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基于介质变化的侵彻弹药实时测速系统设计(PDF)

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Title: The System Design of Penetrating Ammunition's Real-time Velocity-measuring System on the Basis of Media Change

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关键词: 压电传感器; 定时器; 侵彻; 测速

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摘要: 获得弹药在侵彻过程中的实时速度对判断弹药所处的位置和炸点控制有重要的意义。文中提出了一种以双压电传感器和定时器为主要器件的弹丸测速装置原理。根据弹药在穿越不同介质时受到的压力变化量不同,结合相关原理,确定弹药在侵彻不同介质时的速度,改善了之前的测速原理。仿真验证表明,系统能够稳定测得侵彻速度。

Abstract: Acquisition of real-time speed during ammunition penetration has great significance on ammunition position judgments and burst point control. In this paper, the principle of a velocity measurement device with double piezoelectric sensors and timer as main components was presented. According to different pressure variation when the ammunition is passin g through different media, with reference to other relevant principles, the penetrating speed when the ammunition is passin g through different media was determined, by which the previous velocity measurement principle was improved. Verified by simulation, the system is proved to be reliably useful.

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