

Assetivo.com

Asset Management • Reliability • Condition Monitoring

Case Study

Case Study: Infrared Thermography Survey Avoids Critical Asset Failure.

Introduction

Assetivo provide condition monitoring services to a multi-site south Wales manufacturer in the form of vibration analysis and infrared thermography (IRT) surveys. The objective is to improve the long-term availability of critical production equipment by way of reduced downtime and planned outages as part of the wider asset management plan. This case study highlights the use of IR Thermography to avoid a failure and potential fire on an electrical control panel. These types of IRT surveys are often a *mandatory requirement for industrial business insurance* to be valid in the event of a fire.

The Problem

At the first IR Thermography inspection, the motor was found to be operating at 106°C. This temperature was around 60 to 70°C above the average for these types of assets. The motor gearbox was planned for inspection and possible replacement on the next scheduled down day.

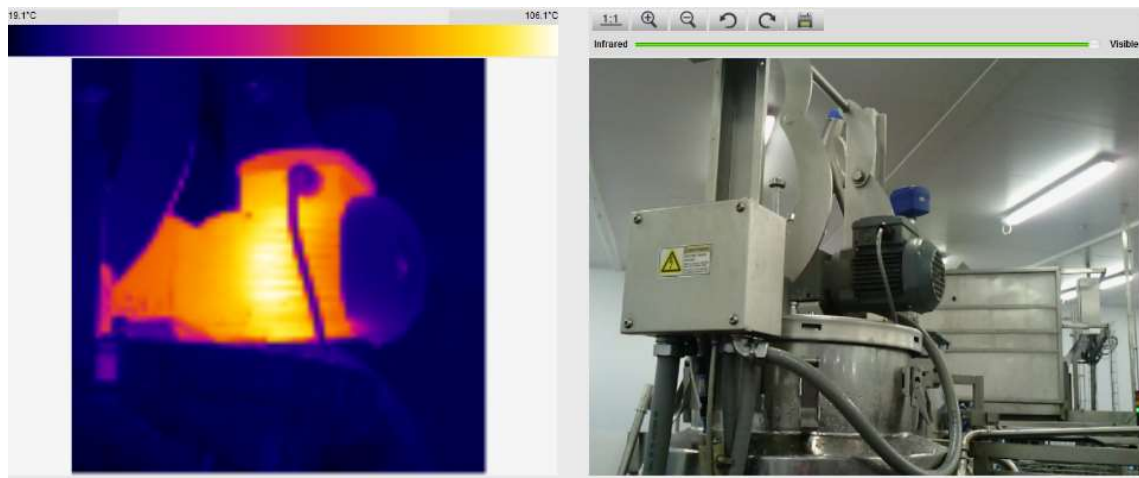


Figure 1: IR thermal image and photo of drive motor running at 106°C

The Solution

The motor gearbox was replaced. On testing the motor showed signs of internal corrosion and past water ingress. The windings were electrically tested, and one set showed deteriorated insulation resistance. Inspection of the agitator shaft also revealed damaged. This was also corrected on the same maintenance intervention. New running temperature 39°C.

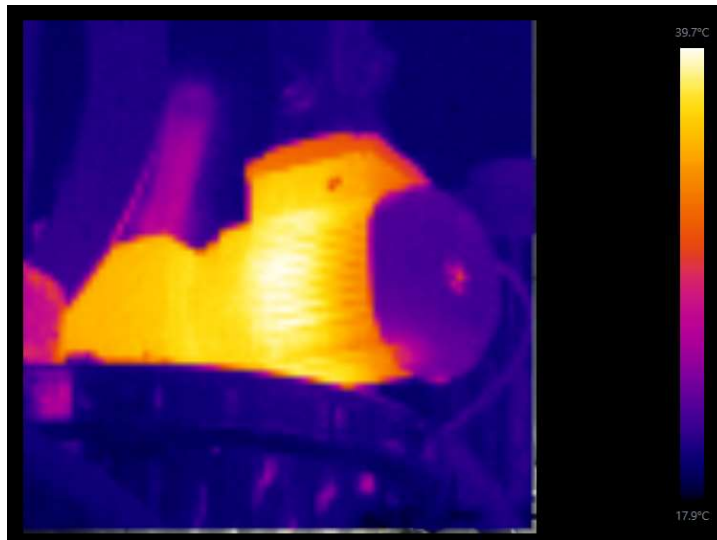


Figure 2: IR thermal image of drive motor running at 39°C

Cost Benefit Analysis

The CBA assumes a small fire at the contactor only & damaged cables. Production loss costs approximately £1000 per hour and maintenance labour costs at £40 per hour. Consequential losses are lost product or waste.

	Cost for Planned Repair (P)	Cost for Unplanned Repair (U)
Labour Cost	£40 (1 hour)	£160 (4 hours)
Material Cost	£400	£400
Production Lost Cost	£0	£4000 (4 Hours)
Other Consequential Losses	£0	£0
Total Cost	£440	£4560
Total Cost Benefit (U-P)	£4120	

Conclusion

Applying IRT surveys to industrial plant allows condition-based maintenance to replace the more costly run to failure strategy. This case study has shown how a simple inspection has allowed the company to avoid unplanned downtime, a potential fire, and approximately £6140 in costs. A root cause analysis (RCA) investigation was then planned to determine the cause of the water ingress.