

CONSTRUCTIVE MEANS FOR SPIKE DAMPING SIMULATING WEAPON EFFECTS IN SHOCK TUBES

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To estimate the reaction of structures against weapon effects concerning the pressure caused by their detonation the pressure time history must be known. It can be obtained in free-field tests. In most cases the simulation in a shocktube is more advantageous. Assumption is then the agreement of the pressure time histories of the real weapon and in the device.

There are no problems with relatively small shocktubes of constant diameter. But large tubes must be enlarged more or less abruptly on account of technical reasons. Then so-called spikes occur in the pressure time history at any points, which can effect an unwished response of a test object, not comparable with the real weapon effects. These spikes can be avoided by a long smooth extension from the small diameter to a large one in the driven tube.

By experiments constructive means should be investigated to damp or even to eliminate those spikes. A small scaled tube has installed with a scaling factor of 1:63 in comparison with an actually working device. Using perforated tunnels as an inner coating of the expansion tube and special extension parts from small to large diameter a good damping can be achieved. The experiments will be described and the results discussed.