The Effect of Chemical Elements on the Machinability of Aluminium Alloys

Jan Madl, Ludek Ruzicka, Michal Lattner
J. E. Purkyne University in Usti nad Labem, Faculty of Production Technology and Management. Pasteurova 3334/7, 400 01 Usti nad Labem. E.mail: madl@fvtm.ujep.cz

Machinability of materials is evaluated by different criteria. The basic evaluative criteria are based on tool wear. However, there are other criteria, for instance chip formation, cutting temperature, forces of cutting, etc. Machinability for different criteria depends on many factors, of which the most important is the chemical composition of the material. It is possible to divide machinability tests into two groups: Long-term tests and short-term tests. Short-term machinability tests are less objective than long-term ones, but they have the advantage of short duration and lower material consumption. This paper is focused on the experimental determination of the effect of chemical composition on the machinability of aluminium alloys. For testing three different short-term tests were used. The results were evaluated by correlation coefficients. All used tests led to the same results.

Keywords: machinability, aluminum alloys, chemical elements, machinability tests

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