

Thermal cameras



Detect **hot spots** before
they cause trouble

Thermal imaging

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Since the dawn of the industrial age, temperature has been used to give an indication of machine condition. Technicians know that abnormal temperatures often indicate a potential problem. Depending on the situation, sometimes just feeling the machine with the back of your hand can help you determine if the temperature is within acceptable limits; of course this method has severe safety limitations especially with rotating machinery and electrical equipment!



Possible benefits of thermography:

- A proactive, non-contact and non-invasive inspection technique, which is often well suited as part of a predictive maintenance programme
- An easier, faster and safer method of early fault condition detection
- Inspection, over time, of equipment under same running conditions, allowing thermal anomalies to be easily detected
- Inspection of running equipment under full load, minimising production interference
- Inspection of difficult to access live electrical equipment
- Reduction of production losses due to unplanned downtime, thus increasing productivity and profitability
- Reduction of time necessary for planned shutdown
- Reduction of maintenance and repair costs
- Increased equipment lifetime and mean time between failures (MTBF)
- Increased availability and reliability of plant

To obtain a more quantifiable indication of temperature, direct contact thermometers are often used; a safer method than using the back of your hand, but with some similar safety concerns. Infrared thermometers are often used for hazardous and difficult to access applications.

However, infrared thermometers measure the average temperature of an area and, for accurate measurements, the user often has to be close to the application. Thermography allows you to visualise heat. The application's infrared radiation is converted by a thermal camera to a visual image.

The different temperatures are indicated as different colours or shades of grey. Thermal cameras allow temperature comparisons over a large area, allowing potentially troublesome hot spots to be found quickly. If cost of the thermal camera is offset against savings in reduced downtime and maintenance costs, generally a short payback period is realised.

Overheating conveyor bearing



Distribution line faults



