

# APPLICATION NOTE

## Thermographic monitoring in aluminum foundry



**Ahresty**

Ahresty performs high-pressure die casting inspection (HPDC) using custom **bcb**Monitor 4.0® software based on FLIR thermographic technology.

Ahresty is a Japanese company with more than 60 years of experience in manufacturing aluminum automotive components. To maintain high repeatability and quality in their products, they have the most sophisticated process control technology that makes them one of the top automotive TIER 1 companies worldwide.

Thermographic technology plays a very important role in the casting process on Ahresty lines. The implementation of automated lines with inspection based on thermography, taking images at the opening and closing of the mold, as well as making intelligent decisions based on the results obtained, ensure an optimization and increase of your production and therefore satisfaction of your customers.

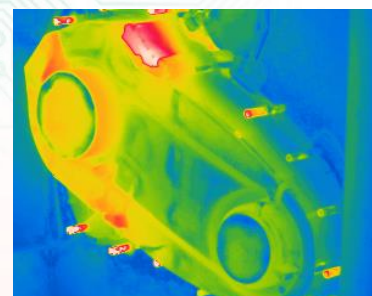
The Ahresty facilities have a production system that incorporates: pressure casting, finishing and machining, being specifically for the foundry area, the place where the thermographic application becomes relevant. Thus achieving, with the help of high resolution thermographic cameras, integrate an inspection system capable of uniting more than 300,000 temperature recognition points, thanks to a matrix incorporation in a radiometric image.

### HPDC and Inspection Technology

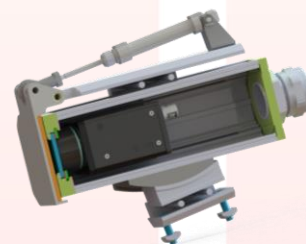
The high pressure aluminum casting process brings together a variety of steps; from the emptying of the aluminum to the application of the lubricant and air. During the performance of these steps, the temperature of the molds (fixed and mobile) is of vital importance to ensure the flow of liquid aluminum at the time of injection and obtain parts free of defects. Ahresty manages to ensure the correct temperature of the molds with the help of thermal imaging cameras and high-tech software.



The FLIR A65 is ideal for continuous monitoring of the high pressure casting process.



Thermal image corresponding to the fixed mould, in the high pressure aluminum casting area.



Thermal imaging camera contained in an IP67 casing, ideal for environments with high circulation of lubricant particles.

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## Thermographic visualization

Ahresty Mexicana has a system of 3 thermographic cameras mounted on a die casting machine within its foundry area.

The cameras have been placed in such a way that it is possible to observe each temperature point on the mold surface. Thanks to the high technology of the cameras and the speed of their integration times (30 Hz), any thermal change greater than 50 mk is possible to observe.

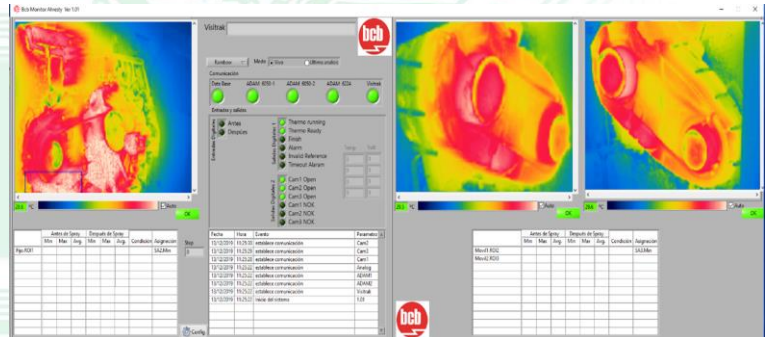
The resolution of the acquired images is 640x512 pixels, which is equivalent to more than 300,000 thermocouples or temperature measurement points, thanks to their incorporation in industrial-grade housings, they have an IP67 protection and lens protection against particles of dust and other material as the action of an air curtain.



Ahresty Mexicana S.A. de C.V., Guadalupe, Zacatecas.

## Software

Although the execution and storage of the test and its results is designed, **bcbMonitor 4.0** gives the possibility of having the visualization of each of the cameras in real time. It also allows the generation of ROI's (Region of Interest) in addition to real-time visualization of the histogram on each of the images showing temperature values over time.



Graphical interface of **bcbMonitor 4.0**: Temperature data acquisition software from multiple thermographic cameras.



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