

THEORETICAL SURFACE ROUGHNESS OF SURFACES MACHINED BY SINGLE POINT CUTTING TOOLS

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Accuracy of parts and quality of machined surfaces should be ensured in the finishing operation. In this paper we deal with the geometry of surface, which is one of the important characteristics of surface quality and determinative of tribological properties of working surfaces. Production engineers can only plan manufacturing procedures used in finishing operations correctly, if the roughness index values of surface for the chosen procedure and their changing gears to technological data and tool geometry (factors which determining the roughness) used in the given procedure are known.

One possible method of the determination of the prospective roughness on machined surfaces is the use of roughness values determined on grounds of theoretical roughness.

Various modeling procedures and techniques shows, how comprehensive researches goes on to determine the surface roughness, surface quality and surface integrity [2].

Examinations and results will be introduced was done by a solution which implements more targets. The essence of this solution is that it is determine the theoretical indexes and set up connections with real indexes.

The calculation method used by us [1] was endeavored for:

- the model should be general, to the effect that it should be capable to determine all roughness values which can be derived by theoretical way;
- cutting tools with various geometries can be compared in the basis of roughness values (hereby these can be redeemed or substituted)
- the cutting-ability of the material can be ranked by comparison of theoretical and real values
- the roughness values can be automatically planned for tools with arbitrary profiles.

REFERENCES: 1. Kandrak J.: Increasing the Effectiveness of Machining by Application of Composite Tools in boring of cylindrical and Polygon Surfaces (in Russian). CSc Dissertacion. Tula 1986. p. 315. 2. C.A. van Luttervelt, T.H.C. Childs, I.S. Jawahir, at al.: Present Situation and Future Trends in Modelling of Machining Operations. Progress Report of the CIRP Working Group 'Modelling of Machining Operations'; Keynote Paper, Annals of the CIRP Vol. 47/2/1998, pp.:587-626.