

Natural Smoke and Heat Exhaust Ventilator



NATURAL SMOKE AND HEAT EXHAUST VENTILATORS

The purpose of ventilation systems that remove smoke and heat, also called smoke control hatches, is creating and maintaining a smoke-free zone above the floor in case of a fire. At the same time, the systems remove hot gases which are generated in various stages of burning. Using such systems to create smoke-free zones underneath the layer of suspended smoke is relatively common all over the world.

The smoke control hatches below have two purposes. In the first case (140° in case of a fire), the hatch is opened fully and a natural draught is created in the building, exhausting carbon monoxides quickly and without hindrance. In the second case, hatches can be used to control daily ventilation (hatch opens by 30°).

EUROPEAN STANDARD EN 12101-2

The above standard describes the parameters of smoke hatches used for natural smoke and heat ventilation. The installed smoke hatches must be tested at accredited laboratories pursuant to annexes to this standard which prescribe the requirements on smoke hatches.

Smoke control hatches used for buildings must contain the required CE mark.

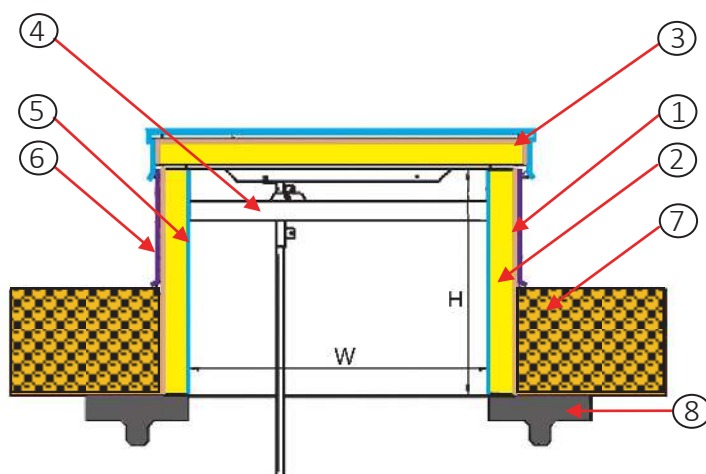


Natural Smoke and Heat Exhaust Ventilator

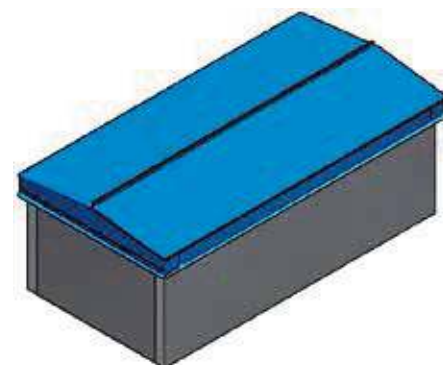
MarTop SF/P

- 1) Moisture-proof veneer 9 mm (P)
- 2) Insulation of basis frame:
 - Mineral wool (W), ($-\lambda=0,037$ W/mK), 70 mm or 100 mm
 - PIR plate (P), ($-\lambda=0,022$ W/mK), 70 mm or 100 mm
- 3) Lid:
 - Gabled (G) or flat (F)
 - Metal structure Zn
 - Insulated with 100mm PIR plate
 - Covered with 0,5mm purex sheet
- 4) Opening mechanism
- 5) 0,5mm polyester sheet
- 6) Water sheets
- 7) Roof insulation
- 8) Load-bearing structure of the roof

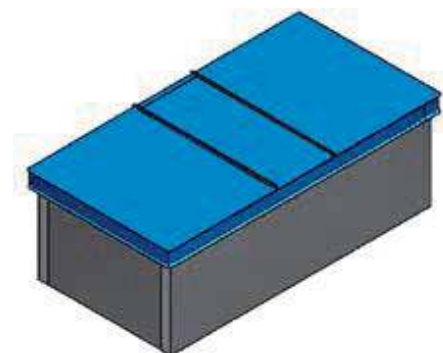
If required, we will cover the ventilator with PVC roofing.



Cross-cut of the ventilator



MarTop SF/PG



MarTop SF/PF



NSHEV, open

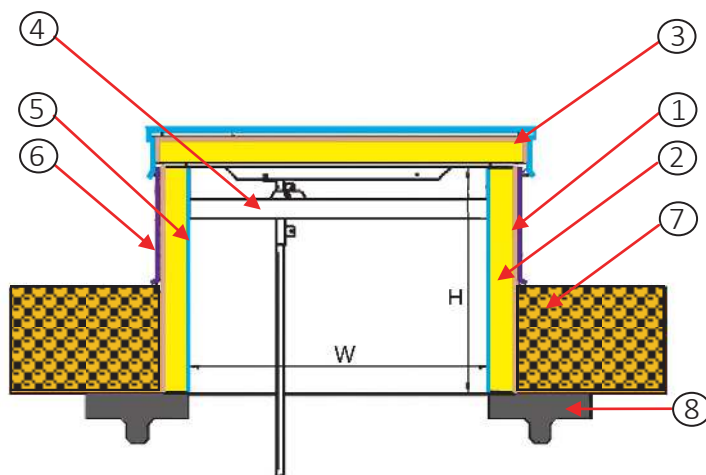


Natural Smoke and Heat Exhaust Ventilator

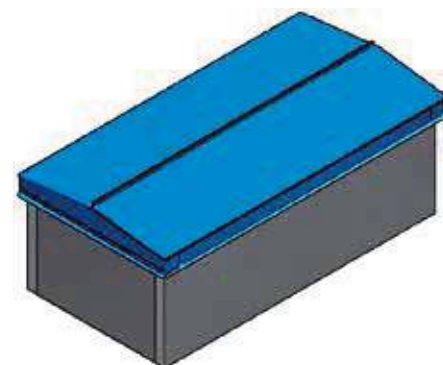
MarTop SF/M

- 1) 0.7 mm flat sheet Zn (M)
- 2) Insulation of basis frame:
 - Mineral wool (W), ($-\lambda=0,037$ W/mK), 70 mm or 100 mm
 - PIR plate (P), ($-\lambda=0,022$ W/mK), 70 mm or 100 mm
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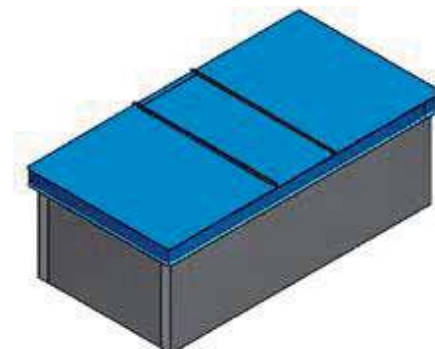
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Cross-cut of the ventilator



MarTop SF/MG



MarTop SF/MF



NSHEV, open

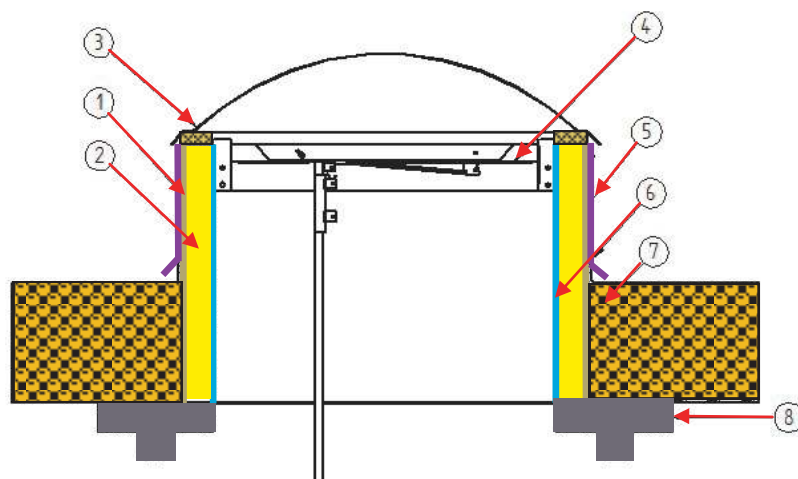


Natural Smoke and Heat Exhaust Ventilator

MarTop SD/P

- 1) Moisture-proof veneer 9mm (P)
- 2) Insulation of basis frame:
 - Mineral wool (W), ($-\lambda=0,037$ W/mK), 70 mm or 100 mm
 - PIR plate (P), ($-\lambda=0,022$ W/mK), 70 mm or 100 mm
- 3) Lid:
 - Light dome (D) or pyramid dome (P)
 - 2-, 3- või 4- layered
 - Clear (C) või opal (O)
- 4) Opening mechanism
- 5) 0,5 mm polyester sheet metal
- 6) Water sheets
- 7) Roof insulation
- 8) Load-bearing structure of the roof

If required, we will cover the ventilator with PVC roofing.



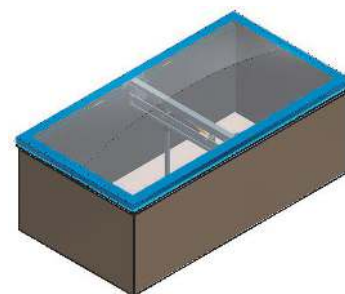
Cross-cut of the ventilator



MarTop SD/P2C



MarTop SP/P2C



MarTop SD/P2C

Why smoke control hatches with light domes?

Using light domes it is possible to create bright buildings. With light domes it is possible to take maximum of natural daylight and save money on lighting.

In the first case (140° in case of a fire), the hatch is opened fully and a natural draught is created in the building, exhausting carbon monoxides quickly and without hindrance. In the second case, hatches can be used to control daily ventilation (hatch opens by 30°).

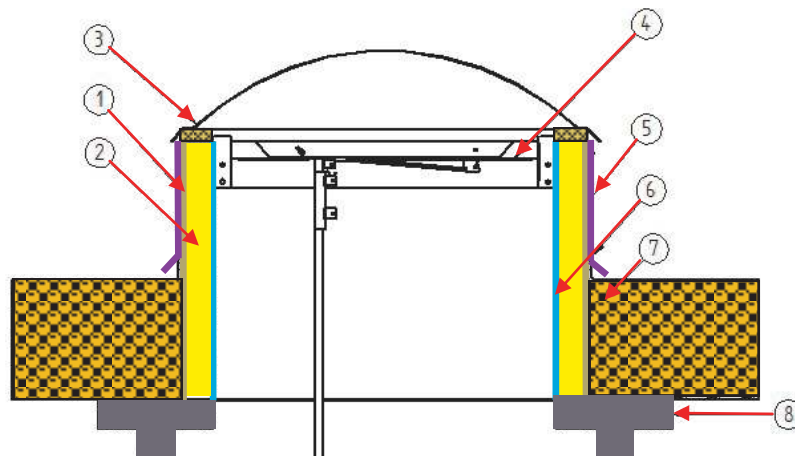


Natural Smoke and Heat Exhaust Ventilator

MarTop SD/M

- 1) 0.7 mm flat sheet Zn (M)
- 2) Insulation of basis frame:
 - Mineral wool (W), ($-\lambda=0,037$ W/mK), 70 mm or 100 mm
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Cross-cut of the ventilator



MarTop SD/M2C



MarTop SP/M2C



MarTop SD/M2C



Why smoke control hatches with light domes?

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In the first case (140° in case of a fire), the hatch is opened fully and a natural draught is created in the building, exhausting carbon monoxides quickly and without hindrance. In the second case, hatches can be used to control daily ventilation (hatch opens by 30°).

MarTop NSHEV designations:

Natural Smoke and Heat Exhaust Ventilator "single flap"

MARTOP	SF	/	P F	-	10	/	W
↓ Brand	↓ Type of hatch: SF - natural smoke and heat exhaust ventilator "single flap"		↓ Basis frame: P - veneer M - Zn sheet metal Lid type: F - flat G - gabled		↓ Thickness of insulation: 7 - 70mm 10 - 100mm		↓ Insulation type: W - mineral wool P - PIR plate

Natural Smoke and Heat Exhaust Ventilator with light dome "single flap"

MARTOP	SD	/	P 2C	/	10	/	W
↓ Brand	↓ Type of hatch: SD - natural smoke and heat exhaust ventilator with light dome "single flap" SP - natural smoke and heat exhaust ventilator with pyramid light dome "single flap"		↓ Basis frame: P - veneer M - Zn sheet metal Lid type: 2C - 2x clear 3C - 3x clear 4C - 4x clear 2O - 2x opal 3O - 3x opal 4O - 4x opal		↓ Thickness of insulation: 7 - 70mm 10 - 100mm		↓ Insulation type: W - mineral wool P - PIR plate

Technical data of NSHEV:

Resistance class- (Re)

Opening when loaded- (SL)

Work on low temperature- (T)

Wind load classification- (WL)

Heat resistance classification- (B)

Re	50 + (10 000)
SL	750
T	-15/-25
WL	1500
B (G and F)	600
B (light dome)	300

Standard heights for smoke NSHEV:

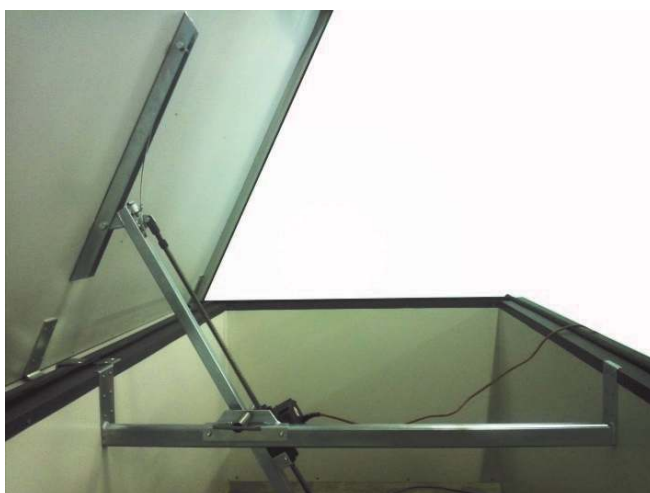
- 400 mm
- 600 mm
- 750 mm
- 900 mm

Measurements and aerodynamics:

Measurements [mm]	Av [m ²]	Cv [-]	Aa [m ²]
1000x1000	1,00	0,77	0,77
1000x1600	1,60	0,77	1,23
1000x2000	2,00	0,70	1,40
1200x1200	1,44	0,77	1,11
1200x1800	2,16	0,77	1,66
1200x2400	2,88	0,70	2,02
1200x2570	3,084	0,67	2,07
1000x2000*	2,00	0,77	1,54
1200x2400*	2,88	0,77	2,22
1200x2570*	3,084	0,77	2,37

* Aerodynamics measured with wind deflectors

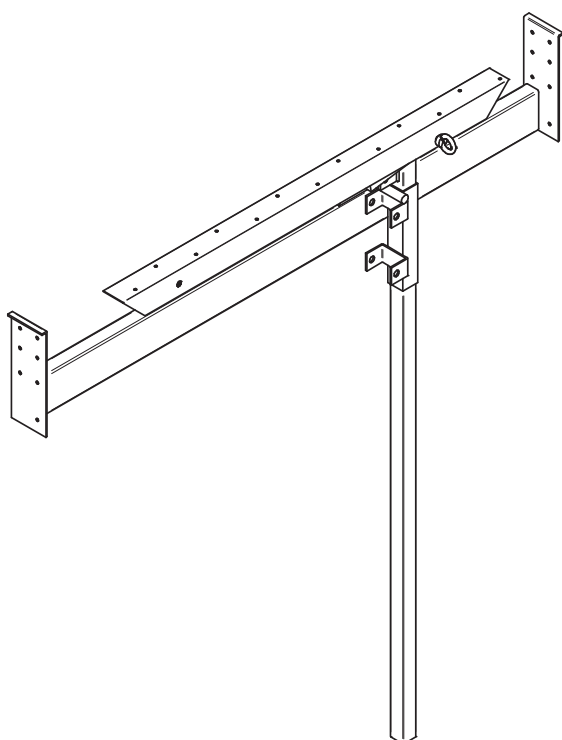
MarTop opening mechanism



Opening mechanism in smoke ventilator



Manual opening (emergency opening)



Construction of opening mechanism

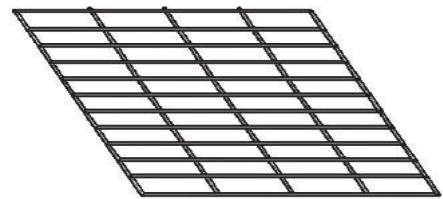


Motor 24V

Accessories:



Water sheets



Security bars



Emergency switch



Ventilation switch



Smoke- and temperature sensor



Limit switch



Wind- and rain sensor



Controller



Fireproof junction box

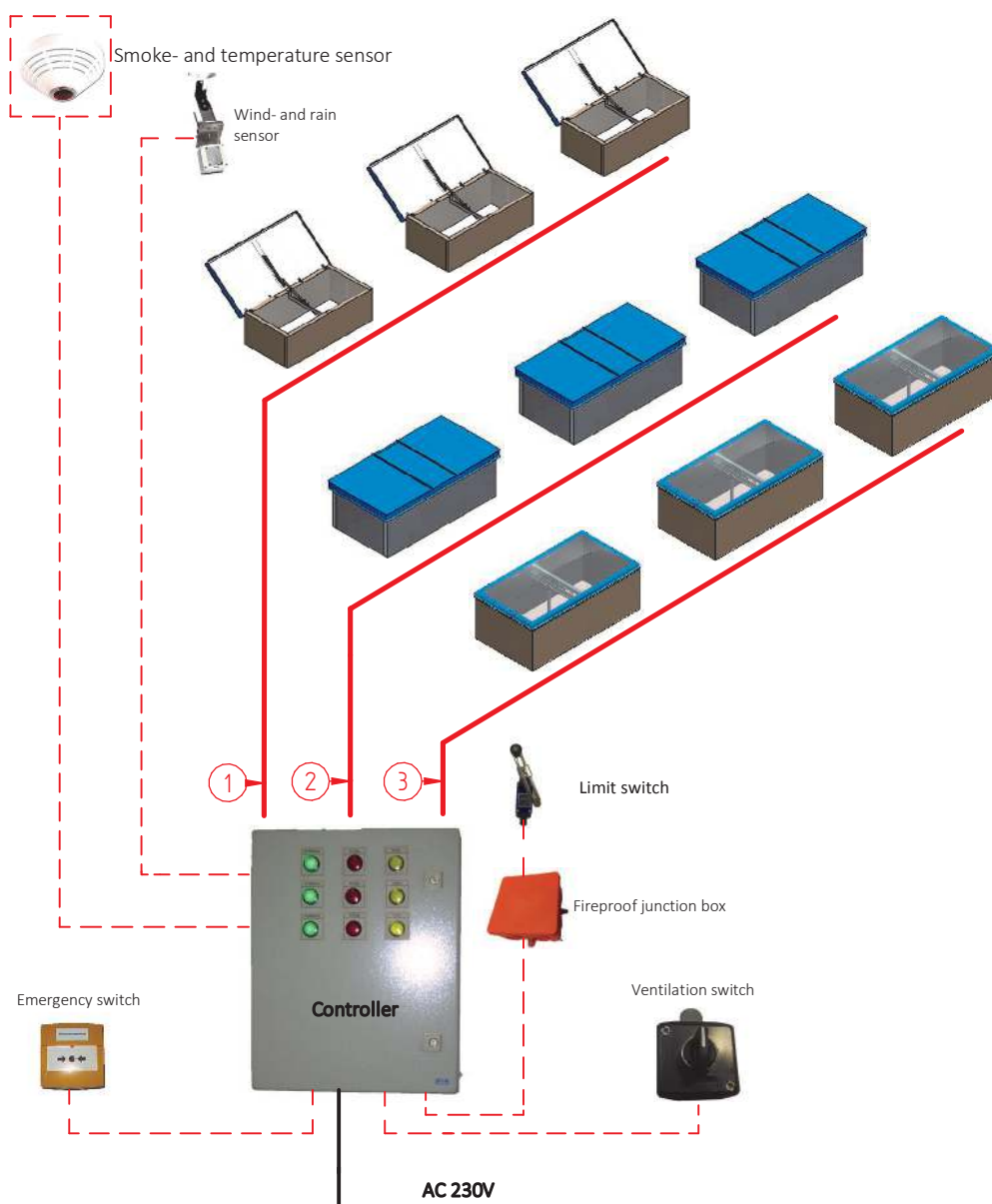
Ceramic connectors.

DIN 4102-12, STN 92 0205.

Available sizes:

- 167x167x78 mm
- 117x117x58 mm

MarTop control system



- 1 2 3** Group
- Fireproof cable
- Cables
- Sensors cables (fireproof)



Smoke and heat control systems

