



# VORT SANIKIT

Air sanitisation kit  
for centralised heat recovery units







**VORTICE S.p.A.** is now part of a multinational group, **the VORTICE GROUP**, which operates through its own companies or local distributors in over 90 countries worldwide and has a rich product portfolio that guarantees air quality and climate comfort. The headquarters of VORTICE S.p.A are in Tribiano (Milan).



The VORTICE GROUP also includes:

[1] **VORTICE LIMITED**, the UK subsidiary of VORTICE S.p.A founded in 1977 with headquarters in Burton upon Trent.

[2] **VORTICE INDUSTRIAL**, created in 2010 through the acquisition of Loran srl, based in Isola della Scala (VR - Italy).

[3] **VORTICE Ventilation System**, a company inaugurated in 2013 with headquarters in Changzhou, China.

[4] **VORTICE Latam**, based in Alajuela in Costa Rica, established in 2012.

[5] **CASALS VENTILACIÓN AIR INDUSTRIAL S.L.**, a historic Spanish brand based in Sant Joan de les Abadesses, Girona, acquired in 2019.





## VORT SANIKIT

### Air sanitisation kit for centralised heat recovery units.

VORT SANIKIT is a sanitisation device designed for the sanitisation of the air passing through the centralised heat recovery units of VORTICE residential range.

The combined use of heat recovery units and sanitisation kit does not affect in any way the air exchange guaranteed by the ventilation system, which is essential to maintain the humidity and carbon dioxide concentrations.

Thanks to its photocatalysis module, VORT SANIKIT is effective against pathogens such as viruses and bacteria, as well as against bad smells, allergens, moulds, spores, mites, etc.

In this way, it contributes to preserving the occupants' health.

## Regulatory standards

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- Electrical Safety Regulations: EN 60335-1;  
EN 60335-2-80; EN 60335-2-65; EN 62233;

- Aeraulic Performances Regulations:  
UNI EN ISO 5801;

- Electromagnetic Compatibility Regulations:  
EN 55014-1  
EN 55014-2  
EN 61000-3-2  
EN 61000-3-3

- European Directives for CE marking  
- Low Voltage Directive (2014/35/EU)  
- Electromagnetic Compatibility Directive (2014/30/EU)



**UNIVERSITÀ DEGLI STUDI DI MILANO**  
DIPARTIMENTO DI SCIENZE BIOMEDICHE  
E CLINICHE "LUIGI SACCO"

## RIASSUNTO CONCLUSIVO

### DICHIARAZIONE EFFICACIA TECNOLOGIA DUST FREE

Dalla sperimentazione condotta all'interno del Dipartimento di Scienze biomediche e cliniche "Luigi Sacco" si evince che la tecnologia Dust-Free FC UNIT 3" ha mostrato capacità di abbattere la carica virale di SARS-CoV-2 inoculata in fase liquida sia su una superficie che su un tessuto.

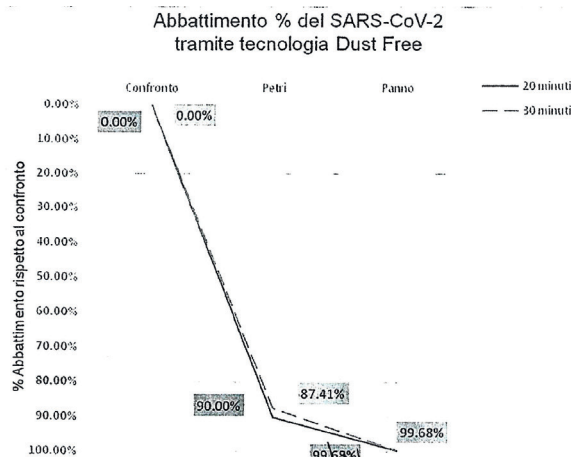
L'abbattimento verificato sul petri inoculato di SARS-CoV-2, esposto all'aria trattata per 20 minuti in un volume di 2,13 m<sup>3</sup>, ha mostrato una riduzione di 1.0 log (90.0%) maggiore rispetto al decadimento naturale del virus verificato nella prova di controllo, eseguita a pari condizioni, ma senza tecnologia Dust Free.

L'abbattimento verificato sul panno costituito per il 45% in polietere e 55% cellulosa, inoculato di SARS-CoV-2, esposto all'aria trattata per 20 minuti in un volume di 2,13 m<sup>3</sup>, ha mostrato invece una riduzione di 2.5 log (99.7%) maggiore rispetto al decadimento naturale del virus verificato nella prova di controllo, eseguita a pari condizioni, ma senza tecnologia Dust Free.

Il ventilatore impiegato ha portata d'aria pari a 35 mch.

### PROTOCOLLO DI VALUTAZIONE DELL'ATTIVITA' VIRUCIDA DEL DISPOSITIVO NEVOLA SU SARS-CoV-2

	NOME	FUNZIONE	FIRMA	DATA
<b>Redatto da</b>	David Motta	Principal Investigator	<i>[Signature]</i>	09/11/2020
<b>Revisionato da</b>	Luca Galli	Committente (Air-Control Srl)	<i>[Signature]</i>	09/11/2020
	Luca Tabanelli	Produttore Nevola (Kemin Textile Srl)	<i>[Signature]</i>	09/11/2020
<b>Approvato da</b>	Maria Rita Comandi	Supervisore	<i>[Signature]</i>	9/11/2020

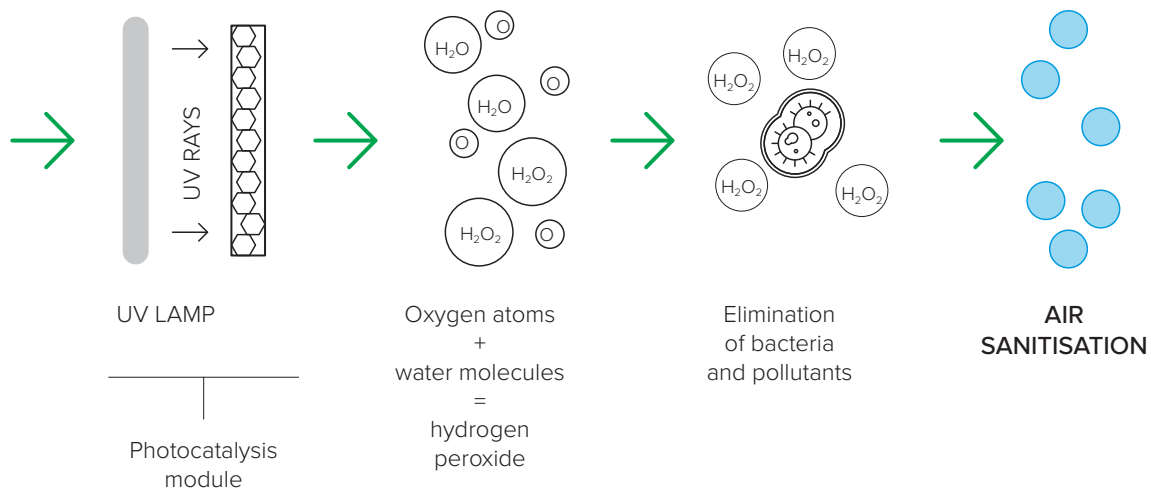


PROTOCOLLO DI VALUTAZIONE DELL'ATTIVITA' VIRUCIDA DEL DISPOSITIVO NEVOLA SU SARS-CoV-2

Dipartimento di Scienze biomediche e cliniche "Luigi Sacco"  
Via G.B. Grassi, n°74 - 20157 Milano, Italy

*[Signatures]*

## HOW A PHOTOCATALYTIC SYSTEM WORKS\*



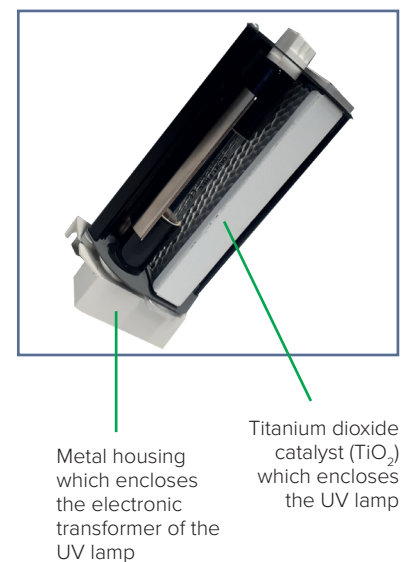
\*Diagram of a generic photocatalysis process (by way of an example).

### Photocatalysis module

The photocatalysis unit used is based on the photocatalytic oxidation process (used in hospitals and in the aerospace, medical and food industries), which is a natural phenomenon that occurs in the presence of ultraviolet rays from the sun, air humidity and of some noble metals.

The combination of these three factors triggers the release of oxidising ions capable of neutralising the majority of pathogens in the air, which are potentially dangerous to our health. The ultraviolet (UV) lamp illuminates a catalyst made from a special alloy based on titanium dioxide ( $\text{TiO}_2$ ), which causes a photochemical reaction where oxygen (O) atoms bind with molecules of water ( $\text{H}_2\text{O}$ ) dissolved in the air in the form of vapour.

The hydrogen peroxide molecules ( $\text{H}_2\text{O}_2$ ) generated from this reaction are sufficient to eliminate most of bacteria, viruses and allergens present both in the air and on surfaces, sanitising them. The estimated service life of the UV lamp is two years.



## OPERATING PRINCIPLE

### INSTALLATIONS

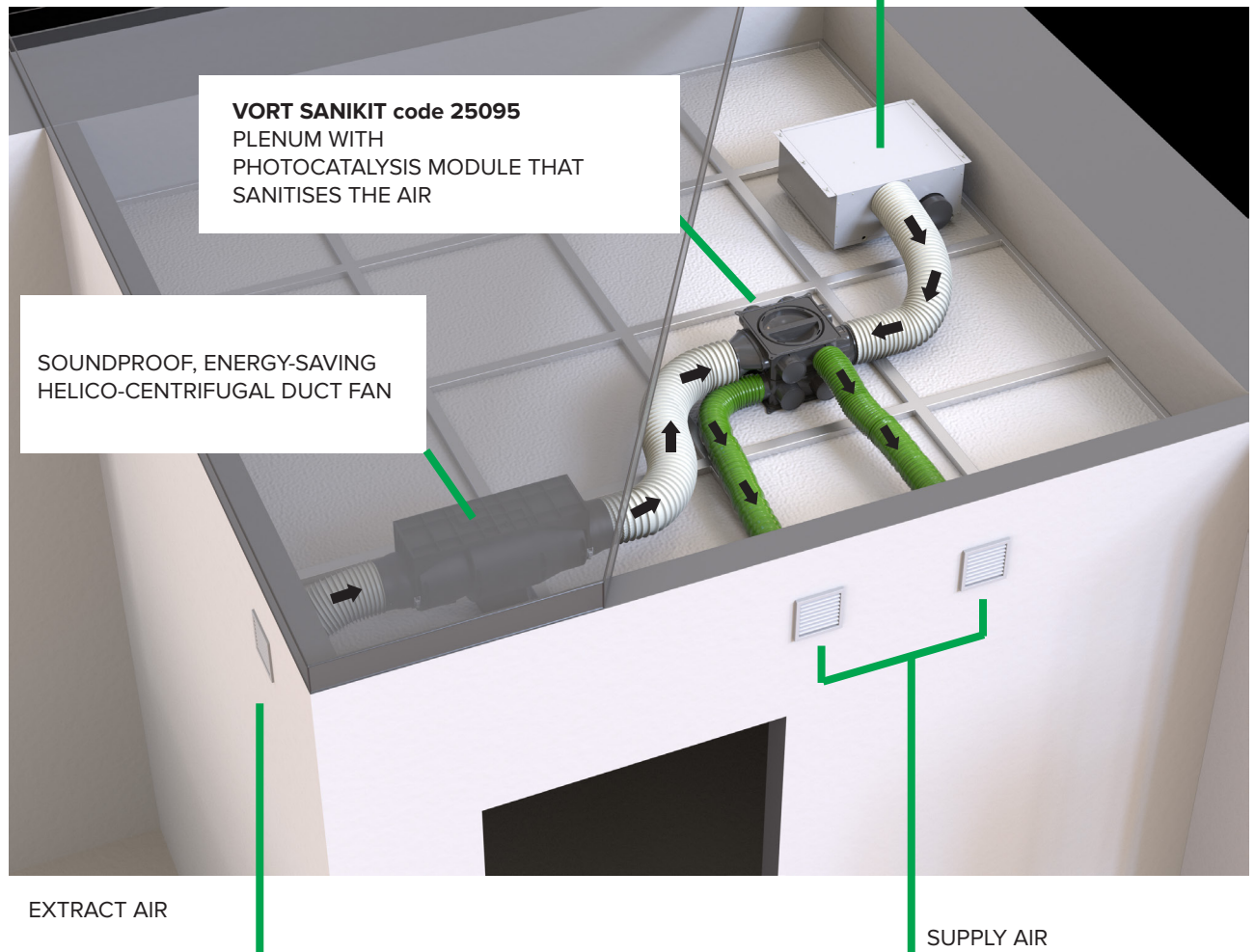
Installed on a wall, in a false ceiling or in the attic of the destination building, **VORT SANIKIT** extracts the air from the rooms served and injects it, adequately filtered from dust, and debris that may be present in it, into a plenum located downstream of the delivery spigot of the associated heat exchange unit. Here, the two flows mix with each other and are sanitised by the action of the photocatalysis module, which deprives them of their allergenic and pathogenic charge, so they can be redistributed in the rooms designated to receive the fresh air.

The performance of the unit can be set according to the needs of the application using a simple potentiometer.

Thanks to the fresh air flow, the use of the plenum alone, which integrates the photocatalysis module, ensures the sanitisation of delivery ducts. The same result can be obtained by modifying the ventilation systems already installed, in order to use on the delivery side a plenum of the WDG-PH PLUS-C 6x63 or WDG-P PLUS 16x63 type, thanks to the replacement of one of the original plenum caps with the SANICOVER device (cod. 13082).

### VORT SANIKIT 250

Example of installation with duct fan equipped with brushless motor Ø 100

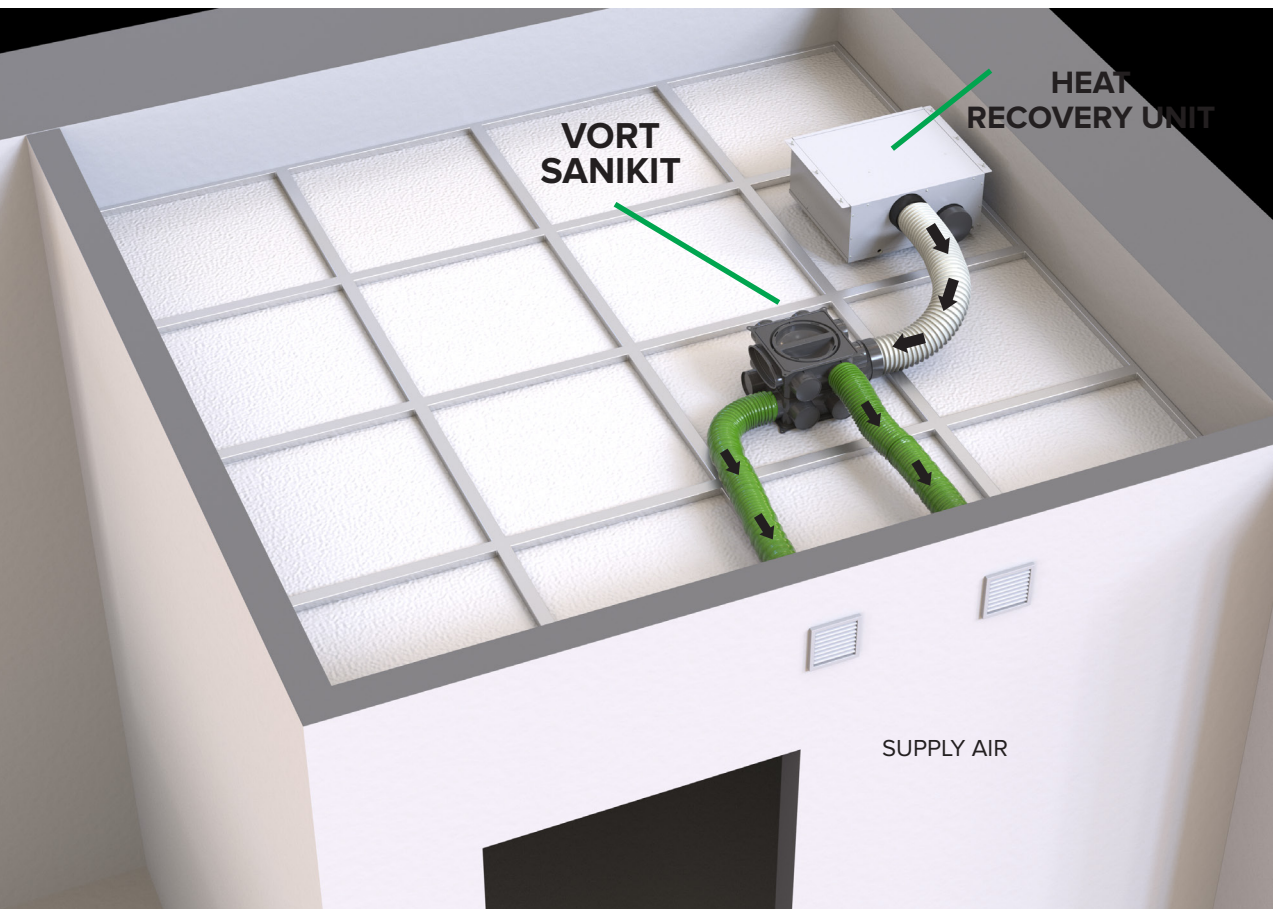




## OPERATING PRINCIPLE

## INSTALLATIONS

### VORT SANIKIT 250



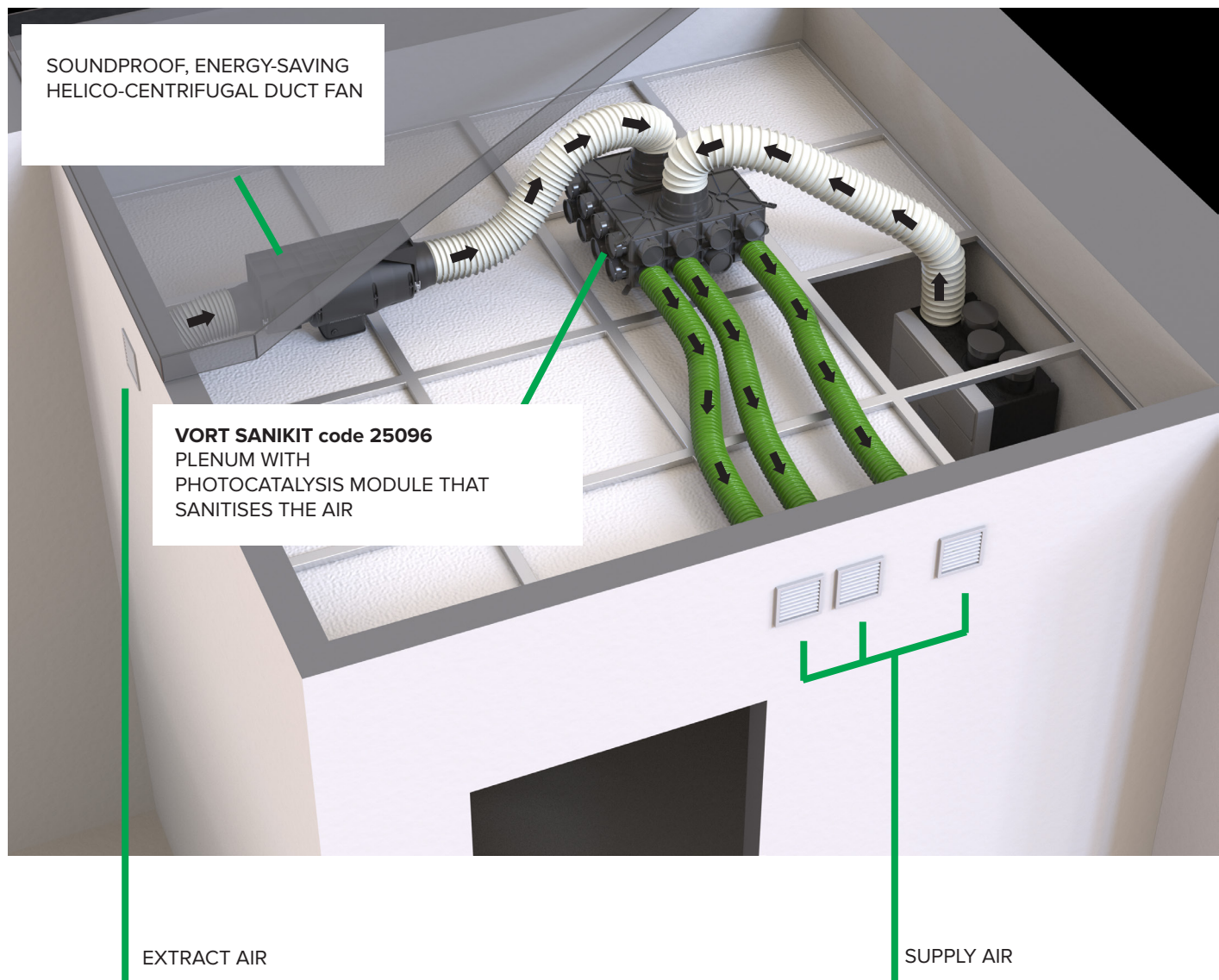


## OPERATING PRINCIPLE

## INSTALLATIONS

### VORT SANIKIT 400

Example of installation with duct fan equipped with brushless motor Ø 125





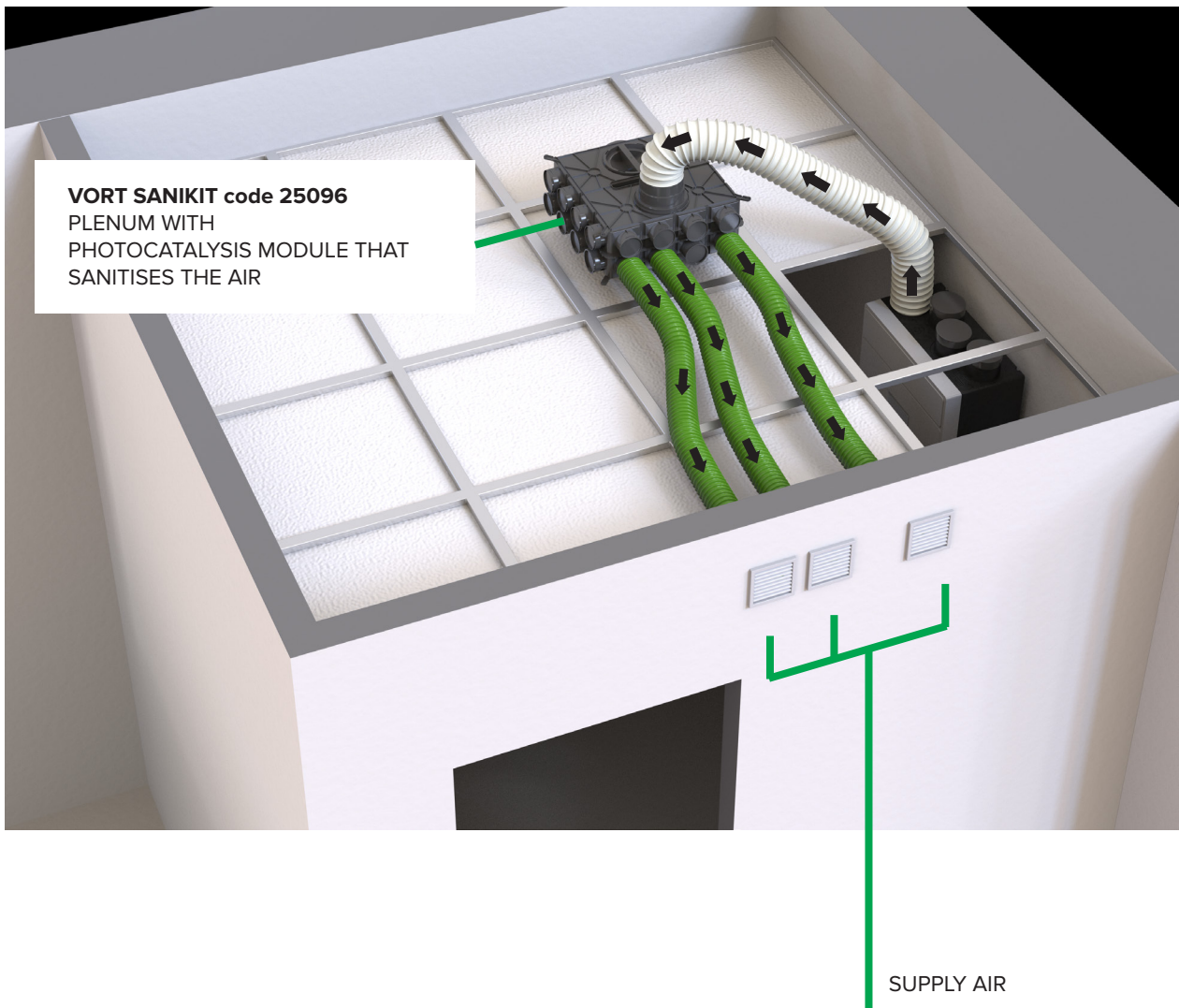


## OPERATING PRINCIPLE

## INSTALLATIONS

### VORT SANIKIT 400

Example of installation without duct fan



## BENEFITS FOR THE INSTALLER

01

### Flexibility of installation

- Horizontal or vertical mount
- Installed in walls, attics false ceilings
- Enables optimal space saving

02

### Easy maintenance

- Easy access to filters and UV lamp

## BENEFITS FOR THE USER

01

### Excellent quality of ambient air

The high sanitisation effectiveness, certified by the tests performed at the Biomedical and Clinical Sciences **Department “Luigi Sacco” of the University of the Studies of Milan**, ensures the quick reduction of the pathogenic load linked to fungi, bacteria and viruses. Effective against COVID-19.

02

### Low management costs

- Continuous use thanks to low consumption motor
- Photocatalysis module only needs replacing every 2 years

03

### Settable Performance

Can adapt the performance of the unit depending on the application or user requirements



## TECHNICAL CHARACTERISTICS

### Available models

VORT SANIKIT range is composed of 2 models, which differ from each other in terms of performances and space needed, deriving from the coupling of a duct fan with a plenum integrating a photocatalysis module.

That being said, the VORT SANIKIT range is composed of 2 models: VORT SANIKIT 250 and VORT SANIKIT 400, suitable to meet the demands of environments with a surface up to 270m<sup>2</sup>

	CODE	COMBINABLE WITH LINEO QUIET ES
VORT SANIKIT 250	25095	17170
VORT SANIKIT 400	25096	17171

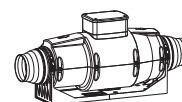
### Construction and components

- Plenum made of plastic material.
- Soundproof helico-centrifugal fan: characterised by reduced radial dimensions for an easier integration even in small spaces, driven by an electronic commutated motor (EC brushless) to guarantee low consumption, perfectly suited to continuous 24/7 operation. Speed adjustment, which is carried out using an integrated or remote potentiometer (the latter available as an option), allows to adjust the ambient air flow rate to be sanitised according to the needs.
- Photocatalysis module: inserted in the plenum and integrated with one of the closing caps to make the UV lamp extraction and replacement (approximately every two years) easier. This lamp activates the process and is able to quickly eliminate bacteria and viruses from the treated air. The effectiveness of the Dust Free technology used is proven by the tests performed at the Biomedical and Clinical Sciences Department "Luigi Sacco" of the University of the Studies of Milan, which showed its ability to reduce the SARS-CoV-2 viral load.

#### VORT SANIKIT 250 - Code. 25095



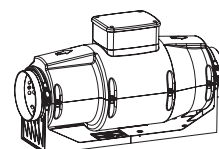
OPTIONAL  
Duct fan with brushless  
motor Ø 100  
(LINEO 100 QUIET ES)



#### VORT SANIKIT 400 - Code. 25096



OPTIONAL  
Duct fan with brushless  
motor Ø 100  
(LINEO 125 QUIET ES)



## Accessories

MODEL	DESCRIPTION	CODE
	<b>POT-IT</b> Potentiometer compatible with wall installations and flush-mounted installations in UNI503 standard box	12826
	<b>POT</b> Potentiometer compatible with wall installations and flush-mounted installations in DIN standard box	12828
	<b>SANICOVER</b> Plenum cover with photocatalysis module	13082
	<b>UV-BLB</b> UV lamp for photocatalysis module	26918
	<b>PL-RING</b> Connection ring for plenum (21323)	13085
	<b>OVCAP</b> Oval cap for plenum (21323)	13088
	<b>WDG-CO</b> Adapter cone	21356
	Non-return damper nominal Ø 100mm	22551
	Non-return damper nominal Ø 125mm	22556





## **FAQ**

### **What is VORT SANIKIT?**

VORT SANIKIT is a sanitisation device. Combined with the centralised heat recovery units of VORTICE residential range, VORT SANIKIT, thanks to its photocatalysis module, performs an effective action against pathogens (primarily bacteria and viruses), bad smells, allergens (moulds, spores, mites, etc.) present in the ambient air, thus helping to preserve the occupants' health. In particular, the device is able to quickly eliminate the SARS-CoV-2 virus, responsible for the COVID-19 pandemic, as shown by the tests performed at the "L. Sacco" Institute of the University of the Studies of Milan.

### **How does VORT SANIKIT work?**

Installed on a wall, in a false ceiling or in the attic of the destination building, VORT SANIKIT extracts the air from the rooms served and injects it, adequately filtered from dust, fluff and debris that may be present in it, into a plenum located downstream of the delivery spigot of the associated heat recovery unit. Here, the two flows mix with each other and are sanitised by the action of the photocatalysis module, which deprives them of their allergenic and pathogenic charge. Then, they are redistributed in the rooms designated to receive the fresh air.

### **What are the maximum dimensions of the environments in which the use of VORT SANIKIT is effective?**

The effectiveness of a sanitisation device depends on the volume of the environment, the number of individuals occupying it (crowd index) and the concentration of allergens and pathogens present in it. The smaller the environment, and therefore the volume of air to be sanitised, and the lower the occupants number and the allergens and pathogens concentration, the faster the sanitising action will be. That being said, the VORT SANIKIT range is composed of 2 models: VORT SANIKIT 250 and VORT SANIKIT 400, suitable to meet the demands of environments with a surface up to 270m<sup>2</sup>.

Further information can be obtained by contacting the VORTICE Pre-sale Service at the address: [prevendita@vortice-italy.com](mailto:prevendita@vortice-italy.com).

### **To what extent VORT SANIKIT is effective against the COVID-19?**

The effectiveness of the VORT SANIKIT photocatalysis module against the SARS-CoV-2 coronavirus causing the COVID-19 pandemic has been proven by tests performed at the Biomedical and Clinical Sciences Department "Luigi Sacco" of the University of the Studies of Milan. These tests showed the device ability to reduce the SARS-CoV-2 viral load.

### **Does VORT SANIKIT produce ozone?**

The photocatalysis module featured in the VORT KIT range devices does not emit ozone.

### **Where to install VORT SANIKIT for best results?**

VORT SANIKIT has been designed to sanitise the air of those confined spaces in which we spend most of our time. For this reason, the intake spigots of the ambient air destined only to the sanitisation cycle are commonly located in the most crowded spaces of public premises such as offices, waiting rooms of medical and dental offices, etc. In residential areas, on the other hand, it is preferable to place them in living rooms, studios and bedrooms. As for the kit itself, it can be horizontally or vertically installed on walls, in false ceilings (given the reduced vertical dimensions) or attics. The physical separation of the plenum containing the photocatalysis module from the fan that moves the air flow to be sanitised further increases the flexibility of installation, allowing optimal use of the available space.





### How to ensure the VORT SANIKIT is running at optimal performance?

The effectiveness of a sanitisation device depends on the treated air flow rate: the greater the volume of air going through the product, the less time it takes to reduce the allergens and pathogens charge in the environment.

The photocatalysis module used in VORT SANIKIT is designed to sanitise air flows largely exceeding those moved by the associated fans. It follows that the best performance is obtained when the fan operates at maximum speed, compatibly with the acoustic comfort of the people occupying the premises. To ensure the preservation of adequate healthiness levels in the environment, it is advisable to leave the device constantly running, except obviously for cases of prolonged absence (such as during holidays). Lowering the fan speed will in fact reduce consumption and noise emissions, at the same time keeping the rate of allergens and pathogens well below the safety threshold.

### Can I use VORT SANIKIT independently from the associated ventilation system?

Yes - the air flow extracted from the served premises to be sanitised is managed by a fan, which operates independently from the heat recovery unit. For this reason, in the event of a prolonged occupants absence, it is possible to stop the ambient air recirculation process for sanitisation purposes. Moreover, by powering the photocatalysis module through the dual flow ventilation device rather than through the VORT SANIKIT fan, it is possible to keep the fresh air sanitisation process active, therefore avoiding the risk of inserting in the environment allergens and pathogens, avoiding their build-up in the delivery ducts.

### Can I integrate VORT SANIKIT in a ventilation system which has already been installed?

The VORT SANIKIT modular design allows it to be integrated in already installed centralised, dual flow ventilation systems. For this purpose, it will be enough to:

- install the additional pipings necessary to guide the air taken from the environment and to be sanitized in the plenum containing the sanitisation module.
- Change the delivery plenum of the ventilation system. In the event it corresponds to a plenum included in the VORT SANIKIT system, it will be enough to replace one of the original caps with the SANICAP device, which integrates the photocatalysis module.
- Install, cable to the power supply and connect to the plenum the helico-centrifugal duct fan that determines the flow of ambient air to be sanitised.

To limit the adjustment needs of the pre-existing system and its related investments, it is also possible to replace only the delivery plenum or, if this corresponds to a plenum included in the VORT SANIKIT system, only one of the original caps with SANICAP, powering the photocatalysis module directly through the heat recovery unit. This will give the double advantage of reducing any viral load present in the external fresh air and sanitising the delivery side of the ventilation ducts.

### Can I modulate the VORT SANIKIT operation to adapt it to changing needs?

Yes - the fans, part of VORT SANIKIT, are operated by electronically controlled permanent magnet motors (the same technology used on the most modern electric vehicles), which allow a wide range of adjustments to adapt the performance delivered - and, consequently, consumption and noise emissions - as needs change, combining healthiness and comfort. The adjustment can take place upon installation, acting directly on the electronic board integrated in the fan; alternatively, it can be left to the end user, through the use of a potentiometer, chosen from those proposed as an option, which allows at any time the variation of the volume of air taken for sanitation purposes.

### **What is the average duration of the UV lamp part of the photocatalysis module of VORT SANIKIT?**

The estimated service life of the UV lamp of the photocatalysis module is about 9,000 h.

### **Where can I buy the spare part for the UV lamp of the VORT SANIKIT photocatalysis module?**

The UV lamp, as well as all spare parts for VORTICE products, can be purchased from authorised VORTICE distributors.

- To know the one closest to you, please contact: [pre-sales@vortice-italy.com](mailto:pre-sales@vortice-italy.com)

### **How long will the UV lamp of the VORT SANIKIT photocatalysis module be available on the market?**

It will be available for 10 years.

### **Is VORT SANIKIT suitable to be used at night?**

To be effective, a sanitisation system must:

- be designed and constructed so as to avoid leakage and thus ensure that all the treated air is effectively sanitised.
- use a fan powerful enough to treat an air flow rate suitable for the size and crowding of the environments, in order to ensure their effective sanitisation.

All this being said, it follows that a sanitisation system, to be truly effective, cannot be completely silent. Products advertised on the basis of this feature are often not very effective, because they are unable to treat air volumes suitable to meet the real needs of the occupants.

The containment of noise emissions has been one of the primary goals pursued in the design of VORT SANIKIT: the fans adopted boast sound-absorbing casings to contain noise diffusion (LINEO QUIET ES), while the very high efficiency of the impellers allows the movement of large air flow rates, avoiding the onset of turbulences causing noise. The motors, with permanent magnets and electronically controlled (the same technology used on the most modern electric vehicles), allow a wide range of adjustments to adapt the performance delivered - and, consequently, consumption and noise emissions - as needs change, combining healthiness and comfort.

### **What maintenance is required to ensure the correct operation of VORT SANIKIT?**

The correct use of VORT SANIKIT does not require any intervention, except for the periodic cleaning of the intake grilles for the air coming from the served premises and the replacement of the UV lamp of the integrated photocatalysis module.





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## VORTICE GROUP COMPANIES

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### TOLL-FREE NUMBER

**800 555 777**

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