

TRIGLASS® HIGH PERFORMANCE PROFILES

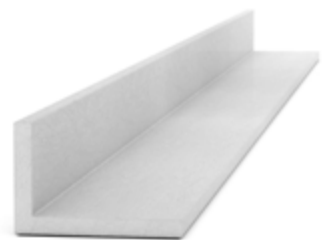
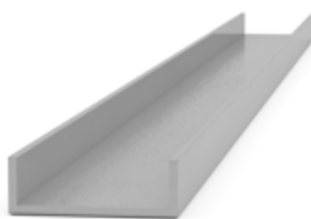
In the last decade the **use of FRP pultruded profiles** in civil and building engineering was more and more widespread. This material presents **many advantages** respect to the traditional techniques: **resistance** to aggressive environments, **lightweight**, **speed of execution**, **greater load bearing capacity** and great **geometrical adaptability**.

In 2018 Top Glass has created a new composite material named **TRIGLASS® High Performance**, specifically designed for structural applications.

These profiles were tested at the Material Testing Laboratory of Politecnico di Milano; a series of mechanical and physical experimental tests were performed according to the **European code EN 13706**.

The properties of **TRIGLASS® High Performance** materials result higher than the requirements of the **E23 class**, that presents the most stringent quality parameters.

The results achieved are valid for this **range of products**:



"H" SECTION 200x100x10x10 mm

"C" SECTION 300x100x15 mm

ANGLE 100x100x8 mm

"H" SECTION 200x200x15x10 mm

"C" SECTION 200x60x10 mm

ANGLE 75x50x8 mm

"H" SECTION 200x200x8x10 mm

"C" SECTION 150x45x8 mm

"H" SECTION 150x75x8 mm

"H" SECTION 120x60x8 mm

"H" SECTION 100x50x8 mm

PHYSICAL-MECHANICAL PROPERTIES TRIGLASS® High Performance
Grade E23 according to EN 13706-2 Standard

PROPERTY	TEST METHOD	UNIT OF MEASUREMENT	TRIGLASS® High Performance MEAN VALUE	E 23 GRADE REQUIREMENT
PIN BEARING STRENGTH – LONGITUDINAL	ANNEX E, EN 13706-2	MPa	280	> 150
PIN BEARING STRENGTH – TRANSVERSAL	ANNEX E, EN 13706-2	MPa	160	> 70
FLEXURAL STRENGTH - LONGITUDINAL	EN ISO 14125	MPa	520	> 240
FLEXURAL STRENGTH - TRANSVERSAL	EN ISO 14125	MPa	160	> 100
INTERLAMINAR SHEAR STRENGTH LONGITUDINAL	EN ISO 14130	MPa	31	> 25
TENSILE STRENGTH - LONGITUDINAL	EN ISO 527-4	MPa	400	> 240
TENSILE STRENGTH - TRANSVERSAL	EN ISO 527-4	MPa	65	> 50
TENSILE MODULUS - LONGITUDINAL	EN ISO 527-4	GPa	28	> 23
TENSILE MODULUS - TRANSVERSAL	EN ISO 527-4	GPa	10	> 7
FULL SECTION BENDING MODULUS	ANNEX E, EN 13706-2	GPa	29	> 23

Due to the increasing use of these materials, it was necessary to develop a **standardization document in Europe** for the production of FRP structural elements and for the structural design.

In September 2018 the European Technical Committee 250 (CEN/TC250) presented the **“Prospect for new guidance in the design of FRP structures”**, and some European Assessment Documents were published both for the structural profiles and the use of FRP bars as reinforcement of structural elements.