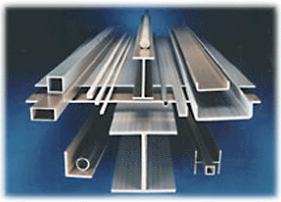
ICP® – Pultruded Profiles

HIGH STRENGTH



ICP Pultruded profiles - stronger than structural steel on a weight-for-weight basis, pultruded profiles have been used to form the superstructures of multistory buildings, walkways, sub-floors and platforms.

LIGHTWEIGHT

Pultrusions are 20-25% the weight of steel and 70-75% the weight of aluminum. Pultruded products are easily transported, handled and lifted into place. Total structures can often be pre-assembled and shipped to the job site ready for installation.

CORROSION/ROT RESISTANT

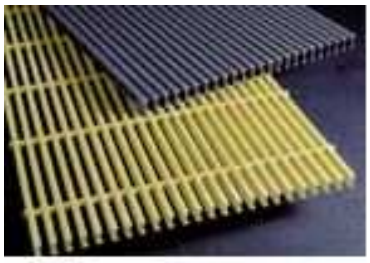
Pultruded products will not rot and are impervious to a broad range of corrosive elements. This feature makes pultrusions a natural selection for indoor or outdoor structures in pulp and paper mills, chemical plants, water and sewage treatment plants, structures near salt water and other corrosive environments.

NON-CONDUCTIVE

Glass reinforced pultrusions have low thermal conductivity and are electrically non-conductive.

ELECTRO-MAGNETIC TRANSPARENCY

Pultruded products are transparent to radio waves, microwaves and other electromagnetic frequencies.



DIMENSIONAL STABILITY

The coefficient of thermal expansion of pultruded products is slightly less than steel and significantly less than aluminum.

PARTS CONSOLIDATION

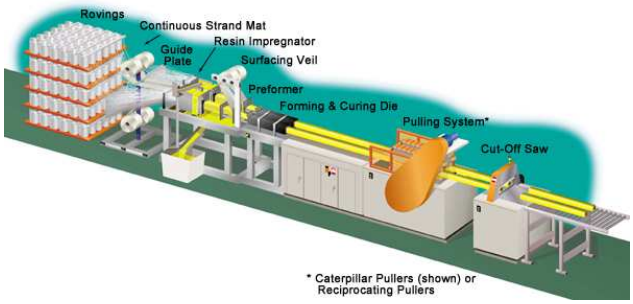
Custom designed pultrusions allow multiple discrete parts to be designed and fabricated into a single part thus reducing the number of fabricated parts and the need to join these parts together.

LOW TEMPERATURE CAPABILITIES

Glass fiber reinforced pultrusions exhibit excellent mechanical properties at very low temperatures, even -70°F. Tensile strength and impact strengths are greater at -70°F than at +80°F.

AESTHETICS

Pultruded profiles are pigmented throughout the thickness of the part and can be made to virtually any desired custom color. Special surfacing veils are also available to create special surface appearances such as wood grain, marble, granite, etc.



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ELECTRICAL APPLICATIONS

Due to their superior electrical and thermal properties, they find wide application in electrical equipment, such as

- dry type transformers,
- motors,
- switchgears
- and lightning arrestors,

to name a few.

Typical Properties:

Physical Properties

Property	Specification	Value	Unit
Sp Gravity	IS 10192-1982	1.90 to 2.10	
Glass Content	DIN EN 60	55-75	%
Water Absorption	IS 10192-1982	< 0.5	%
Flatness (1000mm)	IS 10192-1982	6	mm

Mechanical Properties

Tensile Strength	ASTM D 638	4500 - 7000	kN/mm2
Flexural Strength	IS 1998/6-1962	4500 - 7000	kN/mm2
Compressive Strength (Axial)	IS 1998/8-1962	200 - 450	kN/mm2
Barcol Hardness	ASTM D 2583-75	>40	
Heat Distortion Temperature	ASTM D648	130 - 155	deg C

Electrical Properties

Dielectric Strength - Axial	IS 10192/13-1982	50	kV/25mm
Dielectric Strength – Radial	IS 10192/14-1982	10	kV/mm
Arc Resistance	ASTM D495	120	Sec
CTI (Tracking Resistance)	DIN53480	600	V
Power Factor (at 90C in Air)	ASTM D 150	0.03	

Matrix Materials:

- Epoxy
- Vinyl Ester
- Polyester
- Phenolic

Sizes

Practically any profile of uniform cross section can be produced up to 400mm wide and 200mm high, with a minimum wall thickness of 2.5mm. Also since it is a continuous process, the length is practically unlimited, constrained only by transportation options.

Custom profiles can be produced according to customer specification; however the following guidelines should be kept in mind.

- Max width = 400mm, Height = 200mm, Min Thickness = 2.5mm
- Max Thickness for Hollow Sections = 12mm
- Minimum Radius = 1mm

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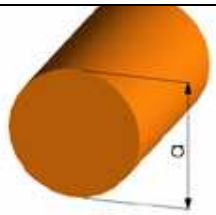
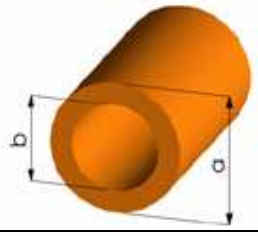
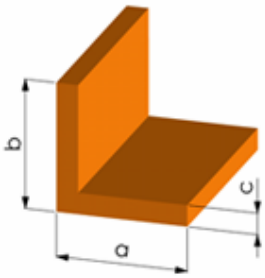
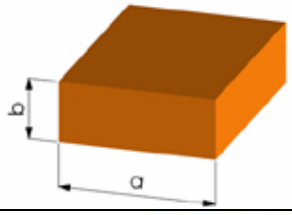
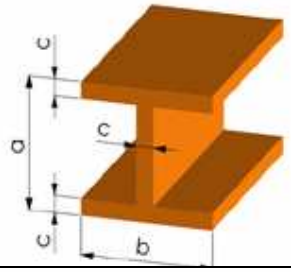
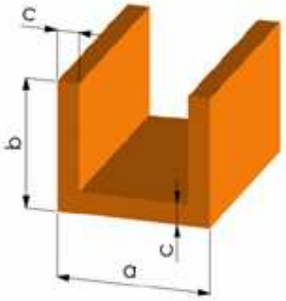
Common Profiles Stocked:

		a (mm)	b (mm)	c (mm)	d (mm)
RODS		6.0 8.0 10.0 12.0 16.0 20.0 24.0 30.0			
TUBES		26.0	22.0		
ANGLES		25.0 25.0 30.0 45.0 50.0 50.0	25.0 15.0 30.0 45.0 50.0 50.0	3.0 2.5 2.5 2.5 5.0 6.0	
FLATS		19.0 23.5 25.0 35.0 50.0 60.0 60.0	40.0 5.5 2.5 2.5 2.5 8.0 30.0		
I SECTIONS		30.0 50.0	15.0 25.0	5.0 4.0	
U CHANNEL		33.0 65.0 150.0	25.0 35.0 40.0	2.5 6.0 6.0	

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