

India's Advanced Precision Weapons: HAMMER, SCALP, BRAHMOS, and More

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Precision Guided Weapons India Latest News

- India carried out **Operation Sindoor**, targeting 21 terror camps across nine locations in Pakistan and Pakistan-occupied Kashmir (PoK) in response to a recent terrorist attack in Pahalgam.
- The Indian Armed Forces used precision strikes with niche-technology weapons and carefully chosen warheads to minimize collateral damage.

- Although specific weapons were not disclosed, the military's arsenal now includes advanced precision-guided long-range weapons and drones, such as loitering munitions.

Precision Guided Munitions (PGMs)

- PGMs, also called smart weapons or smart bombs, are missiles or bombs designed to accurately strike specific targets while minimizing collateral damage.

Key Features of PGMs

- **Advanced Guidance Systems:** PGMs use GPS, laser guidance, infrared sensors, or radar to track and hit targets precisely.
- **Mid-Flight Course Corrections:** They can adjust their trajectory mid-air to account for weather, wind, or targeting errors.
- **Reduced Collateral Damage:** By targeting with precision, PGMs limit harm to civilians and nearby infrastructure.
- **Increased Accuracy:** They offer greater accuracy than unguided munitions, with a much smaller margin of error.
- **Versatile Deployment:** PGMs can be launched from aircraft, ships, ground platforms, or UAVs, enhancing their operational flexibility.

Cutting-Edge Precision Weapons in India's Military Arsenal

- Two weeks after Pakistani terrorists killed 26 civilians in Pahalgam, India launched Operation Sindoor, conducting airstrikes on nine locations in Pakistan and PoK targeting terrorist infrastructure.
- The Indian Air Force (IAF) deployed Rafale jets, which used SCALP missiles for deep strikes and HAMMER missiles for medium-range precision targets.

HAMMER

- The **HAMMER (Highly Agile and Manoeuvrable Munition Extended Range)** is an air-to-ground precision-guided weapon system developed by Safran, a French aerospace and defence company.
- **Capabilities and Range**
 - It has a range of up to 70 km and can be mounted on Rafale jets, as well as fitted to bombs and other guided systems, making it highly versatile for medium-range tactical operations.
- **Advanced Features**
 - The system is autonomous, resistant to jamming, and capable of being launched from low altitudes over rough terrain, allowing precision strikes against a wide range of targets.
- **India's Procurement**
 - India has procured several HAMMER systems in recent years to strengthen its aerial strike capabilities.

SCALP

- SCALP-EG (Système de Croisière Autonome à Longue Portée — Emploi Général), also known as Storm Shadow in the UK, is an air-launched cruise missile designed for long-range deep strike missions with stealth features.
- **Manufacturer and Range**
 - Developed by MBDA, a European multinational defence company, SCALP has a range of around 450 km and is capable of low-altitude flight, making it hard to detect.
- **Operational Versatility**
 - It can be deployed at night and in all weather conditions, providing the Indian Air Force with high operational flexibility.
- **Advanced Navigation and Targeting**
 - SCALP uses a combination of INS, GPS, and terrain referencing for navigation, allowing it to penetrate heavily fortified targets like bunkers and ammunition depots with high precision.

METEOR: Next-Gen Air-to-Air Superiority

- The Meteor is a Beyond Visual Range Air-to-Air Missile (BVRAAM) developed by MBDA, effective even in dense electronic warfare environments.
- It uses a solid-fuel 'ramjet' motor, providing continuous thrust and enabling the largest 'No Escape Zone' among air-to-air missile systems.

BRAHMOS: India's Supersonic Cruise Power

- The BrahMos is a supersonic cruise missile jointly developed by India's DRDO and Russia's NPO Mashinostroyeniya, and is operational in all three Indian defence services.
- It operates at speeds close to Mach 3, ensuring faster target engagement, low dispersion, and minimal interception risk.
- The missile follows a 'Fire and Forget' mode, with a cruising altitude of up to 15 km and terminal altitude as low as 10 metres, carrying a 200-300 kg conventional warhead.

Loitering Munitions

- Loitering munitions are aerial weapons that combine surveillance and strike capabilities, allowing them to identify and engage targets with precision.
- These systems can be operated autonomously or manually, offering real-time intelligence and the ability to strike at the right moment.
- In recent years, the Indian Armed Forces have been actively procuring various types of drones, including loitering munitions, to enhance situational awareness and precision strike capabilities.

Precision Guided Weapons India FAQs

Q1. What are Precision Guided Munitions (PGMs)?

Ans. PGMs are smart weapons that use GPS, laser, or radar guidance for accurate strikes with minimal collateral damage.

Q2. What is the range of the HAMMER missile?

Ans. The HAMMER missile has a range of up to 70 km and can be launched from Rafale jets or fitted to bombs.

Q3. Why is SCALP missile hard to detect?

Ans. SCALP flies at low altitudes with stealth capabilities, making it difficult to detect and ideal for deep strikes.

Q4. What makes the METEOR missile unique?

Ans. METEOR uses a ramjet engine and has the largest “No Escape Zone” in any air-to-air missile system.

Q5. What are loitering munitions?

Ans. Loitering munitions combine surveillance and strike capabilities, allowing autonomous or manual precision targeting using real-time intelligence.

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