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Emerging Intelligent Techniques for Energy Managements in Smart Cities

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Implementation of Energy Efficient Burnishing Process for Surface Integrity Improvement of Hole Finishing Tool

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Abstract.

Burnishing is a well-known cold working technique for improving the surface integrity. It is a very cost-effective and efficient approach for improving surface finish and hardness. Use of burnishing to replace current heat treatment and grinding processes on reamer shank is offered as a unique strategy for reamer shank processing. This change in processing reduces cycle time and resources while also conserves energy required for processing during heat treatment and grinding. In this work Taguchi optimization technique is used to determine the optimum parameter values of burnishing process to attain required surface finish and hardness to fulfil all functional requirements of shank. Test outcomes are convincing which shows that suggested process has capability to replace current heat treatment and grinding process, thus conserves energy.

Keywords. Energy conservation, Burnishing, reamer, shank, taguchi optimization.

1. INTRODUCTION

Energy is critical to the world's evolution, development, and existence. Rising energy consumption has a negative impact on the environment as well as increased government pressure. For a developing country like India, the energy criteria determine the country's growth. As the third biggest power generator, the country is ruled by energy shortage and need. Our country's energy consumption is expanding at an alarming rate. Energy conservation may be the greatest response to rising energy needs. Energy conservation is



CERTIFICATE OF APPRECIATION

This certificate is proudly presented to

**Nitin Varpe, Ravindra Tajane, Umesh Gurnani and
Anurag Hamilton**

for presenting research paper on *"Implementation of Energy efficient
Burnishing process for surface integrity improvement of reamer shank by
elimination of heat treatment"* in the International Conference on
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