



SPIRe® + Panel

Product Description

SPIRe®+ Panel is a patent-pending unique high-strength high-modulus Fiber Reinforced Polymer (FRP) panel constructed with glass roving, woven cloth, and mat, impregnated with Vinyl Ester resins. The panel is smooth on one face and has protruding T profiles on the other face. That face is also grit coated for improved bonding to concrete. The T profiles lock into the concrete and the entire panel (flat plate and T profiles) act as reinforcing elements for the new wall.

The 3-ft (914 mm) wide panels get connected along their long edges with a sealant to create a stiff, strong and impervious stay-in-place form in front of the deteriorated seawall or bulkhead. The annular space between the SPIRe®+ panels and the host structure can be filled with a variety of QuakeWrap® fill materials, including non-shrink grouts, epoxy grouts, resins, and concrete. The panel is equivalent to No. 5 Gr. 60 Steel rebars at a spacing of 2.5 in.

Uses

- Strengthening of corroded seawalls and bulkheads
- Corrosion Protection of Seawall, Sheet Piles, and Bulkheads
- Extending seawall height for protection against flooding in coastal and river front communities
- Structural rehabilitation of decks in ports and piers
- Strengthening of beams in bridges and buildings
- Repair of corroded breakwaters
- Stay in Place form
- Protect areas of high corrosion
- Applicable to all materials: concrete, steel and timber

Advantages

- Non-Corrosive
- T profiles secure the panel to the concrete or grout
- T profiles serve as reinforcing elements, eliminating the need for rebars in most applications
- Manufactured with textured face suitable for secondary bonding
- Rigid FRP Panel
- High impact resistance
- Compatible with PileMedic® Grouts
- Compatible with PileMedic® Spacer and Port systems
- Compatible with QuakeWrap® Resins and wet layup systems

Application

For installation instruction, refer to SPIRe® specification. Panels can be cut to appropriate length using tile saw products to reduce any dust on site. Angle grinders with metal cut-off wheel can also be used to cut the product. Safety precautions must be taken while cutting the product.

Packaging

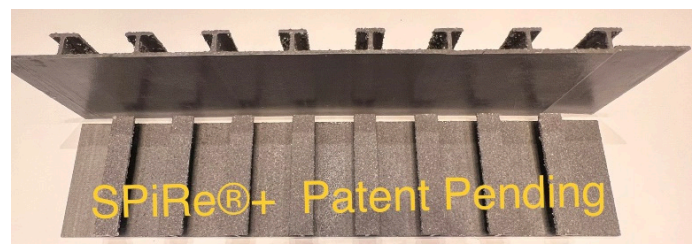
SPIRe®+ panels come in flat 3-ft wide sheets. Standard lengths are 12 ft (3660 mm) and 18 ft (5490 mm). The panels can be cut to shorter lengths in the field. Longer panels are available for special orders.

Shelf life and Storage

SPIRe®+ panels have unlimited shelf life when stored properly. Store in dry place at 30°-120° F (0°-50° C).

Limitations

Design calculations must be provided and certified by a licensed professional engineer.





SPIRe[®] + Panel

Shell Data

	U.S. CUSTOMARY	SI UNITS
Data:		
Color	Translucent, Grey. Other colors can be special ordered	
Resin	Vinyl Ester	
Properties:		
Wall Thickness	0.20 in.	5 mm
Width	36 in.	914 mm
Depth	1.5 in.	38 mm
Length	12-ft (3660 mm) and 18-ft (5490 mm) are standard. Longer panels are available on special order.	
Cross Sectional Area	11.27 in ²	7269 mm ²
Centroid from Back Face	0.40 in.	12.4 mm
Moment of Inertia	5.96 in ⁴	2.48x10 ⁶ mm ⁴
Weight	3.2 lb/ft ²	15.5 kg/m ²
Tensile Strength (Long. Dir.)	43,000 psi	300 MPa
Tensile Modulus (Long. Dir.)	4.0 x 10 ⁶ psi	28 GPa
Tensile Strength (Trans. Dir.)	7,200 psi	50 MPa
Tensile Modulus (Trans. Dir.)	1.7 x 10 ⁶ psi	12 GPa
Equivalency to Steel Rebars	No. 5 Gr. 60 @ 2.5 in. o.c.	15mm, 400MPa @ 65mm o.c.
Barcol Hardness (ASTM D2583)	50 min	50 min
Water Absorption (ASTM D570)	0.8% max	0.8% max

Caution

SPIRe[®]+ Panels are non-reactive. They do not require a Safety Data Sheet (SDS). However, caution must be used when handling since fine dust may be present on the surface. Gloves and safety glasses are recommended to protect against skin and eye irritation.

Care must also be taken when cutting the laminates to protect against airborne dust generated by the cutting procedure. Use of an appropriate, properly fitted NIOSH approved respirator is recommended.

First Aid

Appropriate Personal Protective Equipment (PPE) should be worn at all times when handling product.



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Warranties and Disclaimers

Hychem warrants that this product shall conform to the technical specifications published in the product literature. The quality and fitness of the product is dependent upon the proper use and application of the product by the applicator. Hychem has no role in the application of the finished polymer other than to manufacture and supply its components. It is vital that the person applying this product understands the product and is fully trained and certified in the use of spray equipment and application of sol-gel materials. There are no warranties that extend beyond the description on the face of this instrument, except when provided in writing, directly by Hychem and executed under seal by a company officer.

Field Support

Field support where provided, does not constitute supervisory responsibility. Suggestions made by HYCHEM either verbally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they and not HYCHEM are responsible for carrying out procedures appropriate to a specific application.

Customer Responsibility

The technical information and application advice given in this publication is based on the best information available at the time of print. As the information herein is of a general nature, no assumption can be made as to the product suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by Commonwealth or State Legislation. The owner, his representative or the contractor is responsible for checking the suitability of products for their intended use.