



India's largest titanium and superalloy materials plant

Why in News?

Union **Defence Minister** and **Uttar Pradesh [Chief Minister](#)** inaugurated India 's largest **Titanium and Superalloy Materials Plant in Lucknow** .

Key Points

- **About the Plant:**
 - This **titanium plant** is operated by Aeroalloy Technologies Limited, a subsidiary of PTC Industries Limited.
 - The plant is spread over an area of **50 acres** and has an **annual production capacity of 6,000 tonnes** , making it the **world's largest single-site titanium remelting facility** .
 - The state-of-the-art technologies being used at this plant include:
 - **Vacuum arc remelting (VAR)**
 - **Electron Beam (EB)**
 - **Plasma Arc Melting (PAM)**
 - **Vacuum Induction Melting (VIM)**
 - These technologies will make domestic production of **aerospace-grade materials** possible.
- Along with the titanium plant, the foundation stone of **seven additional advanced facilities** was also laid. Prominent among them are:
 - **Aerospace Precision Casting Plants** : Which make single crystal castings, which are important for jet engines.
 - **Aerospace Forge Shop and Mill Products Plant:** The need for manufacturing critical materials such as billets, bars and plates will be eliminated.
 - **Aerospace Precision Machining Shop:** which provides capability for ready-to-assemble ultra-precision CNC machined components.
- The project is being developed under the [Uttar Pradesh Defence Industrial Corridor](#), which aims to promote **self-reliance in defence production** .

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Titanium

- Its symbol Ti and atomic number 22, known for its high strength-to-weight ratio, excellent corrosion resistance, and ability to withstand high temperatures.
- It is a light and strong metal. It is as **strong as steel, but much lighter than that**.
- Titanium is the preferred material for making underwater objects because it can withstand heavy water pressure even at great depths and does not rust.
- Titanium metal is used in making alloys with aluminium, molybdenum, manganese, iron and other metals. These alloys of titanium are used in **the aviation industry** .
- Titanium is a component of joint replacement parts, including the hip ball and socket.
- Titanium is also used in **dental implants** .

Uttar Pradesh Defence Industrial Corridor

- It is an ambitious project aimed at reducing the foreign dependency of **the Indian aerospace and defence sector**.
- It will have 6 nodes – Aligarh, Agra, Kanpur, Chitrakoot, Jhansi and Lucknow.
- **Uttar Pradesh Expressway Industrial Development Authority (UPEIDA)** was made **the nodal agency** to execute the project in collaboration with various state agencies .
- The aim of this corridor is **to establish the state as one of the largest and advanced defence manufacturing hubs** and put it on the world map.
 - **Defence Corridor** refers to a route or path used by **public sector, private sector** and **micro, small and medium enterprises** for domestic production of defence equipment as well as to enhance equipment/operational capabilities of the defence forces.

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