

BLAST WAVE PROPAGATION IN BENT TUNNELS

BINGGELI,E.

Although data on blast wave propagation in bent tunnels are available (BRL, ISL, etc.), quantitative data on tunnels with bent angles other than 90 are lacking.

Other experiments (shadow methods as used by EMI) with bent angles unequal 90 degree allow only a qualitative description of the phenomena.

The main purpose of this test series is to get more detailed information about the peak pressure ratios in tunnels with different bent angles but the same cross-section before and After the bend.

The bent angles chosen were 30 60, 90, 120 and 150 degrees respectively. The side-on pressures were measured along the tunnel axis up to L/D about 20 after the bend. All pressures were recorded simultaneously on a mag tape. A simple air-air shock tube was used as blast simulator. The shock strength varied from 2 to 10. The model's cross-section was square.

In addition a model with circular cross-section and a larger tunnel model were investigated for the case of the 90 degree bend for comparison and scaling purposes.

The results will be incorporated in a Swiss handbook for the design of protective structures.