Measurement Conversion Chart

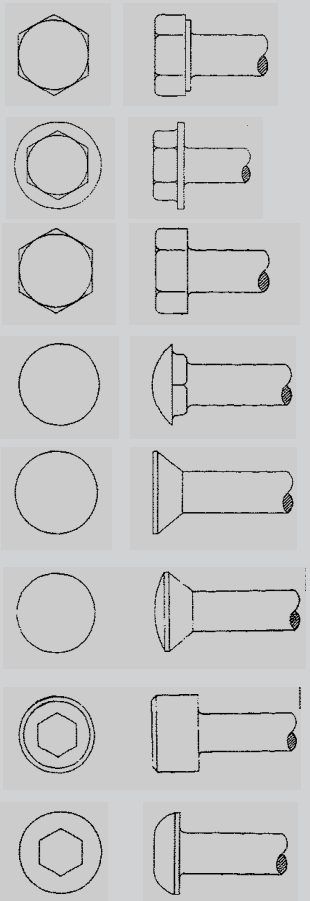
ISO Metric Coarse	mm	Inch	Screw Guage
	2.84		4
M3	3.00		
	3.18	1/8"	5
	3.51		6
	3.90	5/32"	7
M4	4.00		
	4.17		8
	4.50		9
	4.76	3/16"	10
M5	5.00		
	5.49		12
M6	6.00		
	6.35	1/4"	14
	7.94	5/16"	
M8	8.00		
	9.53	3/8"	
M10	10.00		
	11.11	7/16"	
M12	12.00		
	12.70	1/2"	
	14.29	9/16"	
	15.88	5/8"	
M16	16.00		
	19.06	3/4"	
M20	20.00		
	22.23	7/8"	
M24	24.00		

Which Fastener to Use

For fixing	Use one of the following
Timber to Timber	surefast screws, twinfast screws, wood screws, coach screws, coach bolts and nuts, Type 17 screws or nails
Timber to Metal	wingtek screws, self tapping screws, decking screws
Metal to Timber	hex head bolt and nuts, coach screws, coach bolts and nuts, surefast screws
Metal to Metal	hex bolt and nuts, self tapping screws, self drilling screws, tek screws, rivets, metal thread screws
Into plasterboard (hollow wall)	plasterboard screws, legs wall anchors, spring toggles, hollow wall anchors, poly toggles
Into solid block, concrete, etc.	sleeve anchors, through bolts, screw bolts, nylon plugs, chemical anchors, nail in anchors, spikes
Into hollow block, brick, etc.	screw bolts, nylon plugs, metal pin anchors, spikes, chemical anchors

Most of the above applications will require pre-drilling the hole

Head Types



Hexagon Head
Normally referred to as hexagon or hex.
Note the small washer face under the head.

Hexagon Washer head
Note the large flange under the head.

Full Bearing hexagon
This will also be referred to as hexagon or hex.
There is no washer face under the head.

Cup Square head
A shallow round head. The head shape is drawn here with a square under the neck, as typically found on Coach Bolts.

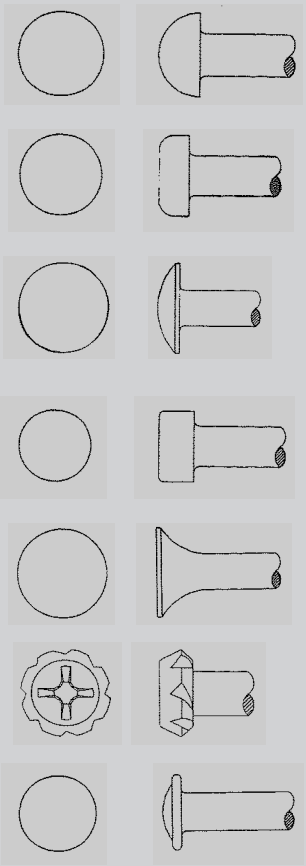
Countersunk Head
Found on Bolt ,screw and socket recess products.

Raised Countersunk Head
Found on Bolt and screw products. Bolts normally also have a square under the head, creating a form of plow bolt. In screws this head is often called oval.

Cap Head
The standard head shape of the range of socket head cap screws.

Button Head
Normally only found in standard fasteners in the socket recess range.

Head Types



Round Head
A deeper head than cup head. In standard fasteners this shape is found mainly on woodscrews and imperial metal thread products.

Pan Head
Major products featuring this head shape are self tappers and metal threads. Note: that the head is shallower than the round head.

Mushroom Head
Another head shape from the screw product range. Note the head diameter is larger and the head is thinner than pan or round heads. Gutter bolts have this shape head.

Cheese Head
A head shape from the screw product range, normally on metal threads.

Bugle Head
This head shape is normally only used on screw products, particularly fasteners used to screw plasterboard to steel or timber.

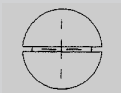
Flower Head
Reaming cutters formed around the edge of the head allow the screw to self embed in cement, steel and timber products.

Wafer Head
Another head shape used mainly on screws for the building industry. Most commonly, the head is found on self drillers.

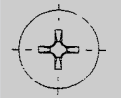
Drive Types

External Hexagon
The most common type, and found on many bolt and screw products.

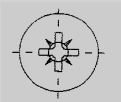
Internal Hexagon
Usually found on products referred to as socket head cap screws, socket set screws and similar assosiated products. Driven by hexagon key.



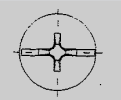
Slotted
Found on standard woodscrews, metal threads and self tappers. Driven by a conventional bladed screwdriver.



Phillips Recess
A form of cross recess. Driven by Philips screwdriver.



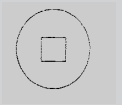
Pozi Drive Recess
The most common of cross recesses, often available on screw products. Driven by Pozi drive screwdriver.



Combination Recess/Slot
This drive, consisting of a cross recess and a slot is found on some standard screws. Driven with either a cross recess or blade screwdriver.

Drive Types

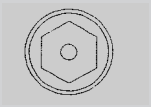
Torx Recess
A six sided recess which features curved driving faces. The most commonly found on high volume screw items in automobile or electrical appliances. Special driving tools are required.



Square
This drive consists of a square shaped recess punched into the head of a screw, driven by square head screwdriver.

Security

Tri Wing
A recess drive, with three rather than four driving arms. This drive is found on screws in electrical appliances to prevent disassembly by unauthorised persons.

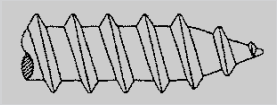


Post Hexagon
Anti theft drives used to avoid the unauthorised disassembly of a component. These drives take different forms and all require specialised driving tools.

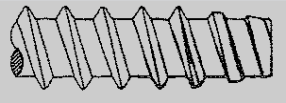
One Way
This drive utilises a standard bladed screwdriver for tightening. The fastener cannot be undone because the driving faces in the reverse direction are not formed.

Snake Eyes
The head of the fastener has two holes which provide the driving feature.

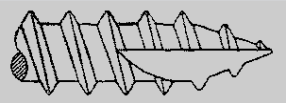
Screw Point Types



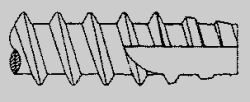
Type AB
This point is found on Type AB self tapping screws and a range of screws used for fastening timber or timber based building products. Its purpose is to assist the screw in engaging in the material being fastened.



Type B
This point is applied to self tapping screws and generally specified where the screw is being driven into a shallow hole. Type B points provide for more full threads to be engaged in the material being fastened.

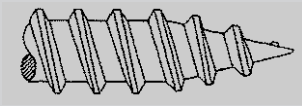


Type 17
Similar to type AB point, except that screw material has been cut away. This feature, sometimes called a shank shot provides the ability for the screw to self drill through thin metal and then drill into timber members of the structure.

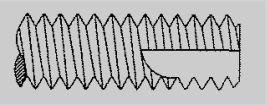


Type 25
A point designed to cut through threads in plastic material . The presence of the shank slot provides the cutting ability and also for the clearance of cutting chips.

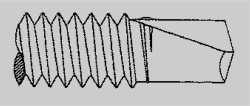
Screw Point Types



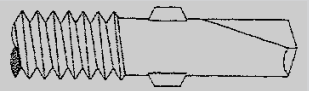
Needle Point
Suitable for use in situations where fasteners are required to pierce light metals. This point can be used in light metal joining or where there is a need to fix plasterboard to light steel structural members.



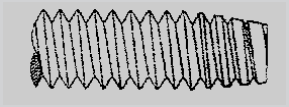
Type 23
Fasteners with this thread cutting point are designed for use in soft metals or die castings. Threads produced belong to the machine thread series.



Drill
A point designed to fasten material of varying types to steel. The shape of the drill point gives the fastener the ability to drill its own hole in most materials including steel.



Winged Drill
In thicker building materials such as plyboard, hardboard or cement sheet, the addition of wings cuts a slightly oversize hole permitting clear passage of the thread to engage with supporting steel structural members.



Thread Forming Point
(Triobular or Taptite)
These screws produce threads by moving material rather than cutting it away. In addition to the point form, where the shape of the thread is progressively developed , the shank of the screw takes the form of a rounded triangle.The point and the shank form provide the ability to produce the thread.

Stainless Steel

Chemical Composition as Percentage

Grade	C	Mn	P	S	Si	Cr	Ni	Mo
304	.08 max	2.0	0.045	0.030	1.0 max	18.0 to 20.0	8.0 to 10.5	—
316	.03 max	2.0	0.045	0.030	1.0 max	16.0 to 18.0	8.0 to 14.0	2.0 to 3.0

Stainless Steel Grades	Suitable Alloys
A2	302, 304, 304L, 321, 347
A4	316, 316L, (317, 317L)

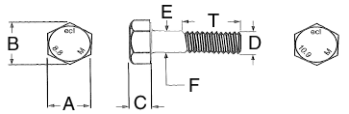
Note: The above chart shows suitable stainless steel alloys for the individual stainless steel grade. The manufacturer, however, has the option to use other stainless steels, provided they meet the ISO requirement.

Galvanic Series

High	**Metals most likely to corrode**
	Zinc and Galvanised
	Aluminium
	Lead
	Tin
	Brass
	Copper
	Bronze
	Monel
	Nickel
	Stainless 304
	Stainless 316
Low	**Metals least likely to corrode**

Product Dimensions

Metric Hexagon Head Bolts To AS1110

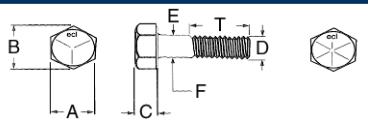


D Dia	Pitch mm	A Across Flats Max	A Across Flats Min	B Across Corners Min	C Head Height Max	E Shank Diameter Max	E Shank Diameter Min
M5	0.8	8	7.78	9.2	3.5	5	4.82
M6	1	10	9.78	11.5	4	6	5.82
M8	1.25	13	12.73	15	5.3	8	7.78
M10	1.5	16	15.73	18.4	6.4	10	9.78
M12	1.75	18	17.73	20.7	7.5	12	11.73
M14	2	21	20.67	24.2	8.8	14	13.73
M16	2	24	23.67	27.7	10	16	15.73
M18	2.5	27	26.67	31.2	11.5	18	17.73
M20	2.5	30	29.67	34.6	12.5	20	19.67
M22	2.5	34	33.38	39.3	14	22	21.67
M24	3	36	35.38	41.6	15	24	23.67
M27	3	41	40.38	47.3	16.7	27	26.67
M30	3.5	46	45	53.1	18.7	30	29.67
M33	3.5	50	49	57.7	20.5	33	32.61
M36	4	55	53.8	63.5	22.5	36	35.61

Nominal Thread Lengths for Hexagon Bolts		Thread Length (T)
Nominal Length of Bolt	- Up to 25mm	Thread = 2D + 6mm
	- Over 125mm, up to 200mm	Thread = 2D + 12mm
	- Over 200mm	Thread = 2D + 25mm
		where D is the Diameter

Product Dimensions

Imperial Hexagon Head Bolts To AS 2465



	Pitch TPI		A Across Flats		B Across Corners		C Head Height		E Shank Diameter	
Dia	UNC	UNF	Max	Min	Max	Min	Max	Min	Max	Min
1/4"	20	28	0.438	0.428	0.505	0.488	0.163	0.15	0.25	0.245
5/16"	18	24	0.5	0.489	0.577	0.557	0.211	0.195	0.313	0.306
3/8"	16	24	0.562	0.551	0.65	0.628	0.234	0.226	0.375	0.369
7/16"	14	20	0.625	0.612	0.722	0.698	0.291	0.272	0.438	0.43
1/2"	13	20	0.75	0.736	0.866	0.84	0.323	0.302	0.5	0.493
9/16"	12	18	0.812	0.798	0.938	0.91	0.371	0.348	0.563	0.554
5/8"	11	18	0.938	0.922	1.083	1.051	0.403	0.378	0.625	0.617
3/4"	10	16	1.125	1.100	1.299	1.254	0.483	0.455	0.75	0.741
7/8"	9	14	1.312	1.285	1.516	1.465	0.563	0.531	0.875	0.866
1"	8	12	1.5	1.469	1.732	1.675	0.627	0.591	1	0.99
1.1/8"	7	12	1.688	1.631	1.949	1.859	0.718	0.658	1.125	1.114
1.1/4"	7	12	1.875	1.812	2.165	2.066	0.813	0.749	1.25	1.239
1.3/8"	6	12	2.062	1.994	2.382	2.273	0.878	0.81	1.375	1.363
1.1/2"	6	12	2.25	2.175	2.598	2.48	0.974	0.902	1.5	1.488
1.3/4"	5		2.625	2.538	3.031	2.893	1.134	1.054	1.75	1.738
2"	4.5		3	2.9	3.464	3.306	1.263	1.175	2	1.988

Nominal Thread Lengths for Hexagon Bolts		Thread Length (T)
Nominal Length of Bolt	- Up to 6"	Thread = 2D + 1/4"
	- Over 6"	Thread = 2D + 1/2"
		where D is the Diameter

Product Dimensions

Metric Hexagon Nuts to AS 1112

Size	Pitch	Across Flats		Across Corners	Thickness	
		Max	Min	Min	Max	Min
M5	0.8	8	7.78	8.79	4.7	4.4
M6	1	10	9.78	11.05	5.2	4.9
M8	1.25	13	12.73	14.38	6.8	6.4
M10	1.5	16	15.73	17.77	8.4	8.0
M12	1.75	18	17.73	20.03	10.8	10.4
M16	2	24	23.67	26.75	14.8	14.1
M20	3	30	29.16	32.95	18	16.9
M24	3	36	35	39.55	21.5	20.2
M27	3	41	40	45.2	23.8	22.5
M30	4	46	45	50.85	25.6	24.3
M33	4	50	49	55.37	28.7	27.4
M36	4	55	53.8	60.79	31.0	29.4

Product Dimensions

Imperial Hexagon Nuts to AS 2465

	TPI		Across Flats		Across Corners		Thickness	
Dia	UNC	UNF	Max	Min	Max	Min	Max	Min
1/4"	20	28	0.438	0.428	0.505	0.488	0.226	0.212
5/16"	18	24	0.5	0.489	0.577	0.557	0.273	0.258
3/8"	16	24	0.562	0.551	0.65	0.628	0.337	0.32
7/16"	14	20	0.688	0.675	0.794	0.768	0.385	0.365
1/2"	13	20	0.75	0.736	0.866	0.84	0.448	0.427
9/16"	12	18	0.875	0.861	1.01	0.982	0.496	0.473
5/8"	11	18	0.938	0.922	1.083	1.051	0.559	0.535
3/4"	10	16	1.125	1.088	1.299	1.24	0.665	0.617
7/8"	9	14	1.312	1.269	1.516	1.447	0.776	0.724
1"	8	12	1.5	1.45	1.732	1.653	0.887	0.831
1.1/8"	7	12	1.688	1.631	1.949	1.859	0.999	0.939
1.1/4"	7	12	1.875	1.812	2.165	2.066	1.094	1.03
1.3/8"	6	12	2.062	1.994	2.382	2.273	1.206	1.138
1.1/2"	6	12	2.25	2.175	2.598	2.48	1,371	1.245
1.3/4"	5		2.625	2.565	3.031	2.893	1.53	1.47
2"	4.5		3	2.94	3.464	3.306	1.754	1.684

Product Dimensions

Metric Nyloc Nuts Din 985

		Across Flats		Across Corners		Nut Height	Thread
Size	Pitch	Max	Min	Max	Min	Max	Height Min
M4	0.7	7	6.78	8.1	7.66	-	-
M5	0.8	8	7.78	9.2	8.79	-	-
M6	1	10	9.78	11.5	11.05	6	4
M8	1.3	13	12.73	15	14.38	8	5.5
M10	1.5	16	15.57	18.47	17.77	10	6.5
M12	1.8	18	17.57	20.77	20.03	12	8
M14	2	21	20.16	24.24	22.78	14	9.5
M16	2	24	23.67	27.70	26.75	16	10.5
M18	2.5	27	26.16	31.16	29.55	18	13
M20	2.5	30	29.16	34.6	32.95	20	14
M22	2.5	34	33	39.24	35.28	22	15
M24	3	36	35	41.60	39.55	34	15
M27	3	41	40	47.32	45.19	27	17
M30	3.5	46	45	53.1	50.85	30	19
M33	3.5	50	49	57.7	55.36	33	22
M36	4	55	53.8	63.5	60.79	36	26

Product Dimensions

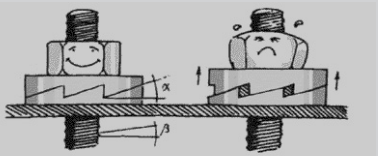
Imperial Nyloc Nuts

	TPI		Across Flats		Across Corners	Thickness		Hex Height
Dia	UNC	UNF	Max	Min	Min	Max	Min	Min
3/16"	24	32	0.376	0.367	0.41	0.249	0.229	0.14
1/4"	20	28	0.439	0.43	0.482	0.328	0.298	0.225
5/16"	18	24	0.502	0.492	0.552	0.359	0.329	0.25
3/8"	16	24	0.564	0.553	0.622	0.468	0.438	0.335
7/16"	14	20	0.627	0.616	0.698	0.468	0.438	0.324
1/2"	13	20	0.752	0.741	0.837	0.609	0.579	0.464
9/16"	12	18	0.87	0.865	0.978	0.656	0.626	0.469
5/8"	11	18	0.94	0.928	1.051	0.765	0.735	0.593
3/4"	10	16	1.064	1.052	1.191	0.89	0.86	0.742
7/8"	9	14	1.252	1.239	1.403	0.999	0.969	0.79
1"	8	12	1.44	1.427	1.615	1.07	1.016	0.825
1.1/8"	7	12	1.627	1.614	1.826	1.203	1.141	0.93
1.1/4"	7	12	1.815	1.801	1.038	1.422	1.36	1.125
1.3/8"	6	12	2.008	1.973	2.232	1.609	1.547	1.282
1.1/2"	6	12	2.197	2.159	2.444	1.64	1.578	1.313
1.3/4"	5		2.762	2.715	3.035	2.052	2.012	1.689
2"	4.5		3.137	3.075	3.449	2.367	2.317	1.75

Nord-Lock™ Bolt Securing System

The bolt becomes self locking

A unique bolt securing system using tension instead of friction.



The key is the difference in angles. Here you see what happens when a nut attempts to loosen. The pair of washers expand more than the corresponding pitch of the thread. Nord-Lock washers positively lock the fastener in a joint which is subjected to extreme vibration.

Product Dimensions

Metric Hexagon Commercial Bolts and Set Screws to AS 1111 Class 4.6

Size	Pitch	Head Height		Across Flats		Across Corners	Shank Dia	
		Max	Min	Max	Min	Min	Max	Min
M6	1.00	4.38	3.62	10.00	9.64	10.89	6.48	5.52
M8	1.25	5.68	4.92	13.00	12.57	14.20	8.58	7.42
M10	1.50	6.85	5.95	16.00	15.57	17.59	10.58	9.42
M12	1.75	7.95	7.05	18.00	17.57	19.85	12.70	11.30
M14	2.00	9.25	8.35	21.00	20.16	22.78	14.70	13.30
M16	2.00	10.75	9.25	24.00	23.16	26.17	16.70	15.30
M18	2.50	12.40	10.60	27.00	26.16	29.55	18.70	17.30
M20	2.50	13.40	11.60	30.00	29.16	32.95	20.84	19.16
M22	2.50	14.90	13.10	34.00	33.00	37.28	22.84	21.16
M24	3.00	15.90	14.10	36.00	35.00	39.55	24.84	23.16
M27	3.00	17.60	15.80	41.00	40.00	45.19	27.84	26.16
M30	3.50	19.75	17.65	46.00	45.00	50.85	30.84	29.16
M33	3.50	21.55	19.45	50.00	49.00	55.36	34.00	32.00
M36	4.00	23.55	21.45	55.00	53.80	60.79	37.00	35.00

Through Bolts

All dimensions in mm

Description	Hole Diameter mm	Hole Depth mm	Fastens Material Up To mm
12 x 80	12	60	5
12 x 100	12	60	25
12 x 135	12	80	40
16 x 105	16	80	5
16 x 125	16	100	10
16 x 140	16	100	25
16 x 180	16	100	65
20 x 120	20	100	5
20 x 160	20	120	20
20 x 200	20	120	60

Screw Bolts

Description	Hole Depth mm	Fastens Material Up To mm
5 x 50mm	5	25
6.5 x 30mm	6.5	5
6.5 x 50mm	6.5	25
6.5 x 75mm	6.5	50
6.5 x 100mm	6.5	75
8 x 50mm	8	15
8 x 75mm	8	40
8 x 100mm	8	65
10 x 60mm	10	20
10 x 75mm	10	35
10 x 100mm	10	60
10 x 120mm	10	80
12 x 75mm	12	25
12 x 100mm	12	50
12 x 150mm	12	100
16 x 100mm	16	35
16 x 150mm	16	85

Hex Head Sleeve Anchors

Description	Hole Dia mm	Hole Depth mm	Fastens Material Up To mm
6.5 x 20mm	6.5	18	2
6.5 x 25mm	6.5	20	5
6.5 x 35mm	6.5	30	5
6.5 x 55mm	6.5	30	25
6.5 x 75mm	6.5	30	45
8 x 40mm	8	35	5
8 x 65mm	8	35	30
8 x 85mm	8	35	50
10 x 40mm	10	35	5
10 x 50mm	10	40	10
10 x 60mm	10	40	20
10 x 75mm	10	40	35
10 x 95mm	10	40	55
10 x 120mm	10	40	80
12 x 60mm	12	50	10
12 x 75mm	12	50	25
12 x 100mm	12	50	50
12 x 130mm	12	50	80
16 x 65mm	16	55	10
16 x 110mm	16	55	55
16 x 145mm	16	55	90
20 x 75mm	20	60	15
20 x 105mm	20	60	45
20 x 150mm	20	60	90

Tightening Torques and Induced Bolt Tension for Imperial Bolts

To AS2465 Grade 5

	UNC		UNF	
Dia	Torque ft.lbs	Bolt Tension lbs	Torque ft.lbs	Bolt Tension lbs
1/4"	7	1,760	8	2,010
5/16"	15	2,890	17	3,180
3/8"	27	4,290	30	4,840
7/16"	43	5,880	48	6,560
1/2"	92	11,050	104	12,480
9/16"	133	14,170	149	15,860
5/8"	183	17,610	208	19,950
3/4"	326	26,060	364	29,120
7/8"	525	36,000	579	39,700
1"	787	47,200	862	51,700
1 1/8"	1,116	59,500	1,251	66,700
1 1/4"	1,573	75,500	1,744	83,700
1 3/8"	2,063	90,000	2,349	102,500
1 1/2"	2,738	109,500	3,083	123,300

Tightening Torques and Induced Bolt Tension for Metric Bolts

To AS1110 Class 8

Dia	Torque Nm	Bolt Tension kN
M5	5	5.35
M6	9	7.54
M8	22	13.8
M10	44	21.9
M12	77	31.8
M14	112	43.4
M16	190	59.2
M20	372	95.6
M22	519	118
M24	640	138
M30	1,314	219
M36	2,297	319

Tightening Torques and Induced Bolt Tension for Imperial Bolts

To AS2465 Grade 8

	UNC		UNF	
Dia	Torque ft.lbs	Bolt Tension lbs	Torque ft.lbs	Bolt Tension lbs
1/2"	92	11,050	104	12,480
9/16"	133	14,170	149	15,860
5/8"	183	17,610	208	19,950
3/4"	326	26,060	364	29,120
7/8"	525	36,000	579	39,700
1"	787	47,200	862	51,700
1 1/8"	1,116	59,500	1,251	66,700
1 1/4"	1,573	75,500	1,744	83,700
1 3/8"	2,063	90,000	2,349	102,500
1 1/2"	2,738	109,500	3,083	123,300

Proof Loads and Tensile Stress for Metric Hexagon Bolts

Class 4.6 and 8.8 to AS 1110

		Class 4.6 to AS 111		Class 8.8 to AS 1110	
Dia	Tensile Stress Area mm^2	Proof Load kN	Tensile Load kN min	Proof Load kN	Tensile Load kN min
M5	14.2	3.20	5.68	8.23	11.35
M6	20.1	4.52	8.04	11.6	16.1
M8	36.6	8.24	14.6	21.2	29.2
M10	58.0	13.0	23.2	33.7	46.4
M12	84.3	19.0	33.7	48.9	67.4
M14	115	25.9	46.0	66.7	92.0
M16	157	35.3	62.8	91	125
M18	192	43.2	76.8	115	159
M20	245	55.1	98.0	147	203
M22	303	68.2	121	182	252
M24	353	79.4	141	212	293
M27	459	103	184	275	381
M30	561	126	224	337	466
M33	694	156	278	416	576

Proof Loads and Tensile Stress for Metric Hexagon Nuts

Class 8.8 to AS 1112

Dia	Tensile Stress Area mm^2	Proof Load kN min
M5	14.2	11.4
M6	20.1	16.1
M8	36.6	29.3
M10	58	46.4
M12	84.3	67.4
M14	115	92
M16	157	126
M18	192	176.6
M20	245	225.4
M22	303	278.8
M24	353	324.8
M27	459	422.3
M30	561	516.1
M33	694	638.5
M36	817	751.6

Proof Loads and Tensile Stress for Metric Hexagon Nuts

to AS 24465

	UNC Threads			UNF Threads		
Dia	Tensile Stress Area in^2	Grade 5 Proof Load lbf	Grade 8 Tensile Load lbf min	Tensile Stress Area in^2	Grade 5 Proof Load lbf	Grade 8 Tensile Load lbf min
1/4"	0.0318	3800	4750	0.0364	3,970	5,450
5/16"	0.0524	6300	7850	0.058	6,320	8,700
3/8"	0.0775	9300	11600	0.0878	9,570	13,200
7/16"	0.1063	12800	15900	0.1187	12,940	17,800
1/2"	0.1419	17000	21300	0.1599	17,430	24,000
9/16"	0.182	21800	27300	0.203	22,130	30,500
5/8"	0.226	27100	33900	0.256	27,900	38,400
3/4"	0.334	40100	50100	0.373	40,660	56,000
7/8"	0.462	55400	69300	0.509	55,480	76,400
1"	0.606	72700	90900	0.663	72,270	99,500
1.1/8"	0.763	80100	114000	0.856	80,460	128,000
1.1/4"	0.969	102000	145000	1.073	100,860	161,000
1.3/8"	1.155	121000	173000	1.315	123,600	197,000
1.1/2"	1.405	148000	211000	1.581	148,600	237,000

Proof Loads and Tensile Stress for Imperial Hexagon Bolts

to AS 2465 Grade 5

Based on:
Tensile Strength = 120,000 lbf/in² min
Yield Strength = 92,000 lbf/in² min
Proof Load Stress = 85,000 lbf/in²

	UNC Threads			UNF Threads		
Dia	Tensile Stress Area in²	Proof Load lbf	Tensile Load lbf min	Tensile Stress Area in²	Proof Load lbf	Tensile Load lbf min
1/4"	0.0318	2,700	3,800	0.0364	3,100	4,350
5/16"	0.0524	4,450	6,300	0.058	4,900	6,950
3/8"	0.0775	6,600	9,300	0.0878	7,450	10,500
7/16"	0.1063	9,050	12,800	0.1187	10,100	14,200

Proof Loads and Tensile Stress for Imperial Hexagon Bolts

to AS 2465 Grade 8

Based on:
Based on:Tensile Strength= 150,000 lbf/in² min
Yield Strength = 130,000 lbf/in² min
Proof Load Stress = 120,000 lbf/in²

	UNC Threads			UNF Threads		
Dia	Tensile Stress Area in²	Proof Load lbf	Tensile Load lbf min	Tensile Stress Area in²	Proof Load lbf	Tensile Load lbf min
1/2"	0.1419	17,000	21,300	0.1599	19,200	24,000
5/8"	0.2260	27,100	33,900	0.256	30,700	38,400
3/4"	0.3340	40,100	50,100	0.373	44,800	56,000
7/8"	0.4620	55,400	69,300	0.509	61,100	76,400
1"	0.6060	72,700	90,900	0.663	79,600	99,400
1 1/8"	0.7630	91,600	114,400	0.856	102,700	128,400
1 1/4"	0.9690	116,300	145,400	1.073	128,800	161,000
1 1/2"	1.4050	168,600	210,800	1.581	189,700	237,200

Tapping and Drilling Chart

Including Pitch & Threads per inch

Nominal Dia	BSW		BSF		UNC		UNF		Metric		Isometric Pitch	
	Threads per Inch	Tapping Drill	Threads per Inch	Tapping Drill	Threads per Inch	Tapping Drill	Threads per Inch	Tapping Drill	Nominal Dia	Tapping Drill	Coarse	Fine
3/16"	24	3.7mm	32	5/32"	24	3.9	32	4.1mm	M5	4.2mm	0.8	0.5
1/4"	20	5.1mm	26	5.4mm	20	13/64	28	7/32	M6	5.1mm	1.00	0.75
5/16"	18	6.5mm	22	6.8mm	18	6.6mm	24	7.0mm	M8	6.8mm	1.25	1
3/8"	16	5/16"	20	21/64	16	8.0mm	24	8.5mm	M10	8.6mm	1.5	1.25
7/16"	14	9.3mm	18	9.7mm	14	9.4mm	20	25/64	M12	10.4mm	1.75	1.25
1/2"	12	27/64	16	7/16"	13	10.0mm	20	29/64	M14	12.1mm	2	1.5
9/16"	12	31/64	16	1/2"	12	31/64	18	13.0	M16	14.0mm	2	1.5
5/8"	11	17/32	14	14mm	11	35/64	18	14.5mm	M18	15.5mm	2.5	1.5
3/4"	10	16.5mm	12	43/64	10	21/32	16	17.5mm	M20	17.5mm	2.5	1.5
7/8"	9	49/64	11	20mm	9	49/64	14	20.5mm	M22	19.5mm	2.5	1.5
1"	8	7/8"	10	29/32	8	57/64	12	59/64	M24	21.0mm	3	2
1.1/8"	7	63/64	9	1 1/64	7	63/64	12	1 3/64	M27	24.0mm	3	
1.1/4"	7	1 7/64	9	1 27/28	7	1 7/64	12	1 11/64	M30	36.5mm	3.5	
1.3/8"	6	1 13/64	8	1 1/4	6	1 7/32	12	33.0mm	M36	32.0mm	4	
1.1/2"	6	1 21/64	8	1 3/8	6	1 11/32	12	1 27/64	M39		4	
1.3/4"	5	1 35/64	7	1 39/64	5	1 9/16			M42		4.5	
2"	4.5	45mm	7	1 55/64	4.5	1 51/64			M48		5	

Dimension Properties

Domed Head Blind Rivets. All dimensions in mm

Rivet Dia	Size	Rivet Length	Fastens Material Between	Hole Dia	Domed Head Dia	Large Flange Head Dia	Head Thickness
2.4	3.2	5.8	0.5-3.2	2.5	4.7		0.8
3.2	4.1	4.8	0.5-1.6	3.3	6.2	8	1
	4.2	6.4	1.6-3.2				
	4.3	8	3.2-4.8				
	4.4	9.6	4.8-6.4				
	4.5	11.1	6.4-7.9				
	4.6	12.7	7.9-9.5				
	4.8	16.1	11.0-12.7				
	4.10	17.6	14.3-15.9				
4	5.1	5.5	0.5-1.6	4.1	7.9	10	1.3
	5.2	7.1	1.6-3.2				
	5.3	8.7	3.2-4.8				
	5.4	10.2	4.8-6.4				
	5.5	11.8	6.4-7.9				
	5.6	13.4	7.9-9.5				
	5.8	16.5	9.5-11.1				
	5.10	19.5	14.3-15.9				
4.8	6.1	6.4	0.5-1.6	4.9	9.5	14	1.5
	6.2	8.0	1.6-3.2				
	6.3	9.6	3.2-4.8				
	6.4	10.2	4.8-6.4				
	6.5	12.7	6.4-7.9				
	6.6	14.5	7.9-9.5				
	6.8	17.7	11.0-12.7				
	6.10	21.0	14.3-15.9				

Dimension Properties

Domed Head Blind Rivets. All dimensions in mm

Rivet Dia	Size	Rivet Length	Fastens Material Between	Hole Dia	Domed Head Dia	Large Flange Head Dia	Head Thickness
4.8	6.12	24.1	15.9-17.6	4.9	9.5	14	1.5
	6.14	27.0	17.6-19.2				
	6.16	30.0	19.8-26.2				
	6.20	37.0	26.2-32.8				

Mechanical Properties

Domed Head Blind Rivets

Rivet Dia	Aluminium		Steel		Stainless		Monel	
	Shear	Tensile	Shear	Tensile	Shear	Tensile	Shear	Tensile
3.2	760	980	1160	1380	1870	2360	1560	2000
4.0	1160	1560	1650	2090	2820	3650	2450	3110
4.8	1690	2220	2400	3020	4230	5340	2560	4450

Electrolytic Compatability

When two dissimilar metals or two similar metals which differ in chemical composition are in contact in the presence of moisture of any sort (e.g. damp or humid atmosphere) electrolytic corrosion can occur.

This is caused by the generation of a minute current which causes one of the metals to be eaten away.

Metals furthest apart in an electrolytic series will corrode most rapidly. The nomograph shows the possible extent of electrolytic corrosion for comparison purposes, as well as the differences in corrosion rates for different metal combinations.

A straight line is drawn between the two metals being considered; one metal selected from the left hand list and the other from the right hand list. The centre column number scale represents the degree of possible corrosion activity. A large number indicated high possibility of electrolytic activity, whilst a low number indicates a better combination for resisting electrolytic corrosion. The left and right hand material columns also indicate which metal will be protected and which will be attacked by corrosion.

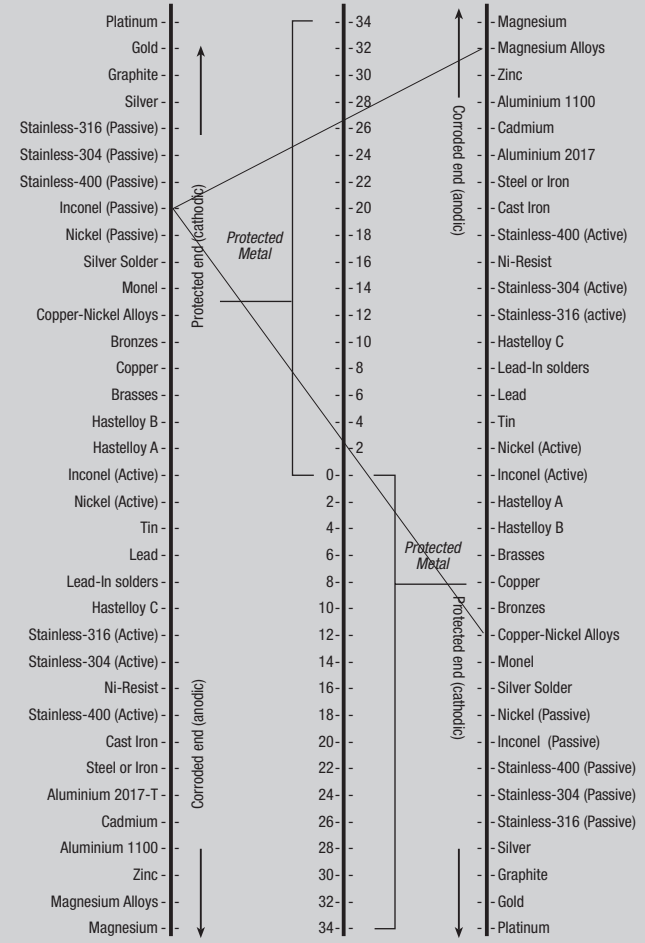
EXAMPLE

Connecting inconel (passive) on the left scale, with Magnesium Alloys on the right scale, gives a value of 26; this is a high electrolytic risk situation, with the inconel being protected at the expense of the Magnesium Alloy. Connecting inconel (passive) with Copper/Nickel alloys gives a value of 4; this is obviously a better corrosion resisting combination.

A greater corrosion rate than indicated can result if a small Anode is in contact with a large Cathode since the electrical current density is increased at the Anode.

Where it is not possible to use joint and rivet materials that will resist corrosion then some other means should be found such as painting or plating of the rivets prior to or after installation. It may be necessary to apply additional protection - such as painting of the hole prior to riveting - if the joint is likely to be exposed to particularly corrosive conditions.

Electrolytic Compatability



The above information is provided for **guidance only** and should not be used when working to stringent specifications.

We are able to procure non-listed items on request. Please enquire at your nearest MSL branch.