V9041 PUMP UNIT FOR BRASS MANIFOLD V9004

Installation and User Manual

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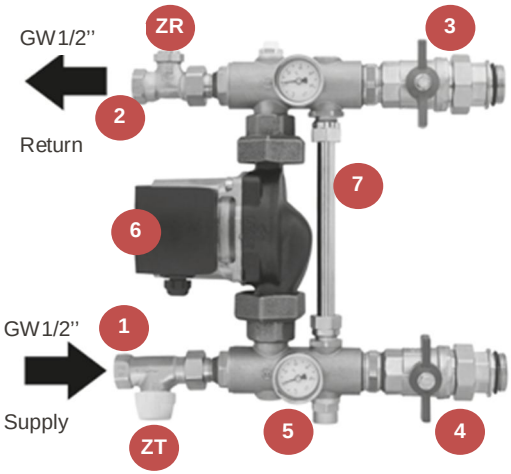
1. V9041 PUMP GROUP WITH CONSTANT VALUE CONTROL SET



1. thermostatic valve TV
2. control valve CV
3. cut-off valve G1" of the supplying beam
4. cut-off valve G1" of the return beam
5. dial thermometers
6. glandless Wilo Yonos PARA RKA 25/6 pump
7. by-pass with a control valve

Fig.1 Construction of the pump group

The pump group ensures an accurate and optimal control of the floor heating system. A pump mixing unit connected to the manifold ensures reduction of the heating factor parameters to the required temperature of the floor heating supply system (e.g. from 80°C to 50°C).

It's not recommended to use those pump groups with low temperature heat sources (condensing boilers, heat pumps).

2. Construction and principles of operation

2.1. Equipment of the pump group

1. a thermostatic valve TV with a female thread G½" on the supply unit (inlet to the unit from the system), on which the thermostatic head with the clip-on temperature sensor can be screwed to manually set value of the supply temperature for the floor heating (it also serves as protection against increase of temperature above the value set on the head). The clip-on temperature sensor of the valve head on the supply should be mounted on the supply beam of the distributor with the use of the provided clamping ring. Alternatively, electric actuator may be assembled on the valve (through adapter M30×1.5mm), which cooperates with the room thermostat (value of temperature will be set by the knob of the thermostat – option recommended e.g. in rooms with few circuits connected to one distributor, where there is no need to control each circuit separately). Note: heads with sensors and electric actuators are additional equipment;

2. a control valve CV with a female thread G½" on the return (outlet from the unit to the system), whose proper adjustment makes it possible to obtain proper mixing level of water and the required temperature for supply of the floor heating;

3. a cut-off valve G1" of the supply beam;

4. a cut-off valve G1" of the return beam;

5. two dial thermometers to control the supply temperature of the floor heating (red) and on the return (blue);

6. a glandless pump Wilo Yonos PARA RS 25/6 RKA with the variable adjusted rotational speed along with cut-off valves;

7. a by-pass with a control valve protecting the pump in the event of all cut-off valves closing on the supply (the upper beam of the distributor).

3. Operation

1. The pump is supplied with hot water from the system through the thermostatic valve TV and from the return of the floor heating coil (the return beam) thanks to which mixing and decrease of the water temperature occurs, then water is transferred to the supply beam of the distributor (supplying floor heating coil).
2. Water returns to the system through the control valve CV.
3. Proper level of water mixing is obtained by changing the adjustment of the control valve CV.
4. In the case of electric actuators being mounted on each coil circuits, by -pass valve should be adjusted to ½ of the rotation, which ensures additional flow within 0.5 – 1 l/min. (depending on the selected pump run) protecting the pump against pumping the water to the closed system (in the case of all coil circuits being simultaneously closed).
5. Make sure the unit is properly connected to other parts of the system. The unit should be mounted between the supply and the return ducts in the heat source circuit. The thermostatic valve TV should be connected to the supply duct, while the control valve CV to the return duct.

4. Valves adjustment

4.1. By-pass valve adjustment

1. Unscrew the protecting element of the by-pass valve with the use of the 6 mm hex wrench – Fig.2.
2. Screw in the insert till it is secured in the socket of the valve with use of the 5 mm hex wrench, and then unscrew by ¼ of the rotation (Fig.3).
3. Screw in the protecting element with the 6 mm hex wrench.

Fig.2

Fig.3

4.2. Adjustment of the control valve CV

1. Unscrew the cap with the 24 mm flat wrench.
2. Screw in the insert of the valve with the 4 mm hex wrench till it is completely closed (Fig.4).
3. Unscrew the insert of the valve by the set number of rotations equal to the set indicated in the design, or till the required supply temperature is obtained.
4. Screw in the cap.

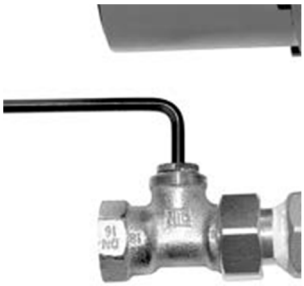


Fig.4

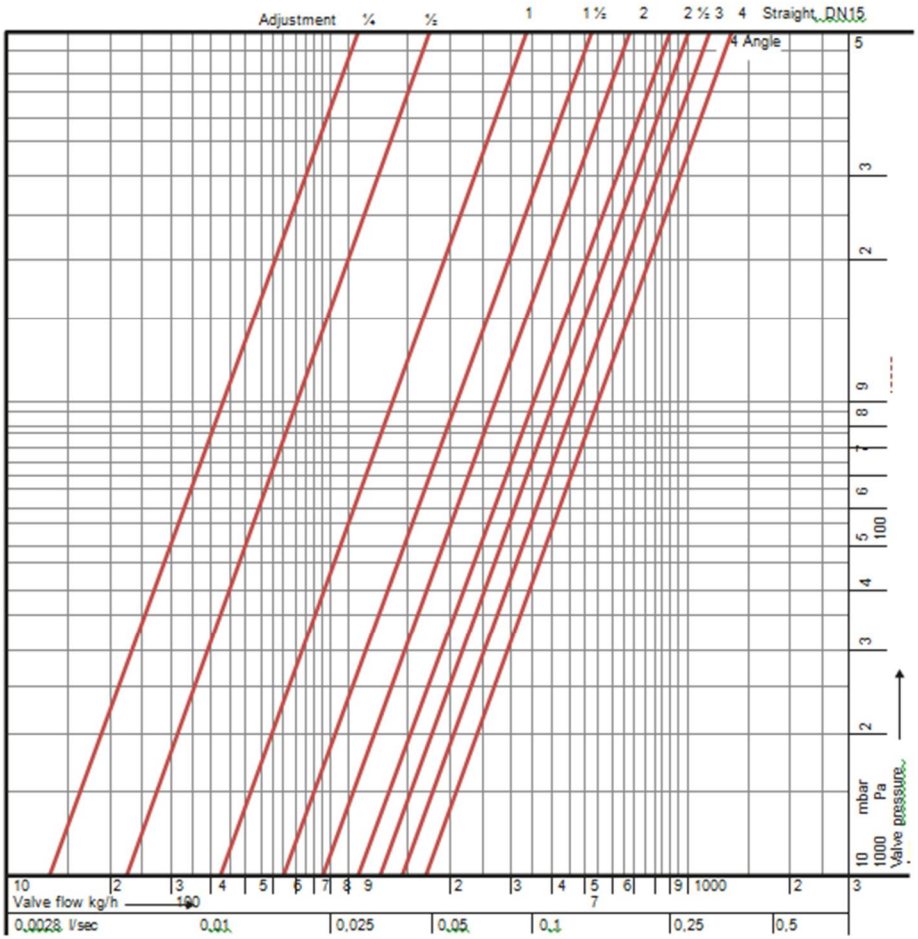


Fig.5 Characteristics of the control valve CV

5. Assembly, start-up and operation

5.1. Assembly and adjustment of the Yonos PARA pump

- The pump does not need to be operated during its work.
- The required characteristics of the flow are obtained by selecting proper operation mode (automatic or constant value) with a switch on the electric box. Changes cannot be made while the pump is in operation.
- Prior to the start-up of the pump, the whole system must be filled with water, and the pump must be vented.
- Protect the pump against a running without medium.
- To vent the area of the rotor, venting procedure may be manually activated by setting the red knob on the venting procedure symbol (middle position).
- The venting function will be activated after 3 seconds. Venting function is activated for 10 minutes and when on, the LED ring around the red knob flashed green.
- Flow noises may be heard during this procedure.
- The venting process may be stopped at any time by turning the red knob.
- After 10 minutes the pump stops and automatically changes to the work mode Δp-c max.
- Next, if the pump should work in another mode and another set-point of the increase value, these values must be set.

RECOMMENDATION: The venting procedure removes the air that accumulates within the area of the pump rotor. It is not used to vent the whole system, which has to be carried out separately (previously).

5.1.1. Selection of the adjustment mode

To select the adjustment mode I of the set point of the increasing value, turn the red knob in the proper direction.

Fig.6 Selection of the adjustment

Proportional pressure difference (Δp-v):

Turn the red knob left from the middle position for the adjustment mode Δp-v.

Constant pressure difference (Δp-c):

Turn the red knob right from the middle position for the adjustment mode Δp-c.

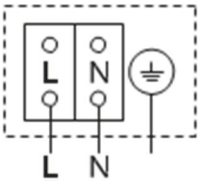


Fig.7 Diagram of the pump connection to the electrical system

5.2. Start-up of the unit

1. Following the assembly of all hydraulic connections of the unit and electric connections of the pump, fill in the system with water.
2. Open the thermostatic valve TV, fully open the cut-off valves of the distributor, open the ball valve on the pump, and close the control valve CV.
3. In the case of actuators being mounted on all coils circuits, adjustment of the by-pass valve (opening – ¼ of the rotation) should be carried out. The unit is delivered with the closed valve.
4. Vent and start up the pump, vent the floor heating system (in the described situation water circulates through the pump and coils of the floor heating, alternatively by by-pass).
5. Set and obtain water design temperature (e.g. 80°C) in the heat source for radiators, as well as the flow. Next, with the proper number of rotations in the direction of opening the control valve CV set the valve and obtain the required value of temperature for supply of the floor heating.

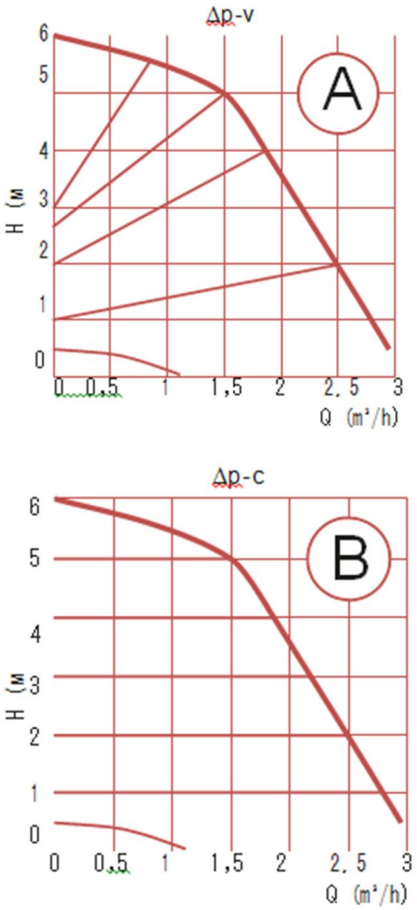
5.2.1. CV adjustment should be carried out in two stages

1. Initial setup of the supply temperature at the start-up of the floor heating system equal to the design temperature -10°C (max. 40°C),
2. Final adjustment of the supply temperature (the next day), after heating the screed and adjustment of the heating circuits (max. 50°C).

After hydraulic adjustment of the heating and final adjustment of the CV, mount the head with a clip-on temperature sensor or electric actuator on the thermostatic valve TV (the thermostat control option).

5.3. Characteristics of the pump

Yonos PARA RKA 25/6



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