

PRESS RELEASE

**Product introduction of the CPU cooler cuplex kryos NEXT
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Aqua Computer introduces innovative CPU water block

cuplex kryos NEXT

Performance in its most beautiful form

15 years ago, Aqua Computer set the standard with the introduction of the CPU water block cuplex.

Today, the company is releasing a highly innovative new CPU cooler, **the cuplex kryos NEXT:**

Outstanding features:

- Microstructure cold plate with FEM optimized deformation
- Extremely high cooling performance at low flow resistance
- Flush Mount System: Springs are located below the mounting bracket plane
- VARIO technology: New technology enables specific adaptation of the cold plate to the heat spreader of the CPU (Aqua Computer Utility patent)
- VISION technology: First-time integration of an intelligent OLED graphics display inside a CPU water block
- Temperature measurement: Accurate temperature measurement directly integrated at all models with VISION technology
- USB and aquabus interface for VISION models
- RGB LED: Extensive setting options allows to adjust the color (manually or depending on the operating parameters (for example CPU load, etc.))
- PVD coating available, highly scratch-resistant
- Nano surface protection for copper components
- Outstanding high-quality thermal grease Thermal Grizzly Kryonaut is included in the scope of delivery
- Highly stiffened steel backplate with encapsulated silicone insulation - no rubber smell

Product video at YouTube:

<https://youtu.be/l-z7nIYVKWM>

Summary

The cuplex kryos NEXT impresses with the currently best cooling performance on the market and a very low flow resistance. High-precision CNC production and valuable materials underline the claims of this water block.

The unique innovative VISION technology can visualise almost any information at the display of the cooler. It is configured and controlled via USB using the familiar aquasuite software. A temperature measurement integrated directly inside the cooler provides further information.

With the protected VARIO technology, the shape of the cold plate can be changed from concave to convex for the first time at a CPU cooler and an optimal adaptation to the heat spreader of the CPU can be achieved.

Models with Plexiglas housing can be illuminated by an RGB-LED. The coolers with VISION technology already integrates a lightning option and can change the color of the cooler according to environmental parameters (for example, CPU temperature, CPU load, etc.)

The new mounting system has been designed to be extremely user-friendly thanks to flush mounted springs, new backplates and fixed stops.

Directly at the launch many different housing materials will be available, including Plexiglas, Delrin, brass and copper. Additional to copper, the cold plate is also available in pure .925 sterling silver.

Also there are different surfaces to choose from - as a novelty, for the first time, an aesthetic highly scratch-resistant PVD coating.

For optimum heat transfer, the excellent thermal paste Thermal Grizzly Kryonaut is included in the delivery contents.

The prices start from 59.90 Euro, most of the water blocks models are available immediately.

Detailed information

15 years of legendary performance: the cuplex series

The cuplex kryos NEXT offers extreme cooling performance, low flow resistance and unique functions in an elegant CNC-machined design.

To achieve the cooling performance of the water block many simulations and tests with single components were carried out. The structure size has been reduced to $<200\mu\text{m}$ and an optimized flow was achieved. In addition, we were able to significantly reduce the flow resistance.

However, this was only one key to improved cooling performance. In addition to these improvements, an perfect contact between the CPU and the heat spreader was very important.

In order to optimize this, the cold plate was simulated and optimized with regards to its deformation by means of finite element methods. As a result, the contact and thus the heat transfer could be significantly improved.

To further optimize the contact to the heat spreader surface of the CPU, the 3D surface geometry of many current CPUs from Intel and AMD were measured at Aqua Computer and the deformation of the heat spreader has been included in the optimizations.

This high-tech product is produced at the Aqua Computer factory in Germany. In the following we will describe the individual developments in more detail:

VARIO technology

During the development Aqua Computer asked his own how to build a CPU cooler that could be perfectly adapted to the CPU of the customer.

The company has 3D scanned the surface geometry of many CPUs. They found concave, convex, and parallel CPU heat spreaders. From this came the result that the geometry of the cold plate would have to be adjusted to fit perfectly.

The result is one of the great innovations of the cuplex kryos NEXT: the VARIO technology.

The protected VARIO technology (DE202016002497U1) divides the housing of the cooler into two parts. A movable inner part and an outer housing. The inner part can be adjusted in angle and position by actuators at four points. This movement is transferred to the bottom of the cold plate and deforms the contact surface of the cold plate in the range of a few hundredths of a Millimetre (reversibly).

The advantage is that this adjustment can be performed during operation from the outside. By rotating the four actuators, the shape of the cold plate can be optimized and the results can be checked by correspondingly decreasing core temperatures. Internal tests in the company show an optimization potential of up to 2K at current CPUs with 100W TDP.

The water blocks with VARIO technology are designed to prevent any damage to the CPU or the water block itself. In addition, each individual cooler is calibrated and the factory setting (corresponding to the standard cooler) is marked by laser engraving on each water block. Hereby it's always possible to reset the cuplex kryos NEXT to factory default values.

VISION technology

Aqua Computer is known for innovative electronic products, for example the aquaero series. Today the company is presenting a new innovation: VISION.

VISION is a highly integrated display with USB connection. It's so compact that the water block is only about 6mm longer than models without VISION. It provides a 128x64 pixel graphic display directly in the cooler.

This display can be controlled from the aquasuite software via USB or aquabus data. For example VISION can visualise the current CPU load or CPU temperature.

But this is only a fraction of the functionality: VISION coolers have an integrated temperature measurement for the water temperature. VISION can also monitor these data and display charts, for example – even without a USB or aquabus connection.

Additional to the temperature sensor a flow sensor can also be connected to VISION and evaluated.

RGB technology

Aqua Computer has integrated another function in the cuplex kryos NEXT Plexiglas versions: An RGB lighting with innovative functions. Controlled by the water temperature or other values, the water block can change its color and shows lightning effects.

The possibilities are nearly unlimited: CPU load, CPU temperature or other values from the hardware monitoring can be used to control the lightning. But also any value of the Aqua Computer fan controller aquaero can be used as a data source via the aquabus. With the upcoming aquasuite-web functionality, even data from other computers can be used as a data source. This also applies to the visualization on the display.

Materials

Aqua Computer introduces the cuplex kryos NEXT in many different materials.

From nanocoated copper to brass, Delrin or Plexiglas GS - there is a wide spread of materials available.

The high-quality materials underline the claims of the water block and are CNC machines from solid raw material. If you are looking for something unique you can also select the .925 Sterling Silver Edition and get a cold plate that is made from finest silver.

The mounting brackets are made from stainless steel and all parts of the mounting system are made from nickel-plated brass.

PVD coating

PVD coating is completely new to the water cooling market. The abbreviation stands for "physical vapor deposition".

A titanium-containing material is evaporated by an electron beam inside a vacuum chamber. This material is then passed to the cuplex kryos NEXT housings and deposits on the surface. This sounds relatively simple - but it is not. In order for a homogeneous uniform layer thickness, many tricks are necessary.

Among other things, the housings have to be rotated about all axes during coating. In addition, the coating lasts several hours. The process requires a prior nickel plating and a structuring of the surface.

The result is a unique surface previously seen at high-quality watches or jewellery.

But there is another advantage: extreme hardness. The applied layer is identical to that applied to CNC machining tools for extreme stress. Hardening of up to 3300 HV is achieved and protects the surface from scratches.

FMS mounting system

The three letters stands for our newly developed "flush mount system".

For the first time the springs are located in a container below the mounting bracket - the ugly high screws next to the water block are history. Of course, there are fixed stops to ensure a uniform spring force at all mounting points.

An important component is the newly developed backplate. This consists of an embossed galvanized steel plate with high strength and integrated threads. In addition to this, a very high-quality injected silicone insulation is applied to the water cooling system. As a result, nothing is slipping during assembly and the water block is really easy to assemble. The use of high-quality silicone rubber will also eliminate the typical smell of rubber parts known from the past.

The cuplex kryos NEXT can easily be retrofitted to other sockets.

Thermal paste

Each cuplex kryos NEXT comes with the Thermal Grizzly Kryonaut thermal paste and a spatula for applying it. This paste has achieved the best results of all available pastes in many tests.

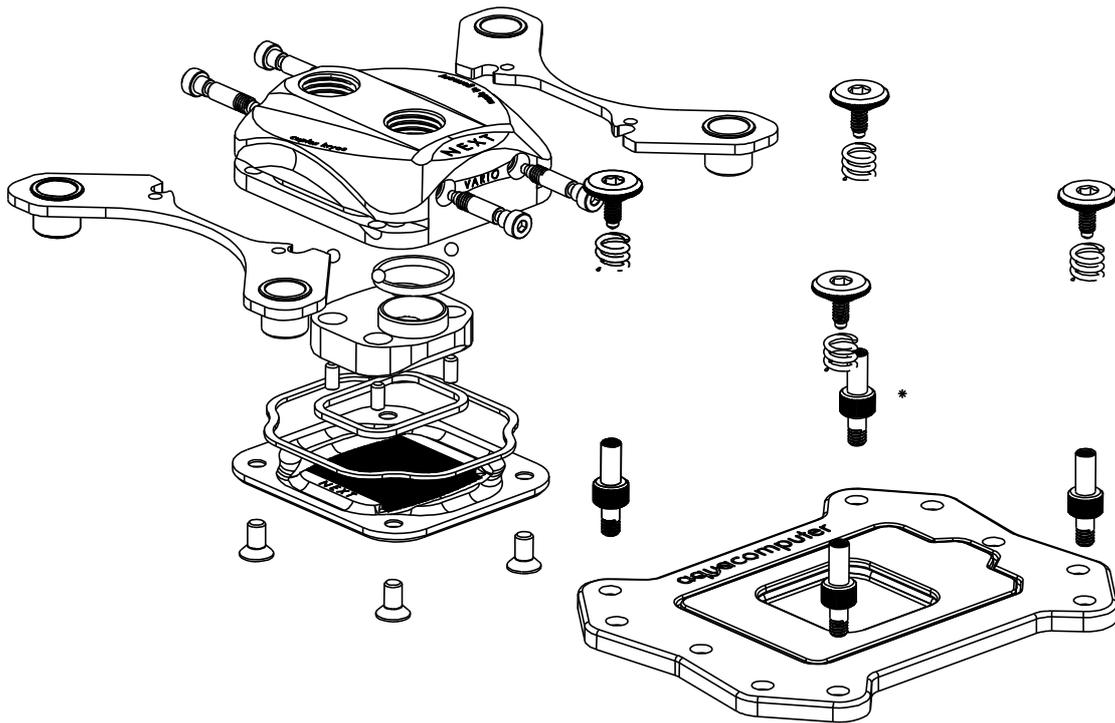
Of course, the cooler can also be used with other pastes or also liquid metal.

Prices and availability

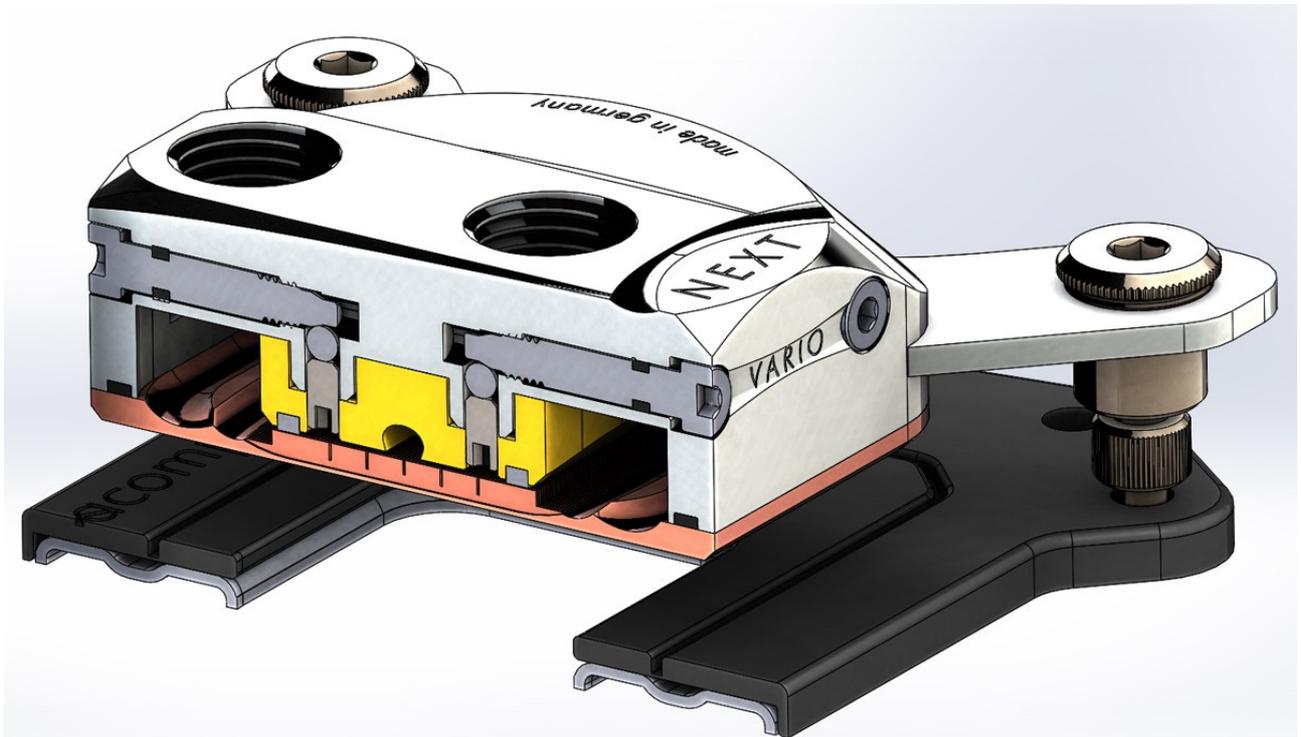
Aqua Computer starts shipping the first models next week.

There are over 90 models available, the prices range starts at 59,90 Euro.

Exploded View cuplex kryos NEXT VARIO



Section view of the VARIO system



The cone at the adjustment screws translates finely adjustable (200 micrometer / revolution) the rotation across the balls into a linear motion. The cold plate can be adjusted from concave to convex. The goal is an optimal adaptation to the heat spreader of the CPU. The setting range is limited by the system.