1. SCOPE

The fasteners defined by this specification are All Metal Prevailing Torque Nuts with coarse and fine threads.

This specification contains elements of standards: ISO 7719, ISO 7042 and ANSI B18.16.M.

This standard may differ in some respects with certain segments of ISO and national standards. In recognition of these possible differences, the sizes and tolerance ranges used were established in an effort to enable the use of commercially available items, dimensionally interchangeable worldwide.

When a standard is referenced in a drawing or specification, it is understood that the reference is to the latest revision of the standard, unless stated otherwise.

2. GENERAL

Prevailing torque type is a nut which is frictionally resistant to rotation due to a self-contained prevailing torque feature, and not because of a compressive load developed against the bearing surface of the nut.

Prevailing torque is the torque necessary to rotate the nut on its mating externally threaded component, with the torque being measured while the nut is in motion, and with no axial load in the mating component.

Prevailing torque nuts covered by this standard are all metal, one-piece construction nuts which derive their prevailing torque characteristics from controlled distortion of the nut thread and/or body on the upper portion or dome of the nut.

3. PART DESCRIPTION

Typical part description for CAD drawings and BOM's entered by Standards.

NUT, PREV TORQUE ALL MTL M24 10 ZND

For cross-reference listing of company part numbers, go to CNH Catalogue.

4. RELATED DOCUMENTS

4.1 REFERENCE STANDARDS

CNH STPA020—Fastener Finishes and Material Specifications
CNH MAT0310—Zinc Plating
Fiat 10128 – Distorted Thread Prevailing Torque Hex Nuts
Fiat 10128/03 - Distorted Thread Prevailing Torque Hex Nuts for Severe Applications
Fiat 10131 – Automatic Installation Prevailing Torque Nuts
Fiat 10136 – Prevailing Torque Nuts Style A
SAE J122—Surface Discontinuities on Nuts
ISO 898/2—Mechanical Properties of Nuts with Specified Proof Load Values - Coarse Thread
ISO 2320—Prevailing Torque Steel Hex Nuts - Mechanical and Performance Properties.
ISO 7719—Prevailing Torque Type all-metal hex nuts, style 1 - Classes 5, 8 and 10
ISO 7042—Prevailing Torque Type all-metal hex nuts, style 2- Classes 5, 8 ,10 and 12
Iveco 18-1103—Zinc-Nickel Electrolytic Coating for Ferrous Metal Parts
ANSI B18.16M - Prevailing torque type Steel Metric Hex Nuts and Hex Flange Nuts

4.2 REPLACED STANDARDS

Case EM-030—Hex Nuts Prevailing Torque General Specification
Case EM-031—Hex Nuts Prevailing Torque All Metal Preferred
Case EM-032—Hex Nuts Prevailing Torque All Metal Non-Preferred
FNHA-1-A-380.00—Hex Lock Nuts, Class 10, All- Metal, Zn Cr Plated, Coarse Threads

5. REQUIREMENTS

5.1 MATERIAL

Material as designated by part number per CNH STPA020. Material properties: steel, ISO Classes, 5, 8 and 10, in accordance with ISO 2320.

5.2 PREFERRED PARTS POLICY

Preferred parts are so designated to reduce variety of parts and assure maximum availability and cost savings:

Nominal Sizes: M6, 8, 10, 12, 16, 20, 24, 30, 36
Material: Class 10
Finish: Phosphate Coated (PHC)

5.3 MECHANICAL DIMENSIONS

All dimensions in this standard are in millimetres. All unspecified detail must conform to standards listed above.

5.4 SURFACE DISCONTINUITIES

All products under this specification shall be free from burrs, seams, laps, loose scale, irregular surfaces and any defects affecting their serviceability.

5.5 THREADS

Threads prior to introduction of the prevailing-torque feature shall be standard (coarse) pitch ISO metric screw threads, tolerance class 6H.

5.6 MARKING

Nuts of thread diameters of 5 mm and larger and property classes equal to or higher than 8 shall be marked with the property class designation symbol per ISO 898/2.

5.7 MECHANICAL AND PERFORMANCE REQUIREMENTS

Nuts covered by this standard shall meet mechanical and performance requirement as specified in standards: ISO 2320, ANSI B18.16M

5.8 LUBRICATION

All locknuts shall be provided with an additional supplementary lubricant which shall be clean and dry to the touch.

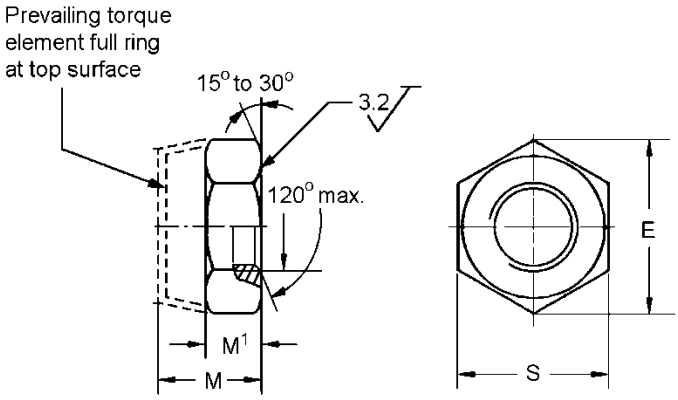


Table 1: Prevailing Torque Nuts – Metric All Metal Nuts, M3 through M14 – ISO 7719

Nominal Size			M3*	M4*	M5*	M6	M8	M10	M12	M14*
S	Width Across Flats	max.	5.5	7	8	10	13	16	18	21
		min.	5.32	6.78	7.78	9.78	12.73	15.73	17.73	20.67
E	Width Across Corners	max.	--	8.08	9.24	11.55	15.01	18.48	20.78	24.25
		min.	6.01	7.66	8.79	11.05	14.38	17.77	20.03	23.35
M	Thickness	max.	4.5	4.2	5.3	5.9	7.1	9	11.6	13.2
		min.		3.5	4.8	5.4	6.44	8.04	10.37	12.1
M^1	Wrenching Height	min.	0.5	1.9	2.7	3	3.7	4.8	6.7	7.8
	Pitch, Nominal		--	0.7	0.8	1	1.25	1.5	1.75	2

* Non-preferred sizes

Table 2: Prevailing Torque Nuts – Metric All Metal Nuts, M16 through M36 – ISO 7719

Nominal Size			M16	M18	M20	M22	M24	M27*	M30	M36
S	Width Across Flats	max.	24	27	30	34	36	41	46	55
		min.	23.67	26.16	29.16	33	35	40	45	53.8
E	Width Across Corners	max.	27.71	--	34.64	--	41.57	--	53.12	63.51
		min.	26.75	29.56	32.95	37.29	39.55	45.2	50.85	60.79
M	Thickness	max.	15.2	17	19	21	23	27	26.9	32.5
		min.	14.1	15.01	16.9	18.1	20.2	25	24.3	29.4
M^1	Wrenching Height	min.	9.1	12.08	10.9	14.5	13	14.8	15.7	19
	Pitch, Nominal		2	2.5	2.5	2.5	3	3	3.5	4

Table 3a: Prevailing Torque Nuts – Metric All Metal Nuts ISO 7719

Nominal Size	Pitch	Material	Height	Nut Finish					
				PHC	PLN	BZN	DAC	DOR	ZND
4	0.7	5							73172600
4	0.7	8					90346576	87344029	385681
4	0.7	8	4.8				&14048514		&14048511
4	0.7	10	4.8						&14048521
4	0.7	8	2.4						393391
5	0.8	8				&14048617	90349182	87344030	80043440
5	0.8	10							
6	1	04	4						
6	1	05	4						
6	1	8				86500656	&14048114	86980513	
6	1	A2-70			51448949				
6	1	8	6		9833961				
6	1	10					90349226		87030561
8	1	04	5						
8	1.25	04	5						
8	1.25	8				9991588	&14048214	86980514	86629542
8	1.25	8			412286				
8	1.25	10				&14048227			
8	1.25	R50	5.1						@10575211
8	1.25	R50					*16108914		*16108911
8	1.25	R80							*16108921
8	1.25	8				^14047317			^14047311
10	1	10							*84333571
10	1.25	8	6		47819706				
10	1.25	8			&47818885	&14048717	&14048714		&14048711
10	1.25	10							&14048721
10	1.5	8				51692457	51557969	86980515	100037
10	1.5	8	11%		412627				
10	1.5	8	10						62099
10	1.5	8	13						62192
10	1.5	10		87030549			90349907	87344003	47887766
10	1.5	12							87303740

& Per Fiat Standard 10128
*DIN Head per Fiat Standard 10136
^Per Fiat 10128/03
@ Per Fiat 10131
% Max.11, Min. 8, Type V DIN 980

Table 3a: Prevailing Torque Nuts – Metric All Metal Nuts (Continued)
ISO 7719

Nominal Size	Pitch	Material	Height	Nut Finish					
				PHC	PLN	BZN	DAC	DOR	ZND
12	1.25	8	13.2				&14048814		&14048811
12	1.25	8	13.2						412036
12	1.25	10	13.2						&14048821
12	1.25	R50	12						*16109211
12	1.25	R80	12						*16109221
12	1.5	8							
12	1.75	8					51557978	86980516	100038
12	1.75	10					90349338	87695422	87533547
14	1.5	R80	14						*13598221
14	2	8							412370
14	2	8	12						721790
14	2	8	14						84039524
14	2	10							87331401
16	1.5	R80	17.6						&14049021
16	2	8					90349657	86980517	86000441
16	2	8	20.8						62102
16	2	10	16		84026990				
16	2	10		87030548			91756566	87344007	47887812
#16	2	10							87698764
18	1.5	04	9						
18	1.5	05	9						
18	2.5	8	12						86900355
20	1.5	04	9						
20	2.5	8					90349664	86980518	380424
20	2.5	10		87030550			90349661	87024336	47887813
22	2.5	8						86980519	
22	2.5	10						87344025	
24	1.5	05	10						
24	3	8						86980520	86512542
24	3	10						87344027	47887815
30	3.5	8						86980521	
30	3.5	10							87752066
33	2	05	14						
36	4	8						86980522	84370841

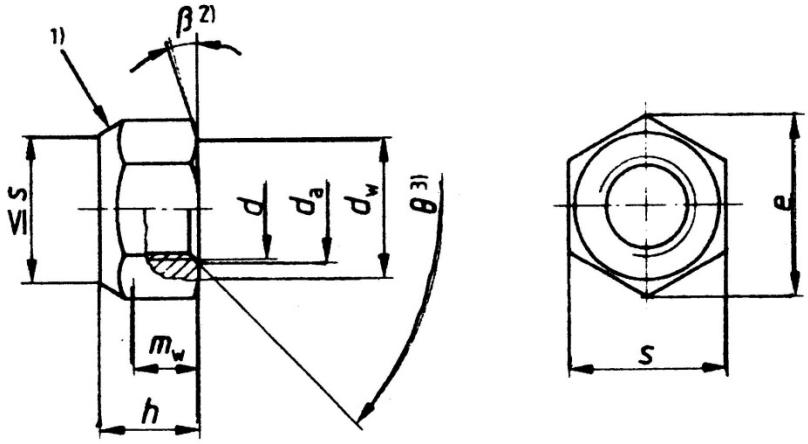
& Per Fiat Standard 10128
*DIN Head per Fiat Standard 10136
Left Hand Thread

Table 3b: Prevailing Torque Nuts – Metric All Metal Nuts
ISO 7719

Nominal Size	Pitch	Material	Height	Nut Finish					
				BGM	Zn-Ni				
10	1.5	8		90347333					
20	2.5	8			90509347				

Zn-Ni – Zinc Nickel per Iveco 18-1103 Fe/ZnNi 7 IV

Table 4: Prevailing Torque Nuts – Metric All Metal Nuts
ISO 7042



Thread Dia.		M5	M6	M8	M10	M12
Pitch		0.8	1	1.25	1.5	1.75
d_a	Max	5.75	6.75	8.75	10.8	13
	Min	5.00	6.00	8.00	10.0	12
d_w	Min	6.88	8.88	11.63	14.63	16.63
e	Min	8.79	11.05	14.38	17.77	20.03
h	Max	5.1	6.0	8.00	10.00	12.00
	Min	4.8	5.4	7.14	8.94	11.57
m_w	Min	3.52	3.92	5.15	6.43	8.3
s	Max	8.00	10.00	13.00	16.00	18.00
	Min	7.78	9.78	12.73	15.73	17.73

Thread Dia.		(M14)	M16	M20	M24	M30	M36
Pitch		2	2	2.5	3	3.5	4
d_a	Max	15.1	17.3	21.6	25.9	32.4	38.9
	Min	14.0	16.0	20.0	24.0	30.0	36
d_w	Min	19.64	22.49	27.7	33.25	42.75	51.11
e	Min	23.36	26.75	32.95	39.55	50.85	60.79
h	Max	14.1	16.4	20.3	23.9	30.0	36.0
	Min	13.4	15.7	19.0	22.6	27.3	33.1
m_w	Min	9.68	11.28	13.52	16.16	19.44	23.52
s	Max	21.00	24.00	30.00	36	46	55.0
	Min	20.67	23.67	29.16	35	45	53.8

Table 5: Prevailing Torque Hex Nut – All Metal
ISO 7042

Nominal Size	Pitch	Material	Nut Finish					
			PHC	PLN	BGM	DAC	DOR	ZND
4	0.7	5						152799
5	0.8	8				90349176		2977215
5	0.8	10						86507065
6	1	8				90349260		353308
6	1	10						86512440
8	1	8						#48130439
8	1.25	8		86535718		90349262		68841
8	1.25	10	51627575					9628098
10	1.25	8				#90404320		#47894118
10	1.5	8				90349268		8475948
10	1.5	10	51627570	51573878		90349292		2979506
12	1.5	8						218921
12	1.75	8						118490
12	1.75	10				90349330		412672
14	2	8				90349655	84603133	725626
16	2	8				90349658		146988
16	2	10				90349660		251843
16	2	10						@47924520
20	2.5	8			91796073	90349666		725637
20	2.5	10				90349667		84246762
24	3	8						589418
24	3	10		90351130				8401651
24	3	12					92246173	
27	3	10						251846
27	3	12						2268977
30	3.5	8						925476
36	4	5						1148871

Fine pitch per ISO10513
@ Left Hand Thread