



GN GUIDELINES

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Feeling the heat?

Breakdowns in machinery are a fact of life, and when a machine breaks down the pressure to get it back up and running can be immense and leave you feeling the heat.

We all know that maintenance is the best way to reduce the number of breakdowns on machinery. If a machine is well lubricated, and small problems are identified and fixed quickly, then the chances of a major breakdown are reduced. This type of maintenance can be easily implemented on the mechanical parts of the machine but what about the electronic parts of the machine? Can these parts be maintained?

The simple answer is yes! It's called thermographic testing.

Thermographic testing, or thermography, is a test method that can be used to detect bad electrical connections, unbalanced loads, deteriorated insulation, or other potential problems in energised electrical components. These problems may lead to excess power use, intermittent faults, damage to motors and equipment, catastrophic equipment failure or even a fire.

Thermographic testing is based upon the sensing of heat emitted from the surface of an object in the form of infrared radiation. An infrared camera can be used to detect and convert the infrared radiation into either a temperature value or a thermal image, which can be used to assess the thermal condition of the object.

To be technical, energised electrical systems generate heat because of electrical resistance. The amount of heat generated is related to the amount of current flowing through the system and the resistance of the individual components and connections within the system. As components

deteriorate, their resistance increases, causing a localised increase in heat. Similarly, a bad electrical connection will have higher resistance than a good connection, along with a higher temperature profile. A thermographic test may be used to detect these temperature differences.

MiTek has made thermographic testing part of the regular maintenance schedule. On an annual basis a survey is conducted on all machines and electrical distribution boxes. This work is performed by a contractor who produces a report identifying any problem areas.

A recent survey identified the fault below. The first picture shows perfectly normal looking electrical components but under inspection by the thermal imaging camera, it's a very different story. The second image highlighted a bad electrical connection which was heating up during operation.

While this doesn't appear to be a big issue, it certainly might turn into one. Had this fault not been identified, this machine would likely have started to fault intermittently or breakdown altogether. Additionally, this simple fault may have caused mechanical damage. It may not be

apparent during repairs that this damage was caused by a faulty electrical connection and the machine may have gone back into service without the root cause of the problem being fixed.

Thermography can test electronic components for damage or deterioration, and can test wiring for loose connections or damage.

Thermography identifies:

- Overloading or imbalance of electrical circuits
 - Defective equipment such as contactors, overloads, switches, electric motors, etc.
- The key benefits of testing are:
- Early detection of faults and breakdown prevention
 - No service interruptions during inspection
 - Lower repair costs
 - Reduces risk of fires.

A thermographic survey is quick, easy, and relatively inexpensive, and might save a lot of machine down time and expense. Get in touch with your local electrician and they should be able to point you to a contractor who specialises in this work. It's well worth the effort and, if your electrical components are running cool, you won't be feeling the heat! **T**



Image 1

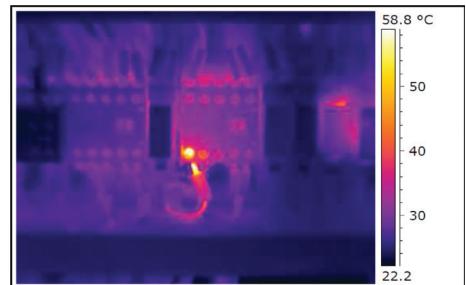


Image 2

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