

Technical Sheet

Title	Mechanical properties of fasteners. Part 2: Nuts with specified proof load values. Coarse thread
Standard	UNE-EN ISO 898-2

1.- Scope and field of application

This International Standard specifies the mechanical properties of nuts with specified Proof load values tested temperature 10-35°C. The mechanical properties are different to higher or lower temperature.

- With nominal thread diameters up to and including 39 mm.
- Of triangular ISO Thread and with diameters and pitches according to ISO 68 and ISO 262 (Coarse thread)
- Con combinaciones diámetro/paso de rosca en conformidad con la Norma ISO 261 (Rosca de paso grueso);
- With thread tolerances 6H, according to ISO 965.
- With specific mechanical requirements;
- With width across flats as specified in ISO 272 or equivalent;
- With nominal heights greater than or equal to 0,5 D;
- Made of carbon steel or low alloy steel

It does not apply to nuts requiring special properties such as

- Locking abilities (see ISO 2320);
- Weldability;
- Corrosion resistance (see ISO 3506);
- Ability to withstand temperatures above + 300 °C or - 50 °C.

2- Chemical composition

Property class		Chemical composition limits (Check analysis) % (m/m)			
		C Min/Max.	Mn Min.	P Max.	S Max.
4 ¹⁾ ; 5 ¹⁾ ; 6 ¹⁾ ; 8/; 8 NQT	04 ¹⁾	0,06 / 0,58	0,25	0,060	0,150
8 QT; 10 ²⁾ ; 12 ²⁾	05 ²⁾	0,15 / 0,58	0,45	0,048	0,058

¹⁾ Nuts of these property classes may be manufactured from free-cutting steel unless otherwise agreed between the purchaser and the manufacturer. In such cases the following maximum :

sulphur 0,35%; phosphorus 0,11%; lead 0,35%.

²⁾ Alloying elements may be added if necessary to develop the mechanical properties of the nuts.

3- Mechanical properties (coarse thread)

Thread		Property class																																		
		5 ³⁾				6 or /8/				8								10																		
		Proof stress S N/mm ²	Vickers Hardnes HV		Nut		Proof stress S N/mm ²	Vicker Hardness HV		Nut		Proof stress S N/mm ²	Vicker Hardness HV		Nut		Vickers Hardne ss HV	Nut		Proof stress S N/mm ²	Vickers Hardness HV		Nut													
Min.	Max.		Min.	Max.				Min.	Max.				Min.	Max.							Min.	Max.			Min.	Max.	Min.	Max.	Style	Style	Style	Style				
over	to																																			
M5	M7	585	130	334	NTR ¹⁾	1	680	150	334	NTR ¹⁾	1	860	200	334	NTR ¹⁾	1					1040	272	353	TR ²⁾	1											
M8	M10	605					705					885																								1040
M12	M16	610					710					895																								1050
M18	M24	640	146				740	170				965	233																							
M27	M39	660					760					985														TR ²⁾										
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1) NTR= No Quenched -Tempered

2) TR= Quenched and tempered

Nota:

Minimum hardness is mandatory only for heat-treated nuts and nuts too large to be Prof.-load tested. For all other nuts, minimum hardness is provided for guidance only.

4.- Proof load values – Coarse thread –

Thread	Pitch of the tread	Nominal stress area	Property class					
			4	5	6	8	10	
	mm	A _s	Proof load (A _s x S _p)					
		mm ²	Style 1	Style 1	Style 1	Style 1	Style 2	Style 1
M3	0,5	5,03	--	2 600	3 000	4 000	--	5 200
M3.5	0,6	6,78	--	3 550	4 050	5 400	--	7 050
M4	0,7	8,78	--	4 550	5 250	7 000	--	9 150
M5	0,8	14,2	--	8 250	9 500	12 140	--	14 800
M6	1	20,1	--	11 700	13 500	17 200	--	20 900
M7	1	28,9	--	16 800	19 400	24 700	--	30 100
M8	1,25	36,6	--	21 600	24 900	31 800	--	38 100
M10	1,5	58	--	34 200	39 400	50 500	--	60 300
M12	1,75	84,3	--	51 400	59 000	74 200	--	88 500
M14	2	115	--	70 200	80 500	101 200	--	120 800
M16	2	157	--	95 800	109 900	138 200	--	164 900
M18	2,5	192	97 900	121 000	138 200	176 600	170 900	203 500
M20	2,5	245	125 000	154 400	176 400	225 400	218 100	259 700
M22	2,5	303	154 500	190 900	218 200	278 800	269 700	321 200
M24	3	353	180 000	222 400	254 200	324 800	314 200	374 200
M27	3	459	234 100	289 200	348 800	452 100	408 500	486 500
M30	3,5	561	286 100	353 400	426 400	552 600	499 300	594 700
M33	3,5	694	353 900	437 200	527 400	683 600	617 700	735 600
M36	4	817	416 700	514 700	620 900	804 700	727 100	866 000
M39	4	976	497 800	614 900	741 800	961 400	868 600	1 035 000