

TO STUDY AND OPTIMIZE THE PROCESS PARAMETER THROW ROLLER BURNISHING PROCESS ON EN19 MATERIAL

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ABSTRACT

Roller burnishing has been investigated to improve surface finish which directly affects component's quality and performance. Examination of many serious accidents involving automobile, has revealed that failure of the first stage crank shaft impacted by high revolving speed and other issues was the main reason caused. Automobile parts material EN19 with its high mechanical properties is used for the first of crank shaft to reduce failure; however, the effects of burnishing on surface properties in terms of surface roughness and surface hardness EN19 have not been well documented.

In this research, it is demonstrated that improvement in material properties can be achieved by roller burnishing applied to EN19, such as smoother surfaces and enhanced surface hardness with a greater depth of layer. For surface roughness, burnishing pressure, speed and no of passes are significant factors whereas turned surface roughness is negligible. The pressure is the most important factor for both surface hardness, as well as for surface roughness at the surface and maximum magnitude with its depth. The results indicated the potential benefits of the roller burnishing application for the automobile parts material.

KEYWORDS: Optimize the Process Parameter Throw Roller Burnishing Process on En19 Material