MINE AND IED **PROTECTION**

HOLISTIC SOLUTIONS

IMPROVED SURVIVABILITY FOR THE CREW

TAKING RESPONSIBILITY IN A CHANGING WORLD

RHEINMETALL

MINE PROTECTION – A HIGH RISK FOR THE VEHICLE OCCUPANTS

The effects from mine blasts are a high danger for the occupants inside the vehicle. To insure a high level of survivability for the occupants Rheinmetall uses its long lasting experience gained in the cooperation with various OEMs on the development and upgrade of vehicles.

Rheinmetall provided mine protection solutions to platforms ranging from light 4x4 vehicles, medium wheeled and tracked vehicles up to main battel tanks. Those solutions cover mines according to STANAG 4569 – AEP 55 Vol. 2 in the range of Level 2a/2b to Level 4a/4b as well as overmatch blasts such as culvert mines.

Mine blast test on 8x8 vehicle

IED-PROTECTION

Among the so-called Improvised Explosive Devices (IED) there are many threats standardized in STANAG 4569 – AEP 55 Vol. 3.

Rheinmetall has various solutions for the defeat of these threats and is also able to test them on the respective vehicles.

The development of the mine protection kit starts with a thorough analysis of the vehicle architecture. The design of the protection solution is supported by FEM-analysis. Prototype kits are tested and qualified on fully instrumented test setups, using partial structures and finally the complete vehicle for full qualification.

Blast test on truck cabin

IED test

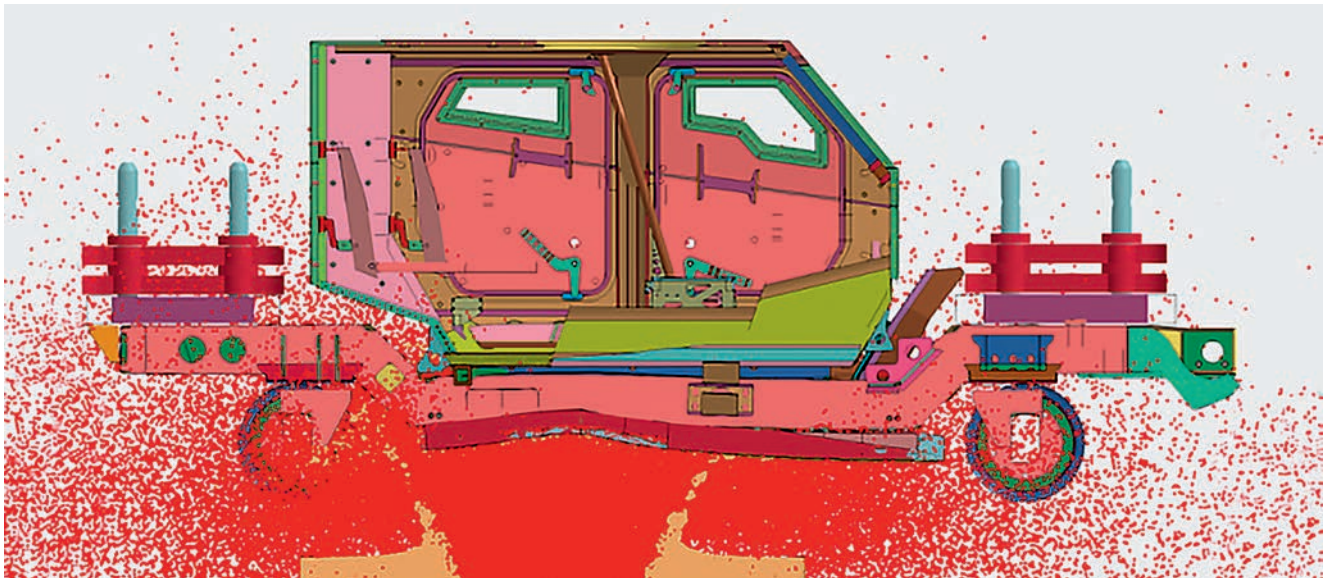
IED test with three grenades 155 mm

IED test with MON 100

FEM-SIMULATION

Rheinmetall uses FEM simulation tools for the design of mine/IED protection kits and the preparation of verification and qualification tests.

A large number of numerical material and threat models is available inside Rheinmetall to perform these simulations.



FEM-Simulation of mine blast effect on crew cabin

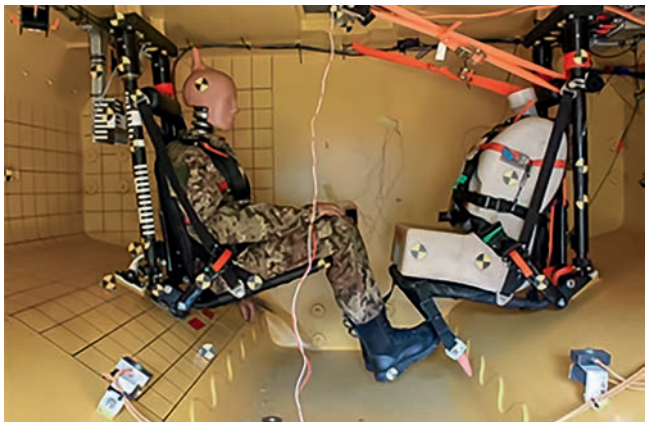
INTEGRATION OF MINE PROTECTION SEATS, DECOUPLED FLOORS AND FIXTURES FOR EQUIPMENT

Mine protection seats, decoupled floors and fixtures for equipment inside the vehicle are an integral part of Rheinmetall protection solutions.

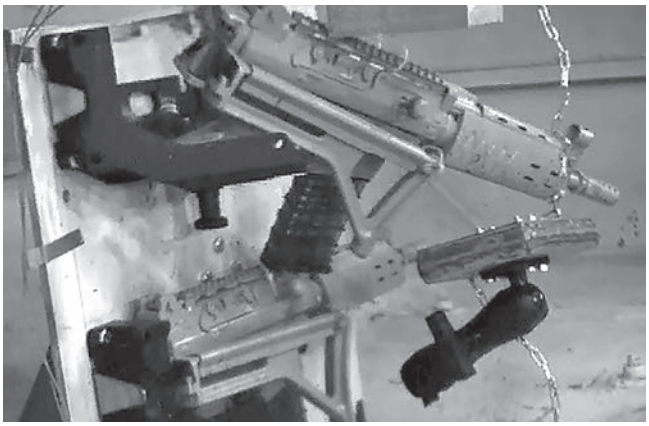
In most cases, the seats are suspended from the vehicle roof and mitigate the impact of the blast shock on the occupants. They are complemented by either footrests or a decoupled floor to prevent injuries of the legs.

Specially designed fixtures prevent equipment from becoming secondary projectiles.

All solutions are tested using extensive measuring equipment including anthropomorphic test devices (ATD), acceleration sensors and high-speed video cameras.



Inside view of test vehicle with ATD and instrumentation



Test of fixtures for equipment

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