

## **Instructions for Mounting and Maintenance of Heat Exchangers**

### **Heaters and Coolers, using Water or Brine**

#### **1. Instructions for Mounting**

Heat exchangers of this kind are usually built of horizontal tubes. The joins for the inlet and outlet of the cooling/heating medium are located at the highest and lowest point of the medium circuit. This way it is always possible to fill or empty the heat exchanger completely.

Combinations of multiple heat exchangers are designed in a way that guarantees that the temperature gradients of the air flow and the crossing medium flow are in opposite directions. This orientation must be obeyed when connecting the medium inlet and outlet. It does not matter whether the inlet is at the top or at the bottom of the heat exchanger.

All connections of the heat exchanger, e.g. to the tubing, the air duct, or any framing, must leave room for the expansion or contraction of the heat exchanger due to temperature changes.

#### **2. Mode of Operation**

The heat exchangers are designed and calculated for clean operation. Take care for clean air and medium flow through the heat exchanger.

In addition, you have to make sure that the air flow is homogenous across the whole cross section. This is an important point when installing the fan(s).

#### **3. Inlet and Outlet Connections**

In order to allow for free expansion not hindered by the inlet and outlet tubing, these tubes have to be installed with an angle of 90° to the direction of air flow.

#### **4. Maintenance**

Use only with water/brine free of corrosive agents, especially free of oxygen or carburant.

Before the start of operation after not using it for an extended period, it will often be necessary to check the heat exchanger for air collected in the upper part of the tubing and/or to refill some water or brine respectively. In some rare cases it may be useful to empty the heat exchanger completely when taking it out of operation for an extended period of time.

Unnecessary emptying and refilling should be avoided as it may lead to corrosion of the tube joins. Empty only when necessary for repairs or to avoid damage by freezing.

The fins of the heat exchanger have to be checked for dirt and dust regularly, depending on the air filters used.