

Surface Properties in Precise and Hard Machining

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Precision machining and especially hard machining is a topic of high interest at present. Surface integrity requirements increase. Hard precision machining may substitute some abrasive operations. There are some advantages of hard cutting over the abrasive machining. Abrasive machining has traditionally performed the finishing process of hardened steel. But, the availability of hard and super hard cutting tools enable the machine tools to reach surface quality of hard machining like to those obtained in grinding processes. A surface is not only a geometric entity but also a layer with its own structure and properties. These properties are affected by many factors, e. g. by cutting temperatures, friction, deformations in the primary deformation zone and the surface layer of the transient (machined) surface, by cutting tool geometry, work hardening, cutting environment, etc.

Keywords: surface integrity, precise machining, hard machining, residual stresses

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