

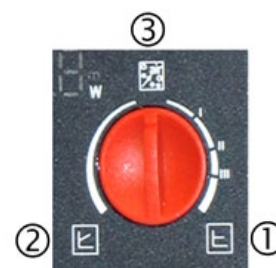


Pump unit with climatic controller for a mixed heating and cooling system. The unit, by working in heating mode, records the outside temperature and sets the correct supply temperature of the plant on the basis of the set up climatic curve. Vice versa, in cooling mode, the room sensor, by recording the temperature and the humidity inside the ambient, sets the correct supply temperature to refresh the room; control of contact with dehumidifier for its starting and turning off. **Wilco Stratos PICO OEM 25/1-6 and Wilco Yonos PICO 25/1-8 circulating pump with built-in differential control: working with constant  $\Delta p$  or variable  $\Delta p$ .**

① *Constant  $\Delta p$* : or heating circuits with a stable pressure drop (f.i. underfloor heating) or plants (f.i. radiator heating) where the pressure drop of pipes is negligible in comparison with the pressure drop of the thermostatic radiator valves, or where independently from open thermostatic radiator valves, same differential pressure is requested.

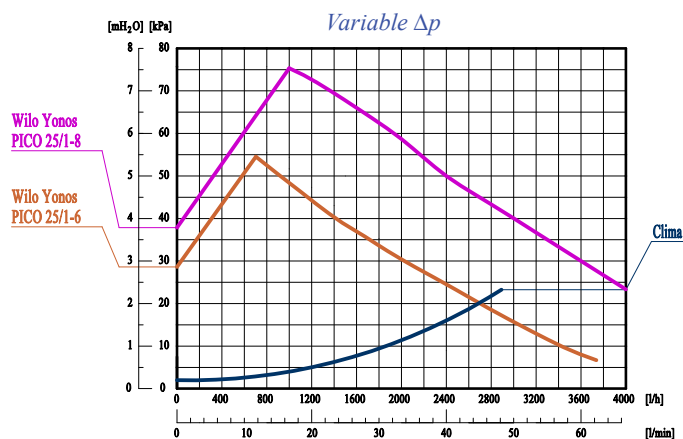
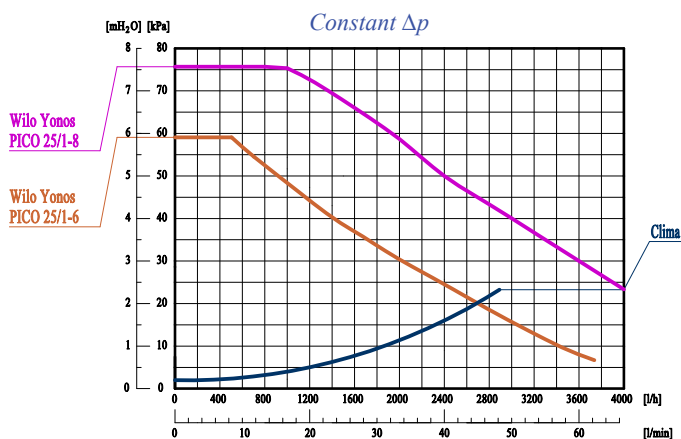
② *Variable  $\Delta p$* : in order to achieve the max energy saving and noise reduction. It is recommended in plants where the pressure drop of the pipes is higher than the pressure drops of the regulating valves, or more simply, when the requested differential pressure is decreasing when the flow comes down.

③ *Automatic air vent program*: turn the selector to this position at the first starting of the installation. The program, the duration of which is 10 minutes, starts the motor of the circulating pump alternately at low and high speed making the agglomeration of air bubbles towards the de-aeration points of the installation. *Once the program is finished turn the selector to the preselect mode:  $\Delta p$  constant or  $\Delta p$  variable.*



### Typical curves of the pump units and of the circulating pump

energy consumption from 4 up to 40 W (Wilco Yonos PICO 25/1-6) and 4 up to 75 W (Yonos PICO 25/1-8)



### MIXING VALVE WITH SERVOMOTOR

3-way mixing valve with bi-directional servomotor with an operating range of 90°; led of activity in opening and closing mode. Selector for manual working with the indicator handwheel. A special connector allows to replace the servomotor in case of failure or bad working without having to operate on electric wires.

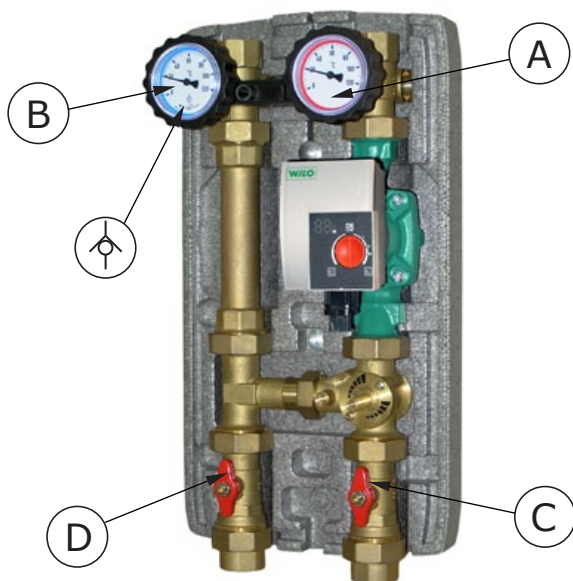
**Kvs Value of the mixing valve: 10,0.**

The model **M33** is supplied with a built-in by-pass into the body of the mixing valve. The built-in by-pass has an adjustable flow up to 50% of the total flow rate of the valve (especially suitable for underfloor heating installations).

**Kvs Value of the mixing valve: 15,0.**



# “CLIMA 6” PUMP UNITS



## 20 mbar CHECK VALVE

Always inside the return way ball valve (B), it prevents the natural circulation of the fluid (gravity circulation).



To prevent the natural circulation, the check valve must be in operating mode, that is when the ball valve is completely open.

The nick on the knob, near the temperature indication of 60°C, must be in axis with the return way.



To fill or to empty the installation, the Check Valve must be excluded, by rotating the handle by 45° clockwise, starting from the complete open position (see picture at left).

The nick on the knob, near the temperature indication of 60°C, must do a 45° angle with the return way.



To service the installation, the ball valve must be closed by rotating the handle by 90° clockwise.

The nick on the knob, near the temperature indication of 60°C, must do a 90° angle with the return way.

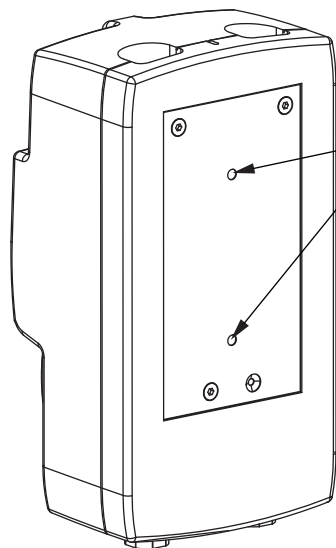
## SERVICE

To service / replace the circulating pump or the mixing valve, close the ball valves (A), (B), (C) and (D) by rotating the handles clockwise. Once the service is finished, open the four ball valves and put again the installation under pressure.

## FASTENING THE PUMP UNIT

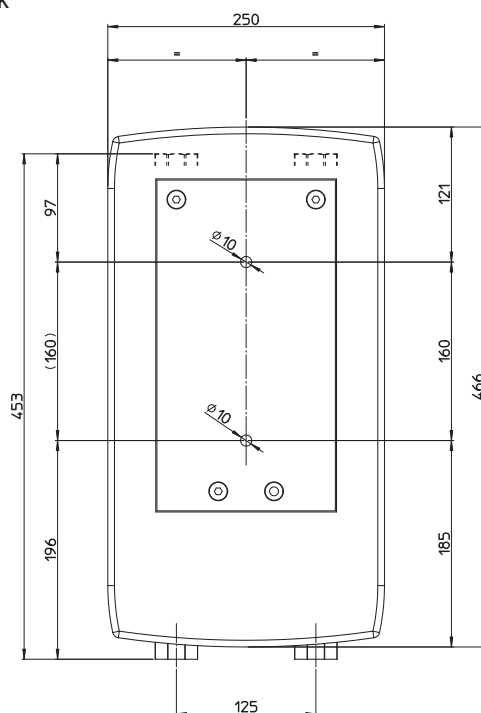
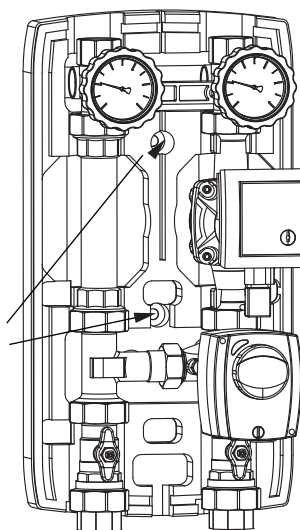
If there is not a manifold, the pump unit can be fastened to the wall or to the storage tank thanks to a special back plate, as shown.

EPP insulation box, measurements: 250x466x215 mm.



Back fixing holes on the plate suitable for M8 screws.

Special openings into the insulation box allow the fastening without dismantling the unit.



## TECHNICAL FEATURES

PN 6, max temperature 110°C. (max. 40°C ambient temperature and 95°C fluid temperature).

External connections: 1" Female.

\* Water temperature:

- ✓ Max 110 °C with max. ambient temp. of 25 °C;
- ✓ Max 95 °C with max. ambient temp. of 40 °C.

## FIELD OF UTILIZATION

For power up to 35 kW (with  $\Delta t$  20 K) and maximum flow of 1500 l/h.

**Kvs value: 6,0.** Approximate data calculated with a 6 Wilo Stratos PICO OEM 25/1-6 circulating pump (6 m nominal lifting power).

For power up to 20 kW (with  $\Delta t$  8 K) and maximum flow of 2150 l/h.

**Kvs value: 6,0.** Approximate data calculated with a 6 Wilo Yonos PICO 25/1-8 circulating pump (8 m nominal lifting power).

For an accurate measuring or higher flows, please refer to the curves of the circulating pumps, (constant  $\Delta p$  or variable  $\Delta p$ ) shown in the first page.

## CLIMATIC CONTROLLER “CLIMA 6”

The climatic controller is supplied already pre-wired to the circulating pump, to the servomotor of the mixing valve and to the contact sensor S2 (TR/S1,5) for the supply mixed way. The power supply cable, also pre-wired, must be connected to the electric system 230 VAC only after having connected the temperature sensors, the circulating pumps or the valves (if present in the selected hydraulic scheme). **To do these operations use only skilled workers.**

Please install the controller following the here below directions:

### Anschlüsse / Connections:

S1		<span style="background-color: yellow; border: 1px solid black; padding: 2px;">gelb/yellow</span>
S3		<span style="background-color: green; border: 1px solid black; padding: 2px;">grün/green</span>
GND (⊥)		<span style="background-color: white; border: 1px solid black; padding: 2px;">weiss/white</span>
RC22 (T)		<span style="background-color: brown; border: 1px solid black; padding: 2px;">braun/brown</span>
RC22 (H)		<span style="background-color: red; border: 1px solid black; padding: 2px;">rot/red</span>
RC22 (+/-)		<span style="background-color: blue; border: 1px solid black; padding: 2px;">blau/blue</span>
RC22 (VDC)		<span style="background-color: grey; border: 1px solid black; padding: 2px;">grau/grey</span>
RC22 (GND)		<span style="background-color: pink; border: 1px solid black; padding: 2px;">rosa/pink</span>

**Sensor-Box**  
max 12V

Picture 1: Connection of the sensors to the sensor box

### ✓ Connect temperature sensors (all are PT1000)

All the wirings must be done by means of the terminals inside the “sensor box”, in accordance with the scheme of the *picture 1*. The sensor box must be fixed to the wall near the pump unit.

**S1:** *outside temperature sensor TA52.* The wiring must be done by the installer by means of cables with a minimum diameter of 0,75 mm<sup>2</sup> to a maximum length of 30 m. For longer distances, the diameter of the cable must be increased and the resistance of the overall cable-sensor must be checked in accordance with the values shown in table 1 (by connecting the wirings it is not necessary to respect the “polarity”).

**S3:** *Dip temperature sensor TT/P4 of buffer tank or hydraulic switcher.*

**GND (ground):** connect the second cable (white) of the S1 and S3, sensors to the multiple terminal.

Table 1: Resistance/temperature for the sensors wiring

°C	0	10	20	30	40	50	60	70	80	90	100
Ω	1000	1039	1077	1116	1155	1194	1232	1270	1308	1347	1385

### ✓ Connect the remote control RC22 to the corresponding sensor box

All the wirings must be done by means of the terminals inside the “sensor box”, in accordance with the scheme of the *picture 1*. by means of the multiple terminal of the room thermostat, following the indication of *picture 2*.

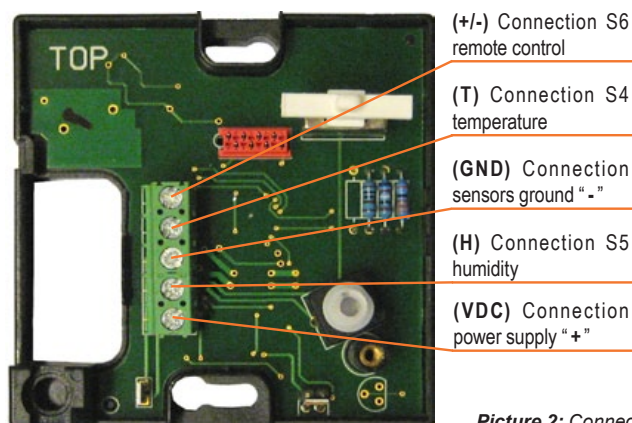
**RC22 (T):** connect to the temperature terminal S4 (T) of the room thermostat RC22.

**RC22 (H):** connect to the humidity terminal S5 (H) of the room thermostat RC22.

**RC22 (+/-):** connect to the remote control terminal S6 (+/-) of the room thermostat RC22.

**RC22 (VDC):** connect to the power supply terminal “+” (VDC) of the room thermostat RC22.

**RC22 (GND):** connect to the sensor ground terminal “-” (GND) of the room thermostat RC22.



Picture 2: Connection of the cables to the room thermostat



The use of the room thermostat allows the remote control of the installation. In fact it is possible to counterbalance by hand the supply temperature according to the requirements or, otherwise, to do it automatically according to the room temperature and humidity. Possible working modes:

**Heating:** it starts up the setups and hours selected into the controller for the heating mode.

**Off:** it deactivates all the functions of the controller. Only the antifreeze function remains working to prevent possible damages.

**Conditioning:** it starts up the setups and the hours selected into the controller for the conditioning mode. It uses the humidity and temperature room sensor to calculate and then to cool the installation with the ideal temperature.




Picture 3: Connection of the contact sensor to the supply way


✓ **Connect the contact sensor TR/S1,5**



Once the wiring of the sensors to the sensor box is finished, fix the contact sensor S2 (TR/S1,5) on the supply pipe after the ball valve with in-handle thermometer (coded red), by means of the clamp supplied as outfit, as shown in the *picture 3*. Moreover we recommend to put a thin layer of heat conductor paste between the sensor and the pipe.

**Anschlüsse / Connections:**

3 x 0,75 mm<sup>2</sup>

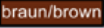
R4 = 


N = 

PE =  


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2 x 0,75 mm<sup>2</sup>

R5 = 

R5I = 

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 Netz-Mains-Box  
230 VAC

Picture 4: Connection of the energy source

✓ **Connect the cables for the summer/winter switching and for the contact to the energy source (heat pump, boiler, chiller, ecc).**

All the wirings must be done by means of the terminals inside the “sensor box”, in accordance with the scheme of the *picture 4*. The sensor box must be fixed to the wall near the pump unit.

**R4:** On tension contact for the automatic summer/winter switching. Connect to the energy source. In conditioning mode (summer) it supplies a 230 V contact.


**N:** Neutral for the summer/winter switching. Connect to the energy source.

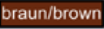
**PE:** Ground for the summer/winter switching. Connect to the energy source.

**R5/R5I:** Zero potential contact for the control of the energy source. It starts up the energy maker when the contact closes (max 185 W).

## In the event that a dehumidifier (optional) must be installed


**Anschlüsse / Connections:**

Z1 = 

Z2 = 

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Kontakt Entfeuchter/  
Contact Dehumidifier

 max 12V

Picture 5: Connection of the dehumidifier

✓ **Connect the dehumidifier**

All the wirings must be done by means of the terminals inside the “sensor box”, in accordance with the scheme of the *picture 5*. The sensor box must be fixed to the wall near the pump unit.

**Z1/Z2:** Connect to the dehumidifier. Potential free relay.

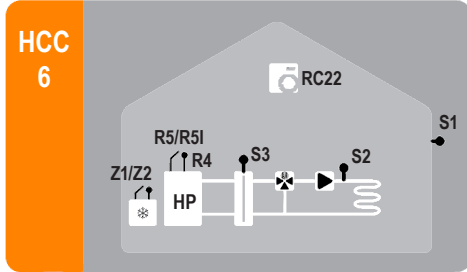


# “CLIMA 6” PUMP UNITS

## HYDRAULIC SCHEMES “CLIMA 6”

### ✓ Mixed circuit with heating and cooling function, supplied by a heat pump

With this hydraulic scheme it is possible to manage a mixed circuit with heating and cooling function. The energy production is made by a heat pump and its summer/winter switching can be managed by hand or completely in automatic; in this second case the relay R4 carries out this function.



**S1:** outside temperature sensor TA52.

**Attention:** put the sensor always toward the north and anyhow far from any heat source.

**S2:** contact temperature sensor TR/S1,5 to be fixed to the supply pipe.

**S3:** dip temperature sensor TT/P4 to be plunged into the buffer or into the hydraulic switcher.

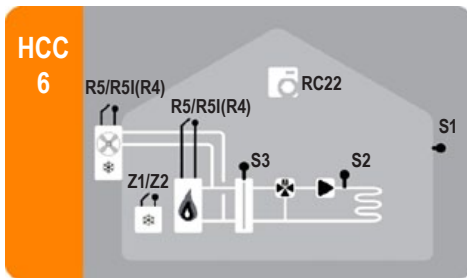
**R4:** on tension contact 230V for the automatic summer/winter switching. In cooling mode it supplies the on tension control. To be connected to the heat pump.

**R5/R5I:** connect the heat pump to the zero potential contact between the clamps R5 and R5I of the sensor box as shown in *picture 4*. It starts up the energy production

**Z1/Z2:** to be connected to the dehumidifier (optional); this device allows to adjust the humidity to the ideal values. If this device is not present, the controller, on the base of the cooling curve, will calculate a higher supply temperature to avoid the room condensation.

### ✓ Mixed circuit with heating and cooling function, supplied by a heat producer and a chiller

With this hydraulic scheme it is possible to manage a mixed circuit with heating and cooling function. The heat production is made by a boiler, meanwhile the cooling is made by a specific chiller. The automatic summer/winter switching must be managed by means of an exchange relay (controlled by R4 contact) in order to move the contact of energy request R5/R5I respectively towards the boiler on winter, and towards the chiller on summer (R4 on tension).



**S1:** outside temperature sensor TA52.

**Attention:** put the sensor always toward the north and anyhow far from any heat source.

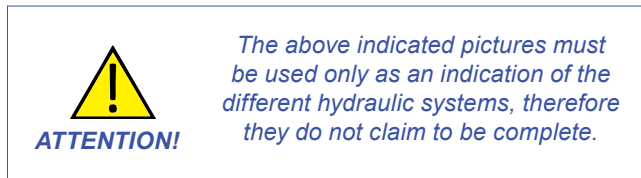
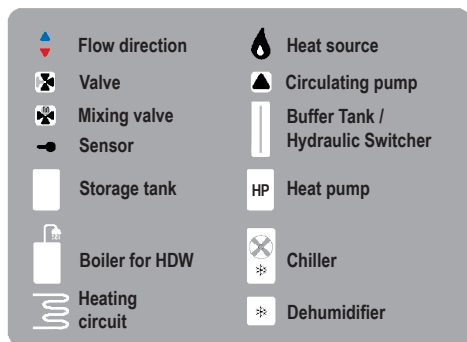
**S2:** contact temperature sensor TR/S1,5 to be fixed to the supply pipe.

**S3:** dip temperature sensor TT/P4 to be plunged into the buffer or into the hydraulic switcher.

**R4:** on tension contact 230V for the automatic summer/winter switching. In cooling mode it supplies the on tension control. Use this contact to control an outside relay to move the contact R5/R5I to the boiler on winter and to the chiller on summer.

**R5/R5I:** : connect the boiler and the chiller to the zero potential contact between the clamps R5 and R5I of the sensor box as shown in *picture 4*, going through the outside relay controlled by R4. In this way the boiler starts up on winter and the chiller on summer.

**Z1/Z2:** to be connected to the dehumidifier (optional); this device allows to adjust the humidity to the ideal values. If this device is not present, the controller, on the base of the cooling curve, will calculate a higher supply temperature to avoid the room condensation.



## Recommendations

In case of installation of the pump unit in moist and non ventilated rooms, it would be better to pay great attention to the thermic insulation of pipes. This, in cooling mode, avoids the dripping of the condensed humidity on the pipes that can damage the electronic equipments: circulating pump, servomotor, controller etc.