

International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI)

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Laser Hardening of Hemming Beds

Overview

Hemming beds or forming dies are widely used in the automotive industry. The edges which are used for forming are subjected to high wear and require hardening to improve the bed's life. Laser hardening provides an excellent control on the energy input enabling hardening of cast iron without melting. The surface temperature regulation system available at ARCI provides added control while processing 3D contours as well as negligible change in the surface finish can eliminate the requirement of any post hardening machining.

Key Features

- Selective and localised hardening process
- No coolant or quenching medium required
- Uniform hardened layer throughout the processed area
- Negligible change in the surface roughness
- Compressive stresses in the hardened region
- Automation possible, No human errors
- Case depth 0.8 - 1.2 mm with ~55HRC uniform hardness throughout the bed Material (GGG70L Nodular Cast Iron)



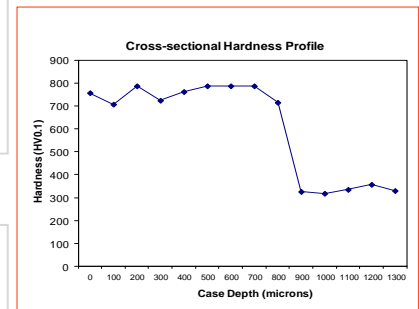
Hemming Bed

Potential Applications

- Hemming beds and Forming dies made of cast iron and steels

Intellectual Property Development Indices (IPDI)

- Laser hardened hemming beds were used by end user with excellent performance compared to flame hardened beds



Cross-sectional hardness profile of laser hardened Hemming bed (Material: Nodular cast iron GGG70L)

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