

SAKAE ALUMINUM CASTING CO., LTD

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MARKET RESEARCHER

VISION AND VALUE PROPOSITION

- Sakae Casting is taking its refined casting technology and original products to the international stage to meet the needs of customers around the world and become the global supplier by providing the high end quality products to our clients.
- It is our mission to continually develop and innovate quality products at a competitive price. To do so, Sakae is encouraging all employees to utilize their talents to fullest extents and giving them opportunity for both personal and professional growth.

The problem

The driving force behind the higher performance of electronic equipment is removal of **extra heat that damage the electronic components**. As many electronic components are integrated together the **space needed for each component** should be compact and small as much as possible. Sakae research and development team is working for making the finer-pattern reality. The size of our cold plates can be evidences to show innovation for small size and thinner products to save space. As we have more space the number of systems integrated on single equipment will increase. We work to meet the need for smaller size, lighter weight and thinner cold plate.

Target Market and Opportunity

Target	Opportunity
IT equipment and semiconductor manufacturers	Climate and agriculture research site monitoring
Medical device and health care equipment manufacturers	Hospitals and health centers, medical equipment manufacturers
Data center	ICT institutions, data centers
Car makers	Car battery cooling and car seat makers, Bus body builders
Laundry	Cleaning Robot mold demand

Target Market....

Main technologies of SAKAE Casting are:

- Automotive urethane sheet foam mold
- Prototype sand molding
- V process molding
- Creative modeling and mass V process casting
- Aluminum alloy sand casting
- Die-cast copper alloy
- Metal casting for rotational molding

The Solution



**2020.9.1
Launch!**

New Type of Data Center Cooling

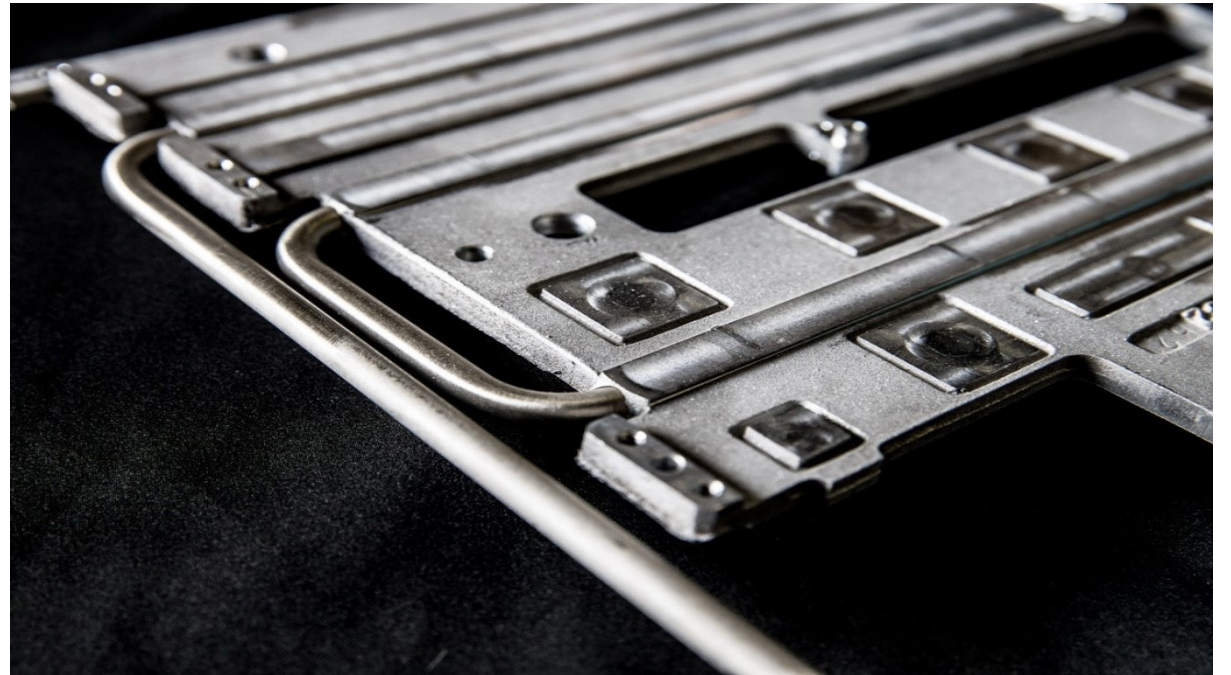
“SAKAE COOL DOOR”



- **70%** heat removal
- **50%** space less
- **40%** Less water
- **30%** cost cut
- **No moving parts**

Industrial Application

CP1. COLD PLATE FOR
SEMICONDUCTOR TESTER
EQUIPMENT



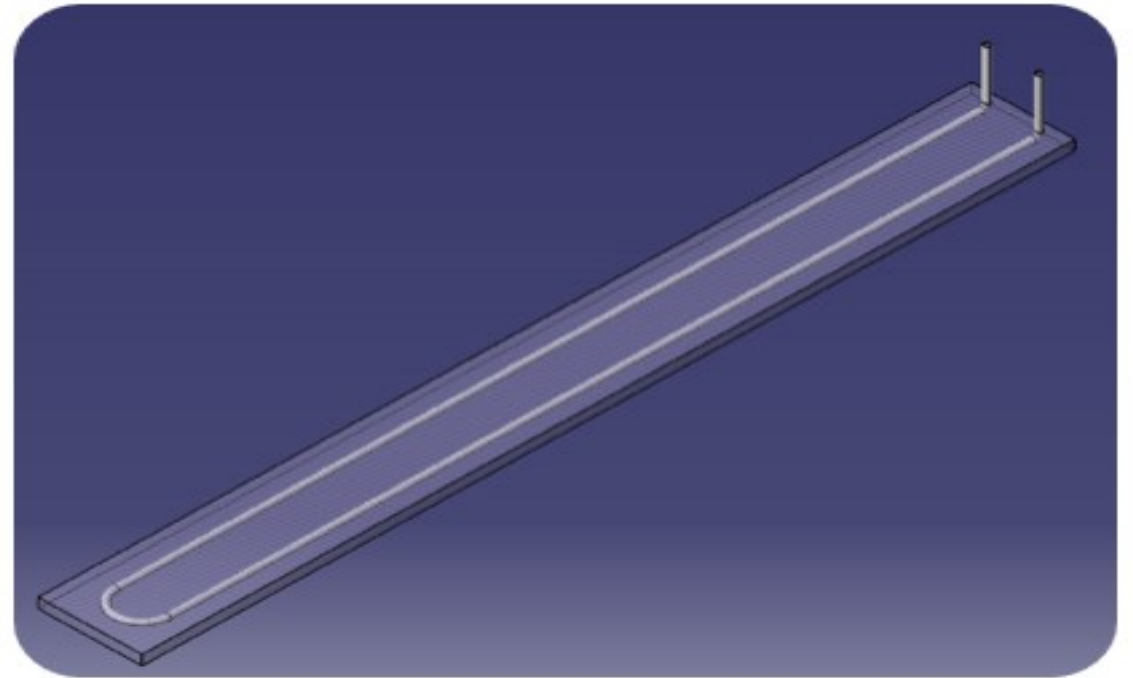
Industrial Application

**CP2. COLD PLATE FOR WAFER
TESTER EQUIPMENT**



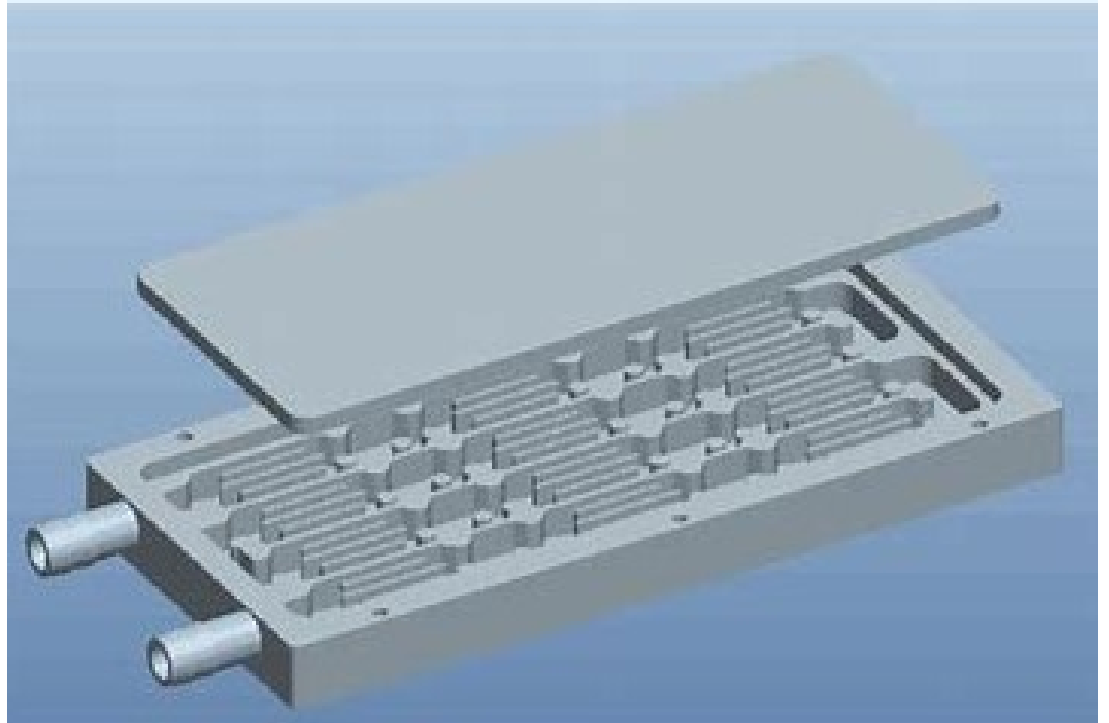
Industrial Application

**CP3. COLD PLATE FOR
LED LIGHT**



Industrial Application

CP4. COLD PLATE FOR EV-CAR BATTERY COOLING

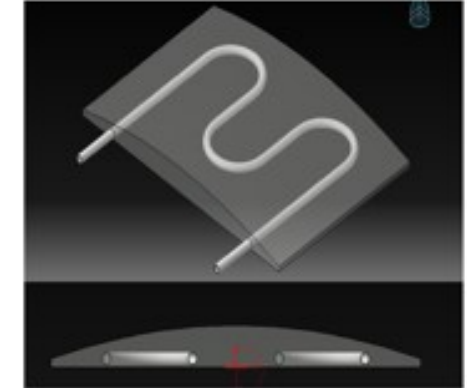


Industrial Application

CP7. CYLINDRICAL AND CURVED SURFACE COLD PLATE



Cylindrical shape Cold Plate
(For Motor and Tank cooling)



Curved surface Cold Plate
(For Chamber Cooling)

Business Model

Sakae casting will train manpower for expanding the casting business in collaboration with Small Sand casting foundry found in Rwanda.

Roadmap

No	Activity	Quantity	Unit price (yen)	Total price (yen)	Action period (2021)	Remark
1.	Prepare documents for basic study and apply for JICA schemes	10	10,000	100,000	Feb 20	
2.	Attend delegate meetings in Japan	4person	15,000	60,000	March 31	
3.	Attend overseas seminar / forum	2 person				
	3.1. Airplane Ticket	2person, round trip	150,000	300,000	April 26	
	3.2. Hotel charge	2person, for 14 days	21,000	84,000	April 26	
	3.3. Living expense	2person, for 14 days	14,000	56,000	April 26	
4.	Prepare documents and guideline for capacity building	8 documents/ two per trainee /	5,000	40,000	May 15	
5.	Awareness creation for Sakae casting staff on the documents and expansion plan	40 workers for two days (Twice a year)	20,000	800,000	May 30	
5.	Sakae casting staff market assessment (Airplane ticket) and provision of short training for selected candidates	2 person	150,00	300,000	July 20	
6.	Hotel charge during market assessment	2 person for 1week	25,000	50,000	July 20	
7.	Living cost of during market assessment	2 person for 1week	21,000	42,000	July 20	
8.	Provision of training equipment	10 kit (For common use)	100,000	1,000,000	June 15	
9.	Product model development and sample product exporting	50 different products	10,000	500,000	July 10	
10.	Raw materials to be used during actual training	AC4 type aluminum		990,000	July 10	
10.	Contingency/others			397,000		
11.	project expansion scheme				Feb, 2022	
Total				4,717,000		

Team CVs

M&R team

R&D team



marketing manager
Mr. Iwasawa



Market researcher
Mr. Abdulahi



CAD team Cedrick in PH



Casting Mr. Minegishi

Idaho Falls, USA

LA, USA



Tokyo, Japan

Subic, Philippine



U.S marketing Alex

Overseas sales & marketing



Data & modeling Mr. Richard



R&D trial Mr. Kris

Competition (Other competitors in the Market)

Types of cold plate	Merit	Demerit
1. Stamped Heat Sinks	➤ <u>are</u> cheaper compared to extruded heat sinks.	➤ These are used for low-power applications and hence these are low in performance .
2. Machining Heat Sinks	➤ NA	➤ These are expensive as a lot of metal may go as wastage in the manufacturing process.
3. Bonded-Fin Heat Sinks	➤ used for physically large applications	➤ <u>use</u> brazing which is expensive .
4. Folded-Fin Heat Sinks	➤ have large surface area, and possess folded heat sink material, and hence, they have very-high performance and very-high heat-flux density	➤ In these sinks, air is directed to flow directly into heat sinks through some kind of duct. This makes the whole thing expensive as the cost of manufacturing and ducting is included in the overall cost of the sink.
5. Swaged Heat Sinks	➤ inexpensive, medium performing	➤ are limited in air-flow management

Advantages of SAKAECASTING cold plates

As compared to the above cold plate production methods Sakae's cold plate has the following unique features.

- high performance,
- minimum waste due to recycling of pieces of metals,
- The V-process technology it is not limited to some shapes or complexity of shape. Sakae can provide the same cost regardless of complexity of shape,
- Minimum gap between pipe and plate, which is less than 1mm (ultra-thin clearance 0.5-0.8 mm),
- The v- process technology enables us not only to produce thermally efficient products but also includes numerous other advantages such as cost reduction, space-saving and mass production possibility.

Partnership Needed

1. Available casting companies in Rwanda

2. Technique and vocational schools in Rwanda



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