

INTEL

AMD

Dear customer,

Thank you very much for purchasing an NL-LC1 series liquid cooler. With first-class cooling performance, superb quietness of operation and industry-leading reliability, the NL-LC1 series brings classic Noctua virtues to the world of all-in-one liquid coolers.

Enjoy your NL-LC1!

Yours sincerely,

Roland Mossig, Noctua CEO

This manual will guide you through the installation process step-by-step using the NL-LC1-360mm as an example. The installation procedure is identical for the NL-LC1-420mm and NL-LC1-240mm models.

Should you run into any questions that are not covered in this manual, please check the FAQs on our website (<https://noctua.at/faqs>) and don't hesitate to contact our support team at support@noctua.at.

Multilingual versions of this manual are available on our website: <https://noctua.at/manuals>

We also offer a video tutorial that walks you through the installation process: <https://noctua.at/nl-lc1-installation>



1 Picking a radiator position

Many modern tower style PC cases allow liquid coolers to be installed in more than one position (top, front or side of the case). Please consult the manual of your PC case to find out in which positions you can install your NL-LC1 cooler.

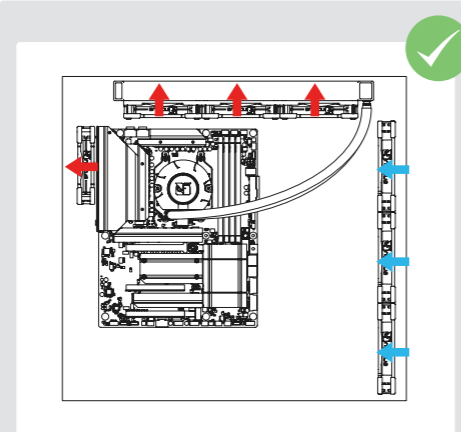
Installing the radiator at the top of the case has the advantage that hot air is directly exhausted, so it will not affect other components such as the GPU. The downside is that warm air from the GPU will be taken in by the radiator fans, which can result in slightly higher CPU temperatures.

Conversely, installing the radiator at the front or at the side of the case has the advantage that the radiator fans can take in fresh air, which ensures the lowest possible CPU temperatures, but the warm air will go into the case, which can cause slightly higher temperatures on the GPU or other components.

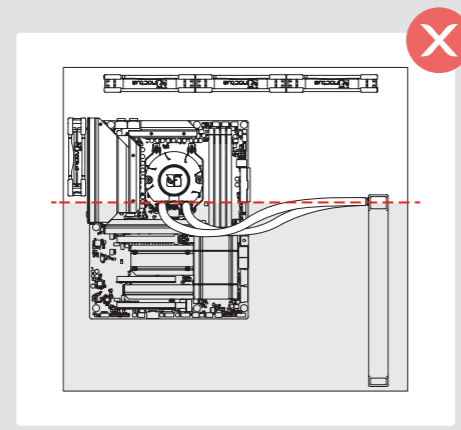
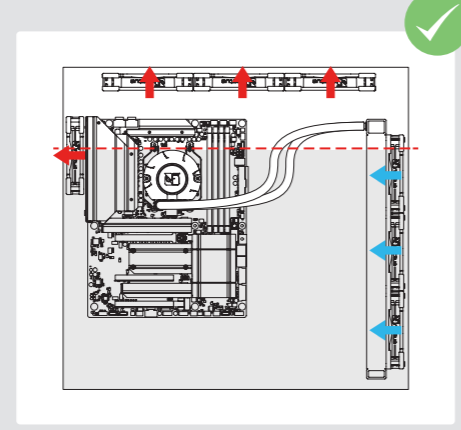
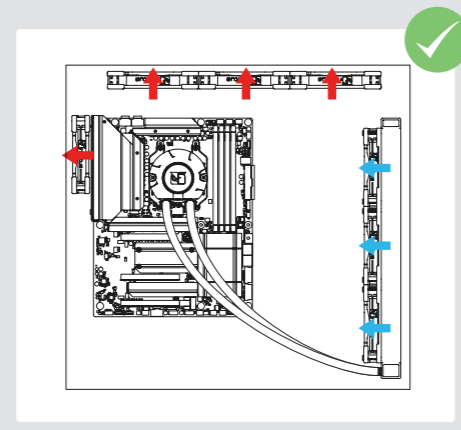
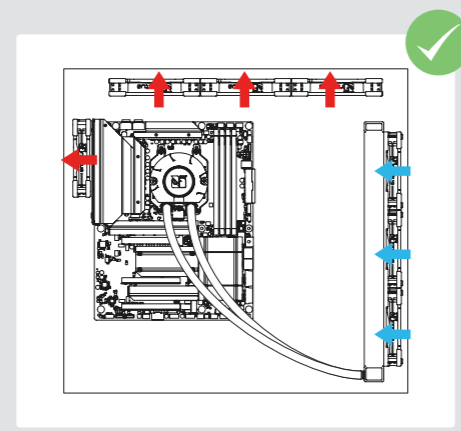
Therefore, choose the front or side mounting position to prioritise CPU temperature or the top mounting position to prioritise GPU temperature.

In either case, we recommend installing the fans pushing air through the radiator rather than pulling air through it for optimal performance-to-noise efficiency.

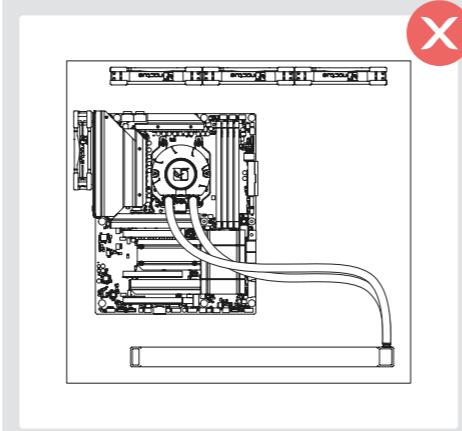
A top radiator configuration should always be combined with front intake and a rear exhaust fan to ensure sufficient intake of fresh air. We recommend orienting the tube connectors of the radiator towards the front of the case so that they stay clear of the rear exhaust fan.



A front or side radiator configuration should be combined with exhaust case fans at the top (if possible) and rear side of the case to remove warm air. Additional bottom intake fans (if supported by the case) can also be helpful in this type of setup. The tube connectors of the radiator should be oriented towards the bottom of the case if possible, but they can also be oriented towards the top as long as the highest point of the radiator is higher than the pump.



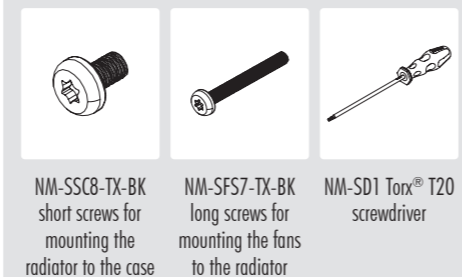
Caution: Do not install the radiator at the bottom of the case as it is crucial that the highest point of the radiator is above the pump. Otherwise, air might get trapped in the pump, which can lead to increased noise, lower performance and shorter lifespan.



i If you would like to learn more about different radiator positions and fan configurations, please visit <https://noctua.at/nl-lc1-radiator-setsups>

2 Fan and radiator installation

Required mounting parts:



The following recommendations assume that a typical case with fixed fan/radiator mounting rails or panels is used. Some modern cases feature more flexible setups with removable mounting brackets. Please refer to your chassis' manual for detailed guidance on how to install the radiator.

3 Placement of PPA/PPB fans (speed offset)

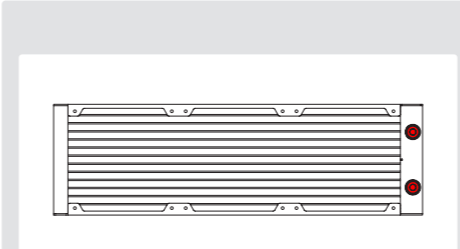
The fans that are included with NL-LC1 liquid coolers are slightly offset in speed to ensure optimal acoustics. For 360mm and 420mm models, place the fan labelled PPB (running slightly faster) in the centre and the two fans labelled PPA (running slightly slower) on the outer positions. For the 240mm model, the placement of the PPA and PPB fan does not matter.

Noctua generally does not recommend using push/pull setups because the performance-to-noise efficiency tends to be worse than with single-side push or pull configurations. If you still want to boost raw cooling performance by adding more fans, we recommend a PPA/PPB/PPA configuration on the push side and PPB/PPA/PPB configuration on the pull side for 360mm and 420mm models and PPA/PPB push and PPB/PPA pull for 240mm models.

4 Radiator setup options

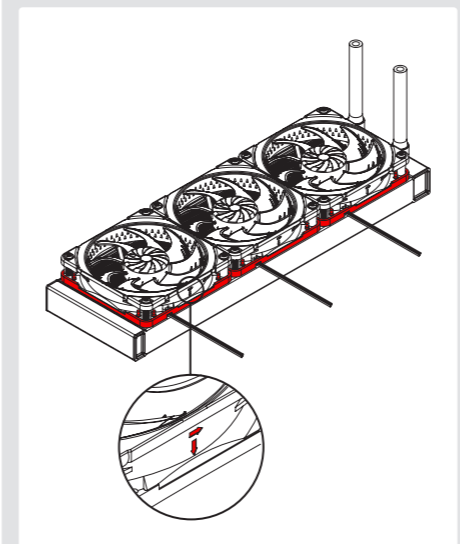
a Top mount with push fans (recommended for lowest GPU temperatures)

Place the radiator on a table or flat surface so that the tubes are on your right-hand side. Make sure that the pump block does not accidentally touch the radiator fins.

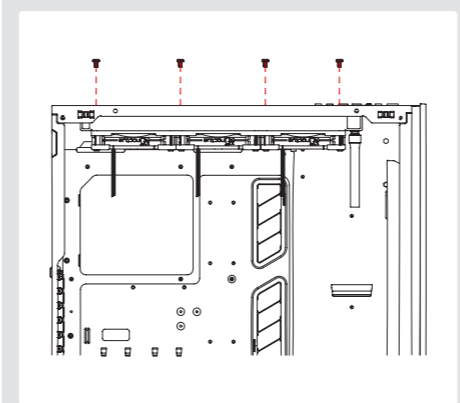
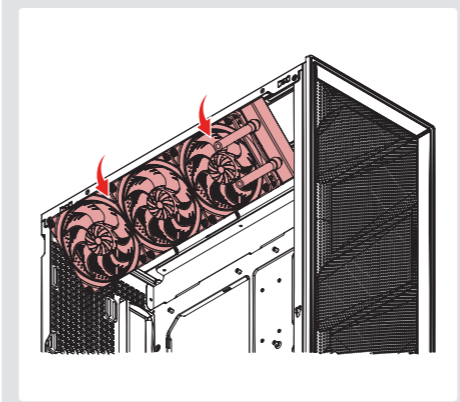


Place the fans on the radiator in a push setup with the pre-installed anti-vibration gaskets facing the radiator and the cables of the fans facing downwards. Carefully screw the fans to the radiator using the long screws.

Caution: Gently tighten the screws until they stop and stop applying force once they bottom out. Do not use excessive force (max. torque 0.3 Nm)!



Then put the radiator into the case with the tubes facing right and fix it using the supplied short screws.

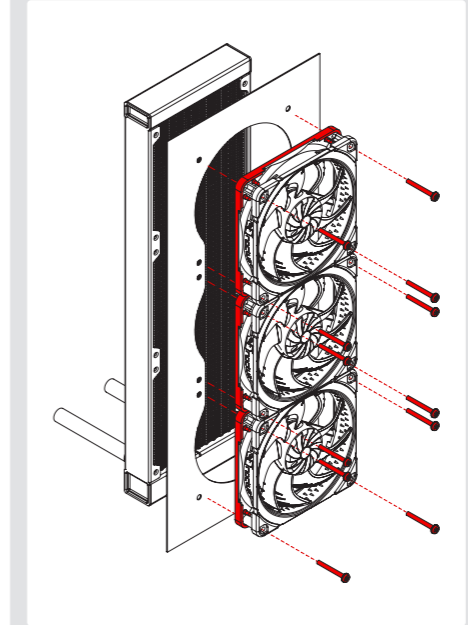


b Front or side mount with push fans (recommended for lowest CPU temperatures)

If you have decided to install the radiator at the front or at the side of the case with the fans pushing air through the radiator, you usually have to fix the fans and the radiator at the same time using the supplied long screws (check your case manual for details).

First put the radiator in place with the tubes facing the interior of the case (and, preferably, oriented towards the bottom of the case). Next, align the fans with anti-vibration

gaskets facing the front case panel from the outside, with the cables towards the right-hand side case panel. Then, secure the fans by screwing them through the front panel into the radiator, starting with the top fan to hold the radiator in place and then proceed to the middle and bottom fans.



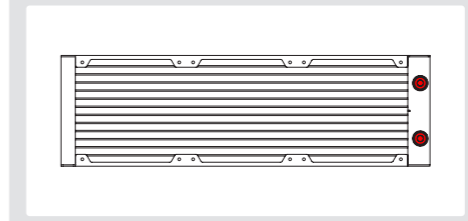
Caution: Gently tighten the screws until they stop and stop applying force once they bottom out. Do not use excessive force (max. torque 0.3 Nm)!

If your case does not provide enough space to install the fans in front of the panel, you can install the fans behind the front panel instead. In this setup, screw the fans directly onto the radiator by inserting the screws from the outside of the front panel.

c Front or side mount with pull fans

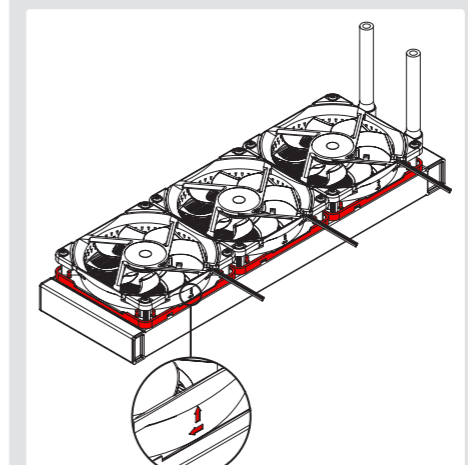
If you have decided to install the radiator in the front or at the side of the case with the fans pulling through the radiator, please switch the anti-vibration gaskets to the inlet side of the fans first.

Then place the radiator on a table or a flat surface so that the tubes are on your right-hand side. Make sure that the pump block does not accidentally touch the radiator fins.

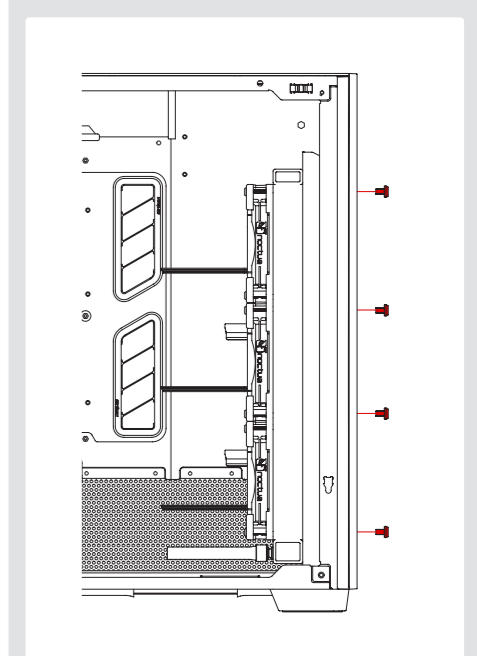
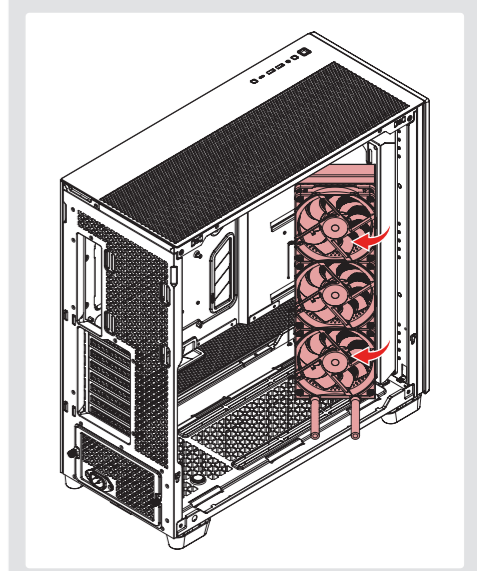


Carefully screw the fans to the radiator with the anti-vibration gaskets facing the radiator and the cable exits facing downwards.

Caution: Gently tighten the screws until they stop and stop applying force once they bottom out. Do not use excessive force (max. torque 0.3 Nm)!



Then put the radiator into the case with the tubes on the bottom side (if possible) using the supplied short screws.



! Warranty, support and FAQs

Even with high-grade products and strict quality control, the possibility of defects cannot be eliminated entirely. Therefore, we aim at providing the highest possible level of reliability and convenience by offering a warranty period of 6 years and direct, fast and straightforward RMA service.

Note that warranty becomes void if the product is installed or used improperly, e.g. without fans or with the fans shut off at elevated temperatures, with the pump installed at a higher position than the radiator, etc. We also cannot accept warranty claims for units that have been opened by the user.

Should you encounter any problems with your NL-LC1, please don't hesitate to contact our support team (support@noctua.at).

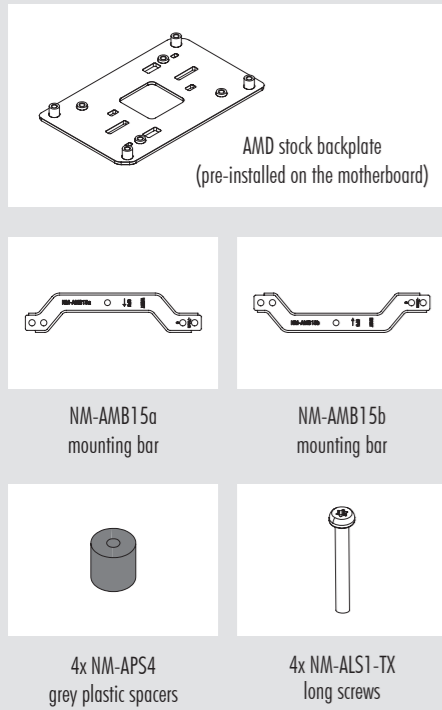
Please also consult the FAQ section on our website: <https://noctua.at/faqs>



Mounting part installation (socket specific)

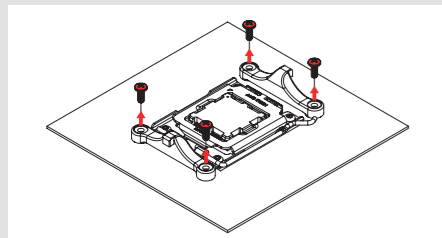
AMD AM5 & AM4

Required mounting parts:

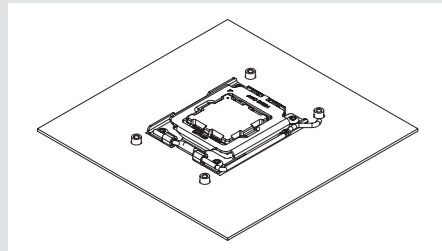


1 Removing the stock retention module — putting the backplate in place

The SecuFirm2™ mounting system will install directly to the motherboard's stock backplate, so please first remove the motherboard's stock CPU cooler retention module by unscrewing it from the backplate (if it has not already been removed for previous installations).

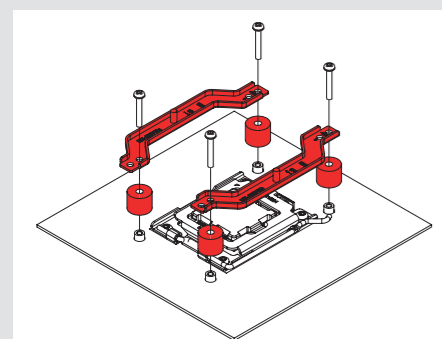


On AM4, the stock backplate will become loose when unscrewing the retention module, so hold it in place for the next step. If you have lost your stock AM4 backplate, please contact us at support@noctua.at. On AM5, the stock backplate is screw-fixed to the socket, so should simply remain in place.



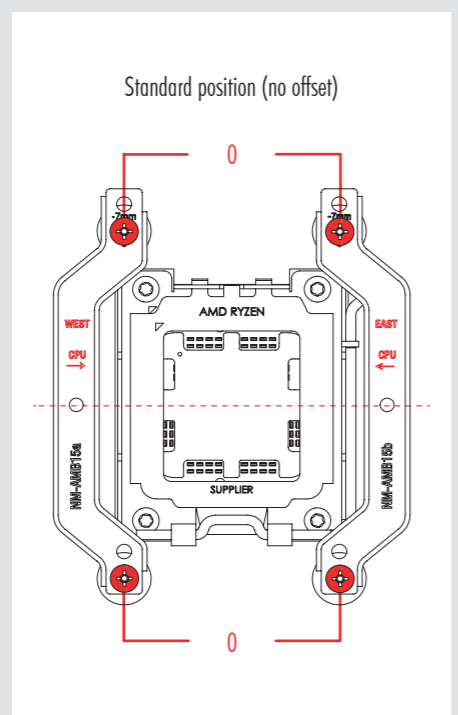
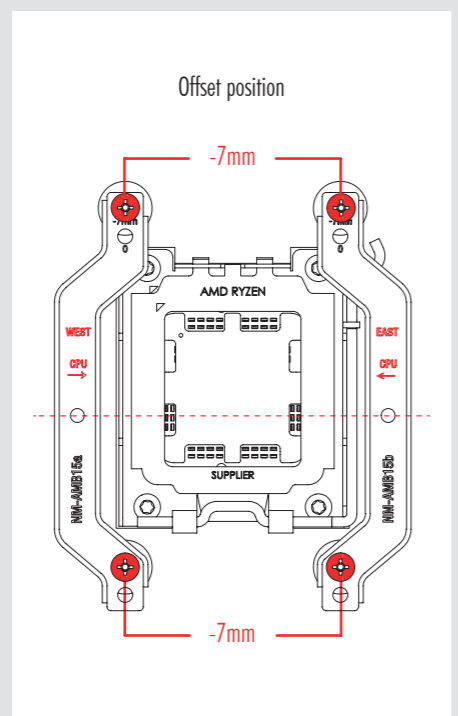
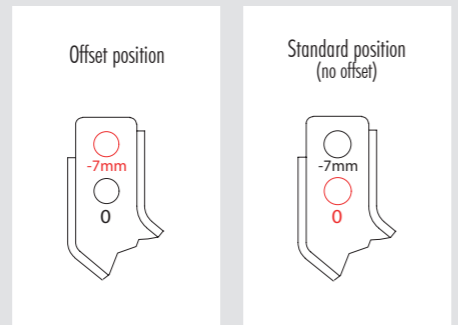
2 Installing the mounting bars

First put the plastic spacers onto the screw threads of the backplate. Then fix the NM-AMB15 mounting bars using the four NM-ALS1 long screws.



On AM5 and Ryzen 5000/3000 series AM4 CPUs, choose the -7mm offset hole position to ensure optimal contact quality and performance.

On APUs as well as other AM4 CPUs, or if there are any compatibility issues in the offset position (e.g. clearance with motherboard heatsinks), please choose the standard position (0).



Caution: Make sure that the "CPU →" markings point towards the CPU and that the NM-AMB15a bar with the "WEST" marking is installed on the west (left) side of the socket and the NM-AMB15b bar with the "EAST" marking is installed on the east (right) side of the socket, as shown above.

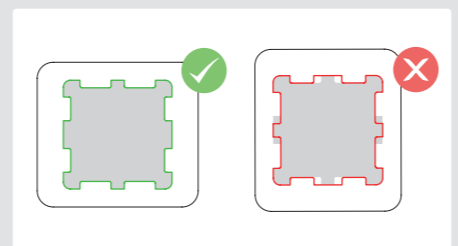
Gently tighten the screws until they stop, but do not use excessive force (max. torque 0.6 Nm).

3 Applying the thermal paste

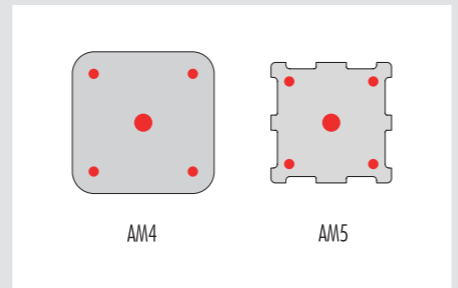
If there are residual traces of thermal paste or thermal pads on your CPU, please clean them off first.

On AM5, put the NA-TPG1 thermal paste guard onto the CPU to prevent the build-up of excess thermal paste in the cut-outs of the heat-spreader.

Make sure that the inner opening of the guard is correctly aligned with the outer edges of the heat-spreader.

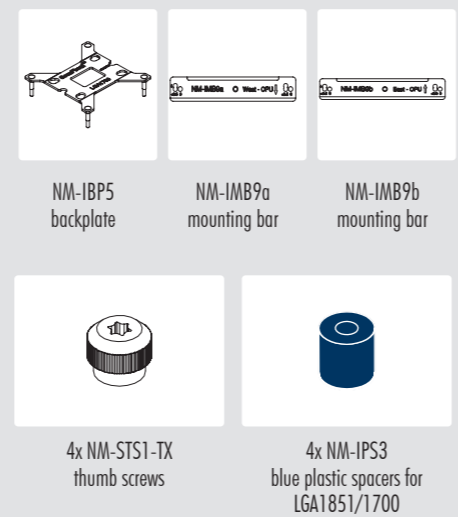


Apply 5 dots; 4 small dots with ~2mm diameter near the corners plus 1 dot with 3-4mm diameter in the centre:



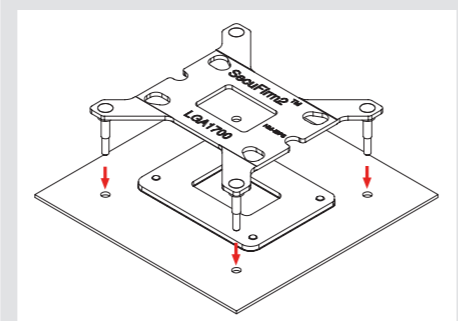
INTEL LGA1851, LGA1700

Required mounting parts:



1 Removing the motherboard and attaching the backplate

If you would like to use the cooler on an assembled system and your case does not have a cut-out at the rear side of the motherboard tray, you must first remove the motherboard from the case in order to be able to install the supplied backplate.

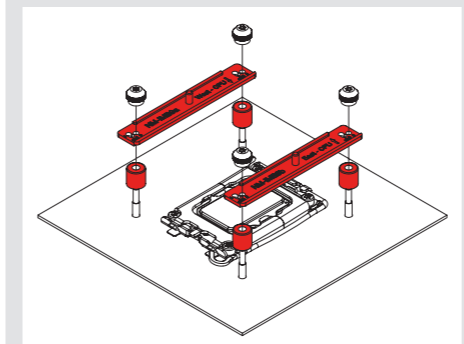


Caution: The supplied backplate will install over the motherboard's stock backplate, so the motherboard's stock backplate must not be taken off.

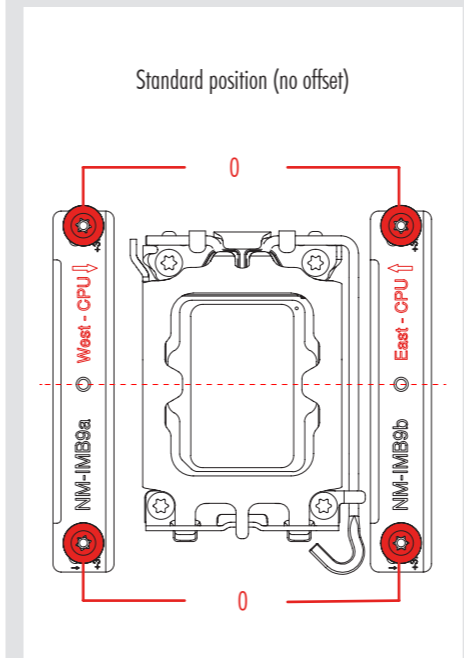
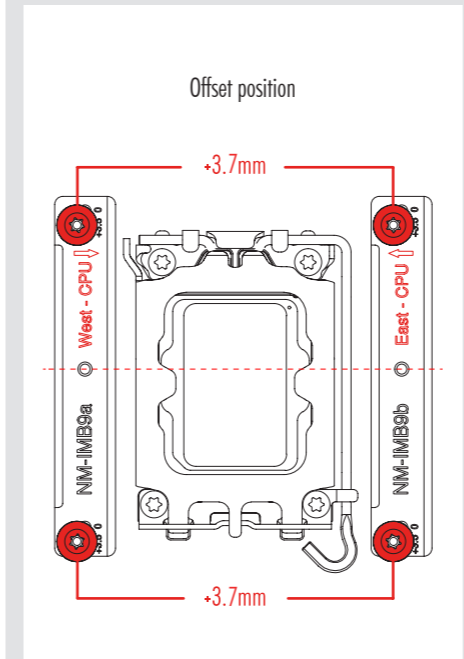
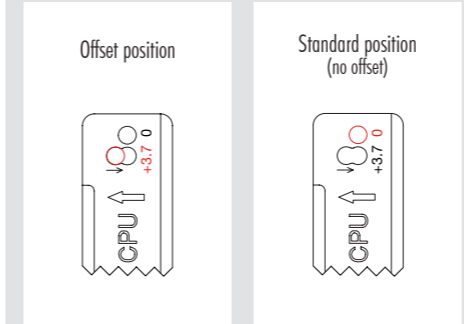
Place the backplate on the rear side of the motherboard so that the bolts protrude through the mounting holes.

2 Installing the mounting bars

Put the plastic spacers onto the bolts of the backplate, then add the mounting bars.



Use the +3.7mm offset position with the additional sideways shift (north + east offset) for optimal performance on 24- or 20-core LGA1851 CPUs. For all other LGA1851 CPUs as well as LGA1700 CPUs, use the standard position without offset (0).



Caution: Make sure that the "CPU →" markings point towards the CPU and that the NM-IMB9a bar with the "WEST" marking is installed on the west (left) side of the socket and the NM-IMB9b bar with the "EAST" marking is installed on the east (right) side of the socket.

While the NM-IMB9 mounting bars could also be installed on the north and south side of the socket, the NA-LC1 will perform best with the tube exits towards the south or north, so please install the NM-IMB9 bars on the east and west side of the socket.

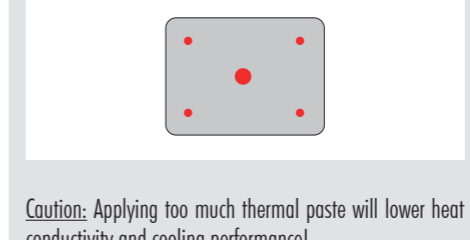
Fix the offset bars using the thumb screws that came with the cooler.

Caution: Gently tighten the screws until they stop and stop applying force once they bottom out. Do not use excessive force (max. torque 0.6 Nm)!

3 Applying the thermal paste

If there are residual traces of thermal paste or thermal pads on your CPU, please clean them off first. Then apply the supplied NT-H2 thermal paste onto the CPU as shown in the following images.

Apply 5 small dots; 4 dots with ~2mm diameter near the corners plus 1 dot with 3-4mm diameter in the centre:

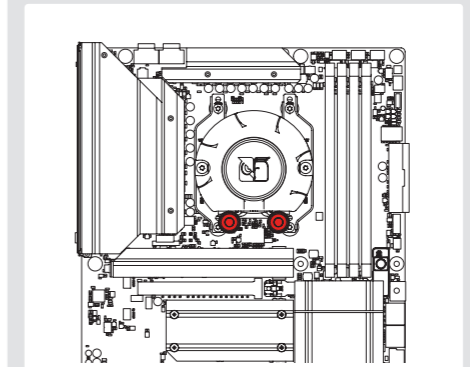


Caution: Applying too much thermal paste will lower heat conductivity and cooling performance!

Setup for all sockets

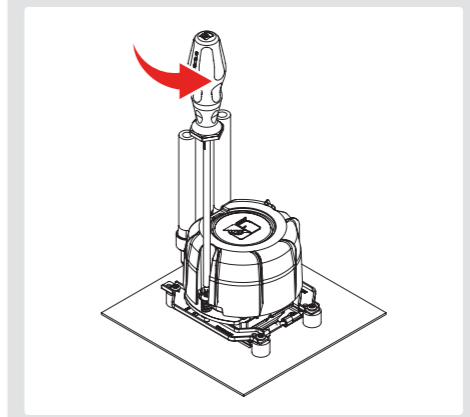
4 Pump installation

For optimal performance, please orient the tube exits of the pump towards the south (bottom) or north (top) side of the CPU socket.



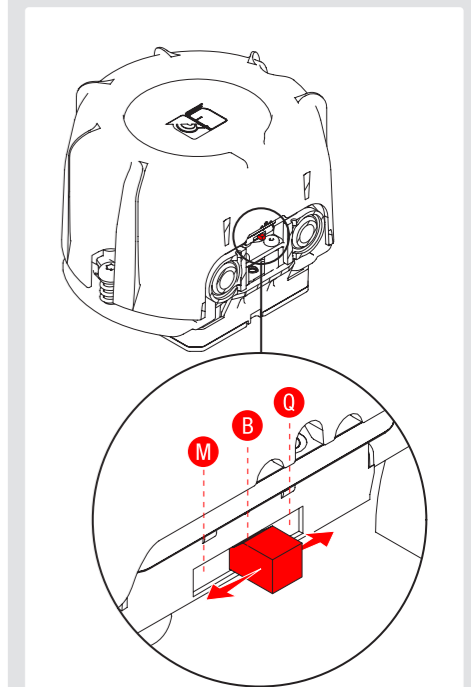
First remove the plastic protection film from the contact surface of the pump block. Then hold the pump block in place, aligning the mounting screws with the screw threads of the mounting bars.

For optimal engagement of the screws, gently turn them in the opposite direction until you feel them slide into place on the threads of the mounting bars. Note that you might have to apply some pressure initially to make the screws catch the threads. Then tighten the screws alternating between them after every second turn.



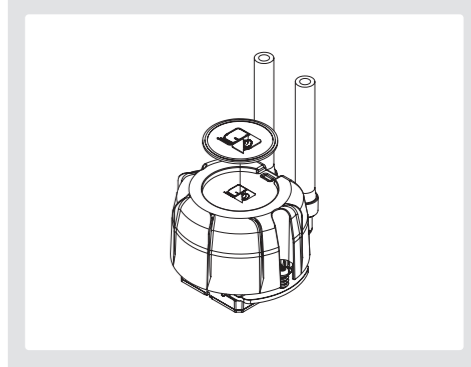
Carefully tighten the screws to stop (max. torque 0.6 Nm).

The pump is set to quiet mode by default (right hand side switch position). For extra performance headroom, change the switch to balanced mode (centre position) or manual mode (left hand side position).



- M Manual mode (750-3400rpm)
 - B Balanced mode (750-2600rpm*)
 - Q Quiet mode (750-2100rpm*)
- *up to 3400rpm at higher liquid temperatures

Put the Noctua logo faceplate on top of the pump cover (magnetic attachment).



5 Connecting the fans and the pump

First connect the pump to your motherboard's pump or CPU fan header. If your motherboard allows switching the header between PWM control and DC control in the BIOS, make sure it is set to PWM control.

Then connect the fans using the supplied splitter cable and then connect the splitter cable to another fan header on your motherboard. Use the supplied NA-EC1 extension cable if you need extra reach.

Please remove the protective paper from the inside of the fan frames before use.

Caution: If you set custom fan control curves in your BIOS or fan control software, note that the fans must only be shut off (0% PWM) if the CPU is running at temperatures lower than 60°C and that the fans must be set to 80% PWM or more at the CPU's maximum operating temperature. Letting the fans shut off at higher CPU temperatures or limiting the fan speed below 80% PWM at the maximum operating temperature of the CPU can lead to elevated liquid temperatures and cause damage to the cooler.