return arms. It can also be used with any other manifold built on this dimension. The control group can also be altered to fit to the right hand side of a manifold simply by removing the bracket clips and 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.

1.3 There are three other control groups to cater for applications with different control needs or higher flow rates for larger residential and commercial applications:

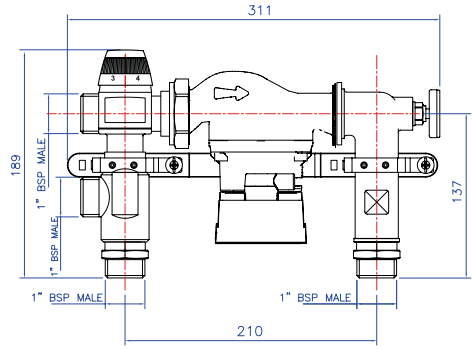
- U9700033 - control group with Thermostatic mixing valve, thermal actuator and pump, kvs 3.4
- U9700043* - control group with motorised mixing valve and pump, kvs 6.3
- U9700053* - control group with motorised mixing valve and pump, kvs 8.0

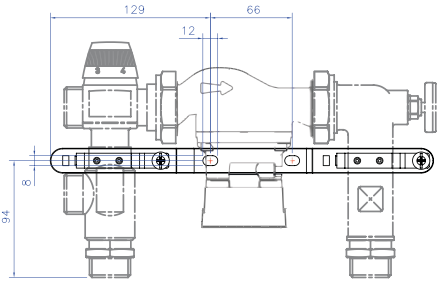
* available with 3-point actuator, temperature controller or weather compensator for mounting on Control group

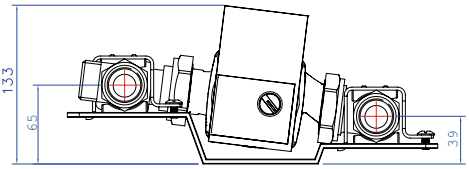
For a full description of each control group, please consult our Product Price List or Technical Product Guide on our website at www.emmeti.co.uk.

T3 UFH Control Group Installation Guide

2. Connections & Dimensions







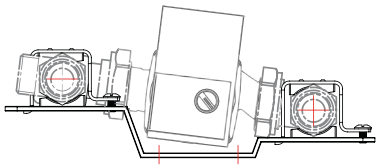


Fig.1 Overall Connections and Dimensions

Fig. 2 Mounting Bracket Dimensions

Please note the overall dimensions of the control group and allow reasonable access at either side and the front for installation and maintenance

3. Technical Data

Maximum static pressure	10 bar
Maximum differential pressure	3 bar
Maximum temperature	95°C
Operating temperature Range	Adjustable between 35°C and 60°C
Inlet connections	2 x 1"M (G1)
Outlet connections	2 x 1" M (G1) – swivel joint
Overall dimensions mm	311h x 189w x 133h
Kvs	3.4

4. Control Group Contents

Pre-assembled control group including:

- 'L' pattern thermostatic mixing valve – operating temperature range 35°C to 60°C
- Wilo Yonos Para RS 25/6-RKA circulating pump
- Inlet tee assembly with 1"M swivel connector to the underfloor return rail
- Outlet elbow assembly with built-in temperature gauge and 1"M swivel connector to the underfloor flow rail
- Mounting bracket with rubber supports

5. Installation

5.1 Remove the control group assembly carefully from the packaging and check to ensure that all components are in place and that there is no damage to them.

5.2 The control group is supplied for connection to the left hand side of the manifold but can be altered very simply for connection to the right hand side.

(i) Remove the mounting bracket clips from the control group by unscrewing the two screws shown in Fig. 3 and rotating the upper and lower elbows through 180° using the pump union nuts.

Fig. 3
Remove mounting bracket clips

5.3 Using a 5mm hexagonal key, remove the four motor retaining screws, rotate the motor 180 degrees and resecure the screws

5.4 With the motor re-positioned, rotate the pump so that the motor sits again between the upper and lower elbows and then refit the mounting bracket. See Fig 4.

Fig. 4
Re-fit mounting bracket

5.5 The control group can be attached to the manifold either before or after the manifold is secured to the wall. The control group should be secured to a flat vertical surface able to support the weight of the control group and manifold. Using the dimensions shown in Figs. 1 and 2, ensure that there is sufficient space for installation and maintenance at the intended position for the control group. The fixing hole positions of the mounting bracket can be marked through the mounting bracket itself.

5.6 A swivel joint is fitted to each side of the control group for connecting to the 1" F manifold tappings. The inlet tee swivel joint should be connected to the return rail and the outlet elbow swivel joint to the flow rail of the manifold. Carefully offer up and screw the swivel joint threads evenly into the manifold using a 37mm A/F spanner: the use of a 31mm A/F spanner will also ensure that the connection to the control group is kept tight – see Fig. 5. An optional 31mm-37mm spanner is available from Emmeti – code U9760010. The joints use o-ring seals and care should be taken not to over-tighten them.

Fig. 5
Tightening the swivel joints

5.7 Once the control group is connected, finish securing the manifold and control group to the wall if not already completed.

5.8 The primary flow and return pipework can now be connected to the 2 x 1"M connections facing downwards. The flow connection is at the left hand side and the return connection is at the right. It is recommended that ball valves are used to isolate this pipework where it is connected to the control group: Emmeti offer a pair of ball valves with a 1" union connection suitable for this application, code 6066R006.

6. Commissioning

6.1 Filling the UFH system - The built-in 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 control group, 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 For details of the recommended commissioning procedure please refer to the Emmeti literature for the manifold.

6.3 The pump is supplied with a pre-connected 1m long 3-core cable ready for connection to the electrical controls system. Ensure that the pump is filled and vented, operate the controls system to call for heat then select the desired pump setting.

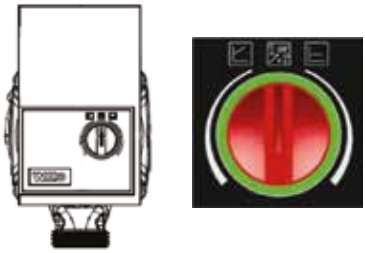


Fig. 6 Yonos Para control panel and operating dial

The control panel is at the front of the pump. It has one dial with 3 operating modes, see above. The "POWER ON" light field around the dial shows that the mains supply has been switched on.

T3 UFH Control Group Installation Guide

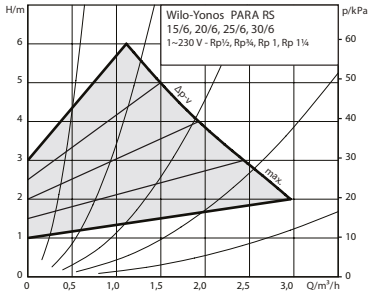


Fig. 7 Δp-v, variable differential pressure

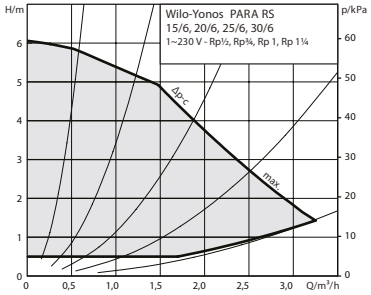


Fig. 8 Δp-c, constant differential pressure

Setting the control mode

To select the control mode symbol and set the desired delivery head, turn the operating knob to the required mode as described below. The maximum setting is obtained by rotating fully either clockwise or anti-clockwise until the dial stops

Variable differential pressure (Δp-v): The knob for the control mode Δp-v is set on the left of the middle position. The differential-pressure setpoint H is increased linearly over the permitted volume flow range between ½H and H. The differential pressure generated by the pump is adjusted to the corresponding differential-pressure setpoint. See Fig. 7 above

Constant differential pressure (Δp-c): The knob for the control mode Δp-c is set on the right of the middle position. The differential-pressure setpoint H is kept constant over the permitted volume flow range at the set differential-pressure setpoint up to the maximum pump curve. his control mode is recommended for underfloor-heating circuits. See Fig. 8 above

Venting function: The middle position as shown above is for the venting function. By turning the operating knob to the symbol for venting the venting function is activated after 3 seconds. The venting function lasts 10 minutes and is indicated with quick green LED blinking. Noises may be heard when the venting function is running. The process can be stopped if desired by turning the knob away from the venting function. After 10 minutes, the pump stops and goes automatically to Δp-c mode, maximum setting.

6.4 Once the system has been filled and pressure tested, the individual underfloor circuits can be balanced. As part of this process the mixed flow temperature must be adjusted to the correct level for the system design. To achieve this, the thermostatic mixing valve can be adjusted between 35°C and 60°C as shown in Fig 9 & 10. below. Allow sufficient time for the temperature to stabilise, then check the setting against the temperature reading on the mixed flow temperature gauge fitted to the control group.

6.5 Please retain this document and hand it to the user for future reference.

Setting Number	1	2	3	4	5	6
Temperature °C	35	40	45	50	55	60

Fig. 9 Choose the setting number to give the correct temperature for your system. The setting numbers are a guide only and should be checked against the fitted temperature gauge.

Fig. 10 Adjust the setting number against the index mark as shown

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