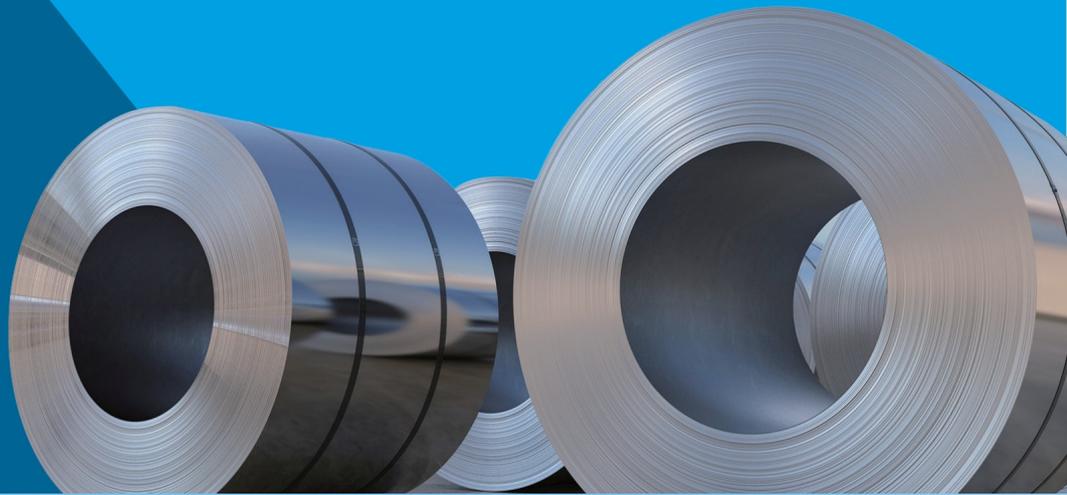


PPM Magnesium In Every Mobile



PPM

PINETREE POS MAGNESIUM

Pinetree Pos Magnesium Co., Ltd.



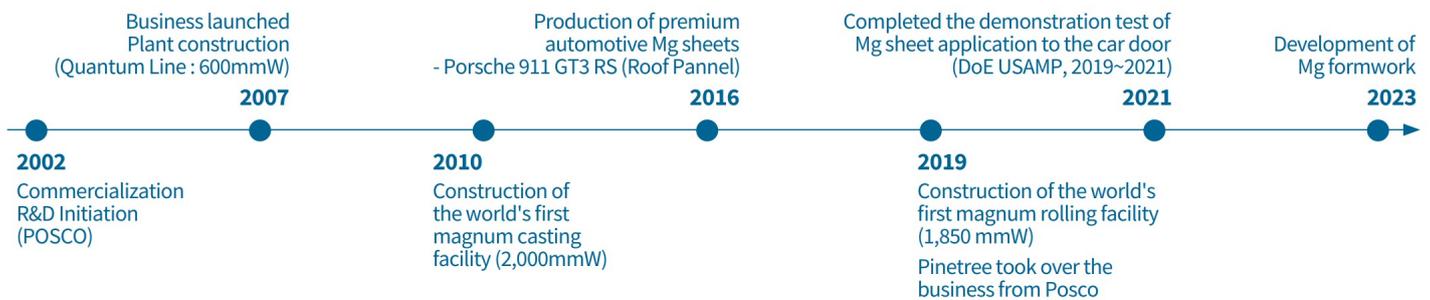
About PPM

Introducing Pinetree Pos Magnesium, where innovation meets excellence in the manufacturing of magnesium sheets. As a global leader in lightweight, high-performance materials, we provide superior solutions tailored to a diverse range of industries, including automotive, aerospace, battery technology, construction, electronics, healthcare and more. By collaborating closely with our customers, we help bring innovative products to market. Moving forward we are continuously enhancing our competitiveness by developing unique production processes and customer support technologies, while prioritizing cost efficiency and ensuring customer success.

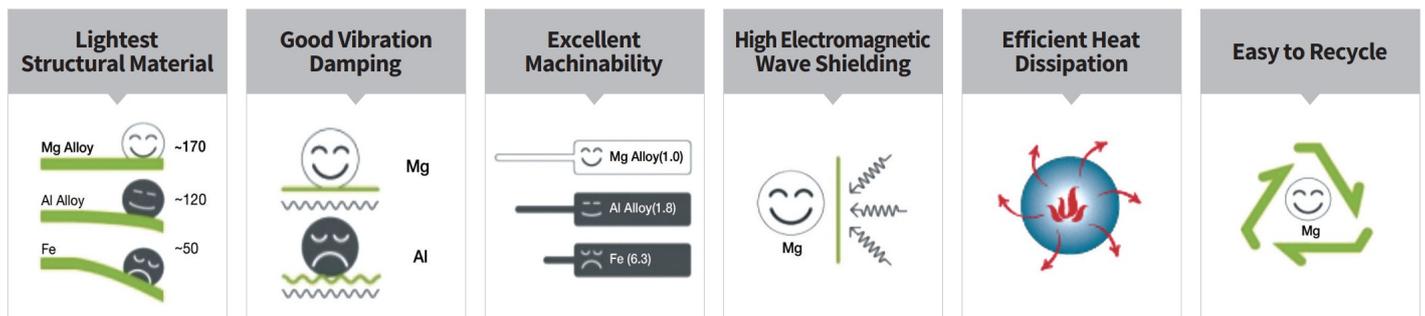


History of PPM

PPM was established by taking over all assets and intellectual property of the magnesium business previously invested in and operated by POSCO. Building on the foundation laid by POSCO, we are committed to further advancing magnesium sheet technology and production. We are the only company in the world capable of producing wide-width magnesium cast strip (2,000mm) using Twin Roll Caster.

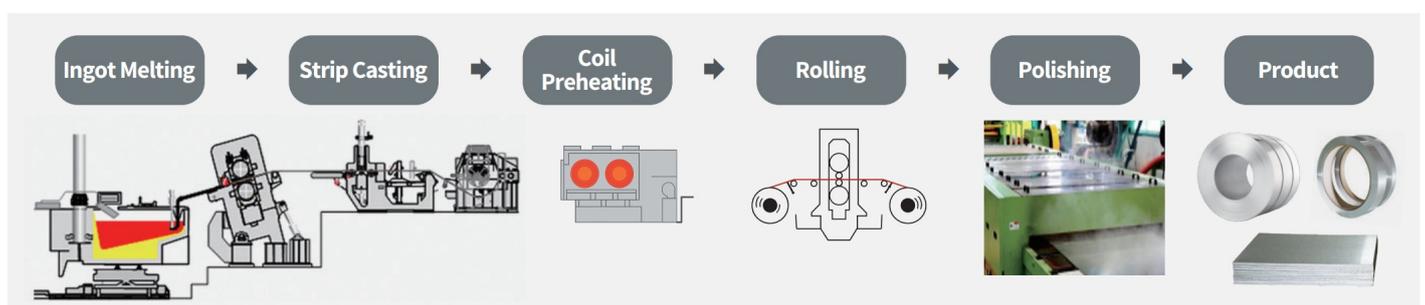


Advantages of Magnesium



Production Process

PPM has simplified existing manufacturing process, reduced production time and cost through continuous Twin Roll Casting and reversible warm rolling technologies.





Core Competency

	Core competencies	Main content
Casting technology	“Casting Technology using Twin Roll Caster”	<ul style="list-style-type: none"> • More than 20 years of strip casting research have validated its capacity and quality for mass production. • The alloy simplifies the process with continuous thin strip casting using Twin Roll Casting, enhancing productivity and economic feasibility.
Rolling technology	“Wide strip shape control and warm rolling technology”	<ul style="list-style-type: none"> • Design and installation of Mg strip rolling mill <ul style="list-style-type: none"> - Simplifies the process with online heating and reversible rolling • Development of rolling technology <ul style="list-style-type: none"> - Includes wide strip shape control and heat treatment technologies
Alloy development	“High formability alloy E-form Plus”	<ul style="list-style-type: none"> • 3x higher formability than AZ31B • This high formability has significantly expanded the applications of Mg sheets, including: <ul style="list-style-type: none"> - Laptop covers and automotive roof panels - Selected by the US Department of Energy as an alloy for developing an ultra-lightweight Mg Door for vehicles

Product Types



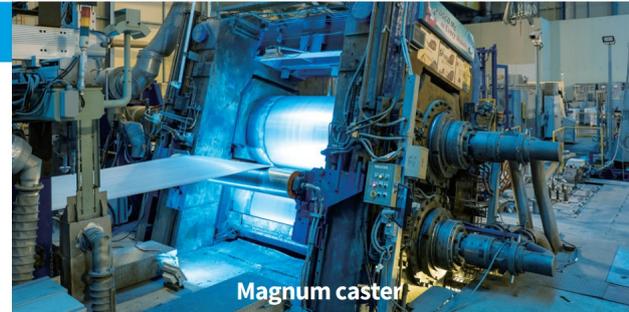
Coil



Skelp



Sheet



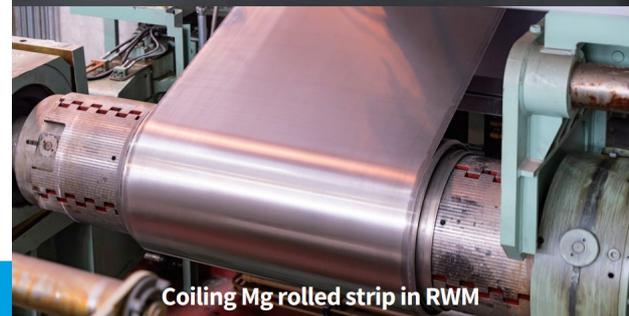
Magnum caster

Products Specification

Type	Thickness (mm)	Width (mm)
Quantum (Narrow Sheet)	0.3 ~ 4.0	350 ~ 550
Magnum (Wide Sheet)	0.4 ~ 6.0	900 ~ 1,800



Producing 2,000mm wide cast strip



Coiling Mg rolled strip in RWM

Physical Properties of Products

- E-form Plus A lightweight, flame-resistant, easy-to-form, and cost-effective alloy offering superior formability compared to AZ31B, even at lower temperatures. This enhanced formability provides customers with increased design flexibility while reducing operating costs in stamping processes.
- Available alloys include AZ31B, AZ61, AZ91, and AXM410
- We are also developing ultra-thin sheets using a foil rolling mill, with rolling tests currently underway.

Alloy	Thick. (mm)	YS (MPa)	UTS (MPa)	EL (%)	Erichsen Value (mm)	Typical Forming Temp.
AZ31B	0.2~0.8	190~210	260~280	19	~3.0	250°C
	1.0~2.0	170~190	250~270	17		
	2.5~3.0	155~170	240~260	14		
E-form Plus	0.2~0.5	140~180	240~265	~25	7~9	150~180°C
	1.0~1.4	140~160	245~260	~25		

Mg Application Cases

 <p>PORSCHE 911 GT3 RS / 911 R</p> <p>33% Lighter</p> <p>PORSCHE Magnesium Roof (Al 3.1 → Mg2.1kg)</p> 	 <p>RENAULT EoLab</p> <p>Mg Roof 55% Lighter</p> <p>Dash lower 60% Lighter</p> 	 <p>RENAULT SAMSUNG SM7 Nova</p> <p>58% Lighter</p> <p>Mg Luggage Retainer (Steel3.4 → Mg1.4kg)</p> 	 <p>SSANGYONG Corando C</p> <p>Mg Speaker Diaphragm - Super thin (0.2mmT) Mg sheet - For automotive & IT/mobile</p> 
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Mg A, D-Cover

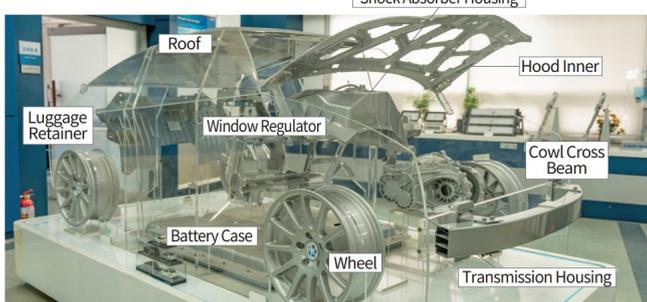
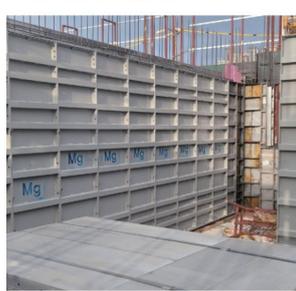
- Press at room temperature
- Thickness: 0.4~0.5mm
- Sales: 1,000,000ea/year






PPM Magnesium in Every Mobile

The superior properties of magnesium sheet allow for its use across various industries.

<p>Automotive</p>  <p>Shock Absorber Housing Roof Hood Inner Luggage Retainer Window Regulator Cowl Cross Beam Battery Case Wheel Transmission Housing</p>	<p>High-speed Train</p>  <p>Cabin floor Passenger car's Floor & Wall, Seat</p>	<p>Aerospace</p>  <p>Airplane Interior, Part</p>  <p>Drone, Helicopter</p>	
<p>Battery</p>  <p>BatteryPlate</p>  <p>Seawater battery</p>	<p>Construction</p>  <p>Mg formwork</p>	<p>Electronics</p>  <p>Laptop cover</p>  <p>TV back panel</p>	<p>Others</p>  <p>Knee brace</p>  <p>Suitcase</p>

Contact Information

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