

Polycarbonate – A Super Material

| Mechanical and Thermal | Test Spec. | Unit | Integra Enclosures |
|----------------------------------|------------|--------|--------------------|
| Instrumented Dart Impact @ 73° F | | in/lb. | 565 |
| Falling Ball Impact @ 73° F | UL-746 | in/lb. | 900 |
| Deflection Temperature @ 264 psi | ASTM D648 | Deg. F | 270 |
| Modulus of Elasticity | ASTM D790 | ksi | 340 |
| Temperature Range | | Deg. F | -40 to 265 |
| Flammable / UV Ratings | Test Spec. | Unit | Integra Enclosures |
| Flame Rating - UL | UL 94 | - | V2 |
| Outdoor UV Exposure | UL | - | F1 |













- Polycarbonate has very high impact resistance (Four times fiberglass, four times ABS)
 - Wide Temperature range -40 to 265 deg F
 - Best Flammability rating (self extinguishing)
- Best Outdoor UV Exposure rating (UV and water exposure)
 - Ease of Modification (strong like steel, cuts like butter)



Polycarbonate vs. Fiberglass

Best Non-Metallic Enclosure Technology













POLYCARBONATE & FIBERGLASS, WHICH IS BETTER?

| Feature | Polycarbonate | Fiberglass | |
|-------------------------------|---|--|---|
| Impact resistance |  |  | The average fiberglass enclosure tensile strength is approximately 220 in/lb. Polycarbonate has a tensile strength of 900 in/lb. Polycarbonate is over 4 times the impact resistance of fiberglass. |
| Weight |  |  | Whether it is saving on shipping cost or the ability for one person to carry and install a product in an enclosure, weight is increasingly important. Polycarbonate is up to 40% lighter than fiberglass. |
| UV resistance |  |  | Fiberglass UV protection is offered as a shield or other coating that attempts to protect the fibers from the inevitable deterioration or even failure of the exterior coating. With polycarbonate, the UV inhibitor is in the formulation and is uniformly integral to the enclosure. |
| Ease of modification |  |  | Fiberglass is tough on tools and often chips while machining, leaving sharp, unsightly edges. Also, fiberglass, upon drilling or cutting gives off a very fine dust that is difficult to clean up and is a skin and lung irritant. Integra polycarbonate enclosures are easy to modify, do not give off dust and leave a clean, attractive surface with no sharp edges. |
| Eco-friendly |  |  | Whether during the manufacturing process or at the end of the enclosure's life, fiberglass material cannot be reused and is destined for landfills. Polycarbonate in the manufacturing process or at the end of its usable life is recyclable. |
| Damage from shipping/handling |  |  | Fiberglass is a very brittle material, to the point that it risks damage anytime it is dropped or mishandled in any way. Because of its durability, polycarbonate is rarely damaged from shipping or handling. |



Stainless Steel vs. Carbon Steel

Superior Strength and Weather Resistance

| | VANDAL RESISTANCE | WEATHER RESISTANCE | HEAT DISSIPATION | AESTHETICS |
|------------------------|---|---|---|--|
| STAINLESS STEEL |  Scratch resistant Graffiti easily removed |  Impervious to corrosion |  High reflective value minimizes internal temps |  Blends into environment Finish never fades |
| CARBON STEEL |  Easily scratched Graffiti requires repaint |  Requires protective coating and continuous maintenance |  Poor reflective value unless painted light color |  Finish can fade and rust over time |
| FIBERGLASS |  Easily scratched Graffiti removal damages finish |  High heat and moisture can cause material breakdown |  No ventilation Slow heat dissipation |  Color fades with UV exposure |



Poly Wins the Battle

Lightweight

Lighter Materials = Lighter Shipping Costs

Polycarbonate rises to the top when it comes to weight; it's up to **40% lighter** than fiberglass.

Easy Lifting

Polycarbonate is **lighter** than stainless steel, making one-man installation a breeze.

Easy Modification

Polycarbonate is an **easier** material to **machine** & drill and has no sharp or rough edges. There is also no risk of splintering or lung & skin irritation.

Impact & Durability

| TENSILE STRENGTH | |
|-------------------------|-------------------------|
| POLYCARBONATE | FIBERGLASS |
| 900 LBS/IN ² | 220 LBS/IN ² |

The difference yields **4X the impact resistance.**

Smooth Sailing

All standard polycarbonate enclosures can be **modified in-house** before shipping & are rarely damaged during delivery.

Increased Wallet Size

Polycarbonate has a reasonable cost compared to the competition

Polycarbonate Stainless Steel

Stainless Steel is **more expensive** than polycarbonate.