

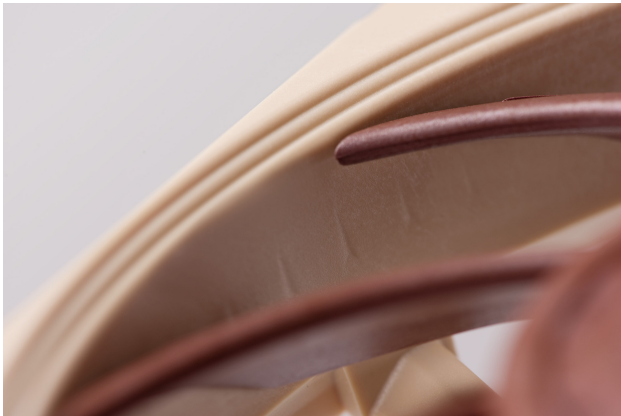
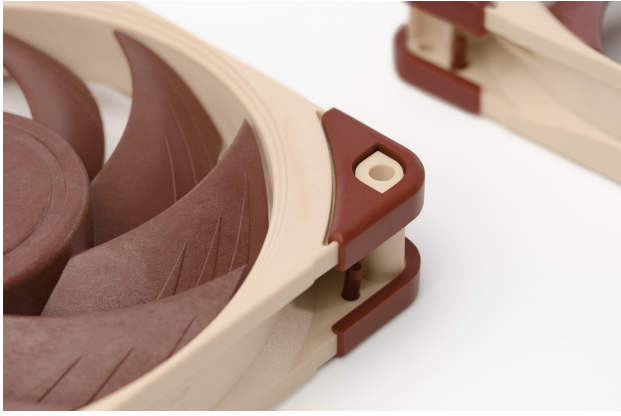


Noctua NF-A12x25-PWM 12V 2000RPM 120mm Fan

\$29.95

Product Images





Short Description

The NF-A12x25 is a highly optimised next-generation 120mm fan that integrates Noctua's latest innovations in aerodynamic engineering in order to achieve an unprecedented level of quiet cooling performance. It takes state-of-the-art technologies such as the AAO (Advanced Acoustic Optimisation) frame or Flow Acceleration Channels and combines them with a record tight tip clearance of only 0.5mm, which is made possible by using the novel Sterrox® liquid-crystal polymer (LCP) compound as well as a metal-reinforced motor hub and axis for ultimate precision.

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axis for ultimate precision. Following the approach of Noctua's A-series, the NF-A12x25 is a true all-rounder that yields superb results in all types of usage, regardless of whether it's in low-impedance, airflow-oriented applications such as case cooling, or high-impedance, pressure-demanding scenarios such as on heatsinks and watercooling radiators. The 4-pin PWM version supports fully automatic speed control via PWM fan headers and comes with a Low-Noise Adaptor to reduce the maximum speed from 2000 to 1700rpm. Topped off with exceptional running smoothness, Noctua's reference-class SSO2 bearing, a rich bundle of accessories and 6-year manufacturer's warranty, the NF-A12x25 is a premium-quality product through and through. Its superior efficiency, cutting-edge construction and pioneering materials make it an elite choice for the most discerning demands.

Features

Next-generation performance

Noctua's 120mm fans such as the NF-F12 and NF-S12A are renowned as being among the best on the market and have received more than 400 awards and recommendations from the international press. With its further improved efficiency and novel, state-of-the-art engineering, the NF-A12x25 represents another step up in performance and manufacturing.

Highly optimised P/Q curve for all applications

The NF-A12x25's sophisticated aerodynamic design allows for a pressure to airflow (P/Q) curve that is extremely strong in the critical mid-section. This means that the NF-A12x25 is a true jack-of-all-trades with excellent performance in both static pressure demanding and airflow demanding applications.

Excellent on-application acoustics

While many fans produce unpleasant, high-pitched noises when installed in typical applications such as on heatsinks or radiators, the NF-A12x25 has been carefully fine-tuned for optimal on-application acoustics. It produces a smooth, pleasant frequency profile and surprisingly low sound pressure levels (SPL) when working against back pressure.

Flow Acceleration Channels

The NF-A12x25 impeller features suction side Flow Acceleration Channels. By speeding up the airflow at the crucial outer blade regions, this measure reduces suction side flow separation and thus leads to better efficiency and lower vortex noise.

Ultra-tight tip clearance

The NF-A12x25 has a record tight tip clearance (distance between the blade tips and the inside of the frame) of only 0.5mm. This highly ambitious design sets a new benchmark for 120mm fans and helps the NF-A12x25 to work more efficiently against back pressure, such as on heatsinks or radiators, by reducing leak flows through the gap between impeller and frame.

Metal-reinforced motor hub

The centrepiece of the NF-A12x25's motor hub is made entirely from steel and the axle mount is reinforced with an additional brass structure. In combination, both measures ensure ultimate precision and increased

stability in the critical hub area.

Sterrox® liquid-crystal polymer compound

The NF-A12x25's impeller is made from Noctua's novel Sterrox® liquid-crystal polymer (LCP) compound that features extreme tensile strength, an exceptionally low thermal expansion coefficient and damping characteristics that are ideal for reducing resonance and vibration phenomena in advanced fan-blade designs.

AAO frame

Noctua's AAO (Advanced Acoustic Optimisation) frames feature integrated anti-vibration pads as well as Noctua's proprietary Stepped Inlet Design and Inner Surface Microstructures, both of which further refine the fan's performance/noise efficiency.

Stepped Inlet Design

Noctua's Stepped Inlet Design adds turbulence to the influx in order to facilitate the transition from laminar flow to turbulent flow, which reduces tonal intake noise, improves flow attachment and increases suction capacity, especially in space-restricted environments.

Inner Surface Microstructures

With the tips of the fan blades ploughing through the boundary layer created by the Inner Surface Microstructures, flow separation from the suction side of the blades is significantly suppressed, which results in reduced blade passing noise and improved airflow and pressure efficiency.

Integrated anti-vibration pads

Integrated anti-vibration pads made from extra-soft silicone minimise the transmission of minute vibrations while maintaining full compatibility with all standard screws and other mounting systems.

Anti-vibration gasket for watercooling radiators

The NF-A12x25 includes a silicone gasket that can be used when installing the fan on watercooling radiators or other applications that benefit from a tighter seal with the fan. The gasket helps to damp minute vibrations and to reduce air loss between the fan and the radiator for optimal cooling performance.

SSO2 bearing

The NF-A12x25 features the further optimised second generation of Noctua's renowned, time-tested SSO bearing. With SSO2, the rear magnet is placed closer to the axis to provide even better stabilisation, precision and durability.

Metal bearing shell

In order to guarantee the highest possible degree of manufacturing precision, minimum tolerance and excellent long-term stability, the NF-A12x25 sports a CNC milled bearing shell made entirely from brass.

Custom-designed PWM IC with SCD

Supporting fully automatic PWM speed control, the fan uses Noctua's custom-designed NE-FD1 PWM IC that integrates Smooth Commutation Drive (SCD) technology. By providing smoother torque impulses, SCD suppresses PWM switching noises and thus makes the fan quieter at low speeds.

Stops at 0% PWM

When the fan is set to 0% PWM duty cycle by the motherboard or PWM fan controller, it will stop. This makes it ideal for creating setups with semi-passive cooling that automatically turn the fans off and thus run completely silent at idle if thermals allow.

Smooth Commutation Drive 2

The latest version of Noctua's advanced Smooth Commutation Drive system ensures superb running smoothness by eliminating torque variations and switching noises. This makes the fan remarkably quiet even at very close distances.

Low-Noise Adaptor

The NF-A12x25 PWM is supplied with a Low-Noise Adaptor (L.N.A.) that reduces the maximum fan speed from 2000 to 1700rpm. The L.N.A. can be used either to run the fan at a fixed speed of 1700rpm or to cap the maximum speed when using automatic PWM control.

Extensive cabling options

The fan's short 20cm primary cable minimises cable clutter in typical applications while the supplied 30cm extension provides extended reach when necessary. Both cables are fully sleeved and a 4-pin y-cable allows the connection of a second fan to the same PWM fan header for automatic control.

Optional adaptor for 140mm watercooling radiators

Thanks to its superior efficiency, the NF-A12x25 can outperform many 140mm fans. Combined with the optional NA-FMA1 adaptor frame that allows it to be installed on 140mm radiators, the NF-A12x25 is a great upgrade for 140mm-based watercoolers.

6-year manufacturer's warranty

Noctua fans are renowned for their impeccable quality and outstanding longevity. Like all Noctua fans, the NF-A12x25 features an MTTF of more than 150.000 hours rating and comes with a full 6-year manufacturer's warranty.

Specifications

FAN Specification

Size
120x120x25 mm

Mounting hole spacing
105x105 mm

Connector & pin-configuration
4-pin PWM

Cable length
20cm + 30cm NA-EC1 extension cable

Bearing
SSO2

Blade geometry
A-Series with Flow Acceleration Channels

Frame technology
AAO (Advanced Acoustic Optimisation)

Material
Sterrox® LCP

Rotational speed (+/- 10%)
2000 RPM

Rotational speed with L.N.A. (+/- 10%)
1700 RPM

Min. rotational speed (PWM, +/-20%)
450 RPM

Airflow
102,1 m³/h

Airflow with L.N.A.
84,5 m³/h

Acoustical noise
22,6 dB(A)

Acoustical noise with L.N.A.
18,8 dB(A)

Static pressure
2,34 mm H₂O

Static pressure with L.N.A.
1,65 mm H₂O

Max. input power
1,68 W

Max. input current
0,14 A

Operating voltage
12 V

Voltage PWM signal
5 V

MTTF
> 150.000 h

Scope of delivery

- Low-Noise Adaptor (L.N.A.)
- 4-pin y-cable
- 30cm extension cable
- NA-AV2 anti-vibration mounts
- Anti-vibration gasket for water cooling radiators
- Fan screws

Warranty
6 years

Additional Information

Brand	Noctua
SKU	NF-A12X25-PWM
Weight	0.6000
Color	Brown
Fan Dimensions	120mm
Fan Width	25mm
Fan Connection	4-Pin PWM
Fan Voltage	12 VDC
Fan RPM	2000
Fan Noise (dB)	23

