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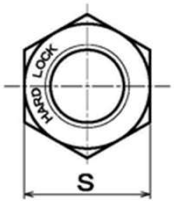
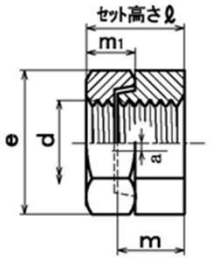
A new concept shapes safty

HARDLOCK Industry Co.,Ltd.





Basic Normal Type: Dimension table & tightening torque table

Dimensions in milimeters (mm)

Unit：mm

Nominal Size	Pitch		Thickness				Width across flats		e	Overall height	Unit Weight
			Convex nut		Concave nut						
	P		m		m1		s			l	g
d	Coarse	Fine	Basic	Tolerance	Basic	Tolerance	Basic	Tolerance	approx.	approx.	approx.
M6	1	0.8	5	±0.48	5	±0.48	10	0 -0.6	11.5	9.2	3.3
M8	1.25	1	6.5	±0.58	6.5	±0.58	13	0 -0.7	15	12	8.6
M10	1.5	1.25	8	±0.58	8	±0.58	17	0 -0.7	19.6	14.4	17.6
M12	1.75	1.25	10	±0.58	10	±0.58	19	0 -0.8	21.9	17.9	27.3
M14	2	1.5	11	±0.7	11	±0.7	22	0 -0.8	25.4	19.9	39
M16	2	1.5	13	±0.9	12	±1.0	24	0 -0.8	27.7	23.2	52.8
M18	2.5	1.5	15	±0.9	14	±1.0	27	0 -0.8	31.2	26.7	80
M20	2.5	1.5	16	±0.9	15	±1.0	30	0 -0.8	34.6	28.2	105
M22	2.5	1.5	18	±0.9	17	±1.0	32	0 -1	37	32.3	130
M24	3	2	19	±1.0	18	±1.0	36	0 -1	41.6	33.9	180
M27	3	2	21	±1.0	21	±1.0	41	0 -1	47.3	37.9	246
M30	3.5	2	23	±1.0	23	±1.0	46	0 -1	53.1	41.9	375
M33	3.5	2	25	±1.0	20	0 -1.5	50	0 -1	57.7	39.4	411
M36	4	3	28	±1.0	21	0 -1.5	55	0 -1.2	63.5	41.9	532
M39	4	3	30	±1.2	23	0 -1.5	60	0 -1.2	69.3	45.7	681
M42	4.5	4	33	±1.2	25	0 -1.5	65	0 -1.2	75	50.2	892
M45	4.5	4	35	±1.2	27	0 -1.5	70	0 -1.2	80.8	54.2	1,115
M48	5	4	37	±1.2	29	0 -1.5	75	0 -1.2	86.5	58.2	1,393
M52	5	4	41	±1.2	31	0 -1.5	80	0 -1.2	92.4	63.7	1,708
M56	5.5	4	44	±1.2	34	0 -1.5	85	0 -1.4	98.1	68.7	2,047

Dimensions in milimeters (mm)

Unit：mm

Nominal Size	Pitch		Thickness				Width across flats		e	Overall height	Unit Weight
			Convex nut		Concave nut						
	P		m		m1		s			l	g
d	Coarse	Fine	Basic	Tolerance	Basic	Tolerance	Basic	Tolerance	approx.	approx.	approx.
M64	6	4	50	±1.5	38	0 -1.5	95	0 -1.4	110	77	2,795
M68			53	±1.5	40	0 -1.7	100	0 -1.4	115	81.1	3,480
M72			57	±1.5	42	0 -1.7	105	0 -1.4	121	85.1	3,910
M76			60	±1.5	46	0 -1.7	110	0 -1.4	127	92.1	4,440
M80			63	±1.5	48	0 -1.7	115	0 -1.4	133	97.1	5,070
M85			67	±1.5	50	0 -1.7	120	0 -1.4	139	101.1	5,630
M90			71	±1.5	54	0 -2	130	0 -1.6	150	109.1	7,340
M95			75	±1.5	57	0 -2	135	0 -1.6	156	115.1	8,150
M100			79	±1.5	60	0 -2	145	0 -1.6	167	121.1	10,140
M105			83	±1.8	63	0 -2	150	0 -1.6	173	127.4	11,140
M110			87	±1.8	65	0 -2	155	0 -1.6	179	131.4	12,000
M115			91	±1.8	69	0 -2	165	0 -1.6	191	139.4	14,780
M120			95	±1.8	72	0 -2	170	0 -1.6	196	145.4	16,050
M125			99	±1.8	76	0 -2	180	0 -1.6	208	153.4	19,410
M130			103	±1.8	78	0 -2	185	0 -1.6	214	157.4	20,650

Nut shape: JIS B1181 (2004)/ISO 4032

Screw precision: JIS B0205 (1998)/ISO 261 – 6H

For most models M8 to M20, the new HLN-R (standard rim) is now standard for A2 (SUS304), class 4 trivalent chromate and class 4 molten zinc products. Exceptions are the M14 and M18, and for A2, the M20.

The new HLN-R (standard rim) is now standard for class 4 trivalent chromate and class 4 molten zinc plated M22 to M30 products.

Please contact us for information on larger sizes.

Tightening Torque Table Dimensions in newton meters

Unit：N・m

Nominal size	Pitch	Reference tightening torque for convex nut (same as general hex nut) *70% of the bolt yield point						Recommended tightening torque for the concave nut
		Class4 (SS400 or equivalent)		Class8 (S45C)	Class10 (SCM435)	A2 (SUS304 or equivalent)		Common to all materials (Min – Max)
		4.8 (320N/mm²)		8.8 (640N/mm²)	10.9 (900N/mm²)	A2-50	A2-70	
		CR3	HDZ35	Manganese Phosphate coating		Plain		
M8	1.25	–	–	–	–	–	–	9～13
M10	1.5	–	–	–	–	–	–	18～24
M12	1.75	–	–	–	–	–	–	27～39
M14	2	55	125	110	150	36	75	55～70
M16	2	–	–	–	–	–	–	70～100
M18	2.5	115	270	230	330	75	165	100～150
M20	2.5	–	–	–	–	110	230	120～200
M22	2.5	–	–	–	–	145	315	150～250
M24	3	–	–	–	–	185	400	160～300
M27	3	–	–	–	–	275	585	250～390
M30	3.5	–	–	–	–	370	790	270～440
M33	3.5	770	1,795	1,540	2,165	505	1,080	290～490
M36	4	990	2,305	1,975	2,780	650	1,390	340～590
M39	4	1,280	2,985	2,555	3,600	840	1,800	390～640
M42	4.5	1,580	3,690	3,160	4,445	1,035	2,225	440～690
M45	4.5	1,980	4,620	3,960	5,570	1,300	2,785	490～740
M48	5	2,370	5,530	4,740	6,670	1,555	3,335	540～780
M52	5	3,075	7,175	6,150	8,650	2,020	4,325	590～830
M56	5.5	3,820	8,915	7,640	10,745	2,505	5,370	640～880
M64	6	5,765	13,445	11,525	16,210	3,780	8,105	690～930
M68		6,980	16,290	13,960	19,630	4,580	9,815	手締め後、
M72		8,370	19,530	16,740	23,540	5,495	11,770	
M76		9,930	23,170	19,860	27,930	6,515	13,965	
M80		11,680	27,245	23,355	32,840	7,665	16,420	
M85		14,130	32,975	28,265	39,745	9,275	19,870	
M90		16,910	39,450	33,815	47,550	11,095	23,775	
M95		20,025	46,720	40,050	56,315	13,140	28,160	
M100		23,500	54,840	47,005	66,100	15,425	33,050	
M105		27,365	63,845	54,725	76,960	17,955	38,480	
M110		31,625	73,785	63,245	88,940	20,755	44,470	
M115		36,300	84,705	72,605	102,100	23,825	51,050	
M120		41,425	96,660	82,850	116,505	27,185	57,255	
M125		47,005	109,680	94,015	132,205	30,850	66,105	
M130		53,065	123,825	106,135	149,250	34,825	74,625	

The above reference tightening torque for the convex nut is calculated on the basis of the torque coefficient of 0.15.

The above tightening torque for the convex nut with HDZ35 is calculated on the basis of the torque coefficient of 0.35.

Regarding the tightening torque for the convex nut in A2, please check strength classification of the bolt used.

The proof load of the convex nut is equal to the general single nut, therefore there is no unique torque value for the convex nut.

The concave nut can be tightened until contact with the convex nut even if its tightening torque value exceeds our recommended maximum value because the torque coefficient will vary depending on the surface roughness.

In the case of HDZ, please tighten the convex nut 50% more than the above torque value due to the high torque coefficient.