THEORETICAL STUDY OF THE FAST-VALVE CLOSING EFFECTS INSIDE THE LARGE BLAST SIMULATOR (SSGG)

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In the Large Blast Simulator (SSGG), we currently use metallic diaphragms to separate the driver and the driven section. Then the fast opening function is entirely guaranteed, but the closing function during the flow cannot be realized. In order to determine the advantages provided by the closing valve device, a theoretical study was done at CEG using the monodimensional code written at BRL and named QID code.
This current presentation concerns results we have obtained regarding the following advantages that one could expect to get using such a device:

- Better balance between the simulated weapon yield calculated from the static overpressure impulse and the simulated weapon yield calculated from the dynamic pressure impulse.

- Increase of the simulated weapon yield and damping of the overpressure spike (because of the SSGG geometry) when low static overpressure are generated.

- Change of the simulated weapon yield without modification of the driver geometry.

These results take into account several closing time histories and different locations of the valve into the driver.