
Hex-3R Wrap 101™

The Hex-3R® Composite Strengthening Systems provide construction industry professionals with a viable alternative to traditional repair methods through the application of composite materials science. This carefully designed portfolio of high strength, high modulus, externally applied reinforcing elements represent a cost-effective and efficient alternative to strengthen or stiffen a structure without resorting to remove and replace methods or invasive internal rebuilding techniques.

Hex-3R Wrap 101™ is a 17 oz/yd² +/-45 degree E-glass fabric. This fabric is primarily used to provide high levels of shear strength enhancement with minimal installation labor. Material is field laminated using Hex-3R™ epoxy to form a glass fiber reinforced polymer used to strengthen structural elements.

Where to Use

- Loading increases
- Seismic strengthening
- Temporary strengthening
- Change in structural system
- Design or construction defects

Advantages

- Used for shear, confinement or flexural strengthening
- Flexible, can be wrapped around complex shapes
- Lightweight
- Non-corrosive
- Acid resistant
- Low aesthetic impact
- Economical

Packaging

- Rolls: 50 in. x 150 lin. ft.

E-glass Fiber Properties

Tensile strength	330,000 psi
Tensile modulus	10.5 msi
Density	2.54 g/cc
Elongation	4.0 %

Hex-3R™ Composite Strengthening Systems

Hex-3R Wrap 101™

Hex-3R Epoxy 300™ and Hex-3R Wrap 101™ Laminate Properties

Properties after standard cure followed by standard post cure (70-75°F – 5 days, 48 hours at 140°F)

Property	Average Value ¹		Design Value ²		ASTM Test Method
	US Units	SI Units	US Units	SI Units	
	psi	MPa	psi	MPa	
Tensile Strength*	41,200	284	30,400	209	D3039
Tensile Modulus*	2,400,700	16,541	2,233,000	15,386	D3039
Tensile % Elongation *	2.17	2.17	1.63	1.63	D3039
140F - Tensile Strength	38,000	262	32,900	226	D3039
140F - Tensile Modulus	2,147,900	14,799	1,885,700	12,993	D3039
140F - % Elongation	2.34	2.34	1.8	1.8	D3039
Compressive Strength	93,300	643	37,200	256	D695
Compressive Modulus	0	0	0	0	D695
90 deg Tensile Strength	0	0	0	0	D3039
90 deg Tensile Modulus	0	0	0	0	D3039
90 deg %Tensile Elongation	0.00	0.00	0	0	D3039
Shear Strength+/-45 In Plane	0	0	0	0	D3518
Shear Modulus +/-45 In Plane	0	0	0	0	D3518
Ply Thickness (inch/mm)	0.027	0.6858			

Hex-3R Epoxy 306XR™ and Hex-3R Wrap 101™ Laminate Properties

Properties after standard cure followed by standard post cure (70-75°F – 5 days, 48 hours at 140°F)

Property	Average Value ¹		Design Value ²		ASTM Test Method
	US Units	SI Units	US Units	SI Units	
	psi	MPa	psi	MPa	
Tensile Strength*	39,700	274	31,000	214	D3039
Tensile Modulus*	2,378,800	16,390	2,065,600	14,248	D3039
Tensile % Elongation *	2.06	2.06	1.22	1.22	D3039
140F - Tensile Strength	34,700	239	28,400	196	D3039
140F - Tensile Modulus	2,139,800	14,743	1,910,600	13,164	D3039
140F - % Elongation	2.10	2.10	1.83	1.83	D3039
Compressive Strength	0	0	0	0	D695
Compressive Modulus	0	0	0	0	D695
90 deg Tensile Strength	0	0	0	0	D3039
90 deg Tensile Modulus	0	0	0	0	D3039
90 deg %Tensile Elongation	0.00	0.00	0	0	D3039
Shear Strength+/-45 In Plane	0	0	0	0	D3518
Shear Modulus +/-45 In Plane	0	0	0	0	D3518
Ply Thickness (inch/mm)	0.027	0.6858			

* 24 sample coupons per test series; all other values based on 6 coupon test series

¹ Average value of test series – based on year 2000 testing program

² Average value minus 3 standard deviations calculated from the year 2000 testing program

