

IMPACT OF SINGLE-MULTI ROLLERS BURNISHING TOOLS ON SURFACE ROUGHNESS AND ROUNDNESS ERROR

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ABSTRACT

Burnishing is a simple and effective method for improvement in surface finish and can be carried out using existing lathe machines. It also saves more on production costs than other conventional processes such as grinding. There are many type of burnishing tools developed to satisfy the production requirements for achieving certain surface quality of workpiece, comes at the forefront roller-burnishing tools. Burnishing can be considered as hardened, highly polished steel rollers are brought into pressure contact with a softer piece part. The rotational and longitudinal of the operating workpiece was analyzed before starting the turning and then burnishing. Two roller types of burnishing tools, which are single and multi are used for burnishing carbon steel metal. Graphs are drawn on how these burnishing parameters vary with the variation of the roller burnishing tools. A burnished surface is therefore smoother than an abraded surface with the same roughness height measurement. Experimental work was carried out on a lathe to establish the effect of three roller burnishing tool parameters; namely, burnishing speed, feed rate, burnishing force. The surface roughness and roundness error of the turned test examples were enhanced by burnishing. The consequences of multi-roller burnishing were superior to that of single-roller. The surface roughness increments with low burnishing force at high speed for various feeds utilizing multi-roller burnishing.

KEYWORDS: *Roller Burnishing Tools, Burnishing Parameters, Surface Roughness, Roundness Error*

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