

# 06 FASTENERS

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## FASTENERS 101 – YOUR GUIDE TO THE SECTION



### Fasteners are easy at Bishops.

This information will guide you through this section and explain our naming and colouring conventions. We offer a full range of materials and finishes to suit every application.

Class 12.9	Class 10.9 Grade 8	Class 8.8 Grade 5	Grade 304 Stainless	Grade 316 Stainless	Class 4.6 Grade 2
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### Class/Grade

The strength of a fastener is expressed in the metric system as Class, and in the imperial system as Grade.

#### Class 10.9, 12.9/Grade 8:

High tensile. These classes provide considerably higher clamping strength and are more resilient.

#### Class 8.8/Grade 5:

High tensile (medium strength).

#### Class 4.6/Grade 2:

Low tensile (mild steel). Economical and readily available. Also known as commercial bolts.

#### Grade 304/Grade 316:

Stainless steel. Generally tensile strength is just above that of low tensile steel although alloys are available with greater strength.

### Finish

**Zinc Plated** Electro-plated in a slightly blue-ish or yellow coating for corrosion resistance. Best employed in indoor or mild outdoor conditions, as rust will break through the coating if exposed to marine environments.

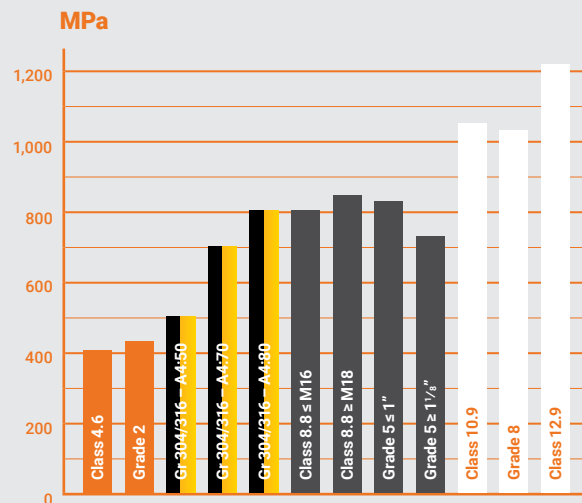
**Black** Also known as plain or self-colour. Offers no real corrosion protection when in use. Can be welded and grinded.

**Galvanised** The coating choice for superior corrosion resistance. Thickness of coating means galvanised bolts will only interface with galvanised nuts.

**Stainless** Good corrosion resistance, suitable for outdoor use and marine applications. More costly than zinc plated. Available in different grades.

**TIP: If you can't find what you're looking for, just give us a call and we'll find it for you.**

### Breaking Strength Comparison Chart



## CLASS 8.8 HIGH TENSILE BOLTS – METRIC COARSE

- Hex head
- Black finish
- Standards: AS/NZS 1110 – ISO 4014/4017



Dia.	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M30
<b>Length</b>	<b>Bishops Code</b>											
12mm	44405012	44406012	-	-	-	-	-	-	-	-	-	-
16mm	-	44406016	44408016	-	-	-	-	-	-	-	-	-
20mm	44405020	44406020	44408020	44410020	44412020	-	-	-	-	-	-	-
25mm	44405025	44406025	44408025	44410025	44412025	44414025	-	-	-	-	-	-
30mm	44405030	44406030	44408030	44410030	44412030	44414030	44416030	44418030	-	-	-	-
35mm	44405035	44406035	44408035	44410035	44412035	44414035	44416035	-	-	-	-	-
40mm	44405040	44406040	44408040	44410040	44412040	44414040	44416040	44418040	44420040	-	-	-
45mm	-	44406045	44408045	44410045	44412045	-	44416045	-	44420045	-	-	-
50mm	44405050	44406050	44408050	44410050	44412050	44414050	44416050	44418050	44420050	44422050	44424050	-
55mm	-	-	-	44410055	44412055	-	44416055	44418055	44420055	44422055	-	-
60mm	-	44406060	44408060	44410060	44412060	44414060	44416060	44418060	44420060	44422060	44424060	-
65mm	-	44406065	44408065	44410065	44412065	-	44416065	-	44420065	44422065	44424065	-
70mm	-	44406070	44408070	44410070	44412070	44414070	44416070	44418070	44420070	44422070	44424070	-
75mm	-	44406075	44408075	44410075	44412075	44414075	44416075	44418075	44420075	44422075	44424075	44430075
80mm	-	44406080	44408080	44410080	44412080	44414080	44416080	44418080	44420080	44422080	44424080	44430080
85mm	-	-	-	-	44412085	-	-	-	-	-	44424085	-
90mm	-	44406090	44408090	44410090	44412090	44414090	44416090	44418090	44420090	44422090	44424090	44430090
100mm	-	-	44408100	44410100	44412100	44414100	44416100	44418100	44420100	44422100	44424100	-
110mm	-	-	-	44410110	44412110	44414110	44416110	-	44420110	44422110	44424110	44430110
120mm	-	-	44408120	44410120	44412120	44414120	44416120	-	44420120	44422120	44424120	-
125mm	-	-	-	-	-	-	-	-	-	-	44424125	-
130mm	-	-	-	-	44412130	44414130	44416130	-	44420130	44422130	44424130	-
140mm	-	-	-	44410140	44412140	44414140	44416140	44418140	44420140	44422140	44424140	-
150mm	-	-	-	44410150	44412150	44414150	44416150	44418150	44420150	44422150	44424150	44430150
160mm	-	-	-	-	44412160	-	-	44418160	-	-	44424160	44430160
165mm	-	-	-	-	-	-	-	-	-	-	-	-
170mm	-	-	-	-	-	-	44416170	-	-	-	-	44430170
180mm	-	-	-	-	44412180	-	44416180	44418180	-	-	-	-
200mm	-	-	-	-	-	-	44416200	44418200	44420200	-	44424200	44430200
250mm	-	-	-	-	-	-	-	-	44420250	44422250	44424250	-
260mm	-	-	-	-	-	-	-	-	44420260	-	-	-
300mm	-	-	-	-	-	-	-	-	-	-	-	44430300
<b>Pitch</b>	0.80mm	1.00mm	1.25mm	1.50mm	1.75mm	2.00mm	2.00mm	2.50mm	2.50mm	2.50mm	3.00mm	3.50mm
<b>Wrench</b>	8mm	10mm	13mm	16mm	18mm	21mm	24mm	27mm	30mm	32mm	36mm	46mm

## CLASS 8.8 HIGH TENSILE BOLTS – METRIC FINE

- Hex head
- Black finish
- ISO 8765/1999



Diameter	M10	M12-1.50mm	M12-1.25mm	M14	M16	M18	M20 – 2.0mm
<b>Length</b>	<b>Bishops Code</b>						
35mm	-	-	-	44614035	-	-	-
40mm	-	44612040	44612042	44614040	44616040	-	-
50mm	-	44612050	44612055	44614050	44616050	-	-
60mm	-	-	-	44614060	44616060	-	-
65mm	-	-	-	-	-	-	-
70mm	-	-	-	-	-	-	-
75mm	-	44612075	-	-	44616075	-	-
80mm	-	-	-	-	-	-	-
90mm	-	-	-	-	-	-	-
100mm	-	44612100	-	-	-	-	-
<b>Pitch</b>	1.25mm	1.50mm	1.25mm	1.50mm	1.50mm	1.50mm	2.0mm
<b>Wrench</b>	16mm	18mm	18mm	21mm	24mm	27mm	30mm



# HEX HEAD BOLTS

## GRADE 8 HIGH TENSILE BOLTS – IMPERIAL UNC

- Hex head
- Black finish
- AS/NZS 2465/1999
- ANSI B18.2.1 1996

FASTENERS



Dia.	¼" UNC	5/16" UNC	¾" UNC	7/16" UNC	½" UNC	9/16" UNC	5/8" UNC	¾" UNC	7/8" UNC	1" UNC
<b>Length</b>	<b>Bishops Code</b>									
½"	44030005	–	44034005	–	–	–	–	–	–	–
¾"	44030007	44032007	44034007	–	44038007	–	–	–	–	–
1"	44030010	44032010	44034010	44036010	44038010	44040010	44042010	–	–	–
1¼"	44030012	44032012	44034012	44036012	44038012	–	–	44046012	–	–
1½"	44030015	44032015	44034015	44036015	44038015	44040015	44042015	44046015	–	–
1¾"	44030017	44032017	44034017	44036017	44038017	44040017	44042017	44046017	–	–
2"	44030020	44032020	44034020	44036020	44038020	44040020	44042020	44046020	44050020	44054020
2¼"	–	44032022	44034022	–	44038022	–	–	44046022	–	–
2½"	44030025	44032025	44034025	44036025	44038025	44040025	44042025	44046025	44050025	44054025
2¾"	–	–	44034027	–	–	–	–	44046027	–	–
3"	44030030	44032030	44034030	44036030	44038030	44040030	44042030	44046030	44050030	44054030
3¼"	–	–	–	–	–	–	–	–	–	–
3½"	44030035	44032035	44034035	44036035	44038035	44040035	44042035	44046035	–	44054035
3¾"	–	–	–	–	–	–	–	–	–	–
4"	44030040	44032040	44034040	44036040	44038040	44040040	44042040	44046040	44050040	44054040
4½"	44030045	44032045	44034045	44036045	44038045	–	44042045	44046045	44050045	44054045
5"	–	44032050	44034050	44036050	44038050	44040050	44042050	44046050	44050050	44054050
5½"	–	–	44034055	–	44038055	–	44042055	–	44050055	44054055
6"	–	44032060	44034060	44036060	44038060	44040060	44042060	44046060	44050060	44054060
6¼"	–	–	–	–	–	–	–	–	–	–
6½"	–	–	–	–	44038065	–	44042065	44046065	–	–
7"	–	–	–	–	44038070	–	44042070	44046070	–	–
7½"	–	–	–	–	–	–	–	–	–	–
8"	–	–	–	–	44038080	–	44042080	44046080	–	44054080
9"	–	–	–	–	–	–	–	–	–	44054090
9½"	–	–	–	–	–	–	–	–	–	–
10"	–	–	–	–	–	–	–	44046100	–	–
<b>Pitch</b>	20	18	16	14	13	12	11	10	9	8
<b>Wrench</b>	7/16"	½"	9/16"	11/16"	¾"	7/8"	15/16"	1"	1 1/16"	1 1/2"

## SCREW HEAD DRIVE STYLES

**Phillips:** Extremely common. Designed to cam out with excessive torque, which can round off the edges and make removal difficult.



**Pozidriv:** Visually similar to phillips but with a second set of indentations set at 45° that discourage slipping and cam out. Only use pozidriv bits in pozidriv heads.



**Slotted:** The original screw drive. Take care that the driver does not slip out and cause injury.



**Square:** Otherwise called robertson drive. Self-centering, won't cam out, allows for high torque.



**Hex:** Drives with an Allen key or a hex driver bit. Won't cam out, allows for high torque.



Each driver type has advantages and disadvantages, so choose carefully based on your application.

## GET MORE AT BISHOPS



### ADJUSTABLE WRENCHES


Page 198

## GRADE 8 HIGH TENSILE BOLTS – IMPERIAL UNF

- Hex head
- Black finish
- AS/NZS 2465/1999
- ANSI B18.2.1 1996



Dia.	1/4" UNF	5/16" UNF	3/8" UNF	7/16" UNF	1/2" UNF	9/16" UNF	5/8" UNF	3/4" UNF
<b>Length</b>	<b>Bishops Code</b>							
3/4"	44230007	44232007	–	–	–	–	–	–
1"	44230010	44232010	44234010	44236010	44238010	–	–	–
1 1/4"	44230012	44232012	44234012	–	–	–	–	–
1 1/2"	44230015	44232015	44234015	44236015	44238015	44240015	44242015	44246015
1 3/4"	–	44232017	–	–	–	–	–	–
2"	44230020	44232020	44234020	44236020	44238020	44240020	44242020	44246020
2 1/4"	–	44232022	–	–	–	–	–	–
2 1/2"	44230025	44232025	44234025	44236025	44238025	44240025	44242025	44246025
2 3/4"	–	–	–	–	–	–	–	–
3"	44230030	44232030	44234030	44236030	44238030	44240030	44242030	44246030
3 1/4"	–	–	–	–	–	–	–	–
3 1/2"	44230035	44232035	44234035	44236035	44238035	44240035	44242035	44246035
4"	44230040	44232040	44234040	44236040	44238040	44240040	44242040	44246040
4 1/2"	–	–	–	–	44238045	–	44242045	44246045
5"	–	–	44234050	44236050	44238050	44240050	44242050	44246050
5 1/2"	–	–	–	–	44238055	–	44242055	44246055
6"	–	–	–	–	44238060	44240060	44242060	44246060
6 1/2"	–	–	–	–	–	–	44242065	–
7"	–	–	–	–	–	–	44242070	44246070
7 1/2"	–	–	–	–	–	–	–	44246075
8"	–	–	–	–	–	–	44242080	44246080
9"	–	–	–	–	–	–	44242090	–
<b>TPI</b>	28	24	24	20	20	18	18	16
<b>Wrench</b>	7/16"	1/2"	9/16"	1 1/16"	3/4"	7/8"	1 1/16"	1 1/8"



## FASTENER FACTS

What's the difference between shear stress and tensile stress?

Check page 289 for the answer!

## GRADE 316 STAINLESS STEEL HEX HEAD BOLTS – METRIC COARSE

- DIN 931



Diameter	M16	Diameter	M16
<b>Length</b>	<b>Bishops Code</b>	<b>Length</b>	<b>Bishops Code</b>
50mm	42316050	90mm	42316090
60mm	42316060	100mm	42316100
70mm	42316070	–	–
<b>Pitch</b>	2.0mm	<b>Pitch</b>	2.0mm
<b>Wrench</b>	24mm	<b>Wrench</b>	24mm

## GRADE 316 STAINLESS STEEL SET SCREWS – METRIC COARSE

- Hex head



Diameter	M5	M6	M8	M10	M12
<b>Length</b>	<b>Bishops Code</b>				
12mm	–	42306012	–	–	–
15mm	–	–	42308015	–	–
20mm	42305020	42306020	–	–	–
25mm	42305025	42306025	42308025	42310025	42312025
30mm	42305030	42306030	42308030	42310030	42312030
35mm	–	42306035	42308035	42310035	42312035
40mm	42305040	42306040	42308040	42310040	42312040
45mm	–	42306045	42308045	42310045	42312045
50mm	42305050	42306050	42308050	42310050	42312050
55mm	–	–	42308055	–	–
60mm	–	42306060	42308060	42310060	42312060
65mm	–	42306065	42308065	–	–
70mm	–	42306070	42308070	42310070	42312070
75mm	–	42306075	–	–	42312075
80mm	–	42306080	42308080	42310080	42312080
90mm	–	–	–	42310090	42312090
100mm	–	42306100	42308100	42310100	42312100
120mm	–	–	–	42310120	–
<b>Pitch</b>	0.80mm	1.00mm	1.25mm	1.50mm	1.75mm
<b>Wrench</b>	8mm	10mm	13mm	16mm	18mm



## THREAD PITCH & TPI

Use this conversion table to compare the thread pitch and TPI of common fastener thread forms in metric and imperial.

Metric	Pitch (mm)			Imperial	Threads Per Inch (TPI)				
	Coarse	Fine	Extra Fine		UNC	UN8	UNF	BSW	BSF
M1.6	0.35	-	-	#0	-	-	80	-	-
M2	0.4	-	-	#1	-	-	72	-	-
-	-	-	-	#2	56	-	64	-	-
M2.5	0.45	-	-	#3	48	-	56	-	-
-	-	-	-	#4	40	-	48	-	-
M3	0.5	-	-	1/8" (#5)	40	-	44	40	-
M3.5	0.6	-	-	#6	32	-	40	-	-
M4	0.7	-	-	#8	32	-	36	-	-
M5	0.8	-	-	3/16" (#10)	24	-	32	24	32
-	-	-	-	#12	24	-	28	-	-
M6	1	-	-	1/4"	20	-	28	20	26
M8	1.25	1	-	5/16"	18	-	24	18	22
M10	1.5	1.25	1	3/8"	16	-	24	16	20
-	-	-	-	7/16"	14	-	20	14	18
M12	1.75	1.5	1.25	1/2"	13	-	20	12	16
M14	2	1.5	-	9/16"	12	-	18	12	16
M16	2	1.5	-	5/8"	11	-	18	11	14
M18	2.5	1.5	-	-	-	-	-	-	-
M20	2.5	1.5	-	3/4"	10	-	16	10	12
M22	2.5	1.5	-	7/8"	9	-	14	9	11
M24	3	2	-	1"	8	8	12(14)	8	10
M27	3	2	-	1 1/8"	7	8	12	7	9
M30	3.5	2	-	1 1/4"	7	8	12	7	9
M33	3.5	2	-	1 3/8"	6	8	12	6	8
M36	4	3	-	1 1/2"	6	8	12	6	8
M39	4	3	-	1 5/8"	-	8	-	5	8
M42	4.5	-	-	-	-	-	-	-	-
M45	4.5	-	-	1 3/4"	5	8	-	5	7
M48	5	-	-	1 7/8"	-	8	-	-	-
M52	5	-	-	2	4.5	8	-	4.5	7
M56	5.5	-	-	2 1/4"	4.5	8	-	4	6
M60	5.5	-	-	-	-	-	-	-	-
M64	6	-	-	2 1/2"	4	8	-	4	6
M72	6	-	-	2 3/4"	4	8	-	3.5	6
M80	6	-	-	3"	4	8	-	3.5	5
-	-	-	-	3 1/4"	4	8	-	3.25	5
M90	6	-	-	3 1/2"	4	8	-	3.25	4.5
-	-	-	-	3 3/4"	4	8	-	3	4.5
M100	6	-	-	4"	4	8	-	3	4.5



## FASTENER FACTS

### Did you know?

A phone is held together with about 75 fasteners, a car with 3,500, and a jet plane with 1,500,000.

## FASTENER MARKINGS

Different classes and grades of bolts and nuts can be marked to allow easy identification. Find out what you're looking at with this handy guide.

### Metric Markings

The 1<sup>st</sup> number is the minimum tensile strength in MPa i.e. Class 8.8 = 800MPa

The 2<sup>nd</sup> number is the yield strength. In the case of an 8.8 bolt, this means the fastener will begin to yield at 80% of the tensile strength, or at least 640MPa.

Metric class for high tensile bolts is generally stamped on the head along with manufacturer's mark. Simple!

### Imperial Markings

**Grade 5** bolts will have 3 radial lines stamped on the head.

**Grade 8** bolts will have 6 radial lines stamped on the head.

A simple rule – the number of lines on the head **plus two** equals the grade.



## FASTENER SPECIALISTS

If you can't find what you're looking for, just give Bishops a call.

We couldn't squeeze all of our fastener codes into this catalogue – this is just a small fraction of our total range.

Whatever you need – Find it at Bishops.

# MADE FOR EACH OTHER

The first nuts and bolts appeared in the middle 1400s.

The bolts were just screws with straight sides and a blunt end. The nuts were handmade, and very crude. When a match was found between a nut and a bolt, they were kept together until they were finally assembled.



## HEX NUTS – METRIC FINE

• Black finish



Size	Pitch	Bishops Code	Size	Pitch	Bishops Code
M8	1.00mm	44608990	M14	1.50mm	44614990
M10	1.25mm	44610990	M16	1.50mm	44616990
M12	1.25mm	44611990	M18	1.50mm	44618990
M12	1.50mm	44612990	M20	1.50mm	44620990

## GRADE 2 HEX NUTS – METRIC

• Black finish



Size	Pitch	Bishops Code	Size	Pitch	Bishops Code
M4	0.70mm	44404990	M16	2.00mm	44416990
M5	0.80mm	44405990	M18	2.50mm	44418990
M6	1.00mm	44406990	M20	2.50mm	44420990
M8	1.25mm	44408990	M22	2.50mm	44422990
M10	1.50mm	44410990	M24	3.00mm	44424990
M12	1.75mm	44412990	M30	3.50mm	44430990
M14	2.00mm	44414990	M36	4.00mm	44436990

## GRADE 2 HEX NUTS – IMPERIAL UNF

• Black finish



Size	TPI	Bishops Code	Size	TPI	Bishops Code
¼"	28	44230990	¾"	18	44242990
⅝"	24	44232990	¾"	16	44246990
¾"	24	44234990	¾"	14	44250990
7/16"	20	44236990	1"	12	44254990
½"	20	44238990	1½"	12	44258990
⅝"	18	44240990	-	-	-

## GRADE 5 & 8 HEX NUTS – IMPERIAL UNC

• Black finish



Size	TPI	Grade	Bishops Code	Size	TPI	Grade	Bishops Code
¼"	20	5	44030990	¾"	10	8	44046990
⅝"	18	5	44032990	¾"	9	8	44050990
¾"	16	5	44034990	1"	8	8	44054990
7/16"	14	5	44036990	1½"	7	8	44058990
½"	13	8	44038990	1½"	7	8	44062990
⅝"	12	8	44040990	1½"	6	8	44070990
¾"	11	8	44042990	1¾"	5	8	44084990

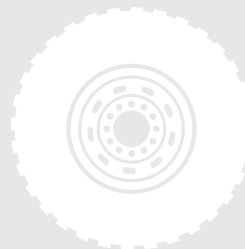
## GRADE 316 STAINLESS STEEL HEX NUTS – METRIC COARSE



Size	Pitch	Bishops Code	Size	Pitch	Bishops Code
M4	0.70mm	42304990	M12	1.75mm	42312990
M5	0.80mm	42305990	M16	2.00mm	42316990
M6	1.00mm	42306990	M20	2.50mm	42320990
M8	1.25mm	42308990	M24	3.00mm	42324990
M10	1.50mm	42310990	-	-	-

# THAT'S NUTS...

On a Caterpillar 797 dump truck it takes 54 M36 nuts to hold each of the 4 metre tall wheels



Each wheel weighs 5.3 tonnes!



# LOCKNUTS & WASHERS GUIDE

## ZINC PLATED P-TYPE NYLOC NUTS – METRIC

• DIN 985



Size	Pitch	Bishops Code	Size	Pitch	Bishops Code
3mm	0.50mm	45656003	16mm	2.00mm	45650016
4mm	0.70mm	45650004	18mm	2.50mm	45650018
5mm	0.80mm	45650005	20mm	2.50mm	45650020
6mm	1.00mm	45650006	22mm	2.50mm	45650022
8mm	1.25mm	45650008	24mm	3.00mm	45650024
10mm	1.50mm	45650010	30mm	3.50mm	45650030
12mm	1.75mm	45650012	36mm	4.00mm	45650036
14mm	2.00mm	45650014	-	-	-

## ZINC PLATED P-TYPE NYLOC NUTS – IMPERIAL

• Regular hex standard height series  
• IFI 100/107



IMPERIAL UNC			IMPERIAL UNF		
Size	TPI	Bishops Code	Size	TPI	Bishops Code
3/16"	24	45610018	3/16"	32	45630018
1/4"	20	45610025	1/4"	28	45630025
5/16"	18	45610031	5/16"	24	45630031
3/8"	16	45610037	3/8"	24	45630037
7/16"	14	45610043	7/16"	20	45630043
1/2"	13	45610050	1/2"	20	45630050
9/16"	12	45610056	9/16"	18	45630056
5/8"	11	45610062	5/8"	18	45630062
3/4"	10	45610075	3/4"	16	45630075
7/8"	9	45610087	7/8"	14	45630087
1"	8	45610100	1"	12	45630100
1 1/8"	7	45610112	1 1/4"	12	45630125
1 1/4"	7	45610125	2"	-	45630200
1 1/2"	6	45610150	-	-	-
1 3/4"	5	45610175	-	-	-
2"	4.5	45610200	-	-	-

## STAINLESS STEEL NYLOC NUTS – METRIC & IMPERIAL

• DIN 985



Size	Pitch	Bishops Code	Size	Pitch	Bishops Code
<b>METRIC</b>					
4mm	0.70mm	45656004	8mm	1.25mm	45656008
5mm	0.80mm	45656005	10mm	1.50mm	45656010
6mm	1.00mm	45656006	12mm	1.75mm	45656012
<b>IMPERIAL</b>					
3/16"	24	45616018	3/8"	16	45616037
1/4"	20	45616025	1/2"	13	45616050
5/16"	18	45616031	-	-	-

# A GUIDE TO WASHERS

**Washers** are used to distribute the pressure of a fastener evenly over the surface being fastened to. Typically they are round, although we also offer square washers and many different types of specialty washers to suit any application.

**Flat Round Steel Washers** are your bread and butter of washers. Usable with many different types of fasteners, they are available in a range of grades and finishes. Commercial washers are not manufactured to exact size specifications but rather to tolerances. Engineer's washers are produced to strict size regulations and will not deviate. Hardened washers are available for high tensile situations.

**Nylon Washers** are suitable for electrical and chemical industries because of their natural insulative properties and resistance to corrosive substances.

**Brass Washers** are known for their low-friction properties and are suitable for applications in plumbing, electrical work, gearing and more.

**Fibre Washers** will never rust, are non-abrasive, absorb vibration and noise, and compress under pressure to offer excellent sealing in plumbing applications and more.

**Spring Washers** are available with flat or square section. Used to provide tension under load.

**Star Washers** are designed to increase locking force by resisting torque from the nut and preventing it from unscrewing. Available with internal or external teeth for wide suitability.

**Structural Washers** are used to provide a smooth bearing surface under the head of the bolt or nut in structural connections.

**Load & Tension Indicating Washers** are designed to allow you to accurately tension a bolt with ease. Visual inspection is possible with squitter washers that will 'squirt' out orange silicone.

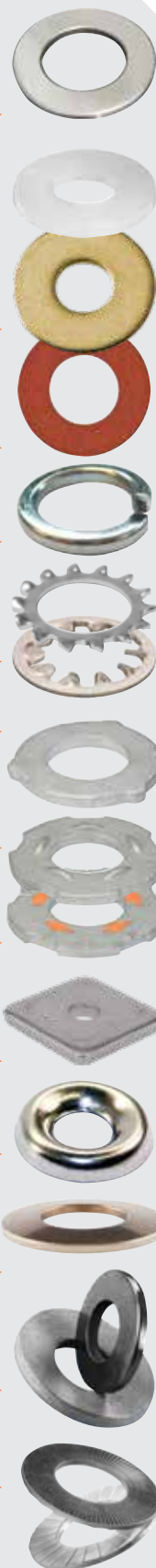
**Square Washers** serve the same function as flat round washers. They can be useful in applications where a round washer simply won't fit.

**Cup Washers** are lightweight, dished washers often used for decoration or support with countersunk screws. They create a finished look with the advantage of being snag free.

**Disc Springs** or Belleville washers are conical shells that can be stacked in the same or an alternating direction. They provide a high amount of spring force with minimal compression.

**HDS Load Washers** are developed specifically for high strength bolts. They are powerful safety washers in the form of a disc spring.

**Serrated Lock Washers** secure bolted joints with tension, rather than friction. They are used to secure bolts subject to severe vibration or dynamic loads.





**ZINC PLATED/BLACK FLAT ROUND WASHERS – METRIC & IMPERIAL**

- Mild steel (nearest standard BS3410 and AS1237)
- Suitable for use with metric and imperial commercial grade bolts



Nominal Bolt Size	Bishops Code	Nominal Bolt Size	Bishops Code
3mm (1/8")	45810012	16mm (5/8")	45810062
4mm (1/8")	45810015	18mm (1 1/16")	45810068
5mm (3/16")	45810018	20mm (3/4")	45810075
6mm (1/4")	45810025	22mm (7/8")	45810087
8mm (5/16")	45810031	24mm (1")	45810100
10mm (3/8")	45810037	29mm (1 1/8")	45810112
11mm (7/16")	45810043	30mm (1 1/4")	45810125
12mm (1/2")	45810050	38mm (1 1/2")	45810150
14mm (9/16")	45810056	44mm (1 3/4")	45810175

**GRADE 304 STAINLESS STEEL FLAT WASHERS – METRIC & IMPERIAL**



Size	O.D.	Thickness	Bishops Code
3mm (1/8")	7mm	0.5mm	45830012
4mm (1/8")	9mm	0.8mm	45830016
5mm (3/16")	10mm	0.8mm	45830018
6mm (1/4")	12.5mm	1.2mm	45830025
8mm (5/16")	17mm	1.2mm	45830031
10mm (3/8")	21mm	1.2mm	45830037
12mm (1/2")	24mm	1.5mm	45830050
16mm (5/8")	30mm	1.5mm	45830062
19mm (3/4")	38mm	1.5mm	45830075
24mm (1")	44mm	3mm	45830100

**ZINC PLATED/BLACK SPRING WASHERS – METRIC & IMPERIAL**



Size	Bishops Code	Size	Bishops Code
4mm	45840015	16mm (5/8")	45840062
5mm (3/16")	45840018	18mm (1 1/16")	45840068
6mm (1/4")	45840025	20mm (3/4")	45840075
8mm (5/16")	45840031	22mm (7/8")	45840087
10mm (3/8")	45840037	24mm (1")	45840100
11mm (7/16")	45840043	29mm (1 1/8")	45840112
12mm (1/2")	45840050	30mm (1 1/4")	45840125
14mm (9/16")	45840056	38mm (1 1/2")	45840150

**GRADE 316 STAINLESS STEEL SPRING WASHERS – METRIC & IMPERIAL**



Size	O.D.	Thickness	Width	Bishops Code
4mm (3/32")	7.6mm (0.293")	0.9mm (0.040")	1.5mm (0.055")	45850015
5mm (3/16")	9.2mm (0.334")	1.2mm (0.047")	1.8mm (0.062")	45850018
6mm (1/4")	11.8mm (0.489")	1.6mm (0.062")	2.5mm (0.109")	45850025
8mm (5/16")	14.8mm (0.586")	2.0mm (0.078")	3.0mm (0.125")	45850031
10mm (3/8")	18.1mm (0.683")	2.2mm (0.094")	3.5mm (0.141")	45850037
13mm (1/2")	21.8mm (0.873")	3.0mm (0.125")	4.3mm (0.171")	45850050
14mm (9/16")	24.1mm (0.964")	3.0mm (0.125")	4.5mm (0.180")	45850055
16mm (5/8")	27.4mm (1.079")	3.5mm (0.156")	5.0mm (0.203")	45850062

**NORD-LOCK WASHERS**



Size	OD	Thickness	Bishops Code
8mm	13.5mm	2.5mm	45870200
12mm	19.5	2.5mm	45870220



**FASTENER FACTS**

The origin of the word washer is unknown; the first recorded use of the word was in 1346, however, the first time its definition was recorded was in 1611.





## USES & APPLICATIONS – SOCKET HEAD SCREWS

**Socket head screws** are used in a wide range of industries and environments. They are known for their incredibly high tensile strength. This strength can translate to an increase in safety, reliability and savings for your business.

The **socket head screws** in this catalogue are primarily Class 12.9 or a close fit. This high tensile strength means fewer socket head screws are required to do the same work as more hex head bolts of a lower tensile strength. Less screws to buy means less money spent, less holes to drill means less time spent on the job.

**Socket head screws** are readily available in a wide range of diameters and lengths from as small as a M1.6 diameter with a 3mm length, to as large as an M42 diameter with a massive 340mm length. That's big!

Another advantage of **socket head screws** is their narrow design which allows them to fit into areas with low clearances and poor accessibility.

**Socket head screws** are available with a variety of head styles.

The most common ones are:

- **Socket head cap screws (SHCS)**
- **Socket head low cap screws**
- **Countersunk flat head socket screws**
- **Button head socket screws**
- **Cup point socket set screws (grub screws)**

We can also supply socket head screws with a wide range of security heads. There are permanent and removable styles to suit your needs. Contact us for more information.

**If you can't find what you're looking for, just give us a call and we'll find it for you.**



### CLASS 12.9 SOCKET SCREWS – METRIC COARSE

- Head cap
- Black finish
- Specifications: ISO 4762, ANSI B18.3.1M and DIN 912



Dia.	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20
<b>Length</b>	<b>Bishops Code</b>									
10mm	42804010	42805010	42806010	-	-	-	-	-	-	-
12mm	-	-	-	-	-	42812012	-	-	-	-
16mm	42804016	42805016	42806016	42808016	42810016	-	-	-	-	-
20mm	42804020	42805020	42806020	42808020	42810020	42812020	-	-	-	-
25mm	42804025	42805025	42806025	42808025	42810025	42812025	-	42816025	-	-
30mm	42804030	42805030	42806030	42808030	42810030	42812030	42814030	42816030	-	-
35mm	42804035	42805035	42806035	42808035	42810035	42812035	42814035	42816035	-	-
40mm	42804040	42805040	42806040	42808040	42810040	42812040	42814040	42816040	-	42820040
45mm	42804045	42805045	42806045	42808045	42810045	42812045	42814045	42816045	-	-
50mm	42804050	42805050	42806050	42808050	42810050	42812050	42814050	42816050	-	-
55mm	-	-	-	42808055	42810055	42812055	-	42816055	-	-
60mm	-	-	42806060	42808060	42810060	42812060	42814060	42816060	-	-
65mm	-	-	-	42808065	42810065	42812065	-	42816065	-	42820065
70mm	-	-	-	42808070	42810070	42812070	42814070	42816070	-	42820070
75mm	-	-	-	42808075	42810075	42812075	-	42816075	-	-
80mm	-	-	-	-	42810080	42812080	42814080	-	-	42820080
90mm	-	-	-	-	42810090	42812090	42814090	42816090	-	-
100mm	-	-	-	42808100	42810100	42812100	-	42816100	-	42820100
110mm	-	-	-	-	-	42812110	-	-	-	-
120mm	-	-	-	-	-	42812120	42814120	42816120	-	-
130mm	-	-	-	-	-	-	-	42816130	-	-
140mm	-	-	-	42808140	-	-	-	-	-	-
150mm	-	-	-	42808150	-	-	-	42816150	-	-
<b>Pitch</b>	0.70mm	0.80mm	1.00mm	1.25mm	1.50mm	1.75mm	2.00mm	2.00mm	2.50mm	2.50mm
<b>Wrench</b>	3mm	4mm	5mm	6mm	8mm	10mm	14mm	14mm	17mm	17mm



## FASTENER FACTS

What do fastener ratings such as 2A or 3B really mean? This number-letter combo is used to indicate the **thread class** of the fastener. Thread classes include 1-4 (loose to tight), A (external), and B (internal). This represents the clearance fit, which translates into how much interference you can expect during assembly.

- Class 1** should be your choice when fast assembly and disassembly is your priority
- Class 2** is the most common and offers a balance between quality and economy
- Class 3** is ideal for applications requiring tight tolerances and a strong mating connection
- Class 4** is precision tight, typically used for lead screws and such

### COUNTERSUNK SOCKET SCREWS – METRIC COARSE

- Flat head
- Black finish
- Specifications: DIN 7991, ISO 10642 and ANSI B 18.3.5M



Diameter	M6	M8	M10	M12
<b>Length</b>	Bishops Code			
10mm	43476010	–	–	–
16mm	43476016	43478016	–	–
20mm	43476020	43478020	43480020	43482020
25mm	43476025	43478025	43480025	43482025
30mm	43476030	43478030	43480030	43482030
35mm	43476035	43478035	43480035	43482035
40mm	43476040	43478040	43480040	43482040
45mm	43476045	–	43480045	–
50mm	43476050	43478050	43480050	43482050
55mm	–	–	–	–
60mm	–	–	–	43482060
70mm	–	–	–	43482070
<b>Pitch</b>	1.00mm	1.25mm	1.50mm	1.75mm
<b>Wrench</b>	4mm	5mm	6mm	8mm

### GRUB SCREWS KNURLED CUP POINT – METRIC COARSE

- Black finish
- Specifications: ANSI B 18.3, BS 2470, ISO 4029 and DIN 916



Diameter	M5	M6	M8	M10	M12
<b>Length</b>	Bishops Code				
5mm	43275005	–	–	–	–
6mm	–	43276006	–	–	–
8mm	–	43276008	43278008	–	–
10mm	43275010	43276010	43278010	43280010	–
12mm	43275012	43276012	43278012	43280012	43282012
16mm	43275016	43276016	43278016	43280016	43282016
20mm	43275020	43276020	43278020	43280020	43282020
25mm	–	43276025	43278025	43280025	43282025
30mm	–	–	–	43280030	–
40mm	–	–	43278040	–	–
<b>Pitch</b>	0.80mm	1.00mm	1.25mm	1.50mm	1.75mm
<b>Wrench</b>	2.5mm	3mm	4mm	5mm	6mm



## FASTENER FACTS

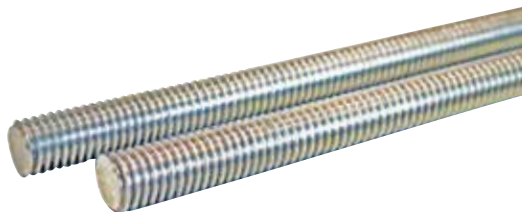
Who is the Phillips head screwdriver named after?

Henry F. Phillips invented the X-shaped socket head screw for car manufacturers. They required a screw that could handle greater torque and would hold tighter than a slotted screw. It also needed to centre quickly and easily, to suit assembly lines. The invention was initially rejected, but eventually accepted and in 1936 General Motors adopted the Phillips head screw in their manufacturing of the Cadillac.



## MILD STEEL ALLTHREAD – METRIC

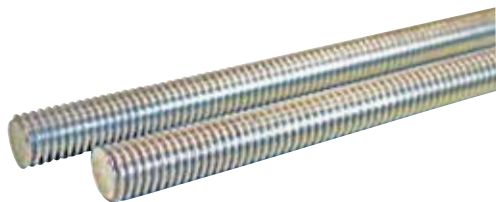
- Zinc plated
- Length: 1m



Diameter	Bishops Code	Diameter	Bishops Code
3mm	45450003	16mm	45450016
4mm	45450004	20mm	45450020
5mm	45450005	22mm	45450022
6mm	45450006	24mm	45450024
8mm	45450008	30mm	45450030
10mm	45450010	36mm	45450036
12mm	45450012	-	-

## MILD STEEL ALLTHREAD – IMPERIAL UNC

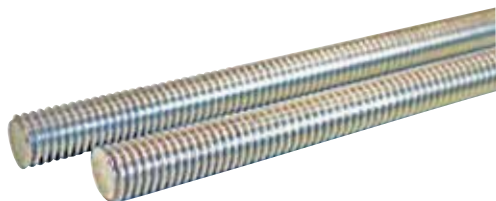
- Length: 3ft



Diameter	Bishops Code	Diameter	Bishops Code
3/16"	45410018	5/8"	45410062
1/4"	45410025	3/4"	45410075
5/16"	45410031	7/8"	45410087
3/8"	45410037	1"	45410100
7/16"	45410043	1 1/8"	45410112
1/2"	45410050	1 1/4"	45410125

## MILD STEEL ALLTHREAD – IMPERIAL UNF

- Length: 3ft



Diameter	Bishops Code	Diameter	Bishops Code
5/16"	45430025	3/4"	45430062
3/8"	45430031	7/8"	45430075
7/16"	45430037	1"	45430087
9/16"	45430050	1 1/8"	45430100

## ALLTHREAD – METRIC

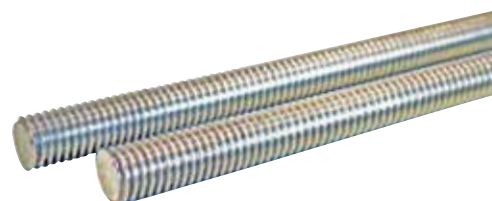
- Black finish
- Length: 1m



Diameter	Bishops Code	Diameter	Bishops Code
4mm	45452004	12mm	45452012
6mm	45452006	16mm	45452016
8mm	45452008	20mm	45452020
10mm	45452010	24mm	45452024

## GALVANISED ALLTHREAD – METRIC

- Length: 1m



Diameter	Bishops Code	Diameter	Bishops Code
10mm	45440010	20mm	45440020
12mm	45440012	24mm	45440024
16mm	45440016	30mm	45440030

## GRADE 316 STAINLESS STEEL ALLTHREAD – METRIC

- Length: 1m




Diameter	Bishops Code	Diameter	Bishops Code
5mm	45456005	12mm	45456012
6mm	45456006	16mm	45456016
8mm	45456008	20mm	45456020
10mm	45456010	24mm	45456024



## FASTENER FACTS

The thread on a screw forms a helix, not a spiral. A helix is a 3D curve that twists around a cylinder at a constantly inclined angle.

## FASTENER FACTS



The main difference between shear stress and tensile stress is that tensile stress refers to cases where a deforming force is applied at right angles to a surface, whereas shear stress refers to cases where a deforming force is applied parallel to a surface.

### DYNABOLT™ PLUS SLEEVE ANCHORS

- Torque controlled expansion anchors with integrated pull-down section
- Designed for medium duty anchoring of timber and steel fixtures to concrete, brick or block



Size	Bishops Code	Size	Bishops Code
6 x 40mm	43606050	10 x 75mm	43610075
6 x 60mm	43606155	10 x 100mm	43610100
8 x 40mm	43608040	12 x 60mm	43612050
8 x 65mm	43608075	12 x 70mm	43612070
8 x 90mm	43608080	12 x 100mm	43612100
10 x 40mm	43610040	16 x 65mm	43616080
10 x 50mm	43610050	16 x 110mm	43616100
10 x 60mm	43610060	20 x 160mm	43620150

### CHEMICAL ANCHORING ADHESIVES




43692150

Item Code	Description	Size	Bishops Code
MIT-SP	Polyester Adhesive Injection Cartridge	400ml	43692155
MIT-SE Plus	Vinyl Polyester Adhesive Injection Cartridge	400ml	43692160
MIT-700RE	Epoxy Adhesive Injection Cartridge	585ml	43692150
MIT-PP-H2	Applicator Gun To Suit 400ml Cartridge		43692172
MIT-PP-HT	Applicator Gun To Suit 585ml Cartridge		43692170
MUCMTMI11710064	Nozzle To Suit 585ml Cartridge		43692192

## SCREW POINT STYLES

Different screw points are suitable for different materials and applications. Choose the right style for your situation with this handy guide.



**Metal Point** – This point style is suitable for drilling into steel sections. No punching, drilling or tapping required. Several point styles are available.

**Winged Metal Point** – Designed to secure timber or composite materials to steel. The wings drill a wide hole through the timber or composite, breaking off in the process.

**Metal Point, Extended Flute** – Designed for drilling and fastening into thicker steel sections. Extra-long cutting flute drills, taps and seals in one operation.


**Type 17 Point** – Designed to drill through lighter sections of steel and into timber. The long, sharp point is fluted to capture chips while a coarse tapping screw thread cuts into timber.

**Needle Point** – A general purpose point found on screws with multiple applications and suitabilities. Perfectly mated threads increase strip and back-out pressures.


**Chipboard/Treated Pine Point** – Designed for fastening chipboard or timber. Available in both coarse and fine threads for different applications.

**Type AB Point** – A thread forming screw with locating point. Use with drilled, punched or nested holes. Suitable for light and heavy sheet metal and various other materials.

### METRIC BOLTS, SET SCREWS & NUTS KITS



- Grade 8.8 High tensile steel
- Zinc plated



CA431                      CA196

Item Code	Description	Kit Size	Bishops Code
CA431	Bolts, Set Screws & Nuts – Metric 17 Sizes: M4–M12 Dia.	431 Pieces	40410500
CA480	Set Screws & Nuts – Metric Fine 16 Sizes: M4–M12 Dia.	480 Pieces	*CA480
CA196	Set Screws & Nuts – Metric 18 Sizes: M4–M10 Dia.	226 Pieces	40410300

\* – SPECIAL ORDER: PLEASE QUOTE ITEM CODE UPON ORDERING THIS PRODUCT



# GRAB KITS – SCREWS, NUTS & WASHERS

FASTENERS

## SCREW & NUT ASSORTMENT KITS



CA21

CA228

Item Code	Description	Kit Size	Bishops Code
<b>ZINC PLATED</b>			
CA21	Pan Head Phillips Recess Screws & Nuts – Metric 12 Sizes: M3–M6 Dia., 10–25mm Lengths	520 Pieces	40410010
<b>NICKEL PLATED</b>			
CA228	Round Head Slotted Screws & Nuts – Imperial Fine 14 sizes: $\frac{5}{40}$ – $\frac{11}{32}$ "	300 Pieces	40410320

## 316 PIECE STAINLESS STEEL SET SCREWS & NUTS MASTER KIT – METRIC



- Stainless steel
  - Grade 304/A2
- Includes:**
- 17 sizes: M4 to M12 Diameter
  - Metal case



Item Code	Bishops Code
CA1880	40410910

## SCREWS & NUTS KITS – METRIC



- Durable plastic handle
- Steel threads
- Zinc plated



CA275



CA2275

Item Code	Description	Contains	Kit Size
CA275	Round Knurled Thumb Screws Kit	3 sizes: M4, M5, M6 Dia, 10, 16 & 25mm Lengths	90 Pieces
CA2275	Star Knob – Screw & Nut Master Kit	3 sizes: M6, M8, M10 Dia, 10, 16, 20, 25, 30 & 40mm Lengths	70 Pieces

**SPECIAL ORDER: PLEASE QUOTE ITEM CODE UPON ORDERING THIS PRODUCT**

## 420 PIECE NUT & BOLT ASSORTMENT GRAB KITS – METRIC & IMPERIAL

- Kits come with a variety of machine screws, washers and hex nuts
- Comes in hard plastic case for handy storage



Description	Bishops Code
Metric Kit	40420071
Imperial Kit	40420072

# HOW TO CONTROL GALLING IN STAINLESS FASTENERS

**Austenitic stainless steels (such as Grade 304 & 316)** are widely used for corrosion resistant bolting. One of the major problems with their use is that disassembly is difficult because nuts and bolts seize. As pressure builds during tightening, protective surface oxides are broken, causing adhesion between surfaces.

This is known as galling and it is most prevalent with intermittently operated, slowly sliding surfaces.

**To control galling**, use different stainless alloy grades for bolt and nut. Combinations such as 400/316 or 304/316 have shown useful results.

Slow down the installation RPM. Use a torque wrench and the correct force for the material class and surface conditions.

Appropriate lubrication is required, even with permanent joints. Find anti-seize lubricant on page 435.



## SECURITY SCREWS



**Did you know Bishops can supply security screws?**

If you need to make something tamper-proof, vandal-proof or theft-proof, we can source innovative products to help you stay one step ahead.

We can provide a full range of removable and permanent security screws. Mix and match head styles for the best protection!

**Whatever you need – Find it at Bishops!**

## 173 PIECE DOWTY SEALS WASHER MASTER KIT – METRIC & IMPERIAL



- Includes:**
- 22 sizes: 8–42mm and  $\frac{1}{8}$ " to  $1\frac{1}{4}$ " ID BSP



Item Code
CA2173

**SPECIAL ORDER: PLEASE QUOTE ITEM CODE UPON ORDERING THIS PRODUCT**

## 430 PIECE FIBRE WASHER ASSORTMENT KIT – IMPERIAL



- Red fibre
- Includes:**
- 14 sizes: 1/8" to 1" ID
- Thickness: 1/32"



Item Code	Bishops Code
CA400	40410430

## COPPER WASHER KITS – METRIC



- Suitable for automotive and agricultural industries
- Great conductivity of heat and electricity



CA2260



CA225

Item Code	Description	Thickness	Kit Size	Bishops Code
CA1660	Metric – 10 Sizes: 5–24mm	1mm	260 Pieces	40410780
CA225	Imperial – 12 Sizes: 1/4"–1"	20g	260 Pieces	40410310
CA2260	Metric – 24 Sizes: 5–26mm	1, 1.5 & 2mm	565 Pieces	40410983
CA226	Metric – 14 Sizes: 6–26mm	1–2mm	305 Pieces	*CA226

\* – SPECIAL ORDER: PLEASE QUOTE ITEM CODE UPON ORDERING THIS PRODUCT

## WASHER GRAB KITS

- Comes in hard plastic case for handy storage



Description	Bishops Code
150 Piece Copper Washer Kit – 15 Sizes: 5–17.5mm ID	40420062
350 Piece Lock & Flat Washer Kit – #3–#10 Lock Washers & #3–#8 Flat Washers	40420067

## 132 PIECE DRAIN (SUMP) PLUG WASHER KIT – METRIC



- Fibre, aluminium and copper crush
- Includes:**
- 12 Sizes: 12–25mm ID



Item Code	Bishops Code
CA140	

SPECIAL ORDER: PLEASE QUOTE ITEM CODE UPON ORDERING THIS PRODUCT

## 143 PIECE BODY (PANEL) WASHER KIT – IMPERIAL



- Steel and stainless steel
- Zinc plated
- Includes:**
- 8 sizes: 3/16"–1/2" ID



Item Code	Bishops Code
CA1730	

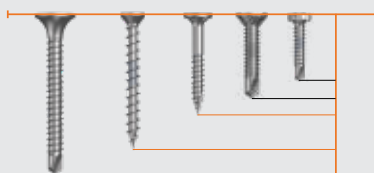
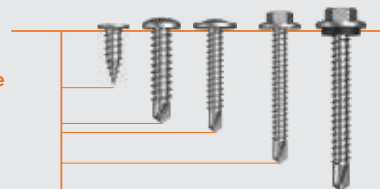
SPECIAL ORDER: PLEASE QUOTE ITEM CODE UPON ORDERING THIS PRODUCT

## HOW TO MEASURE A SCREW

The length of fasteners with non-countersunk heads are measured from under the head, while those with countersunk heads are measured overall.

Measure these types of screws from the underside of the head:

- Hex, Hex With Seal, Wafer, Pan, Button, Flat Head.



Measure these types of screws from the top of the head:

- Bugle, Plasterboard, Countersunk, Ribbed, Flower, Decking.

## 90 PIECE SOCKET HEAD CAP SCREW ASSORTMENT KIT – METRIC



- Socket head
- Grade 8.8 high tensile steel
- Includes:**
- 14 sizes: M5 to M10 diameter, lengths to 40mm



Item Code	Bishops Code
CA1417	40410700



## SELF-DRILLING SCREWS

A self-drilling screw is designed to drill itself through a variety of materials and substrates. The difference between a self-tapping screw and a self-drilling screw is that a self-tapping screw cannot drill itself into material, only tap a thread in an existing hole, while self-drillers perform both actions.

Self-drilling screws are available with a variety of points, all suitable for different materials or applications. These points drill their own hole and cut a thread in the same motion.

Self-drilling screws are often supplied with a neoprene seal to prevent water entry. Other features also found on self-drillers include a Scratch Guard which prevents sheet metal from cutting into the coating.

Some of the most common uses for self-drilling screws are cladding and roofing, steel framing, HVAC work and construction of a general nature.

### Coatings

#### Class 2

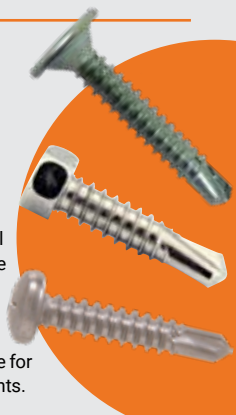
Suitable for general internal use where significant levels of condensation occurs. Most screws in this class will be electroplated zinc.

#### Class 3

Class 3 is the best choice for general purpose external applications, including moderate industrial and marine environments.

#### Class 4

Class 4 offers significant corrosion protection suitable for external use in moderate to severe marine environments.



## SELF-TAPPING SCREW KITS – METRIC



- Phillips head



CA1710



CA530

Item Code	Contents	Screw Head	Finish	Kit Size	Bishops Code
CA1710	14 Sizes: 3.5–5.5mm, Lengths to 50mm	Pan	Zinc Plated	415 Pieces	40410795
CA1810	15 Sizes: 2.2–4.8mm Dia, Lengths to 38mm	Pan	Stainless Steel	415 Pieces	40410840
CA1200	14 Sizes: 3.5–4.8mm, Lengths to 38mm	Pan & Raised	Black Zinc	415 Pieces	*CA1200
CA1720	14 Sizes: 3.5–5.5mm, Lengths to 50mm	Mushroom	Black Zinc	415 Pieces	*CA1720
CA530	8 Sizes: 4.2–4.8mm, Lengths to 30mm	Wafer & Hex	Yellow Zinc	400 Pieces	*CA530

\* – SPECIAL ORDER: PLEASE QUOTE ITEM CODE UPON ORDERING THIS PRODUCT

## 164 PIECE GRUB SCREW ASSORTMENT KIT – BSW & METRIC



- Grade 8.8 high tensile steel
- Includes:
- 14 sizes: 5–8mm and 3/16"–3/8" BSW



Item Code	Bishops Code
CA1416	40410690

## 450 PIECE GRUB SCREW KIT – METRIC

- Comes in hard plastic case for handy storage
- Includes:
- Long Screws 9 Sizes – 3 x 5mm to 10 x 12mm
- Long Fine Screws 3 Sizes – 6 x 6mm to 10 x 10mm



Item Code	Bishops Code
FD-6158G	40420074

## RIVET TRADE SIZES

Rivet sizes are easily recognised by their Trade Size.

Once you know what size rivet you need, simply choose the appropriate material and style for your particular application.

Trade size of rivets is written in the following format:



Rivet Code	Rivet Diameter	Drill Hole Size
3	2.4mm (3/32")	2.5mm
4	3.2mm (1/8")	3.3mm
5	4.0mm (5/32")	4.1mm
6	4.8mm (3/16")	4.9mm
8	6.4mm (1/4")	6.5mm

Grip Code	Grip Range (Metric)	Grip Range (Imperial)
1	Up To 1.6mm	Up To 1/16"
2	1.6–3.2mm	1/16"–1/8"
3	3.2–4.8mm	1/8"–3/16"
4	4.8–6.4mm	3/16"–1/4"
5	6.4–7.9mm	1/4"–5/16"
6	7.9–9.5mm	5/16"–3/8"
8	9.5–12.7mm	3/8"–1/2"
10	12.7–15.9mm	1/2"–5/8"
12	15.9–19.0mm	5/8"–3/4"
14	19.0–22.2mm	3/4"–7/8"
16	22.2–25.4mm	7/8"–1"
20	25.4–31.8mm	1"–1 1/4"

## 500 PIECE RIVET GRAB KIT

- Comes in hard plastic case for handy storage
- Includes:
- 4 Sizes – 1/8" x 1/4" to 1/8" x 3/8"



Item Code	Bishops Code
FD-6046	40420063



### 505 PIECE ALUMINIUM BLIND RIVET KIT



- Short, medium and long rivets
- Includes:**
- 10 sizes: 2.4–4.8mm diameters



Item Code	Bishops Code
CA502	40410520

### 80 PIECE RIVET NUT INSERT KITS



- Includes:**
- 5 sizes: 4–10mm dia.



Item Code	Description
CA505	Steel
CA506	Aluminium

**SPECIAL ORDER: PLEASE QUOTE ITEM CODE UPON ORDERING THIS PRODUCT**

### SPLIT (COTTER) PIN KITS



Item Code	Description	Kit Size	Bishops Code
<b>ZINC PLATED</b>			
CA2540	16 sizes: 1.6 x 22mm–6.3 x 50mm	1,540 pieces	40410985
CA1152	8 Sizes: 1.6–3.2mm, Including 7/64"	800 Pieces	40410650
CA800	10 Sizes: 1.6–4mm, Including 7/64" & 9/64"	795 Pieces	40410610
CA280	11 Sizes: 5–13mm, Including 3/8" and 1/2"	93 Pieces	40410350
<b>STAINLESS STEEL</b>			
CA1850	16 sizes: 1.6–5mm	225 Pieces	40410880

### COTTER PIN & SPLIT PIN GRAB KITS

- Comes in hard plastic case for handy storage

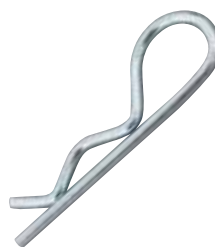


Description	Bishops Code
144 Piece Large Cotter Pin Kit – 6 Sizes: 1/8" x 2" to 5/16" x 2 1/2"	40420055
280 Piece Cotter/Split Pin Kit – 6 Sizes: 1/16" x 1" to 5/32" x 2 1/2"	40420073

### 124 PIECE R CLIP KIT – IMPERIAL



- Zinc plated
- Includes:**
- 8 sizes: 1/8" to 1" shaft sizes



Item Code	Bishops Code
CA1745	40410820

### HITCH PIN GRAB KITS

- Comes in hard plastic case for handy storage



Description	Bishops Code
150 Piece Hitch Pin Kit – 6 Sizes: 2.4 x 31mm to 4 x 75mm	40420056
56 Piece Clevis & Hitch Pin Kit – 5/16" to 1/2" Tiller Tine Pins & 1 3/16" to 1 3/4" Hair Pins	40420069

### ROLL PIN KITS – METRIC & IMPERIAL



Item Code	Description	Kit Size	Bishops Code
CA1421	Imperial Small Sizes – 18 Sizes: 1/16"–1/4" Dia.	380 Pieces	40410720
CA1435	Imperial Large Sizes – 12 Sizes: 3/16"–3/8" Dia.	89 Pieces	40410740
CA1715	Metric Small Sizes – 18 Sizes: 2–6mm Dia.	360 Pieces	40410800
CA1725	Metric Large Sizes – 12 Sizes: 5–10mm Dia.	82 Pieces	40410810
CA2020	Metric Large Sizes – 24 sizes: 2–10mm Dia.	360 Pieces	40410950

### 315 PIECE ROLL PIN GRAB KIT – METRIC

- Comes in hard plastic case for handy storage
- Includes:**
- 30 Sizes – 1.5 to 10mm diameter



Item Code	Bishops Code
FD-6067	40420066



**saturn 0.5 TONNE**  
DATE SECURE

MODEL NO.	HS-9	
SERIAL NO.		
LIFTING HEIGHT	5x15mm	COMPLIES WITH AS/NZS1418.2
LOAD CHAIN SIZE	80	MADE IN CHINA
GRADE		
DATE		

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