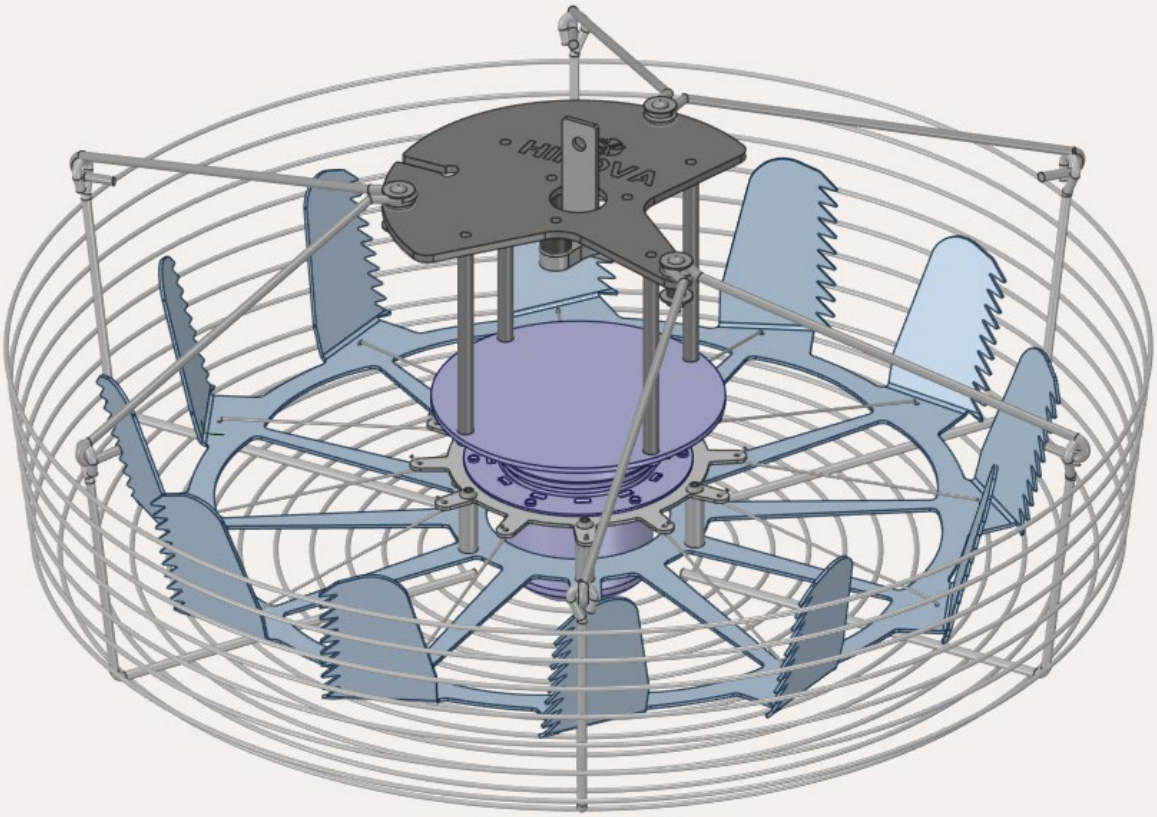


ClimaFlow

ClimaFlow Fan
Instruction Manual

Original instructions

svensson

Contents

*In this document, the ClimaFlow fan may be referred to as 'the fan' or 'Fan'.

Installation requirements

Always use installation material provided by Beektech Industries B.V. Failure to do so may result in damage, reduced performance or failure. By using the installation materials provided and following the installation manual, the installation will be safe. The total weight of the fan is 13 kg ± 2 kg.

Do not add additional components or hang or tie anything on to the fan. Doing so could cause the system to get unbalanced and start vibrating or remove the safety margin for the fan assembly causing premature failure of the installation.

Always make sure that the indicated torque has been used to tighten the bolts. Bolt torque requirements are provided in the installation manual.

Noise and vibrations

When installing the ClimaFlow Fan, always make sure it hangs straight (Gravity is considered the reference, any deviation more than 5° might result in uneven wear and pre-mature failure), failure in doing so might increase the vibrations in the fan and causing excessive noise. Failure in making sure it hangs straight might also cause pre-maturely failure and mechanical wear that in turn also can increase the level of unwanted noise.

PPE is required when entering the service area of the ClimaFLow Fan

Beektech Industries B.V. Recommends using the following PPE when servicing the ClimaFlow Fan:

- **Eye Protection**
  Always wear appropriate safety glasses or goggles to shield your eyes from potential hazards.
- **Ear Protection**
  Utilize ear protection such as earplugs or earmuffs when servicing the ClimaFlow Fan to mitigate exposure to noise.
- **Hand Protection**
  Wear suitable gloves to safeguard your hands during servicing tasks. Choose gloves based on the specific requirements of the job.
- **Foot Protection**
  Ensure your safety by wearing protective footwear, such as safety shoes or boots with steel toes, to guard against potential foot injuries.
- **Head Protection**
  Use a safety helmet to protect your head when working with the ClimaFlow Fan, especially in situations where there is a risk of head injury.
- **Fall Protection**
  Adhere to fall protection measures as needed, depending on the specific servicing conditions. Ensure the use of appropriate safety equipment to prevent falls.

Safety Precautions

General

To ensure that the ClimaFlow Fan is used safely, be sure that you read and understand the following precautions fully and use it only as directed. Make sure you understand those precautions before installing, connecting, operating, maintaining, or inspecting the fan. Follow all the precautions and directions given here.

Beektech Industries B.V. will not be liable for any accidents resulting in death, injury, or property damage due to improper usage of the ClimaFlow Fan.

The fan has been designed and manufactured for built-in use in general industrial buildings, warehouses and greenhouses, and must not be used otherwise.

The ClimaFlow Fan must be installed at a minimum 4 meters above the ground. The height needs to be ensured for an area with a diameter of 4 meters as shown in figure 1.

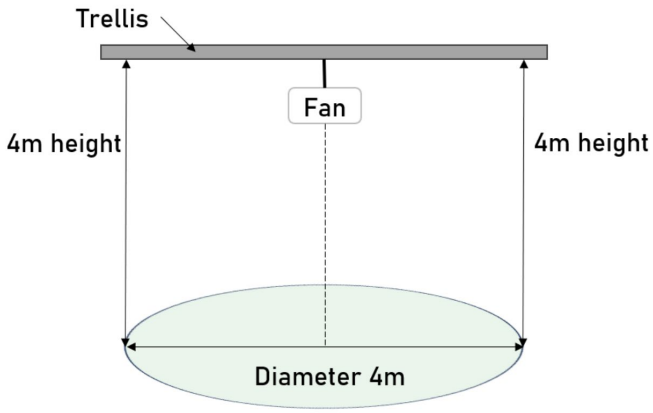


Figure 1 –ClimaFlow Fan safety zone

When disposing the fan, treat it as industrial waste. For instructions on proper disposal methods, please contact local government authorities.

Description of precautionary measures

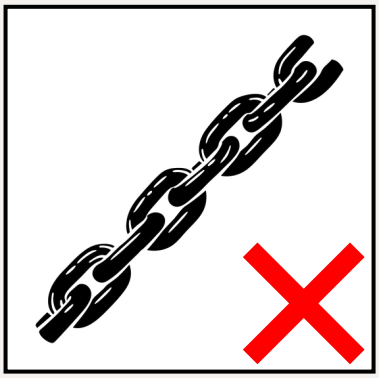
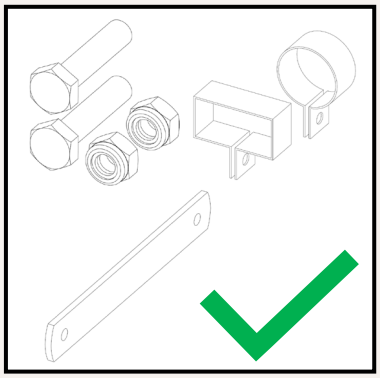
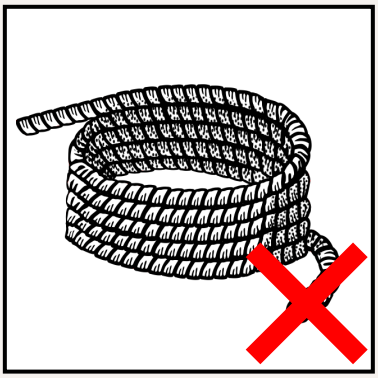
- Ensure that wiring is done correctly. Failure to do so might result in fire, burns, or electrical shock.
- Never use the mentioned equipment in explosive atmospheres, as doing so might result in fires, burns, or bodily injury.
- Do not operate the equipment with live parts exposed. Doing so might result in electric shock and injury.
- Never, while in operation, allow any persons or objects to approach or come into contact with the equipment, as doing so might result in damage or injury.
- Turn off the power and stop using the equipment immediately if you notice any sparks, smoke, odd odors, odd sounds, or anything unusual during operation. Failure to do so might result in fire, bodily injury or electrical shock.
- Turn the ClimaFlow fan off, if a person or animal will enter the safety zone (figure 1) with any part of their body.
- Never allow the fan to fall, topple over, or be subjected to excessive shocks when moving it. Doing so might result in product failure or performance deterioration. Beektech Industries B.V will not be responsible for any damages caused by those events
- The fan should be handled by technically qualified personnel with sufficient knowledge; the personnel shall be assigned at your own discretion.
- When doing any kind of maintenance work on the fan or cleaning of the system, make sure the power is disconnected and that no potential remains in the system.
- The fan should be handled by technically qualified personnel with sufficient knowledge; the personnel shall be assigned at your own discretion.

Handling

- Installation, mounting, connections, wiring, and relocation of the fan should be done by technically qualified personnel; the personnel shall be assigned at your own discretion. Make sure paragraph 2.6 and 2.9 are fulfilled.
- Do not operate the fan if it is not installed as intended.
- Never attempt to disassemble or alter the fan in any way. Doing so might not only result in substandard performance, but also fire, burns, bodily injury, or electrical shock.
- For maintenance work or when trouble shooting, make sure you have the correct instructions and make sure you follow all safety procedures.
- Only lift the ClimaFLow Fan by the top plate as shown bellow.



- Use the provided suspension materials to install the ClimaFlow fan.

Operations

- Never use the fan at voltages, temperatures, or any other parameters exceeding those given in the product specifications. Otherwise, it might result in substandard performance, failure, fire, bodily injury, or electrical shock.
- Using a power supply with insufficient capacity might result in faulty fan operation because an inrush current several times larger than the rated current will flow at the moment of fan startup. Be sure to use a power supply with sufficient capacity.
- Never connect or disconnect lead wires, plug cords, or connectors while the power is on. Be sure to connect or disconnect them while holding the frame only after power-off. Otherwise, it might result in fan damage or electrical shock.
- Do not remove the nameplate.
- The fan might be damaged or burned out if foreign objects or external forces hinder normal fan operation.
- Do not use the power supply's PWM to control the speed of the fan. Doing so might result in fan malfunction.
- Turning the power on and off frequently or turning the power back on before the fan comes to a complete stop might result in fan failure or damage.
- The IP ratings apply only to the live electric parts and motor coils of the fan. The protection does not apply to the non-live parts of the fan.
- Do not wash the fan if any IP rated parts of the fan is open. Doing so might result in failure of the fan.

Installation

- Install and secure the fan properly with its weight and vibration during operation taken into account. Failure to do so might result in bodily injury or equipment failure due to the fan falling off.
- Ensure that the fan is installed in the right orientation. Failure to do so might result in bodily injury or equipment failure.
- For the fan to perform to its full capacity, secure air vents and take measures to prevent foreign objects from entering the fan. Failure to do so might result in bodily injury or fan failure.
- Do not subject the fan to excessive shock. Doing so might result in failure or substandard performance of the fan.
- Pulling or pinching lead wires might result in damage and stress to the wire. Also, make connections so that the lead wires do not come into contact with the rotating blades. Failure to do so might result in equipment failure or electrical shock.
- Take proper precautions against static electricity when wiring. Failure to do so might cause failure of the fan or equipment.
- Make connections correctly in accordance with the information of this Product Specification and the nameplate of the fan. Failure to do so might result in equipment failure or the malfunction, failure, or performance degradation of the fan.
- When mounting the fan with screws, ensure that the screw tightening torque is correct. If the tightening torque exceeds the recommended torque, the fan/jet might be deformed or damaged.

Use screws and bolts that are provided in the delivery. Failure to do so might result in failure or loose fan, which could lead to performance decrease and the fan to fall down onto the ground. Beektech industries B.V are not responsible if the wrong bolts and or nuts have been used

Operating environments

Avoid using or storing the fan in the following environments. Otherwise, it might result in fire or the failure or performance degradation of the fan.

- Environments where flammable or corrosive gas is present
- Environments where water or oil splashes
- Environments where exposed to radioactive rays or direct sunlight
- Environments where a salty sea breeze blows or seawater splashes
- Environments where the fan might be contaminated by such corrosive materials as sulfurous water, sulfurous volcanic ash, organic solvents acidic and alkali chemicals, or nuclear fuel materials
- Environments where subjected to constant vibration, strong shocks, centrifugal force, acceleration, or strong magnetic force
- Environments where electromagnetic noise radiation is present, where the electromagnetic noise overlaps into power voltage
- Environments where subjected to rapid environmental fluctuations (temperature, humidity, pressure, etc.)

Storage

- The fan should be stored in the box it came in from Beektech Industries B.V.
- Ensure that the equipment is stored in the following environments where:
    - the temperature is normal and stable
    - the relative humidity is between 20% and 85% with no sudden changes in humidity and no condensation
    - not subjected to direct sunlight
    - not subjected to water, oil, corrosive materials, or other hazardous substances;
    - not subjected to vibration or shock.

Maintenance

- Maintenance and inspections of the fan should be done by technically qualified personnel or someone with sufficient expertise; the personnel shall be assigned at your own discretion. Failure to use qualified personnel might result in fire, burns, bodily injury, or electrical shock.

- Never perform any maintenance or inspections while the fan is in operation. Also note that the blades continue to rotate for some time immediately after operation ceases. Always confirm that all rotating parts have stopped before starting work. Failure to do so might result in bodily injury.

- Never use gasoline, paint thinner, benzene, or any other organic solvents to clean the fan. Also, avoid placing excessive stress on the fan. Otherwise, it might result in product deformation or performance degradation

Lifting the ClimaFLow Fan

We highly advise using the following materials to lift the ClimaFLow fan up to the trellis:

- 2x Petzl anneau sling 40cm
- 1x Super static 11mm (3x needed height)
- 3x Petzl OK Black – Triact lock
- 1x Petzl MGO 110
- 1x Petzl Micro Traxion
- 1x Petzl Mobile

Scan the QR-code for a step-by-step instruction video to lift the ClimaFlow Fan.

General description ClimaFlow Fan

The ClimaFlow Fan facilitates vertical air movement, serving to supply fresh air to your plants and remove excess moisture. This optimization and creation of an active climate contribute to a happier plant. Since warm air is lighter than colder air, it accumulates at the top, and the fan can push it back down. This allows for the reuse of the introduced energy.

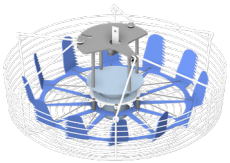
How to use the ClimaFlow fan: The ClimaFlow Fan offers a way to manage the airflow in a space. By Varying the 0-10Vdc voltage signal, the speed of the fan can be adjusted to create the optimal amount of displaced air.

Inside the box

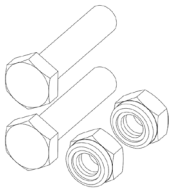
The following items are included within the packaging of each ClimaFlow Fan

ClimaFlow Fan

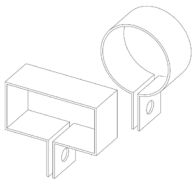
For placing directly on the truss



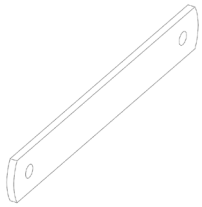
1x ClimaFlow Fan
Type A



2x M8x40 bolts
+ locknuts



1x Truss clamp
(size differs)



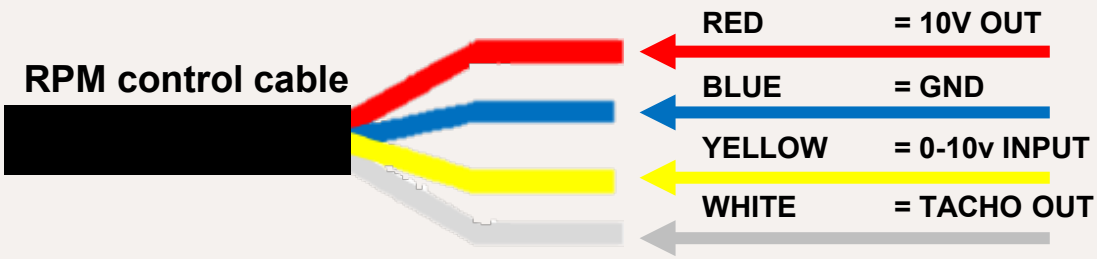
1x Extension strip
600mm

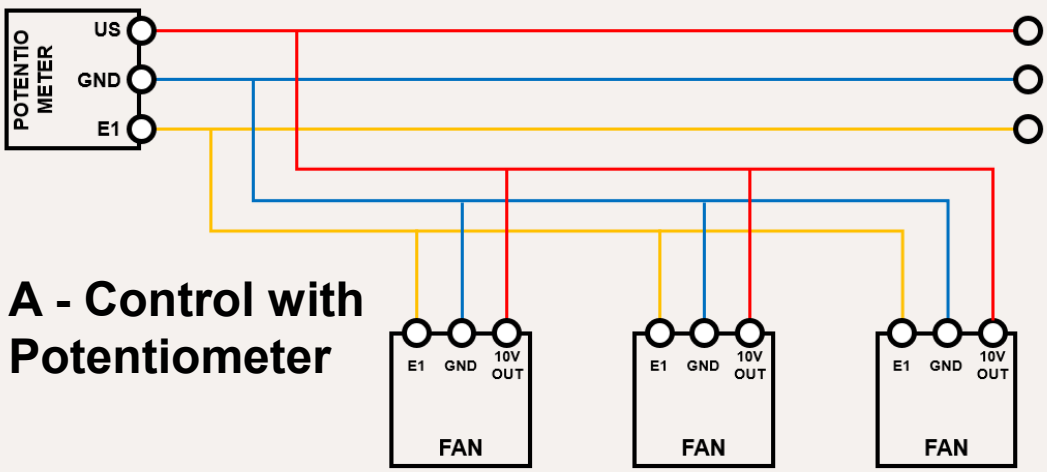
Control cable

The ClimaFlow Fan can be controlled with a 0-10v analog signal via the attached control cable. See diagrams A and B for instructions to control RPM via climate computer or a potentiometer.

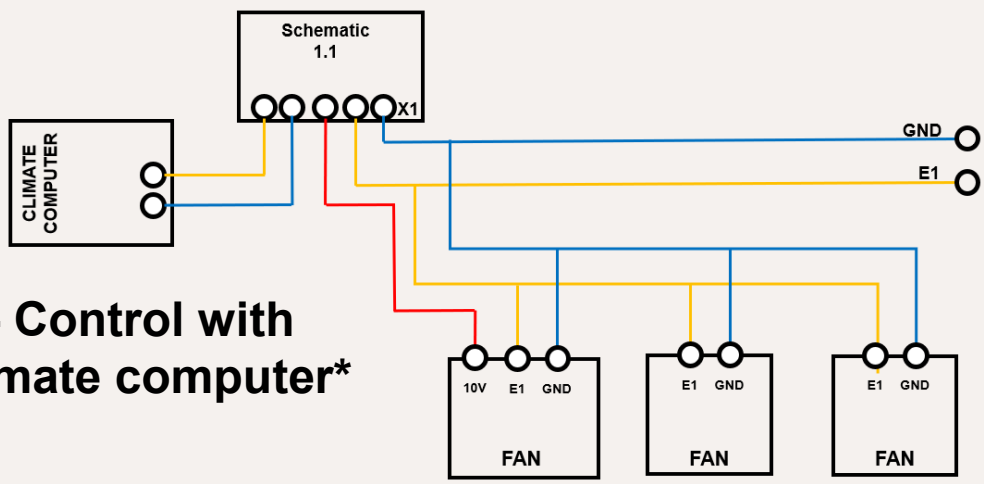
The ClimaFlow Fan

RED = 10V OUT
BLUE = GND
YELLOW = 0-10V INPUT
WHITE = TACHO





A - Control with Potentiometer



B - Control with climate computer*

Check you're ClimaFlow Fan for a harmonic filter. We suggest to not connect ClimaFlow Fan groups without a harmonic filter to be connected across three fases and one ground.

*For schematic 1.1, see page 28

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Control cable

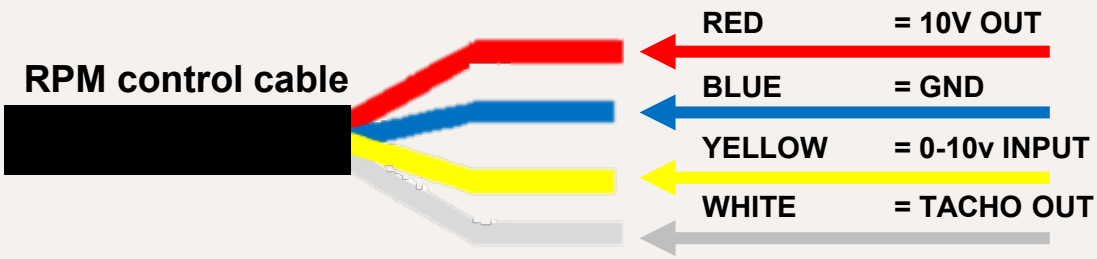
Make sure the yellow 0-10V wire is connected as showed in the diagram bellow inside the junction box of the ClimaFLow Fan

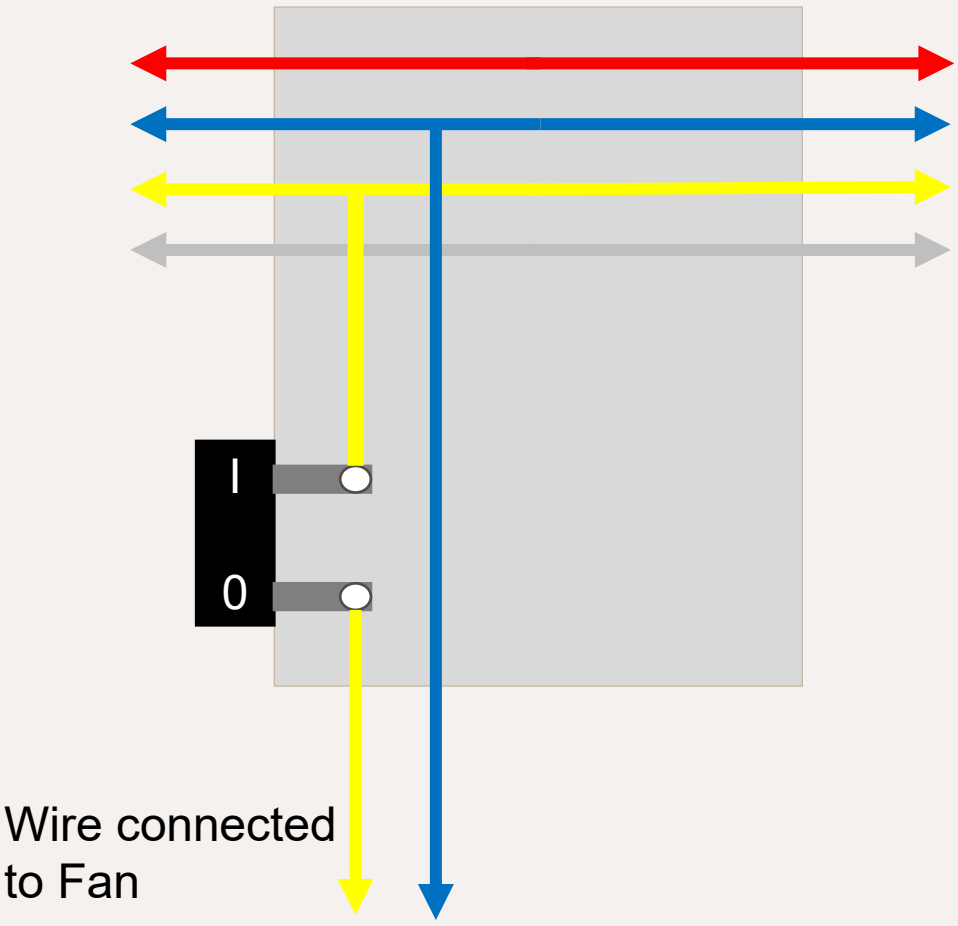
The VentilationJet

RED	= 10V OUT
BLUE	= GND
YELLOW	= 0-10V INPUT
WHITE	= TACHO

The ClimaFlow Fan

RED	= 10V OUT
BLUE	= GND
YELLOW	= 0-10V INPUT
WHITE	= TACHO





Power cables

The ClimaFlow system comes standard with one of the following power cable connections:

Wieland RST20i3 black

Manufacturer component no:
96.032.4053.1
(Also compatible with grey counterpart)

Wieland RST20i3 green

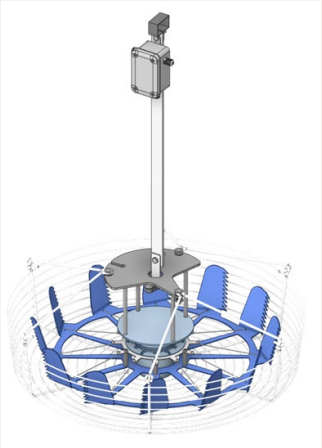
Manufacturer component no:
96.032.4055.7
(**Not** compatible with grey/black counterpart)

CEE 7/7 Connector

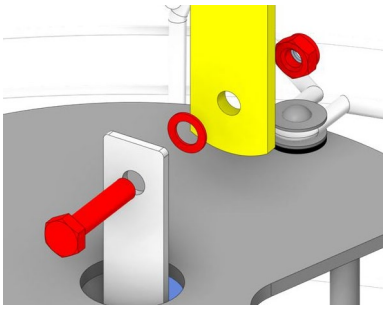
Maintenance switch

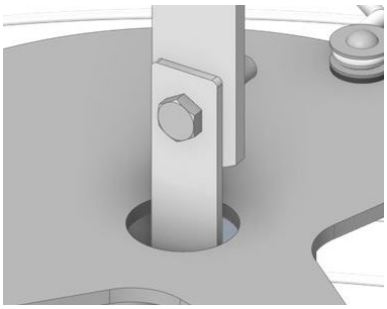
Placing Climaflow Fan

The ClimaFlow fan needs to be installed directly to the truss. The truss-clamp, extension strip and fasteners are included in the packaging.

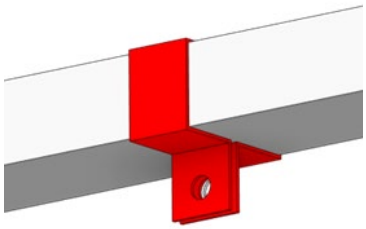


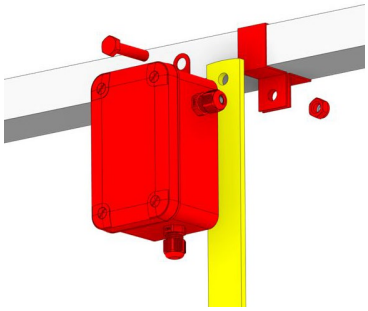
Attach the extension strip with the M8 fasteners.

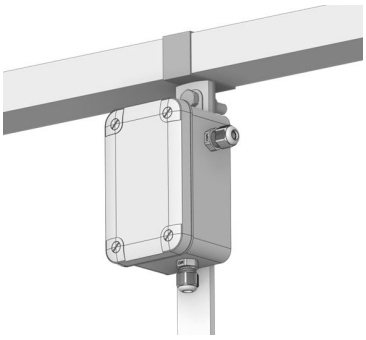




Attach the fan to the truss with the truss clamp. The junctionbox that holds the control cable is attached as well.





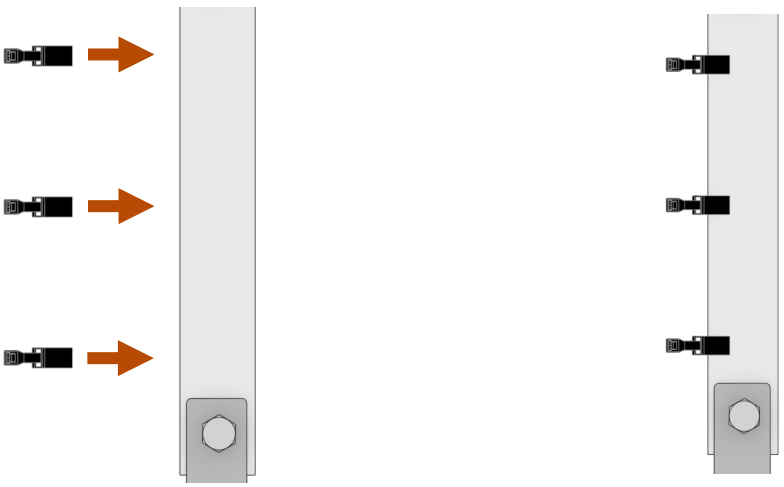


In the junction box are cable clamps included to connect the RPM control.

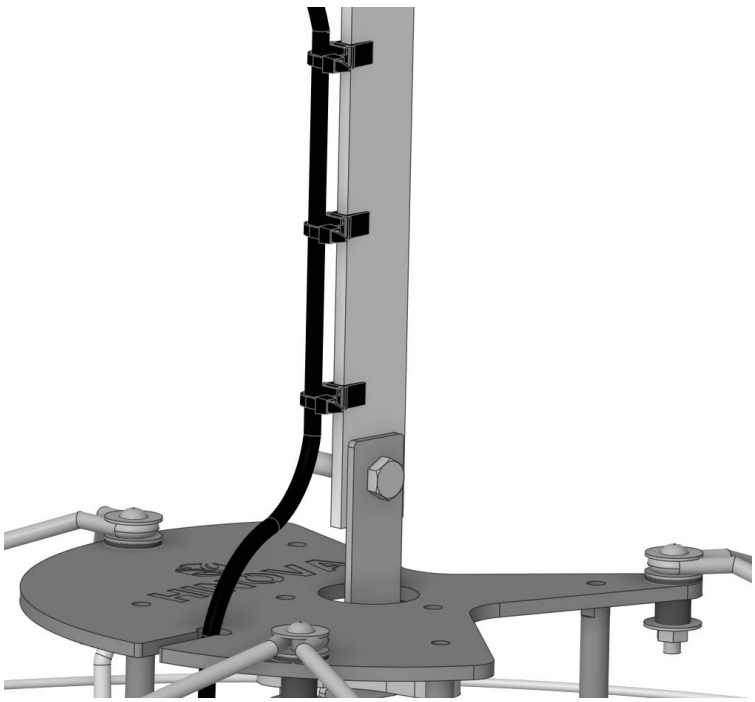
Placing the ClimaFlow Fan cables

To ensure a safe installation of the ClimaFlow Fan.
Place the cables as followed.

Attach the cable holders to the extension strip.



Attach the ClimaFlow Fan Cable to the cable holders with the provided zip ties.



**Make sure the cable isn't in contact with any metal parts.*

Maintenance protocol

- Under no circumstances use a pressure washer or jet water for cleaning.
- To prevent unwanted moisture, it is advisable to tighten any cable glands before cleaning.
- Check if the cables at the gland make a slight bend downward before going up towards the cable tray. This ensures that no condensation drops run towards the glands.
- The entire ventilator can be cleaned with a damp cloth.
- After the cleaning process, the motor should run at 80-100% of the maximum RPM for 30 minutes to allow any possibly infiltrated water to evaporate.
- During longer periods of inactivity in a humid atmosphere, it is recommended to operate the fans for at least 2 hours monthly to allow any infiltrated moisture to evaporate.
- Finally, check whether the white basket is correctly attached to the designated hooks.

Unblocking an obstructed fan blade

To unblock a ClimaFlow fan, always consult the manual to determine the required Personal Protective Equipment (PPE) before working on the ClimaFlow fan.

- **Check PPE**
  Consult the manual to identify the necessary Personal Protective Equipment and wear it before starting.
- **Turn off the ClimaFlow Fan**
  Stop the ClimaFlow Fan by setting the control signal to 0 V and turning off the switch on the fan's junction box.
- **Disconnect the plug**
  Unplug the power plug of the fan to ensure electrical safety.
- **Remove the obstruction**
  Identify and remove the object blocking the fan.
- **Reconnect the plug**
  Plug the fan back into the outlet, ensuring a secure and correct connection.
- **Restore control power**
  Set the control power back to the desired voltage and turn the switch on the junction box back on.
- **Press the Start button**
  To start the recently stopped ClimaFlow Fan locate the start button and press it to restore normal fan operation.

By following these steps, you can unblock the ClimaFlow fan and ensure it functions properly again.

Datasheet ClimaFlow Fan

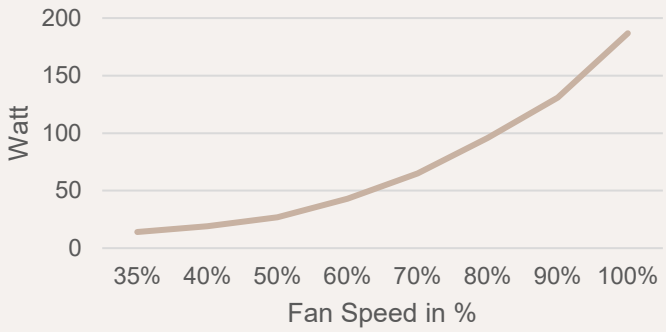
Type: ClimaFlow Fan 1 (CF-H800)

The VentilationJet® is designed for mixing air from above the screens into the greenhouse. This document includes the fan specifications.

Specifications

Line Voltage	1~ 200…277V, 50/60Hz 195W, 1.5A
Leakage	<8 mA. At 230V 50/60Hz.
In rush Current	15,2 A
Rated values	EC electronically limited. IP54.
Power connection out	2M power cable
Electrical connection	integrated controller
Adjustable control	A variable speed drive is integrated within the fan. It's controlled by a 0-10Vdc signal. Input resistance 10K Ω
10V output	5 mA
Working temperature	-25~+60

Bearing	HCH 6001Z deep groove ball bearing single row
Color of rotor	Black
Material rotor	Steel
Quality of the blade	Vanes equipped with quiet technology
Color of blade	Blue
Material blade	Aluminum
Material of construction	Stainless steel / Aluminum
Material of mounting strip	Galvanised steel
Material of basket	Galvanised steel with powder coating

Protection	Basket surrounds the spinning blade
Suspension system	Mounting strip and truss bracket
Control area	approx. 256M2/2700sqft per fan
0-10V output	Voltage is supplied by the motor for external devices.
Weight	
Harmonics	The ClimaFlow Fan does not include a Harmonic filter Fan groups can not be connected across three phases and one ground
Weight	8.9KG/19.6 lb
Power consumption	

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Datasheet ClimaFlow Fan AC

Type ClimaFlow Fan 2 (CF-AC85)

The VentilationJet® is designed for mixing air from above the screens into the greenhouse. This document includes the fan specifications.

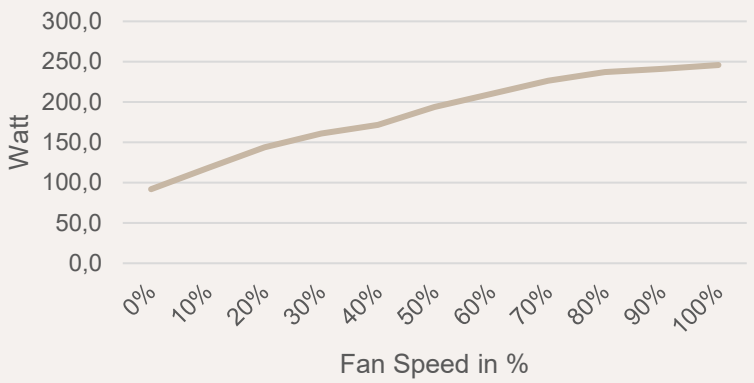
Specifications

Line Voltage	1~MOT 230V ±10% 50Hz P1 260W 1,2A 1~MOT 230V ±10% 60Hz P1 300W 1,3A
Rated values	IP54 THCL 155
Power connection out	2 meter power cable electrical connection
Terminal box	K05 (fixed on motor)
Control	On/Off (RPM Controllable with external controller
Motor Protection	Thermal contact
Min. operating Temperature (°C)	-35

Bearing quality	Ball bearing with long time lubrication
Color of rotor	Black
Material rotor	Steel
Color of blade	Blue
Material blade	Aluminum
Material of construction	Stainless steel
Material of mounting strip	Galvanized steel
Material of basket	Galvanized steel – White powder coating

Protection	Incl. Basket
Suspension system	Mounting strip and truss bracket.
Control area	Each fan has a control area of approx. 256 m³ / 2700 sqft
Weight	6,7 KG

Power consumption



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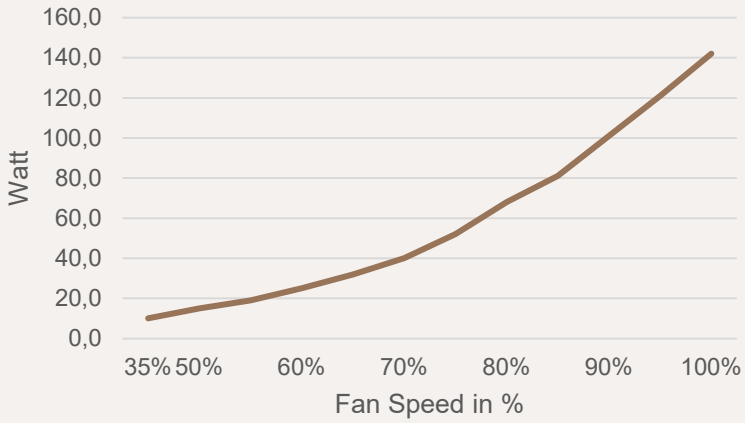
Datasheet ClimaFlow Fan

Type: ClimaFlow Fan 3 (CF-EC72)

The VentilationJet® is designed for mixing air from above the screens into the greenhouse. This document includes the fan specifications.

Specifications

Line Voltage	1 ~ 200…240Vac, 50/60Hz, P1 130W, 1,15-1,4A
Rated values	60°C IP54 THCL 155
Motor	cЯUus UL Recognized Component
Power connection out	Incl, Power cable 2M
Control	A variable speed drive is integrated within the fan. It's controlled by a 0-10Vdc signal.
Motor Protection	Integrated active temperature management
Min. operating Temperature (°C)	-35
Bearing quality	Ball bearing with long time lubrication
Color of rotor	Marine Blue
Material rotor	Steel
Color of blade	Blue
Material blade	Aluminum
Material of construction	Stainless steel
Material of mounting strip	Galvanized steel
Material of basket	Galvanized steel – White powder coating
Protection	Incl. Basket
Suspension system	Mounting strip and truss bracket.
Control area	Each fan has a control area of approx. 256 m³ / 2700 FT²
Weight	6,7 KG
Harmonics	The ClimaFlow Fan does not include a harmonic filter. ClimaFlow Fan groups must not be connected across three phases and one ground.
Power consumption	

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Datasheet ClimaFlow Fan

Type ClimaFlow Fan 4 (CF-EC90)

The VentilationJet® is designed for mixing air from above the screens into the greenhouse. This document includes the fan specifications.

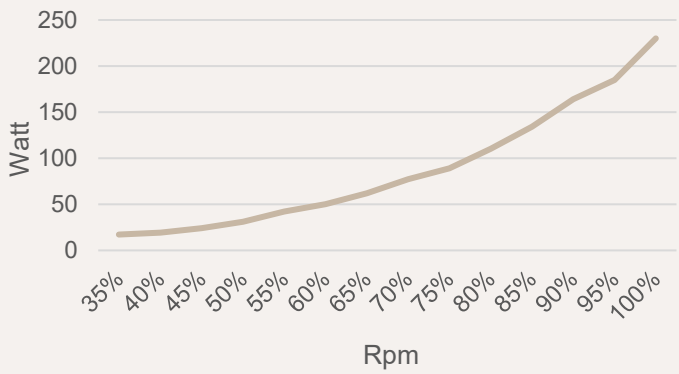
Specifications

Line Voltage	1 ~ 200...277Vac, 50/60Hz, P1, 390W, 1.4-1,95A
Rated values	EC 850 RPM 60°C, IP54, THCL 155
Motor	cЯUus UL Recognized Component
Power connection out	Incl. Power cable 2M
Electrical connection	Integrated controller
Adjustable control	A variable speed drive is integrated within the fan. It's controlled by a 0-10Vdc signal.
Motor protection	Integrated active temperature managment
Min. operating Temperature (°C)	-35

Bearing quality	Ball bearing with long-time lubrication
Color of rotor	Marine blue
Material rotor	Steel
Color of blade	Blue
Material of blade	Aluminum
Material of construction	Stainless steel
Material of mounting strip	Galvanized steel
Material of basket	Galvanized steel + white powder coating

Weight	8,7 Kg
Harmonics	The ClimaFlow Fan does include a harmonic Filter

Power consumption



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Fan efficiency

ClimaFlow Fan 1: (CF- H800)

Airflow	**Value**	**Unit**
40% of max rpm	2740	M³/h
60% of max rpm	4100	M³/h
80% of max rpm	5820	M³/h
90% of max rpm	6840	M³/h
100% of max rpm	7530	M³/h

Max air pressure:	151	Pa

Power consumption	**Value**	**Unit**
40% of max rpm	19	W
60% of max rpm	43	W
80% of max rpm	96	W
90% of max rpm	131	W
100% of max rpm	187	W

Most efficient operation: 65-100% of max rpm.

η target = 48,0%
η H800 = 75,55%

Fan efficiency

ClimaFlow Fan 2: (CF-AC85)

Airflow	**Value**	**Unit**
40% of max rpm	2730	M³/h
60% of max rpm	3620	M³/h
80% of max rpm	5130	M³/h
90% of max rpm	5180	M³/h
100% of max rpm	6150	M³/h

Max air pressure:	83	Pa

Power consumption	**Value**	**Unit**
40% of max rpm	92	W
60% of max rpm	161	W
80% of max rpm	226	W
90% of max rpm	241	W
100% of max rpm	246	W

Most efficient operation: 100% of max rpm.

η target = 48,8%
η AC85 = 31,2%

Fan efficiency

ClimaFlow Fan 3: (CF-EC72)

Airflow	**Value**	**Unit**
40% of max rpm	2730	M³/h
60% of max rpm	3830	M³/h
80% of max rpm	5130	M³/h
90% of max rpm	5810	M³/h
100% of max rpm	6840	M³/h

Max air pressure:	114	Pa

Power consumption	**Value**	**Unit**
40% of max rpm	10	W
60% of max rpm	32	W
80% of max rpm	68	W
90% of max rpm	101	W
100% of max rpm	142	W

Most efficient operation: 70-100% of max rpm.

η target = 47,2%
η EC72 = 75,4%

Fan efficiency

ClimaFlow Fan 4: (CF-EC90)

Airflow	**Value**	**Unit**
40% of max rpm	2740	M³/h
60% of max rpm	4100	M³/h
80% of max rpm	5820	M³/h
90% of max rpm	6840	M³/h
100% of max rpm	7530	M³/h

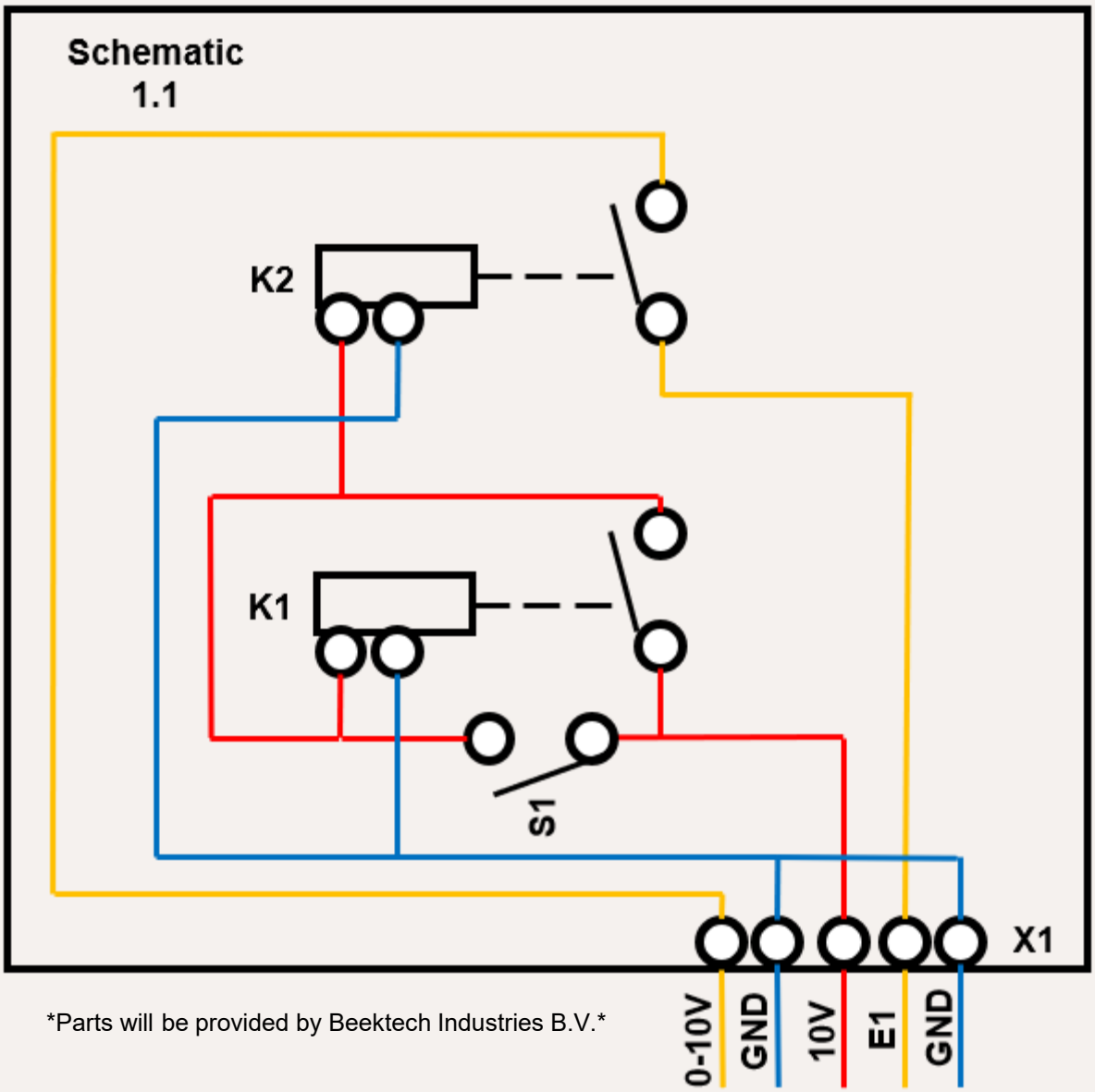
Max air pressure:	151	Pa

Power consumption	**Value**	**Unit**
40% of max rpm	19	W
60% of max rpm	50	W
80% of max rpm	89	W
90% of max rpm	134	W
100% of max rpm	185	W

Most efficiënt operations: 65-100% of max rpm.

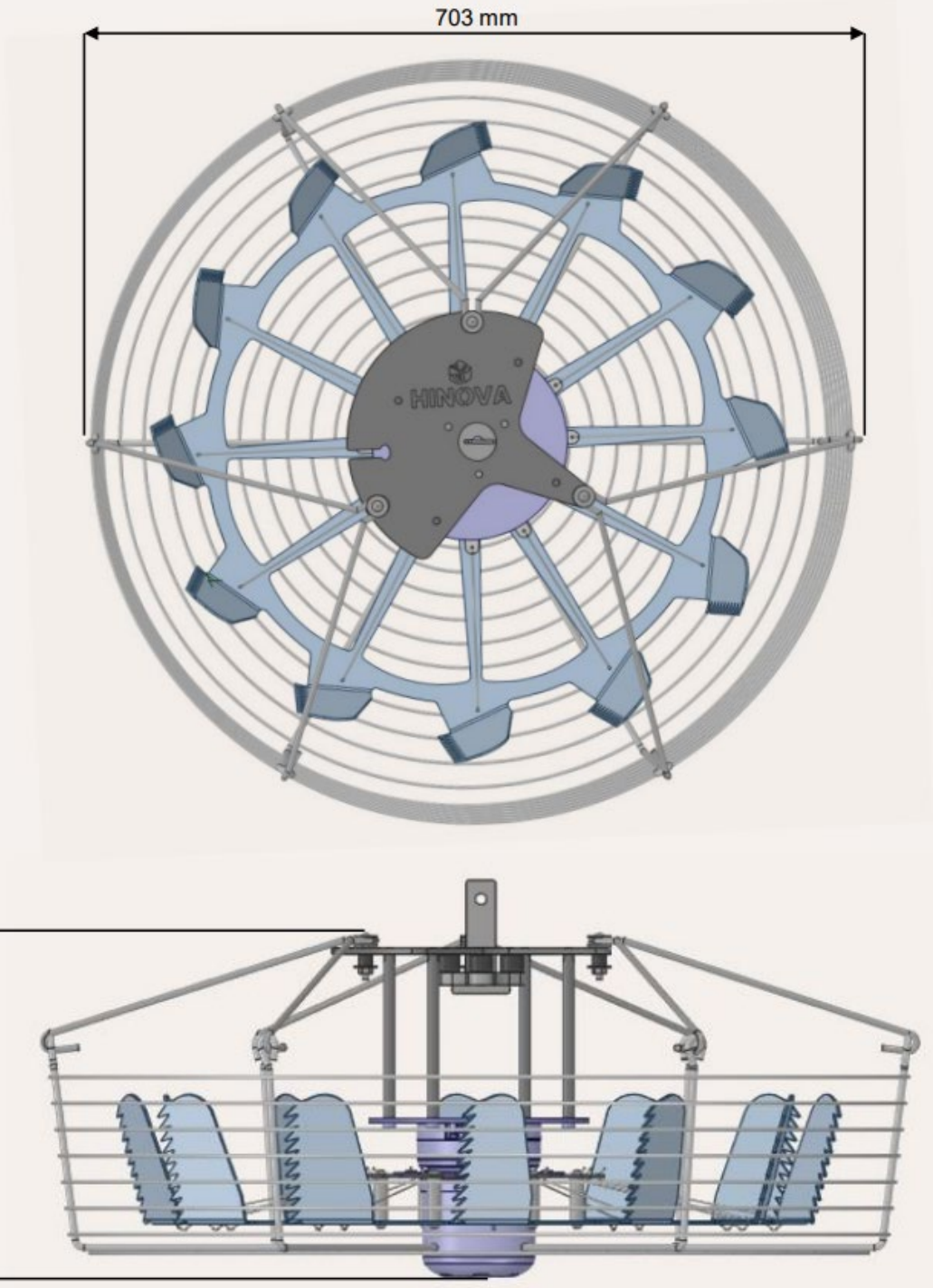
η target = 48,6%
η EC90 = 75,4%

Electrical connection diagrams (Climate computer)



Parts will be provided by Beektech Industries B.V.

General Dimensions



Now it’s time to grow with the flow.

ClimaFlow

For questions, please contact your nearest Svensson office

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