

STANDARD ROOF UNITS Installation guide & technical specifications



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1. SAFETY

The following symbols refer to dangers or give advice for safe operation





Fans are produced in accordance with the latest technical standards and our quality assurance programme, which includes material and function tests, ensuring that the final product is of a high quality and durable. Nevertheless, these fans can be dangerous if they are not used and installed correctly, according to the instructions.

Before installing and operating this fan please read these instructions carefully!

- - the application (tested guards can be supplied for all fans).
 - qualified workers.
 - plate) and mediums passing through it.
 - Nor can they be used for the transfer of solid components in the transfer medium.
 - be connected.
 - The operating instructions are part of the product and must be safely stored.



approval.

• Only use the fan after it has been securely mounted and fitted with protection guards to suit

· Installation, electrical and mechanical maintenance and service should only be undertaken by

• The fan must only be used according to its design parameters, regarding performance (type

• The fans cannot be used in hazardous areas for the transfer of gas, mist vapours or mixtures.

• The thermal contact (TC) build in the motor winding serve as motor cut-out switches and must

Do not make any additions or modifications to the equipment without the manufacturer's

2. DIRECTED OPERATION

Proper use also includes compliance with the procedures for installation, operation and maintenance described in this operating manual.

The fans may only be operated when they are installed as intended and in accordance with DIN EN 13857 or other protection measures.

We would like to point out that these operating instructions are only valid for the products in this manual and not for the complete system.

3. DESCRIPTION AND SCOPE

These fans have been specially developed for use in modern ventilation and air conditioning systems and are suitable for conveying low-dust air and slightly aggressive gases and vapours. The sizes correspond to the standard number series R20 according to DIN 323. The size designation corresponds to the running wheel diameter. The use of the asynchronous external rotor motor offers decisive technical advantages. A special motor design for the external rotor motor enables speed control by lowering the voltage. When operating with frequency converters, observe the instructions in section 9 — Operating Conditions.

All fans are statically and dynamically balanced at the factory prior to delivery.

3.1 ROOF FAN

Roof fans with external rotor motors are 100% continuously voltage-controlled. The roof fans, which are powered by an IEC standard motor, can also be steplessly controlled by frequency converter.



4. CONDITION OF USE

Fans which described in this manual can be used for ventilation of:

- Clean air
- Air with low rate of dirt or grease particles. The correct operation must be checked by the system designer
- Slightly aggressive gases and fumes
- Media up to an atmospheric density of 1,2 kg/m3
- Media up to a maximum humidity of 95% (no condensing) •
- Airflow temperature at convection cooled operation of -20°C up to the temperature displayed on the data plate.

5. STORAGE AND TRANSPORT

- Store the fan in a dry place and weather protected in its original packing.
- Cover open pallets with a tarpaulin and protect the fans against the influence of dirt.
- Store at temperatures between -20°C and +40°C.
- For longer storage periods, it is recommended that bearings are moved regularly (see section 10 — Maintenance, Service).
- Do not carry the fan by the lead.
- Transport the fan with suitable loading means (weight shown on the type plate).
- Avoid any distortion of casing or blades, or other damage.
- Use suitable assembling means, e.g. scaffolds conforming to specifications.

6. INSTALLATION

Installation and electrical work must only be carried out by trained and gualified personnel and according to the respective applicable regulations.

- The unpacked fan must be checked for transport damage. Damaged fans must not be installed.
- Prevent falling objects and foreign matter from entering the inlet and outlet opening of the fan. The protection guards must be certified to DIN 31001 or VDMA 24167.
- In hazardous areas, connect components to a voltage equalising system.

The following applies for all fans:

- Do not distort the fan.
- Deformations and displacements must not lead to striking or grinding of moving parts.
- Do not apply force (levering, bending).
- Attach to all fixing points with suitable fasteners.
- Electric wiring must be in accordance with technical connection regulations, local ordinances and national electric codes as per the enclosed wiring diagram.
- · Connection as wiring diagram (label on the casing).
- Insert cable according to the rules in the junction box and seal it.
- Connect the voltage equalising system properly.



Before control of direction of rotation:

- Remove any foreign matter from the fan.
- Install protection guards (Accessories) or prevent access to fan.



safety instructions are in accordance with applicable standards and regulations.

6.1 ROOF FAN

- The unpacked fan should only be picked up on the base frame or on the lifting eyes.
- the fan base frame with moss rubber seal, or with a continuous elastic foam type. Attention: Take care that surfaces of sockets mounted on site are completely flat.
- An uneven surface will lead to deformation of the base frame, preventing the impeller from rotating freely.
- For mounting on the roof base or base silencer, use screws and sealing rings to seal off rainwater.
- All roof fans are suitable for installation in a horizontal position or on an incline of up to 5°.

Do not make any additions or modifications to the equipment without the manufacturer's approval.

It is the responsibility of the system or system manufacturer to ensure that installation-related

· When installing the roof fan on a roof socket or socket damper, the mounting surface must be sealed airtight on

7. MOTOR PROTECTION

Motor protection over:

- Thermal contact: Connect thermal contact (TC) correctly to an appropriate motor protection switching or speed control unit (with voltage-controllable motors). The motors in these fans of smaller size (up to 250) are partly protected by thermo contacts internally connected in series; no separate evaluation unit needs to be connected here. Details on request.
- Bimetal relay (only possible with non-voltage-controllable motors, for example IEC standard motors): Set the bimetal relay (commercially available) to the rated motor current (rating plate) or PTC thermistor: Connect PTC thermistor correctly to a tripping device.

Details on motor protection can be found on the allocated wiring diagram on page no. 10.

8. PUT INTO OPERATION

Check the following prior to first commissioning:

- Installation and electrical installation properly completed
- Safety devices fitted (protective guards)
- Assembly residue and foreign particles removed from the fan area
- Continuous protective conductor connection present
- · Fan must not rub on fixed housing components
- Cable entry sealed tight
- Does the connection data correspond to data on the nameplate?
- Motor operating capacitor data (1~motors) complies with the specifications on the nameplate.



Commissioning may only be carried out once all safety instructions have been checked and any danger is ruled out. For fans with fold-out fan section (e.g. hinged roof fan), commissioning may only take place when the fan section is closed and secured.

Installation:

 Check the direction of rotation against the direction arrow attached to the casing by quickly turning the unit switch on and off.



Switch on the fan depending on the situation and local conditions. The local regulations must be

- · Check sense of rotation
- smoothness of running

8.1 CHANGE OF DIRECTION OF ROTATION WITH THREE-PHASE MOTORS

If necessary, reverse the direction of rotation by exchanging 2 phases.

8.2 CHANGE OF DIRECTION OF ROTATION WITH SINGLE-PHASE MOTOR

If necessary, reverse the direction of rotation by switching Z1 to Z2 (for colour coding, see connection diagram).

9. OPERATING CONDITIONS

Do not operate fans in an explosive atmosphere. Switching frequency:

- The fan is rated for continuous operation S1.
- Switchgear connected to the fan must not allow extreme switching operations.

9.1 OPERATION ACCORDING TO ERP DIRECTIVE

According to Regulation 1253/2014 / EU, fans within the scope of application must be operated at least '3-stage + OFF'.

Depending on the assembled motor there are 3 variants possible:

- Fans with AC external rotor motor: optional control unit RTD. On type plate: 'MSD to be used'.
- Fan with EC external rotor motor: integrated speed control, no additional device required. On nameplate: 'VSD integrated'.
- Fan with IEC standard motor: optional frequency converter. On nameplate: 'VSD to be used'.

The operator is responsible for the compliant, multi-stage operation. Appropriate switching devices are available as an accessory.

9.2 OPERATION WITH FREQUENCY CONVERTERS

Three-phase fans are suitable for operation with frequency converters when the following points are observed:

- Between the converter and the motor, sinusoidal filters should be incorporated that are effective for all phases (sinusoidal output voltage, phase against phase, phase against protective conductor) as offered by manufacturers.
- The settings on the frequency converter must be made according to the fan rating plate.
- The minimum frequency when operating with a frequency converter is 10Hz.
- The external rotor motors used in this operating manual are all equipped with a thermal contact (TC). When operating the fan in conjunction with a frequency converter, the thermal contact must be connected to the frequency converter and evaluated. In the external rotor motors, the thermal contact connection is marked white. Please note the connection diagram of the respective motor.
- connection diagrams in page no 10



According to Regulation 1253/2014 / EU, fans within the scope of application must be operated at least '3-stage + OFF'.

9.3 FANS WITH SHIELDED MOTOR CABLE

In order to comply with the EMC directive, a sinusoidal filter can be dispensed within the case of fans which are supplied with a shielded motor cable at the factory.

· Fans with three-phase AC external rotor motors are equipped with the following connection diagrams: Refer to

10. MAINTENANCE AND SERVICE



Maintenance and service work may only be carried out by trained and instructed specialist personnel, and in compliance with the relevant regulations and guidelines.

The incorporated ball bearings are designed for a lifetime of 20,000 h to 40.000 h and are maintenance free under ordinary operating conditions. For preventive maintenance, the ball bearings should be changed after 5 years due to the ageing of the grease.

For longer downtimes, and especially in humid atmospheres, it is recommended that the fan is operated for at least 1 hour per month.

The bearings should be checked at least every 6 months to ensure they are quiet, can move easily and are free of play. If the fan doesn't run, a manual check can be carried out by turning the rotor. Replace bearings in case of noise, difficulty of movement or clearance of the bearings.

The capacitor capacity of 1 ~ motors may decrease over time. Lifetime expectancy is approximately 30,000 h.

For all maintenance and service works ensure:

- Fan impeller has stopped.
- Electrical circuit has been disconnected and protected against reconnection.
- Observe health and safety regulations
- The airways of the fan must be kept clear.
- Regular cleaning to prevent distortions.
- Never use high pressure cleaning equipment (steam cleaners).
- Do not bend fan blades
- Listen for untypical running noises.
- Replace the bearings at the end of the grease-consumption period, or if they become damaged. Ask for our maintenance guide or contact our repair department (special tools may be required).
- Replace bearings only with original parts (proprietary special grease).

In the event of any other damage (e.g. winding damage) please contact our repair department.

11. DISPOSAL



When disposing of the device, observe all relevant requirements and best practices applicable in your country.

The following chapter provides recommendations for environmentally friendly disposal of the machine and its components.

11.1 PREPARING DISASSEMBLY

The dismantling of the machine must be carried out or supervised by trained and qualified staff. For the recycling and disposal of these products, the local requirements must be followed.

The dismantling must be conducted as follows:

- 1. Get in touch with a waste management company in your area. Clarify how the dismantling of the components should take place.
- 2. Disconnect the machine from the mains and remove all cables.
- 3. If necessary, remove all liquids such as oil and remove this according to the local requirements.
- 4. Transport the machine to a suitable location for disassembly

11.2 DISMANTLING MACHINE

Disassemble the machine according to the general machine-building procedure.



The machine is made up of heavy parts. These can fall during dismantling. Serious injury and property damage may result.

Secure machine parts against falling before you remove them.

11.3 DISPOSE OF COMPONENTS

Components

The machine consists mainly of metallic materials. These are generally considered fully recyclable. For recycling, the materials must be separated into the following categories:

- Steel and Iron
- Aluminium
- · Non-ferrous metal
- (Insulation is incinerated during copper recycling)
- Insulating material
- Cables and wires
- Electrical scrap, if applicable
- Plastics

Materials and chemicals

Separate the materials and chemicals for disposal according to the following categories:

- Fat
- Paint residues

Dispose of the separated components according to the local regulations. The same applies to any cloths and cleaning substances used on the machine.

Packing material

- If necessary, contact a waste disposal company.
- Wood packaging for sea transport consists of impregnated wood. Please note the local regulations.
- The foam packaging, packaging foils and cartons can be supplied readily to the material recovery.

12. SERVICE AND ADDRESS OF PRODUCER

Woods Air Movement products are subject to constant quality control and comply with the applicable regulations. For any questions you may have in connection with our products, please contact the designer of your ventilation

system, one of our distributors or directly.

Woods Air Movement, Axial Way, Mile End, Colchester, United Kingdom, CO4 5ZD.

13. WIRING DIAGRAMS (For AC Fans)



From size 355 mm to 500 mm (VR ranges)

Single phase A.C. motor with operating capacitor and thermostatic switch.

Thermostatic switch wired in series with windings if RE controllers are used.

Insert bridge (x) and wire connections shown as dash-line on the drawing.Insert bridge (x) and wire connections shown as dash-line on the drawing.



For size 310 mm (HR & VR ranges)

Three phase A.C. motor with thermostatic switch (TB). Changing of rotation direction by interchanging of 2 phases.



From size 355 mm to 630 mm (HR ranges) & to 800 mm (VR ranges)

Three phase A.C. motor in delta connection with thermostatic switch (TB). Changing of rotation direction by interchanging of 2 phases.



WIRING DIAGRAMS (For EC Fans)

• EC fan sizes 190 mm to 310 mm for open and closed loop (1 ph)



• EC fan sizes 355 mm to 500 mm for open and closed loop (1 ph)



• EC fan sizes 355 mm to 710 mm for open and closed loop (3 ph)





14. CE MARKING

14.1 DECLARATION OF CONFORMITY

We hereby declare under our sole responsibility that Woods Air Movement products comply with the requirements of the applicable EC / EU directives.

The declaration of conformity for compliance with the applicable EC / EU directives exclusively refers to fans that are connected according to the operating instructions and operated independently with sinusoidal power supply.

The Declaration of Conformity for compliance with the ErP Directive and associated regulations is only valid in conjunction with the ErP-related data in the product information and nameplate.

14.2 DECLARATION OF INCORPORATION

These products fall under the terms of an incomplete machine. For this reason, the following declaration of incorporation has been prepared. The declaration of incorporation applies only to products mentioned in this manual.

These operating instructions are considered assembly instructions in the sense of the Machinery Directive Annex VI



Fläkt Woods Limited trading as Woods Air Movement Manufacturer **Axial Way GB-Colchester CO4 5ZD**

For the following machines with AC external rotor motors or IEC standard motors,

Designation of the machine:	Model or type of machine:	Since year of manufacture:
Roof fan	HR / VR	2019
Tube fan	Espada / Ropera	2016
In line duct fan	Falcata / Katana	2016
Motor impeller	Daisho / Sabina	2016
Box fan	Estoc / Estoc-Targe / Sabina (Compact)/ ePowerBox)	2018
Kitchen Exhaust Unit	eDVC	2019

we declare under our sole responsibility, that they meets the basic requirements tht are specified in the harmonisation legislation below:

The following harmonized standards were applied:				
	ErP-Directive (2009/125/EC)			
	EMC-Directive (2014/30/EU)			
	Low voltage directive (2014/35/EU)			

EN 60204-1	EN 60034-1	EN 61000-6-2
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Also the standards listed below were applied:

EN 61000-3-2 EN 61800-3 VE			
	EN 61000-3-2	EN 61800-3	VE

Moreover, we declare that the relevant technical documentation according to Appendix VII, Part B, have been issued and we commit ourselves to forward the documents on request to the market regulators as written documents or electronically. This declaration of conformity to the compliance with EMC-Directive is valid only for fans which are connected according to the operating instructions and operated independently in reference to sinusoidal current supply.

The commissioning of the incomplete machine is prohibited until the incomplete machine has been installed in a machine which then meets the requirements of the EC Machinery Directive 2006/42/EC.

Address of the nominated Person:

EC-declaration of Incorporation was issued:

Colchester, 05.04.2021

Place, Date

Fläkt Woods Limited t/a Woods Air Movement Axial Way Colchester CO4 5ZD United Kingdom Tel: +44 (0) 1206 222 555 Email: customerservices.woods@flaktgroup.com

Registered in England no. 233771 Registered Office: Axial Way, Colchester, CO4 5ZD

EU-Declaration of Conformity

as defined by the low voltage directive 2014/35/EU and the EMC directive 2014/30/EU

EN 61800-5-1

OI 2052 Part 1

see manufacturer's address

Simon Chapman R&D Director Woods Air Movement



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Woods Air Movement delivers smart and energy efficient Air Movement and Fire Safety solutions to support every application area. We offer our customers innovative technologies, high quality and outstanding performance supported by more than fifty years of accumulated industry application experience. The widest range of Air Movement and Ventilation products in the market, and strong market presence with over 100 years of experience and manufacturing of products, guarantees that we are always by your side, ready to deliver Excellence in Solutions.

Contact our friendly sales team today for more information

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