FLIR APPLICATION STORY

FLIR SYSTEMS

More than 400,000 € saved at Heathrow airport with the help of a FLIR Systems infrared camera

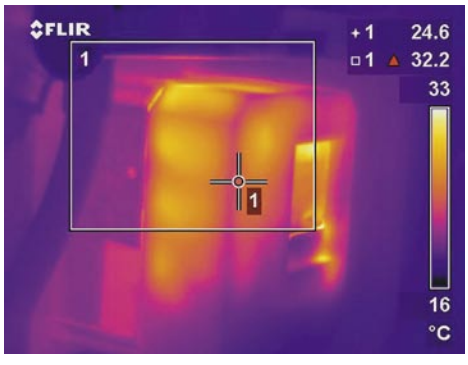
Heathrow, an airport of the British Airport Authority, is saving money thanks to FLIR Systems infrared cameras.

Heathrows's Terminal 1 is just one of four terminals. More than 65,000,000 passengers pass through Heathrow each year.

The aviation industry is one of the success stories in the United Kingdom. It directly employs 180,000 people and generates a further 370,000 jobs.

The British Airport Authority (BAA) plays a major role in this success. They own seven UK airports, including the world's busiest international airport, Heathrow, and also have interests in twelve airports outside the UK. They are at the heart of the world's transport network and their airports are the gateways to and from the cities and countries they serve.

Every year, BAA takes responsibility for nearly 200 million passengers traveling through their airports, focusing on their customers' needs and safety.



Infrared Image of an inverter in Heathrows baggage handling system

The leak in the pipeline can be clearly located thanks to infrared.

One of the airports BAA is managing is Heathrow. It is situated in the south-east of England, 15 miles from the heart of London. Heathrow opened in 1946, has 2 main runways and one cross wind runway. Each year more than 65 million passengers go through one of the four terminals. Over 80 airline companies, serving more than 180 destinations worldwide come to Heathrow. This makes this airport the busiest international airport in the world and the second biggest cargo port, handling approximately 1.3 million tons of cargo.

Saving energy to meet the Kyoto Protocol

As a result of the Kyoto protocol, the British Government has engaged itself to reduce, by 2010, CO2 emissions, which are largely caused by the generation of electricity and gas, with 20% compared to 1990. This means that all companies in the UK need to rationalize and reduce the use of energy. Also Heathrow Airport.

Needless to say that an organization as Heathrow consumes a lot of energy to stay operational at all times. Buildings, shops and terminals need to be heated or air-conditioned and lit. Air traffic control and so much more needs to be powered. Over 40% of Heathrow's power is used by third parties such as airline companies.

Using infrared to save energy

To obtain the required results, BAA has appointed an "Energy Manager" at Heathrow airport. "My job is to see to it that by 2010 the energy consumption of BAA is drastically reduced.", says Andy Watson, Energy manager at Heathrow. "Instruments that will help us to diminish our energy consumption are the FLIR Systems infrared cameras. We have purchased 4 cameras.
One ThermaCAM™ P-series camera and threeThermaCAM E-series cameras. The cameras are easy-to-use and they have the advantage that they clearly identify where there is a problem with a colorful image."

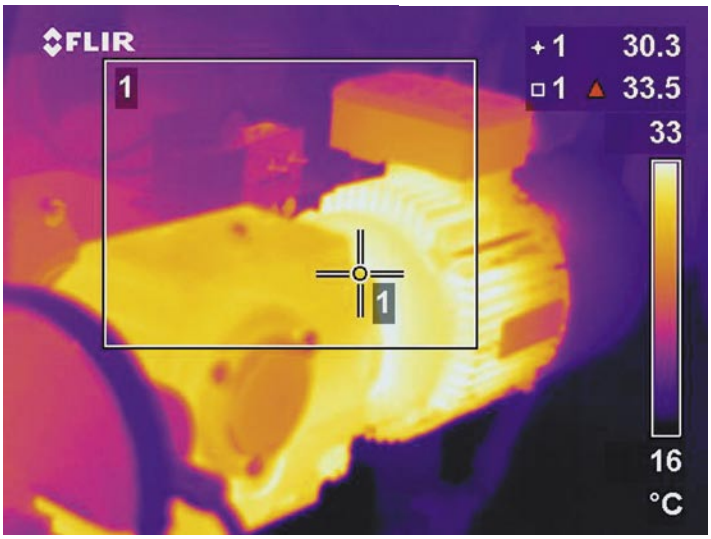
"With the FLIR Systems infrared cameras we will inspect all buildings at Heathrow. First of all to find badly insulated areas, since preventing heat losses to the outside will help us to save energy. But also to see where we have cold air coming into the buildings. We are very much aware that we can not always put extra insulation where necessary due to the structure of some buildings but we will definitely give advise for the construction of new buildings to avoid insulation problems. "

Predictive maintenance helps to save energy

"The cameras will also extensively be used by our maintenance engineers. They are of course very concerned that all facilities are running at all times. Take just one example, the baggage handling systems. If one of the conveyor belts is out of order, we need to pay damages to the airline company that was supposed to be using this conveyor belt."

"Each conveyor belt contains a motor, inverter drive, gearbox and bearing. All these components will be thoroughly inspected with the infrared camera. If a component is badly lubricated this will

Dave Nelson, Sales Engineer FLIR Systems and Andy Watson, Energy Manager of Heathrow airport with a ThermaCAM E-series camera



Visual and infrared image of the motor and the gearbox at Heathrows baggage handling system.

clearly be seen with the infrared camera. Also electrical overheating, which is caused by loose or corroded connections, overcharging, will show up immediately."
"Our maintenance engineers are looking for hot-spots so that they can repair the system before it breaks down and really becomes a problem. I, as an Energy Manager, look at it from another point of view."
"In an electrical system for example, a hot connection is dissipating energy in heat. This is also true for conveyor belts and other systems. Even worse, if installations are not working properly, they will dissipate three times more heat as is needed to keep the installation working. This means that by eliminating hot-spots, we will not only be sure that our installations are working continuously but we will also save a tremendous amount of energy."

Infrared training

"We will start the infrared program shortly. Therefore we will now send 10 people to the FLIR Systems Infrared Training Center (ITC). There they will not only get some basic knowledge about infrared and learn how to work with the camera, but even more important, they will learn how to give the correct interpretation to the infrared images so that they can avoid costly mistakes."

Saving over 400,000 €
with the help of infrared

"But the best thing is that the cameras already have paid themselves back before we even started the infrared program.", continues Andy Watson. " We have quite some underground pipelines, which are transporting steam to heat up buildings. It was clear that there was a leak in one of the pipes.

This pipe was located very close to Terminal 1, under a very busy road. We saw steam coming out of 2 inspection pits in the road so we knew that the leak was situated between these 2 pits. Unfortunately they were lying more than 60 meters away from each other, in a very busy road, and we could not see the exact location. I took out the infrared camera and determinated the exact location of the leak within seconds."

"Thanks to the FLIR Systems infrared camera, we now only need to break the road open where the pipe is leaking and not over the total 60 meters. We estimated that breaking open and repairing the whole surface to locate and find the leak would have costed us more than 450.000€.

Without taking into account all traffic related problems that would have been there if we had to break the entire road open. Now the costs will be about 45,000€, 10 times less. The cameras have paid themselves back before we really start putting them at work.", concludes Andy Watson.

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