

Noctua at Computex Taipei 2015



As usual, we would like to give you a brief glimpse of what we are currently working on by displaying some exclusive prototypes and providing a first sneak preview of upcoming new products:

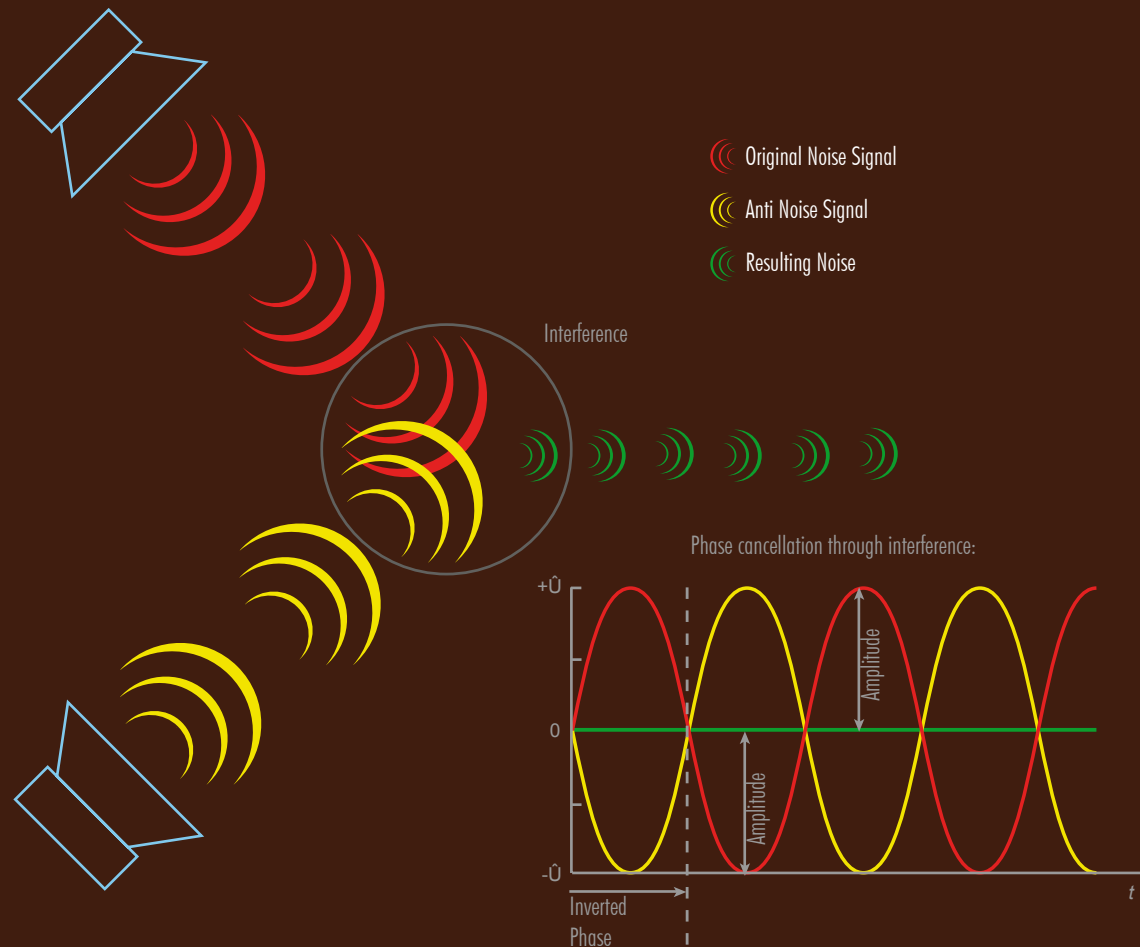
- Active Noise Cancellation project (progress report)
- Next generation 120mm, 140mm & 200mm A-series fans
- 24V industrialPPC fans
- 80 & 92mm industrialPPC fans
- NF-P12 redux
- Project chromax
- PWM fan controller
- 120mm anti-vibration frame
- L-type 120mm low profile cooler
- Next generation 120mm & 140mm U-type coolers
- Heatsinks for industrial clients
- Skylake ready!

Progress of ANC project



- Switched to new microprocessor for fully integrated controller design
- Switched to new 120mm fan design as the best possible basis for superior ANC performance
- Successful manufacturing test-runs confirmed feasibility in mass production
- Verified precision of magnet and modulator placement
- Verified magnet performance after injection moulding (no demagnetisation due to heat)
- Long-term testing confirmed mechanical stability, ANC function, bearing life, vibration, etc.
- Ongoing software optimisation
- Ongoing optimisation of new 120mm fan design

What is Active Noise Cancellation (ANC)?

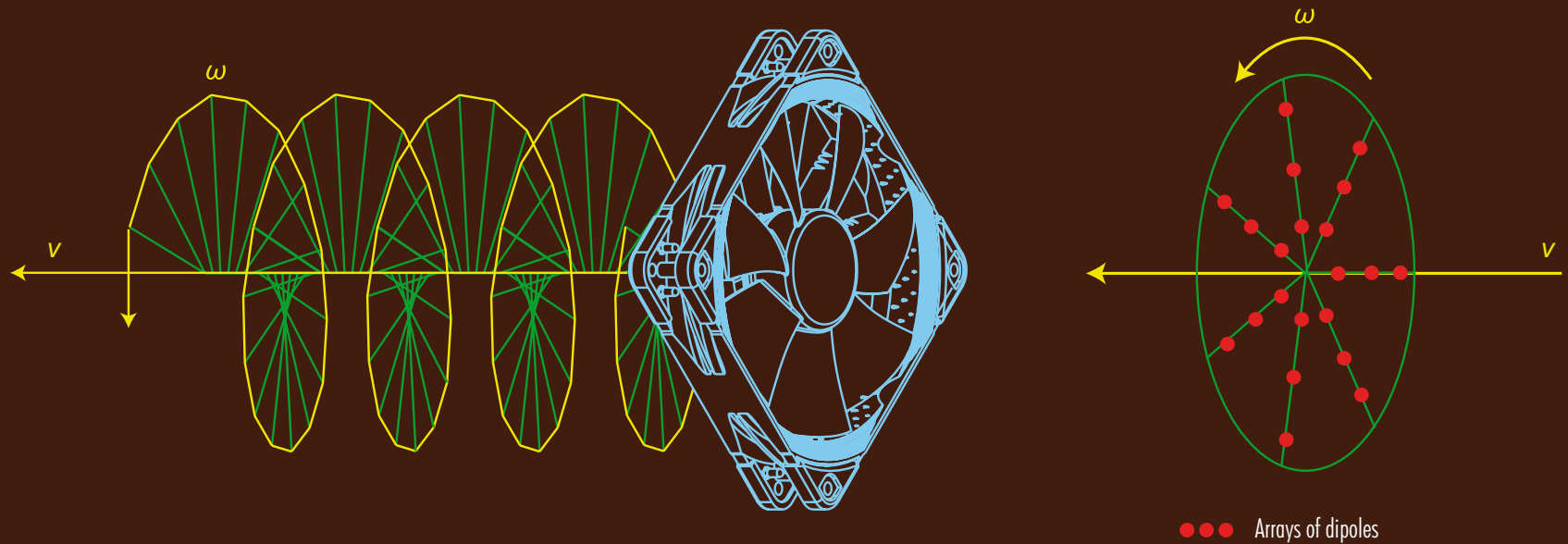


Active Noise Cancellation (also referred to as Active Noise Control or Active Noise Reduction) is the technique of using sound waves to reduce noise by means of an effect called phase cancellation or destructive interference. When a noise signal is superimposed by a sound signal with the same amplitude but inverted phase, the two waves effectively cancel each other out.

Challenges of Active Noise Cancellation

Effective cancellation can usually only be achieved in controlled environments (e.g. noise-cancellation headphones or car interiors) and at specific positions because the original signal and anti-signal have to be matched precisely in inverted phase and amplitude in order to cancel each other out.

Axial fans pose the extra challenge of producing rotating pressure fields that exhibit a highly complex phase structure and are thus very difficult to cancel out using ANC.



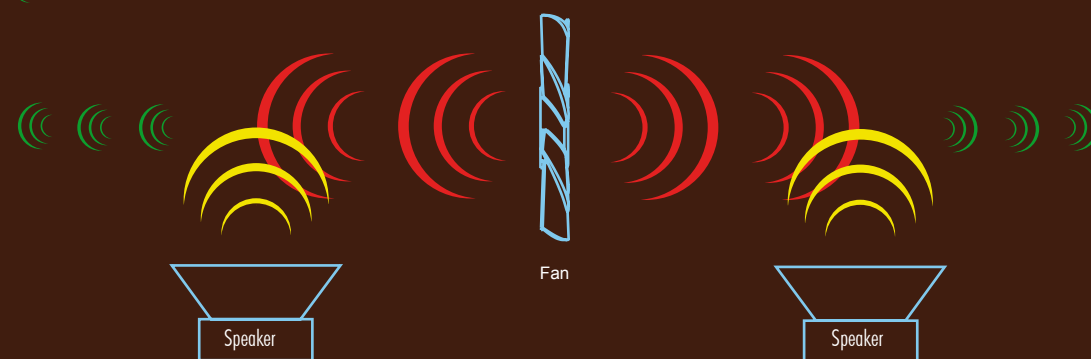
RotoSub® ANC Technology

Original Noise Signal

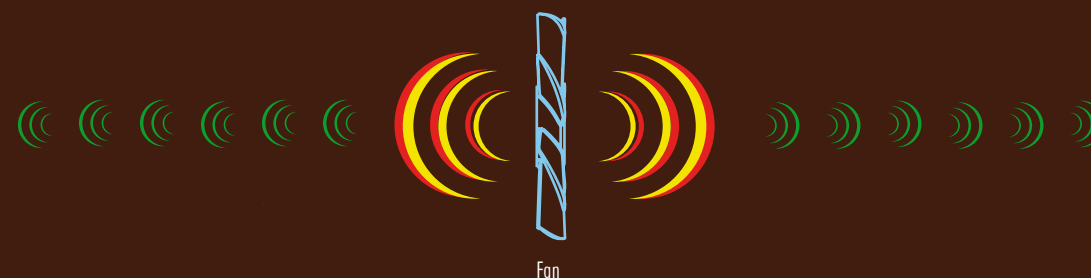
Anti Noise Signal

Resulting Noise

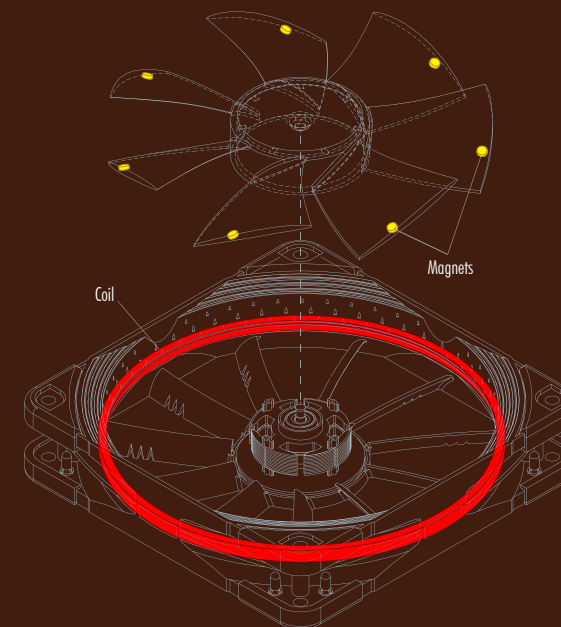
Conventional ANC



Patented RotoSub® ANC Technology

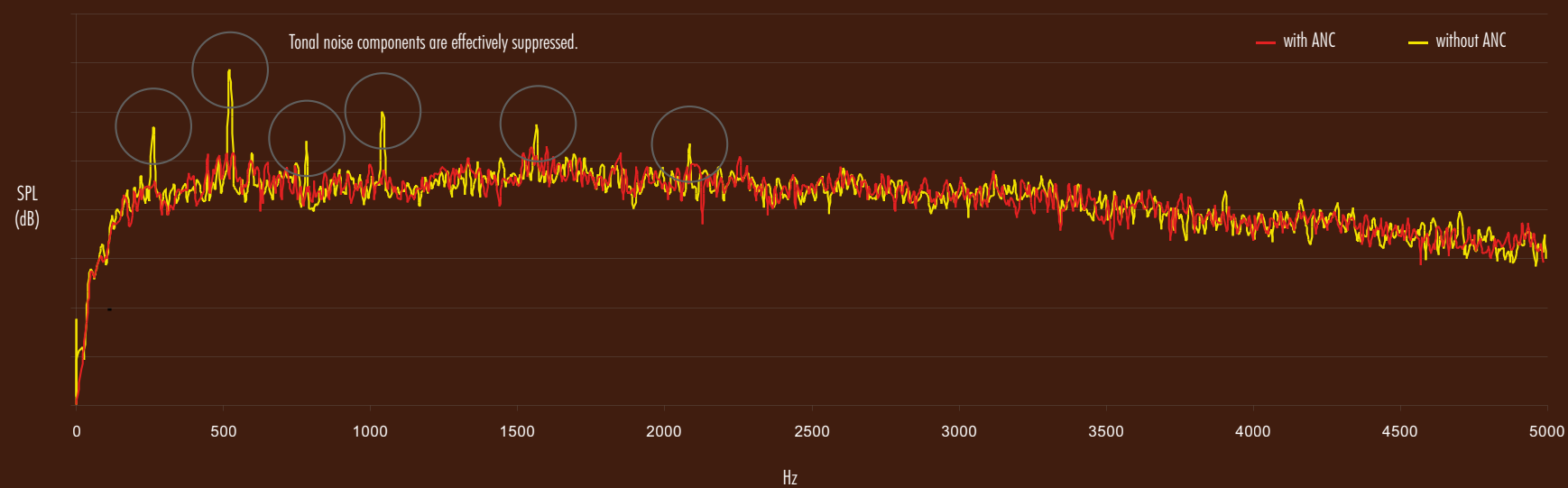


The patented RotoSub® ANC technology allows the fan itself to emit the anti-noise signal through minute modulations of the fan blades. This way, the anti-noise comes from the exact same position as the original noise and precisely matches its phase and rotation pattern. Thanks to this, the cancellation effect achieved through RotoSub® ANC technology is omnidirectional and largely independent from the environment.

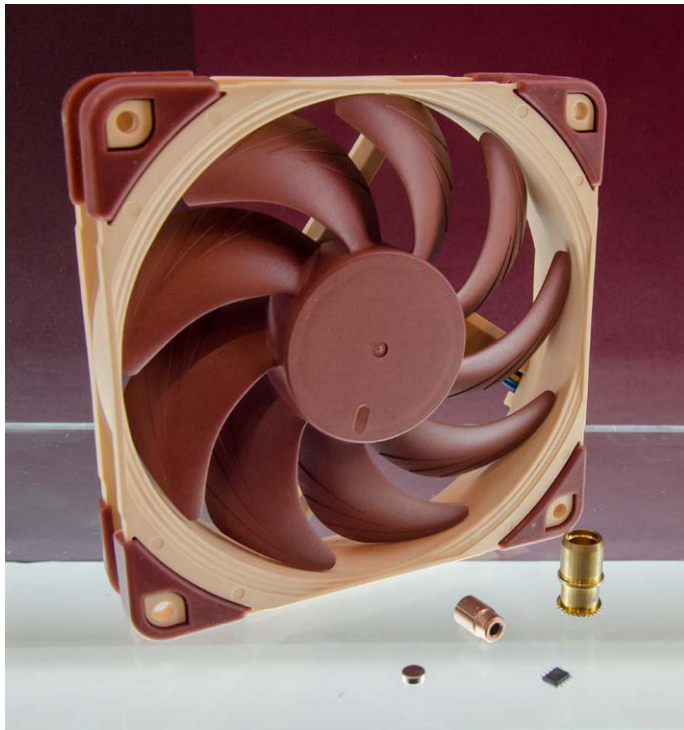


Acoustic Spectrum with/without ANC

Test results with prototypes confirm a significant reduction of tonal noise components. The development goal is to achieve a broadband sound signature that sounds more agreeable to the human ear at a similar overall sound pressure level by suppressing tonal spikes in the frequency spectrum.

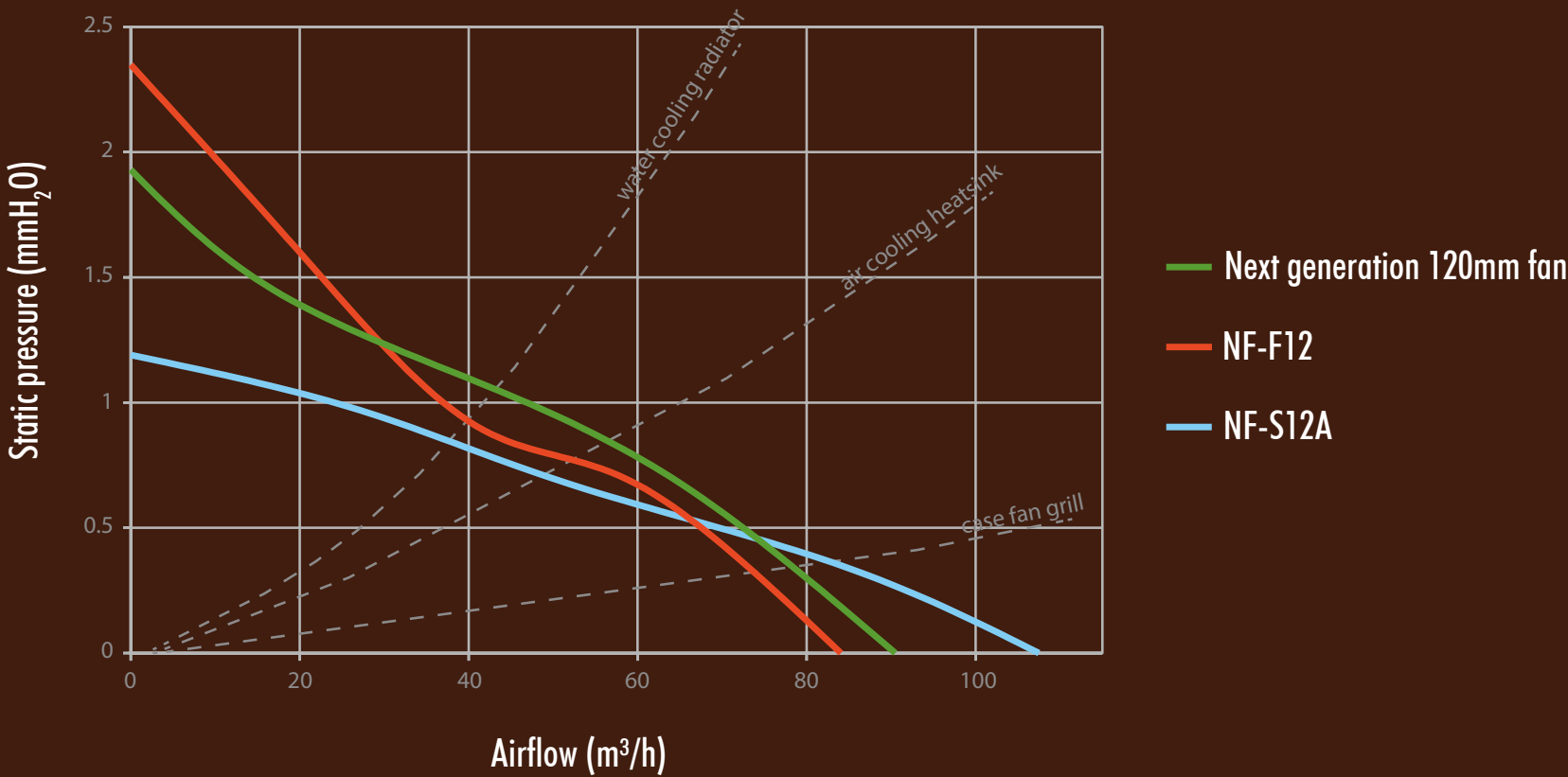


Next generation 120mm A-series fan

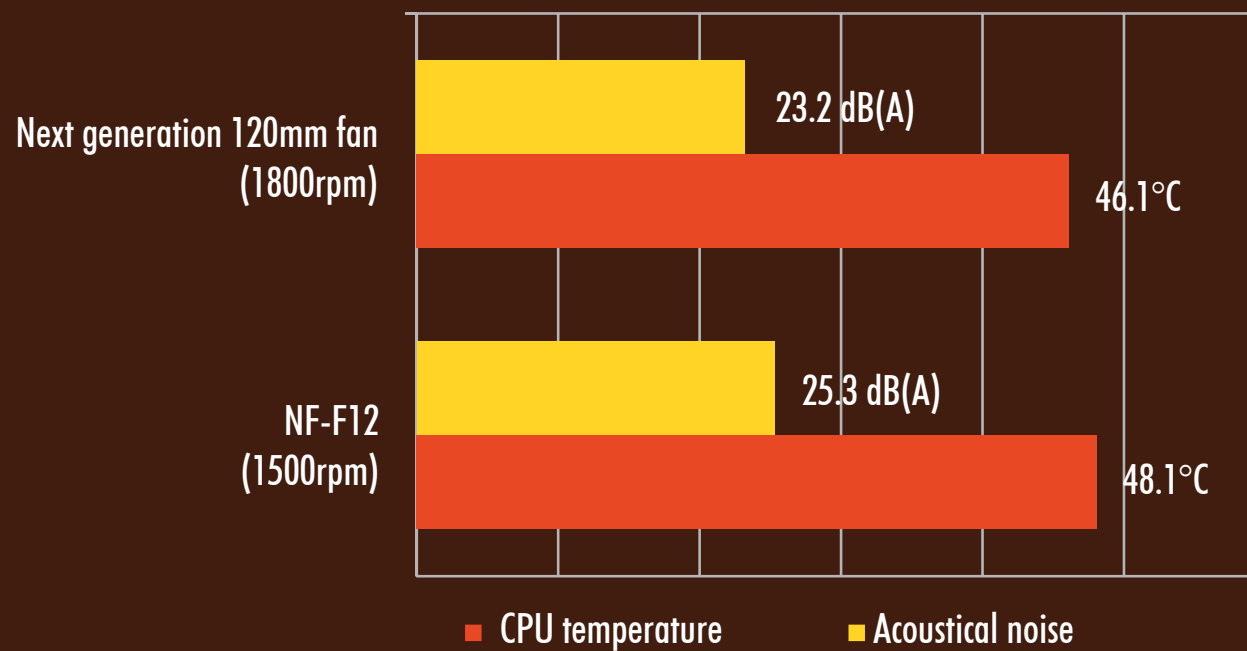


- Succeeding the award-winning NF-P12 (positioned between NF-S12A and NF-F12)
- Integrating Noctua's latest technologies in order to provide unprecedented efficiency in a broad range of applications
- Fine-tuned pressure/airflow (P/Q) curve for mid to high impedance applications such as CPU heatsinks or water cooling radiators
- Ultra-tight 0.5mm tip clearance helps the fan to work more efficiently against back pressure such as on heatsinks or radiators

P/Q comparison at ~18dB(A)



Performance comparison on water cooling radiator



Next generation 140mm A-series fan



- Fine-tuned pressure/airflow (P/Q) curve for heatsinks and radiators
- Ultra-tight tip clearance
- Flow Acceleration Channels
- AAO-Frame (Advanced Acoustic Optimisation)
- Stepped Intel Design
- Integrated Anti-Vibration Pads
- SS02 Bearing

200mm A-series fan



- Flow Acceleration Channels
- AAO-Frame (Advanced Acoustic Optimisation)
- Inner Surface Microstructures
- Stepped Intel Design
- Integrated Anti-Vibration Pads
- SS02 Bearing

Slim 120mm A-series fan



- 15mm thin design
- Flow Acceleration Channels
- AAO-Frame (Advanced Acoustic Optimisation)
- Inner Surface Microstructures
- Stepped Intel Design
- Integrated Anti-Vibration Pads
- SS02 Bearing

24V industrialPPC fans



- Designed for 24V based industrial applications
- Operating voltages from 6 to 30V
- Reduced speed at 12V (1000 to 1600rpm)
- Wide input range version of Noctua's NE-FD2 motor driver IC
- Three-phase motor design
- Fibre-glass reinforced polyamide construction
- Certified IP67 water- and dust protection

80 & 92mm industrialPPC fans



- Based on the award-winning NF-A8 and NF-A9
- Ruggedised high-speed versions for industrial heavy duty applications
- Three-phase motor design
- Class-leading energy efficiency
- Fibre-glass reinforced polyamide construction
- Certified IP52 or IP67 water- and dust protection

NF-P12 redux



- Proven NF-P12 design
- Streamlined redux edition
- Pressure-optimized Nine-Blade Design
- Vortex-Control Notches
- SSO-Bearing

Project chromax



- Anti-Vibration Pads and Anti-Vibration Mounts in black, white, red, blue, yellow and green
- Anti-Vibration Pads compatible with 120 and 140mm standard and industrialPPC models
- Ideal for colour-matching industrialPPC fans to individual build styles
- Anti-Vibration Mounts compatible with all Noctua models (including redux)
- Made from high-quality, extra-soft silicone

PWM fan controller



- Combines manual and automatic fan speed control via PWM
- Adjust the PWM curve provided by your mainboard as you wish
- Manually control PWM fans without mainboard controller
- Optionally maintains a minimum speed of 300rpm and prevents the fan from stopping at below 20% PWM duty cycle
- Includes splitter cable for controlling up to 6 PWM fans

120mm anti-vibration frame



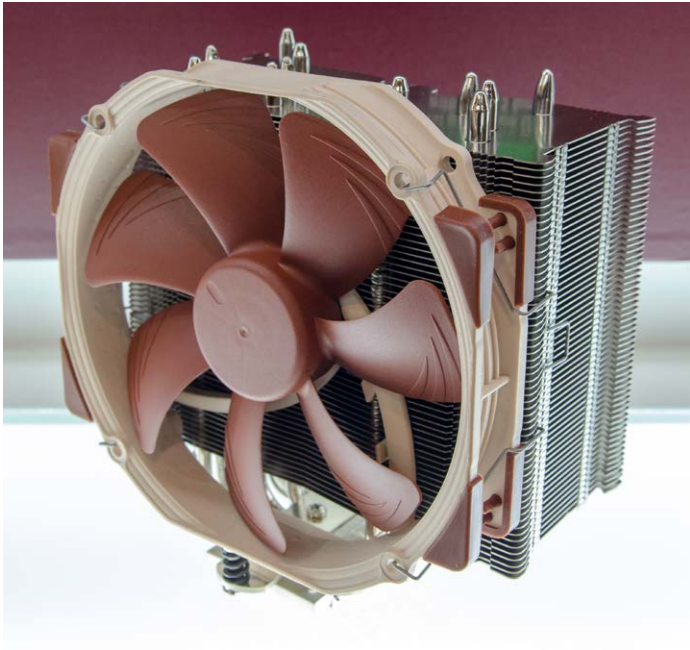
- Ideal for using fans on water cooling radiators
- Seals off gap between fan and radiator for best pressure performance
- Reduces minute vibrations being transmitted to the radiators
- Can reduce noise in suction mode

Next generation 120mm U-type cooler



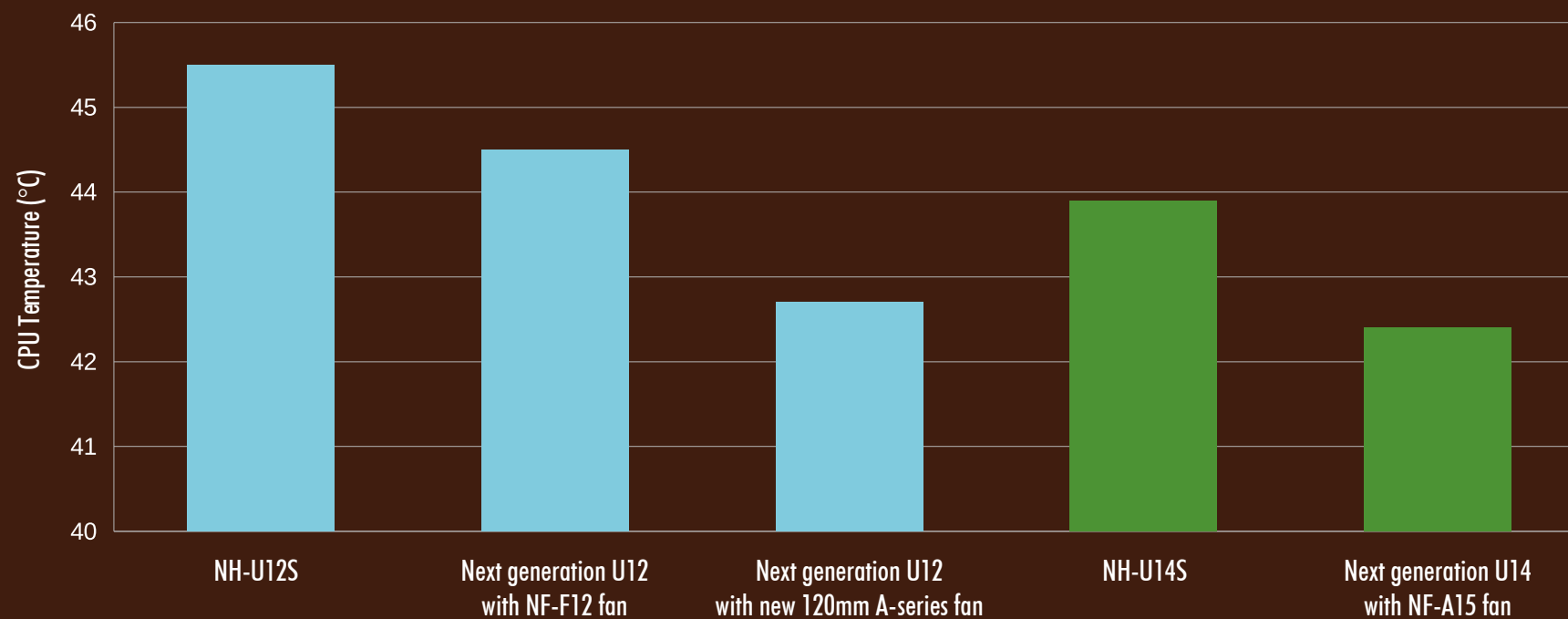
- Based on the award-winning NH-U12S
- 50% more surface area for further improved quiet cooling performance
- 6 instead of 5 heatpipes
- 100% RAM compatibility in single fan mode
- Designed for use with next generation 120 A-series fan

Next generation 140mm U-type coolers



- Based on the award-winning NH-U14S
- 30% more surface area for further improved quiet cooling performance
- 100% RAM compatibility in single fan mode
- Asymmetrical layout for better PCIe compatibility (140mm model)
- Designed for use with next generation 140mm fan

Performance comparison on LGA1150 (140W)



L-type 120mm low profile cooler



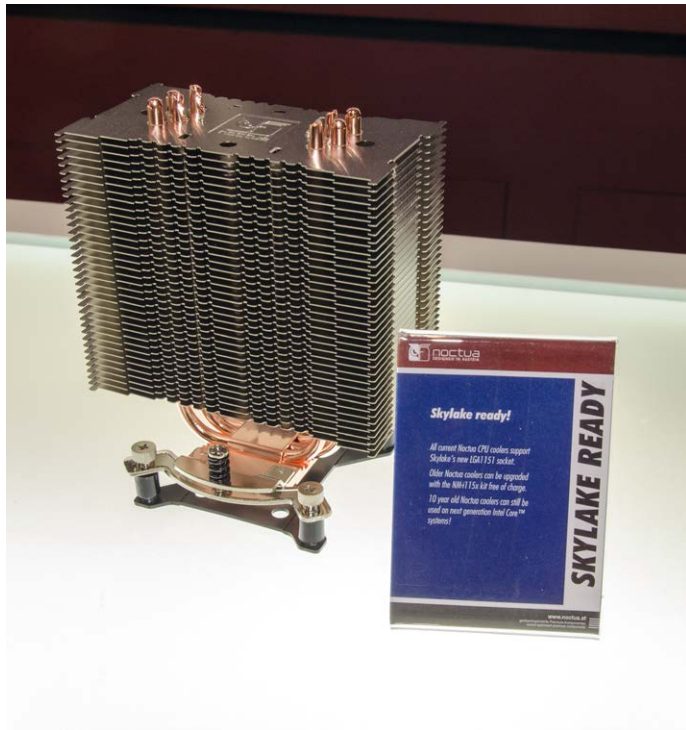
- Based on the award-winning NH-L12
- Next generation 120mm fan & NF-A9x14 PWM
- SecuFirm2™ mounting with springs for best contact pressure
- Only 65mm total height with the top fan removed

Heatsinks for industrial clients



- Tailor-made cooling solutions for industrial clients
- Application examples include embedded systems, LED lightning and thermal cyclers (DNA amplifiers)
- Construction methods ranging from simple aluminium extrusion over CNC cutting and embedded heatpipes to complex copper / aluminium assemblies and heatpipes with soldered fins
- Ultra-high precision manufacturing in trusted Noctua quality

Skylake ready!



- All current Noctua CPU coolers support Skylake's new LGA1151 socket.
- Older Noctua coolers can be upgraded with the NM-i115x kit free of charge.
- 10 year old Noctua coolers can still be used on next generation Intel Core™ systems!