# PTC Industries Joins Global Elite with Advanced Titanium VAR Facility, Putting India on the Aerospace Map

**Lucknow, India, 01 January 2025:** **Aerolloy Technologies,** a wholly owned subsidiary of PTC Industries, has achieved a monumental milestone by becoming **the first and only Indian private company** to commission a Vacuum Arc Remelting (VAR) furnace and produce aerospace-grade Titanium alloy ingots. This state-of-the-art, German manufactured VAR furnace, positions Aerolloy among a select few companies globally with the capability, infrastructure, and technology to manufacture Titanium alloy ingots for critical applications in aerospace and defence industries.

This VAR furnace has an impressive **annual melting capacity of 1,500 MT** (based on double-melt quality standards) and can produce Titanium alloy ingots up to 1,000 mm in diameter and weighing up to 10 MT. With this achievement, Aerolloy Technologies bridges a significant technological gap in India, bringing the nation closer to global **Parity** in the production of strategic materials for high-performance applications.

**A Rare Capability on the Global Stage;** Globally the ability to produce aerospace-grade Titanium alloy ingots using VAR technology is concentrated in only a handful of countries, including the United States, Russia, China, and select nations in Europe such as France and the United Kingdom. With the commissioning of this advanced VAR facility, Aerolloy Technologies joins an exclusive league of companies worldwide capable of producing high-performance Titanium alloys for critical sectors. This achievement underscores India's ascent as a global player in advanced manufacturing and materials technology.

**Technical Advancements in VAR Technology;** The Vacuum Arc Remelting process is a cornerstone of high-quality Titanium alloy production, particularly for aerospace applications where material properties such as strength and homogeneity are paramount. The VAR process operates under vacuum, ensuring the elimination of impurities while preventing contamination and oxidation during melting. This meticulous process ensures a superior metallurgical structure and uniform alloy composition, essential for applications in jet engines, airframes, and industrial gas turbines.

**During the commissioning of the VAR furnace**, the production process began with the precise blending of Titanium sponge and various alloying elements, such as Aluminium and Vanadium, in exact proportions. This "alloyed" mix of Titanium sponge was then pressed in die using a heavy-duty press to form multiple Titanium alloy briquettes. These briquettes were plasma-welded together to create a six-

meter-long Titanium "electrode". The electrode was subsequently welded to a Titanium stub and placed into the VAR furnace for the first melting cycle.

The melting process occurred in a vacuum, ensuring the elimination of gaseous impurities and the formation of a dense and defect-free ingot. The initial ingot was re-melted in the VAR furnace, second time, to produce a **"double-melt"** quality ingot, to meet the rigorous requirements of aerospace-grade Titanium alloy. This double-melt ingot can now be used in applications demanding the highest levels of performance and reliability.

**Mr. Jim Collins, Chief Technology Officer (CTO) of PTC Industries, added,** *"The commissioning of this VAR facility represents a significant leap forward in our technological capabilities. With this state-of-the-art infrastructure, we are well-positioned to meet the stringent demands of aerospace-grade Titanium alloy production, matching global standards and ensuring reliable quality. This is a proud moment for Aerolloy and for India as a whole."*

**Closing the Capability Gap in India;** The commissioning of this VAR furnace is a pivotal step in realizing PTC Industries' Dharma of achieving **Parity** with the best in the world in core manufacturing technologies and capabilities. For decades, India has relied on imports to meet its requirements for aerospace-grade Titanium alloys, a critical gap that Aerolloy Technologies has now decisively filled. By establishing this advanced manufacturing facility, PTC Industries reinforces India's self-reliance in strategic and critical materials and strengthens its position in the global aerospace supply chain.

**Speaking on the occasion Mr. Sachin Agarwal, Chairman & Managing Director of PTC Industries said,** *"The commissioning of this VAR furnace is not just a milestone for Aerolloy and PTC Industries, but a defining moment for India's manufacturing sector. By bringing this capability to India, we have eliminated a critical dependency and demonstrated that Indian companies can lead in advanced manufacturing technologies on a global scale."*

**A Step Toward Global Leadership** this achievement brings PTC Industries closer to its goal of becoming a global leader in the production of critical metals and components. The VAR furnace is part of a broader strategy to integrate advanced material production capabilities with precision component manufacturing, providing end-to-end solutions for aerospace and defence customers worldwide. By leveraging this new capability, Aerolloy Technologies and PTC Industries are poised to meet the growing global demand for high-quality Titanium alloys while fostering innovation and growth in India's advanced manufacturing sector.

## About PTC Industries:

PTC Industries Limited is a leading Indian manufacturer of precision metal components for critical applications for over 60 years. Through its wholly owned subsidiary Aerolloy Technologies Limited, the company is manufacturing and supplying Titanium and Superalloy castings for Aerospace and Defence applications within India as well as for exports. The company is substantially expanding its Aerospace castings capability by making a multi-million-dollar investment in a new state-of-the-art manufacturing facility at the newly acquired 50 acres land in the Lucknow node of the Uttar Pradesh Defence Industrial Corridor. This facility will be a fully vertically integrated with a Titanium and Superalloy Mill, producing aerospace grade ingots, billets, bars, plates and sheets in these critical and strategic materials.

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