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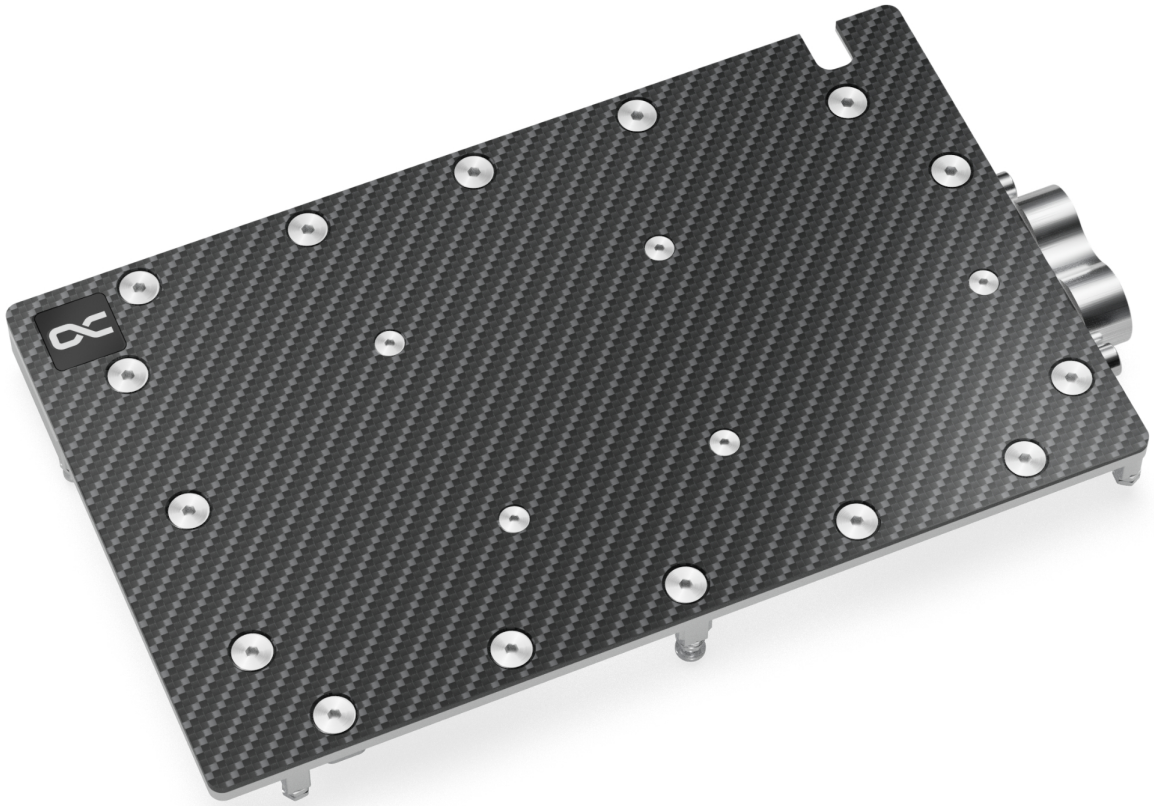
Alphacool ES Geforce RTX 4090 Reference Design with Backplate

Alphacool article number: 13395



Quick Info

The Alphacool ES Copper/Carbon water cooler with backplate was developed for the Alphacool Enterprise Series. Due to the positioning of the connections, the hosing of the cooler in the server rack is significantly simplified. The top of the cooler is made of carbon. This makes the water cooler lighter compared to Alphacool's Eisblocks with acetal or acrylic tops.

- Fullcover water cooler
- Chrome-plated copper bottom
- Noble material mix of carbon & copper
- Form factor 1.5U

Compatibility

ATTENTION! INNO3D uses two different PCB layouts.

Check the compatibility of the layout here: Layout Check

Attention: Unfortunately Inno3D is using two different PCB Layouts. Please check your serial number. If it looks like following, it is not compatible with our water blocks: 32-879-xxxx8xxxx

- Inno3D GeForce RTX 4090 iCHILL Black, 24GB GDDR6X (C4090-246XX-18330005)
- Inno3D GeForce RTX 4090 iCHILL Frostbite, 24GB GDDR6X (C4090-246XX-1833FB)
- Inno3D GeForce RTX 4090 iCHILL X3, 24GB GDDR6X (C40903-246XX-1833VA47)
- Inno3D GeForce RTX 4090 X3 OC, 24GB GDDR6X (N40903-246XX-18332989)
- KFA² GeForce RTX 4090 SG (1-Click OC), 24GB GDDR6X (49NXM5MD6DSK)

Scope of delivery

4x 8x8x1mm Thermal pad	2x 8x51x3mm Thermal pad
2x 84x8x1mm Thermal pad	2x 8x100x3mm Thermal pad
1x 15x15x1mm Thermal pad	5x M2x5 screws
2x 105x8x1mm Thermal pad	5x EVA washers
2x 50x15x1mm Thermal pad	1x M2x5 screw
1x 40x15x1mm Thermal pad	5x M2x11 screws
1x 45x45x3mm Thermal pad	1x PCI bracket
1x 15x15x3mm Thermal pad	1x Thermal grease
1x 8x40x3mm Thermal pad	1x Putty tool

Technical data cooler

L x W x H	209 x 120 x 24mm
Weight	980g
Material cooler	Chome-plated copper
Material cooler top	carbon
Threads	2 x G1/4"
Maximum working temperature	60 °C
Pressure tested	4 Bar

Technical data backplate

L x W x H	199 x 120 x 6mm
Weight	190g
Material	aluminium
Color	black

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Manual	13395_Alphacool_ES_Geforce_RTX_4090_Reference_Design_with_Backplate_Manual.pdf
Product pictures	13395_Alphacool_ES_Geforce_RTX_4090_Reference_Design_with_Backplate_pics.zip
EU-DoC / CE / RoHS	Alphacool_EuDoc_CE_RoHS_13395.pdf

Packaging dimensions per unit

L x W x H	355 x 170 x 50 mm
Weight	1450 g

Other data

Certificates	CE, FC, RoHS
EAN	4250197133951
Customs code	84195080900
Guarantee	3 years

Article text

The Alphacool ES Copper/Carbon water cooler with backplate was developed for the Alphacool Enterprise Series. Due to the positioning of the connections, the hosing of the cooler in the server rack is significantly simplified. The top of the cooler is made of carbon. This makes the water cooler lighter compared to Alphacool's Eisblocks with acetal or acrylic tops.

This cooler is not 1U compatible!

Important note: The RTX 4090 ES Reference cooler is not compatible with Nvidia's Geforce RTX 4090 Founders Edition.

More performance!

Alphacool manages to position the cooler as close as possible to the components to be cooled. For this purpose, the heat conducting pads used are reduced to a thickness of 1mm. The maximum possible reduction in the thickness of the copper block and the optimization of the water flow inside the cooler allow all important components such as GPU, voltage converters and VRAMs to be cooled by water much better and more effectively. All of this provides a significant increase in cooling performance.

Chrome-plated copper

The cooler is made entirely of chrome-plated copper. A chrome plating is much harder than a nickel plating and therefore less sensitive to acids, scratches and damage. It completely eliminates the risk of chipping nickel plating. Additionally, chrome plating looks much more homogeneous and provides a shine that cannot be achieved by nickel plating. Chrome-plated coolers have previously only been used in the industrial sector in areas where extreme influences act on the coolers.

Connections on the back?

In order to save space in the width and height during installation, the water input and output have been moved to the back of the cooling block. This positioning of the connections makes hosing much easier. It enables easy integration of the GPU cooler into the water circuit even in the tightest server housings.

Copper or aluminum?

Alphacool uses only copper for all water-bearing parts. Copper has almost twice the thermal conductivity of aluminum and is therefore clearly the better choice of material for water cooling. The chrome-plated copper base is highly resistant to acid, which means that chipping of the chrome plating can be ruled out.

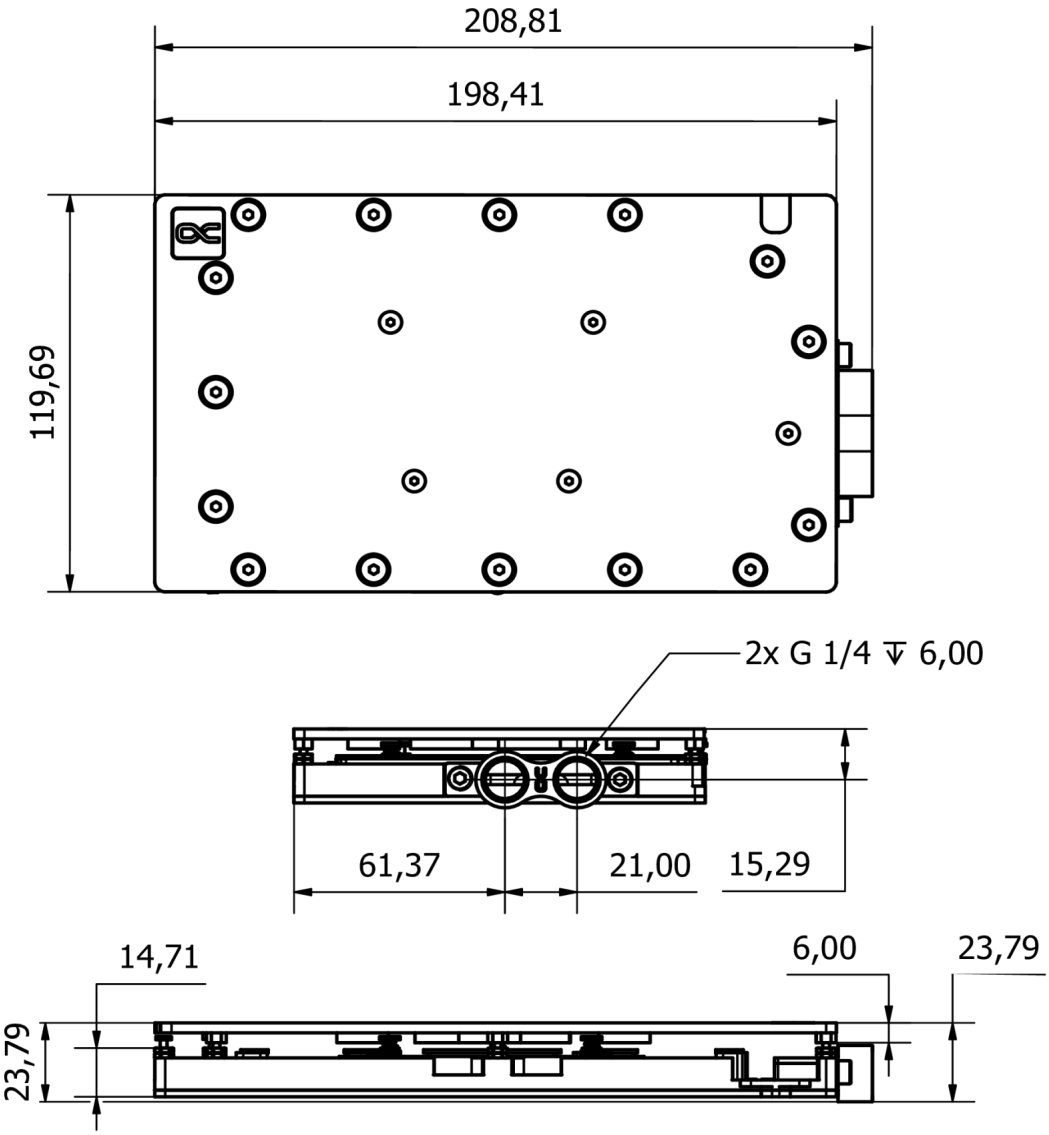
Thermal paste & thermal pads

The included thermal paste is Alphacool's Subzero with a thermal conductivity of 16 W/mk. The electrically non-conductive thermal paste is particularly well suited for high contact pressures, but can still be perfectly applied due to its viscosity of 850000 TF. For the thermal pads, Alphacool uses soft pads that fit perfectly to the components to be cooled and are very durable. The 2mm and 3mm thick pads have a thermal conductivity of 3 W/mk. The 1mm thick pads can dissipate 7 W/mk of heat.

Discreet appearance

The matte carbon finish gives the cooler a noble appearance. This makes it additionally interesting for private users who want to do without aRGB lighting.

Figure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