



Sherex Fastening Solutions[®]

Fastening Systems Engineered
for Performance[™]

Optisert[®] The Best Performing Round Body Rivet Nut



info@sherex.com • 866-474-3739 • www.sherex.com

Optisert® The New Standard in Round Body Rivet Nuts

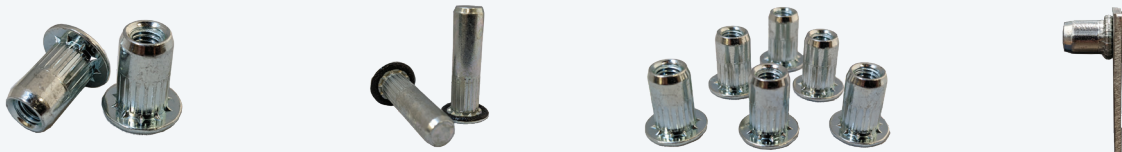
**The Optisert® rivet nut is the best performing
round body rivet nut in the fastener market**

Sherex's Optisert is an innovative round body rivet nut that has superior strength, performance, and spin-out resistance over typical, standard round body rivet nuts.

What's unique about Optisert is the proprietary combination of an engineered knurled body and underhead wedge design, which allows the rivet nut to bite into the material to give it superior spin out resistance over other round body rivet nuts.

The patent-pending closed-end design provides a sealed option that does not compromise the biting effect of the wedges.

Ideal applications for Optisert include use in softer material like aluminum, composite, fiberglass, and plastic. Optiserts are already being used in automotive and heavy truck industries.



Features and Benefits

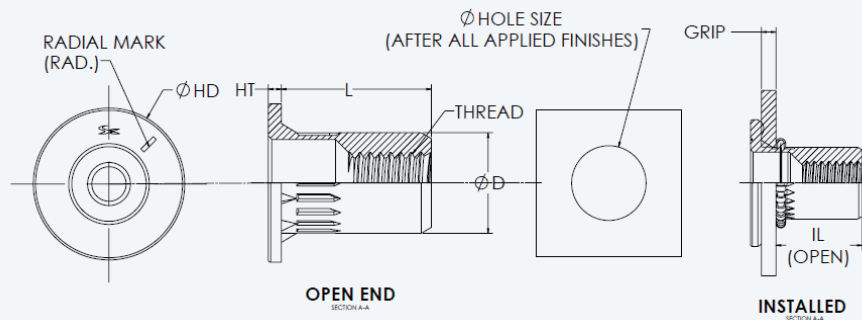
- Proven to meet Class 8 and Grade 5 thread proof load.
- Increased spin out resistance over other round body rivet nuts.
- Provide a strong thread in softer materials like aluminum, plastic, and fiberglass.
- Closed end available with a seal that doesn't compromise grip.

Styles & Sizes

**Open End and Closed End
Unified Sizes
#8-32 to 1/2-20**

**Open End and Closed End
Metric Sizes
M4 to M12**

Optisert® Open End Steel - Metric

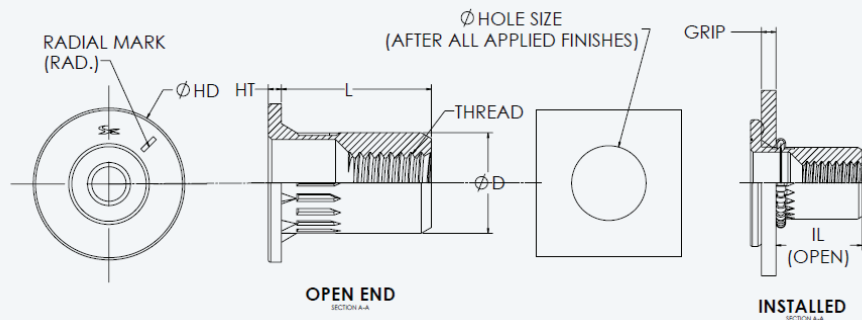


Optisert Open End Steel Metric Thread (Unit - Millimeters)

Sherex Part Number Metric	Thread Size	Grip Range		L	HD	HT	D	IL	Hole Size
		Min	Max	± .38	± .38	± .08	Max.	Max.	+ .15/- .00
OPT2-470-3.0	M4x0.7	1.5	3.0	14.50	11.00	0.95	7.58	10.50	7.60
OPT2-470-5.5		3.0	5.5	17.00					
OPT2-470-8.0		5.5	8.0	19.50					
OPT2-580-3.0	M5x0.8	1.5	3.0	14.50	11.00	0.95	7.58	10.50	7.60
OPT2-580-5.5		3.0	5.5	17.00					
OPT2-580-8.0		5.5	8.0	19.50					
OPT2-610-3.5	M6x1.0	1.5	3.5	16.05	15.50	1.28	9.98	11.00	10.00
OPT2-610-6.0		3.5	6.0	18.79					
OPT2-610-8.5		6.0	8.5	21.29					
OPT2-610-11.0		8.5	11.0	23.79					
OPT2-8125-3.5	M8x1.25	1.5	3.5	17.53	21.77	1.58	13.48	12.50	13.50
OPT2-8125-6.0		3.5	6.0	20.45					
OPT2-8125-8.5		6.0	8.5	22.95					
OPT2-1015-3.5	M10x1.5	1.5	3.5	23.53	26.00	1.88	15.85	18.5	7.60
OPT2-1015-6.0		3.5	6.0	26.03					
OPT2-1015-8.5		6.0	8.5	28.53					
OPT2-12175-3.5	M12x1.75	1.5	3.5	27.50	28.10	*2.16	17.40	*22.5	7.60
OPT2-12175-6.0		3.5	6.0	29.50					
OPT2-12175-8.5		6.0	8.5	31.50					

Fourth and Fifth Grip Options Available on Request

Optisert® Open End Steel - Inches

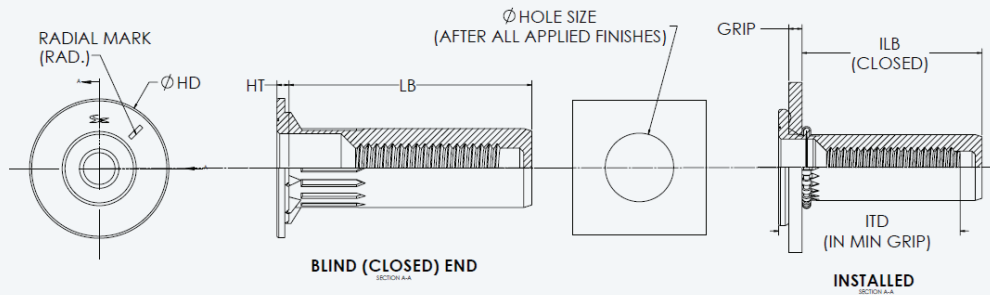


Optisert Open End Steel Unified Thread (Unit - Inches)

Sherex Part Number Inch	Thread Size	Grip Range		L	HD	HT	D	IL	Hole Size
		Min	Max	± .015	± .015	± .003	Max.	Max.	+ .006/- .000
OPT2-0832-118	#8-32	0.059	0.118	0.571	0.433	0.037	0.298	0.413	0.300
OPT2-0832-217		0.118	0.217	0.669					
OPT2-0832-315		0.217	0.315	0.768					
OPT2-1024-118	#10-24	0.059	0.118	0.571	0.433	0.037	0.298	0.413	0.300
OPT2-1024-217		0.118	0.217	0.669					
OPT2-1024-315		0.217	0.315	0.768					
OPT2-1032-118	#10-32	0.059	0.118	0.571	0.433	0.037	0.298	0.413	0.300
OPT2-1032-217		0.118	0.217	0.669					
OPT2-1032-315		0.217	0.315	0.768					
OPT2-2520-138	1/4-20	0.059	0.138	0.632	0.610	0.050	0.393	0.433	0.394
OPT2-2520-236		0.138	0.236	0.740					
OPT2-2520-335		0.236	0.335	0.838					
OPT2-3118-138	5/16-18	0.059	0.138	0.690	0.857	0.062	0.531	0.492	0.532
OPT2-3118-236		0.138	0.236	0.805					
OPT2-3118-335		0.236	0.335	0.904					
OPT2-3716-138	3/8-16	0.059	0.138	0.926	1.024	0.074	0.624	0.728	0.625
OPT2-3716-236		0.138	0.236	1.025					
OPT2-3716-335		0.236	0.335	1.123					
OPT2-3724-138	3/8-24	0.059	0.138	0.926	1.024	0.074	0.624	0.728	0.625
OPT2-3724-236		0.138	0.236	1.025					
OPT2-3724-335		0.236	0.335	1.123					
OPT2-5013-138	1/2-13	0.059	0.138	1.083	1.106	*0.085	0.685	*0.886	0.687
OPT2-5013-236		0.138	0.236	1.161					
OPT2-5013-335		0.236	0.335	1.240					
OPT2-5020-138	1/2-20	0.059	0.138	1.083	1.106	*0.085	0.685	*0.886	0.687
OPT2-5020-236		0.138	0.236	1.161					
OPT2-5020-335		0.236	0.335	1.240					

Fourth and Fifth Grip Options Available on Request

Optisert® Closed End Sealed Steel - Metric

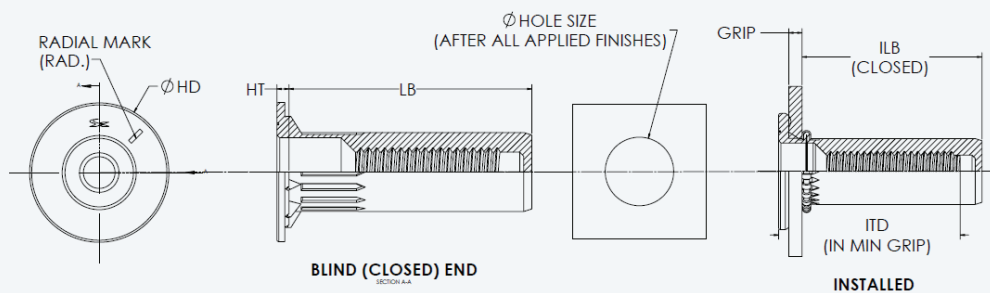


Optisert Closed End Sealed Metric Thread (Unit - Millimeters)

Sherex Part Number Metric	Thread Size	Grip Range		LB	HD	HT	D	ILB	ITD	Hole Size
		Min	Max	± .38	± .50 ± .64*	± .10*	Max.	Max	Min.	+ .15/- .00
OPT2-470-3.OBS	M4x0.7	1.5	3.0	28.15	13.93	1.50	7.58	24.15	20.00	7.60
OPT2-470-5.5BS		3.0	5.5	28.15				21.65	20.00	
OPT2-470-8.OBS		5.5	8.0	33.15				24.15	25.00	
OPT2-580-3.OBS	M5x0.8	1.5	3.0	28.15	13.93	1.50	7.58	24.15	20.00	7.60
OPT2-580-5.5BS		3.0	5.5	28.15				21.65	20.00	
OPT2-580-8.OBS		5.5	8.0	33.15				24.15	25.00	
OPT2-610-3.5BS	M6x1.0	1.5	3.5	30.23	17.33	1.50	9.98	25.25	19.00	10.00
OPT2-610-6.OBS		3.5	6.0	30.23				22.75	19.00	
OPT2-610-8.5BS		6.0	8.5	35.43				25.25	24.00	
OPT2-610-11.OBS		8.5	11.0	40.43				26.40	29.00	
OPT2-8125-3.5BS	M8x1.25	1.5	3.5	35.31	21.77*	2.08	13.48	30.00	27.00	13.50
OPT2-8125-6.OBS		3.5	6.0	35.31				27.50	27.00	
OPT2-8125-8.5BS		6.0	8.5	40.61				30.00	32.00	
OPT2-1015-3.5BS	M10x1.5	1.5	3.5	35.31	26.00	2.08	15.85	29.0	20.00	7.60
OPT2-1015-6.OBS		3.5	6.0	35.31				20.00		
OPT2-1015-8.5BS		6.0	8.5	40.61				25.00		

- Non-Sealed Closed End Options Available on Request -
 Fourth and Fifth Grip Options Available on Request

Optisert® Closed End Sealed Steel - Inches



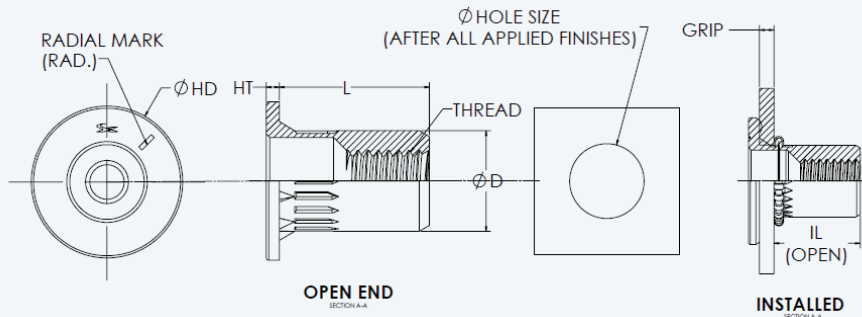
Optisert Closed End Sealed Unified Thread (Unit - Inches)

Sherex Part Number Inch	Thread Size	Grip Range		LB ± .015	HD ± .020 ± .025*	HT ± .004	D Max.	ILB Max.	ITD Min.	Hole Size + .006/- .000
		Min	Max							
OPT2-0832-118BS	#8-32	0.059	0.118	1.108	0.548	0.059	0.298	0.951	0.787	0.300
OPT2-0832-217BS		0.118	0.217	1.108				0.852	0.787	
OPT2-0832-315BS		0.217	0.315	1.305				0.951	0.984	
OPT2-1024-118BS	#10-24	0.059	0.118	1.108	0.548	0.059	0.298	0.951	0.787	0.300
OPT2-1024-217BS		0.118	0.217	1.108				0.852	0.787	
OPT2-1024-315BS		0.217	0.315	1.305				0.951	0.984	
OPT2-1032-118BS	#10-32	0.059	0.118	1.108	0.548	0.059	0.298	0.951	0.787	0.300
OPT2-1032-217BS		0.118	0.217	1.108				0.852	0.787	
OPT2-1032-315BS		0.217	0.315	1.305				0.951	0.984	
OPT2-2520-138BS	1/4-20	0.059	0.138	1.190	0.682	0.059	0.393	0.994	0.748	0.394
OPT2-2520-236BS		0.138	0.236	1.190				0.896	0.748	
OPT2-2520-335BS		0.236	0.335	1.395				0.994	0.945	
OPT2-3118-138BS	5/16-18	0.059	0.138	1.390	0.857*	0.082	0.531	1.181	1.063	0.531
OPT2-3118-236BS		0.138	0.236	1.390				1.083	1.063	
OPT2-3118-335BS		0.236	0.335	1.599				1.181	1.260	
OPT2-3716-138BS	3/8-16	0.059	0.138	1.390	1.024	0.074	0.624	1.142	0.787	0.300
OPT2-3716-236BS		0.138	0.236	1.025				0.787		
OPT2-3716-335BS		0.236	0.335	1.123				0.984		
OPT2-3724-138BS	3/8-24	0.059	0.138	1.390	1.024	0.074	0.624	1.142	0.787	0.300
OPT2-3724-236BS		0.138	0.236	1.025				0.787		
OPT2-3724-335BS		0.236	0.335	1.123				0.984		

- Non-Sealed Closed End Options Available on Request -

Fourth and Fifth Grip Options Available on Request

Optisert® Open End Stainless Steel - Metric

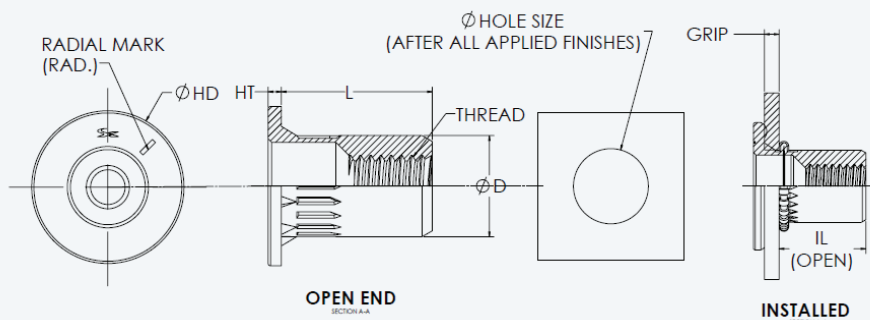


Optisert Open Stainless Steel End Metric Thread (Unit - Millimeters)

Sherex Part Number Metric	Thread Size	Grip Range		L	HD	HT	D	IL	Hole Size
		Min	Max	± .38	± .38	± .08	Max.	Max.	+ .15/- .00
OPT1-470-3.0	M4x0.7	1.5	3.0	14.50	11.00	0.95	7.58	10.50	7.60
OPT1-470-5.5		3.0	5.5	17.00					
OPT1-470-8.0		5.5	8.0	19.50					
OPT1-580-3.0	M5x0.8	1.5	3.0	14.50	11.00	0.95	7.58	10.50	7.60
OPT1-580-5.5		3.0	5.5	17.00					
OPT1-580-8.0		5.5	8.0	19.50					
OPT1-610-3.5	M6x1.0	1.5	3.5	16.05	15.50	1.28	9.98	11.00	10.00
OPT1-610-6.0		3.5	6.0	18.79					
OPT1-610-8.5		6.0	8.5	21.29					
OPT1-610-11.0		8.5	11.0	23.79					
OPT1-8125-3.5	M8x1.25	1.5	3.5	17.53	21.77	1.58	13.48	12.50	13.50
OPT1-8125-6.0		3.5	6.0	20.45					
OPT1-8125-8.5		6.0	8.5	22.95					
OPT1-1015-3.5	M10x1.5	1.5	3.5	23.53	26.00	1.88	15.85	18.5	7.60
OPT1-1015-6.0		3.5	6.0	26.03					
OPT1-1015-8.5		6.0	8.5	28.53					
OPT1-12175-3.5	M12x1.75	1.5	3.5	27.50	28.10	*2.16	17.40	*22.5	7.60
OPT1-12175-6.0		3.5	6.0	29.50					
OPT1-12175-8.5		6.0	8.5	31.50					

Fourth and Fifth Grip Options Available on Request

Optisert® Open End Stainless Steel - Inches



Optisert Open Stainless Steel End Unified Thread (Unit - Inches)

Sherex Part Number Inch	Thread Size	Grip Range		L	HD	HT	D	IL	Hole Size
		Min	Max	± .015	± .015	± .003	Max.	Max.	+ .006/- .000
OPT1-0832-118	#8-32	0.059	0.118	0.571	0.433	0.037	0.298	0.413	0.300
OPT1-0832-217		0.118	0.217	0.669					
OPT1-0832-315		0.217	0.315	0.768					
OPT1-1024-118	#10-24	0.059	0.118	0.571	0.433	0.037	0.298	0.413	0.300
OPT1-1024-217		0.118	0.217	0.669					
OPT1-1024-315		0.217	0.315	0.768					
OPT1-1032-118	#10-32	0.059	0.118	0.571	0.433	0.037	0.298	0.413	0.300
OPT1-1032-217		0.118	0.217	0.669					
OPT1-1032-315		0.217	0.315	0.768					
OPT1-2520-138	1/4-20	0.059	0.138	0.632	0.610	0.050	0.393	0.433	0.394
OPT1-2520-236		0.138	0.236	0.740					
OPT1-2520-335		0.236	0.335	0.838					
OPT1-3118-138	5/16-18	0.059	0.138	0.690	0.857	0.062	0.531	0.492	0.532
OPT1-3118-236		0.138	0.236	0.805					
OPT1-3118-335		0.236	0.335	0.904					
OPT1-3716-138	3/8-16	0.059	0.138	0.926	*1.024	0.074	0.624	0.728	0.625
OPT1-3716-236		0.138	0.236	1.025					
OPT1-3716-335		0.236	0.335	1.123					
OPT1-3724-138	3/8-24	0.059	0.138	0.926	*1.024	0.074	0.624	0.728	0.625
OPT1-3724-236		0.138	0.236	1.025					
OPT1-3724-335		0.236	0.335	1.123					
OPT1-5013-138	1/2-13	0.059	0.138	1.083	*1.106	*0.085	0.685	*0.886	0.687
OPT1-5013-236		0.138	0.236	1.161					
OPT1-5013-335		0.236	0.335	1.240					
OPT1-5020-138	1/2-20	0.059	0.138	1.083	*1.106	*0.085	0.685	*0.886	0.687
OPT1-5020-236		0.138	0.236	1.161					
OPT1-5020-335		0.236	0.335	1.240					

Fourth and Fifth Grip Options Available on Request

Optisert® Performance and Testing Data

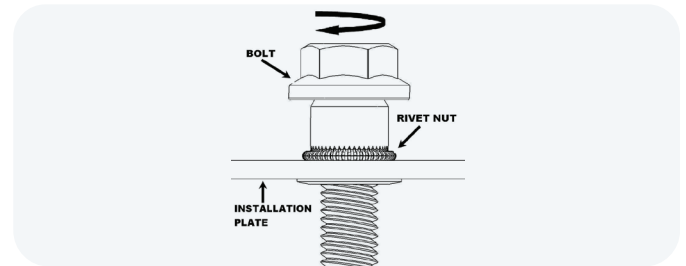
Sherex performs rigorous testing on all its fastening products so end users can be confident in their performance.

Spin Out

Rivet nuts were installed with the Sherex FLEX-5P tool, calibrated with the use of the Sherex Hand Tool Calibration unit, into supplied material types and thicknesses (6061-T6 aluminum, GPO-3 fiberglass, and G10-FR4 fiberglass), as well as using Sherex’s recommended installation force settings on the FLEX-5P for each of the three thread sizes installed.

Test plates with installed rivet nuts were clamped to prevent any movement during testing. The results are an average of the three materials.

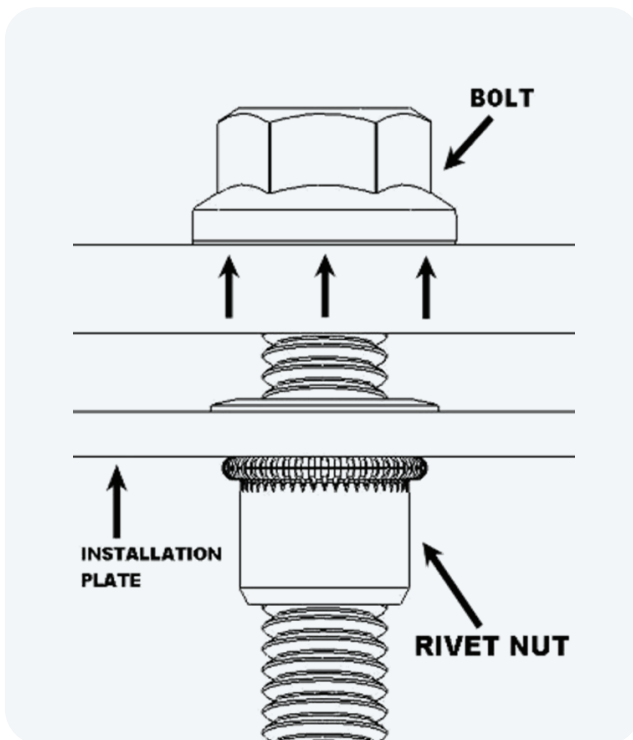
Optisert Steel and Stainless Spin Out		
Thread Size	Spin Out**	Failure Mode
M5 / #10-32	>6N*m	Rivet Nut Spun
M6 / 1/4"-20 and 1/4"-28	>20N*m	Rivet Nut Spun
M8 / 5/16"-18 and 5/16"-24	>30N*m	Thread Failure



**These results are only averages and variations should be expected in actual use. Variations include finishes on the nut, screw, or mating materials, and operator repeatability.

Pull Out

Pull out testing is performed to determine the amount of axial load required to cause failure of the threads, insert feature (head) failure, or base material failure where the insert is pulled through the base material.



M5 Pull-Out Performance Summary		
Thickness (mm)	Pull Out (N)	Failure Mode
1	2,741	Plate Deformed
2	7,992	Plate Deformed
3	8,991	Plate Deformed

M6 Pull-Out Performance Summary		
Thickness (mm)	Failure Load (N)	Failure Mode
1	3,861	Plate Deformed
222	10,842	Plate Deformed
3	12,288	Plate Deformed
4	19,488	Plate Deformed
5	21,602	Plate Deformed

M8 Pull-Out Performance Summary		
Thickness (mm)	Failure Load (N)	Failure Mode
1	4,030	Plate Deformed
2	10,671	Plate Deformed
3	13,176	Plate Deformed
4	26,522*	Plate Deformed and Bubble Breaking
5	28,352*	Plate Deformed and Bubble Breaking

All tests conducted in 6061-T6 aluminum. Optisert threads meet Class 8, Grade 5 Proof Load using test methods and load requirements specified in ISO 898-2 and SAE J995.

Optisert® Performance and Testing Data

Recommended Installation Force

The upset load setting was gradually increased on the installation tool, Sherex's FLEX-5P, until the resultant installed length (the length from the underside of the flange to the end of the shank of the rivet nut) met print specifications.

The tool was calibrated using Sherex's Hand Tool Calibration Unit.



Sherex Flex-5P



RIV943



Hand Tool Calibration Unit

M5, #10 Recommended Installation Force (min)

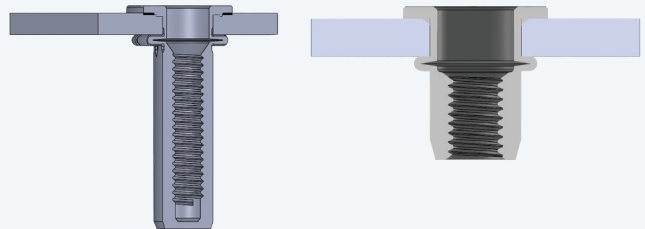
Material Thickness	Force Setting (kN)	Force Setting (lbsF)
Min Grip - Mid Grip	4.5 - 6.5	1,010 - 1,460
Mid Grip - Max Grip	6.5 - 8.5	1,460 - 1,910

M6, 1/4" Recommended Installation Force (min)

Material Thickness	Force Setting (kN)	Force Setting (lbsF)
Min Grip - Mid Grip	8 - 12	1,800 - 2,700
Mid Grip - Max Grip	12 - 16	2,700 - 3,600

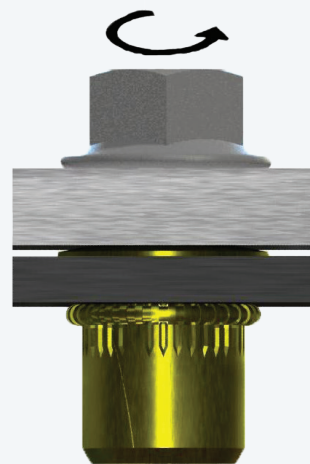
M6, 1/4" Recommended Installation Force (min)

Material Thickness	Force Setting (kN)	Force Setting (lbsF)
Min Grip - Mid Grip	11.5 - 15.5	2,600 - 3,500
Mid Grip - Max Grip	15.5 - 20	3,500 - 4,500



Suggested Assembly Torque

Thread Size	Suggested Assembly Torque	
	Inch Lbs. - Nm	
	Plated Screw Grade 5/Class 8.8	
# 6-32 UNC	12	
# 8-32 UNC	22	
# 10-24 UNC	32	
# 10-32 UNF	36	
1/4-20 UNC	75	
1/4-28 UNF	86	
5/16-18 UNC	156	
5/16-24 UNF	173	
3/8-16 UNC	276	
3/8-24 UNF	312	
M4x0.7 ISO	2.5	
M5x0.8 ISO	5.0	
M6x1.0 ISO	8.6	
M8x1.25 ISO	21.0	
M10x1.5 ISO	42.0	
M12x1.75 ISO	72.0	



Definition:

Recommended torque for assembling a rivet nut joint with Grade 5/Class 8.8 hardware.

Contact Sherex should you require Grade 8, Class 10, or higher joint strength.

Sherex Best Practices

Sherex offers a wide range of products that help companies assembly products more efficiently, from fasteners to the installation tools used to install them, to vibration loosening prevention to help joints stay secure.

Why Blind Rivet Nuts?

Sherex blind rivet nuts provide load bearing threads in thin sheet materials that are too thin for a tapped thread. They are called "blind" because they can be installed from one side of the work piece. Once the rivet nut is installed, additional components can be attached using threaded fasteners.

Full Hex Rivet Nuts

Sherex full hex rivet nuts provide increased spin out resistance over round or half hex body styles. These products are compatible with Class 8, Grade 5 hardware, and are available in sizes 1/4-20 to 1/2-13 and M6 to M12 in small flange and large flange styles.



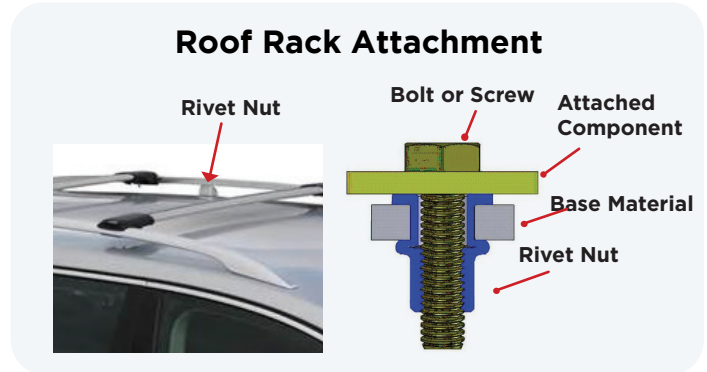
Optisert® Rivet Nuts

Optisert® is Sherex's best performing round rivet nut. Its combination of knurled body design and underhead wedges gives it superior strength, performance, and spin-out resistance over typical round body rivet nuts. Ideal applications for Optisert include use in softer material like aluminum, composite, fiberglass, and plastic.



Large Size Rivet Nuts

Sherex large size rivet nuts are offered from 1/2-13 through 3/4-10, and M12 to M16 sizes. These rivet nuts were developed for applications where critical joint performance and high tensile loads are required.



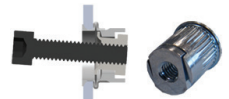
High Strength Rivet Nuts

Sherex's high strength rivet nuts are rated for Class 10/Grade 8 hardware. Available in both full hex and round body, with sizes spanning from 1/4-20 - 1/2-20 and M6 - M12.



Riv-Float® Rivet Nuts

RIV-FLOAT® rivet nuts provide easy, accurate, and fast attachment of components in off-center applications. RIV-FLOAT®-SHORT rivet nuts provide the same benefits with a shorter body for increased back-side clearance.



Fastener Installation Systems

Sherex offers a broad line of installation tools, from hand tools ideal for prototyping and small volumes to hydro-pneumatic, process monitoring, and robotic installation systems ideal for large production runs.



SSG Spin-Spin Tool



Flex-5 Spin Pull Tool



RIV943 Spin Pull Tool



Flex-18 Spin Pull Tool



Calibration Unit



Process Monitoring



Robotic Installation

Vibrational Loosening Prevention

TEC Series® washers and Disc-Lock® washers and nuts are heavy duty, reusable, self locking fasteners designed to secure safety-critical applications against vibrational loosening.

Disc-Lock's M22 Safety Wheel Nut is used by many trucking fleets and the Department of Defense. Available in standard and large outer diameter carbon and stainless steel M3-M72 and unified equivalents.





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