

India's first Hypervelocity Expansion Tunnel Test Facility

February 7, 2024 • vajiramandravi.com



About India's first Hypervelocity Expansion Tunnel Test Facility:

- The **S2**, nicknamed '**Jigarthanda**', is a **24-meter-long facility located at IIT Kanpur's Hypersonic Experimental Aerodynamics Laboratory (HEAL)** within the Department of Aerospace Engineering.
- It is India's first Hypervelocity Expansion Tunnel Test Facility.
- It was **indigenously designed and developed** over three years **with funding and support from the Aeronautical Research and Development Board (ARDB)**, the Department of Science and Technology (**DST**), and IIT Kanpur.
- It is **capable of generating flight speeds between 3-10 km/s, simulating the hypersonic conditions** encountered during the atmospheric entry of vehicles, asteroid entry, scramjet flights, and ballistic missiles.
- It will be a **critical asset for** the Indian Space Research Organisation (**ISRO**) and the Defence Research and Development Organisation (**DRDO**).

- It will serve as a **testing ground for ongoing missions** of ISRO and DRDO **like Gaganyaan, Reusable Launch Vehicles (RLV), and hypersonic cruise missiles**, enabling the development of more advanced and reliable aerospace technologies.
-

Q1: What is the Aeronautical Research and Development Board (ARDB)?

It is the national body for coordinating and funding futuristic research/development programmes in Aeronautics. AR&DB was the consequence of the Subramanian Committee report and was constituted by the Government of India in 1971. The Board replaced the Aeronautical Research Council of CSIR and Aeronautical Research and Development Panel of DRDO.

Source: [IIT Kanpur breaks ground with India's first hypervelocity test facility, S2](#)

Source: <https://vajiramandravi.com/current-affairs/indias-first-hypervelocity-expansion-tunnel-test-facility/>

© Vajiram & Ravi. For personal use only.