MATERIAL PROPERTIES

ISOPLAST* Flanged Hex Nuts
Fiber Reinforced Polymer Fastener System

Property (coupon values)	ASTM Test	Units	Diameter /Threads per Inch 3/8" 16 UNC	1/2" 13 UNC	5/8" 11 UNC	3/4" 10 UNC	1" 8 UNC
Ultimate Thread Shear Capacity Using CP Hex Nut [1 2 6]		lbs	1,250	2,500	3,900	5,650	7,400
Max. Ultimate Design Tensile Load Using CP Hex Nut [1 2 5 6]		lbs	1,000	2,000	3,120	4,520	6,200
Flexural Strength [2 3]	D790	psi	60,000	60,000	60,000	60,000	60,000
Flexural Modulus [2 3]	D790	10^6 psi	2.0	2.0	2.0	2.5	2.75
Compressive Strength (LW) [2 3]	D695	psi	55,000	55,000	55,000	55,000	60,000
Ultimate Transverse Shear [2 3]	B565	load lb.	4,200	7,400	11,600	17,200	27,400
Transverse Shear Yield [2 3]		load lb.	2,100	3,300	4,500	7,500	12,500
Dielectric Strength [2 3]	D149	KV/in	40	40	40	40	40
Water Absorption [3]	D570	%	1	1	1	1	1
Coefficient of Thermal Expansion (LW)	D696	10^{-6} in/in/°F	3.0	3.0	3.0	3.0	3.0
Torque Strength Using CP Hex Nut Lubricated With SAE 10W30 Motor Oil [2 4 5 6]	Ultimate	ft-lb	8	15	33	50	115
	Recommended	ft-lb	4	8	16	24	50
Stud Weight [3]		lb/ft	.076	.129	.209	.315	.592
Thickness Hex Nut		in	.750	.855	1.220	1.590	1.750
Diameter of Flange		in	.745	1.000	1.250	1.950	2.000

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L W = lengthwise

Notes: 1. The results are average values based on random sampling and testing of production lots. Composite materials are not homogeneous; and therefore, the location of the coupon extraction can cause variances in the coupon results. Creative Pultrusions publishes an average value of random samples from production lots.

[1]Applies to single nut only; multiple nuts do not yield corresponding results.
[2]Ultimate strength values are average obtained in design testing.
[3]Values are based on unthreaded rod.
[4]Torque results are dependent on several variable factors including the lubricant used, the length of stud between nuts, alignment, washer surfaces, etc. Therefore, if such results of torque tightening are important, it is vital that torque limits be determined experimentally for the exact installation conditions.
[5]Appropriate safety factors must be applied.
[6]Properties apply to Superstud!™ used with CP Hex Nut.

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