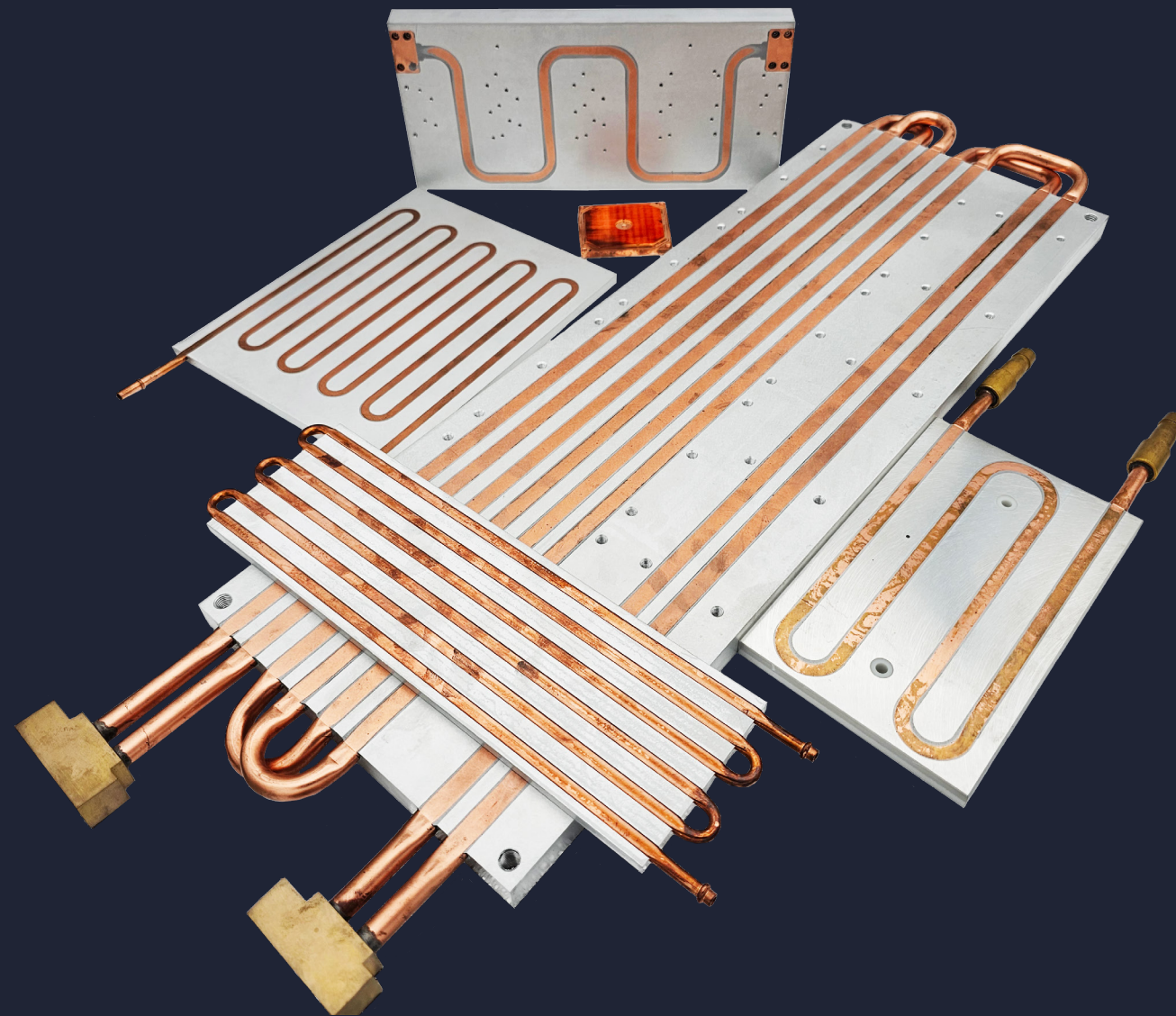


A THERMAL SOLUTION PROVIDER

COLD PLATES OVERVIEW

SIMULATION TO PROTOTYPE

PROTOTYPE TO PRODUCTION

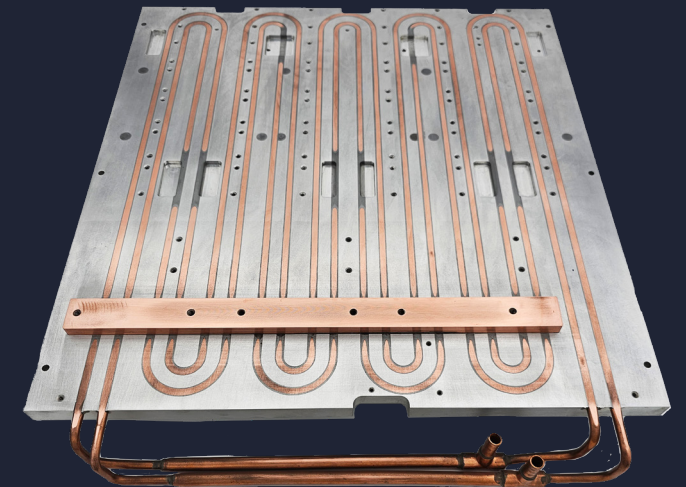
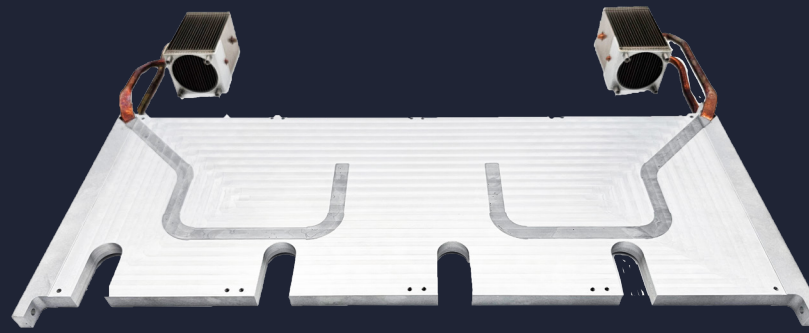
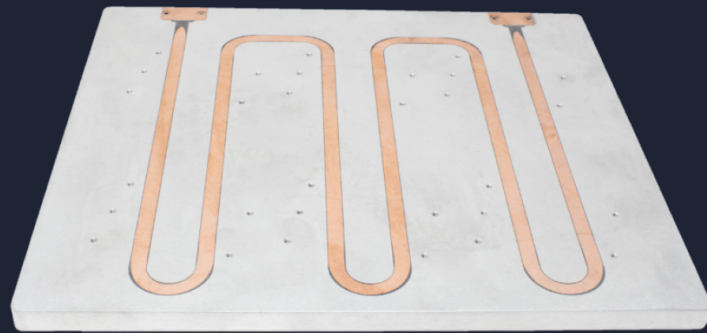


COLD PLATES



Cofan's cold plate is a **specialized heat exchanger** designed to cool electronic components or systems by transferring heat away from them and dissipating it into a cooling fluid, typically water or a water-glycol mixture. Constructed from materials like **aluminum or copper with high thermal conductivity**, a cold plate features a flat, rectangular metal plate with internal channels or passages etched or machined into it. These channels allow the cooling fluid to circulate, facilitating the transfer of heat from the electronic component to the fluid.

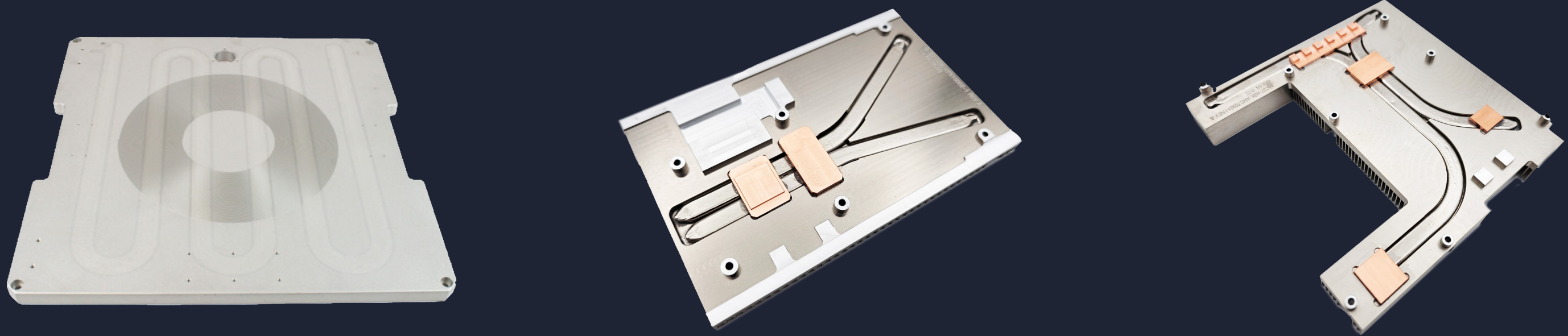
COPPER COLD PLATES



Cooling system consist of:

- **Liquid-cooled panels**
 - Made of copper or Aluminum plate
 - Channel/Cavity is CNC process
 - Fit with aluminum In contacts with the heat source
- Channel is fit with copper pipes
- Filled with liquid (Ionized water or 50% Ethylene Glycol Mixture)
- **Circulation achieved** by pumps
- Liquid is cooled in a external tank or heat exchanger

BENEFITS OF COPPER COLD PLATES



- **Low Cost** (No tooling requirements, no limits to volume)
- **High Performance**
- Highly reliable
 - Seamless copper pipe is set in the channels
 - **No risk of leakage** (as long as with reasonable control of dimensions)
 - Sustain up to 100 PSI (~7kg/cm²) of pressure
 - Heating Element on both sides to achieve miniaturization
 - Direct contact of the copper pipe and heating element provide high heat transfer
 - **Customized connector dimension**
 - Customized dimensions (Maximum dimension to 1200 x 700 x 20mm)

LIQUID COPPER TUBE SYSTEM

Curing Procedures

Curing Temperature	Curing Time
100 °C	4 hours
125 °C	2 hours
155 °C	30 hours
170 °C	5 minutes

Application Features

Color	Gray
Viscosity @ 25 °C	150,000 cPs
Specific Gravity @ 25 °C	Specific Gravity @ 25 °C
Shelf Life @ 25 °C	Shelf Life @ 25 °C
Shelf Life @ 0 °C	Shelf Life @ 0 °C

LIQUID COPPER TUBE SYSTEM

Curing Procedures		
Chemical Type	Epoxy	Test Method
Appearance Uncured	Gray Paste	Visual
Appearance Cured	Dull Gray Solid	Visual
Components	One component	****
Heat Capacity	0.7 l/g-K	ASTM C351
Key Substrates	Metal, Ceramics	****
Hardness	92 Shore A	ASTM 2240
Continuous Use Temp	-40 to 180 °C	****
Tensile Strength Al/Al @ 25 °C	> 2900 psi	****
Thermal Conductivity	4.5 W/m-k	ASTM D5470

COLD PLATES APPLICATIONS

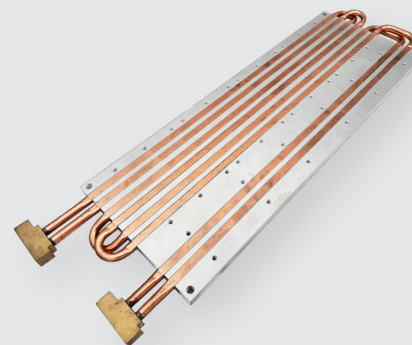
AI

Cold plates **cool servers and GPUs in data centers**, preventing failures. In edge computing, such as autonomous vehicles and smart cameras, they manage heat in compact environments.



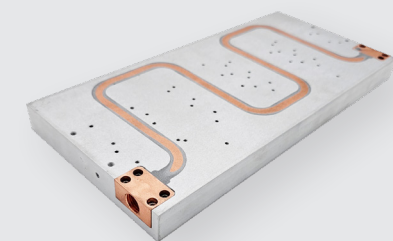
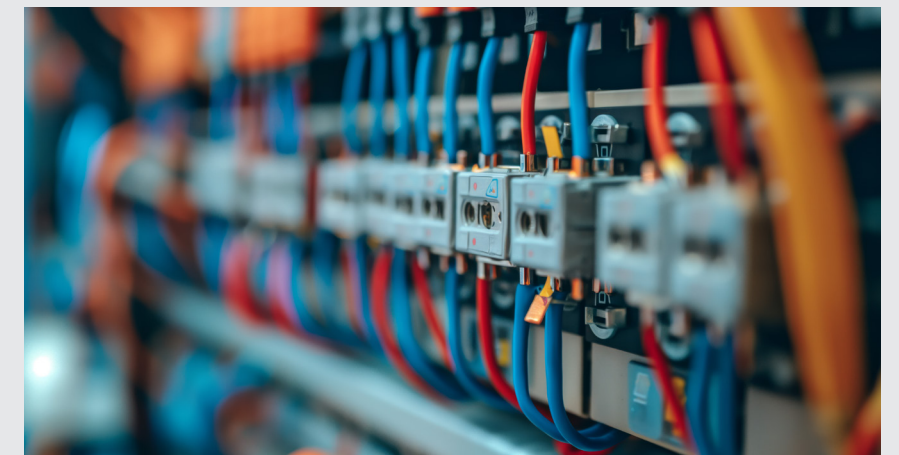
IGBT Solar Module

Cold plates **enhance efficiency in solar inverters by effectively managing** heat from IGBT modules and extending their operational life, ensuring consistent energy output and reliability.



Electrical

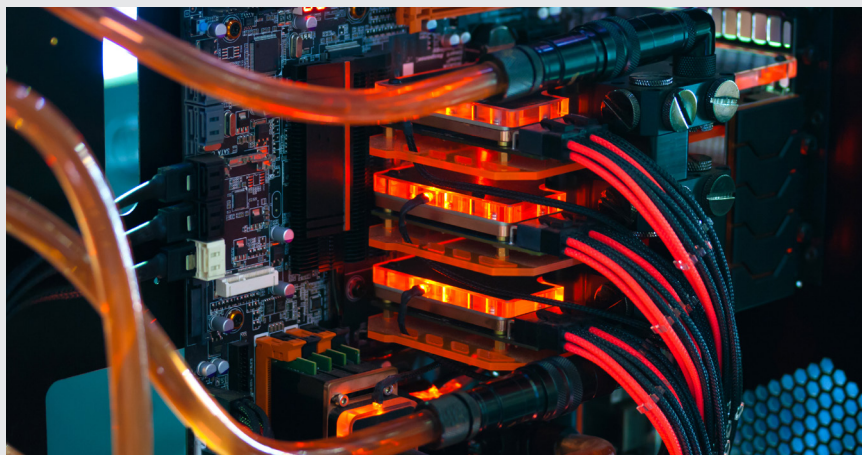
Cold plates cool power electronics like transformers and inverters, ensuring stable performance. In control panels, they **manage temperature to protect components and prevent overheating**.



COLD PLATES APPLICATIONS

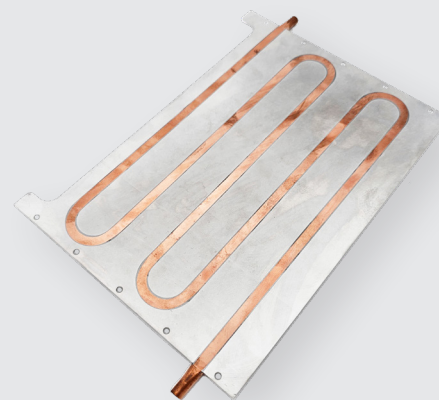
Bitcoin Mining Machine

Bitcoin mining generates significant heat. Cold plates dissipate this heat, **ensuring efficient and reliable operation**, preventing overheating, and extending the hardware's lifespan.



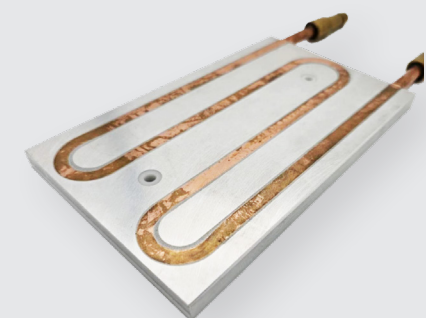
UVA Battery

Cold plates efficiently manage heat in UVA batteries, extending their lifespan, reducing the risk of thermal runaway, and enhancing both **operational safety and overall system reliability**.



Medical

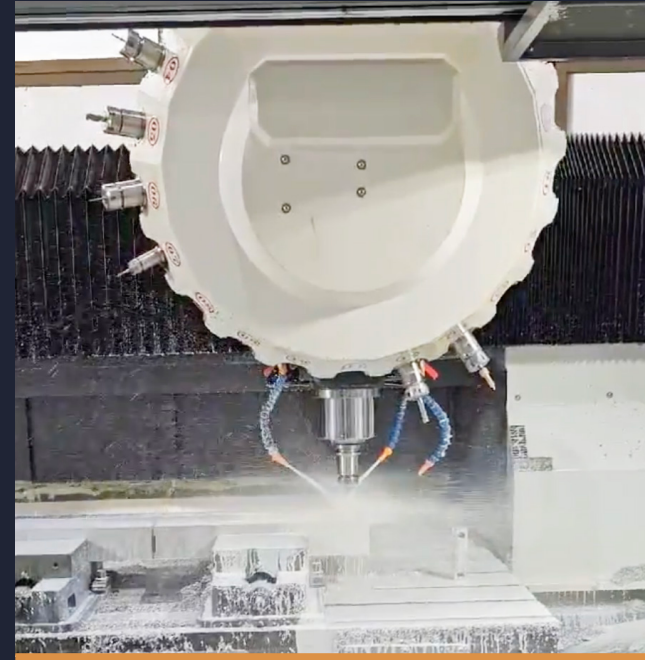
Cold plates in MRI and CT scanners ensure **accurate imaging by maintaining temperature control**. Laser systems provide consistent cooling for precision in surgeries and treatments.



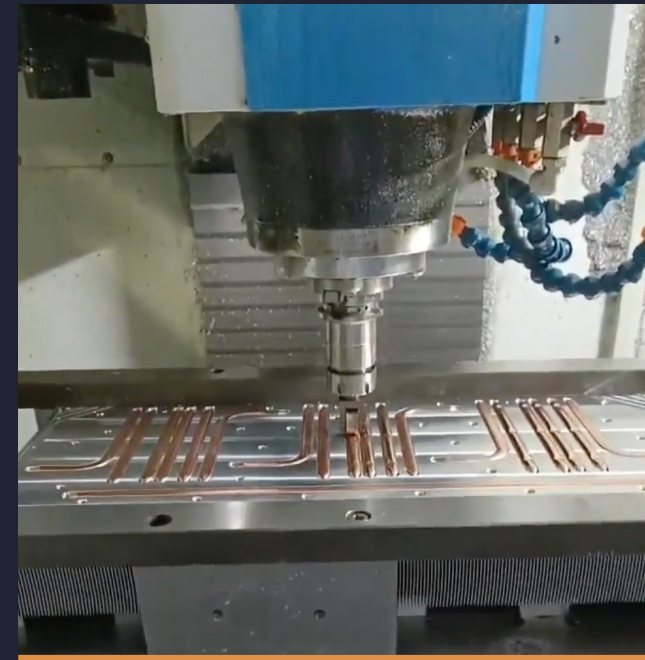
COLD PLATE PROCESSES



CNC



CNC



CNC



Testing



CMM



Leak Test Setup



Products



Products

CERTIFICATIONS

- ITAR
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2020
- IATF 16949:2016
- Reach-SVCH Statement
- RoHS Compliance Certificate

ISO 9001:2015 COFAN Dongguan



ISO 9001:2015 COFAN Taiwan



ISO 14001:2015 COFAN Dongguan



ISO 14001:2015 COFAN Taiwan



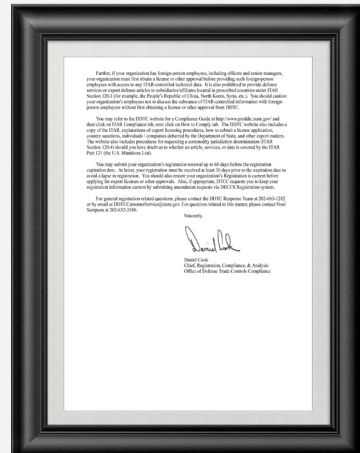
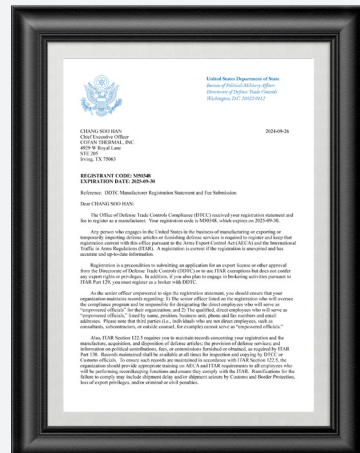
ISO 45001:2020 COFAN Dongguan



IATF 16949:2016 COFAN Taiwan



ITAR COFAN USA

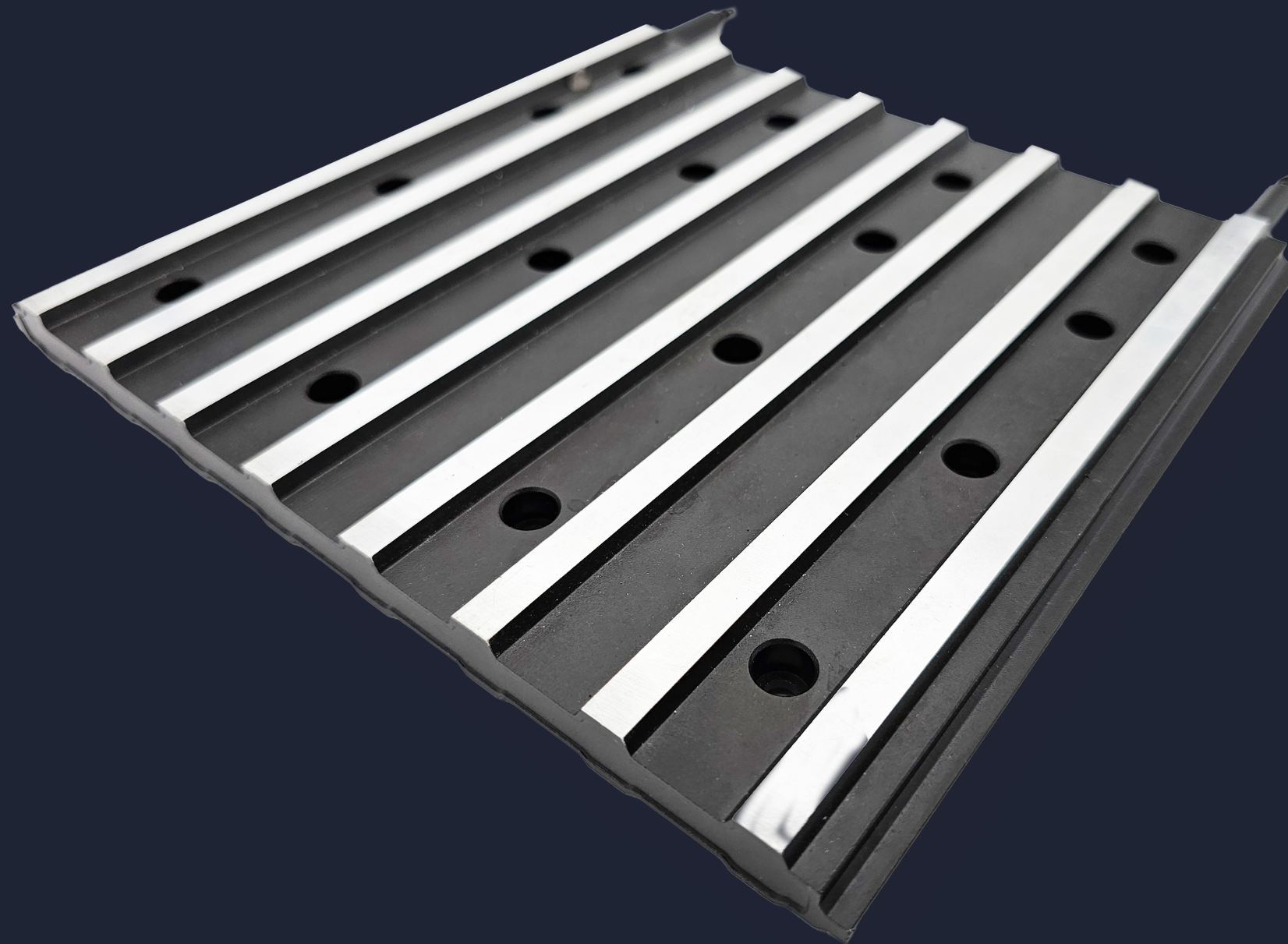


Reach-SVCH Statement



RoHS-Compliance Certificate Cofan Taiwan





Cofan Head Office (Dallas, Texas)

- 4929 W Royal Ln, Irving, Texas 75063
- E-mail: info@cofanthermal.com
- Tel: 1-800-766-6097

Cofan USA (Fremont, California)

- 46177 Warm Springs Blvd. Fremont, CA 94539
- E-mail: info@cofanthermal.com
- Tel: 1-510-490-7533

Cofan Canada (Toronto, Ontario)

- 71 Buttermill Ave, Vaughan, ON L4K 3X2
- E-mail: info@cofan-pcb.com
- Tel: 1-877-228-3250

Our Website

- www.cofanthermal.com
- www.cofan-pcb.com

