

Solid Fuel Ducted Ramjet (SFDR) Technology

February 4, 2026 • vajiramandravi.com



Solid Fuel Ducted Ramjet (SFDR) Technology Latest News

Recently, the Defence Research & Development Organisation (DRDO) has carried out a successful demonstration of Solid Fuel Ducted Ramjet (SFDR) technology from the Integrated Test Range (ITR), Chandipur off the coast of Odisha.

About Solid Fuel Ducted Ramjet (SFDR) Technology

- It is an **advanced air-breathing propulsion system** using a **solid fuel gas generator**.
- It has been developed by **Defence Research and Development Laboratory (DRDL)**, Hyderabad in collaboration with other DRDO laboratories.
- **Working:**
 - It uses **solid fuel instead of liquid fuel** to make the **system simpler, safer, and easier** to store and transport.
 - Unlike conventional rockets, SFDR **does not carry an oxidiser**, making it lighter and more efficient.
 - SFDR provides **sustained thrust over a longer duration** and allows thrust modulation during flight.

- The SFDR system **allows missiles to fly faster, farther and remain manoeuvrable** throughout their flight, unlike conventional rocket-powered missiles.

Significance of Solid Fuel Ducted Ramjet (SFDR) Technology

- SFDR technology **significantly enhances long-range air-to-air missiles** by providing sustained propulsion throughout much of the missile's flight.
- It **places India into an elite league** of nations possessing this technology that enables developing long-range air-to-air missiles to give tactical edge over the adversaries.

What is Ramjet?

- It is a propulsion system **that relies on the missile's high forward speed** to compress incoming air, eliminating the need for a compressor and enabling efficient high-speed flight.

Source: **PIB**

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