

Thermal Imaging Keep Costs Down and Packages Moving in

## The Packaging and Distribution Industry

To be competitive in the global market, businesses depend on reliable service from the package handling industry. Distribution companies transport millions of parcels and documents daily. If maintenance problems turn up at an operating facility, the problem must be diagnosed and repaired within a short period of time, as ultimately defective equipment may affect timely delivery and quality customer service.

Distribution facilities generally house miles of conveyors; unexpected interruptions in daily package handling operations can cost companies thousands of dollars per hour. Faced with the arduous task of maintaining a labyrinth of package handling systems, including conveyor systems that stretch several miles and move thousands of packages per hour, maintenance teams search for troubleshooting tools for proactive facilities maintenance.

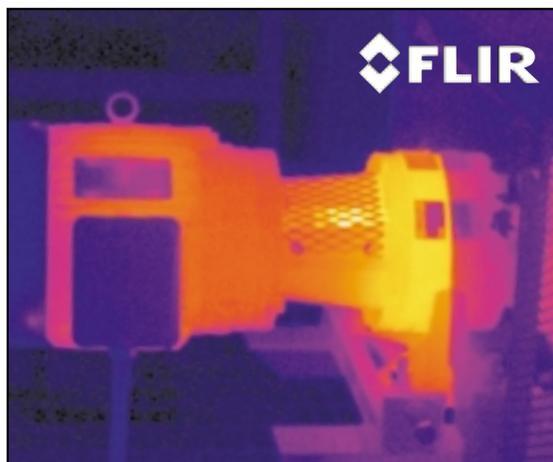
Maintenance is a priority at package handling and distribution facilities, and thermography is a proven method to identify maintenance problems. Thermography, also called thermal imaging, is the production of non-contact infrared, or 'heat' pictures from which temperature measurements can be made.

By detecting anomalies often invisible to the naked eye, thermography allows corrective action before costly system failures occur. Predictive maintenance (PM) applications for thermography are numerous. Companies worldwide have incorporated the FLIR Systems

ThermaCAM® thermal imaging systems into their PM programs for inspecting and monitoring electrical and mechanical systems and equipment. Moreover, new and sophisticated applications continue to emerge.

### Applications Versatility Ideal for Packaging and Distribution Facilities

Spanning thousands of square feet, packaging and distribution facilities are generally vast,



**Overheating bearing on a primary motor**

complex structures, housing many mechanical and electrical systems and equipment vulnerable to a wide variety of maintenance problems. The conveyor and drive systems, typically the backbone of operations in this industry, consist of large networks of mechanical and electrical components that can individually cause failures. The conveyors operate with a complex series of drive systems powered by AC (and DC) motors. Because

these motors consume large amounts of power, operating efficiencies equate to lower electrical bills. Thermography can be an invaluable tool to locate problems and facilitate efficient drive systems.

All motors have winding systems that prevent current carrying conductors from shorting to adjacent conductors or the motor frame. The insulation system is the main factor that protects the winding system from overheating. Thermographic equipment, like the FLIR Systems ThermaCAM, can be used to inspect

PM Payback

the motor windings and identify potential overheating, which will show up as hot spots on the skin of the motor.

Motor bearings and couplings are scanned for problems. If a bearing is under-lubricated or if there is a misalignment in the shaft or coupling, the bearing will suffer rub. Eventually, the bearing will realize a friction problem, heat up and may in fact fail. ThermaCAM systems have also proved to be perfect complements to vibration monitoring programs for inspecting motor bearings and couplings. Besides motors, packaging and handling facilities have a series of other mechanical equipment such as belt drives, power chain drives, unscramblers, idlers, and more. Regardless of the type of mechanical equipment, the principle for using thermography is exactly the same: mechanical equipment may suffer problems as it heats up.

## IR At Work

One of the largest package and distribution companies in the United States implemented a predictive maintenance thermal imaging program to monitor a wide variety of electrical and mechanical systems and equipment. In this particular thermography program, primary and secondary motors were checked, then either adjusted, cleaned and returned to service, or, replaced altogether. Powerturn belts inspected were either replaced or tracked for problems.

Annual predictive maintenance savings from this program were estimated at \$1,000,000. This thermography program played a pivotal role in reducing maintenance costs while increasing overall operational efficiency.

## ThermaCAM PM Series Maximizes Efficiencies and Delivers Savings

ThermaCAM systems detect temperature differences as small as 0.1°C. Since typical industrial electrical or mechanical problems occur when there is a temperature increase of 10°C or more, ThermaCAM "sees" these problems well in advance of a failure. The ThermaCAM's temperature data is valuable when inspecting indoorelectrical components such as motor control centers, breaker panels, disconnect switches, and transformers. Accurate temperature measurements allow maintenance personnel to prioritize repairs.



Designed for single-handed operation, ThermaCAM's versatility is advantageous to the operator using the camera in diverse and demanding industrial environments. The ThermaCAM is an easy-to-use, self-contained, rugged system designed to endure some of the most volatile environments. With the addition of wide angle or telescopic optics, the ThermaCAM can scan electrical panels or detect hot spots on overhead electrical works.

When incorporated into predictive maintenance programs, FLIR Systems ThermaCAM can literally save millions of dollars by preventing downtime and locating problems well in advance of failure.



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