

COMPARE

EXTREN® vs. ALUMINUM



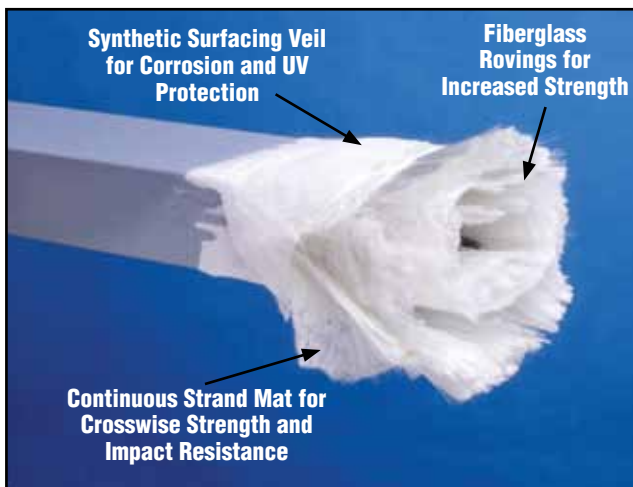
EXTREN® fiberglass structural shapes and plate



Typical aluminum shapes extruded from aluminum billets

EXTREN® fiberglass structural shapes are:

- Corrosion Resistant
- Low Maintenance
- EMI/RFI Transparent
- Strong
- Low in Conductivity
- Lightweight



Aluminum billets

EXTREN® is a proprietary combination of fiberglass reinforcements and thermosetting polyester or vinyl ester resin systems. It is produced in more than 100 standard shapes.

EXTREN® fiberglass structural shapes and plate have a number of significant advantages over aluminum. EXTREN® is electrically and thermally nonconductive (an important safety feature), impact resistant, highly corrosion resistant and EMI/RFI transparent.

***Is EXTREN® the best material choice to meet the requirements of your application?
Turn over to compare the features of EXTREN® fiberglass structural shapes and aluminum extruded shapes!***

COMPARE!**EXTREN®
FIBERGLASS STRUCTURAL SHAPES****VS.****ALUMINUM
EXTRUDED SHAPES**

| | | |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CORROSION RESISTANCE | Superior resistance to a broad range of chemicals. Surfacing veil and UV additives improve weatherability. | Can cause galvanic corrosion. Corrosion resistance can be increased through anodizing or other coatings. |
| WEIGHT | Very lightweight — about 80% the weight of aluminum. | Lightweight - about 1/3 that of copper or steel. |
| ELECTRICAL CONDUCTIVITY | Low conductivity properties — high dielectric capability. | Conducts electricity — grounding potential. |
| THERMAL CONDUCTIVITY | Insulates — low thermal conductivity (4 BTU/SF/HR/F ⁰ /IN); low thermal coefficient of expansion (7 (IN/IN/F ⁰)10 ⁶). | Heat conductor — high thermal conductivity (150 BTU/SF/HR/F ⁰ /IN); thermal coefficient of expansion 11-13 (IN/IN/F ⁰)10 ⁶ . |
| STRENGTH | Ultimate flexural strength (Fu) LW = 30 KSI, CW = 10 KSI. EXTREN® has 86% of the yield strength of aluminum and pound-for-pound, is stronger than aluminum in the length-wise direction. | Flexural strength (Fu) 35 KSI. Homogeneous material. |
| FINISHING AND COLOR | Pigments added to the resin provide color throughout the part. Special colors available. Composite design can be customized for required finishes. | Silver color. Other colors require pre-finishes, anodic coatings and paints. Mechanical, chemical and electroplated finishes can be applied. |
| EMI/RFI TRANSPARENCY | Transparent to radio waves, EMI/RFI transmissions; used for radar and antennae enclosures and supports. | Highly reflective. |
| FABRICATION | Easy field fabrication with simple carpenter tools — utilizes adhesive bonding and/or mechanical joining. No torches or welding. | Good machinability — welding, brazing, soldering or mechanical joining. |
| COST | Slightly higher tooling costs; price per lineal foot marginally higher. | Extrusion tooling is relatively inexpensive. Part price comparable or slightly lower. |
| IMPACT RESISTANCE | Glass mat in EXTREN® distributes impact load to prevent surface damage even in sub-zero temperatures. Will not permanently deform under impact. | Easily deforms under impact. |

THE CHOICE! EXTREN® Fiberglass Structural Shapes and Plate!**STRONGWELL**

ISO-9001:2000 Certified Manufacturing Plants

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