Casals
soul made fans

VORTICE

NORDIK HVLS
SUPER BLADE

Low speed industrial ceiling
fan for large areas

INDUSTRIAL AND TERTIARY

casals.com

Regulatory standards

Industrial ceiling Ventilation products are compliant with the following Directives and Standards in their most recent versions:

- Machinery Directive: No. 2006/42/EC
- Low Voltage Directive: LVD 2014/35/EC
- Electromagnetic Compatibility Directive: EMC 2014/30/EC
- Electrical and Electronic Equipment Waste Directive RAEE 2012/19/EU
- Restriction of Hazardous Substances in Electrical and Electronic Equipment RoHS 2011/65/EU
- Ecodesign Directive 2009/125/EC
- Stand By Directive 2005/32/EC
- Regulation No. 1275/2008
- Regulation 327/2011/EU
- European Regulation No. 2019/1781/EU

Index

NORDIK HVLS SUPER BLADE RANGE

Industrial fans

Ceiling fans with 5 blades with 300, 400, 500, 600, and 700 cm diameter variants.
Equipped with EC (brushless) motors guaranteeing high performances, low consumption and low noise emissions.
Perfect for cooling and keeping temperature balance in wide areas.

Design and manufacturing
MADE IN ITALY

NORDIK HVLS SUPER BLADE 300/120" T code 61126
NORDIK HVLS SUPER BLADE 300/120" TL code 61127
NORDIK HVLS SUPER BLADE 300/120" M code 61130
NORDIK HVLS SUPER BLADE 300/120" ML code 61131
NORDIK HVLS SUPER BLADE 300/120" ET code 61143
NORDIK HVLS SUPER BLADE 300/120" ETL code 61144

NORDIK HVLS SUPER BLADE 400/160" T code 61128
NORDIK HVLS SUPER BLADE 400/160" TL code 61129
NORDIK HVLS SUPER BLADE 400/160" M code 61132
NORDIK HVLS SUPER BLADE 400/160" ML code 61133
NORDIK HVLS SUPER BLADE 400/160" ET code 61145
NORDIK HVLS SUPER BLADE 400/160" ETL code 61147

NORDIK HVLS SUPER BLADE 500/200" T code 61134
NORDIK HVLS SUPER BLADE 500/200" TL code 61135
NORDIK HVLS SUPER BLADE 600/240" T code 61136
NORDIK HVLS SUPER BLADE 600/240" TL code 61139
NORDIK HVLS SUPER BLADE 700/280" T code 61137
NORDIK HVLS SUPER BLADE 700/280" ST code 61138

NORDIK HVLS SUPER BLADE 700/280" TL code 61141
NORDIK HVLS SUPER BLADE 700/280" STL code 61142

KEY:

L = Support rode version, 3 m long instead of 1.5 m.
S = Enhanced motor

E = Basic models
M = Single-phase motor
T = Three-phase motor

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BENEFITS FOR THE INSTALLER

01 **Easy installation**
Easy and safe installation

BENEFITS FOR THE USER

01 **Reduced consumption**
Reduced consumption and full functionality.

02 **Energy saving**
They cool the environment in summer, while destratificating heat in winter, saving energy

03 **Silent**

04 **Reliable**
Reliable, safe and efficient

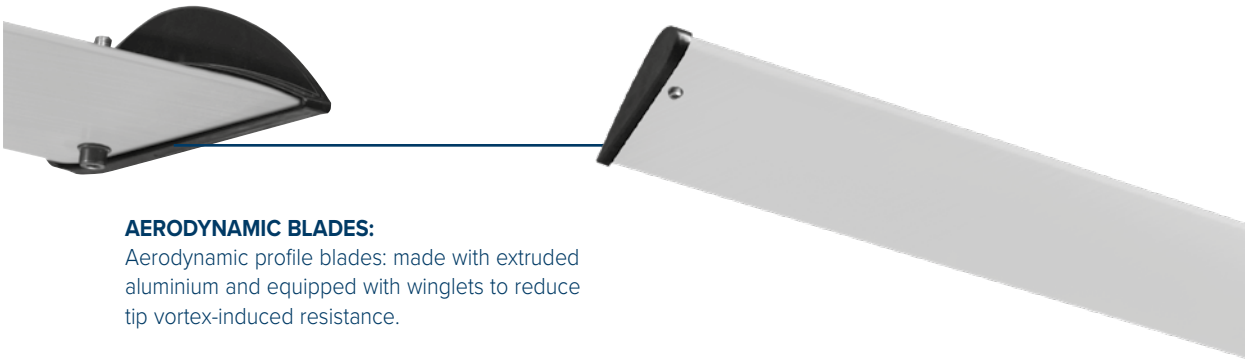
05 **Low maintenance needs**

06 **Adjustable speed**
Guaranteeing maximum comfort and environmental well-being

NORDIK HVLS
SUPER BLADE RANGE

LARGE diameters for wide areas, nominal 7 m Ø:

3 m | 4 m | 5 m | 6 m | 7 m



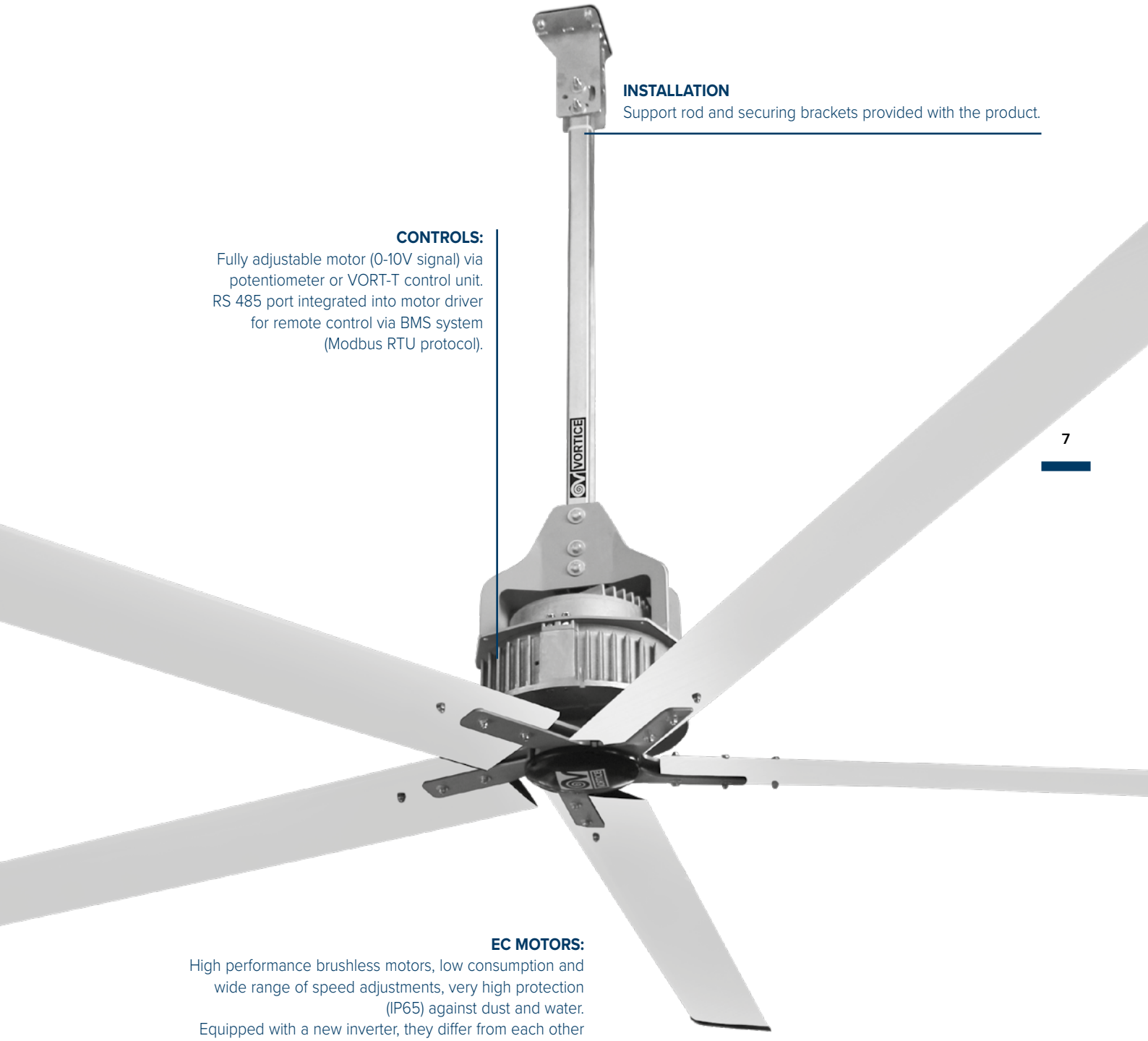
AERODYNAMIC BLADES:
Aerodynamic profile blades: made with extruded aluminium and equipped with winglets to reduce tip vortex-induced resistance.

PERFORMANCE:
Very strong air flows (850,000 m^3/h) with very low speed to ensure silent functioning.

NORDIK HVLS
SUPER BLADE RANGE

INSTALLATION
Support rod and securing brackets provided with the product.

CONTROLS:
Fully adjustable motor (0-10V signal) via potentiometer or VORT-T control unit. RS 485 port integrated into motor driver for remote control via BMS system (Modbus RTU protocol).



EC MOTORS:
High performance brushless motors, low consumption and wide range of speed adjustments, very high protection (IP65) against dust and water.
Equipped with a new inverter, they differ from each other due to their power supply: single-phase at 85-264 V/50-60 Hz for those identified by the suffix “M”, or three-phase at 200-480 V/50-60 Hz for those identified by the suffix "T".

APPLICATIONS

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APPLICATIONS

Perfect for any kind of livestock facilities, such as livestock breeding, for improving the animals' and the operators' conditions and well-being.

TECHNICAL CHARACTERISTICS

Available models

• 20 models: available in 5 diameters (300, 400, 500, 600, and 700 cm).

• **Extruded aluminium blades** (available with liquid-paint treatment upon request), which reach high efficiency values and particularly low levels of noise emissions thanks to the sophisticated NACA aerofoil, result of thorough analysis carried out with CFD techniques (Computational Fluid Dynamics), and thanks to winglets which reduce induced drag caused by tip vortices.

Motors

• Brushless motors, designed to grant high performances, relatively low consumption, and wide ranges of speed regulation. Their high (IP65) degree of protection from dust and water makes them perfect for use in particularly difficult conditions, common in several industrial environments. Possibility to remotely adjust the speed using a potentiometer (0 to 10-V signal) or VORT T unit (optional).
Equipped with a new inverter, they differ from each other due to their power supply: single-phase at 85-264 V/50-60 Hz for those identified by the suffix “M”, or three-phase at 200-480 V/50-60 Hz for those identified by the suffix “T”.

Electronics

• Control and power electronic elements housed in the aluminium fusion of the motor covers, granting adequate protection from water and dust. They manage the power supply and monitor proper functioning, allowing fine adjustments based on the needs of the moment.

With its EMI/EMC filters preventing risks related to electromagnetic interference, NORDIK HVLS SUPER BLADE electronics include:

• an isolated RTU 485 communication modbus allowing the fan to be integrated in a BMS - Building Management System;

• an isolate analogue input to regulate the fan speed through an external potentiometer or any other device that works using a 0 to 10-V signal.

• The safety systems integrated in the electronic parts include protection from overcurrent, short circuit, overheating, overvoltage, and undervoltage; an outside led, with a codified turning-on system, reports any functioning anomalies.

Kits

• Steel sheet kit for ceiling installation, including a support rod, a pair of brackets, and other small metal parts, designed to ensure correct and strong installation of the device to the target ceiling through the most common installation processes.
• Optional kit consisting of 4 tie rods specifically designed to ensure an additional degree of axial stability, useful whenever the fan is subject to an external stress of abnormal intensity (e.g. strong wind), or when the destination floor does not meet the required solidity requirements, in relation to the weight of the product and the stresses induced by its operation. In particular, the adoption of the HVLS SUPER BLADE-RD Kit is to be considered mandatory in cases where the chosen position for the installation of the fan:
• exposes it to wind gusts;
• exposes it to the risk of accidental impact with moving machines or equipment nearby;
• exposes it to contact with flying animals;
• is in a seismic zone, or is subject to strong vibrations (e.g. industrial processes involving the use of power hammers or industrial presses).

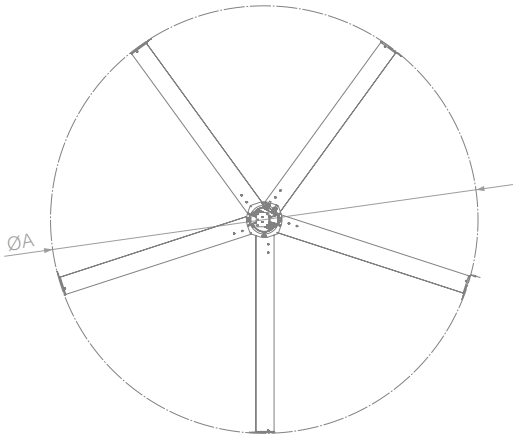
Electrical insulation class: I

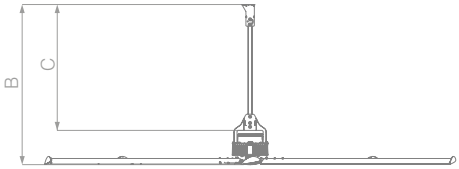
• Earthing required

Degree of protection of the motor:

• IP65

Dimensions





PRODUCTS	CODE	ØA	B	C
NORDIK HVLS SUPERBLADE 300/120" T	61126	3000	1880	1470
NORDIK HVLS SUPER BLADE 300/120" TL	61127	3000	3310	3000
NORDIK HVLS SUPER BLADE 300/120" M	61130	3000	1880	1470
NORDIK HVLS SUPER BLADE 300/120" ML	61131	3000	3310	3000
NORDIK HVLS SUPER BLADE 300/120" ET	61143	3000	1880	1470
NORDIK HVLS SUPER BLADE 300/120" ETL	61144	3000	3310	3000
NORDIK HVLS SUPER BLADE 400/160" T	61128	4000	1880	1470
NORDIK HVLS SUPER BLADE 400/160" TL	61129	4000	3310	3000
NORDIK HVLS SUPER BLADE 400/160" M	61132	4000	1880	1470
NORDIK HVLS SUPER BLADE 400/160" ML	61133	4000	3310	3000
NORDIK HVLS SUPER BLADE 400/160" ET	61145	4000	1880	1470
NORDIK HVLS SUPER BLADE 400/160" ETL	61147	4000	3310	3000
NORDIK HVLS SUPER BLADE 500/200" T	61134	5000	1880	1470
NORDIK HVLS SUPER BLADE 500/200" TL	61135	5000	3310	3000
NORDIK HVLS SUPER BLADE 600/240" T	61136	6000	1880	1470
NORDIK HVLS SUPER BLADE 600/240" TL	61139	6000	3310	3000
NORDIK HVLS SUPER BLADE 700/280" T	61137	7000	1880	1470
NORDIK HVLS SUPER BLADE 700/280" ST	61138	7000	1880	1470
NORDIK HVLS SUPER BLADE 700/280" TL	61141	7000	3310	3000
NORDIK HVLS SUPER BLADE 700/280" STL	61142	7000	3310	3000

Dimensions in mm

Technical data

PRODUCTS	CODE	V~50/60HZ	W	A	RPM	MAX FLOW RATE m³/h	Ø m	No. OF BLADES	KG
NORDIK HVLS SUPER BLADE 300/120" T	61126	200-480	600	1.43	160	310.000	3	5	80.5
NORDIK HVLS SUPER BLADE 300/120" T L	61127	200-480	600	1.43	160	310.000	3	5	89
NORDIK HVLS SUPER BLADE 300/120" M	61130	85-264	405	1.98	140	270.000	3	5	70
NORDIK HVLS SUPER BLADE 300/120" M L	61131	85-264	400	1.98	140	270.000	3	5	70
NORDIK HVLS SUPER BLADE 300/120" E T	61143	200-480	725	1.97	150	280.000	3	5	70
NORDIK HVLS SUPER BLADE 300/120" E T L	61144	200-480	725	1.97	150	280.000	3	5	70
NORDIK HVLS SUPER BLADE 400/160" T	61128	200-480	650	1.67	100	370.000	4	5	88
NORDIK HVLS SUPER BLADE 400/160" TL	61129	200-480	650	1.67	100	370.000	4	5	96.5
NORDIK HVLS SUPER BLADE 400/160" M	61132	85-264	280	2.70	80	330.000	4	5	76.5
NORDIK HVLS SUPER BLADE 400/160" M L	61133	85-264	280	2.70	80	330.000	4	5	76.5
NORDIK HVLS SUPER BLADE 400/160" E T	61145	200-480	370	1.01	80	330.000	4	5	76.5
NORDIK HVLS SUPER BLADE 400/160" E T L	61147	200-480	370	1.01	80	330.000	4	5	76.5
NORDIK HVLS SUPER BLADE 500/200" T	61134	200-480	850	1.97	80	530.000	5	5	113
NORDIK HVLS SUPER BLADE 500/200" T L	61135	200-480	850	1.97	80	530.000	5	5	113
NORDIK HVLS SUPER BLADE 600/240" T	61136	200-480	1100	2.69	65	600.000	6	5	121
NORDIK HVLS SUPER BLADE 600/240" T L	61139	200-480	1100	2.69	65	600.000	6	5	121
NORDIK HVLS SUPER BLADE 700/280" T	61137	200-480	900	1.35	38	650.000	7	5	129
NORDIK HVLS SUPER BLADE 700/280" S T	61138	200-480	665	1.65	50	850.000	7	5	140
NORDIK HVLS SUPER BLADE 700/280" T L	61141	200-480	525	1.35	38	650.000	7	5	129
NORDIK HVLS SUPER BLADE 700/280" S T L	61142	200-480	665	1.65	50	850.000	7	5	140

Control units

Code 21137

VORT T

Wire-connected control unit, with LCD display able to manage up to 20 units, VORT T allows to automatically control the speed of the connected fans based on the readings of the temperature sensor and an optional anemometer, increasing or decreasing it to stop depending on the room temperature or, alternatively, based on the wind speed (for, example, this second option is useful for devices installed in stables whose walls have wide outwards openings).
Alternatively, the fan speed can be manually adjusted, regardless of climatic conditions, e.g. for testing the proper functioning of the system during installation or trial.

Control units

Code 20151

VORT T-HCS

Specifically designed to be employed in the zootechnical field, the VORT T-HCS control unit is an optional, wire-connected control device with an LCD display, and is capable to automatically monitor the fans connected based on temperature values, relative humidity, and THI (Temperature Humidity Index), the bioclimatic index that combines the simultaneous effect of temperature and relative humidity and is used to determine heat-induced stress in the livestock. VORT T-HCS allows the automatic management (ON/OFF up to 4 strokes) of the optionally installed cylinders, the limitation or interruption of the ventilation upon start, and the management of the auxiliary ventilation (if present). Alternatively, fan speed and cylinder control can be manually adjusted, regardless of climatic conditions, e.g. for testing the proper functioning of the system during installation or trial.

Code 20152

VORT T-PLUS

It is a PLC unit, designed to control the microclimate in livestock breeding facilities; thanks to VORT T-PLUS it is possible to plan the operation of each device installed based on the temperature, humidity, and wind speed values detected.
In particular, VORT T-PLUS:

- controls the wind speed, stopping ventilation in case of need / opportunity;
- controls the ventilation, operating (0 to 10-V signal) the EC motors of the connected fans;
- controls up to 4 cylinders with 4 on-off programmable levels;
- controls the humidity by blocking cylinder commands, if needed;
- manages max/min temperature alarms;
- detects perceived temperature and THI;
- controls functioning hours and milking break;
- communicates with VORT MASTER through an integrated RS-485 port.

Everything is regulated by an intuitive programming plan, adaptable to every need of the sector.
The 9-module DIN rail container makes VORT T-PLUS easy to be installed in electrical panels.
The 8-segment display allows to see the indications from the distance: the various machine statuses are highlighted by specific LEDs indicating the functioning activities. It can be programmed in a sequential and simple way through a keyboard with 8 keys.

Code 20153

VORT MASTER

Specifically designed to be used in the zootechnical field, the VOLT MASTER control unit guarantees the monitoring of the microclimate in cattle breeding facilities by managing ventilation, air speed, cylinders, (temperature and amperometric) alarms, based on temperature, humidity, THI, air speed, and other values detected by the sensors installed. Thanks to the graphic interface of the LCD touch panel, VORT MASTER allows to adjust, in an easy and intuitive way, the speed of the connected fans, and to monitor its proper functioning in real time. Through the Ethernet port, VORT MASTER can also be connected to a network router and remotely controlled; at the same time, the VNC (Virtual Network Computing) technology allows its quick and easy connection to smartphones, tablets, and personal computers.

Regulators and accessories

Regulators

POT Code 12828
Potentiometer for fan regulation using 0 to 10-V signal.

POT-I Code 12832
Built-in potentiometer for fan regulation using 0 to 10-V signal.

Accessories

USB-C Code 21198
USB ModBus converter connectible to the VORT control unit, useful to remotely manage the fan(s).

WP Code 21197
External anemometer connectible to VORT T control unit, useful to automatically control the fan in case of wind gusts.

Suspension tie rods kit

Code 20193

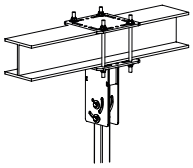
NHVLS SUPER BLADE - RD tie rod kit
Optional kit including four tie rods, designed to ensure a solid and safe installation.

This kit is mandatory in case of:
- strong wind;
- risk of accidental impact with machines or other objects moving close to the ceiling fan;
- presence of birds;
- installation in seismic zones or other areas with vibrations (e.g. industrial processes involving the use of hammers or industrial presses).

Anchoring brackets

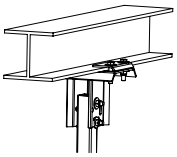
Code 20267

STF 1
Anchoring bracket on steel beams. Option 1



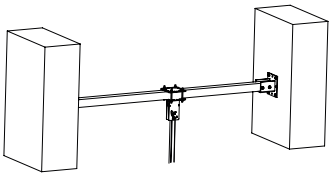
Code 20268

STF 2
Anchoring bracket on steel beams. Option 2



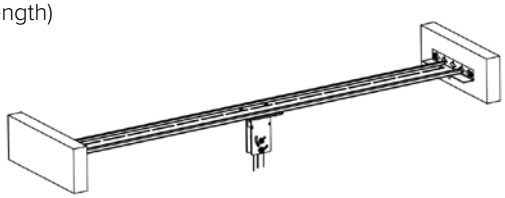
Code 20269

STF 3
Anchoring brackets kit with existing structure 3m-5m. Rod not supplied



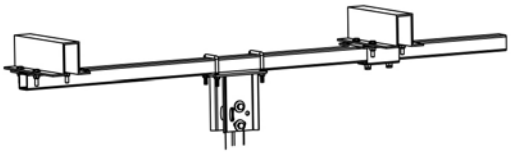
Code 20270

STF 4
Anchoring brackets kit with hinge included.
(3 m length)



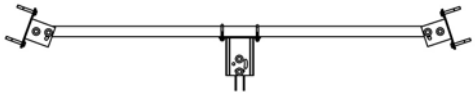
Code 20271

STF 5
Anchoring brackets kit with omega beam.



Code 20272

STF 6
Bracket kit for anchorage on joist under a windshield (2 m length)



WHY INSTALL A CEILING FAN AND WHY A NORDIK HVLS SUPER BLADE PARTICULARLY

Rotating, a ceiling fan generates an air column moving downwards and outwards along the floor. The width of this column increases with the diameter of the fan and, to a lesser extent, with its rotating speed.

A fan with a wider diameter can move a bigger air mass than a smaller fan spinning at the same speed; at the same time, an air column moving faster dissipates faster. Furthermore, the propagation distance of the air column produced by the fan increases with its diameter as a result of the action, more limited in proportion, exerted by the friction of the still air around it.

In the light of the above, the use of ceiling fans of the NORDIK HVLS SUPER BLADE series, which boast a high (IP65) degree of resistance to water and dust, offers a wide range of temperatures in continued operations (-10 °C to +50 °C) and of speed regulation. They are particularly suitable for industrial environments (such as warehouses, depots, stables, etc.), where the use of air conditioning systems would be impossible or too expensive, as well as for commercial areas (such as supermarkets, gyms, airports, etc.), where their action allows significant savings in connection with the amplification of the effects of any already existing air conditioning systems and with air destratification.

MOREOVER, INSTALLING A CEILING FAN OR A NORDIK HVLS SUPER BLADE PROVIDES SIGNIFICANT BENEFITS IN BOTH SUMMER AND WINTER

SUMMER USAGE

As it is known, high temperatures and high relative humidity levels make environmental conditions uncomfortable and, in some cases, they can affect the occupants' productivity. In normal conditions, the human body needs to heat down when environmental temperatures exceed 23 °C ca. Air conditioners lower the room temperature, while fans accelerate the air speed around the occupants, making it easier for them to cool down and helping heat transfer by convection and sweat evaporation, while the temperature remains the same.

WINTER USAGE

Warm air, less dense than cold air, accumulates near the ceiling, resulting in a phenomenon known as "stratification". The implementation of fans that push warm air downwards helps mix the air ("destratification"), useful to solve the problem, while guaranteeing significant savings both in term of smaller energy dissipation through walls and roof, and smaller caloric intake necessary to maintain adequate temperature levels for the occupants.

THERMAL DESTRATIFICATION

WELL-BEING AND ENERGY SAVING EVEN IN WIDE INDUSTRIAL AND COMMERCIAL ENVIRONMENTS THANKS TO CEILING FANS

Adequate comfort conditions and air quality are key elements in a work environment. In wide commercial and industrial spaces with very high ceilings, however, it is hard to ensure adequate heating during all working hours. The energy costs are high and the results are not very satisfying.

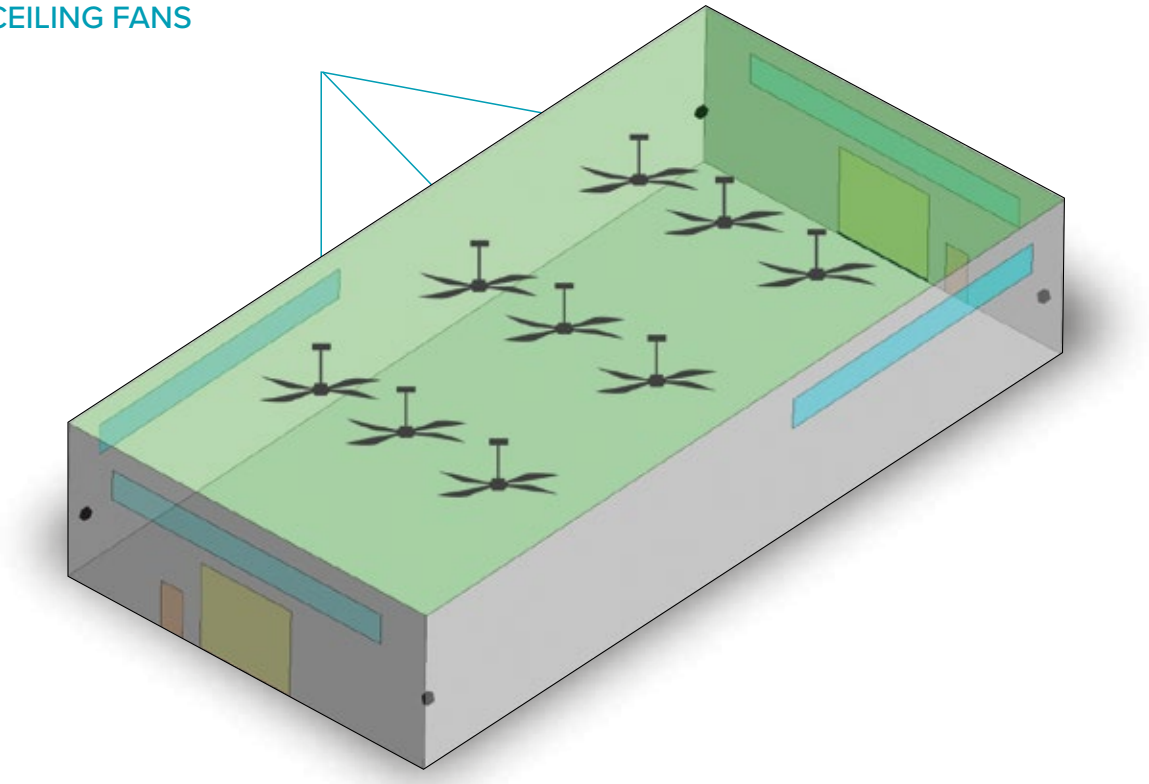
The heat generated by the heating systems (radiators, air-heaters, etc.) rises upwards in convective motion and stratificates near the ceiling, leaving the areas near the floor colder. In industrial depots, shopping centres, museums, or places of worship, it often happens that, in order to keep 18 °C at “eye level”, the air temperature near the ceiling exceeds 30-35 °C. Under these conditions, the well-being of those who frequent the place decreases, while the costs to keep the ideal temperature grow immensely.

The solution to this problem is thermal destratification using ceiling fans. If well-placed, ceiling fans create a perfect mix between warm air and cool air even at low speed, keeping a uniform temperature. This comes with all the advantages in comfort and effective reduction of energy consumption. Specific studies show that the savings provided by the application of thermal destratification systems in particular commercial and industrial environments can amortise the system purchase and installation expenses in just 4 years.
Especially since ceiling fans are more often used during summertime **to eliminate stagnation and humidity and to allow adequate air circulation.**

VORTICE has the ideal know-how, experience, and range of products to install thermal destratification systems in wide environments. Our qualified technicians are at our clients’ disposal for designing and creating costumised solutions, also using thermal-fluid-dynamic simulation systems. The pictures in these pages are taken from a simulation made by the VORTICE R&D department on a study commissioned by a client and later experimentally confirmed.

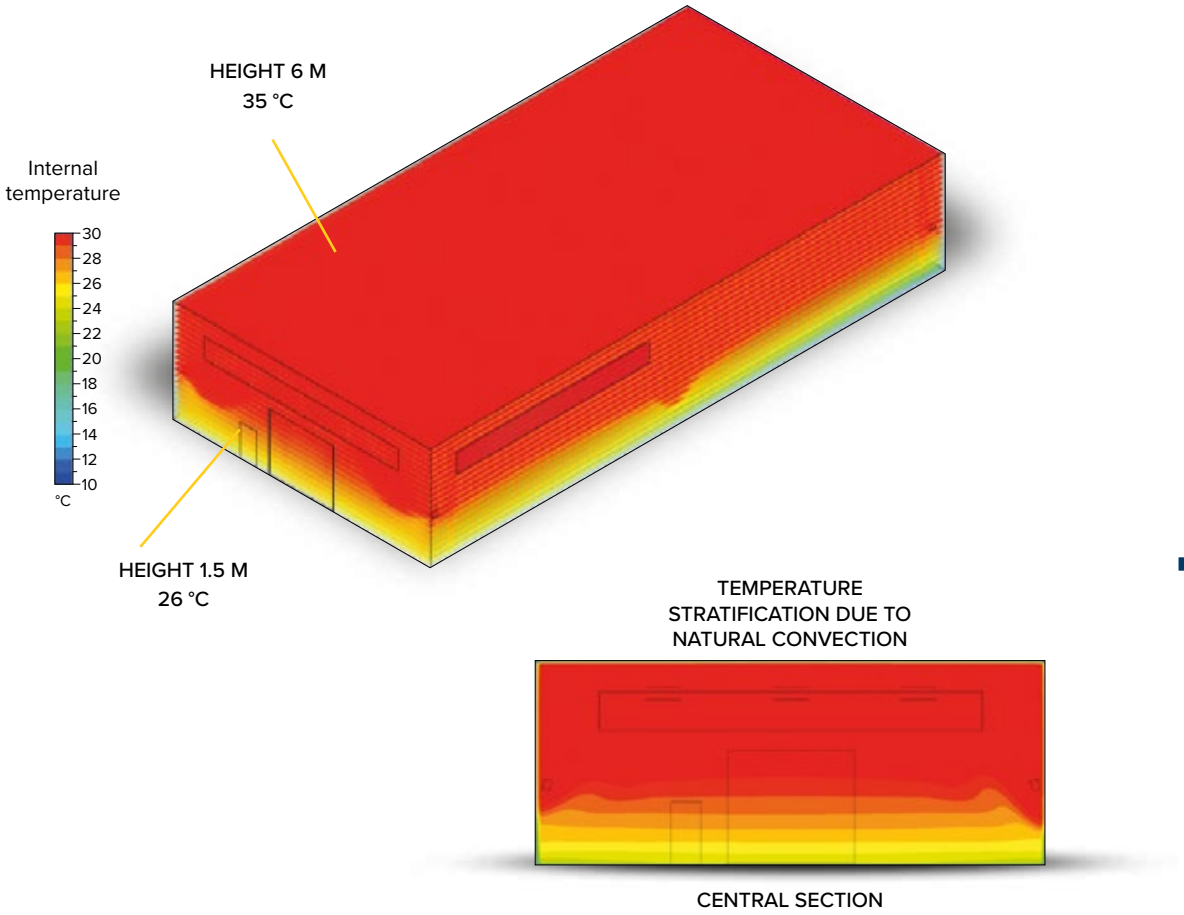
INDUSTRIAL BUILDING EXAMINED: MODEL LAYOUT

CEILING FANS



4 THERMAL FANS FROM 12KW (TOTAL 48KW)

(FREE CONVECTION, CEILING FANS = OFF)

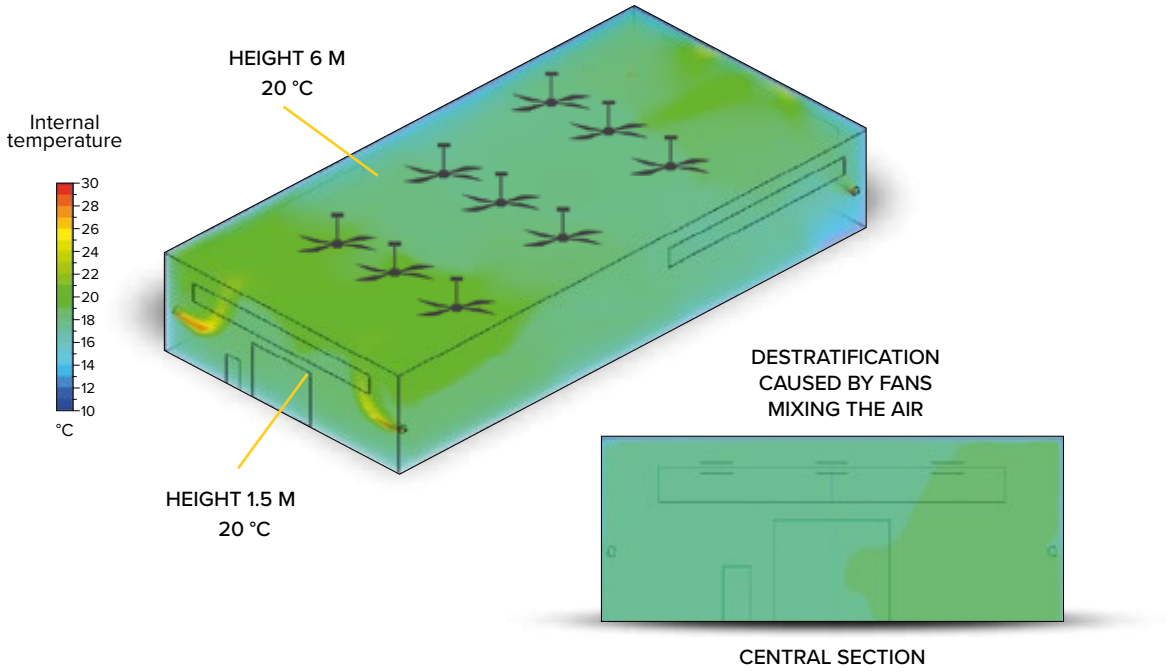


"STANDARD" INDUSTRIAL BUILDING (ONLY HEATING SYSTEM ON): DISTRIBUTION OF INTERNAL TEMPERATURE

Simple heating system with 4 thermal fans, with a total power of 48 kW, manages to reach a minimum temperature of 20 °C inside the building, but characterised by an inefficient temperature stratification in height caused by natural convection.

NO. 4 HEAT FANS
OF 9 KW (TOTAL 36 KW)

(CEILING FANS = ON)



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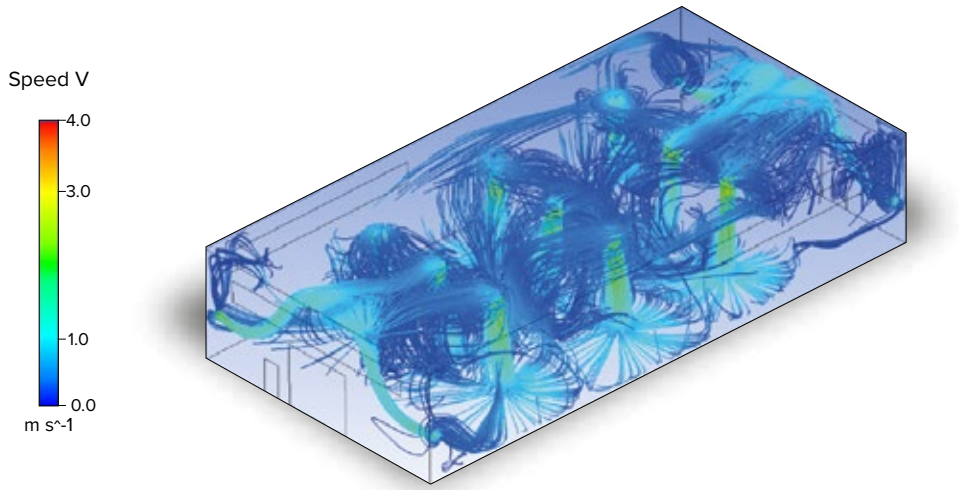
DESTRATIFICATED AIR: INTERNAL TEMPERATURE DISTRIBUTION

Low-speed fan operation creates a uniformly heated and comfortable environment, reaching the desired temperature of 20 °C with reduced energy consumption levels.



AIR SPEED FLOW LINES DURING FAN OPERATION

Even at low speed, the fans can efficiently mix warm air and cool air without any side effects on the occupants in the building.

VORTICE S.p.A. is part of a multinational group, **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).

VORTICE GROUP also includes:

[1]
VORTICE LIMITED, English branch of VORTICE S.p.A established in 1977 and based in Burton on Trent.

[2]
VORTICE INDUSTRIAL, born from the acquisition in 2010 of Loran srl, based in Isola della Scala (VR).

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

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

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

VORTICE GROUP COMPANIES

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