

Cryogenic Engine

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About CE20 Cryogenic engine:

- It is the indigenous engine developed by the **Liquid Propulsion Systems Centre of ISRO**.
- It is **powering the upper stage of the LVM3 launch vehicle** and has been qualified to operate at a thrust level of 19 tonnes.
- This engine has successfully powered the upper stage of six LVM3 missions so far.
- Recently, the engine was qualified for the Gaganyaan mission with a thrust level of 20 tonnes and also to an uprated thrust level of 22 tonnes for the future C32 stage, towards enhancing the payload capability of LVM3 launch vehicle.
- It features an **innovative Nozzle Protection System** that overcomes previous complexities in engine testing.
- **Key achievements of the test include:** successful testing of an engine with a nozzle area ratio of 100, evaluation of a multi-element igniter by activating only the first element, and confirmation of normal engine and facility performance.

- **Significance:** This test marks a significant step in ISRO's indigenous engine development, showcasing its ability to overcome complex rocket propulsion challenges.
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Q1: What is Cryogenics?

Cryogenics is the study of how to get to low temperatures and of how materials behave when they get there. Besides the familiar temperature scales of Fahrenheit and Celsius (Centigrade), cryogenicists use other temperature scales, the Kelvin and Rankine temperature scales.

Source: ISRO conducts successful sea level hot test of CE20 cryogenic engine, paving the way for future missions

Source: <https://vajiramandravi.com/current-affairs/cryogenic-engine/>

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