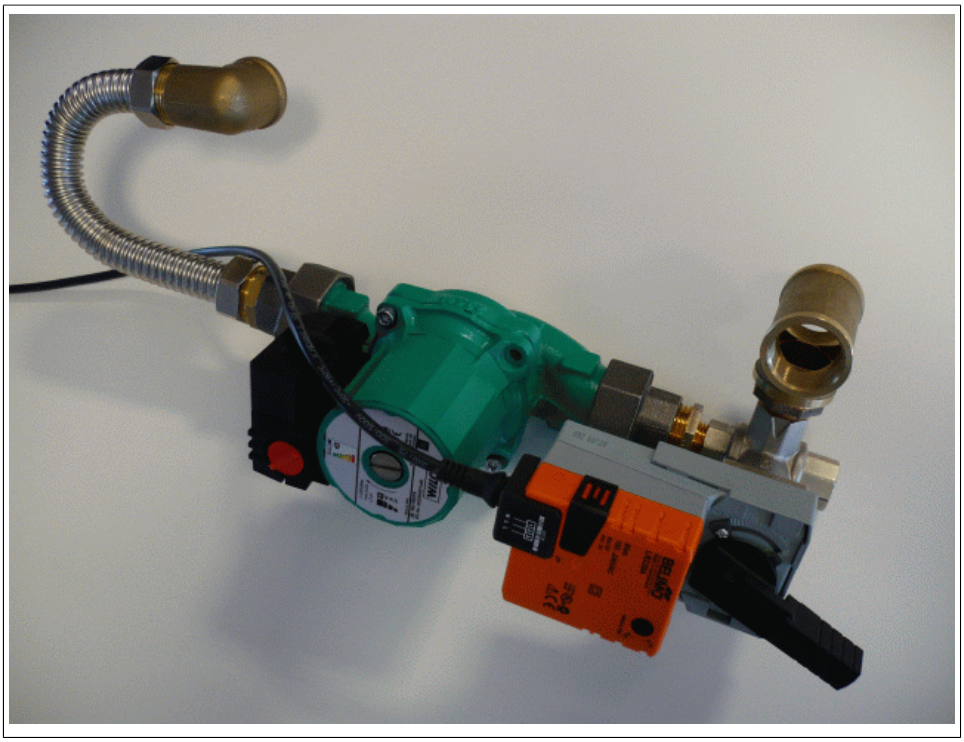
INSTRUCTIONS FOR USE - MERUK CONTROL NODES



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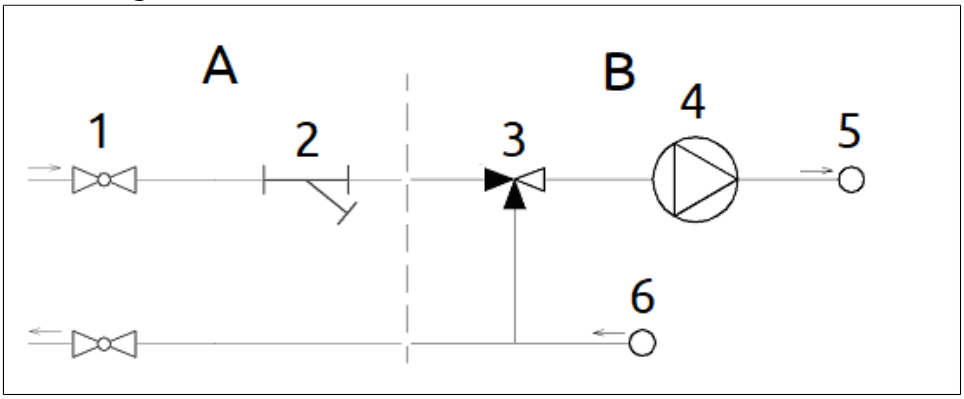
OBSAH

1. Technical description 3
2. Marking of the MERUK control nodes 3
3. Operating conditions 4
4. Installation – requirements 4
5. Installation – recommendations..... 5
6. Mounting procedure..... 5
7. Commissioning 7
8. Operation and maintenance 8

1. TECHNICAL DESCRIPTION

The control node is designed for common use with ventilation units with hot water heaters. It is designed for the qualitative control of the hot water heater output by changing the mixing ratio of the heating water and return water. It consists of a three-way regulating valve, circulating pump, brass fittings, and connecting stainless steel bellows. The control valve is always supplied with an actuator.

Obr. 1 Diagram



A. recommended part, B. regulation point of junction, 1. shut-off ball valves, 2. bag filter, 3. three-way valve, 4. Circulating pump, 5. entry into the heater, 6. output from the heater

The three-way valve mixes incoming heating water with cold water from the heat exchanger outlet. The mixing ratio is controlled by the control unit, so that the water in the exchanger has the required temperature. The heating water is also supplied by a circulating pump to the heat exchanger.

2. MARKING OF THE MERUK CONTROL NODES

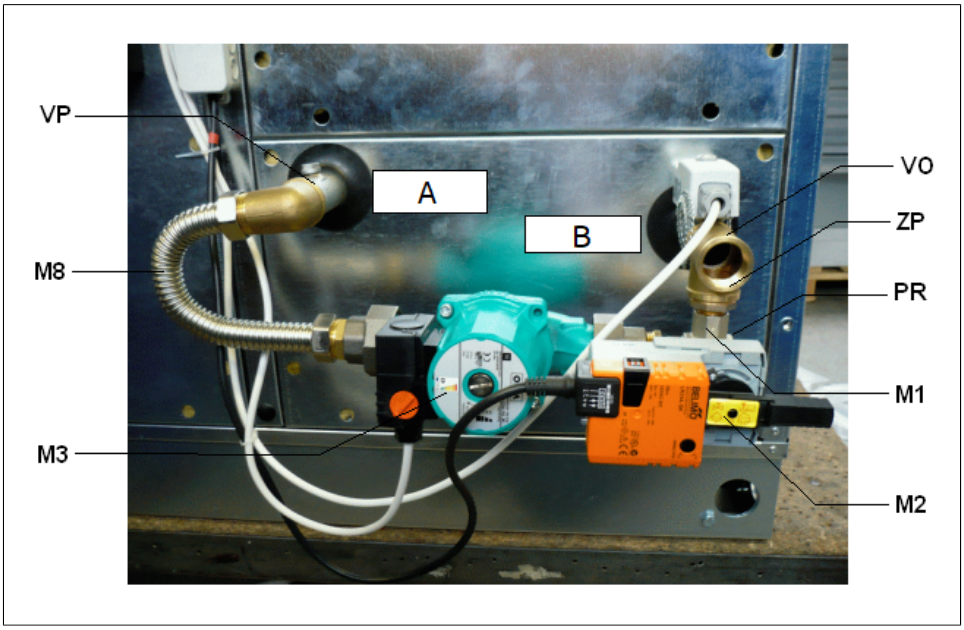
MERUK – DN – Kvs – H – L – Serv

- DN = heater socket diameter [mm]
- Kvs = valve Kvs [m3/h x 10]
- H = circulating pump type
- L = heater outlet pitch [mm]
- Serv = actuator type

Marking example: MERUK-25-025-Y206-430-24ASR

Kvs control valve series: 006(0,63); 010(1); 016(1,6); 025(2,5); 040(4); 063(6,3); 100(10); 160(16); 250(25); 400(40); 580(58)

Obr. 2 MERUK control node



A. supply, B. exhaust, VP. heat exchanger supply pipe, VO. heat exchanger exhaust pipe, PR. supply pipe connecting part, ZP. exhaust pipe connecting part (return), M1. three-way mixing valve, M2. three-way valve actuator, M3. circulating pump, M8. bellows

3. OPERATING CONDITIONS

The control node is designed for the transport of heating water without impurities, aggressive substances, or other impurities that may disturb the materials used. For this reason, it is advisable to install a dirt filter (is not supplied) ahead of the control node.

The heating water temperature must always be higher than the ambient air temperature (to prevent condensation of water in the pump winding and on the node surface).

The permissible ambient temperature is between 0 °C and 40 °C.

Recommended heating water pressure up to 4 bar (max. pressure 6 bar).

The minimum pump inlet pressure:

- +50°C - 0,05 bar
- +95°C - 0,3 bar
- +110°C - 1 bar

The maximum heating water temperature is 110 °C (recommended 80/60 °C), water must not be in its gaseous state.

4. INSTALLATION – REQUIREMENTS

A control node may only be commissioned by a suitably qualified person.

A control node is for internal use only. The heating system must ensure the supply of a sufficient amount of medium at the required pressure and temperature.

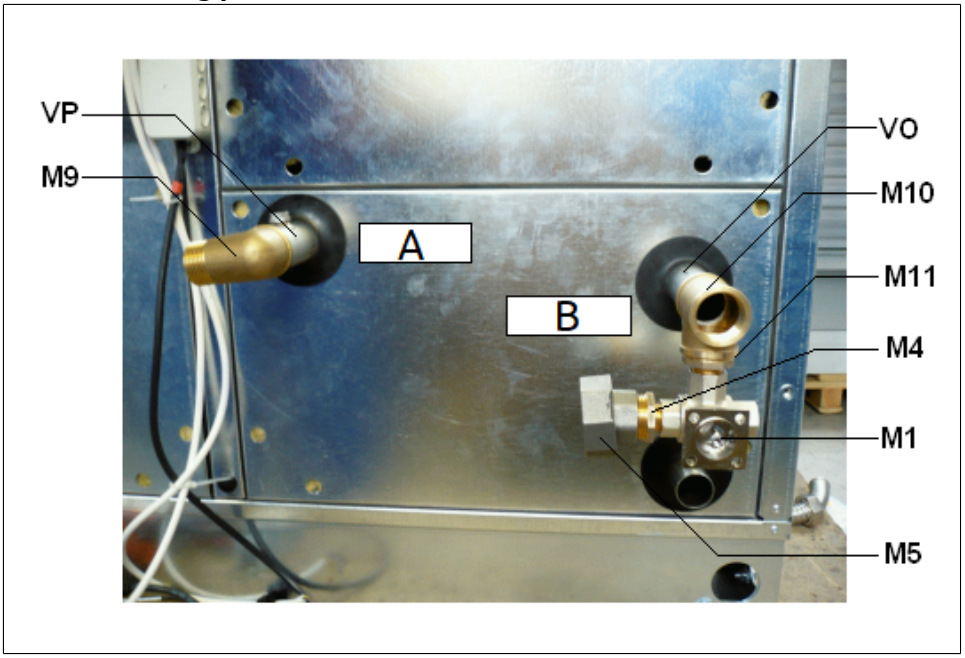
5. INSTALLATION – RECOMMENDATIONS

When installing, it is advisable to provide a heating branch with shut-off fittings to disconnect the node from the heating system if necessary on the node or heater.

In the case of long pipelines, it is advisable to install a bypass (with a throttle valve and a non-return valve) that prevents the ingress of the input branch, so that it does not have to wait for it to be heated when it is restarted.

6. MOUNTING PROCEDURE

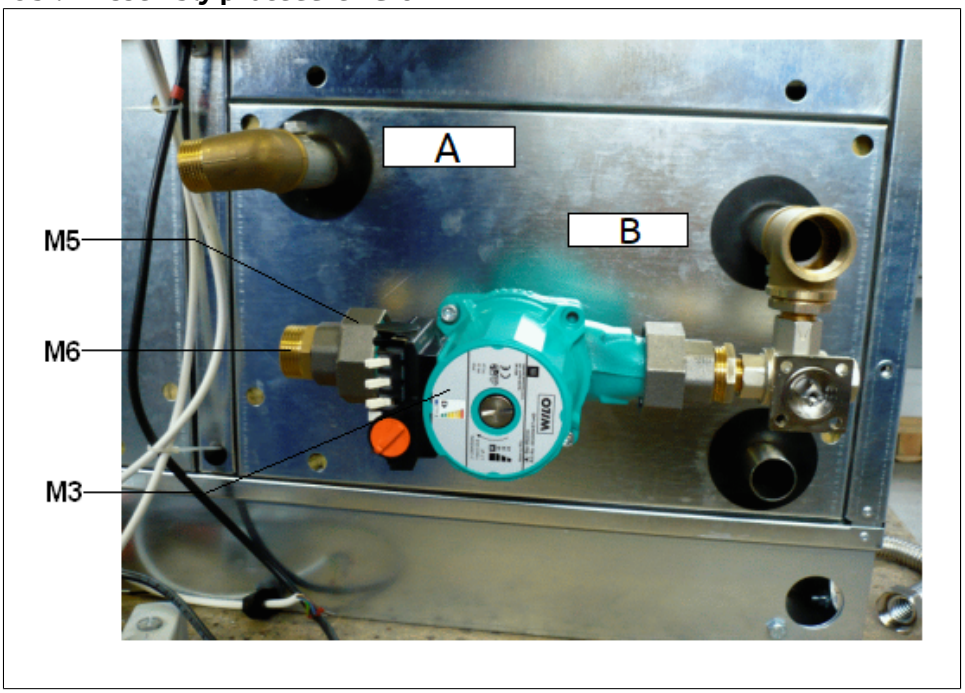
Obr. 3 Mounting procedure Part 1



A. supply, B. exhaust, VP. water supply to the heat exchanger, VO. exhaust of water from the heat exchanger, M1. mixing three-way valve, M4. double-nipple (this reduction may also include ŠM hexagonal reduction), M5. circulation pump nut, M9. elbow 90° ŠM (it may be 90° elbow + double-nipple), M10. T-piece MMM (M = internal thread, Š = outer thread), M11. double-nipple (this reduction may also include ŠM hexagonal reduction)

The heating water exchanger inlet and outlet must allow connection of the exchanger against the flow.

Obr. 4 Assembly procedure Part 2

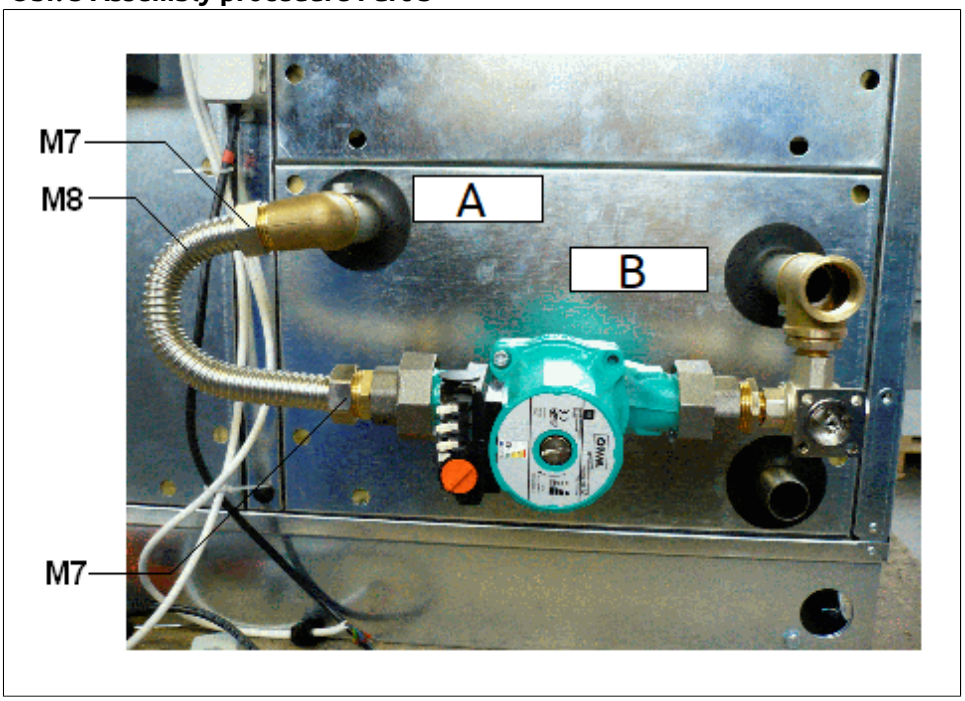


A. supply, B. exhaust, M3. circulating pump, M5. circulating pump nut, M6. double-nipple

The pump must always be connected so that the motor shaft is in the horizontal position.

The pump must not overload the exchanger outlets by its own weight.

Obr. 5 Assembly procedure Part 3



A. supply, B. exhaust, M7. bellows nut, M8. stainless steel bellows

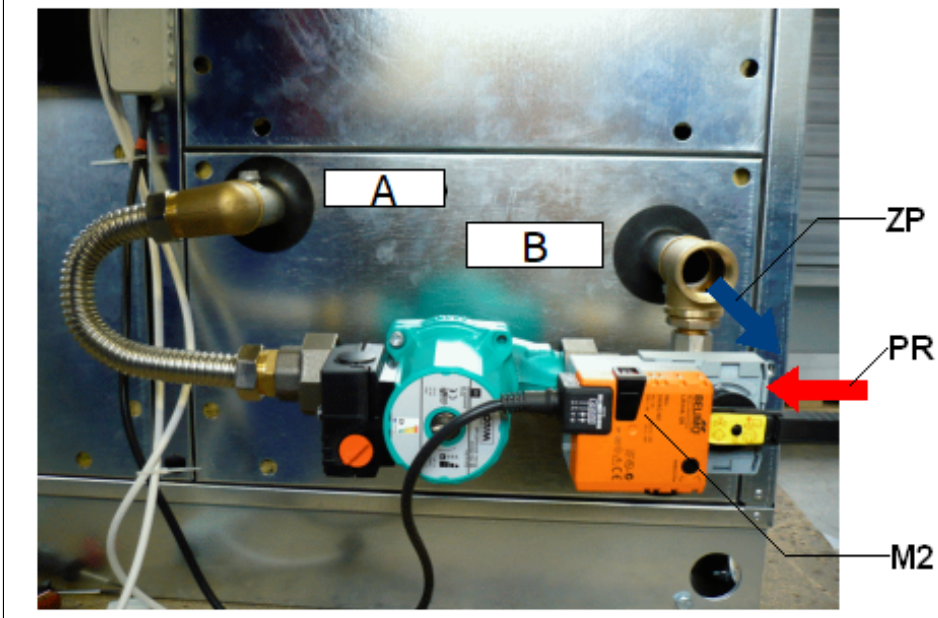
The stainless steel bellows may be bent most in the allowed radii according to the table:

DN (mm)	G [“]	Rmin [mm]
10	3/8	20
12)	1/2	25
15	3/4	25
20	1	30
25	1 1/4	45

DN. bellows diameter, G. pipe nut thread size, Rmin. minimum bending radius measured on the pipe axis

The bellows must not be repeatedly bent during or after the installation. The connecting bellows must not be shaped to form a siphon.

Obr. 6 Assembly procedure Part 4



A. supply, B. exhaust, M2. 3-way valve actuator, PR. heating water supply, ZP. return

The connecting pipe must be led and connected to the control node so that it does not burden the node with either its static voltage or stress caused by the pipe expansion.

Electrical equipment (pump, actuator) must be protected against dangerous contact voltage per the technical requirements issued by their manufacturers.

7. COMMISSIONING

A control node may only be commissioned by a suitably qualified person.

Connect the circulating pump and control valve actuator to the control unit.

Check the correct orientation of the pump and proper rotation of the three-way valve actuator.

Check the tightness of the control node joints.

Fill and bleed the system.

During the air handling unit test run, check the correct operation of the control node: pump run and correct valve response depending on the control system commands.

8. OPERATION AND MAINTENANCE

During operation, perform regular inspections of the control node at least twice a year (before and after the heating season).

When checking, focus on:

- tightness of the control node connections
- bleeding of the heater and pump
- circulating pump function
- flow of the nozzle and exchanger medium (if necessary, clean the control valve, pump, and prefilter)
- free running of the control node throughout its control range

These checks must be recorded in the service book of the air-handling unit.

The manufacturer reserves the right to make technical changes without any prior notice.
In case of any questions or concerns, please contact us.