

WHST 300 T38



Note

Air temperature control for warm water heater batteries WHR. For constant supply air temperature between 20 – 50 °C, we recommend **Type WHST 300 T50** (see page 137) Ref. no. 8820

Air temperature control WHST 300 T38 for warm water heater batteries

- To control air heating of the warm water heater batteries for lower output to 5.5 kW and flow rate to 300 l/h.
- An ideal supplement for ventilation units with heat recovery and PWW auxiliary heating, as well as for warm water heater batteries WHR 100 to WHR 200.
- A simple, cost effective and easy-to-install solution.

Specification / Application

WHST 300 T38 consists of a thermostat with remote control and remote sensor and is suitable for systems in which the water pressure of the heating circuit can provide this application. The proportional controller, which operates as a conventional heating valve without electrical supply energy, is continuously adjustable and changes the temperature through variation of hot water flows.

Control options

- Control options through modification of the hot water flow:
- **Constant supply air temperature control** by positioning the capillary tube sensor in the air flow.

Constant room temperature control by positioning the capillary tube sensor in the room.

- **Arbitrary limitation of the temperature range** by defining the minimum and maximum values.
- **Frost protection** activated at +8 °C.

Product contents

- Complete set, including
- Thermostat for room installation,
 - Straight way valve
 - Set piston
 - Capillary tube remote sensor
 - Fittings

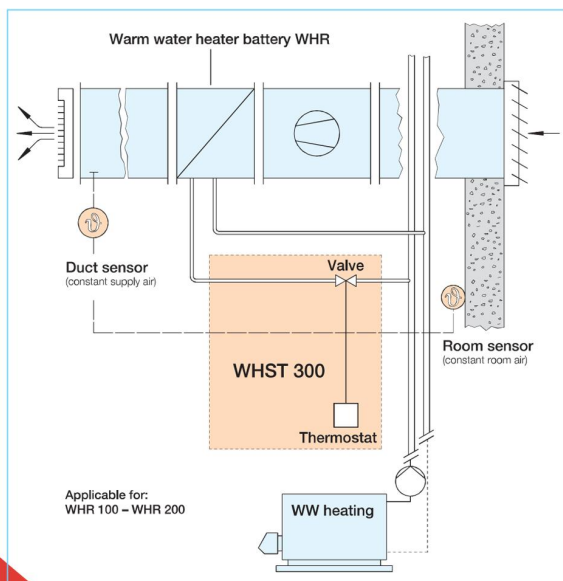
Installation

The capillary tube must be located in a position so that it is not buckled or flattened. To keep the room temperature constant the remote sensor

should be installed in the room where the predetermined temperature conditions are present.

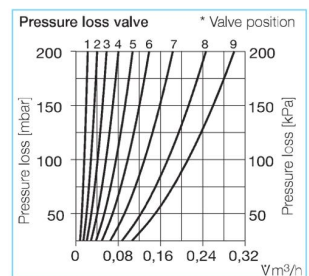
Design

The WHST 300 T38 control can be used in heater batteries up to 300 l/h water flow rate. The pressure drop, which must be overcome by an on site pump, appears as the sum of Δp heater battery Δp valve (see diagram) and Δp ducting.



Technical data

Type	WHST 300 T38
Ref. no.	8817
Max. operating pressure	10 bar
Max. operating temperature	120 °C
Connection DN 20	3/4"
Max. air flow	300 l/h
Differential pressure	0.4 K / 0.5 bar
Setpoint range (Thermostat)	8–38 °C
Dimensions in mm	
– Thermostat	W 80 x H 80 x D 50
– Remote sensor	W 35 x H 85 x D 30
Mounting thread DN 20	G 3/4"
Capillary tube length	5 m
Weight (complete)	0.5 kg

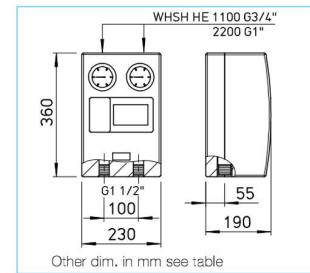


* Note: The valve is factory-adjusted to position 9. For lower volumes of water it can be adjusted between 1 and 9 in order to optimise the control mode.



Temperature control system WHS HE
for warm water heater batteries up to approx. 70 kW and 2200 l/h

Helios



- **Air temperature controller WHS HE for warm water heater batteries**
- To control air heating of the warm water heater batteries for a maximum output of 70 kW and a flow rate of between 200 and 2200 l/h.
- Fits to Helios heater batteries WHR-R 250 – 400 and WHR-K up to 2200 l/h.
- Complete system with various control options where all the components are compatible with each other.

■ **Application**

- Connection on existing heating circuit to supply e.g. a separate cord. A separate heating circuit creation is achieved by means of an integrated pump.
- The hydraulic component WSHH HE 24 V is used to operate heating circuit in connection with Helios warm water heater batteries. The flow temperature to the heater battery is controlled using a 3-way-valve, which is operated by an electric servo motor 24 V.
- Delivered as a fully wired and easy-to-install set with pre-installed, thermally insulated hydraulic unit.

■ **Control options**

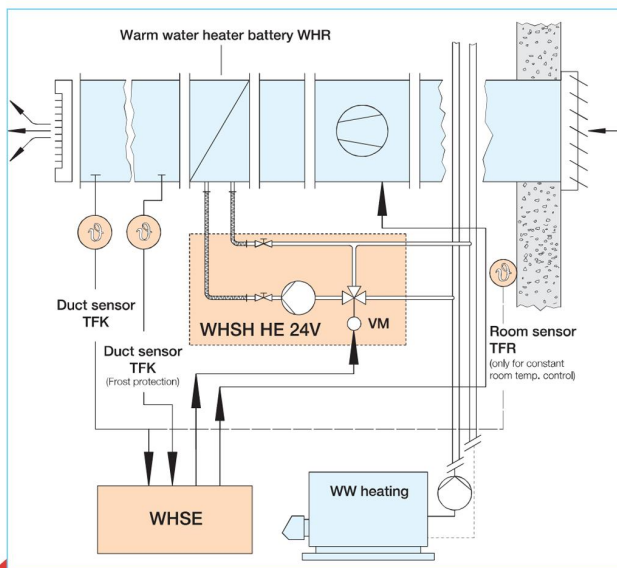
- Constant supply air temperature control by means of duct sensor TFK.
- Constant room temperature control by means of external room sensor TFR.
- Constant room temperature control with minimum limitation of the supply temperature through use of room and duct sensors.
- Frost protection for all the three versions by using a second duct sensor TFK.
- WHS HE also offers the possibility of setpoint control e.g. for night and weekend cutout as well as the connection of other sensors or setpoint devices.

■ **Scope of delivery / Specification**

- Hydraulic unit WSHH HE 24 V with
 - Electronic circulating pump with automatic ventilation function, 2 m connection cable.
 - Flow/return stop valve with integrated temperature display.
 - 24 V servo motor with limit switch, manual operation possible. Connection cable (2.2 m).
 - Three-way-valve.
 - Thermal jacket made of EPP foam.
 - Gasket set and two flexible hoses DN 25 (stainless steel, 50 cm long) for battery-side connection.
 - Reducer nipple, 3/4" – 1".

- Electronic control unit WHSE, for installation in switch cabinet. Functions:

- Pre-set temperature specification for operation with constant supply air temperature.
- Adjustment of cascade factors.
- Minimum limitation.
- Adjustment/selection of the control mode.
- Operating display.
- Frost protection: alarm and reset.
- Operating display servo motor.
- Potential-free output for alarm 24 V and 230 V circuit.
- Two temperature sensors TFK for in-duct installation.
- One room temperature sensor TFR.



Type	WHS HE
Ref. no.	8319
Max. operating pressure	6 bar
Max. operating temperature	120 °C
KVS value	5.1
Min. / Max. air flow	200 ¹⁾ – 2200 l/h
Differential pressure	0.1 – 0.7 K / 0.5 bar
Setpoint range (Thermostat)	7 – 28 °C
Ambient temperature (electronic control system)	0 – 50 °C
Protection class (electronic control system)	IP 20
Power consumption – Pump	3 ... 45 W
– Servo motor	2.5 W
– Electronic control system	5 W
Voltage – Pump / electronic control system	230- V / 50 Hz
– Servo motor	24- V / 50/60 Hz
Wiring diagram no.	953
Dim. in mm – Hydraulic unit ²⁾	see dimensional drawing
– Electronic control system WHSE ²⁾	H 80 x W 100 x D 85
– Room sensor TFR	H 80 x W 85 x D 30
– Duct sensor TFK	130/50 ²⁾ , Ø 10
Weight approx. kg	9.0

¹⁾ Control problems may occur at lower water flow volumes

²⁾ Length inside/outside

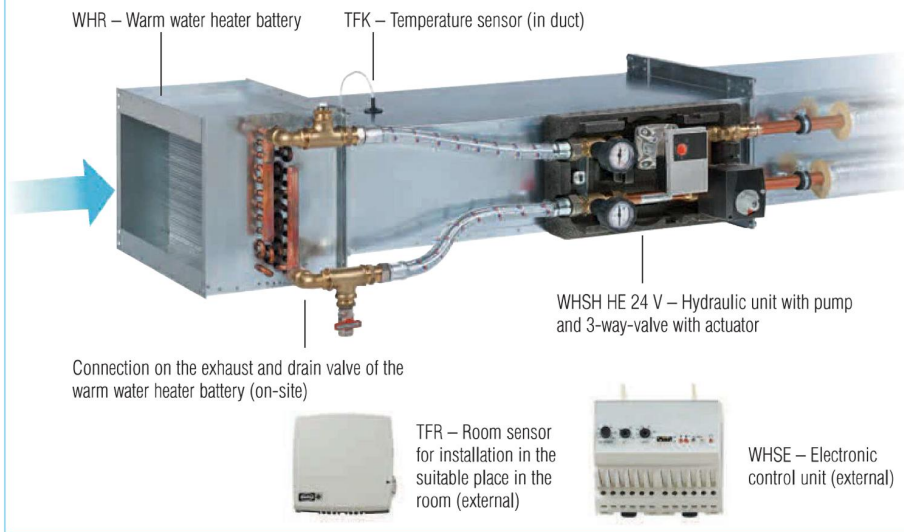
³⁾ Single order of WHS HE system components by request.



Installation

The heater battery WHR and the duct sensor TFK must be installed downstream of the fan in ducting.
 The hydraulic unit WSH HE 24 V must be fixed independently and safely.
 The expansion forces or the dead weight of ducting must not burden the connections.
 The exhaust valve shall be installed at the highest position whereas the drain valve shall be installed at the lowest position of the circuit.
 The electronic control unit WHSE (IP 20) can be mounted on the DIN-profile rail in the switch cabinet.

Application example

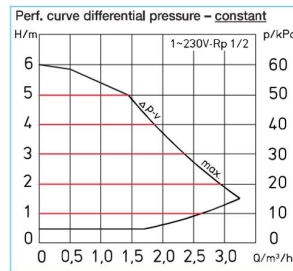
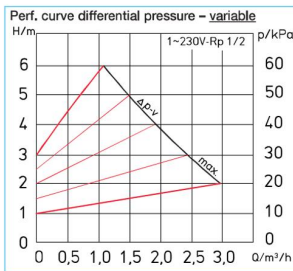
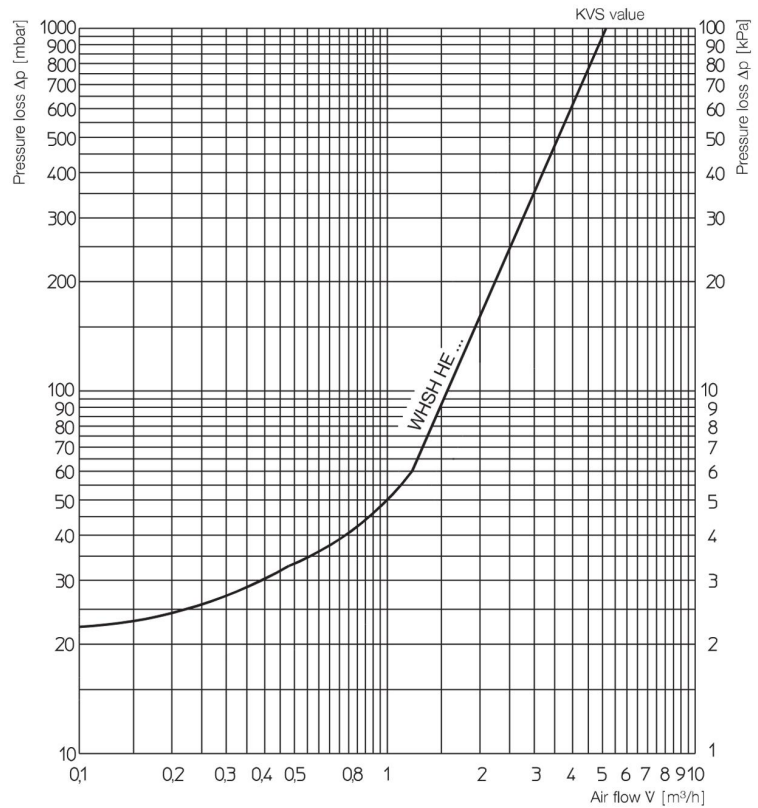


Design

- 1 Selection of the requested PWW heater batteries based on the air flow volume, design (duct dimensions) and required heat output.
 - WHR-R, circular p. 430
 - WHR-K, rectangular p. 429
- 2 Determination of pressure loss of the on-site ducting system.
- 3 Sum of losses of all components:
 - $\Delta p_{total} =$
 - $\Delta p_{heater\ battery}$
 - $+ \Delta p_{ducting\ system}$
 - $+ \Delta p_{WSH\ HE}$
- 4 Adjustment of required differential pressure Δp_{total} on circulating pump control knob.

Diagram

Pressure loss hydraulic unit incl. flexduct



Information	Page
Other WSH hydraulic units	
- for KWL® units with PWW auxiliary heating WSH HE 24 V (0-10V) No. 8318	137
- for ALB WW WSH HE 24 V (0-10V) No. 8318	291 on

