

# VARIOUS WAYS FOR SHOCK WAVE ATTENUATION

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Shock wave attenuation is an important issue in the protection of human and/or facilities from explosion generated shock or blast waves. Explosions could be accidental e.g., in coal mines or in industry, or man made like in a case of active hostility actions. When looking for a reliable protection from such shock/blast waves one would like to ensure a quick attenuation of the oncoming wave. Different conduit geometries capable to produce significant attenuation of the shock wave that propagates through them were tested in shock tubes.

The obtained experimental results were supplemented by appropriate numerical simulations. Major conclusions from this investigation are:

- It was shown that passing an incident shock wave through a double bend duct results in a meaningful attenuation of the transmitted shock.
- Further enhancement of the obtained shock attenuation is possible by introducing roughness to the duct's walls and/or by adding an expansion chamber to the double bend duct.
- There is an optimum to the expansion chamber length to height ratio.
- Introducing dust into the duct results in additional attenuation of the propagating shock/blast wave. The smaller the dust particle, the faster all shocks attenuated. Increasing the dust loading results in faster attenuation.