



## Technical Information Crossflow Heat Exchangers

Date:2004-05-17 MN  
Rev. 2007-02-19 MN

### Leakage and sealing of heat exchangers

It is important to understand that a 100% tight plate heat exchanger is not possible to manufacture. The exchanger will always have some small leakage so the design of the air handling unit should be made in such a way that leakage will take place from the clean side to the less clean side. This is achieved by making sure that the pressure on the clean side is higher than on the other side.

If it is unacceptable with water leaking over to the supply side the design of the air handling unit must be made in such a way that there always will be a higher pressure on the supply side than on the exhaust side.

As a standard we put glue in the foldings of all our H-, T-,L-, M-, P- Z- and F-type exchangers. This results in a heat exchanger that has very low internal leakage, maximum 0.1% of the nominal air flow at a pressure difference of 400 Pa (resp. 250 Pa for small sizes). For lower pressure drops the leakage will be smaller. This is probably the tightest air to air plate heat exchanger available as a standard.

For applications at higher temperatures than 90°C (i.e. when silicone sealant is used) the glue in the foldings is omitted since it will melt at these temperatures. The leakage will then still be below 1% of the nominal air flow at a pressure difference of 400 Pa (resp. 250 Pa for small sizes).

Should an even more tight exchanger (at maximum temperature 90°C) be required we can as an option offer an extra sealing that is achieved by putting a layer of lacquer coating over all the joints. This will result in an extremely tight heat exchanger, suitable for applications where you find high humidity or direct water, such as adiabatic cooling and swimming pool areas. Please observe the above comment that pressure should be highest on the side where no water is acceptable so the leakage will take place in the right direction.



Extra tight heat exchanger  
available on request –  
“closed plate cutting  
..”

In general a statistical testing of leakage is performed and as an option customers can have every single heat exchanger leakage tested and delivered with a leakage test protocol.

### *Non-Silicone*

#### **Physical / chemical properties**

##### **Uncured sealant:**

Type:	MS-hybrid polymer, 1-component
Colours:	Grey
Contains fungicide:	No
Consistency:	Paste, tixotropic
Specific gravity:	approx. 1,5 kg/litre

##### **Cured sealant**

Paintable:	Yes
Hardness:	approx. 35 Shore A
100% modulus:	approx. 0,7 N/mm <sup>2</sup>
Maximum movement accommodation	+/- 20%
Elastic recovery:	approx. 60%
Resistance:	Temperature: approx. -40 <sup>0</sup> C to +90 <sup>0</sup> C
	Climatic ageing: Good
	Good resistance to: Water, seawater, aliphatic solvents, oil, grease, diluted organic acids and bases.
	Not resistance to: Concentrated acids and chlorinated organic solvents.