[1]崔俊杰,姜建东,牛新立,等.轴向预制破片初速影响因素的研究[J].弹箭与制导学报,2014,2:84-86.

CUI Junjie,JIANG Jiandong,NIU Xinli,et al.The Research on Impacting Factors of Axial Preformed Fragment Velocity[J].,2014,2:84-86.

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《弹箭与制导学报》[ISSN:1673-9728/CN:61-1234/TJ] 期数: 2014年第2期 页码: 84-86 栏目: 弹药技术 出版日期: 2014-05-12

Title: The Research on Impacting Factors of Axial Preformed Fragment Velocity

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关键词: 破片初速; 破片形状; 装药结构; 排列方式

Keywords: muzzle velocity of fragments; fragment shape; charging structure; arrangement

分类号: TJ410.33

DOI: -

文献标识码: A

摘要: 运用数值仿真方法研究轴向前置预制破片战斗部装药结构、破片规格对破片初速的影响。研究结果表明,球缺形装药结构能显著提高破片初速,且当球缺的曲率半径与装药直径比为1.0时获得破片的初速最大。质量相同时,钨柱能够获得比钨球更大的初速; 在此基础上研究了轴对称和均匀错位两种排列方式对钨柱初速的影响,得到了均匀错位的排列方式能够显著提高初速的结论。

Abstract: The effect of explosive charge structure and prefabricated fragment size on fragment velocity of axial pre-fragmentation warhead was studied by numerical simulation. The results show that hemispherical charge structure can improve the fragments' velocity significantly, and the ratio 1.0 for curvature radius of hemispherical liner to charge diameter results in maximum fragments velocity. Tungsten column can attain a greater velocity than the tungsten balls with same mass for the both. On this basis, the effect of axial symmetry and uniformity dislocation arrangements on velocity of tungsten column was studied, and the conclusion obtained is that uniform dislocation arrangement can increase muzzle velocity significantly. These conclusions maybe guide of studies on prefabricated

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fragmentation warhead design.

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备注/Memo: 收稿日期:2013-05-08

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更新日期/Last Update: 2014-05-22