

HEAT SINK BROCHURE

1st Edition



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KIMSEN INDUSTRIAL CORPORATION

- Established in 2013, KIMSEN INDUSTRIAL CORPORATION is a professional company active in the field of manufacturing extruded aluminum, die cast aluminum, machined components & assemblies in Vietnam by international standards.

Factory area: 35,000 m²

Business category: Manufacturing extruded aluminum, die cast aluminum, machined components & assemblies

Capacity: 10,000 tons of aluminum & 30,000,000 components per year

Technical standards: JIS H4100:2015, EN 755-9:2016, ASTM B221-B221M-14

Management systems: Quality Management System ISO 9001:2015, Environmental Management System ISO 14001:2015, 5S - Kaizen Method

MANUFACTURING CAPABILITY

■ KIMSEN has gained customers' trust with our strong production capacity:

- ▶ **9 years** of experience in aluminum extrusion
- ▶ **Extrusion workshop:** 3 extrusion lines (800 tons/month)
- ▶ **Surface Treatment:** Anodizing workshop (450 tons/month) & Powder coating workshop (450 tons/month)
- ▶ Maximum stroke length: **7.2 meters**
- ▶ Annual output: **10,000 tons & 30,000,000 components**
- ▶ Supplying for domestic market and export to 9 countries



Extrusion Workshop

Aluminum alloy: 6063

Heat treatment: T5, T6

Maximum dimension of the section: 200 mm





Anodizing Workshop

Color range: White, grey, black, etc.

Type: Natural, sand blasting, ED coating

Product Standard: JIS H8601 & JIS H8602, AAMA611





Powder coating Workshop

Product Standard: AAMA 2603, 2604, 2605-13, QUALICOAT

Powder paint of reputable paint manufacturers



OUR MACHINES FOR PRECISION MACHING WORKSHOP

With the aim of providing customers with high-precision finished products, KIMSEN has been equipped with a modern processing machine system that allows the production of sophisticated precision parts, meeting the diverse requirements of customers.

► CNC MACHINES

- **Total:** 40 machines
- **Services:** Milling, cutting, drilling, tapping, etc.
- **Accuracy:** $\pm 0.01 - 0.02$ mm



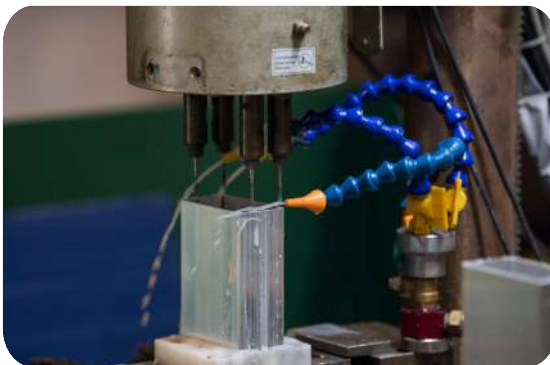
► PUNCHING MACHINES

- Total: 08 machines
- Machines: 45/80/150/200 tons
- Accuracy: $\pm 0.01 - 0.02 \text{ mm}$



► DRILLING & TAPPING MACHINE

- Total: 17 machines
- Services: Drilling, tapping, etc.
- Accuracy: $\pm 0.01 - 0.02 \text{ mm}$





Aluminum alloy is equipped with high thermal conductivity, which is the decisive factor in maintaining good thermal performance and the best medium for thermal energy conversion.

KIMSEM has a diversified range of heatsinks which are being used in a broad range of applications such as BGA & FPGA Heat sinks, Led Heat Sinks, Fan Heat Sinks, Cooling Aggregates...

WE PROVIDE OEM SERVICE, CUSTOM COLOR AND STYLE



CUSTOM DESIGN

for unique shape and weight requirements



COST-EFFECTIVE

option for high volume applications



DESIGN FLEXIBILITY

produce complex shapes with a high degree of accuracy and repeatability

HEAT SINK IN VARIOUS APPLICATIONS

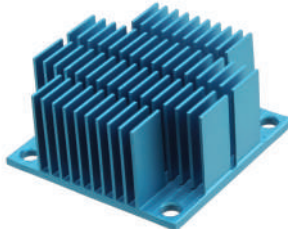
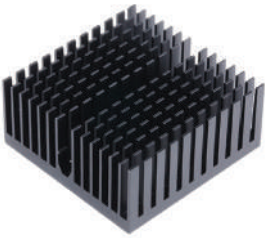
PROFESSIONAL OEM SERVICE, CUSTOM COLOR AND STYLE

Extruded Aluminum is one of the most popular and cost-efficient fabrications.

Extruded heat sinks range in size based on application, smaller for board level or larger for medium power applications. They can be designed for passive or active cooling based on fin shape and pitch. Board level extruded heat sinks are common for packages such as BGAs and FPGAs, LED heat sinks, fan heat sinks, thermoelectric coolers, amplifier heat sinks...

► BGA, FPGA HEAT SINKS

For cooling Integrated Circuits



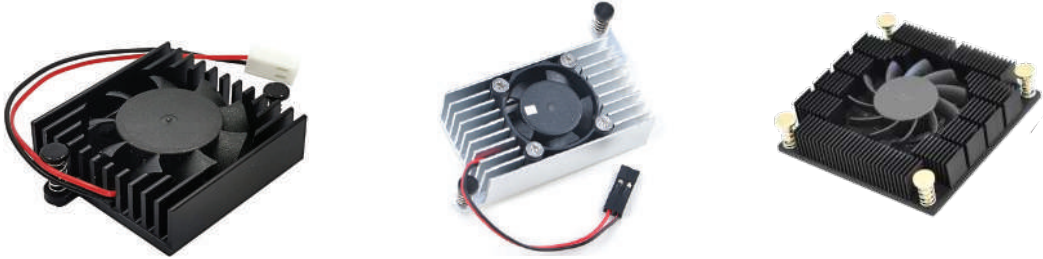
► LED HEAT SINKS

For LED Lighting applications



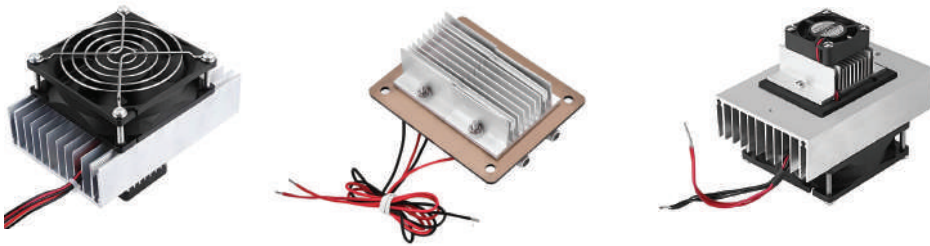
► FAN HEAT SINKS

Combination of Heat sink & Fan



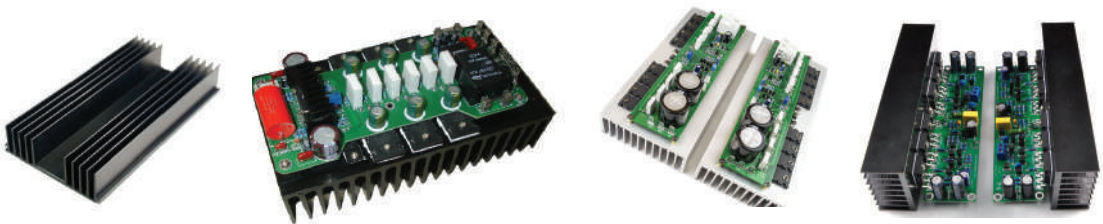
► THERMOELECTRIC COOLERS

Temperature controller, either heating or cooling



► AMPLIFIER HEAT SINKS

For dissipating heat from the amplifier's electric circuits to the outside of the environment



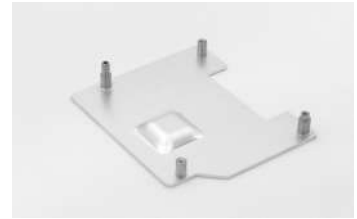
► OTHERS

Customized per request

ALUMINUM SHEET

Stamped heat sinks are made with sheet metal that has gone through punching or press process where details and features are added with each stamp of metal going through the punching die.

Stamped heat sink geometries are designed for specific electronic package types to ensure optimized fit and function on a PCB.



DIE CAST ALUMINUM

Die cast heat sinks are a single-piece construction. They are primarily manufactured in high volumes for applications that are weight sensitive, require superior cosmetic surface quality or have highly complex geometries.

These solutions are made by pouring a thermally conductive alloy into a custom mold in near-net shape and are then lightly machined and finished for the final product.



PRODUCT STANDARDS & SPECIFICATIONS

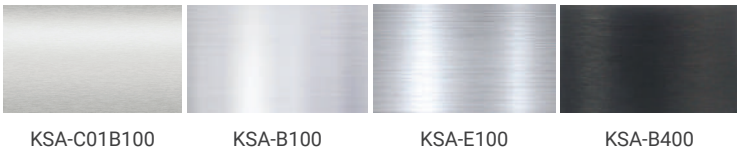
1 Product advantages

- ▶ Lightweight and durable
- ▶ High aesthetic
- ▶ Non-magnetic & non-toxic
- ▶ Easy to fabricate & elastic
- ▶ Multi forms & colors
- ▶ Recyclable

2 Surface treatment

Anode	8 - 12 µm
Anode ED	12 - 18 µm
Type	Natural, Sand blasting, ED coating, Nickel Plating, Chrome Plating

- ▶ **Typical Anodizing colors** *(Actual anodizing colors may differ from the images)*



3 Chemical composition (Alloy No.: 6063)

Chemical Composition % (mass fraction)											
Alloy No.	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Other		Al
									Each	Total	
6063	0.2 - 0.6	0.35 max	0.1 max	0.1 max	0.45 - 0.9	0.1 max	0.1 max	0.1 max	0.05 max	0.15 max	Remainder

4 Mechanical properties

Alloy No.	Temper Grade	Mechanical properties							
		Wall Thickness at specified measuring point (mm)	Tensile stress (N/mm²)	Proof stress (N/mm²)	Elongation %		Hardness test		
					A 50 (mm)	A	Wall Thickness at specified measuring point (mm)	HV5	Hw
6063	T5	12 max	150 min	110 min	8 min	7 min	0.8 min	58 min	8 min
		Over 12 up to and incl. 25	145 min	105 min	8 min	7 min			
	T6	3 max	205 min	170 min	8 min	-	-	-	10 min
		Over 3 up to and incl. 25	205 min	170 min	10 min	-	-	-	10 min

PACKAGING

KIMSEN provides quality standard packaging services, which can be customized to customer's specific packaging requirements.



KIMSEN EXPORT COUNTRIES

Including aluminum extrusion parts and components for other industries.





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Specifications are subject to change without notice.