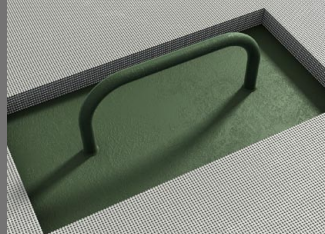


The Survivability Experts



**AMAP™-L**

Interior Protection with Liner Systems



## AMAP™ – the High-Technology Protection System

AMAP is a synergistic modular High-Technology protection system. Developed and continuously improved by IBD (Ingenieurbüro Deisenroth / Germany), it is designed as a protection for all kinds of platforms: light vehicles up to heavy main battle tanks, vessels and aircrafts.

The central goal of our AMAP-philosophy is the highest possible effectiveness. In order to achieve this we focus on high performance and flexible next-generation technologies in vehicle protection research and development.

Based on our experience in delivering 30,000 protection kits we know what actual challenges man and material are facing all over the world. Through AMAP we provide accurate, scalable and modular protection concepts for a wide range of vehicles, mission areas and threat scenarios.

We always focus on one prime goal: to protect human lives in military operations and missions.

IBD has developed suitable AMAP concepts for almost every threat coming from conventional or unconventional weapon systems. We individually adapt these concepts to each platform and mission. Compared to conventional protection systems, the unmatched flexibility and performance of AMAP technologies substantially contribute to the optimization of our customers' survivability concepts.



### System Advantages:

- Highest level of protection due to application of advanced technologies (e.g. nano-technologies, composite materials)
- Synergistic modular design – flexible protection concepts for almost every threat scenario
- Individually adaptable to each vehicle
- Considerable reduction in areal density due to combination of passive and active protection systems
- Easy integration of new solutions into vehicle concepts due to the modular approach

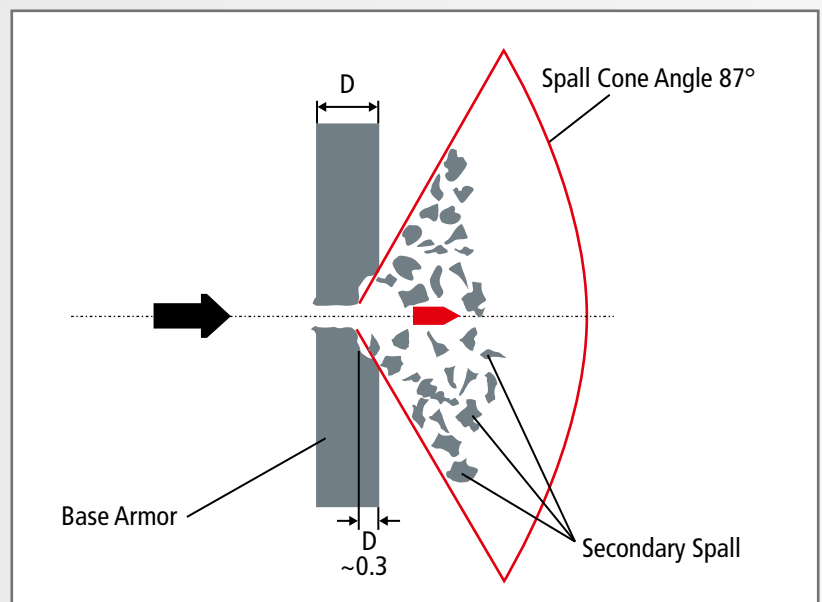
### User Benefits:

- Highest survivability for soldiers due to substantially reduced threat and risk potential
- AMAP significantly improves the protection of all kinds of platforms (land vehicles, vessels, aircrafts)
- High tactical mobility and payload due to the low weight of the AMAP system
- Substantially reduced damage related costs due to easy maintainability
- Top-of-the-line concepts due to continuous feedback from missions in operational areas

## The Spall Effect – a high Risk for the Crews

The effects from spall are often an underestimated danger for the crew inside the platforms. Lots of Protection Systems don't consider these effects and are therefore not giving the optimal protection.

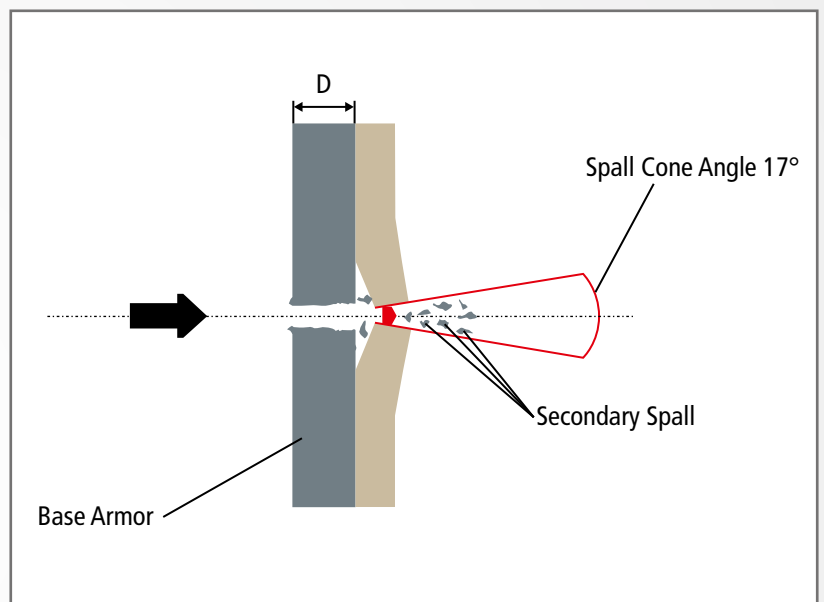
The spall effect can be caused by a threat (projectiles, missiles, mines or IEDs) hitting the platform from different attack angles and generating a shockwave and stress in the armor-material without penetrating it. When the shockwave creates secondary spall on the inner side of the vehicle, fragments of very high velocities are ejected into the crew compartment. Depending on parameters as for instance the material of the base armor, the velocity and weight of the fragments as well as the spread (spall cone) into the compartment varies. In such scenarios with the described spall effect the chance of surviving in the vehicle is very low.



## AMAP-L - makes the Concept even better

AMAP-L is a modular protection concept for interior applications. The system is using special high-tech composite materials, developed by IBD, to reduce the effects of ballistic attacks and specifically "over-match- situations". Application of the special materials reinforces the basic armor, and the combination makes it more elastic to stop projectiles. Ballistic protection is improved and the potential spall effects are drastically reduced, both in number and in distribution (reduction of the spall cone). By using AMAP-L, the overall Survivability of the crew will increase considerably.

The use of AMAP-L will also contribute to other positive effects such as increase in structural stability and the reduction of signatures – noise, vibrations and IR-signature.



## An intelligent synergistic Armor

AMAP-L is an important component of the modular IBD Survivability approach. Due to the low weight it also fits to the ambitious standards of the products within the AMAP family and is offered according to the latest knowledge in material development. AMAP-L is customizable to different vehicles and requirements and can be formed in any shape. The liner material can be mounted directly onto the base armor, which is important to prevent secondary fragments in the vehicle due to the fastening system itself. Interior equipment in turn can be mounted on the liner.

The engineering and material knowledge that has been inserted in AMAP-L means that the product can be offered by IBD as a cost-effective solution to improve the Survivability of the crews.

So far different IBD liner-systems have been applied on 30,000 vehicles and have been proven in different missions world-wide.



Bison with AMAP-L



ASV with AMAP-L



Typical application of AMAP-L

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