Contents

Danfoss AVTQ Flow Controlled Temperature Control

Specifications

- Model: 003R9121
- Application: Flow-controlled temperature control for use with plate heat exchangers in district heating systems
- Flow Rates: AVTQ DN 15 = 120 l/h, AVTQ DN 20 = 200 l/h
- Pressure Requirements: AVTQ DN 15 = 0.5 bar, AVTQ DN 20 = 0.2 bar

Instructions for use

Application

AV'TQ is a flow-controlled temperature control primarily for use with plate heat exchangers for hot service water in district heating systems. The valve closes on rising sensor temperature.

System

AVTQ can be used with most types of plate heat exchangers (fig. 5). The heat exchanger manufacturer should be contacted to ensure:

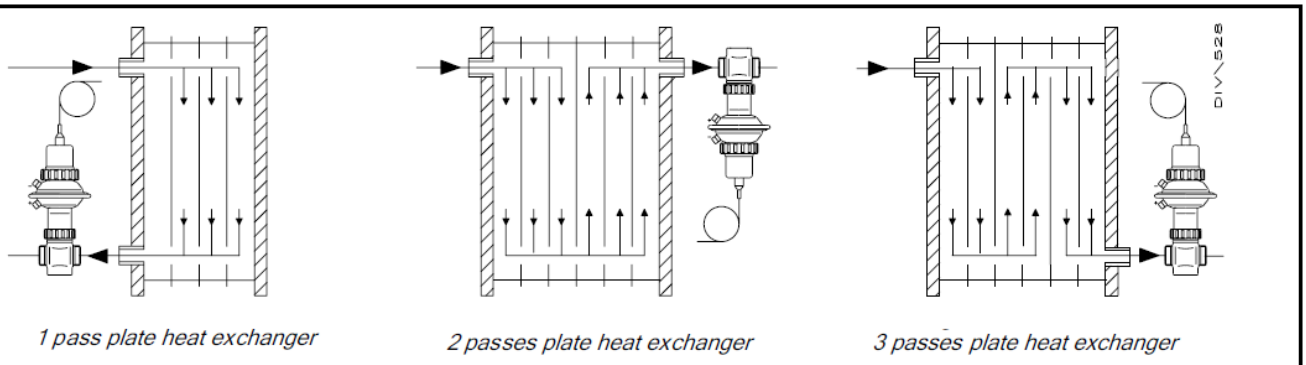


Fig. 5

- that the AV'TQ is approved for use with the chosen exchanger
- the correct material selection when connecting the heat exchangers,
- the correct connection of one pass plate heat exchangers; layer distribution might occur, i.e. reduced comfort.

Systems function best when the sensor is installed right inside the heat exchanger (see fig. 1). For correct no- load function, thermal flow should be avoided as the hot water will rise and thus increase the no-load consumption. For optimum orientation of pressure connections loosen the nut (1), turn the diaphragm part into desired position (2) and tighten the nut (20 Nm) – see fig. 4.

Note that the water velocity around the sensor must be in accordance with the requirements for copper tube.

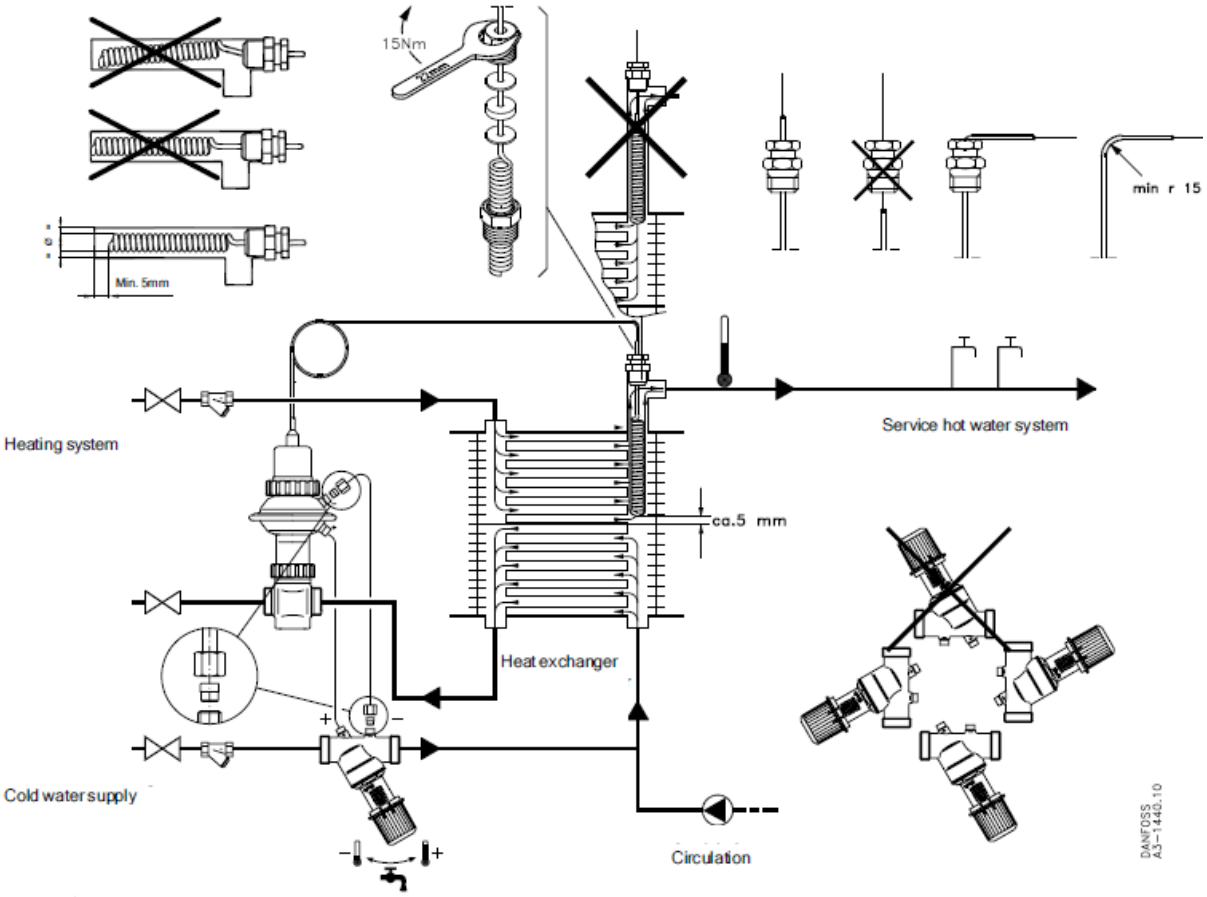


Fig. 1

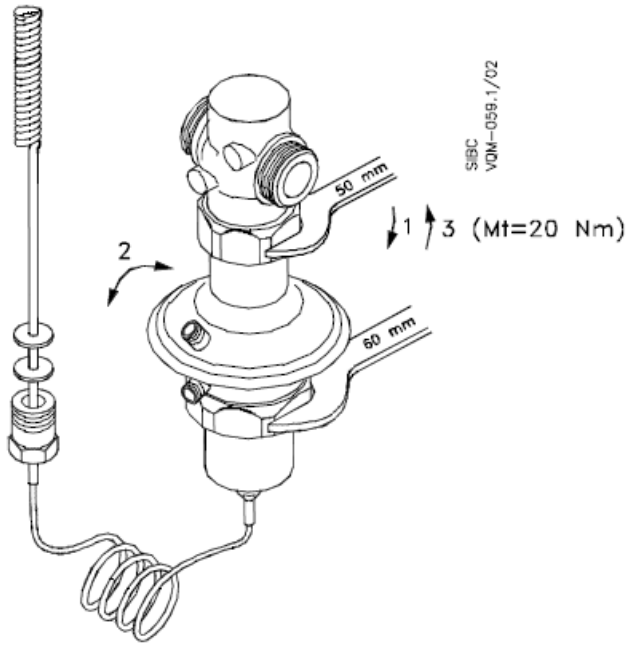


Fig. 4

Installation

Install the temperature control in the return line on the primary side of the heat exchanger (district heating side). The water must flow in the direction of the arrow. Install the controls valve with temperature setting on the cold water connection, with water flow in the direction of the arrow. The nipples for the capillary tube connection must not point downwards. Fit the sensor inside the heat exchanger; its orientation is of no importance (fig. 3).

We recommend that a filter with a max. mesh size of 0.6 mm be installed both ahead of the temperature control and ahead of the control valve. See section “Function failure”.

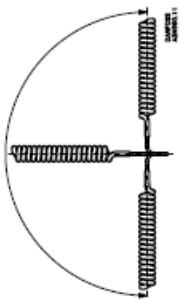


Fig. 3

Setting
The following minimum requirements must be met in order to obtain unproblematic operation:

- Q secondary min.
  - AVTQ DN 15 = 120 1/h
  - AVTQ DN 20 = 200 Vh
- APVTQ min
  - AVTQ DN 15 = 0.5 bar
  - AVTQ DN 20 = 0.2 bar

Before setting, the system should be flushed and vented, both on the primary side and secondary side of the heat exchanger. The capillary tubes from the pilot valve to the diaphragm should also be vented on the (+) as well as the (-) side. **NOTE:** The valves mounted in the flow should always be opened before the valves mounted in the return. The control operates with a fixed no-load temperature (tide) and an adjustable tapping temperature.

Open the control until the required tapping flow is obtained and set the required tapping temperature by turning the control handle. Note that the system requires a stabilizing time (about 20 s) when setting and that the tapping temperature will always be lower than the flow temperature.

T max. sec. = about 5 c below T primary flow

Type T kille

- AVTQ 15 40 oc
- AVTQ 20 35 oc

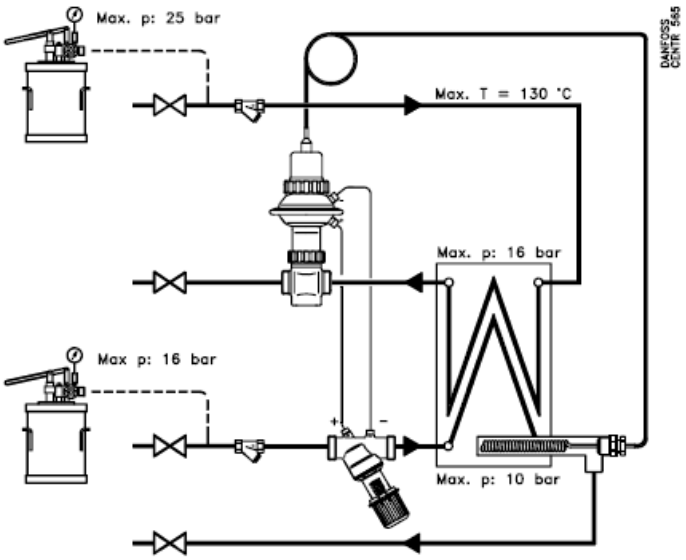


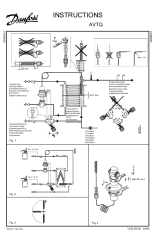
Fig. 2

Function failure
If the control valve fails, the hot water tapping temperature will become the same as the no-load temperature. The cause of the failure might be particles (e.g. gravel) from the service water. The cause of the problem should be remedied as soon as possible, we therefore recommend that a filter be installed ahead of the control valve. There might be extension parts between temperature unit and diaphragm. Be aware that the same quantity of extension parts are remounted, if not the no-load temperature will not be 350C (400C) as stated.

Frequently Asked Questions

- **Q: What is the purpose of AVTQ?**
  - A: AVTQ is a flow-controlled temperature control primarily used with plate heat exchangers in district heating systems.
- **Q: How should I install the sensor for best results?**
  - A: The sensor should be installed inside the heat exchanger as shown in figure 1 for optimal performance.
- **Q: What are the minimum flow rates and pressure requirements?**
  - A: The minimum flow rates are AVTQ DN 15 = 120 l/h and AVTQ DN 20 = 200 l/h. The pressure requirements are AVTQ DN 15 = 0.5 bar and AVTQ DN 20 = 0.2 bar.

Documents / Resources

	Danfoss AVTQ Flow Controlled Temperature Control [pdf] Instruction Manual AVTQ 15, AVTQ 20, AVTQ Flow Controlled Temperature Control, AVTQ, Flow Controlled Temperature Control, Controlled Temperature Control, Temperature Control, Control

References

- User Manual