

DIMENSIONS - HARD LOCK NUTS



Dimensions and Specifications for Hard Lock Nuts

Hard Lock Nut Standard Dimensions (mm)

S			H (lower nut)		H1 (upper nut)		B (width)		C	ℓ (total height)	h	Set/Weight
Margin	Coarse	Fine	Std. Dimen.	Toler-ance	Std. Dimen.	Toler-ance	Std. Dimen.	Toler-ance	Approx	Approx	Approx	g
M6	1.0	-	5	0 -0.48	5	0 -0.48	10	0 -0.6	11.5	8.3	3.3	3.3
M8	1.25	1.0	6.5	0 -0.58	6.5	0 -0.58	13	0 -0.7	15	11	4.5	8.6
M10	1.5	1.25	8	//	8	//	17	//	19.6	13.5	5.5	17.6
M12	1.75	1.5	10	//	10	//	19	0 -0.8	21.9	17	7.0	27.3
M14	2.0	1.5	11	0 -0.7	11	0 -0.7	22	//	25.4	18.5	7.5	39
M16	2.0	1.5	13	//	13	//	24	//	27.7	22.5	9.5	52.8
M18	2.5	1.5	15	//	15	//	27	//	31.2	25.5	10.5	80
M20	2.5	1.5	16	//	16	//	30	//	34.6	27.5	11.5	105
M22	2.5	1.5	18	//	18	//	32	0 -1.0	37	31.5	13.5	130
M24	3.0	2.0	19	0 -0.84	19	0 -0.84	36	//	41.6	33	14	180
M27	3.0	2.0	22	0 -1.84	22	0 -1.84	41	//	47.3	38	16	246
M30	3.5	2.0	24	0 -1.84	24	0 -1.84	46	//	53.1	42	18	375
M33	3.5	2.0	26	0 -1.84	26	0 -1.84	50	//	57.7	46	20	480
M36	4.0	3.0	29	0 -1.84	29	0 -1.84	55	0 -1.2	63.5	50	21	630
M39	4.0	3.0	31	0 -2.0	31	0 -2.0	60	&	69.3	54	23	935
M42	4.5	4.0	34	0 -2.0	34	0 -2.0	65	//	75	59	25	1080
M45	4.5	4.0	36	0 -2.0	36	0 -2.0	70	//	80.8	63	27	1330
M48	5.0	4.0	38	0 -2.0	38	0 -2.0	75	//	86.5	67	29	1595
M52	5.0	4.0	42	0 -2.0	42	0 -2.0	80	//	92.4	75	33	2055
M56	5.5	4.0	45	0 -2.0	45	0 -2.0	85	0 -1.4	98.1	79	34	2410
M64	6.0	4.0	51	0 -2.2	51	0 -2.2	95	//	110	89	38	3172

Lower nut (tightening nut)					Upper nut (locking nut)
Material classification: Tightening torque standard reference value list (Unit: Nm)					Materials are uniform
Class4 (SS400 or equivalent)	Class8 (S45C or equivalent)	Class10 (SCM435 or equivalent)	A2,A4 (SUS304, 306 or equivalent)		Tightening torque (Unit Nm)
4.8 (320N/m ^{mf})	8.8 (640N/m ^{mf})	10.9 (900N/m ^{mf})	50 (210N/m ^{mf})	70 (450N/m ^{mf})	
2.3~6	-	-	1.5~4	3.3~9	4~5
5.6~15	11.2~30	15.8~42	3.7~10	7.9~21	9~13
11~30	22~59	31~84	7~20	16~42	18~24
19~52	39~104	55~146	13~34	27~73	27~39
31~82	62~165	87~232	20~54	44~116	40~58
48~129	97~257	136~362	32~84	68~181	70~100
66~177	133~354	187~498	44~116	93~249	100~150
94~251	188~502	265~706	62~165	132~353	120~200
128~341	256~683	360~960	84~224	180~480	150~250
163~434	325~868	458~1220	107~285	229~610	160~300
238~635	458~1269	669~1785	156~416	335~892	250~390
323~862	646~1723	909~2424	212~566	454~1212	270~440
440~1173	879~2345	1237~3298	289~770	618~1649	290~490
565~1506	1129~3012	1588~4235	371~988	794~2118	340~590
731~1949	1462~3898	2056~5481	480~1279	1028~2741	390~640
904~2411	1808~4821	2542~6780	593~1582	1271~3390	440~690
1128~3309	2257~6018	3174~8463	741~1975	1587~4231	490~740
1358~3620	2715~7240	3818~10181	891~2376	1909~5091	540~780
1755~4681	3510~9361	4937~13164	1152~3072	2468~6582	590~830
2183~5820	4365~11641	6139~16370	1432~3820	3069~8185	640~880
3288~8769	6577~17537	9248~24662	2158~5755	4624~12331	690~930

The tightening torque value is uniform in both the semi-thin and thin types regardless of the material used.

*The screw standard is based on JIS B0205 and JIS B0207, and the nut standard is based on JIS B1181

At least M8 for hot dipped zinc plating.

The minimum preload of the above-mentioned lower nuts are 60% of the bolt's yield tensile strength, given the torque constant of 0.1. The maximum preload cannot exceed 80% of the bolt's yield tensile strength with a given torque constant of 0.2.

The torque constant is 0.1 when oil is applied to the nuts and bolts, and when oil is not applied, the torque constant is 0.2.

Materials equivalent to SS400:

SWRM – mild steel wire rods, SWRH – hard steel wire rods, SWRCH – cold heading steel wire rod, SWCH – cold heading steel wire [NOTE: These are the same as above]

torque axial force simplified calculation formula

$$T=K \times d \times F_f$$

T: tightening torque

F_f: axial force

K: torque coefficient

d: nominal screw diameter

Thin Type Dimensions

S		H (lower nut)		H1 (upper nut)		B (width)		C	ℓ (total height)	h	Upper nut tight. torque SS400 (Nm)
Margin	Coarse	Std. Dimen.	Tolerance	Std. Dimen.	Tolerance	Std. Dimen.	Tolerance	Approx	Approx	Approx	
M16	2.0	10	0 -0.58	10	0 -0.58	24	0-0.8	27.7	16.5	6.5	70~100
M18	2.5	11	0 -0.7	11	0 -0.7	27	//	31.2	17.5	6.2	100~150
M20	2.5	12	//	12	//	30	//	34.6	19.5	7.5	120~200
M22	2.5	13	//	13	//	32	0 -1.0	37	21.5	8.5	150~250
M24	3.0	14	//	14	//	36	//	41.6	23	9.0	160~300
M27	3.0	16	//	16	//	41	//	47.3	26	10	250~390
M30	3.5	18	//	18	//	46	//	53.1	30	12	270~440
M33	3.5	20	0 -0.84	20	0 -0.84	50	//	57.7	34	13	290~490
M36	4.0	21	//	21	//	55	0 -1.2	63.5	34	13	340~590
M39	4.0	23	//	23	//	60	//	69.3	38	14	390~640
M42	4.5	25	//	25	//	65	//	75	40	15	440~690
M45	4.5	27	//	27	//	70	//	80.8	45	18	490~740
M48	5.0	29	//	29	//	75	//	86.5	49	20	540~780
M52	5.0	31	0 -1.0	31	0 -1.0	80	//	92.4	53	22	590~830
M56	5.5	34	//	34	//	85	0 -1.4	98.1	57	23	640~880
M64	6.0	38	//	38	//	95	//	110	63	25	690~930

*This product's lower nut tightening torque is approx. 60 ~ 80% of that of the «H-1» lower nut.

Semi Thin Type Dimensions

S		H (lower nut)		H1 (upper nut)		B (width)		C	ℓ (total height)	h	Upper nut tight. torque SS400 (Nm)
Margin	Coarse	Std. Dimen.	Tolerance	Std. Dimen.	Tolerance	Std. Dimen.	Tolerance	Approx	Approx	Approx	
M16	2.0	13	0 -0.7	10	0 -0.58	24	0-0.8	27.7	19.5	9.5	70~100
M18	2.5	15	0 -0.7	11	0 -0.7	27	//	31.2	21.5	10.5	100~150
M20	2.5	16	//	12	//	30	//	34.6	23.5	11.5	120~200
M22	2.5	18	//	13	//	32	0 -1.0	37	26.5	13.5	150~250

M24	3.0	19	0 -0.84	14	//	36	//	41.6	28	14	160~300
M27	3.0	22	//	16	//	41	//	47.3	32	16	250~390
M30	3.5	24	//	18	//	46	//	53.1	36	18	270~440
M33	3.5	26	//	20	0 -0.84	50	//	57.7	40	20	290~490
M36	4.0	29	//	21	//	55	0 -1.2	63.5	46	21	340~590
M39	4.0	31	0 -1.0	23	//	60	//	69.3	46	23	390~640
M42	4.5	34	//	25	//	65	//	75	50	25	440~690
M45	4.5	36	//	27	//	70	//	80.8	54	27	490~740
M48	5.0	38	//	29	//	75	//	86.5	58	29	540~780
M52	5.0	42	//	31	0 -1.0	80	//	92.4	64	33	590~830
M56	5.5	45	//	34	//	85	0 -1.4	98.1	68	34	640~880
M64	6.0	51	0 -1.2	38	//	95	//	110	78	38	690~930

*This product's lower nut tightening torque is the same as that of the«H-1» lower nut.