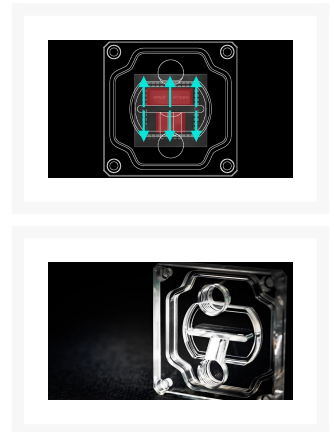
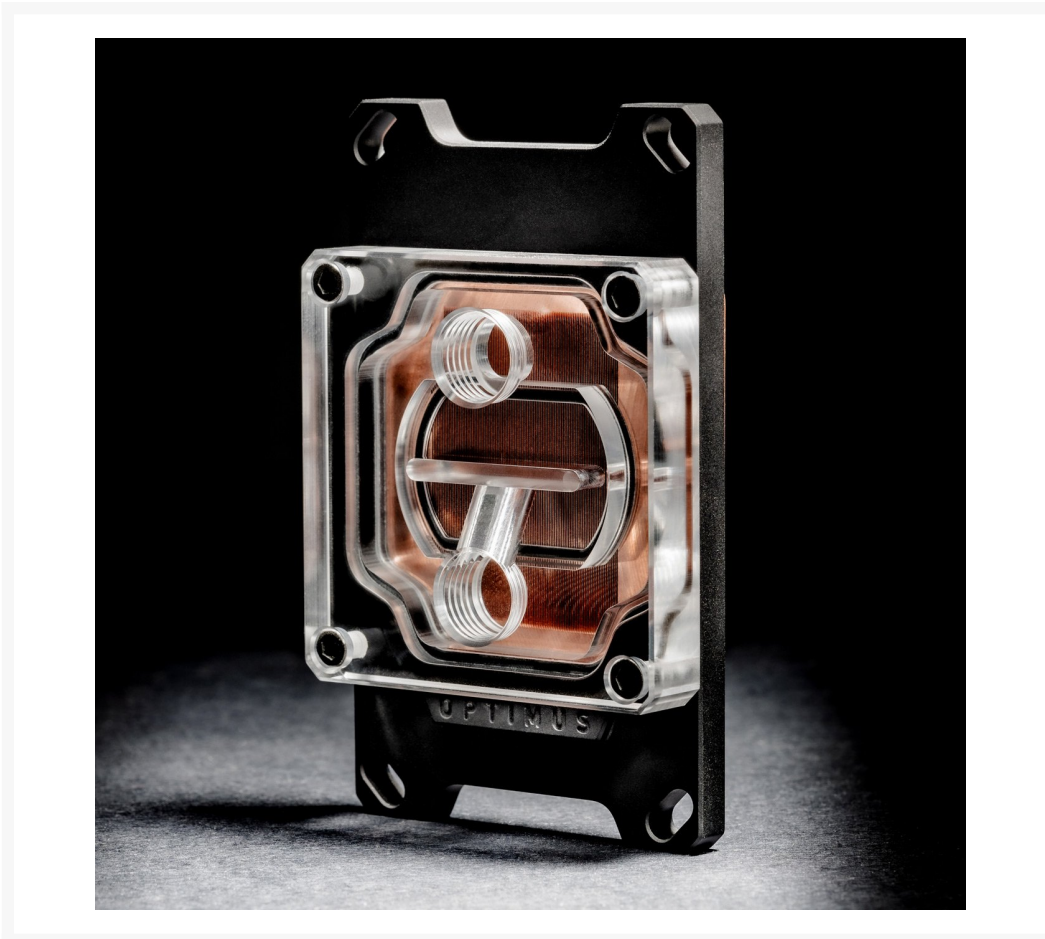




Optimus Foundation CPU Block - AMD Acrylic + Black Aluminum / Raw Copper

\$119.00

Product Images



Short Description

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the new Ryzen uses a new horizontal die layout with larger surface area and even higher thermal requirements. In order to provide max cooling, the Foundation block's fin area covers more than 100% of the dies with a flow-optimized design to wick away large amounts of heat.

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Features

PERFORMANCE FIRST MODULAR DESIGN

Made for performance-first, the Foundation block's design allows the liquid flow to match the 5000 series Ryzen CPU die layout perfectly (see left).

Moreover, the Foundation series is fully modular, meaning the top block and cold plate can be rotated in any direction while keeping the bracket logo upright. That way, you can adjust your inlet/outlet orientation to match your build. While we recommend orienting the flow to match the die layout, you'll still achieve excellent performance in a goofy layout.

A CPU block's performance is only as good as the contact with the CPU. This means mounting pressure and accuracy is paramount for best performance. To achieve this, the Foundation block uses a 1/4" (6.3mm) CNC aluminum mounting plate, rather than stamped steel. This allows high pressure and accuracy when securing the block. Plus, it looks fantastic.

ONLY METAL-TO-METAL SCREW THREADS

All Optimus products are assembled with metal screws into metal threads, never acrylic or acetal threads. Plastic screw threads can easily strip and cause cracks, rendering a block useless. Most acrylic/acetal-threaded blocks can only survive a few assemblies before stripping. By eliminating plastic threads entirely, Optimus blocks are able to be reassembled for years to come. Plus, securing the top block using steel screws into machined aluminum mounting plate means leak-proof pressure.

Eliminating CRACKED ACRYLIC

Extruded acrylic with poor machining is the #1 culprit of cracking in water cooling parts. Extruded acrylic is low cost and easy to make. That's why extruded is used by nearly every water cooling company.

But extruded acrylic isn't appropriate for liquid cooling parts. Extruded is prone to stress and spider web fractures from machining and expanding/contracting during temp fluctuations and exposure to liquids. Additionally, injection molded nylon blocks feature similar downsides, including a +/- 10% expansion variation and high fluid retention, all sources of stress. If you've ever wondered why ports, screw threads and reservoirs randomly fracture, this is why.

Cast acrylic is far harder with excellent machinability and resistance to cracking. Really, cast acrylic is the only real choice for everything from precision machined parts to giant aquariums. Optimus uses only cast acrylic for every single acrylic component. In fact, our cast acrylic is much stronger than acetal and nearly impossible to break. Feel free to allen wrench your fittings in place, our block won't blink.

DIAMOND VS FLAME POLISHED

Optimus uses only custom designed diamond CNC acrylic bits to achieve high optical quality rather than buffing or flame polishing. Flame polishing, combined with extruded acrylic, causes numerous problems. First, flaming (and vapor) polishing works by melting the outer layer of material to achieve a glass-like appearance. While the results look great, melting causes significant damage to the acrylic structure. With flaming, the acrylic becomes highly prone to stress cracking as well as spider webbing from fluids and temp fluctuations. And flaming has a tendency to turn acrylic yellow.

Moreover, by diamond polishing, we're able to achieve higher clarity in places flaming cannot, like the inside of ports and channels. While this is a far more time consuming and challenging process, we believe the results speak for themselves.

100% CNC MILLED ports

Additionally, we only CNC our G1/4" ports, never thread tap. Thread tapping is the industry standard because it's easy and any budget drill press can do it. Thread tapping works by twisting a threaded drill bit into the material, causing burrs and extreme levels of stress. The resulting thread tapping micro fractures are nearly invisible, until the acrylic meets water, heat and pressure. Then micro turns into macro and cracks appear.

With CNCing (aka thread milling), specialized CNC bits are used to sculpt away the material and make the threads. CNC milling is vastly more accurate and causes far less pressure on the material, but takes much more time and requires high-speed CNC machines. For Optimus, CNC threads are a must.

TRUE BSPP-G1/4" SPEC THREADING

Moreover, with over 50 years making aerospace fittings and parts, we're hyper focused on thread accuracy. All our G 1/4" ports and threads meet BSPP-G specification. This might seem like a small detail, but the accuracy of G 1/4" style fittings and ports on the market varies greatly and can lead to numerous problems like leaks, cracks and cross-threading.

Ultimately, all these steps combined make our acrylic products nearly indestructible. That's why we can offer the industry's only 10 year warranty.

BANISHING FLAKY ELECTROPLATED NICKEL

Flaking, disintegrating nickel is a widespread problem in liquid cooling. After all, nickel PC fittings and blocks prohibit use with plain water, or you void the warranty. Instead, you must use anti-corrosive fluids to protect nickel components. Why? Because the industry standard electroplated (aka electrolytic) nickel is a cosmetic nickel finish that isn't meant to be used in liquid applications. Often called chrome or shiny nickel, electroplated nickel is cost effective and looks good.

Unfortunately, water, anti-fungals and fancy fluids will rapidly strip electroplated nickel. The gunk that will appear in block fins isn't just broken down fluid, it's often disintegrated nickel, paint and cheap plastics. If this seems crazy, it is. After all, the cheapest home faucet can handle tap water, so why can't expensive PC parts?

OPTIMUS Pro·XENICKEL

Optimus Pro-XE is our proprietary electroless nickel process for liquid cooling parts. Electroless nickel, unlike electroplated, is an aerospace industrial finish with extreme chemical resistance, hardness and superior fluid lubricity. Our Pro-XE nickel is specifically tailored for liquid cooling, providing maximum corrosion protection, even in places normal nickels can't reach, like inside our cold plate's 202 micron channels.

SAFE FOR H2O

Optimus Pro-XE nickel is able to withstand saltwater, corrosive chemicals and, yes, even plain water. With Optimus parts, you can use distilled water without fear of flaking. Distilled, aside from being cheap, is also the highest performance coolant readily available. Anti-corrosive additives lower the thermal conductivity of the liquid. That's why we can offer a 10 year warranty, even with regular H2O. It has been a herculean task to create Optimus's Pro-XE nickel, but the results look great and are nearly indestructible.

So why isn't everyone using electroless? Cost and appearance. Electroless is far more difficult to manufacture, especially when achieving perfect finishes needed for premium PC builds. And electrolytic can achieve that bright chrome look, even though it's highly susceptible to disintegration.

THE FINEST FINS EVER CREATED

Over three years of development went into creating our truly next-level patent-pending fin technology. Using a fully CNC machining process, Optimus is able to achieve 0.1016mm (0.004") fins with 0.2032mm (0.008") micro channels. This isn't just superior craftsmanship, it's generations beyond other fin designs.

MEASURABLY PERFECT FINS

Optimus fins and channels are perfect from first to last. It has taken years to create the tools needed for this level of accuracy, but the thermal benefits are worth it. This makes Optimus the world's first and only truly micro CNC fin cold plate on the market. By achieving thinner fins, the Optimus cold plate has the most surface area of any CPU block available. And surface area = cooling performance.

CNC VS SKIVED FINS

In water cooling, there are two ways to manufacture fins: CNCing and skiving. Unlike the CNC process Optimus uses, skived fins are created by scraping a blade across a metal block, then flipping that shaving up to create a fin. While skived fins are the most common type and found in all-in-one units and water blocks, the shaving-style fins are never straight and fin collapse happens with nearly every skived plate. Open an AIO and see what has happened to the fins, upwards of a quarter of the fins will have deformed on the edges from the pressure of the o-rings and block tops, blocking flow channels, even breaking off.

CNC fins are typically much thicker than skived fins. Look at most open loop water blocks, the fins are quite large. The downside is the surface area is much lower compared to thin-fin designs. That's why the Optimus ultra thin CNC fins are the best of both worlds -- the highest surface area with CNC precision to ensure long lasting performance.

INTEGRATED VS STEEL JET PLATES

The Optimus Foundation V2 features an integrated jet design to force fluid through the fins to maximize contact. Other designs on the market use a cut steel jet plate to create pressure. While cheaper to manufacture, the steel jet plates often rust and cause galvanic corrosion when in contact with the fins, causing problems in the loop. By integrating the jet design into the unibody block, the Foundation eliminates steel from the loop, reducing potential for rust and corrosion. Moreover, we're able to tailor the cold plate bow to match the CPU IHS perfectly.

EASY O-RING GROOVES

No more struggling with slippery o-rings and shallow grooves. We take the extra step of creating o-ring grooves to hold our EPDM o-rings to make assembly fast and accurate.

WORLD'S FLATTEST COLD PLATE

Optimus sets another record for flattest cold plate on the market. Optimus machines blocks less than 1 micro-inch (μin) in flatness. This is 0.000025mm of roughness (measuring the peaks and valleys of the surface). Other companies are over 400% rougher than Optimus coldplates.

The only way to truly guarantee 0.000025mm level of accuracy is to CNC the cold plate perfectly with diamond bits. Optimus created proprietary diamond tooling that allows the cold plates to come off the CNC with a perfect mirror finish.

Additionally, because we control the fins and cold plate to such a precise level, we can make the distance between CPU IHS and the fins extremely small. Thin cold plates are able to transfer heat from the CPU faster than thicker cold plates.

US-SOURCED ULTRA-PREMIUM MATERIALS

We pride ourselves on using only the purest US-sourced materials in our blocks, like guaranteed C110-grade copper, 360-grade brass, 6061-T6511 aluminum and cast acrylics. Many cheap (and even not cheap) blocks use alloys or impure copper and brass to save a few dollars. While the final product may look attractive, the block will offer less performance and reliability over time.

GOO BE GONE

Wonder where that goo in your loop comes from? It's disintegrated nickel plating, painted fittings, impure metals and cheap o-rings. Moreover, the latest fancy opaque fluids have particles that look cool but are slightly abrasive and act like a stripping agent in your system. Opaque fluids will quickly strip plugs and fittings of their finishes and certain anti-fungal additives will strip electrolytic nickel and mix with the fluids, causing massive gunk issues common in liquid builds.

100% PLASTICIZER-FREE

Most think plasticizer in older tubing is the only cause, but inferior materials are the major source of problems. Optimus EPDM O-Rings are free from plasticizer, an issue that can be found in cheaper o-rings used in other blocks.

OPTIMIZED FOR MODERN PUMPS

Many blocks are advertised as featuring "low restriction for weaker pumps" which is good for builds with weaker pumps. But if aspiring for ultimate performance, low restriction designs with thick fins simply can't offer the heat dissipation of high micro-fin designs like Optimus. Optimus blocks are engineered for the latest and most popular D5 and DDC pumps models.

Specifications

Materials

- TOP PLATE: Cast acrylic from Plexiglas® or black acetal from Röchling
- COLD PLATE: US-sourced premium C110-grade copper, guaranteed ASTM B187 spec
- COLD PLATE FINISH: Raw copper or Pro-XE nickel
- BRACKET: US-sourced machined 6061 aluminum, satin anodized
- O-RINGS: US-made plasticizer-free EPDM o-rings
- SCREWS: 18-8 stainless steel or black oxide over stainless steel mounting screws, stainless steel cold plate screws
- MOUNTING: Optimus-made CNCed stainless steel posts and 6061 thumbscrews

Compatibility

- MOUNTING: AMD AM4 and AM3 sockets. Not compatible with Threadripper TR4
- COOLING: Compatible with all Ryzen series, including 3000 series with 16 cores
- MODULARITY: Modular design for swapping mounting plates, cold plates and tops

In The Box

- 1 x Foundation CPU Block
- 4 x Optimus CNC Mounting Posts w/ bushings
- 4 x Optimus CNC Thumb Screws
- 1 x AMD back plate
- 1 x Thermal paste syringe
- 1 x Installation instructions

Additional Information

Brand	Optimus
SKU	OP-CPU-FOU-AC-BL-C-AMD
Weight	2.0000
Color	Clear
CPU Series	AM3/AM4
Block CPU Type	AMD
Block Style	Copper-Plexi

