

# NOVAERUS DEFEND I050 FAQs

Powered by  
**NanoStrike®**  
technology


## How does the Defend I050 work?

Designed to provide additional front line protection in healthcare settings, the Novaerus Defend I050 uses patented NanoStrike® plasma generating technology combined with a triple-stage Camfil® filter system to provide a rapid, powerful solution for air cleaning and particle removal in critical healthcare environments, including those performing aerosol-generating medical procedures (AGMP).

## How does the Defend I050 differ from other Novaerus products?

All Novaerus Protect and Defend portable air-cleaning devices use NanoStrike, our patented plasma-based nanotechnology, that inactivates airborne microorganisms on contact.

The Defend I050 is cleared as a FDA 510(k) Class II Medical Device to filter out and inactivate airborne microorganisms, including viruses and bacteria, for medical purposes. The Defend I050 uses NanoStrike technology combined with a triple-stage Camfil® filter system to provide a rapid, powerful solution for air cleaning and particle removal in critical or large healthcare environments where the risk and/or consequences of airborne microorganisms is severe. Examples include operating rooms, intensive care units, emergency rooms, patient wards, neonatal units and areas performing aerosol generating medical procedures (AGMP) .

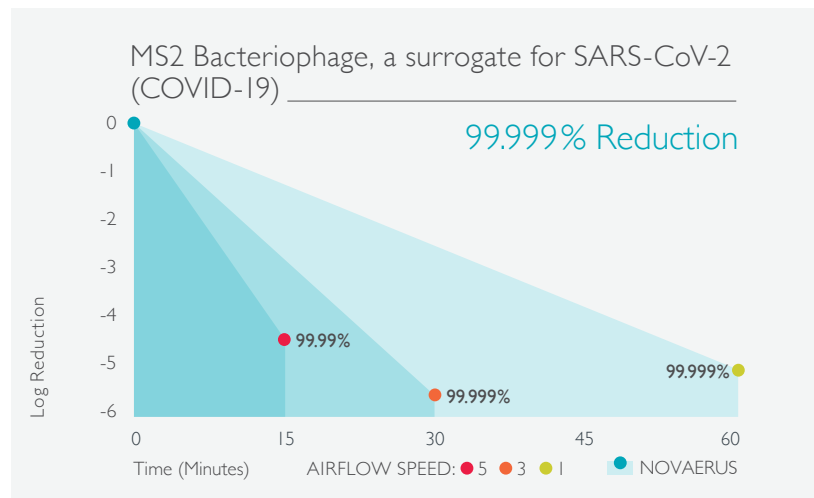
 **FDA Cleared**  
510(k) Class II Medical Device



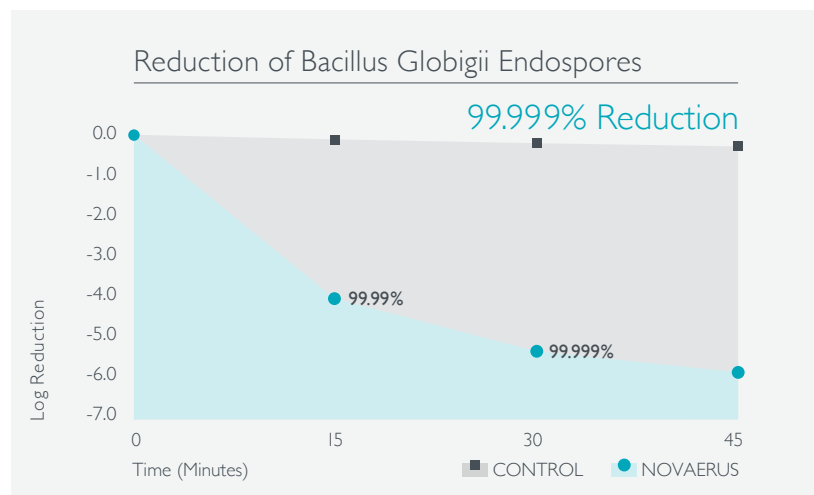
The Protect product line medical-grade, airborne infection control devices are designed for use continuously in environments where people are within close proximity to one another and cannot follow social distancing guidelines.

## What is the FDA status of the Defend I050?

The FDA has cleared the Novaerus Defend I050 as a 510(k) Class II Medical Device to filter out and inactivate airborne microorganisms, including virus and bacteria for medical purposes. Within 15 minutes, the Defend I050 demonstrated a 4-log (99.99%) reduction of the MS2 bacteriophage RNA virus, an accepted surrogate for SARS-CoV-2.



The Defend I050 also showed a 4-log (99.99%) reduction in *Bacillus Globigii* endospores (bacterial spores) within 15 minutes, which was maintained over prolonged operation (24 hours).



## Does FDA 510(k) Class II Medical Device clearance mean the Defend 1050 can claim to reduce the risk of airborne infection?

The Defend 1050 is cleared by the FDA as a Class II Medical Device intended for medical purposes to filter out and inactivate airborne microorganisms, including viruses and bacteria. It is designed to provide additional front line protection in medical environments.

However, separately, the FDA issued non-binding recommendations to expand availability of devices, including air purifiers, that may reduce the risk of patient and healthcare provider exposure to the SARS-CoV-2 virus during the COVID-19 related public health emergency. Although the FDA does not specifically clear devices for this use, the Defend 1050 meets the applicable performance requirements outlined in this guidance.

FDA GUIDANCE CRITERIA	DEFEND 1050
1. 4-log destruction and/or reduction of viruses	YES
2. Effective against Gram-negative and Gram-positive bacteria	YES
3. Effective against proxy viruses for SARS-CoV-2	YES
4. Does not disturb air flow	YES
5. Does not produce ozone	YES

## For what types of situations is the Defend 1050 best suited?

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### INACTIVATE MICROORGANISMS

The inactivate and filter combination of the Defend 1050 uses NanoStrike technology and triple-stage, medical-grade Camfil filters. This combination effectively reduces airborne microorganisms in critical and large healthcare environments including those performing aerosol-generating medical procedures (AGMP). Examples include, operating rooms, intensive care units, emergency rooms, patient wards and neonatal units.

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### ODOR MITIGATION

The high air flow, activated carbon filter, and NanoStrike technology is highly effective at mitigating unpleasant odors from medical procedures, patients, hospital waste, food waste, and cleaning chemicals.

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### PARTICLE REDUCTION

The high air flow, triple-stage filter system, and portability makes it ideal for safely and effectively reducing dust, allergens, urban air pollutants, VOCs, smoke, and mold.

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## How does the Defend 1050 compare with terminal air purification units?

In some critical medical and healthcare environments, terminal air purification alone may not be sufficient to help reduce the spread of infection. The Novaerus devices rapidly inactivate airborne microorganisms with NanoStrike, a patented ultra-low energy plasma nanotechnology – powerful enough to inactivate on contact, yet gentle enough for continued use around vulnerable populations and staff. Novaerus is the first system that uses NanoStrike technology to receive FDA 510(k) clearance for medical purposes, combining the power and gentleness of chemical-free, plasma generating technology.

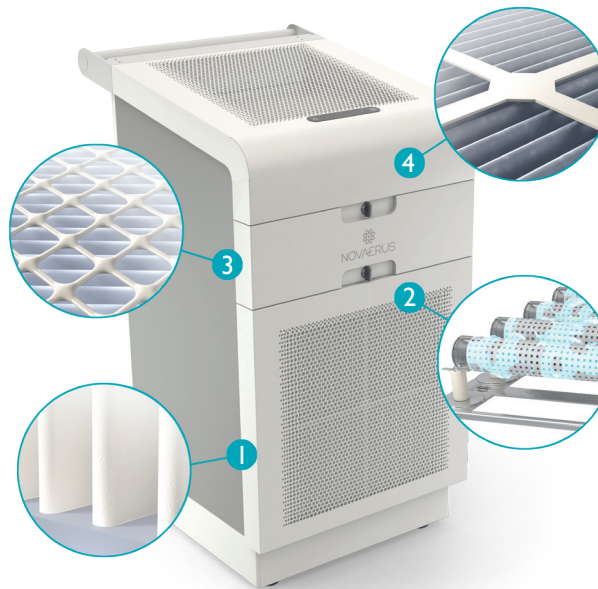
## Meet the Novaerus Defend I050

### Stage 3

A Camfil® HEPA H13 filter traps bacterial debris and particles as fine as 0.12µm.

### Stage 1

Powerful multi-speed fan pulls indoor air through a Camfil® pre-filter, capturing large particles, protecting the internal NanoStrike® plasma coils and extending the life of the HEPA filter.



### Stage 4

A Camfil® G4 carbon/molecular filter neutralizes VOCs, odors, and impurities.

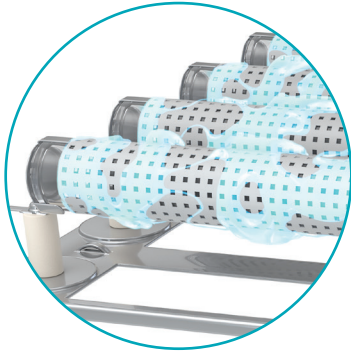
### Stage 2

Six ultra-low energy NanoStrike® plasma coils rapidly inactivate microorganisms at the molecular level.

## Can the Defend I050 be used continuously?

Yes, the Defend I050 is safe to use continuously should the situation call for high efficacy on an ongoing basis such as in a large open emergency room or triage area. With five variable fan speeds, the unit can be adjusted to a lower air-processing speed to extend filter life and reduce noise level. At low speed, the noise level is 38dBA at three feet from the unit, making it quiet enough to be operated continuously around patients.

## How does NanoStrike Technology work?



NanoStrike technology is an atmospheric plasma discharge of the dielectric barrier discharge type. This plasma is sustained by high voltage applied to a pair of electrodes separated by a dielectric barrier. The plasma discharge sustained on the surface of the plasma cell inside the device comprises electric charges including electrons and ions. These are accelerated charges within the plasma discharge caused by the high voltage field. The charges gain significant energy from the electric field to impart extensive damage when in contact with a microorganism.

NanoStrike is designed to create plasma on the surface of the plasma coil. Unlike other products, the microorganisms are exposed to the plasma discharge as opposed to by-products of the discharge.

## Questions or Problems?

Contact your Novaerus Account Manager  
for any questions or customer inquiries.