



TRIGLASS® PROFILES

Pultrusion since 1963



Standard and Customized COMPOSITE Solutions

www.topglass.com

MADE IN ITALY



PRODUCTS



STANDARD TRIGLASS® profiles

- rods, tubes, angles, dog bones, half round and corner section profiles
- 500 different shapes available
- partially in stock
- used in a wide range of sectors



CUSTOMIZED TRIGLASS® profiles

- customized shape
- designed to meet specific requirements in terms of chemical and physical properties
- thermoplastic profiles made with FULCRUM® technology are also available



STRUCTURAL TRIGLASS® profiles

- section C and H beams, square tubes and angles
- chemical resistance properties and mechanical performance
- outstanding ease of assembly and maintenance-free performance



TRIGLASS® profiles for WINDOWS

- widely used for window frames, thresholds and shutters
- low overall heat-transfer coefficient
- dimensional stability: they remain stable at all temperatures



Tapered utility POLES

- high mechanical properties and strong resistance to atmospheric agents
- do not require additional surface treatment or periodic maintenance
- light and easily portable by hand

ADVANTAGES



Resistance to Chemicals
Withstand environmental agents and aggressive chemicals.



Assembly and workability
Easy to assemble and adaptable if using woodworking machines.



Electrical Insulation
High dielectric capacity.



Maintenance free
Insulating characteristics allows installation and use with low maintenance costs.



Dimensional stability
Good performing in high temperature fluctuations without presenting significant deformation.



Fire resistance
Production of profiles with excellent properties of fire resistance and extremely low toxic smoke emission.



Lightness
Four times lighter than steel and one and half times than aluminium.



Durability
Selection of raw materials best suited to maximizing long-term mechanical and aesthetic features.



Mechanical resistance
Customized mechanical properties with an elastic-brittle behaviour until breaking.



Thermal Insulation
Very low thermal conductivity coefficient (around 0.3 W/m).



Radar transparency
Transparent to electromagnetic waves and do not generate interference.



Atmospheric resistance
High resistance to rain, UV radiation and critic temperature conditions.

Chemicals and corrosion resistance, electrical insulation capacity, light weight and high mechanical resistance. Composite profiles are the only option if compared to other materials.

COMPARISON WITH OTHER MATERIALS

MATERIALS	SPECIFIC WEIGHT [g/cm ³]	TENSILE STRENGTH [MPa]	ELASTIC MODULUS [GPa]	THERMAL EXPANSION [K ⁻¹]	THERMAL CONDUCTIVITY [W/mK]
WOOD	0,7	80	12	14 X 10 ⁻⁶	0,1
PVC	1,4	70	3	85 X 10 ⁻⁶	0,1
TRIGLASS®	1,8	400	26	11 X 10⁻⁶	0,3
ALUMINIUM	2,7	250	70	23 X 10 ⁻⁶	170
STEEL	7,8	400	210	12 X 10 ⁻⁶	40

SECTORS SERVICES

*The **SECTORS** in which **TRIGLASS®** profiles are extremely successful are countless thanks to the unique advantages of the composite material.*



Windows



Railways



Tunnels



Energy



Transportation



Cooling
Towers



Chemical



Street
Furniture



Electrical



Industry



Infrastructure



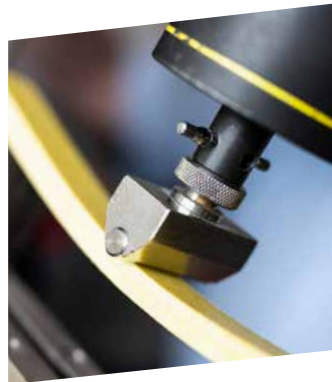
Telecommunications

*In addition to producing **TRIGLASS®** fibreglass profiles, Top Glass offers important support **SERVICES** for a complete product offering.*



MOULDS

Production of production moulds, that they distinguished by their extremely high quality and installation of pultrusion and centrifugal casting systems for customers worldwide.



LABORATORY

Laboratory fully equipped to perform mechanical, fire and dielectric tests together with analysis of raw materials to ensure compliance to the highest standards in product quality.



WAREHOUSE

A wide assortment of **TRIGLASS®** fibreglass profiles for prompt delivery. Standard section products in various lengths, dimensions, colours number of pieces per standard package.



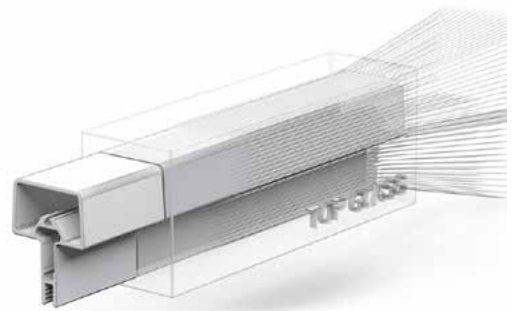
PROCESSING

Post processing operations that provide added value and facilitate the use of fibreglass profiles: cutting to size, drilling, milling, bonding, pre-assembly, CNC machining and varnishing.

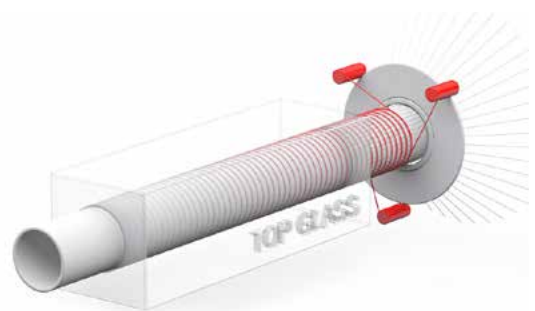
TECHNOLOGIES

TOP GLASS makes its TRIGLASS® PROFILES and utility POLES using systems designed and built entirely inside the company through the technology of PULTRUSION, PULLWINDING and CENTRIFUGAL CASTING.

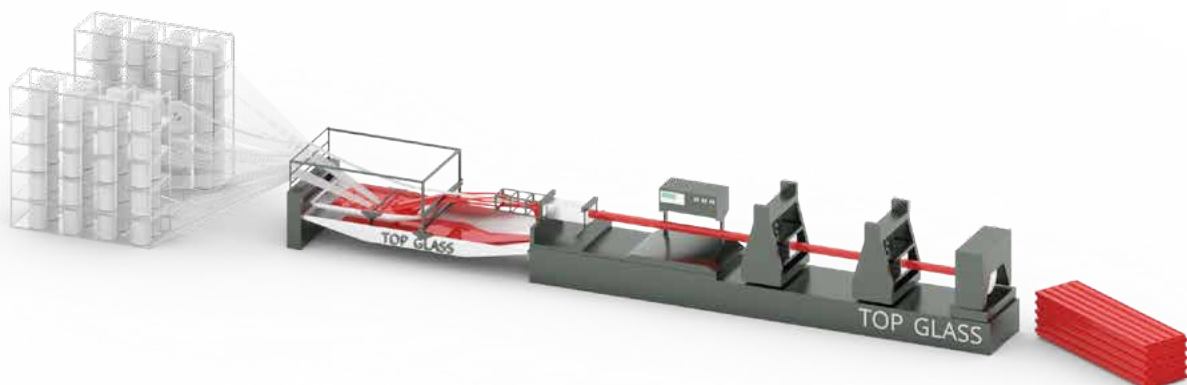
PULTRUSION: is the equivalent of extrusion applied to composite material. A continuous process which is ideal for high-volume industrial production for making constant section straight profiles without length limits with high performance in a longitudinal direction. Pultrusion technology is by nature economically advantageous when it is done on a large scale.



PULLWINDING: is used for producing tubular profiles with high transversal rigidity and mechanical resistance. This production process differs from pultrusion with respect to way the fibreglass is positioned for reinforcing the profile. In order to obtain superior rigidity pullwinding uses both roving placed longitudinally and circumferentially with respect to the profile's axis.



CENTRIFUGAL CASTING: is used to make fiberglass composite poles in the shape of a truncated cone (GFRP tapered poles) with a maximum length up to 13.6 meters in one piece only, with a high degree of dimensional and physical-mechanical repeatability. It is mostly appreciated in lighting poles and supports for electricity, telephone and over-head lines.



COMPOSITE PROFILES SOLUTIONS



During its 56-year history, Top Glass has achieved many successes and important results. Today it is among the most qualified producers of composite profiles in the world.

56 | YEARS OF EXPERIENCE

750 | SHAPES ALREADY PRODUCED



70% | EXPORT

+2000 | CUSTOMERS SERVED

6000km | PRODUCED PER YEAR

100% | EUROPEAN RAW MATERIAL



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