

Smoke extract fan SMHA HATCH



FläktWoods

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Contents

Product overview	3
Construction	4
Specification	5
Selection	6
Installation	7
Electrical connections	8
Dimensions and weights	9
Product code and accessories	10

Product overview



The SMHA HATCH is a roof-mounted unit for mechanical smoke exhaust. It combines a smoke hatch and a smoke extract fan and is delivered ready for roof mounting.

The SMHA HATCH is designed for smoke exhaust only and is F400 (120) rated, according to EN 12101-3 (400 °C/2 h).

The SMHA HATCH is available in 5 sizes and with a number of different motors. The maximum flow rate is 26 m³/s.

The hatch has been tested to open under snow load SL 500, according to EN 12101-2. The exhaust direction is upwards as standard.

Construction



1. Opening hatch
2. JMHT fan and fire-rated motor
3. Safety mesh
4. Linear motor
5. Limit switch

Casing

The casing of the SMHA HATCH consists of two layers of galvanised steel sheet with 70 mm of mineral wool between the sheets. In the roof section, the insulation is 100 mm thick. The deck and flashing are available in the following colours: RR 21 light grey (RAL 7040), RR 22 grey (RAL 7045), RR 23 dark grey (RAL 7024) and RR 33 black (RAL 9005) – please see the accessory code.

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

Fan

The product incorporates an axial fan from the JMHT range, pre-mounted inside the casing. The fan meets the F400 (120) rating for smoke extract fans, according to EN 12101-3.

The blade pitch, factory-set to provide the design flow rate, can be adjusted on site if necessary.

The fan outlet is equipped with a safety mesh. If the fan is meant to draw in air freely, the inlet is also equipped with a safety mesh, while in the duct-mounted application, the inlet is equipped with a matching flange (please see the code).

Motors

The fan motors are flow-mounted 3 x 400 V IEC motors that meet the F400 (120) smoke extraction rating for motors. The motors cannot be replaced with any other motors. The cabling must be F400 rated.

The smoke hatch is opened by two linear motors (230 V/single phase) that are designed to exceed the sum of the snow and wind loads specified for the hatch. The hatch comes with a limit switch as standard, for the purpose of making sure that the hatch opens (please see Electrical connections).

Safety switches for both the linear motors and the fan motor are also standard equipment.

CE marking

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

Specification

The SMHA HATCH is a prefabricated unit combining a smoke hatch and a smoke extract fan. It is F400 (120) rated, according to EN 12101-3.

The insulated casing is made of hot-dip galvanised steel sheet. The smoke hatch has been tested to operate under the combined effect of snow and wind loads in accordance with class SL 500.

The fan is an F400 (120) rated axial fan from the JMHT range. It is balanced to ISO 1940-1986 G 6.3. The impeller material is aluminium/steel.

Fan performance has been tested to ISO 5801.

The manufacturer's quality system is certified to ISO 9001 and ISO 14001. Product quality is monitored through annual audits by the certifying body.

Product	SMHA, hot-dip galvanised steel, insulated casing
Fan	JMHT axial fan
Smoke extraction rating	400°C 2h
Approval body	VTT Expert Services, 0809
Certificate	0809-CPD-0703
CE marking	EN 1201-3 and other directives related to the product
Motors	Fan motor F400 (120) rated 3 x 400 VAC, 50 Hz, class H /class F Two linear motors 1 x 230 VAC, 50 Hz
Method of installation	Free / duct
Exhaust direction	Upwards
Installation	Outdoors in a roof or car park deck

Selection

The sizing chart below helps with product selection. The best result is usually achieved by first selecting the smallest possible size and then the lowest possible motor rating for the selected size.

The product's internal pressure drops are accounted for in the chart. There are two alternative installation methods:

- no duct on the inlet side;
- a duct on the inlet side.

The method of installation needs to be considered in the selection.

	Free inlet, max. flow rate m ³ /s	Ducted inlet, pressure drop and corresponding max. flow rate m ³ /s					
		100 Pa	200 Pa	300 Pa	400 Pa	500 Pa	600 Pa
SMHA-040-009	1,5	1,5	1,3	1,1	0,9		
SMHA-040-017	2,2	2,1	2,0	1,8	1,5		
SMHA-050-017	3,2	3,1	2,8	2,4	2,0		
SMHA-050-048	4,3	4,4	4,2	3,9	3,7	3,4	3,1
SMHA-080-036	6,4	6,0	5,1	3,1			
SMHA-080-048	8,1	8,1	7,1	5,1			
SMHA-080-066	9,2	9,4	7,9	5,1			
SMHA-080-090	10,1	10,4	9,5	8,5			
SMHA-100-066	11,8	11,6	10,4	9,0	7,5		
SMHA-100-110	15,1	15,7	14,4	13,0	11,3		
SMHA-100-180	16,5	17,3	16,3	15,2	14,0	12,6	
SMHA-125-180	18,6	18,8	17,7	16,4	15,0	13,4	11,5
SMHA-125-270	25,1	26,6	25,2	23,8	22,3	20,6	18,8

Fan/motor selection

Product code	Fan	rpm	kW	A	voltage	Hz	IEC
SMHA-040-009	JMHT40/16/2/5	2735	0,9	2,0	400/3V	50	80
SMHA-040-017	JMHT40/16/2/5	2730	1,7	3,6	400/3V	50	80
SMHA-050-017	JMHT50/20/2/3	2730	1,7	3,6	400/3V	50	80
SMHA-050-048	JMHT50/20/2/6	2835	4,8	9,3	400/3V	50	112M
SMHA-080-036	JMHT80/20/4/6	1400	3,6	7,3	400/3V	50	100L
SMHA-080-048	JMHT80/25/4/6	1410	4,8	9,7	400/3V	50	112M
SMHA-080-066	JMHT80/25/4/6	1450	6,6	12,5	400/3V	50	132S
SMHA-080-090	JMHT80/25/4/9	1440	9,0	17,1	400/3V	50	132M
SMHA-100-066	JMHT100/31/4/6	1450	6,6	12,5	400/3V	50	132S
SMHA-100-110	JMHT100/31/4/6	1445	11,0	19,9	400/3V	50	132M
SMHA-100-180	JMHT100/31/4/9	1455	18,0	34,2	400/3V	50	160L
SMHA-125-180	JMHT125/50/4/6	1455	18,0	34,2	400/3V	50	160L
SMHA-125-270	JMHT125/50/4/6	1455	27,0	50,6	400/3V	50	180

The Fan Selector electronic selection tool can also be used to identify the right solution, again considering the installation methods.

Installation

Like smoke hatches, the SMHA HATCH can be installed in a roof or a car park deck in one lift. The product can be mounted directly onto concrete or a similar surface, or onto a specially designed base. A flat surface is required for installation. The thermal insulation and waterproof protection required for the product shall be installed in the roof on site.

If using the product for extracting smoke from wet rooms, attention should be paid to correct installation to prevent condensation.

The recommended size for the penetration in the slab is $D + 200$ mm, and for ease of connection to ducting, the penetration should preferably be square in shape.

If the fan is meant to draw in air freely, the inlet is equipped with a safety mesh (please see the code). In this case, the product can be mounted directly onto a surface.

If the fan is to be duct-mounted, it is delivered with a matching flange on the inlet (please see the code) to allow connection to ducting.

The roof slope must not exceed 12° .

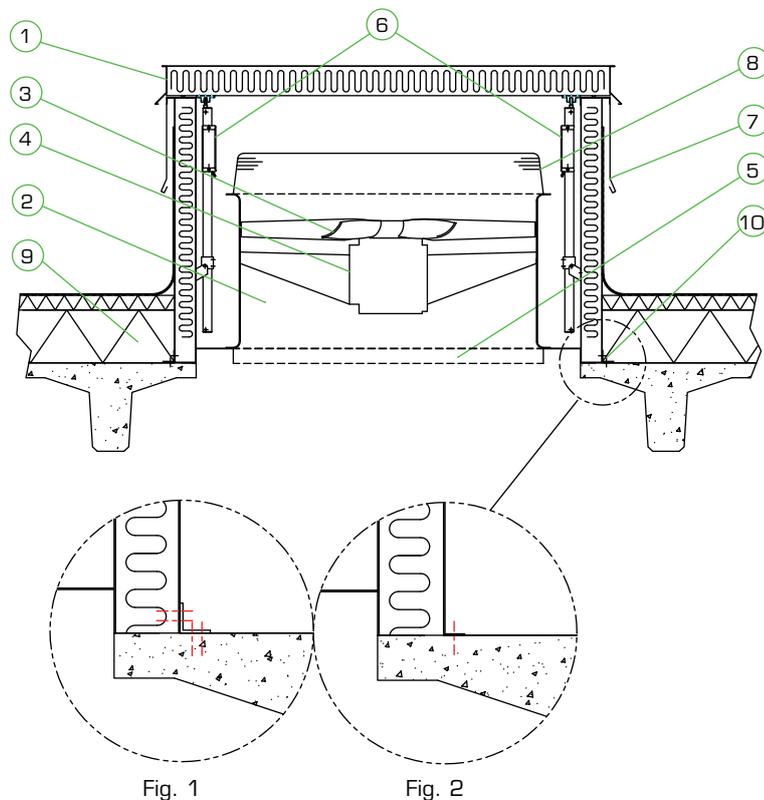


Fig. 1

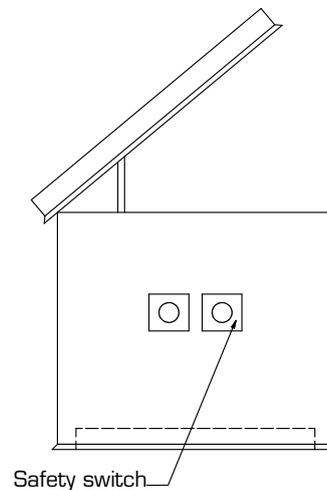
Fig. 2

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

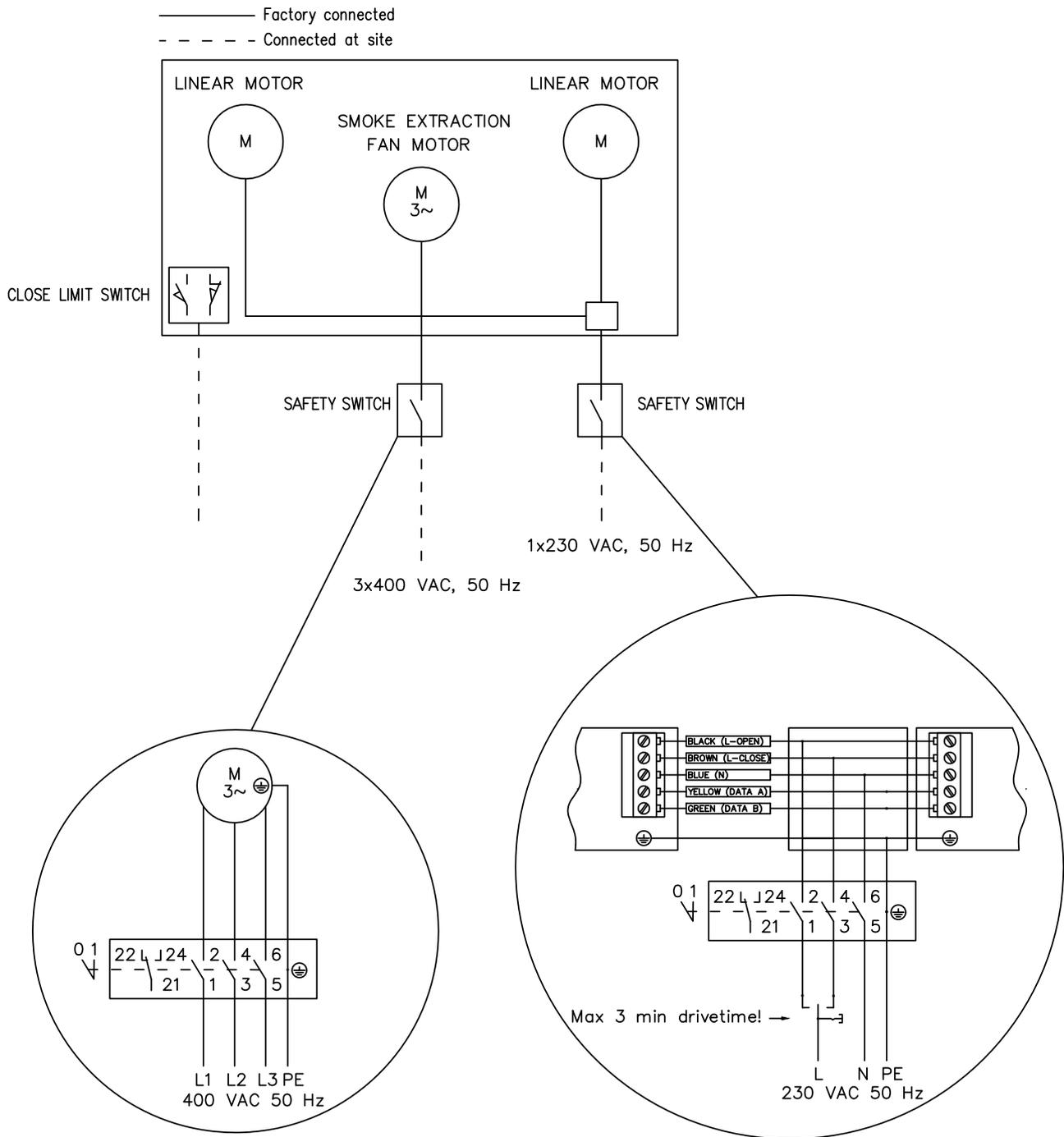


1. Opening hatch
2. JMHT fan
3. Impeller
4. Motor
5. Safety mesh / matching flange
6. Hatch motors, 2 pcs.
7. Flashing (accessory)
8. Safety mesh on the outlet
9. Roof
10. Attachment to the roof structure with angle brackets (Fig. 1) or directly by the unit's flanged base (Fig. 2)



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

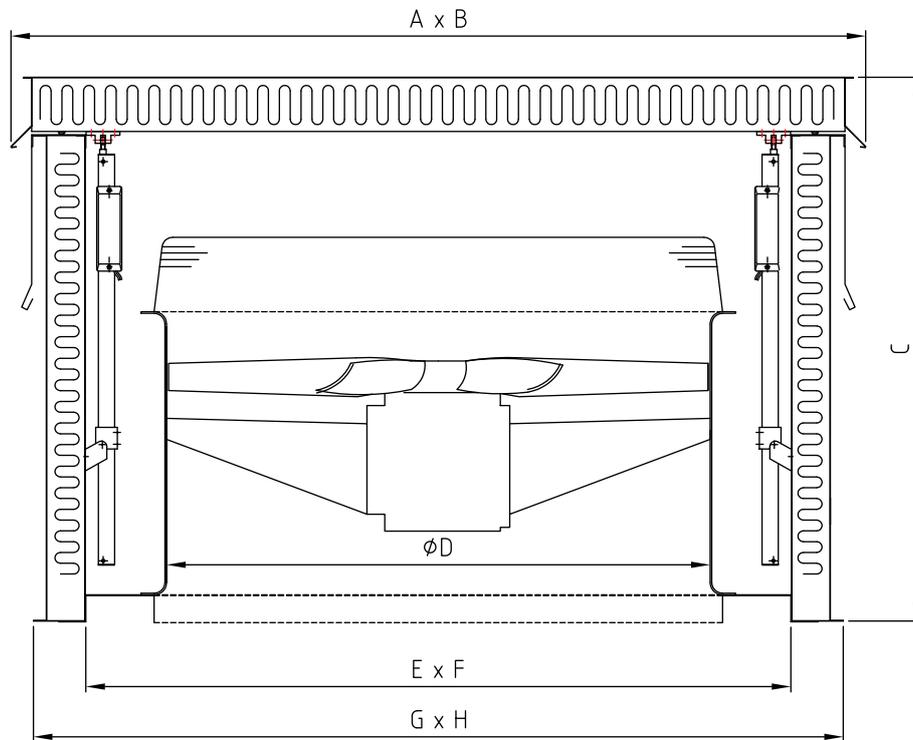
Electrical connections



The cable connecting the fan to the motor must be fire resistant. Cable entries in the casing must be sealed with fireproof sealant.

It is advisable to use the limit switch for "hatch closed" information only. Motor start signals should be controlled separately. The fan should start 30 seconds after the start of the linear motors.

Dimensions and weights



Size	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	Weight* (kg)
040	1070	1170	1000	400	800	900	980	1080	180
050	1070	1170	1000	500	800	900	980	1080	200
080	1270	1370	1000	800	1000	1100	1180	1280	330
100	1470	1570	1000	1000	1200	1300	1380	1480	520
125	1685	1785	1100	1250	1413	1513	1593	1693	936

*.) Weight at highest motor rating

Product code and accessories

Product code

Smoke extract fan **SMHA - aaa - bbb - cc - dd**

Size _____
040, 050, 080, 100, 125

Motor rating _____
055 = 5.5 kW
etc.

First c _____
1 = safety mesh on the inlet (free inlet)
2 = flange on the inlet (duct-mounted)

Second c _____
Version = starts with 0

Blade pitch _____

The required pitch is found through a sizing run.

Accessories

Flashing **SMHZ - 50 - bbb - c**

bbb = fan size
050 = 050
c = starts with 0

Colour **SMHZ - 60 - bbb - c**

bbb = fan size
050 = 050
c = starts with 0

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The logo for FläktWoods, featuring the company name in a bold, green, sans-serif font. A stylized green swoosh or arc is positioned above the 't' in 'Woods' and below the 'ä' in 'Fläkt'.