

Mechanical properties - Metric Nuts



Thread		Property class															
		04				05				4							
less than or equal to		Stress under proof load S_p	Vickers hardness HV		Nut		Stress under proof load S_p	Vickers hardness HV		Nut		Stress under proof load S_p	Vickers hardness HV		Nut		
greater than	equal to	N/mm ²	min.	max.	state	style	N/mm ²	min.	max.	state	style	N/mm ²	min.	max.	state	style	
—	M4																
M4	M7																
M7	M10	380	188	302	NQT1)	thin	500	272	353	QT2)	thin	—	—	—	—	—	
M10	M16																
M16	M39											510	117	302	NQT1)	1	

Thread		Property class																			
		5 ³⁾				6				8											
less than or equal to		Stress under proof load S_p	Vickers hardness HV		Nut		Stress under proof load S_p	Vickers hardness HV		Nut		Stress under proof load S_p	Vickers hardness HV		Nut						
greater than	equal to	N/mm ²	min.	max.	state	style	N/mm ²	min.	max.	state	style	N/mm ²	min.	max.	state	style					
—	M4	520					600					800	180								
M4	M7	580					670					855									
M7	M10	590	130	302	NQT ¹⁾	1	680	150	302	NQT ¹⁾	1	870	200	302	NQT ¹⁾	1	—	—	—	—	—
M10	M16	610					700					880									
M16	M39	630	146				720	170				920	233	353	NQT ²⁾		890	180	302	NQT ¹⁾	2

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Thread	Stress under proof load S_p	Property class																				
		9				10				12												
		Vickers hardness HV		Nut		Stress under proof load S_p		Vickers hardness HV		Nut		Stress under proof load S_p		Vickers hardness HV		Nut						
less than	greater than or equal to	N/mm ²	min.	max.	state	style	N/mm ²	min.	max.	state	style	N/mm ²	min.	max.	state	style	N/mm ²	min.	max.	state	style	
—	M4	900	170					1 040					1 140					1 150				
M4	M7	915						1 040					1 140					1 150				
M7	M10	940	188	302	NQT1)	2	1 040	272	353	QT ²⁾	1	1 140	295	353	QT ²⁾	1	1 160	272	353	QT ²⁾	2	
M10	M16	950					1 050					1 170					1 190					
M16	M39	920					1 060					--	--	--	--	--	1 200					

1) NQT = Not quenched or tempered

2) QT = Quenched and tempered

3) The maximum bolt hardness of property classes 5.6 and 5.8 will be changed to be 220 HV in the next revision of ISO 898-1:1988, This is the maximum bolt hardness in the thread engagement area whereas only the thread end or the head may have a maximum hardness of 250 HV. Therefore the values of stress under proof load are based on a maximum bolt hardness of 220 HV.

NOTE — Minimum hardness is mandatory only for heat-treated nuts and nuts too large to be proof-load tested. For all other nuts, minimum hardness is not mandatory but is provided for guidance only. For nuts which are not hardened and tempered, and which satisfy the proof-load test, minimum hardness shall not be cause for rejection.