EK-Liquid Cooling Barebone & Lian Li PC-O11 Dynamic D-RGB

INSTALLATION AND ASSEMBLY GUIDE

PLEASE READ FIRST

Congratulations on taking your first steps into liquid cooling with the EK Barebones Kit, designed from the ground up by our expert team of engineers to be an easy to follow set of instructions that will walk you through every step to assemble your first liquid cooled masterpiece. The following step by step guide will walk you through installing the included water blocks on your preferred CPU and GPU, and wrapping it all up with assembling your full custom loop in the Lian-LI PC-011 Dynamic Chassis.

Thank you for choosing EK for your Liquid cooling solution, if you run into any issues please don't hesitate to contact our first-class Support.

Please note coolant is NOT included with the EK Barebones Kit and is required BEFORE starting your PC. We recommend 2 Liters of EK-CryoFuel in your choice of color (CryoFuel solid is not compatible)

EK-Liquid Cooling Barebone & Lian Li PC-O11 Dynamic D-RGB

Assembly Instructions

Your new EK-Liquid Cooling Barebone & Lian Li PC-O11 Dynamic D-RGB is already partly assembled with the radiator, fans, pump and reservoir securely fitted and tested. All that's left for you to do now is install your chosen components and fill the loop!

Please, read this entire guide before starting to assemble your computer. We recommend you install each component in the order outlined in this guide for the safest and most beneficial results.

Tubes for the GPU and CPU may need to be shortened to the appropriate length.

You will find a list of supported motherboards below.

Caution

The following motherboard compatibility list is mostly based on visual verification, so keep in mind that the vertical CPU placement could vary on some motherboards, but not more than 3 – 5mm in any direction.

Z390 / Z370

ASUS Z390 Strix-E
ASUS Z370 Strix-E
ASUS Z370 Maximus X Hero
ASUS Z370 Maximus X Apex
MSI Z370 Godlike

X470

ASUS ROG STRIX X470-F GAMING (3-5mm)
ASUS PRIME X470-PRO (3-5mm)
ASUS TUF X470-PLUS GAMING (3-5mm)
MSI X470 GAMING M7 AC
MSI X470 GAMING PRO CARBON AC
MSI X470 GAMING PRO CARBON
MSI X470 GAMING PRO (3-5mm)
MSI X470 GAMING PLUS (3-5mm)
MSI X470 GAMING PRO MAX (3-5mm)
MSI X470 GAMING PLUS MAX (3-5mm)

X570

ASUS PRIME X570-PRO (3-5mm)
ASUS PRIME X570-PRO/CSM (3-5mm)
ASUS ROG CROSSHAIR VIII HERO (WI-FI) (3-5mm)
ASUS ROG STRIX X570-F GAMING (3-5mm)
ASUS ROG STRIX X570-E (3-5mm)
ASUS TUF GAMING X570-PLUS (WI-FI) (3-5mm)
ASUS TUF GAMING X570-PLUS (3-5mm)
MSI MPG X570 GAMING EDGE WIFI
MSI MEG X570 ACE
MSI MEG X570 UNIFY
MSI MPG X570 GAMING PLUS
MSI X570-A PRO
MSI MPG X570 GAMING PRO CARBON WIFI (3-5mm)
MSI MEG X570 GODLIKE (3-5mm)
MSI PRESTIGE X570 CREATION (3-5mm)

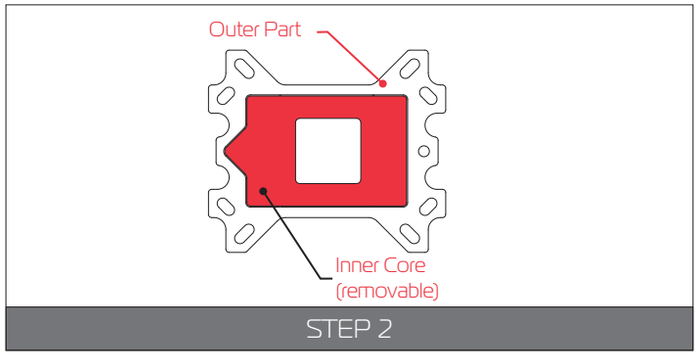
CONTENTS

I. CPU INTEL 115X – ASSEMBLY

STEP 1
Install your CPU and any M.2 drives in accordance with the instructions in your motherboard manual and then place the mother-board face down on an even surface.

STEP 2
Preparing backplate rubber gasket: The enclosed rubber gasket is an essential part of the backplate and mounting system and must be used every time you install this water block on your motherboard.

The rubber gasket has a partially cut inner part which needs to be removed when installed on Intel® LGA-115x motherboard. The rubber is held in four places and can be peeled away by hand.

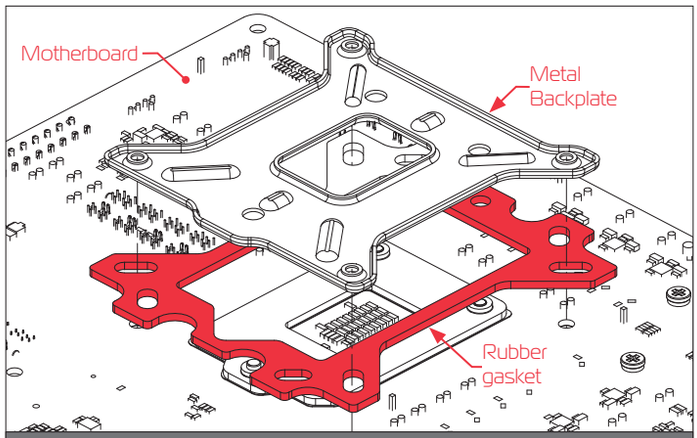


STEP 2

STEP 3
Install backplate rubber gasket and place metal backplate for Intel LGA-115x socket to the back of your motherboard **RIBBED SIDE UP**. (facing away from the motherboard) Align the holes on the motherboard with holes on rubber gasket and backplate.

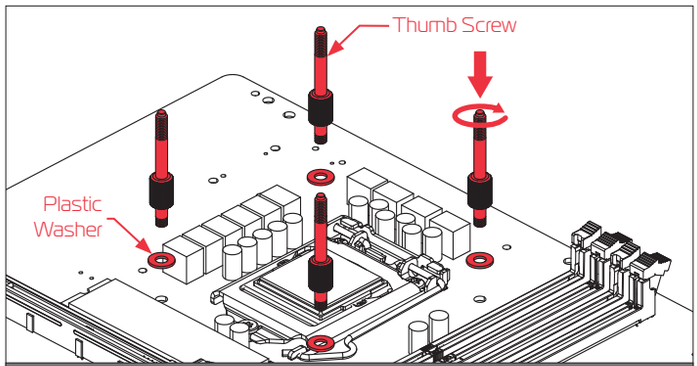
Make sure to align the rubber gasket to fit past the CPU socket ILM backplate.

Carefully rotate the motherboard assembly, front side facing up, with one hand while holding the backplate and rubber in place with the other hand.



STEP 3

STEP 4
Install four (4) thumb screws onto your motherboard. It is mandatory to put plastic washer underneath each of the M4 thumb screws. Tighten the screws to the metal backplate until you reach the end of the thread. Using tools (such as pliers) is not recommended.

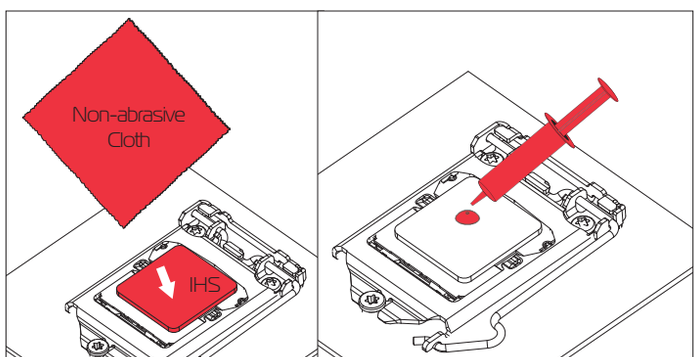


STEP 4

STEP 5
Cleaning the CPU: Wipe the CPU's contact surface (using the non-abrasive cloth or Q-tip, as shown in the sample photo).

Applying the thermal compound: EK recommends blob or line method of applying the enclosed thermal compound to the CPU heat spreader (IHS) - see sample photo on right.

The quantity of about two rice grains is just about right. There is no need to cover the whole IHS. Applying too much thermal grease will have a negative impact on cooling performance!

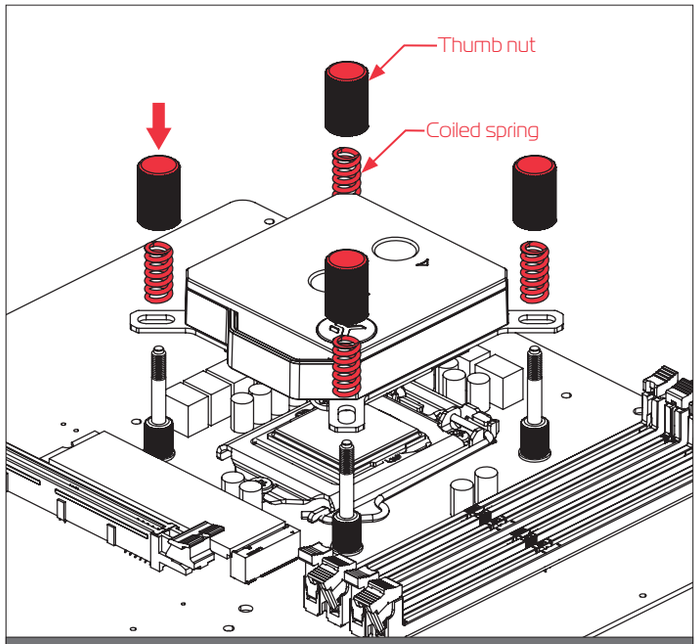


STEP 5

STEP 6
Before proceeding with the installation It is mandatory to remove the protective foil from the backside of the water block.

Align the water block over the mounting screws on the motherboard and position it on top of the CPU.

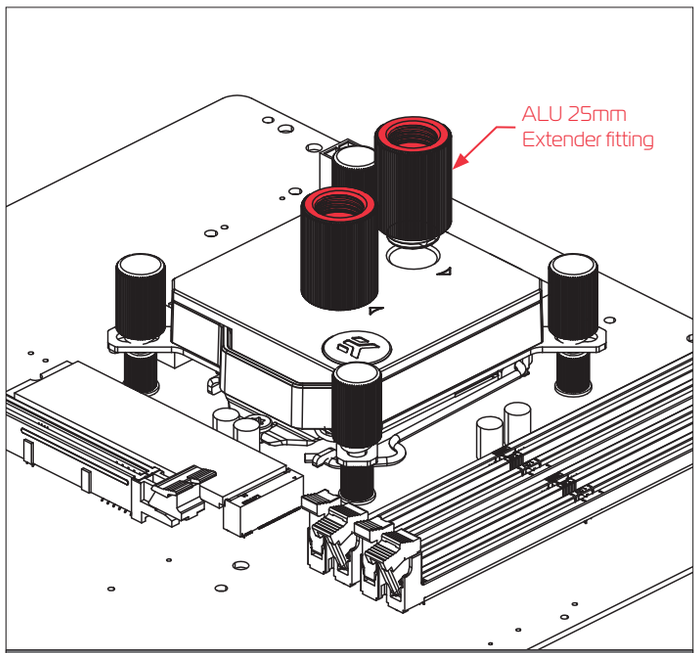
Place an enclosed compression spring and a thumb nut over each of the M4 thumb screws. Tighten the screws evenly by fastening two opposing nuts at the same time. Do not tighten them fully until all four have been installed. Then – using your fingers only – screw in all four thumb nuts until you reach the end of thread.



STEP 6

STEP 7
Install a pair of ALU 25mm Extender fittings onto your CPU block. Tighten in a clockwise direction until the seal underneath is compressed.

STEP 8
Install your RAM modules as prescribed in the motherboard instructions along with any additional parts that are mounted directly to the motherboard.



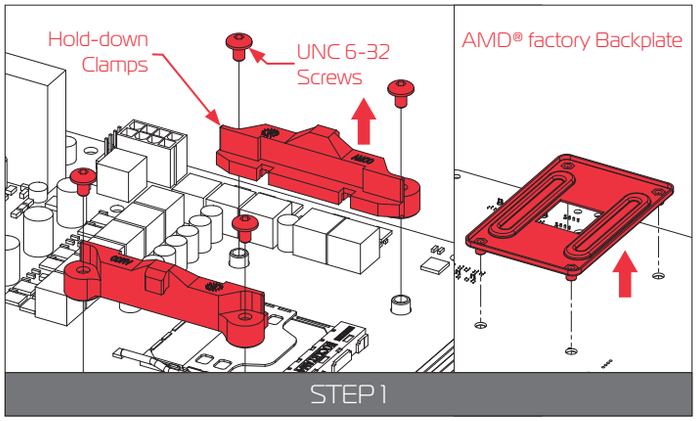
STEP 7

II. CPU AMD AM4 – ASSEMBLY

STEP 1

Removing of the original plastic hold-down clamps and the factory backplate:

Using Philips-head screwdriver remove the four UNC 6-32 screws securing the original plastic hold-down clamps around the socket as shown on the sketch. Remove the original AMD® backplate and the hold-down clamps and store them away. See sketch for further part identification.

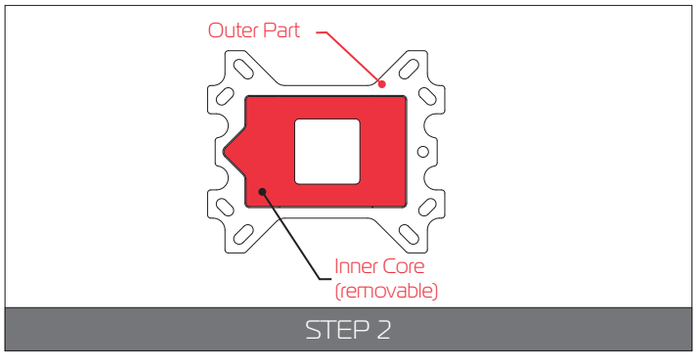


STEP 2

Preparing backplate rubber gasket

The enclosed rubber gasket is essential part of the backplate and mounting system and must be used every time you install this water block on your motherboard.

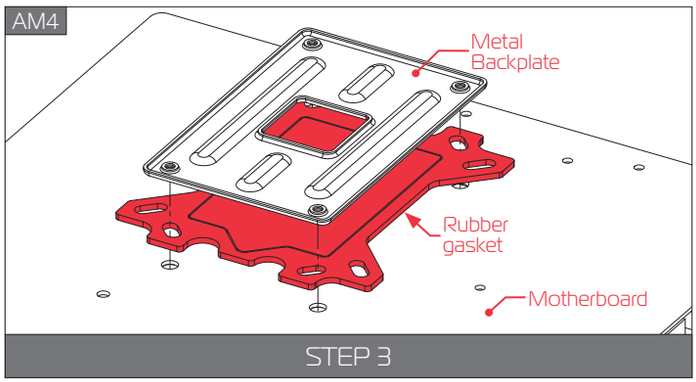
> With AMD® Sockets you should use whole rubber backplate including the inner core.



STEP 3

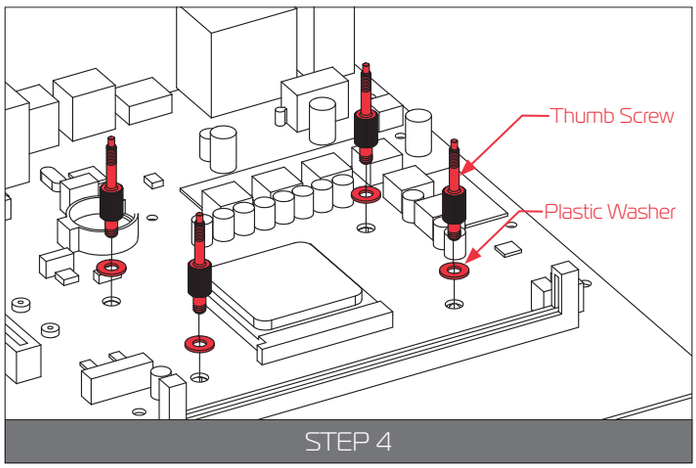
Install backplate rubber gasket and place metal backplate for AMD® socket to the back of your motherboard **RIBBED SIDE UP**. (facing away from the motherboard) Align the holes on the motherboard with holes on rubber gasket and backplate.

Carefully rotate motherboard assembly with front side facing up with one hand while holding the backplate and rubber in place with the other hand.



STEP 4

Install four (4) thumb screws onto your motherboard. It is mandatory to put plastic washer underneath each of the thumb screws. Tighten the screws to the metal backplate until you reach the end of the thread. Using tools (such as pliers) is not recommended.

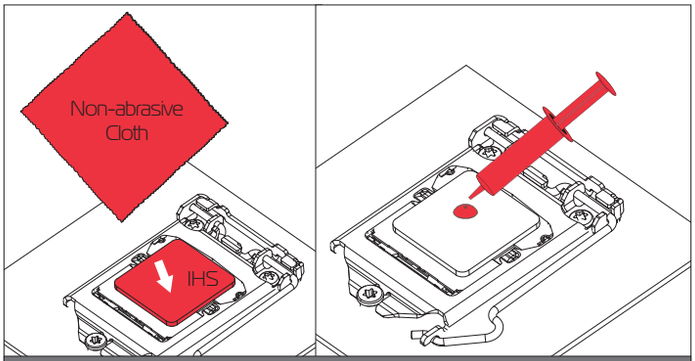


STEP 5

Cleaning the CPU: Wipe the CPU's contact surface (using the non-abrasive cloth or Q-tip, as shown in the sample photo).

Applying the thermal compound: EK recommends blob or line method of applying the enclosed thermal compound to the CPU heat spreader (IHS) - see sample photo on right.

The quantity of about two rice grains is just about right. There is no need to cover the whole IHS. Applying too much thermal grease will have a negative impact on cooling performance!



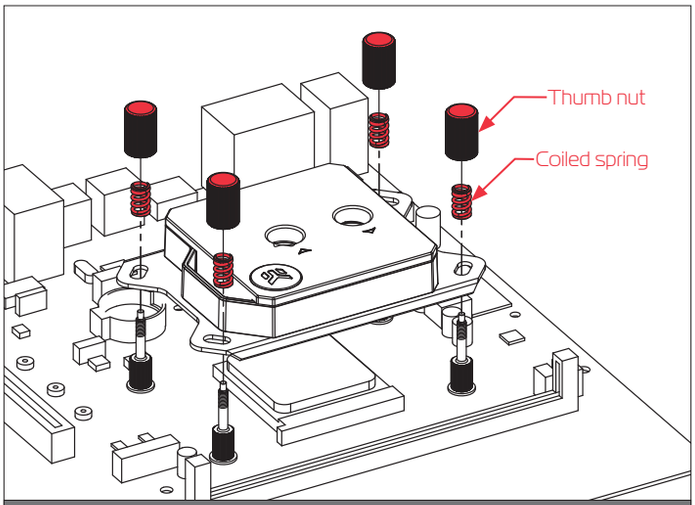
STEP 5

STEP 6

Before proceeding with the installation it is mandatory to remove the protective foil from the backside of the water block.

Align the water block over the mounting screws on the motherboard and position it on top of the CPU.

Place an enclosed compression spring and a thumb nut over each of the thumb screws. Tighten the screws evenly by fastening two opposing nuts at the same time. Do not tighten them fully until all four have been installed. Then – using your fingers only – screw in all four thumb nuts until you reach the end of thread.



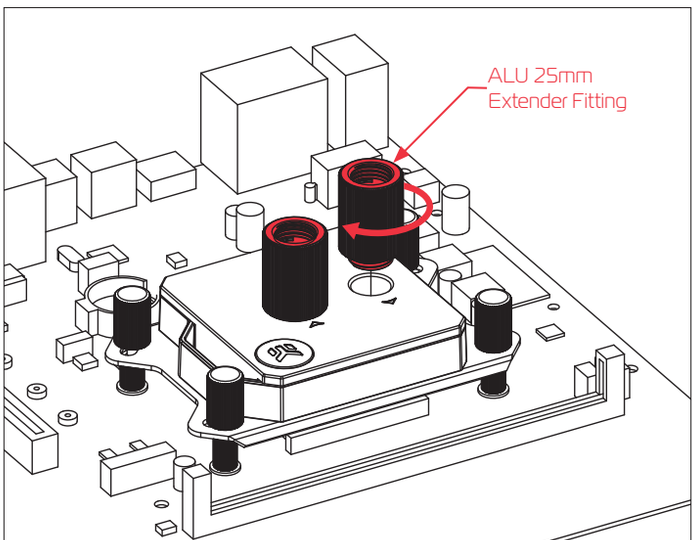
STEP 6

STEP 7

Install a pair of ALU 25mm Extender fittings onto your CPU block. Tighten in a clockwise direction until the seal underneath is compressed.

STEP 8

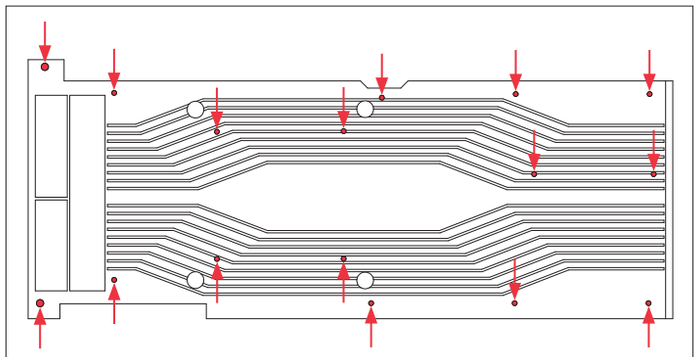
Install your RAM modules as prescribed in the motherboard instructions along with any additional parts that are mounted directly to the motherboard.



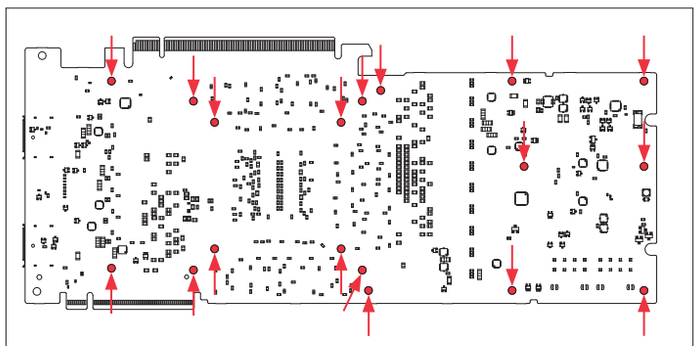
STEP 7

III. GPU GEFORCE RTX – ASSEMBLY

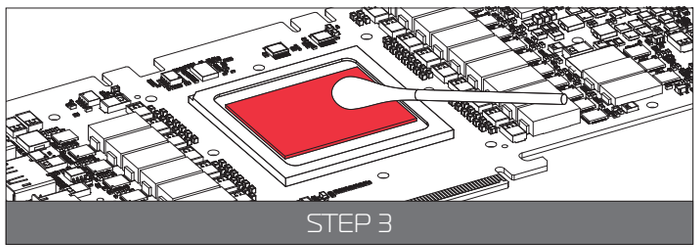
STEP 1
Removing the factory provided backplate: Remove all encircled screws using a Phillips screwdriver. All heat sink assembly screws should be removed, including self-adhesive washers on both sides of the PCB (if present).


STEP 1

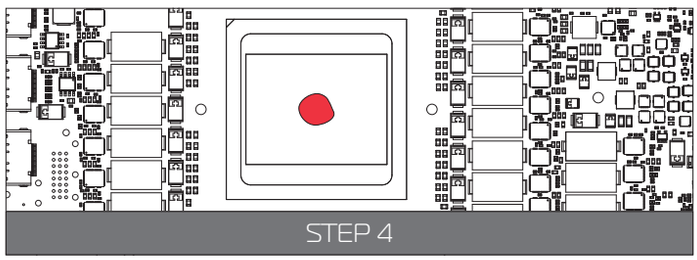
STEP 2
Removing the stock cooler: Remove all highlighted screws using a Phillips screw-driver (4 spring screws around the GPU chip) and 4mm hex socket. All heat sink assembly screws should be removed, including self-adhesive washers on both sides of the PCB (if present). After you remove the housing do not forget to unplug the fans.


STEP 2

STEP 3
Cleaning the PCB: Carefully detach the original stock cooler after removing all screws securing it to the board. Wipe off the remains (using the non-abrasive cloth or Q-tip, as shown in the sample image) of the original thermal compound until the components and circuit board are completely clean. EK recommends the use of denatured alcohol for removing thermal commpund leftovers.


STEP 3

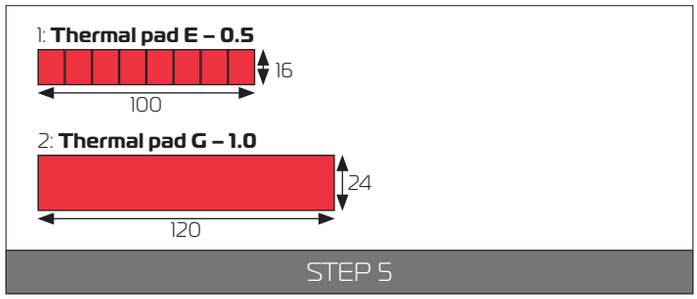
STEP 4
Applying thermal compound: Wipe off the remains (using the non-abrasive cloth or Q-tip) of the original thermal compound until the components and circuit board are completely clean. Apply thermal compound: lightly coat NVIDIA GPU chip with the enclosed EK-TIM Ectotherm thermal grease. EK recommends blob or line method of applying the enclosed thermal compound for best performance (see sample picture).


STEP 4

STEP 5
Cutting the thermal pads: Your block comes with thermal pads, some of which are already pre-cut. Others have to be cut to smaller chunks in order to cover all the VRM components such as MOSFETs and drivers.

PLEASE REMOVE THE PROTECTIVE FOIL FROM BOTH SIDES OF THE THERMAL PADS PRIOR TO INSTALLATION.

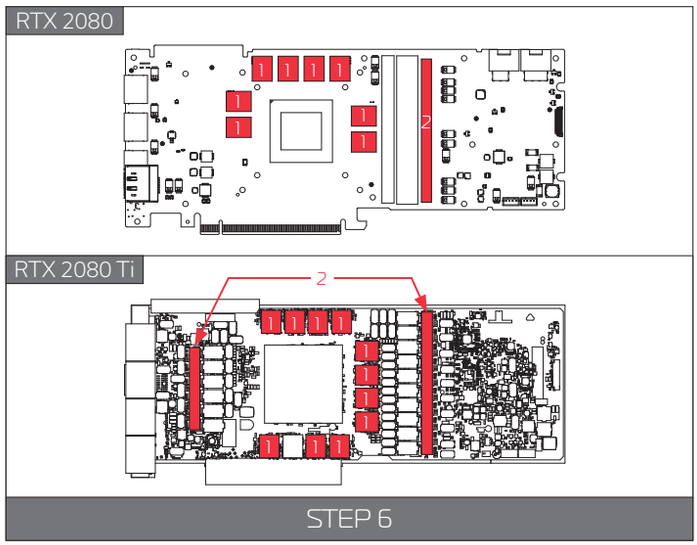
Replacement thermal pads:
Thermal Pad E – 0.5mm (RAM 8x) – (EAN: 3830046996688)
Thermal Pad G – 1.0mm (120x24mm) – (EAN: 3830046996770)



STEP 5

STEP 6

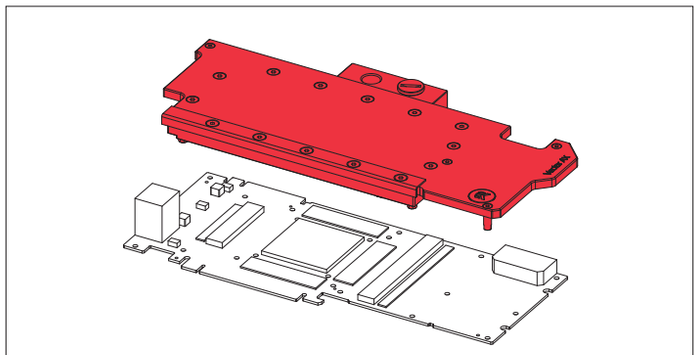
Placing the thermal pads on the PCB: Position thermal pads on the circuit board as shown in the picture below. Refer to numbering in the previous picture when applying thermal pads of different sizes or thicknesses. We have included more thermal pads than are required for this step.



STEP 6

STEP 7

Placing the waterblock onto the graphics card: Carefully position the water block with preinstalled standoffs onto the graphics card. During this process, please make sure you align mounting holes on the PCB with the holes on the water block (same applies for other tops). Also, keep in mind not to use too much force when pressing the block down to the PCB. Chip dies are prone to cracking. The procedure is the same for all Full Cover water blocks.



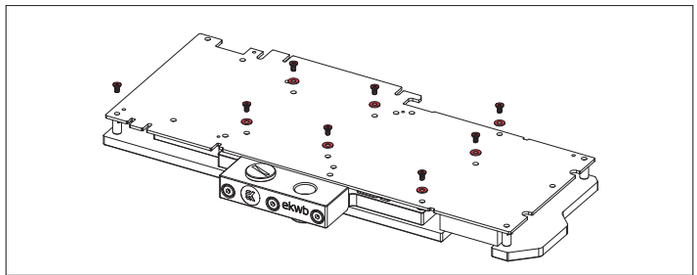
STEP 7

STEP 8

Attaching the block to the graphics card: Use the Philips screwdriver screw with eight of the enclosed M2,5x4 AX1 screws. EK recommends users to start tightening the screws around the GPU core and continue outwards. Always use a plastic washer when the screw head is in contact with the PCB! Not all screws are used in this stage as the remaining six will be used to attach the backplate! Pay close attention to utilize the correct holes.

STEP 9

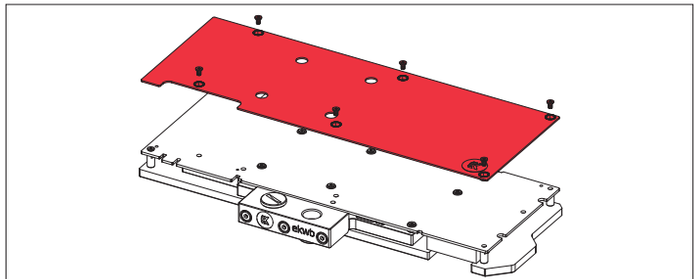
If required, an additional M2,5x6 AX1 screw and an M2,5 nut are provided to secure your graphics cards I/O bracket to the PCB, now that the cooler has been removed.



STEP 8

STEP 10

Attaching the backplate: Align the included backplate with the remaining six holes and secure it in place using M2,5x4 AX1 screws. Washers are not needed for the backplate.

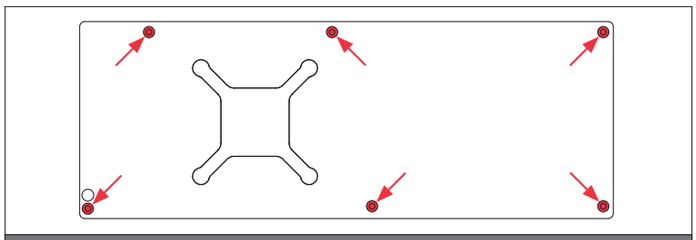


STEP 10

IV. GPU RADEON RX 5700 – ASSEMBLY

STEP 1
REMOVING THE FACTORY PROVIDED BACKPLATE

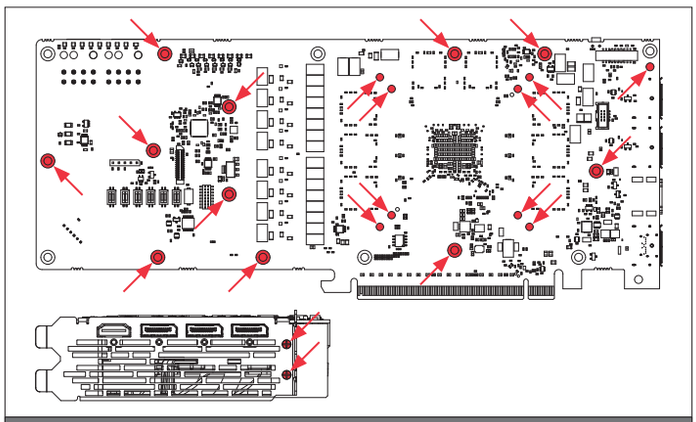
Remove all encircled screws using a Phillips head screwdriver, then take off the backplate. Save these screws for later. You will need them when reinstalling the backplate.



STEP 1

STEP 2
REMOVING THE STOCK COOLER

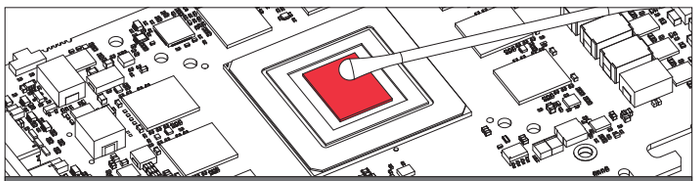
Remove the remaining screws as shown below. The cooler can now be gently removed, take care to unplug the LED and Fan connections. If there are any self-adhesive washers or either side of the PCB these should also be removed.



STEP 2

STEP 3
CLEANING THE PCB

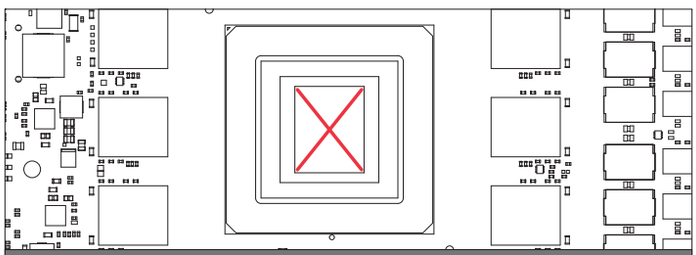
Wipe off the remains of any thermal compound from the GPU core by using a non-abrasive cloth or q-tip. EKWB recommends the use of denatured alcohol for removing thermal compund leftovers. Additionally, remove all of the stock thermal pads from both sides of the PCB.



STEP 3

STEP 4
APPLYING THERMAL COMPOUND

Lightly cover AMD GPU chip with enclosed EK-TIM Ectotherm thermal grease. EKWB recommends to apply the thermal grease in a cross form to best performance (see sample picture).

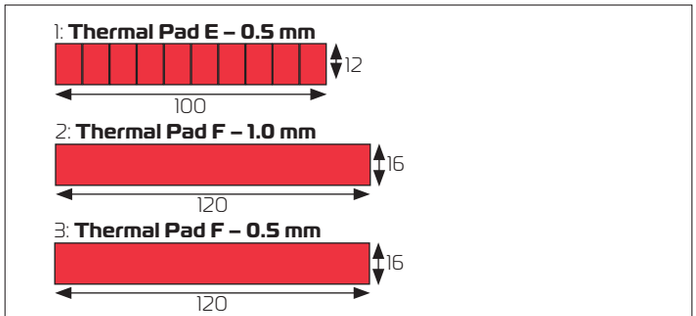


STEP 4

STEP 5
CUTTING THERMAL PADS

Your block is supplied with thermal pads that need to be cut into smaller pieces in order to cover all VRM components. **PLEASE REMOVE THE PROTECTIVE FOIL FROM BOTH SIDES OF THE THERMAL PADS PRIOR TO INSTALLATION.**

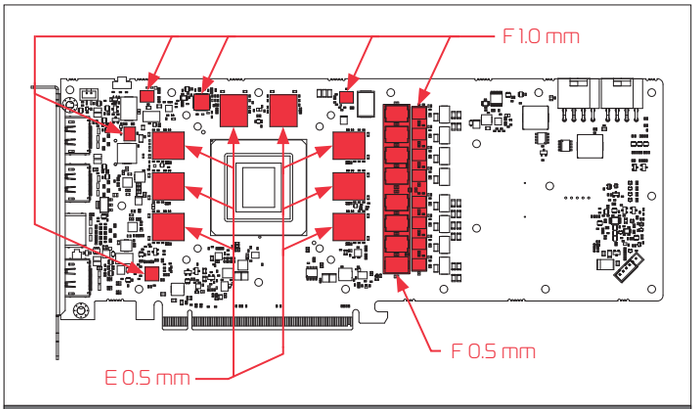
Replacement thermal pads:
1. Thermal Pad E – 0.5 mm (RAM 8x) – (EAN: 3830046996688)
2. Thermal Pad F 1,0 mm - (120 x 16 mm) – (EAN:3830046996732)
3. Thermal Pad F 0,5 mm - (120 x 16 mm) – (EAN: 3830046996725)



STEP 5

STEP 6
PLACING THERMAL PADS

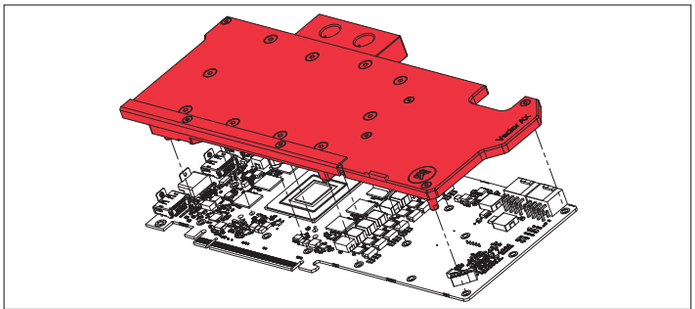
Once cut to size the thermal pads should be applied to the PCB as illustrated below. We have included more thermal pads than are required for this step.



STEP 6

STEP 7
PLACING THE BLOCK ON TO THE GRAPHICS CARD

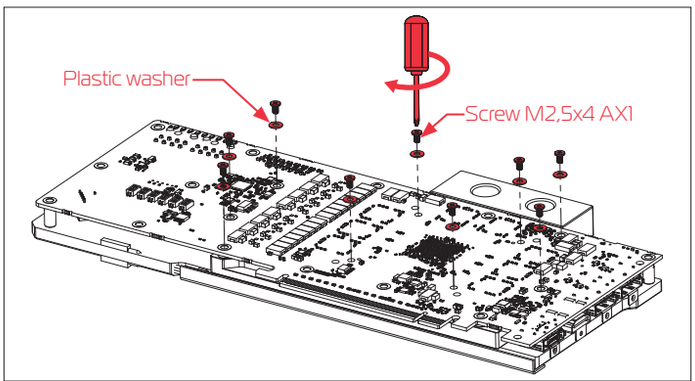
Carefully position the water block with preinstalled standoffs on to the graphic card. During this process please make sure you align mounting holes on the PCB with holes on the water block. Also pay attention not to use too much force.



STEP 7

STEP 8
ATTACHING THE BLOCK TO THE GRAPHICS CARD

Use a Phillips screwdriver with the enclosed M2.5X4 AX1 screws. EKWB recommends users to start tightening the screws around the GPU core and continue outwards.

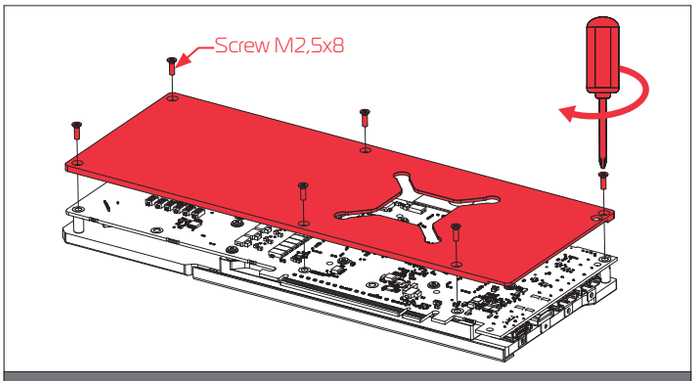


STEP 8

STEP 9
INSTALLING THE BACKPLATE

Take the six mounting countersunk screws (M2.5x8) that you have already removed from the backplate and install them as shown in the picture.

Tighten the screws with a Phillips head screwdriver.



STEP 9

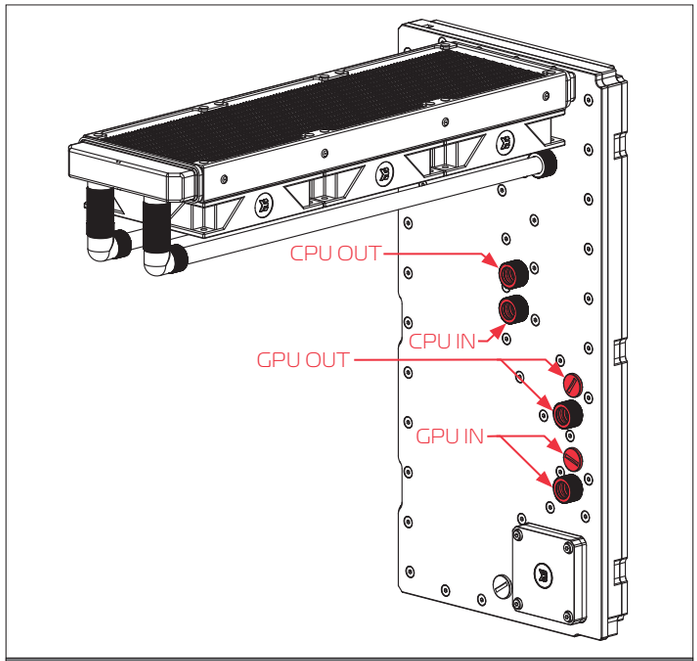
V. FINAL ASSEMBLY

STEP 1
Remove the remaining panels from the chassis and unscrew each ALU-HDC compression ring from the distribution plate. Put the 4 loose O-rings to the side until tube installation.

By default, the distribution plate is configured for the most common Intel/AMD mainstream motherboards that use slot 2 for the primary graphics card. If this is required to be in slot 1 for your motherboard, then you may configure the fittings and stop plugs accordingly. The lower two are GPU IN ports and the upper two are GPU OUT ports.

STEP 2
Install the motherboard I/O shield to the chassis and insert your motherboard complete with all parts outlined in Section I. Fasten it in place using the screws supplied with the chassis and route the CPU block D-RGB cable into the rear compartment.

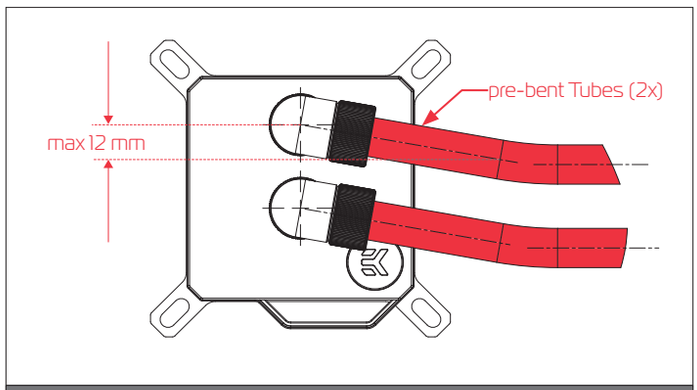
STEP 3
Remove the appropriate PCI slot covers and install the water blocked graphics card from Section II. Make sure that it is correctly inserted into the slot and secured to the chassis with the supplied thumb screws.



STEP 1

STEP 4
Since the horizontal and vertical placement of the CPU block varies on different mother-boards, we have enclosed four (4) straight tubes and two (2) pre-bent tubes to make the Barebone KIT compatible with the motherboard you have purchased.

For the CPU block, two tubes are pre-bent and allow up to +-12 mm height variance.



STEP 4

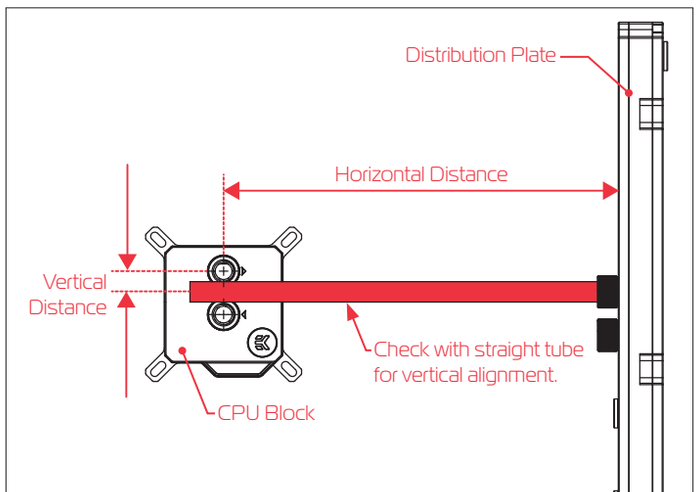
STEP 5
MEASUREMENTS FOR CONNECTING THE TUBES TO THE CPU BLOCK

Measure the vertical and horizontal distance between the ports on the CPU block and distribution plate.

To measure vertical alignment, use one of the straight tubes and measure approximate vertical variance.

If the CPU water block's vertical position aligns with the Distribution Plate CPU ports or it is smaller than 5mm (0.2 inches), **please use straight tubes only and proceed to step 7.**

If the vertical position of the CPU block is more than 5mm (0.2 inches) miss-aligned, please proceed to step 6.



STEP 5

STEP 6
USE AND CUTTING OF PRE-BENT TUBES FOR ALIGNING CPU BLOCK TUBES WITH DISTRIBUTION PLATE

Once you have measured the vertical variance, cut the tube according to the following instructions:

Variance mm / Inch	**Cut following length of the short end bend (1st CUT):**
5mm (0.2")	41mm (1.6")
6mm (0.24")	35mm (1.4")
7mm (0.28")	29mm (1.14")
8mm (0.31")	24mm (0.95")
9mm (0.35")	18mm (0.7")
10mm (0.39")	12mm (0.5")
11mm (0.43")	6mm (0.24")
12mm (0.47")	Don't cut anything on this end

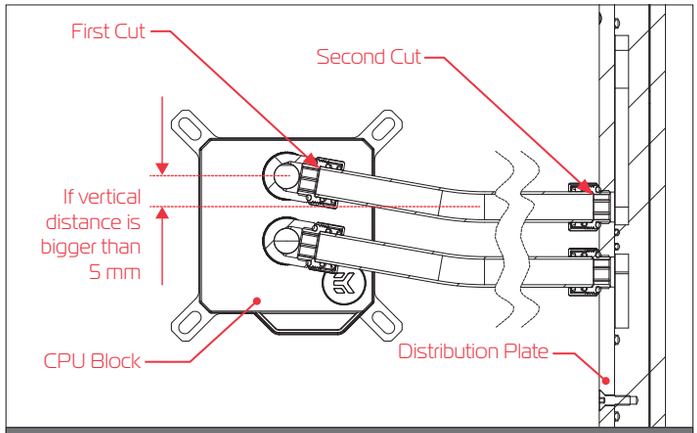
Use the miter tool to cut the tube straight.

When measuring the length of the tube, please follow these steps:

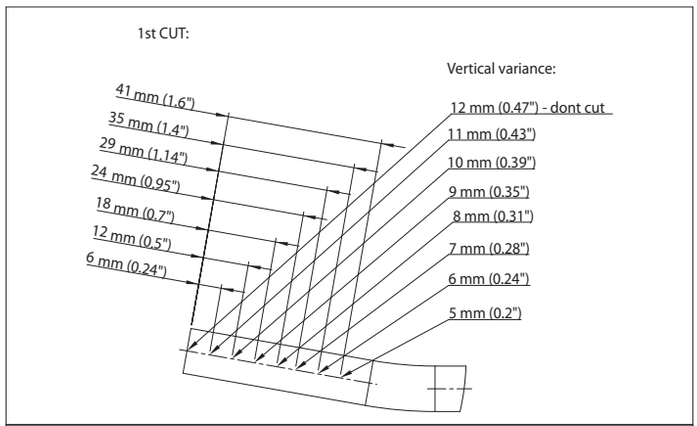
1. Measure the horizontal distance from the Distribution Plate surface to the center of the CPU block fitting.

2. Deduct from that length 16 mm (0.63").

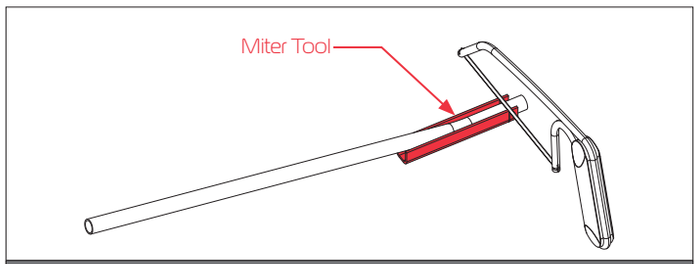
3. Cut the tube at that length.



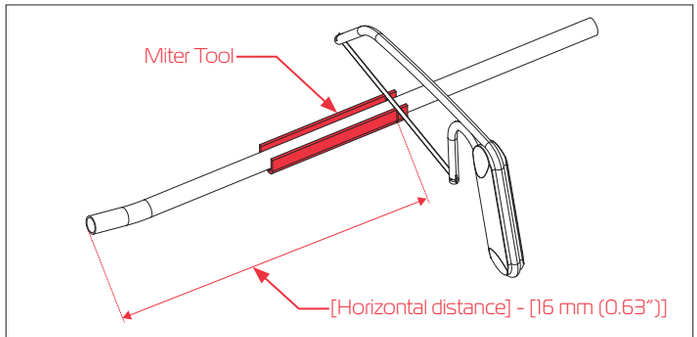
STEP 6



STEP 6



STEP 6 First Cut



STEP 6 Second Cut

STEP 7
CUTTING STRAIGHT TUBES FOR THE CPU BLOCK

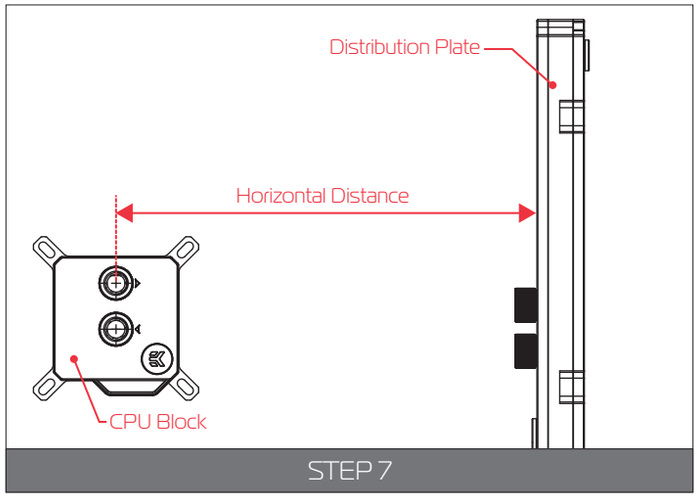
If there is no vertical variance or if it is smaller than 5 mm you just need to make **one cut** at the correct length to get the exact horizontal length of the straight tube.

Use the miter tool to cut the straight tube.

1. Measure the horizontal distance from the Distribution Plate surface to the center of the CPU block fitting.
2. Deduct from that length 16 mm (0.63").
3. Cut the tube at that length.

We strongly advise that you cut in increments to prevent any miscalculation that could result in cutting the tube too short. Starting with a longer cut and trimming in short increments will ensure that you have the correct fit.

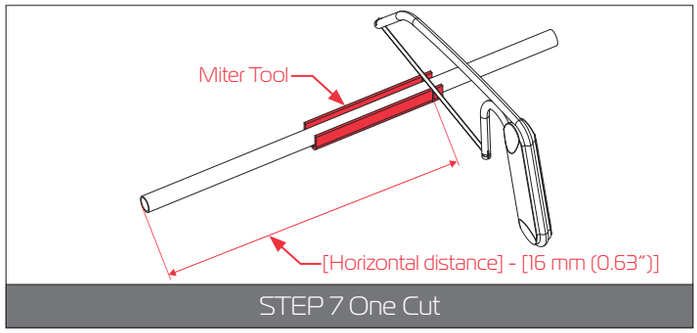
The two prebent tubes can also be used as spares for straight tubes as the straight part is long enough for the connection.



STEP 7

STEP 8
MEASURING AND CUTTING THE TUBES FOR THE GPU BLOCK

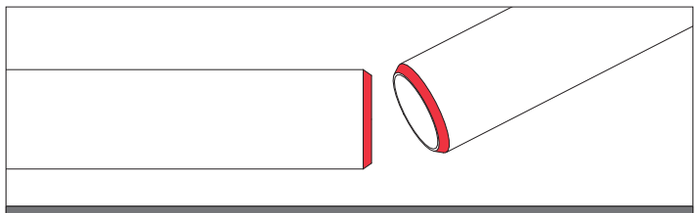
Repeat Step 7 and cut the tubes for the GPU block.
Measure the correct horizontal distance between the Distribution Plate and the center of the threaded port in the terminal of the GPU block.



STEP 7 One Cut

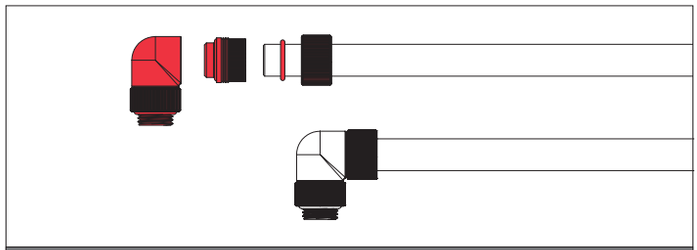
STEP 9

Use the tube reamer or sandpaper to chamfer the edges on all tubes for easier installation into the fittings and to avoid damaging the o-ring.


STEP 9

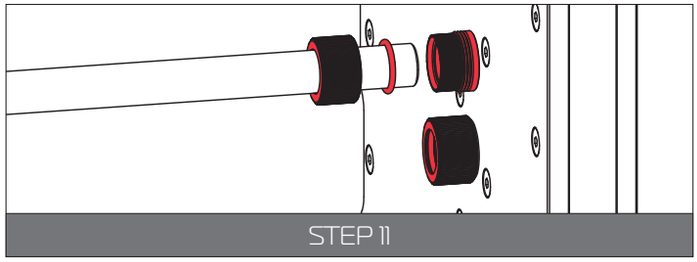
STEP 10

Remove the compression ring and upper O-ring (loose) from an ALU-HDC fitting and screw the inner part tightly into an ALU-AF 90° adapter. Slide the compression ring and O-ring over the tube, push the tube firmly inside the fitting until it stops and finally tighten the compression ring. Repeat this process for all four enclosed tubes, installing the fitting and adapter on one end only.

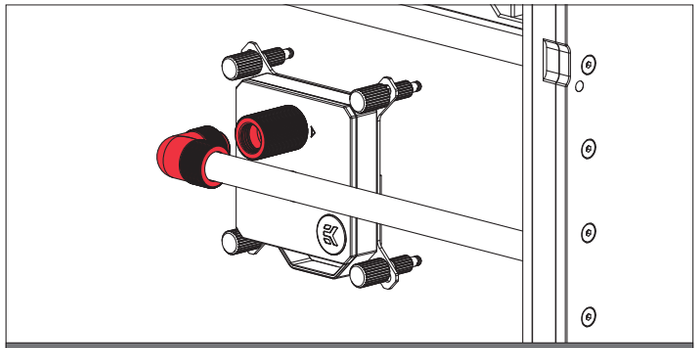

STEP 10

STEP 11

Put the assembled tubes, fittings and adapters into the build. First, slide the compression ring and O-ring over the tube and push the tube into the distribution plate fitting. Leave the compression rings loose for now.

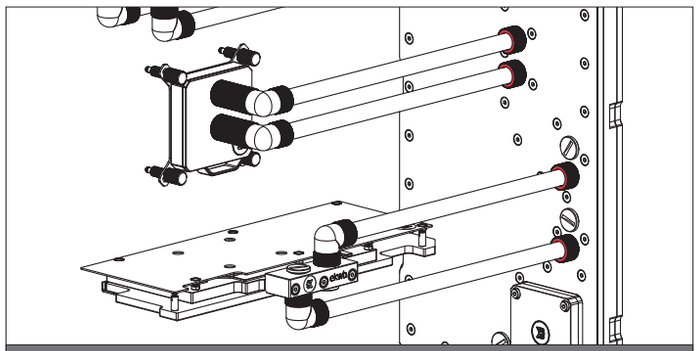

STEP 11

STEP 12
Screw the adapters into each water block port by rotating the knurled section. Tighten in a clockwise direction until the seal underneath is compressed.



STEP 12

STEP 13
Now tighten the compression rings on the distribution plate to complete the loop and secure all of the tubing in place.



STEP 13

STEP 14
Before installing any cables or further components, it is advised that you bleed and inspect the cooling components. Fill the provided bottle with mixed coolant and begin to fill the system using the top port on the outside of the chassis.

STEP 15
Install your PSU into the chassis and connect the supplied bridging plug. Use the SATA to 3-pin adapter to power the pump and run it until the coolant level drops. Refill the reservoir and repeat the process until all air is purged from the loop. This process will be faster if the chassis is leaned over in different orientations and the pump is cycled on and off.

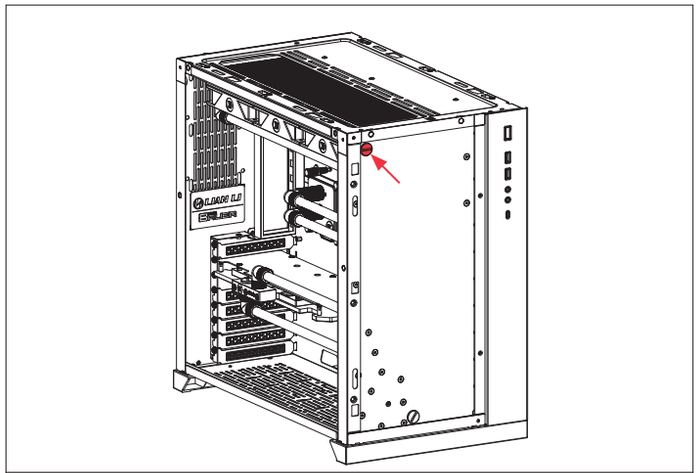
Inspect all of the tubing and fittings before proceeding.

Do not run the pump without coolant! This will lead to premature failure as the pump itself is lubricated and cooled by the coolant.

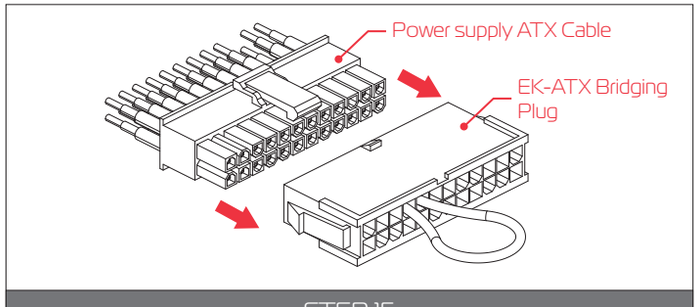
STEP 16
Remove the bridging plug and install any additional components you may have such as drives or expansion cards. Connect all power, fan, pump, and D-RGB cables to your motherboard using the provided splitters and extensions. All RGB enabled devices are digital and should not be installed into 12V RGB connectors as this will result in immediate damage. Pay attention to the marked orientation on each and every connector.

EK advises that you connect the pump directly to your CPU FAN header and set a static PWM speed between 60 and 100% if RPM control and monitoring is desired. Otherwise, the supplied SATA power adapter will be suitable for permanent use. The radiator fans may be configured dynamically or statically to meet your expectations of thermal and acoustic performance.

Replace all of the chassis panels and enjoy your new amazing EK Fully Liquid Coooled PC!



STEP 14



STEP 15

Need help with this product?

Visit us at: **www.ekwb.com/support**
Or e-mail us at: **support@ekwb.com**

For hardware compatibility please visit: **www.ekcoolingconfigurator.com**