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弹药侵彻混凝土过载性能的数值模拟(PDF)

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Title: The Numerical Simulation for Overload Characteristic of the Ammunition into Concrete Targets

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摘要: 通过建立弹靶系统,分析侵彻模型及弹体内部炸药所受冲击载荷的动态响应,旨在揭示弹药在侵彻混凝土冲击环境下的过载特性,进而运用ANSYS/LS DYNA模拟软件,采用相应的弹药以及靶板数学模型,对弹药侵彻一定强度混凝土靶板进行了仿真计算,分别得出了弹体与内部炸药的过载曲线。并将弹体的过载曲线与Forrestal模型进行对比,仿真结果表明,弹体过载曲线峰值及总体趋势与该模型吻合较好。而且进一步预测了弹内装药的过载特征,说明模拟结果具有较高的可信度,可为同类弹药侵彻

Abstract: By building the structure of projectile and target, the penetration model and the dynamic response of explosive were analyzed, it will reveal the overload characteristic of the ammunition into concrete targets. Using the simulating software ANSYS/LS DYNA, adopting of the corresponding ammunition and target model, and the process of the ammunition penetrate the concrete was simulated and computed, the curves of projectile and explosive were got respectively. And the result of projectile was contrasted with the data of the Forrestal model; the result indicates that the peak value and trend of projectile was anastomosed to the model. Moreover the overload characteristic of explosive was predicted, the simulated results are creditable; they could give some reference to the scheme design of the like penetration of ammunition.

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