



# Novaerus Portable Air Disinfection Units



KILL AIRBORNE CORONAVIRUSES AND  
OTHER PATHOGENS AT THE DNA LEVEL

# Closing the Infection Control Loop



## PROBLEM:

- SARS-CoV-2 (Covid-19 / Coronavirus) can be **transmitted through the AIR**: washing hands and cleaning surfaces are not enough
- Patients and staff may be **asymptomatic carriers**
- Dentists need to return to work while ensuring their **safety**, as well as the health & safety of their staff and patients

# Close the Infection Control Loop



## SOLUTION:

Novaerus portable medical-grade air disinfection devices:

- Rapidly neutralize **ALL** airborne pathogens by attacking them at the **molecular level**
- Have been proven, via independent laboratory testing, to **reduce 99.99% of airborne MS<sup>2</sup> Bacteriophage** (a surrogate for coronavirus)
- Over **48 independent laboratory tests and clinical trials** from around the world have proven that Novaerus devices kill:

### Bacteria

such as Methicillin-resistant *Staphylococcus aureus* (MRSA), *Clostridium difficile*

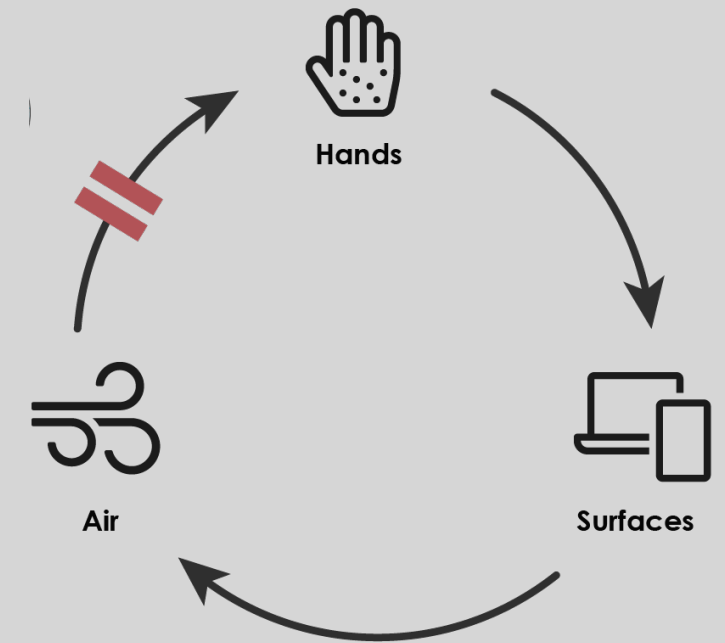
### Fungi

such as *Aspergillus niger*

### Viruses

influenza, **coronaviruses**, norovirus, measles and tuberculosis

### Mold



DISINFECT:  
HANDS + SURFACES + AIR



# New to Canada, but proven worldwide

- Available in Canada since September via Fertitech
- Used in dental offices, hospitals, nursing homes and other medical settings for the past five years in Europe and the United States
- Continue to show positive results in tests and clinical trials
- Their ultra-low energy plasma technology is unmatched for its efficacy, safety, ease of use, and affordability

# Advantages



## NOVAERUS DEVICES ARE:

- **Portable**
- **Easy to install** (simply plug it in) and ready for immediate implementation
- **Safe** around the most vulnerable patients
- Not only kill airborne bacteria, viruses, mold and fungi, but they also **eliminate volatile organic compounds (VOCs)**, leaving your place of work odour-free
- **Inexpensive to operate** (the two smaller models do not have filters and therefore have no ongoing operating costs)
- Effective **independent** of the installed HVAC system
- Relatively **quiet**

# Summary: Independent testing results



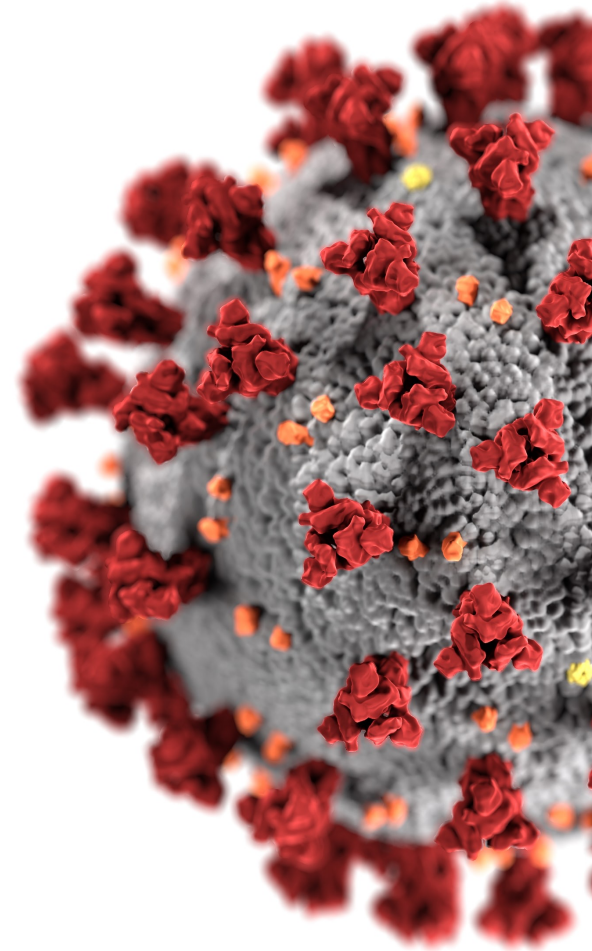
Novaerus' devices have been proven, in tests around the world, to be **highly effective** against airborne mould, fungi, bacteria and viruses in:

- 22 independent laboratory tests
- 11 clinical trials
- 16 case studies

# Proven effective against SARS-CoV-2



- Novaerus Defend 1050 was shown to **reduce MS2 bacteriophage (surrogate for SARS-CoV-2) by 99.99% in 15 minutes.**
- Link to 2020 independent laboratory test from Aerosol Research and Engineering Laboratories, U.S.:  
<https://www.novaerus.com/research/1441>



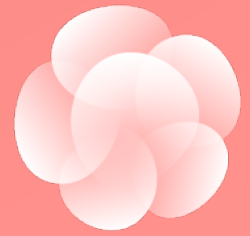
# Proven effective against coronaviruses



- The NV900 model was tested at an American independent laboratory on its efficacy on neutralizing bioaerosols
- Test results show that the NV900 was extremely effective at reducing viability of bioaerosols in all conducted studies:
  - 99.87% reduction of *Staphylococcus epidermidis* bacteria
  - **99.99% reduction of MS2 - a surrogate for influenza, norovirus and SARS-CoV (coronavirus)**
  - 98.85% reduction of *Aspergillus niger* mold
  - 86.5% reduction of *Bacillus subtilis* bacteria spore
- Link to study: <https://www.novaerus.com/research/238>



# Proven efficacy against airborne **viruses**



## INFLUENZA A REDUCTION

Novaerus Defend 1050 was shown to reduce **99.9% of airborne Infuenza A within the first 10-20 minutes** of operation

Link to independent laboratory test from Airmid Health Group Ltd., Ireland:  
<https://www.novaerus.com/research/241>

## MEASLES VIRUS REDUCTION

Novaerus Defend 1050 was able to reduce the concentration of human parainfluenza type 3 (HPIV3) (renamed human respirovirus 3), a surrogate for **Measles virus, by 99.87% after 25 minutes**

Link to independent laboratory test from Airmid Health Group Ltd., Ireland:  
<https://www.novaerus.com/research/1314>

## PHI-X REDUCTION

Novaerus Defend 1050 was shown to reduce **Phi X 174 virus by 98.8% in 30 minutes**

Link to independent laboratory test, Korea Testing Laboratory, South Korea:  
<https://www.novaerus.com/research/1363>

# Proven efficacy against airborne **viruses**



## LEOPARDSTOWN PARK HOSPITAL, IRELAND

Over a three-year period, this older people's hospital saw **no outbreaks of Influenza, Norovirus, MRSA or *Clostridium difficile*** in wards with Novaerus units installed

Continued **decline in staff sickness** (and therefore absenteeism)

Link to results:  
<https://www.novaerus.com/research/310>

## RIGSHOSPITALET NEPHROLOGY CLINICS, DENMARK

In the control section with no units, the number of overall infections increased by 35% from 2013 to 2014. In the section with Novaerus units, the number of **overall infections fell 23%** during the same time period.

Link to clinical trial:  
<https://www.novaerus.com/research/304>

## MAMOS DELNE, LITHUANIA

After this kindergarten experienced a rotavirus outbreak that infected 70% of children, it acquired Novaerus units. Two months later, a child became infected with rotavirus. This time, only a handful of children experienced symptoms.

After the trial period ended, the Novaerus units were removed and shortly after, Mamos Delne was hit with another outbreak of rotavirus, this time infecting 100% of the children in the facility. Parents demanded the Novaerus units be reinstalled.

Link to results:  
<https://www.novaerus.com/research/1341>

# Benefits of ultra-low energy plasma



Plasma coil

- Novaerus uses cutting-edge **non-thermal plasma technology**
- Several studies have shown this new technology to be a **rapid and effective** method to **inactivate airborne** microbial pathogens
- This technology has been found effective at inactivating pathogens on the **surface of medical and dental devices**
- Study: *International Journal of Molecular Sciences*: [CLICK HERE FOR LINK to Study](#)
- This technology is included “**Handbook of COVID-19 Prevention and Treatment,**” *The First Affiliated Hospital, Zhejiang University School of Medicine, document pages 13, 52*: [CLICK HERE FOR LINK to Study](#)

Novaerus units are the **ONLY medical devices** on the market that use cutting-edge low-energy plasma technology to disinfect the air.



## DISINFECTS THE AIR SAFELY 24/7 IN:

- ✓ Dentist offices
- ✓ Operating / procedure rooms
- ✓ Intensive Care Units
- ✓ Emergency rooms
- ✓ Patient wards
- ✓ Exam rooms
- ✓ Retirement homes
- ✓ Public waiting rooms
- ✓ Staff rooms and common areas
- ✓ Poorly ventilated areas
- ✓ Public bathrooms
- ✓ Reception desk
- ✓ Individual offices
- ✓ Construction zones

# A solution when others fail



## OTHER SOLUTIONS

### HEPA FILTERS

- Due to the size of SARS-CoV-2 viral particles (0.06  $\mu\text{m}$  to 0.14  $\mu\text{m}$ ), HEPA filters in HVAC or portable systems do not provide adequate protection as **viral particles can flow through the filters**
- **HEPA filters do not kill the virus**, meaning changing filters becomes a danger and potential source of contagion requiring protective gear

### IONIZATION

- Ionization techniques electrically charge pathogens but do not kill them causing viral particles to fall on surfaces and contaminate them




- Their patented non-thermal, ultra-low energy plasma technology **destroys** airborne pathogens (viruses, bacteria, mold, fungi) at the DNA level
- Pathogens are therefore **killed in the air** and are not deposited onto surfaces
- This plasma technology has been proven to be highly effective at **disinfecting surfaces** as well
- The two smaller models **do not have filters**
- The filters in the largest model will contain neutralized pathogens, meaning **changing filters is a safe process** and protective gear is not required

OTHER STERILIZATION METHODS VS.

# Novaerus device performance



1 = Not Effective 5 = Very Effective

|   |  NOVAERUS | Photocatalytic Oxidation | UVGI Cleaner     | Sanitization Misting | HEPA Filtration | Ozone            | Laminar Air Flow | Carbon Filtration |
|---|--|--------------------------|------------------|----------------------|-----------------|------------------|------------------|-------------------|
| Harmful byproducts                              | NO   | YES <sup>1</sup>         | YES <sup>2</sup> | YES                  | NO              | YES <sup>3</sup> | NO               | NO                |
| Prevents filter colonization                    | 5  | 3                        | 4                | 1                    | 1               | 1                | 1                | 1                 |
| 24/7 bacteria load reduction                    | 5  | 3                        | 3                | 1                    | 5               | 1                | 1                | 5                 |
| 24/7 viral load reduction                       | 5  | 3                        | 4                | 1                    | 1               | 1                | 1                | 1                 |
| 24/7 fungal and bacterial spores reduction      | 5  | 3                        | 4                | 1                    | 5               | 1                | 1                | 5                 |
| 24/7 odour & VOC neutralization <sup>4</sup>    | 5  | 3                        | 1                | 1                    | 1               | 1                | 1                | 5                 |
| Operating costs for maintenance                 | LOW  | HIGH                     | HIGH             | HIGH                 | MEDIUM          | HIGH             | LOW              | MEDIUM            |
| Removal of ultra/fine particulates <sup>4</sup> | 5  | 1                        | 1                | 1                    | 5               | 1                | 1                | 3                 |

1. PCO can produce formaldehyde. 2. At high levels, UV can create noxious gases and is mutagenic.  
 3. High levels of ozone is unsafe to humans. 4. Defend 1050 only.

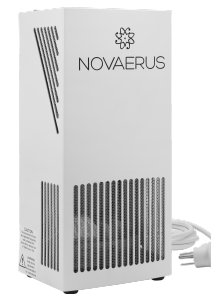
# Protection for every space: 3 sizes



DEFEND 1050



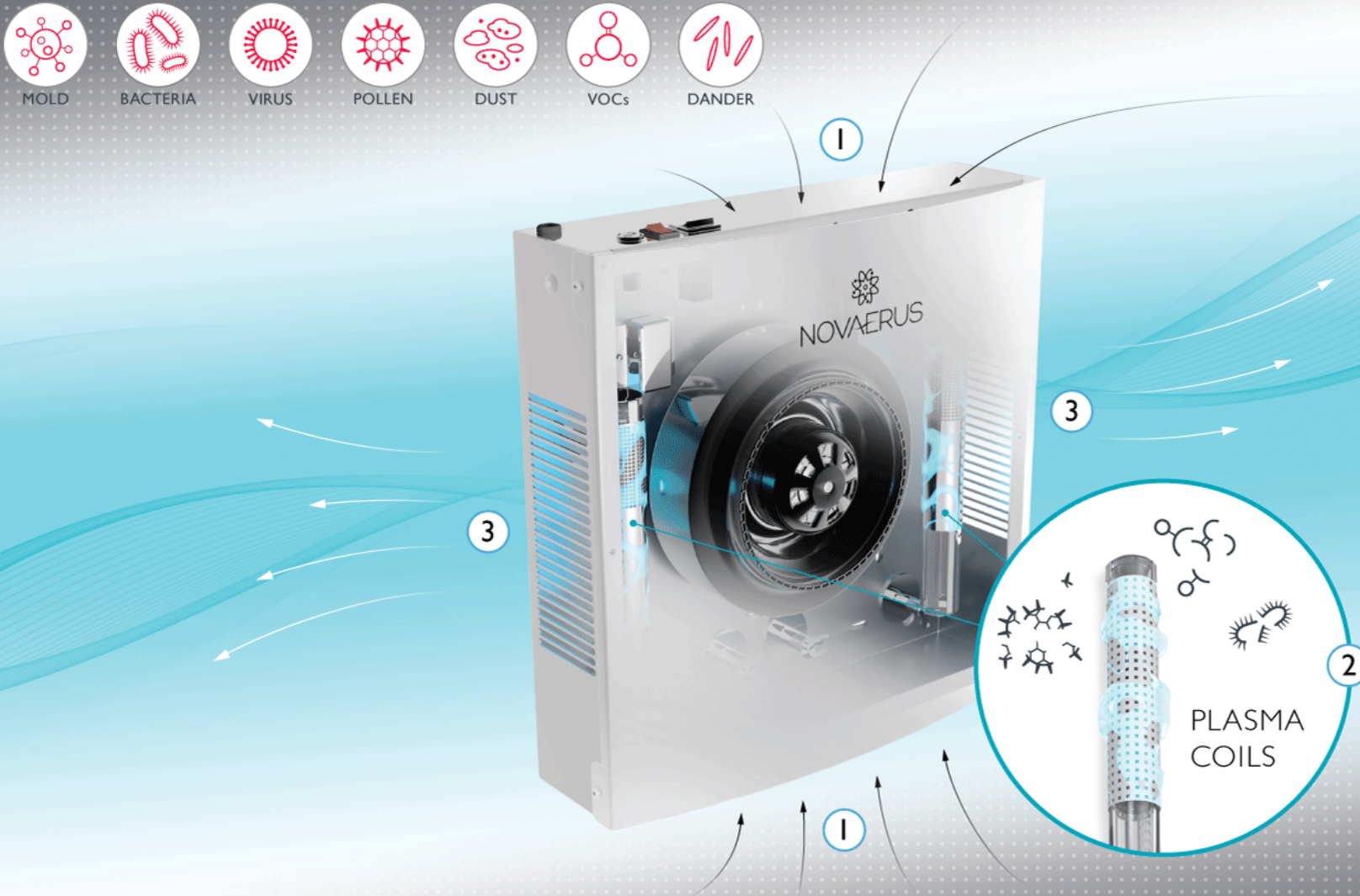
PROTECT NV900



PROTECT NV200

All units can be **easily positioned** where they are needed most

# How Novaerus units work



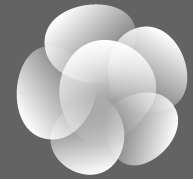
## ALL MODELS:

- A fan draws air, including contaminated air, over the plasma coils
- The ultra-low energy plasma field rapidly destroys airborne pathogens at the DNA level
- Disinfected air is emitted from the device

## LARGER MODEL:

- A series of filters for added protection

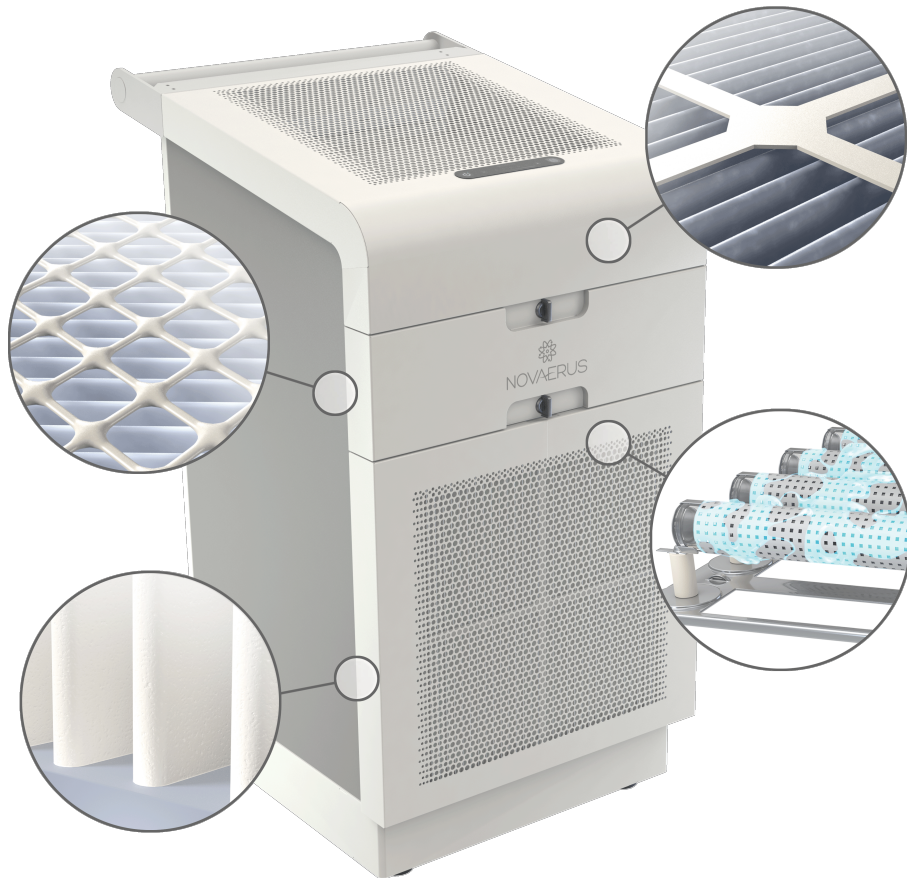




**Solution:**

**DEFEND  
1050**

# Defend 1050 Features



## BEST FOR:

- ✓ Rapid remediation
- ✓ Situations with high risk of infection
- ✓ Large spaces

## FEATURES:

- Uses patented ultra-low energy plasma (6 plasma coils)
- Has a triple-stage Camfil® filter system
- A complete solution for air disinfection & VOC and particle removal

## AREA COVERAGE:

- 18.6 – 92.9 m<sup>2</sup> (4 air changes/hour); 200 – 1 000 ft<sup>2</sup>
- 37.2 – 185.8 m<sup>2</sup> (2 air changes/hour); 400 – 2 000 ft<sup>2</sup>

## VOLUME TREATMENT:

- 45 – 226 m<sup>3</sup> (4 air changes/hour); 1 590 – 7 980 ft<sup>3</sup>
- 90 – 452 m<sup>3</sup> (2 air changes/hour); 3 180 – 15 960 ft<sup>3</sup>

# Triple-stage Camfil® filter system



## PRE-FILTER

Protects the plasma coils and extends the life of the HEPA filter

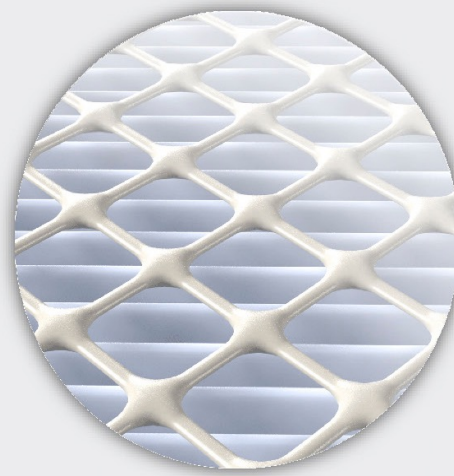


## STAGE 1

30/30 high efficiency pleated panels, water resistant, 3-month life span\*  
400x400x50mm

## HEPA FILTER

Captures fine particles as small as 0.12µm with 99.95% efficiency



## STAGE 2

Very high efficiency MGA grade H13 HEPA, individually tested, 12-month life span\*  
400x400x110mm

## CARBON FILTER

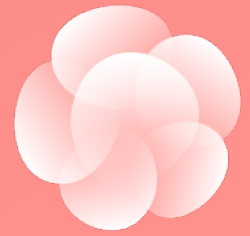
Adsorbs VOCs, odours, and gas pollutants



## STAGE 3

High efficiency pleated panels, carbon / molecular, moisture resistant, 4-month life span\*  
400x400x50mm

# Specifications: Defend 1050



## CONSTRUCTION + COLOR

- Precision-cut fabricated metal casing in a white anti-bacterial powder coat finish

## DIMENSIONS + WEIGHT

- 93.0 cm(h) x 58.0 cm(w) x 48.0 cm(d) / 36.6" (h) x 22.8" (w) x 18.9"(d)
- 51 kg / 115 lbs

## ELECTRICAL

- 120 volts (60Hz)
- 2m power cord with three-pronged plug

## NOISE LEVEL

- 47.9 – 75.1 dBA at unit
- 38.5 – 62.9 dBA at 1m away (50db at Fan speed 3)

## AIR FLOW

- Speed 1 - 181 m<sup>3</sup>/hr – 6 392 ft<sup>3</sup>/hr
- Speed 2 - 317 m<sup>3</sup>/hr – 11 195 ft<sup>3</sup>/hr
- Speed 3 - 453 m<sup>3</sup>/hr – 15 998 ft<sup>3</sup>/hr
- Speed 4 - 679 m<sup>3</sup>/hr – 23 979 ft<sup>3</sup>/hr
- Speed 5 - 906 m<sup>3</sup>/hr – 31 995 ft<sup>3</sup>/hr

## FILTERS

Stage 1: Pre-filter (M5)

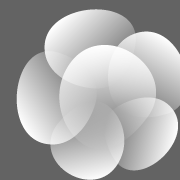
- Camfil® Part No. 715-00-0203
- 400 (h) x 400 (w) x 48 (d) mm / 15.7" (h) x 15.7" (w) x 1.9" (d)

Stage 2: HEPA filter (H13),

- Camfil® Part No. 715-00-0163
- 400 (h) x 400 (w) x 110 (d) mm / 15.7" (h) x 15.7" (w) x 4.3" (d)

Stage 3: Carbon filter (G4)

- Camfil® Part No. 715-00-0162
- 400 (h) x 400 (w) x 50 (d) mm / 15.7" (h) x 15.7" (w) x 2" (d)



**Solution:**

**Protect  
NV900**

## BEST FOR:

- ✓ Small and medium spaces
- ✓ Killing airborne viruses, bacteria, mold, fungi and VOCs
- ✓ Disinfecting the AIR protecting all patients & staff, including the elderly and vulnerable



# Specifications: Protect – NV900



## CONSTRUCTION + COLOR

- Precision-cut fabricated metal casing in a white anti-bacterial powder coat finish
- Can be wall-mounted or used with a stand attachment

## DIMENSIONS and WEIGHT

- 36.5 cm(h) x 36.5 cm(w) x 11.5 cm(d) / 14.4" (h) x 14.4" (w) x 4.5" (d)
- 4.5kg / 10lbs

## ELECTRICAL

- 120 volts (60Hz)
- 2m power cord with three-pronged plug

## AIR FLOW VOLUME

- Speed I = 220 m<sup>3</sup>/hr - 7,700 ft<sup>3</sup>/hr
- Speed II = 260 m<sup>3</sup>/hr - 9,180 ft<sup>3</sup>/hr

## NOISE LEVEL

- Speed I = 40 dB
- Speed II = 45 dB





**Solution:**

**Protect  
NV200**





## BEST FOR:

- ✓ Small Spaces
- ✓ Personal protection
- ✓ Mobile Use
- ✓ Killing airborne viruses, bacteria, mold, fungi and VOCs
- ✓ Disinfecting the AIR protecting all patients & staff, including the elderly and vulnerable

# Specifications: Protect NV200



## CONSTRUCTION + COLOR

- Precision-cut fabricated metal casing in a white anti-bacterial powder coat finish
- Wall-mountable, countertop or stand-alone

## DIMENSIONS + WEIGHT

- 28.3 (h) x 13.2 (w) x 10.8 (d) cm / 11.2" (h) x 5.2" (w) x 4.3" (d)
- 3.4kg / 7.5lbs

## ELECTRICAL

- 120 volts (60Hz)
- 2m power cord with three-pronged plug

## FAN AIR FLOW VOLUME

- 85 m<sup>3</sup>/hr – 3,000 ft<sup>3</sup>/hr

## NOISE LEVEL

- 35 dB



# Proven, effective solution to disinfect air



Novaerus' devices have been proven, in tests around the world, to be highly effective against airborne mould, fungi, bacteria and viruses in:

- 22 independent laboratory tests
- 11 clinical trials
- 16 case studies

Test results show that the NV900 was extremely effective at reducing viability of bioaerosols in all conducted studies:

- 99.87% reduction of *Staphylococcus epidermidis* bacteria
- **99.99% reduction of MS2 - a surrogate for influenza, norovirus and SARS-CoV (coronavirus)**
- 98.85% reduction of *Aspergillus niger* mold
- 86.5% reduction of *Bacillus subtilis* bacteria spore

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Novaerus devices are the **most effective way** on the market to close the infection loop by killing airborne pathogens.

# Contact us



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APPENDIX A

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# **22 Independent Laboratory Tests**

# Laboratory tests prove efficacy against airborne pathogens 1



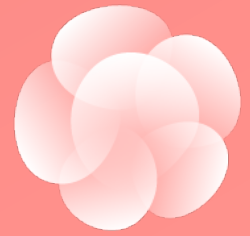
## SARS-CoV-2 REDUCTION

- Novaerus Defend 1050 was shown to **reduce MS2 bacteriophage (surrogate for SARS-CoV-2) by 99.99% in 15 minutes.**
- Link to independent laboratory test from Aerosol Research and Engineering Laboratories, U.S.: <https://www.novaerus.com/research/1441>

## BIOAEROSOLS REDUCTION

- Novaerus Protect 900 was shown to reduce aerolized biologicals: *Staphylococcus epidermidis* (99.87% reduction), **MS2 bacteriophage (99.99% reduction)**, *Aspergillus niger* (98.85% reduction), and *Bacillus subtilis* endospores (86.5% reduction).
- Link to independent laboratory test from Aerosol Research and Engineering Laboratories, U.S.: <https://www.novaerus.com/research/238>

# Laboratory tests prove efficacy against airborne pathogens 2



## AIR EXCHANGE

- Novaerus Protect 900 **cleaned 100% of the air** in a room of 22.65 m<sup>3</sup> (800 ft<sup>3</sup>) in 21-24 minutes, dependent on fan speed.
- Link to independent laboratory test from Cork Institute of Technology, Ireland: <https://www.novaerus.com/research/835>

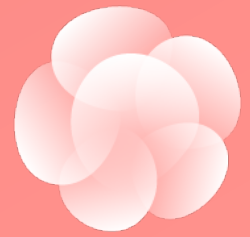
## AIRBORNE ALLERGEN REDUCTION

- Novaerus Protect 900 was shown to **reduce overall allergens by 41.16%**, including house dust mites, feline dander, canine dander, and pollen.
- Link to independent laboratory test from Indoor Biotechnologies Ltd., U.K.: <https://www.novaerus.com/research/237>

## ASPERGILLUS NIGER SPORE REDUCTION

- Novaerus Defend 1050 was shown to **reduce 99.99%** of aerolized *Aspergillus niger* spores in 30 minutes.
- Link to independent laboratory test, Aerosol Research and Engineering Laboratories, U.S.: <https://www.novaerus.com/research/314>

# Laboratory tests prove efficacy against airborne pathogens 3



## CLOSTRIDIUM DIFFICILE SPORE REDUCTION

- Novaerus Defend 1050 was shown to **reduce 99.6% of airborne *C. difficile*** within the first 20 minutes of operation and **> 99.99% after 40 minutes**.
- Link to independent laboratory test from Airmid Health Group Ltd., Ireland: <https://www.novaerus.com/research/830>

## ESCHERICHIA COLI (E. COLI) DEACTIVATION

- Novaerus devices caused severe damage to cell structure of aerolized *Escherichia Coli* (E. Coli) & bacterial reculture experiments **confirmed inactivation of airborne *E. coli*** upon treating with Novaerus device.
- NASA Ames Research Center, U.S.: <https://www.novaerus.com/research/239>

## FORMALDEHYDE REDUCTION

- Novaerus Defend 1050 had an average net LOG reduction of 2.52 LOG across four tests and **formaldehyde levels reached 0.00 ppm in an average of 1.1 minutes**.
- Link to independent laboratory test from Aerosol Research and Engineering Laboratories, U.S.: <https://www.novaerus.com/research/704>



# Laboratory tests prove efficacy against airborne pathogens 4



## FORMALDEHYDE REDUCTION

- Novaerus Protect 800/900 was shown to **reduce formaldehyde by 85%** during a 14-hour testing experiment.
- Link to independent laboratory test from Avomeen Analytical Services, U.S.: <https://www.novaerus.com/research/240>

## INFLUENZA A REDUCTION

- Novaerus Defend 1050 was shown to reduce **99.9% of airborne Influenza A within the first 10-20 minutes** of operation
- Link to independent laboratory test from Airmid Health Group Ltd., Ireland: <https://www.novaerus.com/research/241>

## MEASLES VIRUS REDUCTION

- Novaerus Defend 1050 was able to reduce the concentration of human parainfluenza type 3 (HPIV3) (renamed human respirovirus 3), a surrogate for **Measles virus, by 99.87% after 25 minutes**
- Link to independent laboratory test from Airmid Health Group Ltd., Ireland: <https://www.novaerus.com/research/1314>

# Laboratory tests prove efficacy against airborne pathogens 5



## METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) REDUCTION

- The Novaerus Protect 800/900 **reduced 99.99% of Methicillin-resistant *Staphylococcus Aureus* (MRSA)** bacteria over the course of four hours.
- Link to independent laboratory test, Microbac Laboratories, Inc., U.S.: <https://www.novaerus.com/research/243>

## MYCOBACTERIUM TUBERCULOSIS BACTERIA REDUCTION

- Novaerus Defend 1050 was shown to **reduce the concentration of *M. smegmatis* (surrogate for *M. tuberculosis*) by 97%** after 30 minutes of operation.
- Link to independent laboratory test, Airmid Health Group Ltd., Ireland: <https://www.novaerus.com/research/698>

## MYCOBACTERIUM TUBERCULOSIS INACTIVATION

- The Novaerus Protect 200 **rendered all *Mycobacterium tuberculosis* non-viable.**
- Link to independent laboratory test, Qualilife Diagnostics, India: <https://www.novaerus.com/research/269>

# Laboratory tests prove efficacy against airborne pathogens 6



## NITROGEN DIOXIDE REDUCTION

- The Novaerus Defend 1050 reduced the chamber concentration of Nitrogen Dioxide (NO<sub>2</sub>) to **0.0 ppm in 7.5 minutes** in all three trials.
- Link to independent laboratory test from Aerosol Research and Engineering Laboratories, U.S.: <https://www.novaerus.com/research/696>

## PARTICLE REDUCTION

- Novaerus Defend 1050 **removed 99% of PM<sub>2.5</sub>** within 6.26 minutes and **99% of PM<sub>1.0</sub>** within 6.33 minutes
- Link to independent laboratory test, Camfil Laboratories – Tech Center, Sweden: <https://www.novaerus.com/research/315>

## PHI-X VIRUS REDUCTION

- Novaerus Defend 1050 was shown to reduce **Phi X 174 virus by 98.8% in 30 minutes**
- Link to independent laboratory test, Korea Testing Laboratory, South Korea: <https://www.novaerus.com/research/1363>

# Laboratory tests prove efficacy against airborne pathogens 7



## STAPHYLOCOCCUS EPIDERMIDIS BACTERIA REDUCTION

- The Novaerus Defend 1050 was shown to reduce *Staphylococcus epidermidis* bacteria by **99.9% in 60 minutes**.
- Link to independent laboratory test from Korea Testing Laboratory, South Korea: <https://www.novaerus.com/research/1364>

## STAPHYLOCOCCUS EPIDERMIDIS BACTERIA REDUCTION

- Novaerus Defend 1050 achieved a microbial cell **reduction of 99.94% of *Staphylococcus epidermidis*** within 15 minutes of operation.
- Link to laboratory test, Novaerus Research and Development Labs, Ireland: <https://www.novaerus.com/research/695>

## STAPHYLOCOCCUS EPIDERMIDIS AND ASPERGILLUS NIGER REDUCTION

- Novaerus caused **severe size and shape change to cell structure** of aerosolized *Staphylococcus epidermidis* and *Aspergillus niger*, possibly resulting in destruction of cellular components and eventually to cell death. A similar effect was found on the fungal spores.
- Link to independent laboratory test, NASA Ames Research Center, U.S.: <https://www.novaerus.com/research/268>

# Laboratory tests prove efficacy against airborne pathogens 8



## STAPHYLOCOCCUS EPIDERMIDIS BACTERIA REDUCTION

- Novaerus units were shown to **reduce 95% of *Staphylococcus epidermidis*** aerosol contamination in 30 minutes.
- Link to independent laboratory test, University of Huddersfield, U.K.: <https://www.novaerus.com/research/267>

## VOC REDUCTION

- Novaerus Defend 1050 **achieved 90% VOC reduction** after 6 – 16 minutes, dependent on fan speed.
- Link to laboratory test, Camfil Laboratories – Tech Center, Sweden: <https://www.novaerus.com/research/834>



APPENDIX B

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# 11 Clinical Trials

# Proven effectiveness against pathogens in clinical trials 1



## EVALUATION OF THE NOVAERUS TECHNOLOGY IN A DIALYSIS CENTRE, PORTUGAL

- Novaerus devices **reduce VOCs by 93%, airborne bacteria by 87% and moulds by 67%.**
- Link to results: <https://www.novaerus.com/research/311>

## EVALUATION OF THE NOVAERUS TECHNOLOGY IN AN EMERGENCY HOSPITAL, ROMANIA

- Novaerus unites were shown to **reduce airborne *Staphylococcus* by 100%**, airborne bacteria by 89% and airborne fungi by 87%.
- Link to clinical trial: <https://www.novaerus.com/research/312>

## LEOPARDSTOWN PARK HOSPITAL, IRELAND

- Over a three-year period, this older people's hospital saw **no outbreaks of Influenza, Norovirus, MRSA or *Clostridium difficile*** in wards with Novaerus units installed
- Continued **decline in staff sickness** (and therefore absenteeism)
- Link to results: <https://www.novaerus.com/research/310>

# Proven effectiveness against pathogens in clinical trials 2



## EVALUATION OF THE NOVAERUS TECHNOLOGY IN A HOSPITAL, ENGLAND

- Novaerus Protect 800/900 devices **reduce environmental surface MRSA by 97%** and reduces environmental surface TVC and **environmental air MRSA**.
- Link to results: <https://www.novaerus.com/research/303>

## EVALUATION OF THE NOVAERUS TECHNOLOGY IN AN INFECTIOUS DISEASE HOSPITAL, ROMANIA

- Novaerus devices were shown to **reduce airborne bacteria and fungi by 96%**.
- Link to clinical trial: <https://www.novaerus.com/research/308>

## EVALUATION OF THE NOVAERUS TECHNOLOGY IN INTENSIVE CARE, POLAND

- Novaerus' ultra-low energy plasma technology was shown to **significantly reduce the number of microorganisms**.
- Link to clinical trial: <https://www.novaerus.com/research/305>



# Proven effectiveness against pathogens in clinical trials 3



## RIGSHOSPITALET NEPHROLOGY CLINICS, DENMARK

- In the control section with no units, the number of overall infections increased by 35% from 2013 to 2014. In the section with Novaerus units, the number of **overall infections fell 23%** during the same time period
- Link to clinical trial: <https://www.novaerus.com/research/304>

## EVALUATION OF THE NOVAERUS TECHNOLOGY IN AN OPHTHALMOLOGY OPERATING ROOM, EGYPT

- Novaerus devices **reduced bacterial colony count** in both the rooms that were being used and those that were empty.
- Link to results: <https://www.novaerus.com/research/1189>

## EVALUATION OF THE NOVAERUS TECHNOLOGY IN A PAEDIATRIC DEPARTMENT, POLAND

- Novaerus devices effectively **reduced the number of airborne pathogens by 61%** in the admission room of the Paediatric Department and by 19% in the Clinic of Pulmonology/Tuberculosis and Pulmonary Diseases.
- Link to results: <https://www.novaerus.com/research/306>

# Proven effectiveness against pathogens in clinical trials 4



## EVALUATION OF THE NOVAERUS TECHNOLOGY IN A PULMONOLOGY DEPARTMENT, HUNGARY

- Novaerus devices **reduced CFU rates by 82% and fungi count by 93%** after two months of operation.
- Link to results: <https://www.novaerus.com/research/309>

## EVALUATION OF THE NOVAERUS TECHNOLOGY IN A SPECIALISED HOSPITAL, POLAND

- Novaerus devices **significantly reduces the number of microorganisms** as well as eliminated unwanted odours.
- Link to results: <https://www.novaerus.com/research/307>



APPENDIX A

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# 16 Case Studies

# Proven effectiveness against pathogens in case studies 1



## BROWARD CHILDREN'S CASE STUDY, UNITED STATES

- This 20-month study showed after implementing Protect 900 units in selected rooms and areas, the total number of nosocomial respiratory infections **decreased by 51.72%**.
- Link to results: <https://www.novaerus.com/research/220>

## CANTERBURY TOWER CASE STUDY, UNITED STATES

- In the 7-month period after installation individual NV200 units in targeted patient rooms, **nosocomial respiratory infections decreased by 93.33%**.
- Link to results: <https://www.novaerus.com/research/219>

## EDGEHILL NURSING AND REHABILITATION CENTER STUDY, UNITED STATES

- This 24-month study compares the total number of respiratory nosocomial infections before and after implementation of the Novaerus technology.
- Link to results: <https://www.novaerus.com/research/221>

# Proven effectiveness against pathogens in case studies 2



## HAUS AN DER TRAISEN NURSING HOME STUDY, AUSTRIA

- Since 2014, the Haus an der Traisen nursing home has supplemented its existing hygiene protocols with Novaerus air purification units to **help control infection and reduce odour**.
- Link to results: <https://www.novaerus.com/research/235>

## HIALEAH NURSING AND REHAB CENTER, UNITED STATES

- This 24-month study after installation of NV200, NV400 and NV900 units in selected areas, the total number of repeat infections decreased by 37.50%, whereas ***C. difficile* infections decreased by 100%**.
- Link to results: <https://www.novaerus.com/research/222>

## LINDE HEALTHCARE CASE STUDY, AUSTRIA

- Following a five-month trial with Novaerus devices in a 16-person open office plan, **employee sick time was reduced by 40%**, employees noticed the office was fresh and lacked its previous winter season staleness.
- Link to results: <https://www.novaerus.com/research/233>

# Proven effectiveness against pathogens in case studies 3



## MAMOS DELNE KINDERGARTEN, LITHUANIA

- After this kindergarten experienced a rotavirus outbreak that infected 70% of children, it acquired Novaerus units. Two months later, a child became infected with rotavirus. This time, only a handful of children experienced symptoms
- After the trial period ended, the Novaerus units were removed and shortly after, Mamos Delne was hit with another outbreak of rotavirus, this time infecting 100% of the children in the facility. Parents demanded the Novaerus units be reinstalled
- Link to results: <https://www.novaerus.com/research/1341>

## MANCHESTER MANOR HEALTH CARE CENTER, UNITED STATES

- A 24-month study comparing areas without Novaerus devices and those with Protect 200 and 900 units installed showed that the **total number of nosocomial respiratory infections decreased by 42.86%** with the Novaerus units and the total number of nosocomial ***C. difficile* infections decreased by 50%** with the units.
- Link to results: <https://www.novaerus.com/research/223>

# Proven effectiveness against pathogens in case studies 4



## MEADOW VIEW NURSING CENTER, UNITED STATES

- This 24-month study showed that after implementing the NV200 and NV900 units in selected areas, the facility's total number of **nosocomial respiratory infections decreased by 77.42%** and nosocomial respiratory infections **decreased 95.65% on the third floor.**
- Link to results: <https://www.novaerus.com/research/224>

## NAAMAN'S CREEK COUNTRY MANOR, UNITED STATES

- This 28-month study showed that after implementation of the NV200, NV400, and NV900 units in selected areas, the total number of **nosocomial respiratory infections decreased 53.01%**, while ***C. difficile* infections were reduced by 85.71%.**
- Link to results: <https://www.novaerus.com/research/225>

## PAGE REHABILITATION AND HEALTHCARE CENTER, UNITED STATES

- This 29-month study revealed that Novaerus devices NV200 and NV400 in selected areas, **reduced the average monthly rate of nosocomial respiratory infections by 75.31%.**
- Link to results: <https://www.novaerus.com/research/226>

# Proven effectiveness against pathogens in case studies 5



## SANTE INTERNATIONAL CASE STUDY, ROMANIA

- This case study was performed at the Bucharest Emergency Hospital
- After three months and 336 air samples, locations in the hospital with Novaerus units saw an **89% reduction in airborne bacteria, 87% reduction in airborne fungi and nearly 100% reduction in airborne *Staphylococcus*.**
- Link to results: <https://www.novaerus.com/research/234>

## UNIVERSITY OF SZEGED, FACULTY OF MEDICINE – INTERNAL MEDICINE, HUNGARY

- Novaerus units were placed in four locations in the University of Szeged's Department of Geriatrics and Chronic Diseases of the Internal Medicine Clinic No. 1. Air samples taken before the trial revealed background pollution levels as high as 2610 cfu/m<sup>3</sup> and MRSA levels at 40 cfu/m<sup>3</sup>, despite the clinic practicing standard hygiene protocol.
- Three days after installing the Novaerus units, background **pollution was reduced by an average of 67% and MRSA colonies were eliminated completely.**
- Link to results: <https://www.novaerus.com/research/236>



# Proven effectiveness against pathogens in case studies 6



## VERNON MANOR HEALTH CARE CENTER, UNITED STATES

- This 24-month study showed the use of NV900 units in main hallways and NV200 units in select patient rooms, **reduced the total number of nosocomial respiratory infections by 59.32%**.
- Link to results: <https://www.novaerus.com/research/227>

## VILLAGE AT MANOR PARK CASE STUDY, UNITED STATES

- This 23-month study revealed that after implementating the NV900 units in patient rooms, hallways, and dining rooms on the first floor, the facility's total number of **nosocomial respiratory infections decreased by 79.41%**.
- Link to results: <https://www.novaerus.com/research/228>

## WASSAN DENTAL SPECIALITY CENTRE CASE STUDY, OMAN

- Like most dental clinics, Wassan Dental was concerned about high levels of VOCs, particulate, and pathogens in the indoor air as a consequence of routine dental procedures and materials.
- Two weeks after installing Protect 800/900 units in key locations around the practice, staff observed a noticeable **reduction in odour** and patients noted a **fresh quality to the air** inside the clinic.
- Link to results: <https://www.novaerus.com/research/1190>