Installation and mounting manual for EK-FC7990 water block

ekwb

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

1. **Please carefully read the manual before through before beginning with the installation process!**
2. **Please remove your motherboard from the computer to assure safest mounting process in order to prevent any possible damages to your CPU and/or motherboard's circuit board (PCB).**
3. **The EK High Flow and EK-PSC type 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.**
4. **The use of corrosion inhibiting coolants is always recommended for any liquid cooling system.**

STEP 1: GENERAL INFORMATION. Sample picture of PowerColor Radeon HD7990 series graphics card.


STEP 2: PREPARING YOUR GRAPHIC CARD.

1. REMOVING STOCK COOLER: Remove encircled screws on the bracket (required only on certain models) in order to remove the bracket:
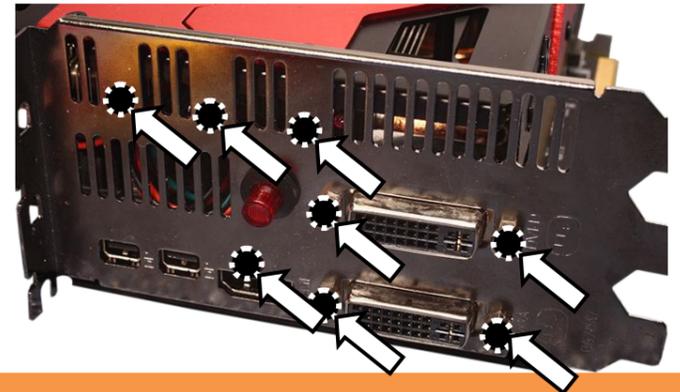

## STEP 2 cont.: PREPARING YOUR GRAPHIC CARD

2 cont.. REMOVING STOCK COOLER. Remove all encircled screws. All heat sink assembly screws should be removed. There are 8 (eight) screws on the back of the graphics card.
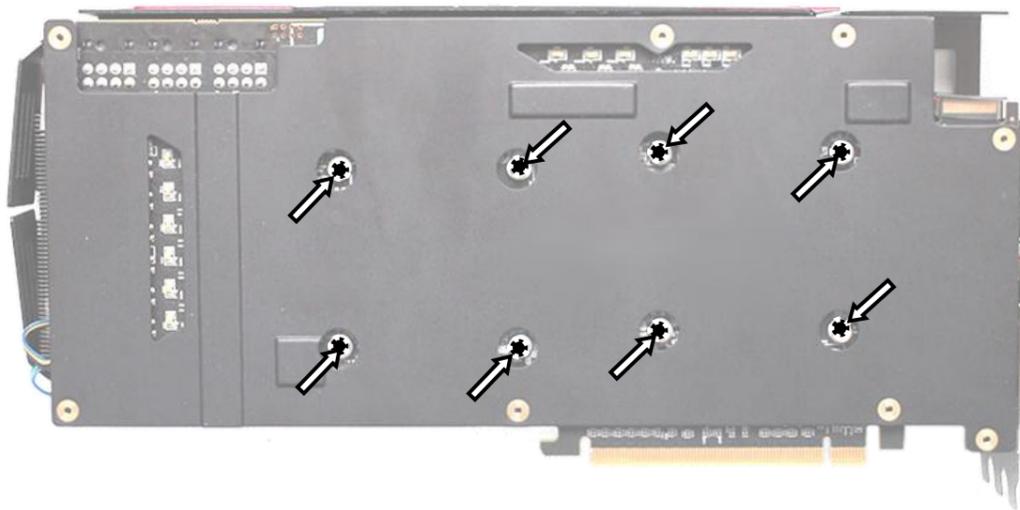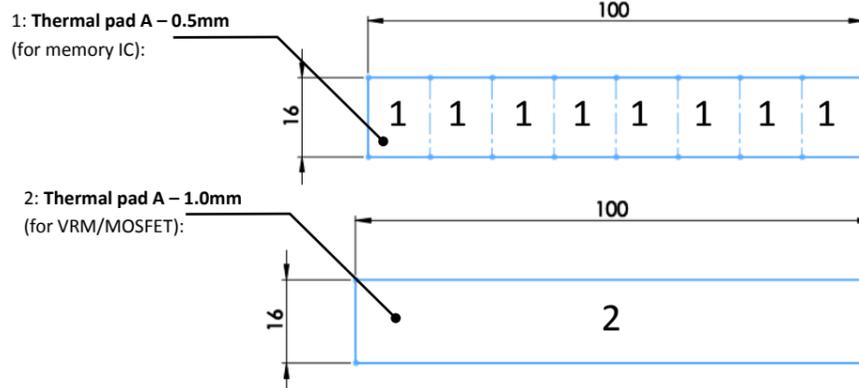

2.cont.: Remove the screws attaching the backplate to the circuit board. Remove the self-adhesive heatsinks from the circuit board as well! This step may require some force as adhesive might hold the heatsinks firmly to the PCB components. We recommend users to slowly and carefully pry the heatsinks from the PCB using bare hands (tool-less approach).
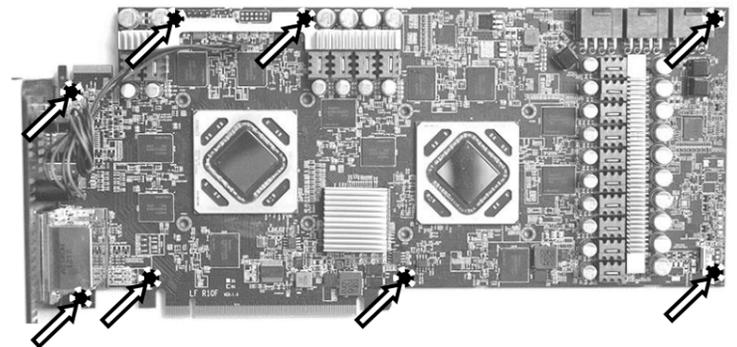
3. APPLYING THERMAL COMPOUND. Wipe off the remains (by using non–abrasive cloth or *qtip*) of the original thermal compound until the components and circuit board are completely clean. Apply thermal compound: lightly coat both *AMD* GPU chips as well as PLX bridge chip with - for example - GELID GC-Extreme™ thermal grease. EKWB recommends to apply thermal grease in cross form for best performance (see sample picture).
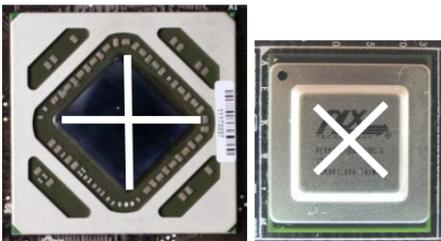

4. CUTTING THERMAL PADS. Your block comes with thermal pads, some of which are already pre-cut. Others have to be cut to smaller chunks in order to cover all the VRM components such as MOSFETs and drivers. PLEASE REMOVE THE PROTECTIVE FOIL FROM BOTH SIDES OF THE THERMAL PADS PRIOR TO INSTALLATION.
Replacement thermal pads: Thermal Pad A – 1.0mm (100x16mm)

1: **Thermal pad A – 0.5mm** (for memory IC):

100 / 16 / 1 1 1 1 1 1 1 1

2: **Thermal pad A – 1.0mm** (for VRM/MOSFET):

100 / 16 / 2

STEP 3: INSTALLING THE WATER BLOCK

1. PLACING THERMAL PADS ON PCB. Place thermal pads on chips so that numbers on chips match size of thermal pads. EKWB made sure users have more than enough pads to cover all surfaces that need to be covered to make block fully functional). EKWB recommends using small drops of <u>electrically non-conductive</u> (for example: Arctic Cooling MX-2 ™, MX-4 ™ or GELID GC-Extreme™) thermal grease on each phase regulator (that is being covered with thermal pad) in order to even further improve the thermal performance of the EK-FC7990 series water block. Repeat the procedure on the back side of the PCB.
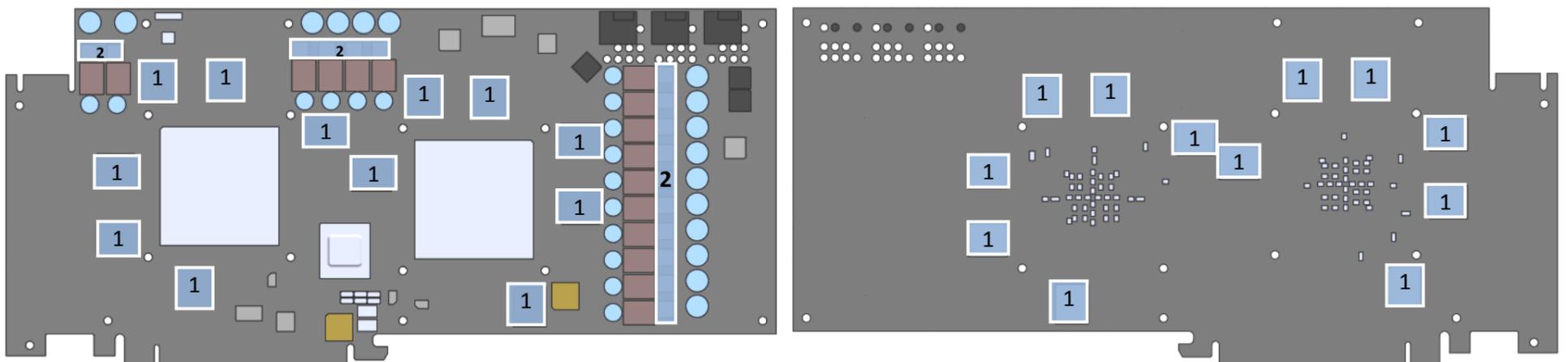
2. ATTACHING BLOCK TO GRAPHIC CARD. Carefully position the water block with preinstalled 2.5mm standoffs on to the graphics card. During this process please make sure you align mounting holes on PCB with holes on the water block. Also pay attention not to use too much force by pressing block down to PCB. Chip dies are prone to cracking. By using Philips head screwdriver screw in 6 (six) enclosed M3x4 DIN7985 screws (see picture below for reference). Make sure there is original self-adhesive plastic washer underneath each screw. Do not attempt to install the water block without the washers.
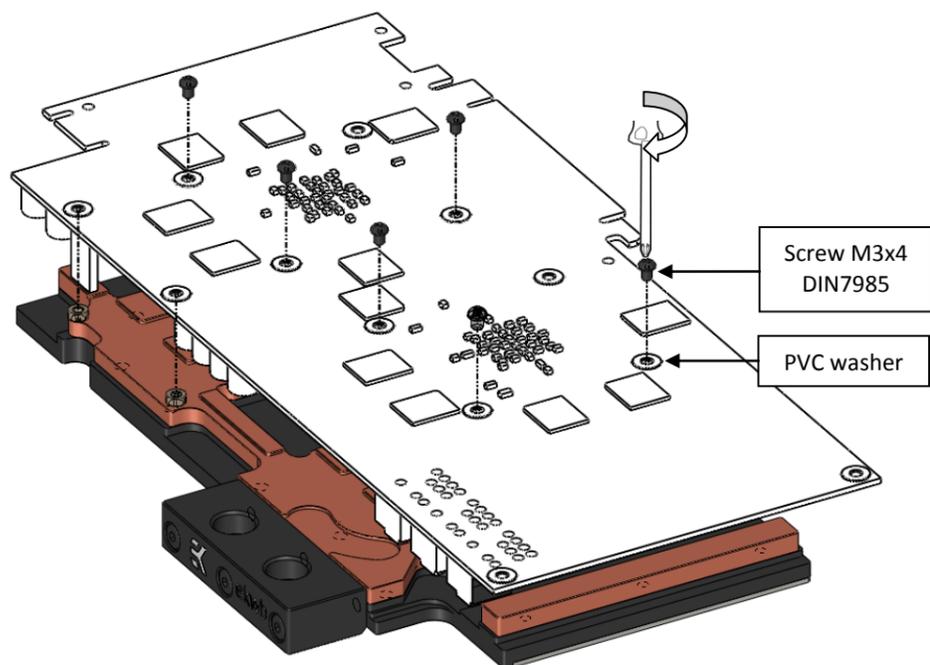
2. cont. By using enclosed Allen key 2mm screw in 4 (four) enclosed M3x9 DIN7991 screws. By using Philips head screwdriver secure the backplate using 2 (two) enclosed M3x4 DIN7985 screws.

Screw M3x9 DIN7991

EK-FC7990 Backplate

Screw M3x4 DIN7985

Screw M3x4 DIN7985

PVC washer

Screw M3x4 DIN7985
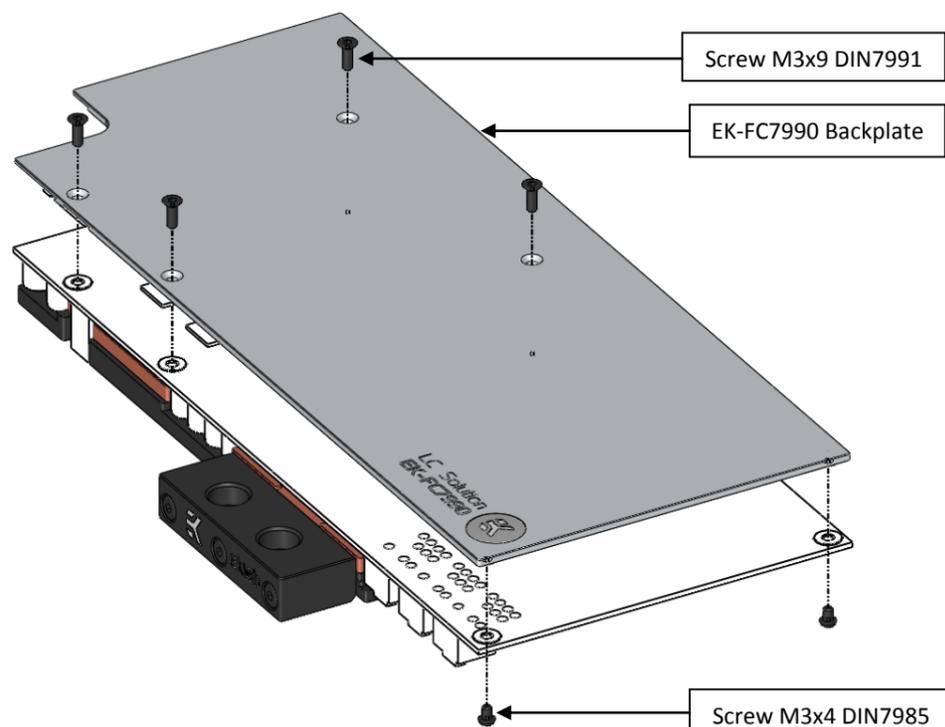
STEP 4: CHECKING FOR CONTACTS

If necessary temporarily remove the water block to check for uniform surface contact between the block and the components, pay special attention to the VRM section of the graphics card. Check whether the water block makes contact with the intended integrated cirucit. Then repeat sub-steps in previous section to re-attach the block. **In case you fail to obtain good contact, please check again your thermal pad thickness or contact our support service at http://www.ekwb.com/support.**

STEP 5a: REPLACING THE ORIGINAL I/O BRACKET

Remove two hexagonal nuts securing the original two-slot I/O bracket to the circuit board. Replace the original I/O bracket with enclosed EK-FC7990 two-slot I/O bracket and install it using 4 (four) original hexagonal nuts. Secure both bracket tabs using M3x4 DIN7985 screw.

Screw M3x4 DIN7985

EK-FC7990 dual-slot I/O bracket
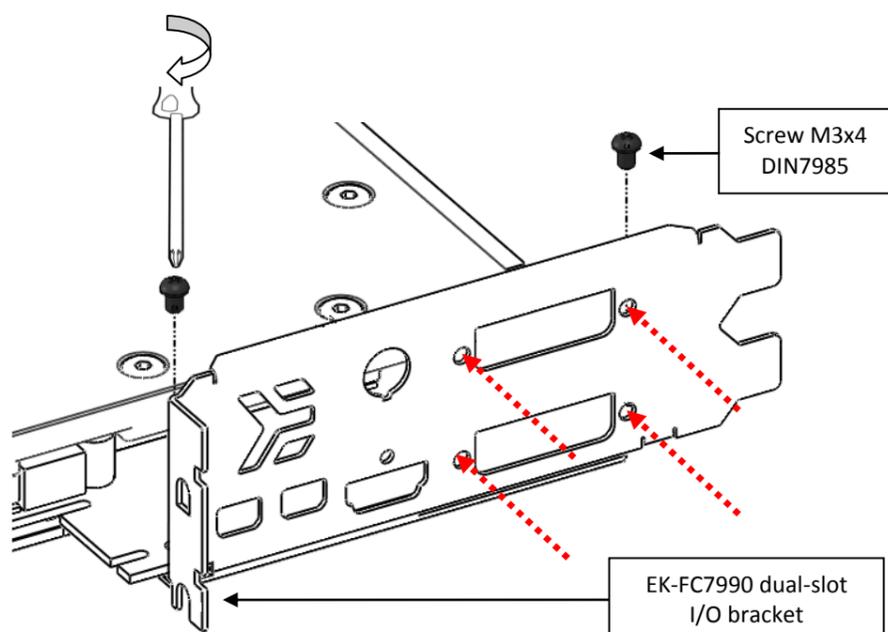
In order to move the 'Turbo' button from the original, three-slot I/O bracket to the EK provided two-slot I/O bracket take the following steps:
1. release the latch on the Turbo button and slide the button through the opening.
2. Remove the wires from the 5-pin connector. Use a needle (or equivalent) to release the latch (see sample photo below).
3. Slide the button and it's cable through the opening in the original I/O bracket and reinsert in the EK provided two-slot I/O bracket. Make sure to remember pin position!
4. Reinstall the cable pins to the 5-pin connector. Install the connector to the circuit board to complete installation.
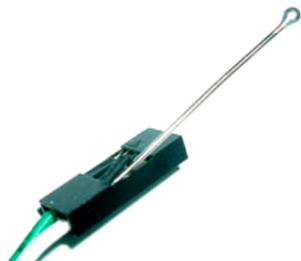
STEP 6: INSTALLATION OF FITTINGS AND TUBING

Screw in the two G1/4 threaded male fittings. Attach the liquid cooling tubes and connect the water-block(s) into the cooling circuit. **EKWB recommends using EK-PSC fittings with the EK-FC7990 series water blocks**. To ensure that the tubes are securely attached to the barb/fittings, please use hose clamps or an appropriate substitute.

You can use any opening as an inlet/outlet port.

CAUTION: In case of using connectors other than EK-PSC series compression fittings take special attention to the length of the fittings' male G1/4" thread. In case the thread is longer than 5mm please use the enclosed 1.8mm nickel plated distancer! 5mm is the maximum allowed G1/4" thread length!

Tubing

EK-PSC Fitting

EK-Plug G1/4

Acetal Terminal
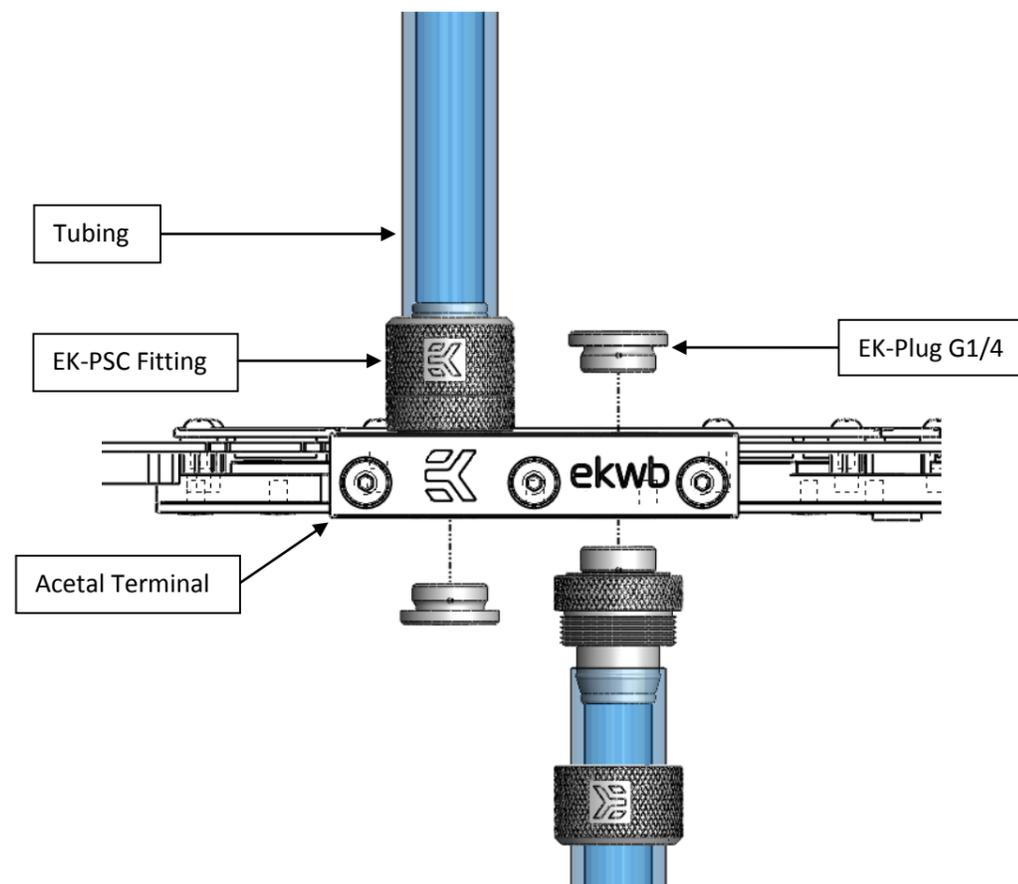
STEP 6: FINISHING INSTALLATION - INSERTING THE GRAPHICS CARD IN YOUR PC CHASSIS

At this point you may carefully lift your graphics card with installed block and insert it in your PC's motherboard PCI-express expansion slot. Please bear in mind that your graphics card is probably heavier than when it was equipped with original heat sink fan assembly. One needs to be very careful when handling the graphics card. Avoid all un-needed manipulation of the VGA/water block assembly that might damage your card or water block during final installation.

REQUIRED TOOLS:

scissors   philips screwdriver