

SAE International (Society of Automotive Engineers) is a standards development organization with fastener specifications that apply to the aerospace, automotive, and commercial vehicle industries. SAE bolts are also used in machinery, equipment, and OEM applications.

SAE J995 Mechanical and material requirements for steel nuts.

SAE J995 covers the mechanical and chemical requirements for inch series nuts in three grades used in automotive and related industries in sizes to 1-1/2" inclusive. SAE J995 Grades 2, 5, and 8 nuts are readily available in a standard hex pattern.

J995 Mechanical Properties

Grade	Nominal Size, inches	Proofload, UNC and UN 8 Threads, psi	Rockwell Hardness
2	1/4 thru 1-1/2	90,000	C32 Max
5	1/4 thru 1	120,000	C32 Max
	Over 1 thru 1-1/2	105,000	C32 Max
8	1/4 thru 5/8	150,000	C24-C32
	Over 5/8 thru 1	150,000	C26-C34
	Over 1 thru 1-1/2	150,000	C26-C36

*Values listed are not normally applicable to jam, slotted, castle, heavy or thick nuts.

J995 Chemical Requirements

Grade	Carbon, %	Phosphorus, %	Manganese, %	Sulfur, %
2	0.47 max	0.120 max	-	0.15 max
5	0.55 max	0.050 max	0.30 min	0.15 max
8	0.55 max	0.040 max	0.30 min	0.05 max

J995 Tensile Stress Area

Thread, UNC	UNC Stress Area, sq inches	Thread, 8TPI	8 TPI Stress Area, sq inches
1/2-13	0.1419		
5/8-11	0.226		
3/4-10	0.334		
7/8-9	0.462		
1-8	0.606	1-8	0.606
1-1/8-7	0.763	1-1/8-8	0.790
1-1/4-7	0.969	1-1/4-8	1.000
1-3/8-6	1.155	1-3/8-8	1.233
1-1/2-6	1.405	1-1/2-8	1.492

To calculate individual nut proof load value, simply multiply the tensile stress area by the appropriate psi proof load value.