

# ANTI-CONDENSATION RECIRCULATION AND DISTRIBUTION UNIT



## 281

Anti-condensation recirculation and distribution unit, with thermostatic control of the return temperature to solid fuel generators. Brass body. **With insulation.**

Code	Connection	Settings
28106.	1" F	45°C 55°C 60°C 70°C
28107.	1 1/4" F	45°C 55°C 60°C 70°C

### Code completion

Setting	45°C	55°C	60°C	70°C
•	4	5	6	7

### Technical Specifications

#### Performance

Medium:	water, glycol solutions
Max. percentage of glycol:	30%
Working temperature range:	5–100°C
Max. working pressure:	10 bar
Maximum recommended flow rate:	1,5 m <sup>3</sup> /h
Temperature gauge scale:	0–120°C

Connections: 1" F and 1 1/4" F with union

#### Anti-condensation valve

Working temperature range:	5–100°C
Setting temperature:	45°C, 55°C, 60°C, 70°C
Accuracy:	±2°C
By-pass complete closing temperature:	T <sub>set</sub> +10°C

#### Pump

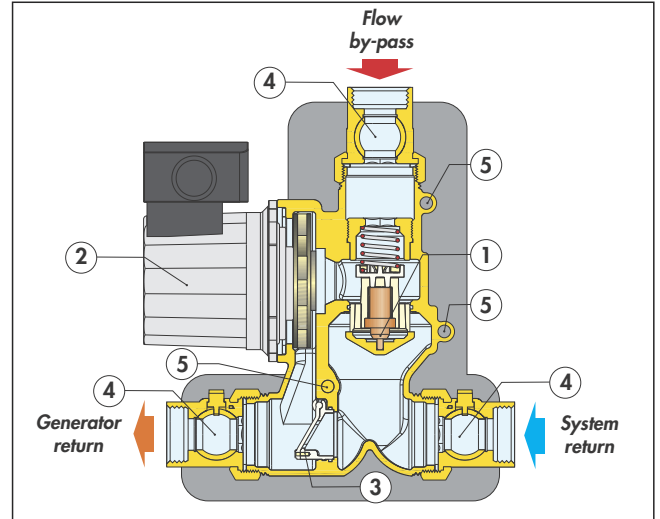
Three-speed pump: RS 4-3

#### Technical specifications of insulation

Material:	EPP
Mean thickness:	30 mm
Density:	45 kg/m <sup>3</sup>
Working temperature range:	-5–120°C
Thermal conductivity:	0,037 W/(m·K) at 10°C
Reaction to fire (UL94):	class HBF

### Function

The anti-condensation recirculation and distribution unit enables the connection of the solid fuel generator to the user system (direct or with inertial storage). It controls the return temperature to the generator to avoid condensation, by means of the built-in thermostatic device.



### Characteristic components

- 1) Anti-condensation thermostatic device
- 2) Three-speed pump
- 3) Valve for natural circulation
- 4) Union with built-in ball valve
- 5) Temperature gauge housing

### Construction details

#### Single casting and reversibility

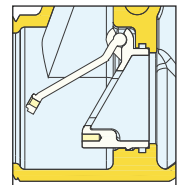
The compact brass single casting, that houses the pump and functional components, enables immediate installation of the device, either on the right or left of the solid fuel generator, respecting the flow directions as shown. The temperature gauges can be extracted from the housings and re-inserted in the same position on the back side of the unit.

#### Anti-condensation valve

This device incorporates a thermostatic sensor to control the temperature of the water returning to the solid fuel generator so as to prevent condensation. The sensor has been specifically realised to be removed from the valve body for maintenance or replacement if necessary.

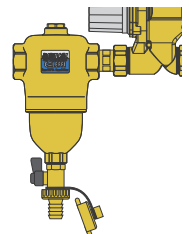
#### Natural circulation valve

The function of this clapet device is to ensure natural circulation of the medium in the event of pump stop due to an electric power failure. When the pump is active, the thrust of medium keeps the valve closed, forcing the water to flow through the anti-condensation thermostatic valve. If the event of pump stop, when the water within the boiler is at high temperature, a natural circulation of the water begins, by-passing the anti-condensation valve, thus preventing the temperature in the generator from reaching dangerous high levels.



#### Dirt separator

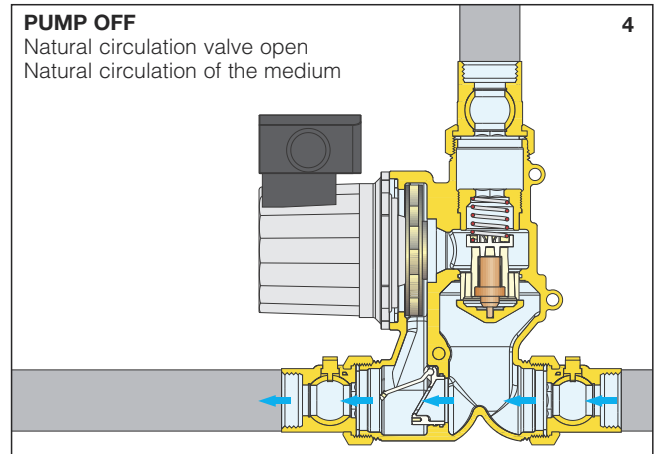
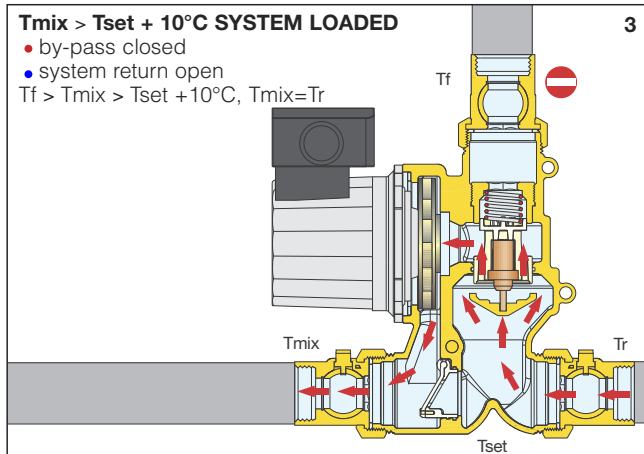
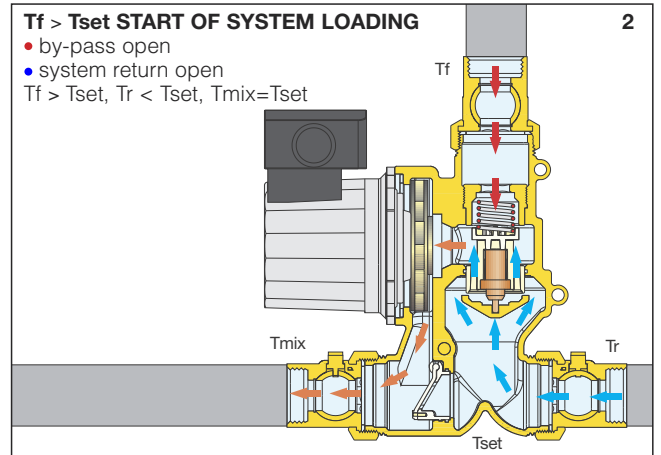
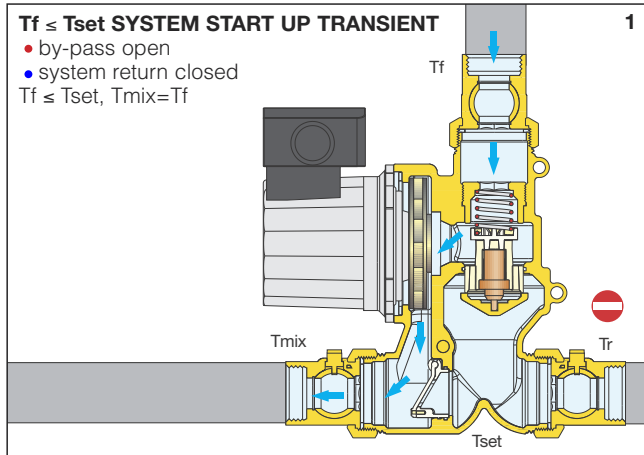
In order to carry out continuous dirt separation in the system it is available the 5462 series DIRTAL® dirt separator as accessory.



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## Operating principle

The thermostat, completely immersed in the medium, controls the movement of an obturator that regulates the flows in by-pass and toward the system. On starting up the generator, the recirculation unit recirculates the flow water so as to bring the generator up to temperature as quickly as possible (1). When the flow temperature  $T_f$  exceeds the set of the anti-condensation valve  $T_{set}$ , the unit's cold port starts opening to produce the mixing  $T_{mix}$ : in this phase the system loading begins (2). When the generator return temperature  $T_{mix}$  is greater than the set of the anti-condensation valve by approximately  $10^\circ\text{C}$ , the by-pass port gets closed and water returns to the generator at the same temperature of the system return (3).



$T_f$  = Flow temperature

$T_{set}$  = Anti-condensation set temperature

$T_{mix}$  = Mixed water temperature of generator return

$T_r$  = System return temperature

## Application diagram

### System with inertial storage

