

Research on vibration characteristics of barrel considered Bourdom effect

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The vibration of barrel has considerable influence on accuracy when firing, for obtaining the disciplinarian of barrel vibration, barrel is considered as a cantilever in this paper, on that base, its transverse vibration equation has been established, and forced response can be figured out by using modal analysis method. The vibration characteristics of barrel were numerically simulated for different charge weight, besides, two situations that the barrel with or without gas pressure have been compared. In solving process, the displacement velocity and acceleration of projectile are real dates. The simulation results indicate that static offset affects vibration characteristics very much, with the increasing of the projectiles initializing speed, the amplitude of the barrels vibration is lower without static offset, and the effect of gas pressure can decrease the amplitude of vibration considerably.

Biography

Zhu Da-wei is 25 years old , and still studying for Ph.D degree in Nanjing University of Science and Technology. Dynamics of artillery is major, we have a work group of 21 students and 4 professors. This is the first paper.

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