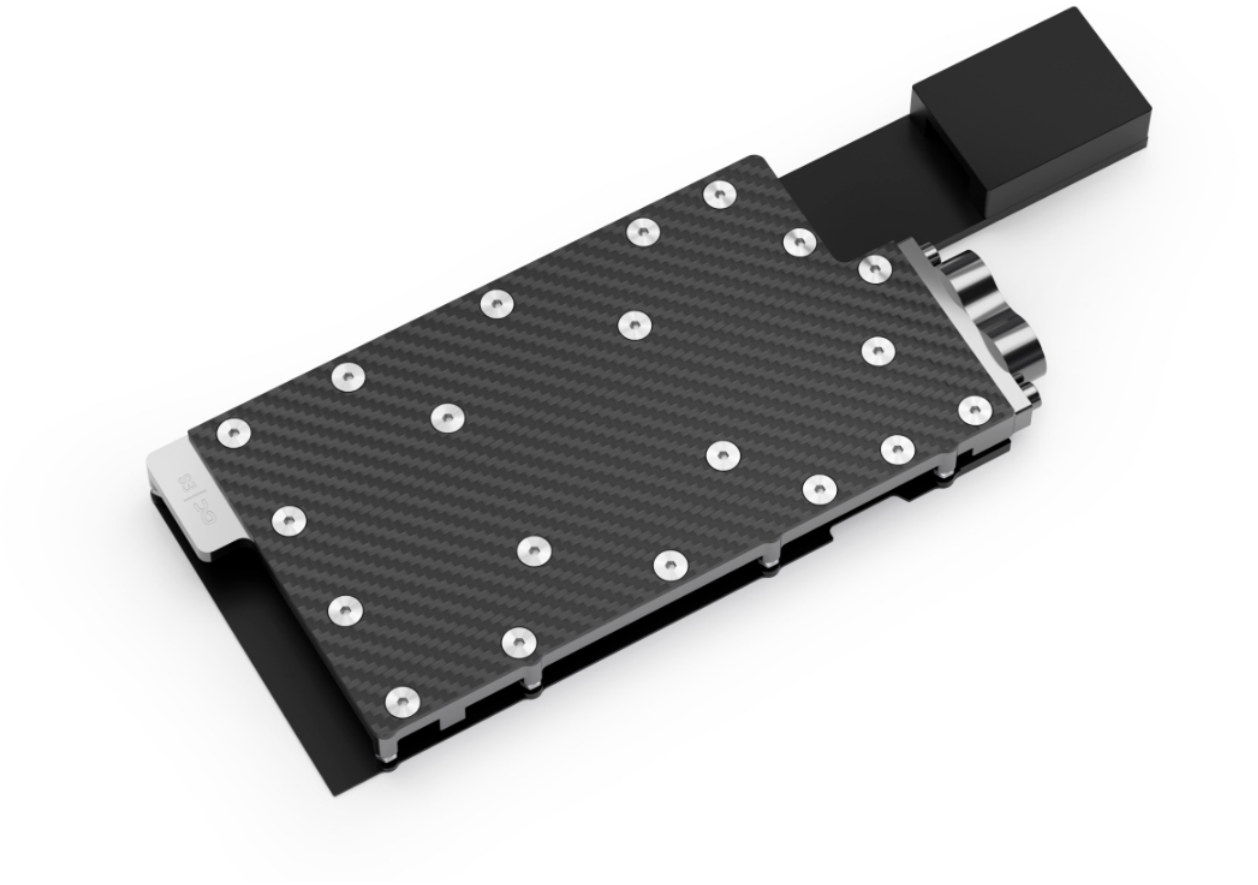
V. 1.003 // 10.2026

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Alphacool ES RTX PRO 4500 Blackwell 1-Slot-Design

Alphacool article number: 5100422



Quick Info

The Alphacool ES 1-Slot GPU water cooler for the RTX Pro 4500 Blackwell Workstation Edition was specifically developed for professional use in performance-optimized server environments. With its compact 1-Slot design and carefully engineered port positioning, it meets the highest standards in cooling performance, reliability, and ease of installation – especially in dense rack installations with limited space.

- 1-Slot Design Cooler
- Fullcover water cooler
- Chrome-plated copper bottom
- For high performance in server and workstation systems

Compatibility

- Nvidia RTX PRO™ 4500 Blackwell

Scope of delivery

1x Alphacool ES RTX PRO 4500 Blackwell 1-Slot-Design GPU Cooler	1x Putty tool
1x Backplate	1x 54x15x0.5mm Pad
14x M2x8mm Screw	1x 74x8x2mm Pad
1x 54x15x1mm Pad	1x 78x8x2mm Pad
2x 26x15x1mm Pad	1x 15x15x1.5mm Pad
1x 74x8x1mm Pad	2x 26x15x0.5mm Pad
1x 78x8x1mm Pad	1x 15x8x2mm Pad
1x 15x8x1mm Pad	1x PCI Bracket
1x Thermal Grease	

Technical data

Dimensions (L x W x H) (in mm)	264,30 x 94,70 x 20,70
Material cooler	Chrome-plated copper (Cu-HCP)
Material backplate	Aluminium (AlMg1SiCu)
Material terminal	Brass (CuZn39Pb3)
Threads	2x G 1/4
Material connection thread	Brass (CuZn39Pb3)
Maximum torque G1/4 thread (in Nm)	1.00
Maximum torque M2 thread (in Nm)	0.13
Maximum torque M4 thread (in Nm)	1.12
Maximum operating temperature (in °C)	60
Minimum operating temperature (in °C)	-20
Maximum tested pressure (in bar)	4.00
Recommended working pressure (in bar)	0.00 - 2.00
Fin thickness	0.4mm
Fin spacing	0.4mm
Cooling technology	Jet Engine

Technical data thermalpads

Thermal conductivity of thermal pads (in W/mK)	7
Thermal pads Hardness ASTM 2240	35 Shore 00

Technical data Thermal paste

Volatilization Rate (24H@200°C)%	less than 0.5
Density (g/cc)	3.2 (Test method ASTM D792)
Viscosity (mPa.s)	150~200*10³ (Test method ASTM D2196)
Continuous Using Temperature (°C)	-40°C to 120°C
Breakdown Voltage (V/mil)	250 (Test method ASTM D149)
Thermal Impedance (°C in 2/W)	0.1 +/- 0.01 (Test method ASTM D5470)
Max. working pressure (psi)	40
Quantity	1g
Color	gray

Download links

Manual	5100422_Alphacool_ES_RTX_PRO_4500_Blackwell_1-Slot-Design_Manual.pdf
Product pictures	5100422_Alphacool_ES_RTX_PRO_4500_Blackwell_1-Slot-Design_pics.zip
EU-DoC / CE / RoHS	Alphacool_EuDoc_CE_RoHS_5100422.pdf

Packaging dimensions per unit

L x W x H	355 x 175 x 45 mm
Weight	850 g

Other data

Certificates	CE, FC, RoHS
EAN	4070201004226
Customs code	84195080900
Guarantee	3 years

Article text

The Alphacool ES 1-Slot GPU water cooler for the RTX Pro 4500 Blackwell Workstation Edition was specifically developed for professional use in performance-optimized server environments. With its compact 1-Slot design and carefully engineered port positioning, it meets the highest standards in cooling performance, reliability, and ease of installation – especially in dense rack installations with limited space.

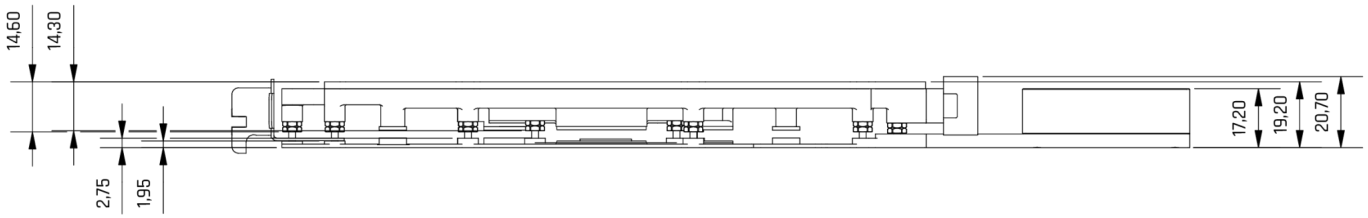
The top of the cooler is made from lightweight, durable carbon. This significantly reduces the overall weight compared to conventional solutions. At the same time, the matte carbon finish provides a subtle, high-quality appearance – functional and elegant in equal measure. The cooling block itself is made entirely of chrome-plated copper. The chrome plating is considerably harder and more durable than traditional nickel plating, offering reliable protection against corrosion, scratches, and mechanical impact – ideal for long-term 24/7 operation.

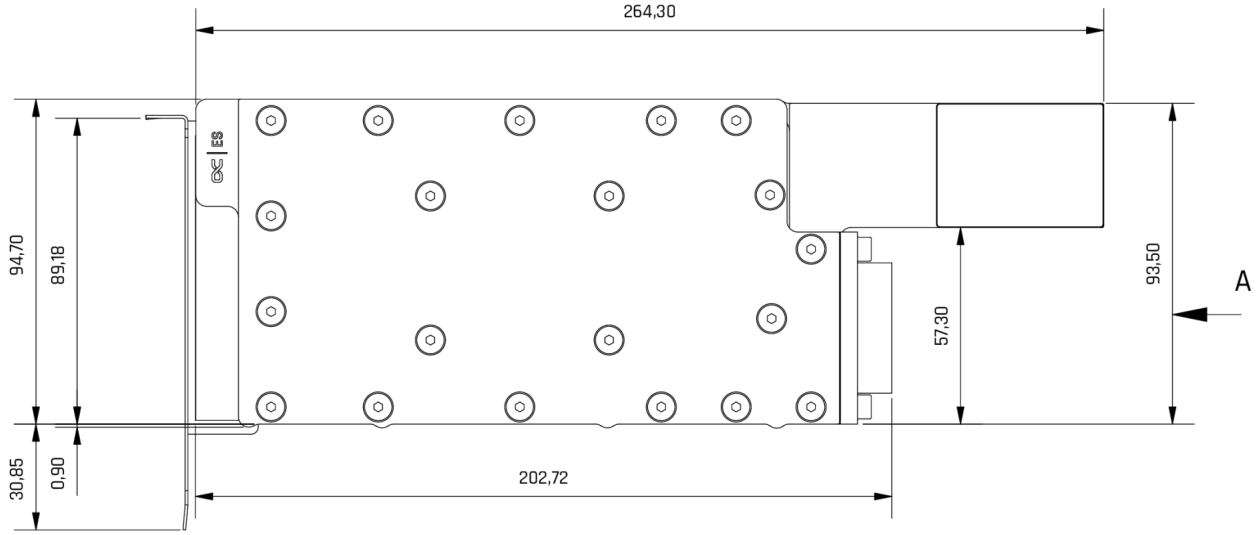
The inlet and outlet ports are positioned on the rear of the cooler to save space. This connection layout simplifies tubing and integration into existing cooling loops, even in very compact server chassis. An optimized internal channel structure ensures highly efficient heat dissipation from the GPU, VRAM, and voltage regulators. The targeted channel routing inside the cooler guarantees uniform water flow across all critical components.

The solid copper base ensures optimal heat absorption and transfer. The robust chrome plating prevents flaking or damage under thermal stress.

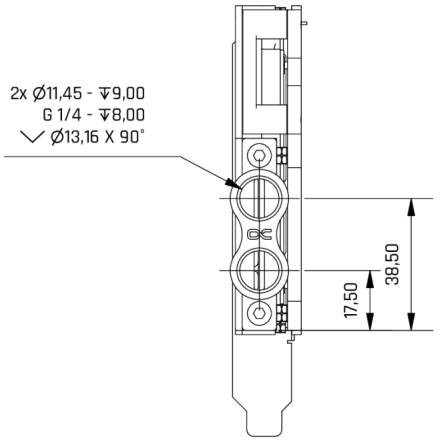
The Alphacool ES 1-Slot GPU water cooler for the Nvidia RTX Pro 4500 Blackwell Workstation Edition is the ideal solution for enterprise applications where performance, reliability, and efficient space management are top priorities.

Figure (1)





A (1 : 2)



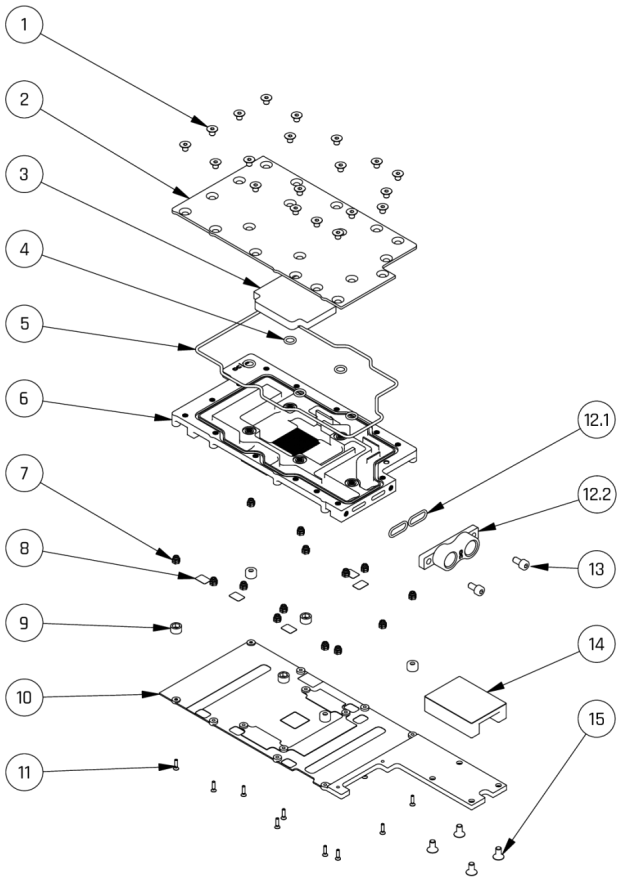
General tolerance: ±0,25mm
Dimension in millimeter

Figure (2)

Mechanical properties:

Minimum temperature t min =	-20°C
Working temperature t =	20°C
Maximum temperature t max =	60°C
Working pressure p =	0,0 - 1,0Bar
Maximum pressure p max =	2,0Bar

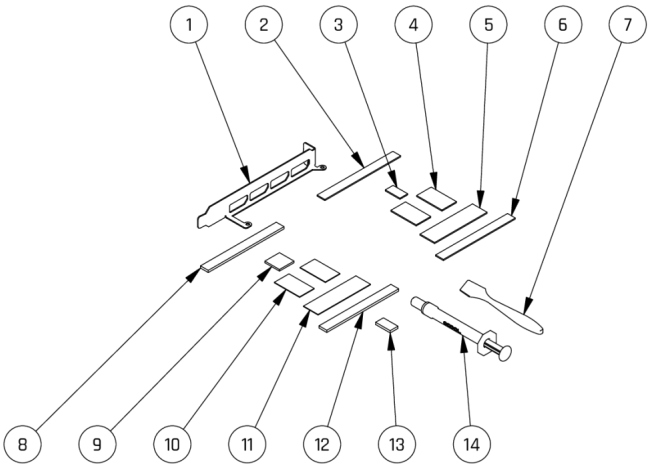
Maximum torque of G thread M max = G1/4 = 1,0Nm ISO 228-1 Parallel Whitworth pipe thread BSPP (GB)	
Maximum torque of M thread DIN 13-1 Metric ISO standard thread	M max = M2X0,4 = 0,13Nm M4X0,7 = 1,12Nm



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Alphacool ES RTX PRO 4500 Blackwell 1-Slot-Design

Parts List

Number	Quantity	Description	Material
1	20	M4 x 5 Countersunk screw	X10CrNi18-8
2	1	Top	CFRP_
3	1	Jet	POM-C 4520
4	5	ORing 6 x 1,5	EPDM Shore A 70
5	1	ORing 145 x 2	EPDM Shore A 70
6	1	Copper	Cu-HCP
7	14	GPX Spacer SW5 M4X0,7-M2X0,4 x 3	CuZn39Pb3
8	5	insulation	PI Tape
9	6	PCB Spacer	PA 66,GF25 FR(V-2)
10	1	Backplate	AlMg1SiCu
11	14	M2 x 8 countersunk screw	X10CrNi18-8
12.1	2	ES GPX Terminal O - Ring 11,5 x 1,5	NBR Shore 70
12.2	1	ES GPX Terminal block	CuZn39Pb3
13	2	M4 x 8 Cylinder head screws	X10CrNi18-8
14	1	Cable Mount	POM-C 4520
15	4	M4 x 8 Countersunk screw	X10CrNi18-8



Accessories

Number	Quantity	Description	Material
1	1	Slotblech	Cr01
2	1	PAD 78 x 8 x 1	7W/mK - Shore-00 35
3	1	PAD 15 x 8 x 1	7W/mK - Shore-00 35
4	2	PAD 26 x 15 x 1	7W/mK - Shore-00 35
5	1	PAD 54 x 15 x 1	7W/mK - Shore-00 35
6	1	PAD 74 x 8 x 1	7W/mK - Shore-00 35
7	1	Putty Tool	-
8	1	PAD 78 x 8 x 2	7W/mK - Shore-00 35
9	1	PAD 15 x 15 x 1,5	7W/mK - Shore-00 35
10	2	PAD 26 x 15 x 0,5	7W/mK - Shore-00 35
11	1	PAD 54 x 15 x 0,5	7W/mK - Shore-00 35
12	1	PAD 74 x 8 x 2	7W/mK - Shore-00 35
13	1	PAD 15 x 8 x 2	7W/mK - Shore-00 35
14	1	Alphacool Subzero Thermal grease 1g	-

We assume no responsibility for any typing errors. Alphacool International GmbH, Marienberger Strasse 1, 38122 Braunschweig Tel: (+49)0531 288 7400 Supportmail: info@alphacool.com