

Are Your Enclosures Ready for the Summer?

Rittal is warning users of manufacturing automation systems to check that they are prepared for the summer heat and, if necessary, arrange for an inspection of their equipment to check the level of risk.

High temperatures are the most common cause of sensitive electrical and electronic components tripping or even failing.

A failed electrical device can cause major disruption to production which could cost a company hundreds of thousands of pounds per hour. The cost of catastrophic equipment failure is even higher, because it means an extended period of downtime while replacement products are sourced and fitted.

Jason Swann, Rittal's Product Manager for Climate advises: "Electrical equipment generates lots of heat. Add to this the ambient heat from the rising summer temperatures and your enclosure will start to reach a critical point of overheating without sufficient cooling. What would you do if the equipment that manages your production line - your PLCs, drives and controls - failed due to inadequate or inappropriate cooling? Can you afford to take the risk."

Inverter drives are used within electrical equipment because they are very effective at reducing the amount of energy used – which means lower production costs. Assuming an efficiency of 97 per cent, a 250kW drive can produce up to 7.5kW of heat, much of which is retained inside the enclosure in which it's installed. Therefore without adequate cooling heat will rise.

The life expectancy of components is hugely affected by excess heat. An electrical component's life expectancy is reduced by 50 per cent for every 10°C increase in the ambient temperature. So keeping an expensive Inverter drive cool, prolongs its life, reduces the risk of failure and saves you money.

Planning Climate Control

Rittal offers the following list of questions to check if there may be a problem brewing:

- Is your equipment tripping or failing due to high temperatures?
- Is this having an impact on production, in that it's either slowing or stopping completely?
- When you walk around your shop floor, do your enclosures feel hot to the touch?
- At the height of summer, are your enclosure doors regularly left open and do you need large fans blowing into your panels to cool the devices inside them? This also presents a health and safety risk!
- Does inadequate chilling of process fluids result in production down-time?
- Would your existing cooling solution benefit from a health check?

Any "yes" responses suggests a thermal survey could be a sensible next step. Rittal's expert team can provide a RiAssure3 survey and if necessary advise on the best solution.

Jason explains: "A RiAssure3 survey will identify the likely risk of a system overheating. The survey will review any existing cooling solution and determine how suited it is to that particular working environment. If necessary, it will then provide recommendations around remedial action – for example, changes to the system's service and maintenance regime to

help improve its efficiency or the recommendation to invest in different climate control technology.

“Our engineers will always offer their advice from the perspective of functionality, energy efficiency, ease of installation, service and maintenance, based on real-life data measured on site.”

Protecting Control and Automation Equipment

Which cooling solution is installed ultimately depends on the amount of heat produced inside the panel and the environment in which it's installed. It must be specific to a particular application.

The main considerations centre around whether the enclosure is located in a cold or hot environment, if that environment is clean or dirty, and to what degree. Conditions may also change over the course of the working day, week, month or year, so the final selection of an appropriate cooling solution may not be entirely straightforward.

Jason continues: “Enclosures that are placed in a cool and clean environment may find fan-and-filter units are more than adequate, given a single device provides more than 4 kW of cooling in ideal conditions. However If the air is dirty, it is still possible to take full advantage of low ambient temperatures by using energy efficient air-to-air heat exchangers to provide any necessary cooling.”

For applications that require the temperature inside the enclosure to be lower than that outside it, a refrigerant based solution may be the best option.

The new Blue e+ cooling unit range from Rittal, with capacities up to 6kW, can operate in ambient temperatures up to 60 °C yet also provide free cooling when the external air is cooler due to the innovative use of hybrid technology.

Air-to-water heat exchangers may be used in even hotter conditions and the water delivered to a remote location in which the heat, up to 10kW from one unit, may be dissipated more effectively and with less effect on the temperature of the surroundings.

Further information at www.rittal.co.uk and www.friedhelm-loh-group.com or on twitter @rittal_ltd.

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Image

Picture shows: Rittal climate control products

Notes to Editors

Rittal, headquartered in Herborn, Hessen, Germany, is a leading global provider of solutions for industrial enclosures, power distribution, climate control and IT infrastructure, as well as software and services. Systems made by Rittal are deployed across a variety of industrial and IT applications, including vertical sectors such as the transport industry, power generation, mechanical and plant engineering, IT and telecommunications. Rittal is active worldwide with 10,000 employees and 58 subsidiaries.

Its broad product range includes infrastructure solutions for modular and energy-efficient data centres with innovative concepts for the security of physical data and systems. Leading software providers Eplan and Cideon complement the value chain, providing interdisciplinary engineering solutions, while Rittal Automation Systems offers automation systems for switchgear construction.

Founded in Herborn in 1961 and still run by its owner, Rittal is the largest company in the Friedhelm Loh Group. The Friedhelm Loh Group operates worldwide with 18 production sites and 78 international subsidiaries. The entire group employs more than 11,500 people and generated revenues of around €2.2 billion in 2014. For the seventh time in succession, the family business has won the accolade "Top German Employer" in 2015.

Further information can be found at www.rittal.com and www.friedhelm-loh-group.com.

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