

**NORDfan**

**KAPU Roof Fan – Installation, Operation and  
Maintenance instructions**

## Content

<b>Product description and delivery content</b>	<b>2</b>
Delivery content and product construction	3
<b>Product range and selection</b>	<b>4</b>
<b>Installation</b>	<b>5</b>
Mounting hole and KAPU hatch sizes	5
KAPU lifting on the roof	5
KAPU fastening	6
Electrical connections	7
<b>Manual opening of the lid</b>	<b>8</b>
<b>Dimensions</b>	<b>9</b>
<b>Motor power and currents</b>	<b>9</b>
<b>Removing actuator</b>	<b>10</b>
<b>Commissioning</b>	<b>10</b>
<b>Maintenance</b>	<b>11</b>
<b>Spare parts</b>	<b>11</b>
<b>Errors</b>	<b>11</b>
<b>Product code</b>	<b>11</b>

**Product description and delivery content**

KAPU Roof Fan is CE-marked product for smoke extraction from the roof or deck. Product contains smoke extraction fan and roof hatch. KAPU is factory made product which is ready to use. It is delivered in one pallet, so it is easy to lift in the right place. Inner cables are ready made in the factory when there is only need for supply cables for the fan and hatch actuator at the site and connection of those to the safety switches. Safety switches are installed on the product in the factory. Hatch lid open and close information are available directly from the actuators, so there is no need for separate limit switches.

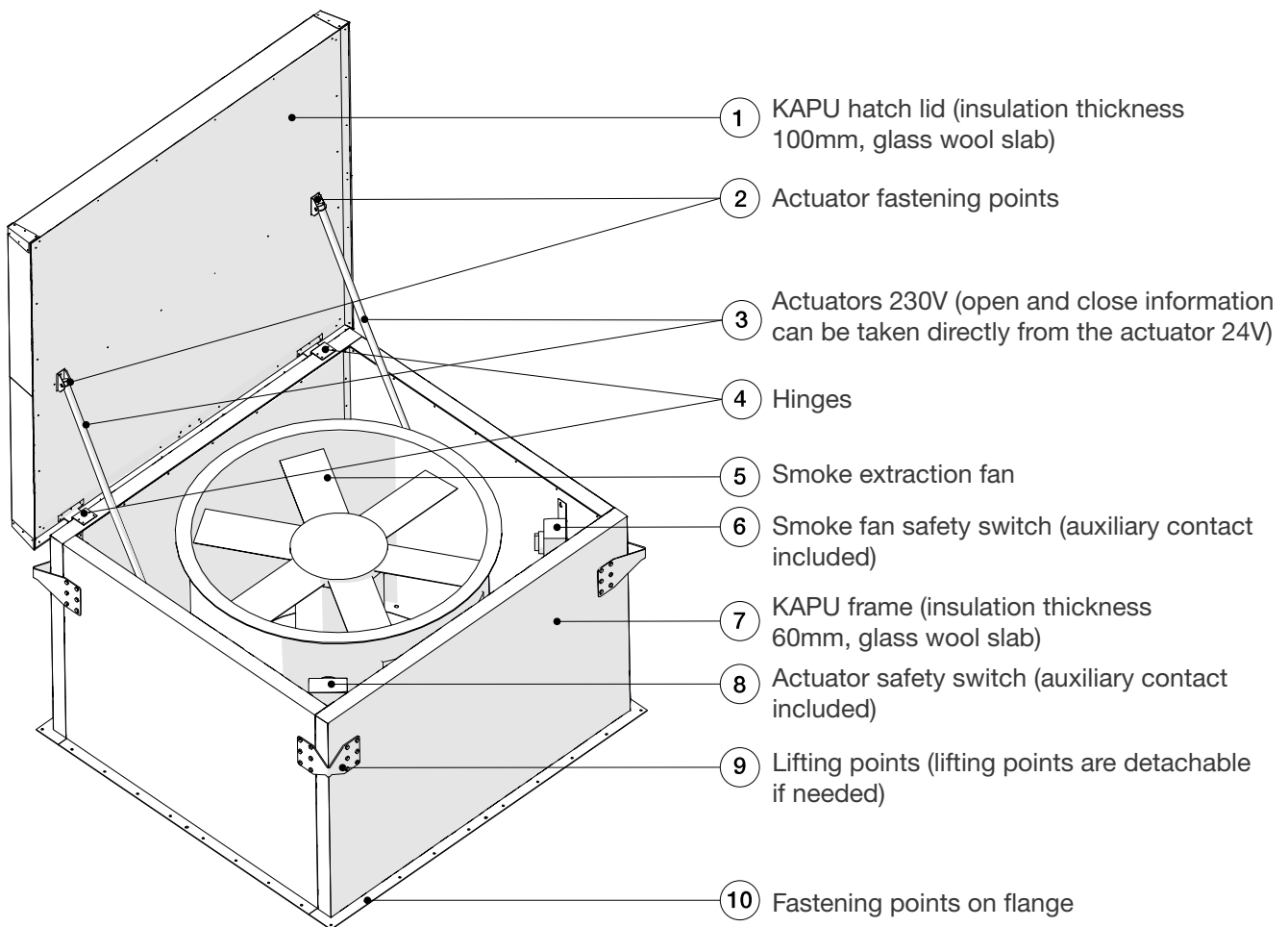
When the smoke extraction is turned on, the hatch starts to open immediately. After 30 seconds, the smoke extraction fan will be powered. All devices are tested in the factory before delivery. KAPU units can be painted in different colors. Standard delivery is Aluzinc metal sheet without painting.

KAPU Roof Fan can be used also as a supply air and momentary overheat exhaust unit. It is not suitable for continuous air exhaust.

ETS NORD Smoke Extraction Control unit (SPMK+SPOK) completes the KAPU Roof Fan unit as a one functioning Smoke Exhaust system.

**Delivery content and product construction**

Delivery content is described in picture 1 below. The product is delivered to the site in one pallet.



When receiving the product, check if there is any damage after transportation. If there are any, please contact ETS NORD immediately.

## Product range and selection

KAPU product range is presented in the table below. From the table you can find max airflow (m<sup>3</sup>/s) for each fan size according to duct pressure (Pa). The selection table helps to find the correct product for your needs. Mounting hole sizes and hatch weights are also presented on the table. In case of more detailed sizing information or need for special products, please contact the ETS NORD sales team.

Size of the mounting hole (mm) inner dimensions	Product code	Maximum airflow (m <sup>3</sup> /s) according to duct pressure									Product max weight (kg)
		Free inlet	100 Pa	200 Pa	300 Pa	400 Pa	500 Pa	600 Pa	700 Pa	800 Pa	
800 x 900	KAPU-400-011	1,6	1,6	1,5	1,3						200,0
	KAPU-400-015	1,9	1,9	1,8	1,6	1,5					206,5
	KAPU-450-022	2,6	2,6	2,4	2,3	2,1					209,5
	KAPU-450-030	3,0	3,0	2,9	2,7	2,5	2,2				220,0
	KAPU-500-030	3,2	3,1	3,0	2,8	2,6	2,1				220,0
	KAPU-500-040	3,8	3,8	3,7	3,5	3,3	3,0	2,9			226,0
	KAPU-560-055	4,7	4,7	4,6	4,4	4,2	3,8	3,3			271,0
	KAPU-560-075	5,7	5,8	5,6	5,4	5,3	5,0	4,8	4,3		279,0
1000 x 1100	KAPU-630-075	7,0	7,1	6,8	6,6	6,3	6,0	5,7	4,3		314,0
	KAPU-630-110	8,0	8,2	8,0	7,7	7,5	7,0	6,7	6,2	4,8	359,0
	KAPU-710-015	4,7	4,4	3,7	2,0						275,0
	KAPU-710-030	6,7	6,6	5,9	5,1						295,0
	KAPU-710-055	7,8	7,9	7,3	6,5						318,0
	KAPU-800-015	5,7	5,1	4,0	2,5	1,8					297,0
	KAPU-800-030	7,6	7,3	6,3	5,4						330,0
	KAPU-800-055	9,2	9,2	8,6	7,8	6,7					331,0
KAPU-800-075	10,1	10,2	9,5	8,6	7,7					339,0	
1200 x 1300	KAPU-900-055	10,8	10,8	9,4	5,4	4,8	4,0	2,6			395,0
	KAPU-900-075	12,1	12,3	11,5	10,7	9,6					391,0
	KAPU-1000-055	13,2	13,1	11,6	9,8	7,2	5,5	4,0			406,0
	KAPU-1000-075	15,0	15,1	13,6	12,0	9,6	7,2	5,2			446,0
	KAPU-1000-150	17,7	18,2	17,2	16,4	15,7	14,7				463,0
	KAPU-1000-185	20,3	21,1	20,3	19,3	18,3	17,0	15,3			496,0
1450 x 1550	KAPU-1120-055	15,1	14,8	13,0	10,9	7,0					546,0
	KAPU-1120-075	16,6	16,5	14,8	12,6						586,0
	KAPU-1120-150	22,1	23,2	21,4	19,4	17,4					653,0
	KAPU-1120-185	23,2	24,6	22,8	21,0	18,9					636,0
	KAPU-1250-075	18,1	17,5	15,3	12,8	9,4	5,2				586,0
	KAPU-1250-150	25,6	26,3	24,1	21,9	19,3	14,3				653,0
	KAPU-1250-185	26,8	27,7	25,5	23,3	21,0	17,9				683,0
	KAPU-1250-220	28,9	30,3	28,2	26,1	23,6	20,0				693,0
KAPU-1250-300	31,7	33,4	31,8	30,1	28,0	25,1				702,0	

### KAPU - aaaa-bbb

aaaa = Fan diameter (mm)

bbb = Motor power (kW)

(015 = 1,5kW tai 300 = 30kW)

**Installation**

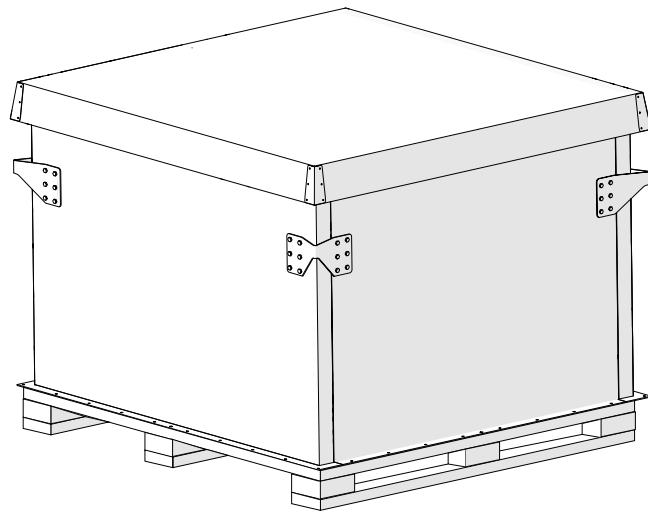
**Mounting hole and KAPU hatch sizes**

The maximum size of the mounting hole is the same as the inner dimensions of the KAPU hatch.

Product	Mounting hole max size (KAPU inner dimensions) (mm)	KAPU outer dimensions* (width x length) (mm)
KAPU-400	900x800	1030x930
KAPU-450	900x800	1030x930
KAPU-500	900x800	1030x930
KAPU-560	900x800	1030x930
KAPU-630	1100x1000	1230x1130
KAPU-710	1100x1000	1230x1130
KAPU-800	1100x1000	1230x1130
KAPU-900	1300x1200	1430x1330
KAPU-1000	1300x1200	1430x1330
KAPU-1120	1550x1450	1680x1580
KAPU-1250	1550x1450	1680x1580

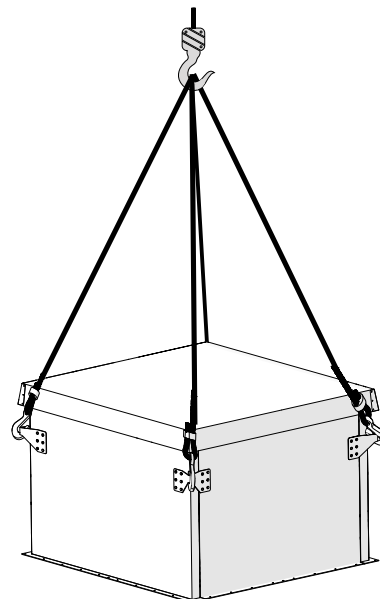
\*Hatch stand has 40mm flanges in the bottom. Dimensions on the table are without flanges.

KAPU is delivered to site on one pallet.

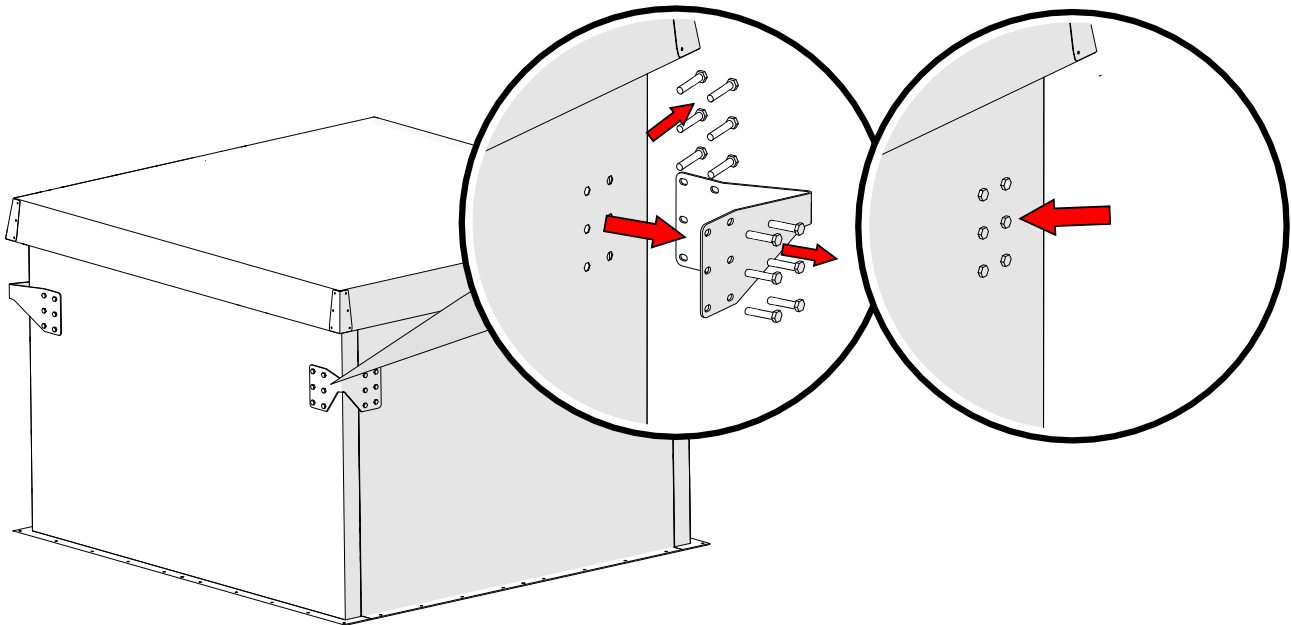


**KAPU lifting on the roof**

KAPU can be lifted from the lifting loops located on the edges of KAPU body.

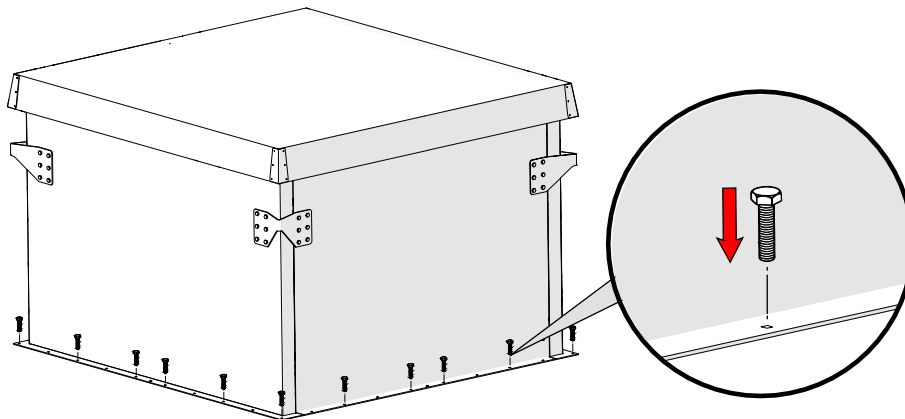


Lifting points are attached to KAPU frame with M8x12 bolts and can be removed after lifting if needed. If the lifting brackets are removed but the bolts with sealing washers back to their place and tight well.



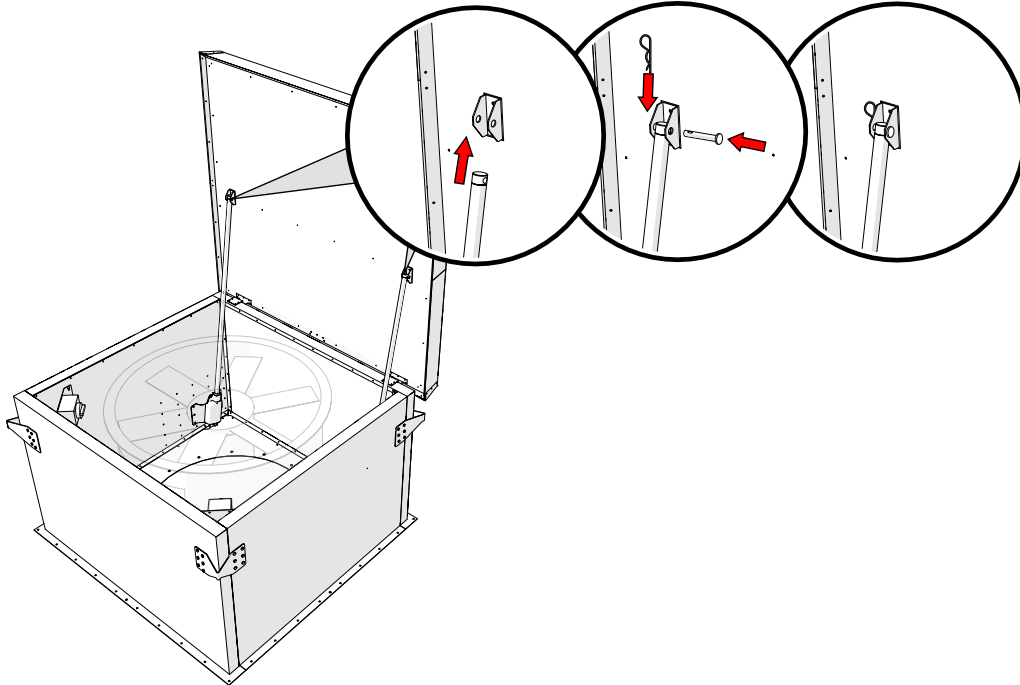
### **KAPU fastening**

KAPU is fastened to the supporting structure with screws through the flanges on a flat surface. Flanges have 8mm holes on each side. Select the correct screws according to the support structure. Screws are not included in the delivery. Integration of KAPU hatch and roof structure is done according to the structural designs of the building.



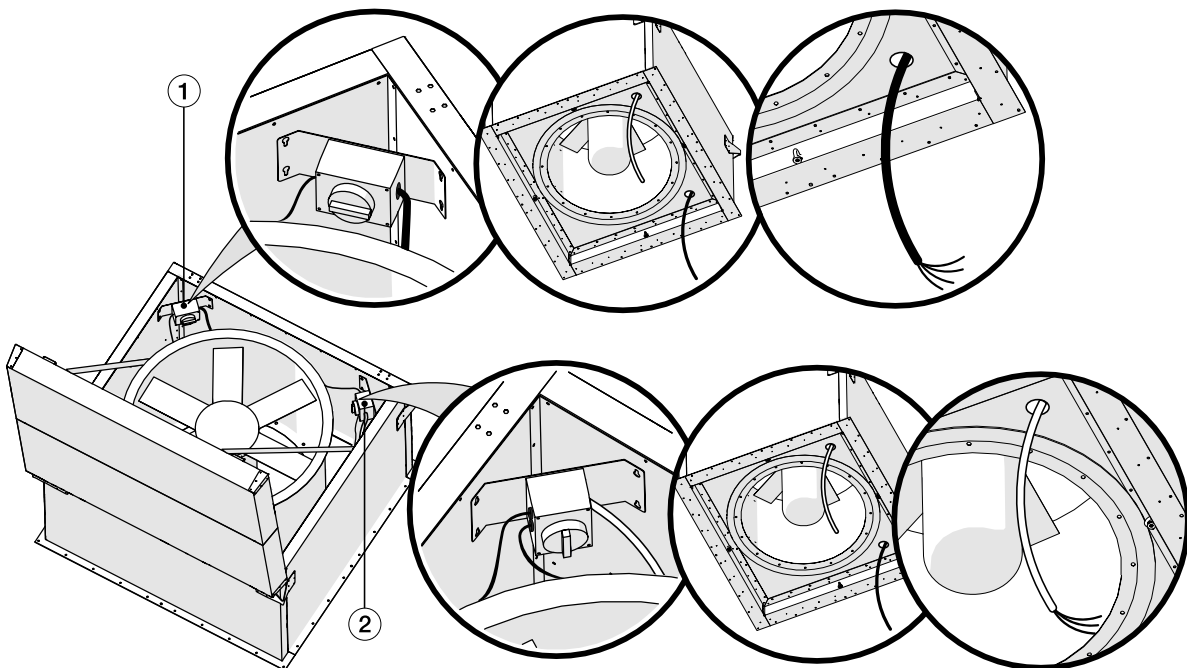
Actuators are not attached to the KAPU lid. Actuators are extracted half of their length at the factory, which makes the possibility to connect actuators to lid without electricity.

Connect electricity to actuators and drive actuators to fully open positions. Make sure that the lid is open when driving the actuators. After the actuators are in a fully open position, attach the actuators to the lid with pins located in the actuator's fastening point.



**Electrical connections**

Safety switches are placed inside of the hatch. Power supply cables for the fan and actuators have inserts placed under the hatch through the baseplate. Power supply cables must be connected to safety switches!

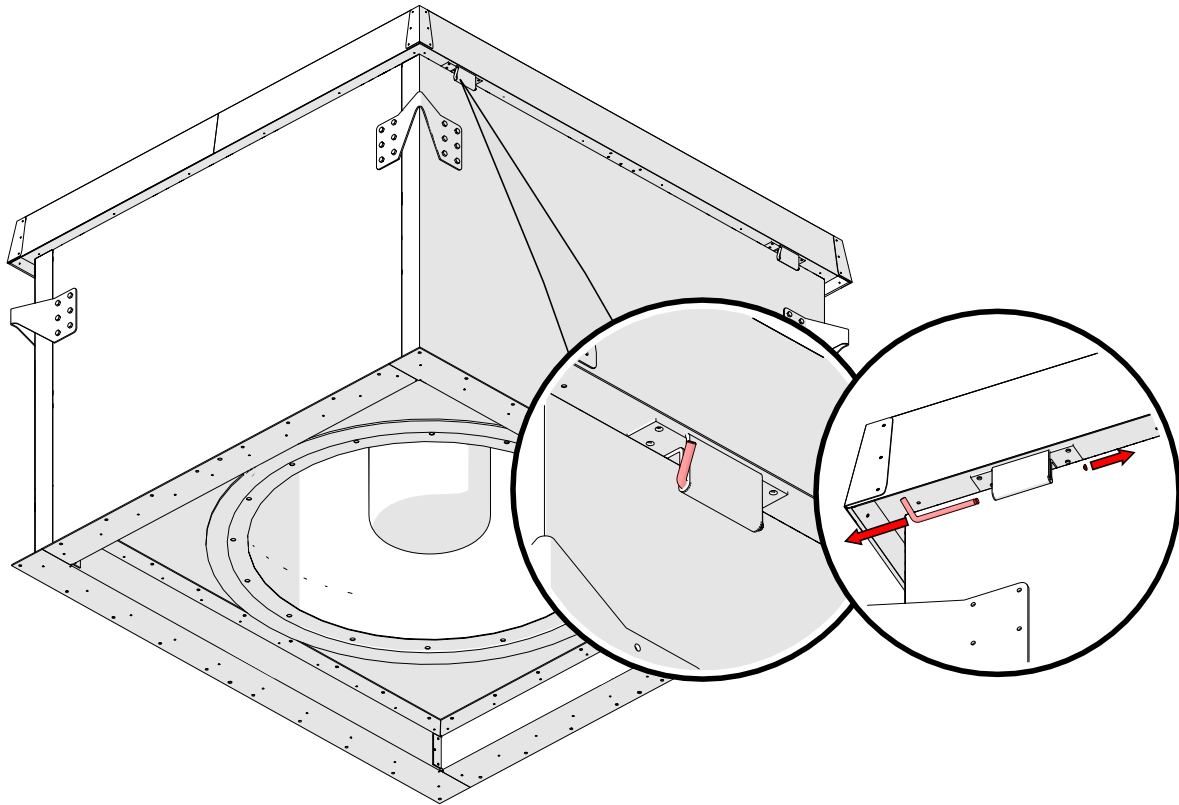


- 1- SMOKE FAN SAFETY SWITCH (auxiliary contact included)
- 2- ACTUATOR SAFETY SWITCH (auxiliary contact included)

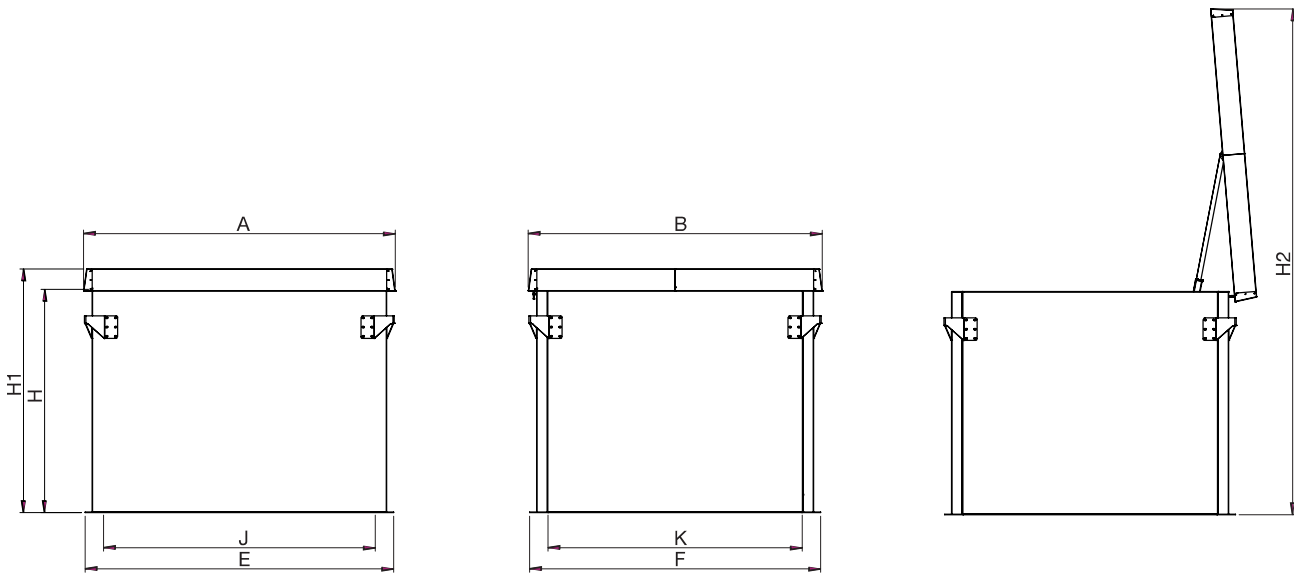
Both switches have an auxiliary contact. Baseplate has an insert for those cables as well. The lid position indication (Open/Close) is available from the actuator. For this indication cable, there is an insert in the bottom plate.

### Manual opening of the lid

KAPU lid can be opened manually without electricity if needed by removing the screws from the hinges. After this, the lid can be opened so that the actuator can be removed from the lid's attachment point.



**Dimensions**



Product	A	B	E	F	H	H1	J	K	Weight kg*
KAPU-400..560	1127	1028	1110	1010	903	1020	900	800	150
KAPU-630..800	1327	1228	1310	1210	903	1020	1100	1000	180
KAPU-900..1000	1528	1426	1510	1410	903	1020	1300	1200	215
KAPU-1120..1250	1778	1676	1760	1660	1273	1390	1550	1450	300

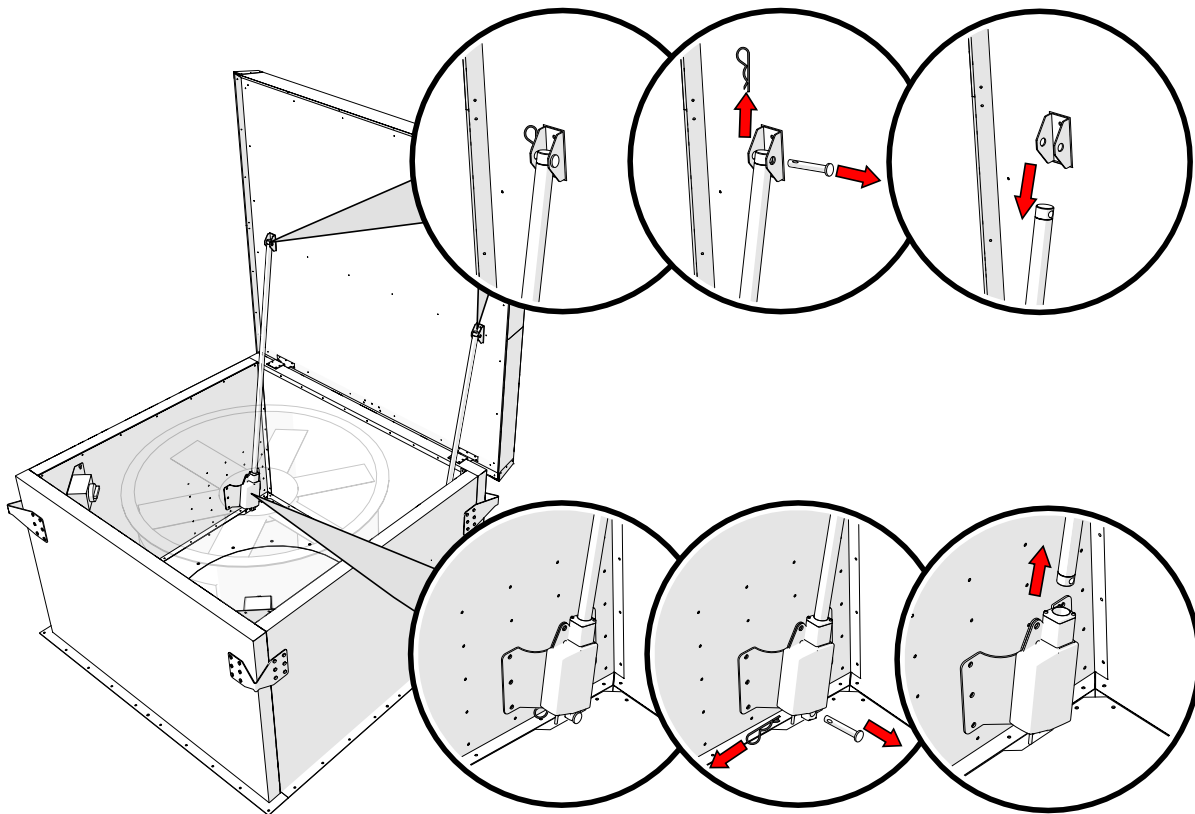
\*Weight is for the hatch only without the fan.

**Motor power and currents**

Power (kW)	Current (A)	Starting current (A)	Gable gland
0,55 kW	1,3 A	7,5 A	M20
0,75 kW	1,6 A	10,9 A	M20
1,1 kW	2,4 A	17,9 A	M20
1,5 kW	3,2 A	23,5 A	M20
2,2 kW	4,6 A	33,7 A	M25
3,0 kW	6,1 A	43,1 A	M25
4,0 kW	8,2 A	60,9 A	M25
5,5 kW	10,4 A	86,3 A	M25
7,5 kW	14,2 A	117,9 A	M32
11,0 kW	20,9 A	156,8 A	M40
15,0 kW	27,9 A	200,9 A	M40
18,5 kW	35,1 A	259,7 A	M40
22,0 kW	41,0 A	299,3 A	M40
30,0 kW	57,1 A	428,2 A	M50

## Removing actuator

In case there is a need to remove or change the actuator, use the following instructions.



## Commissioning

- Before use make sure that:
  - the impeller rotates smoothly and there is no abnormal noise.
  - the hatch has no obstacles on its runway.
  - the supply air is provided.
  - the extraction direction of the fan is correct.
  - that the delay of the start is minimum 30 seconds.
- Turn the safety switch of the fan or turn the fuse of the fan OFF. Make sure that the fan will not be powered.
- Make sure the supply air is provided!
- Turn ON the smoke extraction:
  - observe that the Hatch will get fully open, and the power of the hatch will be shutten down in 180 seconds. After this turn OFF the smoke extraction.
- Let the fan be powered.
- Turn ON the smoke extraction again:
  - observe that the fan is rotating correct direction.
  - observe that there is no abnormal noise, and that the vibration is within normal limits.
- Let the fan run 30 minutes so the bearings will be lubricated correctly.
- If any abnormal behavior is observed, turn the power OFF immediately.

### Maintenance

Annual testing interval can be defined by the authorities. If there is no annual testing interval defined, the KAPU unit must be tested every 6 months.

- Make sure that the supply air is provided
- Observe if the hatch does not open completely
- Observe if there is any misbehavior in the fan. Such as wrong direction, abnormal noise, or vibration
- Let the fan run 30 minutes minimum so the bearings will be lubricated correctly.

More information in ETS NORD smoke extraction fan installation manual.

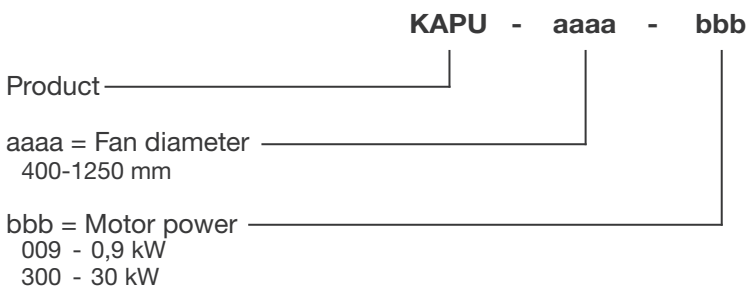
### Spare parts

Contact ETS NORD.

### Errors

More instructions are available in ETS NORD fan installation, maintenance, and commissioning instructions. Contact ETS NORD.

### Product code



### Example: KAPU-1000-110

Fan diameter = 1000 mm

Motor power = 11 kW



### ETS NORD AS

Address: Peterburi tee 53  
11415 Tallinn  
Estonia  
Phone: +372 680 7360  
info@etsnord.ee  
www.etsnord.ee

### ETS NORD Finland

Address: Pakkasraitti 4  
04360 Tuusula  
Finland  
Phone: +358 401 842 842  
info@etsnord.fi  
www.etsnord.fi

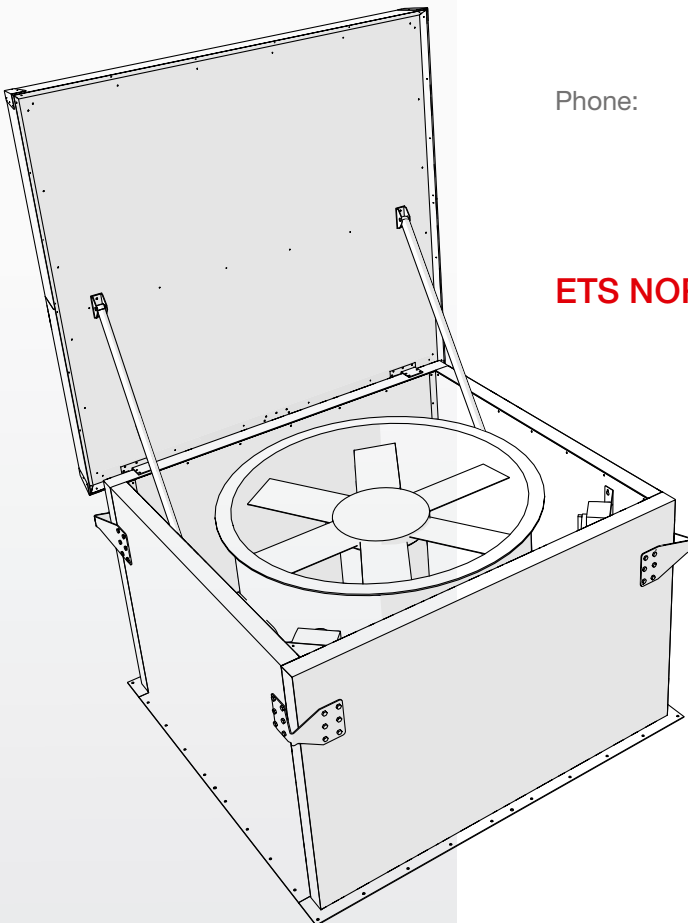
### ETS NORD Sweden

Address: Järsjögatan 7  
69235 Kumla  
Sweden  
Phone: +46 19 554 20 50

Address: Pinjegatan 5  
21363 Malmö  
Sweden  
Phone: +46 40-94 68 70  
info@etsnord.se  
www.etsnord.se

### ETS NORD International

info@etsnord.com  
www.etsnord.com



*Let's move the air together!*