GULF SYNTHETICS

PROTECTIVE COATINGS ▲ SYNTHETIC SHEETPILE

PURLoc™ Composite Sheet Pile System

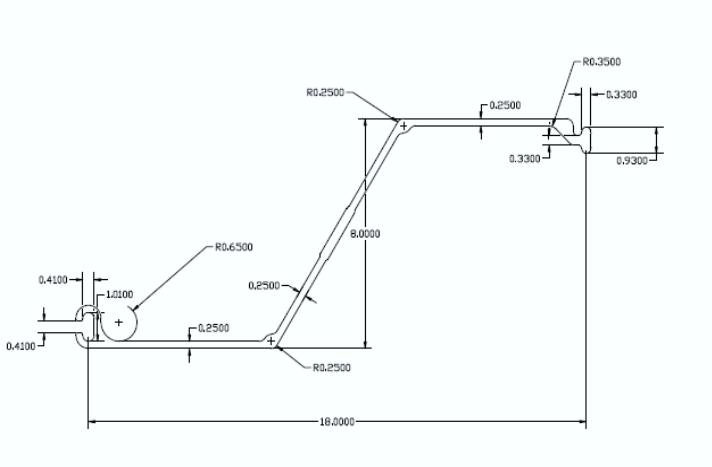
Product Brochure

The World's Strongest Composite Sheetpile

The only Pure Polyurethane composite sheet pile line in the world

American owned **American Made**

What are the advantages of polyurethane pultrusion?



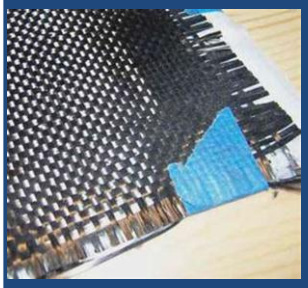
In the polyurethane pultrusion process, more reinforced fibers can be added, making the end product dramatically stronger. It allows for more economical manufacturing process as well, because rovings can be used instead of costly mats, and high line speeds can be achieved. With polyurethane, there is excellent resin-to-fiber bonding and imporved impact and transverse properties. And because parts made from pultruded polyurethane are stronger and lighter in weight, they can be made larger, with thinner walls.

In addition, pultruded parts are less brittle and can be assembled in a conventional manner, without cracking ore splintering. Furthermore, the polyurethane pultrusion process is environmentally friendly, with no styrene. Polyurethane pultrusion also offers.

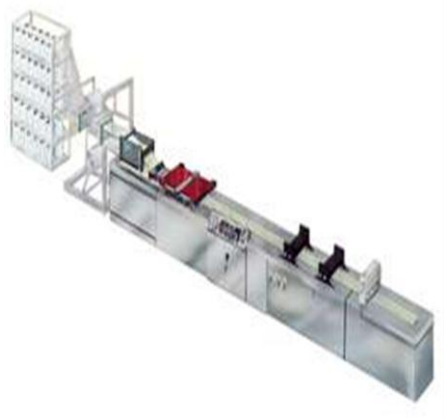
- Lighter and more economical profiles due to strength advantages
- Higher specific strength and stiffness
- Superior fabrication and fastening results

Composites and Pultrusion

"A composite material is formed by the combination of two or more distinct materials to form a new material with enhanced properties"



The term pultrusion combines the words, "pull" and "extrusion". Extrusion is the pushing of material, such as PVC through a shaped die. Whereas pultrusion,is the pulling of material, such as fiberglass and resin, through a shaped die. The pultrusion process starts with creels of fiber rovings and mats. The raw fiber is pulled off the racks and guided through a special patented injection box and into the die. The fiber reinforcement becomes fully impregnated with the resin. As the resin rich fiber exits the injection box it is pulled through a heated die which will cure the thermosetting resin. The material is pulled through the die with a force of 40 tons by using a set of hydraulic clamps.



Why is PURLoc™ superior to other Composite sheet pile?

PURLoc™ is manufactured by the pultrusion process and is designed to be able to weather the harsh marine environment. Many traditional methods of building seawalls from wood, steel, and even concrete simply cannot hold up over time. Marine borers attack and eat the wood, steel will rust and corrode, and concrete will deteriorate over time as the rebar starts to corrode. Strict environmental laws have prohibited the use of chemically treated wood and other solvent based paints or coatings. The shortened life cycle of traditional materials has increased the costs for maintenance and replacement. PURLoc™ sheet pile does not leach any chemicals making it environmentally safe. PURLoc™ is a cost effective and long term solution to any waterfront project.

PURLoc™ is the first composite sheet pile to use a special patented urethane injection box. What makes our injection design significant is that it permits us to inject resin through the most dense layers of roving and fabrics. Other injection systems cannot penetrate these reinforcement packages and therefore do not achieve the wet-out necessary to meet the mechanical properties desired. In addition to working with traditional thermoset resins, it works best with the pure polyurethane family of resins where glass contents are much higher at 76 to 80 percent. Traditional injection systems cannot possibly inject through this high percentage of dense rovings and mats. This allows the PURLoc™ system to have properties that are 30% stronger than any other FRP sheet pile on the market. The PURLoc™ line of sheet pile uses a proprietary non-hybrid Polyurethane resin system that is exclusive to Gulf Synthetics. We use the Baydur® PUL 2500 resin manufactured by Bayer Material Sciences. Compare our Modulus of Elasticity and Tensile strength to other similar profiles.