

# **INITIAL SIMULATIONS OF A SINGLE SHOT VORTEX GUN**

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## Abstract

In this paper we present the results of some of the fluid dynamic issues relating to the strength and control of vortices and assess some mechanisms whereby the vortex can be tuned to purpose. A number of issues need to be addressed in this context. The generation of vortices, the coherence and integrity of a vortex with range, stability and turbulence, growth and dissipation, the effect of the environment e.g. shock reflections on vortex structure, and the effects of geometry on vortex formation and muzzle blast. A number of test cases detailing changes in driving pressure and geometry are presented. Vortices have been computed to a range of 50 metres for two cases. The vortex appears to remain stable and maintains its strength in both cases. Pressure differences within the vortex of between 0.4 and 0.5 atmospheres are convected downstream.