

SUCCESS STORY 54 AUTOMOTIVE CAMSHAFT MANUFACTURING



Q

How can the hardening of lobes on a camshaft be measured?

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Situation and background

After a camshaft is machined, the bearing races and cam lobes have to be heat-treated, which is usually done by induction heating. The cam is heat-treated on a single heating station and since typical camshafts or crankshafts may have twelve to twenty-four individual locations that are all heat-treated, it is not practical to use an infrared thermometer at each and every location. The camshaft is moved from the induction coil to the quench section and the Pi20 thermal imager takes a snapshot of the camshaft as it is moving. By placing the Pi20 camera inside the heating station and using DTPi software as a setup tool for time, power and coil adjustment, product setup times can be reduced. Every lobe is measured and alarms are given if any area of the product is not heated properly.

The winning solution

- A site survey was performed at the customer's plant using the Pi20 to generate thermal analysis of many different processes in the plant.
- Thermal analysis of multiple induction heating stations revealed large opportunities for process improvement.

Savings made

Using the Pi20 reduced setup time at each of the induction heating stations by five minutes per setup. With six stations at this facility and an average of three setups per day on each station, the customer will save approximately \$45,000/year and pay for the Raytek ThermoView Pi20 system in approximately six months!

KEY FACTS

Industry

Camshaft manufacturing

Customer's End Product

Automotive engines

Process Temperatures

250-925°C/482-1697°F

PRODUCT AND BENEFITS

ThermoView™ Pi20HTMA thermal imager with DTPi software

- Reduced hardening station part setup time (\$7500/year/station)
- Improved product metallurgy from consistent lobe temperatures
- One Pi20 system can be used to monitor multiple induction hardening stations