

Litecast™

Innovative Attachments for Composite Structures

Definition:

- Litecast is the process of **die casting** metal (aluminum, zinc, magnesium) directly onto polymeric composite inserts (fiberglass, graphite)
- The insert, generally in rod form, is made using a low cost continuous manufacturing process known as pultrusion.
- The end fitting is formed during the attachment process.
- The combination of the two efficient manufacturing processes yields a product which competes favorably with materials and processes used today for automotive suspension components.

Development History:

- Process invented in February of 1990.
- First rear upper suspension link was made in February of 1991.
- Patent granted on technology on March 23, 1993.
- First production program was Electric Vehicle rear upper and lower suspension links.
- Society of Plastics Engineers Award for “Most Innovative Process for 1996”.
- Litecast introduced on Chevrolet Corvette for last year of production of the C4 Generation (1996).

Advantages:

- Low Mass
- Low Cost
- Low Investment
- Corrosion Resistance
- Reduction of Post-Machining

General Design Principles:

Two Force Member



Design Failure Modes:

Compression:

Critical design consideration in compression is buckling:

$$P_{cr} = ((\pi)^2 * E * I) / L^2$$

Tension:

There are three critical tensile stress locations:













