



2005年第4期 总第26期(卷) 文章来源: 南京理工大学 机械工程学院, 江苏 南京 210096|Nanjing University of Science and Technology, Nanjing, Jiangsu 210094,

### 杀爆战斗部破片对厚壁钢管的毁伤效应研究

2005-8-30 14:15:12 中国兵工学会

**摘要:** 采用静爆试验与数值仿真的方法,研究了杀爆战斗部破片对厚壁钢管的毁伤效应。根据Tresca准则和厚壁圆筒强度理论,给出了厚壁钢管的失效判据。研究了破片形状、着角、质量、速度等因素对毁伤效果的影响。研究结果表明,杀爆战斗部在厚壁钢管侧方或前方近处爆炸,形成的破片对厚壁钢管有较为明显的破坏效应。所给出的数据及对毁伤规律的分析,对厚壁钢管生存能力的分析和战斗部的设计与改进提供了参考依据。

**关键词:** 爆炸力学; 破片; 毁伤; 侵彻; 试验; 数值仿真

**中图分类号:** TJ760 3 +1

**参考文献:**

- [1] 韩育礼. 允许少量永久变形的管强度设计方法 [J]. 兵工学报, 1992, 13(3):16-26.
- [2] Baum D W, Honodel C A, Schneider D P. Effect of material strength models in the formation dynamics of a three dimensional explosively formed penetrator [R]. Comparision of Calculations with Experiment DE89013789, 1989.
- [3] 马杰. 引信终点弹道仿真研究 [D]. 北京: 北京理工大学研究生院, 2001.
- [4] 隋树元, 王树山. 终点效应学 [M]. 北京: 国防工业出版社, 2000: 76-79.
- [5] 恽寿榕, 涂候杰, 等. 爆炸力学计算方法 [M]. 北京: 北京理工大学出版社, 1995: 211-229.

### Research on Thick Barrel's Damages Due to Impaction by Fragments of High Explosive Projectile

SHEN Xiao jun, ZHANG Peng xiang, SUN Tao, LIU Juan, WANG Xiao ming

Nanjing University of Science and Technology, Nanjing, Jiangsu 210094,

**Abstract:** Explosive test and numerical simulation were carried out to examine the damage effects of high explosive projectile to thick tube. According to Tresca guide line and thick cylinder's strength theories, the criteria of tube's failure were deduced. The effects of fragment's figure, aviation direction mass, velocity on damage were explored. The research results indicate that if high explosive projectile explodes near or in front of the thick steel tube in some short distance, the generated fragments' impactions will cause clear damages to the steel tube. The given data and the analyses to damage law can be used as reference basis to analyses of thick tube's viability and to design and improvement of warhead.

**Key Words:** explosive mechanics; fragment; damage; penetration; test; numerical simulation

发布人:sy

发布时间:2005年8月30日  
共有1926位读者阅读过此文

- [上篇文章: 两栖车辆在波浪中的摇荡问题研究](#)
- [下篇文章: 超高速弹箭飞行弹道研究](#)

□- 本周热门文章

1.超高速弹箭飞行弹道研究[]

□- 相关文章 [无](#)

[关于我们](#) | [联系我们](#) | [网站声明](#) | [经营业务](#) | [相关链接](#) | [使用帮助](#)



中国兵工学会 版权所有 2003-2004

Copyright All Reserved by China Ordnance Society. 2003-2004