

## Coating Technical Information LaserHeat<sup>™</sup> Pinpoint Heat Treatment

Metco Joining & Cladding offers LaserHeat, a specialized heat treating process with the unique ability to heat treat a precise area and dramatically enhance the metallurgical properties of your part.

Lasers are an excellent source for surface hardening ferrous materials having a carbon content of more than 0.2%. The laser beam heats the outer surface of the material to just below its melting point. As the beam moves, the hot layer self-quenches. Rapid cooling of the melt pool produces martensitic phases within the melt, which increase surface wear and abrasion resistance. The combination of higher surface hardness and relatively lower base material hardness increases fatigue life.





With localized heat input, laser hardening results in lower distortion of the parts. Typically, the case depth ranges from 0.25 to 1.0 mm (0.010 to 0.040 in). The process can be used for selective hardening of edges, bores and complex shapes.

## **Typical Applications**

LaserHeat surface hardening can be applied to many critical, high wear components such as:

- Spindles
- Transmission shafts
- Pump shafts
- Sleeves
- Locomotive engine cylinders
- Hydraulic cylinder rams
- Mixing paddles
- ...And More!

## R&D = Process Development = Metallographic Analysis = Production

Metco Joining & Cladding is a leading brand for joining and cladding solutions, including welded overlays, brazing, laser cladding and plasma transferred arc. Since 1970, our experience has benefited customers with a customizable and comprehensive solutions portfolio of materials, ranging from powders, wires, rods, electrodes, braze pastes and braze tapes, designed to serve the critical needs of industries, such as aerospace, power generation, mining, oil and gas and agriculture. With a global footprint, Metco Joining and Cladding can offer deep expertise and solutions, also in combination with our broad range of materials, in close proximity to customers. The Metco Joining & Cladding brand is owned by the global Oerlikon Group (SIX: OERL), headquartered in Switzerland.

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