



3T MAKİNE



SMOKE VENTILATION SYSTEMS

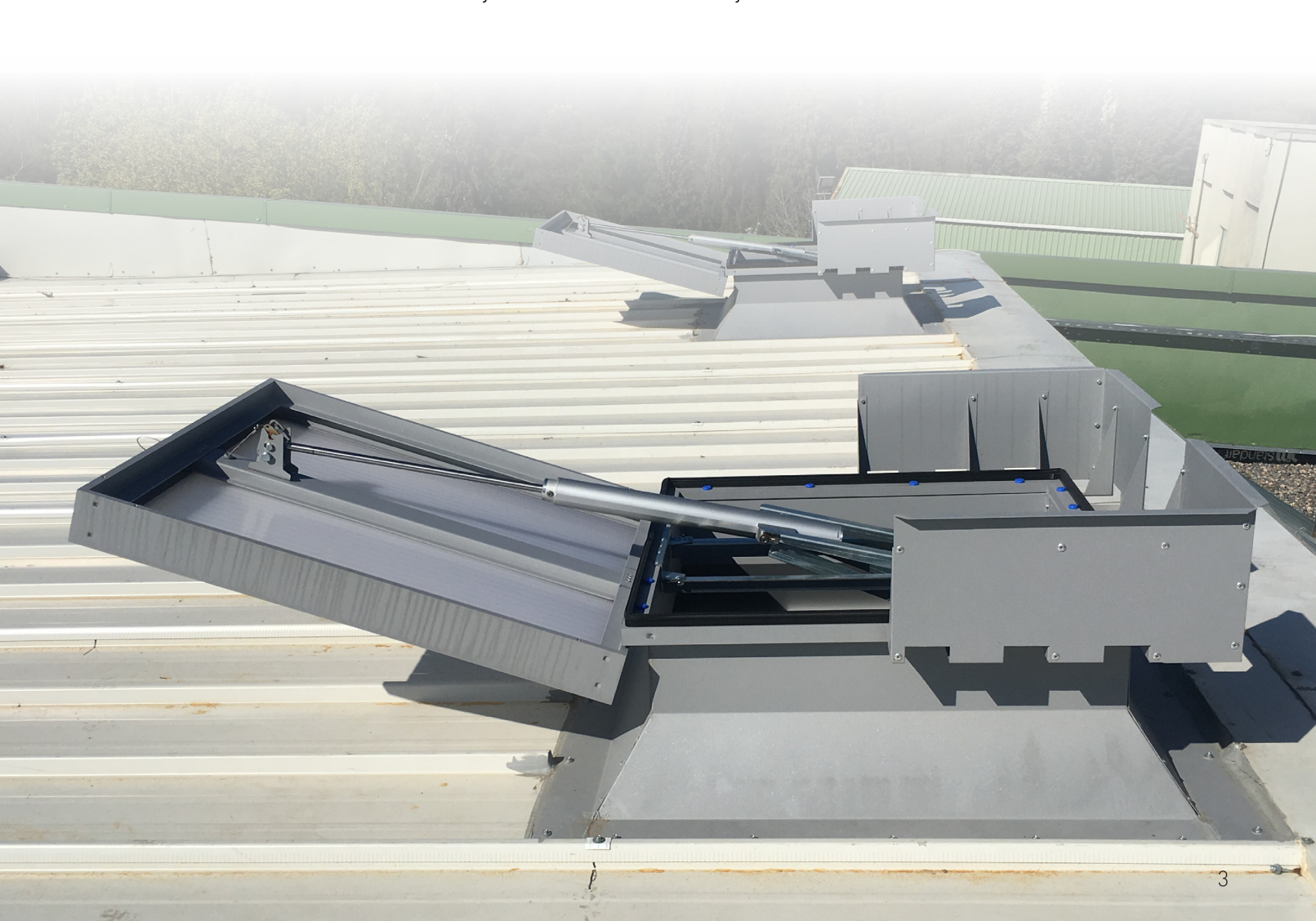
Importance of Smoke Ventilation System

Most of the people exposed to the fire lose their lives due to the smoke, not the fire. The smoke caused by the fire creates a danger to life by covering all the rooms and spaces within minutes. After smoke breathing, loss of vision, focusing and sense occur due to intoxication. Therefore, smoke restraints to escape on time. To avoid this, the vent systems allow the smoke to be released before the fire is cooled, preventing the smoke from accumulating in the room. In this smoke-free air zone, fresh air is provided to survive, and panic and anxiety caused by the smoke are also prevented. Increasing the areas where the smoke is released makes it easier to control and extinguish the fire.

**FIGHTING AGAINST SMOKE REQUIRES PROFESSIONALITY.
HUMAN LIFE IS THE MOST IMPORTANT ISSUE.**

TROKE, Smoke and Heat Extraction Units

- Are the first and only domestically manufactured and CE certificated Smoke and Heat Extraction Units in Turkey.
- Are manufactured with the guarantee and experience of FORM.
- Are manufactured with high quality, meet EN 12101-2 standards and obtain CE certification.
- All heat and smoke extraction systems can be used in daily ventilation.



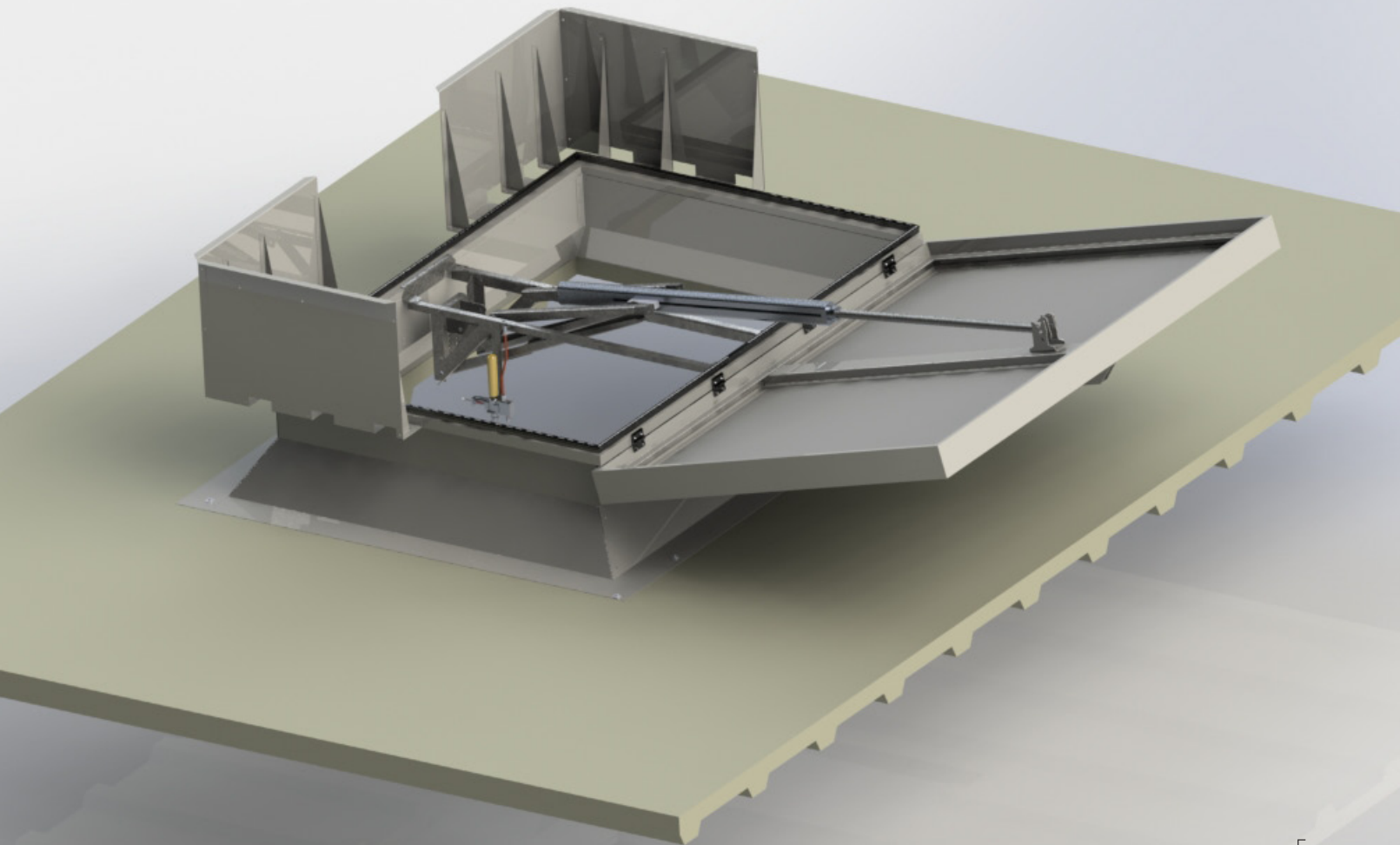
Features of TROKE

- Complies with EN 12101-2 standards and has CE certificate.
- Single sash window system opened at 140° or 165° angles in case of fire.
- Triggering unit technology may be pneumatic (cylinder) or electrical (24 V piston).
- 230 V or 24 V electrical pistons may be installed for daily ventilation.
- Provides a glare-free natural lighting when nontransparent, polycarbonate or aerogel filled panels are used (natural roof lighting is five times more effective than facades).
- All profiles are made of high strength extrude aluminum materials.
- Load bearing and impact resistant.
- Can be manufactured in any desired RAL code for color harmony with the structure.
- Low maintenance cost.
- Products do not contain any harmful substances and are recyclable.
- System has its own water drainage (self-drainage). There are not any rubber seals such as silicon, gasket etc. on the outer surface of windows, so there are not any rubber seals affected by the sun.
- Can be produced in sizes up to 2x3 meters.



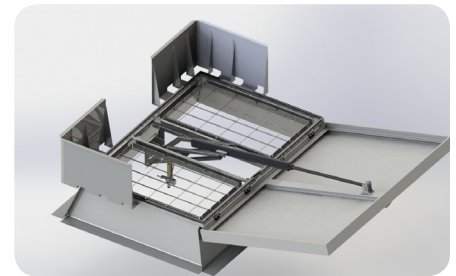
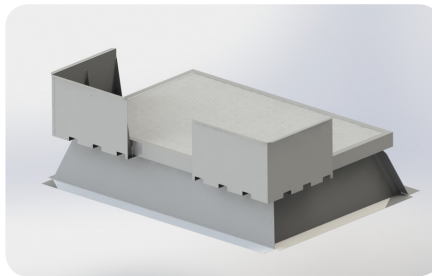
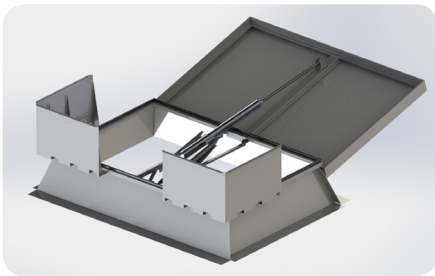
Features of TROKE;

- Repeated open-close durability tests were performed 10,000 times; durability, functional design and high quality are guaranteed.
- High aerodynamic clearance with wind reflectors.
- Opening alternatives at 140° and 165° angles.
- Suitable for daily ventilation.
- Safely open-close.
- Troke was made of 6000 series electrostatic powder painted aluminum profiles and steel parts.
- Metal-consolidated EPDM gaskets provide high performance sealing for a long time.
- Pivot points maintenance is not required.
- When nanogel filled polycarbonate panels are used for windows, it provides energy saving and natural lighting without creating greenhouse effect inside.
- Insulated, double-walled Aluminum Window alternative is available in case the daylight is undesired.
- Troke can be equipped with fall arrest safety grills in accordance with safety standards.
- Can be applied on any kind of flat or inclined roofs.



Structural Features:

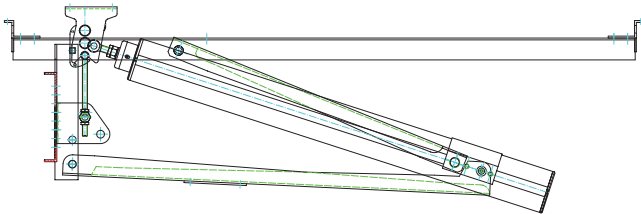
- Troke was made of 6000 series electrostatic powder painted aluminum profiles and steel parts.
- EPDM gaskets minimize the heat loss.
- Junction points do not require maintenance.
- Complies with all kinds of roofs with inclined or flat bases.
- Optionally, Troke can be equipped with fall arrest safety grills meeting the safety standards.



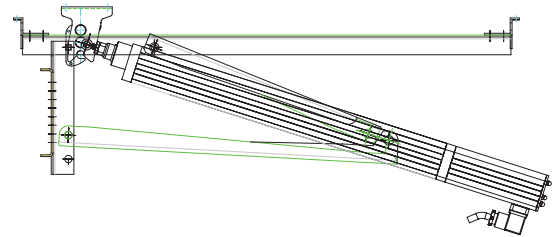
Opener types:

Smoke Vent Opener Types:

Pneumatic (CO2 Tapping)

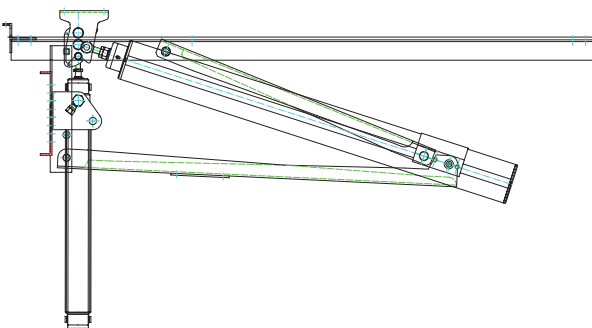


Electrical 24 Vdc

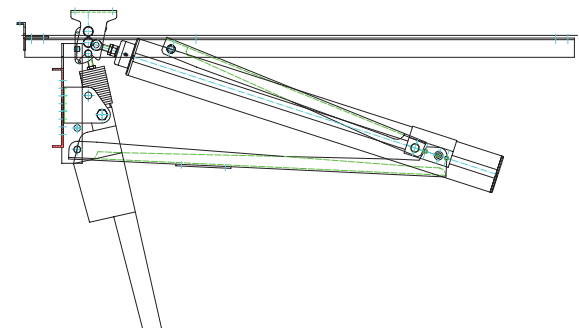


Daily Ventilation Opener Types:

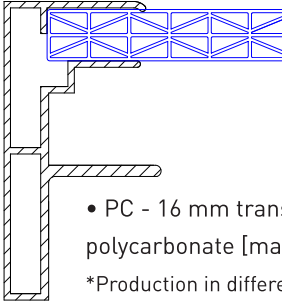
Pneumatic (Min. 6 bar compressed air)



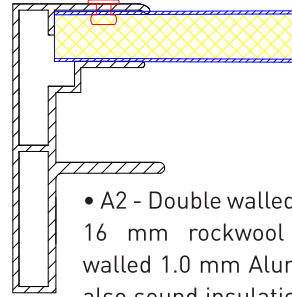
Electrical (230Vac or 24 Vdc)



Alternatives to Panel Material:

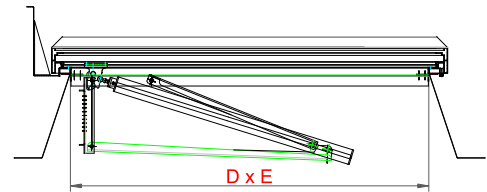
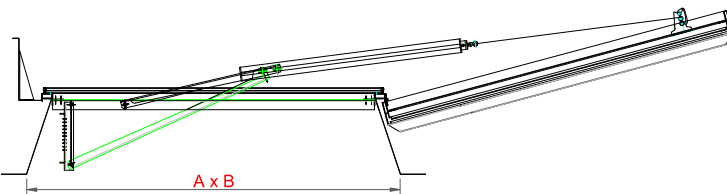


- PC - 16 mm transparent or opaque multi-walled polycarbonate [may be Nanogel filled on demand]
- *Production in different thickness and colors is possible.



- A2 - Double walled insulated aluminum version. 16 mm rockwool insulated between double walled 1.0 mm Aluminum (ALMG3) material and also sound insulation material may be applied in second layer.

Sizes:



A	B	D	E
1000	1000	800	800
1000	1200	800	1000
1000	1500	800	1300
1000	1800	800	1600
1000	2000	800	1800
1000	2100	800	1900
1000	2400	800	2200
1000	2500	800	2300
1000	3000	800	2800
1200	1200	1000	1000
1200	1500	1000	1300
1200	1800	1000	1600
1200	2000	1000	1800
1200	2100	1000	1900
1200	2400	1000	2200
1200	2500	1000	2300
1200	2700	1000	2500
1200	3000	1000	2800
1200	3200	1000	3000

A	B	D	E
1500	1500	1300	1300
1500	1800	1300	1600
1500	2000	1300	1800
1500	2100	1300	1900
1500	2400	1300	2200
1500	2500	1300	2300
1500	3000	1300	2800
1800	1800	1600	1600
1800	2000	1600	1800
1800	2100	1600	1900
1800	2200	1600	2000
1800	2400	1600	2200
1800	2500	1600	2300
1800	3000	1600	2800
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2000	2400	1800	2200
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2000	3000	1800	2800

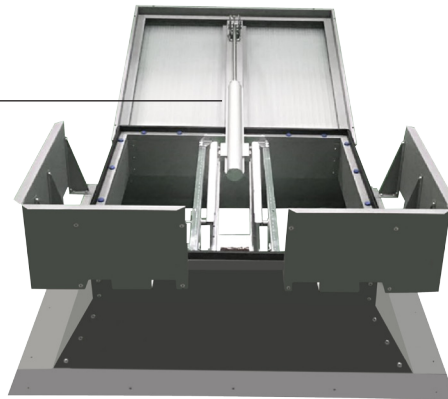
CONTROL SYSTEMS

PNEUMATIC CONTROL SYSTEMS:

- Automatic opening via heat sensitive thermal triggering valve with CO² tube. (68/93/110/141 °C)
- Manual opening via emergency control board with CO² tube
- Opening via fire automation system triggering by emergency control board with CO² tube solenoid valve



Pneumatic actuator



Fuse 68/93/110/141°C



TAVE-Thermal Valve



Control Board with CO² Tube



Ventilation Board

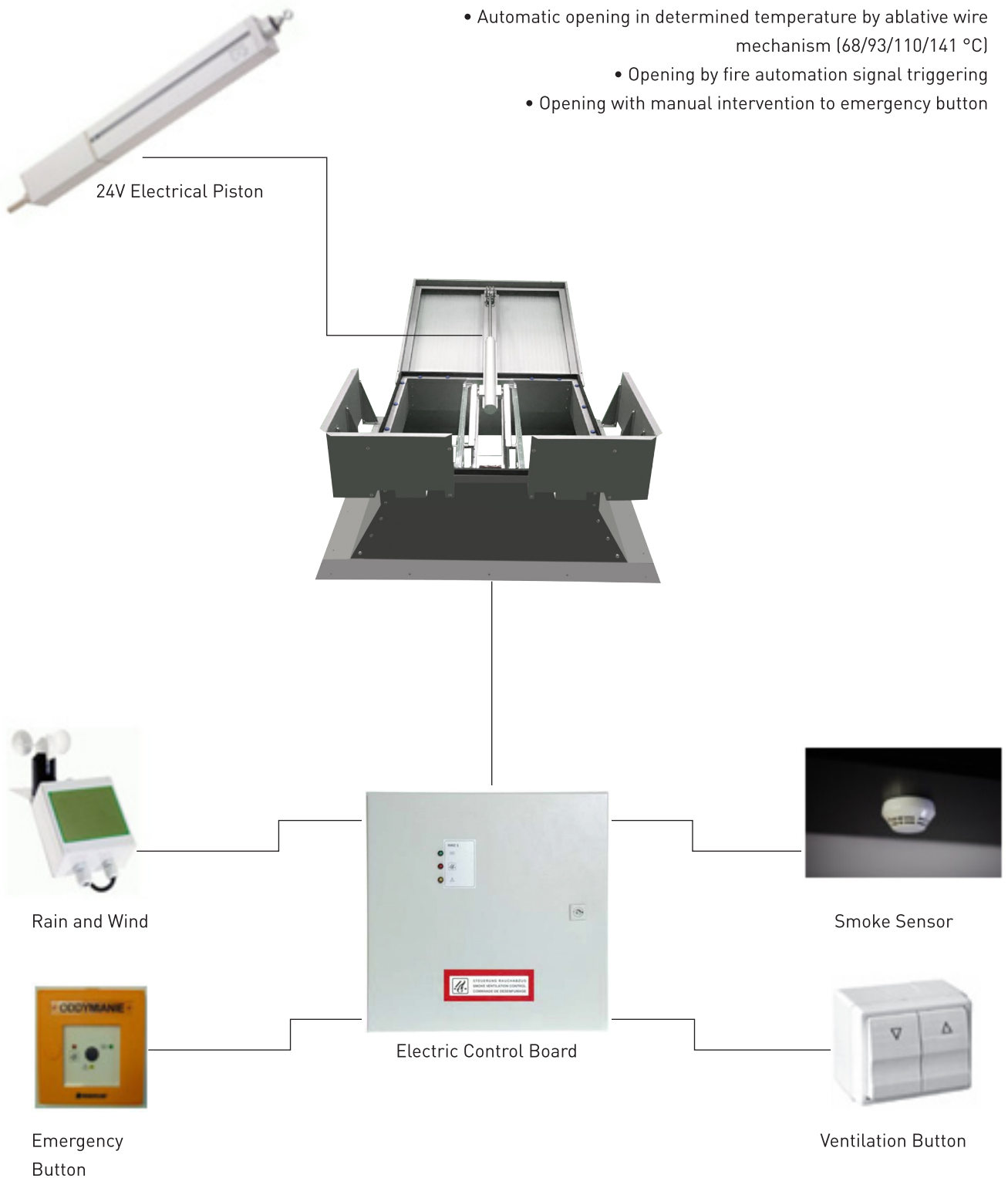


Copper Pipe Fittings

Pneumatic system or electrical control system may be used for **daily natural ventilation systems.**

ELECTRICAL CONTROL SYSTEMS:

- Automatic opening in determined temperature by ablative wire mechanism (68/93/110/141 °C)
- Opening by fire automation signal triggering
- Opening with manual intervention to emergency button



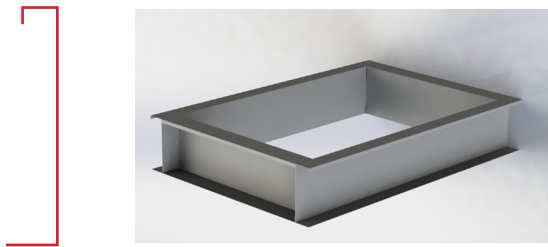
ASSEMBLY DETAILS

Assembly on Roof

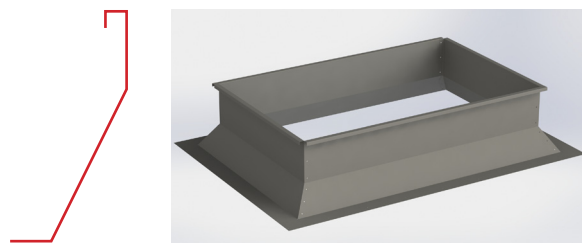
Depending on roof design and working conditions, correct material, correct assembly system and correct unit height are determined. Detailed work is done for the best system solution. Two main options are available for assembly; based product and nonbased product. Based product is assembled on flat roofs, nonbased product is recommended for permanently lighted integrated roofs or systems. The bases and frames are designed to allow an outer insulation layer; this layer may be applied by roof covering using foil, bituminous panels or metal sheet. Based systems are divided into two as inclined base and flat base.

Advantages;

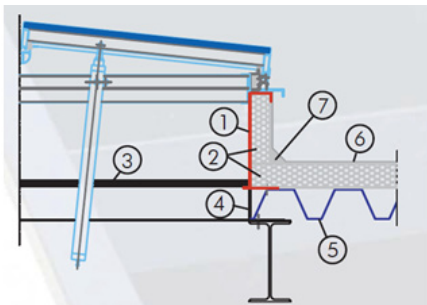
- Simple assembly since no additional frame is required
- Assembly on any kind of roof
- Weatherproof
- Production with fireproof material according to fire prevention requirements
- Different color options with electrostatic powder paint
- Different material thicknesses can be used depending on the structural requirements
- Thermal insulated application is possible



FLAT BASE



INCLINED BASE



- 1.) Galvanized steel base
- 2.) Insulation according to demand
- 3.) Fall arrest safety grill (optional)
- 4.) Border frame (varies depending on roof type)
- 5.) Trapeze metal sheet
- 6.) Membrane covering (optional)
- 7.) Insulation part (optional)

ROOF JOINT SYSTEMS

Flange Types

Flange may be assembled to the roof directly for lean-to one side and lean-to two side roofs. In addition, there are 5 different flange types appropriate for roof types. Special flanges may be manufactured according to roof type on demand.



F1

Use on the glass



F2

Use under the
corrugated metal
roof



F3

Use over the corrugated
metal roof



F4

Direct
adhesion



F5

Use over
the base

Tests and certificates

As well as there is no doubt that smoke and heat extraction systems save life, their functionalities must be certified.

Troke have been certified for not losing their functionality for many years.

When wind and snow load resistances are examined, Troke can meet high standards. Troke smoke and heat extraction unit complies with EN 12101-2 standards.

Tests applied to the units

- Wind resistance to 3000 Pa
- 1500 N/m² snow load resistance
- Low temperature resistance to -15°C
- Heat resistance to 300°C
- Open-close for 10.000 times
- Aerodynamic effective zone



- Troke has been tested and approved by accredited quality certification bodies.

