

## Optimization of induction heat treatment of automotive compressor shafts

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The present work focuses on the development of an optimum and robust induction hardening heat treatment of shafts for automotive A/C compressors made of normalized AISI 1060 steel. Several process parameters such as coil speed (mm/sec), dwell time (sec) and power (%) were studied. Coil position, rotation and quench conditions were handled according the geometry, hardness and microstructural requirement of the shaft. Hardness at 7 different locations along with the total case depth was considered as performance characteristics of the treatment. The experiments were carried out in an industrial fully automatic induction machine. The experimental results show that an accurate predictive model can be created with the experimental data using simple statistical analysis. The optimal process parameters were verified by confirmation experiments.

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