CTX THERMAL SOLUTIONS

KEEP IT COOL

Product portfolio

Heat sinks

Enclosure technology

Rotary knobs

Expert thermal management for your electronics

CTX is specialised in perfectly fitting active and passive cooling solutions for electronics for more than 25 years. We implement application-specific cooling units and cooling electronics housings for our customers from almost every field of industry. Our wide product range makes us to one of the leading suppliers in Europe.

We support you from the initial idea to series production when you implement your cooling solution. In the process, we draw on a vast range of manufacturing techniques together with an exceptionally broad supplier base.

Our products are supplied to consignment warehouses and security storages worldwide, using ecologically worthwile ways of land, sea and air transport. This enables us to guarantee maximum flexibility, quality and delivery reliability at all times.

Application-specific cooling solutions

Our product portfolio includes profile, high-performance, and liquid heat sinks as well as LED and PCB heat sinks, heatpipe solutions and cooling solutions for embedded systems and industrial computers.

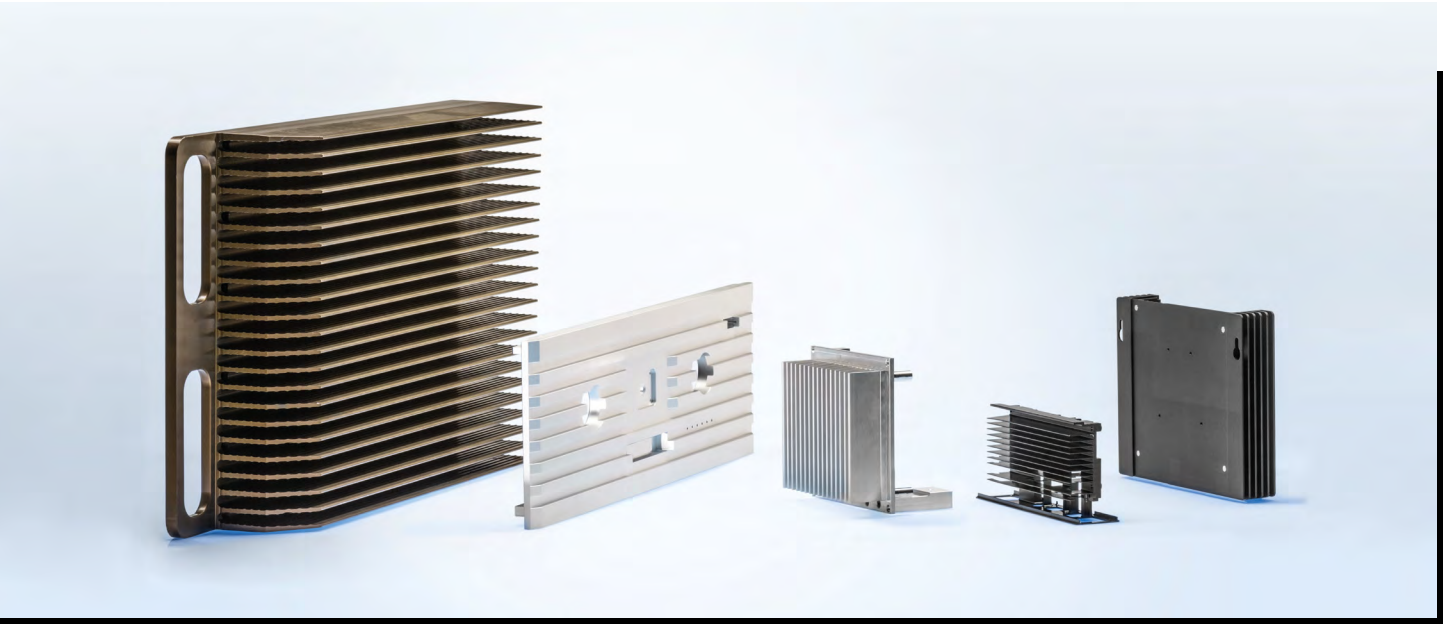
Enclosure technology

Our enclosure solutions include profile and die-cast enclosures as well as enclosures manufactured using stamping and bending technology. Our product range also includes front panels, technical aluminium parts as well as sheet metal, stamped and bent parts.

Rotary knobs

In addition to general heat sink accessories, we also distribute more than 6,000 different rotary, special and recessed rotary knobs from the Swiss brand Ritel.

Contents



Profile heat sinks

The classic cooling solution

Classic profile heat sinks are manufactured by extrusion or continuous casting. They cool electronic components through natural convection and help to ensure that electronic devices function reliably.

More infos:

Produced via extrusion, profile heat sinks can be easily designed with both simple and complex geometries as required. The extrusion tools are low-wear and the production costs comparatively low. As a consequence, the extrusion process even represents a cost-effective option for series with small, medium, and high quantities.

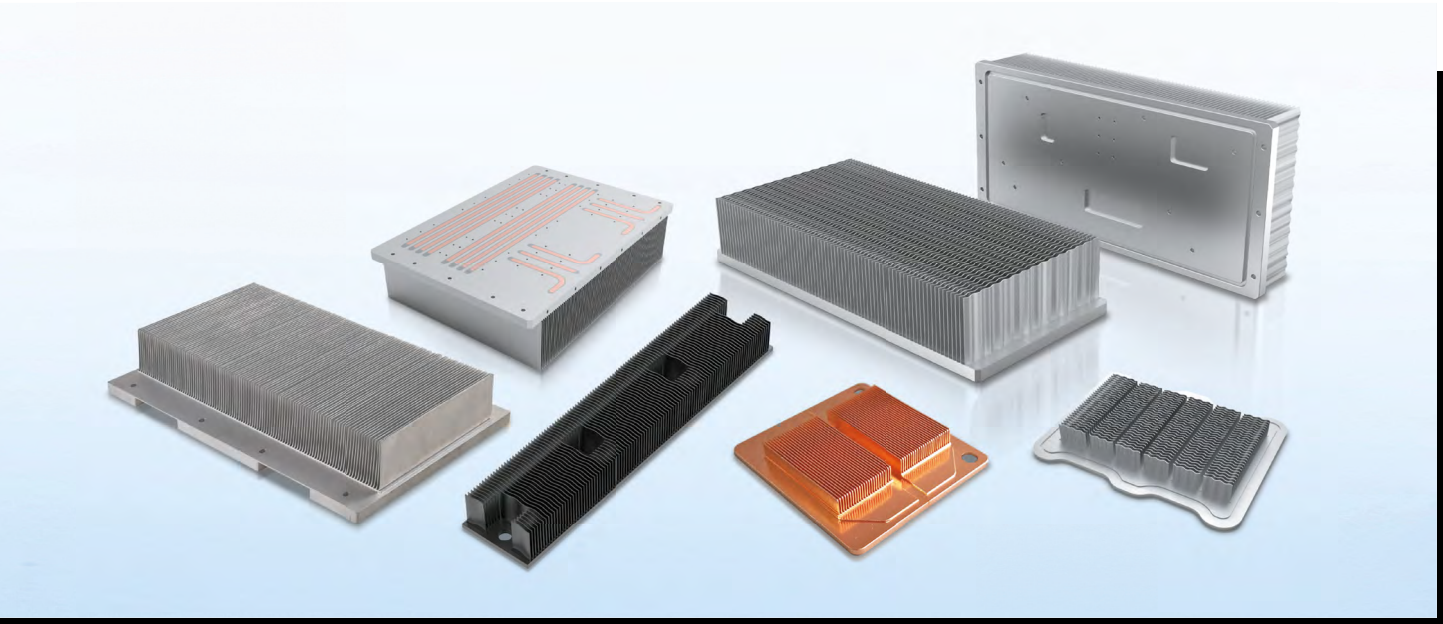
Profile heat sinks – facts and figures:

- Width: 12-200 mm – up to 1,000 mm on request
- Height: 7-135 mm
- Subsequent CNC machining possible
- Surface treatment like painting, powdered coating, anodising, chromating

Versatile

Reliable

Low-cost



Skived fin heat sinks

Highest performance single-piece solutions

When producing skived fin heat sinks, the cooling fins are carved out of a solid block of aluminium or copper. This heat sinks are created with a highly dense cluster of especially fine fins. The seamless transition of the single-piece design eliminates any additional thermal resistance between the fins and the heat sink base. The heat sinks provide a correspondingly high performance density. As this process does not involve any tooling costs, it is also suitable for single pieces and small series.

More infos:

Because of their high fin density, skived fin heat sinks are used in combination with system fans for forced cooling.

Skived fin heat sinks from CTX:

- Especially high specific performance density
- Low tool costs
- Suitable for small series
- High fin density
- Particularly thin and long fins possible
- Can be combined with system fans

Individual

Reliable

High-performance

Liquid heat sinks

The high-end cooling solutions

When high-performance processors produce more heat than passive or fan-based active cooling solutions can handle, cold plates are the preferred cooling solutions. They dissipate more heat in a very short time than any other cooling system.

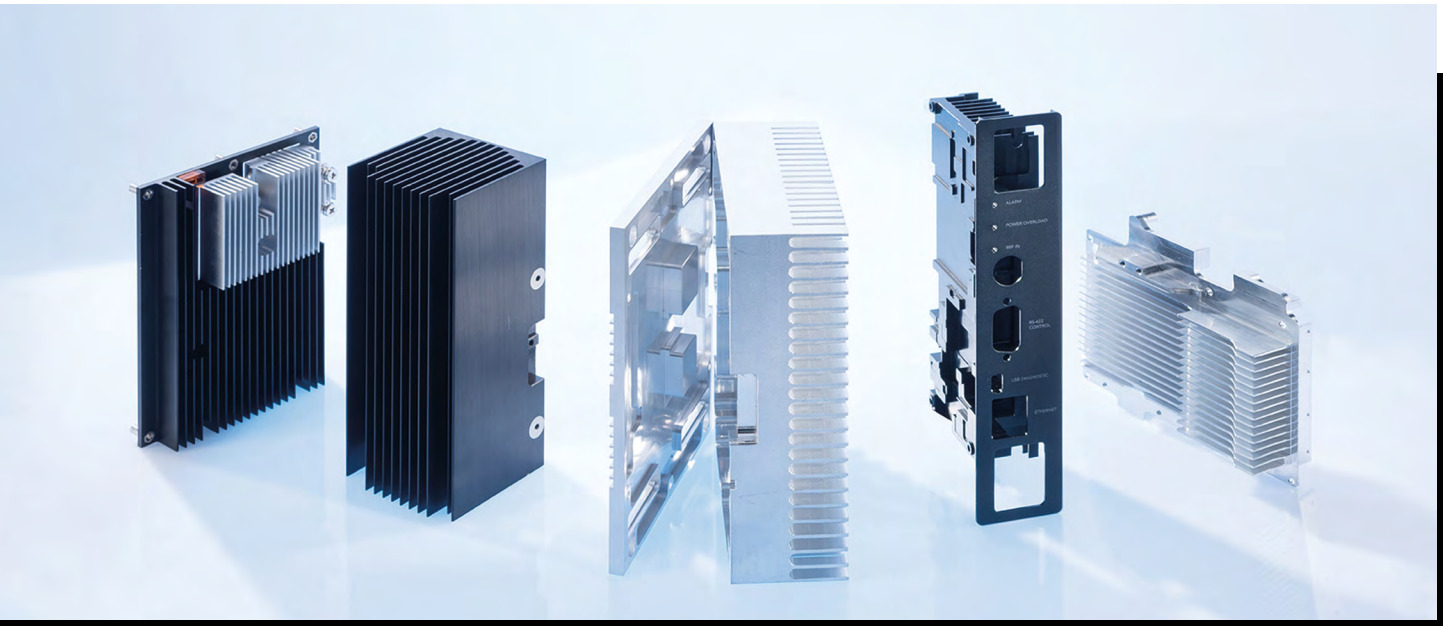
More infos:

Liquid cooling systems are as unique as their applications. Typical configurations consist of system with aluminium cooling plates and embedded copper, aluminium or stainless steel tubes, liquid heat sinks with extruded or core drilled cooling channels as well as designs featuring top and bottom plates joined using friction stir welding. Heat sink variants made of high-temperature brazed aluminium, optionally with integrated turbulators, are also available. Die-cast heat sinks with pressed-in or integrated cooling channels are particularly suitable for high-volume products.

Advantages at a glance:

- Highest heat sink performance class
- Extremely high performance density
- Up to 25 % more effective than fan-based cooling solutions
- Small transmission area
- Directly affects the hotspot
- Application-specific manufacturing processes

High-performance Individual Optimal



Embedded systems

Perfectly cooled

Extremely compact and maximum performance – these are the requirements for cooling concepts for embedded systems and industrial computers (IPC) as well as the systems themselves. There are no off-the-shelf embedded cooling solutions.
Every cooling concept is specifically designed for the particular industrial computer application. Highly efficient active or passive cooling solutions are used together with custom-built metal electronics housings with integrated heat sinks.

More infos:

Cooling solutions for embedded systems and IPC include:

- Heatspreader solutions with integrated heatpipes which absorb the heat at the hotspot and transfer it to a heat sink
- Heat sinks with copper inlay for direct installation on the hotspot
- Customised fan solutions
- Soldered, clipped or screwed-on PCB heat sinks (finger, clip-on or small heat sinks) for all common semiconductor housings
- Fan units assembled ex works as well as ready-to-install sets consisting of the heat sink and press-in fasteners, for example

Individual

Versatile

High-performance

Cold forging heat sinks

Powerful, versatile, economical

The cold forging process enables the economical production of high-performance pin and fin heat sinks with complex geometries in a single process. There are almost no creative limits to the design. Subsequent mechanical processing is only required in rare cases because of the high surface quality achieved through extrusion.
The heat sinks can be anodised, if necessary.

More infos:

The starting material for cold forging heat sinks is usually pure aluminium (Al1050/ Al1070). In exceptional cases, pure copper (CU1100/CU1020) may also be used.
Cooling of high-power LEDs is a typical application.

The advantages of cold extruded heat sinks from CTX:

- Extremely homogeneous and dense material structure
- Heat sink thermal conductivity higher than the base material
- High cooling capacity due to three dimensional air flows
- High dimensional accuracy and surface quality without needing reworking
- Wide range of desing possible
- Ideally suited for project-specific series from approx. 500 pieces upwards
- Can be combined with heatpipes

Individual

Reliable

High-performance

Application-specific enclosure solutions

Protection, shielding, cooling

Customised CTX metal enclosures optimally combine functionality and design. These housings (enclosures) protect the electronics against dust, moisture and contact while also offering good shielding against electrical or magnetic fields. Where necessary and designed for this purpose, they also dissipate the power loss of the unit using the form of a heatsink.

More infos:

In addition to individual electronic enclosures, the CTX range also encompasses technical aluminium parts and a front panel service as well as CNC machining and surface finishing of the enclosures and parts. We utilise diverse materials and processes for the production. These are dependent on the technical requirements and the quantity needed.

Our enclosure systems at a glance:

- Materials: Sheet steel, galvanised sheet steel, aluminium, stainless steel
- Manufacturing processes: Die casting, extrusion, stamping and bending technology
- Surface finishing: Painting, anodising, sandblasting, powder coating, printing, chromating
- CNC processing
- Machining: Punching, nibbling, lasering, folding

Individual

Reliable

High-performance

Die-cast heat sinks and housings

Application-specific geometries, economically manufactured

The die-casting process enables the production of heat sinks and electronic housings with application-specific sizes and shapes. Despite the tooling costs, it represents a cost-efficient production solution even for small series. Given that even the most demanding geometries can be created, cost-intensive CNC reworking is only necessary at location with particularly high surface or flatness requirements.

More infos:

Aluminium, magnesium and zinc are typical die-casting materials. Of these, aluminium is by far the most suitable for producing heat sinks.

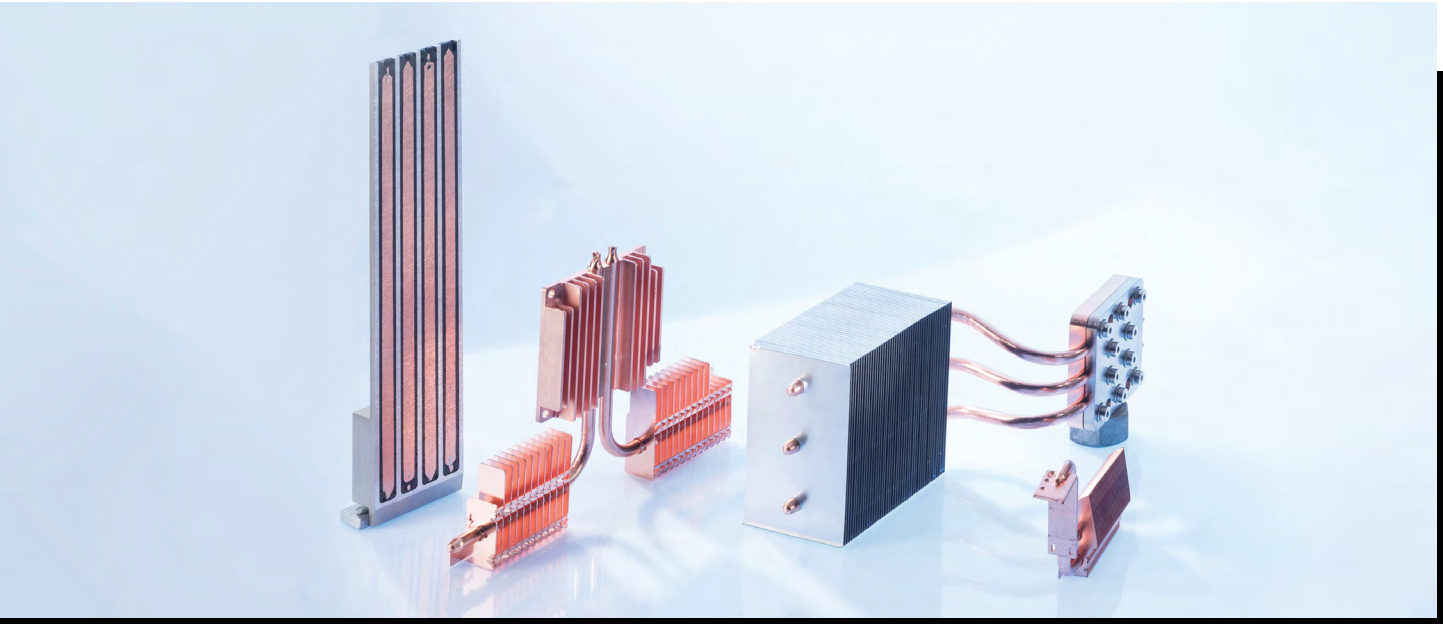
Advantages at a glance:

- Ideal for series production
- Very low unit costs despite tooling costs
- Die-cast aluminium parts are lightweight, corrosion-resistant and can withstand the highest operating temperatures
- CNC finishing only required at points with particularly high surface requirements

Individual

Reliable

High-performance



Heatpipes

Cooling via efficient heat transfer

Heat pipes are among the most efficient heat exchangers because they use evaporation and condensation heat for heat transfer. This enables heatpipes to dissipate large amounts of heat with a minimal temperature difference. The heat pipe is typically made of copper and often has a capillary structure on the inside. The effective thermal conductivity depends on the length and diameter of the pipe.

More infos:

As the copper tubes are easy to shape during the production process, heat pipes are exceptionally flexible in terms of their design and use. They are ideal both for installation in tight spaces and for heat dissipation over long distances.

The advantages of heat pipes:

- Installation in almost any position
- Great creative freedom
- Relatively low thermal resistance
- Ideal for installation in confined spaces
- Excellent heat conduction even over long distances
- Cooling capacity can be consistently increased by increasing the number of heat pipes or by combining them with heat sinks

Efficient

Flexible

Scalable

Sheet metal punching and bending

Ideal for lightweight enclosures, front panels and technical parts

The punching and bending process is ideal for producing lightweight special enclosures, front panels, and technical parts in small and large quantities. Typical materials include sheet steel, galvanised sheet steel, aluminium and stainless steel. After the punching process, the enclosures are bent into shape, fitted with press-fit elements such as bolts or bushes and then anodised, painted, chromated or powder-coated in accordance with the customer's requirements.

More infos:

Optional services for front panels include film production, custom printing, and laser engraving. The components with project-specific designs are nibbled, laser-cut, and beveled. A complete surface finish is applied on request along with a single-component paint protection.

The advantages of punching and bending technology:

- Customised design
- Light-weight construction
- Optimised material usage
- Flexible and efficient
- Low tool costs

Individual

Reliable

High-performance

Clips and springs

High quality for safe processes

Clip connections provide a permanently secure thermal contact and good heat transfer between the semiconductor and the heat sink. They are characterised by their high central contact pressure along with simplified insulation options.

The range includes mounting clips and springs with both standard and project-specific versions. Surface finishes such as hydrogen-free zinc plating, nickel plating, chromating or copper plating can be implemented on request. We develop application-specific solutions step by step in collaboration with the user. Clips are used as labour saving options compared to screwing.

More infos:

Advantages of CTX clips and springs:

- First-class raw materials from certified manufacturers
- Quality inspections during and after production
- In-house hardening including continuous testing
- Enables complex geometries
- Traceability due to laser marking on each individual element
- Used for labour saving

Individual Reliable High-performance

Typical areas of application for our heat sink solutions

High-power electronics are the basis for increasing digitization and automation in virtually every area of life. They are used in industrial automation and control technology, (electric) vehicles and entertainment technology, technologies for generating renewable energies and for power supply, as well as medical technology, white goods and railway technology.

TALK TO US

Let us help you find the right cooling solution for your application – we look forward to your inquiry!

Drive and control technologies

Because power electronics need cooling, our heat sinks are utilised in all of these and in numerous other application areas.

Agriculture applications

Measuring and control technologies

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