EK-Quantum
Vector² FE RTX 4090 D-RGB ABP Set

GPU WATER BLOCK

USER GUIDE

Please note the installation of the product is intended to be undertaken by an adequately trained and experienced person. You are installing the product at your own risk. If you are not properly trained or experienced or feel unsure about the installation procedure, please refrain from installing the product yourself and contact our tech support for assistance. We disclaim our liability for any damages to the product as well as incidental, consequential, or indirect damages incurred due to improper or inappropriate installation.

Before you start using this product, please follow these basic guidelines:

Carefully read the manual before beginning with the installation process.

Remove your graphics card from the computer for the safest mounting process to prevent any possible damage to your GPU or its circuit board (PCB).

The EK Fittings require only a small amount of force to screw them firmly in place since the liquid seal is ensured by the rubber O-ring gaskets.

The use of corrosion-inhibiting coolants is always recommended for liquid cooling systems and mandatory for nickel-plated water blocks!

Do not use pure distilled water!

For best results, EK recommends the use of EK-CryoFuel coolants! To reach optimal performance, make sure to thoroughly bleed the air out of your water block!

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BOX CONTENTS

EAN: 105871

EK-Quantum Vector² FE RTX 4090 D-RGB ABP Set	M2.5x4 AX1 Screw (7 pcs)	M2.5x8 AX1 Screw (1 pc)	Standoff Ø4.5/2.5 (1 pc)
	M3x10 AX1 Screw (1 pc)	Polyamid Washer M2.5 0.5mm (7 pcs)	Standoff M2.5-M3 x 6.6mm (1 pc)
I/O Bracket (1 pc)	Quantum Plug (2 pcs)	Nut M2.5 (2 pcs)	Terminal OR - Vector² 14x1 mm (2 pcs)
Allen Key 2.5 mm (1 pc)	Allen Key 2 mm (1 pc)	EK-Plug Out Spludger Tool (1 pc)	Thermal Grease (1 pc)
EK-Loop Multi Allen Key (1 pc)	Thermal Pad F 1.0 mm (8 pcs) (3830046996732)	Thermal Pad F 1.5 mm (3 pcs) (3830046996749)	Thermal Pad F 2.0 mm (1 pc) (3830046996756)

EAN: 104549

WATER BLOCK DIMENSIONS

TECHNICAL SPECIFICATIONS AND WATER BLOCK PARTS

NICKEL PLEXI

- Dimensions: (L x H x W): 236.3 x 148 x 41 mm
- D-RGB LED count: 28
- D-RGB cable length: 50 cm
- D-RGB connector 3-pin 5V digital LED header

Position	EAN	Description	Quantity
1	105849	Coldplate(Nickel)	1
2	103964	Mylar sticker	2
3	100663	EK - Badge	2
4	8208	Screw M3 x 8 7991DIN	2
5	103942	Terminal Badge	1
6	104106	Terminal OR - 14 x 1 mm	4
7	105850	TOP plate (Plexi)	1
8	105858	LED Cover (N.elox)	2
9	8533	Standoff M4/M2.5 x 2.5 mm	5
10	103986	Standoff M3.5-M2.5 x 11.3 mm	4
11	105876	Standoff M3.5-M2.5 x 12.9 mm	2
12	103975	Bridge Plate	1
13	103962	Plexi insert	1
14	105877	I/O Bracket (Black)	1
15	9024	Screw M4 x 10 DIN7984	12
16	105869	OR 130 x 2 mm	1
17	101556	LED D-RGB strip 500/300 mm	2
18	104098	Standout (Acetal)	1
19	104393	FC Terminal (Acetal)	1
20	8201	Screw M3 x 10 DIN7991	2
21	8311	Screw M4 x 20 DIN7984	6
22	104086	ABP Terminal Badge	1
23	105163	Disc magnet 3 x 2	4
24	104414	OR 52 x 2 mm	1
25	104395	Terminal Plate (Nickel)	1
26	105866	Sideplate (Bl. Elox)	1
27	104093	Standoff M2.5-M3 x 6.6 mm	6
28	104105	Screw M3 x 10 AX1	6
29	105862	Top plate ABP (Plexi)	1
30	105861	Coldplate ABP (Nickel)	1
31	9013	Screw M4 x 8 DIN7984	12
32	105870	OR ABP 129 x 2 mm	1
33	105872	PCB cardboard	1

NICKEL ACETAL

- Dimensions: (L x H x W): 236.3 x 148 x 41 mm
- D-RGB LED count: 28
- D-RGB cable length: 50 cm
- D-RGB connector 3-pin 5V digital LED header

Position	EAN	Description	Quantity
1	105849	Coldplate (Nickel)	1
2	105851	Top plate (Acetal)	1
3	8533	Standoff M4/M2.5 x 2.5 mm	5
4	103986	Standoff M3.5-M2.5 x 11.3 mm	4
5	105876	Standoff M3.5-M2.5 x 12.9 mm	2
6	103975	Bridge Plate	1
7	103962	Plexi Insert	1
8	105877	I/O Bracket (Black)	1
9	9024	Screw M4 x 10 DIN7984	12
10	105869	OR 130 x 2 mm	1
11	104393	FC Terminal (Acetal)	1
12	8202	Screw M3 x 12 DIN7991	2
13	8311	Screw M4 x 20 DIN7984	6
14	104106	Terminal OR 14 x 1 mm	4
15	104086	ABP Terminal Badge	1
16	103942	Terminal Badge	1
17	105163	Disc magnet 3 x 2	4
18	104414	OR 52 x 2 mm	1
19	104395	Terminal Plate (Nickel)	1
20	105866	Sideplate (B. Elox)	1
21	104093	Standoff M2.5-M3 x 6.6 Brass (Ni)	6
22	104105	Screw AX1 M3 x 10	6
23	105863	Top plate ABP (Acetal)	1
24	105861	Coldplate ABP (Nickel)	1
25	9013	Screw M4 x 8 DIN7984	12
26	105870	OR ABP 129 x 2 mm	1
27	104101	Stand Out (Acetal)	1
28	104095	Light guide	1
29	100663	EK - Badge	2
30	104211	Mylar sticker	2
31	104296	LED D-RGB Strip 500/130 mm	1
32	8201	Screw M3 x 10 DIN7991	2
33	105872	PCB cardboard	1

PREPARING THE GRAPHICS CARD

Important! Before starting, make sure to have a clean, flat surface to work on. It is recommended to put foam or soft material to lay the graphics card on.

STEP 1
First, pop off the Top Cover (which is attached magnetically).

STEP 2
After removing the cover, unscrew four (4) orange-marked screws Phillips head, and four 4) blue-marked Torx stock screws from the GPU.

STEP 3
Remove the backplate.

STEP 4
Carefully pull out the flat-ribbon FAN cable and then lift it upwards.

STEP 5
The FAN connector with the silvery clover requires you to push the cover sideways and then you can lift the black plastic connector upwards.

STEP 6
Unscrew six (6) marked Torx screws from the slot cover and one (1) Torx screw on the top of the I/O Bracket.

STEP 7
Detach the I/O Bracket.

STEP 8
Unscrew four (4) Torx screws from the PCB holder.

STEP 9
Remove the PCB holder.

STEP 10
Now you can detach the PCB from the cooler.

PREPARING THE WATER BLOCK FOR INSTALLATION

STEP 1

First, remove the terminal badge which is attached to the terminal with two magnets. Under the badge, unscrew three (3) screws M4 x 20 DIN7984. An additional six (6) screws M3 x 10 AX1 need to be removed (as shown in the image). Save the removed parts for later use.

DO NOT REMOVE THE UPPER TERMINAL BADGE!

For this step, you will need:

Phillips Head Screwdriver	Allen Key 2.5mm

STEP 2

Carefully remove the complete active backplate with the terminal. Additional two (2) O-rings 14 x 1 EPDM50 needs to be removed.

STEP 3

Unscrew four (4) M2.5-M3 x 6.6 standoffs with the provided tool (EK-Plug out Spludger Tool). Make sure not to unscrew the M3.5-M2.5 x 11.3 standoff! In case the M3.5-M2.5 x 11.3 standoff unscrews, carefully tighten it back with the 4 mm wrench. After removing the standoffs, the PCB cardboard. Save the removed parts for later use.

For this step, you will need:

EK-Plug Out Spludger Tool

CUTTING AND PLACING THERMAL PADS

STEP 1

The GPU water block comes with thermal pads that have to be cut into smaller pieces to cover all the VRM components, such as COILs, MOSFETs, and drivers.

> ⚠ Remove the protective foil from both sides of the thermal pad before installation.

Replacement thermal pads:
Thermal Pad F 1.0 mm – (120 x 16 mm) EAN: 3830046996732
Thermal Pad F 1.5 mm – (120 x 16 mm) EAN: 3830046996749
Thermal Pad F 2.0 mm – (120 x 16 mm) EAN: 3830046996756

STEP 2

Once cut to the size, Thermal Pads should be placed on the PCB, as shown in the picture:

> ⚠ Before attaching the PCB to the Water Block, make sure all the Thermal Pads are placed correctly!

APPLYING THERMAL COMPOUND

STEP 1
Apply the enclosed thermal grease (thermal compound) on the GPU heat spreader – IHS – as shown in the image. The layer of the thermal compound must be thin and even over the entire surface of the IHS.

> ⚠ The excessive or uneven application of thermal grease may lead to poor performance!

For this step, you will need:

Thermal Grease

ATTACHING THE WATER BLOCK

STEP 1
Carefully position the water block with preinstalled standoffs on the GPU PCB. During this process, make sure you have aligned mounting holes of the PCB with holes of the water block.

> ⚠ Pay attention not to use too much force when pressing the block down to the PCB since chip dies are prone to cracking.

> ⚠ Before placing the Water Block, make sure all the Thermal Pads are placed correctly!

STEP 2

Use five (5) M2.5 x 4 AX1 screws and PVC washers to tighten the GPU PCB. Tighten the screws evenly using the Phillips-head screwdriver. EK recommends you start tightening the screws around the GPU core first and then continuing outward to prevent damaging the GPU. Always use a plastic washer under each screw.

For this step, you will need:

Screws must be present in the places marked on the picture.

STEP 3
After securing the GPU PCB, position the replacement I/O Bracket and four (4) M2.5-M3 x 6.6 standoffs. Tighten it with the provided tool (EK-Plug out Spludger Tool).

For this step, you will need:

ATTACHING THE ACTIVE BACKPLATE

STEP 1
After attaching the water block, a few more thermal pads need to be placed on the backside of the GPU PCB. Once cut to size, thermal pads should be placed, as illustrated. EK made sure to provide you with more than an adequate quantity of thermal pads to complete this Step.

Replacement thermal pads:
Thermal Pad F 1.0 mm – (120 x 16 mm) EAN: 3830046996732
Thermal Pad F 1.5 mm – (120 x 16 mm) EAN: 3830046996749
Thermal Pad F 2.0 mm – (120 x 16 mm) EAN: 3830046996756

STEP 2

Insert two (2) O-rings (14 x 1 mm) into slots on the cold plate. Then carefully place the active backplate on standoffs as shown in the image. While putting the active backplate on the PCB, make sure the O-rings stay in the slots.

> ⚠ Before attaching the Active Backplate, make sure all the Thermal Pads are placed correctly!

STEP 3

Place six (6) M3 x 10 AX1 screws into the water block standoffs and tighten them using a Philips head screwdriver (as shown in the image). After attaching the AX1 Screws, three (3) terminal screws M4 x 20 DIN7984 need to be attached using Allen Key 2.5 mm. The terminal badge can be reused, after securing the terminal screws.

For this step, you will need:

Phillips Head Screwdriver	Allen Key 2.5mm

FITTINGS AND TUBING

STEP 1

Screw in two (2) G1/4 threaded male fittings. Attach the liquid cooling tubes and connect the water block to the cooling loop.

> ⚠ Do not forget to plug the remaining two openings using the enclosed EK-Plug G1/4 or its equivalent.

EK recommends using EK fittings with all EK water blocks.

> ⚠ CAUTION: When using connectors other than EK fittings, pay special attention to the length of the fittings' male G1/4" thread – 5 mm is the maximum G1/4" thread length allowed!

For this step, you will need:

EK-Loop Multi Allen Key

INSERTING THE GRAPHICS CARD INTO THE CHASSIS

Carefully lift your graphics card with the installed water block and insert it into your PC's motherboard PCI Express expansion slot. Please keep in mind that your graphics card is heavier than before it was equipped with the water block.

> ⚠ You need to be very careful when handling the graphics card. Avoid all unnecessary manipulation of the water block assembly that might damage your card or water block.

CONNECTING THE D-RGB LED STRIP

STEP 1
Plug the **3-pin connector** of the distribution plate D-RGB LED light to the **D-RGB HEADER** on the motherboard. The LED will work if the pin layout on the header is as follows: **+5V, Digital, Empty, Ground**.

Incorrect installation or installation to a wrong header can damage the LED strip or the header itself!

TESTING THE LOOP

To make sure the installation of EK components was successful, we recommend you perform a leak test for 24 hours. When your loop is complete and filled with coolant, connect the pump to a PSU outside of your system. Do not connect power to any of the other components. Turn on the PSU and let the pump run continuously. It is normal for the coolant level to drop during this process as air collects in the distribution plate. Inspect all parts of the loop, and in the eventuality, that coolant leaks, fix the issue and repeat the testing process. Ensure that all hardware is dry before the system is powered on in order to prevent any damage.

WARRANTY

Our products are warranted against defects of materials and quality for a period of 24 months, starting with the date of delivery to the end-user. During this period, products will be repaired or have parts replaced at our discretion, provided that 1) the product is returned to the agent from whom it was purchased; 2) the product has been purchased by the end-user and has not been used for commercial purposes; 3) the product has not been misused, handled carelessly, or used in a manner other than the way described in the instruction's manual. This warranty does not confer rights other than those expressly set out above and does not cover any claims for consequential loss or damage. This warranty is offered as an extra benefit and does not affect your statutory rights as a consumer. This warranty is voided if the product comes in contact with aggressive UV additives or other improper liquids. EK Water blocks are sealed with a warranty-voiding circular label, proving the water block has withstood a pressure leak test. Removing the label will void the leak-free guarantee, but not the guarantee on the product itself. Any other RMA issues can be reported to EK Customer Support at www.ekwb.com/support for further analysis.

SUPPORT AND SERVICE

In case you need assistance or wish to order spare parts or a new mounting mechanism, please contact:
https://www.ekwb.com/customer-support/

For spare parts orders, refer to the page with "TECHNICAL SPECIFICATIONS AND WATER BLOCK PARTS" where you can find the EAN number of each part you might need.

Include the EAN number with quantity in your request. Mounting Mechanism EAN can be found under "BOX CONTENTS"

Thermal pads are readily available in the EK shop

SOCIAL MEDIA

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