

SMOKE EXTRACT FAN - SMHA HATCH TECHNICAL CATALOGUE





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OVERVIEW

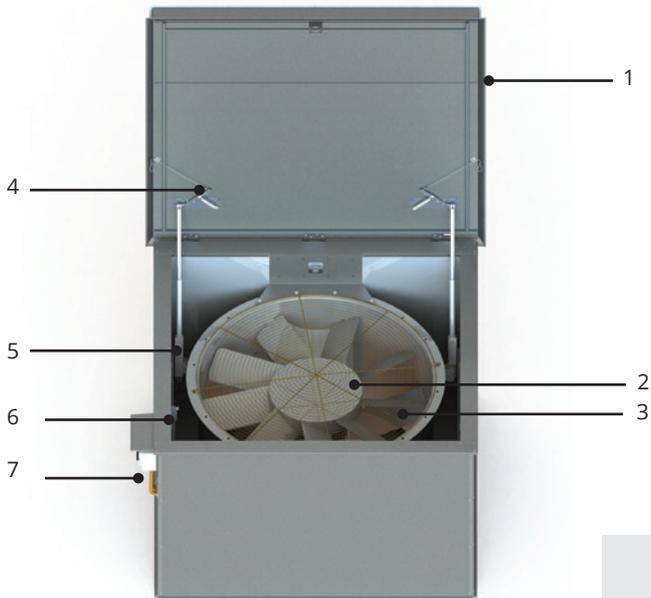
The SMHA HATCH product is a mechanical smoke exhaust unit, designed to be roof-mounted. It combines a smoke (fire rated) hatch casing, within which a smoke extract fan (also fire rated) has been fitted. The unit is fully assembled as one unit, so it is delivered ready for roof mounting, provided with all the required electrical components and associated wiring, in line with the available options which can be defined at the point of selection.

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. There are 4 casing size options and 33 fan/motor configuration options within the range. The core range uses IE2 efficiency grade motors, but IE3 are also available on request. The maximum flow rate is 32 m³/s.

The hatch or lid fitted to the top of our SMHA unit has been tested to open under a snow load condition of SL 500 (tested in accordance with EN 12101-2). The smoke exhaust direction is upwards as standard



CONSTRUCTION



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

CASING

The SMHA Roof HATCH unit casing consists of two layers of galvanised steel sheet with 70 mm of mineral wool between the casing sheets. In the roof section (hatch), the insulation is 100 mm thick. As standard, the hatch (lid) and unit casing are manufactured from galvanised steel, but we also offer alternative paint finishes, available in the following colours: Tele Grey 1 (RAL 7045), Window Grey (RAL 7040), Graphite Grey (RAL 7024), Jet Black (RAL 9005) and White Aluminium (RAL 9006) – please refer to accessory codes stated on page 9.

The SMHA HATCH is designed to prevent snow and ice build-up from interfering with smoke exhaust.

At the bottom of the product, there is a cable knock-out to allow power supply from inside the building.

FAN

The SMHA Hatch product incorporates Axial flow fans from our JMHT range, pre-mounted inside the casing. There are two smoke extract (Fire resistance) options: 300°C for 2 hours or 400°C for 2 hours. Our smoke extract fans are tested and certified in accordance with EN 12101-3: 2015.

As our Axial fan design features a flexible geometry impeller, we factory-set impeller blade pitch angles to deliver the exact design airflow rate requested by the customer. Impeller blade pitch angles can also be adjusted on site if necessary.

In order to provide an enhanced level of safety, as standard, we fit a mesh guard to the fan outlet. If the unit is not connected to ductwork on the inlet side (free inlet installation), we also provide an inlet safety mesh guard. Where the installation requires the unit to be connected to system ductwork, the unit inlet can be equipped with a counter flange (please see the accessory code for the hatch unit).

FAN MOTORS AND HATCH ACTUATORS

Fan motors are pad-mounted, 3 phase, 400v, AOM power rated machines. We offer IE2 efficiency grade machines as standard, as our SMHA units are designed as, emergency use only, smoke extraction devices. However, we can also offer IE3 efficiency grade motors, as an option should this enhance level of motor efficiency be required. We offer two Fire Resistance ratings: Ff300 (300°C) or F400 (400°C), both designed to operate for a duration of 120 minutes, as tested and certified in accordance with EN 12101-3:2015. As motors (and fans) are specifically designed and built to comply with EN 12101-3:2015, please refer to Woods Air Movement for advice on motor (or fan) replacement. Electrical connections (provided by others) must use appropriately rated high temperature cabling and connection devices (glands, connection boxes etc), to ensure that the electrical supply to the unit is protected for a duration of at least 120 mins, during a fire event.

When an emergency condition is initiated, the hatch (or unit lid) which is mounted on the top of the SMHA casing, is opened by two linear actuator motors (requires a 230v single phase electrical supply). The opening force delivered by two actuator motors working together is designed to exceed the total force needed to fully open the hatch (under snow and wind load conditions), for which the SMHA unit is designed to achieve. As standard, we fit a hatch (lid) limit switch, to ensure that the hatch opens and closes properly (please refer to the Electrical Connections section for more details).

Safety switches, which are designed to protect both the linear actuator motors and the fan motor, are fitted as standard.

CE MARKING

The SMHA HATCH is CE-marked in accordance with the relevant directives.

The SMHA HATCH product is a pre-fabricated, pre-assembled unit which combines a smoke rated hatch casing with a smoke rated extract fan, to deliver a powered smoke extract solution, for use in an emergency smoke extraction scenario. There are two Fire Resistance rating options available: Ff300 (300°C) or F400 (400°C). Both unit temperature rating options are designed to operate for a duration of at least 120 minutes, as tested and certified by Eurofins (unit casing) and BSI (JMHT fan) in accordance with Regulation 305/2011/EU and EN 12101-3:2015 respectively.

Our insulated hatch unit casing is manufactured from hot-dip galvanised steel sheet and has been tested to operate under the combined effect of snow and wind loads in accordance with class SL 500 / WL 1500 (Regulation 305/2011/EU).

The JMHT Axial fans used inside our SMHA Hatch product are available in two smoke extract (Fire resistance) options: 300°C for 2 hours or 400°C for 2 hours and are tested and certified in accordance with EN 12101-3: 2015. Impellers are manufactured from high grade aluminium, balanced in accordance with BS 848-7 / ISO 14694, Grade G16 to G6.3 (depending on rated motor power), whilst we examine every impeller using real time X-ray radiography (in accordance with ASTM E-155) to ensure that the highest quality standards are maintained.

Aerodynamic fan performance has been tested in accordance with ISO 5801, whilst Acoustic performance is in accordance with BS848.

Quality systems used within our fan manufacturing facility comply with ISO 9001, while our Environment Management systems are in accordance with ISO 14001. Product quality is monitored and ensured through annual audits by the certifying body.

Product	SMHA, HATCH fan
Fan	HT JM axial fan
Fan size	315mm to 1250mm
Fire Resistance Class	Ff300 (300°C) / F400 (400°C) for 120 minutes
Certifying Body (Complete Unit)	Eurofins Expert Services Oy, Finland
Certificate	022CPR2022-09-30 / 019CPR2022-09-30
Manufacturer	FläktGroup Finland Oy
CE Marking	EN12101-3 2015
Motor Efficiency Grade	Standard: IE2, with IE3 as an option
Installation Method	Free / duct
Exhaust	Upwards
Installation	Outdoors in a roof or car park deck

TECHNICAL DETAILS

FAN/MOTOR SELECTION

Our online fan selection tool can be used to identify the exact solution, as it optimises the product selection, depending on site installation conditions. Our selection software also automatically takes fan accessory and mounting pressure drop factors (inside the unit) into account, so that the stated performance is a true

representation of unit performance. During the selection process it is possible to choose between two alternative installation methods: non-ducted on the inlet side or connected to a duct on the inlet side, to exactly match the method of installation required on site.

SMHA Hatch fan details for F400 (400°C for 2 hours) fans with IE2 motors

Sl. No.	Product Code	Part Number	JMHT Fan Code	HT Rating	RPM	Electricals	kW	FLC amps (DOL)	SC amps (DOL)	IE Grade	Motor Frame	Weight (kg)
1	SMHA-031-009-10-14-PA	BZ590460	HT31JM/16/2/5	F400	2840	3ph/50Hz/400-440V	0.9	1.9	11.3	IE2	80M	192
2	SMHA-040-009-10-14-PA	BZ590445	HT40JM/16/2/5	F400	2840	3ph/50Hz/400-440V	0.9	1.9	11.3	IE2	80M	192
3	SMHA-040-017-10-14-PA	BZ590446	HT40JM/16/2/5	F400	2840	3ph/50Hz/400-440V	1.7	3.5	23.1	IE2	80M	192
4	SMHA-050-017-10-14-PA	BZ590447	HT50JM/20/2/3	F400	2910	3ph/50Hz/400-440V	1.7	3.5	23.1	IE2	80M	193
5	SMHA-050-048-10-14-PA	BZ590448	HT50JM/20/2/6	F400	2910	3ph/50Hz/400-440V	4.8	9.0	36.6	IE2	112M	230
6	SMHA-080-036-10-14-PA	BZ590466	HT80JM/25/4/6	F400	1440	3ph/50Hz/400-440V	3.6	7.6	37.4	IE2	100L	276
7	SMHA-080-048-10-14-PA	BZ590450	HT80JM/25/4/6	F400	1440	3ph/50Hz/400-440V	4.8	9.7	69.1	IE2	112M	284
8	SMHA-080-090-10-14-PA	BZ590452	HT80JM/25/4/9	F400	1440	3ph/50Hz/400-440V	9.0	17.5	85.3	IE2	132S/M	353
9	SMHA-100-066-10-14-PA	BZ590453	HT100JM/31/4/6	F400	1440	3ph/50Hz/400-440V	6.6	13.3	60.1	IE2	132S/M	422
10	SMHA-100-110-10-14-PA	BZ590454	HT100JM/31/4/6	F400	1440	3ph/50Hz/400-440V	11.0	21.8	175.5	IE2	132S/M	422
11	SMHA-100-180-10-14-PA	BZ590455	HT100JM/31/4/9	F400	1470	3ph/50Hz/400-440V	18.0	34.0	226.0	IE2	160M/L	540
12	SMHA-100-264-10-14-PA	BZ590459	HT100JM/31/4/9	F400	1470	3ph/50Hz/400-440V	26.4	48.6	330.0	IE2	180M/L	588 *
13	SMHA-125-180-10-14-PA	BZ590461	HT125JM/40/4/6	F400	1470	3ph/50Hz/400-440V	18.0	34.0	226.0	IE2	160M/L	685
14	SMHA-125-264-10-14-PA	BZ590462	HT125JM/40/4/6	F400	1470	3ph/50Hz/400-440V	26.4	48.6	330.0	IE2	180M/L	730
15	SMHA-125-345-10-14-PA	BZ590463	HT125JM/40/4/6	F400	1470	3ph/50Hz/400-440V	34.5	63.2	473.2	IE2	180M/L	730 *
16	SMHA-125-426-10-14-PA	BZ590464	HT125JM/40/4/6	F400	1470	3ph/50Hz/400-440V	42.6	76.9	546.6	IE2	200L	861 *
17	SMHA-125-495-10-14-PA	BZ590465	HT125JM/40/4/6	F400	1470	3ph/50Hz/400-440V	49.5	90.1	693.7	IE2	200L	861 *

SMHA Hatch fan details for Ff300 (300°C for 2 hours) fans with IE2 motors

Sl. No.	Product Code	Part Number	JMHT Fan Code	HT Rating	RPM	Electricals	kW	FLC amps (DOL)	SC amps (DOL)	IE Grade	Motor Frame	Weight (kg)
1	SMHA-031-009-10-13-PA	BZ590360	HT31JM/16/2/5	Ff300	2840	3ph/50Hz/400-440V	0.9	1.9	11.3	IE2	80M	192
2	SMHA-040-009-10-13-PA	BZ590345	HT40JM/16/2/5	Ff300	2840	3ph/50Hz/400-440V	0.9	1.9	11.3	IE2	80M	192
3	SMHA-040-017-10-13-PA	BZ590346	HT40JM/16/2/5	Ff300	2840	3ph/50Hz/400-440V	1.7	3.5	23.0	IE2	80M	192
4	SMHA-050-017-10-13-PA	BZ590347	HT50JM/20/2/3	Ff300	2910	3ph/50Hz/400-440V	1.7	3.5	23.0	IE2	80M	193
5	SMHA-050-048-10-13-PA	BZ590348	HT50JM/20/2/6	Ff300	2910	3ph/50Hz/400-440V	4.8	9.0	39.6	IE2	112M	230
6	SMHA-080-063-10-13-PA	BZ590351	HT80JM/25/4/6	Ff300	1440	3ph/50Hz/400-440V	6.3	12.6	87.1	IE2	112M	284
7	SMHA-080-090-10-13-PA	BZ590352	HT80JM/25/4/9	Ff300	1440	3ph/50Hz/400-440V	9.0	17.5	85.3	IE2	132S/M	353
8	SMHA-090-090-10-13-PA	BZ590353	HT90JM/25/4/9	Ff300	1440	3ph/50Hz/400-440V	9.0	17.5	85.3	IE2	132S/M	389
9	SMHA-100-132-10-13-PA	BZ590354	HT100JM/25/4/9	Ff300	1470	3ph/50Hz/400-440V	13.2	25.4	140.8	IE2	160M/L	540
10	SMHA-100-180-10-13-PA	BZ590355	HT100JM/31/4/9	Ff300	1470	3ph/50Hz/400-440V	18.0	33.9	225.8	IE2	160M/L	540
11	SMHA-100-264-10-13-PA	BZ590359	HT100JM/31/4/9	Ff300	1470	3ph/50Hz/400-440V	26.4	48.6	329.6	IE2	180M/L	588 *
12	SMHA-125-180-10-13-PA	BZ590361	HT125JM/40/4/6	Ff300	1470	3ph/50Hz/400-440V	18.0	33.9	225.8	IE2	160M/L	685
13	SMHA-125-264-10-13-PA	BZ590362	HT125JM/40/4/6	Ff300	1470	3ph/50Hz/400-440V	26.4	48.6	329.6	IE2	180M/L	730
14	SMHA-125-345-10-13-PA	BZ590363	HT125JM/40/4/6	Ff300	1470	3ph/50Hz/400-440V	34.5	63.2	473.2	IE2	180M/L	730 *
15	SMHA-125-426-10-13-PA	BZ590364	HT125JM/40/4/6	Ff300	1470	3ph/50Hz/400-440V	42.6	76.9	546.6	IE2	200L	861 *
16	SMHA-125-495-10-13-PA	BZ590365	HT125JM/40/4/6	Ff300	1470	3ph/50Hz/400-440V	49.5	90.1	693.7	IE2	200L	861 *

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.

Any additional thermal insulation or weatherproofing protection for the product, shall be installed (by others) on 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 (please refer to "Product Code and Accessories" information on page 9). 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 (again, please refer to "Product Code and Accessories" information on page 9).

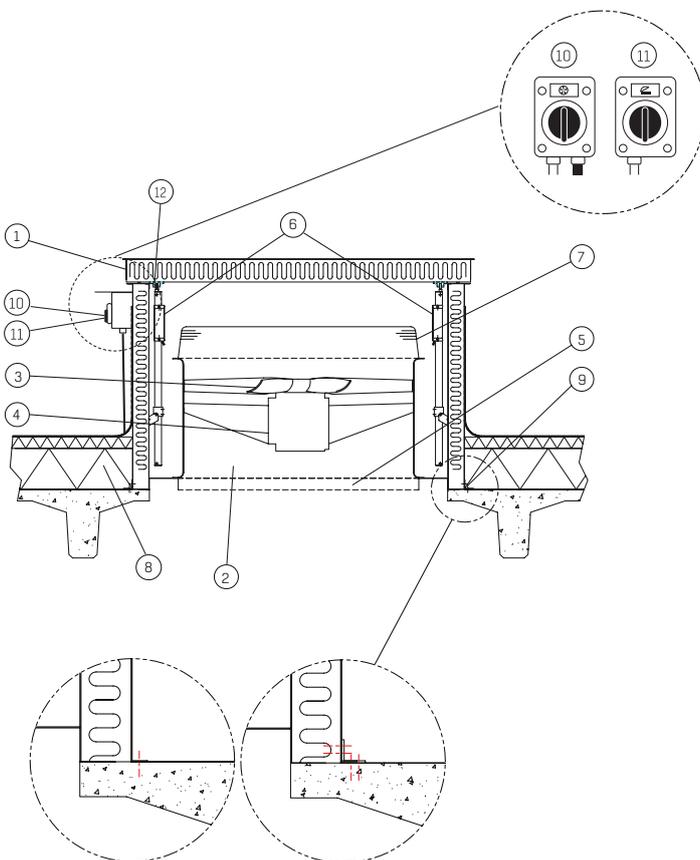


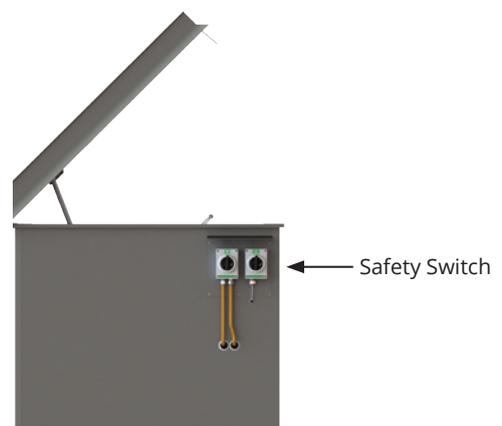
Figure 1
Attachment to the roof directly by the unit's flanged base

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

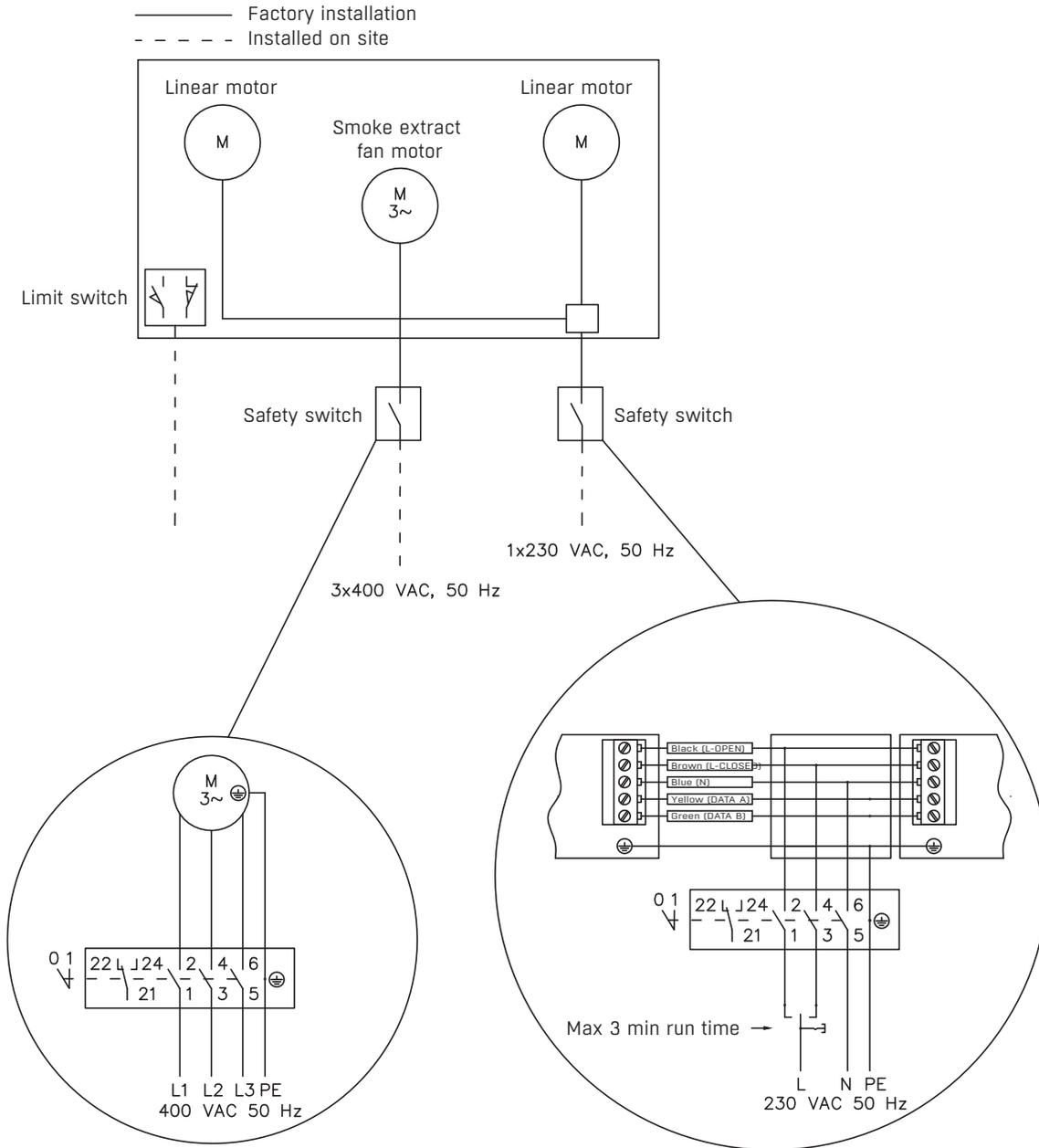
1. Opening hatch
2. JMHT fan
3. Impeller
4. Motor
5. Safety guard / counter flange
6. Hatch motors, 2 pcs.
7. Safety guard on the outlet
8. Roof structure
9. Roof Installment Options - see figure 1 and 2.
10. Fan safety switch
11. Safety switch for hatch motors
12. Limit switch



Safety switch

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

ELECTRICAL CONNECTIONS



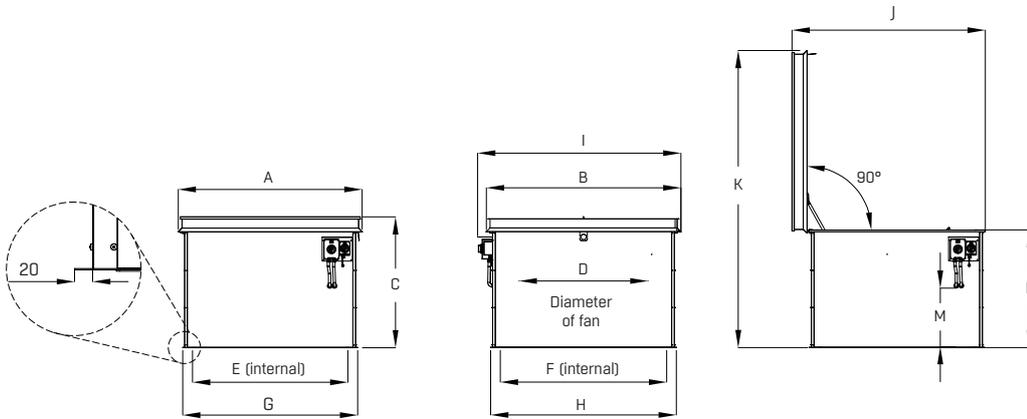
The cable connection from fan terminal box to the fan motor must be made using a fire resistant cable. Cable entries in the casing must be sealed with fireproof sealant.

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 provide 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.

NOTE!

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

DIMENSIONS AND WEIGHTS

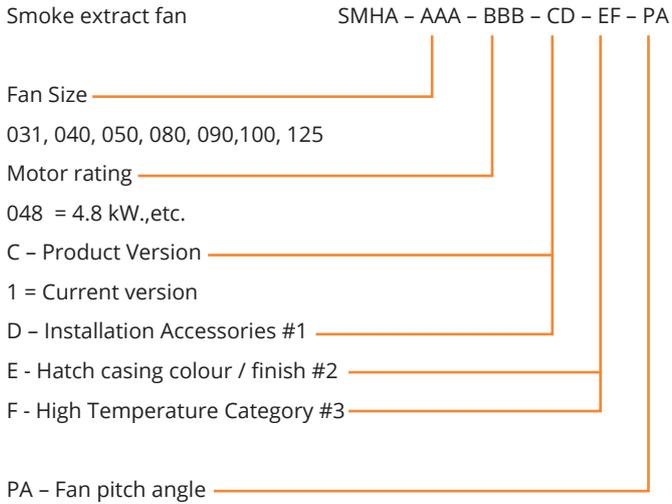


Fan Code	Fan Diameter	A	B	C	D	E	F	G	H	I	J	K	L	M	Total Weight (KG)*
031	315	1065	1165	1010	315	800	900	980	1080	1245	1135	1935	900	375	192
040	400	1065	1165	1010	400	800	900	980	1080	1245	1135	1935	900	375	192
050	500	1065	1165	1010	500	800	900	980	1080	1245	1135	1935	900	375	230
080	800	1265	1365	1010	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).

PRODUCT CODE AND ACCESSORIES



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

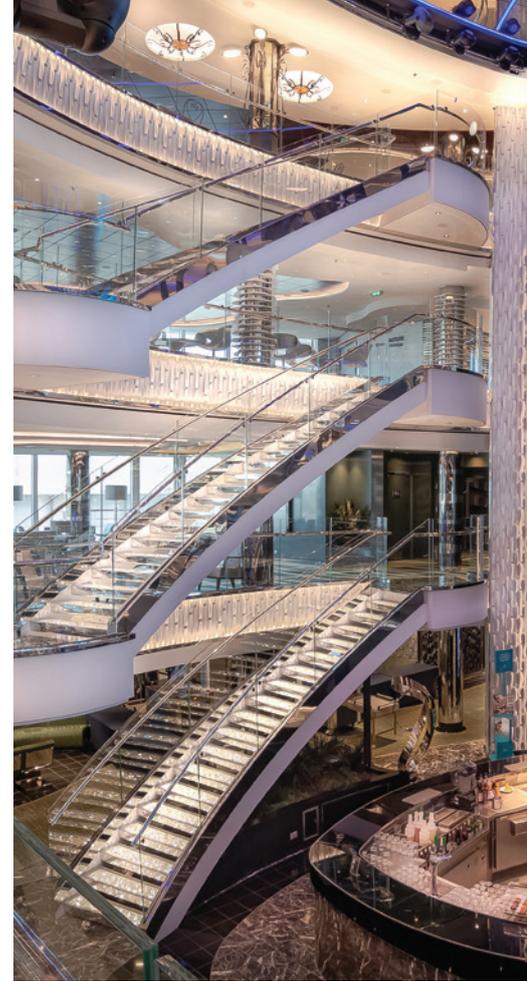
Note #3 HIGH TEMPERATURE CATEGORY Options

- 3 = Ff300 (300°C/2 hours)
- 4 = F400 (400°C/2 hours)

Limit switch is always installed as standard.

NOTE!

Code attribute (PA) denotes fan impeller pitch angle and is a variable provided at the time of fan selection, which will get appended to the part number.



INSTALLATION ACCESSORIES: ROOF UPSTAND

If you need to raise the unit due to weather conditions, such as snow, then we have an accessory called an Upstand. The Upstand is a casing that is used under the unit to lift it up higher.

Available only in a galvanised finish.

SMHZ – 80 – AAA – BBB

SMHA Accessory ————|

Fan Size —————|

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

Height of the Upstand —————|

030=300mm etc. (size range from 300 to 900mm in 100mm steps)



Our SMHA Hatch Product Benefits:

- Compact and low cost mechanical smoke exhaust solution
- Suitable for high air volumes (up to 32 m³/s)
- Low installed motor power
- Quick and easy to select and specify
- Simple low-cost installation
- Easy low maintenance design
- High Ingress Protection standard
- Thermally insulated unit casing
- Pre-assembled unit ready for roof installation
- CE-marked / Fully HT Certified





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.

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