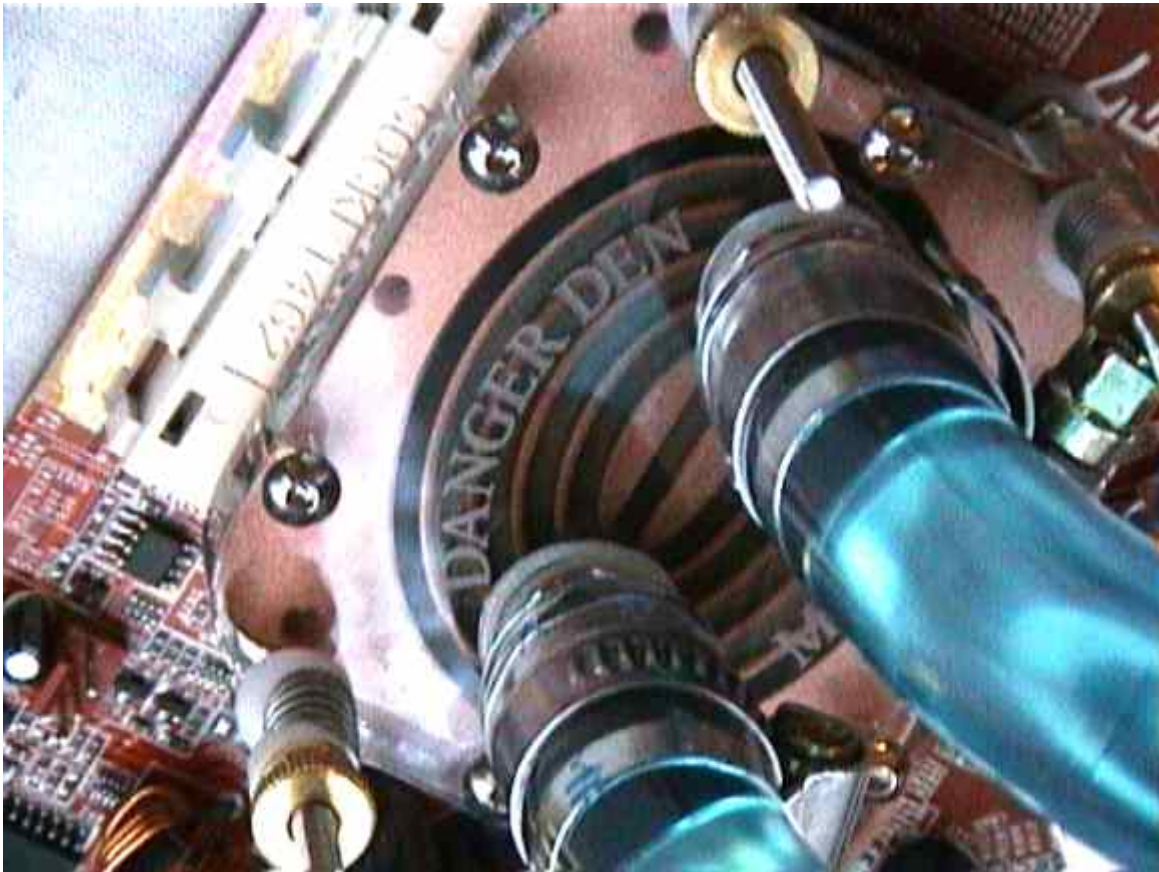


Over-Clock UK DangerDen Custom WaterCooling Kit



Installation Instructions

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Photos by Marci, Text by Marci.

Thank you for your interest in the **Over-Clock UK DangerDen Custom Watercooling Kit**. This kit is a high performance kit for AMD Based systems, designed on 1/2" ID Tubing with a high-flow pump. The main CPU Block consists of a solid copper bottom, with Lucite top and Brass 1/2" fittings for the ultimate in looks...

1. Kit Contents

In the average kit you should find the following:

- 1x AMD DangerDen Maze4 CPU Block
- 1x DangerDen Clear Reservoir
- 1x Eheim 1048 Pump
- 1x YSTech Slimline 120mm Fan running at 7v
- 1x Chrome Fan Guard
- 1x Bottle of Purple Ice AntiCorrosive Coolant
- 1x ThermoChill HE120.1 Radiator
- 2x 3/8" BSP to 1/2" Hose Barbs
- 2.5 Metres of Thickwalled 1/2" ID Tubing
- Mounting Hardware for Maze4 Block
- Mounting Hardware for Fan/Guard and Radiator
- Mounting Screws for Radiator to Case



Maze4 AMD CPU Block



Clear Reservoir



ThermoChill Radiator



Eheim 1048 Pump



YSTech Fan & Guard



Purple Ice Coolant



Mounting Screws



Thickwalled Tubing



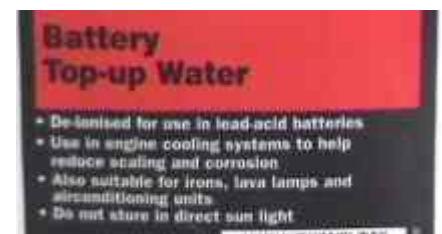
GF4 / Radeon 9700 Block (optional)



And here are a few closeups of the individual blocks... note the frosted "DANGER DEN" printed on the Lucite top... extra touch of class...

First thing's first, make sure you have everything as listed above.... If not, then get straight on the phone to us!

Next, before we delve into the installation, we recommend you have the following tools to hand (or similar!) As well as a suitable jug (approx 2 pints) and some De-Ionised Water (available from most car parts stores as Battery Top-up Water



and lastly, **GRAB A TOWEL....**



Img1

2. Assembly

All waterkits should be assembled on a bench outside of the PC and leak tested for 24hrs... this guide deals with this process, and installing the hardware onto your mainboard. Installation into your case is down to you, but most ppl tend to mount the radiator in the top of the case, and sit the reservoir in the bottom... it's entirely up to you how you do it, but it is advised to keep the Reservoir at the highest point to act as an air trap (all air rises to the highest point)

Unpack all components and lay them out in your case in the approximate positions in which they are finally intended to be placed (Img 1)... Then roughly measure out your tubing lengths from pump to block, block to radiator, radiator to res, and res to pump (Img 2) Remember, at this stage it is always best to OVERESTIMATE the lengths, then you can trim them shorter when it comes to the final installation within your chosen case.



Img2

Next take your ThermoChill radiator package. You should have a radiator core, 2x barbs, shrouds for each side (default color is black, blue are shown to distinguish them from the core in pictures),

2 screws per shroud, and a spare bleed valve screw as shown in the image to the left. Place a shroud on each side of the radiator, then using the small selftapping screws enclosed, screw them to the radiator as shown to the right. The barbs that came with your kit should already have PTFE tape on them. If they don't then you will need to PTFE them first. PTFE tape is used to seal threaded joints in plumbing applications, and stops water leaking up the threads of the barbs... The picture sequence below from left to right takes you thru the process of PTFE-ing your barbs... 3 to 5 wraps of PTFE tape is usually sufficient for the radiators... but some devices such as the Eheim 1250 pump (where the thread is sunk into the inlet shaft of the pump) can require up to 8 wraps for a sufficient seal. Once you have PTFE'd your barbs, screw them into your radiator, and you should

be left with something rather strikingly similar to the picture shown at the end of the sequence!



One of the main features of the ThermoChill range of radiators is the bleed valve incorporated into the end cap (shown Left). To utilise this fully the radiator should be positioned so that this is the highest point, ie: Barbs to the floor, or, alternatively the rad can be positioned for easy bleeding whilst the rig is laid down on it's back. In which case, you should mount the radiator with both barbs towards the back side of the case so when laid down the bleed valve is visible, as can be seen in the picture to the right.



The next step is to mount your fan to your radiator...!



You should now have left 4 small thin self tapping screws, and 4 fat self tapping screws. Use the small thin screws to attach fan to shroud using a small tipped screw driver (shown Left). Use the fatter self tapping screws to attach the guard to the fan (and ultimately, thru the guard, thru your case into the fan to mount it all after leak testing is complete... which is the next step now that the prepwork is done!!



Clear your workspace and lay out all your equipment on a towel (to catch any spills)

Next, fill your jug with battery top-up water... It's always easier to pour it into the res via a jug rather than straight out of the bottle. Pop this to one side for a few minutes, as you're going to need it after the next step.



Lay a towel on a surface... This should be of a big enough size to allow you to lay out and assemble your kit on it... Pay attention to the flow direction at all times. Using the PUMP as a starting point, you ideally should go from the top of the pump (it's OUTLET) to the block, from the CPU Block to the radiator, from the radiator to the res, and from the res back to the pump as illustrated below.

Note, at EVERY point where tubing meets a device, you should use a wormdrive hoseclip to secure the hose and prevent leaks as shown in the pictures below...



Once this is completed, we are ready to fill and leak test the kit. Leave the pump unplugged for now... This may require a second person depending how accessible your mains outlet is from the area where you work... For illustrative purposes, we have added some Deep Blue UV Reactive Dye to our water so that it stands out better in the photographs.



Remove the cap from the reservoir, and fill it to the top. This should then fill thru to the pump and stop (shown LEFT). Now, switch on the pump and continue to top up the reservoir until the entire kit is full of water. If you aren't quick enough, the pump will soon empty the reservoir and run dry and the water will cease to flow, so you need to keep topping up the res until the ENTIRE kit is full. Once you have flow coming back into the reservoir at a fairly constant rate it can usually help to lift and tilt the res so that the outlet to the pump is at the lowest point... or alternatively, sit your reservoir on top of your CPU Waterblocks' box like we've done!

Air-bubbles should be pushed from each component around to the res by the flow of the pump, where the air can gather and escape. The DangerDen CPU Block generally doesn't trap any air, and you can see thru the block to confirm this.... The Radiator however is normally the biggest culprit, hence the addition of the bleed valve on the ThermoChill. Simply open the bleed valve (shown right) and 90% of trapped air is instantly eliminated.



You can quickly solve airblocks in tubing (shown to the left) by simply raising the proceeding item as shown in the image to the right. This will generally allow the air to pass round the system to the rad where it will be eliminated. Once the majority of air has cleared and the system is relatively full, place the top back on the Reservoir, close the bleed valve, and lie the radiator on it's side, with the inlet hose to the bottom. Any remaining air should leave the rad and enter the res where it should get trapped. Once all air is released remove the res cap, top- up and place the cap on your reservoir and put the kit to one side where ideally it should be left running for 12 to 24 hours prior to fitting to your mainboard etc. The reservoir should look quite impressive when full, as with the high flow rate that this pump provides you get quite a lot of turbulence...



3. Installation of the CPU Block

Your kit should now look something like the image shown to the right of this text.

Once you have made sure that there are no leaks in the system, you can begin to prepare your mainboard for the mounting of the Maze3 Block.



You will need the mounting hardware that comes in a bag with the CPU Block, and specifically, you'll start with the parts shown to the left. Before we begin, it is advisable to check the area around each of the 4 mounting holes to ensure they are clear of other components. As you can see in the pictures to the left, the left hand hole is obstructed in each case. This can be easily bypassed by snipping down one edge of the plastic washers so that they site neatly alongside the components. The washers should be the correct size to sufficiently clear each component's height. The picture to the right shows the reverse side of the board, where (thankfully) EVERY hole is unobstructed. Now we're ready to begin.



Take one of the metal rods and add one nut then one washer to the end. Rotate the nut down so that there is approximately 6mm clear at the end of the rod. From left to right below, the picture sequence takes you thru the steps to mount the rods to the board. Place the rod, and place it thru the hole on the mainboard. Flip the board over and add a washer, then a nut. Finger tighten them. Repeat for the remaining 3 rods.



You should now be left with a motherboard with 4 rods protruding from the front face as shown to the left. Before you mount the block, you need to check the orientation against the CPU socket, as the block will only mount correctly one way round. The base of the block has a lip in it, and this should be oriented to the labelled part of the socket where the lever arm pivots from.



Take your Maze4 Block, and on the underside add a small blob of Thermal Compound to the base of the block. Using your finger tip or a piece of card, work the Thermal Compound out in the centre of the block. This serves to fill any irregularities in the copper base, and provides the best thermal contact.

Remove any excess and you should be left with a discoloured area in the centre of the block... The pale appearance of this area is simply because any blemish in the surface of the block has now been filled with compound. An alternative to this is to "lap" the base of the block using a piece of fine-grit Wet&Dry sandpaper. This is not necessary for most users, so is not covered in this manual, and can often detract from the blocks performance if not done exactly right... therefore, we rarely recommend any user laps their own block.



Lower the Maze4 block down onto the 4 metal rods so that it sits square on top of the CPU as shown here to the right, then hold it in place with a finger between the two barbs as shown to the left.



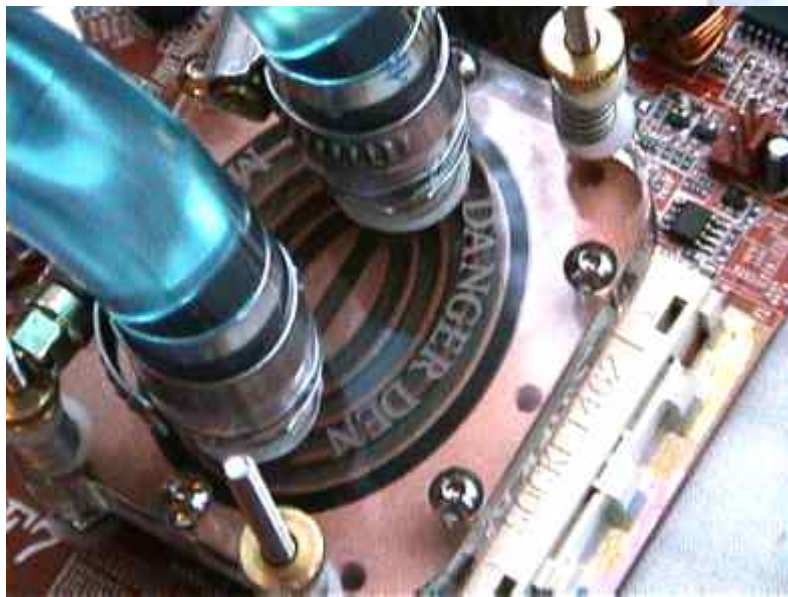
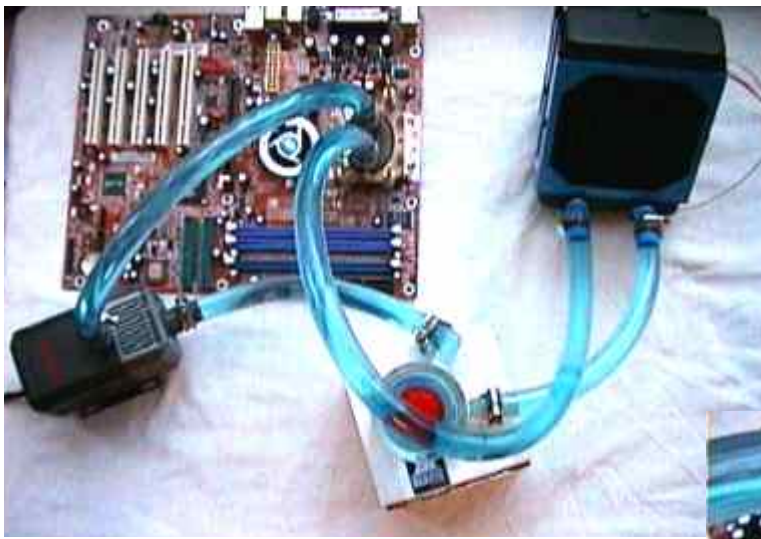
Now, returning to the bag of mounting hardware, find the parts shown in Fig A. Using FigA as a guide, start at the right of the image and work your way to the left, dropping each part onto each rod in the order shown... Washer, spring, washer, thumbscrew. Attach the thumbscrews gently to the tips of the rods but do NOT tighten them down fully yet. Holding the block in place with a finger in the center helps to prevent



damage to the CPU Core. Now, working with opposite corners (again, see Fig.B), tighten the thumbscrews down. The simplest way to tighten these thumbscrews is to place your fore-finger on the tip of the rod to prevent the rod from turning as you tighten, and with your middle finger and thumb, tighten the thumbscrew down one rotation per thumbscrew at a time. Start on one corner, rotate thumbscrew 360 degrees, move to the diagonally opposite corner, rotate 360. Move up to the next corner... then do that corner's diagonal opposite. Keep working your way round the block, tightening one rotation at a time to ensure even downforce onto the core and to again prevent core crushing. Once the thumbscrews are tightened appropriately, you will be left with something similar to the pictures below.



That's it! Your CPU Block is now mounted and you are ready to fit the entire kit into your case... once you've fired up the system, head straight for the bios and monitor your CPU Core temps to assess your mounting...



You're done! If you DID drain the system, then reassemble and fill as per the instructions. If mounting the rig in a case, mount your pump / rad / res wherever you have planned, join the tubes in the relevant order, and fill as explained in this manual. Once the system is full in the case, pick it up and tilt the case in all directions with the side panel off so that you can monitor any air bubbles and ensure that they are all moved round to the res.

Fire up your system and away you go!

Cheers!
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