

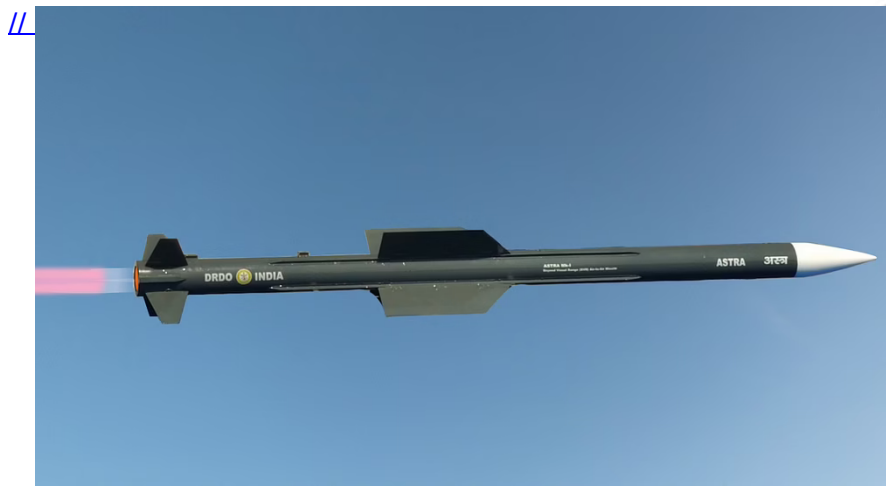


Astra Mk-1 Missile

Why in New?

Recently, the Ministry of Defence has signed a contract with the Hyderabad-based public-sector Bharat Dynamics Ltd (BDL) for supply of the **Astra Mark-1**.

- Contract was signed at a **cost of Rs 2,971 crore**, for deployment on fighter jets of the Indian Air Force and Indian Navy.



What are the Astra Missile and its Variants?

- The Astra project was **officially launched in the early 2000s** with defined parameters and proposed future variants.
- Around 2017, the development phase of the Mk-1 version was complete.
 - Several successful tests have been conducted since 2017 from Sukhoi-30 MKIs.

What are the Key Highlights of the Astra Mk-1 Missile?

- **About:**
 - The Astra Mk-1 is a **Beyond Visual Range (BVR)**, Air-to-Air Missile (AAM).
 - BVM missiles are **capable of engaging beyond the range of 20 nautical miles** or 37 kilometers.
 - AAMs are fired from an airborne asset to destroy an airborne target.
- **Range:**
 - The range for **Astra Mk-1 is around 110 km**.
 - The Mk-2 with a **range over 150 km** is under development and Mk-3 version with a longer range is being envisaged.
 - One more version of Astra, with a range smaller than Mk-1 is also under development.
- **Designed and Developed by:**

- [Defence Research and Development Organisation \(DRDO\)](#)

What is the Strategic Significance?

- **Reduce Dependency on Foreign Sources:**
 - The missile has been designed based on requirements specified by the [Indian Air Force \(IAF\)](#) for BVR as well as close-combat engagement, reducing the dependency on foreign sources.
 - AAMs with BVR capability provides **large stand-off ranges to own fighter aircraft** which can neutralise adversary airborne assets without exposing themselves to adversary air defence measures.
 - Stand-off range means the **missile is launched at a distance sufficient** to allow the attacking side to evade defensive fire from the target.
- **Technologically and Economically Superior:**
 - Astra is **technologically and economically superior to many** such imported missile systems.
 - The missile can **travel at speeds more than four times that of sound** and can reach a maximum altitude of 20 km, making it extremely flexible for air combat.
- **Can be Integrated with other Fighter Aircraft:**
 - The missile is **fully integrated on the Sukhoi 30 MKI I** and will be integrated with other fighter aircraft in a phased manner, including the [Light Combat Aircraft \(LCA\) Tejas](#).
 - It will **integrate the missile on the MiG-29K fighter aircraft** which are deployed on the Navy's aircraft carriers, thus adding to the lethality of India's Aircraft carriers.

UPSC Civil Services Examination, Previous Year Question

Q. With reference to Agni-IV Missile, which of the following statements is/are correct? (2014)

1. It is a surface-to-surface missile.
2. It is fuelled by liquid propellant only.
3. It can deliver one-tonne nuclear warheads about 7500 km away.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: (a)

Exp:

- Agni-IV is a nuclear-capable long-range ballistic missile of India, with a strike range of 4,000 km.
- The indigenously developed Agni-IV is a two-stage surface-to-surface missile. It is 20 metres long with a weight of 17 tonnes. Hence, statement 1 is correct.
- It is a two stage solid fuelled system that can carry a one-tonne nuclear warhead over a distance of 4,000 kilometres. Hence, statements 2 and 3 are not correct. Therefore, option (a) is the correct answer.

Q. In the context of Indian defence, consider the following statements: (2009)

1. The Shourya missile flies with a speed of more than 8 Mach.
2. The range of Shourya missile is more than 1600 km.

Which of the statements given above is/are correct?

- (a) 1 only

- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: (d)

Exp:

- Shourya is a hypersonic surface-to-surface tactical missile developed by the Defence Research and Development Organisation (DRDO) for use by the Indian Armed Forces.
- Its speed is Mach 7.5. Hence, statement 1 is not correct.

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