

Gigacasting Market – Global Industry Size, Share, Trends, Opportunity, And Forecast, Segmented By Application (Body Assemblies, Engine Parts, Transmission Parts, and Others), By Region & Competition, 2021-2031F

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Abstracts

The Global Gigacasting Market is anticipated to expand from USD 3.11 billion in 2025 to USD 14.49 billion by 2031, reflecting a robust compound annual growth rate of 29.24%. This advanced manufacturing technique employs high-pressure die casting to manufacture massive, unified structural parts—mostly from aluminum—using a single mold, primarily for the automotive industry. The market's growth is heavily fueled by significant decreases in vehicle assembly duration and intricacy, coupled with improved structural strength and vital weight reductions that boost the efficiency and range of electric vehicles. Furthermore, gigacasting delivers considerable production cost savings by merging multiple smaller components into one large cast part.

The broader worldwide metalcasting sector, which includes gigacasting, is also showing consistent progress. In January 2025, the American Foundry Society forecasted a 4.2% rise in total casting sales for the year, with revenues anticipated to hit USD 50.1 billion. Despite these positive indicators, the widespread integration of gigacasting faces a major hurdle due to the extraordinarily steep initial capital expenditure needed for giga presses and the corresponding manufacturing facilities.

Market Driver

The expanding global demand for electric vehicles serves as a major catalyst for the gigacasting market. With automakers heavily focused on EV development, gigacasting provides an effective approach for creating lighter and more unified chassis structures,

which are essential for maximizing battery range and overall efficiency. This ongoing surge in EV adoption leads directly to greater worldwide investments in gigacasting capabilities. As noted in the International Energy Agency's Global Energy Review 2026, released in April 2026, global electric car sales climbed by over 20% year-over-year in 2025 to hit 21 million units. Such rising demand highlights the critical need for advanced production methods like gigacasting to fulfill manufacturing goals and enhance vehicle performance.

Additionally, gigacasting drives market growth by simplifying production through component consolidation, which lowers both operational costs and capital investments. By enabling the fabrication of massive, intricate vehicle sections as single elements, the process removes the need for multiple stamping, welding, and assembly procedures, thereby streamlining workflows and boosting factory efficiency. For example, a September 2024 Castings SA report on Volvo's Capital Market Day highlighted that megacasting allows a single large aluminum part to replace over 100 smaller pieces, cutting landed costs by up to 35% compared to traditional steel-aluminum builds. At the same time, massive capital injections into the broader automotive space are reinforcing these advanced techniques; as announced in August 2025, Hyundai Motor Group intends to invest an extra USD 26 billion in the U.S. from 2025 to 2028. These financial commitments are poised to fast-track the implementation of economically advantageous technologies like gigacasting.

Market Challenge

The immense initial capital expenditure necessary for giga presses and their required facility infrastructure poses a major obstacle to the expansion of the global gigacasting market. The massive financial commitment required for this specialized equipment and factory modernization curtails widespread utilization, generally limiting the technology to highly capitalized automotive original equipment manufacturers. Consequently, a bottleneck forms that prevents gigacasting from spreading throughout the wider manufacturing supply chain, as small and medium-sized enterprises frequently lack the resources to make such massive investments, despite the promise of long-term efficiency gains.

This reluctance to invest is often worsened by broader economic unpredictability. For example, data from the German Foundry Industry Association (BDG) revealed that during the first half of 2025, iron and steel foundry output dropped by 8%, while non-ferrous metal casting saw an 8.2% reduction. Such a downturn within the wider casting sector highlights a conservative economic environment where massive financial

commitments for cutting-edge technologies like gigacasting face intense scrutiny, ultimately slowing the market's potential growth.

Market Trends

The Global gigacasting market is being heavily shaped by the exploration and integration of advanced materials, with manufacturers directing their efforts toward creating and utilizing innovative aluminum alloys. This movement seeks to push component performance past existing limits by optimizing the crashworthiness, thermal management, and structural integrity required for modern automotive engineering, especially in electric vehicles. The goal is to utilize materials with exceptional mechanical properties to produce integrated parts that are simultaneously stronger and lighter. As highlighted by Pailian Aluminium in its December 2025 report, "The Future Of Aluminum: Trends And Innovations in 2026," battery trays for new energy vehicles made from 7003-series alloys currently deliver an 18% elongation rate while preserving a minimum tensile strength of 280 MPa.

Another major shift within the gigacasting sector is the adoption of sustainable and circular manufacturing methods. This approach centers on utilizing materials with high recycled content to curb waste and lower the ecological impact associated with massive casting operations. Driven by strict decarbonization goals, automotive companies are placing greater importance on material circularity, sparking a higher demand for alloys formulated from significant amounts of post-consumer scrap. These eco-friendly practices foster a highly resource-efficient manufacturing ecosystem that complies with international environmental goals and regulations, as evidenced by a September 2025 press release from Hydro regarding its Hydro CIRCAL product, which features at least 75% post-consumer scrap content.

Key Market Players

Idra SRL

Buhler AG

LK Technology Holdings Limited

Handtmann Holding GmbH & Co. KG

Birch Machinery Company Ltd

Colosio SRL

Huachen Precision Manufacturing Co. Ltd

UBE Machinery Inc.

Yizumi Holdings Co. Ltd

Oskar Frech GmbH + Co. KG

Report Scope

In this report, the Global Gigacasting Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Gigacasting Market, By Application

Body Assemblies

Engine Parts

Transmission Parts

Others

Gigacasting Market, By Region

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Gigacasting Market.

Available Customizations:

Global Gigacasting Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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