

Hex Nuts – Flange Prevailing Torque, Inch, ZND, Grades F and G, Non-Preferred

1. SCOPE

This specification conforms with Industrial Fasteners Institute IFI-100/107 Prevailing Torque Type Steel Hex Flange Locknuts, sizes 1/4 through 3/4 inch, unified coarse or fine thread series.

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. PART DESCRIPTION

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

NUT, FLANGE P/T 1/2-13 GR F ZND

For cross-reference listing of company part numbers, go to [CNH Catalogue](#).

3. RELATED DOCUMENTS

3.1 REFERENCE STANDARDS

CNH STPA020—Fastener Finishes and Material Specifications
CNH MAT0310—Zinc Plating
CNH ENS7001—Tightening Threaded Fasteners
ANSI/ASME B1.1—Unified Inch Screw Threads
ASME B18.2.2—Square and Hex Nuts (Inch Series)
SAE J122—Surface Discontinuities on Nuts
SAE J995—Mechanical & Material Requirements for Steel Nuts
IFI 100/107—Industrial Fasteners Institute Prevailing Torque Type Steel Hex Flange Locknuts

3.2 REPLACED STANDARDS

Case E-105—Hex Flange Nuts Prevailing Torque General Specification
Case E-106—Hex Flange Nuts Prevailing Torque Preferred and Non-Preferred
NH FNHA-1-B-405.00—Flanged Lock Nuts, Grade F, All Metal, ZnCr Plated, Coarse Threads

ISSUED BY AK 13FEB15	ECN NO. 35211668	NAME HEX FLANGE PREVAILING TORQUE NUTS - INCH		
APPROVED BY SWH 13FEB15	REV. J	PAGE 1 OF 6	CNH NUMBERS 87366958	STPE180

THE INFORMATION HEREON IS THE CONFIDENTIAL AND PROPRIETARY PROPERTY OF CNH GLOBAL N.V. AND/OR ITS SUBSIDIARIES OR DIVISIONS. ANY USE, EXCEPT THAT FOR WHICH IT MAY BE LOANED, IS PROHIBITED.

4. REQUIREMENTS

4.1 MATERIAL

Nuts shall be made of steel designated as Grade F or Grade G that meet the mechanical and performance requirements of IFI-100/107. Each grade of nut is suggested for use with bolts having specified minimum tensile strengths within the following values:

Grade of Locknut	Specified Min. ULT Tensile Strength of Bolt, psi	SAE Bolt Grade
Grade F	not greater than 120,000	5
Grade G	not less than 120,000 nor greater than 150,000	8

4.2 HEAT TREATMENT

Nuts may be heat treated as necessary to meet the mechanical and performance requirements of IFI-100/107 except they shall not be case hardened.

4.3 PREVAILING TORQUE

The prevailing torque characteristic is obtained by deformation of the threads at or near the top of the nut. Alternate styles or methods may be supplied subject to prior approval.

4.4 PREFERRED PARTS POLICY

Preferred parts are so designated to reduce variety of parts and assure maximum availability, interchangeability, and cost savings in volume buying.

4.5 MECHANICAL DIMENSIONS

Hex Nut thread geometry shall conform to Unified Series 2B per ANSI/ASME B1.1. The dimensions shall meet the requirements of ASME B18.2.2 (see Tables 1 and 2).

4.6 SURFACE DISCONTINUITIES

All products under this specification shall be free from burrs, seams, laps, loose scale, irregular surfaces and any defects affecting their serviceability per SAE J122 (Surface Discontinuities on Nuts).

4.7 MARKING

Steel nuts of Grade F and G shall be marked with the appropriate symbols for grade and manufacture in accordance with IFI-100/107.

4.8 LUBRICATION

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

NAME	REV.	PAGE	CNH NUMBERS
HEX FLANGE PREVAILING TORQUE NUTS - INCH	J	2 OF 6	87366958 STPE180

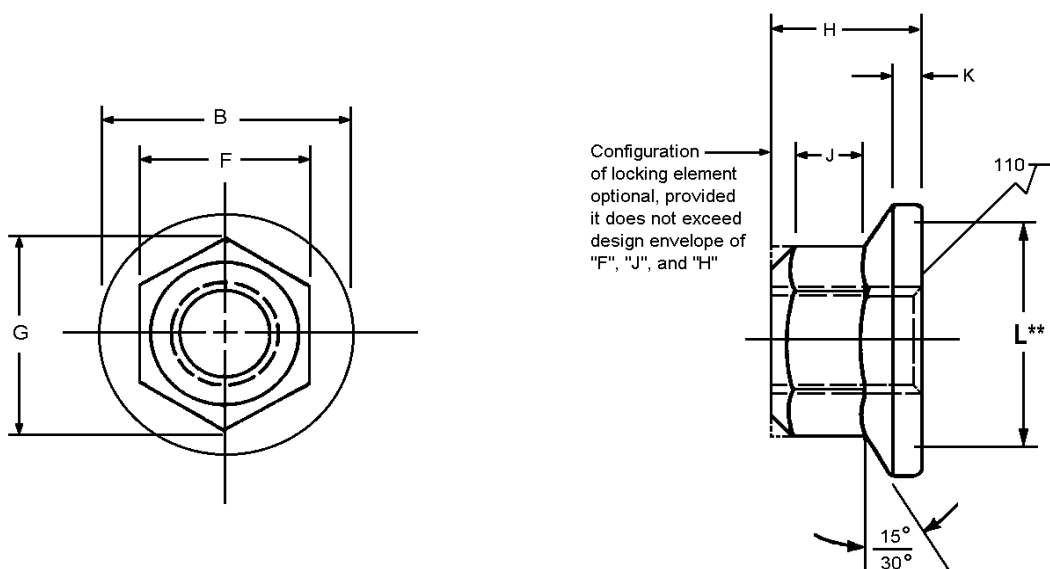


Table 1. Hex Nut Dimensions – Flange Prevailing Torque (Inch), All Metal

Nominal Size or Basic Major Diameter of Thread	F			G		H	B	J	K	L**
	Width Across Flats			Width Across Corners		Height	Flange Dia.	Corner Wrench Length	Flange Thk.	Bearing Dia.
	Basic	Max	Min	Max	Min	Max	Max	Min	Min	Min
1/4 0.250	7/16	0.4385	0.428	0.505	0.488	0.300	0.560	0.14	0.04	.484
5/16 0.312	1/2	0.5020	0.489	0.577	0.557	0.365	0.680	0.17	0.05	.602
3/8 0.375	9/16	0.5645	0.551	0.650	0.628	0.425	0.810	0.20	0.06	.730
7/16 0.438	11/16	0.6895	0.675	0.794	0.768	0.495	0.930	0.23	0.07	.846
1/2 0.500	3/4	0.7520	0.736	0.866	0.840	0.555	1.070	0.26	0.08	.982
* 9/16 0.562	7/8	0.8770	0.861	1.010	0.982	0.625	1.190	0.29	0.09	1.101
5/8 0.625	15/16	0.9395	0.922	1.083	1.051	0.690	1.330	0.32	0.10	1.230
3/4 0.750	1-1/8	1.1270	1.088	1.299	1.240	0.825	1.585	0.38	0.11	1.472
Non-Standard										
* 7/8 0.875	1-5/16	1.3120	1.269	1.506	---	0.855	1.750	---	0.13	---

* Non-Preferred for new design

** Minimum bearing diameter must be flat to concave within 2 degrees when assembled without clamp load.

Standard Parts

Table 2. Proof Load, Clamp Load, Prevailing Torque and Tightening Torque for Flange Lock Nuts , Grade F, Coarse Threads

Nut Size	Proof Load	Clamp Load	Prevailing Torque			Locknut Tightening Torque	
			First Install	First Removal	Fifth Removal	Max.	Min.
	lb.	lb.	lb. in. Max.	lb. in. Min.	lb. in. Min.	lb. ft.	lb. ft.
1/4-20	3,800	2,000	40	5	1.5	11.1	7.6
5/16-18	6,300	3,350	80	8	2.5	21.1	14.1
3/8-16	9,300	4,950	110	12	4	37	23
7/16-14	12,800	6,800	135	17	5	59	39
1/2-13	17,000	9,050	204	22	7.5	80	53
9/16-12	21,800	11,600	300	30	10	120	77
5/8-11	27,200	14,500	420	39	12.5	158	106
3/4-10	40,100	21,300	540	58	20	274	190

Table 3. Proof Load, Clamp Load, Prevailing Torque and Tightening Torque for Flange Lock Nuts, Grade F, Fine Threads

Nut Size	Proof Load	Clamp Load	Prevailing Torque			Locknut Tightening Torque	
			First Install	First Removal	Fifth Removal	Max.	Min.
	lb.	lb.	lb. in. Max.	lb. in. Min.	lb. in. Min.	lb. ft.	lb. ft.
1/4-28	4,350	2,300	40	5	1.5	10.6	7.6
5/16-24	6,950	3,700	80	8	2.5	18.8	14.1
3/8-24	10,500	5,600	110	12	4	35	24
7/16-20	14,200	7,550	135	17	5	63	42
1/2-20	19,200	10,200	204	22	7.5	93	62
9/16-18	24,400	13,000	300	30	10	132	87
5/8-18	30,700	16,300	420	39	12.5	169	113
3/4-16	44,800	23,800	540	58	20	270	180

Standard Parts

Table 4. Proof Load, Clamp Load, Prevailing Torque and Tightening Torque for Flange Lock Nuts , Grade G, Coarse Threads

Nut Size	Proof Load	Clamp Load	Prevailing Torque			Locknut Tightening Torque	
			First Install	First Removal	Fifth Removal	Max.	Min.
	lb.	lb.	lb. in. Max.	lb. in. Min.	lb. in. Min.	ft. lb.	ft. lb.
1/4-20	4,750	2,850	40	5	1.5	17.6	11.7
5/16-18	7,850	4,700	80	8	2.5	28.1	18.2
3/8-16	11,600	6,950	110	12	4	45	30
7/16-14	15,900	9,600	135	17	5	72	48
1/2-13	21,300	12,800	204	22	7.5	120	77
9/16-12	27,300	16,400	300	30	10	169	113
5/8-11	33,900	20,300	420	39	12.5	201	134
3/4-10	50,100	30,100	540	58	20	338	225

Table 5. Proof Load, Clamp Load, Prevailing Torque and Tightening Torque for Flange Lock Nuts, Grade G, Fine Threads

Nut Size	Proof Load	Clamp Load	Prevailing Torque			Locknut Tightening Torque	
			First Install	First Removal	Fifth Removal	Max.	Min.
	lb.	lb.	lb. in. Max.	lb. in. Min.	lb. in. Min.	ft. lb.	ft. lb.
1/4-28	5,450	3,250	40	5	1.5	18.8	12.3
5/16-24	8,700	5,200	80	8	2.5	27.0	18.2
3/8-24	13,200	7,900	110	12	4	46	31
7/16-20	17,800	10,700	135	17	5	84	56
1/2-20	24,000	14,400	204	22	7.5	125	83
9/16-18	30,400	18,300	300	30	10	186	124
5/8-18	38,400	23,000	420	39	12.5	246	162
3/4-16	56,000	33,600	540	58	20	380	239

Table 6. Hex Nuts – Flange Prevailing Torque (Inch), Grades F and G, Non-Preferred

Nominal Diameter	Threads per Inch	Material	Nut Finish		
			DOR	ZND	PHC
1/4	20	F		9626558	
5/16	18	F		9823743	
5/16	18	G		87034814	
3/8	16	F	87343938		
3/8	16	F		86521609	
7/16	14	F		86637767	
1/2	13	F		86521610	
1/2	13	G	87343935	87025806	
1/2	20	G		87033645	
5/8	11	F		86521611	
5/8	11	G		84180923	47821548
3/4	10	F		87490324	
3/4	10	G	87343946		
1	8	G		87378794	