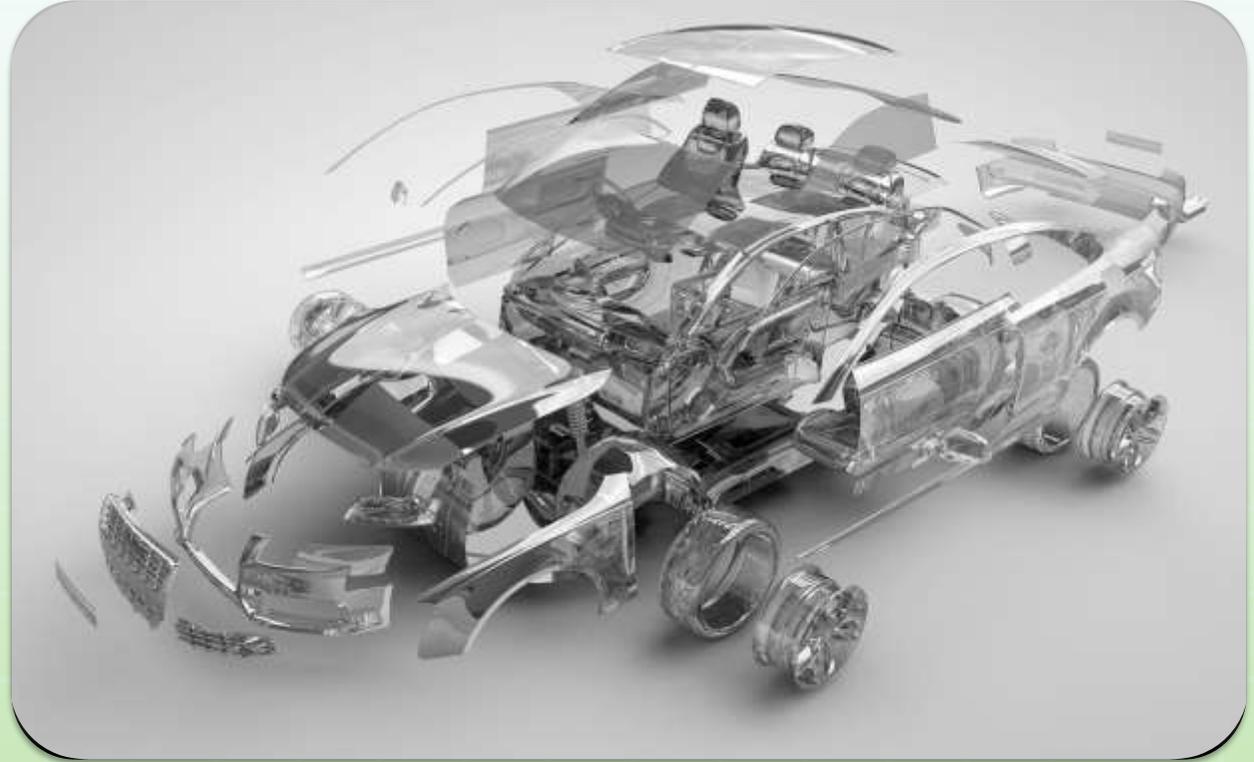


# BMPL Introduction



*We look forward to the momentum of this partnership and the opportunities it will bring*



# Company Overview

## Surana Group of Companies

**Promoters:** Shri. Devendra Surana



Established in **1978**, the Surana Group has grown into one of India's leading industrial houses with diversified interests across **Manufacturing, Metallurgy, Telecommunications, Solar, and Electricals**.

Built on **meticulous planning, clear vision, and long-term strategies**, the Group today commands a strong position among India's top corporate houses. With a **fixed asset base of over USD 100 million**, a **workforce of 1,500+**, and an **annual turnover of USD 300 million**, the Group continues to expand its legacy of trust, innovation, and excellence.

## Bhagyanagar Magnesium Pvt. Ltd. (BMPL)

**Founders:** Shri. Advait Surana | Shri. Revanth Katta



Incorporated in **2023**, BMPL is India's pioneering initiative focused on **Magnesium & Aluminum High Pressure Die Casting (HPDC)** solutions for **Automotive, Aerospace, Defense, and EV industries**.

Backed by **in-house expertise** and **50+ man-years of experience** in magnesium processing, BMPL specializes in **lightweighting solutions**, delivering components that are **lighter, faster, and longer lasting**.

Our commitment to **Precision Engineering, Sustainability, And Innovation** ensures customers receive world-class quality with every product.





# Surana Group Companies

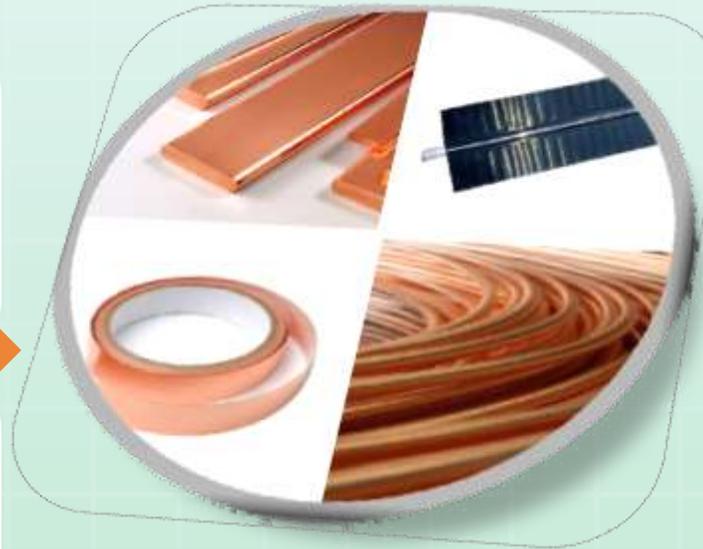
The Surana Group founded in 1978 is one of the country's leading industrial houses, focusing on the niche areas of Telecommunications, Materials and Electrical equipment

USD 300 Mn turnover with over 1500-member workforce

On track to achieve USD 500 Mn shortly

Bhagyanagar Copper is currently producing around 80 MT Per day of refined copper and copper-based products

The company has a state-of-the-art manufacturing facilities spread over 70 acres of land in Hyderabad city limits



The company serves a diverse customers like HAL, Royal Enfield, Bajaj, Venus Appliances, Tega McNally, Igetta Hole Graphic, L & T, Lucas TVS, Toshiba, Amar raja, REIL, Racold, V-Gaurd &, HBL





# BHAGYANAGAR MAGNESIUM PVT LTD

A UNIT OF SURANA GROUP OF COMPANIES



We provide lightweight solutions to a global customers in the **Automotive, Aerospace, Defense, and Industrial** sectors.



BMPL is the only company in India planning to commission **Thixomolding** machines of 850, 500 tons in Jan 2026



In 2025, we commissioned India's largest magnesium die-casting machine, the **Yizumi 1650-ton, 400-ton model**.



Our team has over **50 man-years of collective expertise** in complex magnesium processing activities.



Our 40,000 sq. ft. production facility is fully integrated with solar energy for sustainable operations.



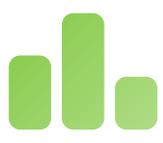


# Vision & Mission



## Vision

To enable a future where all modes of mobility are **lighter, faster, and more efficient**. We aim to achieve this by creating innovative **lightweight components** and products using **Magnesium-based alloys**. By doing so, we will become one of the top three global suppliers of magnesium products within the next five years



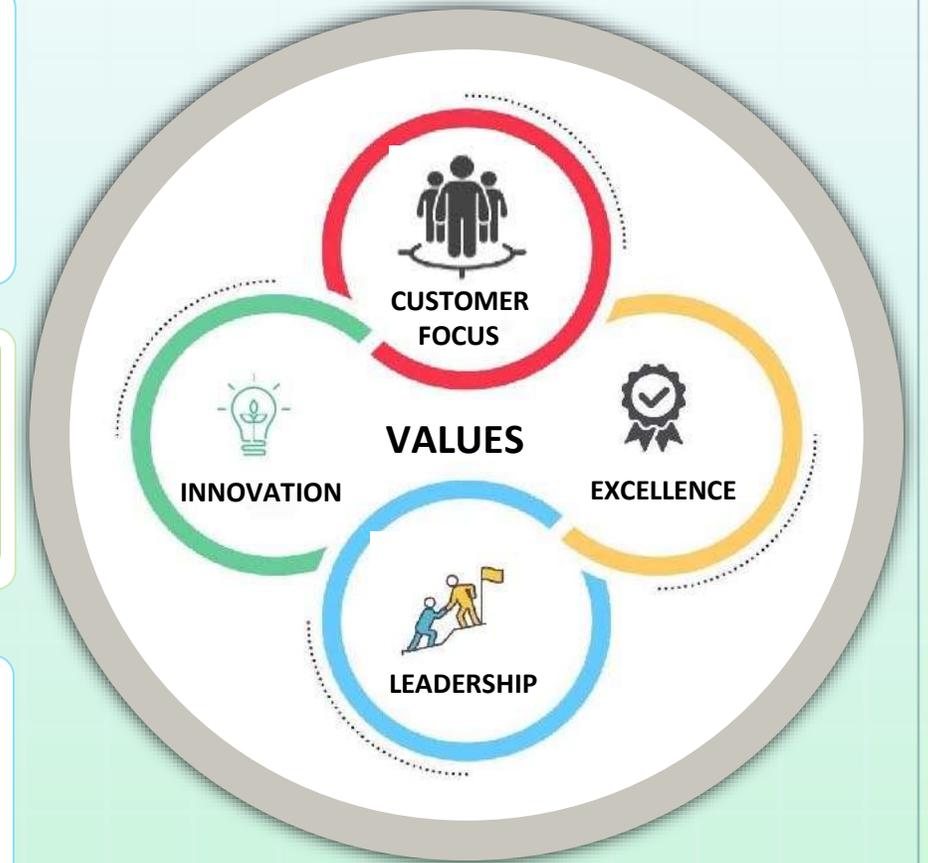
## Mission

We are dedicated to **customer focus** and **innovation leadership**. Our mission is to serve as an industry leader in **Mg Thixo-molding**, extrusion, welding, and die-casting technologies (GDC & HPDC), delivering exceptional value to our partners worldwide.



## Objectives

- Support Automotive Mfrs:** Help OEMs achieve their **greenhouse gas (GHG) emission targets**.
- Enhance Vehicle Performance:** Reduce fuel consumption and improve the performance of electric vehicles (EVs) by extending their range and alleviating **range anxiety**.
- Ensure Cost-Effectiveness:** Deliver cost-effective solutions through efficient and fully integrated operations.





# Organisation Structure





# BMPL Highlights

## WHO WE ARE

- **BMPL** – Pioneering India's **next-generation magnesium technologies**: Thixomolding, Extrusion, and Welding.
- **First in India** planning to implement **Thixo Molding Machine** ranging from **500T to 1350 T** in **Jan2026**
- Commissioned a largest **1650T,400T Magnesium HPDC machine**
- Part of **Surana Group** with 45+ years of excellence in **manufacturing, metallurgy, and global engineering**.
- **Strong technical foundation** with **50+ man-years of collective expertise** in complex magnesium processing.

## CORE COMPETENCIES

- **India's only company** advancing **Magnesium Thixomoulding, Extrusion & Welding technologies**.
- **13 magnesium alloys indigenized** for **automotive, aerospace & EV applications**.
- **Rapid prototyping expertise** – magnesium sand castings up to **150 kg**.
- **Implementing Thixomoulding machine** for 300K capacity in Phase 1, additional 300K capacity in Phase 2 (Refer slide 14).
- Established HPDC capacity of 600K parts/year; **CNC machining capacity of 198K** parts/year, ensuring precision for automotive and EV components
- **In-house Testing & Inspection facilities** – Spectrometer, CMM, mechanical testing; complemented by **qualified partner labs**.
- **Comprehensive design support** for dies, tooling & equipment – enabling **faster development with a strong technical base**.
- **End-to-end capabilities** – die design, tool manufacturing, CNC machining, surface treatment & coating under one roof.
- **Structured plant layout** – 40,000 sq. ft. solar-powered, integrated campus.
- **Complete readiness for Aerospace, Defense, Automotive, Electronics & EV applications**.

## Why BMPL

- **Lightweighting Expertise** – From design optimization to rapid prototyping & component delivery.
- **Integrated Solutions** – *One-stop partner* from **concept to component**.
- **Global Quality Standards** – ISO 9001, ISO 14001, ISO 45001 (certified); IATF 16949 / AS9100 in progress; VDA 6.3 training in progress.
- **Sustainability Leadership** – Green 10-acre campus with **solar-powered production** and **closed-loop recycling** systems.

## VISION

To be India's **No.1 partner for MAGNESIUM & LIGHTWEIGHT metal solutions**, driving innovation in mobility, energy, and advanced engineering.

10 Acre Campus



Powered by Solar





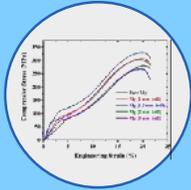
# Magnesium Introduction

Magnesium is often referred to as a **GREEN METAL** of the 21st century because of its environmentally friendly properties and potential for **sustainable industrial** use.



## LIGHTER THAN ALUMINIUM:

Up to 33% lighter – more efficient EV design



## HIGHER STRENGTH – TO - WEIGHT:

Better crash safety and structural strength



**RECYCLABILITY:**  
Environmentally friendly and supports circular economy



## IMPROVED FUEL EFFICIENCY :

Reduced vehicle weight leads to higher energy efficiency



## IDEAL FOR EV COMPONENTS:

Thermal & EMI shielding, corrosion resistance



## BEST FOR EVS:

Handlebar housing, gear boxes, Battery enclosures, Swing Arm and frames.



## ALIGNED WITH INDIA'S VISION 2030:

Green mobility + local magnesium production

EV vehicles is all about sustainability, clean, efficient energy utilization, Mg in EVs makes the whole EV concept greener, biocompatible and has a reduced carbon footprint





# Aluminium Vs Magnesium Comparison

PROPERTY	MAGNESIUM	ALUMINIUM	STEEL
Density (g/cm <sup>3</sup> )	1.74	2.7	7.85
Machinability	Excellent	Good	Moderate
Recyclability	High with negligible pollution	High with moderate pollution	High with high pollution
Cost (Relative)	low	Low	Low

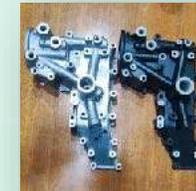
PROPERTY / ALLOY	ADC12 (Al)	AZ91D (Mg)	AM50 (Mg)	AM60 (Mg)	AS41 (Mg)	AJ62 (Mg)
Density (g/cm <sup>3</sup> )	2.74	1.81	1.8	1.8	1.75	1.81
Yield Strength (MPa)	165	160	140	130	160	175
UTS (MPa)	300	230	225	230	250	270
Elongation (%)	1-2	3	7	8	4	6
Thermal Conductivity (W/m·K)	96	68	80	85	75	70
Corrosion Resistance	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
Impact Energy (J)	2-4 J	6-8 J	14-16 J	15-18 J	10 J	11 J

We have developed new proprietary alloy having high thermal conductivity.

## CASE STUDY



Al Wt.: - 2.85 Kgs  
Mg Wt.: - 1.85 Kgs  
Weight Reduction 35%



Al Wt.: - 4.20 Kgs  
Mg Wt.: - 2.85 Kgs  
Weight Reduction 32%



Al Wt.: - 2.20 Kgs  
Mg Wt.: - 1.50 Kgs  
Weight Reduction 31.81%





# Advantage of Mg

PARAMETER	MAGNESIUM ALLOYS	ALUMINUM ALLOYS
Die Material Erosion	Low (Less Aggressive On Die)	Higher (Due To Higher Si Content)
Die Life	100,000 - 150,000 Shots	100,000 Shots
Die Maintenance Cost	Lower ( Less Wear And Sticking)	Higher (Erosion And Soldering)
Initial Die Cost	Similar Or Slightly Higher (Thermoregulation)	Higher (Erosion And Soldering)
Initial Die Cost	Similar Or Slightly Higher (Thermoregulation)	Similar Or Slightly Higher
Thermal Fatigue Risk	Lower (Lower Pouring Temp)	Higher (Higher Melting Temp)
Cycle Time	Faster ( Solidification Rate High)	Slower

## How?

Magnesium Alloys are cheaper when the cost to weight ratio is considered.

Die cost per shot is reduced by 50%, since Mg dies easily work for 1.0 to 1.5 lakh shots.

Machining time for mg alloys is 20 to 30 % faster than aluminum.

Cycle time for mg alloys casting is faster than al alloys because of better fluidity and rapid solidification



4X faster machining than Aluminium

MATERIAL	COST PER KG	33% WEIGHT REDUCTION
Mg Alloy (AZ91D)	300	210
ADC12 (Al Alloy)	220	220

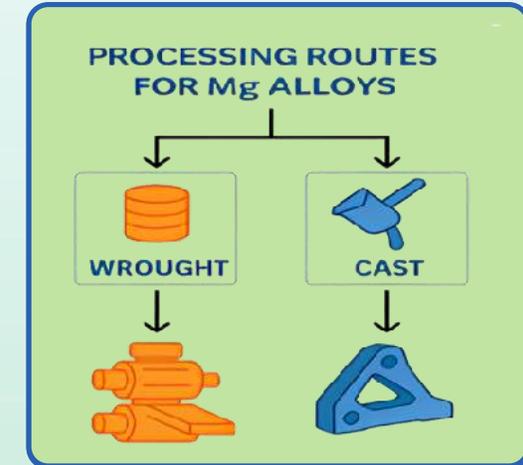




# Magnesium Alloys & Series

Magnesium alloys are lightweight materials made by combining magnesium with other elements (Al, Zn, Mn, etc.) to improve strength, corrosion resistance, and workability.

MAGNESIUM ALLOYS BASED ON ASTM STANDARD		
ALLOY SERIES	MAIN ELEMENTS	KEY FEATURES & APPLICATIONS
AZ	Aluminium, Zinc	Most common, Strong, Corrosion Resistant
AM	Aluminium, Manganese	Good corrosion resistance, Strength
ZK	Zinc, Zirconium	High strength, Aerospace-grade
QE	Rare Earths	Good high-temp & Creep resistance
WE	Yttrium, Rare Earths	Excellent at high temperatures
HM	Heavy Rare Earths	Best Thermal & Structural stability



WROUGHT ALLOY	
AZ31	Excellent formability, weldable
ZK60	High strength, good toughness
WE43	High-temp strength, corrosion resistance
AZ80	Good strength, moderate formability

CAST ALLOYS	
ALLOY	KEY FEATURES
AZ91D	Excellent castability, Good Corrosion Resistance
AM60	Good ductility, Energy absorption
AE44	High thermal stability, Creep resistance
AS41	High-temp performance, Creep resistance





## ADC12 vs AZ91D – Technical Comparison Sheet 1

Property / Feature	ADC12 (Aluminium Alloy)	AZ91D (Magnesium Alloy)	Typical Test Values
<b>Density</b>	~2.74 g/cm <sup>3</sup>	~1.81 g/cm <sup>3</sup>	ADC12: 2.72–2.75 / AZ91D: 1.80–1.82
<b>Ultimate Tensile Strength (UTS)</b>	~310 MPa	~230 MPa	ADC12: 280–320 MPa / AZ91D: 220–250 MPa
<b>Yield Strength (0.2% offset)</b>	~160 MPa	~160 MPa	Both ~150–170 MPa
<b>Elongation (% strain)</b>	~1–2% (low ductility)	~3–7% (better than Al)	ADC12: 1–1.5% / AZ91D: 3–7%
<b>Hardness (Brinell)</b>	~80–100 HB	~60–80 HB	ADC12: ~85 HB / AZ91D: ~63 HB
<b>Fatigue Strength (10<sup>7</sup> cycles)</b>	~100 MPa	~95 MPa	ADC12: 95–105 MPa / AZ91D: 85–95 MPa
<b>Thermal Conductivity</b>	~96–120 W/m·K	~60–70 W/m·K	ADC12: ~100 W/m·K / AZ91D: ~65 W/m·K
<b>Coefficient of Thermal Expansion (CTE)</b>	~22–23 μm/m·K	~26–27 μm/m·K	ADC12: 22 μm/m·K / AZ91D: 26 μm/m·K
<b>Corrosion Resistance</b>	Good (with natural oxide layer, better with anodizing)	Moderate (requires surface coatings like e-coat, anodizing, or conversion coating)	Test in salt spray: ADC12 > 240 hrs / AZ91D ~120–150 hrs without coating
<b>Creep Resistance (150 °C)</b>	Better than Mg	Moderate (creep issues above 120–150 °C)	ADC12: stable / AZ91D: risk of creep
<b>Machinability</b>	Moderate (higher tool wear)	Excellent (easy cutting, low tool wear)	Cutting speed: ADC12 ~150 m/min / AZ91D ~250 m/min
<b>Casting Ability (HPDC)</b>	Excellent – thin walls down to 2 mm possible	Superior flow, can fill <1.5 mm wall sections	Flow length test: AZ91D ~15% better than ADC12
<b>Damping Capacity</b>	Moderate	High – excellent NVH absorption	Damping ratio: ADC12 ~0.01 / AZ91D ~0.05
<b>Ignition Risk</b>	Very Low	Higher in powder/melt (>600 °C ignition)	Not a risk in solid parts



# Corrosion Protection Efficiency Of Surface Treatment

## Coating processes for Mg components and their benefits



**PASSIVATION**  
Removes contaminants, enhances oxide layer for corrosion protection

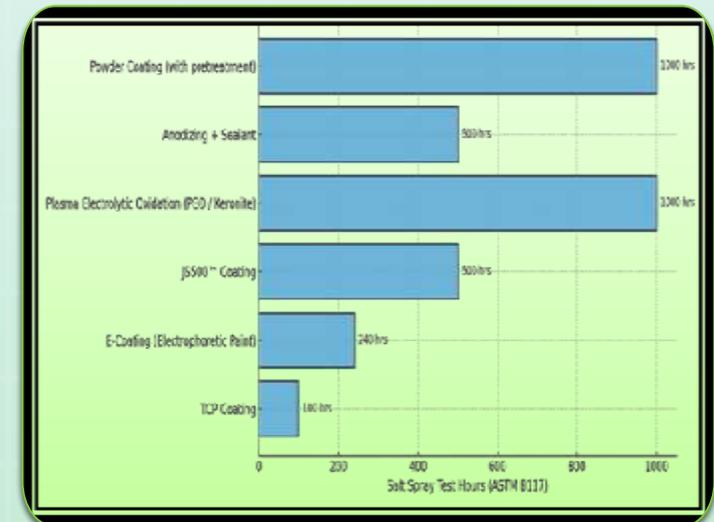
**CONVERSION COATING**  
Improves paint adhesion, enhances corrosion resistance (pre-treatment)

**CED COATING**  
Uniform coverage even in complex parts, excellent corrosion resistance

**POWDER COATING**  
Uniform surface finish, excellent corrosion protection

**ANODIZING (PEO)**  
Hard ceramic-like surface, high thermal and wear resistance

## Various coatings and their salt spray test





# Compatible & Non Compatible Material For Mg Die Castings

Compatible materials	Non-compatible materials
Aluminum 5xxx and 6xxx series Tin Zinc Plastics and polymers	Steel and stainless steel Copper Nickel Titanium Selected aluminum alloys (e.g., 2xxx and A380)

### Poor Design – Flat Surface

Electrolyte accumulates around bolt.

High risk of corrosion due to water pooling.

### Improved Design – Drainage Path

Sloped surface allows water runoff.

Reduces corrosion risk by preventing standing moisture.

### Poor Design – Washer Pocket Trap

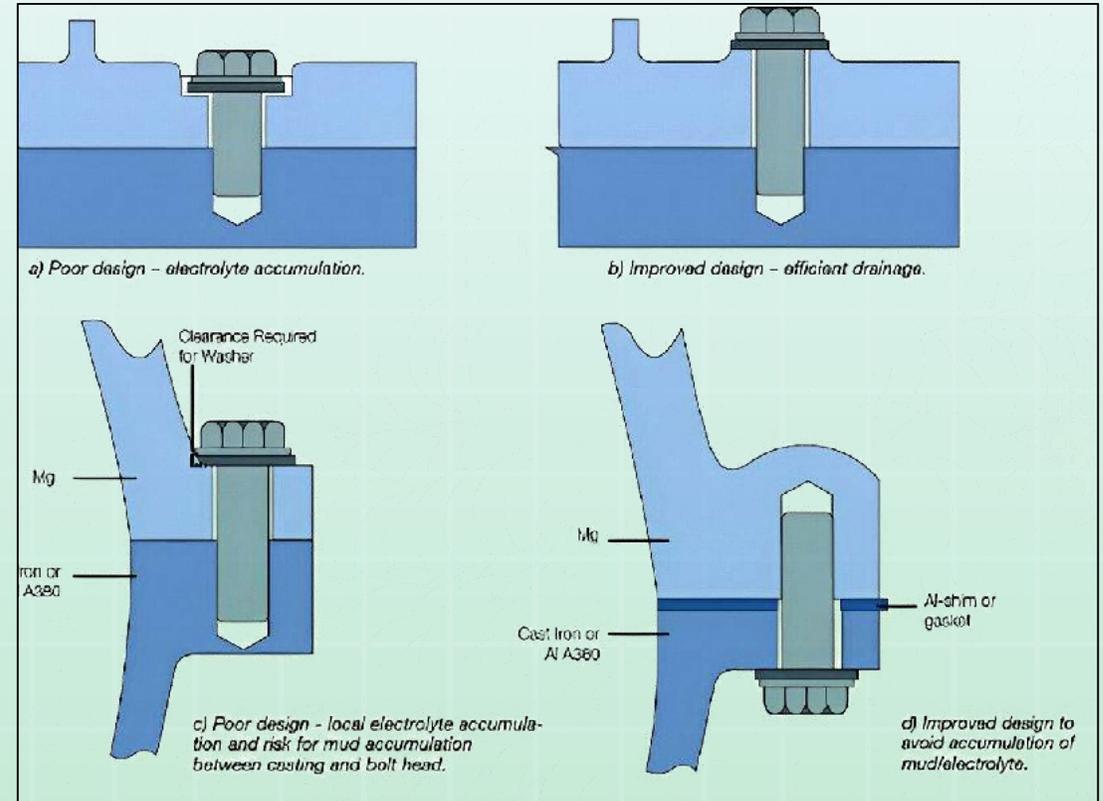
Gaps trap mud/moisture under bolt head.

Promotes crevice corrosion and galvanic reaction.

### Improved Design – Isolated Interface

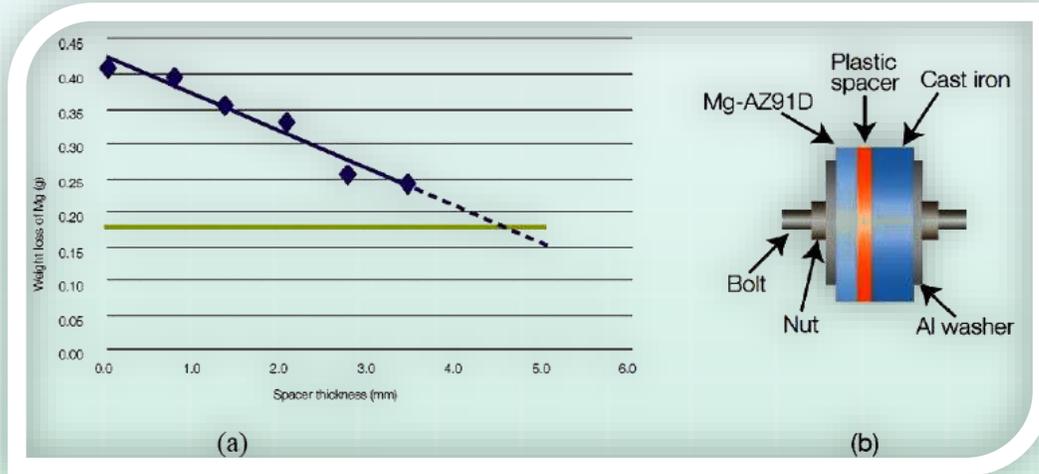
Gasket or Al-shim prevents metal contact.

Avoids electrolyte accumulation & galvanic coupling.





# Protecting Mg alloy joints : Importance of Spacers and Washers



Spacer thickness plays a key role in reducing galvanic corrosion of Mg-AZ91D.



Higher spacer thickness leads to lower magnesium weight loss.



A plastic spacer effectively insulates Mg from cast iron, breaking the corrosion path.



Using Al washer and proper isolation ensures joint durability and corrosion resistance



## Concept to Component Partner for Light- Weighing Solutions



Fully Equipped Machine Shop with 15 CNC & VMCs



3,000T Annual Melting Capacity



Sand Castings up to 120 Kg

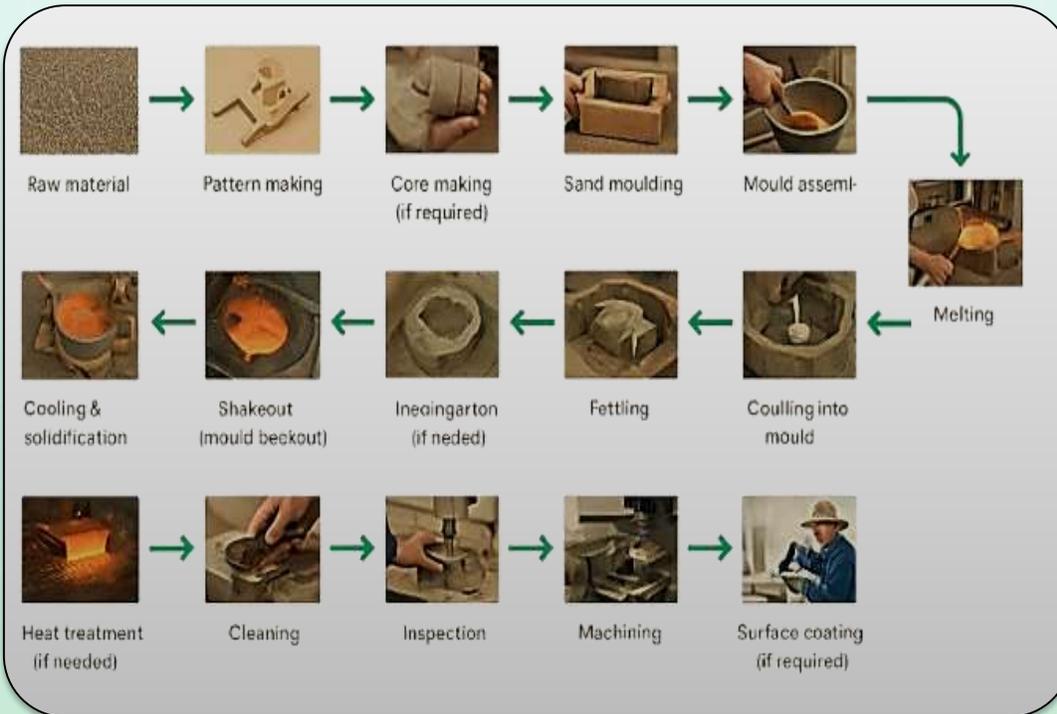
Recycled alloy use (In-house) – only internal runners/returns, revalidated with spectroscope, not external scrap.



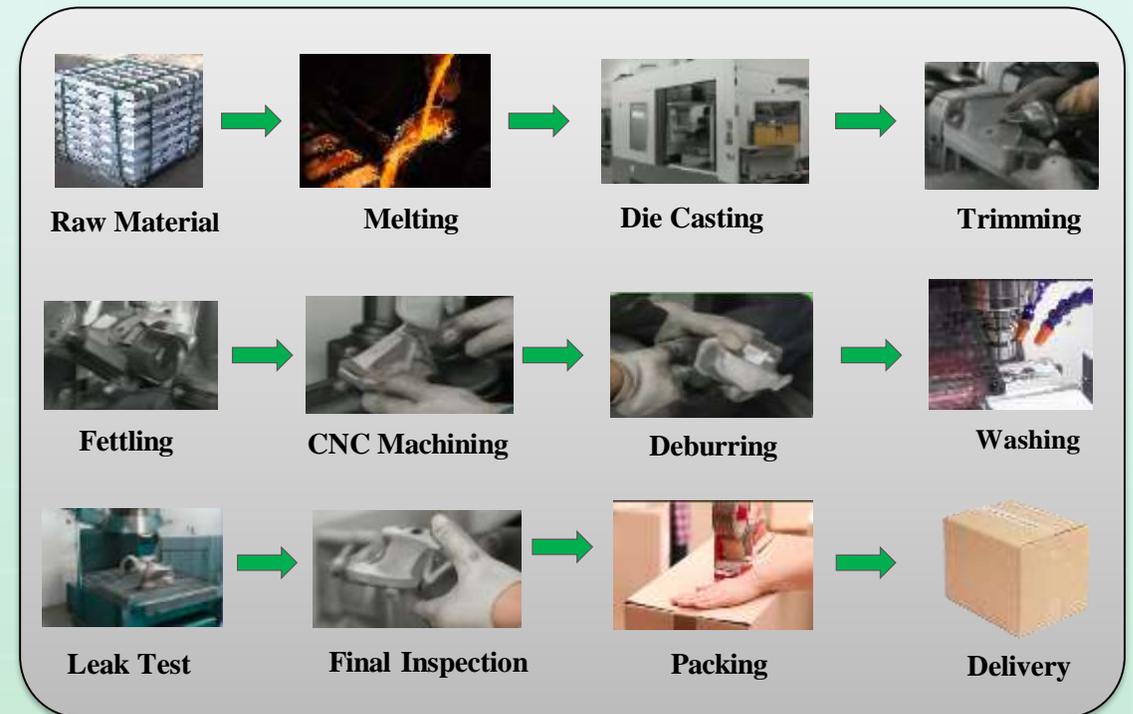


# Current Manufacturing Process

## Magnesium SAND Casting Process



## Magnesium HPDC Process Flow



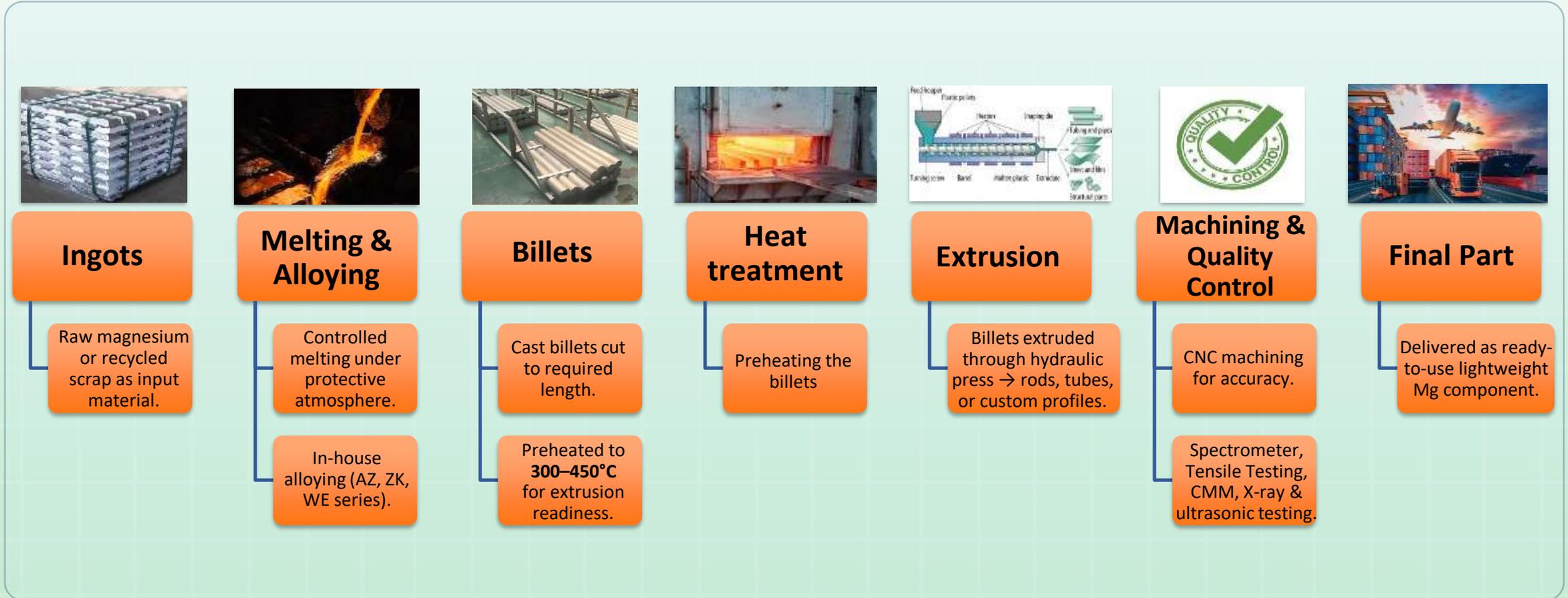


# In House Mg Recycling & Alloying Process





# New Extrusion Facility Plan (2026 Q2-Q3)





# Infrastructure



YIZUMI 1650T HPDC (Servo Motor)



YIZUMI 400T HPDC



CNC Machine Shop (Clean Room Environment) with 5 Machines (4<sup>th</sup> axis 3M & 3<sup>rd</sup> Axis 2M)



Electronica CMM



In-house Alloying, Spectro Check



EDM - Sand Blasting - Multi Cut - Tapping Machines



Corporate Office located inside Plant

#startupindia



# In-House Tool Room

## IN-HOUSE EQUIPMENT:

- **Milling Machine (5VM):** High-precision machining for complex components
- **CNC Lathes:** Versatile turning operations with tight tolerances
- **Drill Presses :** Efficient drilling for prototypes and production parts
- **CNC EDM Machine:** Accurate wire-cutting and shaping for intricate designs
- **Measuring & Testing Instruments:** Comprehensive inspection for quality, accuracy, and compliance





# Surface Treatment Facility

Powder Coating at approved partners

CED, Powder Coating Facility 1:  
Conveniently located near BMPL  
(within 15 km).

Anodizing, Powder Coating Facility 2:  
Situated within 50 km of BMPL.

Both facilities are located in Hyderabad, approximately 15 and 50 kilometers from each other. In the near future, we will establish **passivation** and **powder coating** facilities within a 1-kilometer radius. For the detailed plan, please refer to next slide 13.





# Resources for Development

Category	Vendors / Partners	Lead Time	Notes
Die Tooling (Overseas)	Top 3 Manufacturers – Ningbo, China	Design: 3 weeks Manufacturing: 8 weeks	Selection based on timeline & program volume
Die Tooling (India)	Dietech, Godrej, Axis	Design: 3 weeks Manufacturing: 8 weeks	For local development support
Die Correction / Toolroom (Contingency)	Jupiter (Hyderabad), BMPL In-house	Ongoing / As required	For die correction & maintenance
Fixtures & Cutting Tools	Makino, Maven Engineering, JS Automation	7 weeks	Precision tooling & fixture readiness
Leak Test & Inspection Equipment	Maven Engineering (Chennai)	Concurrent with tooling (≈8 wks)	Design & development in parallel





# Upcoming Facility & Equipment's



**Surface Treatment Unit**  
(Chemical Conversion-  
Passivation & Anodizing)



**Salt Spray Test**



**Organic Coating**  
(expandable)



**Digital Radiography**



**Tumbling (Vibro)**



**3D Scanning**

Facility / Capability	Timeline	Notes
Surface Treatment Unit (Chemical Conversion – Passivation & Anodizing)	<b>Nov 2025</b>	In-house capability for Mg & Al alloys
Organic Coating (Powder Coating)	<b>Dec 2025</b>	Powder coating & expandable paint facility
Organic Coating (Painting) According to new business award	<b>Q1 2026</b>	Robotic + Manual hybrid system for complex geometries
Tumbling(Vibro)	<b>Jan 2026</b>	vibro/tumbling finishing to remove burrs, sharp edges, and surface irregularities prior to further processing.
Salt Spray Test	<b>Jan 2026</b>	SST Testing Inhouse / Surface Treatment Shop
Digital Radiography	<b>Jan 2026</b>	Advanced NDT for casting defect detection
3D Scanning	<b>Jan 2026</b>	Dimensional validation & reverse engineering



In-house lab expansion plan (metallurgy, paint testing, salt spray).

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# Thixomolding 850T Haitian – Machine readiness for Operations



**Thixo Molding Machine  
HAITIAN**

**850 T (Jan 2026) & 500 / 700 T (Apr 2026)**

**1350 / 1650 T (Jun 2026)**

Stage	Activity	Duration	Output / Milestone
1	<b>Design Finalization &amp; Approval</b>	2–3 weeks	Approved Tool Design
2	<b>Tool Manufacturing</b>	6–8 weeks	Tool Ready for Trial
3	<b>T0 Trial</b>	Immediately after tool completion	Initial Casting Samples



# Fire Safety Measures in Machine Shop



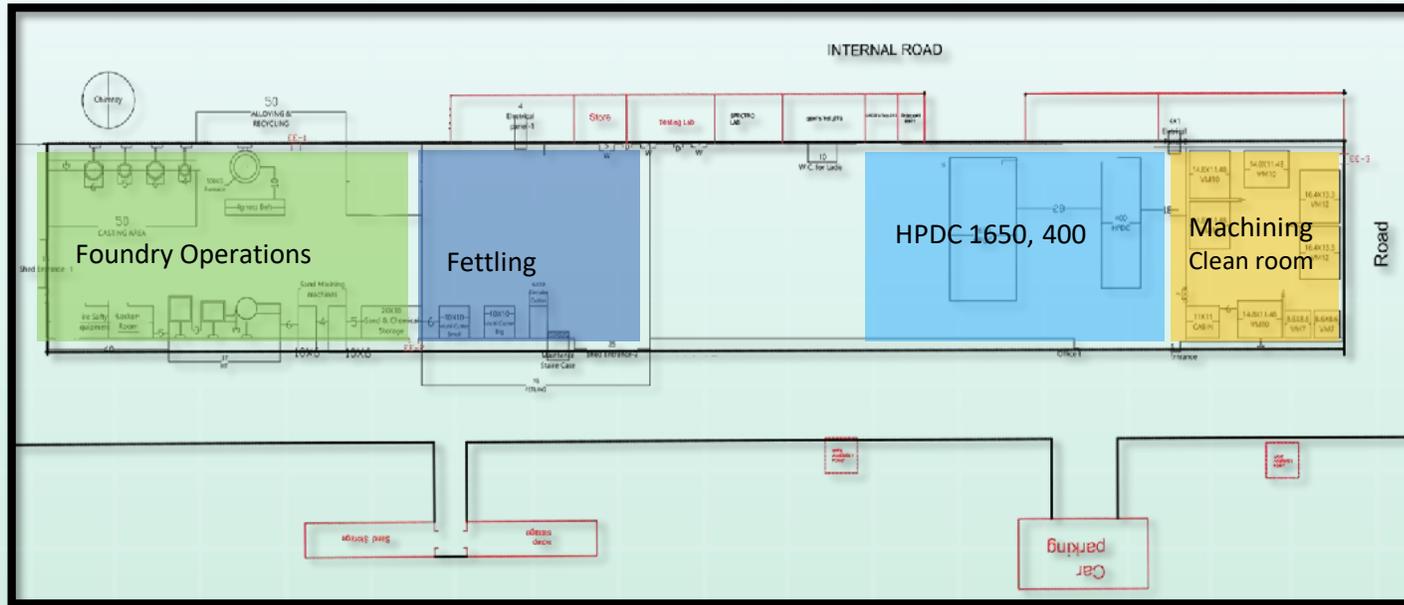
BMPL follows a dry machining process in a clean room and frequently flushes out chips to minimize fire risk.

In the event of a fire, sensors are installed inside the machine to detect the incident and trigger the automatic Class D fire hydrant. External Class D fire hydrants have been added, along with the additional safety measure of dry sand buckets.





# Fire Prevention Action plan



R & M and Scrap stored in a Rain Proof containers 35m away from the furnace, no electricity.



Full Body suits

BMPL planning to establish **SAND SPRAYING MACHINE** for extra safety.



- ⑩ Class D fire hydrants and dry sand buckets placed at critical points.
- ⑩ Fire detection alarms installed at heat treatment ovens.
- ⑩ Automatic Class D fire hydrant spraying system integrated with alarms.

## FOUNDRY ZONE



- ⑩ Fire sensors installed for early detection. Automatic fire hydrant spraying system activated by sensors.
- ⑩ Heat treatment ovens secured with fire detection alarms and Class D hydrant systems.

## MACHINE SHOP



- ⑩ Class D fire hydrants installed at dosing furnaces, supported with sand buckets.
- ⑩ Heat treatment ovens equipped with detection alarms and automatic Class D hydrant spraying systems.

## HPDC ZONE



- ⑩ Class D fire hydrants and sand buckets installed across multiple locations throughout the plant for comprehensive coverage.

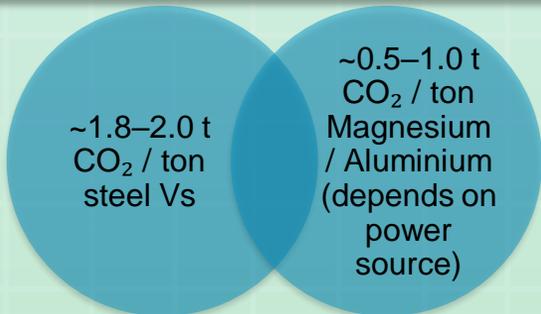
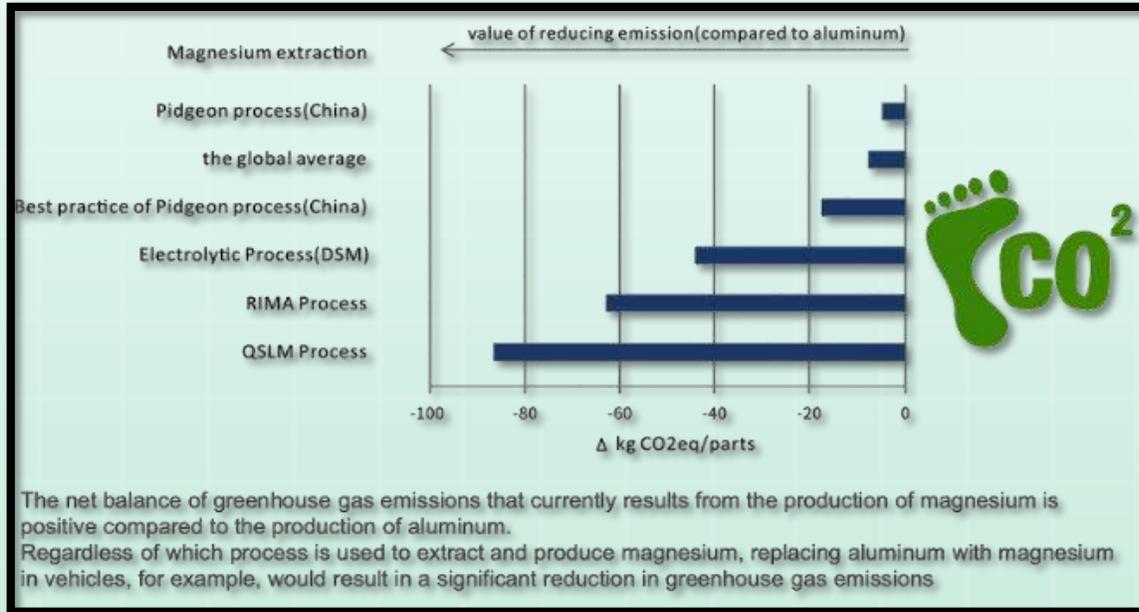
## SHOP FLOOR



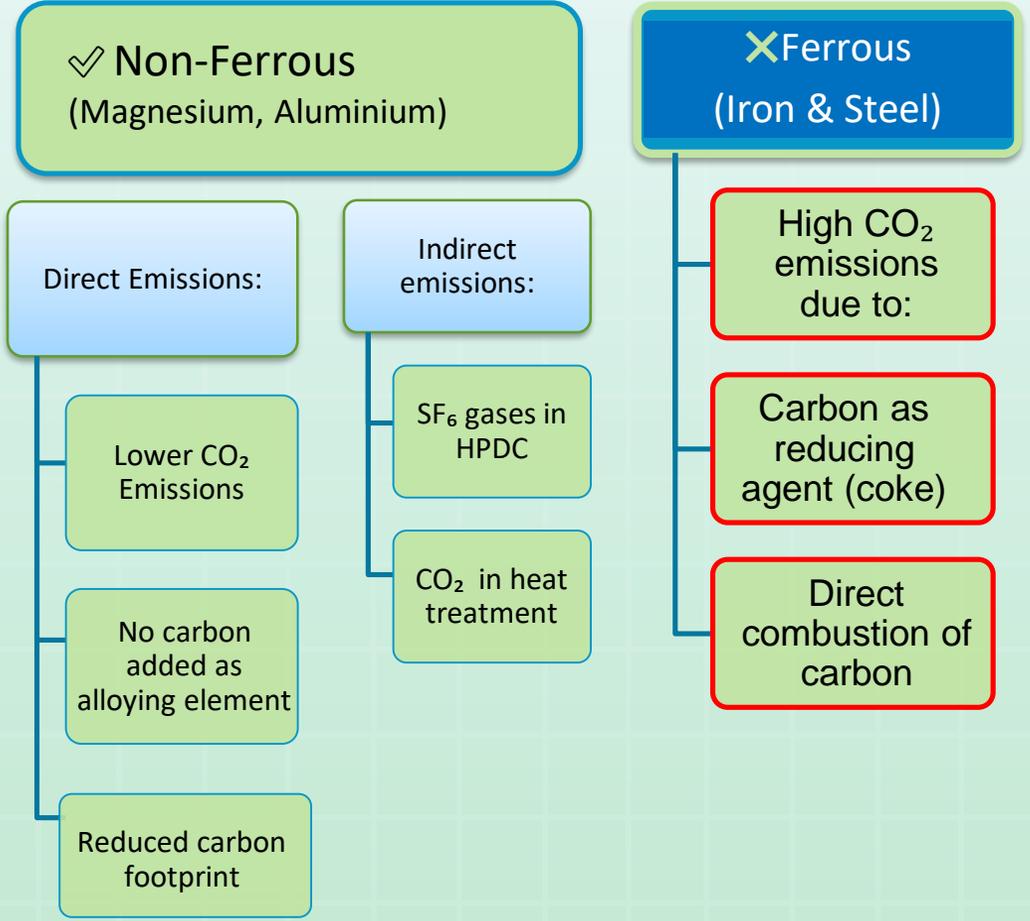


# CO<sub>2</sub> Emissions (GLOBAL)

## CO<sub>2</sub> Emission Global Extraction Process Of Mg With Various Production Process



## Comparison between Non - Ferrous Vs. Ferrous Metals





# CO<sub>2</sub> Emissions (BMPL)

BMPL Annual CO<sub>2</sub> Emissions Data (2025)

SF<sub>6</sub>  
( 2 cylinders/month )  
→ 168 kg SF<sub>6</sub> / year →  
3,948 t CO<sub>2</sub> e

CO<sub>2</sub> Cylinders  
( 2 cylinders/month ) →  
168 kg CO<sub>2</sub> / year

Electricity  
( 70 kWh/month, 30%  
solar ) → 482 kg CO<sub>2</sub> /  
year

Total ( CO<sub>2</sub> e ) ≈ 3,949 t  
CO<sub>2</sub> e / year

## BMPL CO<sub>2</sub> Emissions & Reduction Plan

### 1. Moving Toward Greener Alternatives

Adoption of **Novac™ 612** as an environmentally friendly alternative to SF<sub>6</sub>.

significantly reduces greenhouse gas impact

Continuous **process improvements** to minimize gas usage and leakage.

### 2. Recycling to Further Reduce Emissions

Magnesium alloys are being **increasingly recycled**, which:

Cuts down on raw material extraction and energy use

**Reduces CO<sub>2</sub> emissions by up to 90%** compared to primary production

### 3. Future Outlook : Near-Zero Emissions

With continued adoption of **green alternatives, recycling, and energy-efficient technologies,**

The carbon footprint of non-ferrous industries is projected to become negligible in the future.





# Sustainability Commitment



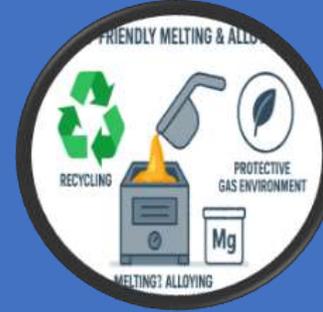
## CLOSED-LOOP RECYCLING

- 100% recycling of in-house magnesium scrap
- Reduced raw material dependency & cost savings
- Lower CO<sub>2</sub> emissions by reusing magnesium in production



## GREEN ENERGY OPERATIONS

- Powered by solar energy facility integrated with our 40,000 sq. ft. plant
- Significant reduction in carbon footprint
- Reliable, sustainable energy supporting large-scale operations



## ECO-FRIENDLY MELTING & ALLOYING

- Use of protective gas environment (SF<sub>6</sub> alternatives) to minimize greenhouse gas emissions
- Safe handling of magnesium to ensure zero environmental hazards



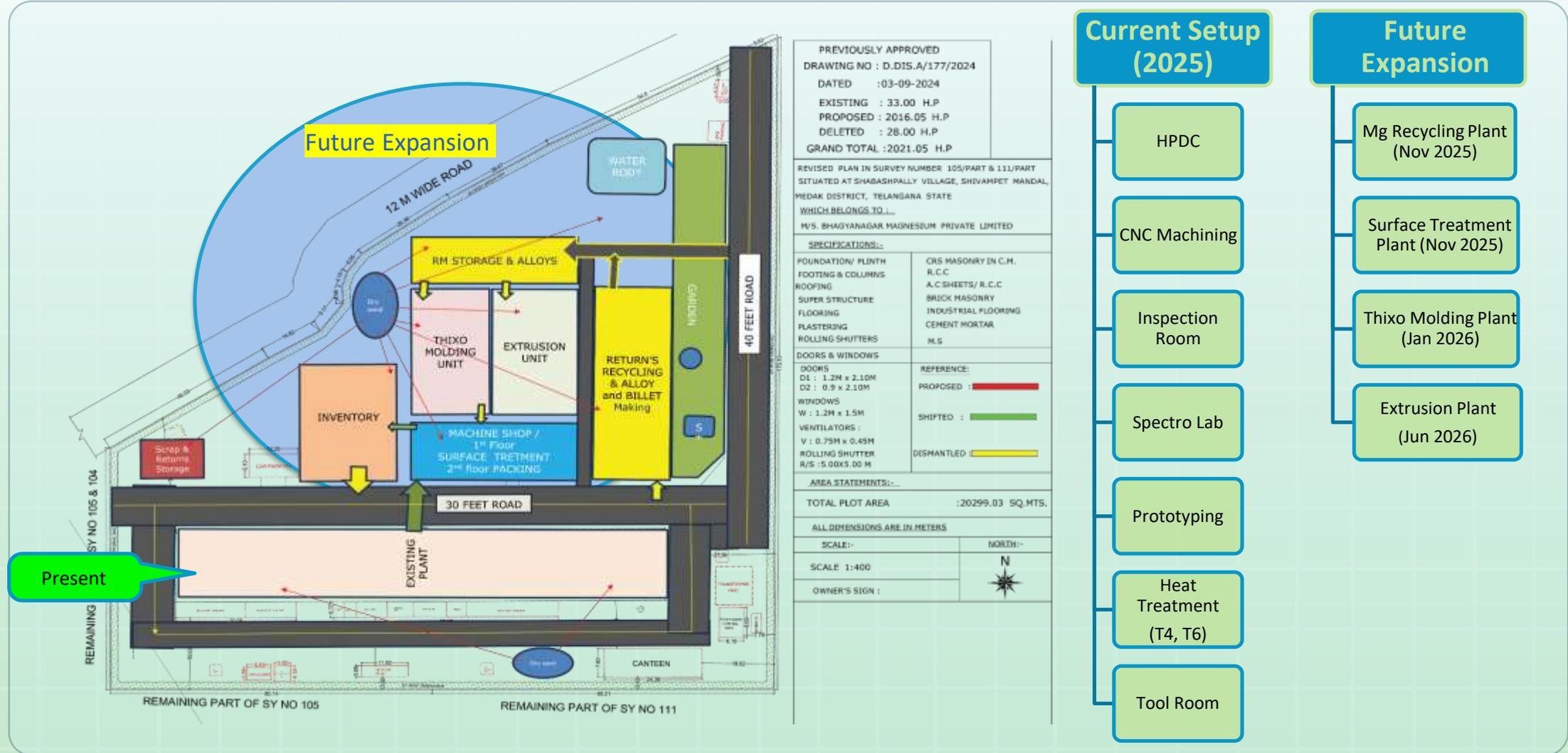
## LIGHTWEIGHTING IMPACT

- Magnesium extrusions reduce vehicle weight by 30–75%
- Directly contributes to fuel savings, lower emissions, and better efficiency
- Supports global OEM sustainability goals in automotive, aerospace, and industrial sectors



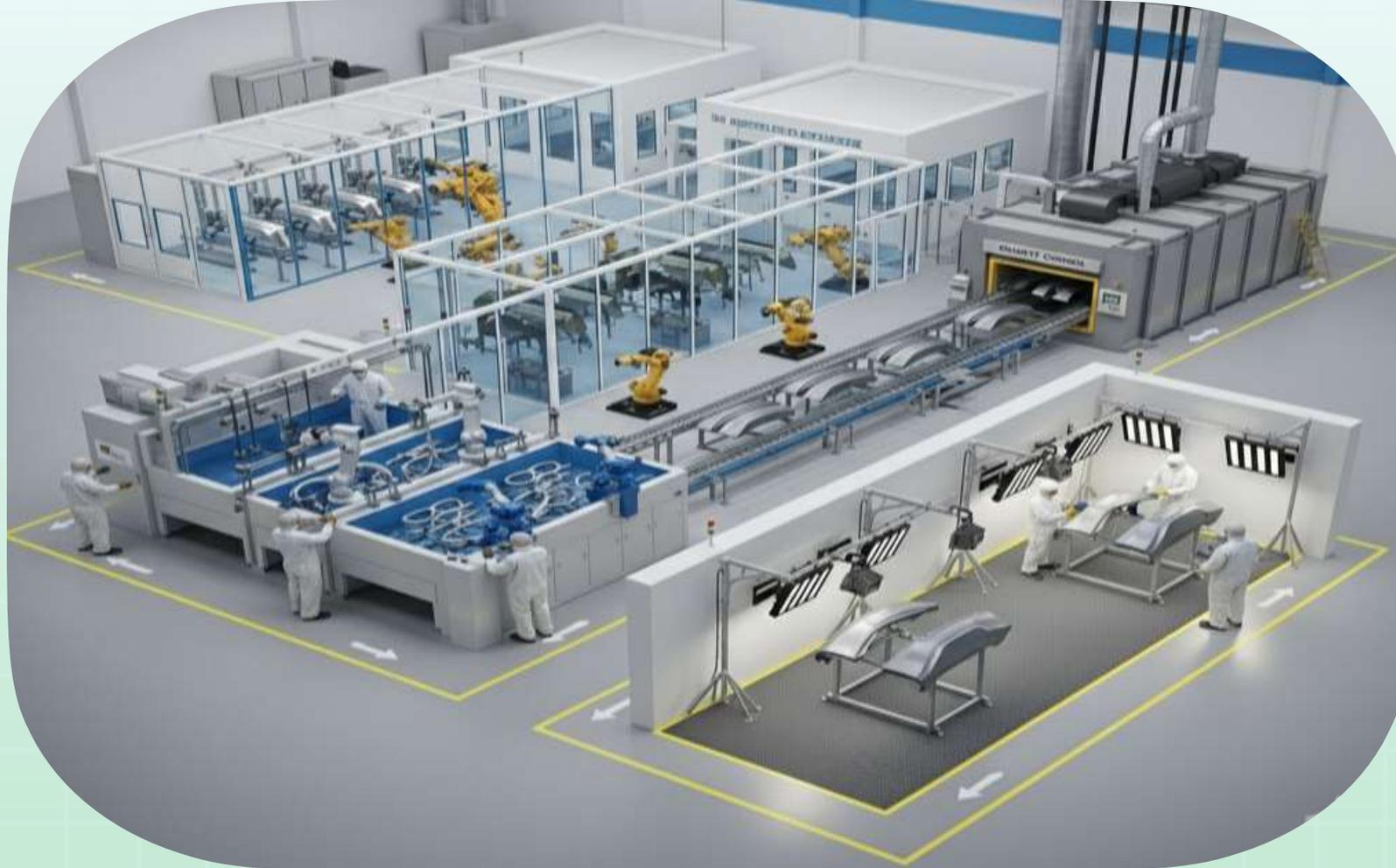


# BMPL Plant Layout - Current Setup & Expansion Plan





# Paint Shop Proposal 1

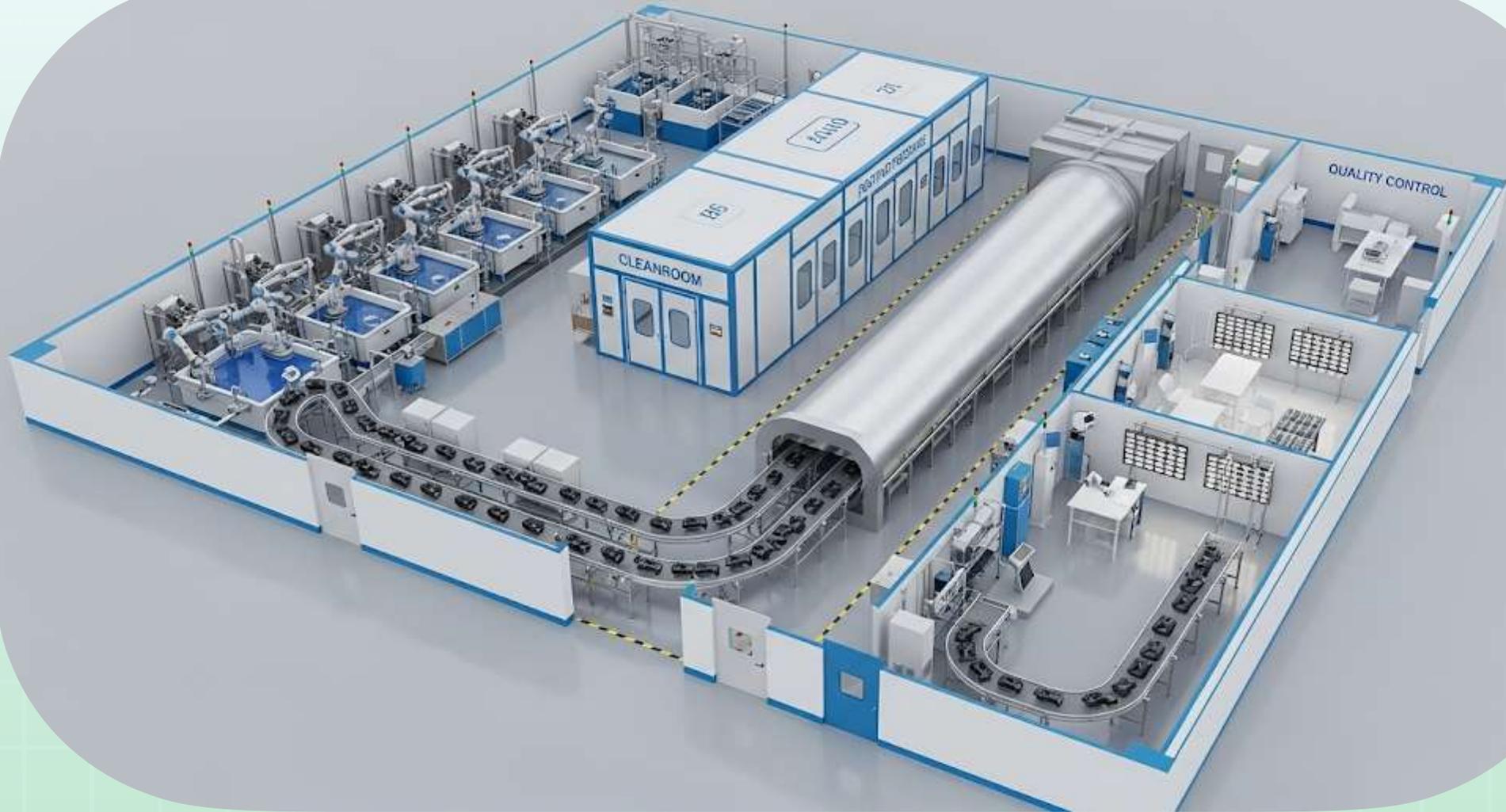


Proposals will be finalized based on projects





# Paint Shop Proposal 2



Proposals will be finalised based on projects



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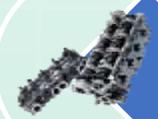
# Global benchmarking case studies Aluminium to Magnesium conversions

## Proven Case Studies Of Mg Integration Automotive Components



### Transmission Housing

- Alloy: AZ91D
- Al: 7 kg
- Mg: 5 kg(<28.57%)



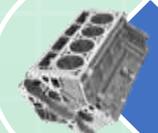
### Cylinder Head

- Alloy: AE42
- Al: 20 kg
- Mg: 12 kg(<40%)



### Cross Member

- Alloy: AZ91D / AE44
- Al: 14 kg
- Mg: 9 kg(<35.71%)



### Engine Block

- Alloy: AE44
- Al: 35 kg
- Mg: 22 kg(<37.14%)



### Wheel Hub

- Alloy: AM60B
- Al: 8 kg
- Mg: 5 kg(<37.5%)



### Shock Absorbing Tower

- Alloy: AM60B
- Al: 7 kg
- Mg: 5 kg(<28.57%)



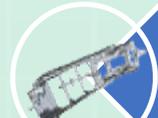
### Trunk Cover

- Alloy: AZ91D / AM60B
- Al: 10 kg
- Mg: 7 kg(<30.0%)



### Trunk Floor

- Alloy: AZ91D / AM60B
- Al: 15 kg
- Mg: 10 kg(<33.33%)



### Frame Rails

- Alloy: AE44 / AZ91D
- Al: 18 kg
- Mg: 12 kg(<33.33%)

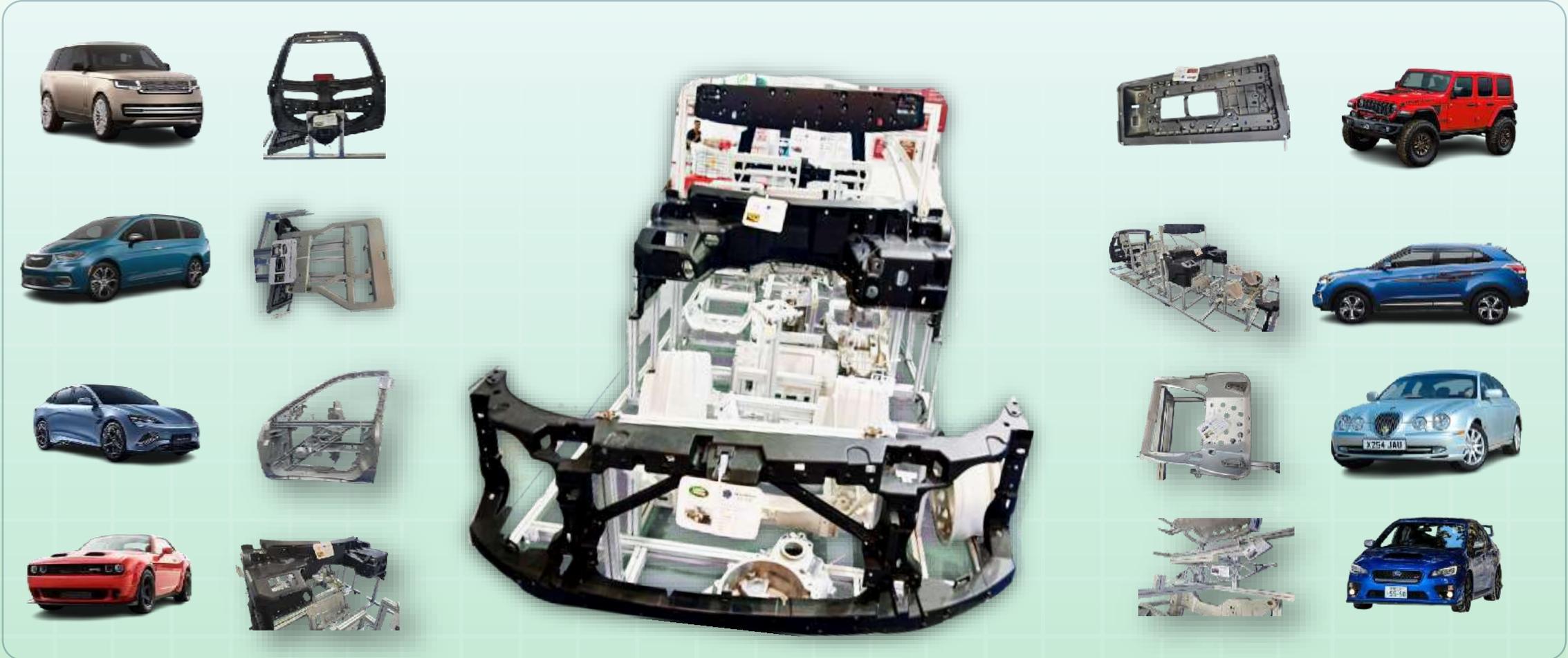


### Door Pillar

- Alloy: AZ91D
- Al: 4 kg
- Mg: 2.8 kg(<30.0%)

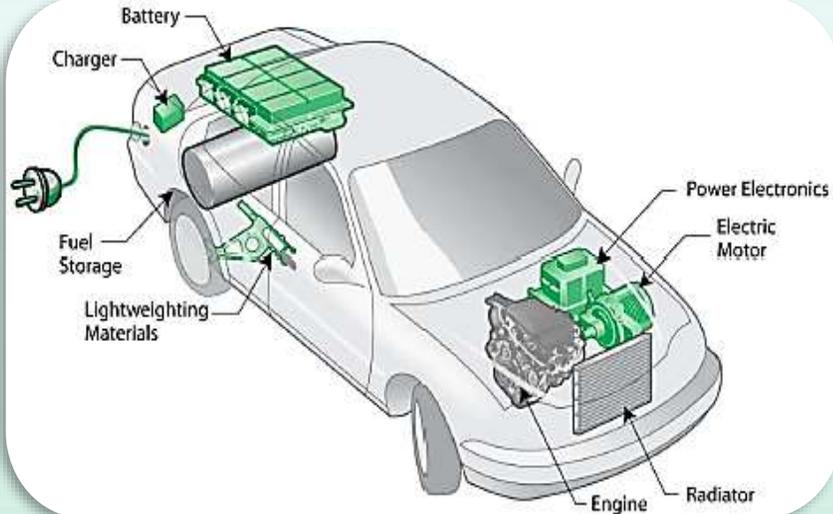


# Magnesium Parts Of International OEM's (Design To Production)





# Battery Electric Vehicles



## CASE STUDY COMPRESSOR BRACKET



VALUE REALIZATION:  
Magnesium Alloy instead of Aluminum 35% weight reduction (1.65 Kgs to 0.9 Kgs)  
Thin wall thickness

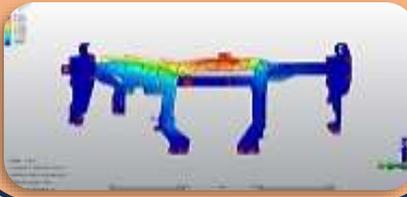
## Application

### CASE STUDY CROSS CAR BEAM



Value Realization:  
Magnesium Alloy instead of Steel 78% weight reduction (22 Kgs to 5.0 Kgs)

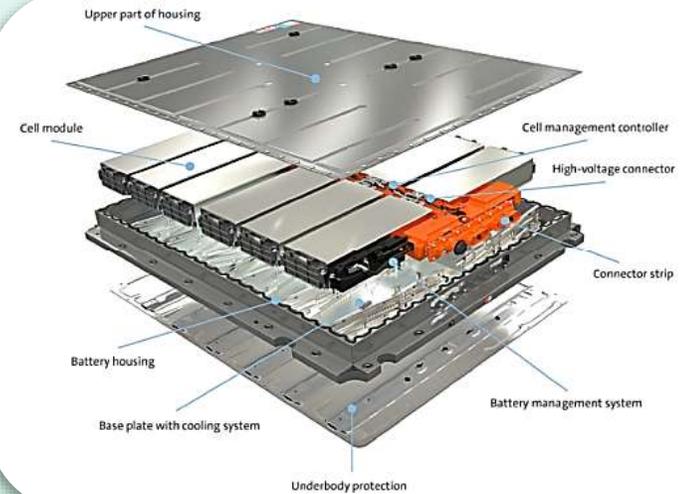
Wall thickness:  
2.0 mm L x B x H : 1550.5 x 713.38 x 731.7 mm



E- MOBILITY



Potential Application



E-Motor parts

Tank applications (Hybrid)

Transmission

AC

Charging Infrastructure

BATTERY

Battery Housings / Covers

Battery Junction Box

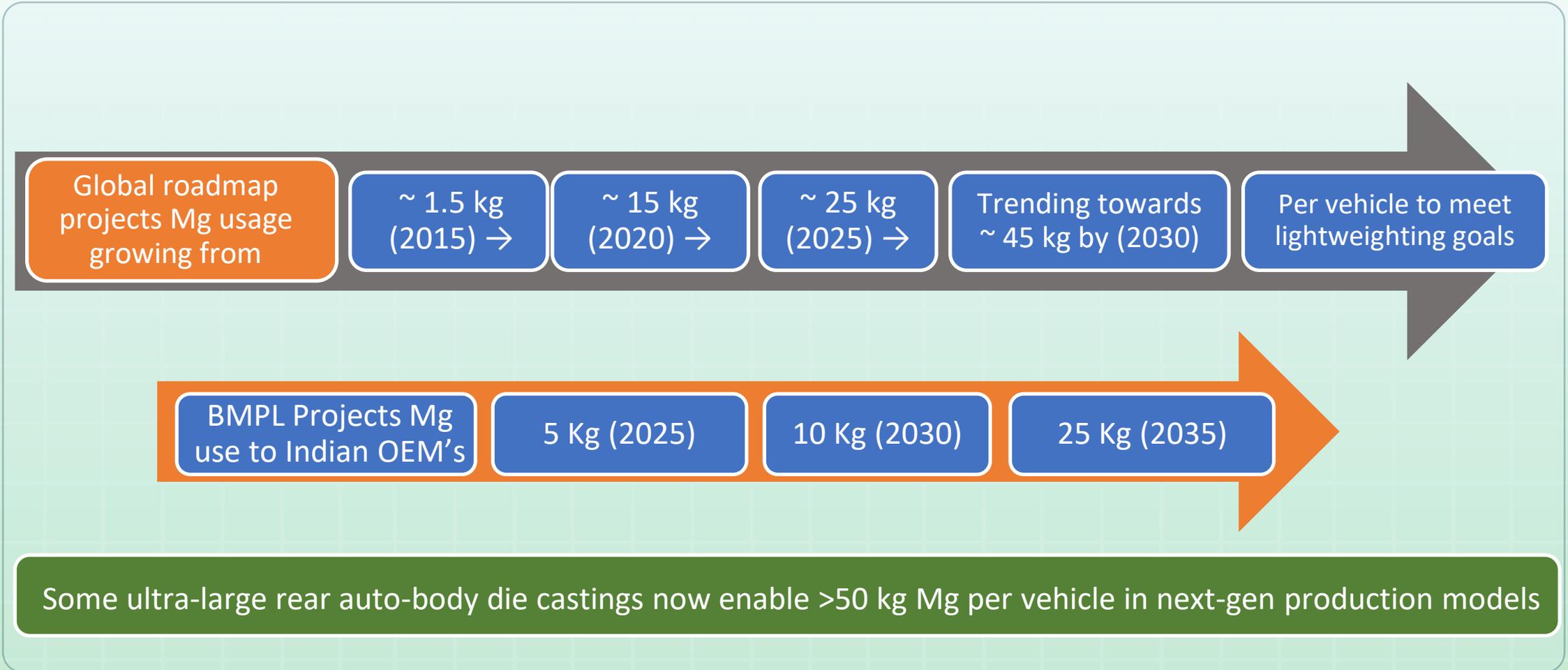
Battery Cell Modules / Holders

Battery cooling





# BMPL Adapting Strategies For Magnesium Growth & Development In India





# Project Case Studies in Magnesium

Products	Engine Oil Sump	EV Battery Casing	valve front Engine Cover
Images		 This part Under Testing at End Customer	
Weight in "kg's"	2.5	4.02	0.7
LXWXH in "mm"	475x310x115	580x480x80	300x161x25
Expected Volume / HPDC	30k / 1500 ton	10-25k / 1500 ton	70-100k / 600 ton

Products	Bracket	E-Bike Gear Box	valve front Engine Cover
Images			
Weight in "kg's"	1.2	4.02	0.95
LXWXH in "mm"	274x226x156	203.91x113.9x62.72	550x250x150
Expected Volume / HPDC	70-100k / 600 ton	300k / 200 ton (Export)	70k / 1500 ton (Export)

Domestic 3 parts Prototypes have been tested successfully. Ready for serial production looking for HPDC suppliers. 1 Part under testing expected approval within 6 month for serial Production.

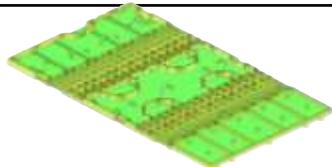
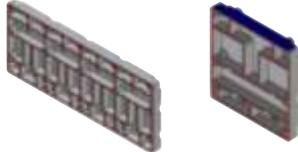
Export 2 parts Prototypes have been tested successfully. Ready for serial production looking for HPDC suppliers.



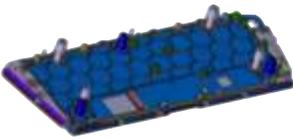


# Ongoing Project's Development

Products	Enclosure	Enclosure	Enclosure
Royal Enfield	Part 1	Part 2	Part 3
Material	Mg Alloy	Mg Alloy	Mg Alloy
Proposed Machines	1500 + Tonnage	1500 + Tonnage	1000 + Tonnage

Products	Main Shield Ant Support	MB Shield	MB Shield
Teja's Networks			
Material, Weight	AZ91D 1.08 Kg	AZ91D 0.24 Kg	AZ91D 0.12 Kg & 0.03 Kg (multiple)
Proposed Machines	1650T	400T	400T

Products	Piston
Janatics	
Material, Weight	AZ91D 0.74 Kg
Proposed Machines	500T

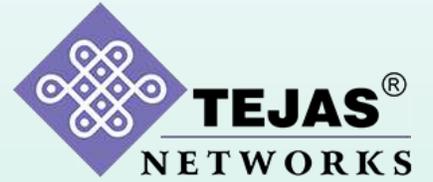
Products	Piston
BHTC	
Material, Weight	AZ91D 0.25 Kg
Proposed Machines	500T

Products	Main Shield Ant Support	TPW Fan Blade, Front Cover, Back Cover	Clutch Cover, Cover Magneto, Cover Clutch
Bajaj Electricals Bajaj Auto			
Material, Weight	AZ91D 1.08 Kg	AZ91D 0.31 Kg	Al to Mg Conversion 0.29 kg - 0.663 kg - 0.579 kg
Proposed Machines	1650T	400T	400T



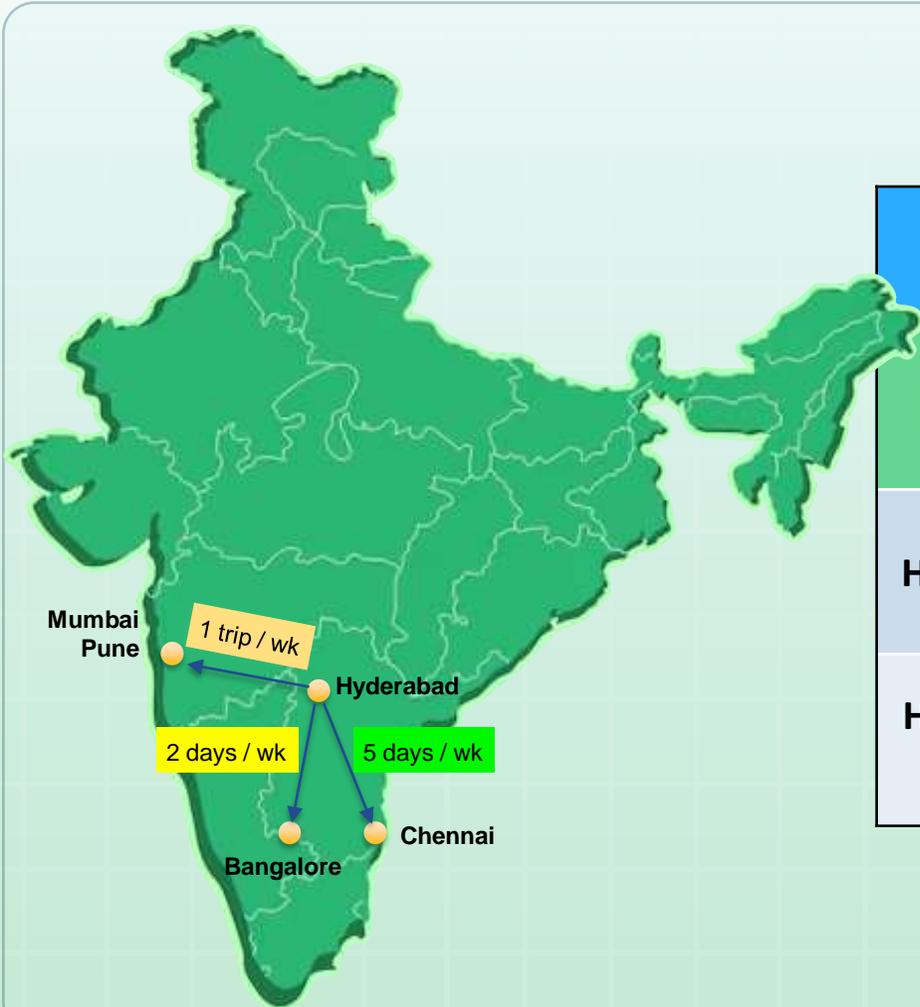


## Our Customers





# Group Logistics Facility - Regular Routes



Route / Destination	Frequency	Details
Hyderabad → Chennai	5 days per week	Daily trips (Mon–Fri)
Hyderabad → Bangalore	2 days per week	Regular service twice weekly
Hyderabad → Mumbai / Pune	1 day per week	Weekly scheduled service (fixed day)





# Quality Certifications



IATF 16949 Road Map



Kick off Aug 2025



Certification Audit Dec-Jan 2026



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# IATF-Aligned System Framework & Implementation Plan

## System Framework (Core Structure)

1. Quality Policy & Objectives
2. Document Control & Record Retention
3. APQP / PPAP / Control Plan Integration
4. Process Flow Diagram (PFD) + PFMEA + MSA
5. SPC & Special Characteristic Monitoring
6. Change Management Control (ECR/ECO)
7. Internal Audit & Management Review
8. Customer Complaints & 8D Problem Solving
9. Supplier Quality Assurance
10. Training, Competency & Skills Matrix

“All elements are structured to align with IATF 16949 clauses.”

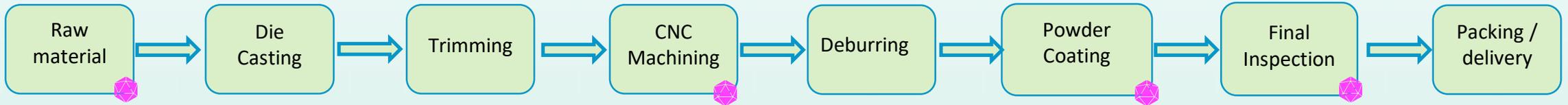
## Implementation & Training Plan

Phase	Activity Description	Target Completion
Phase 1 – Awareness	IATF overview training for all departments	Completed
Phase 2 – Gap Assessment	Internal gap audit vs IATF requirements	Completed
Phase 3 – System Design	Policy, procedures, forms documentation	Completed
Phase 4 – Staff Training	Functional training (APQP, MSA, FMEA, SPC, etc.)	In Progress
Phase 5 – System Rollout	Live implementation across functions	Nov 2025
Phase 6 – Internal Audits	IATF-aligned audits and review meetings	Dec 2025
Phase 7 – Certification	Final alignment and readiness review	Jan 2026





# Sub-Supplier Management Process



Stage	Supplier Name	Process	Location	QMS Certification	Status	Remarks
1. Raw Material	Scottish	Material Supply	Mumbai – 800 km from BMPL	ISO 9001	Approved	Certified Supplier
2. CNC Machining	ARDI	CNC Operations	Jeedimetla – 60 km from BMPL	ISO 9001	Approved	Certified Supplier
	Uniq Magnesium		Cherlapalli -60 km from BMPL	ISO 9001	Approved	Certified Supplier
	MCT		Miyapur – 65 km from BMPL	ISO 9001	Approved	Certified Supplier
	SSV Technologies		Balanagar -55 km from BMPL	ISO 9001	Approved	Certified Supplier
3. Powder Coating	Gowri Sahoo	Powder Coating	Bolaram -60 km from BMPL	ISO 9001, VDA Audit Exposure	Approved	Certified Supplier
4. Radiography	Gamma	Radiography	Balanagar -60 km from BMPL	ISO 9001	Approved	Certified Supplier
	MQS		Sanathnagar - 60 km from BMPL	ISO 9001	Approved	Certified Supplier



# Magnesium Anode Development

We are a leading supplier of magnesium anodes in India, delivering a consistent 10,000 pieces per month (over 1 lakh units annually) across multiple models.



Anode Dies



Magnesium alloy (AZ63B) melting under protective gas



Controlled pouring of molten magnesium into mold



Finished magnesium anodes after fettling and inspection

# Contact Us

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[www.surana.com](http://www.surana.com)



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# Thank You !



TEAM BMPL



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