

COST-EFFECTIVENESS EVALUATION OF SECURITY MEASURES FOR EXPLOSIVE EVENTS

K. Fischer¹, M. von Ramin¹

¹*Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut,
Am Klingenberg 1, 79588 Efringen-Kirchen, Germany, kai.fischer@emi.fraunhofer.de*

ABSTRACT

Classical approaches of risk analysis quantify the probability of occurrence and the expected losses in case of hazardous events. Resilience enhancement measures decrease the frequency or the expected damage if the derived risk quantities are not acceptable.

This contribution presents how to measure the costs and the benefits of different security measures to decrease the effects of potential explosive events. Typical areas of application are the safety of ammunition storage facilities or the evaluation of critical objects in urban surroundings. An optimized CFD code in combination with state-of-the-art engineering models is applied to assess the external forces due to blast loading and the potential structural and personal damage.

In dependency of the considered scenario, the presented approach is able to quantify single resilience indicators. The assessment method compares if the preparation, the prevention, or the protection against such adverse events are more effective. The integration of current cost information for protection walls or other innovative materials measures the increase of robustness and builds a basis for decision makers or institutions of the insurance sector.

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