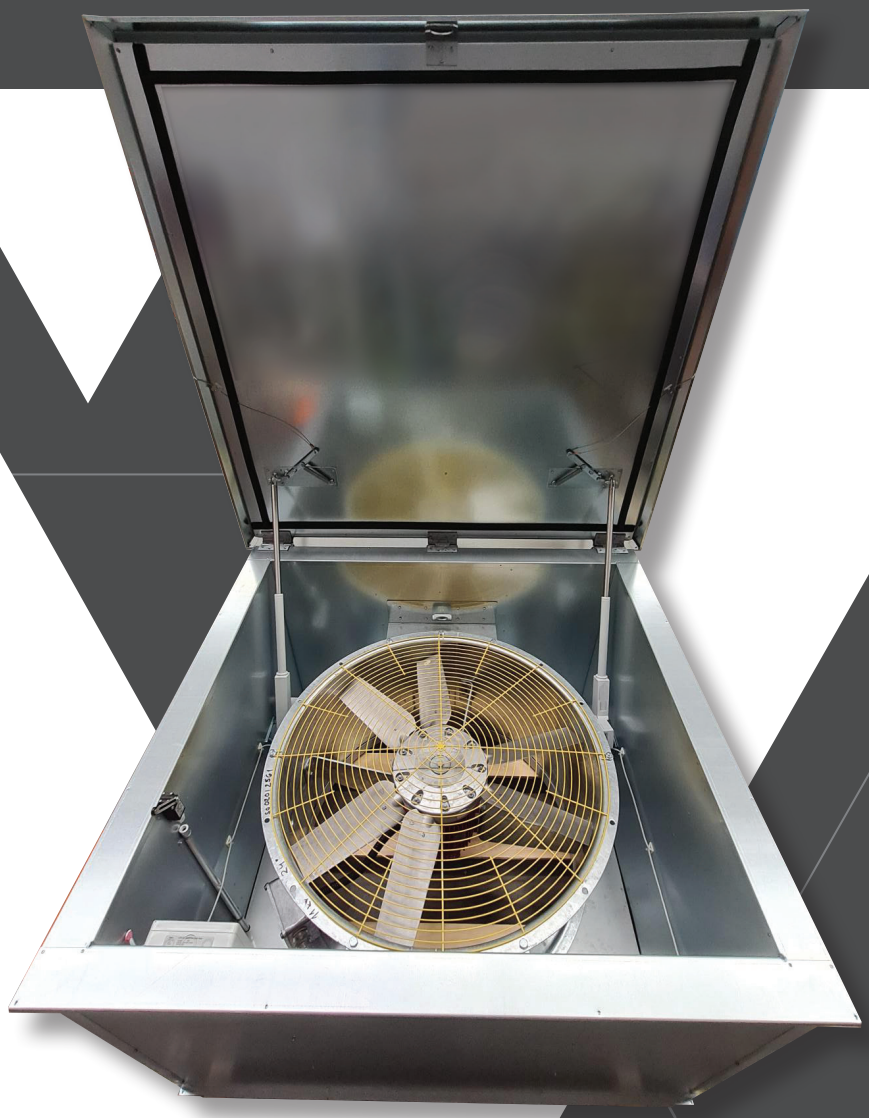
Woods
AIR MOVEMENT

SMOKE EXTRACT FAN SMHA HATCH

Installation and maintenance instructions



CONTENTS

1. SAFETY NOTES

Warning and safety information relevant to specific operations are contained within each section. The following warning or advice categories are used:

DANGER! Failure to follow these instructions may result in serious injury or death to the user in addition to serious damage to the equipment.

WARNING! Failure to follow these instructions may result in minor injury or damage to the equipment.

CAUTION! Failure to follow these instructions may result in malfunction or damage to the equipment.

DANGER!

This product contains rotating parts and electrical connections which can be a danger and cause injury. It is of paramount importance for any fan that is required to function in emergency conditions, that the installer and user must follow all relevant instructions contained within this leaflet which is supplied with this product. Failure

To ensure that fans will operate continuously during a high air temperature emergency, the electrical system must have been designed and installed to accommodate the specific emergency conditions of temperature and duration. A maintenance procedure must be put in place and a record of the activities that have been performed must be kept.

2. INTRODUCTION & PURPOSE

Woods Air Movement SMHA Smoke Exhaust fans comply with the requirements for EN 12101-3 standard and health and safety of the EC Machinery Directive.

All fans leave the factory after being subjected to testing.

These instructions are intended for use by professional service staff. The installation, commissioning and operation of the fans must be carried out by professional staff, who are familiar with the safety regulations.

Tools and protective equipment necessary for preventing accidents from occurring while installing and operating the fan must be used / worn in accordance with the local safety regulations.

All personnel involved with the product must carefully study this operation manual and diligently comply with all notes and instructions.

Woods does not accept responsibility for any damage that can be attributed to non-compliance of these instructions.

The warranty issued by the manufacturer will be forfeited if any changes to the product are made without the manufacturer's consent, please only use approved genuine spare parts.

If ever in doubt, please refer to Woods Air Movement UK (Colchester Office).

3. SITE STORAGE, SUPPLY, INSTALLATION

WARNING!

When fans are stored (prior to installation), please ensure that access by un-authorised persons is prevented, by using guards, barriers or secure premises to ensure that fan impellers (which may be rotating) do not present a hazard.

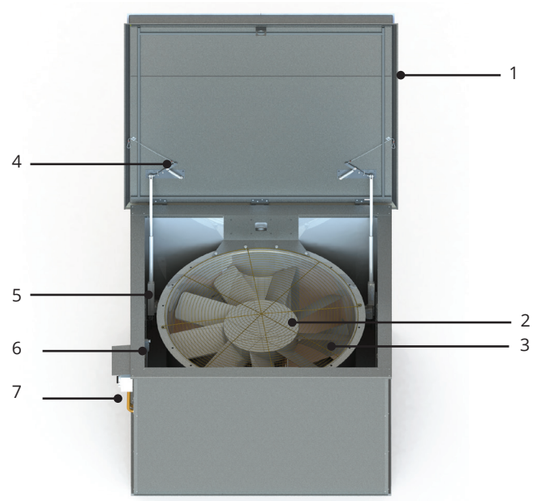
These instructions relate to all fans rated up to and including 400°C for 2 hours which are designed to be mounted onto a roof, outside the fire zone.

4. OPERATING CONDITIONS

Under emergency conditions, these fans are suitable for the temperature/time capability stated on their name plate or in accompanying documentation. e.g. “HT300/2” or “Ff300 (120)” denotes that a fan is suitable for a single use at an emergency condition of 300°C for 2 hours (120 minutes). If the emergency air temperature exceeds 400°C, a means of ducting hot air away from the motor compartment to a safe location must be provided. In addition, a means must also be provided to force ventilate the motor compartment, in order to supply cooling air which is at less than 40°C. Motor cooling fan and associated ductwork shall be provided by others.

5. PRODUCT DESCRIPTION

5.1 DESIGN



1. Opening Hatch
2. JMHT fan and fire rated motor
3. Safety Mesh
4. Mechanical cable opening opening mechanism
5. Linear motor
6. Limit switch
7. Safety switches

Between the hatch and casing is sealing material.

Both the hatch and casing have isolation material between metal sheets which makes them thermally insulated.

5.2 SPECIFICATION

The SMHA HATCH product is a mechanical smoke exhaust unit which is designed to be roof mounted. The equipment is an axial fan with casing designed for the use as an exhaust fan in high temperature emergency conditions. The product is not designed to be used for normal ventilation.

Our SMHA HATCH product has two JMHT fan temperature variants available: Ff300 (300°C) or F400 (400°C), both capable of extracting hot smoke for a duration of 120 minutes, as tested and certified in accordance with EN 12101-3:2015. These product variants are designed for a smoke exhaust duty only. The core range uses IE2 efficiency grade motors, but IE3 will be available soon. The hatch and fan are integrated to be one certified unit.

The hatch or lid fitted to the top our SMHA unit has been tested to open under a snow load condition of SL 500 (tested in accordance with EN 12101-2). The fan itself should be started 30 seconds after the hatch motors have been started.

The door is also equipped with a mechanical cable opening mechanism. The mechanism is intended for situations where it is desired to open the door without electricity.

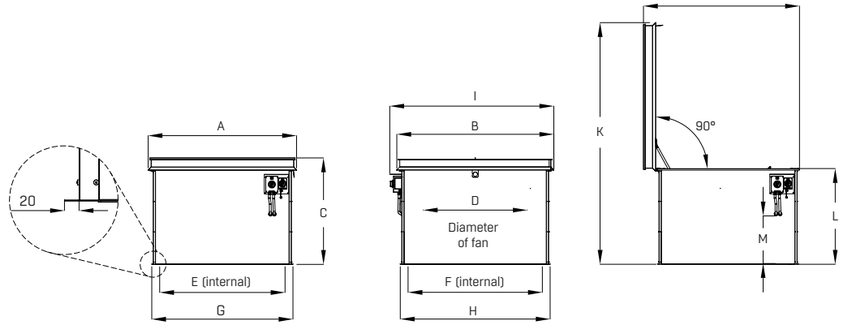
The standard direction of the smoke exhaust is upwards.

SPECIFICATION OVERVIEW	
Product	SMHA, Hatch fan
Fan Type	HT JM axial fan
Fire Resistance Class	Ff300 / F400 for 120 mins
Certifying Body	Eurofins / BSI
Certificate No	0809-CPR-19001010 / 2797-CPR-474778
Motor efficiency Grade	Standard: IE2, with IE3 as an option

5.3 CABLE

Suitable fire-resistant cable must be used between the main supply, starter controls and the fan. The mains supply must be from a guaranteed or separately maintained source, to enable the fan to continue running under emergency conditions. Duct-mounted terminal boxes for all HT fan specifications are designed to accommodate MICC supply cables.

5.4 DIMENSIONS



Fan Code	Fan Diameter	A	B	C	D	E	F	G	H	I	J	K	L	M	Total Weight (KG)*
031	315	1065	1165	1010	315	800	900	980	1080	1245	1135	1935	900	375	192
040	400	1065	1165	1010	400	800	900	980	1080	1245	1135	1935	900	375	192
050	500	1065	1165	1010	500	800	900	980	1080	1245	1135	1935	900	375	230
080	800	1265	1365	1010	800	1000	1100	1180	1280	1445	1335	2135	900	375	353
090	900	1465	1565	1010	900	1200	1300	1380	1480	1645	1535	2335	900	375	389
100	1000	1465	1565	1010	1000	1200	1300	1380	1480	1645	1535	2335	900	375	540
125	1250	1715	1815	1210	1250	1450	1550	1630	1730	1895	1785	2785	1100	575	730

All dimensions are in mm except weight and fan code.

* Complete Weight includes SMHA casing with fan fitted (with maximum size fan motor).

6. TRANSPORTATION

6.1 TRANSPORT INSPECTION

Check the fan immediately after you receive it and make sure that it has not been damaged during transport. If you discover any damage, get in touch with the transportation company without delay.

- Check the information on the fan rating plate.
- Proper procedures must be followed when transporting the product.
- Faulty conditions in transporting may result in serious damage on the product.

6.2 TRANSPORT SAFETY

- Loading must be carried out as instructed.

6.3. IMMEDIATE STORAGE

If the fan is to be stored before or in between uses, the following needs to be taken in account:

- Original packaging is to be used.
- If the storage conditions require it, additional protection may be added.
- The hatch of the product must be closed during the storage.
- During long term storage, indoor premises must be used.

7. LIFTING

The SMHA should be lifted to the roof with straps along with a pallet at the bottom of the product. Steel binding bands used to retain the unit onto its pallet must not be cut before lifting. Lifting strops should be placed under the pallet so that they are outside the pallet cross/base timbers. Never place strops on the inside of these cross/base timbers, as this may cause the unit to become unstable and slip.

Once the product has been placed on the roof, on its pallet, the steel retaining bands can be cut. The unit cover (lid) can then be freely opened, as there isn't a locking device. The product features lifting lugs, which are only designed for short transfer lifts from the shipping pallet to the roof surface. Lifting chains can be attached to them.

Keeping the lid open while lifting is ensured by stringing another chain through the hook on the inside of the lid.

8. INSTALLATION

8.1 PRODUCT INSTALLATION

As with natural ventilation smoke hatch units, our powered SMHA HATCH product can be installed onto a roof or a car park deck in one lift, as the product is pre-assembled. It can be mounted directly onto a concrete slab or a similar surface, or onto a specially designed base (builders upstand or suitable metal upstand). Ideally, a flat surface is required for installation.

Integration of the roof structure and the Hatch product, including thermal and water insulation, is carried out in accordance with the instructions of the structural engineer of the site. If our product is to be used for extracting smoke from wet rooms, measures must be taken to prevent build-up of condensation. If the unit needs to draw in air freely from the space below, the product should be equipped with an inlet safety guard. In this case, the product can be mounted directly onto a flat surface. If the fan is to be connected to ductwork, it can be delivered with an inlet counter flange to facilitate easy connection to ductwork.

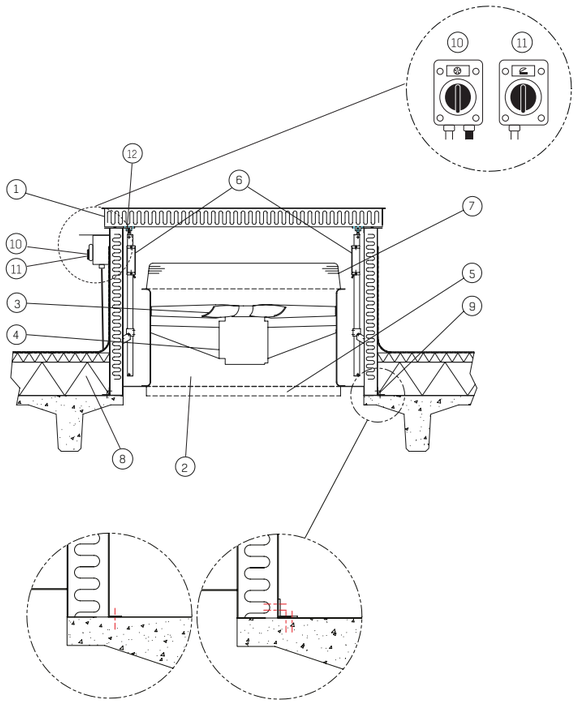


Figure 1

Attachment to the roof directly by the unit's flanged base

Figure 2

Attachment to the roof structure with angle brackets

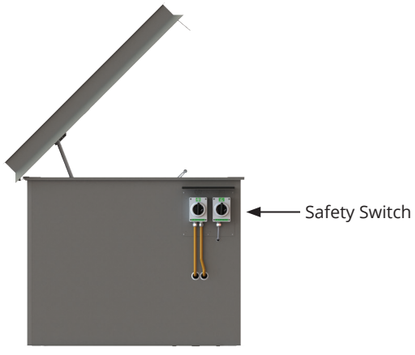
Angle brackets should be fixed to the unit's base with a minimum of four 5x40 screws or to the roof structure with a minimum of four screws as follows:

- 4 to 6 HILTI HPS-1 screws 6/5x30 for concrete

- 4 to 6 wood screws 5x50 for wood

- 4 to 6 self-drilling screws 5.5x25 for steel-reinforced concrete

1. Opening hatch
2. JMHT fan
3. Impeller
4. Motor
5. Safety guard / counter flange
6. Hatch motors, 2 pcs.
7. Safety guard on the outlet
8. Roof structure
9. Roof Installment Options - see figure 1 and 2.
10. Fan safety switch
11. Safety switch for hatch motors
12. Limit switch



Safety switch

Viewed from the hinged side of the hatch, the safety switches are on the right-hand side of the casing.

8.2. SAFETY REGULATIONS

DANGER! Where the unit hatch is open for maintenance work, there is a risk of falling through the fan opening, especially where the fan has been removed from the product. Special care should be taken to prevent falling during the maintenance work.

8.3. ELECTRICAL CONNECTIONS

WARNING! All electrical connections must be wired by authorised personnel only.

The necessary electrical and safety precautions in this instruction manual must be followed.

The unit is equipped with 2 safety electrical isolator switches, one for the fan motor and one for the opening motors. The product is equipped with a limit switch, which provides information on the opening or closing of the hatch. Electrical connections as shown in the diagram below (see diagram under heading 8.4 Wiring Diagram).

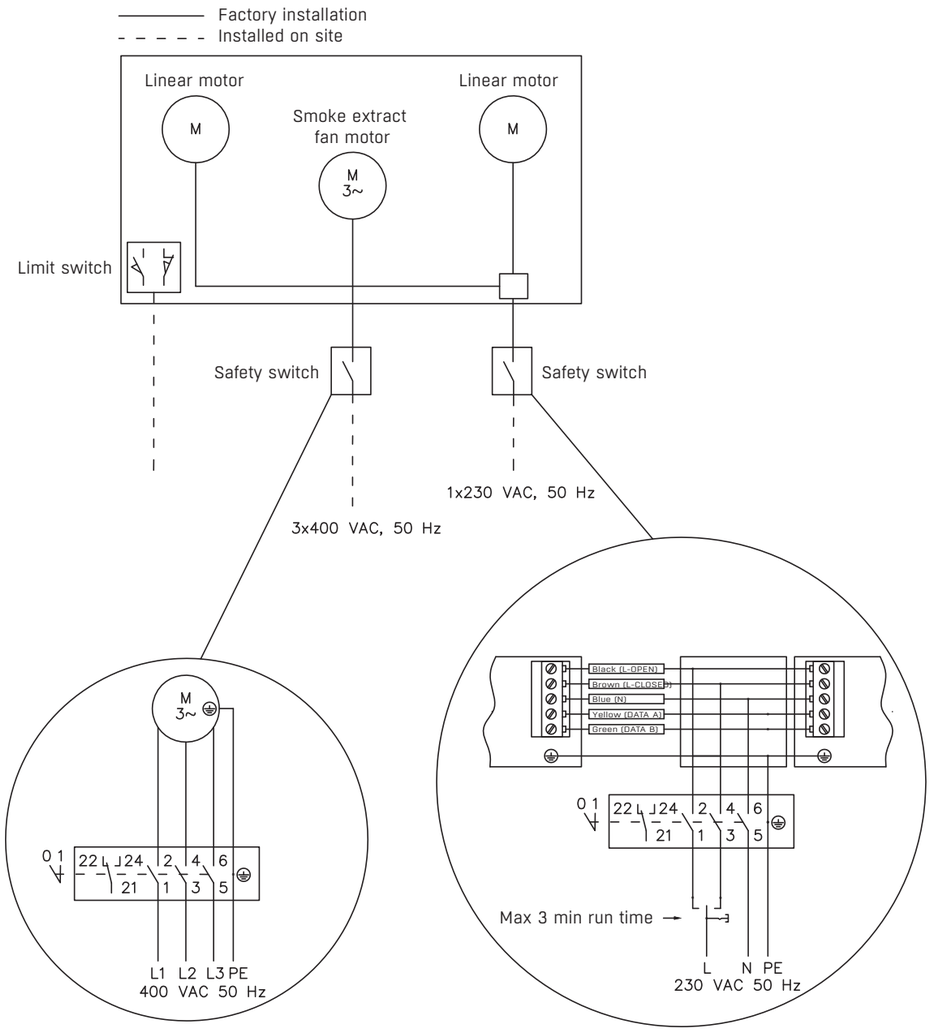
The cable connection from fan terminal box to the fan motor must be made using a fire-resistant cable. Cable entries in the casing must be sealed with fireproof sealant.

It is advisable to only use the hatch limit switch to provide a signal as an indication that the "hatch is closed" (for information only). A motor start signal should be provided by a separate control circuit. To ensure correct operation, the control logic must ensure that the fan starts at least 30 seconds after the linear actuator motors (which open the hatch or lid) have been energised.

WARNING! Linear motors must not be exposed to the control voltage!

NOTE! The approximate hatch closing time is 3 minutes, after which the power must be turned off.

8.4. WIRING DIAGRAM



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NOTE!

The approximate hatch closing time is 3 minutes, after which the power must be turned off.

9. COMMISSIONING

9.1. PREPARATION

Open the hatch and connect the motor rods to the fastenings. Connect the mains to the motors to close the hatch

NOTE! Make sure that it is also possible to open the hatch after using a temporary power supply (eg disconnect linear motor shafts after test run).

9.2. SAFETY CHECKING

Make sure that the fan motor and hatch motors are disconnected from the mains. Rotate the shaft and check that the impeller can move freely. Make sure that there are no foreign objects in the fan or in the ducting. Also check that there is no unusual noise in the fan. Check that the installation work has been carried out in accordance with the relevant regulations. All necessary protective devices must be installed.

Check also, that the unit design airflow is being met. Ensure that all other regulations related to fire safety are followed.

The fan may only be commissioned after all proper procedures have been followed and all necessary inspections have been carried out.

9.3. TEST RUN

Briefly switch on the power supply to the motor to check whether the fan impeller rotates in the correct direction. Operate the fan for at least 30 minutes. If the impeller is rotating in the correct direction shown with the arrow, the fan may be switched on. Check that no abnormal mechanical sound and no performance surging occurs, if so, turn it off immediately.

NOTE! During the test run, please ensure that the fan has an adequate supply of replacement air.

During the installation process, it is important to check that the air velocity (across the hatch opening) does not exceed 10 m/s. If the air velocity does exceed this value, this could result in damage to the door hinge and actuation mechanisms.

10. MAINTENANCE

10.1 WARRANTY

A precondition of the warranty is that regular maintenance has been carried out. Defects under warranty must immediately be notified to the manufacturer or the importer. The warranty does not cover service work or indirect damages.

10.2 MAINTENANCE

10.2.1 BEFORE MAINTENANCE

Switch off the power supply to the fan and hatch actuator motors at the safety isolating switches. Note: the hatch (lid) stays open when the unit isolator switches are used to disconnect it from the mains electrical supply. However, make sure that hatch cannot fall and close during maintenance.

10.2.2 INSPECTION INTERVALS

Inspection intervals can be defined by local authorities. If this is not defined, the fan must be tested according to the intervals in table below, at least once a year. The annual inspection must be done by authorised personnel only. Also follow the separate JMHT fan operation manual instructions for maintenance on the fan inside the casing.

Pos	Description	Introduction	6 months	12 months
1	Check that the hatch opens properly and the supply of replacement air is ensured.	x	x	x
2	Check that the fan motor starts 30s after the hatch opening motors	x	x	x
3	Check that the hatch motor is de-energised after 3 min. start-up	x		
4	Check that the fan rotates properly (and in the right direction)	x	x	x
5	Check that all warning/alarm lights are OK		x	x
6	Check that all labels are correct and visible		x	x
7	Visual inspection of fan motor and hatch opening motors		x	x
8	Test run of the fan	x		x
9	The entire product has been inspected for damage	x	x	x
10	Make an inspection report	x		
11	Make a maintenance report		x	x
	Fan motor			
1	During the test run, check the bearings for abnormal noise			x
2	If needed, lubricate the bearings			x
3	Check that the impeller rotates properly			x
4	Perform a visual inspection.		x	x

10.2.3. CHECKING THE MOTOR BEARINGS

The fan motor should be operated during test runs, maintenance or in emergency conditions only. The motor bearings need to be lubricated and serviced in accordance with the instructions that accompany the motor. As motors are designed for use in a Fire Safety product, they should not be repaired by local repair Engineers. The complete motor or fan/motor unit should be replaced.

10.2.4. IMPELLER

CAUTION! The impeller must be clean.

10.3. REPLACING THE MOTOR AND IMPELLER

The fan will have to be disconnected from the unit before the motor can be replaced.

SMHA-031,040,050,080,090

1. Check that the fan motor and hatch motors are disconnected from the mains.
2. Remove outlet safety guard.
3. Remove the impeller from the motor shaft by loosening the locking screws from the shaft end.
4. Remove the hub from the shaft. Please take care and ensure it does not fall through the casing.
5. The motor rotor can be lifted so that the bearings can be checked or replaced.

SMHA-sizes 100-125

1. Check that the fan motor and hatch motors are disconnected from the mains.
2. Remove outlet safety guard.
3. Remove the complete fan and lift it outside the casing for maintenance.
4. Follow the maintenance instructions for the JMHT fan.

10.4 FINAL INSPECTION

Check that:

- The impeller is mounted for the correct direction of rotation.
- All screws and nuts have been tightened to the corrrect torque values.
- No foreign objects have been left in the casing or in the ducting.
- The mechanical opening of the hatch works.

10.5 MECHANICAL OPENING OF THE DOOR

The mechanical opening of the hatch is intended for emergency situations where the door has to be opened when the electrical supply has been disrupted/turned off.

The door can be opened mechanically by pulling the wires under the hatch. There are two wires, and they are located on both sides of the linear motors. Pulling on the wire requires some force, so you must use an aid, such as a steel rod, formed into a hook (see picture for example).
After mechanically opening the lid, re-attach the linear motor shafts to the mounting lugs and make sure that the cover seals are intact.

11. FAULTS

If any faults occur during inspection which cannot be repaired by maintenance personnel, please contact the service department at Woods Air Movement.

Examples of faults can include the following issues:
- Foreign bodies inside the fan
- Corroded items (fixings etc.) which are located inside the casing
- High vibrations
- Maintenance negligent
- Hatch not opening

Possible problems generated:
- Bearing damage
- Corrosion damage
- Excessive vibration generated damage

12. SPARE PARTS

Only use genuine spare parts supplied and accepted by Woods Air Movement. If any other spare parts are used, then the warranty and EN-certification are no longer valid.

Spare parts:
- Fan motor
- Hatch motor
- Impeller
- Safety switches

13. PRODUCT CODE

Smoke extract fan — SMHA – AAA – BBB – CD – EF – PA

Fan Size
031, 040, 050, 080, 090,100, 125

Motor rating
048 = 4.8 kW.,etc.

C – Product Version
1 = Current version

D – Installation Accessories #1

E - Hatch casing colour / finish #2

F - High Temperature Category #3

PA – Fan pitch angle

NOTES:

Note #1 INSTALLATION ACCESSORIES (on fan inlet)
1 = Safety mesh (flat guard)
2 = Matching Flange

Note #2 HATCH CASING COLOUR / FINISH Options
1 = Galvanised
2 = Tele Grey 1 RAL 7045
3 = Window Grey RAL 7040
4 = Graphite Grey RAL 7024
5 = Jet Black RAL 9005
6 = White Aluminium RAL 9006
7 = Special Colour

Note #3 HIGH TEMPERATURE CATEGORY Options
3 = Ff300 (300°C/2 hours)
4 = F400 (400°C/2 hours)

14. DECLARATION OF PERFORMANCE

DECLARATION OF PERFORMANCE
No. 022CPR2022-09-30

1. Unique identification code of the product-type:
   Powered smoke and heat exhaust ventilator SMHA with accessories

2. Type, batch or serial number or any other element allowing identification of the construction product as required under Article 11(4):
   Powered smoke and heat exhaust ventilator SMHA F_{300}, F_{f300} (120)

3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:
   Powered smoke and heat exhaust ventilator

4. Name, registered trade name or registered trademark and contact address of the manufacturer as required pursuant Article 11(5):
   FläktGroup Finland Oy, Rydönnotko 1, 20360 Turku, Finland
   Tel. +358204423000, Email: info.fi@flaktgroup.com

5. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:
   System 1

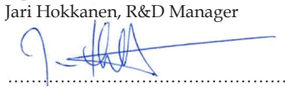
6. **Eurofins Expert Services Oy, Finland, Nr. 0809**
   Performed determination the product type on the basis of type testing; initial inspection of the manufacturing plant and of factory production control; continuous surveillance, assessment and evaluation of the factory production control (FPC) under system **1** and issued: **Certificate of constancy of performance 0809-CPR-19001010.**

7. Declared performance:

Essential characteristics	Performance	Harmonized technical specification
Response delay: - opening under wind load - opening under snow load Sizes 031 - 100 / Size 125	 ≤ 30 s SL 1250 / SL 800	EN 12101-3:2015
Operational reliability: - Application categories - Motor rating	 Smoke extraction Class H / Class F	
Effectiveness of smoke / hot gas extraction Gas flow and pressure maintenance during smoke and heat extraction test	-10 % ≤ Flow ≤ +25 %	
Resistance to fire:	F_{300}, F_{f300} (120)	
Ability to open under environmental conditions: - Opening under wind load - Opening under snow load Sizes 031 - 100 / Size 125	 ≤ 30 s SL 1250 / SL 800	
Durability of operational reliability	Class H / 105K	

8. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 7. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of FläktGroup by:
Jari Hokkanen, R&D Manager Turku 30.09.2022



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DECLARATION OF PERFORMANCE
No. 019CPR2022-09-30

1. Unique identification code of the product-type:
   Powered smoke and heat exhaust ventilator SMHA with accessories

2. Type, batch or serial number or any other element allowing identification of the construction product as required under Article 11(4):
   Powered smoke and heat exhaust ventilator SMHA F_{400} (120)

3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:
   Powered smoke and heat exhaust ventilator

4. Name, registered trade name or registered trademark and contact address of the manufacturer as required pursuant Article 11(5):
   FläktGroup Finland Oy, Rydönnotko 1, 20360 Turku, Finland
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Operational reliability: - Application categories - Motor rating	 Smoke extraction Class H / Class F	
Effectiveness of smoke / hot gas extraction Gas flow and pressure maintenance during smoke and heat extraction test	-10 % ≤ Flow ≤ +25 %	
Resistance to fire:	F_{400} (120)	
Ability to open under environmental conditions: - Opening under wind load - Opening under snow load Sizes 031 - 100 / Size 125	 ≤ 30 s SL 1250 / SL 800	
Durability of operational reliability	Class H / 105K	

8. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 7. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

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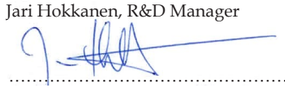

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Woods
AIR MOVEMENT

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. 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

Call: +44 (0) 1206 222 555
Email: quotations.woods@flaktgroup.com
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