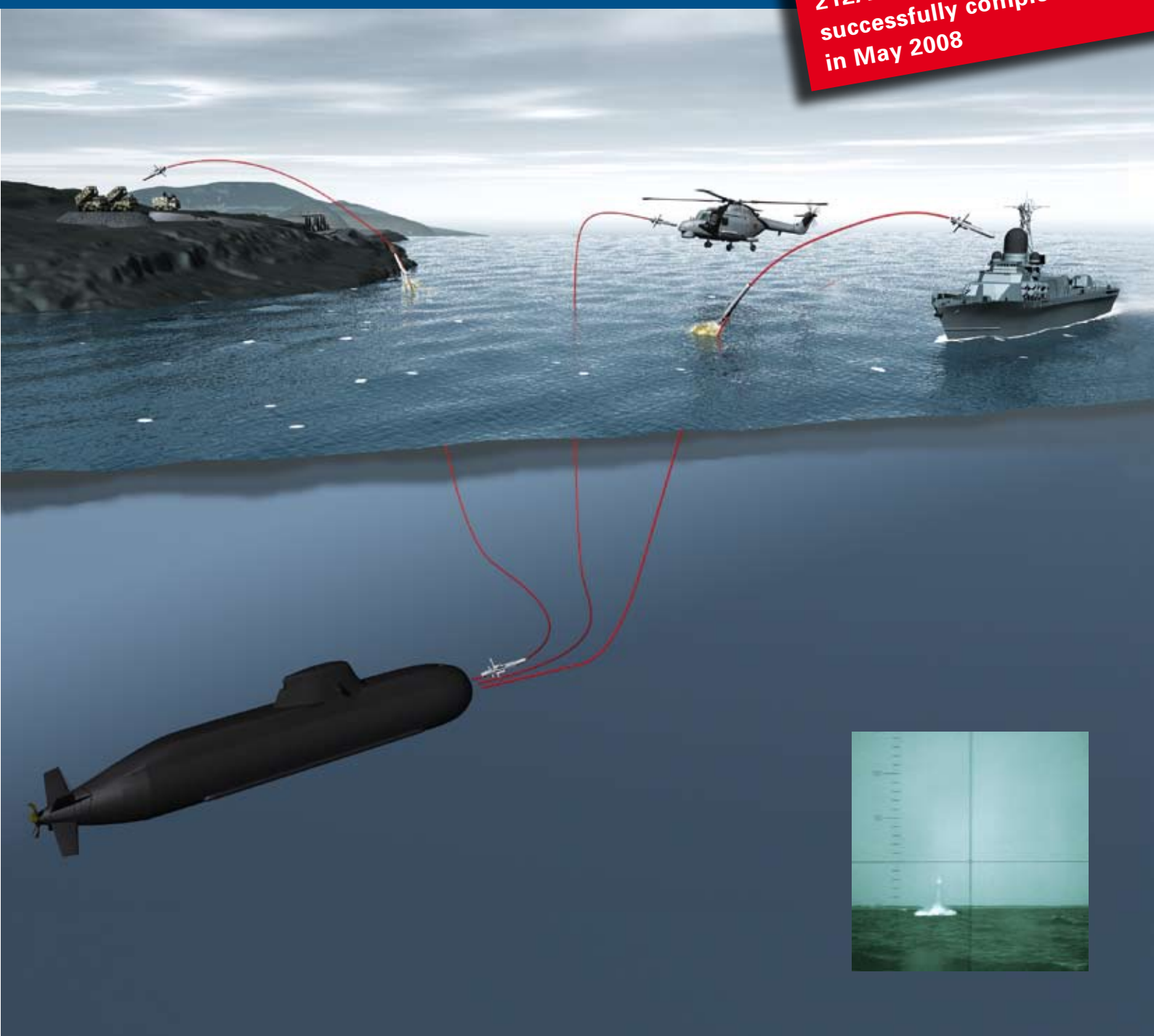


# IDAS

The revolutionary multi-role weapon  
for submerged submarines

First firing and flight tests  
from a submerged  
212A Class submarine  
successfully completed  
in May 2008



# IDAS meets new operational requirements

- Active defence against ASW helicopters

- Covert attack of surface ships and coastal targets

- Human control for in-flight retargeting and mission abort

- High resolution IR seeker for impact selection on target



1



2

● Low    
 ● Moderate    
 ● Mission Kill



3

Asymmetric threat is gaining in importance as a challenge to nations with high-tech capabilities.

It is an undisputed fact that submarines can play an important role in covert operations at a time of crisis, in support of special operations and in observing and combating highly motivated but technically inferior opponents. Non-nuclear boats have the additional advantage of being able to operate unseen in extremely shallow water areas close to the coast.

However, for submarines to provide a really effective response to new challenges their weaponry must be extended with respect to effect and precision. Weapon impact has to be in proportion to the tactical and monetary value

of the target. Collateral damage has to be avoided as far as possible.

The new fibre-optic guided missile system IDAS (Interactive Defence and Attack System for Submarines) is capable of meeting all these requirements – and more.

### IDAS is capable of combating:

- ASW helicopters
- Small and medium-sized surface vessels with selectable hit points and damage effects on the targets
- Pre-selected coastal targets

### Further features are:

- No limitation of submarine manoeuvres during missile operation
- Digital seeker images available at weapon control console via data link
- Autonomous missile guidance with operator intervention until impact
- Precision hit performance on selected impact points
- High single shot kill probability
- Worldwide employment in all climatic zones

- 1 ASW helicopter
- 2 Selectable impact points and damage levels on surface vessels
- 3 Coastal targets

# The IDAS system



1



2



3

The IDAS system consists of three main elements: launching container, missile and combat system (CS) integration.

## Launching container

The launching container forms the interface between the submarine's torpedo tube and the missile. Its dimensions resemble those of a heavy weight torpedo, i.e. the launching container can be handled in the same way.

Its most important functions are storage of four ready-to-launch missiles, hydraulic-mechanical expulsion of the missiles and provision of glass fibre bobbins for each of the four missiles.

## The IDAS missile

The IDAS missile consists of five major subassemblies:

- Guidance section with imaging infrared (IIR) seeker, strap-down inertial reference unit and guidance electronics from the 5<sup>th</sup> generation IRIS-T short-range air-to-air missile
- 20 kg multi-purpose warhead against air, sea and land targets
- Single stage solid propellant rocket motor with varying thrust levels
- Foldable wing assembly and strakes for missile support and guide in the launching container, electro-mechanical control actuation system with four foldable control fins

- Fibre-optic bobbin system with four bobbins, one in the missile tail, two in the compensation buoy of the separable rear section of the missile, and an additional one in the launching container

## Physical data:

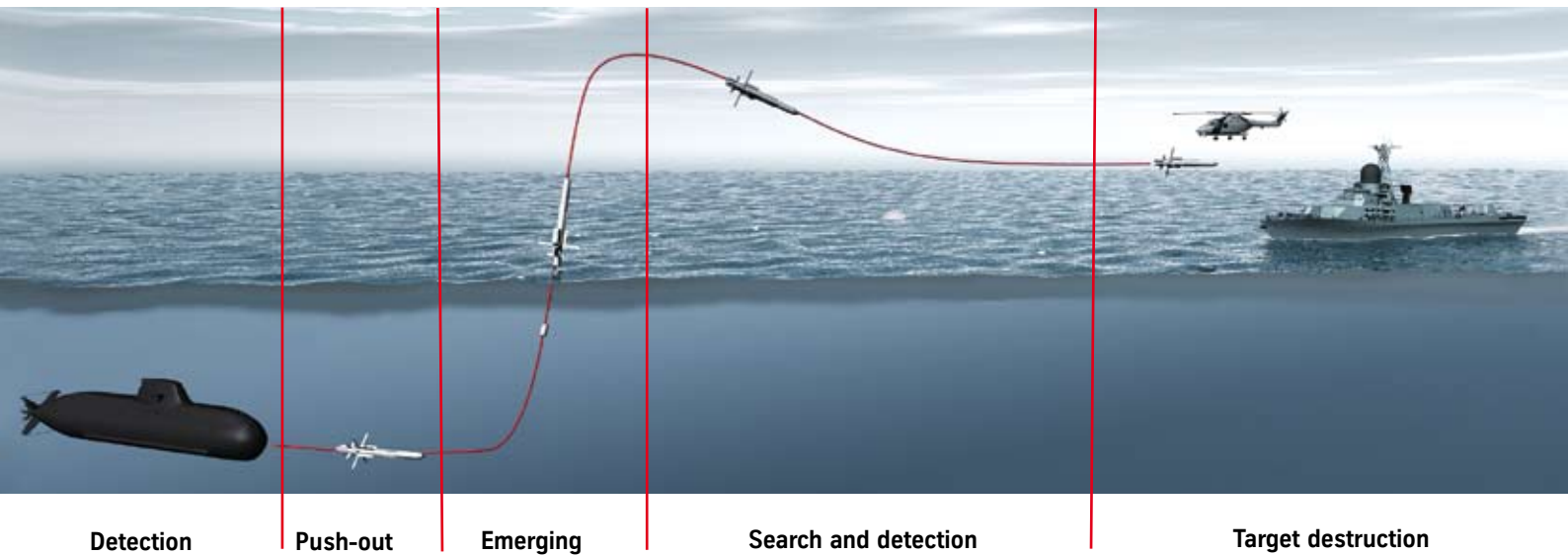
Length	2500 mm
Diameter/Calibre	180/240 mm
Launch mass	120 kg
Range	approx. 20 km

## Missile Weapon Control

Complete integration of the missile weapon control system into the submarine's weapon control system ("integrated version") is the aim – even where the individual systems are supplied by different manufacturers. Alternatively, a stand alone console will be offered.

- 1 IDAS launching container
- 2 IDAS operational console fully integrated in the CMS
- 3 IDAS missile

# System operation



Upon detection of an ASW helicopter by the submarine's sensor system, the commander will decide whether the launch of an IDAS missile for self defence is absolutely necessary. If the risk of being detected and attacked by the helicopter's lightweight torpedoes is considered too high, the commander of the submarine will order the launch of an IDAS missile.

The torpedo tube loaded with an IDAS launching container will be prepared for firing and one IDAS missile will be ejected by means of a hydraulically operated piston system. In parallel a further missile can be ejected from another torpedo tube.

A few metres ahead of the submarine the IDAS rocket motor will be ignited and the control system unlocked, guiding the missile upwards to the sea surface.

On breaking the surface, the rear missile section with the compensation buoy is separated while the remaining missile starts its airborne flight to the target.

Target bearing and distance to the target are transferred from the submarine's CS to the missile prior to launch and updated continuously via the fibre-optical data link. This link is maintained during the complete duration of the missile's mission.

The missile's highly sensitive IIR seeker allows it to acquire and lock on to the designated target shortly after leaving the water while ascending to or flying at the selected cruise altitude. The IDAS flight is monitored continuously by the submarine's weapon systems operator via glass fibre link allowing him to either confirm the target acquired by the IIR seeker or to switch to another target in the vicinity or abort the mission altogether. Target

images shortly before impact on the target zone selected by the operator are transmitted back to the submarine and recorded, thus confirming the successful termination of the mission.

An attack against surface vessels is performed in a very similar manner, the target coordinates being supplied from the sub's sensors and combat system to the selected IDAS missiles. If pre-selected coastal targets are to be attacked, their coordinates are fed into the IDAS guidance computer prior to launch. The final target and impact selection is made by the operator while the missile is approaching the target.

IDAS is being developed on behalf of the German Navy and other partner navies. First deliveries are scheduled for the beginning of the next decade.



ARGE IDAS  
c/o Howaldtswerke-Deutsche Werft GmbH  
Werftstrasse 112-114  
D-24143 Kiel  
Tel.: +49 (0)431 700-2065  
Fax.: +49 (0)431 700-4211  
Email: submarines@thyssenkrupp.com