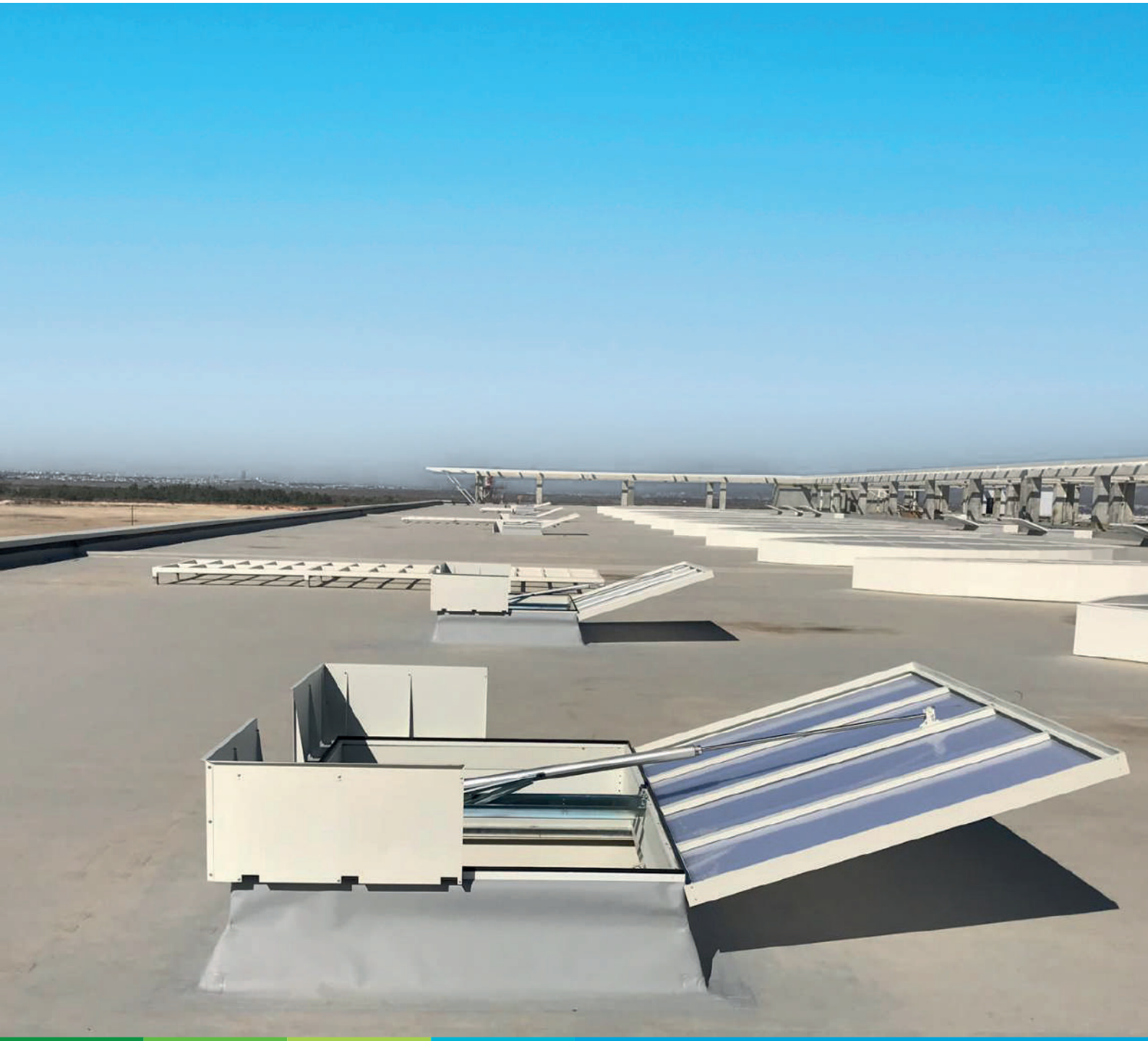
TROKE®

Smoke and Heat Extraction Units



Our Company

Founded in 1965, the main activity of Form Group companies is the Production, Sales & After Sales Services of Commercial and Residential air conditioners, in order to improve the quality of life. The Group is active in the sectors of hotels, hospitals, shopping malls, commercial buildings, schools, factories and homes. The Group consists of 4 companies.

FORM Endüstri Tesisleri A.S. is the manufacturing company of the Group and maintains its activities in 20,000 m^2 factory in Izmir. The company has two main activities. The first one is the manufacturing and sales of natural smoke and heat extraction systems, evaporative coolers and natural daylight systems, mostly for the roofs of industrial buildings. The second one is the OEM manufacturing of rooftops, water source heat pumps, air handling units and fancoils for the Group companies. The company also produces air purifiers.

FORM Endüstri Urunleri A.S. specializes in commercial and industrial air conditioning solutions. The products sold and serviced are either manufactured by the sister companies in the Group such as fancoils, air handling units, water source heat pumps, rooftops, or imported from the exclusive representations from world known brands; Lennox, Clivet, Climate Master. The main products are rooftops, chillers, fancoils, heat pump units, air handling units, cooling towers and other commercial air conditioning products. The company is one of the top commercial sales and service providers in the Turkish A/C market.

FORM MHI Klima Sistemleri A.S. is a Joint Venture company with Mitsubishi Heavy Industries. The company provides sales and After Sales Services for commercial and Residential applications, with VRF and Split – Multi Split air conditioners. The company is one of the three biggest suppliers in the Turkish market for VRF equipment.

FORM Yonetim Destek A.S. is the management company that provides finance, accounting, logistics, IT, H&R and marketing services to the above three group companies, as they only comprise of manufacturing, sales and service personnel.

The head office of FORM Group is located in Istanbul, Maslak business district. There are regional offices in Ankara, Antalya, Izmir, Adana and Bursa for each sales company separately, with the factory in Izmir.

FORM Group is a founding member of ISKID Turkish HVAC Association and ISKAV Turkish HVAC Foundation. The group believes in professional organization and work ethics, by being a serious, reliable, technical and trustworthy provider, depending on the ethical values.

TROKE®

Smoke and Heat Extraction Units

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.

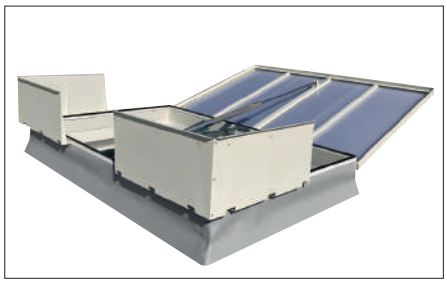
TROKE, Smoke and Heat Extraction Units

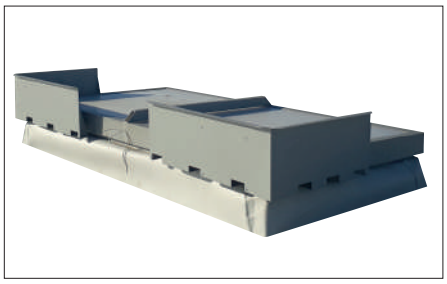
- Are the first and only domestically manufactured and CE certificated Smoke and Heat Extraction Units in Turkey.
- Are manufactured under the guarantee and the experience of FORM.
- Are CE maked and comply with DIN EN 12101-2.
- Suitable for everyday ventilation.



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.
- Adaptable to all types of roofs (inclined or flat)
- Optionally, Troke can be equipped with fallthrough safety grids which meet the demanded safety standards.

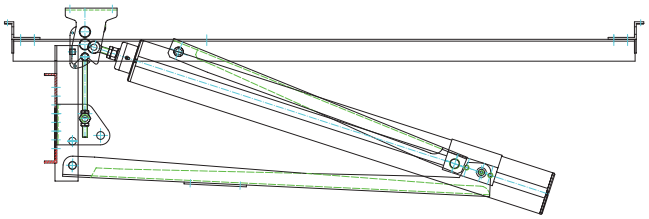




Opener types:

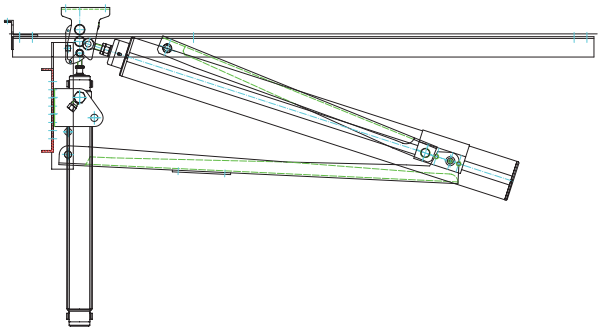
Smoke Vent Opener Types:

Pneumatic (CO_2 Tapping)

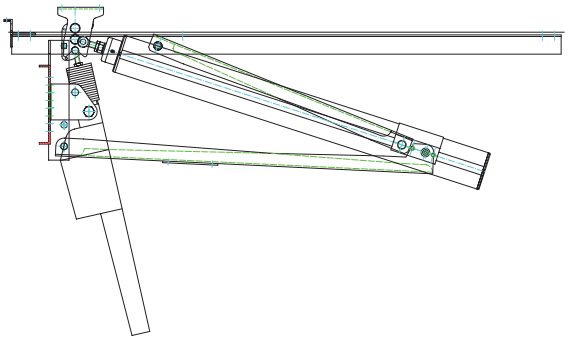


Daily Ventilation Opener Types:

Pneumatic (Min. 6 bar compressed air)



Electrical (230Vac or 24 Vdc)



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 can be pneumatic (cylinder)
- Optionally, 230 V or 24 V electrical pistons can be installed for daily ventilation.
- Provides a glare-free natural lighting when nontransparent, polycarbonate filled panels are used (natural roof lighting is five times more effective than facades).
- All profiles are made of high strength extrude aluminum materials.
- Reliable under high wind or snow loads thanks to its high quality.
- Can be manufactured in any desired RAL code for color harmony with the structure.
- Low maintenance.
- 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.
- Available upto a maximum width of 2500 mm x length of 3000 mm
- Durability, functional design and the high quality eusured through enduraуce tests with 10,000 opening cycles.
- High rate of smoke and heat exhaust veutilation thaks to aerodynamic wihd deflectors.
- 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.
- All pivot points are maintenance free.
- When nanogel filled polycarbonate panels are used for windows, it provides energy saving and natural lighting without creating greenhouse effect inside.
- Insulated, double-skin Aluminum Window alternative is available in case the daylight is undesired.
- Troke can be equipped with fall at rougle safety grids which meet the demanded safety standards in accordance with safety standards.
- Can be applied on any kind of flat or inclined roofs.



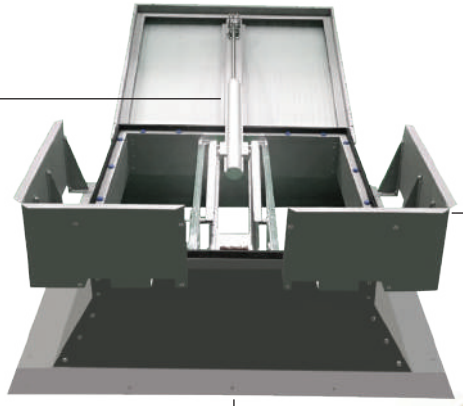
CONTROL SYSTEMS

PNEUMATIC CONTROL SYSTEMS:

- Automatic opening via heat sensitive thermal triggering valve with CO_2 tube. (68/93/110/141 °C)
- Manual opening via emergency control board with CO_2 tube
- Opening via fire automation system triggering by emergency control board with CO_2 tube solenoid valve



Pneumatic actuator



Fuse 68/93/110/141°C



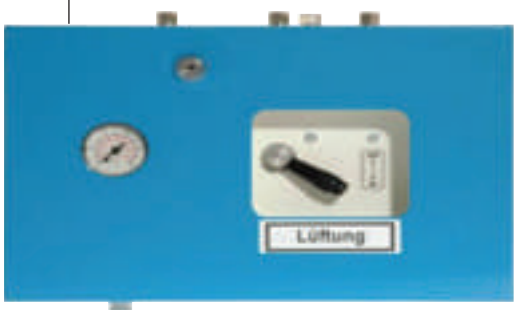


TAVE-Thermal Valve





Control Board with CO_2 Tube

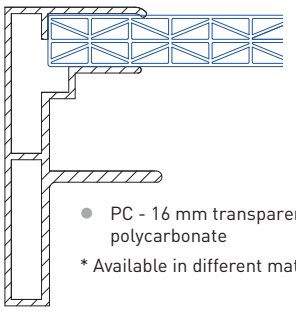




Copper Pipe Fittings

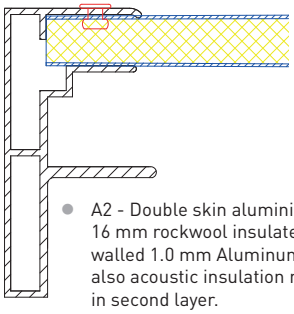
Pneumatic system may be used for **daily natural ventilation systems.**

Alternatives to Panel Material:



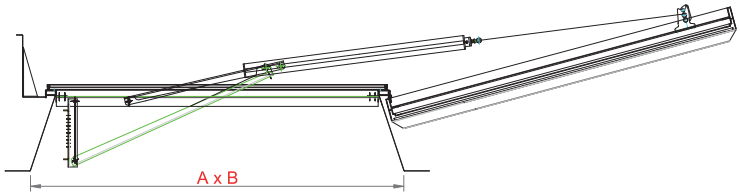
- PC - 16 mm transparent or opaque multi-walled polycarbonate

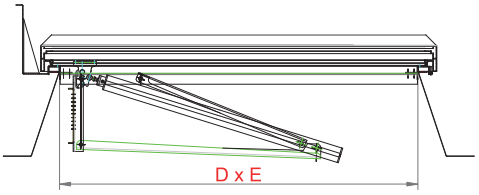
* Available in different material thicknesses and colors.



- A2 - Double skin aluminium version (insulated). 16 mm rockwool insulated between double walled 1.0 mm Aluminum (ALMG3) material and also acoustic insulation material can 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
2000	2000	1800	1800
2000	2100	1800	1900
2000	2400	1800	2200
2000	2500	1800	2300
2000	3000	1800	2800

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 1500 Pa
- 500 N/m^2 snow load resistance
- Low temperature resistance to -25°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.

CE



SUNVIA ROOF ACCESS HATCH



SUNVIA ROOF ACCESS HATCH - allows direct, safe, easy access to flat roofs, maintenance, and the roof access hatches are appropriate for safe roof access/egress while doing installations and maintenance on roofs. It is ideal for both commercial and domestic applications. Our hatches are designed with safety, durability, and ease of operation in mind.

These hatches come with gas-spring struts for easy lift opening, open easily to 90 degrees and A wide range of dimensions and configurations are available.

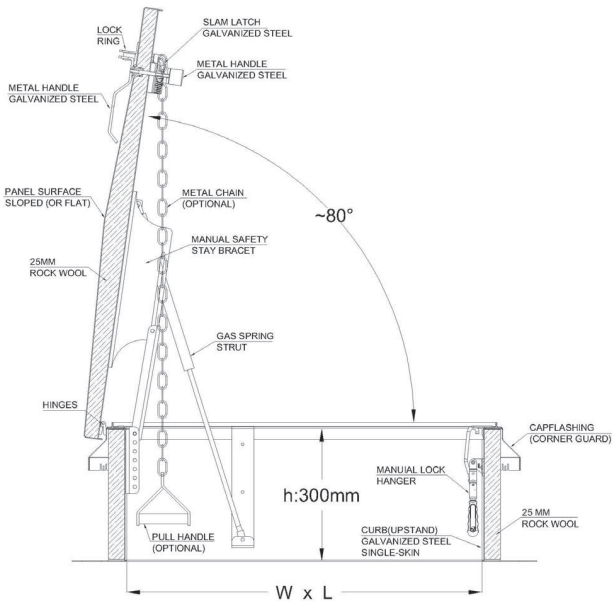
Tests:

- EN 1026 Air Permeability EN 12207 Class 1
- EN 1027 Water Tightness EN12208 Class 9A



	STANDARD MATERIAL AND MODELS
Panel Type	* Double Layer Aluminum AlMg3 (A2) * 16 mm multiwall Polycarbonate (PC)
Panel Infill	* 25mm-Rock Wool (RW) *Polyiso (PY)
Curb (Upstand) Type	* Single / Double Layer Galvanized Steel (G1 / G2) * Single / Double Layer Aluminum AlMg3 (A1 / A2)
Curb (Upstand) Infill	* 25mm Rock wool * Polyiso
Hinges	* Zinc Alloy Casting * Stainless Steel
Open/Close Control	Slam Latch with metal handle
Colour	RAL 9002
Hatch Mechanism	Galvanized Gas Springs Struts
Pull Handle	Galvanized steel metal handle / chain on slam latch
Safety	Stopper Bracket Stay
Lock Type	Inside: Manual lock hanger Outside: Lock ring on metal handle

* Please ask for your different material requests and RAL colours.



STANDARD SIZES (W x L)
600x600mm
700x700mm
800x800mm
900x900mm
1000x1000mm
1000x1500mm
1000x2000mm
1100x1100mm
1200x1200mm

*Ask for different sizes.

FORM ENDUSTRI TESISLERI A.S.

Form Endustri Tesisleri, has been producing environmentally friendly, highly energy efficient and innovative products for 58 years. Operating in its 20,000 m² factory in İzmir, the company is the R&D and production base of Form Group, not only with the high energy-saving OEM air conditioner products it produces, but also with zero energy consumption, high quality, solution-oriented products and services for industrial facilities. The company is the producer of Turkey's first daylighting products and first CE certified and conforming EN12101-2 standards NSHEV for industrial facilities. The main fields of activity of the company are; design and manufacture of evaporative coolers, NSHEV's, natural ventilation systems, natural lighting systems, pre-cooling system to increase efficiency of chillers.

FORM ENDUSTRI TESISLERI SANAYI A.S.

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Maslak 34398 Istanbul
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FORM GROUP COMPANIES

FORM Group Companies, established in 1965, manufacture, import, sell and service Air Conditioning and Industrial systems equipment, to improve the life and manufacturing quality of people and products. FORM Group Companies, offering high energy efficiency and environment friendly system solutions, is one of the leading companies in its field, respecting the environment and the ethical values.



Commercial Air-Conditioning Systems Sales and Service

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