

Prithvi Missile, Range, Variants, Features & Role in India's Defense

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Prithvi missile was one of India's earliest **indigenously developed ballistic missiles**, created to strengthen the country's **defence and security system**. It was part of India's efforts to build a strong **missile development program** and reduce dependence on foreign technology. Designed for short-range use, it focused on delivering payloads with **accuracy and reliability**. Overall, the Prithvi missile played a crucial role in laying the foundation for India's **modern missile and strategic defence capabilities**.

Prithvi Missile

- Prithvi missile is a family of **indigenously developed short-range surface-to-surface ballistic missiles (SRBMs)** built by **Defence Research and Development Organisation (DRDO)** under the **Integrated Guided Missile Development Programme (IGMDP)** started in 1983.
- It was India's **first indigenous ballistic missile**, successfully test-fired in 1988 from **Sriharikota**, marking a major step in India's **defence self-reliance**.
- The missile can carry both **conventional and nuclear warheads**, making it an important part of India's **tactical deterrence system**.

- It has a strike range of around **150 to 350 km**, and is deployed under the **Strategic Forces Command (SFC)**.

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Variants of Prithvi Missile

- The Prithvi missile series includes **three main variants**, each designed for use by a specific branch of the Indian Armed Forces, ensuring flexibility across land, air, and sea operations.
- **Prithvi-I (Surface-to-Surface-150)** is used by the **Indian Army** and has a range of about **150 km**. It can carry a payload of up to **1,000 kg** and uses a **single-stage liquid fuel system**. It has been in service since **1994**, although newer systems like Prahar are gradually replacing it.
- **Prithvi-II (Surface-to-Surface-250)** is mainly used by the **Indian Air Force and Army**. It has a longer range of around **250-350 km** and can carry **500-1,000 kg warheads**. It also uses **liquid fuel propulsion** and has been operational since **1996**.
- **Prithvi-III (Surface-to-Surface-350)**, also known as **Dhanush**, is the **naval version** used by the Indian Navy. It has a range of up to **350 km** and uses a **two-stage propulsion system** (solid fuel in the first stage and liquid fuel in the second). It was successfully tested in **2004**.

Prithvi Missile Key Features and Technology

- One of the most important aspects of the Prithvi missile is its **advanced inertial navigation and guidance system**, which helps it achieve **high accuracy and precision** while hitting targets. In some tests, accuracy has been reported to be within **10 meters**, which is highly reliable for a ballistic missile.
- The missile uses **maneuvering trajectories**, allowing it to change its path during flight, making it harder for enemy defense systems to intercept it.
- The propulsion technology used in Prithvi is believed to be influenced by the **Soviet SA-2 surface-to-air missile**, which was one of the earliest effective missile systems developed in the 1950s.
- Prithvi missiles are deployed under India's **Strategic Forces Command (SFC)**, ensuring centralized control and readiness for strategic operations.

Prithvi Missile Role in India's Defense System

- The Prithvi missile plays a crucial role in strengthening India's **tactical strike capabilities**, especially in short-range combat scenarios. It allows India to respond quickly to threats by targeting key enemy positions.
- Its ability to carry **nuclear warheads** makes it an important part of India's **deterrence doctrine**, helping maintain strategic balance in the region.
- Over time, while newer missile systems are being introduced, the Prithvi series still represents a **foundation of India's missile development journey** and continues to hold historical and strategic importance.

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