MCCS - DN25 ANTI-CONDENSING RECYCLING PUMP UNIT

Directions for installation

SAFETY: *Please read carefully the mounting and setting up directions before setting the system going, in order to avoid accidents and failures of the installation caused by an improper use of the product. Keep this manual for future consultations.*

List and basic technical features of the main components

(B) Isolating ball valve.
Isolating ball valve mounted on the three connections. Operating stem with allen screw.

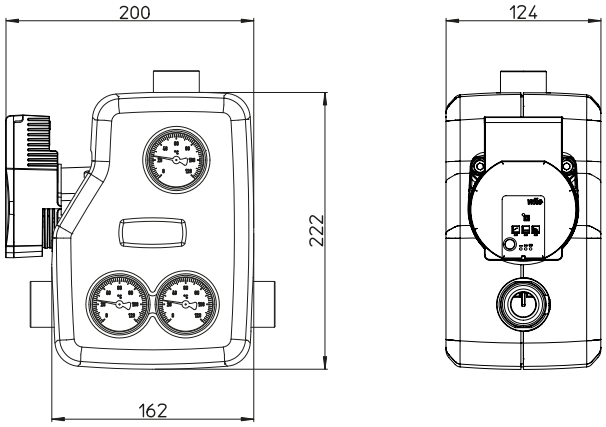
(A) Circulating pump.
Synchronous high efficiency *Wilo Para SC/8* circulating pump. The label on the circulating pump shows the standard hydraulic scheme and the features of the model.

(C) Thermometers.
Thermometers showing the temperature, with scale 0-120°C. They can be moved to the opposite side of the body, in accordance to the orientation of the pump unit in the installation.

(D) Operating rod.
External control rod of the internal clapet valve. It can be kept working or not working according to the installation specifications.

TAKE CARE

The piece is supplied with the clapet valve rod in stop position.



EPP insulation box. Measurements: 162 x 222 x 124 mm.

Technical features

Maximum working pressure:	***10 bar***
Maximum temperature:	***100°C***
Nominal opening temperature:	***setting temperature + 10 K***

Field of utilization

- **Direct supply to the distributor: up to 45 kW (with Δt 20 K) and maximum flow rate of 1950 l/h. Lifting power: 4 mH_2O**
- **With buffer tank: fino a 90 kW (con Δt 30 K) and maximum flow rate of 2600 l/h. Lifting power: 2 mH_2O**

Available setting temperatures: **45°C, 55°C, 60°C and 72°C**
External connections: **1" and 1"1/4 F, 28 mm for copper pipe.**

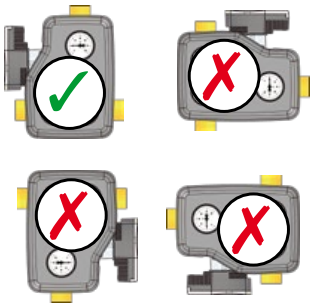
Rev.2 - 20/12/2018

Employment

The anti-condensing pump unit allows to connect directly the solid fuel heating source to the heating system or to the buffer tank without any additional device. As a matter of fact the pump unit includes into a compact and nice insulation box the circulating pump, the anti-condensing thermostatic valve, the on/off natural circulation clapet valve, the isolating valves and thermometers. It automatically adjusts the return water temperature to the heating source to the selected setting value of the thermostat.

The device keeps the heating source at a high temperature level (always higher than the condensation one) in every possible condition of use, so avoiding deposits both into the boiler and into the chimney flue, in this way improving the efficiency and the life of it. Therefore also corrosion problems of the heating source or dangerous fires of the chimney are avoided.

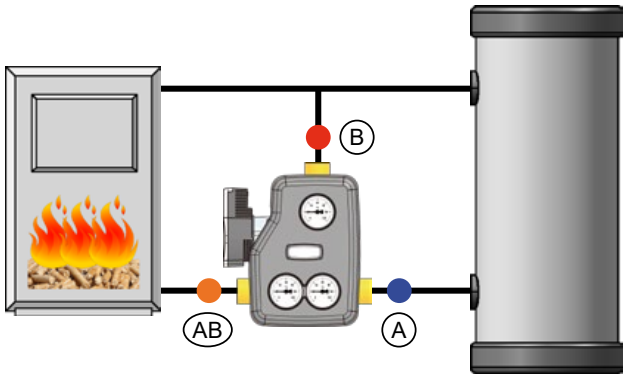
Installation



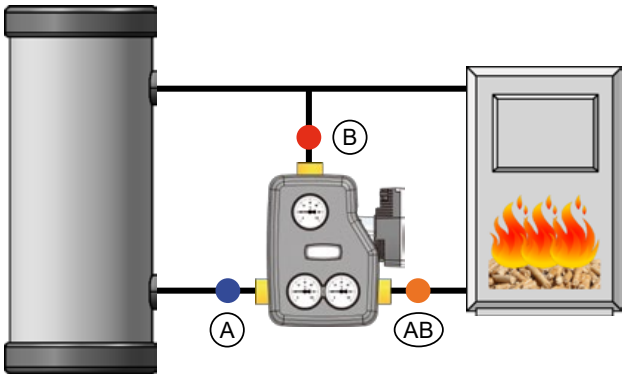
The anti-condensing recycling pump unit can be placed on both sides of the heating source, following these directions:

✓ On the return pipe to the boiler in mixing mode, following the flow directions shown on the body.
✓ In vertical position (horizontal circulating pump axis) to allow the hydraulic working of the natural circulation clapet valve.

In order to optimize the anti-condensing control, we recommend the installation of the component on the return way to the boiler.



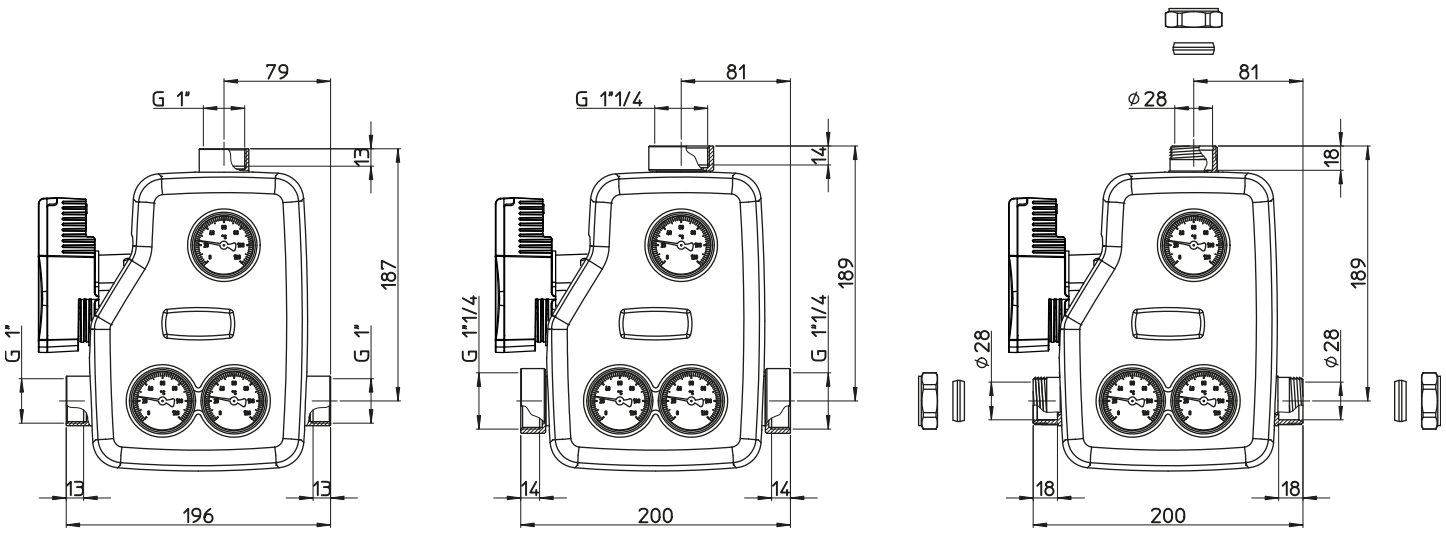
Scheme 1: Installation placed on the right of the heating source.



Scheme 2: Installation placed on the left of the heating source.

The standard model is set up for the installation on the right of the heat source (*scheme 1*). To install it on the left (*scheme 2*) it is enough to put the three thermometers on the opposite side of the insulation box:

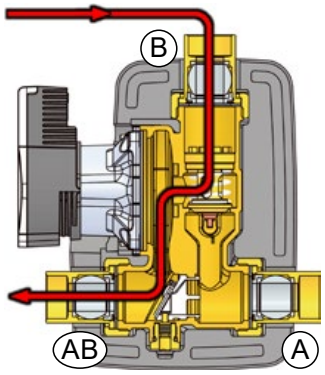
✓ Open the insulation box and remove the three thermometers from the seats;
✓ Pierce the other half of the shell in the centre of the seat of the thermometer, the thickness is very thin and it is giving way easily;
✓ Close again the two shells on the body and place the three thermometers into the holes previously prepared, taking care that they're placed into their seats on the brass body and that they're not protruding from the insulation box.



Dimensions and sizes of the available connections

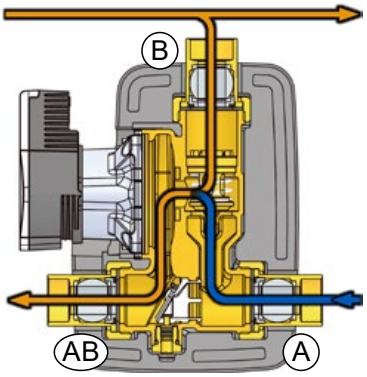
Working mode

The schemes shown below represent the different working phases of the anti-condensing pump unit.
Please note that: the pictures have to be considered just as an indication and they have no completeness pretention.



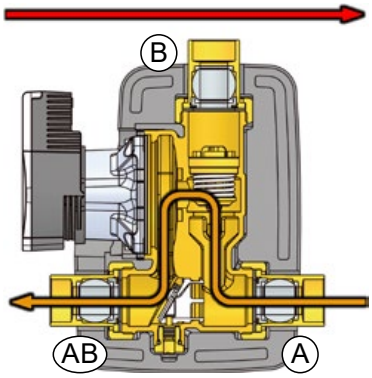
1 Starting of the installation (boiler warming up)

After the starting of the boiler, the thermic valve is fully closed towards the user's return (**gate A**) and this condition remains until the fluid, warmed up by the heating source, gets the opening temperature of the thermic valve (corresponding to the setting value, f.i. 55°C). During this step the fluid sent by the boiler fully recycles through the by-pass (**gate B**) and the boiler temperature rises very quickly.



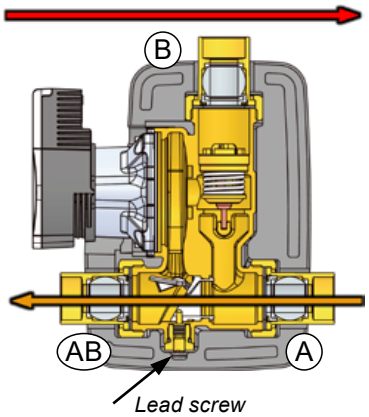
2 Loading of the installation (tank warming up)

At the achievement of the opening temperature (f.i. 55°C) the users' return way (**gate A**) proportionally starts to open, meanwhile the by-pass (**gate B**) is going to be closed. The boiler temperature slowly rises giving energy to the user, but in any case the return temperature will not decrease anymore below the setting temperature (f.i. 55°C).



3 Working installation

Starting from the condition of point 2, the supply temperature progressively rises up to the full opening of the thermic valve (**gate A**) and up to the corresponding shutting of by-pass (**gate B**). This happens at about 10 K more than the opening or setting temperature (therefore in the example in hand, at about 65°C). Now the installation is on working and the supply fluid temperature can rise up to the set value.



4 Natural circulation

The natural circulation of fluid through the clapet valve starts as soon as the circulating pump stops and the remaining energy of the heating source is transferred to the water tank.

This function starts as a security device, when the pump stops due to blackout or failure, so avoiding that the temperature of the heating source can reach high levels of danger.

TAKE CARE

To turn on the natural circulation function please turn the control screw anti-clockwise. You can lock the clapet valve any time, turning the screw clockwise (this operation has to be done when the pump is working).

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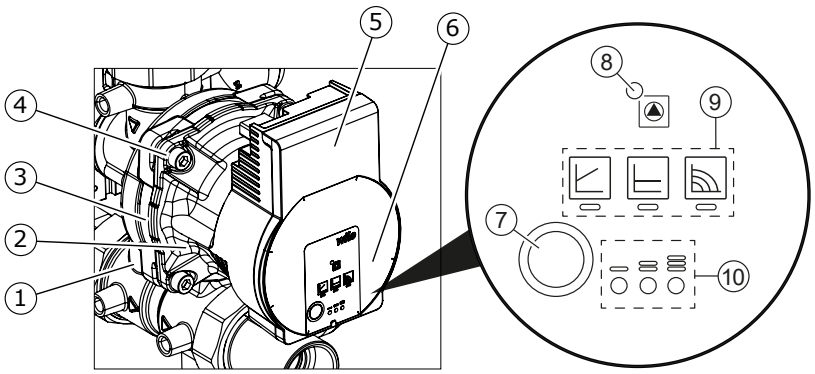
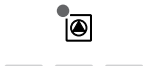
Synchrone high efficiency circulating pump Wilo Para SC



1. Pump housing with screwed connections
2. Glandless motor
3. Condensate drain openings (4x around circumference)
4. Housing screws
5. Control module
6. Rating plate
7. Operating button for pump adjustment
8. Run/fault signal LED
9. Display of selected control mode
10. Display of selected pump curve (I, II, III)

Indicator lights (LEDs)



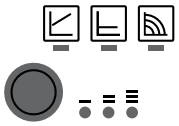
- Signal display
- LED is lit up in green in normal operation
- LED lights up/flashes in case of fault

- Display of selected control mode Δp-v, Δp-c and constant speed

- Display of selected pump curve (I, II, III) within the control mode

- LED indicator combinations during pump venting function, manual restart and key lock

Operating button



Press
- Select control mode
- Select pump curve (I, II, III) within the control mode

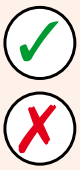
Press and hold
- Activate the pump venting function (press for 3 seconds)
- Activate manual restart (press for 5 seconds)
- Lock/unlock button (press for 8 seconds)

Funzioni

Venting
The pump venting function is activated by pressing and holding the operating button (for 3 seconds) and automatically vents the pump.
The top and bottom LED rows flash in turn at 1 second intervals. To cancel, press and hold the operating button for 3 seconds.
The heating system is not vented.

Manual restart
A manual restart is initiated by pressing and holding the operating button (for 5 second) and unblocks the pump if required
(e.g. after long standstill period in summer).

Lock/unlock the button
The key lock is activated by pressing and holding the operating button (for 8 seconds) and locks the pump's current settings. It protects against undesired or unauthorised adjustment of the pump.



RECOMMENDED ADJUSTMENT MODE

NOT RECOMMENDED ADJUSTMENT MODE

Control modes

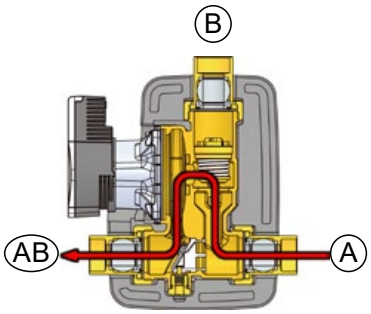
- The LED selection of control modes and corresponding pump curves takes place in clockwise succession.
- Press the operating button briefly (approx. 1 second).
- LEDs display the set control mode and pump curve.

	LED display	Control mode	Pump curve
1		Constant speed	II
2		Constant speed	I
3		Variable differential pressure Δp-v	III
4		Variable differential pressure Δp-v	II

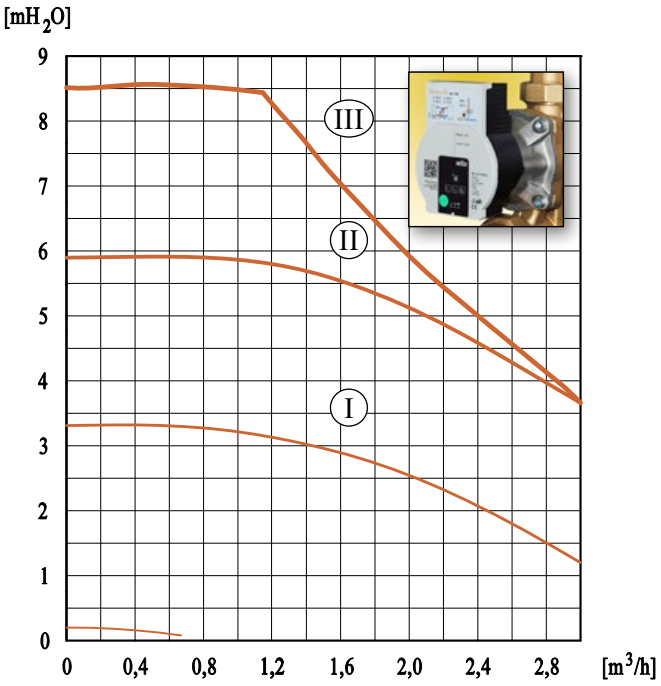
	LED display	Control mode	Pump curve
5		Variable differential pressure Δp-v	I
6		Constant differential pressure Δp-c	III
7		Constant differential pressure Δp-c	II
8		Constant differential pressure Δp-c	I
9		Constant speed	III

TAKE CARE

The Wilo Para SC circulating pump must be set in constant speed adjustment mode. Other possible solutions are not recommended in this application.



Hydraulic performances (A towards AB)



Synchronous circ. pump
Wilo Para SC/8
Absorbed power: 10-75 W
Recommended adjustment mode: constant speed

- *Maximum speed (III)*
- *Medium speed (II)*
- *Minimum speed (I)*

Pump factory setting: Constant speed, pump curve III

Field of utilization

- **Direct supply to the distributor: up to 45 kW (with Δt 20 K) and maximum flow rate of 1950 l/h. Lifting power: 4 mH_2O**
- **With buffer tank: up to 90 kW (with Δt 30 K) and maximum flow rate of 2600 l/h. Lifting power: 2 mH_2O**

These performances are substantially the same even in case of recycling flow (B towards AB).