

Confidential

# Company Information

Initiative of Magnesium business adapted to carbon neutral



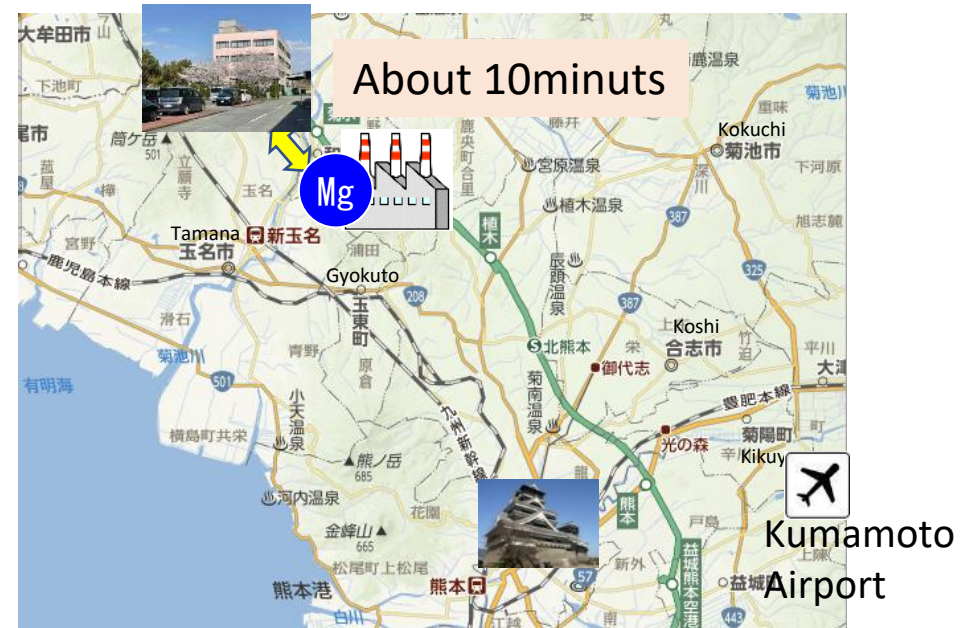
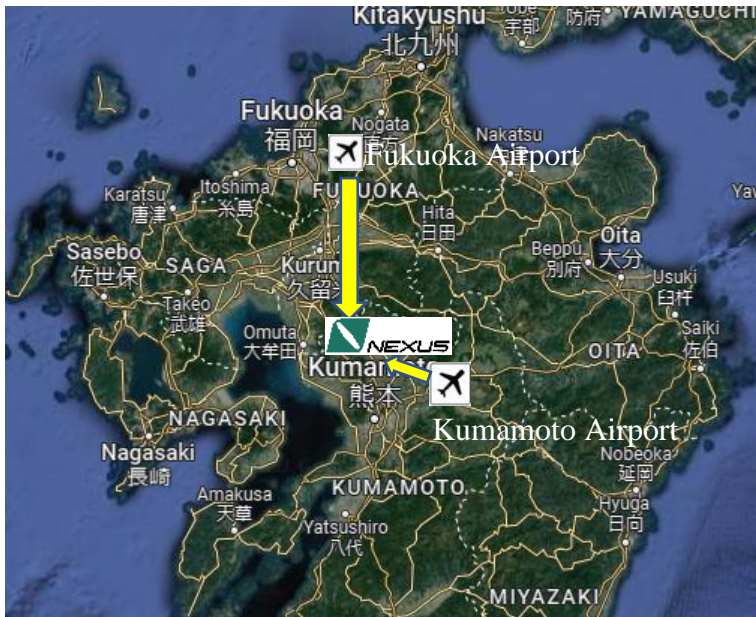
Injection molding of Magnesium alloy and super engineering plastic PEEK

Handling caution



# Company Profile/ Location

Located at North Kumamoto  
(prefectural border with Fukuoka)



**Main office and factory**

**Main office : 1683-4 Shimosakashita, Nankan-town, Tamana District, Kumamoto 861-0821**  
**Mgnesium factoty : 490 Segawa, Nagomi-town, Tamana District, Kumamoto 865-0135**

Access: About 1 hour from Fukuoka Airport by Express Bus or car.  
About 15minuts from the Shintamana Sta.

## Notice

1. About 2 hours from Kumamoto Airport by public transport
2. About 50 minuts from Kumamoto Airport by rental car
3. It is useful to get off at the Shintamana Sta From the Fukuoka airport
3. Around Kumamoto Sta. or Kumamoto castle convinient for staying



**Kumamoto factory  
of Magnesium**



# Company Profile/ Location



## Business site for south-western and central part of Japan.

There are **thixomolding maker** and **material manufacturer** near the production site.

## Magnesium factory at Gifu

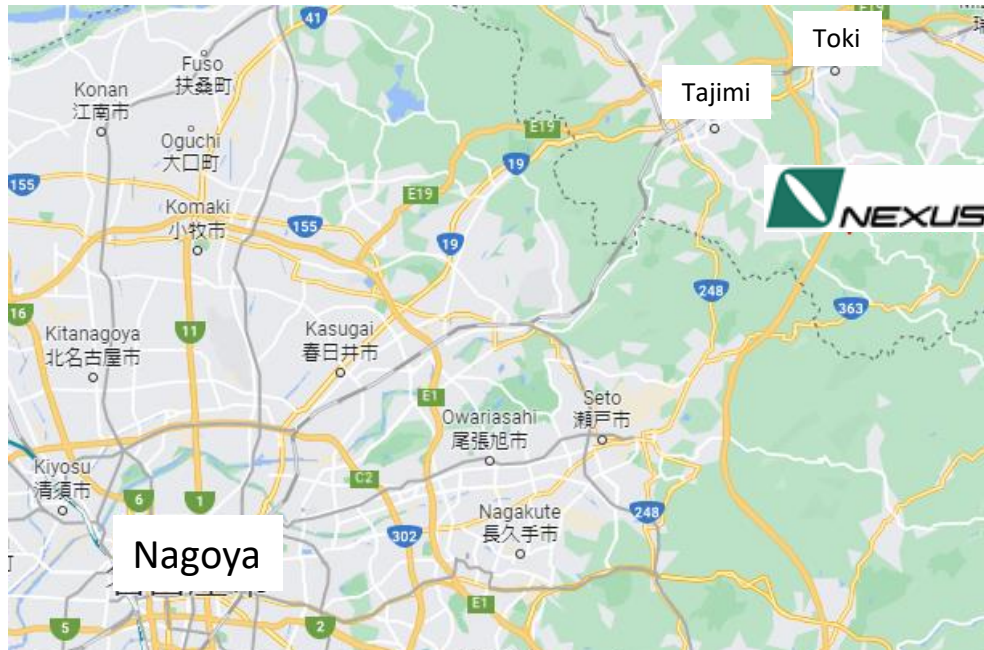
20 minuts from Tajimi Sta.

**70minuts from Nagoya Sta.by the car**



Newly established the factory dedicated Mg product at 2018.

**First factory of thixomolding at the central part of Japan.**



**70minuts from Nagoya by the car.**



**Adress : 3143-1 Tsumagi-town, Toki-city, Gifu**

# Company Profile



1. Company name :Nexus Co., Ltd.
2. Location :  
Main office  
1683-4 Shimosakashita, Nankan-town,  
Tamana District, Kumamoto, 861-0821  
Kumamoto factory  
490 Segawa, Nagom-town, Tamana District,  
Kumamoto, 865-0135  
Gifu factory  
3143-1 Tsumagi-town, Toki-city, Gifu, 509-5301
3. Capital : 91.7 million yen
4. Employees : 181
5. Directors:Representative Director and President  
Junichi Hirazawa
6. Business content
  - ① Design and Production of injection mold  
for plastic and magnesium alloy
  - ② Injection molded product of plastic and  
magnesium alloy
  - ③ Paintiing, Printing and Laser marking
  - ④ Factory automation
  - ⑤ Assembly

## 7. Main client

- ①Elematec Corporation／Marelli Corporation In-vehicle unit
- ②Sumitomo wiring systems Mold for in-vehicle parts
- ③Toyodenso Co.,Ltd. In-vehicle electrical component
- ④TOTO Platechno Ltd. Parts of toilet facilities
- ⑤Toyota Tsusho Corpration In-vehicle parts  
／Toyota Boshoku Corporation
- ⑥Naganuma Shoji Co., Ltd. In-vehicle parts  
／Visteon Corporation
- ⑦Honda Motor Co., Ltd. Motorcycle parts
- ⑧Mitsubishi Electric Corporation (Sanda) In-vehicle parts
- ⑨U-Shin Ltd. In-vehicle parts



## History

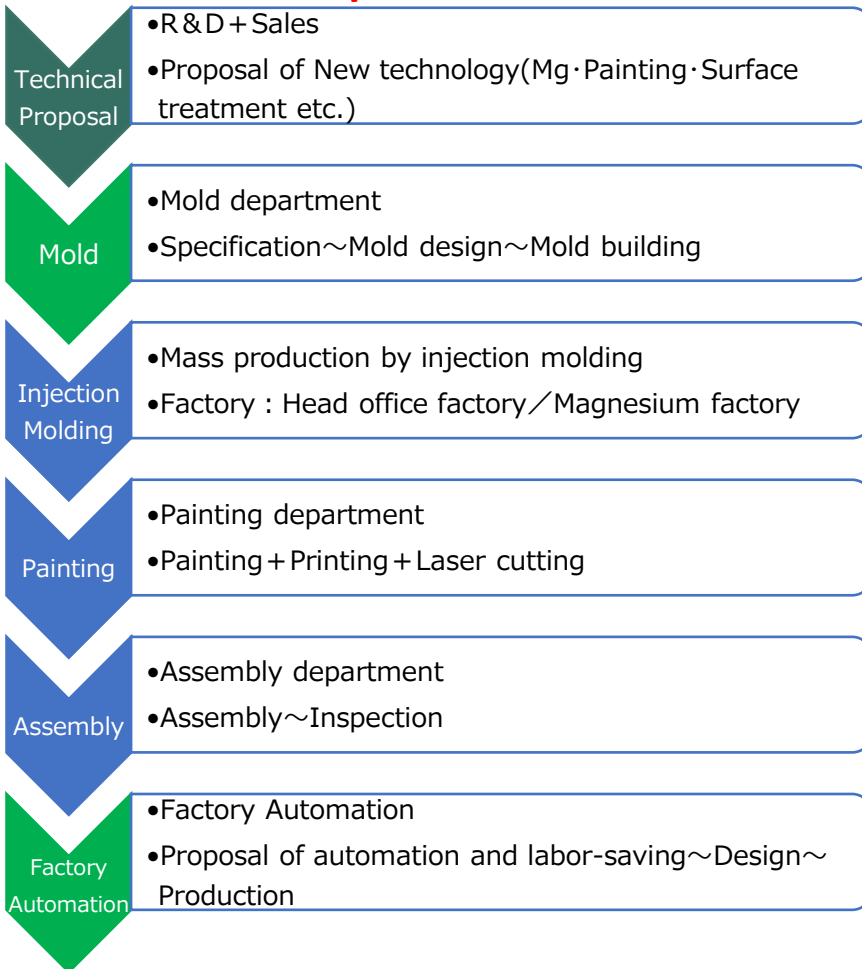
July 1964	Asahi-Sangyo Co., Ltd (current Nexus) established in Hirakata-city, Osaka.
March 1970	Established mold department.
October 1973	Established Kikusui Factory in Nagomi-cho, Tamana-gun, Kumamoto
July 1975	Newly relocated the head office factory to Kasuga Nishimachi, Hirakata-city, Osaka
April 1977	Newly relocated mold factory to Kikusui factory
April 1984	Established Izushi Factory in Izushi-cho, Izushi-gun, Hyogo
March 1985	Relocated the mold factory to Nankan-cho, Tamana-gun, Kumamoto.
January 1986	Molding factory moved to Izushi factory
July1987	Relocated the main factory to Nankan-cho, Tamana-gun, Kumamoto.
March 1988	.Amakusa Plant was established in Sumoto-cho, Amakusa-gun, Kumamoto
July 1991	Company name changed to Nexus Co., Ltd.
March1993	Expanded the main factory. Consolidation of factories to main factory.
May 1993	Relocated Amakusa Factory to Nankan-cho, Tamana-gun, Kumamoto
September1998	Introduced magnesium alloy injection molding machine
October 2002	ISO9001certification acquired
March 2004	MG-factory relocated the factory to Nagomi-cho, Tamana-gun, Kumamoto
October 2007	ISO14001certification acquired
December 2018	Established Gifu factory (magnesium alloy) Certified as a “regional future driving company” by the Ministry of Economy, Trade and Industry
May 2020	Accemby Started in-vehicle embedded unit business

## Business History

Jury 1964	Production of Radio antenna case.
March 1970	Production of TV parts (deflection yoke, FBT-Bobbin etc.).
April 1977	Production of in-vehicle electrical component(ignition coil).
April 1984	Production of Analog electronic component.
June 1987	Production of Ultra-precision mold.
February 1992	Production of molded parts for electronic parts.
July 1992	Production of electronic components (deflection yoke coil key ring antenna).
September 1998	Starting of production of PC case with Magnesium alloy.
May 2004	Production of body of single lens reflex camera using Mg alloy.
December 2018	Production of in-vehicle electrical components using Mg alloy.
May 2020	Started production of in-vehicle units.

## One Stop Manufacturing

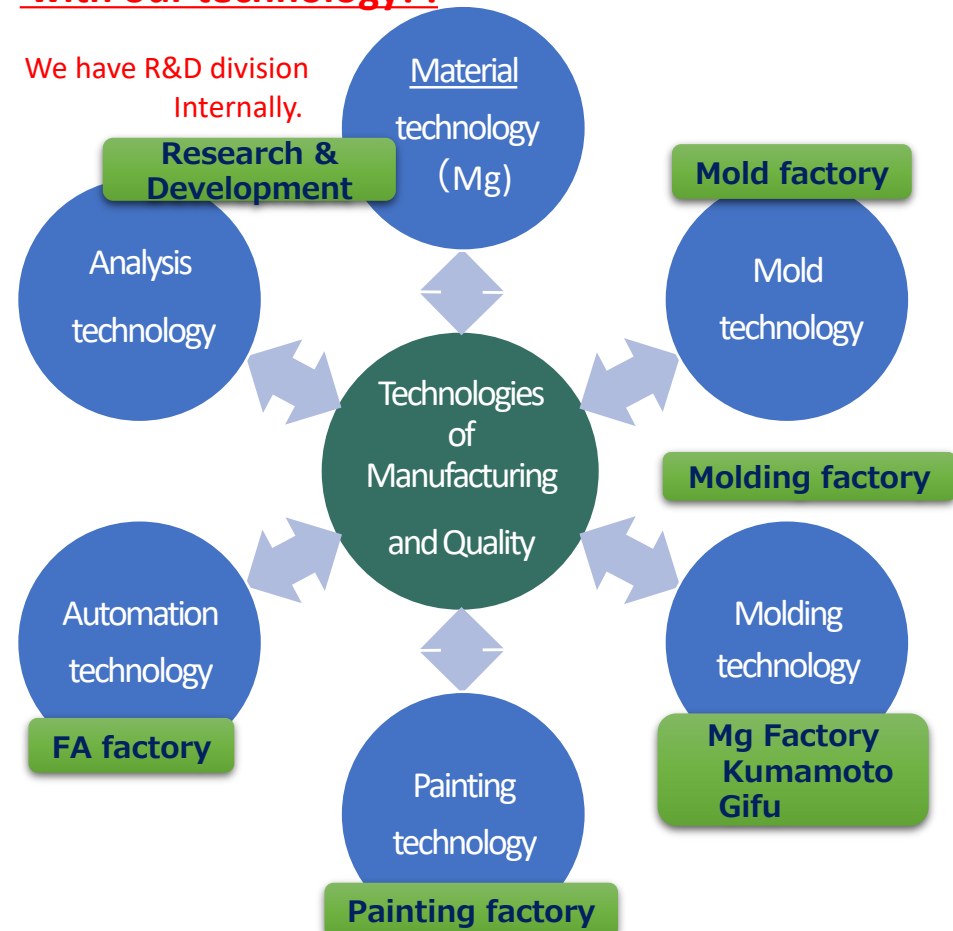
**We offer one-stop service for Your dreams.**



## Integrated engineering

**We can Propose strategies to customers quickly with our technology! !**

We have R&D division Internally.



**Proposing optimal coordination from R&D to mass production**



# Machine list / Mg injection molding



## Kumamoto Factory

	Machine equipment name	size Model	Maker	number
1	Mg injection molding machine	650t JLM650-MG	JSW	1
2		650t JLM650-MG II e	JSW	1
3		220t JLM220-MG	JSW	2
4	NC milling machine	TNC type	Enshu Manufacturing	1
5	CNC tapping machine	TC-22A-0	Brother Industries	1
6		TC-S2B	Brother Industries	1
7		α-T14iDL	FANUC	3
8		α-D21LiA5	FANUC	1
9	Blasting device	DZB-2MT-157	Sintokogyo	1
10	Clean vest automatic cleaning device	TC-M-HUB-400 No.574	Taisei Clean Chemical	1
11	Hydraulic press	20t HYP2000P	Japan Automatic Machine	2
12	Hydraulic press	10t HYP1000P	Japan Automatic Machine	1



## Gifu Factory

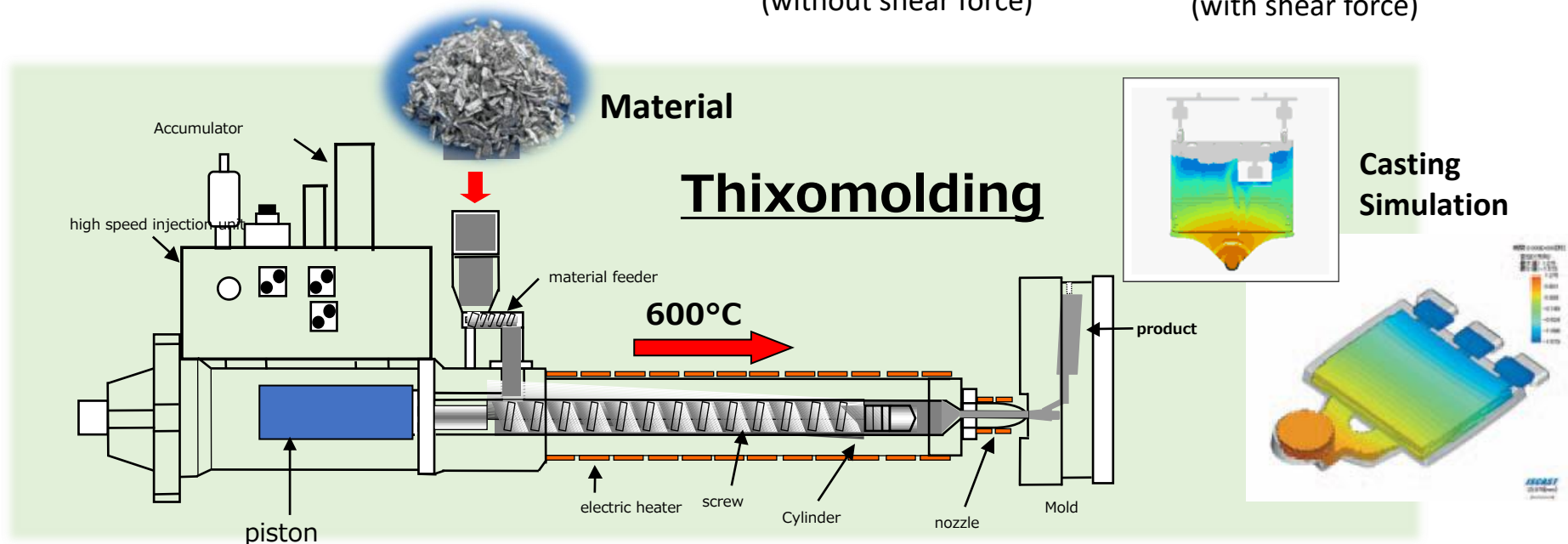
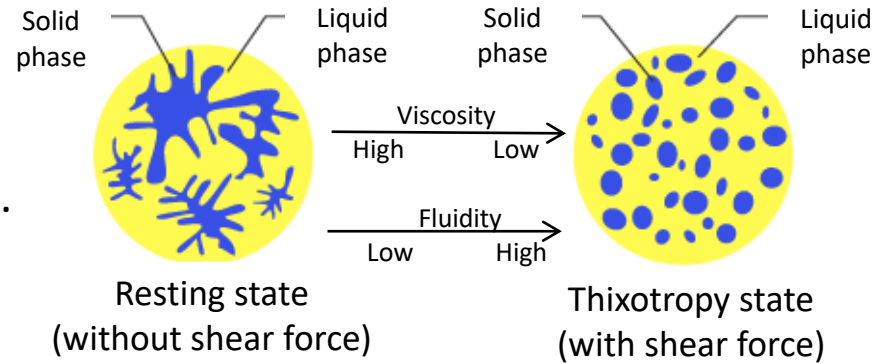
	Machine equipment name	size	Model	Maker	number
1	magnesium injection molding machine	850t	JLM850-MG	JSW	2
2		650t	JLM650-Mg II e	JSW	1
3		650t	JLM650-MGIIIE	JSW	1
4	Small cutting machine ROBODRILL		α-D21LiB5	FANUC	6
5	medium-sized handling robot		M-710iC/45M	FANUC	2
6	small handling robot		M-10iA/7L	FANUC	2
7	Horizontal 3Tank-type fully automatic cleaning equipment		TC-Y3	Taisei Clean Chemical	1
8	centering microscope		TS-FL-20	Chuo Seiki Co., Ltd.	1
9	TIG welding machine		YC-150TM	National	1
10	General-purpose milling machine		KSJP-55	Makino Milling Machine.	1
11	Surface grinder		MSG-25SE	Mitsui High-tec	1
12	hydraulic press	50t		Manabe Iron Works	2
13	hydraulic press	30t	HYP3000P	Japan Automatic Machine	2
14	Index type shot blasting machine		HBF-153X	Nitchu	1
15	wet dust collector		NWS-43M/X	Nomizu Machine Works	1
16	dry ice blasting machine		TDSD-2	Fuji Manufacturing	1



**We have know-how about Mg injection molding (from mold development to coating)**

## Thixomolding method

A method of injecting **semisolid Mg alloy** into the mold at high speed and high pressure.






# Magnesium injection molding business



# Magnesium injection molding business

**AZ92A Castings**

provided by Consolidated Foundries



Thrust Reverser Cascade Casting

Found on:

- 737
- 747
- 757
- 767

**ZE41 Castings**

Sikorsky UH60 Family (Blackhawk)



Transmission designed in ZE41 for 1/2 hour dry run capability

**AZ91E Castings**

Sikorsky CH53D Sea Stallion

630 lbs. (285 kgs.)



**ZE41 Castings**

Pratt & Whitney Canada PW535 Turbofan  
PW500 Family 2,500 to 4,000 lbs Thrust



Boeing 787 Dreamliner

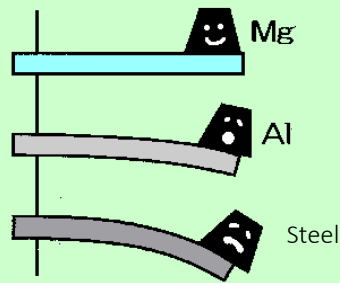
**Magnesium Elektron**  
SERVICES & INNOVATION IN MAGNESIUM

# Magnesium Characteristic

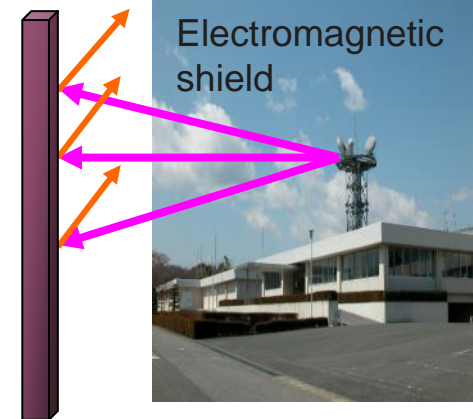
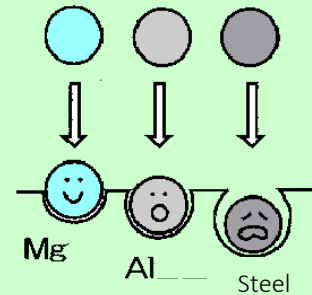
Weight comparison



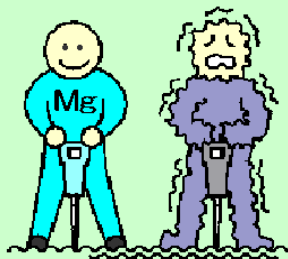
Rigidity comparison



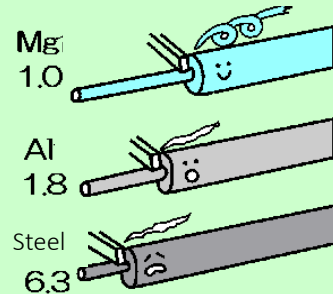
High dent resistance



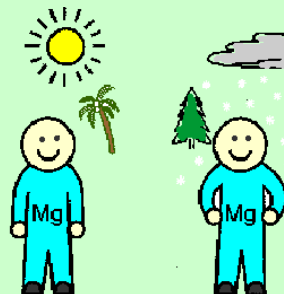
Vibration absorption



Low cutting resistance



Low dimensional change



Lower energy  
for Recycle



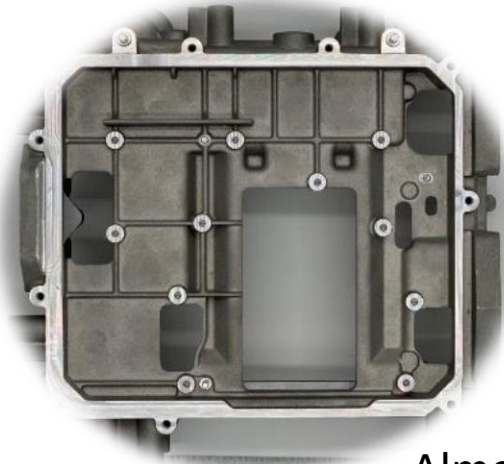
# Weight saving strategy - Inverter case

**Mg-alloy is 30% lighter than Aluminum die casting(ADC12)**

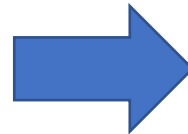
**We can also propose high thermal conductivity Mg-alloys.**

Achieved 30%weight reduction

Weight:2.3kg



Aluminum die casting  
(ADC12)



Weight:1.46kg



Magnesium thixomolding  
(AZ91D)

Almost the same shape



Motor case

Scope of application:HUD·heat sink·CIDs · ECU · PCU · Motor case etc.

# Vibration damping property

## Good Vibration damping of Magnesium

Magnesium have good vibration damping property.

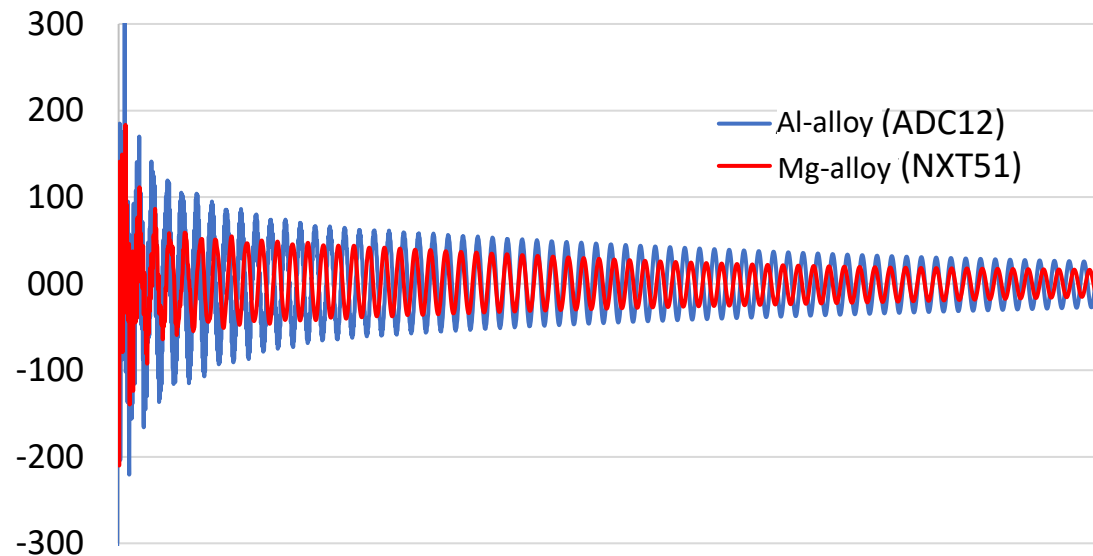
Developed Mg-alloy NXT-51 have particularly good compared to Al-alloy.

Material	Ratio
Pure Mg	1.041%
NXT51(Developed)	0.769%
AZ91D(Common)	0.493%
ADC12 (Al)	0.173%

Good



Comparison of Al-alloy and developed Mg-alloy



This material is ideal for applications which vibration and noise are unacceptable.

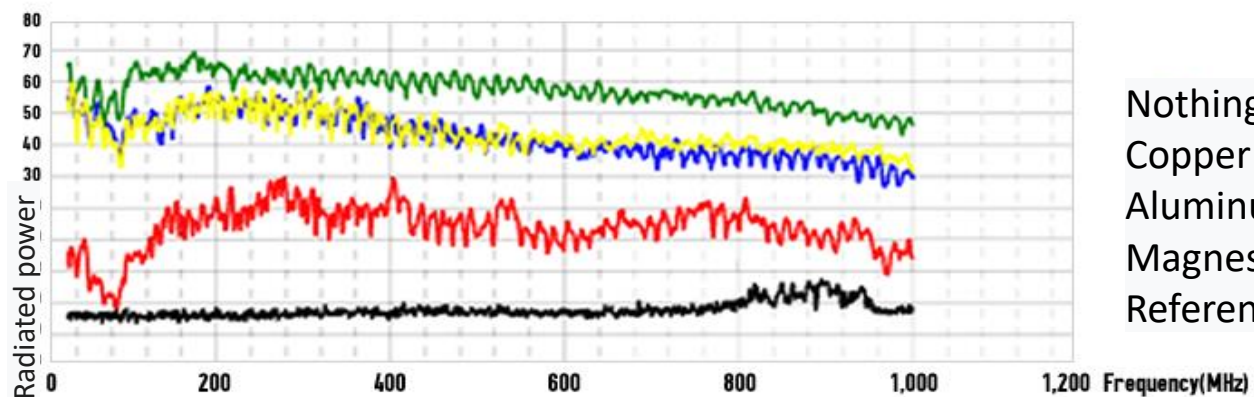
Contributes to the music scene with high sound quality and light weight!



# Electromagnetic shield properties

## Electromagnetic shield properties

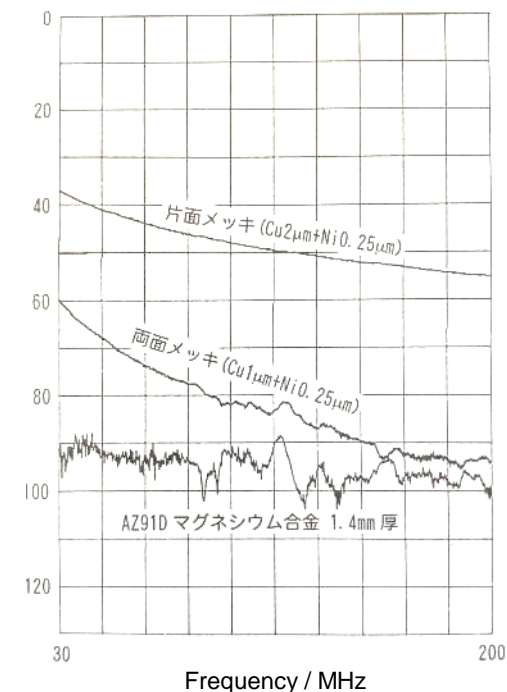
Mg have better shielding properties than aluminum or copper.



Nothing  
Copper shield  
Aluminum shield  
Magnesium shield  
Reference signal

Shielding effect in audio LAN cable

Premium LAN cable



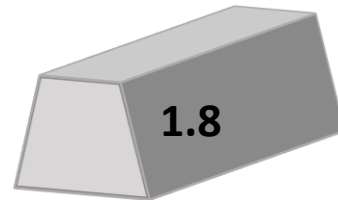
Electromagnetic shielding ability



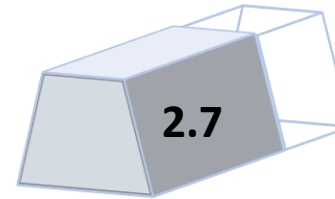
# Cost comparison of Mg and Al-product

Mg alloy has a low density, so the volume per kg is large.

Density (g/cm<sup>3</sup>)



Mg-alloy(AZ91D)



Al-alloy(ADC12)

## Comparison of volume

Mg-alloy AZ91D (d 1.81)

480 JPY/kg

$$480 \text{ JPY/kg} \times 1.81 = 869 \text{ JPY/10cm}^3$$

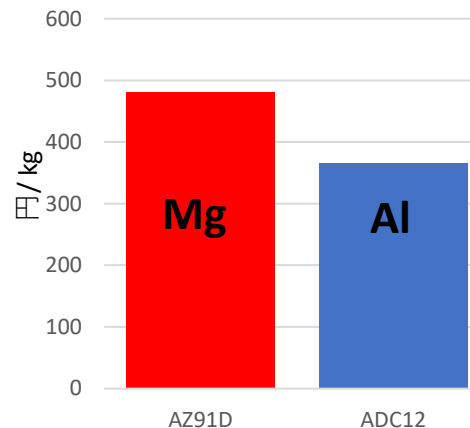
Al-alloy ADC12 (2.65)

365 JPY/kg

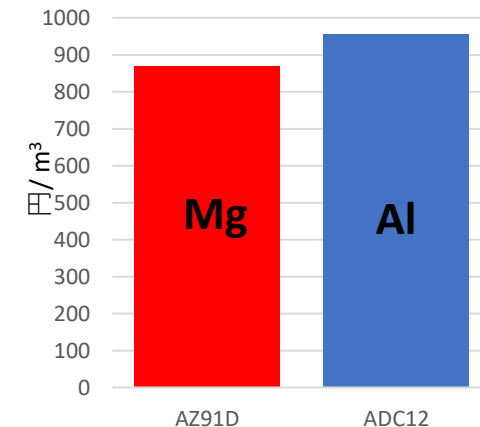
$$365 \text{ JPY/kg} \times 2.65 = 967 \text{ JPY/10cm}^3$$

Mg-alloys have lower material costs  
per volume

Unit price per weight  
(JPY/kg)



Unit price per volume  
(JPY/m<sup>3</sup>)



**The weight of Mg-product will be 1/3 lighter than Al**  
**= Price per product of Mg and Al is similar**

Newly developed **High thermal conductive Mg-alloy NXT51**

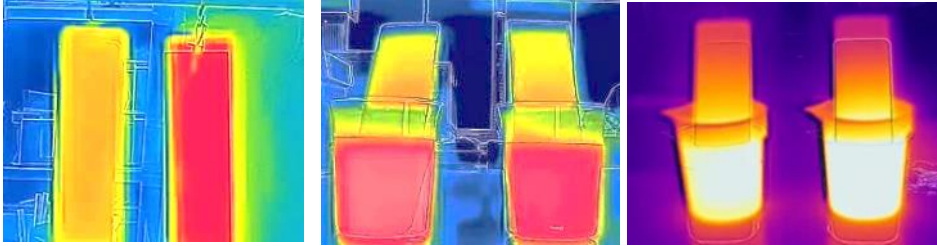


**PATENT of Nexus**

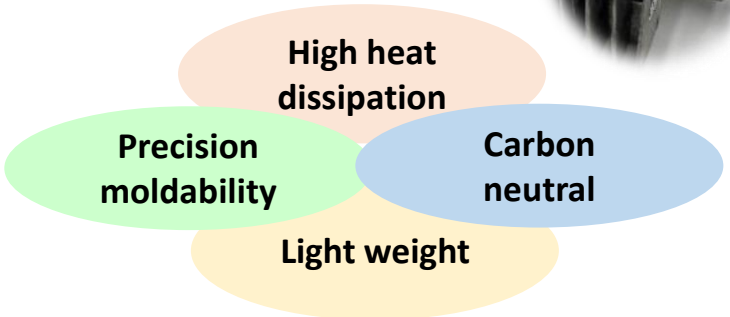
Newly developed Mg-alloy achieves high heat dissipation!  
Mg-alloy ideal for optical system and thermal management.



High heat dissipation (cooling) and high thermal conductivity

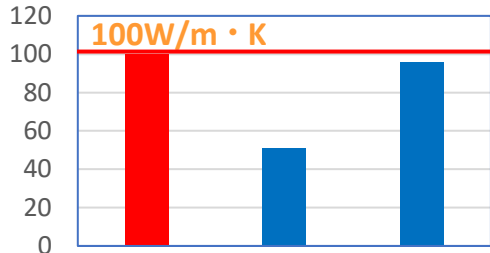


**NXT51**   **ADC12**   **NXT51**   **ADC12**   **NXT51**   **AZ91D**  
Comparison of heat dissipation   Comparison of thermal conductivity



	Moldability	Lightweight	Thermal conductivity	Mechanical strength	Elongation
NXT51	◎	◎	◎	○	◎
AZ91D	◎	◎	△	○	△
ADC12	○	○	◎	○	△

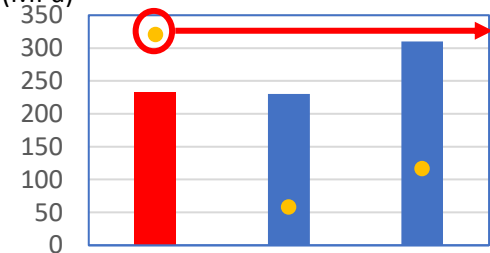
Thermal conductivity (W/m · K)



**NXT51**   **AZ91D**   **ADC12**  
Newly developed   Generalized   Al-alloy

Higher thermal conductivity and heat dissipation than ADC12.

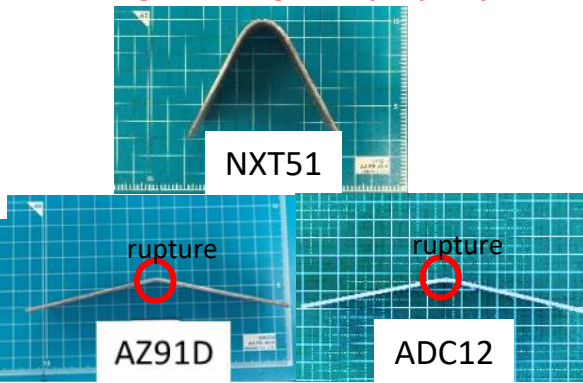
Tensile strength and Elongation



**NXT51**   **AZ91D**   **ADC12**  
Newly developed   Generalized   Al-alloy

- Good mechanical strength.
- Higher elongation rate than ADC12.

Higher elongation property



Scope of application: HUD · heat sink · CIDs · ECU · PCU etc

## Process-optimized robot (Pick and Place Robot) **World's first adoption**



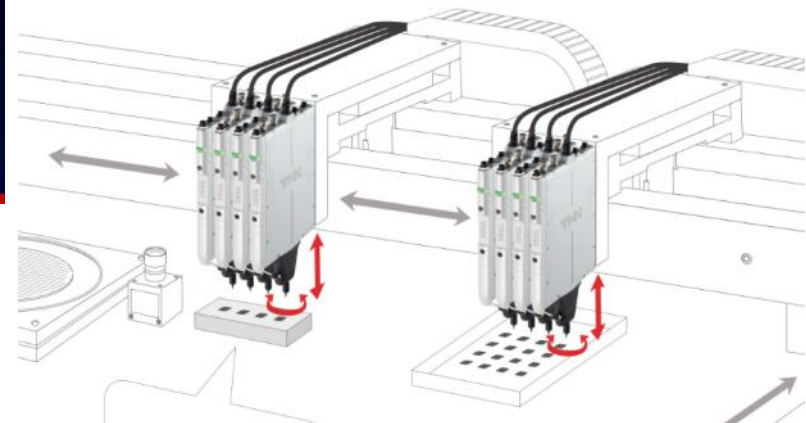
Robot control device

Thickness : 0.7mm ~ 2.0mm

Material

: High thermal conductive Mg-alloy

























**NXT1000**





# Corrosion resistance of Mg













**SST test : 5%NaCl-aq, temperature 35degC (Materials: No surface treatment)**

Material	0h		8h		24h		48h	
Al-alloy die casting <b>ADC12</b>								
Mg-alloy thixomolding <b>AZ91D</b>								
<div>100 W/m · K</div> High-thermal conductive Mg thixomolding <b>NXT系</b>								

In fact, the corrosion resistance of Al die-casting (ADC12) material is worse than that of Mg-alloy.

# Water resistance of Mg

## Comparison of water resistance (water temperature : 40degC)

Material	0h	24h	48h	240h
Al-alloy die casting <b>ADC12</b>				
Mg-alloy thixomolding <b>AZ91D</b>				
<div>100 W/m · K</div> High-thermal conductive Mg thixomolding <b>NXT系</b>				

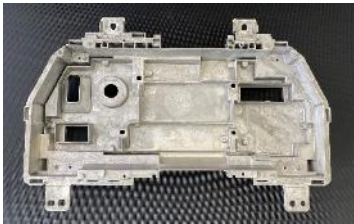
Mg-alloy showed better water resistance than the Al alloy ADC12.

## Models owned by Nexus

We have maximum size of thixomolding machine.  
Total : 8 units



**220 tons(Kumamoto:2)**  
JLM220-MG



**650 tons**  
(Kumamoto:2, Gifu:2)  
JLM650-MGIIe



**850 tons(Gifu:2)**  
JLM850-MG

## Safety and Environmental performance



### ◆ Melting furnace is not required.

Disuse of sulfur hexafluoride. ( $\text{SF}_6$ , etc.)

No slag and dross.

Safety and cleanliness for the work environment.

### ◆ Lower energy consumption.

### ◆ Quick start-up.

### ◆ Safe stopping.

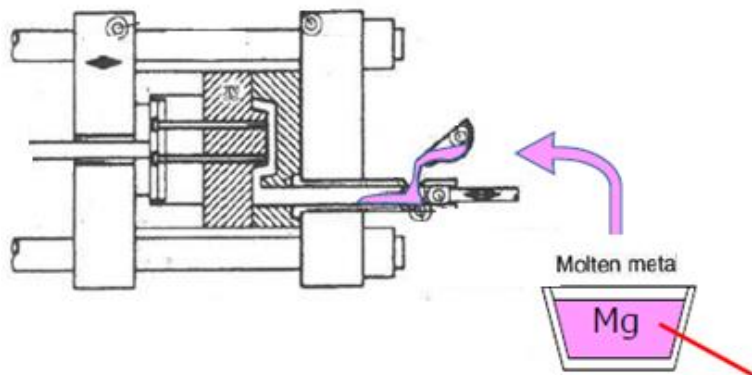


## Die casting molding

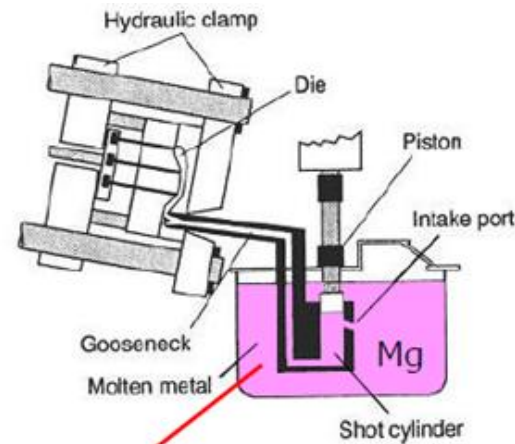
### Cold chamber die casting



Ingot



### Hot chamber die casting



Global Warming effect  
: About 22,800times of CO<sub>2</sub>  
Banned at EU from 2018.  
Regulation reduce use in Japan.

### Problems

Gas of SF<sub>6</sub> for covering of molten metal.  
Waste such as dross and sludge.

(Metallic nitride)

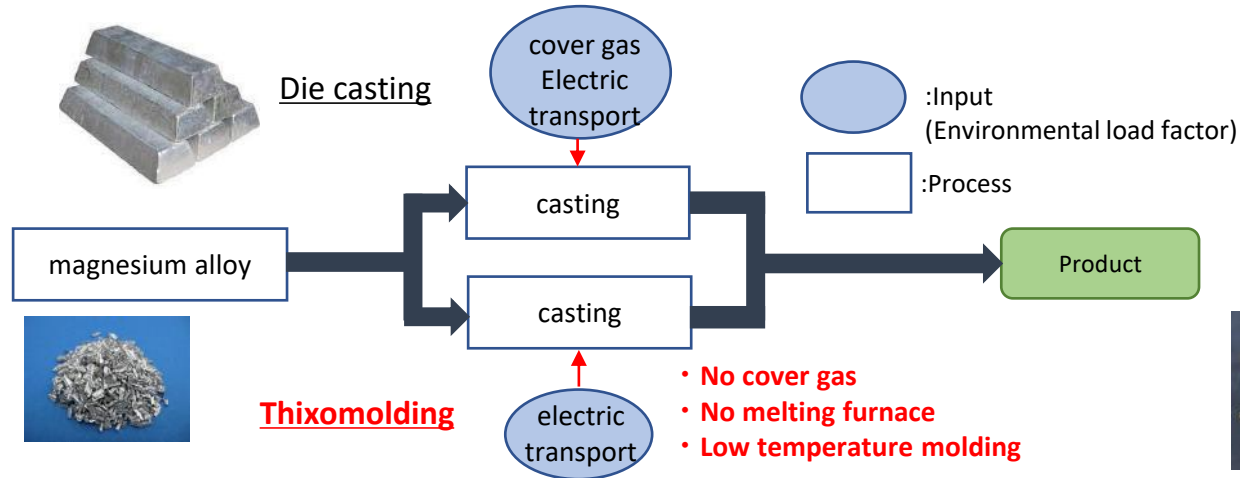
## Comparison of die casting and thixomolding

Molding method	Thixomolding	Die casting	
Material	Mg-alloy	Al-alloy	
Mold life	◎	○	×
Equipment working rate	◎	△	△
Energy efficiency	◎	○	×
Small lot productivity	◎	△	×
Yield	◎	△	○
Environment	◎	×	△

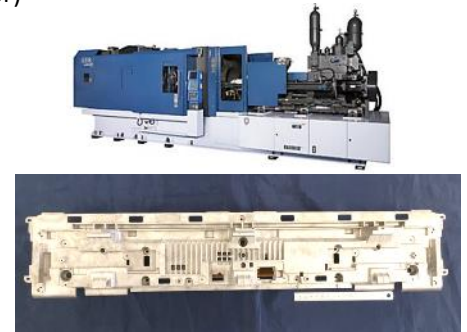
◎ : Excellent ○ : Good △ : Possible × : Bad

# Characteristics of thixomolding-comparison of carbon neutral

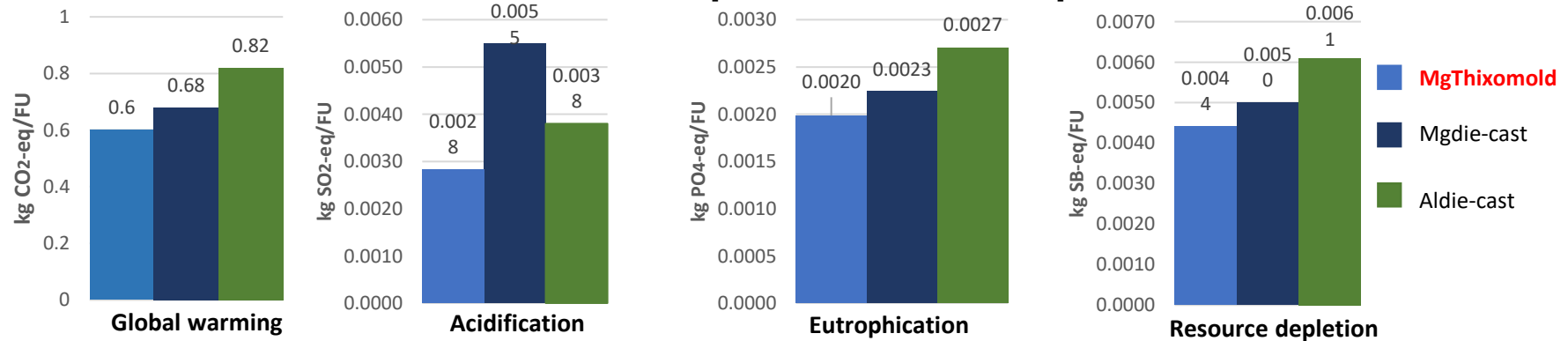
## Comparison of environmental impact of each method(**Product unit**)



**Thixomolding is the casting method with the lowest environmental impact.**

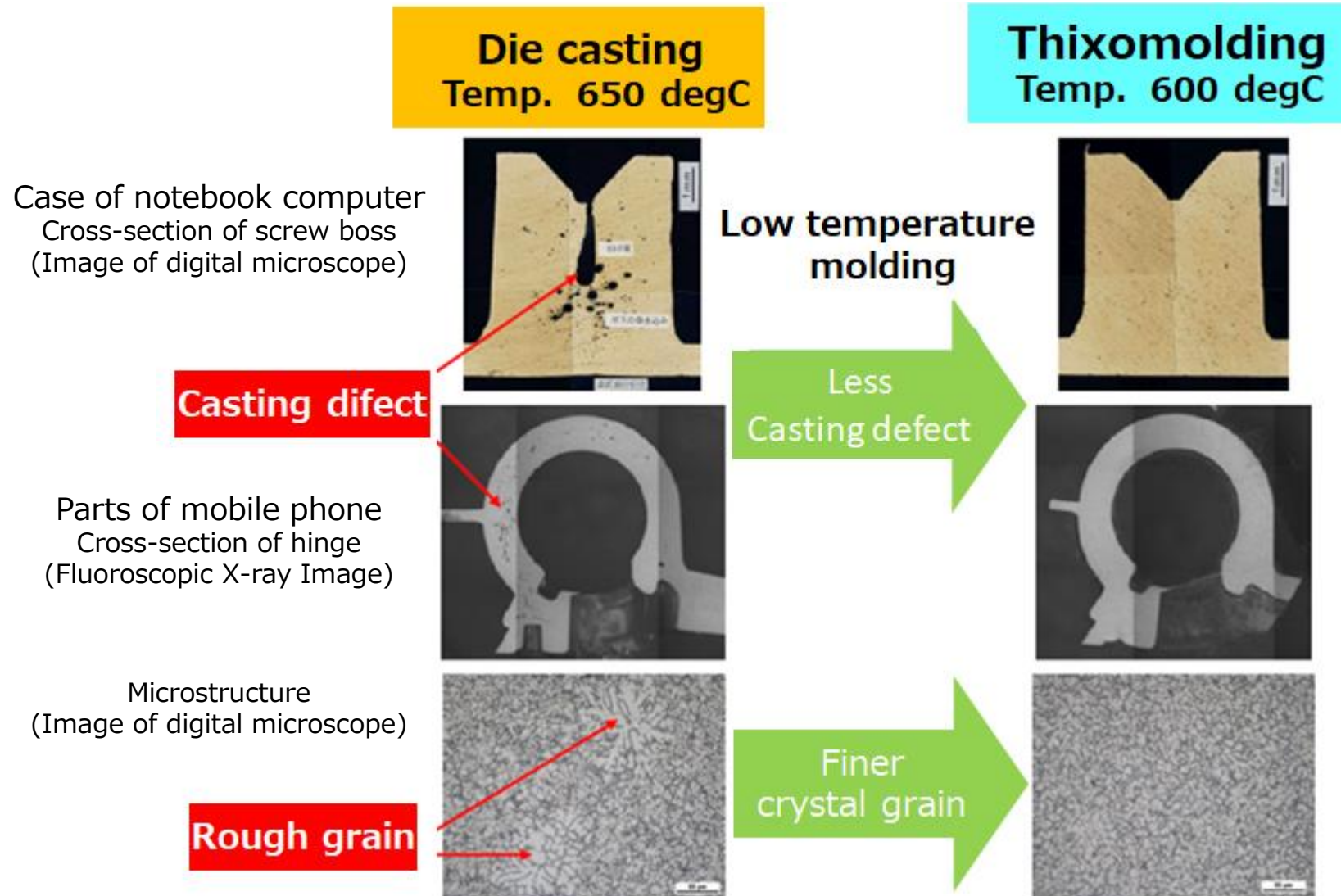


## Evaluation of the environmental impact of the same product unit.



- Mg has less weight per volume → **The environmental impact of each product is lower than Al.**
- Electrical energy consumption is majority of the environmental load in the casting process.  
→ **Low temperature molding of Mg thixomolding is superior as a process.**
- MgThixomold does not use cover gas → **Low environmental impact on acidification.**

## Comparison of die casting and thixomolding





**Average thickness : 0.8mm~1.3mm (Partially 0.27mm)**



**Mg thixomolding product  
achieve the beautiful surface  
just by buffing the surface!**

**Headlight reflector**

**Product(Al) 124g**

**⇒Improved product (Mg):27g**

**80% weight reduction**

**Weight reduction by material replacement**

**Reduction of thickness by thixomolding (thickness0.7mm)**

## Examples of products we have produced so far.



**A4-type note PC**

Thickness: 0.8mm~1.0mm

**The display system and optical system  
are our specialty**



**Canon**



**High-end digital SLR camera**

Thickness: 1.2mm

# Product example – Mg product

## Magnesium alloy high-precision parts for in-vehicle equipment



Volkswagen

volkswagen Passat



Thickness: 1.2mm  
(Partially 0.25mm)



Material: AZ91D weight 29.8g

## Magnesium alloy high-precision parts for in-vehicle equipment



PCM player

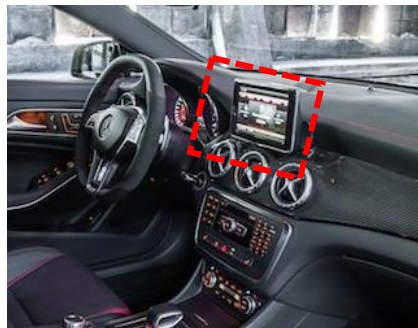
Pagani automobili Huayra Italy

Thickness: 0.8~1.0mm

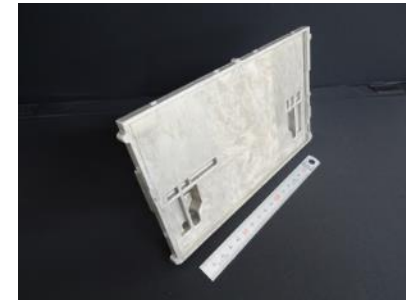




## Magnesium alloy high-precision parts for in-vehicle equipment



Thickness: 3.0mm  
4.0mm  
For die-cast specifications



**Material: AZ91D**  
**Weight: 256g**

# Product example – Mg product



**LEXUS LC500/LC500h (March,2017)**



**Paddle shift (prototype)  
Material: AZ91D.**



**Luggage BRKT (for securing lashing hooks)  
Material:AZ91D**



**Structural materialDoor trim BRKT  
Material:AZ91D**

# Product example – Mg product

**Thixomolding greatly contributes to high precision, reduced man-hours, and weight reduction! 2020**



Thickness: 2.0mm  
3.0mm  
for structural brackets



Luggage bracket



LEXUS LC500  
CONVERTIBLE(2020)



Door trim bracket

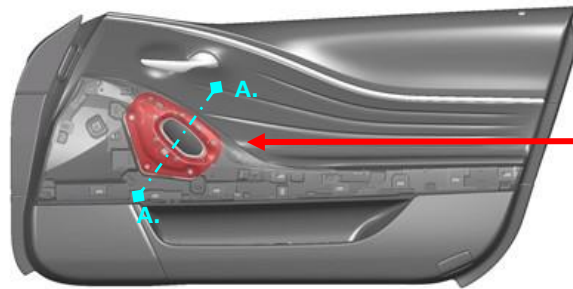




## Direct replacement from steel to Mg alloy

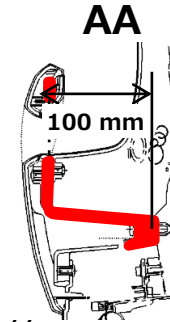
Gross weight: 1,865g ( $\blacktriangle 2,610\text{g}$  ( $\blacktriangle 60\%$ ))

### <Door trim BRKT>



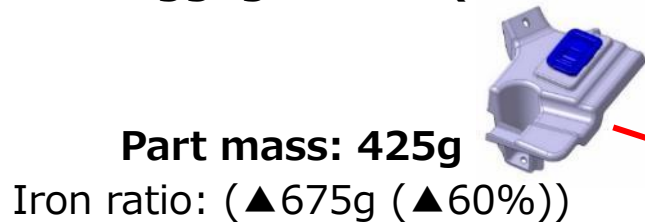
Part mass: 260g

Iron ratio: ( $\blacktriangle 60\text{g}$  ( $\blacktriangle 20\%$ ))



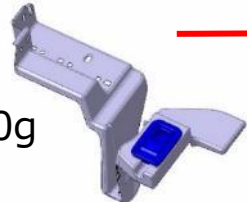
**Achieving a deep dimensional shape**

### <Luggage BRKT (for securing lashing hooks)>



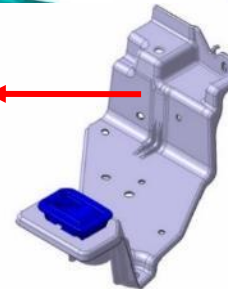
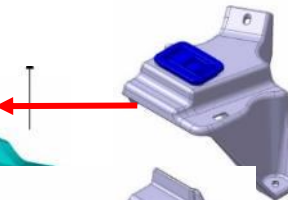
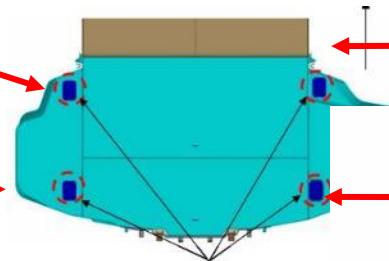
Part mass: 425g

Iron ratio: ( $\blacktriangle 675\text{g}$  ( $\blacktriangle 60\%$ ))



Part mass: 460g

Steel ratio:  
( $\blacktriangle 730\text{g}$  ( $\blacktriangle 60\%$ ))



Part mass: 355g

Iron ratio: ( $\blacktriangle 565\text{g}$  ( $\blacktriangle 60\%$ ))

Part mass: 365g

Iron ratio: ( $\blacktriangle 580\text{g}$  ( $\blacktriangle 60\%$ ))



**Technology  
Development  
Award**



## Contributing to in-vehicle displays with thinness and high precision! 2018



BASE FRAME



Thickness:1.5mm

For the case that holds the TFT in the DISPLAY



Mazda CX-9

# Product example – Mg product

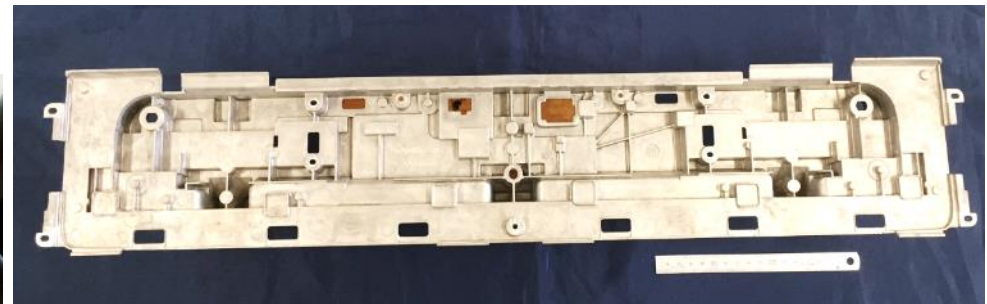
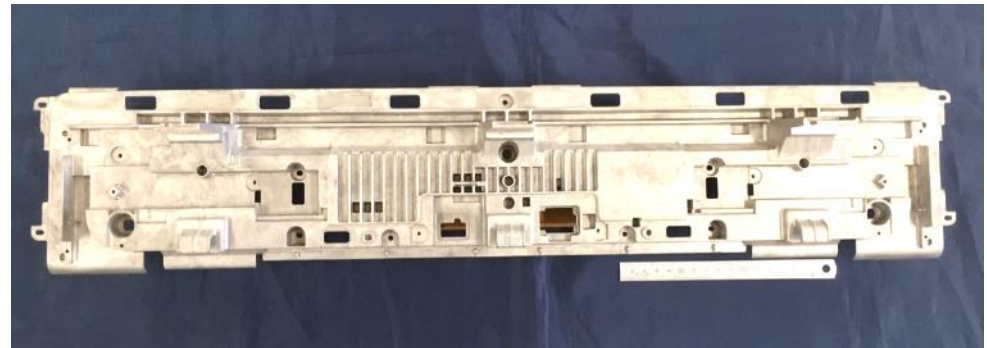
## Large display Oct. 2018



High-precision parts of magnesium alloy for in-vehicle equipment

PremiumSUV

GLE

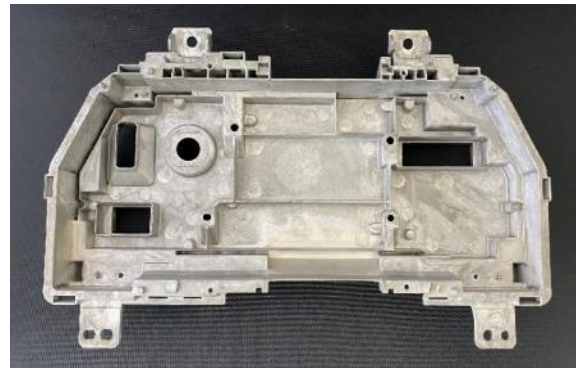


Thickness:1.2mm  
5.0mm (partial)

Material:AZ91D  
Weight: 678g

# Product example – Mg product

**Contributing to higher precision and less machining!**



Thickness:1.5mm

Large display panel

Material:AZ91D



LEXUS IS350 F-SPORT



## First use of motorcycle engine parts

Thinning ⇒ Contributing to reduce of weight! Oct. 2020



Thickness:1.3mm

Thinner and lighter weight  
than die casting

Good dimensional stability

Reduces post-processing

Cylinder head cover Material:AZ91D



HONDA CRF450RX



# Product example – Mg product

**High sound quality and light weight contribute to music scene!**

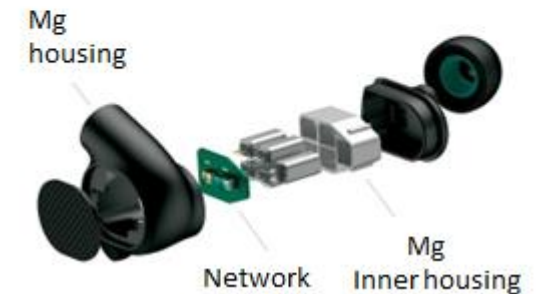
# SONY



Finest earphones  
IER-M9 in-ear monitors (SONY)



Thickness: 0.5mm~0.8mm



## Please experience the metal feeling!

[Patented] Magnesium super fine special processing technology

~ Special surface processing technology ~



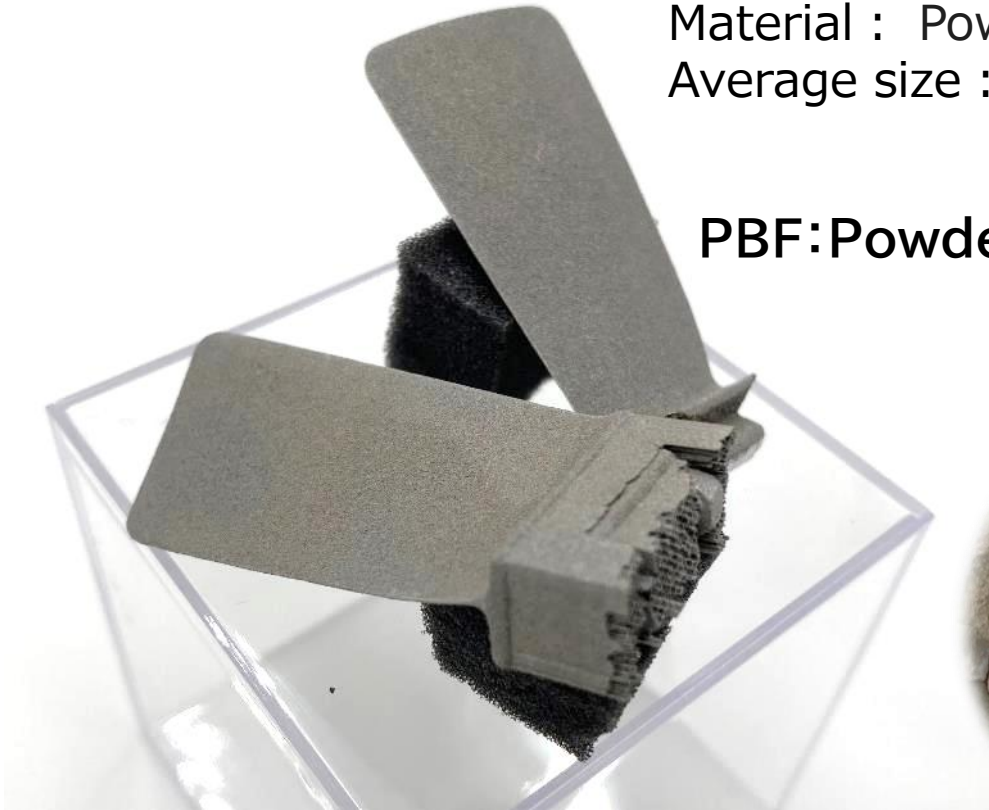
**PATENT of Nexus**



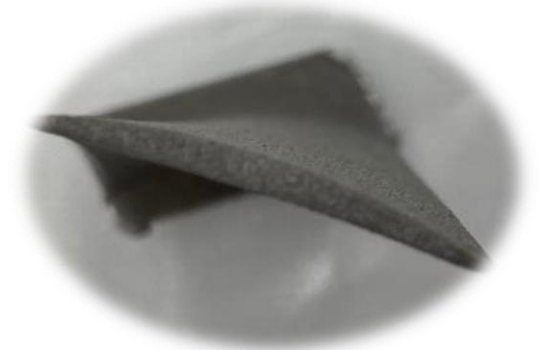
Prototypes can be made using 3D printing.

Material : Powder of flame retardant Magnesium alloy  
Average size : ca.50  $\mu\text{m}$

PBF: Powder bed fusion



Ultra-lightweight thinner fin (**4.75g**)



Thin and high-strength  
Tensile strength : **350MPa**  
Elongation : 6%



Partner: Tobata Seisakusho Co., Ltd.  
( **EOS M100** )



## ~From Engineering Plastics to Super Engineering Plastics~

Top runner in high-precision insert connectors  
for in-vehicle electrical equipment focus on CASE!



Jan. 2022 Advanced injection molding machine  
: 560ton hybrid type machine



Injection molding machine  
(40t~560t class)  
Number of machine  
: About 40



Completely unmanned insert molding  
realized by automation!

Automotive parts and housing equipment parts by  
precision injection molding

**Difficult-to-process materials are available  
by our technology.**

• PPS-GF40% material



Stable production is possible for the difficult molding  
materials with our advanced knowledge and know-how.

We are producing at full capacity every day by our  
automatic insert system.

• PA66-GF60% material  
Outer handle



• Transparent acryl (PC)





Injection Molding of High-performance polymer applicable to Aerospace field.

**Nothing machining process**



Injection molded product of  
PEEK-30%carbon fiber  
(Insert molded product)

**VICTREX™PEEK polymer**

**High strength(250MPa) at -60°C**



## Materials difficult to process such as PEEK can lowering cost by Injection molding

PEEK is expected to extensive applications in aerospace industry  
because it have dimensional accuracy, light weight and physical properties.

Injection molding allows mass production  
of complex high-performance parts  
without machining.



**PEEK-CF30% (Injection molded)**

- **Weight saving**
- Usage optimization
- Recyclability of runner
- **Less machining**

Properties	Condition	Unit	450CA30	ADC12	Method
Material			PEEK (carbon fiber)	Al die-cast	
Density	-	g/cm3	1.4	2.7	ISO 1183
Tm	-	°C	343	580	DSC
Tg	-	°C	143	-	DSC
CTE	-	ppm/°C	15	21	ASTM D696
Heat Distortion Temperature	1.8MPa	°C	315	-	ISO 75
Thermal conductivity	-	W/m/°C	0.92	96	ASTM C177
ASTM test data					
Tensile strength	23°C	MPa	228	295	ASTM D638tV
Elongation	23°C	%	2	2	ASTM D638tV
Tensile modulus	23°C	GPa	22.3	71	ASTM D638tV
Bending strength	23°C	MPa	331	-	ASTM D790
Bending modulus	23°C	GPa	19	-	ASTM D790
Shear strength	23°C	MPa	85	-	ASTM D3846
Rockwell hardness		-	107	54	ASTM D785

## ● Aerospace field

PEEK material greatly contributes to the development of aerospace-related applications!

Reducing the cost of aerospace parts.

- Improved fuel efficiency by weight reduction
- Improvement of buy-to-fly ratio
- Achievement of advanced component integration by improved design freedom
- Simplification of assembly work

- Excellent **heat resistance** and **cold resistance**  
Can be used under a wide range of conditions.



FIGURE 1 - CHEMICAL STRUCTURE OF POLYETHERETHERKETONE [PEEK]

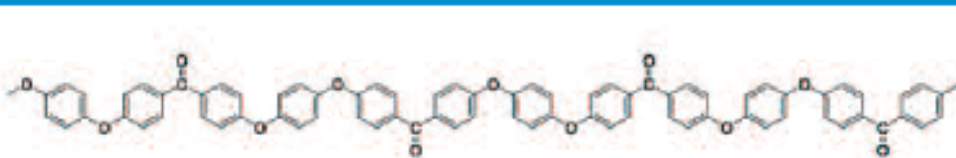
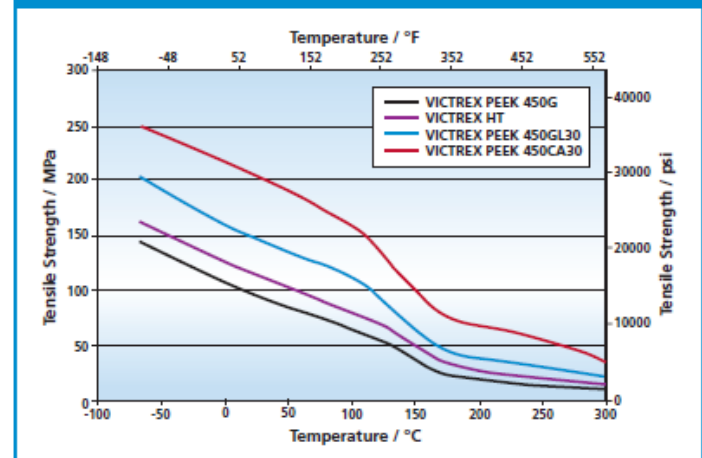


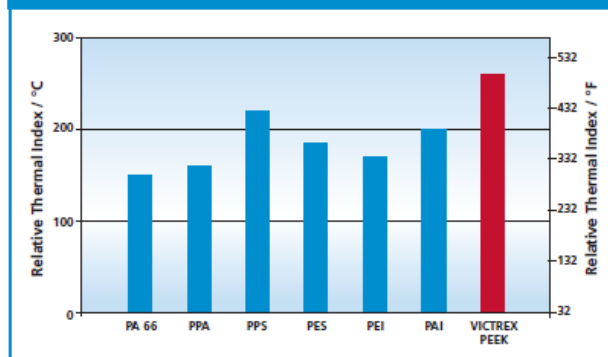
FIGURE 2 – TENSILE STRENGTH AS A FUNCTION OF TEMPERATURE FOR VICTREX PEEK POLYMER AND RELATED COMPOUNDS\*



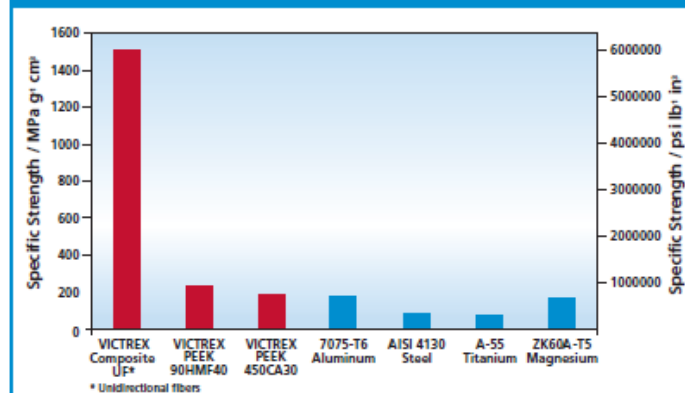
\* Data dealing with performance at sub-ambient temperatures down to -54°C (-65°F) is available on request. The materials undergo no significant transitions below ambient temperature.

# Properties of PEEK

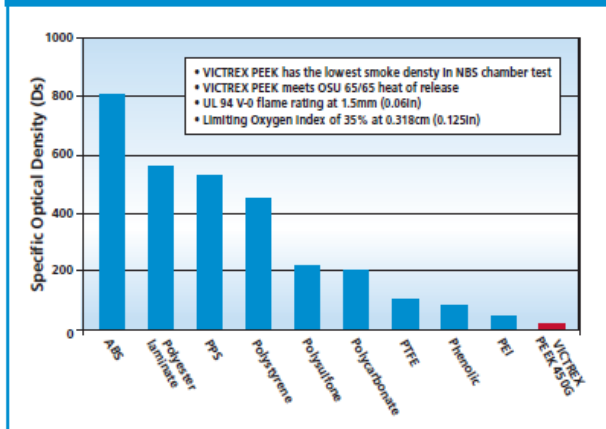
**FIGURE 3 – RELATIVE THERMAL INDEX (RTI) VALUES AS MEASURED BY UL 746B**



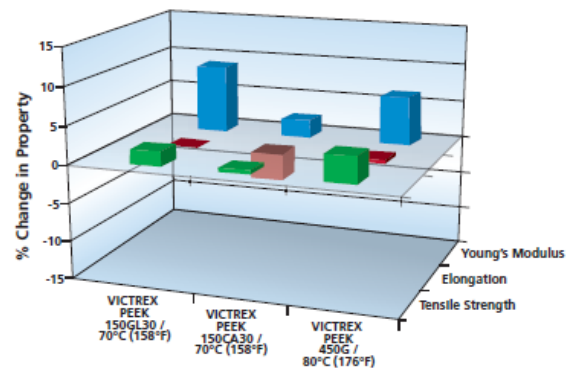
**FIGURE 6 – SPECIFIC STRENGTH OF VICTREX PEEK-BASED MATERIALS IN COMPARISON WITH OTHER COMMON AEROSPACE MATERIALS**



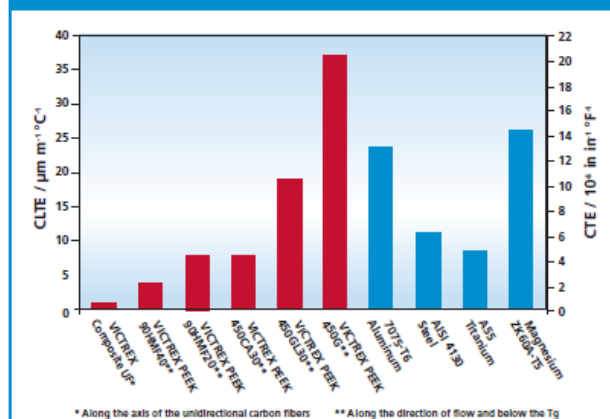
**FIGURE 4 – FORCED COMBUSTION CHAMBER SMOKE RESULTS FOR A RANGE OF POLYMERS**



**FIGURE 5 – CHANGES IN PROPERTIES OF VICTREX PEEK COMPOUNDS WITH EXPOSURE TO SKYDROL® HYDRAULIC FLUID FOR 1,000 HOURS**



**FIGURE 8 – COEFFICIENT OF LINEAR THERMAL EXPANSION OF VICTREX PEEK-BASED MATERIALS IN COMPARISON WITH OTHER COMMON AEROSPACE MATERIALS**





# PEEK材の適用用途

FIGURE 14 – RADOME MADE FROM VICTREX PEEK 450G



Photo courtesy of Algram

FIGURE 22 – ENVIRONMENTAL CONTROL SYSTEM IMPELLERS MADE FROM VICTREX PEEK POLYMER



Photo courtesy of Eurocopter, Fluorten SRL

FIGURE 11 - LASER SINTERED AIR DUCT PART



Photo courtesy of EOS

FIGURE 18 – WIRING AND CABLE CLAMPS MADE FROM VICTREX PEEK 150GL30



Photo courtesy of Amphenol Pcd

FIGURE 24 – SEAT COMPONENTS MADE FROM VICTREX PEEK POLYMER



Photo courtesy of Feronyl

FIGURE 19 – STAND-OFFS MADE FROM VICTREX PEEK 150GL30



Photo courtesy of Amphenol Pcd



Wheel cap of landing gear



Balance shaft module gear



Door handle



Fuel tank manhole cover



Fairing



# Research and Development



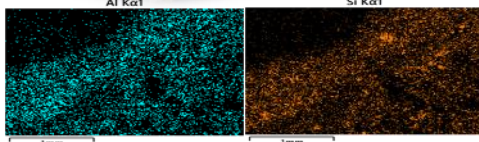
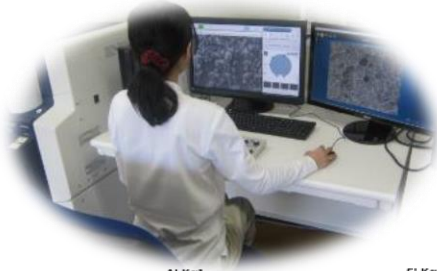
**All members have knowledge of chemistry**

**We strongly support manufacturing with development and proposal ability.**

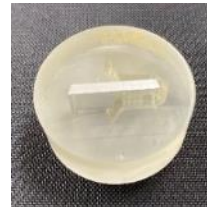
**We are science professionals**

**We own advanced equipment for analysis and evaluation**

**Analysis phenomena in manufacturing**



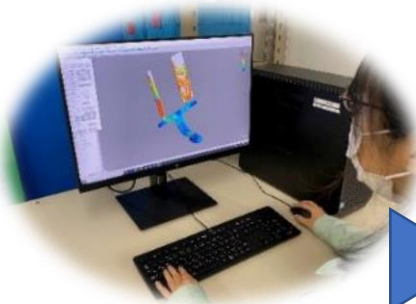
Scanning electron microscope  
energy dispersiveXline spectroscopy  
**SEM-EDX(HITACHI-OXFORD)**



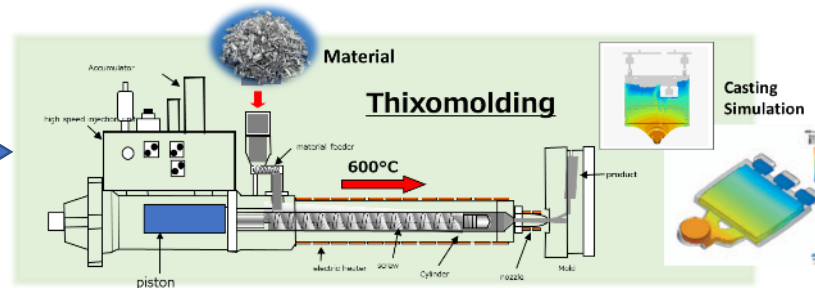
Fourier transform infrared spectrometer  
**FT-IR+ATR(Perkin Elmer)**



**Digital microscope  
(LEICA)**



**CAEsimulation  
(QUALICA)**



**X-ray inspection equipment  
X-ray fluoroscopy device(SHIMADZU)**

# Mold business / Mold

**We are good at developing high-precision molds that are easy for customers to use.**

## Production capacity: **360 type/years**

Design, development and production of precision molds.

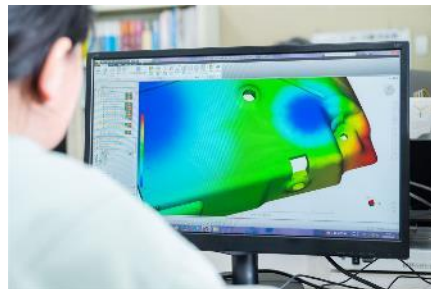
- Plastic injection mold
- Magnesium thixomolding mold

## **Production capacity**

- For molding machine of 40t~850t
- Maximum mold size: 800×800×800
- Mold weight: 2.5tons



## **Mold development with 3D-CAD·CAMs·CAE**

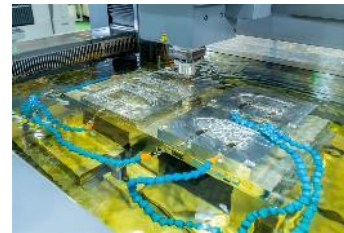


## Mold base (die set) : In-house

Large machining, jig baller and gun drill machine are used for quality and dimensional accuracy.

## Mold processing

We have introduced large-size machining and large-size electric discharge machines. Also, high speed cutting and graphite electrode is used to shorten delivery times.





## Integration of mold technology, molding technology, and coating technology

**We will contribute to  
high added value for our customers!**



High-design piano black painting.  
Metal painting such as magnesium alloys.

**Applicable paint:**  
**Solvent-based, UV curing system, water system etc.**

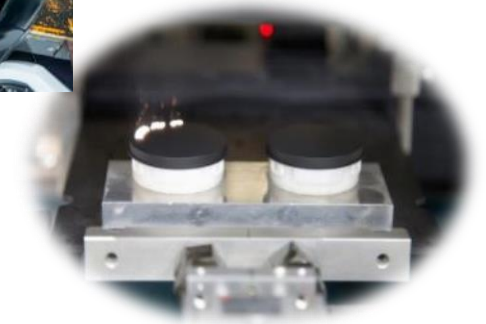


Painting equipment:  
Multi-axis robot painting unit (with air conditioning)  
Spindle painting 5 (include UV-curing system)  
Hand painting

**High-definition laser marking**



**YVO<sub>4</sub>Laser**



# Product example –Coating / Laser product

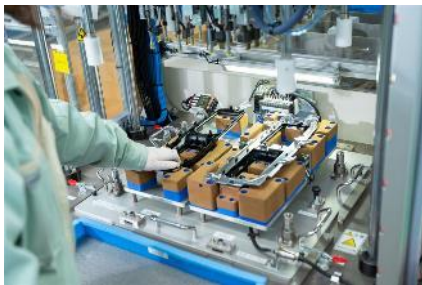




## Proposing the optimal product environment to customers!



From line design to production equipment design and manufacturing.



Welding equipment

Cooperation with other departments(FA)  
for saving energy and improvement of productivity.

Products completed by gathering know-how of each technical department such as mold, molding, painting, and FA.



Piano black paint applied to a large area



# Product example - Unit assembly



## Center cluster (Adopted)

2021 Nissan Armada  
Nissan Patrol  
~Full-Size SUV~





# Factory automation (FA) business



**We propose optimal labor-saving system  
with our manufacturing know-how!**

~Business as a system integrator~

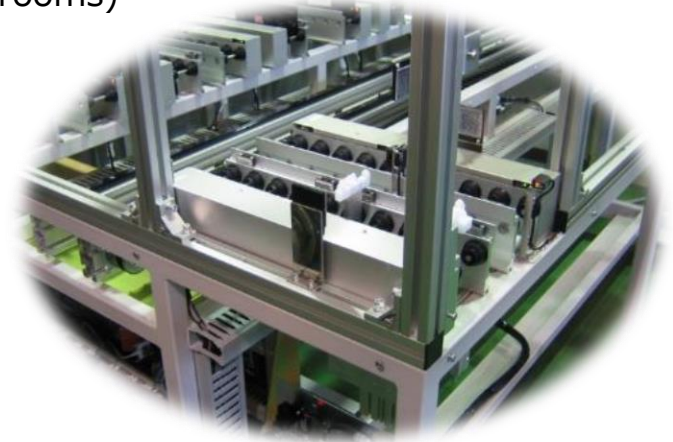


We can undertake everything  
such as control design, mechanical design,  
assembly, and on-site adjustment!



## Cassette (wafer) transfer device

Equipment for transporting cassettes in semiconductor  
factories (clean rooms)



**Postcard pasting machine  
(Nexus original, patented)  
Top share in Japan**

# Information about us

Information is also available from the following sites

**URLs <https://www.nc-net.or.jp/company/46472/>**



*Freely viewable!*

Language: 日本語 Country: 日本 中国 韓国 台湾 米国 世界 EMIDAS TOP 技術の森 NCネットワークブログ

**EMIDAS**

会社案内 採用情報 サイトマップ ヘルプ

トップ エミダス工場検索 製品検索 発注情報 知識・技術 エミダスジョブナビ

ネクスス株式会社 会社検索

製品を検索する 製品検索

-加工分類検索-

設計(4836)	材料(919)	試作開発・少量生産(8091)	金型製作(3520)
量産(5396)	表面処理(3869)	組み立て・検査(3546)	部品製造(3565)
自動車部品製造(375)	製品製造(3934)		

-設備検索-

機械加工(51157)	板金加工(11737)	プレス/鍛造(8711)	鋳造(402)
樹脂/ゴム加工(5705)	表面処理/熱処理(2462)	委製製造(536)	検査設備(5931)
付帯設備/その他(34828)			

-その他の検索-

メールアドレス ログイン

パスワード

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新規会員登録

発注情報

全国のエミダス会員企業が協力会社を探す場合や外注したい案件を掲載するコーナーです。

発注案件をさがす

発注案件を掲載する

Language: 日本語 エミダス工場検索 他工場を探す EMIDAS TOP

**ネクスス 株式会社** 資料請求・お問い合わせ

電話番号: 0958-53-8181 FAX: 0958-53-8677 ホームページ

基本情報 設備 技術・製品 動画 沿革・理念・品質規格 EMIDASBLOG 地図・拠点

技術・製品情報 会社情報 加工分類情報 お気に入り登録 印刷する

**ONE STOP MAKING & TOTAL ENGINEERING**

世界中の誰からも信頼されるメーカーになる

愛情を込めた「モノ」づくりで、心豊かな社会に貢献する開発生産型企業。単なる商社ではなくソクハラの集積で、次世代との絆をお届けします。

技術・製品情報

金型 ワイヤ放電加工機に...

マグネシウム AZ91 D...

マグネシウム AZ91 D...

金型 機型マシニングセン...

# Thank you for your attention



URLs <https://www.nexus-grp.co.jp>

E-mail [nexus@nexus-grp.co.jp](mailto:nexus@nexus-grp.co.jp)



Home Page QR Code



Facebook

Account Name: [@nexus.japan](#)

<https://www.facebook.com/nexus.japan>



YouTube

Channel Name: [NexusNEXUS](#)

<https://www.youtube.com/channel/UCI9LbxQzFuFG4sQJnmEEdvA>



Instagram

nexusnexus8181(Distributing fun information!)



EMIDAS

<https://www.nc-net.or.jp/company/46472/>

(Factory search site :Nexus manufacturing information site)