Etfe systems
new generation
architectural solutions

spor sarayi

tensaform

etfe
system
WHAT IS ETFE SYSTEMS?

ETFETFE (Ethylene Tetrafluoroethylene) is a fluoropolymer-based material. Created by Dupont firm for the flying machine industry, it is an item that is utilized as a part of present day engineering because of its light porousness and softness. It is normally connected as 2 layers, 3 layers, as inflatable airbags, now and again as single divider. ETFE material is thin and lightweight. Roughly 1% weight of glass, with all the more light transmittance, self-cleaning, perceivability and simplicity of use. The imperviousness to ETFE frameworks is extraordinarily expanded when air blown frameworks are utilized.

ETF Systems are mounted on the carcass frame system with special Aluminum profiles. Blower machines in inflatable cushion systems are able to feed the inflatable cushion system continuously by entering the system again when extra pressure is required in any illegally fed system.

When designing ETFE systems, it is essential to keep in mind the climatic conditions, aesthetic, acoustic and environmental factors. ETFE inflatable cushions should be used in form, printed and 2 x 3 ply specifications according to the requirement of service.
WHAT SHOULD BE PREFERRED?

**ETFE ROOF SYSTEMS**
Among the roofing products, it is the most preferred material with its visibility and functionality.

**ETFE CUSHION**
It is an ideal roofing product with inflatable treads cushions and natural insulation.

**ETFE STADIUM**
It is among the most preferred coating types in modern stadiums.

**ETFE DETAIL**
It is very important details in ETFE products. It gives confidence in the sophistication and simplicity of details.

**ETFE DESIGNS**
It is one of the most beautiful systems that can be applied on roofs and facades with aesthetic and light appearance.

**ETFE ADVANTAGE**
One wall or swelling (cushion) application with lightness, transparency and long-lasting.
The heaviness of the 3-layer ETFE swelling framework is roughly 2-3 kg/m² with the interfacing aluminum. This component has the favorable position that it can not be contrasted and glass. This element permits the entry of expansive openings with a lightweight transport framework. In this way, the transporter gives a great deal more practical arrangements when considered with the framework.

One wall has a light transmittance of the ETFE around 85-90%. It provides bright as outdoors indoors. Also light transmission level through the use of films can be controlled partially spotty.

The tensile strength limit can range up to 21-23 N/mm². The cutting limit is 52 N/mm² and is considered to be 15 n/mm² in the rectangular calculations.
SELF CLEANING

Since it doesn’t stick tidy on its surface, it has a self cleaning capacity even in next to no rain. Cleaning the frameworks with rain water decreases the cost of intermittent upkeep and cleaning.

LONG LASTING

UV, nearly 25 years due to resistance to air pollution and environmental conditions and has more life.

FIRE RESISTANCE

DIN 4102 Class B1
EN 13501-1 Class Bs1,
d0 NFP 92-505 M2
NFPA 701 Pass

SPECIAL ACOUSTIC

ETFE films have acoustic transmittance of 70%.
## ETFE SYSTEM

### TECHNICAL INFORMATION

## MATERIAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Unit</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>um</td>
<td>100±5</td>
<td>150±5</td>
<td>200±5</td>
<td>250±5</td>
<td>300±5</td>
</tr>
<tr>
<td>Weight</td>
<td>g/m²</td>
<td>175±9</td>
<td>262±13</td>
<td>350±17</td>
<td>437±22</td>
<td>525±26</td>
</tr>
<tr>
<td>Strength</td>
<td>MPa</td>
<td>50 min.</td>
<td>50 min.</td>
<td>50 min.</td>
<td>50 min.</td>
<td>50 min.</td>
</tr>
<tr>
<td>Elongation</td>
<td>%</td>
<td>350 min.</td>
<td>350 min.</td>
<td>350 min.</td>
<td>350 min.</td>
<td>350 min.</td>
</tr>
<tr>
<td>10% Elongation Strength</td>
<td>MPa</td>
<td>18 min.</td>
<td>18 min.</td>
<td>18 min.</td>
<td>18 min.</td>
<td>18 min.</td>
</tr>
<tr>
<td>Tear Strength</td>
<td>N/mm</td>
<td>400 min</td>
<td>400 min</td>
<td>400 min</td>
<td>400 min</td>
<td>400 min</td>
</tr>
<tr>
<td>Temperature Strength</td>
<td>%</td>
<td>-1±5</td>
<td>-1±5</td>
<td>-1±5</td>
<td>-1±5</td>
<td>-1±5</td>
</tr>
<tr>
<td>Light Transmission</td>
<td>%</td>
<td>91 min</td>
<td>91 min</td>
<td>89 min</td>
<td>87 min</td>
<td>85 min</td>
</tr>
</tbody>
</table>
ETF film applications usually administered in three ways. One wall (stretching), two walls and a third wall inflatable cushion. ETF layers to be fully transparent in the form of a polka-dot printed convey, specific patterns can also be printed if desired. Overall 3 is printed on the top and bottom layer cushion system implementation is transparent middle. Inflatable cushion blowing system in which machines are used by the air pressure inside the cushion called the blower.

Air circulation is provided with air pipe connected to the cushion.
ETFE cushions, mounted on the carrier structure with special upgrading apparatus is fixed to the aluminium prof. The inside or outside of the vent pipe connected to the pressure set on cushion airflow upgrade and apparatus are provided to receive the forms prescribed inflatable cushion is provided. Repelling birds on the aluminium profile according to the option wires can be installed.
# ETFE MANUFACTURING PROCESS

## CNC CUTTING PREPARATION

For the cutting of the formats which are delivered by the shape and the pneumatic stress qualities to be connected, ETFE movies are laid as per the CNC machine.

## SIZE OF CONTROL SETTLEMENT

Measure precise placement of controls is made to leave the material of the cutting template.

## CUT

+-1mm accuracy ETFE film cutting is done

## BONDING

Middle of the road holding is done by the shares given in the interfered with formats. The parts are stuck all together as indicated by the layout numbers and the module estimate, in order to shape the entire outlined.

## COMBINATION OF INTERNAL ROPES

ETFE the film (single wall applications) inside pocket pasting the ropes used to increase the static strength.

## POCKET WELDING

The ETFE film (single-wall applications) edge halatlar Tallinn to pass for widely held cell paste operation.

## ROVING BONDING

The ETFE film (single wall, two wall, three-wall, four wall applications) can be mounted on the aluminum profile special extrusion for module. The EPDM edge to be glued at the same time as the operation of all layers of the films.

## PREPARING FOR PACKAGING

Module dimensions, size and packaging according to the state assembly opening preparation is done.

## PACKING AND SHIPMENT

The risk of fracture and tear Material minimum to download then labeled and packaged in the form of folding module ID will not be lost on them in a way of sorting and dispatch are provided with maximum security.
ETF E FILM ASSEMBLY

PROFILE LAYOUT
An aluminum profile is placed on the construction.

COVER ASSEMBLY
It is laid over the network and the cover is mounted.

CONTROL
The last state before the pneumatic pressure system envisaged ETFE

INSTALLATION LAYING
Machinery and equipment will be installed.

LAST CHECK
Final checks are made before inflation.

BLOW THE BEGINNING
It starts to inflate.

BLOW TO COMPLETE
Inflating operation is completed.

PRESSURE BALANCE
Air pressure is balanced.

DELIVERY
The ready-made system is checked for air leakage and delivered.

TECHNICAL DOCUMENTS
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