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Methodology for the filtering of data obtained from the measurement of surface roughness

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Abstract : Related to the objectives of this research, a robust validation of the methodology for filtering data from surface roughness measurements on surfaces was obtained by abrasive processes. The methods used was based on a hydraulic cylinder tubes which were machined with honing under different conditions, the surface roughness was measured at different points on the cylinder surface and two different criteria were used for data filtering to determine which allowed more reliable data to be obtained in the face of measurement variability. It was found that applying a filtering criterion allows to obtain more reliable average values of the measurements to characterize a surface, especially that obtained by abrasive processes that have an important random component. Chauvenet's criterion proved to be more reliable than the standard deviation criterion. This strategy of measurement and filtering is useful when it is sought to characterize the surface roughness especially in surfaces obtained by abrasive processes, since the multiple cutting points generate surfaces with an important random component in the measured data.

Key Words : filtering data, surface roughness, honing, Chauvenet criterion.

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