

Composite Advantages

Composites are combinations of two or more materials (reinforcing elements and resin) that retain their identities while acting in concert. Fiberglass-reinforced polymer (FRP) composites are safe and reliable solutions, able to face tough conditions in various environments and have outperformed traditional materials for many years.

Composites offer these important benefits:

- **Light Weight** – Composite parts help save weight compared to steel parts (up to 30 percent lighter) with similar thermo-mechanical properties.
- **High Strength** – Pound for pound, glass fibers are stronger than steel. Composites gain their strength when fibers are set within a resin matrix. Fibers carry the load while the resin spreads the load imposed on the composite.
- **Easy to Shape** – Composites can be molded into complex shapes at relatively low cost. This flexibility offers designers extensive latitude in new product design.
- **Integration of Functions** – Parts with multiple functions can often be made in a single step with composites.
- **Corrosion Resistance** – Composites provide long-term resistance to severe chemical and temperature environments. Composites are the material choice for outdoor exposure, chemical handling and severe environment service.
- **Durability** – Composite structures have an exceedingly long life span. Coupled with low maintenance requirements, the longevity of composites is a benefit when used in critical applications. After a half-century of use, many well-designed composite structures have yet to wear out.
- **Cost savings** – Thanks to their low weight and high mechanical properties, the use of composites in many applications reduces manufacturing, shipping and maintenance costs compared to traditional materials such as steel.

For more information about the advantages of composites, visit the website of the American Composite Manufacturers Association at www.acmanet.org/consumers/.