INFLUENCES OF SOME TECHNOLOGICAL FACTORS ON ELECTROCHEMICAL MACHINING PROCESS OF WEAPON BARREL RIFLING PROFILES

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Abstract

Rifling profiles of weapon barrels are usually machined by mechanical technological methodologies such as broaching for barrel caliber larger than 20 mm and cold forging for small arm barrel that have barrel caliber smaller than 20 mm. These methods require full technological equipment system and have quite high costs. The cheapest cost technological method for machining rifling profiles of large caliber barrel is electrochemical machining (ECM). This method not only doesn’t require modern technological equipments but also have cheaper cost and higher productivity. Recently ECM is not widely applied for manufacturing weapon barrels in developing countries because quality of rifling profiles a lot depends on technological know-how. This article presents some research results of ECM for manufacturing barrel rifling profiles of large caliber barrel. Influences of some factors of machining tool structure and electrolyte solution are presented and discussed. The set of machining tool structure factors and electrolyte solution factors is proposed to satisfy required qualities of weapon barrel rifling.

Keywords: Rifling profiles, electrochemical machining, electrolyte solution, weapon barrel manufacturing

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