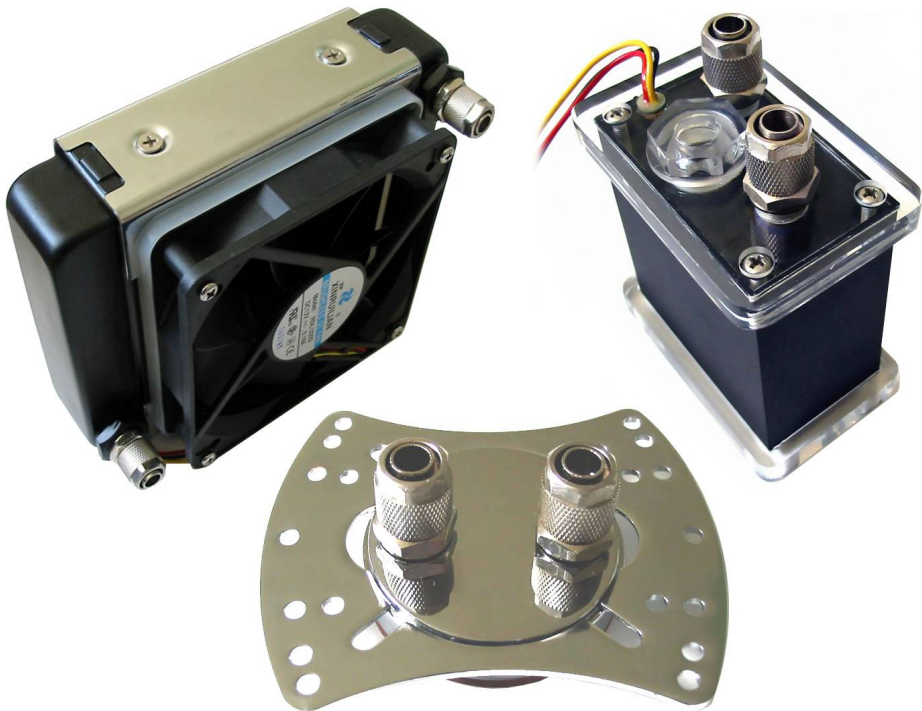




CPU Water-Cooling Kit



Last updated: 21/08/05
For the latest revision of this manual please visit
<http://www.xspc.biz>

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1.1 - Introduction

Thank you for purchasing the XSPC X2O CPU water-cooling kit.

The X2O water-cooling kit is designed as a low noise solution to the ever increasing heat output of modern processors. The X2O kit is easily expandable and is powerful enough to handle the addition of a GPU or chipset water-block.

Please read this guide carefully before attempting to install this DIY water-cooling kit. If you do not understand the installation process please contact XSPC or your retailer.



2.1 - Package Contents

- CPU Block with 10/8mm fittings
- Universal CPU Mount
 - 4x bolts, 12x washers, 4x nuts, 4x springs, 4x knurled nuts*
- 120mm Radiator with 10/8mm fittings *
 - 4x 30mm Screws, 4x 10mm Screws, 1x 120mm Fan Gasket*
- Low Noise 120mm Case Fan
- Radiator 80mm fan mount kit and blanking plate
 - 4x Small Screws, 4x Large Screws, 4x Bracket, 8x Washer*
- 12V DC Pump unit with 10/8 fittings
- Clear 10/8mm tubing (*10mm Outer diameter, 8mm Inner*)
- Anti Corrosive Water Additive
- Thermal Paste
- Blue LED with 4 pin molex.
- 3 to 4 pin adapter cable

Radiator available in Single Pass(Crossflow), Dual Pass horizontal and Dual Pass vertical versions.

2.2 - Features / Specification

CPU Water-Block	
Materials	Copper base with plated brass top
Dimensions	57x57mm
Port thread size	G1/4"
Weight	275g
Universal CPU Mount	
Material	Plated brass
Dimensions	100x81x2mm
Designed for:	AMD Sockets 939, 754, 940, A/462
<i>*Requires mounting holes</i>	Intel Sockets 775, 478, 603, 604
Radiator	
Materials	Copper and brass
Dimensions	316x139x45mm
Port thread size	G1/4"
120mm Fan	
Power	12V, 0.18A, 3pin connector
Speed / Airflow	1700 Rpm, 65.12CFM
Noise Level	30dBA
12V Pump/Reservoir	
Reservoir Materials	Anodized aluminium and Acrylic reservoir
Dimensions	88x56x88mm
Port thread size	G1/4"
Pump Specification	400l/h , 1.65m head, ~1800rpm, 12V, 9.5W

3.1 - Mounting the CPU Water Block (Part 1)

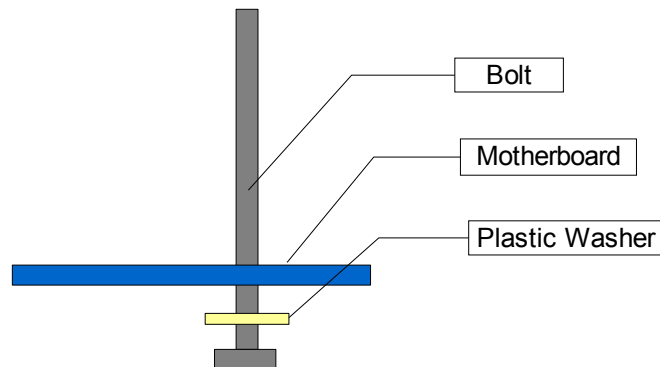
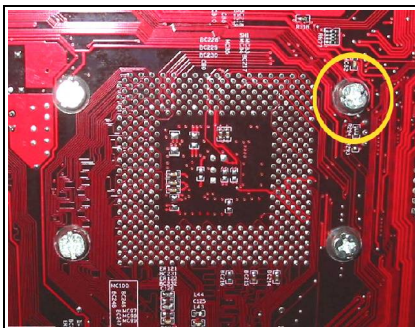
Note: Installation of the mounting bolts may require you to remove the plastic cage around the CPU socket before installation can continue.

Note: The images below show the mount being installed on a Socket 462(A) motherboard but the installation process is the same for all sockets.

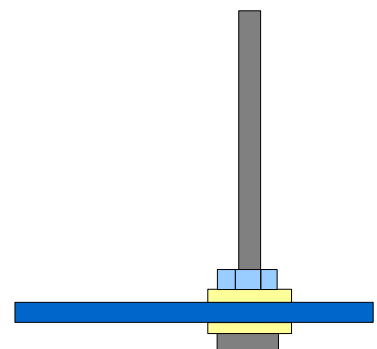
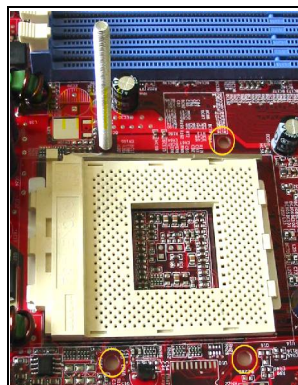
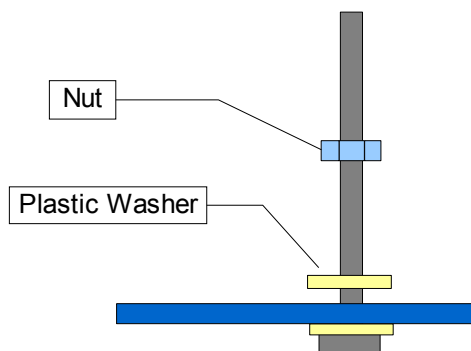


The installation of the CPU water-block is split into 2 parts. In the first part you will install the bolts for the universal mount. Please follow the steps below.

1. Place a plastic washer over the bolt to prevent an electrical short
2. Push the bolt through one of the socket holes around the socket from the back of the board.



3. Turn the board over and place a second plastic washer over the bolt followed by a nut. Then secure the bolt in place by gently tightening the nut.



4. Repeat the process for the 4 bolts or two if using an A64 based system
5. Once all bolts are in place the motherboard will be ready to be installed into the PC case.

Installation of the CPU water-block continues on page 9. Part 2 of the water-block takes place after the tubing has been connected and the system has been filled.

3.2 - Mounting the Radiator

Note: It is advisable to temporarily mount the radiator before you connect the tubing. This will make it easier to measure and cut the tubing to the correct length.

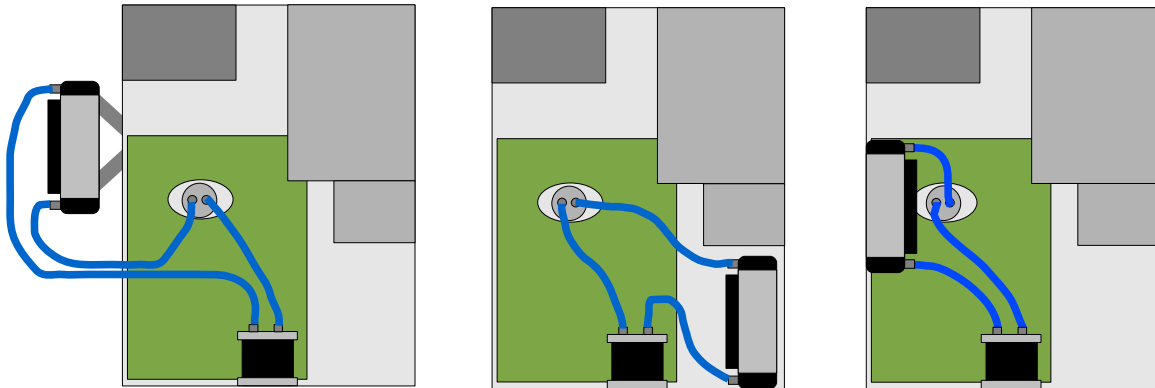
The radiator can be mounted in a variety of places inside or outside of your case. The position depends on the amount of room, the size of fan mounts available and the style of radiator in the kit.

The radiator is designed to be mounted to a 120mm fan mount but is also supplied with brackets for mounting on a 80mm mount or mounting externally on a flat surface. (See page 6)

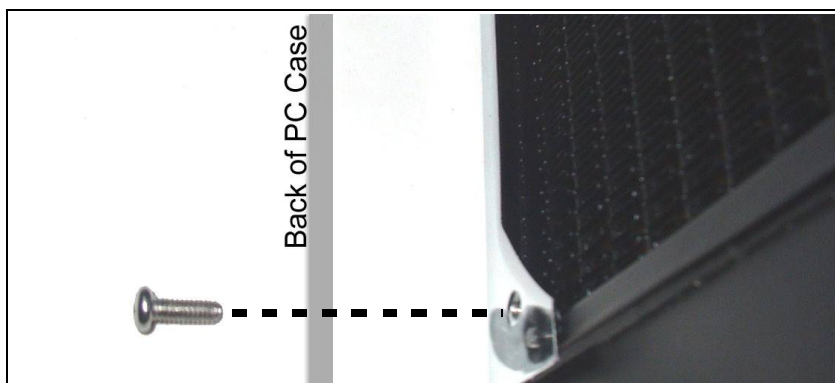
The radiator can be positioned either way up and both tubing connectors can be used for either the inlet or the outlet.



Example radiator positions



The radiator can be secured to a 120mm fan mount by using the provided 10mm screws.



Once the radiator has been mounted and you are happy with its position, measure and cut the tubing to size. After the tubing has been cut to size remove the radiator from the case.

Note: If mounting the radiator externally you will need to route the tubing through the back plate before connecting all of the fittings.

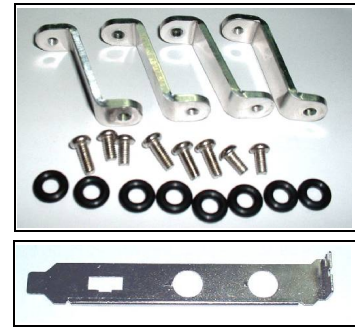
Mounting the radiator using the 80mm adapter brackets is detailed on Page 6.



3.3 - Installing the 80mm adapter brackets

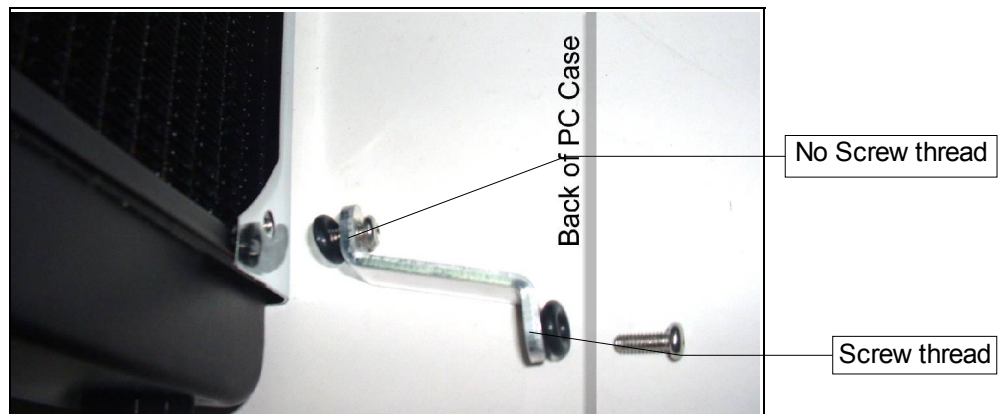
The X2O water-cooling kit radiator is designed to be mounted in most PC cases without the need for modification or cutting. If no 120mm mounts are available in your case you should use the pictured brackets to mount the radiator to an 80mm fan mount.

If mounting the radiator externally, a back plate is provided for routing the tubing and power cable back into the case.



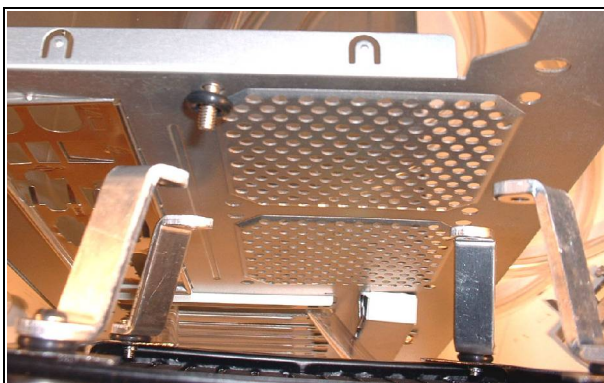
1. Place the radiator fan on a flat surface and attach the four brackets to the chrome shroud using the provided screws and rubber washers.

Radiator < Washer < Non-threaded end of bracket < small screw



2. Line up the radiator and four mounts to the 80mm fan mount. Use the four longer screws to fix the mounts to the PC case.

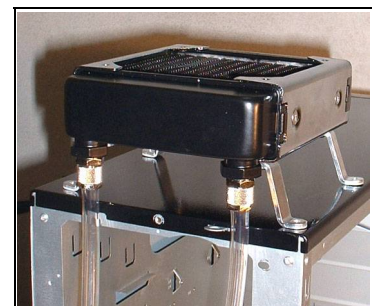
Threaded end of bracket < Washer < Case panel < Longer screw



Mounting the radiator on a flat panel

The 80mm adapter brackets can also be turned around and used to mount the radiator externally on a flat panel. Mounting in this way will require some modification of the case to secure the radiator.

Note: Make sure the radiator is firmly secured to avoid rattling and vibrations



3.4 - Connecting the tubing

Note: Before connecting the tubing make sure you place the universal mount over the CPU water-block. This will not be possible once all the tubing has been connected.

The pump, radiator and water-block need to be connected in a loop in series. To find the easiest route for the tubing we recommend that you place the water-block, pump and radiator loosely in position and cut the tubing to the required length. The tubing will have a natural curve and when bending the tubing you should follow this direction.

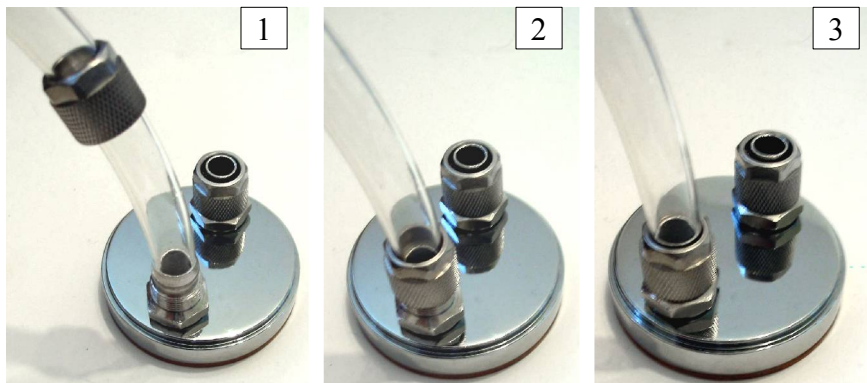
After measuring the tubing the water-block, pump and radiator should be removed from the case until the system has been filled and leak tested.

Note: To avoid leaks it is important that all tubing is cut straight.

Using compression fittings

Connecting the tubing can be done in 3 easy steps.

1. Place the screw cap over the tubing and push the open end of the tubing over the barbed fitting.
2. Move the cap down the tubing and place over the barbed fitting
3. Tighten the screw cap by hand until the tubing is secured

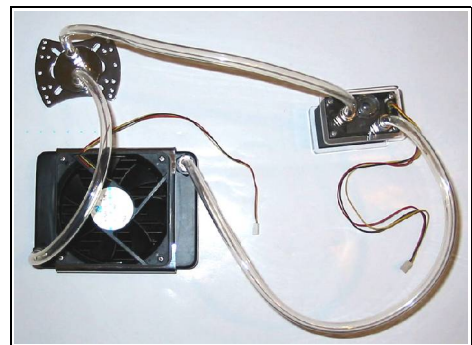


Suggested circuit order

Pump outlet > Radiator > CPU Block > Return to pump

Although a suggested order is given the easiest and shortest route for the tubing is normally the best. Each of the three components can be placed in the circuit in any order as long as a complete loop is made.

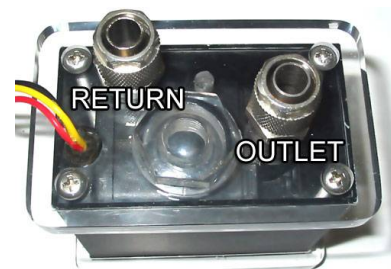
Note: Avoid kinks in the tubing. Any kinks will effect the flow rate of the water and degrade performance.



Inlets and outlets

Either connector on the CPU block and Radiator can be used for the inlet or outlet. To avoid trapped air the chosen outlet should not be positioned below the chosen inlet.

The pump inlet(Return) and outlet are shown in the photo.



3.5 - Filling the System

Water Additive

The water-cooling kit should be filled with a mix of de-ionized water and the supplied water additive. Please see the bottle for required concentration and mixing instructions.

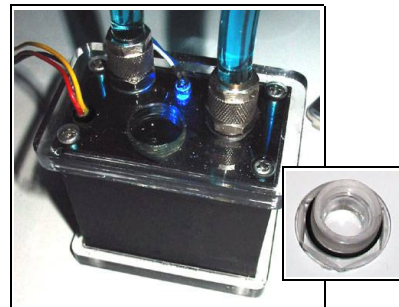
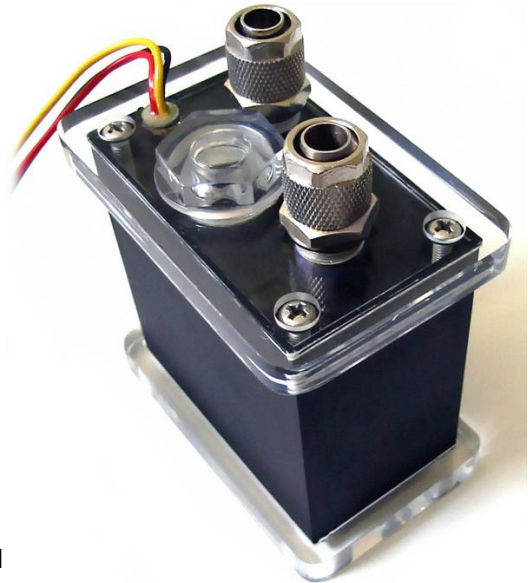
Filling the reservoir

Once the tubing has been connected the next stage is to fill the reservoir and remove the air from the system.

Filling the reservoir and system is an easy process but care should be taken to avoid spillage.

1. Remove the filler cap
2. Pour a small amount of the mixed liquid into the reservoir until full.
3. Connect the 3 pin power connector to start the pump
(see: how to start the pump outside of the PC)
4. Keep refilling the reservoir while the system is slowly filled and the air is removed
5. To help remove the air from the radiator gently rock the radiator. Avoid putting undue stress on the tubing and connectors.
6. Once the system and reservoir appear full turn off the pump and leave to settle for 2min then Re-Start the pump and top up if necessary.
7. Once you are happy that all the air has been removed from the system top up the reservoir then replace the filler cap and finally turn off the pump.

Note: It is normal for the pump to make noise while the air is removed from the system. Once the air has been removed the noise will reduce to near silence.



How to start the pump outside of the PC.

Normally the pump will run from a 3 pin connector on your motherboard but this is not suitable while filling the system for the first time. To fill the circuit you will need to start the pump with an external 12V DC source.

It is possible to use an ATX PSU using the provided 3 to 4 pin adapter to connect the pump to the PSU. As the PSU is not connected to a motherboard you will need to start it using an ATX bridging clip or by connecting pins 13 and 14 on an ATX 20pin connector.

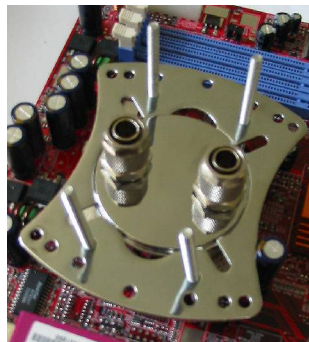
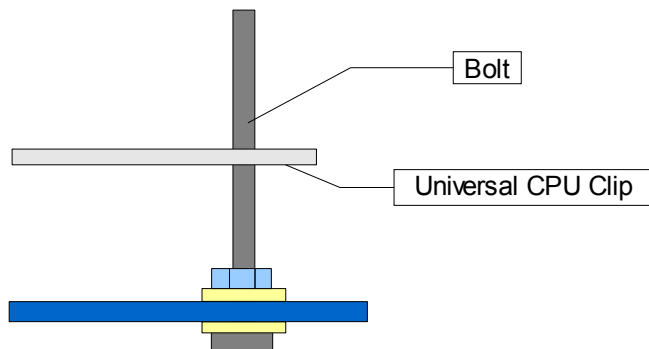


Note: We recommend that you leak test the system for at least 24 hours before use in a PC.

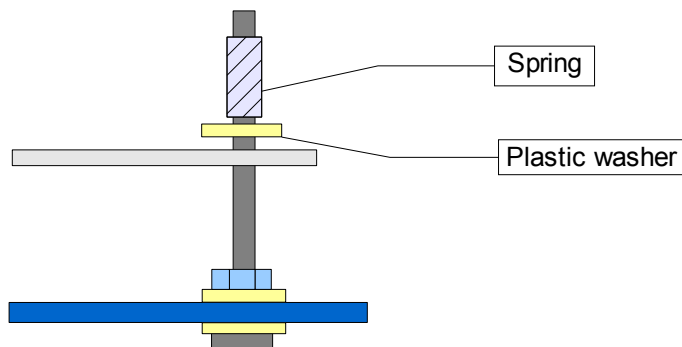
3.6 - Mounting the CPU Water-Block (Part 2)

Note: The tubing should be connected to the CPU water-block at this stage. The tubing was intentionally left out of the photos on this page so the mounting system is clearly visible.

1. Remove the film from the base of the water-block
2. Apply a thin layer of thermal paste to the CPU or as directed by manufacturer's instructions
3. Place the waterblock over the CPU socket and line up the universal CPU mount with the bolts.
4. Place the CPU water-block onto the CPU and slide the universal mount down into place.

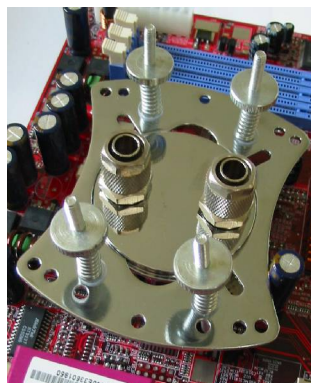
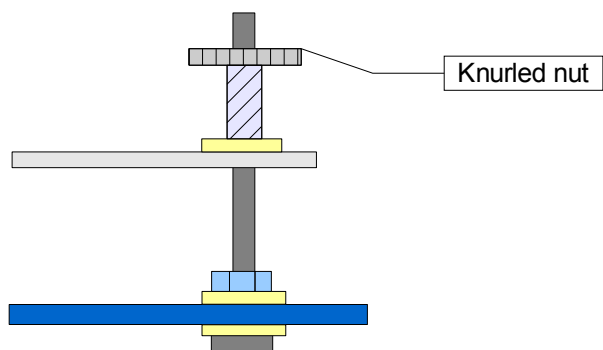


5. Place a plastic washer over each bolt followed by a spring.



6. Place a knurled nut over a bolt and tighten gradually to the required pressure. To avoid applying uneven pressure two opposite knurled nuts should be tightened at once.

Warning: Overtightening may cause damage to your CPU.

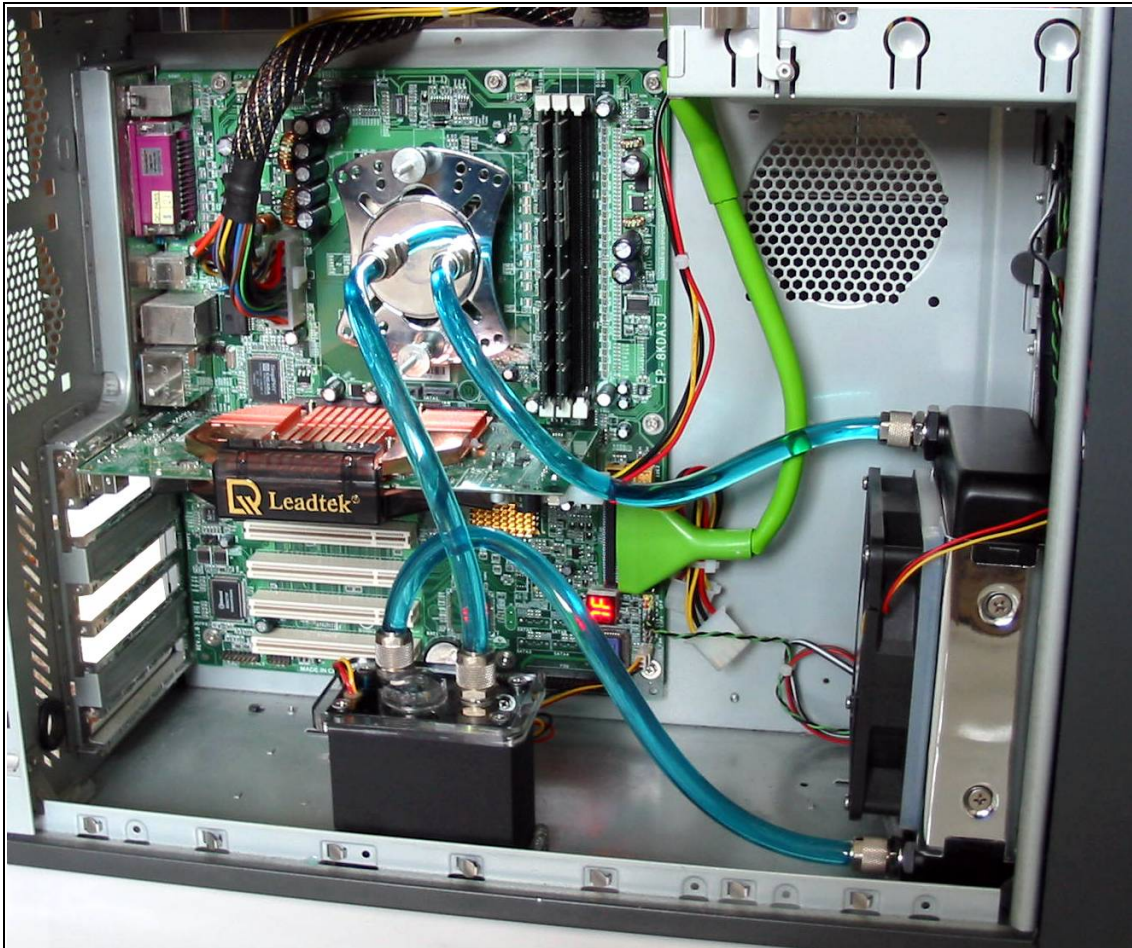


3.7 - Final Installation

Once the CPU water-block is in place you are ready to re-install the radiator and pump into your case. Please take care not to put unnecessary force on the tubing connectors while moving the components.

Finally connect the fan and pump to the 3pin headers on the motherboard or to a 4 pin molex connector using the provided adapters.

Once all the components are secured in place, your system is ready for use.



4.1 - Maintenance

To ensure correct operation after installation it is recommended that you do the following:

- Inspect the system for leaks on a regular basis
- Check the water level regularly and top up in necessary
- Drain the system and replace the liquid every 8-12 months
- Keep tubing out of direct sunlight
- Only use in enviroments between 0C and 40C
- Remove dust from the radiator to avoid loss of airflow

5.1 - Frequently Asked Questions

Most questions can be answered by thoroughly reading this manual. If your question can not be answered by the suggestions below or the installation guide please contact [XSPC](#) or your retailer

Question	Answer
I have bubbles in the water, how do I get rid of this.	The bubbles in the water will usual leave the system within 24hours.
	Shutting down and leaving the the bubbles to settle before restarting can help.
My pump is making a noise	Check your water level. If the water level drops air will get into the pump.
	It is normal for some noise upon startup but this will fade quickly.
<i>My CPU temperature seems high what could be wrong ?</i>	1. Check the pump is running.
	2. Make sure the airflow to the radiator is not restricted.
	3. Double check all of the air has been removed from the radiator.
	4. Inspect the tubing for kinks and twist which may restrict flow.
	5. Remove the CPU waterblock, re apply thermal paste and re-mount the block.
Can I use tap water to fill the system?	No tap water can contain impurities which may cause a build up inside the components.
	You are advised to use de-ionized water mixed the provided additive
Where can I buy de-ionized water	Most supermakets and car maintanace shops will sell it. It is commonly used for filling Irons and topping up car batteries.
Water is leaking from the connectors	This is caused by incorrect installation. Drain the system and reconnect the tubing.
Water is leaking from the radiator, CPU block or pump.	In the highly unlikely event of a leak from one of the components drain the system and contact your retailer.



6.1 - Disclaimer

The X2O liquid cooling system is sold as a DIY kit. You are responsible for correct installation and maintenance of this equipment. XSPC will not be held responsible for any loss of property/data or personal harm caused by the improper use or installation of this equipment.

The components in this kit are supplied with a 12 month warranty against failure. This excludes consumable items such as tubing, water-additives and thermal paste. This also excludes failures which are a direct result of improper use.

7.1 - Support Contact Information

UK and Mainland Europe

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