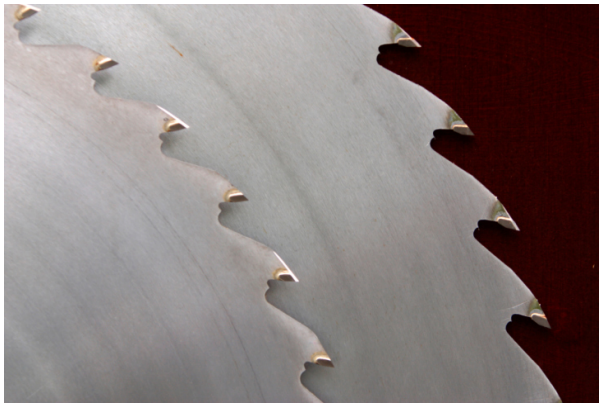
SUCCESS STORY 71
Brazing Carbide Saw Tips



Q How do you measure the temperature of carbide saw blade tips during the brazing process?

A

Situation and background

Brazing is a metal-joining process whereby a filler metal is heated above melting point and allowed to flow into the gap between two close-fitting parts, using capillary action. In this case, the filler material is deposited on the carbide tips in advance. The blade is placed in a fixture and heated before the tips are moved into position. The filler material instantly melts and then hardens as the parts cool, to form a bond between the tip and the blade. If the temperature is not high enough, the filler material only partially melts and the bond will be weak. If the temperaure is too high, the filler material gets too hot and flows away from the joint area. Without accurate temperature measurement, the customer could not accurately control the process, leading to poor quality and an inefficient process. It was estimated that 2% of the blades needed to be reworked based on adhesion tests performed. Typical infrared (IR) sensors did not provide accurate readings due to the presence of a flame close to the workpiece, which could not be removed from the field-of-view.

The winning solution

- The Ircon® Modline® 56 series is a short wavelength model that provides accurate temperature readings even through a relatively clear flame.
- Thorough on-site testing proved measurement was steady and reliable.
- The customer purchased 2 units immediately.

Savings made

After the Modline 5 unit was installed, rework on blade tips was all but eliminated. Savings in cycle time and process efficiency were also made, but not quantified.

KEY FACTS

Industry
Construction

Customer's End Product
Circular saw blades

Process Temperatures
750-800°C/1382-1472°F

PRODUCT AND BENEFITS

Modline 56 series

- Accurate temperature measurement leads to elimination of scrap parts and 2% rework.
- Wide temperature range simplifies integration into control systems.