

Press-Release – IDEX 2015

Cyber Technologies for Higher Vehicle Protection and Mobility

A new generation of protection technologies integrated in an overall new protection concept, now available to **E.O.D.H. SA Greece**, allows for a significant step towards higher vehicle protection and higher mobility at drastically reduced weight. The new technologies comprise a new type of ceramics and High Strength Fiber Reinforced (HSFR) composites. The application of these technologies and their combination allows for weight reductions on light to medium vehicles between 1,500 and 2,600 kg.

The actual protection requirements for armored vehicles by far exceed those only about five years ago. The increased threat levels of mines and IEDs (blast, fragmentation, CE, EFPs) are not the only challenging requirements for vehicle protection in asymmetric warfare. Since symmetric scenarios are coming back into focus, ballistic protection according to STANAG 4569 Level 5 and Level 6 as well as advanced anti-tank guided missiles (ATGM's) has become part of actual vehicle specifications. Therefore new concepts (see Fig 1) comprising active and passive measures based on new technologies and materials are needed to deal with these high threat levels without overloading the platforms.

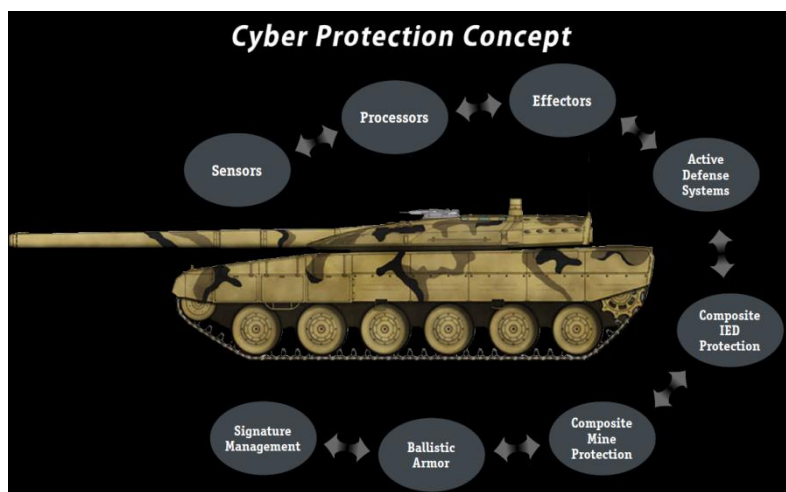


Fig. 1 Cyber Protection Concept

A key to major improvements in comprehensive protection solutions are new high performance materials and composite solutions. One of these is a new type of ceramics. The drastically improved strength of this new type of ceramics results from the interlacing of the grains. The bonding strength is by far higher than what can be achieved by sintering even nano-sized grains. The fracture toughness of the new interlaced ceramics exceeds that of conventionally sintered ceramics by 60 to 70%. Consequently the necessary amount of material for add-on armor is reduced by the same amount to achieve the same protection level.

Another important step forward is the use of High Strength Fiber Reinforced (HSFR) composites. Special natural fibers show a far better dynamic performance than modern chemical fibers.

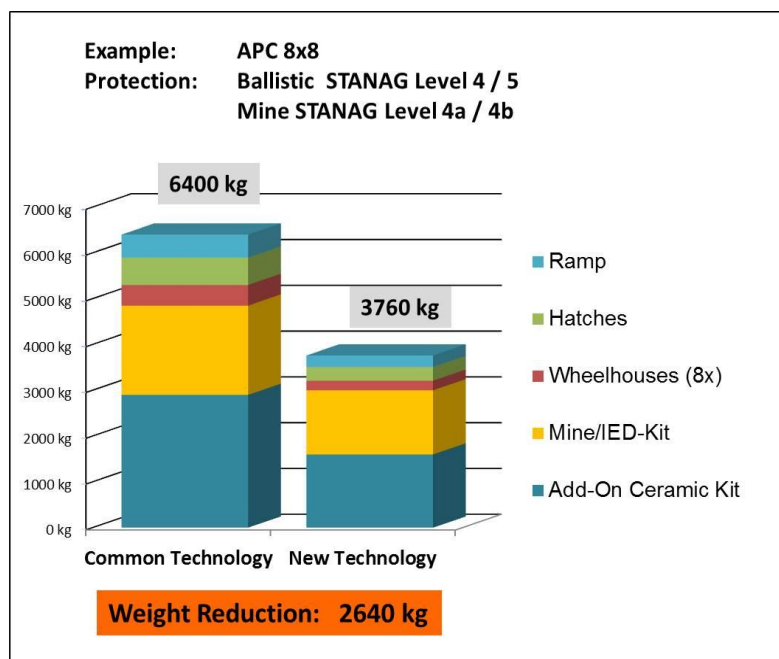


Fig. 2 Weight Reduction with New Technologies

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This is due to an interlocking effect between the ultra-thin fibers on molecular level. Applied in composite materials these special fibers reinforce the composite parts significantly allowing for the production of even large components for vehicles.

The application of the individual technologies and their combination is not limited to ballistic and mine add-on armor kits. By designing structural parts of a vehicle such as hatches, doors, ramps and wheelhouses with these new materials, drastic weight reductions have already been achieved. For example an 8x8 APC was equipped with a kit that was more than 2,600 kg lighter than a comparable kit using common technologies (see Fig. 2).

For more detailed information please visit us at IDEX 2015, Booth No. 09-B14 (German Pavilion).