

# MANPADS : SCIENCE & TECHNOLOGY (DEFENCE)

**NEWS:** *DRDO carries out three consecutive tests of Very Short-Range Air Defence system*

## WHAT'S IN THE NEWS?

The **Defence Research and Development Organisation (DRDO)** successfully tested the **Very Short-Range Air Defence System (VSHORADS)**, a **man-portable air defence system (MANPADS)**, off the Odisha coast. This indigenous system enhances India's **low-altitude air defence capability**, replacing aging missile systems like **Igla**.

## 1. VSHORADS Missile System: An Overview

### What is VSHORADS?

- **VSHORADS (Very Short-Range Air Defence System)** is a **fourth-generation MANPADS** designed for **neutralizing aerial threats at low altitudes**.
- Developed by **DRDO's Research Centre Imarat (RCI), Hyderabad**, in collaboration with other DRDO labs.

### Key Specifications

- **Range:** Up to **6 km**.
- **Altitude of Effective Target Destruction:** Up to **3.5 km**.
- **Speed:** **Mach 1.5** (1.5 times the speed of sound).
- **Propulsion:** **Dual-thrust solid motor**.
- **Guidance System:** **Dual-band Imaging Infra-Red Seeker** for accurate target acquisition.
- **Maneuverability:** **Miniaturized Reaction Control System** enhances mid-air agility.

## 2. Operational Significance of VSHORADS

### Combat Utility

- Designed to **intercept high-speed aerial threats** such as **drones, helicopters, and fighter aircraft**.
- Works in **various target engagement modes** – approaching, receding, and crossing.

### Deployment Advantages

- **Lightweight & Man-portable** → Suitable for rapid deployment in **hilly terrain and maritime regions**.
- **Hit-to-kill capability** ensures effective interception of modern aerial threats.

### Strategic Importance

- **Enhances India's air defence capabilities**, especially at **low altitudes**.
- **Aims to replace the aging Igla missile system**, which has been in service since the **1980s**.
- **Aligns with Atmanirbhar Bharat (Self-Reliant India) Initiative** in defence manufacturing.

## 3. What are MANPADS?

- **MANPADS (Man-Portable Air Defence Systems)** are **short-range, lightweight, shoulder-fired surface-to-air missiles**.
- Operated by **individuals or small groups** to **target low-flying aircraft**.
- Equipped with **infrared (IR) seekers** that lock onto the target's heat emissions.

- Feature “**fire and forget**” guidance, allowing operators to **relocate immediately after launch**.
- **Provide critical protection to troops** against **aerial threats in battlefield environments**.

### Overview of MANPADS

*MANPADS (Man-Portable Air Defense Systems) are surface-to-air missiles that are lightweight enough to be operated by a single person. The system consists of a missile inside a disposable tube, a gripstock, and a battery to charge the missile.*



**Source:** <https://www.thehindu.com/news/national/drdo-carries-out-three-consecutive-tests-of-very-short-range-air-defence-system/article69169680.ece>