

Ultrastud/Nuts Technical Data Sheet



Available in FRP Square and Molded Flanged Hex Nuts

Ultrastud/Nuts is a fiberglass reinforced vinyl ester all-thread rod and FRP fastener system with superior physical and mechanical properties. The system typically outperforms traditional steel studs and nuts where severe corrosion is present.

APPLICATIONS

Ideal for:

- Conduit and pipe hangers in corrosive environments
- Electric insulator barriers
- Thermal barriers
- Simple connects in corrosive environments

FEATURES & BENEFITS

- Corrosion Resistant
- Low Maintenance Cost
- Reduced Downtime
- Enhanced Safety
- Electric al Insulation
- Magnetically Transparent
- Low Conductivity
- Lightweight
- Ease of Fabrication Capabilities without Special Tools

ULTRASTUD

Ultrastud Fiber Reinforced Polymer (FRP) studs are high strength polymer studs, pultruded with E-glass reinforcements and a Vinyl Ester resin matrix. The rods are then milled to establish Unified National Coarse (UNC) threads.

Ultrastud fiberglass threaded studs are used for applications where corrosion resistance, electrical and thermal insulation, light weight and high strength properties are required.

ULTRASTUD/ NUTS

Ultrastud/Nuts are available in FRP square nuts or molded flanged hex nuts. The FRP square nuts are manufactured in a high strength Vinyl Ester resin and E-Glass matrix, secondarily milled with UNC threads. The flanged hex nuts are molded with ISOPLAST® polyurethane resin with glass reinforcement. FRP square nuts and molded flanged hex nuts can be applied with standard mechanical tools.

Ultrastud is intended to be used only with the Molded and Square Nuts. Steel Nuts are Excluded.

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AVAILABILITY

Ultrastud, Ultrastud/Nuts and Molded ISOPLAST® Flanged Hex Nuts are available in diameters of 3/8", 1/2", 5/8", 3/4" and 1". Ultrastud is stocked in 48" and 96" lengths for immediate delivery. Special lengths and threading can be quoted upon request. Ultrastud Nuts! are available in a uniform gray color.

PROPERTIES

The ultimate thread shear strength, flexural strength, flexural modulus and double shear values were derived via full section testing and are characterized per the requirements of ASTM D7290. The characteristic value is based on material property representing the 80% lower confidence bound on the 5th percentile value of a specified population.

Physical/ Mechanical Properties	Type of Nut	ASTM Test	Units	Diameter / Threads per Inch				
				3 / 8"	1 / 2"	5 / 8"	3 / 4"	1"
				16 UNC	13 UNC	11 UNC	10 UNC	8 UNC
Ultimate Thread Shear Strength ^{1 2 3}	Square Nut		lbs.	811	1,880	2,198	2,692	6,616
	Molded Hex Nut		lbs.	1,509	2,088	2,586	3,451	6,522
Flexural Strength ^{2 3 5}		D790	psi	64,405	68,703	65,170	58,119	54,421
Flexural Modulus ²		D790	10 ⁶ psi	2.4	2.8	2.7	2.8	2.6
Ultimate Double Shear Strength ^{2 3 4}		B565	load lb.	4,142	7,071	7,186	11,446	22,987
Dielectric Strength		D149	kV/in	35	35	35	35	35
Water Absorption 24 hr Immersion		D570	%	1	1	1	1	1
Coefficient of Thermal Expansion (LW)		D696	10 ⁻⁶ in/in/°F	5.0	5.0	5.0	5.0	5.0
Maximum Recommended Torque Strength Using CP Square Nut Lubricated with SAE 10W30 Mo tor Oil ¹	Square Nut		ft-lbs	4	8	16	24	50
	Molded Hex Nut		ft-lb	4	8	16	24	50
Stud Weight			lb / ft	0.076	0.129	0.209	0.315	0.592
Flammability	Square Nut	D635	Self-Extinguishing on All					
	Molded Hex Nut		-	-	-	-	-	-
Thickness Nut	Square Nut		in	0.437	0.562	0.688	0.813	1.062
	Molded Hex Nut		in	0.750	0.855	1.220	1.590	1.750
Width Nut	Square Nut		in	0.688	0.875	1.062	1.250	1.625
	Molded Hex Nut		in	0.745	1.000	1.250	1.950	2.000

1 Applies to single nut only.

2 Values statistically derived per ASTM D7290 on the actual studs.

3 Appropriate safety factors shall be applied.

4 Single Shear can be estimated by dividing the double shear value in half.

5 Flexural strength governed by compression failure. Therefore, flexural and compression strength are the same in bending.

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