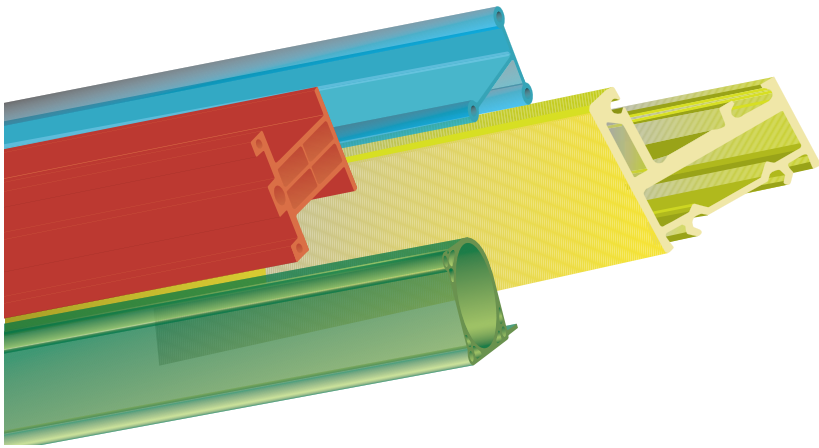


I  **COMPOSITES[®]**

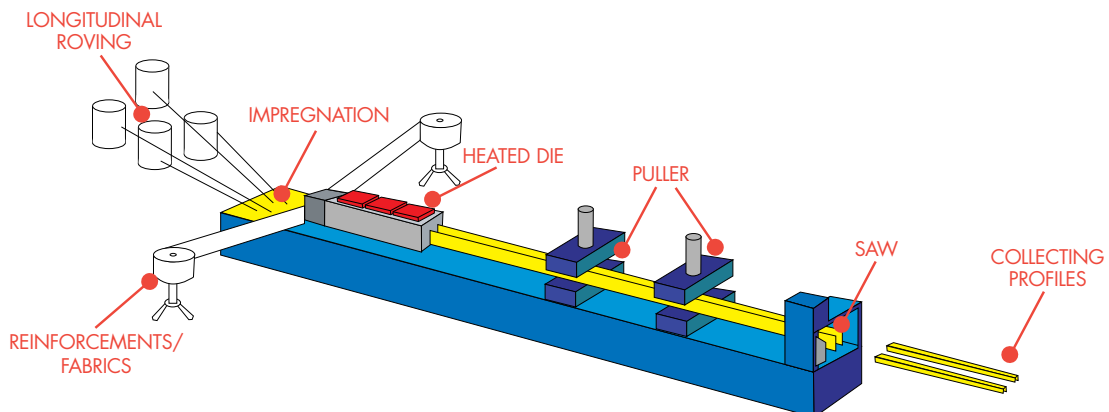
QUALITY PRODUCTS FOR OVER 40 YEARS

At Top Glass, we have been producing profiles in composite materials since 1963. Whether you need small, large, thick, thin, simple forms, complex forms, reinforced with glass or carbon fibers, natural or colored, with special textile inserts or metal reinforcement, we have a solution for you. At Top Glass, we have been producing a very extensive range of profiles in composite materials since 1963. And they have not gone unnoticed – our products are greatly received by engineers and designers alike, who have been able to experience the many possibilities that are offered by composite materials and have opted for our solutions. We also have a special production segment dedicated to **poles**: tapered or cylindrical, all CE certified. Like our other products, Top Glass is ISO 9001 certified and lead the way in this segment.



PRODUCTION METHODS WITH WORLD WIDE REPUTATION

At Top Glass, we manufacture most of our products using the **thermosetting pultrusion** process. This process produces continuous, constant section, straight axis composite profiles of any length. From there, the final product is a solid profile comprising fibers and reinforcements in a resin matrix that is ready to be cut to your precise requirements. A variant for thermosetting pultrusion that is used to make tubular section profiles is **pullwinding** and this is a technology that produces significantly superior rigidity. Furthermore, Top Glass uses the **thermoplastic pultrusion** process with the exclusive Fulcrum® technology. This enables profiles to be created with mechanical properties that are higher in comparison to profiles made with thermosetting resins. This impressive technology delivers the user the possibility of in-line co-extrusion of different thermoplastics and geometries. And in the production of tapered poles, we instead use the **centrifugal process**. Top Glass take care of all phases of the production process - from the computerized design right the way through to the serial production of the final products and from the machining and assembling of parts to the logistics suited by the final customer.



ONE SOLUTION FOR YOUR REQUIREMENTS

The intrinsic properties of composite materials mean that Top Glass products can be used **in many different fields**. These include electrical power distribution, infrastructure, transport, building, telecommunications (antennas and radomes), industry, urban fixtures, sport and leisure and many, many others.

And it should be noted that fiberglass profile structures can be machined using traditional machine tools and assembled into the main components of a finished product or a larger system.



ADVANTAGES OF COMPOSITE MATERIALS

Fiberglass profiles are increasingly being used as substitutes for analogous components in aluminium, steel, wood or PVC. This is due to their intrinsic **physical and chemical properties** (corrosion resistance, thermal and electrical insulation).

COMPARATIVE TABLE OF MATERIALS					
	SPECIFIC WEIGHT g/cm ³	TENSILE STRENGTH MPa	ELASTIC MODULUS GPa	THERMAL EXPANSION COEFFICIENT K ⁻¹	THERMAL CONDUCTIVITY W/mK
PULTRUSION	1,8	400	26	11 x 10 ⁻⁶	0,35
WOOD	0,7	80	12	14 x 10 ⁻⁶	0,1
ALUMINIUM	2,7	250	70	23 x 10 ⁻⁶	170
STEEL	7,8	400	210	12 x 10 ⁻⁶	40
PVC	1,5	70	3	85 x 10 ⁻⁶	0,1

The application **advantages** are numerous:



**machining
assembling**



**flame
resistant**



**electrical
insulation**



lightweight



**weatherproof
load resistant**



**chemical
resistant**



**mechanical
strength**



**machining
assembling**



**thermal
insulation**



radiotransparency



ABOUT US

Since 1963, Top Glass has adopted a **unique approach** to the world of fibre reinforced pultruded composites.

During our 45 years history, we have developed an outstanding **range of composites solutions** calling upon our **professionalism and expertise** to meet the challenges and opportunities offered by our valued customers. In doing so, we have created an important and viable alternative to profiles that are made using traditional materials.

Today Top Glass operates from **two sites** close to Milan (Italy), one in Osnago (14.000sqm) and the other in Pioltello (8.000sqm).

We have developed a highly impressive **production capacity** and dynamically undertake all new challenges by designing complex sections and moulds in our own tool room and choosing the exact material mixes to meet all requirements.

In 2008 Top Glass became part of the **Kemrock™ Global Composite Village™**. Kemrock is India's **leading composites processor**, having manufacturing capability in all the major process techniques, as well as establishing strategic alliances with global leaders in the composites world. Our technical excellence combined with the manufacturing power of Kemrock means that the highest quality products are now available from one of the world's leading composites groups.



Further information is available at **www.topglass.it** and **www.kemrock.com**.

There you can discover more about our manufacturing capabilities and the technical excellence of our products. Full product information is available to download in PDF format.

We would also like you to **take advantage** of our unique products. Please don't hesitate to **contact us**. We look forward to discussing, designing and optimizing your requirements, together

TOP GLASS S.p.A.
Via dei Soldani, 3 - I - 23875 Osnago (LC)
Tel +39 039 95223.1 - Fax +39 039 587787
info@topglass.it - www.topglass.it

