FibrePROFILES

Pultruded Profiles

DESIGN | SUPPLY | FABRICATE | INSTALL

FIBREGRID

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Pultrusion is a manufacturing process for producing continuous lengths of GRP structural shapes. Raw materials include a liquid resin mixture (containing resin, fillers and specialized additives) and reinforcing fibres. The process involves pulling these raw materials (rather than pushing as is the case in extrusion) through a heated steel forming die using a continuous pulling device.

The reinforcement materials are in continuous forms such as rolls of fibreglass mat or fibreglass roving. As the reinforcements are saturated with the resin mixture ("wet-out") in the resin impregnator and pulled through the die, the gelation (or hardening) of the resin is initiated by the heat from the die and a rigid, cured profile is formed that corresponds to the shape of the die.

CHARACTERISTICS

- High strength
- Lightweight
- Corrosion resistant
- Dimensional stability
- Non conductive & spark resistant
- Electro-magnetic transparency
- Low temperature capabilities
- Aesthetically pleasing

SUITABLE APPLICATIONS

- ✓ **Aerospace/military areas**
- ✓ **Building/construction areas**
- ✓ **Chemical processing plants**
- ✓ **Electrical areas**
- ✓ **Food processing**
- ✓ **Infrastructure**
- ✓ **Mining industry**
- ✓ **Oil and gas industry**
- ✓ **Automotive industry**
- ✓ **Cellular communications**
- ✓ **Cooling towers**
- ✓ **EMI/RFI testing areas**
- ✓ **Hotels/motels**
- ✓ **Marine**
- ✓ **Offshore oil**
- ✓ **Petrochemical**

TECHNICAL DATA

Description	Structural fibreglass pultruded profiles
Stock colours:	Grey and Yellow (Stocked. Any RAL or BS colour subject to minimum quantity ordered and extended lead time)
Chemical resistance:	Made from Iso resin as standard. Different chemical resistance available, please call our technical department for advice.
Tolerances (including cut):	+/- 3-4mm
Fire retardant:	In accordance with the class definitions given in BS 476: Part 7: 1997; the specimens tested are classified as Class 1.
Service temperatures:	-20 to 80˚C
Design life:	20+ years

HANDLING & STORAGE

Dust residue can be disposed of using normal waste disposal methods. No special permissions or licences are required at the time of going to print.

PERSONAL PROTECTION EQUIPMENT

When installing Pultruded Profiles standard personal protective equipment should be worn as a minimum. These include 3M dust masks (or similar), safety goggles, heavy duty gloves and overalls. Pultruded Profiles should be cut in a well ventilated area or close to extraction points.

PREPARATION

- ✓ **Dry fit all Pultruded Profiles to ensure they fit freely and that they sit flat down on the surface. If required, PultrudedProfiles can be trimmed on site to suit, ideally using a skill saw with a 4mm diamond blade or an angle grinder with a 1mm blade.**
- ✓ **Please ensure that goggles and gloves are worn at all times when any form of cutting is involved.**

CLEANING GUIDE & TIPS

Whilst Pultruded Profiles are extremely resilient to dirt and contaminants, they can as with most other things, become dirty.

Dirt and debris can easily be removed using a stiff brush and should be carried out on a regular basis.

If Pultruded Profiles have been subjected to spillages or the dirt has become embedded; detergents such as our Heavy Duty Degreaser or similar can be used. It is always advisable to test any cleaning product on Pultruded Profiles before starting the cleaning procedure. This can be done on an inconspicuous area of the installation, or if preferred, a sample can be sent free of charge for testing purposes.

Using the detergent, warm water and a suitable brush, scrub the areas until clean. The excess water can be removed using a wet/dry vacuum cleaner or suitable absolvable materials.

Where circumstances allow, Pultruded Profiles can be power washed without causing harm.

General Routine Maintenance - The security of the fixings/adhesive should be checked on a regular basis. Circumstances will vary, based upon the volume of foot traffic etc, but as a guide; monthly inspections would be advisable.

These instructions are to be used as a guide. Always employ safe practices. It is recommended to first test the suitability of any product on a small area before carrying out a full application.

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PROPERTIES

Below are test results for typical properties of FibreGrid Limited structural fibreglass profiles (Standard, Fire Retardant, & Vinylester shapes). Properties are derived per the ASTM test method shown. Synthetic surfacing veil and ultraviolet inhibitors are standard. (LW = Lengthwise, CW = Crosswise, PF = Perpendicular to Laminate Face)

Mechanical Properties	ASTM	Units	Value
Tensile Stress, LW	D-638	psi	30,000
Tensile Stress, CW	D-638	psi	7,000
Tensile Modulus, LW	D-638	106 psi	2.5
Tensile Modulus, CW	D-638	106 psi	0.8
Compressive Stress. LW	D-695	psi	30,000
Compressive Stress. CW	D-695	psi	15,000
Compressive Modulus, LW	D-695	106 psi	2.5
Compressive Modulus, CW	D-695	106 psi	1
Flexural Stress, LW	D-790	psi	30,000
Flexural Stress, CW	D-790	psi	10,000
Flexural Modulus, LW	D-790	106 psi	1.8
Flexural Modulus, CW	D-790	106 psi	0.8
Modulus of Elasticity, E	Full Section	106 psi	2.8
Shear Modulus	----	106 psi	0.45
Short Beam Shear	D-2344	psi	4,500
Punch Shear	D-732	psi	10,000
Notched Izod Impact, LW	D-256	ft-lbs/in	25
Notched Izod Impact, CW	D-256	ft-lbs/in	4
Physical Properties	**ASTM**	**Units**	**Value**
Barcol Hardness	D-2583	----	45
24 Hour Water Absorbtion	D-570	% max	0.45
Density	D-792	lbs./in.3	0.62-0.070
Coefficient of Thermal Expansion, LW	D-696	10-6 in/in/°C	8
Electrical Properties	**ASTM**	**Units**	**Value**
Arc Resistance, LW	D-495	Seconds	120
Dielectric Strength, LW	D-149	kv./in.	35
Dielectric Strength, PF	D-149	volts/mil	200
Dielectric Constant, PF	D-150	@60hz	5
Flammability Properties	**BS**	**Units**	**Value**
Surface Spread	476: Part 7	mm/90sec	60

DIMENSIONS

(H=Height, W=Width, T=Thickness)

(ns=Not Stocked. 12 week lead time required for these products/sizes)

Square Tube - Dimensions (mm)

(HxWxT)	Kg's per linear metre
25x25x3 (ns)	0.55
38x38x3.2 (ns)	0.61
38x38x5 (ns)	1.24
44x44x6 (ns)	1.64
50x50x3	1.10
51x51x6.35 (ns)	2.12
60x60x4.5 (ns)	1.85
63.5x63.5x5	4.67
76x76x6.35	3.48
101.6x101.6x6.35	4.61

Equal Angle - Dimensions (mm)

(HxWxT)	Kg's per linear metre
25x25x3 (ns)	0.27
40x40x4	0.58
50x50x3 (ns)	0.52
50x50x5	0.96
50x50x8	1.42
51x51x6.35	1.10
60x60x8 (ns)	1.75
76x76x9.5	2.77
100x100x8	2.95

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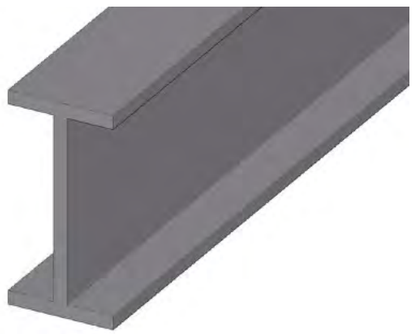
C Channel - Dimensions (mm)

(HxWxT)	Kg's per linear metre
50x30x4 (ns)	0.75
76x25.4x6.3 (ns)	1.25
76x38x6.5	1.75
100x50x6 (ns)	2.03
150x50x6 (ns)	2.57
152x42x6.35	2.69
200x60x8 (ns)	4.68
200x60x9.5 (ns)	5.59
203x55x9.5	6.14
280x70x12	9.17

I Beam - Dimensions (mm)



(HxWxT)	Kg's per linear metre
120x70x8	3.67
150x80x10 (ns)	5.71
152x76x6.35	3.58
200x100x9.5 (ns)	6.65

DIMENSIONS

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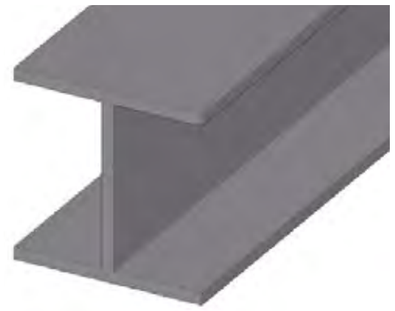
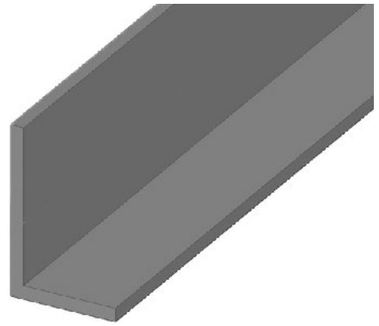
H Beam - Dimensions (mm)

(HxWxT)	Kg's per linear metre
200x200x10	11.02



Unequal Angle - Dimensions (mm)

(HxWxT)	Kg's per linear metre
60x40x7	1.23



Rectangular Tube - Dimensions (mm)

(HxWxT)	Kg's per linear metre
4x32x3 (ns)	0.47
22x100x5 (ns)	2.45
32x52x5 (ns)	1.44
70x180x5.5 (ns)	4.56

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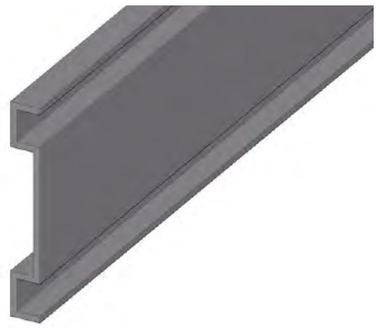
Kick Plate - Dimensions (mm)



(HxWxT)	Kg's per linear metre
150x15x3 (ns)	1.30

Round Tube - Dimensions (mm)

(HxWxT)	Kg's per linear metre
7.9x3.1 (ns)	0.08
9.5x3 (ns)	0.10
12.7x4 (ns)	0.20
19x12.6 (ns)	0.29
22x17 (ns)	0.28
25x20 (ns)	0.33
32x26 (ns)	0.49
38x31.6 (ns)	0.55
38x32 (ns)	0.62
48.3x35 (ns)	1.60
50x43.6 (ns)	0.70
51.6x46.5 (ns)	0.72
58x54 (ns)	0.63
76x69.6 (ns)	1.00

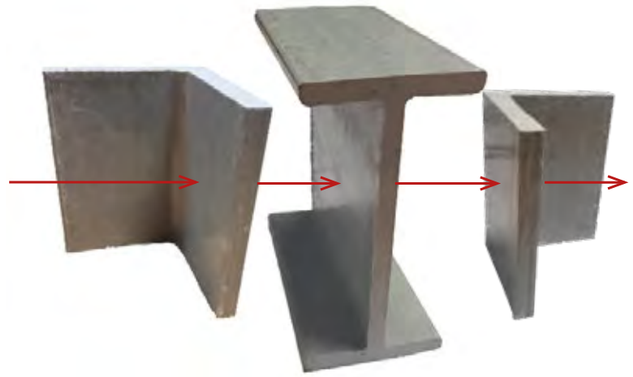
INSTALLING “I” BEAMS

Our “I” Beams are used primarily in service risers; using a combination of “I” Beams and metal cleats. Our Equal Angle profile can be used as cleats, or you can source your own.

To fix to a wall, bolt the cleats onto both sides of the “I” Beam, ensuring that the cleats sit flush against the “I” Beam and the surface of the wall. Then fix to the wall by putting two bolts in each cleat into the wall.

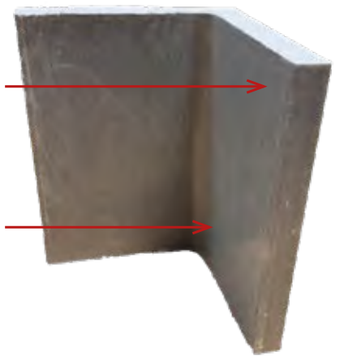
Fixing cleats into the “I” Beam

Bolt both cleats to the “I” Beam



Fixing cleats to the wall

Two bolts in each cleat, through into the wall



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