

IRIS-T SLM

Medium Range Air Defence



The IRIS-T SLM (Infra Red Imaging System Tail/Thrust Vector-Controlled Surface Launched Medium Range) is the lower-tier complementary missile to the PAC 3 MSE for the Medium Extended Air Defence System (MEADS) of the German Air Force. Based on the most advanced air-to-air missile IRIS-T, the development of IRIS-T SLM will be completed by DIEHL BGT Defence in 2012 with the system qualification.

Designed with several enhanced features to fulfill the specific ground based air defence requirements, IRIS-T SLM provides unique capabilities against all types of fixed and rotary winged targets, missiles and UAV's/UCAV's. Due to the inherent Plug & Fight capability, IRIS-T SLM can be integrated easily into existing and future ground based air defence systems and BMC4I networks.

IRIS-T SLM, the complementary missile for the German MEADS program, is under development by DBD (DIEHL BGT Defence) since May 2007, contracted by the German procurement agency BWB (Bundesamt für Wehrtechnik und Beschaffung) after an elaborate selection process against most of the other well known air defence system suppliers.

The main reasons for the German program were economic benefits in combination with the advantage of the operational flexibility and capabilities of IRIS-T SLM, as well as the reputation of DIEHL BGT Defence as reliable and qualified partner. Being part of the family owned Diehl Group with more than 100 years of experience, DIEHL BGT Defence stands for reliability in performance, time and cost of complex military programs.

The vertical-launched IRIS-T SLM has a full 360° engagement capability and is fitted with a powerful rocket motor as well as a drag-reducing nose cone resulting in an effective range of more than 35 km and an altitude of up to around 20 km. The nose cone will be opened automatically when the missile is in the position to detect the target by its own imaging infrared seeker. The solid propellant rocket motor is totally new designed and optimised for longer range engagements. Additionally, due to the thrust vector control, IRIS-T SLM has a unique agility resulting in a minimum reaction time and an inner dead zone below 1 km. To combine the advantages of a long range radar based midcourse guidance and the high resolution imaging infrared seeker for precise terminal homing, IRIS-T SLM is equipped with a data link for on-flight target data updates and a GPS-aided inertial navigation system. The passive imaging infrared (IIR) seeker together with the most advanced image processing can not be distracted by flares or chaff and has also the advantage of being resistant against infrared (even scenario entering blinding laser) and electronic counter measures as



well as most missile approach warner. Imaging means, that not only a hot spot will be acquired, tracked, and evaluated. More over the seeker is able to identify shapes and contours even of most challenging targets. Because of aerodynamic friction every flying object even without propulsion will heat up and, therefore, due to the excellent sensitivity and resolution of the IIR seeker will be detected. The targets are clearly visible in the seeker image.

To ignite the warhead two different systems are implemented: a proximity and an impact fuze. The warhead is of a new fragmenting design, using two different sizes of steel fragments. It satisfies, like the rocket motor, the insensitive munition requirements. The missile will be delivered as a certified round in a Launch, Transport, and Storage Container (LTSC) with a total mass of 240 kg. On the standard launcher two quad-packs of 4 LTSC's each, for fast and easy reload by a reload vehicle with crane are placed on the elevation platform. The IRIS-T SL launcher can be adapted to different wheeled or tracked vehicles being fully air transportable by C130 class transport aircraft.

The most flexible solution offered is on a removable standard 20 feet ISO container frame. The emplacement can be carried out by only two operators within 5-10 minutes and is fully automatic including the levelling. When connected to the engagement control center by radio or fibre optic wire the system operates fully remote controlled.

The IRIS-T SLM missile is equipped with a tightly coupled GPS/INS (Global Positioning/Inertial Navigation System) to combine the advantages of both systems. The system can also operate in a GPS denied mode. Because of having the inertial navigation system and the IIR seeker, IRIS-T SLM does not need a target illumination radar to fulfill the mission. A surveillance radar generated air picture is the sufficient source of target data submitted by RF data link during flight for the missile's midcourse guidance. If required a "Command Destruct" signal can be transmitted to aboard the flight. The absence of a target illumination/tracking radar results not only in less equipment and personnel but leads to a unique multiple target capability. The system is not limited to the illuminated target. All missiles can be engaged and controlled simultaneously at different targets in any direction by the launcher based system. A typical IRIS-T SLM fire unit consists of four launcher with 8 missiles each, a radar and a engagement control center connected to the higher echelon unit. All components are linked by radio and/or fibre optic

wire. If mission requires this configuration can easily be adapted by adding or removing components. Ultimately, one radar/C2 system and one single IRIS-T SLM launcher will already provide a 360° coverage with 35 km radius. With all missile related components on the launch vehicle, including the weapon control computer and the uplink radio, IRIS-T SLM is very well prepared for interoperability. Based on the inherent Plug & Fight capability, IRIS-T SLM can be integrated easily into existing and future ground based air defence systems and BMC4I networks. This offers very interesting high performance and, at the same time, cost effective upgrade solutions. To prove the GBAD system capability DIEHL BGT Defence has successfully engaged an IRIS-T air-to-air missile in the already available short range surface launched version IRIS-T SLS in March 2008. In this case a SAAB GIRAFFE AMB was used for acquisition, target data provision and engagement command.

IRIS-T SLM features unique capabilities to establish ground based air defence with a maximum in protection, combined with flexibility and moverability as required. Covering all threats, and being resistant to all modern infrared and electronic countermeasures, the high performance imaging infrared seeker is an essential element of the overall system performance. The system concept utilizes the advantages of both, a precise passive imaging infrared seeker in combination with a longer range ground based radar. Driven by the very special demands of modern ground based air defence the lightweight design together with the "Plug & Fight" capability for easy integration offers the most valuable opportunities either to upgrade existing or to combine with off-the-shelf sensor/C2 systems. IRIS-T SLM is the next generation of medium range surface-to-air missiles in development by DIEHL BGT Defence.

Summary

The IRIS-T short range – and medium- range surface launched air defence missile system is designed for "plug & Fight". Interfacing with existing and future BMC4I networks. Integration of the lightweight missile launcher with standard vehicles provides superior flexibility and drive-on/drive-of capability for C-130 type tactical transport aircraft. IRIS-T SLM is specifically designed for Ground Based Air Defence and is based on the latest technology and state-of-the-art development and manufacturing technologies.