Thermoseal®

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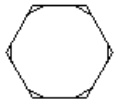
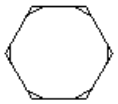
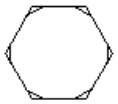
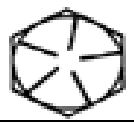
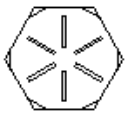
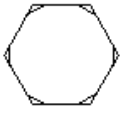
Bolt Grade and Quality Cross Reference

KLINGER EXPERT®

Standard	Grade or Class	KLINGER® expert Alternative	Material	Nominal Product Diameters (Inches)	Minimum Yield Strength (psi)	Minimum Tensile Strength (psi)	Identification
SAE J429	Grade 1	4.6	Low Carbon Steel	0.25 - 1.5	36000	60000	
	Grade 2	5.8	Low Carbon Steel	.25 - .75	57000	74000	
		4.6		>0.75 - 1.5	36000	60000	
	Grade 4	8.8	Medium Carbon Steel	0.25 - 1.5	100000	115000	
	Grade 5	8.8	Medium Carbon Steel	0.25 - 1	92000	120000	
		6.9		>1 - 1.5	81000	105000	
	Grade 5.1	B80	Medium Carbon Steel	0.25 - 1.0	87000	120000	
	Grade 7	B7	Medium Carbon Steel	0.25 - 1.5	115000	133000	
	Grade 8	10.9	Medium Carbon Steel	0.25 - 1.5	130000	150000	
	Grade 8.1	10.9	Medium Carbon Steel	0.25 - 1.5	130000	150000	

Standard	Grade or Class	KLINGER® expert Alternative	Material	Nominal Product Diameters (Inches)	Minimum Yield Strength (psi)	Minimum Tensile Strength (psi)	Identification
ASTM A325	Type 1	B80	Medium Carbon Steel	0.5 - 1	85000	120000	
		6.8		>1 - 1.5	74000	105000	
	Type 2	B80	Low Carbon Steel	0.5 - 1	85000	120000	
		6.8		>1 - 1.5	74000	105000	
	Type 3	B80	Atmopheric Corrosion Resistance Steel	0.5 - 1	85000	120000	
		6.8		>1 - 1.5	74000	105000	
ASTM A193	Grade B5	6.9	AISI 501	0.25 - 4	80000	100000	
	Grade B6	B80	AISI 410	0.25 - 4	85000	110000	
	Grade B7	B7	AISI 4140, 4142, or 4105	.025 - 2.5	105000	125000	
				>2.5 - 4	95000	115000	
				>4 - 7	75000	100000	
	Grade B16	B16	CrMoVa Alloy Steel	.025 - 2.5	105000	125000	
				>2.5 - 4	95000	115000	
				>4 - 7	85000	100000	
	Grade B8	B8	AISI 304	0.25 & up	30000	75000	
	Grade B8C	B8	AISI 347	0.25 & up	30000	75000	
	Grade B8M	B8	AISI 316	0.25 & up	30000	75000	
	Grade B8T	B8	AISI 321	0.25 & up	30000	75000	
	Grade B8	B8X	AISI 304 Strain Hardened	0.25 - 0.75	100000	125000	
				>0.75 - 1	80000	11500	
				>1 – 1.25	65000	105000	
				>1.25 – 1.5	50000	100000	

Standard	Grade or Class	KLINGER® expert Alternative	Material	Nominal Product Diameters (Inches)	Minimum Yield Strength (psi)	Minimum Tensile Strength (psi)	Identification
ASTM A193	Grade B8C	B8X	AISI 347 Strain Hardened	0.25 - 0.75	100000	125000	
				>0.75 - 1	80000	115000	
				>1 - 1.25	65000	105000	
				>1.25 - 1.5	50000	100000	
	Grade B8M	B80A	AISI 316 Strain Hardened	0.25 - 0.75	95000	110000	
				>0.75 - 1	80000	100000	
				>1 - 1.25	65000	95000	
				>1.25 - 1.5	50000	90000	
	Grade B8T	B8X	AISI 321 Strain Hardened	0.25 - 0.75	100000	125000	
				>0.75 - 1	80000	115000	
				>1 - 1.25	65000	105000	
				>1.25 - 1.5	50000	100000	
ASTM 307	Grade A or B	4.6	Low Carbon Steel	0.25 - 1.5	36000	60000	
ISO R898	Class 4.6	4.6	Medium Carbon Steel	All Sizes Thru 1.5	36000	60000	
	Class 5.8	5.8	Medium Carbon Steel	All Sizes Thru 1.5	57000	74000	
	Class 8.8	8.8	Alloy Steel	All Sizes Thru 1.5	92000	120000	
	Class 10.9	10.9	Alloy Steel	All Sizes Thru 1.5	130000	150000	
	Class 12.9	12.9	Alloy Steel	All Sizes Thru 1.5	160000	177000	

Note: This cross reference is based on yield strengths and is for reference only. It is intended to help the user determine the nearest bolt/stud grade equivalent when what is employed is not found in KLINGER Expert®. Bolt grades and/or qualities may not be exactly equivalent but should provide a comparable bolt that can be used in the KLINGER Expert® program. In future versions of KLINGER Expert®, a larger selection of UNC bolt grades may be added make this cross reference obsolete.