

GLOBAL DIE CASTING AUTOMOTIVE OUTLOOK

Market Trends, Technology Innovation & Strategic Insights

Industry Report 2026

May 2026

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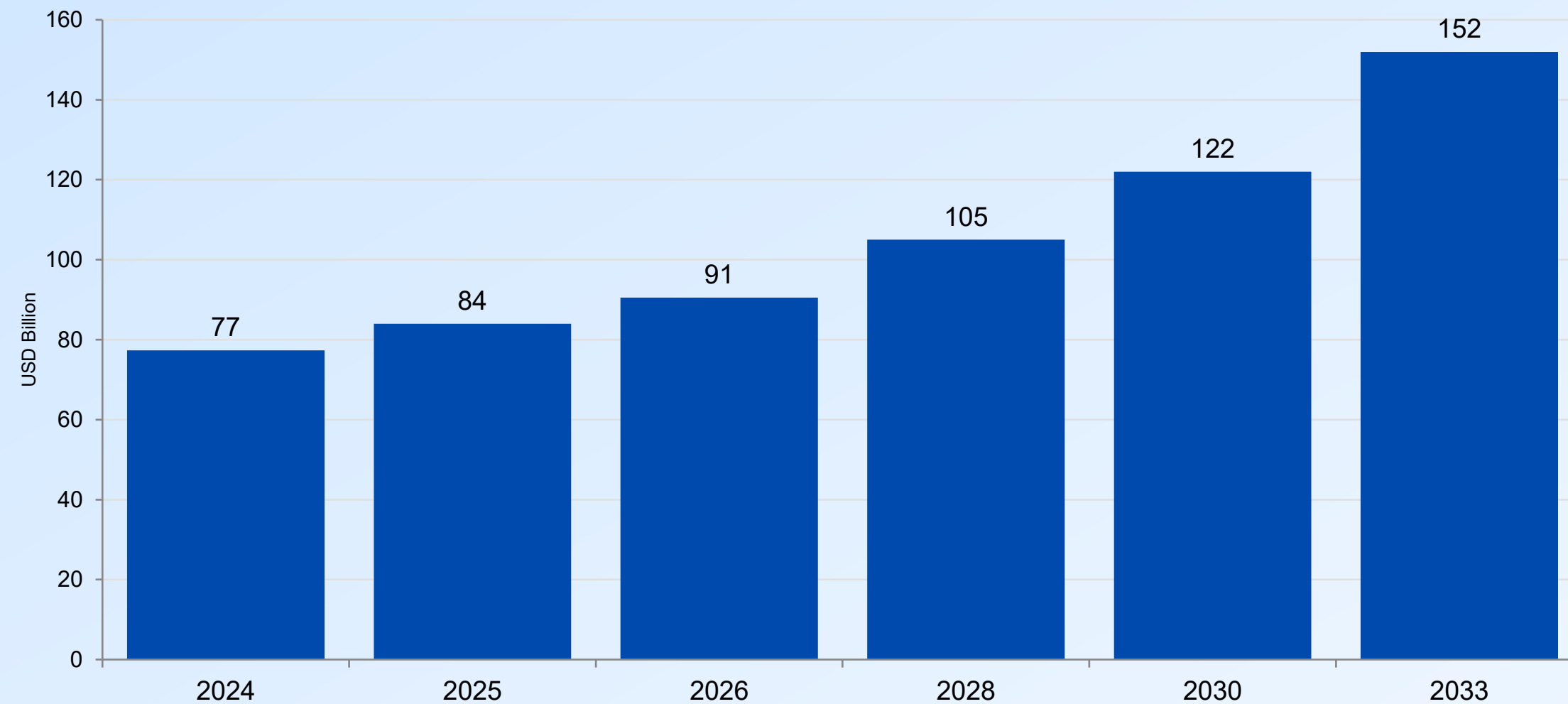
01

Market Overview

Global Market Size, Growth Drivers
& Regional Dynamics

Global Die Casting Market Size

\$90.46B in 2026 | 7.7% CAGR



\$90.46B

Global Die Casting Market 2026

7.7%

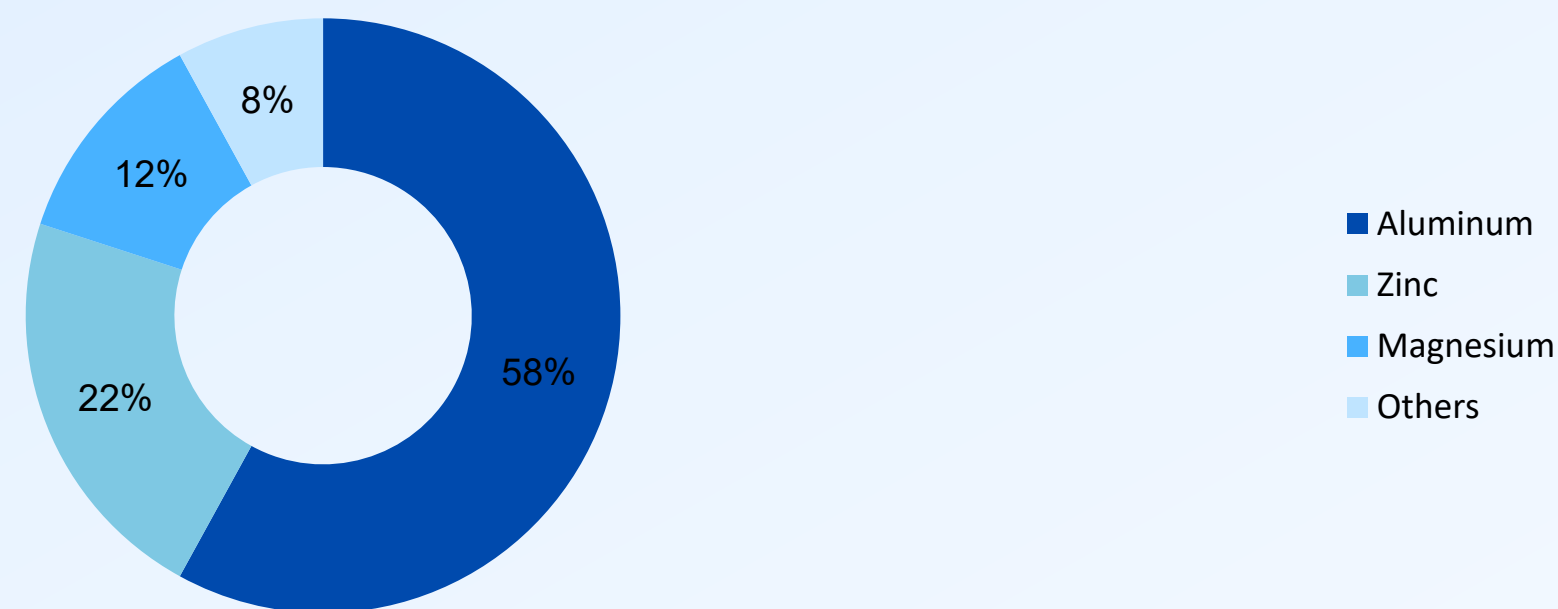
CAGR 2026-2033

\$112.5B

Automotive Casting Market 2026

56.6%

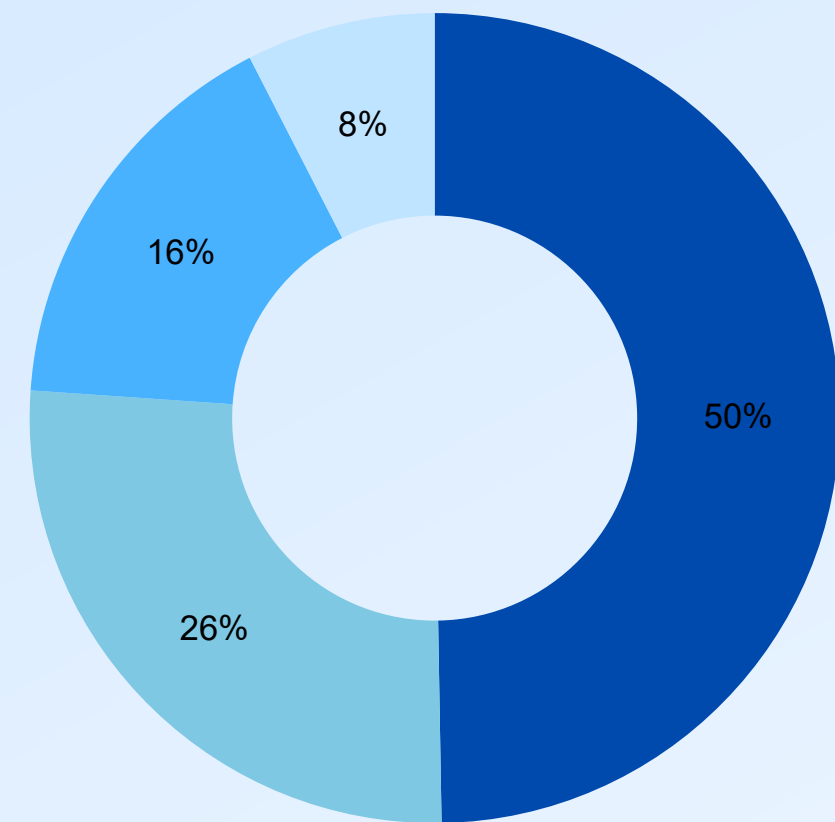
Automotive Application Share



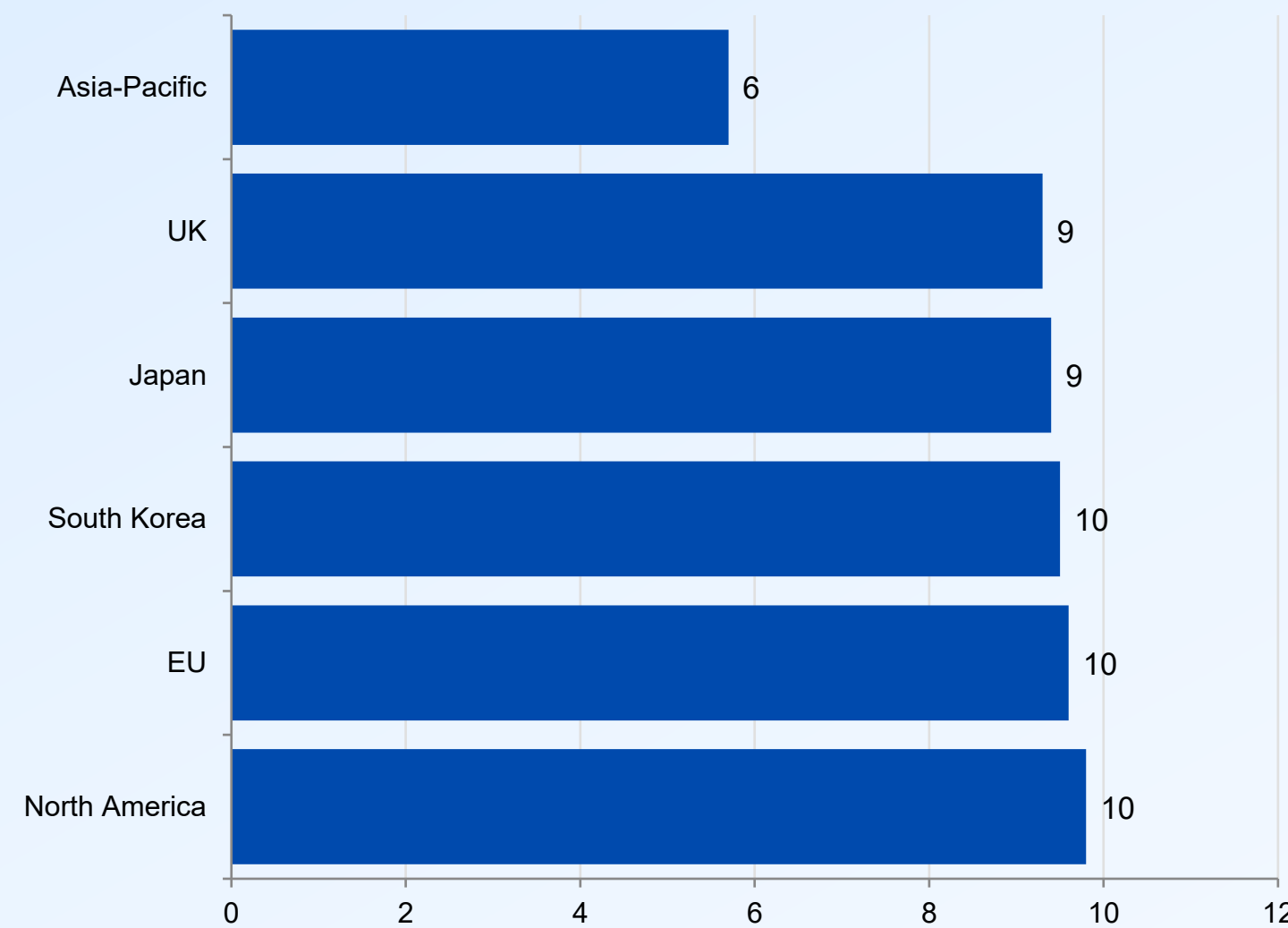
Asia-Pacific Leads with 54.7% Share

Share

Regional Market Breakdown & Growth



■ Asia-Pacific ■ Europe ■ North America ■ Others



Asia-Pacific

54.7% share (\$43.6B). China dominates as global manufacturing hub. India & Japan growing rapidly. Skilled labor & raw material access.

North America

Fastest growth at 9.8% CAGR. US tax credits for battery sourcing. Gigacasting localization in Ohio, Alabama.

Europe

29% global share. EU Carbon Border Adjustment drives green transition. Germany leads EV structural parts demand.

02

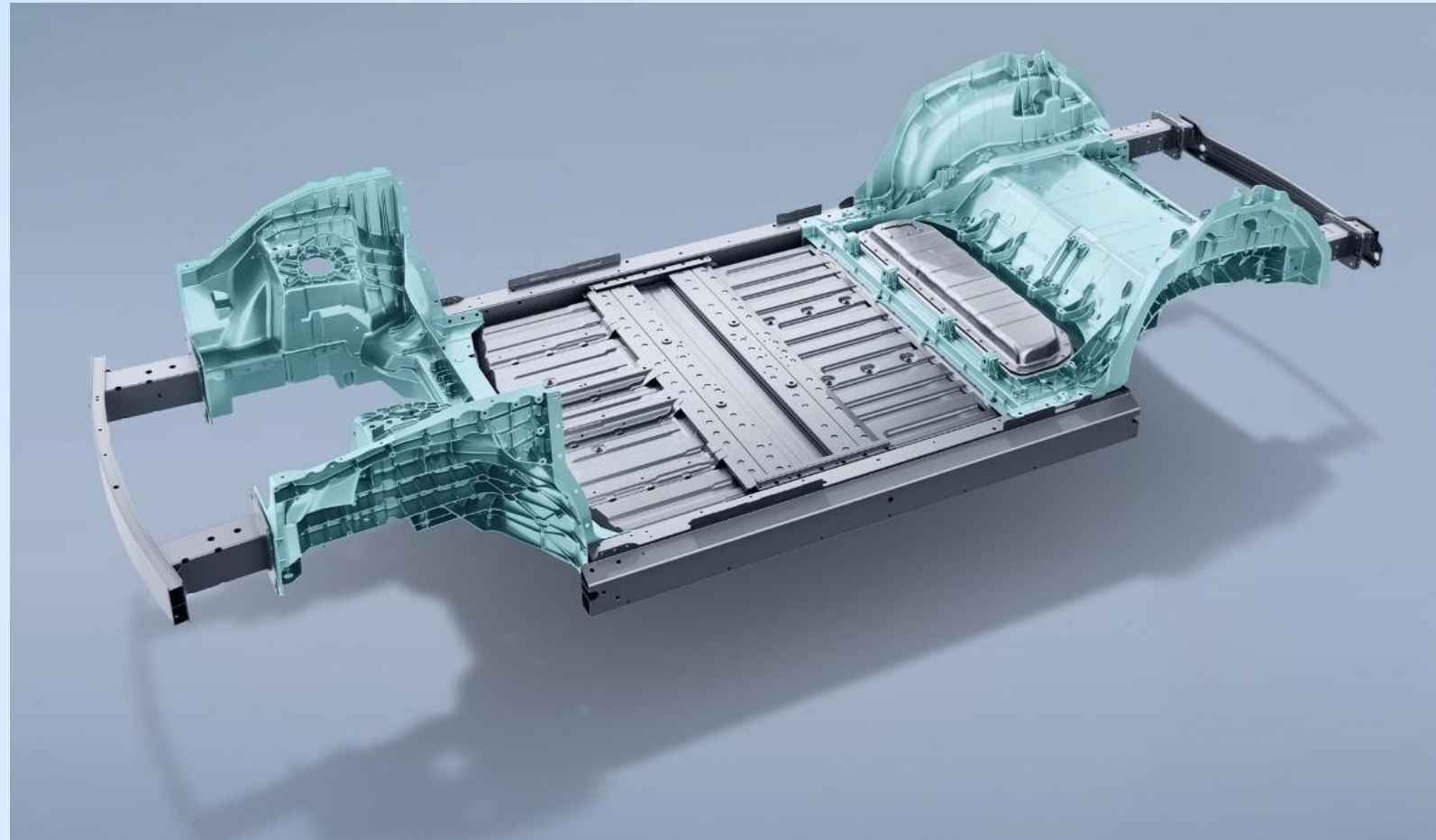
Technology Trends

Gigacasting, EV Innovation & Smart
Manufacturing

Gigacasting: \$3.11B to \$14.49B by 2031

2031

29.24% CAGR | Revolutionizing Auto Manufacturing

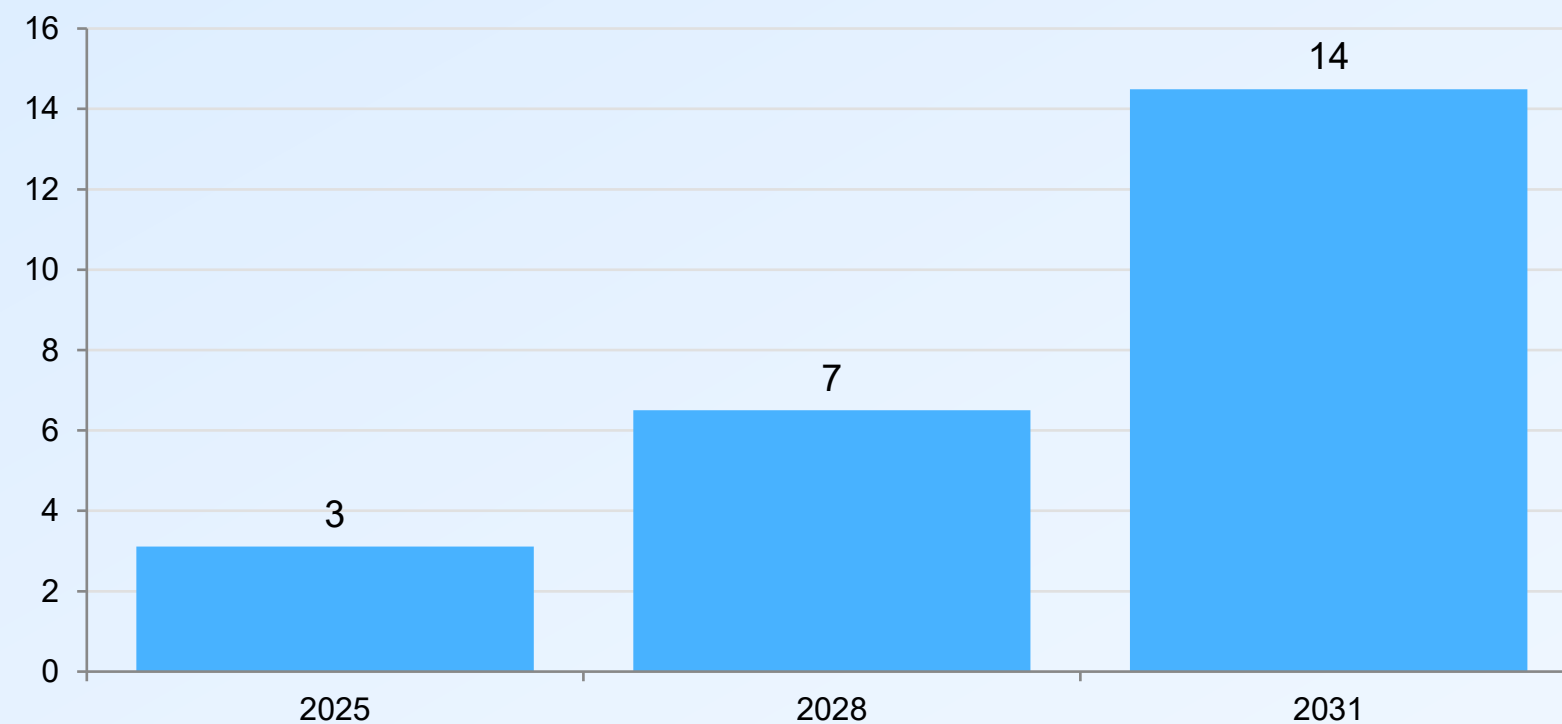


Key Benefits of Gigacasting

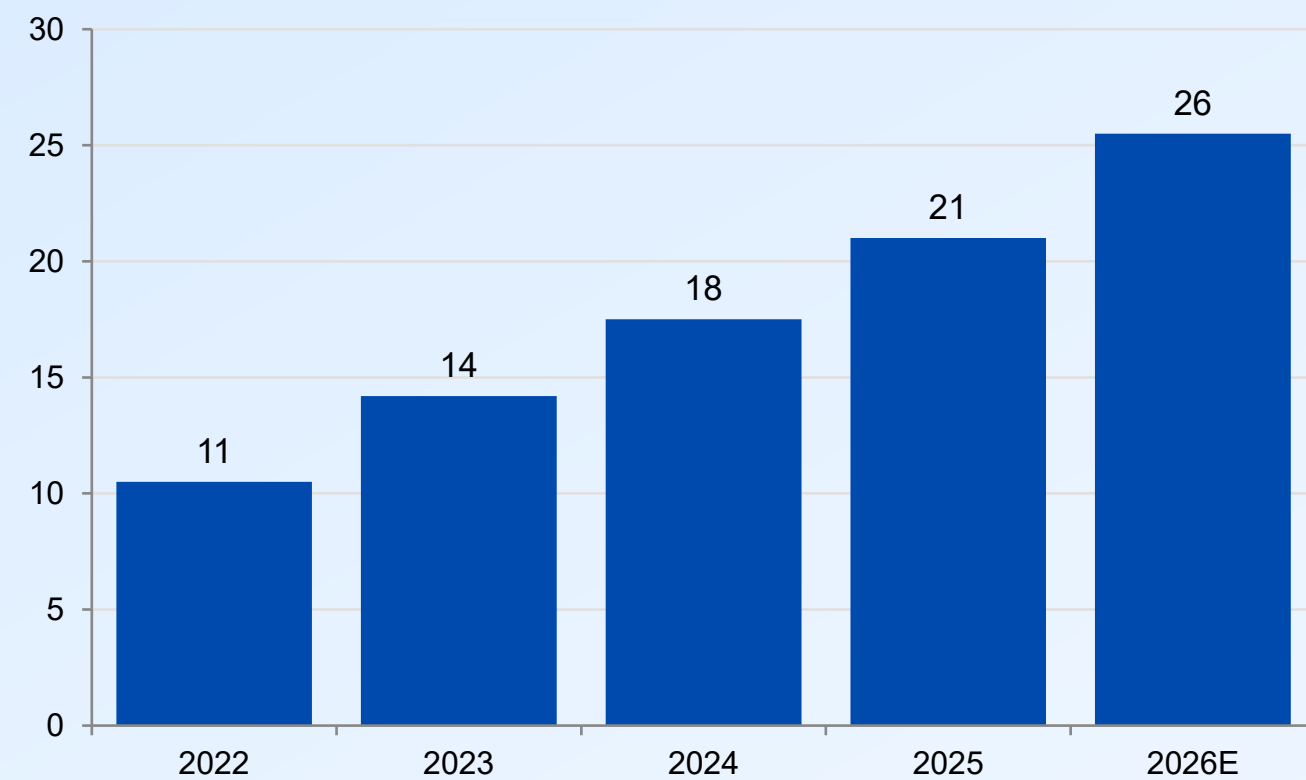
- ↓ 40% manufacturing cost reduction
- ⚖️ 15-20% weight reduction
- ⚙️ 350+ parts eliminated per vehicle
- ⚡ 70 stamped parts → 1 cast piece

Key Adopters & Milestones

Tesla: Pioneered gigacasting in 2020, replaced 70 stamped parts with single cast piece for Model Y
Volvo EX60: First European megacasting vehicle, 8,400-tonne Bühler press at Torslanda
Ford: Unicasting for \$30K midsize EV pickup due 2027, 27% weight advantage
China EVs: BYD, NIO, XPeng, Li Auto all use large-scale die casting in production



21M EVs Sold in 2025 | +20% YoY Growth



Battery Systems

- Integrated die cast battery trays
- Thermal management housings
- Liquid cooling plates (40% penetration by end 2026)
- Battery pack structural integration
- 8-12% volume utilization improvement
- 15% system cost reduction



Motor & Powertrain

- Precision motor housings
- Transmission cases
- Inverter enclosures
- High-voltage connector housings
- Electromagnetic shielding
- Weight-optimized designs



Structural Parts

- Front/rear underbody castings
- Crash management systems
- Door ring & A-pillar castings
- Cross-car beam structures
- Sub-frame assemblies
- Chassis integration parts

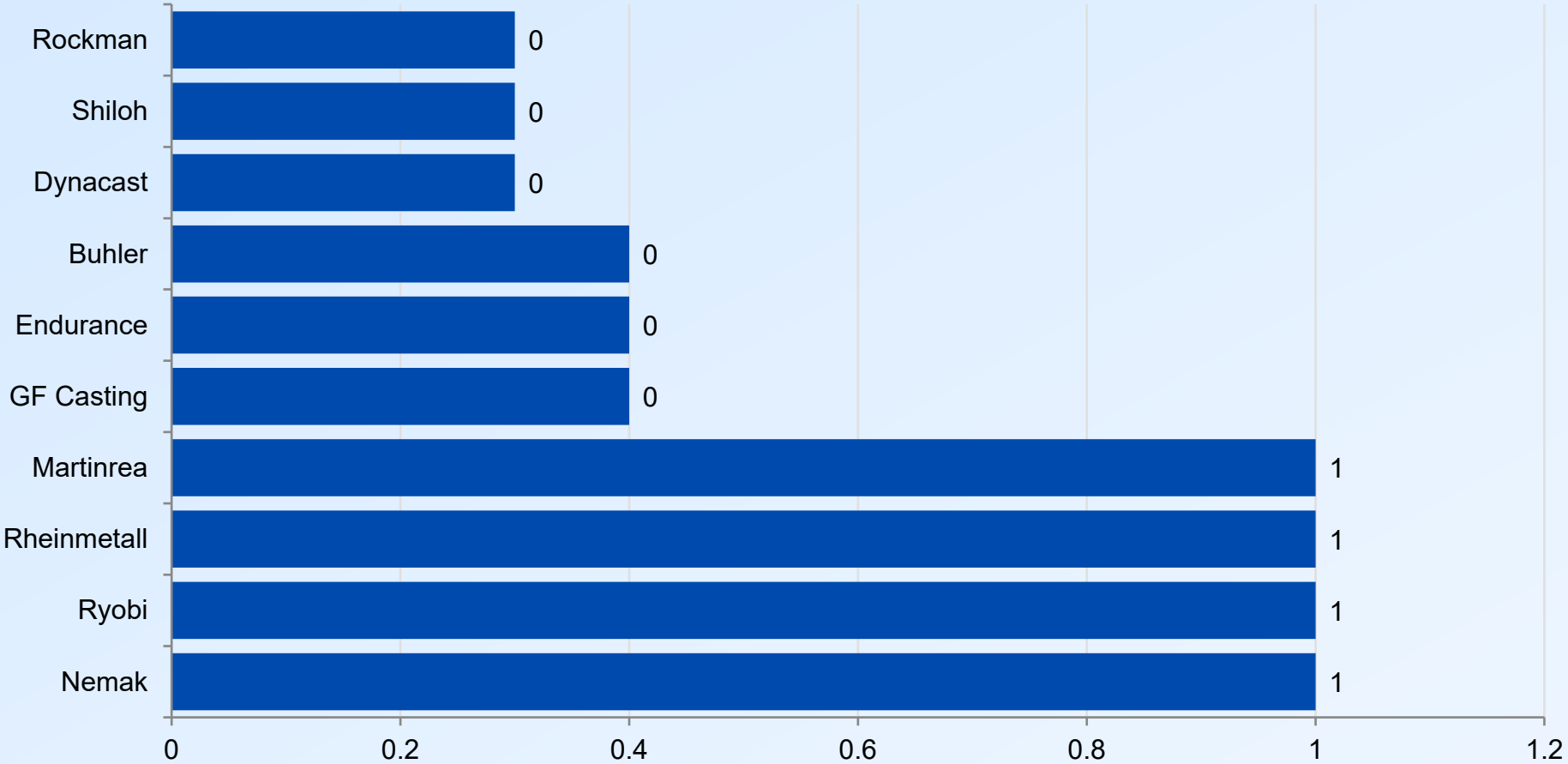
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Competitive Landscape

Key Players, Market Structure &
Sustainability

Top 10 Players in Fragmented Market

~5% Combined Revenue Share | High Competition



Company	Headquarters	Key Specialties
Nemak	Mexico	Engine blocks, structural parts
Ryobi Die Casting	Japan	Precision aluminum components
Rheinmetall AG	Germany	Powertrain, engine blocks
Martinrea Honsel	Canada/Germany	Structural aluminum parts
GF Casting Solutions	Switzerland	Complex aluminum components
Endurance Tech	India	R&D focused, aluminum solutions
Buhler Group	Switzerland	Die casting equipment, presses
Dynacast	USA	Precision die casting global
Shiloh Industries	USA	Lightweighting solutions
Rockman Industries	India	Motorcycle & auto expansion

Key Insight: Fragmented market creates M&A opportunities as leaders invest in gigacasting and automation capabilities

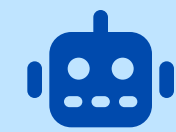
Source: The National Law Review 2026

Recycled Aluminum | Carbon Neutral Goals



37%

Adopt Recycled Aluminum



43%

Automation Adoption Rate



0.789kg

CO2 per kg Casting (Roots)



2040

Carbon Neutral Target



Key Sustainability Trends

- 01 100% Recycled Aluminum — Roots Cast uses renewable energy + scrap, 0.789kg CO2/kg
- 02 EU Carbon Border Tax — CBAM drives green transition, lifecycle carbon audits required
- 03 PFAS Phase-Out — Mold lubricant regulations tightening across EU and North America
- 04 Green Aluminum — Germany leads with sustainability rules driving low-carbon production
- 05 On-Site Renewables — Foundries installing solar/wind for energy price hedging
- 06 AI Optimization — 43% automation rate, digital twins for energy & defect reduction

04

Future Outlook

Challenges, Opportunities &
Strategic Recommendations

Industry Headwinds & Risk Factors

- 01** — High Capital Investment
Giga-press facilities require \$100M+ initial investment. Extraordinarily steep capex for presses and manufacturing facilities limits entry.
- 02** — Raw Material Price Volatility
27% of manufacturers report cost pressure from aluminum and magnesium price fluctuations. Supply instability affects 21% of producers.
- 03** — OEM Insourcing Trend
Automakers vertically integrating gigacasting capabilities reduces Tier-1 supplier volumes. Tesla, Ford building in-house capacity.
- 04** — PFAS Regulatory Pressure
Tightening PFAS emissions norms on mold lubricants across EU and North America. Phase-out deadlines approaching by 2027-2028.
- 05** — Magnesium Supply Risk
Post-2026 magnesium supply risk from China export controls. Critical for lightweight applications, alternative sourcing needed.

Actionable Strategies for Stakeholders

1. Invest in Gigacasting

- Partner with press manufacturers (Buhler, Idra)
- Develop aluminum alloy expertise for large castings
- Target EV OEMs with integrated solutions
- ROI timeline: 3-5 years for giga-press facilities

2. Automate & Digitize

- Deploy Industry 4.0 and IoT sensors
- Implement AI-powered quality control systems
- Build digital twins for process optimization
- ROI timeline: 1-3 years for automation projects

3. Go Green

- Transition to 100% recycled aluminum feedstock
- Install on-site renewable energy (solar/wind)
- Implement carbon tracking and lifecycle audits
- ROI timeline: 2-4 years via energy savings

4. Diversify Portfolio

- Expand into EV-specific components
- Enter aerospace and renewable energy markets
- Develop aftermarket and remanufacturing services
- ROI timeline: 2-5 years for market expansion

DATA-DRIVEN INSIGHTS

THANK YOU

Die Casting Automotive Parts Industry | Strategic Decision Making

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Die Casting | Automotive | EV | Gigacasting | 2026

Roland
Berger

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