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MACHINABILITY ANALYSIS OF TITANIUM ALLOYS USING DIGRAPH AND MATRIX METHOD FOR COMMON MACHINABLE TOOL INSERTS

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ABSTRACT

In this research Ti6Al4V in annealed and solution heat treated condition are taken for machinability analysis. The machinability of Ti6Al4V alloys is analyzed using Digraph and Matrix method, with different grades, geometries and load capacity of inserts mainly used in industry. For machinability analysis of alloys, it is found out by conducting slot milling operation with a constant speed, feed and depth of cut for all combination of tool and work piece and the response taken are surface roughness, material removal rate and cutting power. For machinability analysis both round and rectangular geometry inserts of sandvick with grades GCS30T, GC1030 and GC4020 are used.

KEYWORDS: Titanium Alloy, Digraph and Matrix Method, Milling Insert, Machinability