



## FIBREBOLT®

### FIBERGLASS STUDS & NUTS

- » Corrosion Resistant
- » Easy to Fabricate
- » Low Maintenance
- » Low Conductivity
- » Transparent to Electromagnetic Waves
- » Color Blends with Most Structural Materials

FIBREBOLT® fiberglass studs and nuts are ideal for applications requiring mechanical fasteners that must be non-corrosive, low in conductivity and/or transparent to electromagnetic waves. FIBREBOLT® studs are machined from pultruded fiberglass vinyl ester rods. The hex shaped nut is thermoplastic. They are easily assembled with a standard six point socket wrench.

FIBREBOLT® studs and hex nuts are available in diameters of 3/8", 1/2", 5/8", 3/4" and 1" for immediate delivery. Four-foot bolt length is standard, with custom lengths and partial length threading available on request. Brown is the standard color. The studs and nuts have UV inhibitors to provide resistance to ultraviolet degradation and corrosion.

Typical applications include:

- Chemical process equipment
- Air and water pollution equipment
- Marine applications
- Cellular antenna mounts and screens



# PROPERTIES

	TEST METHOD	3/8" 16	1/2" 13	5/8" 11	3/4" 10	1" 8
Ultimate tensile load using Strongwell fiberglass nut (lb.) ①		1,050	2,000	3,100	4,500	6,500
Ultimate tensile load using two (2) Strongwell fiberglass nuts (lb.) ①		1,470	2,800	4,340	6,300	9,700
Transverse shear on threaded rod - double shear (min. load lb.) ①	ASTM-B-565	3,000	5,000	7,500	12,000	22,000
Transverse shear on threaded rod - single shear (min. load lb.) ①		1,600	2,600	3,800	6,200	11,200
Compressive strength - longitudinal, without nuts (min. psi)	ASTM-D-695	60,000	60,000	60,000	60,000	60,000
Flexural strength (min. psi) ①	ASTM-D-790	50,000	50,000	50,000	50,000	50,000
Flexural modulus (min. psi x 10 <sup>6</sup> ) ①	ASTM-D-790	2.00	2.00	2.00	2.50	2.75
Dielectric strength ASTM-D-149 (kv/in.)		35	35	35	35	35
Water absorption 24 hr. immersion - threaded with cut ends sealed	ASTM-D-570	1%	1%	1%	1%	1%
Coefficient of thermal expansion - longitudinal (in./in./°F)		5 x 10 <sup>-6</sup>	5 x 10 <sup>-6</sup>	5 x 10 <sup>-6</sup>	5 x 10 <sup>-6</sup>	5 x 10 <sup>-6</sup>
Max recommended operation temp.-based on 50% retention of ultimate thread shear strength °C (°F)		95°C (203°F)	95°C (203°F)	95°C (203°F)	95°C (203°F)	95°C (203°F)
Flammability	ASTM-D-635	Self-Extinguishing on All				
Stud weight (lb./ft.)		0.07	0.12	0.18	0.28	0.50
Thickness of nut and washer in inches		3/4"	7/8"	1-1/8"	1-1/4"	1-5/8"
Diameter of washer in inches		1"	1-1/8"	1-5/16"	1-1/2"	2"

① Strength values are minimums derived from multiple production sample testings.

## NOTES

- All test results are for bolts with single nuts only unless otherwise specified.
- Appropriate safety factors must be applied.
- Properties above do not apply when fiberglass stud is used with metal nut. No data has been generated for metal nuts. If metal nuts are used, strengths will be reduced because of less thread engagement. If metal nuts are used, extreme care should be taken to assure that the threads match and that a snug fit is achieved.
- Threads do not meet Class 1, 2 or 3 ANSI/ASME standard.

## INSTALLATION PROCEDURE

FIBREBOLT® studs and nuts have properties and characteristics different from steel. Failure to follow the procedure below can result in damage and/or premature failure of FIBREBOLT®.

1. If nuts are to be removed during application, it is recommended that they be installed dry. A light oil, dry lubricant, or silicone spray may be used if needed.
  2. Bearing surfaces of nuts must be parallel to the surfaces being fastened.
  3. A torque wrench must be used. See the table below:
- | Size      | Ultimate Torque Strength | Recommended Maximum Installation Torque |
|-----------|--------------------------|---|
| 3/8" - 16 | 8 ft. - lbs.             | 4 ft. - lbs.                            |
| 1/2" - 13 | 18 ft. - lbs.            | 8 ft. - lbs.                            |
| 5/8" - 11 | 35 ft. - lbs.            | 16 ft. - lbs.                           |
| 3/4" - 10 | 50 ft. - lbs.            | 24 ft. - lbs.                           |
| 1" - 8    | 110 ft. - lbs.           | 50 ft. - lbs.                           |
4. Wrenches must make full contact with all nut edges. Partial contact will cause the corners to fracture, affecting the performance of the stud/nut assembly. A standard six point socket is recommended for the hex nuts.
  5. For assemblies in which the nut will not be subsequently removed, the stud/nut assembly should be coated with adhesive or resin to insure that the nuts do not loosen. The adhesive or resin shall act as the lubricant - do not use any oils, dry lubricants or silicone sprays. After the nut is tightened to the proper torque value, coat the entire nut and exposed stud assembly with a thick layer of adhesive or resin.
  6. The FIBREBOLT® stud has cut and coated threads. FIBREBOLT® that will be exposed to harsh environments should have the threads resealed and cut ends sealed. If removal of the nut is anticipated, a very thin (1 mil) sprayed-on coat of polyurethane will normally be effective. Heavier coats of polyurethane, resin, or adhesive are recommended where possible.
  7. Property values were obtained for static conditions. Vibration should be eliminated or minimized in applications utilizing FIBREBOLT®.



ISO 9001 Quality Certified Manufacturing Plants

**BRISTOL LOCATION**  
400 Commonwealth Ave.  
Bristol, VA 24201 USA  
(276) 645-8000

**HIGHLANDS LOCATION\***  
26770 Newbanks Road  
Abingdon, VA 24210 USA  
(276) 645-8000  
\*FIBREBOLT® manufacturing location

**CHATFIELD LOCATION**  
1610 Highway 52 South  
Chatfield, MN 55923-9799 USA  
(507) 867-3479

www.strongwell.com