



H2O-80™

(rev. 3)

LIQUID COOLING KITS

TUTORIAL & INSTALLATION GUIDE

These instructions are updated on a regular basis. Please visit our web site at
http://www.swiftnets.com/Products/installation_guide_h20-80.pdf

Packing List
Included components per applicable model:

H20-80-FB ☐ **H20-80-SB** ☐ **H20-80-DB** ☐ **H20-80-BB** ☐

H20-80-FK ☐ **H20-80-SK** ☐ **H20-80-DK** ☐ **H20-80-BK** ☐

Description	Product Code	Description	Product Code
Intel® Pentium® 4 socket 478 & AMD® Athlon® 64 & Opteron®	F	Intel® Pentium® 4 socket LGA775 & AMD® Duron®, Athlon®, MP, XP socket 462	S
Dual Intel® Xeon™ (toutes versions) / AMD® Opteron®	D	Base kit without water-block	B
ROYAL BLUE	"B"	BLACK	"K"

Product Code	Qty	Item	Product Code	Qty	Item
F	1	MCW6000™ "Flat base" CPU water-block with 2'each pre-installed inlet/outlet tubing	F,S,D,B	1	MCR80-F2™ radiator assy. incl. (1) Radiator, (1) 80x80x25mm fan, (1) fan guard, (4) #6 x 1 ¼" screws, (4) #6 x 3/8" screws, (2) 7/32-5/8" quick-connect fittings
D	2				
S	1	MCW6000™ "Step base" CPU water-block for 2'each pre-installed inlet/outlet tubing	D	1	MCR80-F2™ radiator assy. incl. (1) Radiator, (1) 80x80x25mm fan, (1) fan guard, (4) #6 x 1 ¼" screws, (4) #6 x 3/8" screws, (2) 7/32-5/8" quick-connect fittings
S	1	Hold-down plate and retention clips for AMD® K7 processors (Duron®, Athlon® MP and XP)	F,S,D,B	1	MCP350™ 12 Volts DC industrial pump with retention screws, 2 ft each pre-installed inlet & outlet tubing (3/8" ID)
F	1	Hold-down plate and retention hardware for AMD® K8 processors (Athlon® 64 and Opteron)	F,S,D,B	1	MCRES-525™ incl. (1) reservoir, (2) 3/8" barbs, (1) port plug, (1) fill-cap, (4) screws
D	2				
F	1	Hold Down plate and retention clips for Intel® Pentium® 4 processors socket 478 (also use this retention plate with All Xeon processors, and some MSI Opteron motherboards)	F,S,D,B	1	40" length Coolsleeves™ clear coils
D	2				
S	1	Hold Down plate and retention hardware for Intel® Pentium® 4 LGA775 processors	F,S,D,B	1	4 Feet ½" OD high quality vinyl tubing
D	2	Retention hardware for Xeon socket 603/604 (400 & 533Mhz FSB) processors	F,S,D,B	1	2 oz bottle HydrX™ specially formulated coolant
D	2	Retention hardware for Xeon "Nocona (800Mhz FSB) processors			

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Preamble

Congratulations on your purchase of a Swiftech liquid cooling system!

This kit has been designed to facilitate the installation of the components with no modifications required to the chassis. It is however intended for advanced users, well versed in installing computer components. Please read the entire guide prior to beginning installation.

General guidelines

- ❑ Never work with electricity connected to the computer while work is in progress.
- ❑ While it is possible to install the kit in a chassis already populated with all typical components, such as hard drive, CD Rom, power supply, etc, it is always preferable and easier to work on a “naked” case, removing both side panels, front bezel, and top panel.
- ❑ Plan your installation ahead. Observe the relative position of the components for possible interference with other components. Examples: will the pump interfere with a hard drive? Will the radiator interfere with the installation of the CPU cooler?
- ❑ Think about the airflow inside your chassis. In liquid-cooling environments, **it is always better to draw fresh air from the outside through the radiator, as opposed to using the warm air from inside the computer.**

IMPORTANT DISCLOSURES

While all efforts have been made to provide the most comprehensive tutorial possible, Swiftech assumes no liability expressed or implied for any damage(s) occurring to your components as a result of using Swiftech cooling products, either due to mistake or omission on our part in the above instructions, or due to failure or defect in the Swiftech™ cooling products.

WARRANTY

Our products are guaranteed for 12 months from the date of delivery to the final user against defects in materials or workmanship. During this period, they will be repaired or have parts replaced provided that: (I) the product is returned to the agent from which it was purchased; (II) the product has been purchased by the end user and not used for hire purposes; (III) the product has not been **misused**, handled carelessly, or other than in accordance with any instructions provided with respect to its use. This guarantee does not confer rights other than those expressly set out above and does not cover any claims for consequential loss or damage. This guarantee is offered as an extra benefit and does not affect your statutory rights as a consumer.

I. TUBE ROUTING

The following table contains examples on how to establish connections between the different elements of a cooling circuit based on multiple possible configurations. This table assumes that the reservoir is positioned at the uppermost position in the computer, and that the pump is located at the lowermost location.

These are guidelines only, and may change depending on the relative position of the components inside your chassis.

Devices: (1) CPU Cooler + (1) Radiator + Pump + MCRES-525 – Most common						
Reservoir discharge to pump inlet	Pump discharge to CPU cooler inlet	CPU cooler discharge to radiator inlet	Radiator discharge to reservoir inlet – Loop completed			
Devices: (1) CPU Cooler + VGA cooler + (1) Radiator + Pump + MCRES-525 – Very frequent						
Reservoir discharge to pump inlet	Pump discharge to VGA cooler inlet	VGA cooler discharge to CPU cooler inlet	CPU cooler discharge to radiator inlet	Radiator discharge to reservoir inlet – Loop completed		
Devices: (1) CPU Cooler + VGA cooler + Chipset cooler + (1) Radiator + Pump + MCRES-525 - Frequent						
Reservoir discharge to pump inlet	Pump discharge to VGA cooler inlet	VGA cooler discharge to Chipset cooler inlet	Chipset cooler discharge to CPU cooler inlet	CPU cooler discharge to radiator inlet	Radiator discharge to reservoir inlet – Loop completed	
Devices: (1) CPU Cooler + VGA Cooler + Chipset Cooler + (2) Radiators + Pump + MCRES-525 – Frequent						
Reservoir discharge to pump inlet	Pump discharge to VGA cooler inlet	VGA cooler discharge to Chipset cooler inlet	Chipset cooler discharge to CPU cooler inlet	CPU cooler discharge to Y connector for PARALLEL connection to both radiator inlets	Dual Radiator discharges to Y connector to reservoir inlet – Loop completed	
Devices: (2) CPU Coolers + VGA cooler + Chipset cooler + (2) Radiators + Pump + MCRES-525 – Less frequent						
Reservoir discharge to pump inlet	Pump discharge to VGA cooler inlet	VGA cooler discharge to Chipset cooler inlet	Chipset cooler discharge to CPU #2 cooler inlet	CPU #2 cooler discharge to CPU #1 cooler inlet	CPU #1 cooler discharge to Y connector for PARALLEL connection to both radiator inlets	Both radiator discharges to Y connector to reservoir inlet – Loop completed

II. Installation of the cooling components

The following is a typical sequence of components installation. Placement of the cooling components may vary depending on your chassis and motherboard configurations. A **mock-up installation** is thus necessary to estimate the length of the different sections of tubing that will be required between each component.

1. MCR80-F2 Radiator installation

The radiator/fan assembly fits into any exhaust opening designed to receive a 80mm case fan. Depending on the case design, the assembly will either fit straight up (inlet and outlet up), or may need to be rotated 90° as shown below:

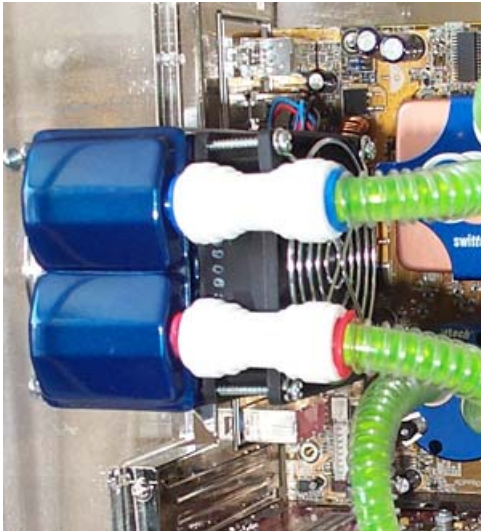


Figure 1

Please refer to the separate [installation guide](#) provided with the MCR80-F2 radiator assembly to fasten the radiator to the chassis (also see appendix).

2. Water-block(s) Installation

When provided in kit form, the MCW6000 series water-blocks receive 2 ft. of pre-installed tubing at the inlet and outlet. In dual processor kits, one of the water-blocks inlets is free of tubing so that water-blocks may be installed in series.

Locate the installation guide for your particular model in appendix, and follow the instructions to secure the water-block(s) to the motherboard.

TIP! For the mock-up installation, interposing a piece of paper between the water-block and the processor will protect both the cooler and the processor surfaces.

3. MCP350 Pump installation

Preferable position of the pump is at the bottom of the chassis. However, the pump can operate in any position. For optimum safety, the pump can be bolted to the chassis. **TIP!** Do not peel-off the protective sticker until you are satisfied with the position of the pump, as subsequent removal is destructive to the foam gasket.

When provided in kit form, the MCP350 pump comes with 2 ft. of pre-installed 3/8" ID tubing at the inlet and outlet. Identify the pump inlet (the pump barb that does NOT have an arrow), and make sure to connect this tube to the reservoir discharge barb (the single barb located on the stepped down compartment of the reservoir). This is essential for proper operations.

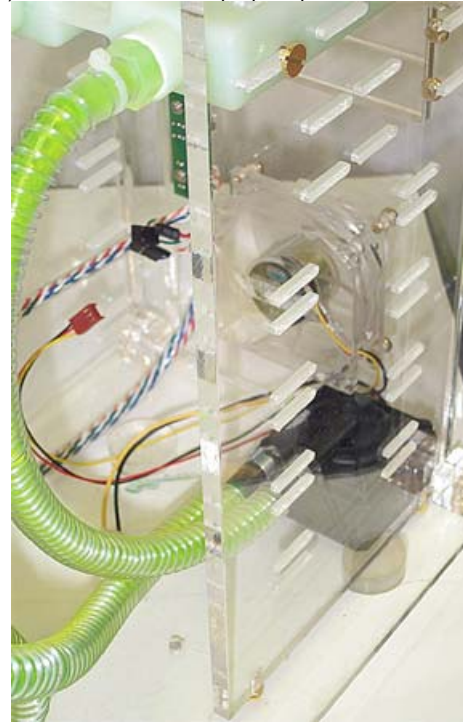


Figure 2

Please refer to the separate [installation guide](#) provided in appendix for specific information regarding the installation of the pump.

4. MCRES-525 reservoir installation

Install the MCRES-525 reservoir in the desired 5 1/4" bay, following the [installation guide](#) located in appendix.

Uppermost drive bay is preferred, but not mandatory. Remember when you fill-up the system that your circuit responds to the principle of communicating vessels. If the radiator for example is higher than the reservoir, the level of fluid in the devices will want to equalize, so you will need to hold the reservoir higher than the radiator while filling it up so that it doesn't overflow, then close the fill-cap, then secure the radiator in the desired bay.

Position the reservoir so that it protrudes approximately 1 1/2" outside of the case. Measuring the length of tube needed in this position will give sufficient slack in the line so that you can pull the reservoir enough to fill-it-up during maintenance operations.

5. Cutting the tubing, & connecting components

Now that your mock-up installation is in place, it is time to cut segments of tubing and connect the devices together.

In addition to the water-block pre-installed tubing, your kit comes with an additional 4 feet of 1/2" OD tubing which is normally sufficient to accommodate most configurations, including dual processors.

Your kit also comes with a 40" length of Coolsleeves™ coils which, when extended is sufficient to cover 6 feet of tubing. Use of these coils is mandatory in order to prevent kinking and flattening of the tube over time.

- ❑ Start by wrapping the included Coolsleeves™ coil around the 4-foot piece of tube. Leave yourself enough Coolsleeves to wrap the water-block(s) pre-installed tubing.

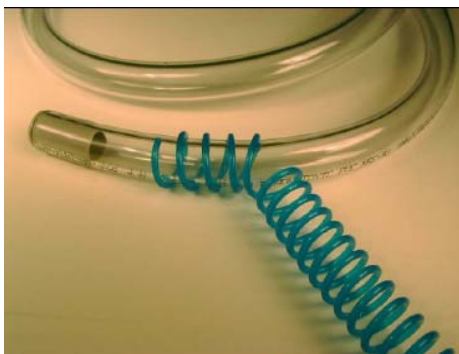


Figure 2
Wrap Coolsleeves™ around tubing

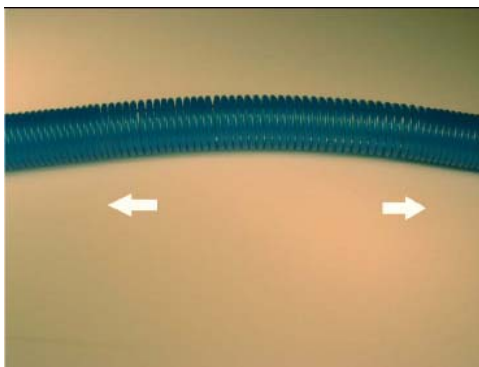


Figure 3

Gather Coolsleeves™ towards the center of the tubing, then pull on the ends of the tubing. This will allow Coolsleeves™ to expand to its natural pitch. Tight radii sections require that coils be close to each other (1/8" spacing coil to coil). In straight sections, coils can be spaced up to 1/4" or more, coil to coil

- ❑ Then, with one end of a tube connected to a startup component such as the water-block for example, roughly estimate the length that you will need to the next component, and cut the tube and coil squarely with a pair of scissors. Work your way through the entire circuit in the same fashion, until you are satisfied with the tube routing.
- ❑ Quick-connect fittings: If you are going to a component featuring a quick-connect fitting, make sure to allocate approximately 3/4" of tube to go into the fitting, and install a tube insert (shown below) at the extremity of each tube.



TIP! Rubbing the extremity of the tube with a little bit of liquid soap will greatly facilitate insertion of the tube into a quick-connect fitting.

- ❑ When attaching the tube to a quick-connect fitting, rollback the coil by a couple of inches, as this will give you a better grip onto the naked tube to insert the tube into the fitting. The tube will go in freely for the first 1/4" and you will then feel a resistance: this is the O-ring inside the fitting. Push *through* the O-ring by twisting the tube back-and-forth for another 1/2" until the tube reaches the tube-stop at the bottom of the fitting. The tube is properly installed once the visible extremity of the tube insert is flush with the face of the quick-connect fitting. Then bring the coil back to the face of the fitting.
- ❑ Once everything is connected, you should then adjust the Coolsleeves coil spacing: adjust to a wide space between each coil (up to 1/4" or more if needed) when the tube is straight, and very close to each other in tight bends (approximately 1/8" of an inch or less).
- ❑ With everything in place, carefully double-check each connection. If it all looks tight and secure proceed to the next step.

TIP! Verify that each cooler will 'hang' naturally in very close to its mounted position. If the stiffness of the tubing, or the tight radius of the necessary bend, will not permit such, then it may be necessary to externally support the tubing: typically some strategically placed cable ties will facilitate this restraint. This precaution is particularly important with AMD® K7 class processors, but less so with Intel® Pentium® 4, Xeon, or AMD® K8 class processors.

6. Preparing the coolant

Your kit comes with a 2 Oz (60ml) bottle of Swiftech's specially formulated HydrX™ concentrated coolant. The product should be mixed with distilled or demineralized water only. Simply empty the concentrated coolant into a 33 fl oz (1 liter) plastic bottle, and complete filling with your distilled water. Your coolant is ready.

7. Filling up the circuit

Please refer to the MCRES-525 installation guide in appendix for specifics on how to fill-up the system. In this paragraph, we will discuss safety measures.

It is good practice to pre-test that your system is liquid-tight away from sensitive electronic components. Two strategies can be employed:

- Dismount all the components that you installed in the mock-up, and fill-up your system outside of the case, or
- Remove motherboard, VGA adapter, hard drives and CD Rom (if any), from the chassis, which is our preferred solution.

In either case, you will need to start-up your pump in order to completely fill-up the system. Since your MCP650 is a 12Volts pump feeding off the computer power-supply, you must be able to start the PSU without it being connected to the motherboard. While the Internet is full of references on how to short-out pin 14 and 15 of the ATX connector to start up the PSU independently, we really do not recommend this method. The safe and proper method to start-up the PSU independently is to use a power-supply tester. A wide variety of these common devices is available on the Internet (google key word: "PSU tester"), and among Swiftech resellers (www.frozencpu.com, www.Directron.com, www.newegg.com etc..)

8. Final installation

Once your system has been tested for leaks, it is now time to proceed with the final installation. Assuming that you followed our [preferred method](#), re-install the motherboard inside of the chassis, being careful to keep the water-blocks out of the way (some wire-ties or rubber bands strategically placed are a good help). Then perform the final water-block installation using thermal grease, in accordance with your specific water-block model installation guide (see appendix).

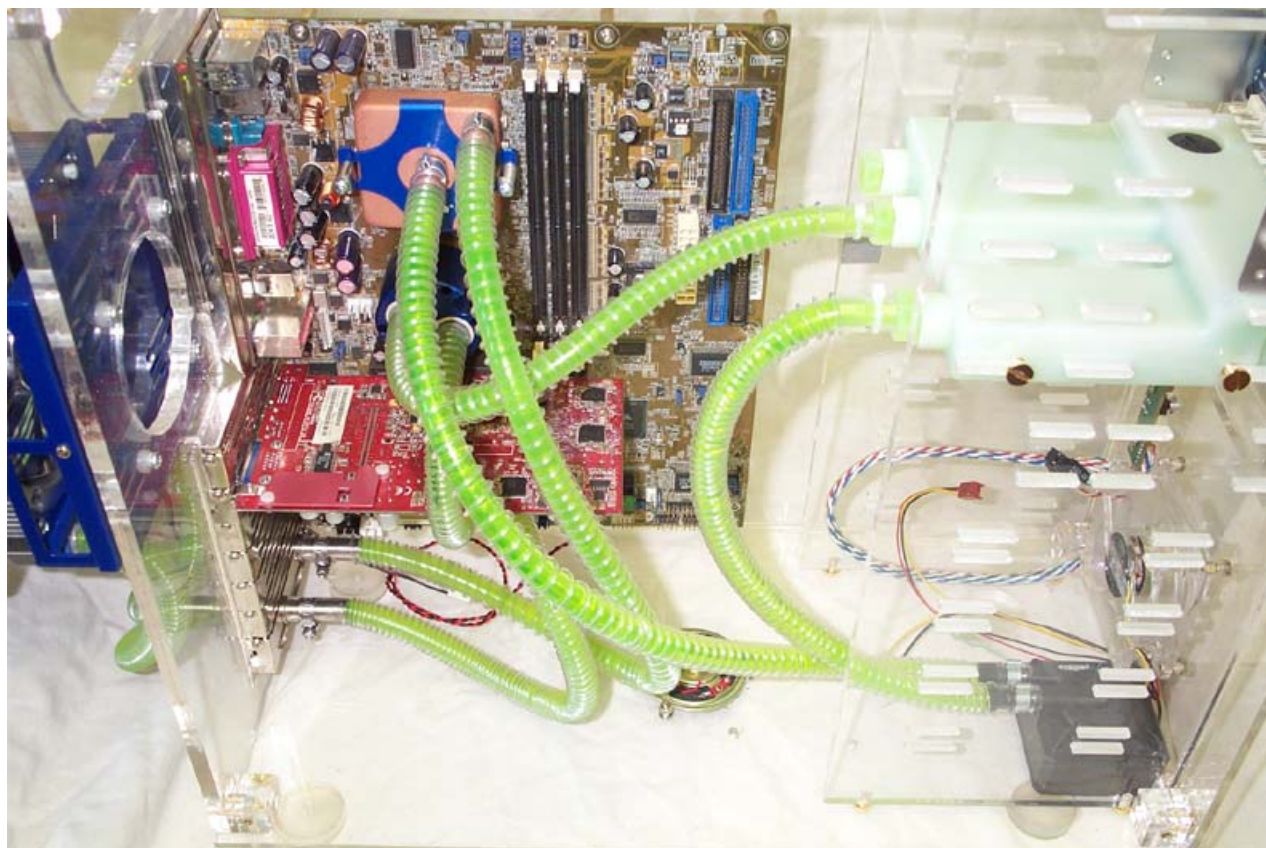


Figure 4

Figure 5 an installation using the MCRES-525 reservoir, MCP350 pump, MCW6000-A water-block, MCW20 chipset cooler, MCW50 VGA cooler, and MCR120 radiator mounted externally with the MCB-120 "Radbox"

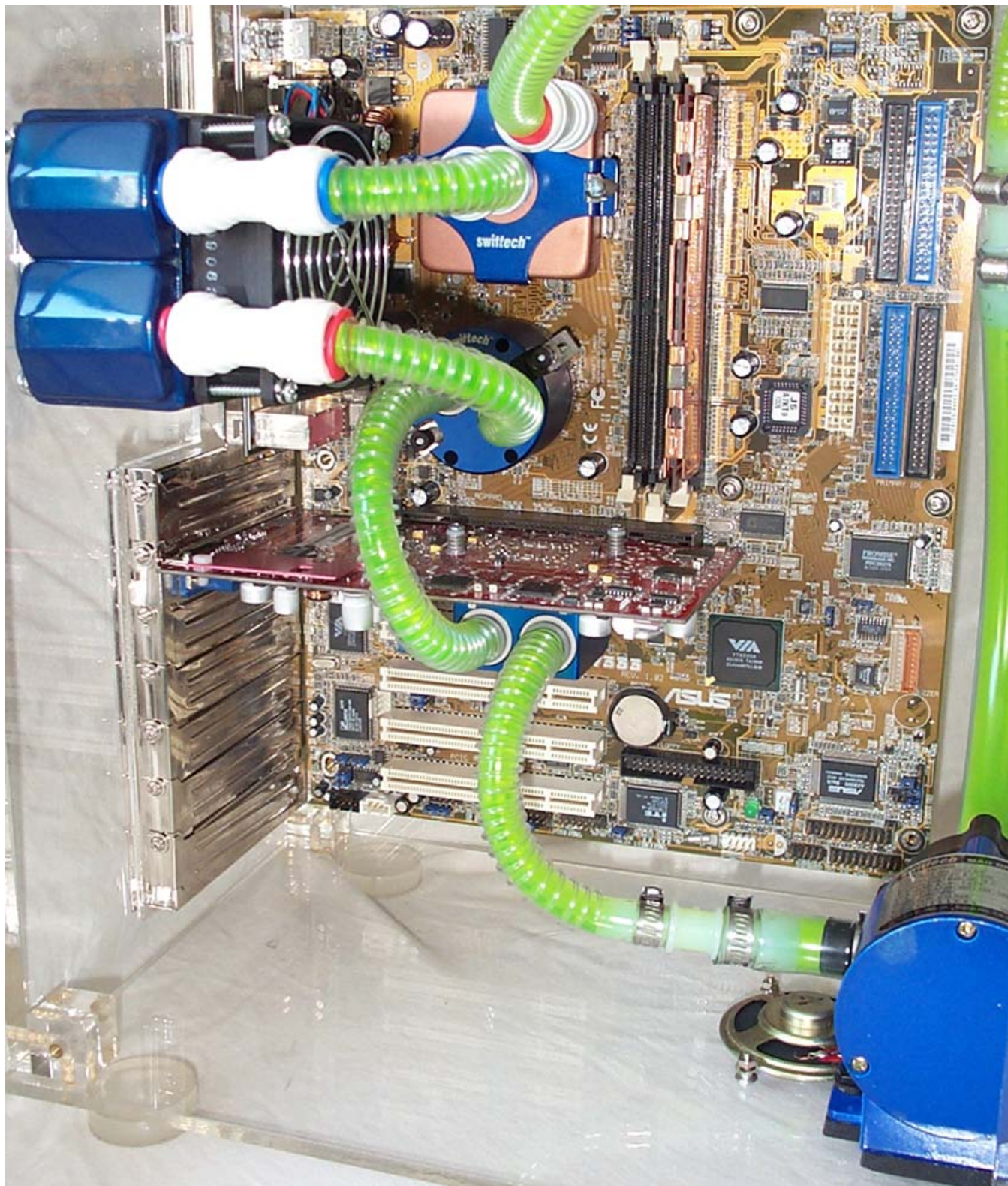


Figure 6

Figure 6 above illustrates a final installation, showing the MCR80-F2 radiator in place, the MCW6000 CPU cooler, the MCW50 VGA cooler, the MCW20 chipset cooler, and an earlier MCP600 pump. Notice how the Coolsleeves coils allow tight bends, keeping a "clean" uncluttered arrangement of the circuit. In this particular chassis, the radiator is positioned slightly lower relative to the CPU. As a result, we installed the components in the following sequence: VGA cooler -> Chipset cooler -> Radiator -> CPU cooler.

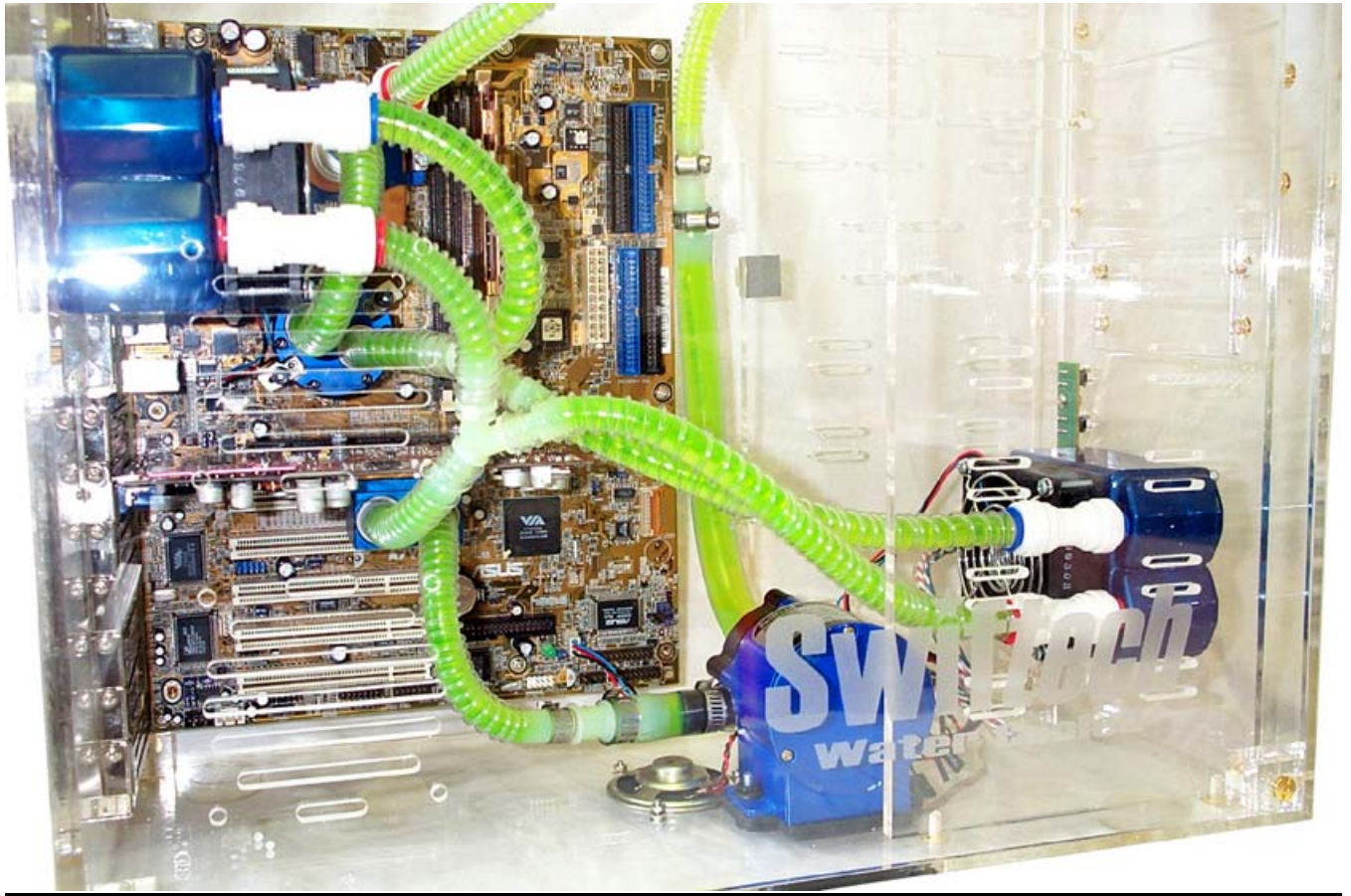


Figure 6a

Figure 6a shows a dual radiator setup. This particular setup was chosen to illustrate how to overcome the apparent difficulty of connecting two radiators located opposite to one another in a chassis: one radiator in the back, and one radiator in the front. Such chassis configuration is among the most commonly found in today's mid-tower cases.

Notice how the radiators are setup in a parallel connection: from the MCW50 VGA cooler discharge, the tube is split into two sections, using a Y connector. Each branch of the "Y" is then connected to each radiator inlet. Then the radiator discharge tubes rejoin into another "Y" connector which goes to the MCW20 chipset cooler inlet, thus resuming the circuit. In this particular example, the sequence in which components are connected to one another was chosen purely for convenience in tube routing, and dictated by the respective positions of these components.

From a performance standpoint there is very little performance to be gained from strictly controlling the component sequence: the maximum delta T (difference in temperature) between any two points of the liquid cooling circuit does not exceed 1°C. Whenever possible, performance oriented users will typically want to route the radiator discharge(s) tube(s) to the inlet of the CPU cooler, since the fluid exiting the radiators is always the coolest.

III. Draining the system

- ❑ You will need to disconnect a line from one of the lowermost components. Procure a bucket large enough to receive approximately 1 liter of fluid, and place the bucket underneath the connection that you intend to "break". Disconnect the line, and place both ends into the bucket.
- ❑ Open up the fill-cap from the MCRES-525. This will allow most of the fluid to escape.
- ❑ A cleaner and much more convenient method consists in incorporating a drain assembly into the circuit during initial installation. See [TV500](#) drain assembly below.

IV. Periodic maintenance

- ❑ Every 6 months: dust off the radiator fins and fan. You can use a can of compressed air for example, available in most electronic supply stores. If you live in a very dusty area, you should perform this task at closer intervals. It is essential to maintain the optimum performance of your cooling system.
- ❑ Inspect the level of liquid inside the circuit, and refill if necessary. Evaporation in this closed circuit is extremely limited, but still present due to permeability in the vinyl lines.

Available accessories

Improve performance with a second radiator:
MCR80-F2 Radiator assembly



Part # MCR80-F2, includes radiator, 80mm fan, retention screws, fan guard, quick-connect fittings

VGA Cooling

Please go to:

<http://www.swiftnets.com/products/mcw50.asp> for specifications



Part # MCW50

TV500 Drain assembly

1/2" (Tube OD) Flush Assembly, including 1/2" Tube quick-connect T, and 1/2" quick-connect ball valve. A useful accessory for users who empty their system often. Can also be used as a fill T (without reservoir).



Chipset Cooling

Please go to:

<http://www.swiftnets.com/products/mcw20.asp> for specifications



Part # MCW20

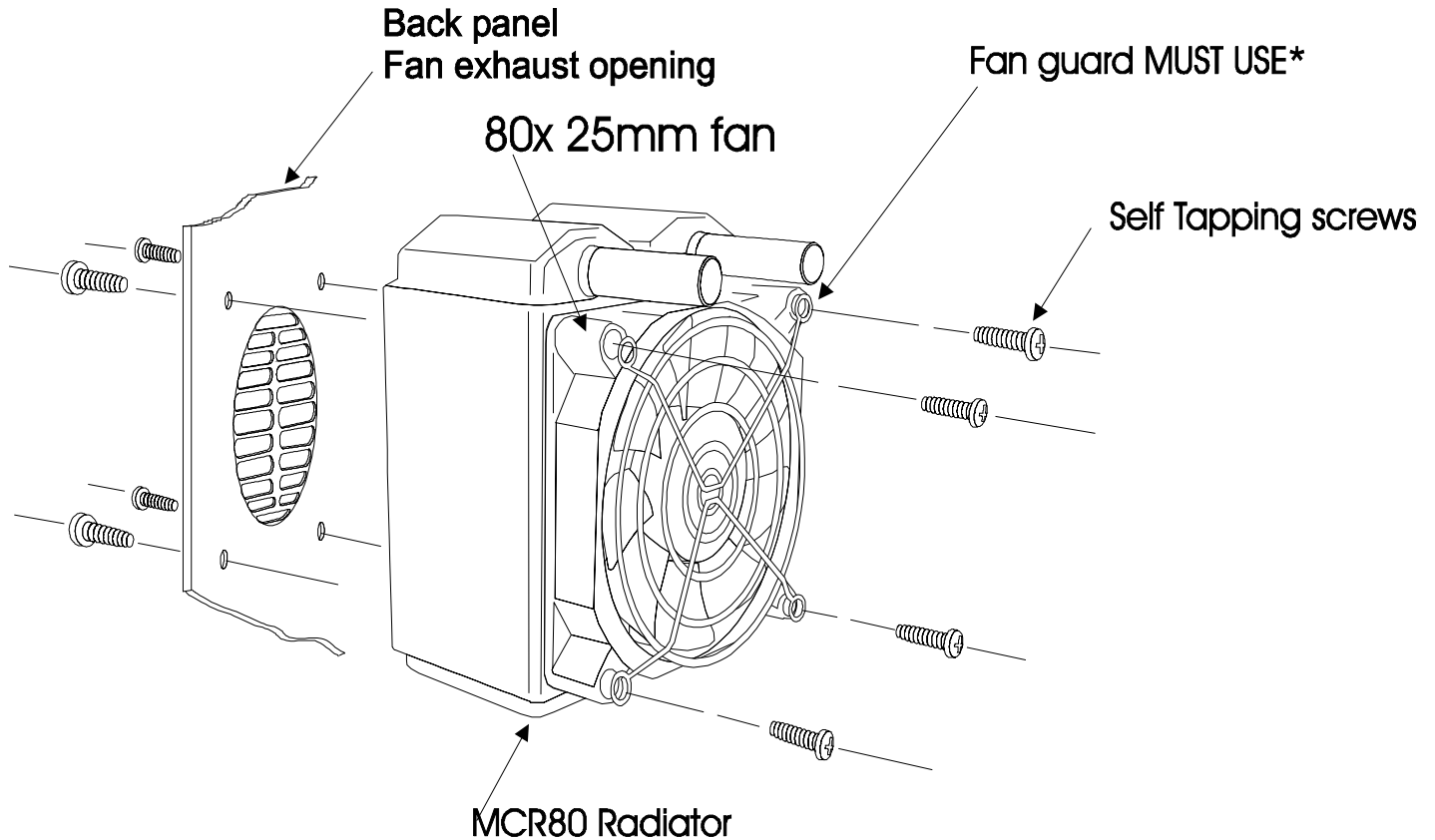
For service, support, or questions: please contact us at the address below

Appendix: Individual Component Installation guides

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MCR80-F2™ RADIATOR

MCR80 radiator	1	80mm fan guard	1
#6 X 1 1/4" Philips screw type B	4	80x80x25mm fan	1
#6 x 3/8" Philips screw type B	4	Quick-connect fittings	2
Tube inserts	2		



*Note of caution regarding the inlet/outlet side of the radiator:

The fan guard **MUST BE INSTALLED** when using the provided self-tapping screws. It is necessary to allow sufficient clearance between the tip of the screws and the radiator core. **Failure to use the fan guard will systematically result in permanent damage to the radiator**, as the screws will otherwise punch a hole in the core channels. Users are advised that such damage is not covered under our warranty.

Likewise, if fans other than the provide 80x80x25mm fans are installed, users should carefully check the clearance remaining between the retention screws and the radiator core.

As shipped, the MCR80-F2 has the fan pre-installed in a conventional manner (exhaust). It is nonetheless possible to configure the fan for intake. In effect, we have found that blowing fresh air coming from outside of the chassis through the radiator lowers CPU temperatures. If you prefer such configuration, simply remove the fan from the radiator, attach it to the chassis first, (fan label facing the inside of the chassis), then re-attach the radiator to the fan. The fan guard will no longer be necessary in this particular configuration, unless you were to punch out the chassis fan opening (louvers) to improve airflow, in which case the fan guard would add a nice finishing touch to your fan opening.

Quick-connect fittings installation and use:

Your radiator ships with two quick-connect union fittings (3/8" tube OD to 1/2" tube OD). The 3/8" side of the fitting goes on the MCR80 radiator inlet and outlet tubes. The 1/2" side of the fitting is used to connect hoses from your circuit. Notice that the body of the fitting has been flattened on the 3/8" side. This flat section provides clearance for the fan, and should be oriented towards it. The fittings also feature color-coded collets. While these are purely conventions, you would typically install the red collet (warm water) on the inlet side of the radiator, and the blue collet (cool water) on the discharge side.

Using quick-connect fittings:

If you are using soft vinyl tubing, you must also use the provided tube inserts:



TIP! Rubbing the extremity of the tube with a little bit of liquid soap will greatly facilitate insertion of the tube into the quick-connect fitting.

Tube insertion

Insert the tube into the quick-connect fitting. The tube will go in freely for the first $\frac{1}{4}$ " and you will then feel a resistance: this is the O-ring inside the fitting. Push *through* the O-ring by twisting the tube back-and-forth for another $\frac{1}{2}$ " until the tube reaches the tube-stop at the bottom of the fitting. The tube is properly installed once the visible extremity of the tube insert is flush with the face of the quick-connect fitting.

Tube removal:

The collets of our radiator quick-connect fittings feature two little "ears", which ease the removal process: firmly hold the tube in the cradle formed by three fingers, and push against the ears with thumb and index fingers. This will disengage the tube from the fitting. Correct position of the hand and fingers is shown in the picture to the right:



2. Radiator specifications:

- ❑ Height: 4.1" (104.8mm); Width: 3.25" (82.5mm); Depth: 3.2" (81.6mm)
- ❑ 2-pass 80 mm radiator specifically developed for PC CPU and VGA liquid cooling
- ❑ Double-row high internal volume design 80 mm (3 inch) Copper core consisting of flat tubes for maximum heat conductivity
- ❑ High-density copper fin configuration for enhanced heat dissipation Tested in our labs and rated for 100 Watts with a 15°C coolant temperature rise. 3/8" OD inlet and outlet for use with 3/8" ID tubing.

3. Fans specifications:

Part #	Voltage (V)	Current (mA)	Revolution (RPM)	Volume (CFM)	Max Static pressure (InH2O)	Sound Noise (dBA)
AFB0812M	12	180	2700	31.4	.129	28

MCP350™ Installation guide

1. General Use

The MCP350™ pump is a magnetically driven centrifugal pump featuring a 12 V DC brushless motor. It requires no maintenance when used with de-mineralized water and the appropriate anti-fungal additives. We recommend using 5% Swiftech's HydrX™ as an additive. The pump is designed to be connected to your computer power supply using the standard Molex 4 pin connectors.

Effective 1/24/05, the pump features a second wire equipped with a 3-pin connector designed to connect to a motherboard fan header, and to report the impeller rotational speed (RPM sensor).

The MCP350™ pump is not submersible.



2. Physical installation

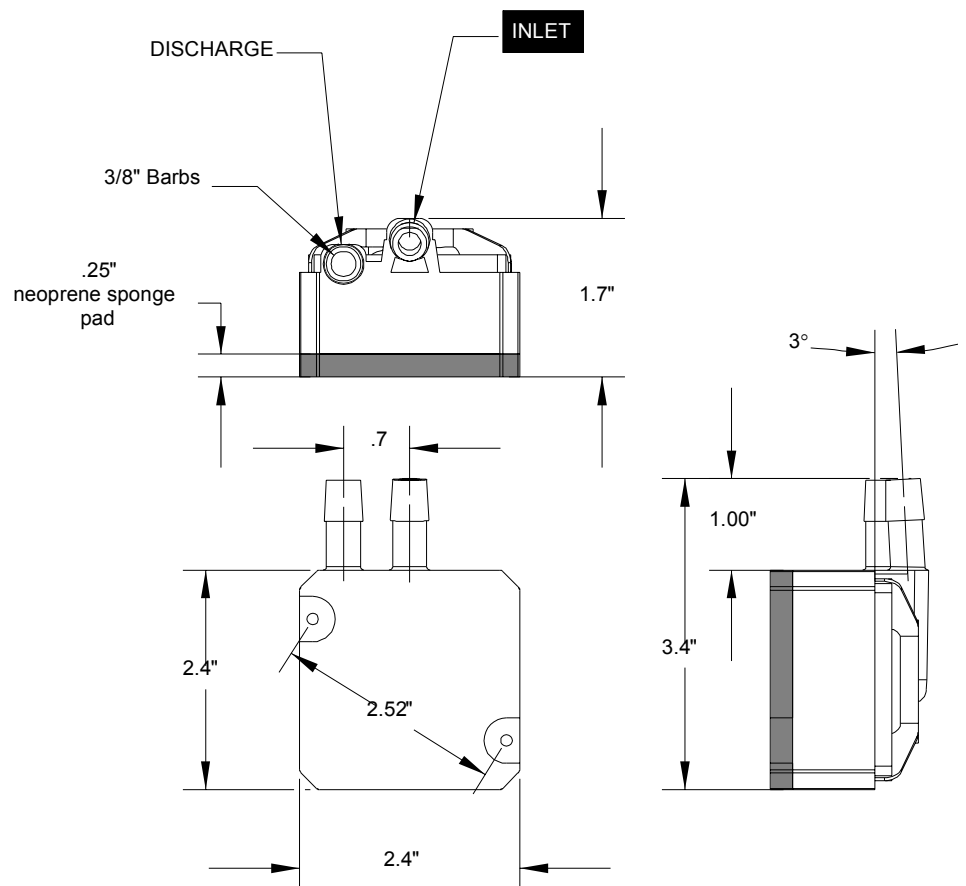
- ❑ Determine the best location for your pump by observing how the tubing will be routed to the rest of the circuit. Sharp bends in the tubing should always be avoided to prevent kinks, which will reduce or completely prevent flow of the cooling fluid.
- ❑ In general, we recommend installation of the pump at the bottom of the chassis.
- ❑ The base of the pump features a soft neoprene pad coated with strong adhesive material. Once an appropriate location for the pump has been determined, simply peel-off the pad's protective paper, and press the pump against the chassis surface. The surface should be clean, and non greasy. Screws & grommets are also provided for permanent installation, and require drilling holes in the chassis (see permanent installation page 2).

3. Pump operating precautions:

The MCP350™ pump should never be run dry, even for a quick test. You should always prime the pump with fluid before you start operating it (see warranty note *). With filled lines, turn the inlet/outlets upward to ensure there is no air bubble in the impeller.

Use of coloring dye or fluorescent additives containing particulate fillers will cause excessive wear to the pump's impeller bearing (see warranty note **).

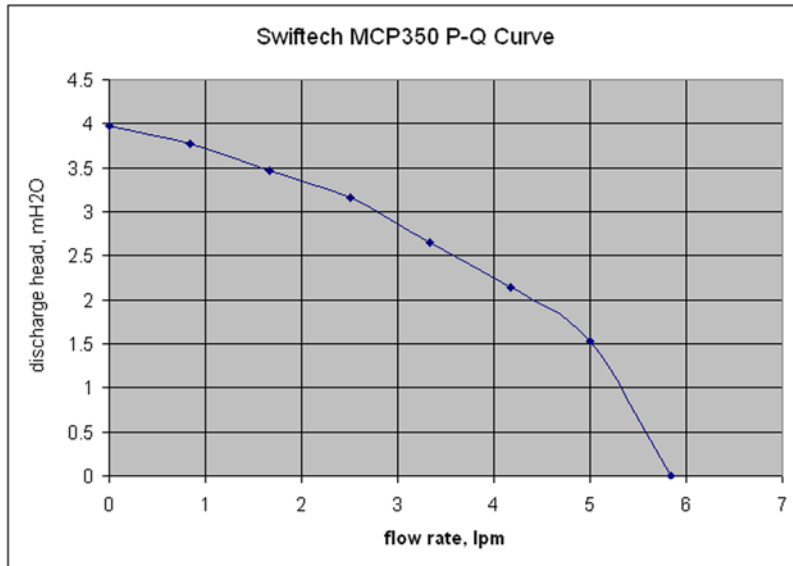
Do not utilize small diameter or flow restrictive fittings in the pump inlet line. Minimum line inner diameter is 3/8". An example would be a reservoir with 1/4" fittings. This may cause the pump impeller to cavitate, lose prime, stop pumping and damage the pump (see warranty note ***).



4. Connecting the pump to the circuit:

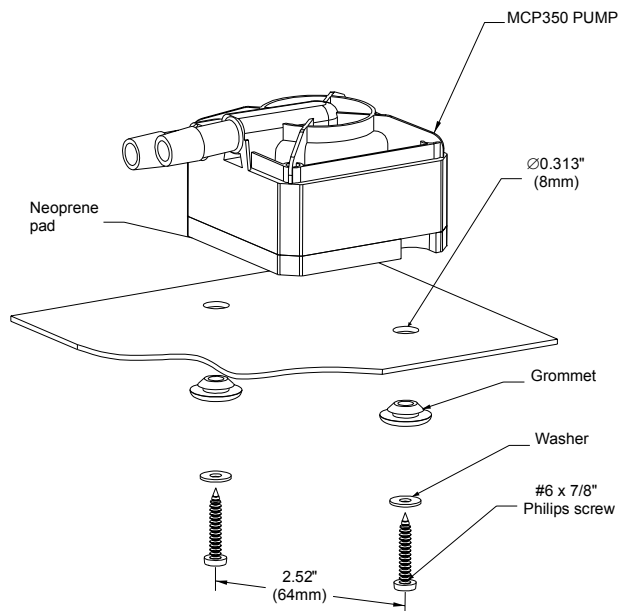
The pump's inlet and outlet are 3/8" in outside diameter. Use with 3/8" ID (1/2" OD) tubing, or 10mm ID (12mm OD) for Europe.

5. Performance & Specifications

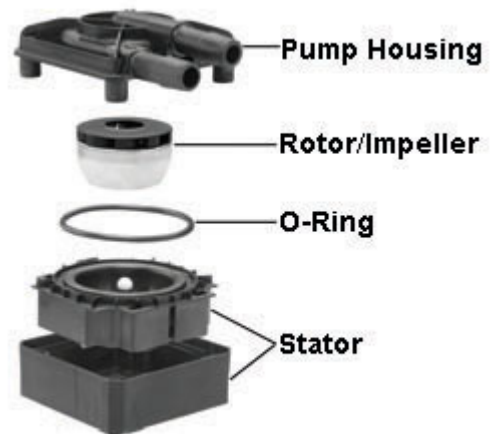


Nominal voltage	12 V DC
Operating voltage range	9 to 13.2 VDC
Nominal power (@ 12 V)	8.3 W
Nominal current (@ 12 V)	.69 amps
Motor type	Electronically commutated, brushless DC, spherical motor
Nominal head (@ 12 V)	13.05 ft (4 m)
Nominal discharge (@ 12 V)	~ 92.4 GPH (350 LPH)
Connection size	3/8" barbs (10mm)
Maximum pressure	22 PSI (1.5 BAR)
Temperature range	Up to 140°F (60°C)
Electrical connector	Molex 4 pin
Weight	7.3 oz (207 gr.)
Our noise measurement (non lab environment)	24 ~ 26 dBA in a quiet room @ 2'
MTBF (Mean Time Between Failures)	50,000 Hours
RPM sensor	3-pin connector

6. Permanent installation to the chassis, and exploded view



Drill two 0.312" (8mm) holes into panel, 2.52" (64mm) apart. Snap grommet into each hole. Tighten the provided screws until the pump neoprene pad is slightly and evenly compressed by approximately 1/8" (2~3mm) or less.



DISCLAIMER: Swiftech assumes no liability whatsoever, expressed or implied, for the use of this product, and more specifically for any, and all damages caused by the use of this product to any other devices in a personal computer, whether due to product failure, leak, electrical shorts, and or electro-magnetic emissions. **WARRANTY:** This product is guaranteed for a period of **24 months** from date of purchase for defects in material, and workmanship. Guarantee consists of replacing defective parts with new or reconditioned parts. Guarantee is considered void in case of **improper use** (*) (**)(***), handling or negligence on the part of user. Original invoice showing date and place of purchase is required for exercise of the warranty. (*) **WARNING: DO NOT ATTEMPT TO RUN THIS PUMP DRY. THIS WILL CAUSE IMMEDIATE AND PERMANENT DAMAGE TO THE PUMP.** (**) **EXCESSIVE WEAR DUE TO INNAPPROPRIATE FLUIDS.** (***) **EXCESSIVE RESTRICTION TO THE PUMP'S INLET**

MCRES-525™ Installation guide

PARTS LIST – BARBED ADAPTERS ARE SOLD SEPARATELY

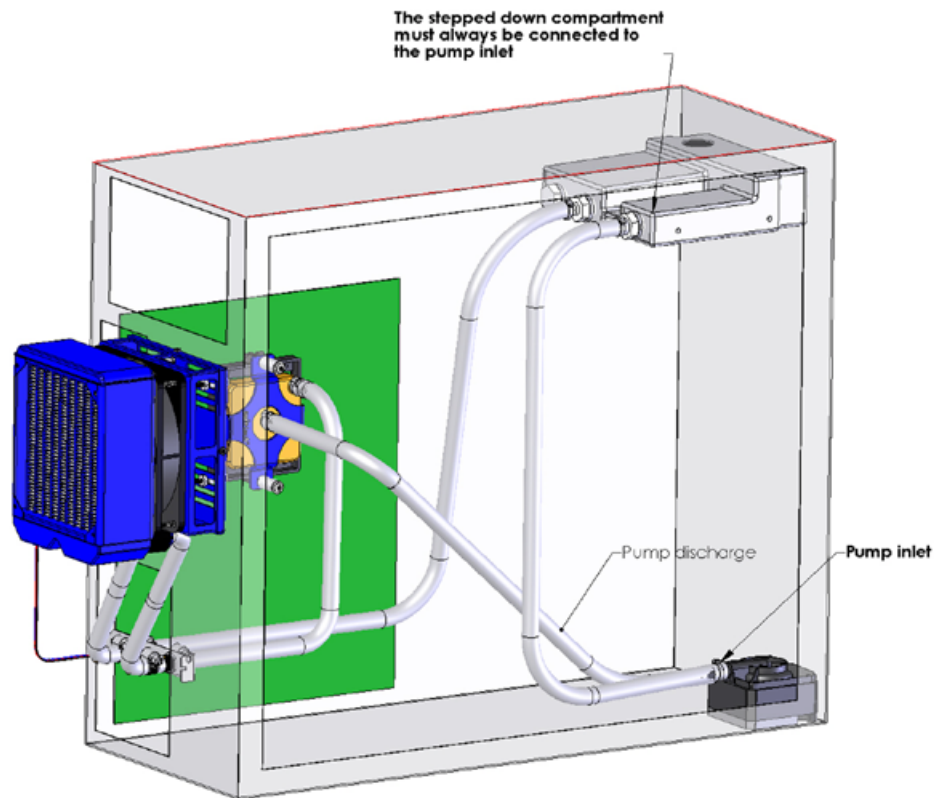
Parts	QTY	PARTS	QTY
MCRES-525™ Reservoir	1	Retention screws	4
Fill-cap & o-ring	1	Port plug	1

This product is intended for expert users. Please consult with a qualified technician for installation. Improper installation may result in damage to your components. Swiftech assumes no liability whatsoever, expressed or implied, for the use of these products, nor their installation. The following instructions are subject to change without notice. Please visit our web site at www.swiftnets.com for updates.

The MCRES-525™ reservoir is designed to be installed in a 5 1/4" drive bay. It features three 3/8" threaded ports (standard NPT thread) to accommodate a number of configurations (see * Swiftech fittings). The port usage is defined as follows:






- ❑ (1) Discharge port located at the "stepped-down" compartment. This port must ALWAYS be connected to the pump inlet for the MCRES-525™ to operate properly.
- ❑ (2) Inlet ports can be used interchangeably: in "single inlet" configuration (the most common), or "dual inlet" configuration when devices are returning to the reservoir in parallel. One port plug is provided to seal one of the inlets in order to accommodate the most common "single inlet" configuration.

The following guide assumes that all liquid cooling components in your system, such as radiator, pump, and water-block(s) have been already installed, and the graphic below shows an overview of a typical installation.



Swiftech Fittings & Spare parts

Important! All fittings (except DP-11) require sealant: plumbers tape, or plumbers goop (preferred)

				
A6-8	A6-6	PI011623S	DP-11	P6N
1/2" barb to 3/8" NPT, for 1/2" Inner diameter tubing (3/4" or 5/8" outer diameter) – Order Separately	3/8" barb to 3/8" NPT, for 3/8" Inner diameter tubing (1/2" outer diameter) – Order separately	3/8" NPT to 1/2" tube (outer diameter) quick-connect fitting – Order separately	Fill-cap & o-ring	3/8" NPT Port plug
			Included	Included

Installation guidelines

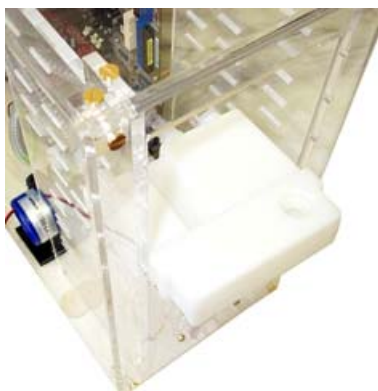


Figure 1: Always leave sufficient slack in the lines to pull enough of the reservoir out of the drive bay and uncover the fill port.

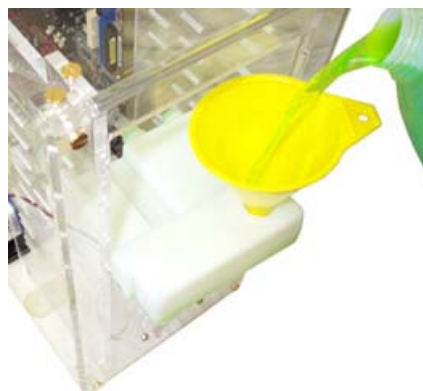


Figure 2: You can start filling up the reservoir while it is in the drive bay, using a household funnel. **Then, start-up the pump and top-off the reservoir as needed.** With this method, you will be able to fill-up the reservoir to its minimum operating level, as shown figure 3.



Figure 3: The minimum operating fluid level is at the mould parting line.



Figure 4: If possible or desired, you can also fill the reservoir outside of the chassis. Tipping it steeply at an angle will allow you to fill-it up at the maximum operating level as shown figure 5. Do not forget to close the fill-cap before you re-install the unit into the drive bay!



Figure 5: Desired (Maximum) operating fluid level



Figure 6: Once full, secure the reservoir to the drive-bay with the provided screws. **Installation is complete!**

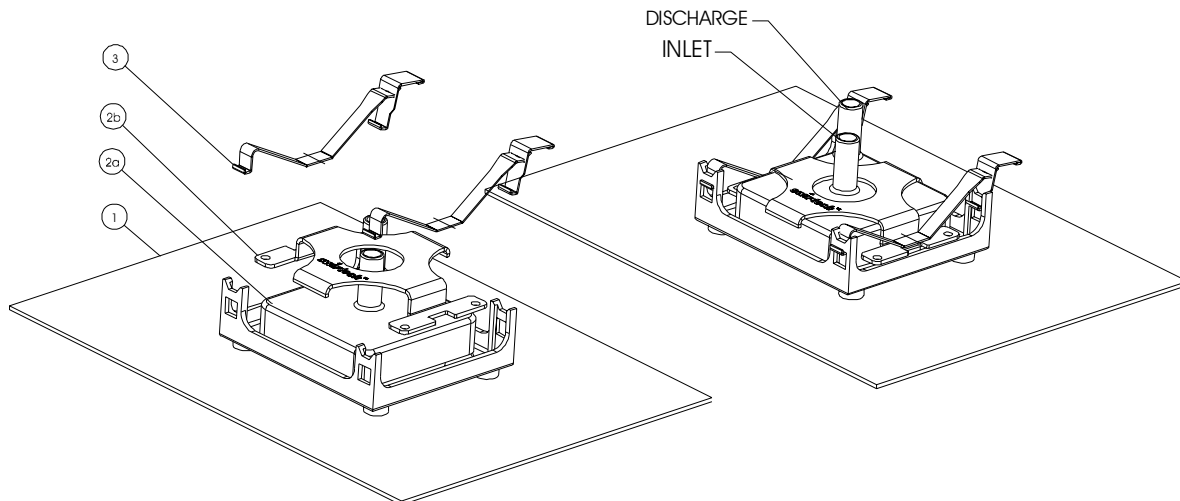
MCW6000-P™ Water-block for Intel Pentium 4 (socket 478)

Installation guide

Parts list

Parts	QTY	PARTS	QTY
MCW6000-P™ water-block	1	Retention clips	2
Worm drive clamps	2	SP4 hold-down plate	1

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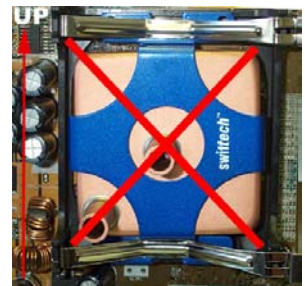
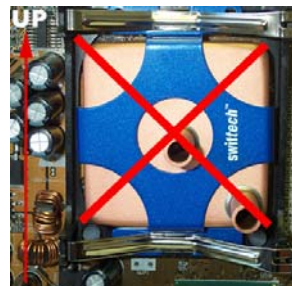
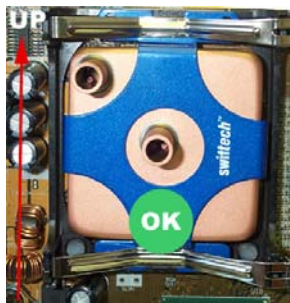
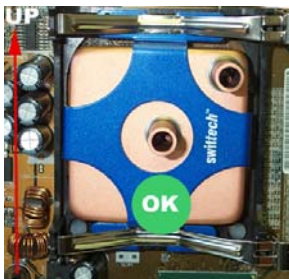
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	S478	Intel Pentium 4 socket 478 motherboard and processor
2	1	MCW6000-P-with-bracket	MCW6000-P water-block assembly
a	1	MCW6000-FLAT	MCW6000 waterblock flat base
b	1	SP4-Bckt	SP4 Hold-down plate for Intel Pentium 4 and Xeon
3	2	SC478	Pentium 4 spring clip

1. Preparing your Motherboard

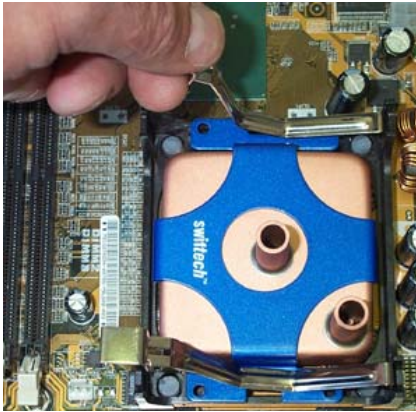
- ☐ Remove the existing heat sink
- ☐ Carefully clean the CPU.
- ☐ Lightly coat the CPU with the included Arctic Céramique thermal compound. Application will vary depending on the type of processor. We recommend visiting <http://www.arcticsilver.com> for detailed instructions.

2. Water-block orientation

For ease of operations during bleeding, the outlet should always be at the highest point (while system is standing upright):

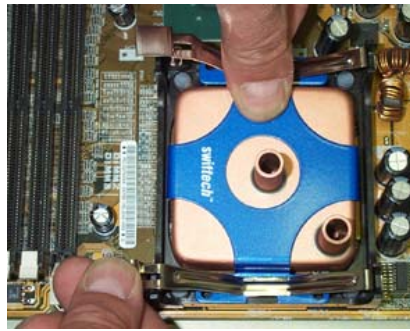


3. Water-block installation:



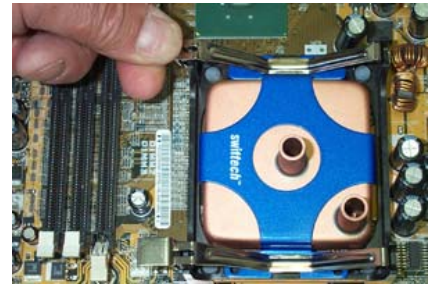
Step 1

Center the water-block inside the retention frame. Put both clips in place for the next step, by simply slipping the hook of each clip into the holes of the retention frame.



Step 2

While maintaining the opposite side of the block to prevent it from tipping over, push down on the clips' thumb-tab until the hook catches the hole in the retention frame.



Step 3

Keep maintaining pressure on the block to prevent it from tipping over, and hook-down the second clip.

Installation is complete!

4. Connecting the water-block(s) to the cooling circuit:

Carefully identify the direction of the flow in your circuit. For the MCW6000 to operate properly, the fitting located at the center of the water-block **MUST BE USED AS THE INLET**.

5. Attaching the tubes:

In kit form, the MCW6000™ ships with 2' of tube already clamped to inlet and outlet. When sold separately, two worm-drive hose clamps are included.



Tubes attached with the included worm-drive clamps

6. Type of Coolant:

Being entirely made of copper, the MCW6000™ may be used with pure water, and does not necessitate the use of anti-corrosion agents. The use of an algacide is nonetheless recommended in any liquid cooling system, and our HydrX™ additive also performs such function.

7. Final inspection:

Once the installation is completed, it is always a good idea to test the circuit for leaks, prior to powering up the computer. **Do not test the water-block using city water pressure.** This will bow the top of the housing and render the block unusable (and will void your warranty).

Maximum pressure allowable for testing is 25 psi (1.7 bar)

MCW6000-775 Water-block for Intel® Pentium™ 4 (LGA 775)

Installation guide

Parts list

Parts	QTY	PARTS	QTY
MCW6000 or 6002-P™ stepped water-block	1	S775 hold-down plate & hardware	1
Worm-drive clamps	2	C��ramique™ Thermal compound	1

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ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	socket 775	LGA 775 motherboard
2	8	FW140X250X0215FB	Black fiber washer
3	1	S775-bracket6	
4	4	6-32-Acorn-nut	
5	1	MCW6000-A	MCW6000 "Stepped base"
6	4	6-32X1.5-8	6-32 x 1 5/8" philips screw
7	4	SPRING6	70927 compressed-to-0337
8	4	6-32-nut	6-32 nut
9	4	12SWS0444	Nylon should washer
10	4	Lock-washer #6	

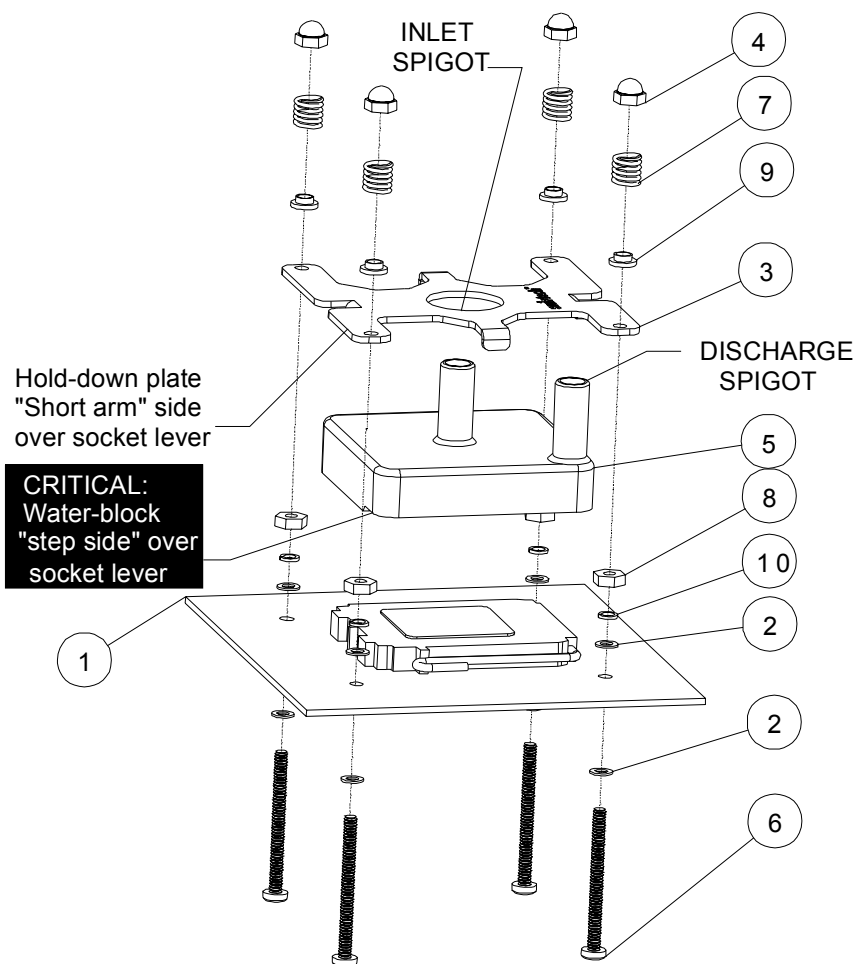


Figure 5

1. Preparing your Motherboard

- ☐ Installation of the retention posts requires removal of the motherboard from the chassis.
- ☐ Remove the existing heat sink
- ☐ Carefully clean the CPU.

2. Retention Posts installation

Install all the washers in the precise sequence shown in figure 1. The sequence is: Philips screw, black fiber-washer, motherboard, black fiber-washer, lock-washer, and hex-nut. Using fiber-washers on either side of the motherboard is critical to prevent shorting of the motherboard. Once the posts are securely fastened to the motherboard, you can re-install it inside the chassis.

3. Purging the water-block

The geometry and keep-out areas surrounding socket LGA 775 require that the MCW6000 & 6002 water-blocks be installed with the discharge spigot facing downwards. In a vertical orientation, this prevents the water-block from purging appropriately. There are two possible strategies to purge the water-block:

- ☐ You can fill-up the circuit and purge the water-block of any air trapped inside BEFORE fastening it to the motherboard, as shown in figure 3. TIP! If you are using a 12 volts pump feeding from the computer power-supply, **do not start-up the computer while the cooler is not installed on the CPU.** Disconnect the power supply from the motherboard, and use a power supply tester to start it up independently. This will allow you to run the pump by itself, and fill-up the circuit. If you do not have a power-supply tester
- ☐ you can install the water-block onto the motherboard, but you will need to fill-up the circuit with the computer laying flat on a table, as the water-block purges correctly when lying horizontally.

4. Connecting the water-block(s) to the cooling circuit

- ☐ Carefully identify the direction of the flow in your circuit. For the MCW6000 to operate properly, the spigot located at the center of the water-block **MUST BE USED AS THE INLET** (see figure 1 "INLET" spigot).
- ☐ **Attaching the tubes:** In kit form, the MCW6000™ ships with 2' of tube already clamped to inlet and outlet. When sold separately, two worm-drive hose clamps are included.
- ☐ **Type of Coolant:** being entirely made of copper, the MCW6000™ series may be used with pure water, and do not necessitate the use of anti-corrosion agents. The use of an algicide such as our HydrX™ is nonetheless highly recommended.

5. Applying thermal compound to the CPU

Lightly coat the CPU with the provided Céramique™ thermal compound. Follow this link http://www.arcticsilver.com/ceramique_instructions.htm for detailed instructions.



Rub some compound in base of water-block first, and then clean off with lint-free cloth.



Apply small amount of compound on the CPU heat spreader

6. Fasten the water-block to motherboard

Place the water-block on the CPU with the step side above the socket lever. The hold-down plate is asymmetric in order to locate the water-block precisely inside of the "keep out" areas. This guarantees full compatibility of the water-block with all LGA 775 motherboards. Insert nylon shoulder washer and spring on each post, and fasten the acorn nuts in a cross pattern. **Installation is complete!**



Figure 6
Install retention posts



Figure 7
Purge the air from the water-block, by pointing the discharge spigot upwards

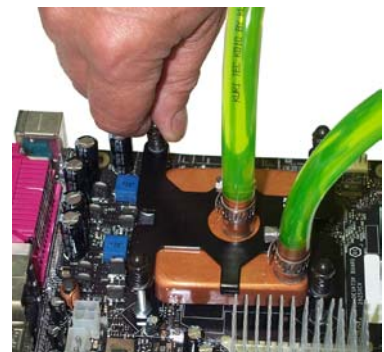


Figure 8
Install water-block, hold-down plate, and fasten the spring-nut assemblies' in a cross pattern (finger tight).

MCW6000-PX™ Water-block for Xeon™ (400 & 533 MHz FSB) processors

Installation guide

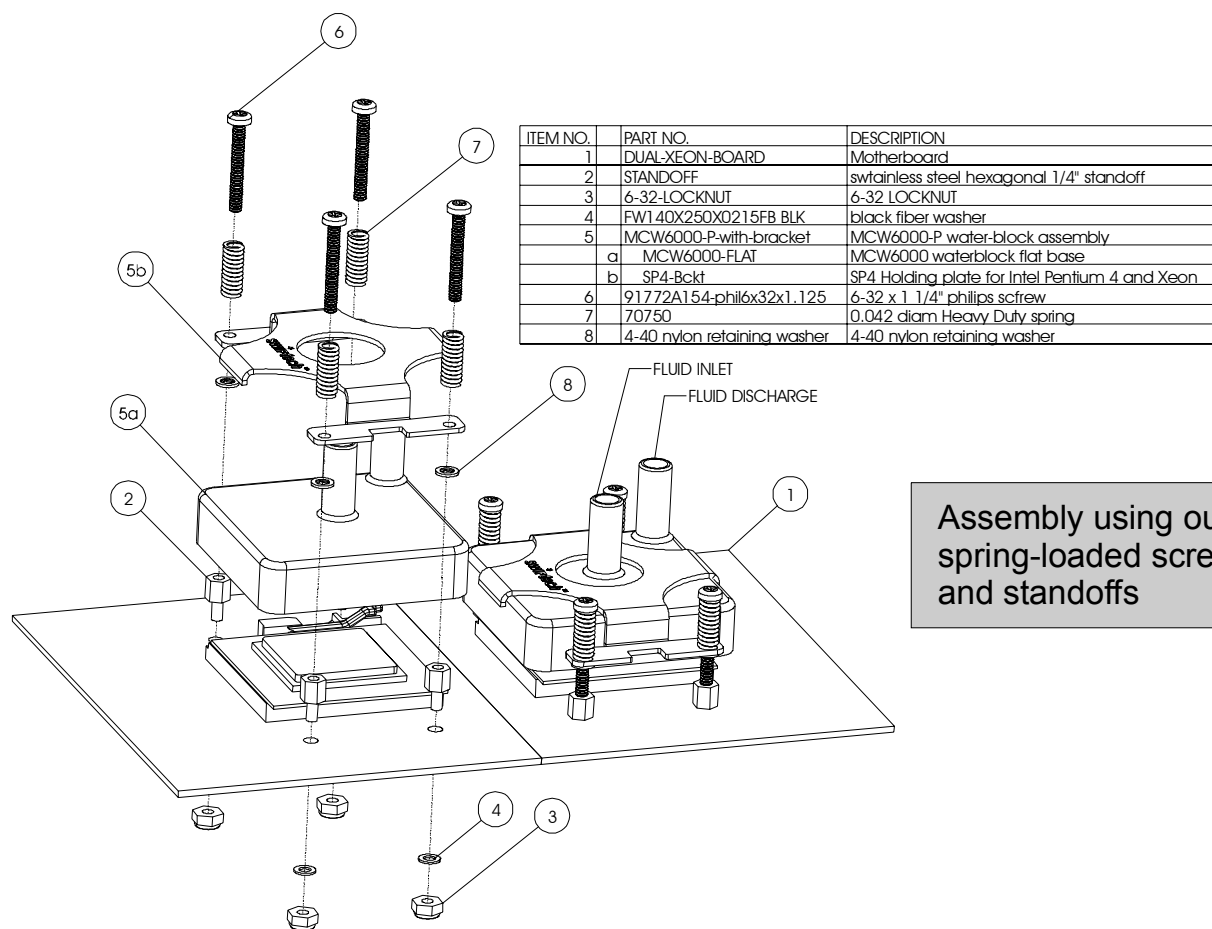
Parts list

Parts	QTY	PARTS	QTY
MCW6000-PX™ water-block	1	6-32 x 1 1/4" Philips screws	4
Worm drive clamps	2	Springs	4
SP4 hold-down plate	1	Standoffs	4
4-40 Nylon retaining washers	4	Black fiber washers	8
Locknuts	4		

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The MCW6000-PX can be installed using two different methods:

- ☐ Using the spring-loaded screws and standoffs included with the water-block (fig. 1 below)
- ☐ Using the plastic retention frames and spring clips included with most motherboards (fig. 2 page 2)



Assembly using our
spring-loaded screws
and standoffs

Figure 1

16	PART NO.	DESCRIPTION
1	DUAL-XEON-BOARD	Motherboard
2	RETENTION	Plastic retention frame, included with motherboard
3	XEON-CLIP	Xeon clip included with motherboard
4	MCW6000-P-with-bracket	MCW6000-P water-block assembly
a	MCW6000-FLAT	MCW6000 waterblock flat base
b	SP4-Bckt	Hold-down plate for Intel Pentium 4 and Xeon

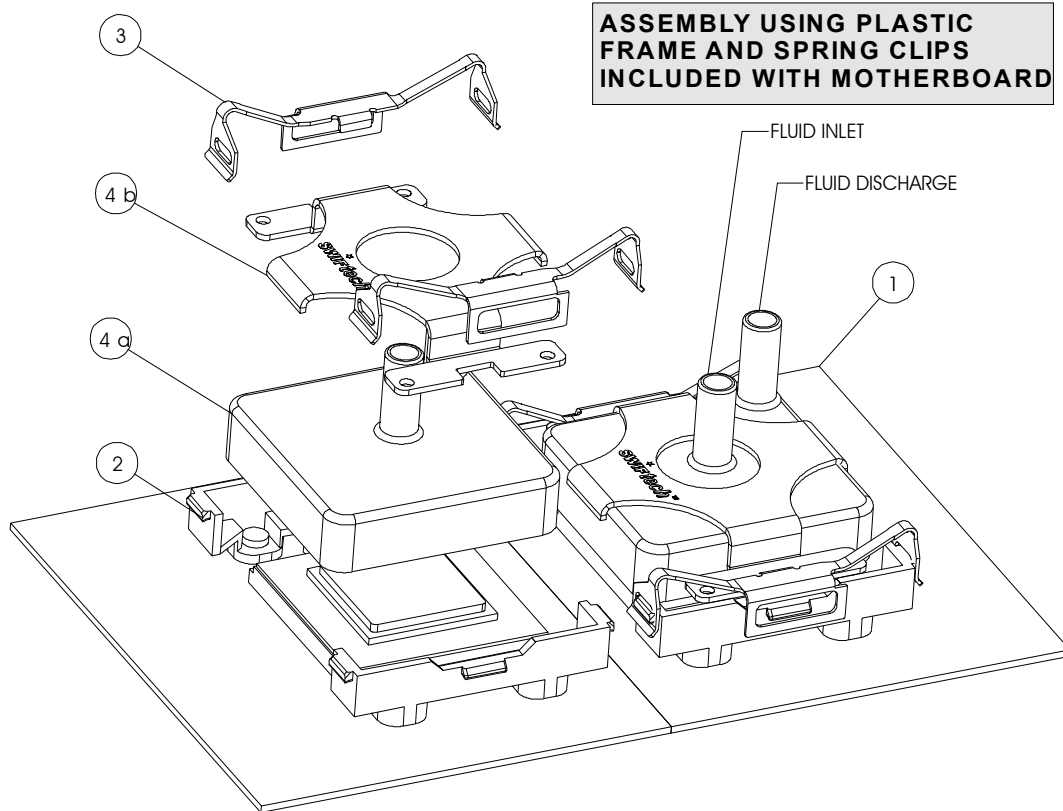


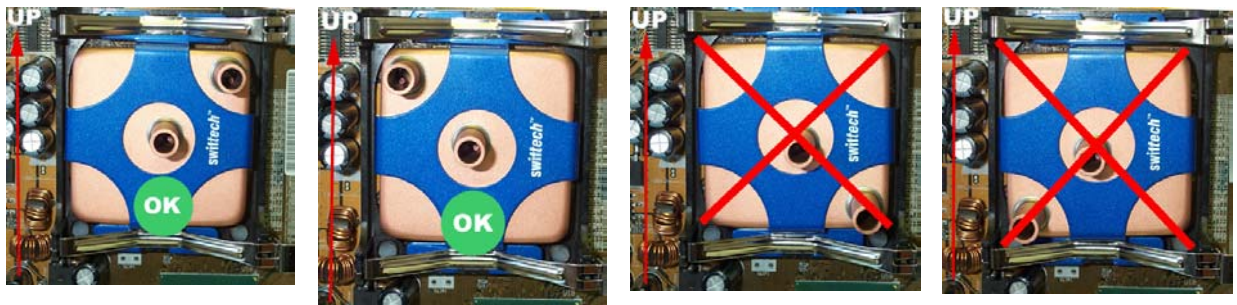
Figure 2

1. **Preparing your Motherboard:**

- ☐ Remove the existing heat sink
- ☐ Carefully clean the CPU.
- ☐ Lightly coat the CPU with the included Arctic Céramique thermal compound. Application will vary depending on the type of processor. We recommend visiting <http://www.arcticsilver.com> for detailed instructions.

2. **Water-block orientation:**

For ease of operations during the filling and bleeding procedures, the outlet should always be at the highest point (while the computer system is standing upright):



3. **Water-block installation:**

The MCW6000-PX can be installed using two different methods (also see figure 1 and 2):

- ❑ Using the spring-loaded screws and standoffs included with the water-block (fig. 1), or
- ❑ Using the plastic retention frames and spring slips included with most motherboards (fig. 2)

You may use either method at your convenience. For installation with our own spring loaded screws, follow the instructions below. For installation with Intel's spring clips, follow the instructions included in your motherboard manual.

4. Installation with spring loaded screws:

- ❑ Remove the motherboard from the chassis, and remove the stock retention plastic frames to expose the mounting holes.
- ❑ Install the standoffs through the holes, using fiber washers and locknuts as shown in figure 1.
- ❑ Tighten the standoffs as shown figure 3, using a ¼" socket tool to drive the standoff, and a small pair of pliers to prevent the locknut from spinning. Torque value should not to exceed 16 in. lbs. In other words just tight, without excessive torque, otherwise the standoff stem may snap.
- ❑ Tighten the spring-loaded screws in a crisscross pattern until the screws bottom out into the standoff. Once there, do not attempt to lock the screws any further, or they will jam into the standoff, and could prove difficult to remove if you ever need to uninstall the heatsink.

Water-block installation is now complete.



Figure 3

5. Connecting the water-block(s) to the cooling circuit:

Carefully identify the direction of the flow in your circuit. For the MCW6000 to operate properly, the fitting located at the center of the water-block **MUST BE USED AS THE INLET**. In multi-processor environments, connect the two blocks in series: For example: pump discharge to inlet of processor 1, discharge of processor 1 to inlet of processor 2, and discharge of processor 2 to radiator.

6. Attaching the tubes:

In kit form, the MCW6000™ ships with 2' of tube already clamped to inlet and outlet. When sold separately, two worm-drive hose clamps are included.



Figure 4

Tubes attached with worm-drive clamps

7. Type of Coolant:

Being entirely made of copper, the MCW6000™ may be used with pure water, and does not necessitate the use of anti-corrosion agents. The use of an algaecide is nonetheless recommended in any liquid cooling system, and our HydrX™ additive also performs such function.

8. Final inspection

Once the installation is completed, it is always a good idea to test the circuit for leaks, prior to powering up the computer. **Do not test the water-block using city water pressure.** This will bow the top of the housing and render the block unusable (and will void your warranty). **Maximum pressure allowable for testing is 25 psi (1.7 bar)**

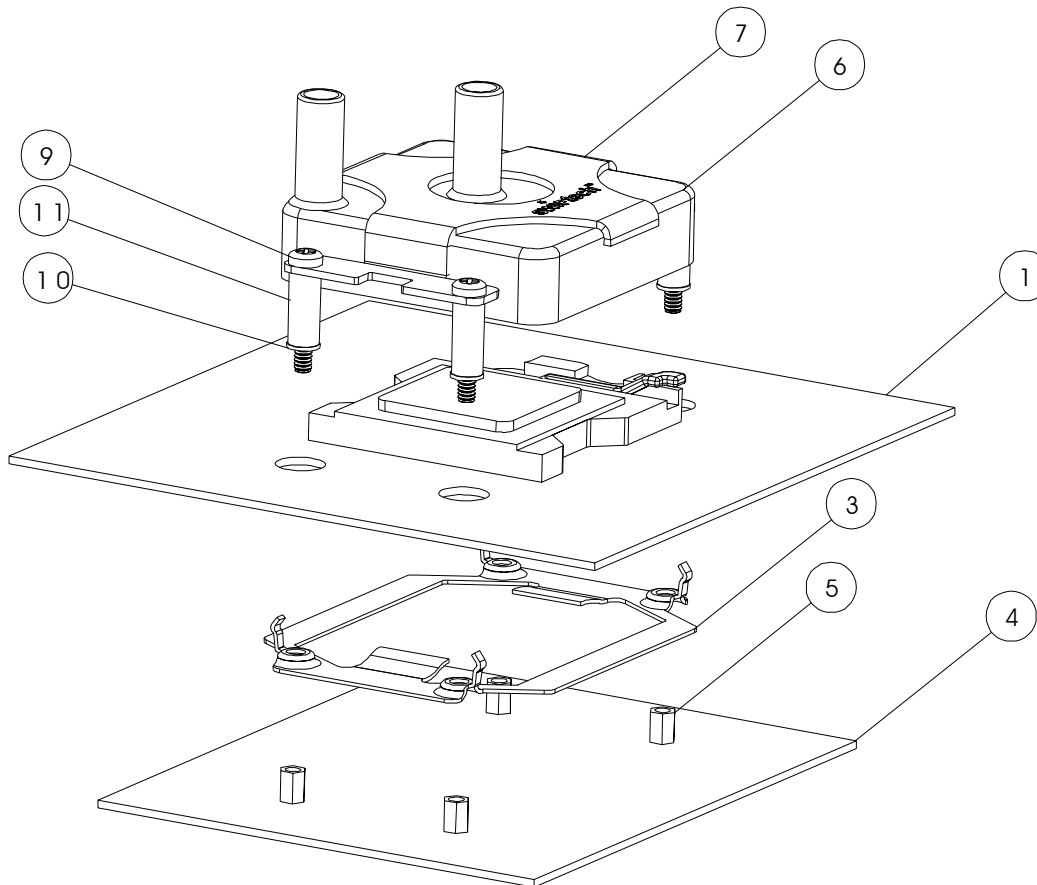
MCW6000-NX™ Water-block for Xeon™ “Nocona” (800Mhz FSB)

Installation guide

Parts list

Parts	QTY	PARTS	QTY
MCW6000-NX™ water-block	1	6-32 x 7/8" Philips screws	4
Worm drive clamps	2	.600 x .250 Nylon spacer	4
SP4 hold-down plate	1	4-40 Nylon retaining washers	4

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ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	S604-NOCONA	Motherboard & CPU assembly
3	1	spring-backplate	retention spring (provided by motherboard vendors)
4	1	chassis	
5	4	STANDOFF-0.187	
6	1	MCW6000-FLAT	MCW6000 waterblock flat base
7	1	SP4-Bckt	SP4 Holding plate for Intel Pentium 4 and Xeon
9	4	90272A152-6-32x7-8-philips	6-32 x 7/8" (22mm) Philips screw
10	4	4-40 nylon retaining washer	4-40 nylon retaining washer
11	4	custom_spacer-r1	Nylon spacer .600 x .250 (15 x 6mm)

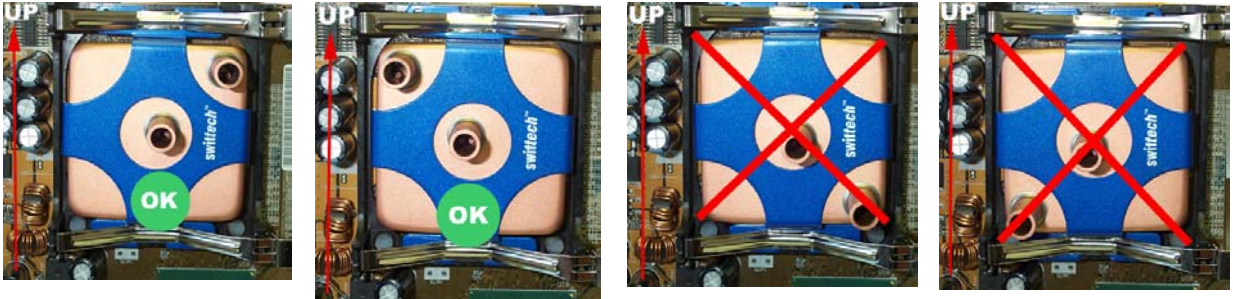
Figure 1

1. Preparing your Motherboard

- ☐ Remove the existing heat sink
- ☐ Carefully clean the CPU.
- ☐ Lightly coat the CPU with the included Arctic Céramique thermal compound. Application will vary depending on the type of processor. We recommend visiting <http://www.arcticsilver.com> for detailed instructions.

2. Water-block orientation

For ease of operations during the filling and bleeding procedures, the outlet should always be at the highest point (while the computer system is standing upright):



3. Water-block Installation

The MCW6000-NX water-block uses Intel's validated retention spring, provided in accordance to Intel specifications by the motherboard vendors. Installation of the water-block to the processor is identical to that of a standard heatsink, normally described in the motherboard installation guide. Simply screw down all 4 Philips screws to the chassis standoffs as shown in Figure 1, and installation is complete.

4. Connecting the water-block(s) to the cooling circuit

Carefully identify the direction of the flow in your circuit. For the MCW6000 to operate properly, the fitting located at the center of the water-block **MUST BE USED AS THE INLET**. In multi-processor environments, connect the two blocks in series: For example: from pump discharge to inlet of processor 1, discharge of processor 1 to inlet of processor 2, and discharge of processor 2 to radiator.

5. Attaching the tubes

In kit form, the MCW6000™ ships with 2' of tube already clamped to inlet and outlet. When sold separately, two worm-drive hose clamps are included.

6. Type of Coolant

Being entirely made of copper, the MCW6000™ may be used with pure water, and does not necessitate the use of anti-corrosion agents. The use of an algicide is nonetheless recommended in any liquid cooling system, and our HydrX™ additive also performs such function.

7. Final inspection

Once the installation is completed, it is always a good idea to test the circuit for leaks, prior to powering up the computer. **Do not test the water-block using city water pressure.** This will bow the top of the housing and render the block unusable (and will void your warranty). **Maximum pressure allowable for testing is 25 psi (1.7 bar)**

Troubleshooting help is available on our web site at www.swiftnets.com, or by calling customer support at 562-595-8009.



Figure 2

Tubes attached with the included worm-drive clamps

MCW6000-A™ Water-block for AMD (socket 462) Duron, Athlon (XP, MP)

Installation guide

Parts list			
Parts	QTY	PARTS	QTY
MCW6000-P™ water-block	1	3T spring/clip assemblies	2
Worm drive clamps	2	SK7 hold-down plate	1

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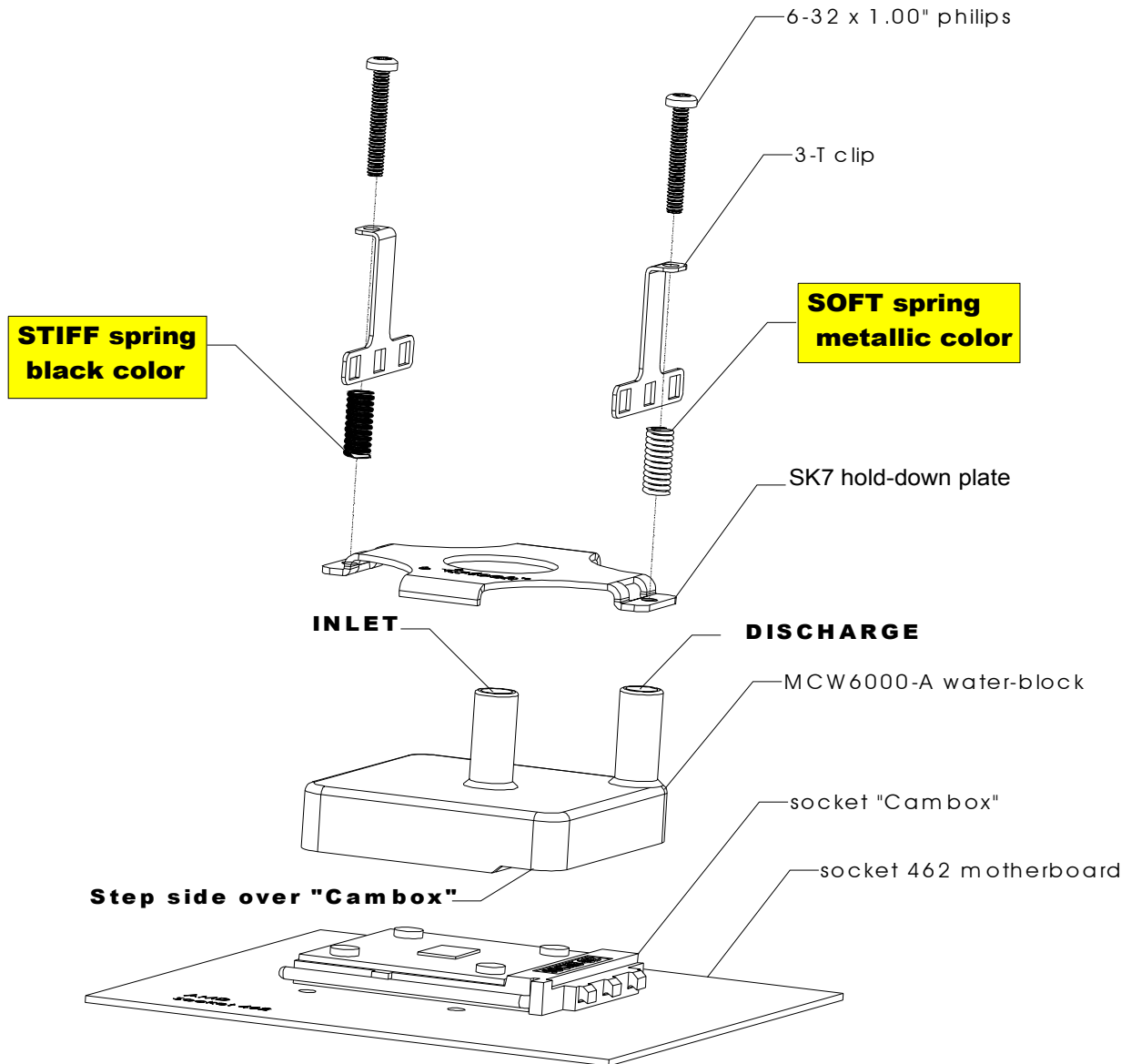


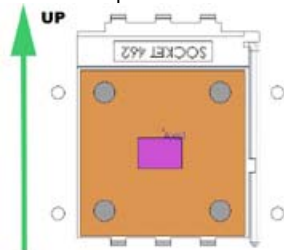
Figure 1

1. Preparing your Motherboard

- ☐ Remove the existing heat sink
- ☐ Carefully clean the CPU.
- ☐ Lightly coat the CPU with the included Arctic Céramique thermal compound. Application will vary depending on the type of processor. We recommend visiting <http://www.arcticsilver.com> for detailed instructions.

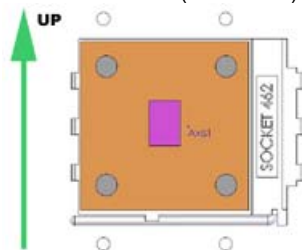
2. Water-block orientation

There are 4 possible socket orientations in socket A (socket 462) motherboards:



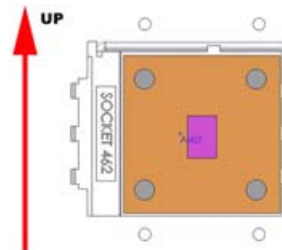
Case 1

Most common - OK



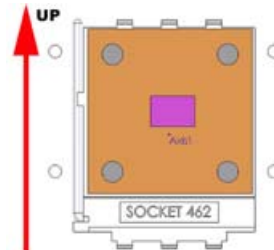
Case 2

Most common - OK



Case 3

Dual processor boards Caution!



Case 4

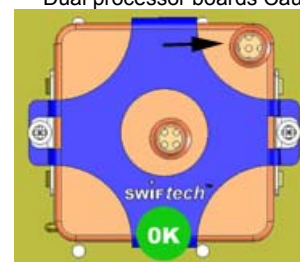
Dual processor boards Caution!

In order to bleed correctly during the fill and bleed operations, and while the system is standing upright, the water-block discharge should always be at the highest point, as shown in case 1 and 2.

If your block installs as shown in case 1 and 2, then proceed with installation instructions in paragraph 3.



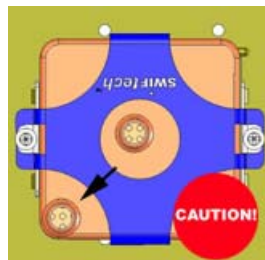
Case 1



Case 2

If due to the socket orientation the water-block is oriented as shown in case 3 or 4, such as frequently encountered in dual processor boards for example, then the water-block must be bled PRIOR to installation onto the socket:

Simply set-up your cooling circuit first, and while filling it up with fluid, hold the water-block in your hand with the discharge pointing upwards so that all the air trapped into the block will escape. **Then** attach the water-block onto the socket.



Case 3



Case 4

3. Water-block installation

CRITICAL PREAMBLE - MUST READ!

As shown in figure 1 page 1, there is a specific side allocated to each spring: the STIFF spring goes opposite to the socket cam-box, and the SOFT spring goes on the same side as the socket cam-box. The springs are color-coded to prevent any mistakes: the stiff spring has been plated with a black zinc coating, while the soft spring is zinc plated in a shiny metallic grey.

You **MUST** be extremely careful to respect this arrangement!

Not respecting this arrangement will result in unbalanced pressure, and prevent the water-block from sitting flat on the processor, resulting in high temperatures, and likely damage to the CPU.

Place the MCW6000-A™ over the CPU as shown in figure 1 page 1.

The water-block step side MUST be located over the socket cam box. A label affixed to the base of the water-block clearly identifies which side this is.

- ❑ The retention clips should snap over each side, and hook onto the socket tabs. Make sure that the clips are properly aligned to fit snugly underneath the tabs.
- ❑ **Gradually** loosen (counter-clockwise) each spring-loaded screw to release the spring tension, checking that the clips remain engaged underneath the tabs.
TIP: if space permits, hold the clips pressed against the socket while loosening the screws, as shown in figure 2. This will prevent the clips from disengaging themselves from underneath the tabs at start-up.

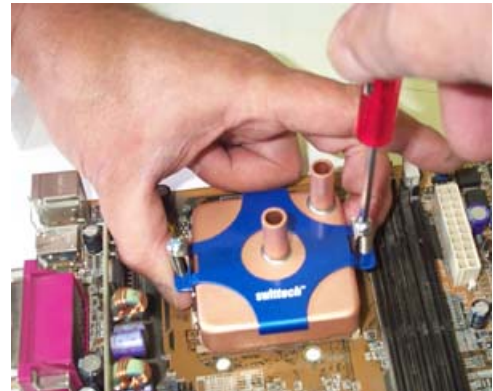


Figure 2

- ❑ Continue backing off until the head of the screw completely clears the top of the bracket, as shown figure 3.
- ❑ **Double-check to ensure that the clips have remained underneath the tabs.**
- ❑ Installation on the CPU is now complete!



Figure 3

4. Connecting the water-block(s) to the cooling circuit:

- ❑ Carefully identify the direction of the flow in your circuit. For the MCW6000 to operate properly, the fitting located at the center of the water-block **MUST BE USED AS THE INLET**.
- ❑ **TIP! In multi-processor environments**, connect the two blocks in series: For example: pump discharge to inlet of processor 1, discharge of processor 1 to inlet of processor 2, and discharge of processor 2 to radiator.
- ❑ **Attaching the tubes:**
In kit form, the MCW6000™ ships with 2' of tube already clamped to inlet and outlet. When sold separately, two worm-drive hose clamps are included.



Tubes attached with worm-drive clamps

5. Type of Coolant:

Being entirely made of copper, the MCW6000™ may be used with pure water, and does not necessitate the use of anti-corrosion agents. The use of an algicide is nonetheless recommended in any liquid cooling system, and our HydrX™ additive also performs such function.

6. Final inspection:

Once the installation is completed, it is always a good idea to test the circuit for leaks, prior to powering up the computer. **Do not test the water-block using city water pressure.** This will bow the top of the housing and render the block unusable (and will void your warranty). **Maximum pressure allowable for testing is 25 psi (1.7 bar)**

Troubleshooting help is available on our web site at www.swiftnets.com, or by calling customer support at 562-595-12009.

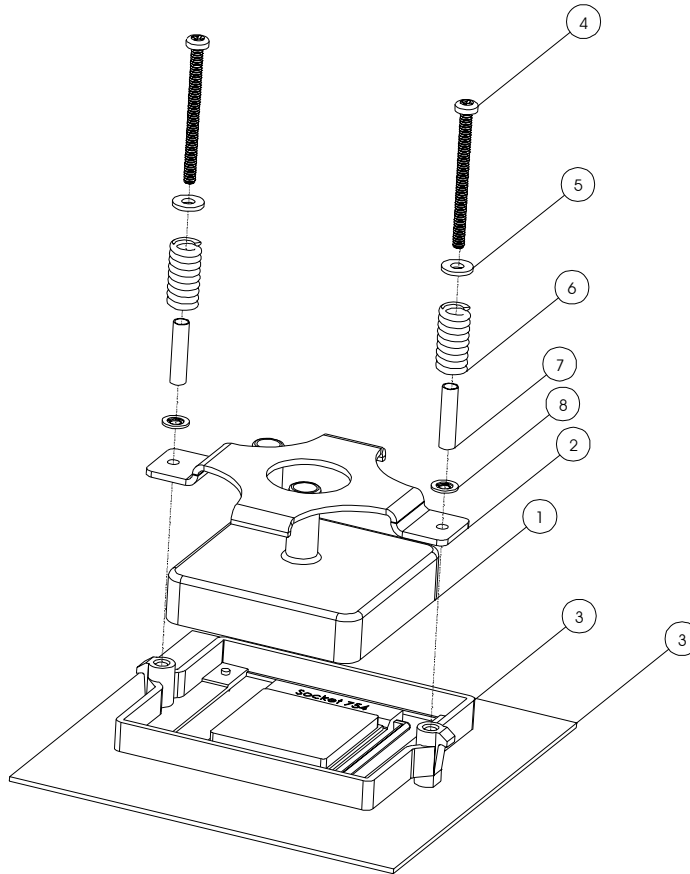
MCW6000-64™ Water-block for AMD® Athlon™ 64 & Opteron™

Installation guide

Parts	QTY	PARTS	QTY
MCW6000™ water-block	1	Spring loaded screw assemblies	2
Worm drive clamps	2	Sk8 hold-down plate	1

NOTE TO USERS: SOME OPTERON MOTHERBOARDS (MSI BRAND) DO NOT USE AMD STANDARD RETENTION MECHANISM. PLEASE USE INTEL PENTIUM 4 (SOCKET 478) HOLD-DOWN PLATE & CLIPS INSTEAD WITH THESE MOTHERBOARDS.

This product is intended for expert users. Please consult with a qualified technician for installation. Improper installation may result in damage to your components. Swiftech assumes no liability whatsoever, expressed or implied, for the use of these products, nor their installation. The following instructions are subject to change without notice. Please visit our web site at www.swiftnets.com for updates.



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	MCW6000-R2	MCW6000 flat base water-block
2	1	S754-RETENTION-r2	SK8 hold-down plate for AMD K8
3	1	K8 Motherboard	AMD K8 (Athlon 64 & Opteron) motherboard+ processor assy.
	1	counter-plate	
	1	motherboard	
	1	retention-frame	
4	2	91772A158-6-32X1.75	6-32 x 1 3/4" phillips screw
5	2	93286A041-WASHER	zinc plated washer
6	2	885	spring
7	2	spacer-205x140x773	tension limiter
8	2	6-32 nylon retaining washer	6-32 nylon retaining washer

Figure 9

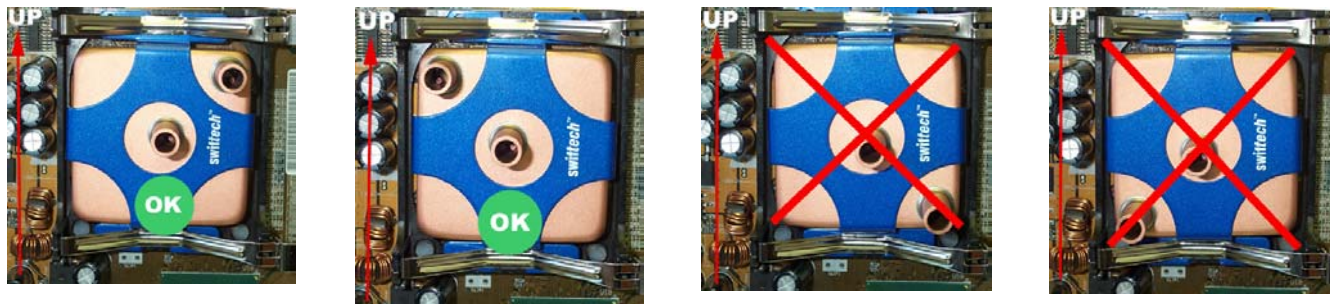
1. Preparing your motherboard

- ☐ Remove the existing heat sink
- ☐ Carefully clean the CPU.
- ☐ Lightly coat the CPU with the included Arctic Céramique thermal compound. Application will vary depending on the type of processor. We recommend visiting <http://www.arcticsilver.com> for detailed instructions.

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Rouchon Industries, Inc., dba Swiftech – 1703 E. 28th Street, Signal Hill, CA 90755 – Tel. 562-595-8009 – Fax 562-595-8769 - E Mail: Swiftech@swiftnets.com – URL: <http://www.swiftnets.com> - Information subject to change without notice

2. Water-block orientation



For ease of operations during bleeding, the outlet should always be at the highest point (while system is standing upright)

3. Water-block installation:

The MCW6000™ simply bolts onto AMD retention frame as shown in figure 1, using the enclosed spring-loaded screws. The tension limiter is designed to provide appropriate tension to the springs. Do not over-tighten the springs.

4. Retention frame issues:

Most K8 compatible motherboards are shipped with AMD's validated plastic retention frame and metallic back-plate. In an effort to spare unnecessary costs to the majority of users, Swiftech does not include these items with the MCW6000 water-block.

Some motherboards however use non-standard retention systems, and plastic back-plates instead of the recommended metallic plates described in AMD's Athlon™ 64 Processor Thermal Design Guide.

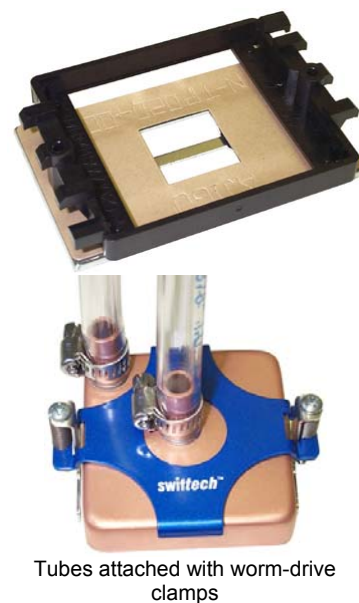
For this reason, Swiftech offers an optional retention frame and back plate made to AMD standards, under Part # AJ00172 shown to the right.

5. Connecting the water-block(s) to the cooling circuit:

Carefully identify the direction of the flow in your circuit. For the MCW6000 to operate properly, the fitting located at the center of the water-block **MUST BE USED AS THE INLET**.

6. Attaching the tubes:

In kit form, the MCW6000™ ships with 2' of tube already clamped to inlet and outlet. When sold separately, two worm-drive hose clamps are included.



Tubes attached with worm-drive clamps

7. Type of Coolant:

Being entirely made of copper, the MCW6000™ may be used with pure water, and does not necessitate the use of anti-corrosion agents. The use of an algicide is nonetheless recommended in any liquid cooling system, and our HydrX™ additive also performs such function.

8. Final inspection:

Once the installation is completed, it is always a good idea to test the circuit for leaks, prior to powering up the computer. **Do not test the water-block using city water pressure.** This will bow the top of the housing and render the block unusable (and will void your warranty). **Maximum pressure allowable for testing is 25 psi (1.7 bar)**

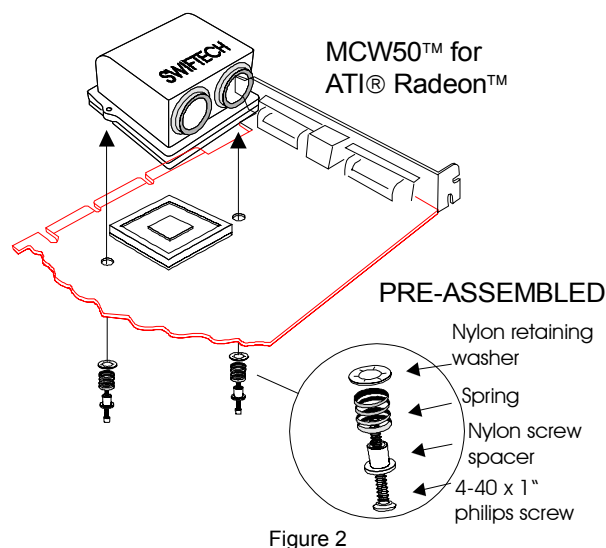
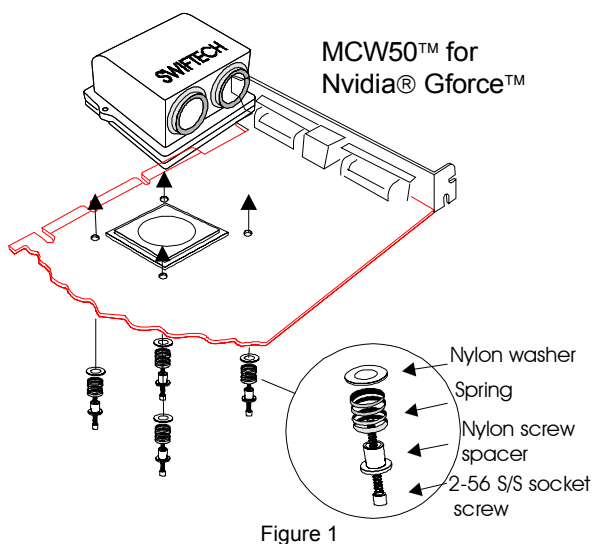
Troubleshooting help is available on our web site at www.swiftnets.com, or by calling customer support at 562-595-12009.

MCW50™ VGA Water-block Installation Guide

Parts	QTY	PARTS	QTY
MCW50™ assembly	1	Spring	6
2-56 S/S socket screw	4	Nylon retaining washer	2
4-40 x 1" S/S phillips screw	2	Tube insert	4
Nylon screw spacer	6	Thermal compound	1
Nylon washer	4	Socket wrench	1

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Installation diagram



1. Preparing your graphics card

- Remove the existing heat sink
- Carefully clean the GPU (graphics processing unit)
- Lightly coat the GPU with the provided thermal compound. **Only a paper-thin coat is necessary.** It should be applied using preferably a razor blade, or a credit card, held between thumb and index at a 45-degree angle.

Before installing the block onto the graphics card cut two pieces of tubing of sufficient length to connect to the rest of your circuit, and install them into the MCW50™ Inlet and outlet. It is **absolutely imperative** to use the provided tube inserts with clear vinyl (soft) tubing, as shown below:



Shown here with an MCW50-T™ version



Shown here with an MCW50-T™ version



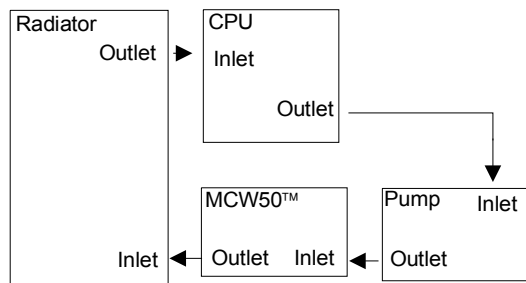
Make sure that the tubes are fully inserted into the fitting. The tip of the plastic tube inserts should be flush with the inlet and outlet openings, as shown above. Inserting the tubes requires a firm push, accompanied by a twisting motion, and a little bit of grease around the tubing really helps ☺

2. Installing the MCW50™ GPU Cooler

The MCW50™ retention mechanism can either use the two diagonal holes featured in many graphics cards such as ATI® Radeon™ 9000 to 9700 families, or the four mounting holes found in NVidia® GeForce™ families of products. It can also be installed with other graphics processors by using permanent bonding agents, such as thermally conductive epoxies. We recommend Arctic Silver™ or Arctic Alumina™ epoxy.

Install your block onto the graphics card, as shown in Figure 1 or Figure 2 (p.1) according to your application. A “finger –tight” lock is sufficient when tightening the spring retention assemblies. Over-tightening will squish the nylon screw spacer body, and result in uneven pressure over the GPU.

Recommended integration of the MCW50™ in an existing liquid cooling circuit:



Re-install the graphics card in the AGP slot, and proceed with filling and bleeding the cooling circuit.

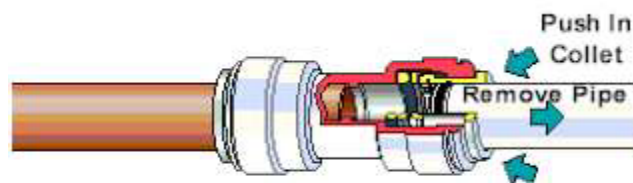
3. Type of Coolant:

- For best performance, use 95% distilled water, and 5% Swiftech brand “HydrX” corrosion inhibitor (available here: <http://www.swiftnets.com/store/category.asp?CatID=2>, under the “accessories” section).
- In ALL cases, you MUST use Distilled water AND a corrosion inhibitor with the MCW50 water-block. Regular automotive anti-freeze is acceptable. Automotive manufacturers recommend that not less than 25% is used.
- NEVER use tap water, even for a short-term test.
- Not following paragraphs b and c above constitutes misuse (*) of the product, and will void your warranty.

4. Final inspection

Once the installation is completed, **it is always a good idea to test the circuit for leaks, prior to powering up the computer**. Troubleshooting help is available on our web site at www.swiftnets.com, or by calling customer support at 562-595-8009.

Final note concerning removal of the tubing: Push in collet squarely against face of fitting. With the collet held in this position, the tube can be safely pulled out. Do not attempt to pull the tube out without pushing squarely against the collet. This may result in damaging the fitting. Further details for using quick-connect fittings are also available here: http://www.johnquest.com/install_6.shtm#disconnect:



MCW20-R™ Chipset Water-block

Installation guide for Intel® & AMD® platforms

Common parts to both platforms		Intel platform specific parts		AMD platforms specific parts	
Part	Qty	Part	Qty	Part	Qty
MCW20™ assembly	1	Neoprene pads (strip of 4)	1	4-40 x 1 1/2" Philips screws	2
Tube inserts	2	4-40 HOOKS	2	Black fiber washers	6
Arctic Alumina Thermal compound	1	Nylon tension limiter 1/2"	2	4-40 mini-nuts	2
4-40 x 3/16" socket screw		0.880" Spring	2	0.300" Spring	2
Socket wrench tool	2	Long bracket (1.10")	2	1/4" tension limiters	2
	1	Acorn nuts	2	Short bracket (.71")	2
				Knurled knobs	2

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1. Preparation steps common to both platforms

Step 1: Pre-installation assembly schematics

Attach the brackets to the water-block with the provided socket wrench tool.

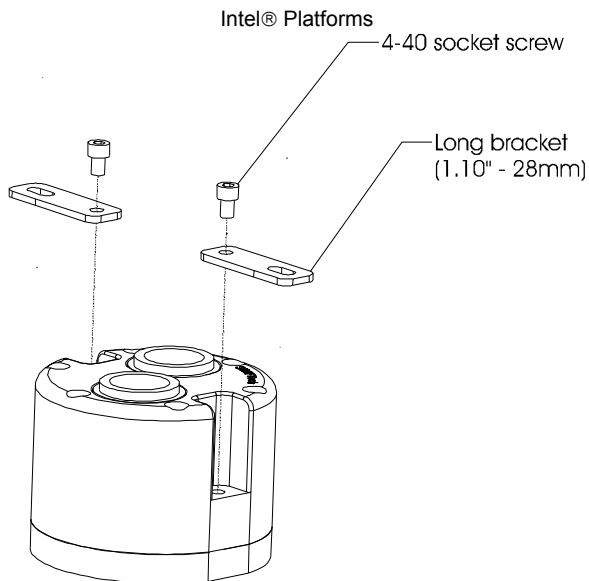


Figure 1

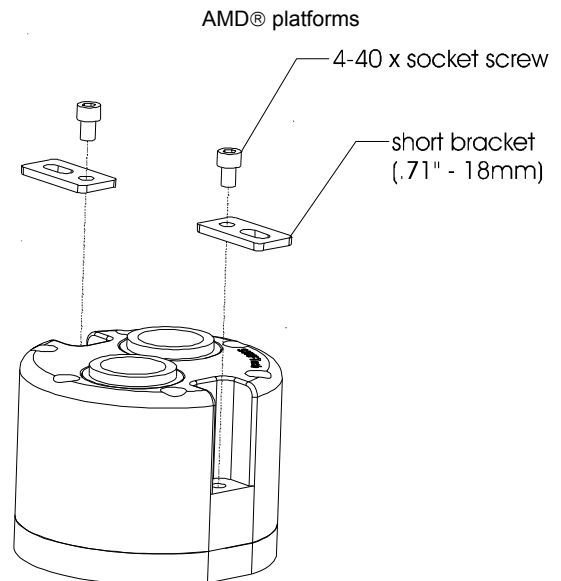


Figure 2

Step 2: Prepare the tubing

a. **Prepare two pieces of tubing** of sufficient length to connect to the rest of your circuit. The cuts must be square as shown in figure 1 or leaks may occur:

b. **Install the provided plastic tube inserts** at each end of the tubes, as shown in figure 4: these inserts are absolutely **imperative** when using any kind of **soft** tubing, such as vinyl, ClearFlex, Tygon, etc...

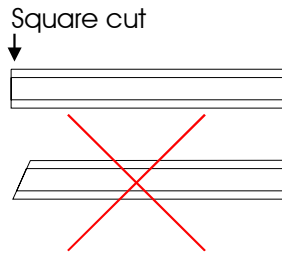


Figure 3



Figure 4



Figure 5



Figure 6



Figure 7

c. **Spread a little bit of grease or liquid soap** around the tubing. It helps pushing the tubes in, particularly with Clearflex™ tubing, which features a very “sticky” surface.

d. **Fully insert both tubes into the fittings.** The tip of the plastic tube inserts should be flush with the inlet and outlet openings, as shown in figure 4 above. Inserting the tubes requires a firm push, accompanied by a twisting motion.

2. Installation for Intel® platforms

a. **Prepare your Motherboard**

- ☐ Remove the existing heat sink
- ☐ Carefully clean the processor, using alcohol
- ☐ Install the 4 neoprene pads as shown figure 8. This step is only necessary if the processor core is exposed. **If the chipset features a heat spreader (a large lid covering the entire area of the chipset), then the neoprene pads MUST not be installed.**
- ☐ Lightly coat the processor with the provided thermal compound. Only a paper-thin coat is necessary. It should be applied using preferably a razor blade, or a credit card, held between thumb and index at a 45° angle

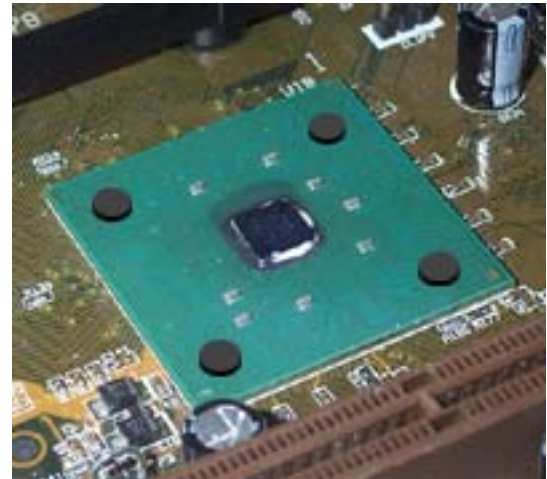


Figure 8

b. **Install the MCW20-P™ water-block**

- ❑ **TIP!** It is preferable to have the tubing inserted into the water-block BEFORE you install the block onto the motherboard. This is because pushing the tubes into the block while it is already installed could exert undue pressure onto the microprocessor.
- ❑ Place the MCW20-P™ onto the processor, as shown in figure 9: hooks should be engaged into two diagonal motherboard loops first, then install the nylon tension limiters (flange facing down), the springs, and tighten the assembly with the acorn nuts.

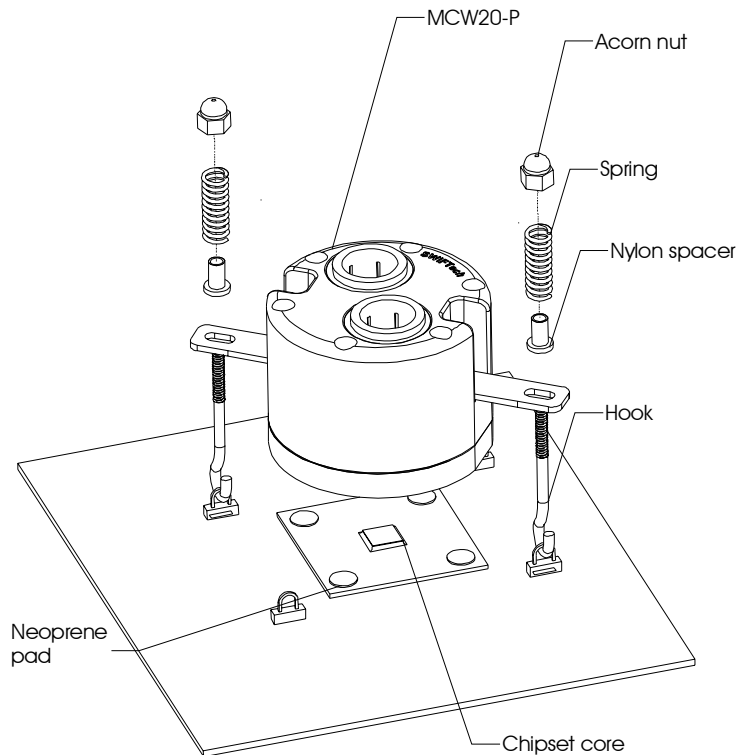


Figure 9

c. **Connect the block to the rest of the cooling circuit.**

d. **Type of Coolant:**

- a. For best performance, use 95% distilled water, and 5% Swiftech brand "HydrX" corrosion inhibitor (available here: <http://www.swiftnets.com/store/category.asp?CatID=2>, under the "accessories" section).
- b. In ALL cases, you MUST use Distilled water AND a corrosion inhibitor with the MCW5002 water-block. Regular automotive anti-freeze is acceptable. Automotive manufacturers recommend that not less than 25% is used.
- c. NEVER use tap water, even for a short-term test.
- d. Not following paragraphs b and c above constitutes misuse (*) of the product, and will void your warranty.

e. **Final inspection**

Once the installation is completed, **it is always a good idea to test the circuit for leaks, prior to powering up the computer.** If using Swiftech's fill-and-bleed kit, such test can be done without any liquid into the circuit. Please refer to the MCRES-525™ installation guide for details. Troubleshooting help is available on our web site at www.swiftnets.com, or by calling customer support at 562-595-8009.

3. **Installation for AMD® platforms**

1. **Preparing your Motherboard**

- ❑ Remove the motherboard from the chassis
- ❑ Remove the existing heat sink
- ❑ Carefully clean the microprocessor, using alcohol

2. Installing MCW20-A™ water-block

- ❑ Install the provided screws through the motherboard, using a black fiber washer on both sides of the motherboard, and tighten the nuts.
- ❑ Install the motherboard back into the chassis
- ❑ Lightly coat the microprocessor with the provided thermal compound. Only a paper-thin coat is necessary. It should be applied using preferably a razor blade, or a credit card, held between thumb and index at a 45-degree angle.
- ❑ **TIP!** It is preferable to have the tubing inserted into the water-block BEFORE you install the block onto the motherboard. This is because pushing the tubes into the block while it is already installed could exert undue pressure onto the microprocessor.
- ❑ Slide down the MCW20-A over the retention screws, as shown figure 10, then install the nylon tension limiters (flange facing down), the springs, and tighten the assembly with the knurled knobs. Over tightening of the assembly is prevented by the tension limiter. Users should be cautious nonetheless, as nylon can be easily crushed.

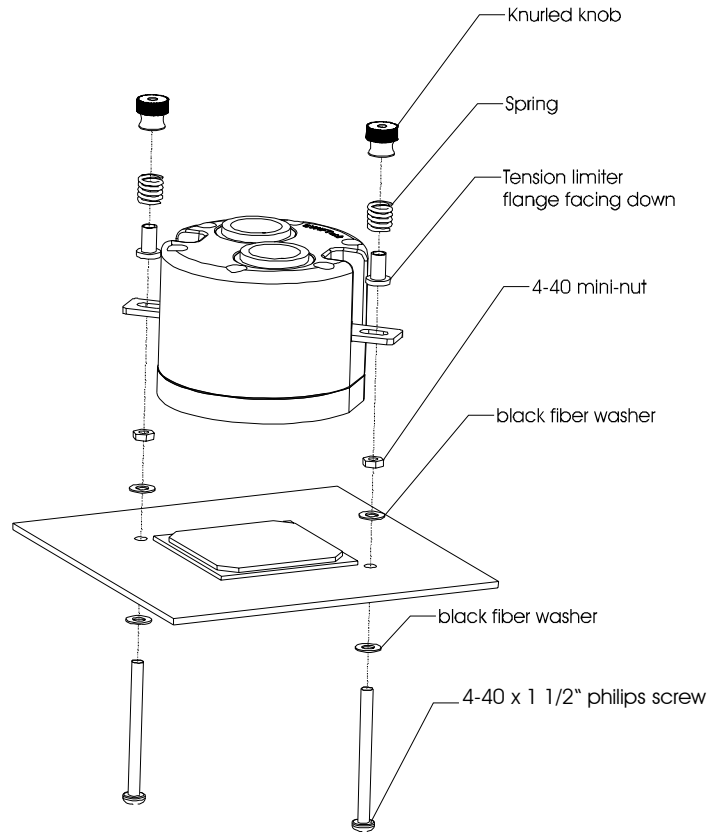


Figure 10

3. Connect the block to the rest of the cooling circuit.

The block is designed in such a way that it will bleed itself automatically in any vertical orientation (computer standing-up).

4. Type of Coolant:

- i) For best performance, use 95% distilled water, and 5% Swiftech brand "HydrX" corrosion inhibitor (available here: <http://www.swiftnets.com/store/category.asp?CatID=2>, under the "accessories" section).
- ii) In ALL cases, you MUST use Distilled water AND a corrosion inhibitor with the MCW5002 water-block. Regular automotive anti-freeze is acceptable. Automotive manufacturers recommend that not less than 25% is used.
- iii) NEVER use tap water, even for a short-term test.
- iv) Not following paragraphs b and c above constitutes misuse (*) of the product, and will void your warranty.

5. Final inspection

Once the installation is completed, **it is always a good idea to test the circuit for leaks, prior to powering up the computer.** Troubleshooting help is available on our web site at www.swiftnets.com, or by calling customer support at 562-595-8009.

Note concerning removal of the tubing in quick-connect fittings: Push in the collet squarely against the face of the fitting using swiftech's tube removal tool, or a wrench of approximately the same opening diameter as the tube (1/2" +). The collet is the inner plastic ring protruding from the face of fitting. It fits loosely into the fitting, and can be moved up and down by approximately 1/8". With the collet firmly held against the face of the fitting, the tube can be safely pulled out. Do not attempt to pull the tube out without pushing squarely against the collet. This may result in damaging the fitting.

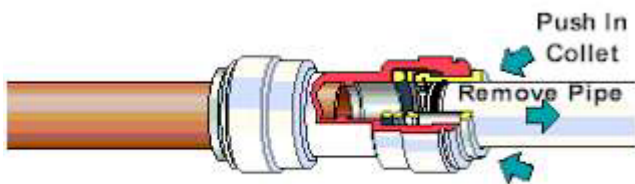


Figure 11

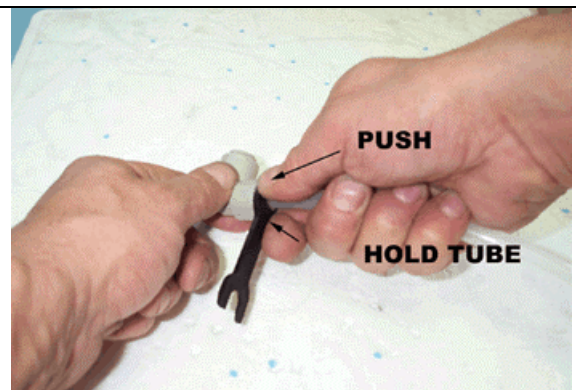


Figure 12