Aerolloy Technologies Wins Development and Supply Order from Blue Origin for Large Superalloy Investment Castings for New Glenn's BE-4 Engines

Key Highlights

- **Strategic entry into orbital launch systems:** Aerolloy Technologies Limited (ATL) has secured a **development and supply order from Blue Origin** for **large, high-integrity Superalloy investment castings** for the **BE-4 engines** powering the first stage of **New Glenn**, Blue Origin's heavy-lift orbital launch vehicle.
- **Critical propulsion hardware:** Scope includes **large Nickel-based Superalloy castings** for **Liquid Oxygen (LOX) high-pressure and low-pressure housings and manifolds**, required for the seven-engine BE-4 cluster on New Glenn's first stage.
- **Globally rare capability:** Very-large vacuum investment castings in Superalloys for orbital-class engines are produced by **only a very limited number of companies worldwide**, reflecting the extreme technical and quality barriers involved.
- **Regulatory validation:** The order follows completion of **extensive qualification and applicable international regulatory and compliance processes**, underscoring Aerolloy's credibility as a trusted supplier for sensitive space propulsion programs.
- **Advanced melting infrastructure:** These castings will be enabled by Aerolloy's **recently commissioned Vacuum Induction Melting (VIM) furnace**, among the **largest VIM furnaces in operation globally**, specifically designed to support such large Superalloy castings.

Lucknow, India — January 09, 2025: *Aerolloy Technologies Limited*, a wholly owned subsidiary of *PTC Industries Limited* and a manufacturer of high-precision metal components and materials for critical and super-critical applications, today announced the award of a **development and supply order from Blue Origin** for the manufacture of **large Superalloy investment castings** for the **BE-4 rocket engines** used on the first stage of **New Glenn**.

The award of this order follows **a prolonged technical, qualification, and regulatory review process**, including compliance with applicable international export control and regulatory frameworks, reflecting the **highly sensitive and mission-critical nature** of the BE-4 propulsion system.

Under this program, Aerolloy will produce **large Nickel-based Superalloy housings and manifolds** required for **Liquid Oxygen (LOX) high-pressure and low-pressure systems**. These components operate under **extreme thermal, chemical, and pressure environments**, demanding tight dimensional control, complex internal geometries, and **defect-free metallurgical integrity** - a combination that only a **handful of global foundries** can reliably achieve at this scale.

A key enabler for this order is Aerolloy's **Vacuum Induction Melting (VIM) furnace**, recently commissioned and previously disclosed. This facility allows melting and processing of **large Superalloy heats under tightly controlled vacuum conditions**, forming the metallurgical foundation for **large, high-integrity investment castings** required in advanced propulsion systems.

Program Significance

For Blue Origin's New Glenn Program

New Glenn is Blue Origin's **reusable heavy-lift orbital launch vehicle**, which successfully reached orbit on its inaugural flight in January 2025. Its first stage is powered by **seven BE-4 engines**, each delivering approximately **550,000 lbf (~2,450 kN) of thrust**.

The Superalloy LOX housings and manifolds supplied by Aerolloy are **mission-critical components**, directly impacting engine performance, safety, and reusability. Their manufacture represents one of the **most technically challenging aspects** of the BE-4 propulsion system.

By engaging Aerolloy, Blue Origin gains:

- Access to **one of the very few global manufacturers** capable of producing **large Superalloy investment castings** for orbital-class engines
- **Supply-chain resilience** through an integrated manufacturing route, from Superalloy melting to casting and downstream processing
- A partner capable of supporting **production ramp-up and long-term program evolution** as New Glenn moves toward regular launch cadence

For Aerolloy Technologies and PTC Industries

- Establishes Aerolloy as a **qualified supplier for orbital-class propulsion hardware**, extending beyond aerospace and defence into **launch-vehicle engine systems**
- Leverages Aerolloy's **large-format investment casting, vacuum melting, NDT, and process-control infrastructure** for high-reliability space applications
- Reinforces PTC's **vertical-integration strategy**, from alloy production to near-net-shape castings, enabling competitiveness in globally scaled programs

For India's Space Manufacturing Ecosystem

- Represents a **step-change in indigenous capability** for high-complexity propulsion hardware
- Adds an **export-oriented, high-value manufacturing stream** for global launch systems
- Aligns with **Make in India** and **Atmanirbhar Bharat** objectives while integrating India into the global space supply chain

Mr. **Sachin Agarwal**, Chairman & Managing Director, *PTC Industries Limited*, said:

"Blue Origin's selection of Aerolloy for BE-4 engine hardware marks a defining milestone in our entry into space propulsion systems. The BE-4 is among the most advanced engines in operation today, and New Glenn's performance requirements set an exceptionally high bar for quality and reliability.

The award of this order, following extensive qualification and regulatory review, validates Aerolloy's ability to deliver **large, high-integrity Superalloy investment castings**, enabled by our **recently commissioned VIM furnace**, one of the largest of its kind globally.

We are proud to contribute to a program that is shaping the future of access to space, while strengthening India's position as a trusted source for critical, space-grade hardware."

About Blue Origin:

Founded in 2000 by Jeff Bezos, *Blue Origin* designs, builds, and operates advanced launch vehicles, spacecraft, and propulsion systems with the vision of enabling millions of people to live and work in space. Its programs include **New Shepard**, **New Glenn**, **BE-4 engines**, and the **Blue Moon lunar lander**, positioning the company at the forefront of reusable launch and space exploration systems.

About PTC Industries Limited:

PTC Industries Limited is a leading Indian manufacturer of precision metal components for critical and high-performance applications, with a legacy of over six decades. Through its wholly owned subsidiary, **Aerolloy Technologies Limited**, the company manufactures and supplies titanium and superalloy materials and castings for aerospace and defence applications, serving both domestic and global markets.

PTC is significantly expanding its capabilities through a multi-million-dollar investment in its **Strategic Materials Technology Complex (SMTC)** at the Lucknow node of the Uttar Pradesh Defence Industrial Corridor. The facility is being developed as a fully vertically integrated ecosystem, encompassing aerospace-grade titanium and superalloy melting and mill operations, which produce ingots, billets, bars, plates, and sheets, along with state-of-the-art precision casting and downstream manufacturing capabilities.

Through this integrated approach, PTC is building one of the most advanced end-to-end platforms globally for strategic materials and flight-critical components, strengthening India's role in the global aerospace and defence supply chain.

For more information, please contact:

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