The Machinability of Duplex Stainless Steel – Solutions in Practice

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In production practice, it is important to know the machinability of new constructional materials. This is related to the selection of adequate cutting tools and machining conditions. One of such relatively new materials is Duplex Stainless Steel (DSS). Manufacturing machine parts of hard-to-machine material is very troublesome. It is still more difficult when high quality requirements are to be met. Duplex stainless steel is used in applications for very severe working conditions, e.g. for modern deep-well pump bodies for mining industry or the shafts of electric mixer motors in food industry. This paper discusses the effect of cutting conditions on the machinability of DSS. The advantages and disadvantages of various tool materials with regard to machining of DSS are highlighted. Problems associated with the machining of DSS as well as tool wear and the mechanisms responsible for tool failure are identified and discussed. However, the machinability of DSS is an area that needs to be studied more deeply to cut the production cost.

Keywords: Duplex Stainless Steel, machining, machinability

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