High Performance Composite Building Materials for Swimming Pools

StructuralArmor™

High Performance Composite Building Materials for Swimming Pools
A Swimming Pool Made With Structural Armor Components

Makes a Lasting Impression...
Major Benefits of Using GFR HP 2800 Series Highly Engineered Reinforced Composite

**Design Versatility**

Highly engineered reinforced composites can be molded to produce almost any shape desired — large or small, as well as simple or complex. Endless design possibilities with GFR HP 2800 Series.

**Dimensional Stability**

Highly engineered reinforced composites maintain their shapes under intense mechanical and environmental stresses. GFR HP 2800 Series will maintain its shape permanently.

**Unparalleled Strengths**

Highly engineered reinforced composites are designed to produce a wide range of impact, tensile, and flexural strength properties. GFR HP 2800 Series won’t warp or deform, crack or shear regardless of soil or climate conditions. (See written warranty)

**Corrosion Resistance**

Highly engineered reinforced composites do not rust or corrode, and offer various levels of chemical and environmental resistance. GFR HP 2800 Series will withstand acidic or any other corrosive elements in the soil.

 Scientists and lab technicians created GFR HP 2800 Series highly engineered reinforced composite by utilizing advanced material design techniques and thoroughly evaluating the product’s end use to develop the perfect material for the GFR HP 2800 Series construction components.

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**Tensile Strength Testing of Plastics**

Tensile strength measures the force required to pull something such as rope, wire, or a structural beam to the point where it breaks.

**Flexural Strength Testing of Plastics**

The “flexural strength” of a material is defined as its ability to resist deformation under load by applying pressure.

**Notched Izod Impact Testing of Plastics**

An early destructive test designed to determine the resistance of a plastic to the impact of a suddenly applied force.

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**Material Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Measurement</th>
<th>GFR 2800</th>
<th>Polystyrene*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>g/cm³</td>
<td>1.66</td>
<td>1.04</td>
</tr>
<tr>
<td>Tensile Modulus</td>
<td>psi</td>
<td>2,000,000</td>
<td>305,000</td>
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<tr>
<td>Tensile Strength</td>
<td>psi</td>
<td>21,750</td>
<td>3,000</td>
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<tr>
<td>Flexural Modulus</td>
<td>psi</td>
<td>1,600,000</td>
<td>327,000</td>
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<tr>
<td>Flexural Strength</td>
<td>psi</td>
<td>41,350</td>
<td>7,000</td>
</tr>
<tr>
<td>Notched Izod Impact</td>
<td>Ft-lbs/in</td>
<td>20.00</td>
<td>1.0</td>
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</tbody>
</table>

*Material used in all other non-corrosive pool wall systems

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Highly Engineered Reinforced Composites...up to 20 Times Stronger Than Structural Foam Polystyrene Materials (verified by ASTM test methods)
Highly Engineered Reinforced Composites
have revolutionized entire industries such as the Aerospace, Automotive, Military, Agriculture, Construction and Energy because of its infinite applications and unprecedented performance.

Common Reinforced Composite Applications:
• Structural Truck Bed components used commonly in the Auto Industry
• Wings and Nose Cones for Fighter Jets and Airplanes
• Exterior Components for Military Tanks and Humvees
• Composite I-Beams and Rebar for Bridge Construction
• Composite Siding, Decking, Shingles, for Home Building Industry

Hurricane Proof
Composites are strong enough to hold an ocean from a continent.

Resistant to Salt
Salt generators can be used with composite pools without fear of decomposing material.

The Evolution of Materials Used In Swimming Pools

1950’s - Inground pool wall material started with wood. Low strength and low longevity.
1960’s - Inground pool wall material transitioned to steel. This added strength but little in additional longevity.
1970’s - Inground pool wall material transitioned to plastic structural foam. Plastic pool walls added greatly to longevity but reduced strength dramatically from steel or wood.
2000’s - Inground pool wall material using NEW Highly Reinforced Composite Material Technologies allows superior strength to meet or exceed steel with unsurpassed longevity. The Material of the 21st Century!
The Strength Is In The Design

Structural Armor + ExBracing is an unbeatable combination of years of worry-free fun and enjoyment! Simply put, THE ExBracing System is the strongest brace for vinyl lined pools where ground conditions are a challenge.

When extra support is needed, ExBracing answers the call.
**Installation begins** by planning the location of your pool. Then an excavation crew strategically digs the area where your new pool will be, and the retaining walls and bracing systems will be set in place. Next, the retaining walls are secured with a concrete footer, the pool’s bottom is formed with concrete or vermiculite so it will be ready for the pool liner. Once the liner is in place and all of the final finishing processes are completed, all that remains is a lifetime of fun and relaxation.

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**Compare the Strength...Composite vs Structural Foam**

**GFR HP 2800 Highly Engineered Composite**
- Thermoset composite material (polymer, resins, fibers)
- Structurally reinforced (fused fiber matrix)
- Extremely high strength-to-weight ratio
- High impact resistance, flexural & tensile strength
- Non-corrosive (won’t oxidize, rot, or rust)
- Impossible to melt or re-shape after molding
- Non-reversible process
- Long lifespan

**Structural Foam Polystyrene Plastic**
- Low impact resistance, low flexural & low tensile strength
- Structurally reinforced using air pocket corrugation
- Thermoplastic material
- Good strength to weight ratio
- Non-corrosive
- Warps, bends, bows or deforms after molding with mild heat / cold
- Melts with extreme heat +300 degree

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**Composites are Energy Efficient**

Based upon Thermoconductivity (W/m*K) or the transfer of heat and cold, composite materials and other plastics rank as the best insulators at a 0.3 W/m*K. Portland cement, which is often used on the bottom of many vinyl pools is also 0.3 W/m*K. Compare this with other materials used for pools: Concrete at 1.7 W/m*K, Steel at 43 W/m*K, Zinc at 116 W/m*K, and Aluminum at 250 W/m*K.

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**Installation...**

**A little Inconvenience**

**A Lot of Rewards!**
Only Alpha Pool Products/Trivector Manufacturing Inc. does not manufacture or endorse diving boards or slides. Any use or installation of diving boards or slides must be in strict compliance with each such equipment manufacturer's specifications and recommendations, the Association of Pool and Spa Professionals Standards, as well as all local building codes and regulations, and recommendations from the American Red Cross and the Consumer Product Safety Commission.
Retreat to the solitude of your personal oasis and forget about the worries of your busy day. From family get-togethers to everyday life, owning a pool is sure to make your home the center of attraction.
The safety rope and floats have been removed in some pictures for photographic purposes only. The safety rope should be attached at all times. All other safety components should be used in accordance to manufacturers or APSP standards.
When it comes to fun and enjoyment for the whole family, you’ll have to search long and hard to find anything that offers more pleasure than a swimming pool. One of the most important benefits of a pool is that it keeps your family together. Even after the kids start moving on to college and into their adult life, a swimming pool is always a good excuse to come back home for a visit.
Your dealer/builder/contractor is an independent business person and not an agent or employee of "Only Alpha Pool Products" / Trivector Manufacturing Inc. We cannot and do not accept any responsibility for any representations, statements or contracts made by any dealer/builder contractor.
The fun and games in a swimming pool are never-ending. From wave crashing cannonballs to a quick game of Marco Polo, your pool will be the epicenter of your family’s activities. Family fun the whole summer long!
Notice: Although in some photos of the pools in this brochure the No Diving signage may not be visible, such warning signage must be installed around the perimeter of each pool.
Learning to use the proper chemicals along with modern technologies will make your pool maintenance quick and easy. Advanced pool filters and automatic pool systems can greatly reduce the time and effort required to maintain your pool. A minimal time investment, for years of enjoyment.
Safety publications can be ordered from the APSP by calling or writing them at the Association of Pool & Spa Professionals, 2111 Eisenhower Avenue, Alexandria, VA 22314, (703) 838-0083; or by visiting the APSP consumer web site at www.theapsp.org.

Educate and supervise all bathers.

These are examples of safety information and signage. Be sure to ask your independent pool contractor for this information.

Water is everywhere - community pools, lakes, and rivers. What better way to "waterproof" your loved ones than by teaching them to swim! The lifelong benefits are immeasurable. Children who learn to swim are far less likely to become a tragic statistic from a water accident away from home.

With owning a pool also comes responsibility. There are many rules that must be followed around a pool. Protect yourself and your loved ones. Read and educate yourself with all literature that is available in the pool industry. Insist that your independent pool professional supply the industry publications that deal with pool safety, maintenance and the do’s and don’ts around the pool. There are also many resources for information about pool safety on the Internet. We recommend contacting The Association of Pool & Spa Professionals. This national organization is the best resource for most swimming pool safety publications.
IMPORTANT!

“No Diving” signage must be installed on the coping around the perimeter of your pool. “Caution” signage also must be affixed to the steps.
Designing Your Outdoor Recreation Room

Artesian
12'-1" x 23'-11"
16' x 31'-10"
18' x 35'-11"
22' x 40'

Aspen
17'-1" x 24'-1"
21'-3" x 33'-5"
23'-6" x 40'-5"
29'-11" x 43'-5"

Auburn Lake
20'-7" x 36'-7"
22'-9" x 38'-8"
24'-1" x 41'-9"

Baja
16'-2" x 30'-6"
17'-11" x 35'-9"
20' x 40'-4"

Figure Eight
12' x 24'-5"
16' x 29'-7"
18' x 33'-6"
20' x 36'

Gothic
16' x 30'
18' x 34'
20' x 38'

Grecian Lazy-L
16'-6" x 33'-6"
18'-6" x 41'-6"
19'-6" x 43'-1"

Grecian True-L
16'-6" x 43'-9" x 23'-8"
18'-6" x 43'-9" x 27'-1"
20'-6" x 44'-9" x 30'-9"

Grecian
14'-3" x 28'-3"
16'-6" x 32'-6"
18'-6" x 36'-6"
20'-9" x 39'-9"
22'-9" x 43'-9"

Lagoon
12' x 24'-6" x 24'-2"
16' x 33' x 35'-9"
18' x 40'-2" x 33'-6"
20' x 38'-8" x 39'-3"

Grecian Lazy-L
14' x 36'-2"
16' x 40'-8"
18' x 43'-7"
20' x 48'-4"

Lap
10' x 40'

All pool shapes are for illustration purposes only. Pool shape selection options may change without prior notice. See your pool dealer for sizes and/or shapes not illustrated.
Swimming pools come in a variety of shapes and sizes, providing an endless amount of options to make your pool the perfect decision for your family. From free-form shapes to narrow lap pools, there is no wrong answer when it comes to the question of what kind of pool you choose for your family. Important considerations are the available space for an installation and your budget. Pools can be very elaborate or elegantly simple. We encourage you to talk candidly with your independent pool professional to have all your questions answered before they turn over the first shovel of dirt. They are there to assist in making your dreams come true.

Choose from one of the standard shapes shown here or speak with your Pool and Spa Professional about designing the custom shaped pool of your dreams.

No Diving signage must be installed around the perimeter of a pool in accordance with the instructions provided by the liner manufacturer.
Pool liners are designed to set the tone and mood of your swimming pool. Liners are available in different designs and colors as well as different thicknesses. Beautifully designed to coordinate and blend with any landscape design, there are many styles that fit your lifestyle and outside decor perfectly!

A wide variety of step options are available and made from BASF Loran Thermoplastic, DR Acrylic / Fiberglass reinforced or even a liner over a step.
Pool covers are designed to be tough and withstand the elements. When properly installed by a professional pool contractor, a safety cover will keep your pool clean, beautiful, and enjoyable.

Regular Safety Cover

Automatic Pool Cover
A pool is a reflection on your individual style. There are many ways to make your pool a one-of-a-kind oasis. Your imagination can run wild when thinking about how you can accessorize your swimming pool to your individual taste.

Maintenance...It’s Really Not An Issue

*With today’s advancements in technology, maintaining a swimming pool is easy. Consult your swimming pool professional on different products that are available to make maintenance a breeze.*
Vinyl Liner Pools...There is an Advantage!

• Pool components are manufactured in a controlled environment by machinery and have long manufacturer warranties.
• Easy and least expensive to repair as the pool consists of components.
• Replacing a liner is more economical than resurfacing other pool types.
• Some standard shapes like L-shapes provide a combination of large diving and shallow play areas.
• Can be custom designed to any shape and size and can achieve the high end look of a concrete pool without the high cost.
• Countless liner designs and color choices.
• Smooth surface is easy to clean and maintain and is skin friendly.
• Quality structures are self-supporting.

Concrete/Gunite Pools...Disadvantages

• Most expensive pool in the market and is difficult to clean and maintain.
• Surface is porous and most susceptible to damage caused by water chemistry.
• Must be resurfaced every 7-15 years at considerable cost.
• Plumbing is very expensive to repair as it is encased in concrete.
• Perimeter tile, which is necessary for these pools, is beautiful but requires maintenance and is susceptible to freezing damage.
• Surface can be rough on the feet and skin.
• Correct installation takes months and being concrete, it is prone to cracking and concrete cracks are very difficult to repair permanently.
• Pool is manufactured on site and there are very short if any warranties on pool surface and pool structure.

One piece Fiberglass Pools...Disadvantages

• Even the largest fiberglass pools are at best average in size and advertised sizes don’t represent the true size of the usable pool.
• Cannot be custom designed to fit your individual taste, entertainment goals or landscaping desires.
• When the surface fades or deteriorates, it is very difficult and expensive to resurface.
• The structure is not self-supporting and may collapse or buckle if emptied.
• Difficult and expensive to repair and has the potential for very extensive damage.
• Suspiciously short warranties on some color surfaces and no warranties against floating or buckling.
Reading the “safety literature” is vital for the safety of your family. We insist that you read each and every piece of literature that is normally enclosed in your pool liner package. You should find several important items with which you must become familiar, including:

1) “DANGER” no diving area warning sign.
2) “No Diving” stickers.
3) “Caution” sticker for pool steps.

APSP has other excellent publications that are available. These publications can be ordered by calling or writing them at the Association of Pool & Spa Professionals, 2111 Eisenhower Avenue, Alexandria, VA 22314, (703) 838-0083; or by visiting the APSP consumer web site at www.theapsp.org.

IMPORTANT!

“No Diving” signage must be installed on the coping around the perimeter of your pool. “Caution” signage also must be affixed to the steps.

The pool photographs in this brochure are for illustrative purposes only. The pools were constructed using individual components from many different manufacturers.