

Installation of the Liquid MetalPads

Version 1.10 English

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Introduction

The Coolaboratory Liquid MetalPad consists of only metal and no non-metallic additives. The situation when the Liquid MetalPad changes' (melting) is at [approximately 58°C from solid to liquid](#). When you are using the revolutionary Liquid MetalPad, it has to melt only once with a "BurnIn" process to achieve full performance.

There are different ways to install the Liquid MetalPad in your system. Subsequent to the introduction you will find three versions for installing. This manual describes the installation with a typical CPU cooler. Please note that you should install the Liquid MetalPad with the methods set out within this manual, as it could otherwise damage your system and/or components. In this case Coolaboratory accept no liability.

Attention: Nearly all motherboards on the market provide a wrong CPU temperature. These temperatures are under or above the real CPU temperature. You can see the success of the installation with a temperature scale / chart. The most motherboards have an emergency stop, if the temperatures are really above 70-80°C.



Attention: Be sure that your computer system is disconnected from its power source if you want to work with your computer hardware!
Non-observance can cause a danger to life!

Installation

In normal case there is a heat-conductive paste or a heat-conductive pad between the CPU cooler and the processor. Non-metallic heat-conductive paste has the disadvantage that it cannot transfer the generated heat from the source to the cooler completely. Remove the old heat-conductive paste or heat-conductive pad from the cooler and processor. The surfaces have to be free of fats and residues. Particularly suitable are cleaning cloths, for example for cleaning glasses.

If you have used former the Coollaboratory Liquid Pro, we recommend a metal grinding pad – for example from “Scotch-Brite” – or metal finish (polish).

Please check the area of contact measures after cleaning the surfaces of the processor and cooler. The measures delivered by Coollaboratory are:

- 38x38 millimeters for processors
- 20x20 millimeters for graphic cards

There are size differences between the CPU / graphic card manufactures and product families. It is always possible, to customize the MetalPad with a cutting tool.

The Liquid MetalPad should have the same dimensions as the contact area.

Put one Liquid MetalPad on the processor and then install the cooler on the processor. Please be sure to position the cooler on the processor correctly. Do not rotate or shift the installed cooler, otherwise the position of the Liquid MetalPad could change.

Now choose one of the following installation methods that match your requirements.

Installation with a fan-controller

Owners of high-end computer systems may have a fan-controller which works completely separate or connected with software. If you do not own a fan-controller and want to use this installation version, you can buy a simple fan-controller system or standard potentiometer will do for the installation of the Liquid MetalPad.

In the following example a simple rotary-potentiometer is used for installation:

Example for the installation with a simple hardware fan-control

Separate the specific fan cable from the board and connect it to the fan controller (potentiometer). Now connect the fan control cable with the motherboard fan-plug. Check the installation / application again and read if necessary the manual of the fan control.

Restart the computer and watch closely whether the fan is running or not. The fan should run at maximum performance, which you can adjust with the fan control (rotate the rotary-potentiometer knob). If the fan doesn't work you have to check the connections between the fan, fan control and the motherboard again. (Please note that the computer has to be switched off.)

When everything is working you can boot into Windows or enter the computer BIOS with the DEL button. Most motherboards provide hardware monitoring of the CPU, chipset and fan status in the BIOS. The computer is under load in if you are in the BIOS. If you don't want to or can't use the BIOS you can monitor the temperatures with a software tool (manufacturer tool, Speedfan, Everest Ultimate...). Please note that you have to get your computer under load – you can achieve this with some applications which require a lot of CPU performance.

After the temperature has reached his final temperature adjust the fan speed with the fan control. Decelerate the fan speed carefully and watch the temperature closely. The temperature should rise until you have reached the melting point of the MetalPad - according to the fan speed. You can spot it easily with a temperature curve if the temperature is falling down (temporary). Now accelerate the fan speed to 100%. The temperature will reduce until it has reached his final temperature– this can take some minutes. You should have now better temperatures (averaged 4-7°C) with the Liquid MetalPad compared to other heat-conductive pastes, as example silicone pastes. Please note that you will get no or only marginal changes in compared to the "Coollaboratory Liquid Pro".

The installation is successful if the temperature is improved. If the temperature is not changed repeat the installation (melting of the Liquid MetalPad).

Further installation with a software application

Motherboard manufactures and graphic cards ship with applications for controlling the (clock) speed for example of processors and fans. If you have no such tool you can download free available tools from the internet. The following manual uses the tool Speedfan from the author Almico.

You can download Speedfan from: <http://www.almico.com/speedfan.php>

Example for the installation with software application (Speedfan)

Start the software after installation and wait until Speedfan has checked all sensors and components of your computer system. This can take 20-30 seconds.

Set your computer under load – you can do this with applications which use a lot of CPU performance for example and watch closely the temperature in the display of Speedfan. The temperature, which responds immediately and clearly rise, is the temperature of the cooler - in this case the CPU cooler. If you can't identify the temperature definitely start a separate application for watching the temperature (Speedfan). We recommend EVEREST Ultimate Edition from Lavalys for putting under load.

Check to see if you can adjust the CPU fan with Speedfan. The best and securest way is visual verification of the CPU fan in your computer after you have changed the fan speed. If you can adjust the fan with Speedfan start the next step of the installation (BurnIn of the Liquid MetalPad).

After the temperature has reached its final value you can adjust the CPU fan speed with Speedfan. Decelerate the fan speed carefully (step by step) and watch closely the temperature. The temperature should rise until you have reached the melting point of the MetalPad - according to the fan speed. You can see it with the temperature curve if the temperature is falling down (temporary). Now accelerate the fan speed to 100%. The temperature will reduce until it has reached his final value – this can take some minutes.

You should have now better temperatures (averaged 4-7°C) with the Liquid MetalPad compared to other heat-conductive pastes, as example silicone pastes. Please note that you will get no or only marginal changes compared to the "Coollaboratory Liquid Pro".

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Alternative installations

Beside the presented varieties of installation there are many other possibilities, to melt the Liquid MetalPad between for example the processor and the cooler. Very effective is the use of hot-air gun/ hair-dryer, which heat the cooler accurately. Please note that you regulate this according to the capacity of the unit and that you only heat precise the cooling element. This method works especially at air cooler with fins / heat-pipe function. A short-term heating of the cooler up to approx. 60°C leads to the wanted result. Please note that it is advised against using hot-air guns with water cooling. Alternative methods such as these are at your own risk.

Removing of the Liquid MetalPad

If you want to remove the Liquid MetalPad, you can peel it off the contact area carefully. Depending on the structure of the surface it should peel off very easy and may leave small residues. You can remove these quickly and simply with a metal grinding pad. Coollaboratory sells this high-quality metal grinding pad in larger packs of MetalPad.

You can also leave the residues in the depressions on the contact areas, because they rather improve the cooling performance when using other pastes.

Please note that you don't exert too much pressure with the metal grinding pad to avoid a warranty deficit!

Problems and solutions

- *The installation at my water cooling system does not work.*

The installation of the Coollaboratory MetalPads with water-cooling systems is a little more complicated, than with air cooler. The water, which circulates in the water-cooling, keeping the melting-temperature of the processor under the temperature that is needed for the MetalPad, also at high strain. To complete the installation process successfully, you can deactivate the pump – If that riskless possible. When there is no water flow, the heat cannot conduct fast enough to the radiator. As soon as the MetalPad is melted, activate immediate the pump of the water cooling.

Attention: Please inform yourself about the water-cooling system / pump at the manufacture, whether and how you can deactivate the pump of the system briefly. If available you can read the manual.

- *Why are my temperatures inferior with the MetalPad as with an e.g. standard silicon heat-conductive paste?*

In that case the installation of the MetalPad is either not successful completed or the areas of contact were insufficient cleaned. Residues of an ancient paste out of for instance silicon or metallic oxide affect insulating and consequently negative.