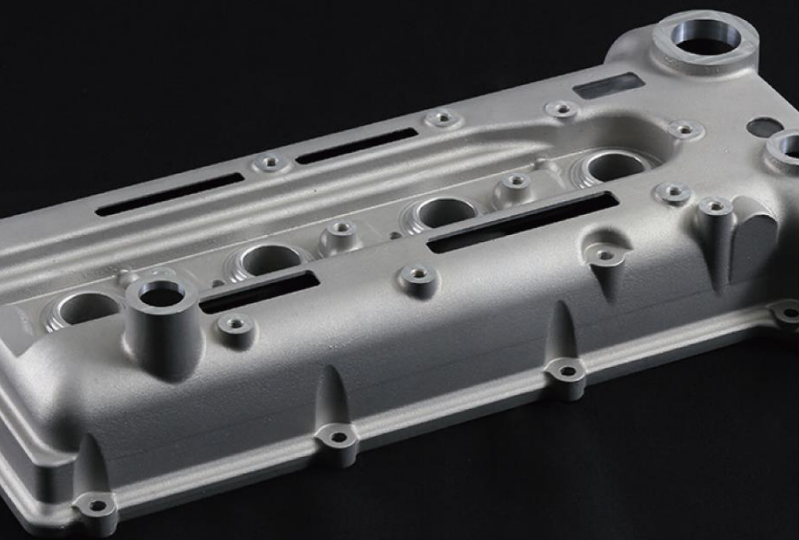




## Business Overview

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Sand Casting



Hiroyuki Suzuki

Senior Managing Director



# Company information



## Head Office

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Shinyokohama Kohoku-ku Yokohama Kanagawa 222-0033  
JAPAN

Tel +81-45-477-5757

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E-mail [jmcltd@jmc-rp.co.jp](mailto:jmcltd@jmc-rp.co.jp)



## Concept Center [Foundry]

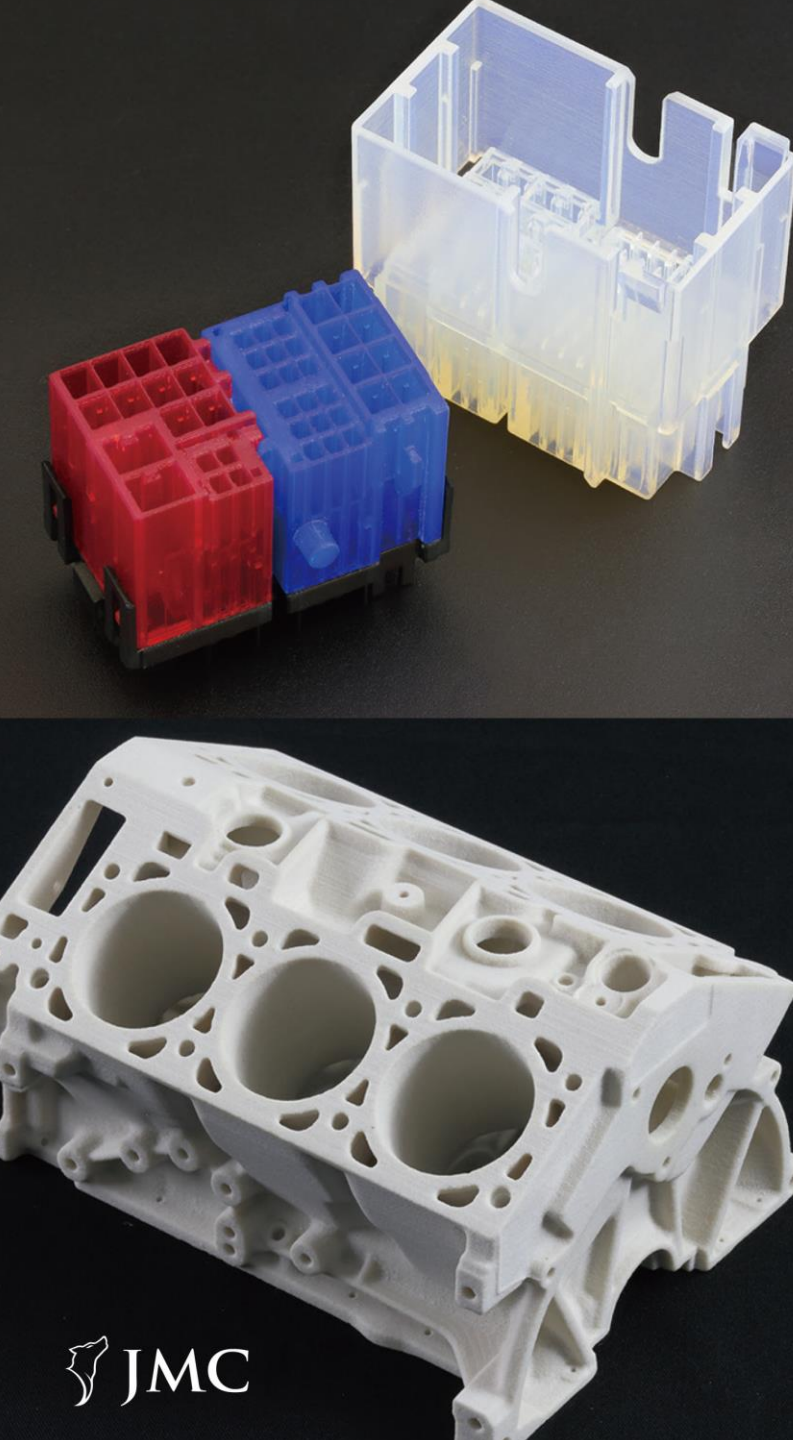
Address 7502-1 Kawaji Iida Nagano 399-2431 JAPAN



# 3D Printing Service

In other, we are doing a contract manufacturing of the prototype by 3D printer.

- Stereolithography - SLA [Epoxy resin]
- Selective Laser Sintering - SLS [Nylon powder]
- Inkjet Printer [Plaster powder]
- Inkjet Printer [Acrylic resin]





# Sand Casting

JMC manufactures prototypes and products of aluminium or magnesium in small-lot by using precise sand mold.

## Handling metals

### Aluminum alloy

### Magnesium alloy

JIS	ASTM	JIS	ASTM
AC2A	319.0	MDC1D	AZ91D
AC2B		MC13	WE54A
AC2C		RZ5	ZE41
AC4A	333.0	EV31	Elektron21
AC4B			AE44
AC4C			
AC4CH	356.0		
AC7A	A356.0		
ADC12			





# MEL Alloy



MEL' s alloy is high strength and heat-resistant magnesium alloy containing zinc, rare-earth elements and zirconium aiming at reducing weak points of magnesium. The alloys were invented for sand mold casting and special small lot production. They are used extensively for applications in the aerospace, automotive and power generation industries.

The alloys have been used successfully within JMC, for example, when they manufactures transmission cases.

Proven MEL Alloys / MEL Alloys we' ve used so far  
WE54A      RZ5 [ZE41]      EV31 [Elektron21]



## High Casting Quality

We realize beautiful casting surface by using sand with smaller diameter than usual one.

We also have in-house heat treatment processes so that we can provide castings with less individual differences.

Casting surface     Ra6.3 - 12.5

CT tolerance        CT7

Basic dimension		Casting tolerance									
Over	Under	Tolerance class									
		1	2	3	4	5	6	7	8	9	10
—	10	0.09	0.13	0.18	0.26	0.36	0.52	0.74	1	1.5	2
10	16	0.1	0.14	0.2	0.28	0.38	0.54	0.78	1.1	1.6	2.2
16	25	0.11	0.15	0.22	0.3	0.42	0.58	0.82	1.2	1.7	2.4
25	40	0.12	0.17	0.24	0.32	0.46	0.64	0.9	1.3	1.8	2.6
40	63	0.13	0.18	0.26	0.36	0.5	0.7	1	1.4	2	2.8
63	100	0.14	0.2	0.28	0.4	0.56	0.78	1.1	1.6	2.2	3.2
100	160	0.15	0.22	0.3	0.44	0.62	0.88	1.2	1.8	2.5	3.6
160	250		0.24	0.34	0.5	0.7	1	1.4	2	2.8	4
250	400			0.4	0.56	0.78	1.1	1.6	2.2	3.2	4.4
400	630				0.64	0.9	1.2	1.8	2.6	3.6	5
630	1000					1	1.4	2	2.8	40	6
1000	1600										

\*All data above are based on JIS B 0601.





# In-house whole process

We can consistently do whole processes, creating data, producing wooden patterns, casting, machining, and inspection, within our foundry.

## Total process

### Creating data

- 4 CAD Systems

### Wooden pattern production

- 3 Machining machines for wooden pattern

### Casting

- 2 Mixers
- 4 Melting furnace

### Machining

- 3 Three-axis machining machines
- 1 Five-axis machining machine

### Inspection

- 2 Three-dimensional measuring machines with contactless probes
- 1 Non-contact measuring instrument





# Production Result

## Automotive Industry

Cylinder Head

Transmission Case [Magnesium]

Head Cover

## Industrial Machine Industry

Heat Sink

## Electric tools

Exterior for tool machines [Magnesium]

## Ship Industry

Gear case for motor boat

Bottom cowl for motor boat

## Robot Industry

Flams [Magnesium]

## Military Defense Industry

Heat sink

Gimbals for camera on aircrafts