

Metrics



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Metrics

Identification: Metric screw threads are identified by a letter M for the thread form profile.

Thread Pitch: In the metric system pitch is used instead of threads per inch. Pitch refers to the distance in millimeters between the crest of each thread.

Metric Conversion: To convert length to millimeters multiply inches by 25.4. (*1 inch equals 25.4 mm*)

To convert length to inches multiply millimeters by .039370.

Wrench Size: We have shown wrench size for all hex head cap screws - this is the same as "distance across the flats."

Marking: Marking for all property classes 8.8 and higher is required for each screw of nominal diameter M5 (.2") and larger. For additional ISO requirements, see next page.

Metric Basics of Most Commonly Used Sizes

Nominal Bolt Diameter	Coarse Thread Pitch	Fine Thread Pitch	Extra-Fine Thread Pitch	Distance Across Flats	Wrench Size (MM)
3 mm	.50			5.5 mm	5.5
4 mm	.70			7 mm	7
5 mm	.80			8 mm	8
6 mm	1.00			10 mm	10
7 mm	1.00			11 mm	11
8 mm	1.25	1.00		13 mm	13
10 mm	1.50	1.25	1.00	17 mm	17
12 mm	1.75	1.50	1.25	19 mm	19
14 mm	2.00	1.50		22 mm	22
16 mm	2.00	1.50		24 mm	24
18 mm	2.50			27 mm	27
20 mm	2.50			30 mm	30
22 mm	2.50			32 mm	32
24 mm	3.00			36 mm	36
30 mm	3.50			46 mm	46



Metrics

HEXAGON BOLTS AND SCREWS

Hexagon bolts and screws should be marked with the designation symbol of the property class. The marking is obligatory for all property classes, preferably on the top of the head by indenting or embossing or on the side of the head by indenting. Marking is required for hexagon bolts and screws with the nominal thread diameters 5 mm and larger.

SOCKET HEAD CAP SCREWS

Socket head cap screws should be marked with the designation symbol of the property class. The marking is obligatory for property classes equal to or higher than 8.8, preferably on the side of the head by indenting or on the top of the head by indenting or embossing. Marking is required for socket head cap screws with nominal thread diameters 5 mm and larger.

MARKING SYMBOLS

Property Class 3.6 4.6 5.6 6.8 8.8 9.8 10.9 12.9

Marking Symbol* 3.6 4.6 5.6 6.8 8.8 9.8 10.9 12.9

* The period in the marking symbol may be omitted. When low carbon martensitic steel is used for property class 10.9, the symbol shall be underlined. Trade (identification) marking of the manufacturer is mandatory on all products which are marked with property classes.

LEFT HAND THREAD BOLTS AND SCREWS

Bolts and screws with left-hand thread shall be marked with symbols shown either on the top of the head or on the point. Marking is required for bolts and screws with nominal thread diameter 5 mm and larger.

STUDS

Studs shall be marked with the designation symbol of the property class. Marking is obligatory for property classes equal to or higher than 8.8, preferably on the extreme end of the threaded portion by indenting. For studs with interference fit, the marking shall be at the nut end. Marking is required for studs with nominal thread diameter equal to or greater than 5 mm.

Tightening Torques - Electrically Zinc Plated - Friction Coefficient 0.125

Property Class	Torque	Nominal Diameter -Coarse Thread																		
		M3	M4	M5	M6	M7	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30	M33	M36	M39
5.6	Nm	0.56	1.28	2.5	4.3	7.1	10.5	21	36	58	88	121	171	230	295	435	590	800	1030	1340
	ft/lb	0.41	0.94	1.84	3.1	5.2	7.7	15	26	42	64	89	126	169	217	320	435	590	759	988
8.8	Nm	1.28	2.9	5.75	9.9	16.5	24	48	83	132	200	275	390	530	675	995	1350	1830	2360	3050
	ft/lb	0.94	2.14	4.25	7.3	12.1	17.7	35	61	97	147	202	287	390	497	733	995	1349	1740	2249
10.9	Nm	1.8	4.1	8.1	14	23	34	67	117	185	285	390	550	745	960	1400	1900	2580	3310	4290
	ft/lb	1.33	3.02	5.97	10.3	16.9	25	49	86.2	135	210	287	405	549	708	1032	1401	1902	2441	3163
12.9	Nm	2.15	4.95	9.7	16.5	27	40	81	140	220	340	470	660	890	1140	1680	2280	3090	3980	5150
	ft/lb	1.59	3.65	7.15	12.1	19.9	29	59	103	162	250	346	486	658	840	1239	1681	2278	2935	3798

Property Class	Torque	Nominal Diameter -Fine Thread								
		M8 x 1	M10 x 1.25	M12 x 1.25	M14 x 1.5	M16 x 1.5	M18 x 1.5	M20 x 1.5	M22 x 1.5	M24 x 2
8.8	Nm	25	49	88	140	210	305	425	570	720
	ft/lb	18	36	64	103	154	224	313	420	531
10.9	Nm	35	68	125	195	295	425	600	800	1000
	ft/lb	25	50	92	143	217	313	442	590	737
12.9	Nm	42	82	150	235	350	510	720	960	1200
	ft/lb	30	60	110	173	258	376	531	706	885

Hex Head Cap Screws

Class 8.8 Coarse Thread



NEBRASKA-IOWA
INDUSTRIAL
FASTENERS CORP



- Zinc Plated
 - Class 8.8
 - DIN 933- Fully Threaded
 - DIN 931- Partially Threaded
- * Indicates fully threaded

Available in various assortments

Dia	Hex Size	Dia	Hex Size	Dia	Hex Size	Dia	Hex Size
4MM	7MM	7MM	11MM	12MM	19MM	18MM	27MM
5MM	8MM	8MM	13MM	14MM	22MM	20MM	30MM
6MM	10MM	10MM	17MM	16MM	24MM	24MM	36MM

Length	4-.70	5-.80	6-1.00	7-1.00	8-1.25	10-1.50	12-1.75	14-2.00	16-2.00	18-2.50	20-2.50	24-3.00	Length
6	60004*												6
8	60008*	60049*											8
10	60010*	60050*	60090*										10
12	60012*	60052*	60092*	60142*	60192*								12
16	60014*	60054*	60094*	60144*	60194*								16
20	60016*	60056*	60096*	60146*	60196*	60256*							20
25	60017*	60057*	60097*	60147*	60197*		60307*	60377*					25
30		60058	60098*	60148*	60198*	60258*	60308*	60378*	60448*	60540*			30
35		30059	60099	60149*	60199	60259*	60309*	60379*	60449*	60541*			35
40		60060	60100	60150	60200	60260	60310*	60380*	60450*	60542*	60620*		40
45		60061	60101		60201	60261	60311	60381*	60451*	60543*	60622*		45
50		60062	60102		60202	60262	60312	60382	60452*	60545*	60623*		50
55					60203	60263	60313	60383	60453	60546*	60624*		55
60			60104		60204	60264	60314		60454	60547	60625*		60
65					60205	60265			60455	60548	60626		65
70			60106		60206	60266			60456	60549	60627		70
75					60207	60267	60317	60387	60457	60550	60628		75
80					60208	60268	60318	60388	60458	60551	60629		80
90					60210	60270	60320	60390	60460	60553	60631		90
100					60212	60272	60322	60392	60462	60555	60633		100
110					60214	60274	60324	60394	60464		60635	60735	110
120					60216	60276	60326	60396	60466		60637		120
130					60218	60278	60328	60398	60468		60639		130
140					60220	60280	60330	60400	60470				140
150					60222	60282	60332	60402	60472		60643	60743	150
160					60224	60284	60334		60474				160
180						60288	60338		60478				180
190							60340						190
200							60342		60482				200
220							60346		60486				220
260									60494				260

Hex Head Cap Screws

Class 8.8 Fine Thread



- Class 8.8 Zinc Plated
- DIN 961- *Fully Threaded
- DIN 960- Partially Threaded

Length	8-1.00	10-1.25	12-1.50	14-1.50	16-1.50
16	61194*	61255*			
20	61196*	61256*	61306*		
25	61197*	61257*	61307*		
30	61198*	61258*	61308*	61378*	61448*
35	61199	61259*	61309*		
40	61200	61260*	61310*	61380*	61450*
45		61261*			
50	61202	61262*	61312*	61382*	61452*
55		61263			
60	61204	61264	61314	61384	61454
65					61455
70		61266	61316	61386	61456
75		61267	61317		
80		61268	61318	61388	61458
90		61270			
100		61272	61322		61462
110		61274			

Class 8.8 Extra Fine Thread



- Class 8.8 Zinc Plated
- DIN 961- *Fully Threaded
- DIN 960- Partially Threaded

Length	10-1.00	12-1.25	18-1.50
20	62256*		
25	62257*	62307*	
30	62258*	62308*	
35	62259*	62309*	
40	62260*	62310*	
45		62311*	62351*
50	62262	62312*	
60	62264	62314	
70	62266	62316	
80	62268	62318	
90			62370
100			62372
120			62374

Hex Head Cap Screws

Class 10.9 Coarse Thread



- Zinc Plated Class 10.9
 - DIN 933- Fully Threaded
 - DIN 931- Partially Threaded
- * Indicates fully threaded

Available in various assortments

Dia	Hex Size
6MM	10MM
8MM	13MM
10MM	17MM

Dia	Hex Size
12MM	19MM
14MM	22MM
16MM	24MM

Dia	Hex Size
20MM	30MM

Length	6-1.00	8-1.25	10-1.50	12-1.75	14-2.00	16-2.00	20-2.50	Length
10	63167*							10
12	63168*	63194*						12
16	63169*	63195*	63255*					16
20	63170*	63196*	63256*	63306*				20
25	63171*	63197*	63257*	63307*	63403*			25
30	63172	63198*	63258*	63308*	63404*	63448*		30
35	63173	63199	63259*	63309*	63405*			35
40	63174	63200	63260	63310*	63406*	63450*		40
45	63175	63201	63261	63311		63451*		45
50	63176	63202	63262	63312	63408*	63452*		50
55	63177	63203	63263	63313				55
60	63178	63204	63264	63314	63410	63454	63626*	60
65	63179	63205	63265	63315				65
70	63180	63206	63266	63316	63412	63456	63628	70
75		63207	63267	63317			63629	75
80		63208	63268	63318	63414	63458	63630	80
90		63210	63270	63320	63416		63632	90
100		63212	63272	63322	63418	63462	63634	100
110		63214	63274	63324	63419	63464	63636	110
120		63216	63276	63326	63420	63466	63638	120
130		63218	63278	63328	63421		63640	130
140		63220	63280	63330	63422	63470	63642	140
150		63222	63282	63332	63423	63472	63644	150
160			63284	63334	63424	63474	63646	160
180				63338	63426	63478	63648	180
200				63342	63428	63482		200
260						63494		260

Socket Head Cap Screws

Class 12.9 Coarse Thread



- Class 12.9 Black Oxide
- DIN 912

Available in various assortments

Dia	Key Size	Dia	Key Size	Dia	Key Size
4MM	3MM	8MM	6MM	16MM	14MM
5MM	4MM	10MM	8MM	20MM	17MM
6MM	5MM	12MM	10MM		

Length	4-.70	5-.80	6-1.00	8-1.25	10-1.50	12-1.75	16-2.00	20-2.50	Length
5	64008								5
8		64050							8
10	64011		64090						10
12	64012	64052	64092	64192					12
16	64014	64054	64094	64194					16
20	64016	64056	64096	64196	64256				20
25	64017	64057	64097	64197	64257	64307			25
30	64018	64058	64098	64198	64258	64308	64448		30
35			64099	64199	64259	64309	64449		35
40		64060	64100	64200	64260	64310	64450		40
45			64101	64201	64261				45
50			64102	64202	64262	64312	64452		50
60				64204	64264	64314	64454	64625	60
70				64206	64266	64316	64456	64627	70
80				64208	64268	64318	64458	64629	80
90						64320			90
100						64322	64462	64633	100

Socket Head Cap Screws

Flat Head Class 10.9



- Black oxide, Alloy steel
- Class 10.9
- DIN 7991

Dia	Key Size	Dia	Key Size	Dia	Key Size
3MM	2MM	6MM	6MM	12MM	8MM
4MM	2.5MM	8MM	5MM		
5MM	3MM	10MM	6MM		

Length	3-50	4-70	5-80	6-1.00	8-1.25	10-1.50	12-1.75	Length
6		65008						6
8	64990	65009	65049	65088				8
10	64991	65010	65050	65090				10
12	64992	65012	65052	65092	65194			12
16	64993	65014	65054	65094	65195			16
20		65016	65056	65096	65196	65256	65306	20
25		65017	65057	65097	65197	65257		25
30			65058	65098	65198	65258		30
35			65059			65259		35
40				65100	65200	65260		40
60					65204		65314	60

Button Head Class 10.9



- Black oxide, Alloy steel
- Class 10.9
- ISO 7380

Dia	Key Size	Dia	Key Size	Dia	Key Size
3MM	2MM	6MM	6MM	12MM	8MM
4MM	2.5MM	8MM	5MM		
5MM	3MM	10MM	6MM		

Length	3-50	4-70	5-80	6-1.00	8-1.25	Length
6	66604	66620				6
8	66605	66621				8
10	66606		66642			10
12	66607	66623	66643	66659	66678	12
16		66625	66645	66661	66680	16
20			66646	66662	66681	20
25			66647	66663	66682	25
30			66648	66664	66683	30

Socket Set Screws

Cup Pt Class 12.9



- Black oxide, Alloy steel
- Cup Point
- Class 12.9
- Din 916

Dia	Key Size
3MM	1.5MM
4MM	2MM
5MM	2.5MM

Dia	Key Size
6MM	3MM
8MM	4MM
10MM	5MM

Dia	Key Size
12MM	6MM

Length	3-.50	4-.70	5-.80	6-1.00	8-1.25	10-1.50	12-1.75	Length
3	65621							3
4	65622	65634						4
5	65623	65635						5
6	65624	65636	65646	65686				6
8		65637	65648	65688	65788			8
10		65638	65650	65690	65790	65850		10
12		65639	65652	65692	65792	65852	65950	12
16				65694	65794	65854	65952	16
20			65656	65696	65796	65856	65954	20
25				65698	65798	65857	65956	25
30					65800			30

Nuts

Hex Nuts Coarse Thread



- Zinc Plated Class 8
- Zinc Plated Class 10
- DIN 934

Dia	Class 8	Class 10
3-.50	66003	
4-.70	66004	
5-.80	66007	
6-1.00	66010	66056
7-1.00	66013	
8-1.25	66016	66058
10-1.50	66022	66060
12-1.75	66028	66063
14-2.00	66031	66066
16-2.00	66034	66068
18-2.50	66037	66070
20-2.50	66041	66072
22-2.50	66044	
24-3.00	66048	
30-3.50	66052	

Hex Nuts Fine Thread

- Zinc Plated Class 8
- DIN 934

Item ID	Dia
66017	8-1.00
66023	10-1.25
66029	12-1.50
66032	14-1.50
66035	16-1.50

Hex Nuts Extra Fine Thread

- Zinc Plated Class 8
- DIN 934

Item ID	Dia
66024	10-1.00
66030	12-1.25
66039	18-1.50
66042	20-1.50
66046	22-1.50
66050	24-1.50

Nylon Insert Lock Nuts Coarse Thread



- Zinc Plated Class 8
- Zinc Plated Class 10
- DIN 985

Dia	Class 8	Class 10
4-.70	66204	
5-.80	66207	
6-1.00	66210	66250
7-1.00	66213	
8-1.25	66216	66252
10-1.50	66222	66254
12-1.75	66228	66257
14-2.00	66231	66263
16-2.00	66234	66265
18-2.50	66237	66267
20-2.50	66241	66268

Nylon Insert Lock Nuts Fine Thread

- Zinc Plated Class 8
- Zinc Plated Class 10
- DIN 985

Dia	Class 8	Class 10
8-1.00	66217	66253
10-1.25	66223	66255
12-1.50	66229	66258
14-1.50	66232	66264
16-1.50	66235	

Nylon Insert Lock Nuts Extra Fine Thread

- Zinc Plated Class 8
- DIN 985

Item ID	Dia
66224	10-1.00
66230	12-1.25

Nuts

Hex Crown Lock Nuts Coarse Thread



- Zinc Plated
- Class 10 Strength
- DIN 980V

Item ID	Dia
66276	6-1.00
66280	8-1.25
66282	10-1.50
66285	12-1.75
66288	14-2.00
66290	16-2.00
66292	18-2.50
66294	20-2.50
66296	22-2.50
66298	24-3.00

Hex Crown Lock Nuts Fine Thread

Item ID	Dia
66283	10-1.25
66286	12-1.50
66289	14-1.50

Hex Dome Cap Nuts



- Zinc Plated
- Class 6 Strength
- DIN 1587

Item ID	Dia
66410	6-1.00

Hex Jam Nuts



- Zinc Plated
- Class 4 Strength
- DIN 439A = Non-Chamfered up to M10
- DIN 439B = Chamfered M12 & up

Item ID	Dia
66310	6-1.00
66316	8-1.25
66322	10-1.50
66328	12-1.75

Wing Nut



- Zinc Plated

Item ID	Dia
66420	6-1.00

Slotted/Castellated Hex Nut



- Zinc Plated
- DIN 935
- Slotted up to 10mm
- Castellated 12mm-16mm

Item ID	Dia	Thread
66022SL	10-1.50	Coarse
66023SL	10-1.25	Fine
66028SL	12-1.75	Coarse
66029SL	12-1.50	Fine
66031SL	14-2.00	Coarse
66032SL	14-1.50	Fine
66034SL	16-2.00	Coarse

Flange Nuts, Flange Bolts, Threaded Rod

Hex Flange Nuts

Nuts



- Class 10
- DIN 6923
- Yellow Zinc
- *Serrated

Item ID	Dia	Hex Size
65992*	6-1.00	10
65993	8-1.25	13
65994	10-1.50	15
65995	12-1.75	18
65996	14-2.00	21
65998	16-2.00	24

1 Meter- Coarse Thread



Low Carbon Class 4.6: Zinc plated

Din 975

Tensile Strength: 58,000 PSI

Dia	Class 4.6
M4-.70	93874
M5-.80	93989
M6-1.0	93990
M8-1.25	93991
M10-1.5	93992
M12-1.75	93875
M16-2.0	93877

Hex Flange Bolts Class 10.9

Bolts



- Class 10.9
- DIN 6921 or JIS B-1189
- Small Head

Item ID	Dia	Length	Wrench Size	Finish
65901	6-1.00	10	10	Zinc
65903	6-1.00	12	10	Zinc
65902	6-1.00	16	10	Zinc
65900	6-1.00	20	10	Zinc
65904	6-1.00	30	10	Zinc
65912*	8-1.25	20	12	Zinc
65915*	8-1.25	25	12	Zinc
65914*	8-1.25	30	12	Zinc
65916*	8-1.25	35	12	Zinc
65917*	8-1.25	40	12	Zinc
65931	10-1.50	30	15	Yellow Zinc
65932	10-1.50	35	15	Yellow Zinc
65933	10-1.50	40	15	Plain
65935	10-1.50	50	15	Plain
65925	12-1.75	30	16	Zinc
65927	12-1.75	40	16	Yellow Zinc

Washers

Flat Washers



- Zinc Plated
- DIN 125A

Bolt Size	Low Carbon #	Heat Treated #	I.D.	O.D.	Thk
4	67004		4.3	9	0.80
5	67005		5.3	10	1.00
6	67006	67106	6.4	12	1.60
7	67007		7.4	14	1.60
8	67008	67108	8.4	16	1.60
10	67010	67110	10.5	20	2.00
12	67012	67112	13.0	24	2.50
14	67014	67114	15.0	28	2.50
16	67016	67116	17.0	30	3.00
18	67018	67118	19.0	34	3.00
20	67020	67120	21.0	37	3.00
22	67022	67122	23.0	39	3.00
24	67024	67124	25.0	44	4.00

Wavy Spring



- Zinc Plated
- DIN 137B
- Material: Spring Steel

Item ID	Bolt Size	I.D.	O.D.	Thk
67304	4	4.3	8	0.50
67305	5	5.3	10	0.50
67306	6	6.4	11	0.50
67307	7	7.4	12	.50
67308	8	8.4	15	.50
67310	10	10.5	18	.80
67312	12	13.0	24	1.20
67314	14	15.0	28	1.60
67316	16	17.0	30	1.60
67320	20	21.0	36	1.60
67324	24	25.0	44	1.80

Split Lock



- Zinc Plated
- DIN 127B

Item ID	Bolt Size	I.D.	O.D.	Thk
67904	4	4.1	7.6	.90
67905	5	5.1	9.2	1.20
67906	6	6.1	11.8	1.60
67907	7	7.1	12.8	1.60
67908	8	8.1	14.8	2.00
67910	10	10.2	18.1	2.20
67912	12	12.2	21.1	2.50
67914	14	14.2	24.1	3.00
67916	16	16.2	27.4	3.50
67918	18	18.2	29.4	3.50
67920	20	20.2	33.6	4.00
67922	22	22.5	35.9	4.00
67924	24	24.5	40.0	5.00

External Tooth Lock



- Zinc Plated
- DIN 6797A
- Material: Spring Steel

Item ID	Bolt Size	I.D.	O.D.	Thk
67504	4	4.3	8	0.50
67505	5	5.3	10	0.60
67506	6	6.4	11	0.70
67508	8	8.4	15	0.80
67510	10	10.5	18	0.90
67512	12	13	20.5	1.00

Machine Screws

Class 4.8 Zinc Plated



- Class 4.8
- Zinc Plated
- Standard Thread Pitch
- Phillips Pan Head DIN 7985
- Slotted Pan Head DIN 85
- Phillips Oval Head DIN 966

Size	Phillips Pan Head	Slotted Pan Head	Phillips Oval Head
4-.70 x 6		68706	
4-.70 x 8	68408	68708	
4-.70 x 10	68410	68710	68010
4-.70 x 12	68412	68712	68012
4-.70 x 16	68414	68714	68014
4-.70 x 20	68416	68716	68016
4-.70 x 25	68417	68717	68017
4-.70 x 30	68418	68718	68018
5-.80 x 10	68450	68750	68050
5-.80 x 12	68452	68752	68052
5-.80 x 16	68454	68754	68054
5-.80 x 20	68456	68756	68056
5-.80 x 25	68457	68757	68057
5-.80 x 30	68458	68758	68058
6-1.00 x 10	68490	68790	68090
6-1.00 x 12	68492	68792	68092
6-1.00 x 16	68494	68794	68094
6-1.00 x 20	68496	68796	68096
6-1.00 x 25	68497	68798	68097
6-1.00 x 30	68498	68799	68098
6-1.00 x 35	68499		68099
6-1.00 x 40	68500		68100
8-1.25 x 12	68592		
8-1.25 x 16	68594		68194
8-1.25 x 20	68596	68856	68196
8-1.25 x 25	68597	68857	68197
8-1.25 x 30	68598		
8-1.25 x 35	68599		
8-1.25 x 40	68600		
10-1.50 x 25		68957	