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KOOLANCE®

Superior Liquid Cooling Systems

ICM-PC30, ICM-PC54
User's Manual

English v1.0

This User Manual is updated regularly. Please be sure to check our support page for a newer version of this guide: www.koolance.com

GENERAL PRECAUTION

Please read this manual carefully before beginning the installation of your Koolance system. This manual assumes the user has basic experience in building and configuring computer systems. Information referring to traditional hardware assembly is intentionally brief.

ABOUT SIGNS

Throughout this document, critical information is highlighted in gray-colored boxes. The following symbols are intended to help prevent any situation which may cause personal injury and/or damage to equipment:

WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in personal injury or be life-threatening.

CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in damage to equipment or property.

PROHIBITED: Indicates a prohibited action.

PROHIBITED USE

This product is designed, developed and manufactured as contemplated for general use, including without limitation: general office use, personal use and household use, but is not designed, developed and manufactured as contemplated for use accompanying fatal risks or dangers that, unless extremely high safety is secured, could lead directly to death, personal injury, severe physical damage or other loss, including without limitation: nuclear power core control, airplane control, air traffic control, mass transport operation control, life support, or weapon launching control. If these products are used in such hazardous environments, Koolance Incorporated does not warrant them.

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WARNING: The Koolance liquid coolant contains chemicals which may be harmful or fatal if swallowed. KEEP THIS AND ALL DANGEROUS CHEMICALS OUT OF THE REACH OF CHILDREN. Please refer to the coolant MSDS available on our website: www.koolance.com

CAUTION: Installation of third-party cooling products is done at the user's own risk. Koolance Inc. assumes no responsibility for damage or loss due to the installation or use of this product. Additionally, adding liquid coolers and other components to computer hardware may void the hardware manufacturer's original warranty. If you have any specific questions on warranty coverage, please contact your component or computer manufacturer. If there is any point of installation that you do not understand, please contact our Technical Support Staff at: tech@koolance.com, or visit our website at: www.koolance.com/support

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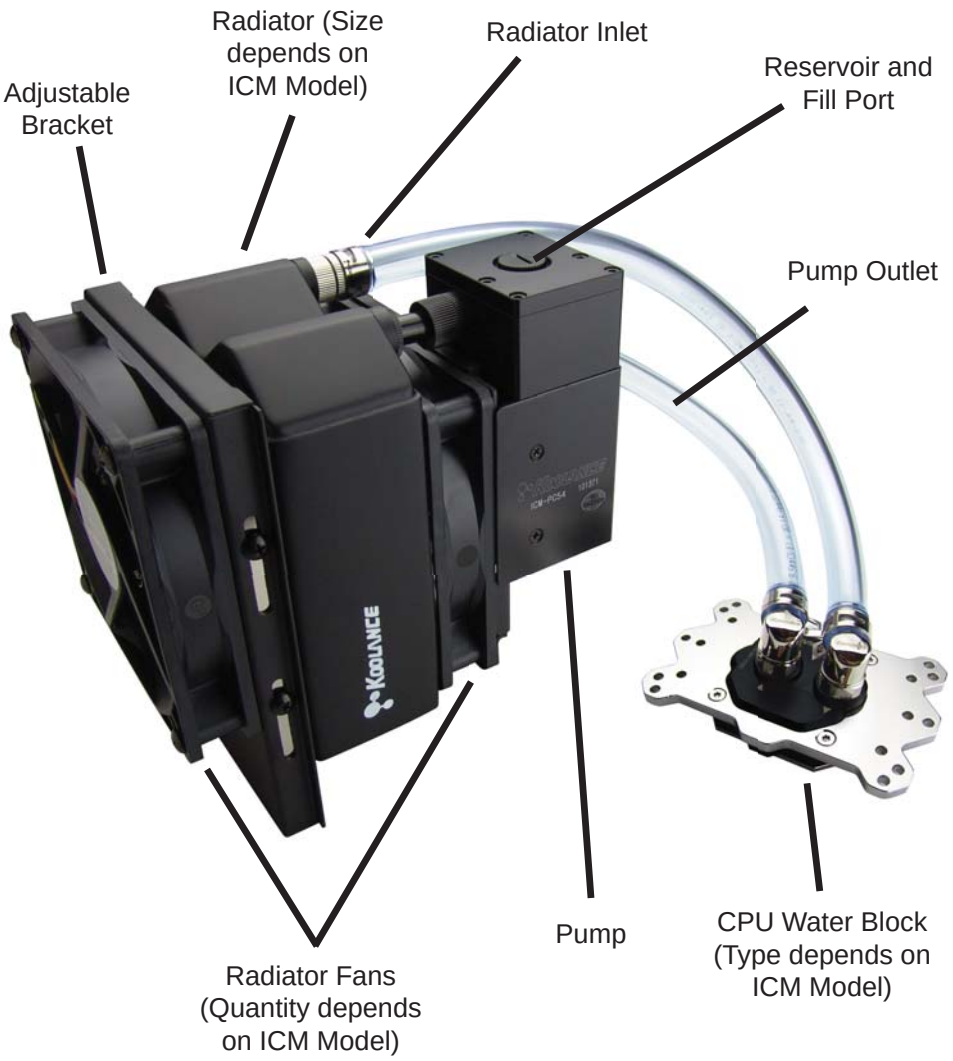
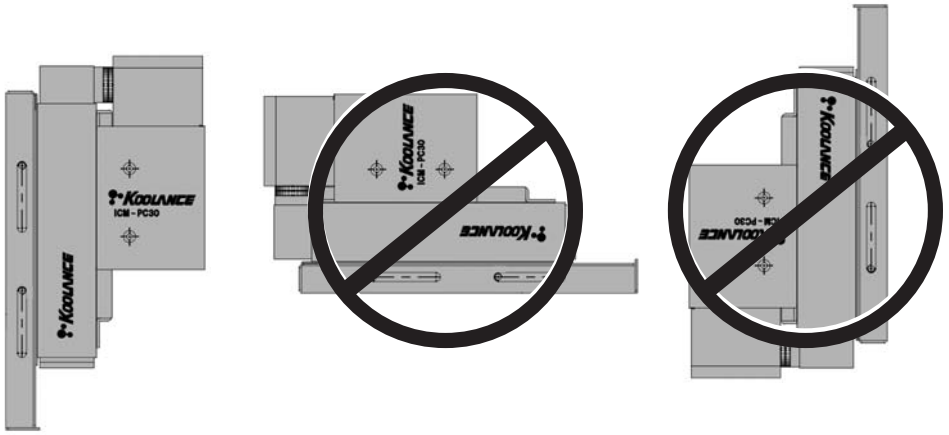


Positioning the Cooling Unit

The cooling unit must remain upright during operation. The pump will not operate properly if mounted in other directions and might burn-out.



OK! **NO!** **NO!**

Test-fit the cooling unit by holding it within the chassis in its mounting location. Check for any physical conflicts from the computer chassis, tall motherboard heat sinks, video cards, or other components which might prevent the unit from fitting properly.

In some computer chassis, the fan grill is at the very top or just below the power supply, requiring the radiator and pump to be lowered.

If radiator adjustment is necessary, loosen the 2 screws on each side of the bracket. Slide the radiator and pump assembly up or down to the desired height, and retighten all 4 bracket screws.

Loosen bracket screws (2 per side)

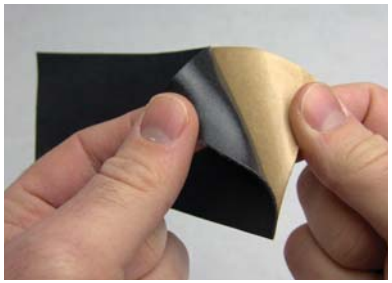
Slide radiator/pump to desired height and retighten 4 bracket screws

If the radiator is lowered on the bracket, the exposed area above it must be sealed. This is to properly direct airflow through the radiator.

Use the included self-adhesive pad to cover this opening in the bracket.

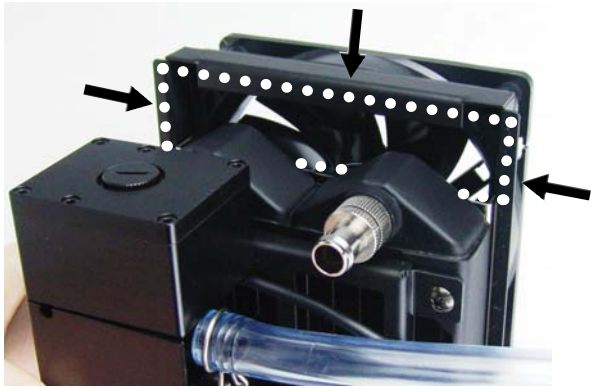
Temporarily slide the adhesive pad between the radiator and bracket.

Trim the pad so it's no larger than the area needed to cover the bracket opening.



Remove the backing from the adhesive pad.

There are flanges around the bracket designed for the adhesive pad. Push the sticky pad onto these wider areas of the bracket.



If the adjustable bracket is not needed for your computer chassis, it can be optionally removed. This can make the cooling unit more compact.

Start by completely removing the bracket screws (2 per side).

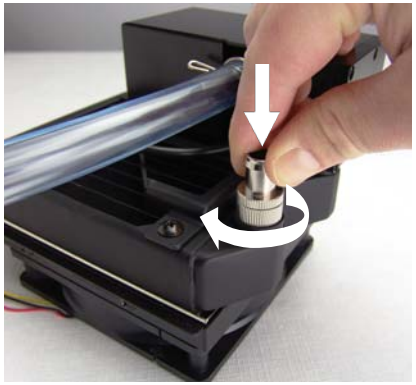
Remove all 4 screws on the radiator-side bracket.

Remove all 4 screws on the fan-side bracket.

Put aside the fan and its mounting screws for now. They will be used to mount the cooling unit to the chassis later during installation.

Attaching Fittings and Tubing

The CPU water block must be connected to the radiator and pump with tubing. Use the materials included with this DIY kit to complete assembly.



Insert swivel/lock barb by pushing down and tightening by hand.

Insert the straight hose barb into the radiator inlet location.

This type of Koolance fitting is a “swivel/lock barb”. It must be pushed toward the thread when tightening or loosening.

This design allows the barb to swivel during normal use without accidentally unscrewing the fitting.

Cut the pump outlet tubing where the CPU block will connect.

Allow for extra length to the CPU water block! There must be enough slack in the tubing to mount the CPU block before installing the cooling unit.

Remember, it’s always possible to shorten tubing later if needed.

Use only the largest clamps provided with this DIY kit. If smaller clamps are included, discard them.

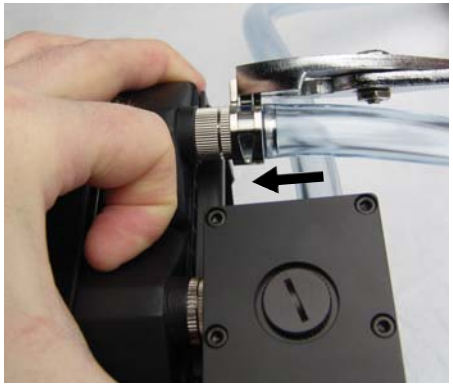
Using pliers, squeeze the tabs together on a clamp and slide it over the tubing segment just removed from the pump. This piece will connect the radiator to the CPU block.

Push this tubing segment completely onto the radiator barb. It can help to temporarily dip the tubing end in water to lubricate it.

(Note: this piece of tubing should not be connected to the pump.)

Cut the other end of the tubing to the same point as the pump's tubing. Both ends of tubing (from pump and radiator) will connect with the CPU water block. Extra slack is recommended.

Push unattached tubing onto radiator barb



Move clamp onto radiator barb

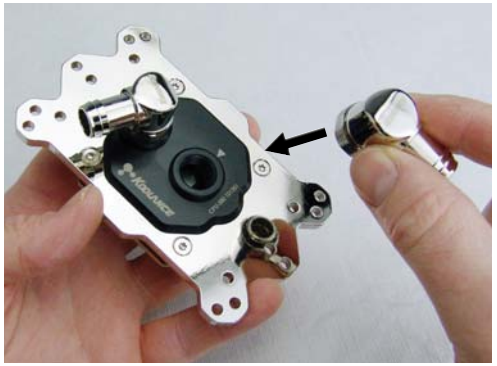
Using pliers, move the hose clamp onto the the radiator barb and release it.

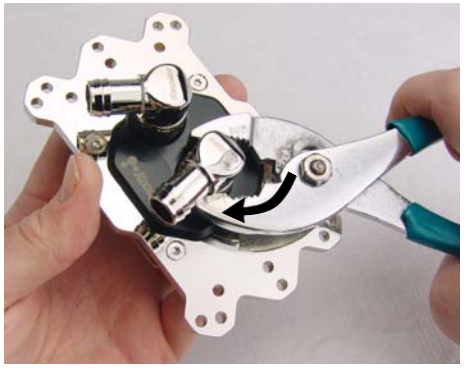
Correct placement of the clamp is important to prevent leaks. It should rest just behind the barbed portion of the fitting.

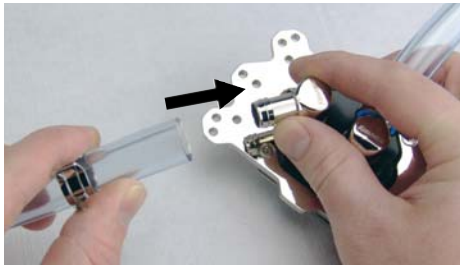
Correct location of a hose clamp to left of barbed area

Insert the angled swivel fittings into the CPU water block. For lack of leverage, pliers might be needed to tighten the second fitting. **Do not overtighten fittings, or the black plastic top may become stripped!**

Keep in mind for parallel threads (G 1/4 BSPP), sealing is performed by the o-ring and not the threads themselves. Excessive torque is unnecessary and could damage components.

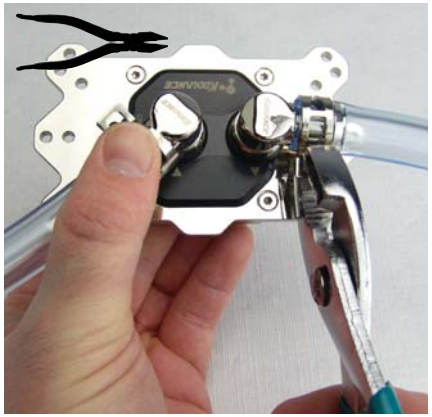






The hose from the pump should go to the CPU block's "inlet" (white arrow-head pointing toward the thread).

Place a clamp onto both open tubing ends and push tubing onto the CPU barbs. As before, water can be used to help with lubrication.



Move hose clamps onto the fittings just behind the barbed areas, then release. Clamps can be rotated later if needed.

Filling the Unit

The radiator and CPU block should now be connected with tubing, and there should be no open tubing ends. Place the assembly on a table with the reservoir fill port facing up. It may help to have another person hold the reservoir during this step to avoid spilling coolant.

Unscrew the reservoir fill port.

Carefully pour coolant (sold separately) into the reservoir. Add coolant slowly and allow time for air from the tubing to enter the reservoir.

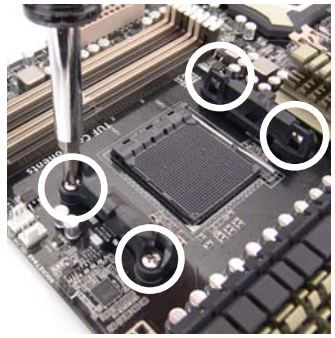
It can help to temporarily replace the fill port screw before lifting and tilting the reservoir and CPU block separately. The goal is to help move air pockets along so they enter the reservoir or radiator.

As air escapes the fill port, more coolant will be needed.

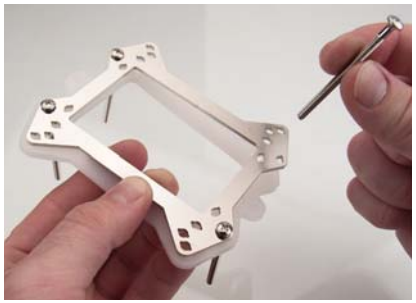
Don't worry about small air pockets or bubbles remaining in the lines. The pump will push these into the reservoir. If more coolant is necessary after the pump is powered, it can be added later.

Installing the CPU Water Block

(CPU-380A only) Some processors, like AMD sockets AM2/AM2+/AM3, may require removal of the motherboard's existing retention frame in order to install the Koolance water block.



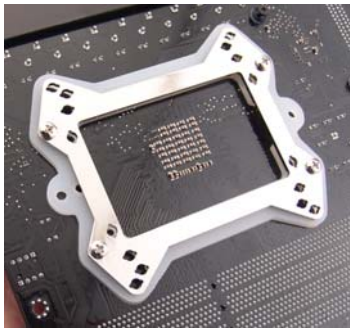
If present, remove this retention frame by unscrewing its screws, or if plastic tabs are used, pulling out these locking tabs.

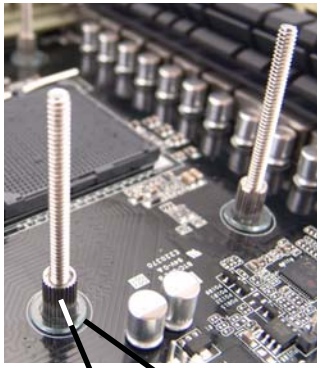


Place the rubber insulation pad against the rear Koolance bracket. Push four mounting posts through the back plate and insulation pad. The posts and bracket holes are keyed to prevent spinning when tightened later.

Refer to the rear bracket images on the next page for the correct hole locations based on your CPU socket.

From beneath the CPU socket, carefully insert the back plate posts through the motherboard mounting holes. The insulating pad will be sandwiched between the back plate and motherboard.

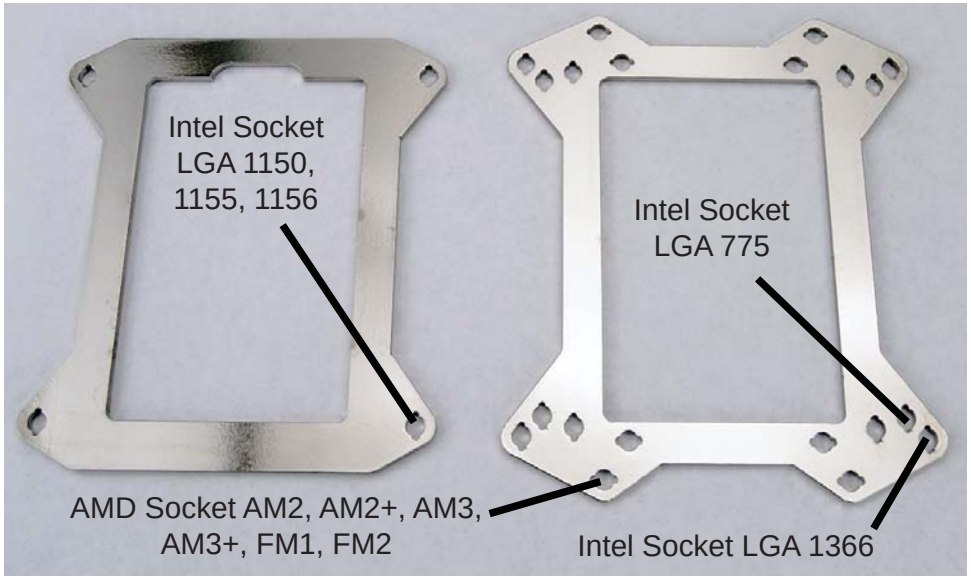




Metal Nut *Plastic Washer*

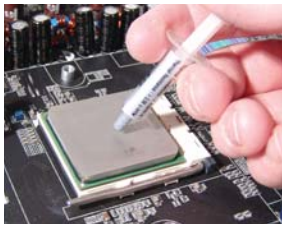
Above the motherboard, place a plastic washer around each mounting post. Hand-tighten a metal nut onto each post above the washer to hold the rear bracket in place.

One or two back plates may be included with your water block. Use the picture below to determine which hole location your mounting posts should use:

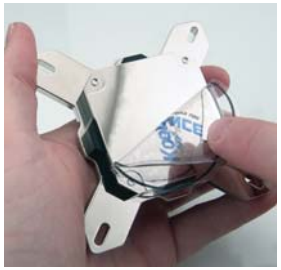


Intel socket LGA 2011 does not use a back plate. Instead, use the included mounting posts, which screw directly into the existing motherboard's CPU back plate.

Intel Socket 2011 Posts

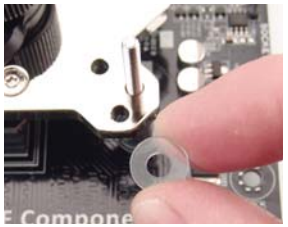


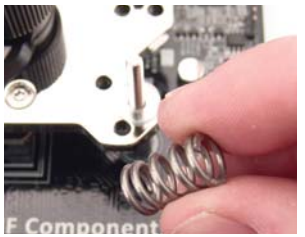
Apply thermal paste to the CPU directly. Spread the paste so that it evenly and thinly covers the CPU. A piece of thick paper (such as a business card) works well for this.

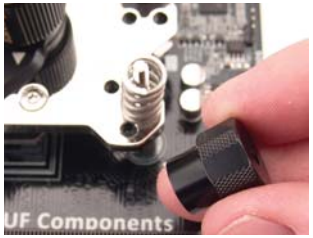


Remove the protective film from the bottom of the cold plate.

Place the water block over the mounting posts.



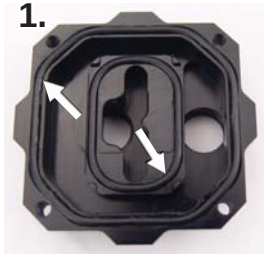




Over each mounting post above the top bracket, place a plastic washer, then a spring, and lastly a thumb nut. Tighten thumb nuts gradually in a cross-shape pattern.

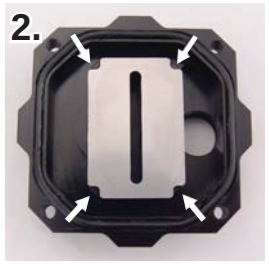
CAUTION: Do not overtighten thumb nuts or damage to the water block, processor, or motherboard could result. If the water block is opened for any reason, carefully hand-tighten assembly screws during reassembly to prevent stripping or damaging the threads.

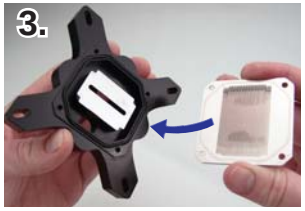
The CPU water block can be opened (for cleaning, etc.) by carefully unscrewing the four assembly screws with the included wrench. It is extremely important to reassemble this product properly.

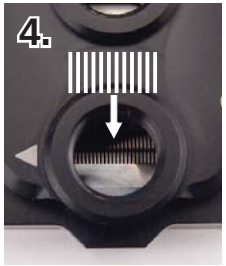


1. Make sure both o-rings are smoothly in their grooves. These should never become warped or damaged.

2. The center impingement plate has notched corners to align it with tabs on the top cover.





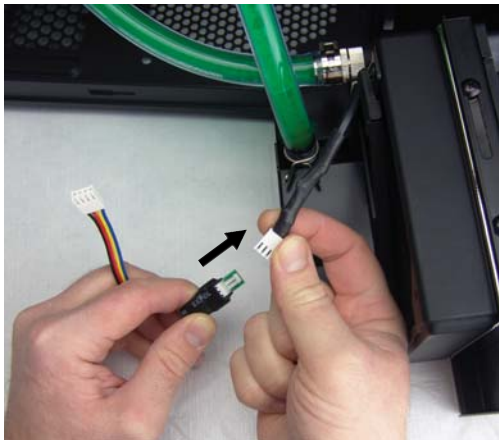


3. The cold plate microfins must run *perpendicular* to the impingement plate center slot!

4. When the block is assembled, look into the outlet hole to confirm proper fin direction. The microfins should run towards the inlet hole.

Mounting the Cooling Unit

With the CPU water block mounted to the motherboard socket, it's time to install the pump and radiator assembly.

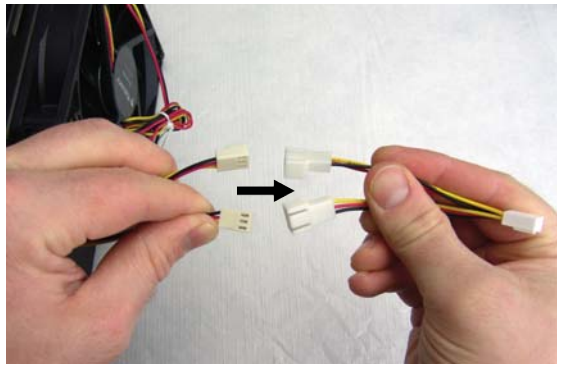


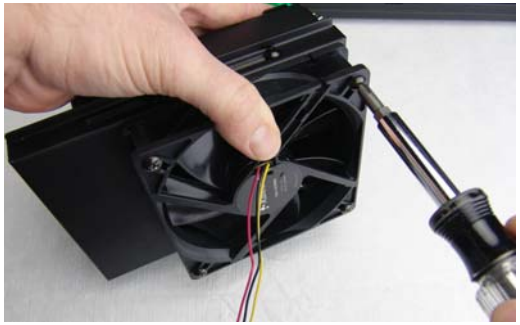
Connect the included PWM (3 to 4-pin) adapter to the pump plug.

This adapter allows most PWM-enabled BIOS to read the approximate pump RPM. This can be useful for enabling shutdown and alarm events from within BIOS or through 3rd-party software.

For dual-fan models (ICM-PC54), a 3-pin harness is included to combine both radiator fans into one plug.

If the harness will not be used, each fan must be connected to separate headers on the motherboard.





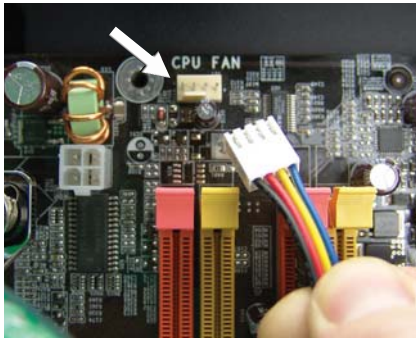
Temporarily remove the 4 mounting screws on the rear of the fan.

Using the 4 fan mounting screws, assemble the cooling unit to the computer chassis.

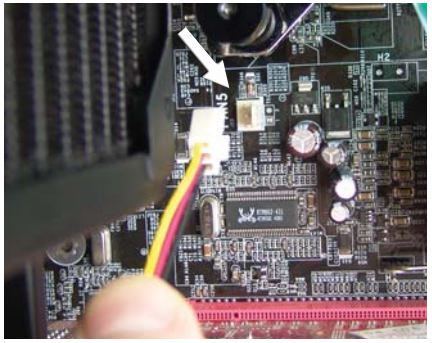
If the fan mounting screws are too short for your chassis, longer ones (35mm) are also included.

Attach the pump connector to the "CPU FAN" header on the motherboard.

Attach the radiator fan connector to an available "FAN" header on the motherboard (chassis fan or another).



Connect pump to "CPU Fan" header



Connect radiator fan to any extra available fan header

Limited Warranty

Koolance Incorporated (“Koolance”) warrants each new Koolance liquid-cooled system (“the system”), against defects in materials or workmanship for a period of one year from the date of purchase, and agrees to repair or replace any defective Koolance system without charge. Shipping costs are non-refundable.

This warranty is non-transferable. All warranty claims must be accompanied by the original proof of purchase.

THIS WARRANTY DOES NOT COVER DAMAGE RESULTING FROM ACCIDENT, MISUSE OR ABUSE, LACK OF REASONABLE CARE, SHIPPING DAMAGE, MODIFICATIONS, THE AFFIXING OF ANY ATTACHMENT NOT PROVIDED WITH THE PRODUCT, LOSS OF PARTS, OR OPERATING COMPONENTS AT SPEEDS OR FUNCTIONS OTHER THAN THOSE SPECIFIED BY THEIR MANUFACTURERS.

Use of unauthorized replacement parts or liquids will void this warranty. Koolance Incorporated will not pay for warranty service performed by a non-authorized repair or diagnostic service and will not reimburse the consumer for damage resulting from warranty service performed by a non-authorized repair service. No responsibility is assumed for any special incidental or consequential damages due to a defective Koolance product.

In order to obtain warranty service, contact our RMA department for information. The product must be shipped postage prepaid to an authorized Koolance service location. It is suggested that, for your protection, you return shipments of product by insured mail, insurance prepaid. Damage occurring during shipment is not covered by this warranty. Shipping costs are non-refundable. No other warranty, written or oral, is authorized by Koolance Incorporated.

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