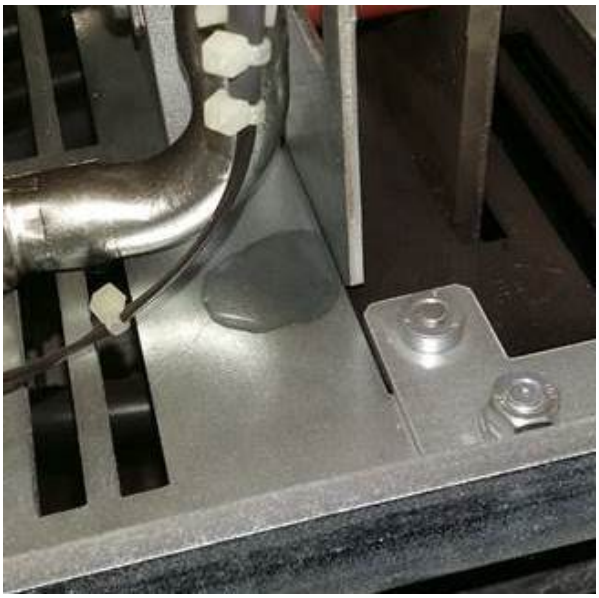
MarFlex

Water cooled electrical systems

How to avoid condensation in frequency converters/invertors



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Variations in weather, marine climate, and/or shipboard systems have been known to cause condensation within water cooled frequency converters and have resulted in unintentional break downs.

Guidelines to prevent condensation within your MarFlex water cooled electrical system

Recommended cooling water temperature:

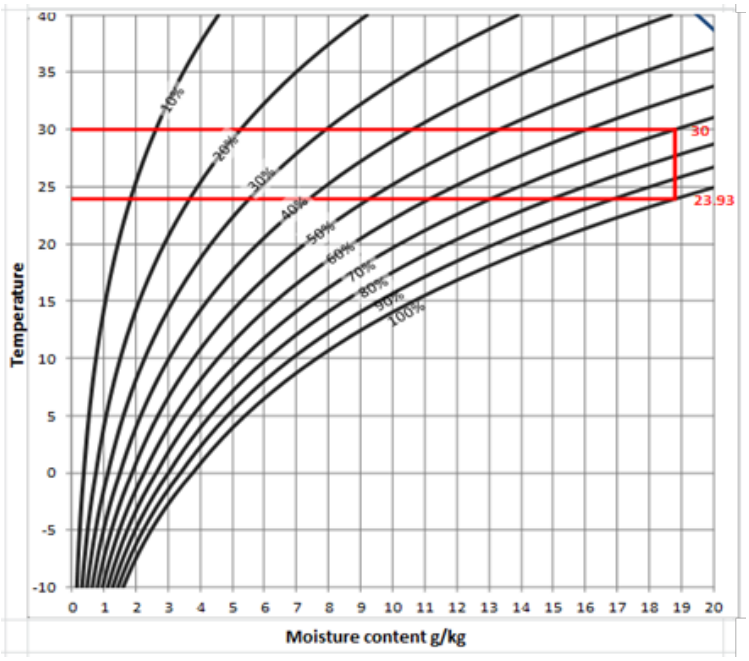
- Always maintain a cooling water temperature above the ambient temperature. The MarFlex water cooled frequency converter system can continuously run at the standard maximum temperatures of the ship's LT (Low Temperature) system: <36˚C.

Other guidelines:

- Frequently check the cooling water temperature against the ambient temperature. Readjust (increase) the cooling water temperature when needed to the recommended cooling water temperature.
- In case the cooling water cannot be set to the recommended cooling water temperature: stop the circulation when the MarFlex electrical system is not in use. Start the water circulation 5 minutes prior to start of the MarFlex electrical system and stop 5 minutes after the last pump has stopped.
- In case the cooling water cannot be set to the recommended cooling water temperature and circulation needs to be continued, strict guidelines apply and the Relative Humidity must be taken into account. A maximum allowable Relative Humidity of 95% is to be taken into consideration.

Example
At an ambient temperature of 30°C and a Relative Humidity of 70%, condensation will occur at 24°C. In other words, when the cooling water is below 24°C condensation will occur in the frequency converter(s). So to conform with the maximum Relative Humidity of 95%; the cooling water must be at least 25°C.

The dew (condensation) point can be obtained from the Mollier diagram.



- In case of doubt: stop the circulation of the cooling water and allow the system to adjust to the ambient temperature. Maintain an ambient maximum Relative Humidity of 95%. Restart the circulation when the recommended cooling water temperature can be achieved, or 5 minutes prior to the use of the MarFlex electrical system, and stop the circulation 5 minutes after the last pump stop.

Routine inspections:

- Record the cooling water temperature.
- Record the ambient temperature.
- Maintain a maximum Relative Humidity of 95%.
- Check whether condensation occurs/has occurred in the cabinets.
- Check the hoses and connections of the cooling water system for leaks.

For any queries or technical advice, please contact MarFlex at:
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