Captive Screws
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ASM®
ACCURATE SCREW MACHINE
a Division of **MW Industries**, Inc.
www.accuratescrew.com

ELECTRONIC HARDWARE AND FASTENERS

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- ☑ Fast delivery on custom electronic hardware
- ☑ Same day shipping on stock items
- ☑ Custom manufacturing to your specs

NEW!
Low-Profile, Spring-Loaded, Captive Panel Fasteners
See next page!

ACCURATE SCREW MACHINE

Ways to contact ASM...

E-Mail

General Information:
info@accuratescrew.com

Request For Quote:
sales@accuratescrew.com
or
ASM Web Site:
www.accuratescrew.com

Phone

973-244-9200

Toll Free Order Line:
877-285-2181

Fax

973-244-9177

Mail

ASM
10 Audrey Pl.
Fairfield, NJ 07004

A message from the Vice President Scott Solomon

Dear ASM Customer,

Accurate Screw Machine is proud to provide our customers with the best in products and services. With this 2011 catalog, I am particularly pleased to announce our latest addition, the **low profile spring-loaded captive panel fastener** (see the following page for more information). This new product is the perfect complement to our popular line of captive hardware.

Like all ASM products, this new line of spring-loaded captive fasteners is available in small or large quantities, as well as 13 American standard sizes and 7 metric sizes. All are RoHS compliant and manufactured to the same high-quality standards you have come to expect from ASM.

While reviewing this newest catalog, you will find —

- An expanded range of machining capabilities and materials, which now include "exotics", such as Inconel®, Monel®, Nitronic®, A-286, MP-35N® and hastalloy
- A full range of finish options, including anodizing, zinc, cadmium, nickel, tin, silver, passivation and oxide treatments
- Reference tables on material specifications and properties, finishes and much more

In addition, our Web site (www.AccurateScrew.com) has also been improved. New navigation tools make using the site easier, while the recent addition of our "CAD-On-Demand" feature can assist our customers with their own electronic fastener design. As always, our staff engineer is also available to lend a hand with technical questions or design assistance.

Can't find what you're looking for? We specialize in modified designs and applications that require tight tolerances and/or unusual geometries. Call our sales professionals today at 973-244-9200 for pricing on those hard-to-find electronic fasteners.

While it is our goal to continually change and grow to meet the demands of our customers, we remain dedicated to offering the fastest lead times, competitive pricing and the most responsive service for your most challenging projects.

From all of us here at ASM, I wish to thank you for your business, and we look forward to meeting all of your electronic fastener needs.

Scott Solomon
Vice President/General Manager
Accurate Screw Machine Corporation

Announcing...

SOMETHING NEW FROM ASM®

We've added something new to our extensive product line...

Low-Profile Spring-Loaded Captive Panel Fasteners

Turn the page for details!

OTHER FEATURED PRODUCTS IN THIS CATALOG INCLUDE...

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CUSTOMS

Call Us!

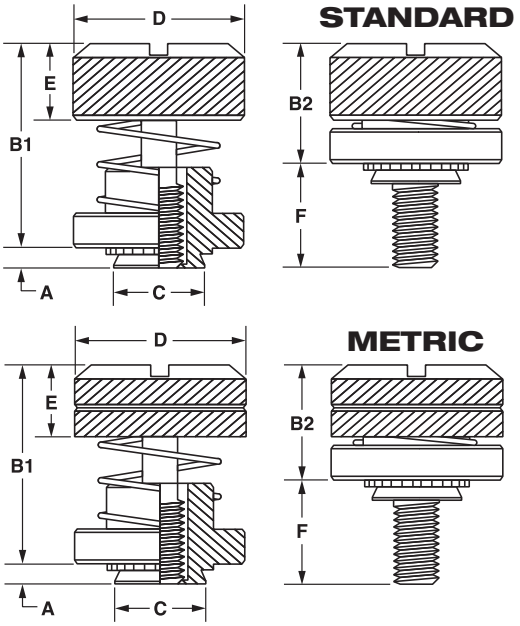
ASM®
ACCURATE SCREW MACHINE

LOW-PROFILE SPRING-LOADED CAPTIVE PANEL FASTENERS

Adding to our already extensive product line, Accurate Screw Machine (ASM) now offers **Low-Profile, Spring-Loaded Captive Panel Fasteners**!

These Spring-Loaded Captive Panel Fasteners will secure your panel cover ensuring no more lost screws, and they are manufactured to the same high quality standard you've come to expect from ASM. These fasteners are RoHS compliant and available in thread ranges from 4-40 through 1/4-20 (standard) or M3, M4, M5 and M6 (metric). Best of all, they are available in small or large quantities, and your order is always in stock and available for immediate turnaround.

Contact us today for more information about ASM's new Low-Profile Spring-Loaded Captive Panel Fasteners or any of our other fastener lines, or to request a copy of our printed full line catalog.



NOTE: The line on the metric knurl is to differentiate between metric and unified thread size.

	Material	Finish
Retainer	Carbon Steel	Bright Nickel over Copper Flash
Screw	Carbon Steel	Bright Nickel over Copper Flash
Spring	300 Series Stainless Steel	Self-Finish

STANDARD (inches)

Basic Part No.	Thread Size	A (Shank) Max.	Min. Sheet Thickness	C Max.	B1 Nom.	B2 Max.	D ± .010	E ± .005	F ± .015
570	#4-40	0.030	0.030	0.202	0.595	0.325	0.406	0.202	0.300
571	#4-40	0.038	0.040	0.202	0.595	0.325	0.406	0.202	0.300
572	#4-40	0.058	0.060	0.202	0.595	0.325	0.406	0.202	0.300
573	#6-32	0.030	0.030	0.218	0.595	0.325	0.438	0.202	0.300
574	#6-32	0.038	0.040	0.218	0.595	0.325	0.438	0.202	0.300
575	#6-32	0.058	0.060	0.218	0.595	0.325	0.438	0.202	0.300
576	#8-32	0.030	0.030	0.249	0.600	0.330	0.468	0.207	0.300
577	#8-32	0.038	0.040	0.249	0.600	0.330	0.468	0.207	0.300
578	#8-32	0.058	0.060	0.249	0.600	0.330	0.468	0.207	0.300
579	#10-32	0.030	0.030	0.311	0.605	0.335	0.530	0.220	0.300
580	#10-32	0.038	0.040	0.311	0.605	0.335	0.530	0.220	0.300
581	#10-32	0.058	0.060	0.311	0.605	0.335	0.530	0.220	0.300
582	1/4 - 20	0.058	0.060	0.374	0.675	0.385	0.625	0.242	0.350

METRIC (millimeters)

Basic Part No.	Thread Size	A (Shank) Max.	Min. Sheet Thickness	C Max.	B1 Nom.	B2 Max.	D ± .25	E ± .13	F ± .40
591	M3 x 0.5	0.97	1.00	5.48	15.11	8.26	10.31	5.13	7.62
592	M3 x 0.5	1.48	1.50	5.48	15.11	8.26	10.31	5.13	7.62
593	M4 x 0.7	0.97	1.00	6.38	15.24	8.38	11.89	5.26	7.62
594	M4 x 0.7	1.48	1.50	6.38	15.24	8.38	11.89	5.26	7.62
595	M5 x 0.8	0.97	1.00	7.98	15.37	8.51	13.46	5.59	7.62
596	M5 x 0.8	1.48	1.50	7.98	15.37	8.51	13.46	5.59	7.62
597	M6 x 1.0	1.48	1.50	9.48	17.15	9.78	15.88	6.12	8.89

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WARRANTY

Accurate Screw Machine, Corp. (ASM) products are sold with the understanding and on condition that the purchaser will test them in actual use and make his o wn determina tion as to their suitability and acceptability for his intended use, and the purchaser a grees to such condition. Use of ASM products other than for a pplications illustra ted herein constitutes a misuse for which the purchaser bears all responsibility.

ASM warrants to the original purchaser only tha t ASM products, when purchased in the original, unopened, ASM brand packa ge, are to be free from defects in ma terials and workmanship. ASM's sole obliga tion, and purchaser's sole remed y, for an y breach of this warranty is limited to repair or replacement of the product at ASM's option. ASM shall not under any circumstances be liable for the loss of the use of a purchaser' s equipment or facilities, or for loss of an y business or goodwill or profits, or for cost of inspection, transportation or storage, or for any incidental or consequential dama ges of an y na ture or description. Purchaser must notify ASM in writing of an y products which are deemed to be defective within 30 days after receipt of such products.

ASM reser ves the right to transfer an y right and obliga tion of an y purchase order.

ASM expressly disc laims an y and all expressed or implied warranties concerning its products inc luding, without limita tion, warranty of fitness for a particular purpose and warranty of merchantability , except the warranty set forth above.

Dedication to Complete Customer Satisfaction

ASM continues to lead the way in the component fastener industr y because we listen to the needs of our customers and respond to ensure these needs are met. As a result, ASM offers our customers:

★ The largest inventory and product selection in the industry , with many available in standard or metric sizes.

★ Unparalleled service, with stock part orders shipped the same day and custom parts delivered in one week or less.

★ Exacting quality standards which include full QC certification, registration to ISO 9001/2000, and a top performance rating from every major OEM in the country , including the US Military and NASA.

★ The widest range of product reference tools available in the marketplace, including a comprehensive printed catalog, an interactive CD-ROM, and a state-of-the-art W eb site with on-line technical support.

No matter what your industry requirements, ASM is "The Source" for your entire hardware fastener needs.

EZ ORDER INSTRUCTIONS

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This overview illustrates how to easily and accurately create a valid ASM part number by following the instructions listed in the **"ORDER EXAMPLE"** box located on ALL product pages of the catalog.

EXAMPLE: Suppose you want to specify a male-female threaded standoff, stainless steel, with a 1/4" diameter hex body, a 6-32 thread, .250" body length with a passivate finish.

Go to our Pictorial Table of Contents, beginning on the next page, and find the correct corresponding product page (which for our example is page 27 for male-female threaded standoffs), then follow the step-by-step instructions below:

Step 1

Choose the "Basic Part Number" from the part number chart on the product page that most closely matches the standard dimensions for the part you require. Document your choice (from our example a 1/4" diameter standoff with a 6-32 thread) which corresponds with ASM "Basic Part Number" **14040**. **NOTE: The default external male thread length (B) is 3/8" and the internal female thread length (A) is 3/8". See Thread Chart on product page for default thread lengths.**

Step 2

Choose from the available standard body styles – Hex (H), Round (R) or Square (S) – from the choices offered on the product page. Add your choice (from our example, H for Hex) after the "Basic Part Number" as follows:

14040-H

Step 3

Choose an available material for this product using the "Materials" chart located on the product page. Add your choice (from our example SS for Stainless Steel) to the part number as follows:

14040-H-SS

Step 4

Indicate the length (L) of the standoff body, which in most cases, has no specific limitations unless indicated otherwise. Add the length (from our example, .250") to the part number as follows:

14040-H-SS-.250

Step 5

Lastly, choose a finish code from the table on page 277. Add this code (from our example, 12 for passivate finish) to complete the part number as follows:

14040-H-SS-.250-12

ORDER EXAMPLE:

Step 1	Step 2	Step 3	Step 4	Step 5
14040 -	H -	SS -	.250 -	12
Basic Part Number	Hex (H) or Round (R) or Square (S)	Material: See material chart	Length: Fill in your length, any increment	Finish: See page 277

If a dimension or thread change is required for A or B, add changes to part # as follows:
14040-H-SS-.250-12 (B=4-40 x 3/8) **Note: Be sure that thread and length are specified.**

IMPORTANT NOTE: This part number example is intended to illustrate the general step-by-step sequence by which ASM part numbers are created. However, please be sure to reference the "ORDER EXAMPLE" box located on the specific product page for other requirements or details pertinent to that specific part.

Additional questions? Please contact sales at 888-208-2008 or sales@accuratescrew.com

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SCREWS (continued)

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TECH TIP

Be sure to check out our new 3D CAD model repository at www.accuratescrew.com. Each model is custom generated as per your specifications.

Be sure to also take advantage of ASM's other online features such as: requesting a quote, checking your order status, accessing live support and searching for products.

RoHS Compliant

All products in catalog are RoHS compliant (see pages 275 and 277).

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The Latest Innovation in Fastener Technology!

FMR2002

Front-Mount Retainer/Standoff

WHAT IS THE FMR2002?

- The FMR2002 is a patented multi-purpose fastener developed by ASM that is available externally/internally threaded for use as a retainer assembly (Fig. A) or threaded standoff (Fig. C) - plus it can be ordered without internal threads for use as a clear-hole standoff/spacer (Fig. B).
- The FMR2002 **is completely installed from the front of a panel** due to its unique external threaded design – you simply drill, tap, and install with a standard socket or open ended wrench.
- The FMR2002 is produced hex-headed and is available in brass, steel, or stainless steel.

HOW DOES THE FMR2002 SAVE TIME AND MONEY?

- **Reduces Panel Assembly Time** up to 20% due to the unique completely front mount (or single-sided) installation process.
- **Cuts Production Setup Costs** because there is no need for anvil/punch sets or equipment, such as an arbor press, punch press, or drill press.
- **Eliminates Product Rejection Rates** on bent, cracked, or bulging panels because, unlike traditional swaged or flared products that require a pressing force for installation, the FMR2002 simply screws tightly into place.
- **Allows Onsite Product Repair** due to its external threaded design and installation, which enables the FMR2002 to be easily removed and reused.

Call our Sales Department today at 1-888-208-2008 for complete details.

Visit our Web site at www.accuratescrew.com to view a video clip of the FMR2002's easy front mount installation.

Fig. A

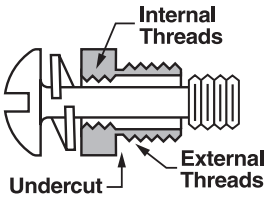


Fig. B

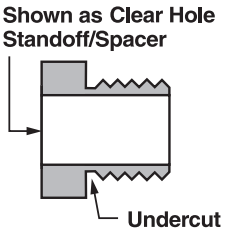
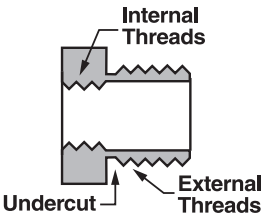


Fig. C



(Complete product specifications info. located on the next page)

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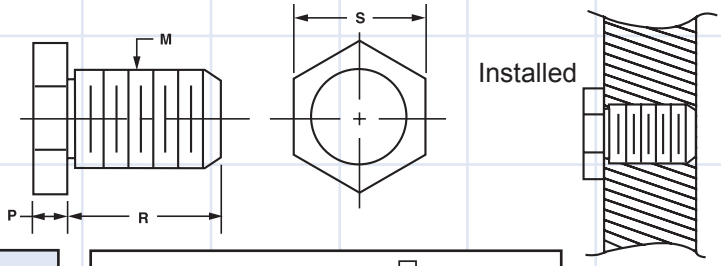
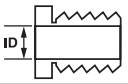
FMR2002

Front-Mount Retainer/Standoff



Basic Part Number	Captive Screw Thread Size	R Min	P	M	S Hex
76256	2-56	.125	.062	8-32	3/16
76440	4-40	.125	.093	10-32	1/4
76632	6-32	.125	.093	1/4-28	5/16
76832	8-32	.125	.093	1/4-28	5/16
761032	10-32	.125	.093	5/16-24	3/8
761024	10-24	.125	.093	5/16-24	3/8
762520	1/4-20	.125	.125	3/8-24	7/16

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code

Screw Thread	ID +.010 −.000	Code Letter	Screw Thread	ID +.010 −.000	Code Letter
#2	.100	A	#8	.180	D
#4	.128	B	#10	.213	E
#6	.156	C	#1/4	.281	F

To specify Clear Hole Option, add prefix code to part number.
EXAMPLE: A76256-H-SS-12
.100 - ID

Available Material (see page 275)	
A	Aluminum
B	Brass, composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series, ASTMA 580/A580M-98

ORDER EXAMPLE:

76256 - H - SS - 12

- 76256: Basic Part Number
- H: Hex Only
- SS: Material: See chart
- 12: Finish: See page 277

Any dimension may be changed by adding to part number.
EXAMPLE: 76256 H SS 12 (R = .187)

The FMR2002 is an excellent alternative to existing flared and swage standoff products...

In Applications With Restricted Installation Space

The FMR2002 completely installs from the front (or a single-side) of a panel using a standard socket or open ended wrench (Fig. C). This dramatically reduces clearance and accessibility constraints normally associated with traditional retainer/standoff products that require installation using a press, anvil, or punch (Fig. D).

In Applications With Panel Edge Distortion Concerns

The FMR2002 can be installed much closer to the edge of a panel (Fig. E) than a traditional retainer/standoff without concerns about panel distortion. This is possible because the shank portion of the FMR2002 is screwed in rather than pressed, which lessens the force and stress applied to the panel material, eliminating any bulging or cracking issues (Fig. F).

THE FMR2002 IS A PERFECT CHOICE FOR USE IN PCB APPLICATIONS!

See Fig. G

Fig. C

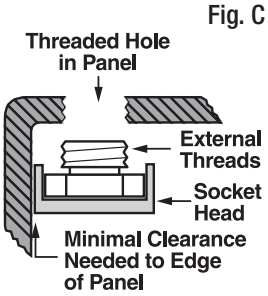


Fig. D

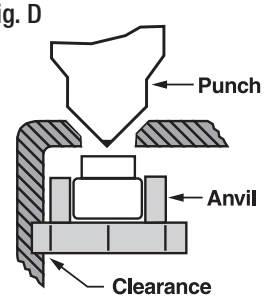


Fig. E

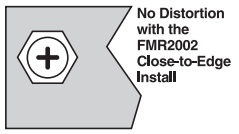


Fig. F

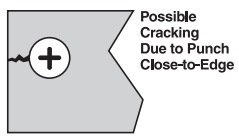
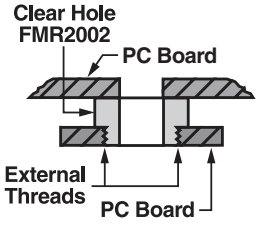


Fig. G



For FMR2002 captive screw assembly information please refer to the product section starting on page 110.

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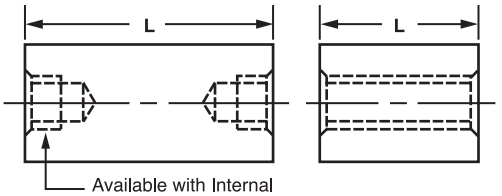
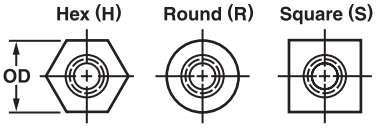
THREADED STANDOFFS

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber
UL*	ULTEM 1000	KF**	Kel-F

*ULTEM 1000 UL Rating 94V-0 **Supplied in round only .





ORDER EXAMPLE:

9010 - R - SS - .250 - 12

Basic Part Number	Hex (H) or Round (R) or Square (S)	Material: See chart	Length: Fill in your length, any increment	Finish: See page 277

If a different thread on each end is needed, including **Metric**, add to end of part number.
EXAMPLE: 1130-H- SS-.500-12 (one end 4-40 thd.)

Thread		
0-80	10-24	3/8-24*
2-56	10-32	5/16-18*
4-40	1/4-20	7/16-14*
6-32	1/4-28	
8-32	3/8-16*	

*Thread sizes available for 7/16 OD and larger.
For Dep h of Thread information, see page 281.

OD	Thread	Basic Part No.	H or R or S	Material	Length	Finish
1/8	0-80	9010				
5/32	2-56	1016				
	4-40	1017				
3/16	2-56	1020				
	4-40	1030				
	6-32	1031				
1/4	2-56	1110				
	4-40	1120				
	6-32	1130				
	8-32	1140				
	10-32	1150				
5/16	2-56	1210				
	4-40	1220				
	6-32	1230				
	8-32	1240				
	10-32	1250				
	1/4-20	1253				
3/8	2-56	1310				
	4-40	1320				
	6-32	1330				
	8-32	1340				
	10-24	1345				
	10-32	1350				
	1/4-20	1352				
	1/4-28	1353				
7/16	2-56	1410				
	4-40	1420				
	6-32	1430				
	8-32	1440				
	10-24	1450				
	10-32	1460				
	1/4-20	1470				

NOTE: Hi-Torque Feature (see page 11), Locking Standoff (see page 12), Insulating Standoff (see page 16).

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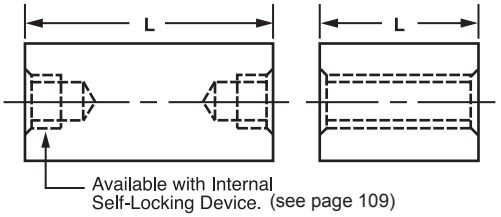
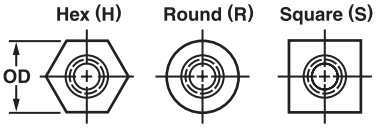
THREADED STANDOFFS

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber
UL*	ULTEM 1000	KF**	Kel-F

*ULTEM 1000 UL Rating 94V-0 **Supplied in round only .





ORDER EXAMPLE:

1510 - R - SS - .250 - 12

1510	R	SS	.250	12
Basic Part Number	Hex (H) or Round (R) or Square (S)	Material: See chart	Length: Fill in your length, any increment	Finish: See page 277

If a different thread on each end is needed, including **Metric**, add to end of part number.
EXAMPLE: 1550-H- SS-.500-12 (one end 10-32 thd.)

Thread		
2-56	10-32	3/8-24
4-40	12-24	5/16-18
6-32	1/4-20	7/16-14
8-32	1/4-28	
10-24	3/8-16	

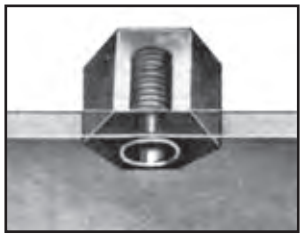
For Depth of Thread informa ion, see page 281.

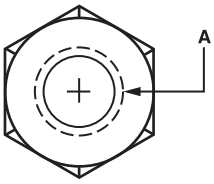
OD	Thread	Basic Part No.	H or R or S	Material	Length	Finish
1/2	2-56	1510				
	4-40	1520				
	6-32	1530				
	8-32	1540				
	10-24	1550				
	10-32	1560				
	12-24	1570				
	1/4-20	1580				
	1/4-28	1581				
5/8	4-40	1610				
	6-32	1620				
	8-32	1630				
	10-24	1640				
	10-32	1650				
	3/8-24	1651				
	12-24	1660				
	1/4-20	1670				
	5/16-18	1680				
	3/8-16	1682				
	7/16-14	1685				
3/4	2-56	2100				
	4-40	2105				
	6-32	2110				
	8-32	2115				
	10-24	2120				
	10-32	2125				
	12-24	2130				
	1/4-20	2135				
	1/4-28	2140				
	5/16-18	2145				
	3/8-16	2150				
	7/16-14	2155				

NOTE: Hi-Torque Feature (see page 11), Locking Standoff (see page 12), Insulating Standoff (see page 16).

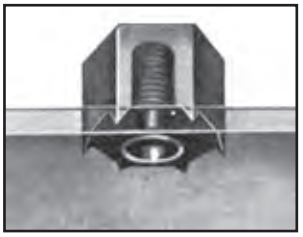
HI-TORQUE THREADED & CLEAR HOLE SPACERS
Hex or Square
LOCKS SPACERS, SAMPLES AVAILABLE

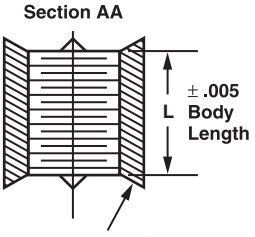
CONVENTIONAL SPACERS SPIN EASILY
Conventional No-Grip





HI-TORQUE SPACER OFFERS MAXIMUM TORQUE
Six Point Grip





For reference only.
Hi-Torque points
are approximately
1/64 high each side.

1. Refer to Clear Hole and Threaded Spacers on pages 9-21.
2. Add letter designation (HT) to part number according to the order example below .

ORDER EXAMPLE:

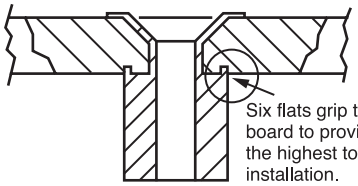
1130 - H - A - .500 - 1 - HT

1130	H	A	.500	1	HT
Basic Part Number	Hex (H) or Square (S)	Material: See chart	Overall Length: L ± .005	Finish: See page 277	Hi-Torque

If Hi-Torque factor is required on one side, indicate: **EXAMPLE: 1130-H-A-.500-1 (HT one side only)**

A STANDOFF THAT WON'T SPIN!
Hi-Torque hex swage standoff with a locking feature that ends loosening & spinning problems

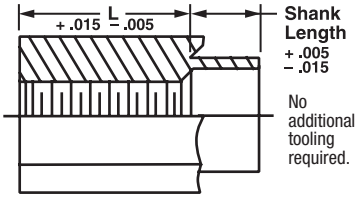
HI-TORQUE SWAGE STANDOFF



C'sink depth approximately 1/2 board thickness.
Hole diameter same as shank diameter.
Hole diameter tolerance is $^{+.003}_{-.001}$

HI-TORQUE HEX SWAGE GRIPPING STANDOFF*

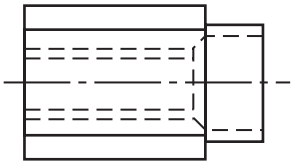
Up to 23 in/lb - 6 Flats Really Grip!
Six flats really grip the board to provide the highest torque installation achievable yet.



*This feature is also available for Male/Female Standoffs see pages 27-28.

HEX SWAGE NO-GRIP STANDOFF

Conventional No-Grip!



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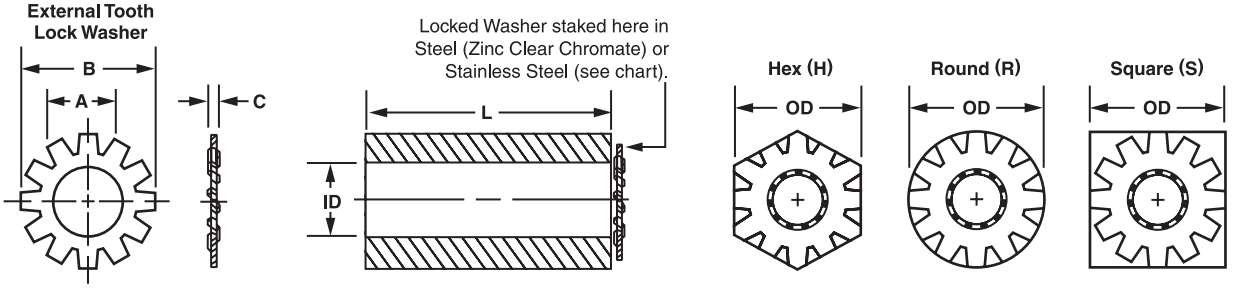
LOCKING THREADED SPACERS

Available in Hex, Round or Square



Lock Washer		
Material		Finish
S	Steel - 1040/1060	Zinc Chrome Clear
SS	Stainless Steel - 410	NONE

Threaded Spacer Available Material (see page 275)					
A	Aluminum	C	Copper	SS	Stainless Steel
B	Brass	S	Steel		

ORDER EXAMPLE:

1020 - R - SS - .250 - LSS - 12

Basic Part Number	Hex (H), Round (R) or Square (S)	Spacer Material: See chart	Length L: Fill in your length, any increment	Lock Washer Material: Stainless (LSS) or Steel (LS)	Finish: See page 277

No specific increments required for length.
To order Lock Washer in steel (1040/1060) add LS to end of part number: **EXAMPLE: 1020-R-S-.250-LS -12**
To order Lock Washer on bo h ends add LL to end of part number: **EXAMPLE: 1020-R-SS-.250-LLSS-12**

Thread	Washer Size					
	A Inside Diameter		B Outside Diameter		C Thickness	
	Min	Max	Min	Max	Min	Max
2-56	.115	.123	.245	.260	.015	.019
4-40	.141	.150	.305	.320	.016	.022
6-32	.168	.176	.365	.381	.018	.029
8-32	.195	.204	.395	.410	.020	.025
10-32	.258	.267	.494	.510	.023	.028

OD	Thread	Basic Part Number
3/16	2-56	1020
	4-40	1030
1/4	2-56	1110
	4-40	1120
5/16	2-56	1210
	4-40	1220
	6-32	1230
	8-32	1240
	10-32	1250
3/8	2-56	1310
	4-40	1320
	6-32	1330
	8-32	1340
	10-24	1345
	10-32	1350

OD	Thread	Basic Part Number	Washer Number
7/16	2-56	1410	4
	4-40	1420	6
	6-32	1430	8
	8-32	1440	10
	10-24	1450	1/4
	10-32	1460	1/4
1/2	2-56	1510	4
	4-40	1520	6
	6-32	1530	8
	8-32	1540	10
	10-24	1550	1/4
	10-32	1560	1/4
5/8	4-40	1610	6
	6-32	1620	8
	8-32	1630	10
	10-24	1640	1/4
	10-32	1650	1/4
3/4	2-56	2100	4
	4-40	2105	6
	6-32	2110	8
	8-32	2115	10
	10-24	2120	1/4
	10-32	2125	1/4
	12-24	2130	1/4

TECH TIP

Metric sizes and threads are available on many of the products we manufacture.

NOTE: For depth of thread, see page 281.

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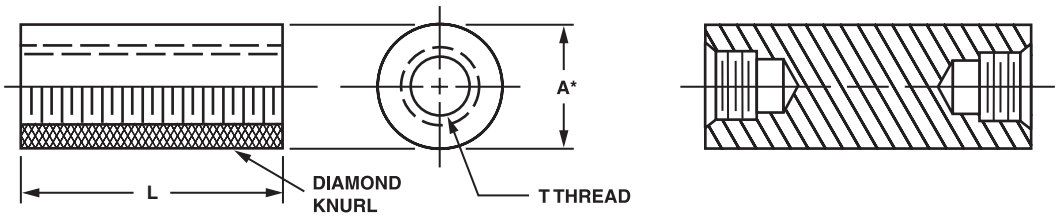
KNURLED THREADED SPACERS



*Stock diameter before knurl.

APPLICATION:

These inserts can be die cast into aluminum and zinc, used in plastic and metal sheets, injection and compression molded.

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

Thread		
2-56	6-32	1/4-28
2-64	8-32	5/16-18
3-48	10-24	5/16-24
3-56	10-32	3/8-16
4-40	1/4-20	3/8-24

ORDER EXAMPLE:

1900 - **A** - **.125** - **22**

- **1900**: Basic Part Number
- **A**: Material: See chart
- **.125**: Length: Fill in your length, any increment
- **22**: Finish: See page 277

A Dia	Thread	Basic Part Number	Material	Length	Finish
5/32	2-56	1900			
	2-64	1905			
3/16	3-48	1910			
	3-56	1915			
	4-40	1920			
	4-48	1925			
7/32	6-32	1930			
	6-40	1935			
1/4	4-40	1941			
	6-32	1942			
	8-32	1943			
9/32	8-32	1944			
	10-24	1950			
	10-32	1955			
3/8	8-32	1957			
	1/4-20	1960			
	1/4-28	1965			
7/16	5/16-18	1970			
	5/16-24	1975			
1/2	3/8-16	1980			
	3/8-24	1985			

NOTE: When length is 2" or longer, 3/4" will be knurled from each end. For depth of thread, see page 281.

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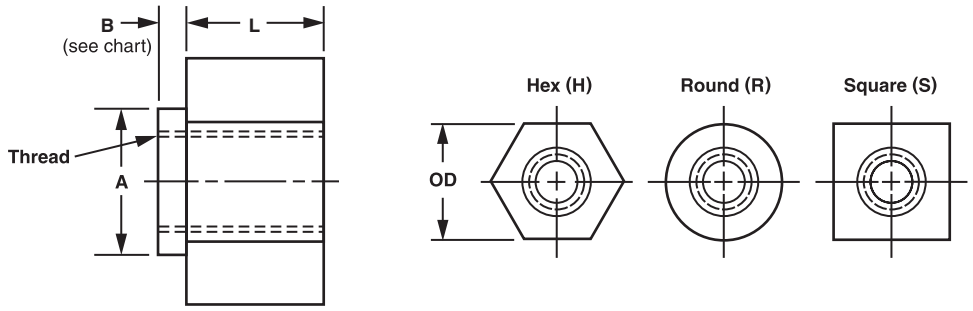
SELF-LOCATING THREADED SPACERS



Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board or Panel Thickness	B Recommended Shank Length
1/32	.025
1/16	.055
3/32	.085
1/8	.118
3/16	.180
1/4	.240

ORDER EXAMPLE:

3302 - H - A - .500 - .025 - 2

- **3302** — Basic Part Number
- **H** — Hex (H), Round (R) or Square (S)
- **A** — Material: See chart
- **.500** — Spacer Length L: Fill in your length, any increment*
- **.025** — Shank Length B: Fill in your length, any increment*
- **2** — Finish: See page 277

*No specific increments required for spacer or shank length.

OD	Thread	A Shank Dia +.000 -.003	Basic Part Number	H or R or S	Material	L Spacer Length	B Shank Length	Finish
1/4	2-56	.188	3302					
	4-40	.188	3304					
	6-32	.188	3306					
5/16	6-32	.234	3308					
	8-32	.234	3310					
3/8	6-32	.234	3312					
	8-32	.234	3314					
	10-32	.281	3316					
1/2	6-32	.234	3318					
	8-32	.234	3320					
	10-32	.312	3322					
	1/4-20	.375	3324					

NOTE: When overall length is 3/4" or longer, see page 281 for depth of thread. Length L not less than .125.

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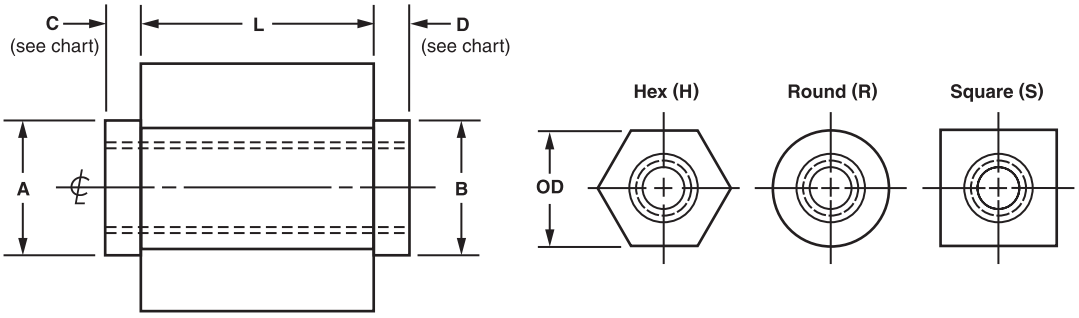
SELF-LOCATING, DOUBLE-ENDED THREADED SPACERS



Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board or Panel Thickness	C and D Recommended Shank Length
1/32	.025
1/16	.055
3/32	.085
1/8	.118
3/16	.180
1/4	.240

TECH TIP

Torque-tension formula and tables are useful in determining the required torque. However, the only sure way to establish the "correct" torque is through experimentation utilizing the actual fasteners or one that closely simulates it.

ORDER EXAMPLE:

3102 - H - A - .500 - .025 - 2

- **3102** — Basic Part Number
- **H** — Hex (H), Round (R) or Square (S)
- **A** — Material: See chart
- **.500** — Spacer Length L: Fill in your length, any increment*
- **.025** — Shank Length C & D: Fill in your length, any increment*
- **2** — Finish: See page 277

*No specific increments required for spacer or shank length.

OD	Thread	A & B Shank Dia +.000 -.003	Basic Part Number	H or R or S	Material	L Spacer Length	C & D Shank Length	Finish
1/4	2-56	.188	3102					
	4-40	.188	3104					
	6-32	.188	3106					
5/16	6-32	.234	3108					
	8-32	.234	3110					
3/8	6-32	.234	3112					
	8-32	.234	3114					
	10-32	.281	3116					
1/2	6-32	.234	3118					
	8-32	.234	3120					
	10-32	.312	3122					
	1/4-20	.375	3124					

NOTE: When overall length is 3/4" or longer, see page 281 for depth of thread. Length L not less han .125.

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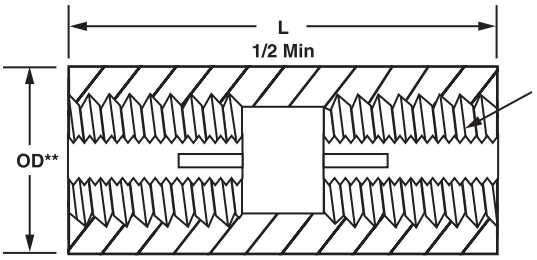
STRONG INSULATING THREADED STANDOFFS*



Brass Tap-Lok Series
Locking Threaded Inserts provide strong threads in weak plastics, designed for higher pull-out strength, superior vibration resistance.

**OD must be greater than D by .125 dia. to insure proper installation.

ORDER EXAMPLE:

1130 - H - N - .625 - LI - 1 - (M3.5x0.6)

Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart	Fill in your length, any increment	Locking Insert	Finish: See page 277	Metric Requirement

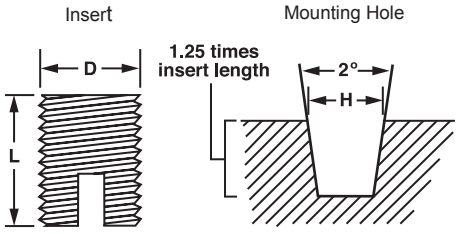
For Threaded Standoff Basic Part Number, see pages 9, 10, 14 or 15.
Add letters **LI** (Locking Insert) to part number as shown above to specify strong insulating feature.
EXAMPLE: 1130-H-N-.625-LI-1
METRIC THREADED EXAMPLE: 1130-H-N-.625-LI-1-(M3.5x0.6)

Available Material (see page 275)	
D	Delrin
N	Nylon
T	Teflon
L**	Polycarbonate (Lexan)
PA**	A.B.S..
PP**	P.V.C..
UL*	ULTEM 1000

*ULTEM 1000 - UL Rating 94V-0
**Supplied in round only.

SELF-THREADING INSERT FOR THERMOPLASTICS AND THERMOSET PLASTICS

Brass inserts are designed for maximum pullout strength, superior vibration resistance.
D is a special thread designed for ease of installation and strength.

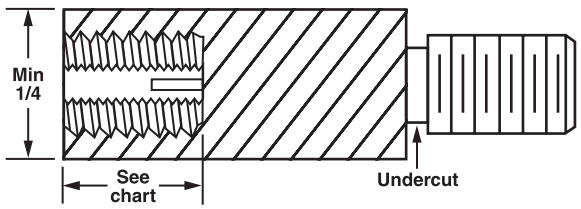


1" minimum length required.

Internal Thread Size (Inches)	Internal Thread Size (Metric)	D Diameter	L Insert Length	Recommended Hole Size
2-56	M2 x 0.4	.141	.187	.127-.124
4-40	M3 x 0.5	.171	.234	.152-.149
6-32	M3.5 x 0.6	.218	.281	.194-.190
8-32	M4 x 0.7	.250	.328	.226-.222
8-32	M4 x 0.7	.250	.218	.226-.222
10-32	M5 x 0.8	.296	.375	.264-.259
1/4-20	M6 x 1	.375	.312	.330-.336

OTHER OPTIONS:

MALE/FEMALE STANDOFFS



ORDER EXAMPLE:

14040 - H - N - .500 - LI - 1

Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart	Fill in your length, any increment	Locking Insert	Finish: See page 277

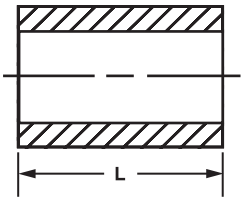
For Threaded Standoff Basic Part Number, see pages 9, 10, 14 or 15.
Add letters **LI** (Locking Insert) to part number as shown above to specify strong insulating feature.
EXAMPLE: 14040-H-N-.500-LI-1

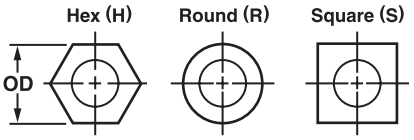
*See pages starting on 275 for further specifications, tolerance, etc.

CLEAR HOLE SPACERS

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S.
SS	Stainless Steel	PP**	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.





ORDER EXAMPLE:

1010 - R - SS - .250 - 12

- **1010** — Basic Part Number
- **R** — Hex (H) or Round (R) or Square (S)
- **SS** — Material: See chart
- **.250** — Length: Fill in your length, any increment
- **12** — Finish: See page 277

Any one dimension change, add to the end of part number .
EXAMPLE: 1010-R-SS-.250-12-(MOD ID .100)

Recommended Clearance Hole	
Thread	ID - Inside Dia +.015 -.000
2-56	.091
4-40	.115
6-32	.140
8-32	.171
10-32	.194
10-24	.194
1/4-20	.257

OD x ID	Basic Part Number	H or R or S	Material	Length	Finish
1/8 x .091	1010				
5/32 x .091	1011				
5/32 x .115	1012				
5/32 x .120	1013				
3/16 x .091	2010				
3/16 x .115	2020				
3/16 x .120	2030				
3/16 x .140	2040				
3/16 x .150	2050				
1/4 x .091	3010				
1/4 x .115	3020				
1/4 x .120	3021				
1/4 x .140	3030				
1/4 x .148	3031				
1/4 x .171	3040				
5/16 x .091	4006				
5/16 x .115	4010				
5/16 x .140	4020				
5/16 x .171	4030				
5/16 x .194	4040				
3/8 x .115	5005				
3/8 x .140	5010				
3/8 x .171	5020				
3/8 x .187	5025				
3/8 x .194	5030				
3/8 x .219	5040				
3/8 x .250	5042				
3/8 x .253	5041				
3/8 x .257	5043				
3/8 x .277	5045				
7/16 x .140	6010				

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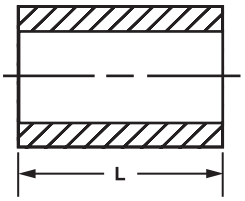
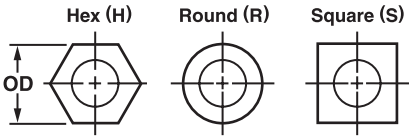
CLEAR HOLE SPACERS

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S.
SS	Stainless Steel	PP**	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F**	F ber

**Supplied in round only.





ORDER EXAMPLE:

6020 - R - SS - .250 - 12

- **6020** — Basic Part Number
- **R** — Hex (H) or Round (R) or Square (S)
- **SS** — Material: See chart
- **.250** — Length: Fill in your length, any increment
- **12** — Finish: See page 277

Any one dimension change, add to the end of part number .
EXAMPLE: 6020-R-SS-.250-12-(MOD ID .100)

Recommended Clearance Hole			
Thread	ID - Inside Dia +.015 -.000	Thread	ID - Inside Dia +.015 -.000
2-56	.091	1/4-28	.257
4-40	.115	5/16-18	.315
6-32	.140	3/8-24	.380
8-32	.171	3/8-16	.380
10-32	.194	7/16-14	.440
10-24	.194	1/2-13	.505
1/4-20	.257		

OD x ID	Basic Part Number	H or R or S	Material	Length	Finish
7/16 x .171	6020				
7/16 x .194	6030				
1/2 x .140	7010				
1/2 x .171	7020				
1/2 x .194	7030				
1/2 x .219	7040				
1/2 x .257	7050				
5/8 x .140	8010				
5/8 x .171	8020				
5/8 x .194	8030				
5/8 x .219	8040				
5/8 x .257	8050				
5/8 x .281	8060				
5/8 x .312	8070				
5/8 x .315	8071				
5/8 x .375	8080				
5/8 x .406	8090				
5/8 x .437	8095				
3/4 x .140	8800				
3/4 x .171	8805				
3/4 x .194	8810				
3/4 x .219	8815				
3/4 x .257	8820				
3/4 x .281	8825				
3/4 x .312	8830				
3/4 x .375	8097				
3/4 x .380	8831				
3/4 x .406	8835				
3/4 x .437	8840				
3/4 x .440	8841				
3/4 x .505	8845				

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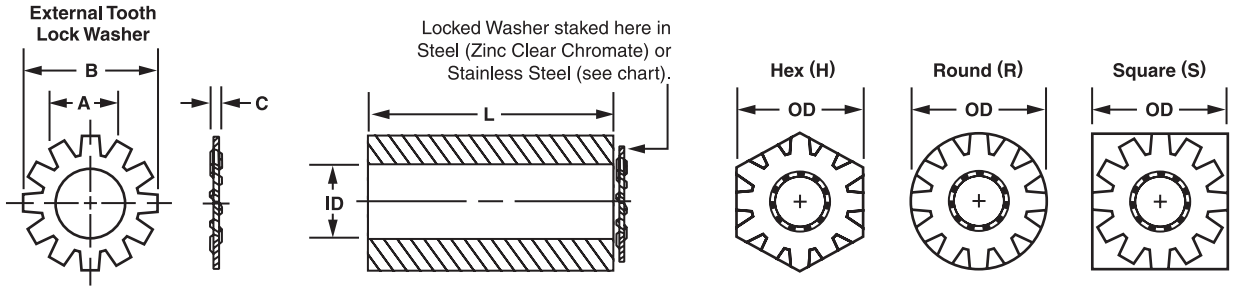
LOCKING CLEAR HOLE SPACERS
AVAILABLE IN HEX, ROUND OR SQUARE



ORDER EXAMPLE:

2010 - R - SS - .250 - LSS - 12

2010	R	SS	.250	LSS	12
Basic Part Number	Hex (H), Round (R) or Square (S)	Spacer Material: See chart	Length L: Fill in your length, any increment	Lock Washer Material: Stainless (LSS) or Steel (LS)	Finish: See page 277

No specific increments required for length.
NOTE: To order Lock Washer on both ends, just add LL to end of part number.
EXAMPLE: 2010-R-SS-.250-LLSS-12

Clear Hole Spacer Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

OD x ID	Basic Part Number	Washer Number
3/16 x .091	2010	4
3/16 x .120	2030	6
1/4 x .091	3010	4
1/4 x .115	3020	6
1/4 x .120	3021	6
5/16 x .091	4006	4
5/16 x .115	4010	6
5/16 x .140	4020	8
5/16 x .171	4030	10
5/16 x .194	4040	12
3/8 x .115	5005	6
3/8 x .140	5010	8
3/8 x .171	5020	10
3/8 x .187	5025	12
3/8 x .194	5030	12

OD x ID	Basic Part Number	Washer Number
7/16 x .140	6010	8
7/16 x .171	6020	10
7/16 x .194	6030	12
1/2 x .140	7010	8
1/2 x .171	7020	10
1/2 x .194	7030	12
5/8 x .140	8010	8
5/8 x .171	8020	10
5/8 x .194	8030	12
3/4 x .140	8800	8
3/4 x .171	8805	10
3/4 x .194	8810	12

Lock Washer		
Material		Finish
S	Steel - 1040/1060	Zinc Chrome Clear
SS	Stainless Steel - 410	NONE

Thread	Washer Size					
	A Inside Diameter		B Outside Diameter		C Thickness	
	Min	Max	Min	Max	Min	Max
2-56	.115	.123	.245	.260	.015	.019
4-40	.141	.150	.305	.320	.016	.022
6-32	.168	.176	.365	.381	.018	.029
8-32	.195	.204	.395	.410	.020	.025
10-24	.258	.267	.494	.510	.023	.028
10-32	.258	.267	.494	.510	.023	.028

Recommended Clearance Hole	
Thread	ID - Inside Dia +.010 -.000
2-56	.091
4-40	.115
6-32	.140
8-32	.171
10-24	.194
10-32	.194

NOTE: For depth of thread, see page 281.

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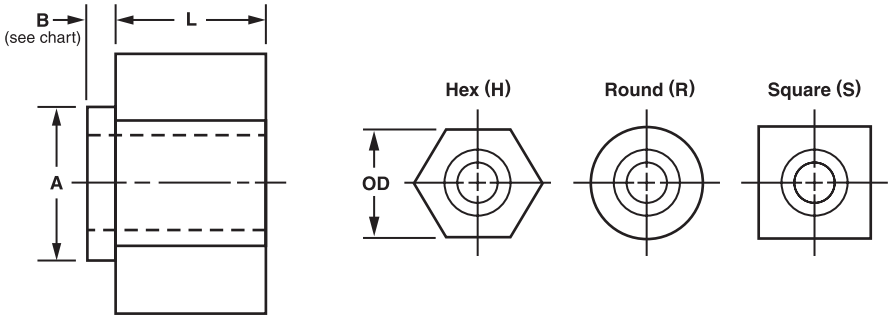
SELF-LOCATING CLEAR HOLE SPACERS



Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S.
SS	Stainless Steel	PP**	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F**	F ber

**Supplied in round only.

Board or Panel Thickness	B Recommended Shank Length
1/32	.025
1/16	.055
3/32	.085
1/8	.118
3/16	.180
1/4	.240

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

ORDER EXAMPLE:

3340 - H - A - .500 - .025 - 2

Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart	Spacer Length L: Fill in your length, any increment*	Shank Length B: Fill in your length, any increment*	Finish: See page 277

No specific increments required for length.
EXAMPLE FOR NYLON AND DELRIN PARTS: 3340-H-N-.500-.025-2 ←BLACK
Choose color from chart, otherwise Natural is provided.
Any one dimension change can be added to the end of part number .
EXAMPLE: 3340-H-A-.500-.025-3 (MOD ID = .060)

TECH TIP

Nylon and Delrin parts are supplied in nine different colors.

OD x ID +.010 -.005	A Shank Dia +.000 -.003	Basic Part Number	Hex or Round or Square	Material	L Spacer Length	B Shank Length	Finish
1/4 x .091	.188	3340					
1/4 x .120	.188	3342					
1/4 x .140	.188	3344					
5/16 x .115	.234	3346					
5/16 x .140	.234	3348					
5/16 x .171	.234	3350					
5/16 x .194	.234	3352					
3/8 x .140	.234	3354					
3/8 x .171	.234	3356					
3/8 x .194	.257	3358					
1/2 x .140	.257	3360					
1/2 x .171	.257	3362					
1/2 x .194	.257	3364					
1/2 x .219	.312	3366					
1/2 x .257	.375	3368					

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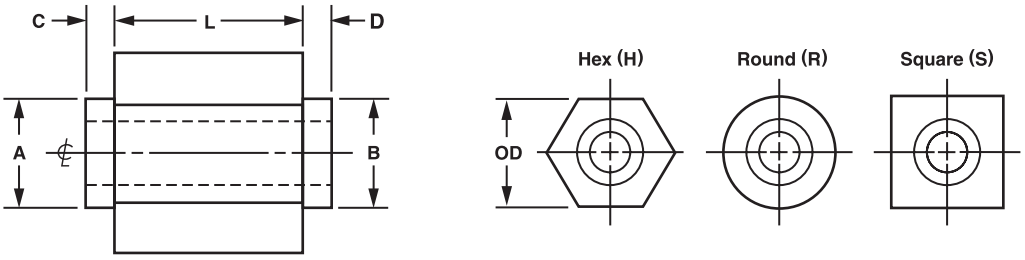
DOUBLE-ENDED, SELF-LOCATING CLEAR HOLE SPACERS



Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S.
SS	Stainless Steel	PP**	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Or Panel Thickness	C & D Recommended Shank Length
1/32	.025
1/16	.055
3/32	.085
1/8	.118
3/16	.180
1/4	.240

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

ORDER EXAMPLE:

3202 - H - A - .500 - .025 - 2

- **3202** — Basic Part Number
- **H** — Hex (H), Round (R) or Square (S)
- **A** — Material: See chart
- **.500** — Spacer Length L: Fill in your length, any increment*
- **.025** — Shank Length C & D: Fill in your length, any increment*
- **2** — Finish: See page 277

Choose color from chart, otherwise Natural is provided.
EXAMPLE FOR NYLON AND DELRIN PARTS: 3202-H-N-.500-.025-2 ←BLACK
Any one dimension change can be added to the end of part number .
EXAMPLE: 3202-H-A-.500-.025-3 (MOD ID = .060)

OD x ID +.010 -.005	A - B Shank Dia +.000 -.003	Basic Part Number	Hex or Round or Square	Material	L Spacer Length	C & D Shank Length	Finish
1/4 x .091	.188	3202					
1/4 x .120	.188	3204					
1/4 x .140	.188	3206					
5/16 x .115	.234	3208					
5/16 x .140	.234	3210					
5/16 x .171	.234	3212					
5/16 x .194	.234	3214					
3/8 x .140	.234	3216					
3/8 x .171	.234	3218					
3/8 x .194	.257	3220					
1/2 x .171	.234	3222					
1/2 x .194	.257	3224					
1/2 x .219	.312	3226					
1/2 x .257	.375	3228					

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THIN WALL TELESCOPIC BRASS TUBULAR SPACERS

ORDER EXAMPLE:

900100 - 1

Basic Part Number — Finish*: See page 277

*AVAILABLE IN ALUMINUM:
Add the letter A after part number. **EXAMPLE: 900100-A-1**

OD	ID	Length	Part Number	OD	ID	Length	Part Number	OD	ID	Length	Part Number
1/16 (.0625)	.035	.125	900100	7/32 (.219)	.191	.125	900170	3/8 (.375)	.347	.125	900240
		.187	900102			.187	900172			.187	900242
		.250	900104			.250	900174			.250	900244
		.312	900106			.312	900176			.312	900246
		.375	900108			.375	900178			.375	900248
		.438	900110			.438	900180			.438	900250
		.500	900112			.500	900182			.500	900252
3/32 (.094)	.066	.125	900114	1/4 (.250)	.222	.125	900184	13/32 (.406)	.378	.125	900254
		.187	900116			.187	900186			.187	900256
		.250	900118			.250	900188			.250	900258
		.312	900120			.312	900190			.312	900260
		.375	900122			.375	900192			.375	900262
		.438	900124			.438	900194			.438	900264
		.500	900126			.500	900196			.500	900266
1/8 (.125)	.097	.125	900128	9/32 (.281)	.253	.125	900198	7/16 (.438)	.409	.125	900268
		.187	900130			.187	900200			.187	900270
		.250	900132			.250	900202			.250	900272
		.312	900134			.312	900204			.312	900274
		.375	900136			.375	900206			.375	900276
		.438	900138			.438	900208			.438	900278
		.500	900140			.500	900210			.500	900280
5/32 (.156)	.128	.125	900142	5/16 (.312)	.285	.125	900212	15/32 (.468)	.440	.125	900282
		.187	900144			.187	900214			.187	900284
		.250	900146			.250	900216			.250	900286
		.312	900148			.312	900218			.312	900288
		.375	900150			.375	900220			.375	900290
		.438	900152			.438	900222			.438	900292
		.500	900154			.500	900224			.500	900294
3/16 (.187)	.159	.125	900156	11/32 (.344)	.316	.125	900226	1/2 (.500)	.472	.125	900296
		.187	900158			.187	900228			.187	900298
		.250	900160			.250	900230			.250	900300
		.312	900162			.312	900232			.312	900302
		.375	900164			.375	900234			.375	900304
		.438	900166			.438	900236			.438	900306
		.500	900168			.500	900238			.500	900308

THIN WALL TELESCOPIC BRASS TUBULAR SPACERS

ORDER EXAMPLE:

900310 - 1

Basic Part Number — Finish*: See page 277

*AVAILABLE IN ALUMINUM:
Add the letter A after part number. **EXAMPLE: 900310-A-1**

OD	ID	Length	Part Number	OD	ID	Length	Part Number	OD	ID	Length	Part Number
3/32 (.094)	.036	.125	900310	7/32 (.219)	.161	.125	900366	11/32 (.344)	.286	.125	900422
		.187	900312			.187	900368			.187	900424
		.250	900314			.250	900370			.250	900426
		.312	900316			.312	900372			.312	900428
		.375	900318			.375	900374			.375	900430
		.438	900320			.438	900376			.438	900432
		.500	900322			.500	900378			.500	900434
1/8 (.125)	.067	.125	900324	1/4 (.250)	.192	.125	900380	3/8 (.375)	.317	.125	900436
		.187	900326			.187	900382			.187	900438
		.250	900328			.250	900384			.250	900440
		.312	900330			.312	900386			.312	900442
		.375	900332			.375	900388			.375	900444
		.438	900334			.438	900390			.438	900446
		.500	900336			.500	900392			.500	900448
5/32 (.156)	.098	.125	900338	9/32 (.281)	.223	.125	900394	7/16 (.438)	.380	.125	900450
		.187	900340			.187	900396			.187	900452
		.250	900342			.250	900398			.250	900454
		.312	900344			.312	900400			.312	900456
		.375	900346			.375	900402			.375	900458
		.438	900348			.438	900404			.438	900460
		.500	900350			.500	900406			.500	900462
3/16 (.187)	.129	.125	900352	5/16 (.312)	.254	.125	900408	1/2 (.500)	.442	.125	900464
		.187	900354			.187	900410			.187	900466
		.250	900356			.250	900412			.250	900468
		.312	900358			.312	900414			.312	900470
		.375	900360			.375	900416			.375	900472
		.438	900362			.438	900418			.438	900474
		.500	900364			.500	900420			.500	900476

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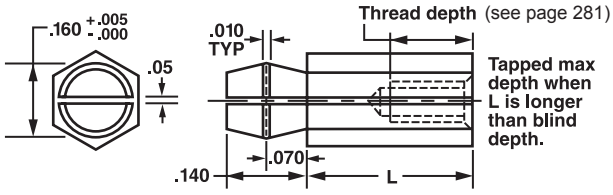
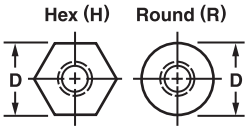
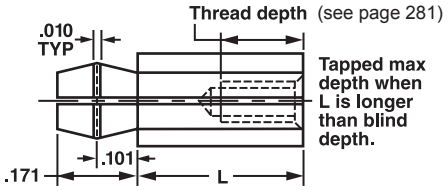
FEMALE "SNAP-IN" THREADED STANDOFF

1/16" Board Thickness
(To snap fit in a .152 ±.002 dia hole)





3/32" Board Thickness
(To snap fit in a .152 ±.002 dia hole)



ORDER EXAMPLE:

1130 - H - A - .500 - SN

- 1130 — Basic Part Number
- H — Hex
- A — Material: See chart
- .500 — Length
- SN — Snap-in Board

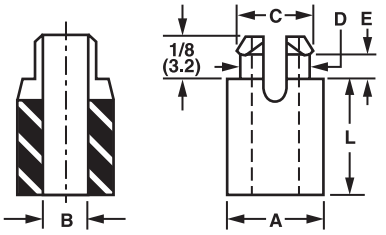
Select spacer requirements from pages 9-10.
For Snap-in 1/16 board, add SN to part number. **EXAMPLE: 1130-H-A-.500-SN**
For Snap-in 3/32 board add SNN to part number. **EXAMPLE: 1130-H- A-.500-SNN**
For Nylon and Delrin parts, choose color from chart, otherwise Natural is provided.
EXAMPLE: 1130-H-N-.500-SN-2 ← BLACK

Available Material (see page 275)			
A	Aluminum	B	Brass
C*	Copper	S	Steel
PA*	A.B.S.	SS	Stainless Steel
PP*	P.V.C.	N	Nylon
T	Teflon	D	Delrin
UL*	ULTEM 1000		

*Supplied in round only.

SELF-RETAINING SPACERS

Self-retaining and aligning • 1/16" Board Thickness • Material: Nylon LP410



ORDER EXAMPLE:

561 - .526 - 1

- 561 — Basic Part Number
- .526 — Length available from 1/8 to 5/8 or fill in your own length*
- 1 — Color: See chart

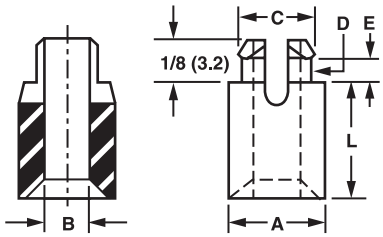
*No specific increments required for length.

Color	Code	Color	Code
Natural	1	Brown	6
Black	2	Orange	7
Red	3	Green	8
Blue	4	Yellow	9
Purple	5		

Basic Part No.	A Dim Inches (mm)	B Dim Inches (mm)	C Dim Inches (mm)	D Dim Inches (mm)	E Dim Inches (mm)	Slot Width	Screw Size	Mounting Hole +.003 In. (mm)
561	.260 (6.6)	.125 (3.1)	.203	.182	.064	.050	#4	.187 (4.7)
562	9/32 (7.1)	.153 (3.9)	.250	.228	.064	.050	#6	.234 (5.9)
563	9/32 (7.1)	.169 (4.3)	.250	.228	.064	.050	#8	.234 (5.9)

SELF-RETAINING STACKING SPACERS

Self-retaining and aligning • 1/16" Board Thickness • Material: Nylon LP410



ORDER EXAMPLE:

564 - .526 - 1

- 564 — Basic Part Number
- .526 — Length available from 1/8 to 1.00 or fill in your own length*
- 1 — Color: See chart

*No specific increments required for length.

Color	Code	Color	Code
Natural	1	Brown	6
Black	2	Orange	7
Red	3	Green	8
Blue	4	Yellow	9
Purple	5		

Basic Part No.	A Dim Inches (mm)	B Dim Inches (mm)	C Dim Inches (mm)	D Dim Inches (mm)	E Dim Inches (mm)	Slot Width	Screw Size	Mounting Hole +.003 In. (mm)
564	1/4 (6.3)	.125 (3.1)	.203	.182	.064	.050	#4*	.187 (4.7)
565	5/16 (7.1)	.153 (3.9)	.250	.228	.064	.050	#6**	.234 (5.9)
566	5/16 (7.1)	.169 (4.3)	.250	.228	.064	.050	#8**	.234 (5.9)

*#4 screw size in lengths up to 5/8 (15.9) only.
**#6 and #8 screw size not available in 1/8 (3.2) or 3/16 (4.8) lengths.

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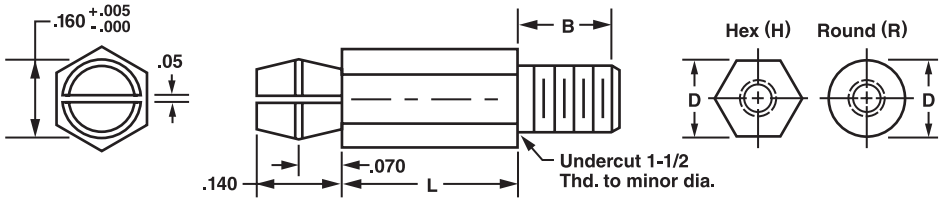
MALE "SNAP-IN" THREADED STANDOFF

1/16" Board Thickness

(To snap fit in a .152 ±.002 dia. hole in a .062 nom. thick board)



Available Material (see page 275)			
A	Aluminum	B	Brass
C*	Copper	S	Steel
PA*	A.B.S.	SS	Stainless Steel
PP*	P.V.C.	N	Nylon
T	Teflon	D	Delrin
UL*	ULTEM 1000		

*Supplied in round only.

Thread	B
2-56	3/16
4-40	1/4
6-32	3/8
8-32	7/16
10-32	1/2

ORDER EXAMPLE:

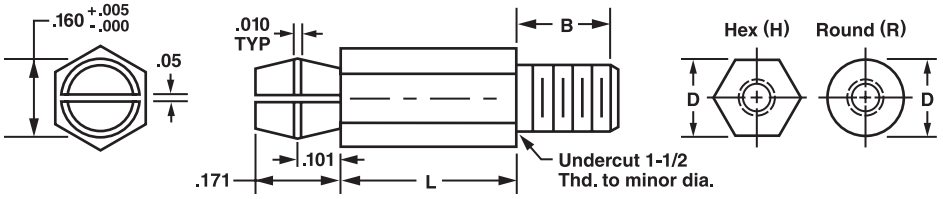
14500 - H - SS - .250 - 2

- 14500 — Basic Part Number
- H — Hex (H) or Round (R)
- SS — Material: See chart
- .250 — Length: Fill in your length, any increment
- 2 — Finish: See page 277

D	Thread	Basic Part No. 1/16" Board	Thickness	H or R	Material	Length
3/16	2-56	14500				
	4-40	14502				
	6-32	14504				
1/4	2-56	14506				
	4-40	14508				
	6-32	14510				
	8-32	14512				
5/16	2-56	14514				
	4-40	14516				
	6-32	14518				
	8-32	14520				
	10-32	14522				
3/8	2-56	14524				
	4-40	14526				
	6-32	14528				
	8-32	14530				
	10-32	14532				

3/32" Board Thickness

(To snap fit in a .152 ±.002 dia. hole in a .093 nom. thick board)



Available Material (see page 275)			
A	Aluminum	B	Brass
C*	Copper	S	Steel
PA*	A.B.S.	SS	Stainless Steel
PP*	P.V.C.	N	Nylon
T	Teflon	D	Delrin
UL*	ULTEM 1000		

*Supplied in round only.

Thread	B
2-56	3/16
4-40	1/4
6-32	3/8
8-32	7/16
10-32	1/2

ORDER EXAMPLE:

14501 - H - SS - .250 - 12

- 14501 — Basic Part Number
- H — Hex (H) or Round (R)
- SS — Material: See chart
- .250 — Length: Fill in your length, any increment
- 12 — Finish: See page 277

D	Thread	Basic Part No. 3/32" Board	Thickness	H or R	Material	Length
3/16	2-56	14501				
	4-40	14503				
	6-32	14505				
1/4	2-56	14507				
	4-40	14509				
	6-32	14511				
	8-32	14513				
5/16	2-56	14515				
	4-40	14517				
	6-32	14519				
	8-32	14521				
	10-32	14523				
3/8	2-56	14525				
	4-40	14527				
	6-32	14529				
	8-32	14531				
	10-32	14533				

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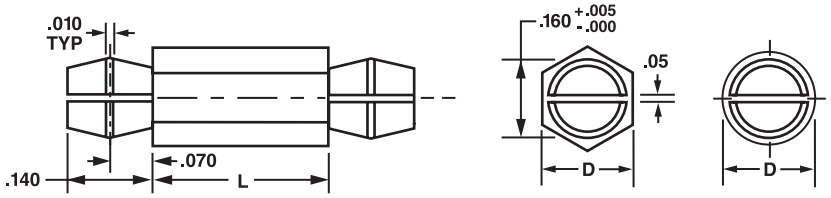
DOUBLE "SNAP-IN" STANDOFF

1/16" Board Thickness

(To snap fit in a .152 ±.002 dia. hole in a .062 nom. thick board)



ORDER EXAMPLE:

14600 - H - SS - .250 - 12

14600	H	SS	.250	12
Basic Part Number	Hex (H) or Round (R)	Material: See chart	Length: Fill in your length, any increment	Finish: See page 277

Available Material (see page 275)			
A	Aluminum	B	Brass
C*	Copper	S	Steel
PA*	A.B.S.	SS	Stainless Steel
PP*	P.V.C.	N	Nylon
T	Teflon	D	Delrin
UL*	ULTEM 1000		

*Supplied in round only.

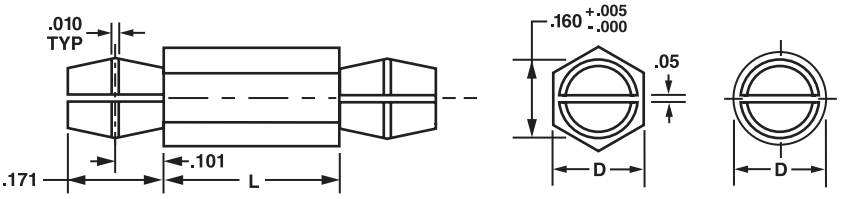
D	Basic Part Number	H or R	Material	Length	Finish
3/16	14600				
1/4	14606				
5/16	14614				
3/8	14624				

TECH TIP

ASM has the machine capability to manufacture root radius threads (UNJ).

3/32" Board Thickness

(To snap fit in a .152 ±.002 dia. hole in a .093 nom. thick board)



ORDER EXAMPLE:

14601 - H - SS - .250 - 12

14601	H	SS	.250	12
Basic Part Number	Hex (H) or Round (R)	Material: See chart	Length: Fill in your length, any increment	Finish: See page 277

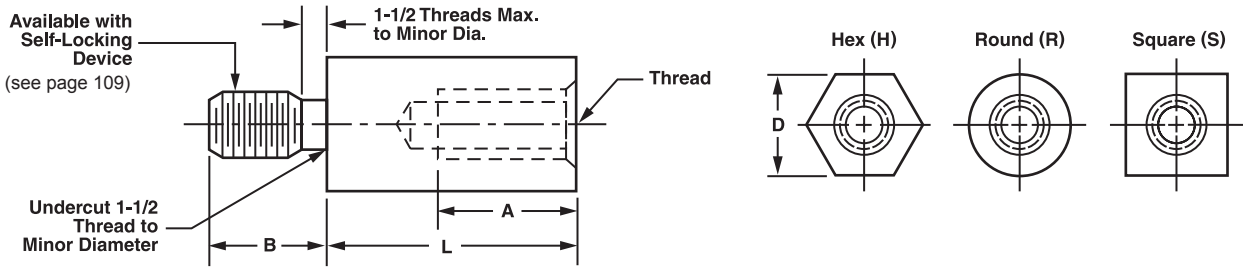
Available Material (see page 275)			
A	Aluminum	B	Brass
C*	Copper	S	Steel
PA*	A.B.S.	SS	Stainless Steel
PP*	P.V.C.	N	Nylon
T	Teflon	D	Delrin
UL*	ULTEM 1000		

*Supplied in round only.

D	Basic Part Number	H or R	Material	Length	Finish
3/16	14601				
1/4	14603				
5/16	14605				
3/8	14607				

MALE/FEMALE THREADED STANDOFF

See page 29 for Self-Forming Male/Female Standoffs.
See page 279 for Metric ordering information.



ORDER EXAMPLE:

14002 - H - SS - .250 - 12

Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart	Length: Fill in your length, any increment	Finish: See page 277

If a different thread on each end is needed, including **Metric**, add to end of part number. **EXAMPLE: 14002-H- SS-.250-12 (one end 4-40 thd.)**
If a dimensional or thread change is required (A or B), add to part number.
EXAMPLE: 14002-H-SS-.250-12 (B=440 x 3/8)
Be sure both Thread and Length are specified.

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S.
SS	Stainless Steel	PP**	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F**	F ber

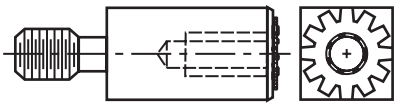
**Supplied in round only.

Thread	B	A Thread Depth Min*	Min. L*
2-56	3/16	3/16	1/4
4-40	1/4	1/4	3/8
6-32	3/8	3/8	7/16
8-32	7/16	7/16	1/2
10-24	1/2	1/2	5/8
10-32	1/2	1/2	5/8
1/4-20	1/2	1/2	5/8
12-24	1/2	1/2	5/8

*When the body length L is less than or equal to the thread depth A, the maximum number of threads possible will be provided.

Metric Thread	A Min Depth	B
M 2.5 x .45	3.97	4.76
3.0 x 0.5	4.76	6.35
3.5 x 0.6	6.35	9.53
4.0 x 0.7	9.53	11.10
5.0 x 0.8	9.53	12.70
6.0 x 1.0	12.70	15.00
8.0 x 1.25	12.70	15.00

For Locking Male/Female Threaded Standoff, see page 40.



D	Thread	Basic Part Number	H or R or S	Material	Length	Finish
5/32	2-56	14002				
	4-40	14004				
3/16	2-56	14000				
	4-40	14010				
	6-32	14015				
1/4	2-56	14020				
	4-40	14030				
	6-32	14040				
	8-32	14050				
5/16	2-56	14060				
	4-40	14070				
	6-32	14080				
	8-32	14090				
	10-32	14100				
3/8	2-56	14110				
	4-40	14120				
	6-32	14130				
	8-32	14140				
	10-32	14150				

TECH TIP

If a deeper thread depth is required, the integrity of the male thread can be jeopardized due to the drill depth.
(see chart above for details)

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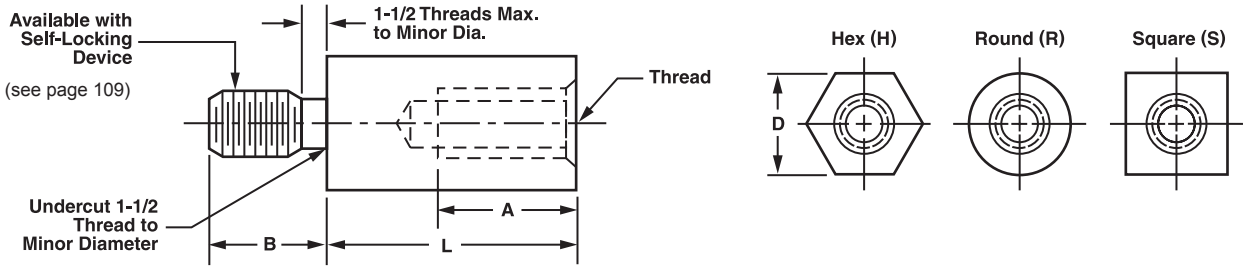
MALE/FEMALE THREADED STANDOFF

See page 29 for Self-Forming Male/Female Standoffs.
See page 279 for Metric ordering information.



ORDER EXAMPLE:

14160 - H - SS - .250 - 12

14160	H	SS	.250	12
Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart	Length: Fill in your length, any increment	Finish: See page 277

If a different thread on each end is needed, including **Metric**, add to end of part number. **EXAMPLE: 14160-H- SS-.250-12 (one end 4-40 thd.)**
If a dimensional or thread change is required (A or B), add to part number.
EXAMPLE: 14160-H-SS-.250-12 (B=440 x 3/8)
Be sure both Thread and Length are specified.

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S.
SS	Stainless Steel	PP**	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F**	F ber

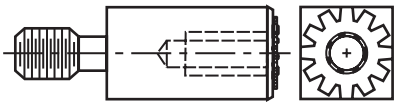
**Supplied in round only.

Thread	B	A Thread Depth Min*	Min. L*
2-56	3/16	3/16	1/4
4-40	1/4	1/4	3/8
6-32	3/8	3/8	7/16
8-32	7/16	7/16	1/2
10-24	1/2	1/2	5/8
10-32	1/2	1/2	5/8
1/4-20	1/2	1/2	5/8
12-24	1/2	1/2	5/8

*When the body length L is less than or equal to the thread depth A, the maximum number of threads possible will be provided.

Metric Thread	A Min Depth	B
M 2.5 x .45	3.97	4.76
3.0 x 0.5	4.76	6.35
3.5 x 0.6	6.35	9.53
4.0 x 0.7	9.53	11.10
5.0 x 0.8	9.53	12.70
6.0 x 1.0	12.70	15.00
8.0 x 1.25	12.70	15.00

For Locking Male/Female Threaded Standoff, see page 40.

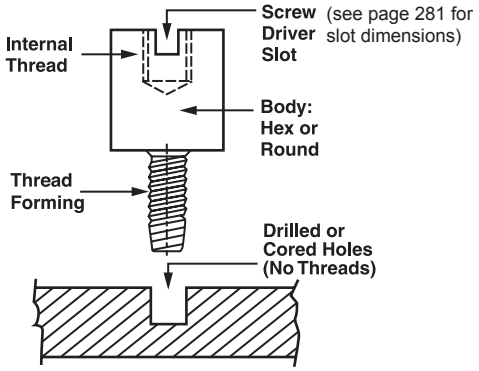


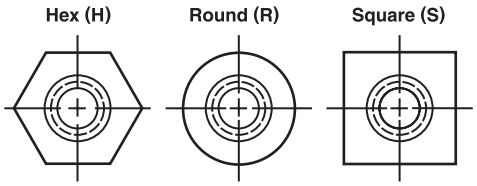
D	Thread	Basic Part Number	H or R or S	Material	Length	Finish
7/16	2-56	14160				
	4-40	14170				
	6-32	14180				
	8-32	14190				
	10-24	14200				
	10-32	14210				
	12-24	14220				
	1/4-20	14230				
1/2	2-56	14240				
	4-40	14250				
	6-32	14260				
	8-32	14270				
	10-24	14280				
	10-32	14290				
	12-24	14300				
	1/4-20	14310				

TECH TIP

If a deeper thread depth is required, the integrity of the male thread can be jeopardized due to the drill depth.
(see chart above for details)

MALE/FEMALE SELF-FORMING STANDOFFS





Material Specifications and Finishes (see page 275)	
S	Steel Case Hardened (.010 Deep) 12L14 or Equivalent
SS	Stainless Steel (300 Series)

ORDER EXAMPLE:

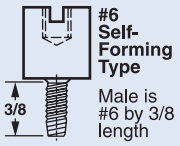
14040 - H - SS - .500 - 7

- **14040** — Basic Part Number
- **H** — Hex (H), Round (R) or Square (S)
- **SS** — Material: See chart
- **.500** — Length: Fill in your length, any increment
- **7** — Finish: See page 277

Choose any Male/Female Standoff (Hex, Round or Square) from pages 27-28.

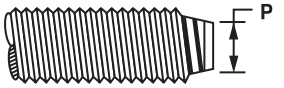
The thread size and length of the male is determined by the part number . For Self-Forming, add the letter C to part number. **EXAMPLE: 14040-H-S-.500-7-C**

If a different male length (B), a different Internal Thread, or depth in female A is required, add requirement to the part number. **EXAMPLE: 14040-H-S-.500-7-C (A=4-40 X 1/4 deep)**



#6 Self-Forming Type
Male is #6 by 3/8 length

FORMING TYPE SELF-TAPPING



Type C

Tap Size	B Male Length
2	3/16
4	1/4
6	3/8
8	7/16
10	1/2
12	1/2
1/4	1/2

THREAD FORM TAPPING

Because thread form ta pping involves metal displacement, tap drill size becomes more critical than in conventional ta pping. Charts sho wing ta p drill sizes for conventional tapping are of no use in setting up a thread form tapping procedure.

Experimental data shows that thread percenta ges in thread form ta pping should fall between a maximum of 75% and a minimum of 55% of full thread. Actually, between 65% and 55% of full thread usually gives adequate strength, together with the added advanta ges of longer tool life and lower torque requirements.

Recommended Drill Sizes for Thread Form Tapping

Basic Major Diameter	Theoretical Tap Drill Size			Recommended Tap Drill to Approx. 65% Thread	
	55% Thread	65% Thread	75% Thread	Drill Size	Drill Hole Size
.0860	.0793	.0781	.0769	5/64	.0781
.1120	.1027	.1010	.0993	38	.1015
.1380	.1263	.1242	.1221	1/8	.1250
.1640	.1523	.1502	.1481	25	.1495
.1900	.1744	.1716	.1688	11/64	.1719
.2160	.2004	.1976	.1948	8	.1990
.2500	.2313	.2279	.2245	#1	.2280

The follo wing formula, derived from research da ta, may be used in determining the theoretical drill sizes for various percenta ges of full thread.

$$\left(\text{Theor. Drill Size}\right) = \left(\text{Basic Thread OD}\right) - \left(\frac{.0068 \times \%\ \text{of Th'd}}{\text{Threads per inch}}\right)$$

Theor. Drill Size (For 55% Th'd) = Basic OD - $\frac{.374}{N}$

Theor. Drill Size (For 65% Th'd) = Basic OD - $\frac{.422}{N}$

Theor. Drill Size (For 75% Th'd) = Basic OD - $\frac{.510}{N}$

N = Threads per inch

NOTE: The above formula is for a verage conditions. If thread percenta ge is highly critical, or the workpiece is extremely hard or soft, user must experiment to arrive at desired hole size.

EXAMPLE: To select the proper ta p drill for a 5/16-18 UNC form tapped hole:

Basic Thread O.D. = .3125 Threads per inch = 18

Max Drill Size (For 55% Th'd) = .3125 - $\frac{.0068 \times 55}{18}$ = .29172"

Min Drill Size (For 75% Th'd) = .3125 - $\frac{.0068 \times 75}{18}$ = .28417"

Since a size L drill has an OD of .2900", it would be a logical choice. This drill should give a thread percenta ge of between 55% and 65% of full thread under average conditions.

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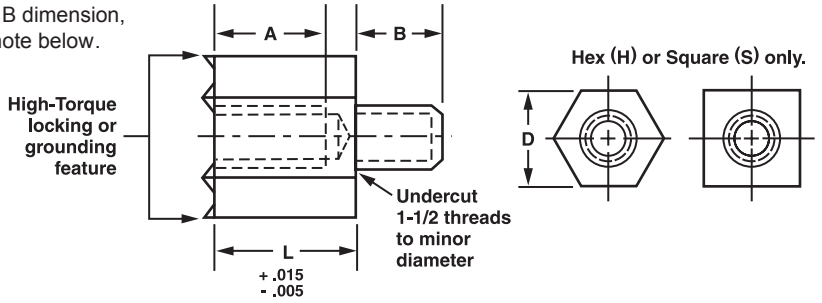
MALE/FEMALE THREADED STANDOFF
with Hi-Torque Locking and Grounding Feature

If a different A or B dimension, is required, see note below.



ORDER EXAMPLE:

14400 - H - SS - .250 - 12

Basic Part Number	Hex (H) or Square (S)	Material: See chart	Length: Fill in your length, any increment	Finish: See page 277

If dimensional or thread change is required (A or B), add to part number.
EXAMPLE: 14400-H-SS-.250-12 (B=440 x 3/8)
Both Thread and Length must be specified.

Thread	B	A Thread Depth Min*	Min. L*
2-56	3/16	3/16	1/4
4-40	1/4	1/4	3/8
6-32	3/8	3/8	7/16
8-32	7/16	7/16	1/2
10-24	1/2	1/2	5/8
10-32	1/2	1/2	5/8
1/4-20	1/2	1/2	5/8
12-24	1/2	1/2	5/8

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

*When the body length L is less than or equal to the thread depth A, the maximum number of threads possible will be provided.

TECH TIP

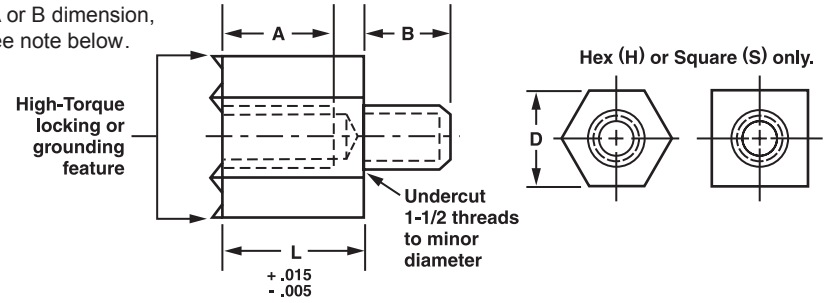
If a deeper thread depth is required, the integrity of the male thread can be jeopardized due to the drill depth.
(see chart at left for details)

D	Thread	Basic Part Number	H or S	Material	Length	Finish
5/32	2-56	14400				
	4-40	14402				
3/16	2-56	14404				
	4-40	14406				
	6-32	14408				
1/4	2-56	14410				
	4-40	14412				
	6-32	14414				
	8-32	14415				
5/16	2-56	14418				
	4-40	14420				
	6-32	14422				
	8-32	14424				
	10-32	14426				
3/8	2-56	14428				
	4-40	14430				
	6-32	14432				
	8-32	14434				

NOTE: See page 29 for Self-Forming Male/Female Standoffs.

MALE/FEMALE THREADED STANDOFF
with Hi-Torque Locking and Grounding Feature

If a different A or B dimension, is required, see note below.



ORDER EXAMPLE:

14436 - H - SS - .250 - 12

14436	H	SS	.250	12
Basic Part Number	Hex (H) or Square (S)	Material: See chart	Length: Fill in your length, any increment	Finish: See page 277

If dimensional or thread change is required (A or B), add to part number.
EXAMPLE: 14436-H-SS-.250-12 (B=440 x 3/8)
Both Thread and Length must be specified.

Thread	B	A Thread Depth Min*	Min. L*
2-56	3/16	3/16	1/4
4-40	1/4	1/4	3/8
6-32	3/8	3/8	7/16
8-32	7/16	7/16	1/2
10-24	1/2	1/2	5/8
10-32	1/2	1/2	5/8
1/4-20	1/2	1/2	5/8
12-24	1/2	1/2	5/8

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

*When the body length L is less than or equal to the thread depth A, the maximum number of threads possible will be provided.

TECH TIP

If a deeper thread depth is required, the integrity of the male thread can be jeopardized due to the drill depth.
(see chart at left for details)

D	Thread	Basic Part Number	H or S	Material	Length	Finish
3/8	10-32	14436				
7/16	2-56	14460				
	4-40	14462				
	6-32	14464				
	8-32	14466				
	10-24	14468				
	10-32	14470				
	12-24	14472				
	1/4-20	14474				
1/2	2-56	14476				
	4-40	14478				
	6-32	14480				
	8-32	14482				
	10-24	14484				
	10-32	14486				
	12-24	14488				
	1/4-20	14490				

NOTE: See page 29 for Self-Forming Male/Female Standoffs.

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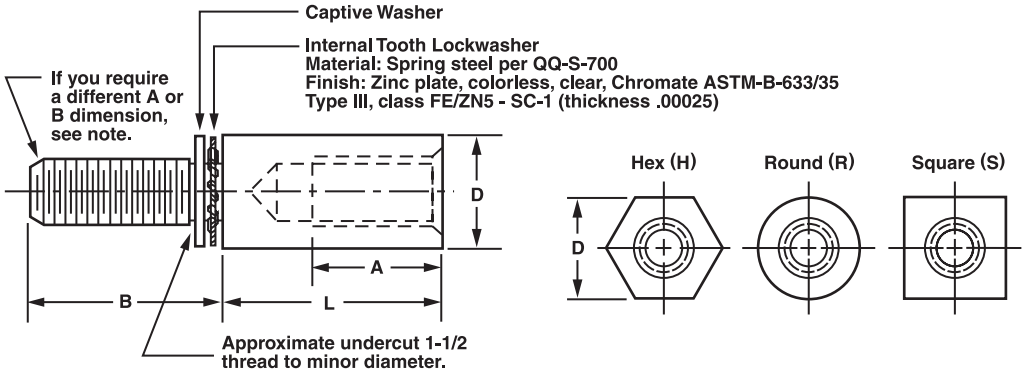
MALE/FEMALE LOCKING THREADED STANDOFF ASSEMBLY



ORDER EXAMPLE:

14021 - H - .500 - SS - A - 12

14021	H	.500	SS	A	12
Basic Part Number	Hex (H), Round (R) or Square (S)	Length: Fill in your length, any increment	Material: See chart	Assembly	Finish: See page 277

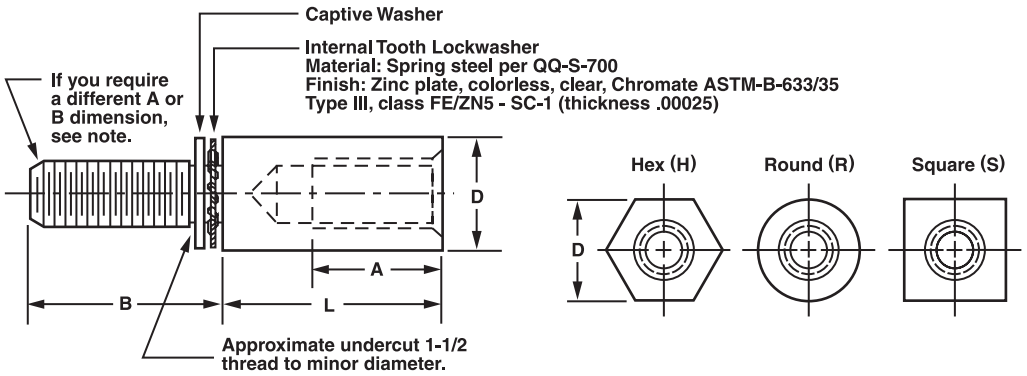
If a different male Leng h (B) or a dif ferent internal thread depth in female A is required, add requirement to the part number.
Example: 14021-H-.500-SS-A-12 (A = 4-40 x 1/4 deep)

Available Material			
	Standoff	Captive Washer	Internal Tooth Lock Washer
B	Brass, Composition 360	Brass conforming to ASTM B3	Material - Spring Steel per QQ-S-700 Finish - Cadmium Plate per QQ-P-416 (Clear)
S	Steel Low Carbon 1018	Carbon Steel conforming to ASTM 108 ASTM - A 569	
SS	Stainless Steel 18-8 302 - 304 Series	Stainless Steel conforming to AISI Type 302 or 305	

D	Basic Part Number	Thread Data			Captive Washer	Internal Tooth Lock Washer			
						Outside Dia		Thickness	
		Size	B Length	A Thd Depth Min*	Outside Dia ± 1/64	Min	Max	Min	Max
1/4	14021	2-56	3/16	3/16	1/4	.175	.200	.010	.015
	14031	4-40	1/4	1/4	5/16	.255	.270	.015	.019
	14041	6-32	3/8	3/8	5/16	.275	.295	.017	.021
	14051	8-32	7/16	7/16	3/8	.325	.340	.018	.023
5/16	14061	2-56	3/16	3/16	3/8	.175	.200	.010	.015
	14071	4-40	1/4	1/4	3/8	.255	.270	.015	.019
	14081	6-32	3/8	3/8	3/8	.275	.295	.017	.021
	14091	8-32	7/16	7/16	3/8	.325	.340	.018	.023
	14101	10-32	1/2	1/2	7/16	.365	.381	.020	.025
3/8	14111	2-56	3/16	3/16	7/16	.175	.200	.010	.015
	14121	4-40	1/4	1/4	7/16	.255	.270	.015	.019
	14131	6-32	3/8	3/8	7/16	.275	.295	.017	.021
	14141	8-32	7/16	7/16	7/16	.325	.340	.018	.023
	14151	10-32	1/2	1/2	7/16	.365	.381	.020	.025

*A dimension will be maximum depth (minimum or 1-1/2 threads).

MALE/FEMALE LOCKING THREADED STANDOFF ASSEMBLY



ORDER EXAMPLE:

14161 - H - .500 - SS - A - 12

Basic Part Number	Hex (H), Round (R) or Square (S)	Length: Fill in your length, any increment	Material: See chart	Assembly	Finish: See page 277

If a different male Leng h (B) or a dif ferent internal thread depth in female A is required, add requirement to the part number.
Example: 14161-H-.500-SS-A-12 (A = 4-40 x 1/4 deep)

Available Material			
	Standoff	Captive Washer	Internal Tooth Lock Washer
B	Brass, Composition 360	Brass conforming to ASTM B3	Material - Spring Steel per QQ-S-700
S	Steel Low Carbon 1018	Carbon Steel conforming to ASTM 108 ASTM - A 569	
SS	Stainless Steel 18-8 302 - 304 Series	Stainless Steel conforming to AISI Type 302 or 305	

D	Basic Part Number	Thread Data			Captive Washer	Internal Tooth Lock Washer			
						Outside Dia		Thickness	
		Size	B Length	A Thd Depth Min*	Outside Dia ± 1/64	Min	Max	Min	Max
7/16	14161	2-56	3/16	3/16	1/2	.175	.200	.010	.015
	14171	4-40	1/4	1/4		.255	.270	.015	.019
	14181	6-32	3/8	3/8		.275	.295	.017	.021
	14191	8-32	7/16	7/16		.325	.340	.018	.023
	14211	10-32	1/2	1/2		.365	.381	.020	.025
	14231	1/4-20	1/2	1/2		.460	.478	.023	.028
1/2	14241	2-56	3/16	3/16	9/16	.175	.200	.010	.015
	14251	4-40	1/4	1/4		.255	.270	.015	.019
	14261	6-32	3/8	3/8		.275	.295	.017	.021
	14271	8-32	7/16	7/16		.325	.340	.018	.023
	14291	10-32	1/2	1/2		.365	.381	.020	.025
	14311	1/4-20	1/2	1/2		.460	.478	.023	.028

*A dimension will be maximum depth (minimum or 1-1/2 threads).

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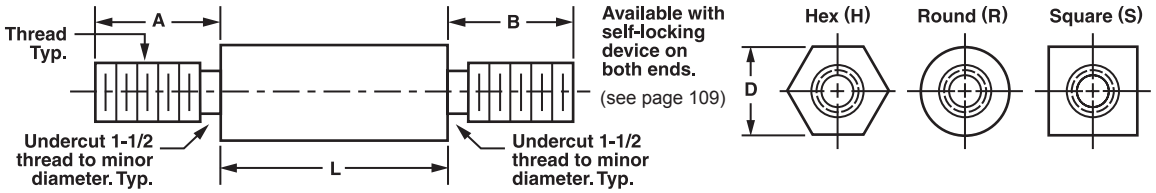
DOUBLE-ENDED MALE STANDOFFS



Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S.
SS	Stainless Steel	PP**	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F**	F ber

**Supplied in round only.

Thread	A-B
2-56	3/16
4-40	1/4
6-32	3/8
8-32	7/16
10-24	1/2
10-32	1/2
1/4-20	1/2
1/4-28	1/2

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

ORDER EXAMPLE:

20500 - H - SS - .250 - 12

Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart	Length: Fill in your length, any increment	Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 20500-H-N-.250-2 ←BLACK
Choose color from chart, otherwise Natural is provided.
When A and B threads are different, specify both Thread and Leng h, add them to the closest part number.
EXAMPLE: 20500-H-SS-.250-12 (A-4-40 X 1/4, B=6-32 X 3/8)

TECH TIP

All standoffs and spacers can be dimensionally customized to fit your application.

D x THD	Basic Part Number	H or R or S	Material	Length	Finish
3/16 x 2-56	20500				
3/16 x 4-40	20502				
1/4 x 2-56	20504				
1/4 x 4-40	20506				
1/4 x 6-32	20508				
1/4 x 8-32	20510				
5/16 x 2-56	20512				
5/16 x 4-40	20514				
5/16 x 6-32	20516				
5-16 x 8-32	20518				
5/16 x 10-32	20520				
3/8 x 2-56	20522				
3/8 x 4-40	20524				
3/8 x 6-32	20526				
3/8 x 8-32	20528				
3/8 x 10-32	20530				
3/8 x 1/4-20	20532				
3/8 x 1/4-28	20533				

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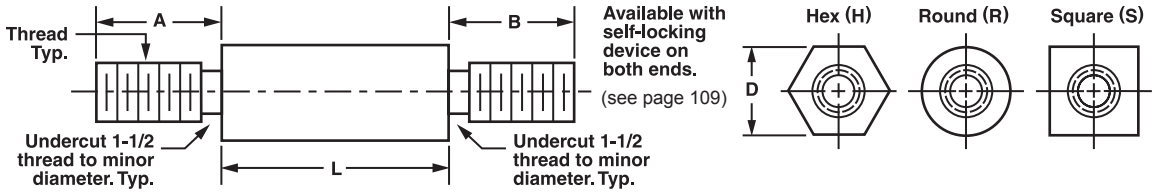
DOUBLE-ENDED MALE STANDOFFS



Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S.
SS	Stainless Steel	PP**	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F**	F ber

**Supplied in round only.

Thread	A-B
2-56	3/16
4-40	1/4
6-32	3/8
8-32	7/16
10-24	1/2
10-32	1/2
1/4-20	1/2
1/4-28	1/2

ORDER EXAMPLE:

20034 - H - SS - .250 - 12

Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart	Length: Fill in your length, any increment	Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 20034-H-N-.250-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
When A and B threads are different, specify both Thread and Leng h, add them to the closest part number.
EXAMPLE: 20034-H-SS-.250-12 (A-4-40 X 1/4, B=6-32 X 3/8)

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

D x THD	Basic Part Number	H or R or S	Material	Length	Finish
7/16 x 2-56	20034				
7/16 x 4-40	20036				
7/16 x 6-32	20038				
7/16 x 8-32	20040				
7/16 x 10-24	20042				
7/16 x 10-32	20044				
7/16 x 1/4-20	20046				
7/16 x 1/4-28	20048				
1/2 x 2-56	20050				
1/2 x 4-40	20052				
1/2 x 6-32	20054				
1/2 x 8-32	20056				
1/2 x 10-24	20058				
1/2 x 10-32	20060				
1/2 x 1/4-20	20062				
1/2 x 1/4-28	20064				

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DOUBLE-ENDED MALE STANDOFFS
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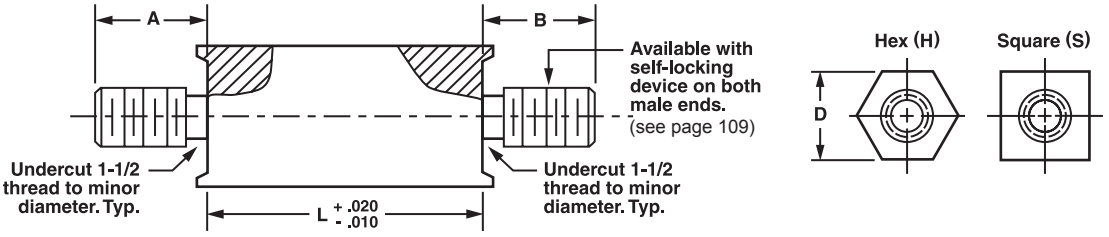


ORDER EXAMPLE:

20600 - H - SS - .250 - 12

Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart	Length: Fill in your length, any increment	Finish: See page 277

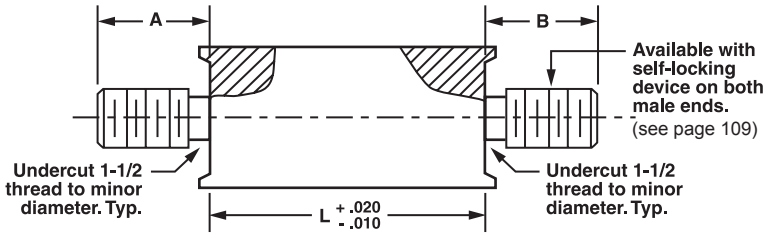
When A and B threads are different, specify both Thread and Leng h, add them to the closest part number.
EXAMPLE: 20600-H-SS-.250-12 (A-4-40 X 1/4, B=6-32 X 3/8)

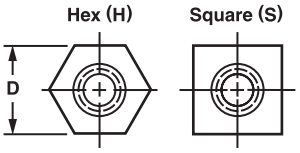
Thread	A-B
2-56	3/16
4-40	1/4
6-32	3/8
8-32	7/16
10-24	1/2
10-32	1/2
1/4-20	1/2
1/4-28	1/2

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

D x THD	Basic Part Number	H or R or S	Material	Length	Finish
3/16 x 2-56	20600				
3/16 x 4-40	20602				
1/4 x 2-56	20604				
1/4 x 4-40	20606				
1/4 x 6-32	20608				
1/4 x 8-32	20610				
5/16 x 2-56	20612				
5/16 x 4-40	20614				
5/16 x 6-32	20616				
5/16 x 8-32	20618				
5/16 x 10-32	20620				
3/8 x 2-56	20622				
3/8 x 4-40	20624				
3/8 x 6-32	20626				
3/8 x 8-32	20628				
3/8 x 10-32	20630				
3/8 x 1/4-20	20632				
3/8 x 1/4-28	20634				

DOUBLE-ENDED MALE STANDOFFS
with Hi-Torque Feature





ORDER EXAMPLE:

20636 - H - SS - .250 - 12

Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart	Length: Fill in your length, any increment	Finish: See page 277

When A and B threads are different, specify both Thread and Leng h, add them to the closest part number.
EXAMPLE: 20636-H-SS-.250-12 (A-4-40 X 1/4, B=6-32 X 3/8)

Thread	A-B
2-56	3/16
4-40	1/4
6-32	3/8
8-32	7/16
10-24	1/2
10-32	1/2
1/4-20	1/2
1/4-28	1/2

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

D x THD	Basic Part Number	H or R or S	Material	Length	Finish
7/16 x 2-56	20636				
7/16 x 4-40	20638				
7/16 x 6-32	20640				
7/16 x 8-32	20642				
7/16 x 10-24	20644				
7/16 x 10-32	20646				
7/16 x 1/4-20	20648				
7/16 x 1/4-28	20650				
1/2 x 2-56	20652				
1/2 x 4-40	20654				
1/2 x 6-32	20656				
1/2 x 8-32	20658				
1/2 x 10-24	20660				
1/2 x 10-32	20662				
1/2 x 1/4-20	20664				
1/2 x 1/4-28	20666				

TECH TIP

Be sure to check out our new 3D CAD model repository at www.accuratescrew.com. Each model is custom generated as per your specifications.

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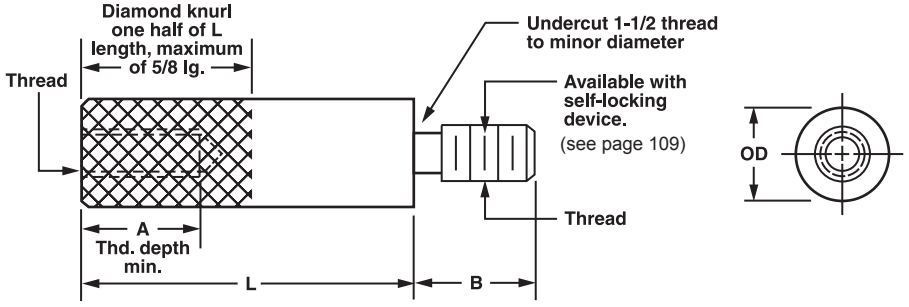
KNURLED MALE/FEMALE THREADED STANDOFF



Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

ORDER EXAMPLE:

113918 - A - .500 - 1

- **113918** — Basic Part Number
- **A** — Material: See chart
- **.500** — Length: Fill in your length, any increment
- **1** — Finish: See page 277

If different Thread or Length is required, add to the closest part number .
EXAMPLE: 113918-A-.500-1 MOD (B= 4-40 x 1/2 Lg.)

Thread	B	A Thread Depth Min*
2-56	3/16	3/16
4-40	1/4	1/4
6-32	3/8	3/8
8-32	7/16	7/16
10-32	1/2	1/2
1/4-20	1/2	1/2

*When the body length L is less than or equal to the thread depth A, the maximum of threads possible will be provided.

OD x Thd Diameter before Knurl	Basic Part Number	Material	Length	Finish
5/32 x 2-56	113918			
5/32 x 4-40	113920			
3/16 x 2-56	113922			
3/16 x 4-40	113924			
3/16 x 6-32	113926			
1/4 x 2-56	113928			
1/4 x 4-40	113930			
1/4 x 6-32	113932			
1/4 x 8-32	113934			
5/16 x 2-56	113936			
5/16 x 4-40	113938			
5/16 x 6-32	113940			
5/16 x 8-32	113942			
5/16 x 10-32	113944			
3/8 x 2-56	113946			
3/8 x 4-40	113948			
3/8 x 6-32	113950			
3/8 x 8-32	113952			
3/8 x 10-32	113954			
7/16 x 2-56	113956			
7/16 x 4-40	113958			
7/16 x 6-32	113960			
7/16 x 10-32	113962			
1/2 x 4-40	113964			
1/2 x 6-32	113966			
1/2 x 8-32	113968			
1/2 x 10-32	113972			
1/2 x 1/4-20	113974			

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MALE/FEMALE THREADED SPACER
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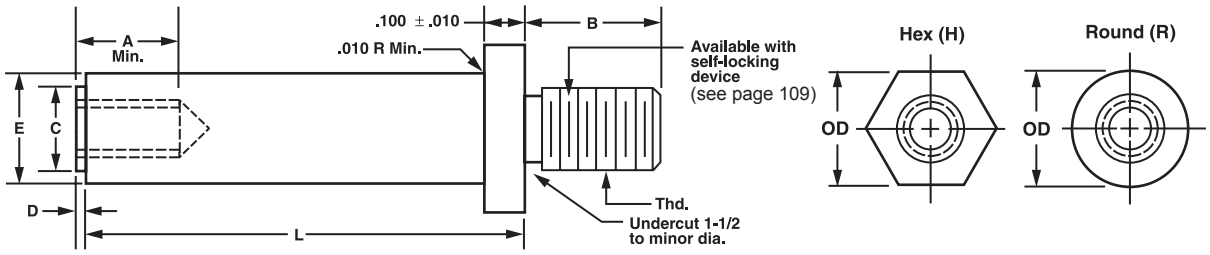

ORDER EXAMPLE:

3866 - H - .500 - .055 - A - 3

3866	H	.500	.055	A	3
Basic Part Number	Hex (H) or Round (R)	Length: Fill in your length, any increment	D Dim.	Material: See chart	Finish: See page 277

Any one dimension change, add to part number. **EXAMPLE: 3866-H-.500-.055-A-3 (MOD B=250)**
FOR NYLON AND DELRIN PARTS: Choose color from chart, otherwise Natural is provided.
Part number for nylon and Delrin parts: **EXAMPLE: 3866-H-.500-.055-N-3 ← RED**

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel
N	Nylon
D	Delrin

Thread	A Min	B	C +.000 -.003	E +.005
2-56	3/16	3/8	.188	.230
4-40	1/4	3/8	.188	.230
6-32	3/8	3/8	.234	.275
8-32	7/16	3/8	.234	.275
10-32	1/2	3/8	.312	.350
10-24	1/2	3/8	.312	.350
1/4-20	1/2	1/2	.375	.415
1/4-28	1/2	1/2	.375	.415

Board or Panel Thickness	D Recommended Shank Length
1/32	.025
1/16	.055
3/32	.085
1/8	.118
3/16	.180
1/4	.240

NYLON AND DELRIN	
Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

OD or Hex	Thread	Basic Part No.	Hex or Round	L*	D	Material	Finish
1/4	2-56	3866					
	4-40	3868					
5/16	8-32	3872					
3/8	6-32	3876					
	8-32	3878					
	10-32	3880					
1/2	6-32	3882					
	8-32	3884					
	10-32	3886					
	1/4-20	3888					
	1/4-28	3890					
5/8	6-32	3892					
	8-32	3894					
	10-32	3896					
	1/4-20	3898					
	1/4-28	3900					

*When L dimension is equal to or smaller than A, the depth will be maximum possible or a minimum of 1-1/2 threads, whichever is greater.

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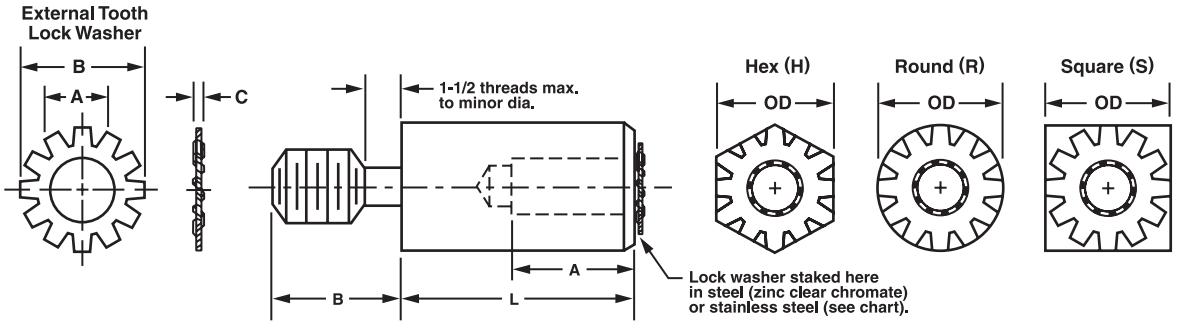
MALE/FEMALE LOCKING THREADED STANDOFF



ORDER EXAMPLE:

14000 - H - SS - .250 - LSS - 12

- **14000** — Basic Part Number
- **H** — Hex (H), Round (R) or Square (S)
- **SS** — Standoff Material: See chart
- **.250** — Length L: Fill in your length, any increment
- **LSS** — Lock Washer Material: Stainless (LSS) or Steel (LS)
- **12** — Finish: See page 277

NOTE: To order Lock Washer in Steel (1040/1060) just add LS to end of part number.
EXAMPLE: 14000-H-SS-.250-LS-12

Male/Female Standoff Available Material (see page 275)

A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

OD	Thread	Basic Part Number
3/16	2-56	14000
	4-40	14010
1/4	2-56	14020
	4-40	14030
5/16	2-56	14060
	4-40	14070
	6-32	14080
	8-32	14090
	10-32	14100
3/8	2-56	14110
	4-40	14120
	6-32	14130
	8-32	14140
	10-32	14150
7/16	2-56	14160
	4-40	14170
	6-32	14180
	8-32	14190
	10-24	14200
	10-32	14210
	12-24	14220
1/2	2-56	14240
	4-40	14250
	6-32	14260
	8-32	14270
	10-24	14280
	10-32	14290
	12-24	14300

Thread	Washer Size					
	A Inside Diameter		B Outside Diameter		C Thickness	
	Min	Max	Min	Max	Min	Max
2-56	.115	.123	.245	.260	.015	.019
4-40	.141	.150	.305	.320	.016	.022
6-32	.168	.176	.365	.381	.018	.029
8-32	.195	.204	.395	.410	.020	.025
10-24	.258	.267	.494	.510	.023	.028
10-32	.258	.267	.494	.510	.023	.028

Lock Washer		
Material		Finish
S	Steel - 1040/1060	Zinc Chrome Clear
SS	Stainless Steel - 410	NONE

Thread	B	A Thread Depth Min*
2-56	3/16	5/32
4-40	1/4	3/16
6-32	3/8	1/4
8-32	7/16	3/8
10-24	1/2	3/8
10-32	1/2	3/8

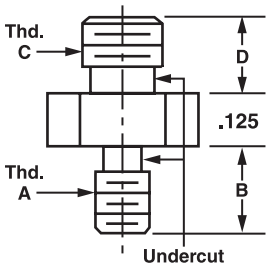
*When the body length L is less than or equal to the thread depth A, the maximum of threads possible will be provided.

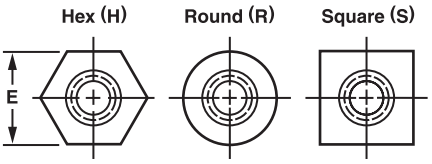
TECH TIP

Our new in-house passivation process, certified to QQP35C-AMS2700B-MIL F 14072D, further improves our lead times.

NOTE: For depth of thread, see page 281.

MALE SPACE ADAPTERS





Available Material (see page 275)			
A	Aluminum	B	Brass
C	Copper	S	Steel
PA	A.B.S.	SS	Stainless Steel
PP	P.V.C.	N	Nylon
D	Delrin		

ORDER EXAMPLE:

8300 - H - SS - 632 - 632 - 12

- 8300: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- 632: Thread C
- 632: Thread A
- 12: Finish: See page 277

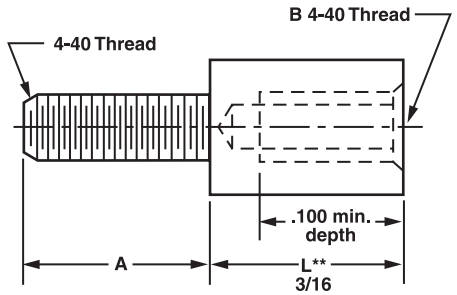
If a different thread or length is required, add to end of part number . **EXAMPLE: 8300-H-SS-632-632-12 (D=.875)**
FOR NYLON AND DELRIN PARTS: Choose color from chart, otherwise Natural is provided.
Part number for Nylon and Delrin parts: **EXAMPLE: 8300-H-N-632-632-2 ← BLACK**

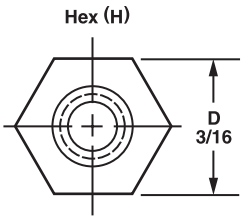
NYLON AND DELRIN					
Color	Code	Color	Code	Color	Code
Natural	1	Blue	4	Orange	7
Black	2	Purple	5	Green	8
Red	3	Brown	6	Yellow	9

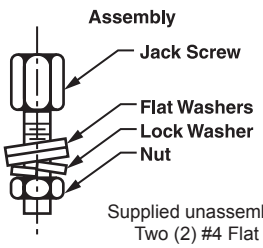
Thread	
2-56	10-24
4-40	10-32
6-32	1/4-20
8-32	

E	D ± .015	B ± .015	Basic Part No.
1/4	.187	.187	8300
	.250	.187	8302
	.250	.250	8304
	.375	.250	8306
	.375	.375	8308
5/16	.250	.187	8310
	.250	.250	8312
	.375	.375	8314
3/8	.250	.250	8316
	.375	.375	8318
	.500	.500	8320

HEX JACK SCREW - 3/16







Supplied unassembled with:
Two (2) #4 Flat Washers
One (1) #4 Lock Washer
One (1) #4-40 Nut

ORDER EXAMPLE:

67664 - S - 8

- 67664: Basic Part Number
- S: Material: See chart
- 8: Finish: See page 277

**Length may vary to your specification.
EXAMPLE: 67664-S-8 (L=.500)

Part No.	A ± .015
67664	.187
67666	.250
67668	.312
67670	.375
67672	.437
67674	.500
67676	.562
67678	.625
67680	.687
67682	.750

Available Material (see page 275)	
B	Brass
D*	Delrin
S	Steel
SS	Stainless Steel

* Less Lock Washer

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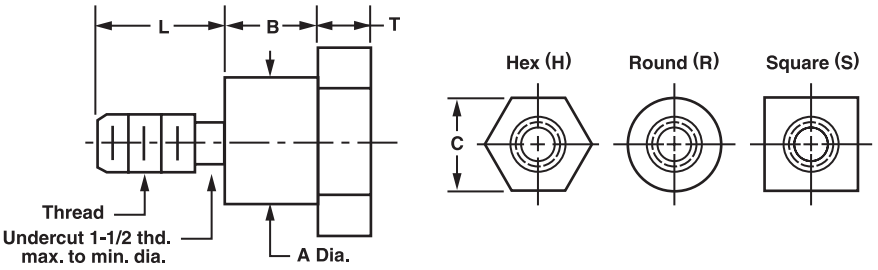
MALE STANDOFF - SHOULDER TYPE



ORDER EXAMPLE:

3920 - **H** - **SS** - **12**

- **3920**: Basic Part Number
- **H**: Hex (H), Round (R) or Square (S)
- **SS**: Material: See chart
- **12**: Finish: See page 277

Any one dimension change, add to the end of part number .
Example: 3920-H-SS-12 (T=.200)
Screw Driver Slot is available, add SDS to part number . **Example: 3920-H-SS-12 SDS**

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel
N	Nylon
C	Copper
D	Delrin

Part Number	A +.000 −.003	B ± .003	C OD	T	Thread	Length	Part Number	A +.000 −.003	B ± .003	C OD	T	Thread	Length
3920	.1245	.125	1/4	.125	440	5/32	3973	.250	.125	3/8	.187	1032	1/4
3922	.1245	.187	1/4	.125	440	5/32	3974	.250	.187	3/8	.187	1032	1/4
3924	.1245	.250	1/4	.125	440	5/32	3975	.250	.250	3/8	.187	1032	1/4
3925	.1245	.312	1/4	.125	440	5/32	3976	.250	.312	3/8	.187	1032	1/4
3927	.1245	.437	1/4	.125	440	5/32	3977	.250	.437	3/8	.187	1032	1/4
3928	.1245	.500	1/4	.125	440	5/32	3978	.250	.500	3/8	.187	1032	1/4
3930	.156	.125	9/32	.125	6-32	3/16	3979	.250	.562	3/8	.187	1032	1/4
3932	.156	.187	9/32	.125	6-32	3/16	3980	.250	.625	3/8	.187	1032	1/4
3934	.156	.250	9/32	.125	6-32	3/16	3981	.250	.687	3/8	.187	1032	1/4
3936	.156	.312	9/32	.125	6-32	3/16	3982	.250	.750	3/8	.187	1032	1/4
3937	.156	.375	9/32	.125	6-32	3/16	3983	.250	.875	3/8	.187	1032	1/4
3938	.156	.437	9/32	.125	6-32	3/16	3984	.250	1.000	3/8	.187	1032	1/4
3939	.156	.500	9/32	.125	6-32	3/16	3985	.250	1.250	3/8	.187	1032	1/4
3940	.156	.562	9/32	.125	6-32	3/16	3986	.250	1.375	3/8	.187	1032	1/4
3941	.156	.625	9/32	.125	6-32	3/16	3987	.250	1.500	3/8	.187	1032	1/4
3942	.156	.687	9/32	.125	6-32	3/16	3989	.312	.125	1/2	.250	1/4-20	7/16
3943	.156	.750	9/32	.125	6-32	3/16	3990	.312	.187	1/2	.250	1/4-20	7/16
3948	.187	.125	5/16	.156	8-32	3/16	3991	.312	.250	1/2	.250	1/4-20	7/16
3950	.187	.187	5/16	.156	8-32	3/16	3992	.312	.312	1/2	.250	1/4-20	7/16
3951	.187	.250	5/16	.156	8-32	3/16	3993	.312	.437	1/2	.250	1/4-20	7/16
3952	.187	.312	5/16	.156	8-32	3/16	3994	.312	.500	1/2	.250	1/4-20	7/16
3954	.187	.375	5/16	.156	8-32	3/16	3995	.312	.562	1/2	.250	1/4-20	7/16
3955	.187	.437	5/16	.156	8-32	3/16	3996	.312	.625	1/2	.250	1/4-20	7/16
3956	.187	.500	5/16	.156	8-32	3/16	3997	.312	.687	1/2	.250	1/4-20	7/16
3958	.187	.562	5/16	.156	8-32	3/16	3998	.312	.750	1/2	.250	1/4-20	7/16
3960	.187	.625	5/16	.156	8-32	3/16	3999	.312	.875	1/2	.250	1/4-20	7/16
3961	.187	.687	5/16	.156	8-32	3/16	4000	.312	1.000	1/2	.250	1/4-20	7/16
3962	.187	.750	5/16	.156	8-32	3/16	4001	.312	1.250	1/2	.250	1/4-20	7/16
3964	.187	.875	5/16	.156	8-32	3/16	4002	.312	1.375	1/2	.250	1/4-20	7/16
3966	.187	1.000	5/16	.156	8-32	3/16	4003	.312	1.500	1/2	.250	1/4-20	7/16
3968	.187	1.250	5/16	.156	8-32	3/16							
3970	.187	1.375	5/16	.156	8-32	3/16							
3972	.187	1.500	5/16	.156	8-32	3/16							

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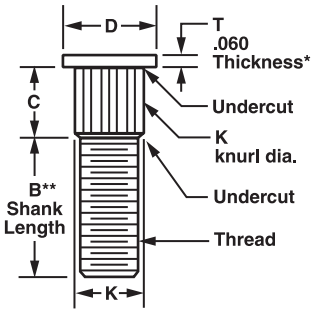
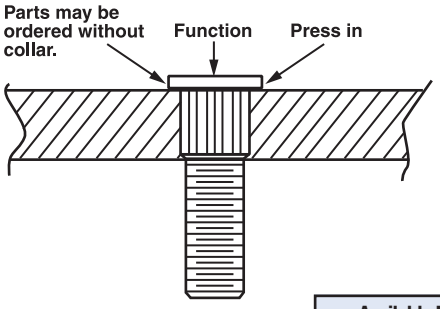
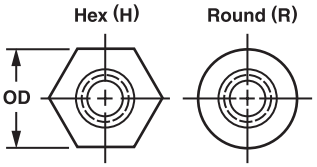
MALE KNURLED STANDOFF







Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

ORDER EXAMPLE:

901500 - H - .125 - A - 23

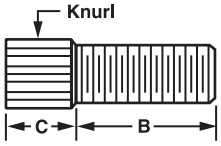
Basic Part Number	Hex (H) or Round (R)	Rec. Knurled Shank Length C: See chart	Material: See chart	Finish: See page 277

Make any one dimensional change by adding to the end of the part number .
EXAMPLE: 901500-H-.125-A-23 (B=.500)
*Thickness may be revised simply by adding change to end of part number .
EXAMPLE: 901500-H-.125-A-23 (T=.093)

Board Thickness	C Rec. Knurled Shank Length + .007
1/32	.032
1/16	.062
3/32	.093
1/8	.125
3/16	.187
1/4	.250

Thread Size	**B Shank Length ± .010	D Round or Hex	K Knurl Dia ± .003	Recommended Drill Hole Size + .002 - .000	Basic Part Number
2-56	3/16	.250	.152	.145	901500
4-40	1/4	.250	.152	.145	901502
6-32	3/8	.312	.201	.194	901504
8-32	7/16	.312	.201	.194	901506
10-32	1/2	.375	.247	.240	901508
1/4-20	1/2	.500	.267	.260	901510
1/4-20	5/8	.625	.299	.290	901512
5/16-18	7/8	.500	.366	.358	901514
3/8-16	1.00	.562	.426	.417	901516
1/2-13	1.00	.625	.550	.542	901518

OPTIONAL - NO COLLAR



EXAMPLE: 901500-H-.125-A-23 (MOD. NO COLLAR)

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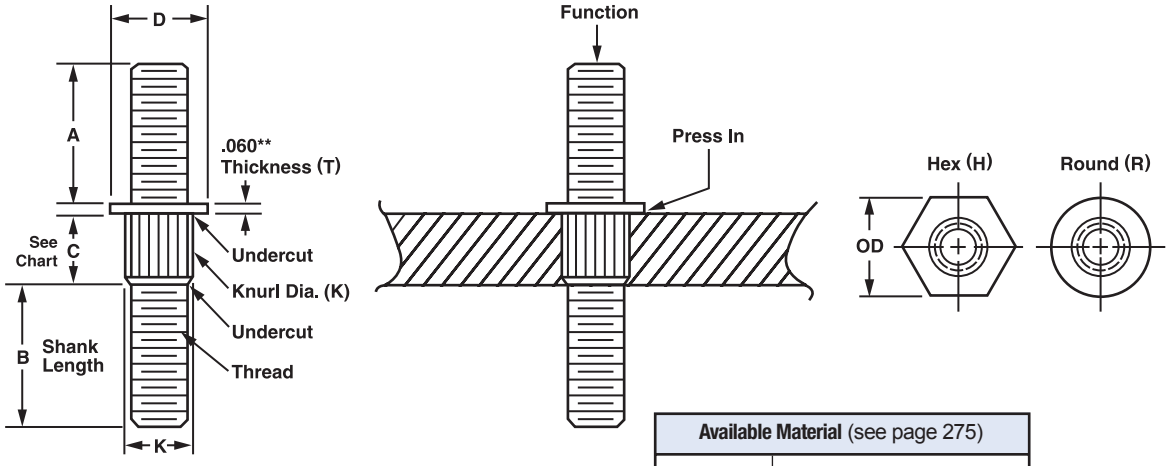
DOUBLE-ENDED MALE KNURLED STANDOFF



Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

ORDER EXAMPLE:

901501 - H - .125 - A - 23

Basic Part Number	Hex (H) or Round (R)	Rec. Knurled Shank Length C: See chart	Material: See chart	Finish: See page 277

Make any one dimensional change by adding to the end of the part number .
EXAMPLE: 901501-H-.125-A-23 (B=.250)
**Thickness may be revised simply by adding change to end of part number .
EXAMPLE: 901501-H-.125-A-23 (T=.093)

Board Thickness	C Rec. Knurled Shank Length +.007
1/32	.032
1/16	.062
3/32	.093
1/8	.125
3/16	.187
1/4	.250

Thread Size	A & B Shank Length ± .010	D Round or Hex	K Knurl Dia ± .003	Recommended Drill Hole Size +.002 -.000	Basic Part Number
2-56	3/16	.250	.152	.145	901501
4-40	1/4	.250	.152	.145	901503
6-32	3/8	.312	.201	.194	901505
8-32	7/16	.312	.201	.194	901507
10-32	1/2	.375	.247	.240	901509
1/4-20	1/2	.500	.267	.260	901511
1/4-20	5/8	.625	.299	.290	901513
5/16-18	7/8	.500	.366	.358	901515
3/8-16	1.00	.562	.426	.417	901517
1/2-13	1.00	.625	.550	.542	901519

INSTALLATION OF SWAGE AND FLARE TYPE STANDOFFS

ADVANTAGES

ASM Swage and Flare Type Standoffs are an inexpensive method of spacing or mounting electronic circuit boards and electronic components. After installation they are permanently affixed to the board and further assembly becomes simplified. These standoffs are available in both threaded and unthreaded types (see Hi-Torque Standoffs).

INSTALLATION

Installation is accomplished by using any means of force. Normal equipment, such as an arbor press, punch press, drill press, are most commonly used. If flare type is planned, the hole must be countersunk as shown in the illustration. For swage type installation, an ordinary drilled or punched hole, of the correct diameter, is adequate.

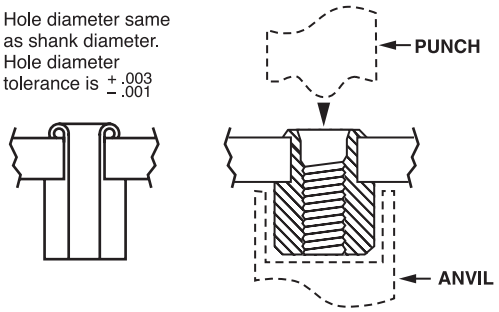
TOOLING

Punches and anvils are available for all standoffs. See Standoff pages for more information.

NOTE: During and after installation, cracking may occur around the perimeter of the shank. The cracking does not affect form, fit or function.

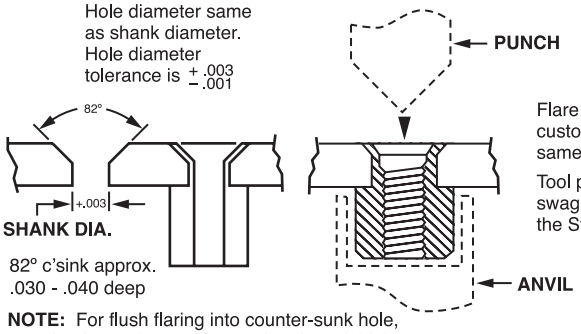
SWAGE TYPE AND TOOLING

Hole diameter same as shank diameter. Hole diameter tolerance is $^{+.003}_{-.001}$



FLARE TYPE AND TOOLING

Hole diameter same as shank diameter. Hole diameter tolerance is $^{+.003}_{-.001}$



82° c'sink approx. .030 - .040 deep

Flare tool supplied by customer. Flare angle same as c'sink: 82°.

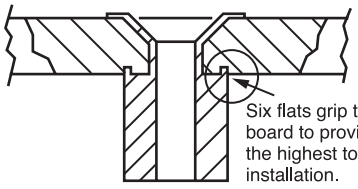
Tool part numbers for swaging are listed on the Standoff pages.

NOTE: For flush flaring into counter-sunk hole, use shank length .020 shorter than board thickness.

A STANDOFF THAT WON'T SPIN!

Hi-Torque hex swage standoff with a locking feature that ends loosening & spinning problems

HI-TORQUE SWAGE STANDOFF



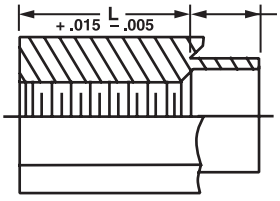
Six flats grip the board to provide the highest torque installation.

C'sink depth approximately 1/2 board thickness.
Hole diameter same as shank diameter.
Hole diameter tolerance is $^{+.003}_{-.001}$

HI-TORQUE HEX SWAGE GRIPPING STANDOFF*

Up to 23 in/lb - 6 Flats Really Grip!

Six flats really grip the board to provide the highest torque installation achievable yet.

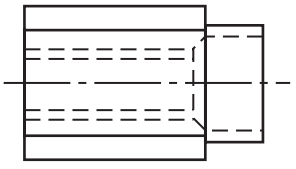


No additional tooling required.

*This feature is also available for Male/Female Standoffs see pages 27-28.

HEX SWAGE NO-GRIP STANDOFF

Conventional No-Grip!



INCREASE TORQUE!

For POSITIVE LOCKING Standoffs, see pages 72-78.

For FULL KNURL Positive Locking Standoffs, see pages 79-88.

Same installation instructions as Swage and Flare type standoffs, except the appropriate hole size and tolerance is shown on each page.

ORDER EXAMPLE:

13010 - H - A - .075 - 1 - HT

Basic Part Number	Hex (H)	Material*	Shank Length: Fill in your length, any increment	Finish: See page 277	Hi-Torque Option

*Refer to Threaded Standoffs on pages 46-89 for basic configuration, specifications, material, etc.
Hi-torque option is available for Male/Female Standoffs (see pages 27-28).
Add **HT** to end of part number. **EXAMPLE: 14010-H-A-.750-1 HT**

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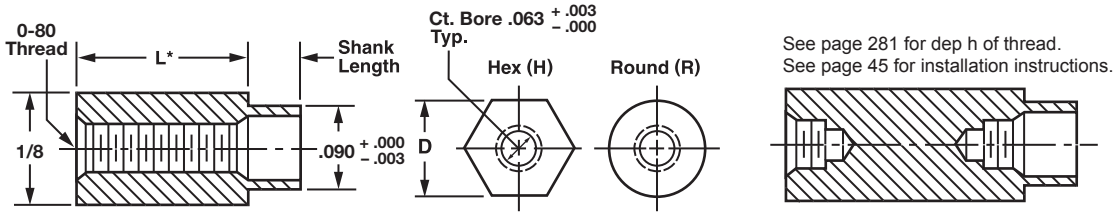
SWAGE STANDOFFS - THREADED & CLEAR HOLE

1/8" Hex or Round - 0-80 Thd.



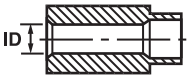
See page 281 for dep h of thread.
See page 45 for installation instructions.

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	F ber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code	
ID +.010 −.000	Code Letter
.070	P

Prefix letter code to part number.
EXAMPLE: P11010-H-SS-.105-12
.070 - ID

ORDER EXAMPLE:

11010 - H - SS - .105 - 12

- **11010** — Basic Part Number
- **H** — Hex (H) or Round (R)
- **SS** — Material: See chart
- **.105** — Shank Length: See chart or fill in your own length
- **12** — Finish: See page 277

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 11022-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-1	RA -10	HA-40	1/8-3/16
	RA-11	HA-41	1/4-7/16
	RA-12	HA-42	1/2-11/16
	RA-13	HA-43	3/4 & up

EXAMPLE: P - 1 ← PUNCH HA - 40 ← ANVIL

L Length	Thread	Basic Part Number	H or R	Material	Shank Length	Finish
1/8	0-80	11010				
3/16	0-80	11012				
1/4	0-80	11014				
5/16	0-80	11016				
3/8	0-80	11018				
7/16	0-80	11020				
1/2	0-80	11022				
9/16	0-80	11024				
5/8	0-80	11026				
11/16	0-80	11028				
3/4	0-80	11030				
13/16	0-80	11032				
7/8	0-80	11034				
15/16	0-80	11036				
1	0-80	11038				
1-3/16	0-80	11040				
1-1/4	0-80	11042				
1-3/8	0-80	11044				
1-1/2	0-80	11046				
1-3/4	0-80	11048				
2	0-80	11050				

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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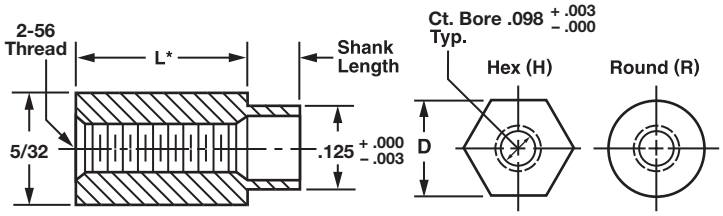
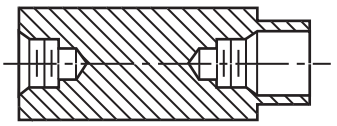
SWAGE STANDOFFS - THREADED & CLEAR HOLE

5/32" Hex or Round - 2-56 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

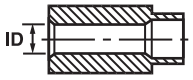


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	F ber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code	
ID +.010 −.000	Code Letter
.070	P
.091	Q

Prefix letter code to part number.
EXAMPLE: P21010-H-SS-.105-12
.070 - ID

ORDER EXAMPLE:

21010 - H - SS - .105 - 12

- 21010 — Basic Part Number
- H — Hex (H) or Round (R)
- SS — Material: See chart
- .105 — Shank Length: See chart or fill in your own length
- 12 — Finish: See page 277

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 21054-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-2	RA -14	HA-44	1/8-3/16
	RA-15	HA-45	1/4-7/16
	RA-16	HA-46	1/2-11/16
	RA-17	HA-47	3/4 & up

EXAMPLE: P - 2 ← PUNCH HA - 44 ← ANVIL

L Length	Thread	Basic Part Number	H or R	Material	Shank Length	Finish
1/8	2-56	21010				
3/16	2-56	21020				
1/4	2-56	21030				
5/16	2-56	21040				
3/8	2-56	21050				
7/16	2-56	21052				
1/2	2-56	21054				
9/16	2-56	21056				
5/8	2-56	21058				
11/16	2-56	21060				
3/4	2-56	21062				
13/16	2-56	21064				
7/8	2-56	21066				
15/16	2-56	21068				
1	2-56	21070				
1-3/16	2-56	21072				
1-1/4	2-56	21074				
1-3/8	2-56	21076				
1-1/2	2-56	21078				
1-3/4	2-56	21080				
2	2-56	21082				

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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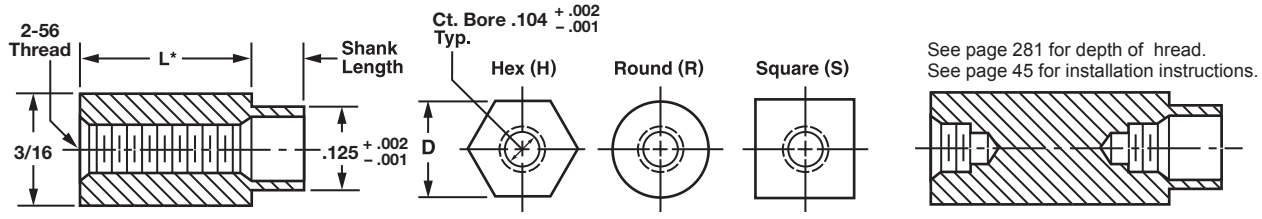
SWAGE STANDOFFS - THREADED & CLEAR HOLE

3/16" Hex, Round or Square - 2-56 Thd.



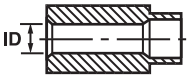
See page 281 for depth of thread.
See page 45 for installation instructions.

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code	
ID +.010 -.000	Code Letter
.070	P
.091	Q

Prefix letter code to part number.
EXAMPLE: P31110-H-SS-.105-12
.070 - ID

ORDER EXAMPLE:

31110 - H - SS - .105 - 12 - HT

- 31110: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 31140-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-3	RA -18	HA-48	1/8-3/16
	RA-19	HA-49	1/4-7/16
	RA-20	HA-50	1/2-11/16
	RA-21	HA-51	3/4 & up

EXAMPLE: P - 3 ← PUNCH HA - 48 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	2-56	31110					
3/16	2-56	31115					
1/4	2-56	31120					
5/16	2-56	31125					
3/8	2-56	31130					
7/16	2-56	31135					
1/2	2-56	31140					
9/16	2-56	31145					
5/8	2-56	31150					
11/16	2-56	31155					
3/4	2-56	31160					
13/16	2-56	31162					
7/8	2-56	31165					
1	2-56	31170					
1-3/16	2-56	31172					
1-1/4	2-56	31174					
1-3/8	2-56	31176					
1-1/2	2-56	31178					
1-3/4	2-56	31180					
2	2-56	31182					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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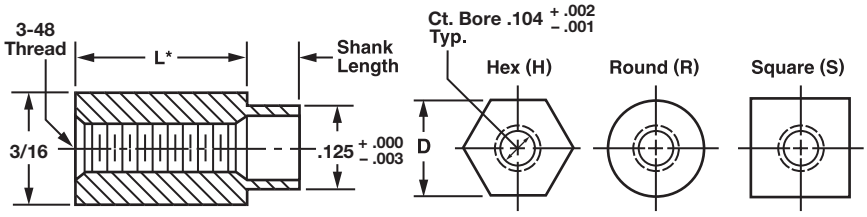
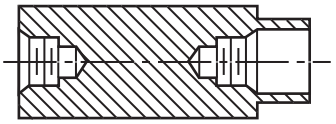
SWAGE STANDOFFS - THREADED & CLEAR HOLE

3/16" Hex, Round or Square - 3-48 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

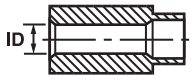


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code	
ID +.010 −.000	Code Letter
.070	P
.091	Q

Prefix letter code to part number.
EXAMPLE: P41110-H-SS-.105-12
.070 - ID

ORDER EXAMPLE:

41110 - H - SS - .105 - 12 - HT

- **41110** — Basic Part Number
- **H** — Hex (H), Round (R) or Square (S)
- **SS** — Material: See chart
- **.105** — Shank Length: See chart or fill in your own length
- **12** — Finish: See page 277
- **HT** — Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 41140-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-3	RA -18	HA-48	1/8-3/16
	RA-19	HA-49	1/4-7/16
	RA-20	HA-50	1/2-11/16
	RA-21	HA-51	3/4 & up

EXAMPLE: P - 3 ← PUNCH HA - 48 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	3-48	41110					
3/16	3-48	41115					
1/4	3-48	41120					
5/16	3-48	41125					
3/8	3-48	41130					
7/16	3-48	41135					
1/2	3-48	41140					
9/16	3-48	41145					
5/8	3-48	41150					
11/16	3-48	41155					
3/4	3-48	41160					
13/16	3-48	41162					
7/8	3-48	41165					
1	3-48	41170					
1-1/4	3-48	41172					
1-1/2	3-48	41174					
1-3/4	3-48	41176					
2	3-48	41178					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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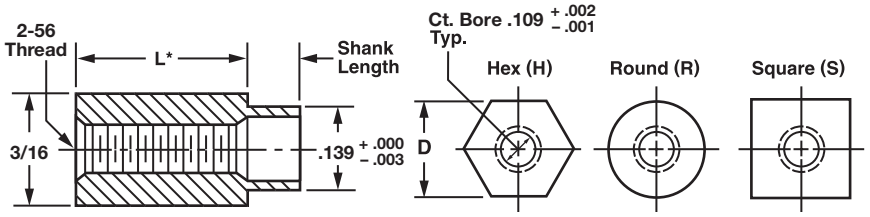
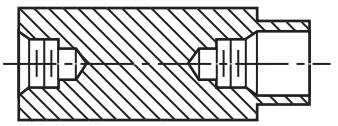
SWAGE STANDOFFS - THREADED & CLEAR HOLE

3/16" Hex, Round or Square - 2-56 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

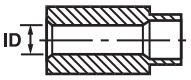


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code	
ID +.010 −.000	Code Letter
.070	P
.091	Q
.115	U

Prefix letter code to part number.
EXAMPLE: P31010-H-SS-.105-12
.070 - ID

ORDER EXAMPLE:

31010 - H - SS - .105 - 12 - HT

- 31010: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 31040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-3	RA -18	HA-48	1/8-3/16
	RA-19	HA-49	1/4-7/16
	RA-20	HA-50	1/2-11/16
	RA-21	HA-51	3/4 & up

EXAMPLE: P - 3 ← PUNCH HA - 48 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	2-56	31010					
5/32	2-56	31012					
3/16	2-56	31015					
1/4	2-56	31020					
5/16	2-56	31025					
3/8	2-56	31030					
7/16	2-56	31035					
1/2	2-56	31040					
9/16	2-56	31045					
5/8	2-56	31050					
11/16	2-56	31055					
3/4	2-56	31060					
13/16	2-56	31062					
7/8	2-56	31065					
15/16	2-56	31067					
1	2-56	31070					
1-3/16	2-56	31072					
1-1/4	2-56	31074					
1-3/8	2-56	31076					
1-1/2	2-56	31078					
1-3/4	2-56	31080					
2	2-56	31082					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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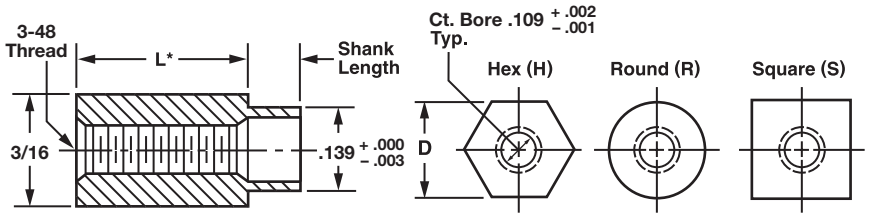
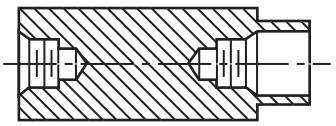
SWAGE STANDOFFS - THREADED & CLEAR HOLE

3/16" Hex, Round or Square - 3-48 Thd.



See page 281 for depth of thread.
See page 45 for installation instruc ions.

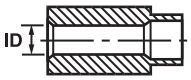


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code	
ID +.010 −.000	Code Letter
.070	P
.091	Q
.115	U

Prefix letter code to part number.
EXAMPLE: **P41010-H-SS-.105-12**
.070 - ID

ORDER EXAMPLE:

41010 - H - SS - .105 - 12 - HT

- 41010: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 41040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-3	RA -18	HA-48	1/8-3/16
	RA-19	HA-49	1/4-7/16
	RA-20	HA-50	1/2-11/16
	RA-21	HA-51	3/4 & up

EXAMPLE: P - 3 ← PUNCH HA - 48 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	3-48	41010					
3/16	3-48	41015					
1/4	3-48	41020					
5/16	3-48	41025					
3/8	3-48	41030					
7/16	3-48	41035					
1/2	3-48	41040					
9/16	3-48	41045					
5/8	3-48	41050					
11/16	3-48	41055					
3/4	3-48	41060					
13/16	3-48	41062					
7/8	3-48	41065					
1	3-48	41070					
1-3/16	3-48	41072					
1-1/4	3-48	41018					
1-3/8	3-48	41021					
1-1/2	3-48	41023					
1-3/4	3-48	41026					
2	3-48	41028					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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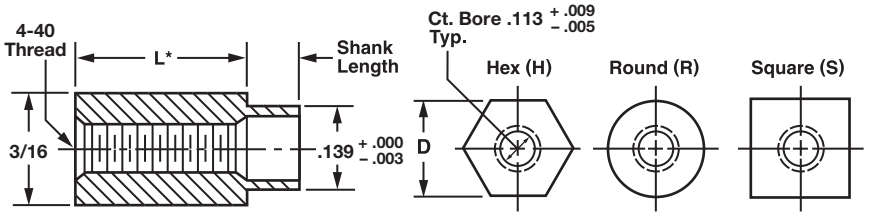
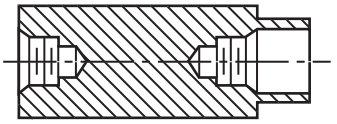
SWAGE STANDOFFS - THREADED & CLEAR HOLE

3/16" Hex, Round or Square - 4-40 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

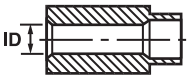


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code	
ID +.010 −.000	Code Letter
.070	P
.091	Q
.115	U

Prefix letter code to part number.
EXAMPLE: P41073-H-SS-.105-12
.070 - ID

ORDER EXAMPLE:

41073 - H - SS - .105 - 12 - HT

- 41073: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 41086-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-3	RA -18	HA-48	1/8-3/16
	RA-19	HA-49	1/4-7/16
	RA-20	HA-50	1/2-11/16
	RA-21	HA-51	3/4 & up

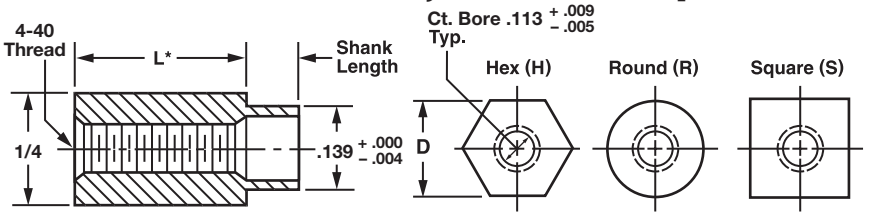
EXAMPLE: P - 3 ← PUNCH HA - 48 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
3/32	4-40	41073					
1/8	4-40	41074					
3/16	4-40	41076					
1/4	4-40	41078					
5/16	4-40	41080					
3/8	4-40	41082					
7/16	4-40	41084					
1/2	4-40	41086					
9/16	4-40	41088					
5/8	4-40	41090					
11/16	4-40	41092					
3/4	4-40	41094					
13/16	4-40	41095					
7/8	4-40	41096					
1	4-40	41098					
1-3/16	4-40	41099					
1-1/4	4-40	41075					
1-3/8	4-40	41077					
1-1/2	4-40	41079					
1-3/4	4-40	41081					
2	4-40	41083					

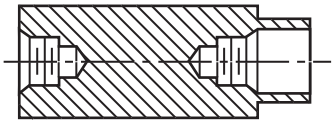
NOTES: Where L dimension is 1/2 or longer, see page 281 for depth of thread. Counterbore will have score marks from threading operation.

SWAGE STANDOFFS - THREADED & CLEAR HOLE

1/4" Hex, Round or Square - 4-40 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

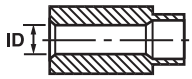


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code	
ID +.010 −.000	Code Letter
.070	P
.091	Q
.115	U

Prefix letter code to part number.
EXAMPLE: P51108-H-SS-.105-12
.070 - ID

ORDER EXAMPLE:

51108 - H - SS - .105 - 12 - HT

- 51108 — Basic Part Number
- H — Hex (H), Round (R) or Square (S)
- SS — Material: See chart
- .105 — Shank Length: See chart or fill in your own length
- 12 — Finish: See page 277
- HT — Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 51140-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-3	RA -22	HA-52	1/8-3/16
	RA-23	HA-53	1/4-7/16
	RA-24	HA-54	1/2-11/16
	RA-25	HA-55	3/4 & up

EXAMPLE: P - 3 ← PUNCH HA - 52 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
3/32	4-40	51108					
1/8	4-40	51110					
3/16	4-40	51115					
1/4	4-40	51120					
5/16	4-40	51125					
3/8	4-40	51130					
7/16	4-40	51135					
1/2	4-40	51140					
9/16	4-40	51145					
5/8	4-40	51150					
11/16	4-40	51155					
3/4	4-40	51160					
13/16	4-40	51162					
7/8	4-40	51165					
15/16	4-40	51166					
1	4-40	51170					
1-1/8	4-40	51175					
1-1/4	4-40	51180					
1-1/2	4-40	51185					
1-3/4	4-40	51190					
2	4-40	51195					

NOTES: Where L dimension is 1/2 or longer, see page 281 for depth of thread.
Counterbore will have score marks from threading operation.

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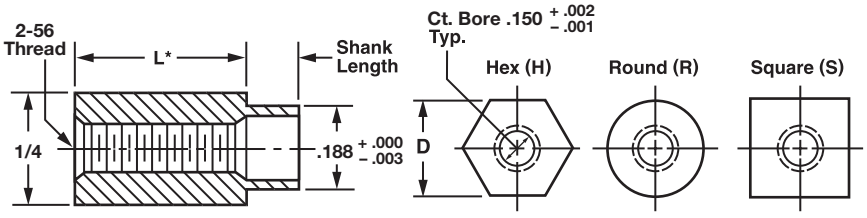
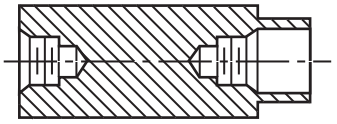
SWAGE STANDOFFS - THREADED & CLEAR HOLE

1/4" Hex, Round or Square - 2-56 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

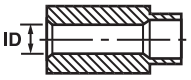


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.070	P	.140	W
.091	Q	.150	WW
.115	U	.156	XX
.120	V		

Prefix letter code to part number.
EXAMPLE: **P52010-H-SS-.105-12**
.070 - ID

ORDER EXAMPLE:

52010 - H - SS - .105 - 12 - HT

- 52010: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 52040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-4	RA -22	HA-52	1/8-3/16
	RA-23	HA-53	1/4-7/16
	RA-24	HA-54	1/2-11/16
	RA-25	HA-55	3/4 & up

EXAMPLE: P - 4 ← PUNCH HA - 52 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	2-56	52010					
3/16	2-56	52015					
1/4	2-56	52020					
5/16	2-56	52025					
3/8	2-56	52030					
7/16	2-56	52035					
1/2	2-56	52040					
9/16	2-56	52045					
5/8	2-56	52050					
11/16	2-56	52055					
3/4	2-56	52060					
13/16	2-56	52062					
7/8	2-56	52065					
15/16	2-56	52066					
1	2-56	52070					
1-1/8	2-56	52075					
1-1/4	2-56	52080					
1-1/2	2-56	52085					
1-3/4	2-56	52090					
2	2-56	52095					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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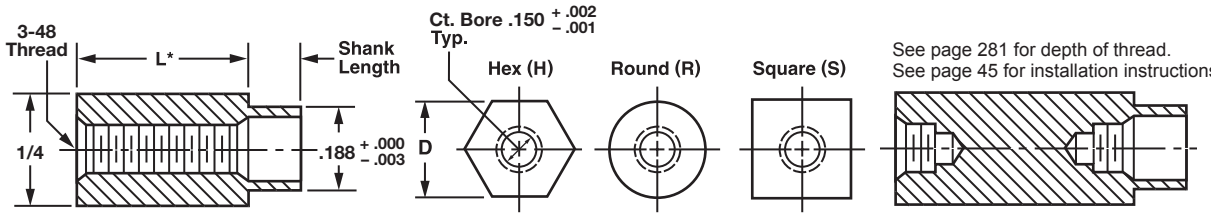
SWAGE STANDOFFS - THREADED & CLEAR HOLE

1/4" Hex, Round or Square - 3-48 Thd.



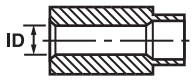
See page 281 for depth of thread.
See page 45 for installation instructions.

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.070	P	.140	W
.091	Q	.150	WW
.115	U	.156	XX
.120	V		

Prefix letter code to part number.
EXAMPLE: Q54010-H-SS-.105-12
.091 - ID

ORDER EXAMPLE:

54010 - H - SS - .105 - 12 - HT

Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart	Shank Length: See chart or fill in your own length	Finish: See page 277	Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 54022-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-4	RA -22	HA-52	1/8-3/16
	RA-23	HA-53	1/4-7/16
	RA-24	HA-54	1/2-11/16
	RA-25	HA-55	3/4 & up

EXAMPLE: P - 4 ← PUNCH HA - 52 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	3-48	54010					
3/16	3-48	54012					
1/4	3-48	54014					
5/16	3-48	54016					
3/8	3-48	54018					
7/16	3-48	54020					
1/2	3-48	54022					
9/16	3-48	54024					
5/8	3-48	54026					
11/16	3-48	54028					
3/4	3-48	54030					
13/16	3-48	54032					
7/8	3-48	54034					
15/16	3-48	54036					
1	3-48	54038					
1-1/8	3-48	54040					
1-1/4	3-48	54042					
1-1/2	3-48	54044					
1-3/4	3-48	54046					
2	3-48	54048					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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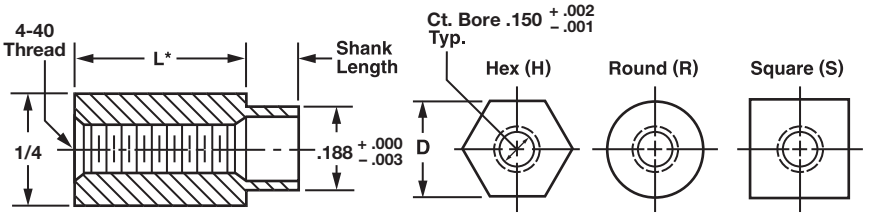
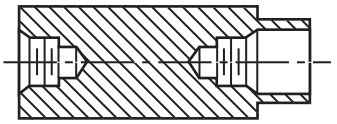
SWAGE STANDOFFS - THREADED & CLEAR HOLE

1/4" Hex, Round or Square - 4-40 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

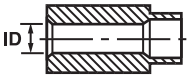


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	F ber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.070	P	.140	W
.091	Q	.150	WW
.115	U	.156	XX
.120	V		

Prefix letter code to part number.
EXAMPLE: P51010-H-SS-.105-12
.070 - ID

ORDER EXAMPLE:

51010 - H - SS - .105 - 12 - HT

- 51010: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 51040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-4	RA -22	HA-52	1/8-3/16
	RA-23	HA-53	1/4-7/16
	RA-24	HA-54	1/2-11/16
	RA-25	HA-55	3/4 & up

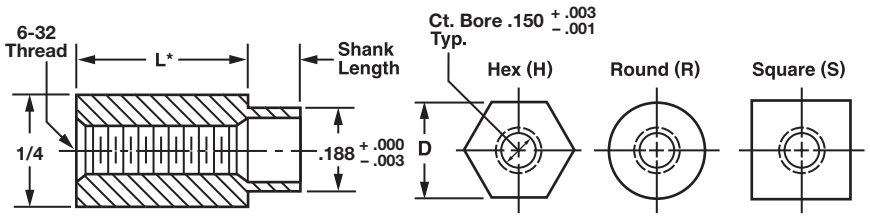
EXAMPLE: P - 4 ← PUNCH HA - 52 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	4-40	51010					
3/16	4-40	51015					
1/4	4-40	51020					
5/16	4-40	51025					
3/8	4-40	51030					
7/16	4-40	51035					
1/2	4-40	51040					
9/16	4-40	51045					
5/8	4-40	51050					
11/16	4-40	51055					
3/4	4-40	51060					
13/16	4-40	51062					
7/8	4-40	51065					
15/16	4-40	51066					
1	4-40	51070					
1-1/8	4-40	51075					
1-1/4	4-40	51080					
1-1/2	4-40	51085					
1-3/4	4-40	51090					
2	4-40	51095					

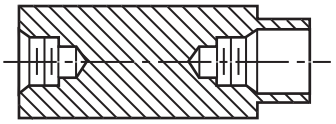
NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

SWAGE STANDOFFS - THREADED & CLEAR HOLE

1/4" Hex, Round or Square - 6-32 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

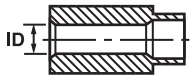


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 -.000	Code Letter	ID +.010 -.000	Code Letter
.091	Q	.140	W
.115	U	.150	WW
.120	V	.156	XX

Prefix letter code to part number.
EXAMPLE: Q61010-H-SS-.105-12
.091 - ID

ORDER EXAMPLE:

61010 - H - SS - .105 - 12 - HT

- 61010: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 61040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-4	RA -22	HA-52	1/8-3/16
	RA-23	HA-53	1/4-7/16
	RA-24	HA-54	1/2-11/16
	RA-25	HA-55	3/4 & up

EXAMPLE: P - 4 ← PUNCH HA - 52 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	6-32	61010					
3/16	6-32	61015					
7/32	6-32	61017					
1/4	6-32	61020					
9/32	6-32	61022					
5/16	6-32	61025					
11/32	6-32	61027					
3/8	6-32	61030					
7/16	6-32	61035					
1/2	6-32	61040					
9/16	6-32	61045					
5/8	6-32	61050					
11/16	6-32	61055					
3/4	6-32	61060					
13/16	6-32	61062					
7/8	6-32	61065					
15/16	6-32	61067					
1	6-32	61070					
1-1/8	6-32	61075					
1-1/4	6-32	61080					
1-3/8	6-32	61081					
1-1/2	6-32	61085					
1-3/4	6-32	61087					
2	6-32	61089					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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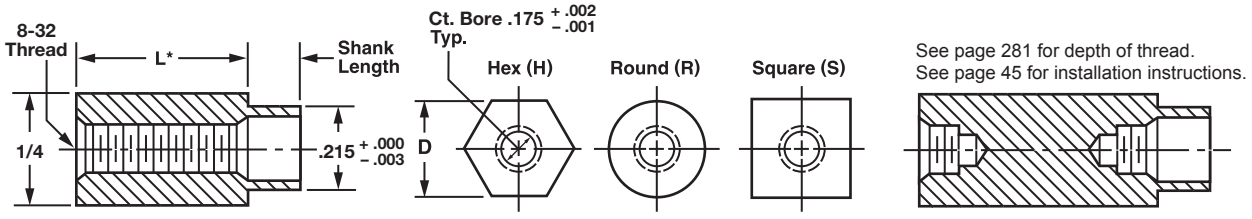
SWAGE STANDOFFS - THREADED & CLEAR HOLE

1/4" Hex, Round or Square - 8-32 Thd.



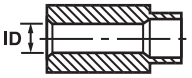
See page 281 for depth of thread.
See page 45 for installation instructions.

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	F ber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W		

Prefix letter code to part number.
EXAMPLE: Q62200-H-SS-.105-12
.091 - ID

ORDER EXAMPLE:

62200 - H - SS - .105 - 12 - HT

- 62200: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 62218-R-SS-.105-12 (L=.525)

STAKING TOOLS ARE NOT AVAILABLE FOR THIS PART NUMBER

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	8-32	62200					
3/16	8-32	62202					
7/32	8-32	62204					
1/4	8-32	62206					
9/32	8-32	62208					
5/16	8-32	62210					
11/32	8-32	62212					
3/8	8-32	62214					
7/16	8-32	62216					
1/2	8-32	62218					
9/16	8-32	62220					
5/8	8-32	62222					
11/16	8-32	62224					
3/4	8-32	62226					
13/16	8-32	62228					
7/8	8-32	62230					
15/16	8-32	62232					
1	8-32	62234					
1-1/8	8-32	62236					
1-1/4	8-32	62238					
1-3/8	8-32	62240					
1-1/2	8-32	62242					
1-3/4	8-32	62244					
2	8-32	62246					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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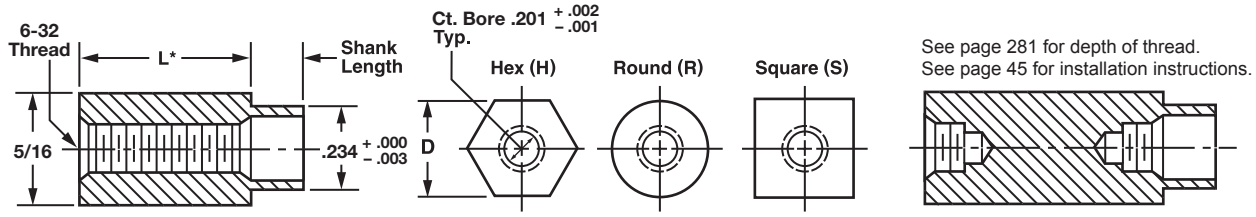
SWAGE STANDOFFS - THREADED & CLEAR HOLE

5/16" Hex, Round or Square - 6-32 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS

Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W71010-H-SS-.105-12
.140 - ID

ORDER EXAMPLE:

71010 - H - SS - .105 - 12 - HT

- 71010: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 71040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -26	HA-56	1/8-3/16
	RA-27	HA-57	1/4-7/16
	RA-28	HA-58	1/2-11/16
	RA-29	HA-59	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 56 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	6-32	71010					
3/16	6-32	71015					
1/4	6-32	71020					
5/16	6-32	71025					
3/8	6-32	71030					
7/16	6-32	71035					
1/2	6-32	71040					
9/16	6-32	71045					
5/8	6-32	71050					
11/16	6-32	71055					
3/4	6-32	71060					
13/16	6-32	71062					
7/8	6-32	71065					
15/16	6-32	71067					
1	6-32	71070					
1-1/8	6-32	71075					
1-1/4	6-32	71080					
1-1/2	6-32	71085					
1-3/4	6-32	71090					
2	6-32	71095					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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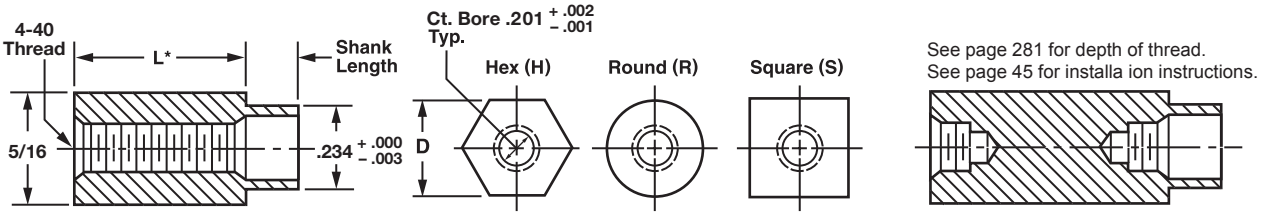
SWAGE STANDOFFS - THREADED & CLEAR HOLE

5/16" Hex, Round or Square - 4-40 Thd.



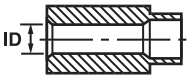
See page 281 for depth of thread.
See page 45 for installa ion instructions.

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: Q72010-H-SS-.105-12
.091 - ID

ORDER EXAMPLE:

72010 - H - SS - .105 - 12 - HT

- 72010: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 72040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -26	HA-56	1/8-3/16
	RA-27	HA-57	1/4-7/16
	RA-28	HA-58	1/2-11/16
	RA-29	HA-59	3/4 & up

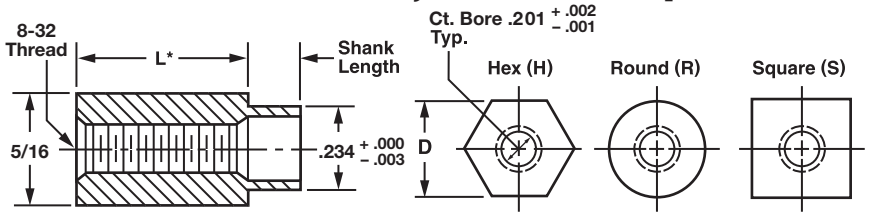
EXAMPLE: P - 5 ← PUNCH HA - 56 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	4-40	72010					
3/16	4-40	72015					
1/4	4-40	72020					
5/16	4-40	72025					
3/8	4-40	72030					
7/16	4-40	72035					
1/2	4-40	72040					
9/16	4-40	72045					
5/8	4-40	72050					
11/16	4-40	72055					
3/4	4-40	72060					
13/16	4-40	72062					
7/8	4-40	72065					
15/16	4-40	72066					
1	4-40	72070					
1-1/8	4-40	72075					
1-1/4	4-40	72080					
1-1/2	4-40	72085					
1-3/4	4-40	72090					
2	4-40	72095					

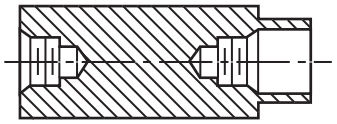
NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

SWAGE STANDOFFS - THREADED & CLEAR HOLE

5/16" Hex, Round or Square - 8-32 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.



Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS

Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W81010-H-SS-.105-12
.140 - ID

ORDER EXAMPLE:

81010 - H - SS - .105 - 12 - HT

- 81010: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 81040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -26	HA-56	1/8-3/16
	RA-27	HA-57	1/4-7/16
	RA-28	HA-58	1/2-11/16
	RA-29	HA-59	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 56 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	8-32	81010					
5/32	8-32	81012					
3/16	8-32	81015					
1/4	8-32	81020					
5/16	8-32	81025					
3/8	8-32	81030					
7/16	8-32	81035					
1/2	8-32	81040					
9/16	8-32	81045					
5/8	8-32	81050					
11/16	8-32	81055					
3/4	8-32	81060					
13/16	8-32	81062					
7/8	8-32	81065					
15/16	8-32	81067					
1	8-32	81070					
1-1/8	8-32	81075					
1-1/4	8-32	81080					
1-1/2	8-32	81085					
1-3/4	8-32	81090					
2	8-32	81095					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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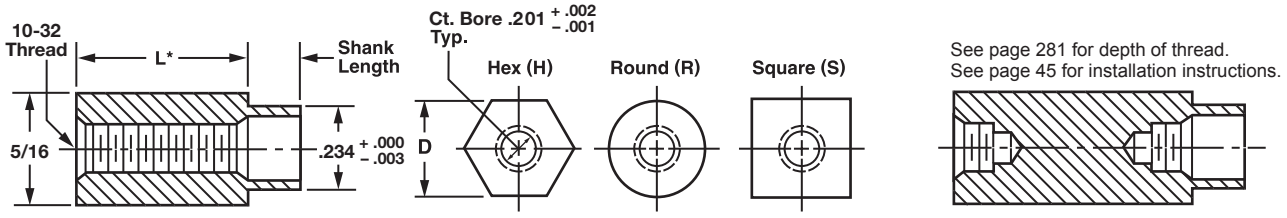
SWAGE STANDOFFS - THREADED & CLEAR HOLE

5/16" Hex, Round or Square - 10-32 Thd.



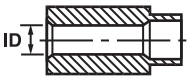
See page 281 for depth of thread.
See page 45 for installation instructions.

Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	F ber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: Q82010-H-SS-.105-12
.091 - ID

ORDER EXAMPLE:

82010 - H - SS - .105 - 12 - HT

- 82010: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 82024-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -26	HA-56	1/8-3/16
	RA-27	HA-57	1/4-7/16
	RA-28	HA-58	1/2-11/16
	RA-29	HA-59	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 56 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	10-32	82010					
5/32	10-32	82012					
3/16	10-32	82014					
1/4	10-32	82016					
5/16	10-32	82018					
3/8	10-32	82020					
7/16	10-32	82022					
1/2	10-32	82024					
9/16	10-32	82026					
5/8	10-32	82028					
11/16	10-32	82030					
3/4	10-32	82032					
13/16	10-32	82034					
7/8	10-32	82036					
1	10-32	82038					
1-1/8	10-32	82040					
1-1/4	10-32	82042					
1-1/2	10-32	82044					
1-3/4	10-32	82046					
2	10-32	82048					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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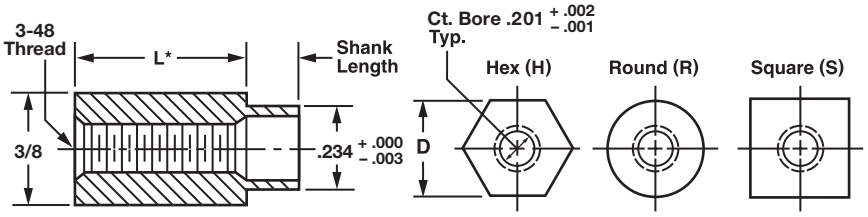
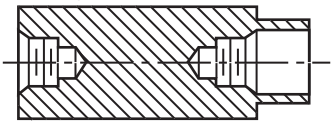
SWAGE STANDOFFS - THREADED & CLEAR HOLE

3/8" Hex, Round or Square - 3/48 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

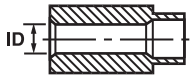


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	F ber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 -.000	Code Letter	ID +.010 -.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W53010-H-SS-.105-12
.140 - ID

ORDER EXAMPLE:

53010 - H - SS - .105 - 12 - HT

- 53010: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 53040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -30	HA-60	1/8-3/16
	RA-31	HA-61	1/4-7/16
	RA-32	HA-62	1/2-11/16
	RA-33	HA-63	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 60 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	3-48	53010					
3/16	3-48	53015					
1/4	3-48	53020					
5/16	3-48	53025					
3/8	3-48	53030					
7/16	3-48	53035					
1/2	3-48	53040					
9/16	3-48	53045					
5/8	3-48	53050					
11/16	3-48	53055					
3/4	3-48	53060					
13/16	3-48	53062					
7/8	3-48	53065					
15/16	3-48	53066					
1	3-48	53070					
1-1/8	3-48	53075					
1-1/4	3-48	53080					
1-1/2	3-48	53085					
1-3/4	3-48	53090					
2	3-48	53095					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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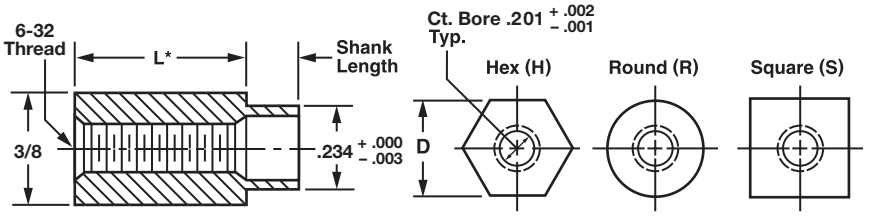
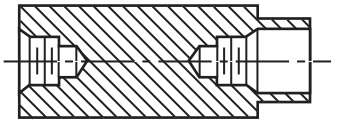
SWAGE STANDOFFS - THREADED & CLEAR HOLE

3/8" Hex, Round or Square - 6-32 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

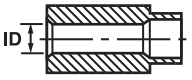


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 -.000	Code Letter	ID +.010 -.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: Q91010-H-SS-.105-12
.091 - ID

ORDER EXAMPLE:

91010 - H - SS - .105 - 12 - HT

- 91010: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 91040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -30	HA-60	1/8-3/16
	RA-31	HA-61	1/4-7/16
	RA-32	HA-62	1/2-11/16
	RA-33	HA-63	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 60 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	6-32	91010					
3/16	6-32	91015					
1/4	6-32	91020					
3/8	6-32	91025					
5/16	6-32	91030					
7/16	6-32	91035					
1/2	6-32	91040					
9/16	6-32	91045					
5/8	6-32	91050					
11/16	6-32	91055					
3/4	6-32	91060					
13/16	6-32	91062					
7/8	6-32	91065					
1	6-32	91070					
1-1/8	6-32	91075					
1-1/4	6-32	91080					
1-1/2	6-32	91085					
1-3/4	6-32	91090					
2	6-32	91095					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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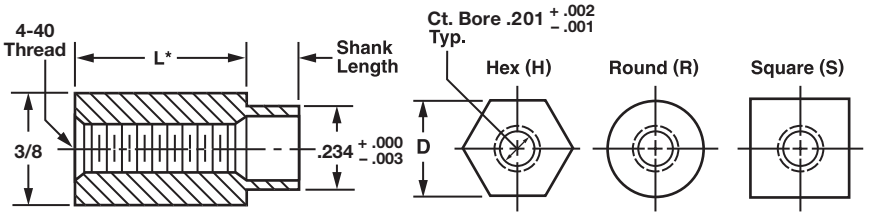
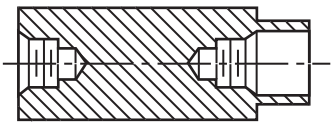
SWAGE STANDOFFS - THREADED & CLEAR HOLE

3/8" Hex, Round or Square - 4-40 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

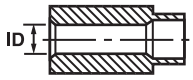


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W93010-H-SS-.105-12
.140 - ID

ORDER EXAMPLE:

93010 - H - SS - .105 - 12 - HT

- **93010** — Basic Part Number
- **H** — Hex (H), Round (R) or Square (S)
- **SS** — Material: See chart
- **.105** — Shank Length: See chart or fill in your own length
- **12** — Finish: See page 277
- **HT** — Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 93040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -30	HA-60	1/8-3/16
	RA-31	HA-61	1/4-7/16
	RA-32	HA-62	1/2-11/16
	RA-33	HA-63	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 60 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	4-40	93010					
3/16	4-40	93015					
1/4	4-40	93020					
5/16	4-40	93025					
3/8	4-40	93030					
7/16	4-40	93035					
1/2	4-40	93040					
9/16	4-40	93045					
5/8	4-40	93050					
11/16	4-40	93055					
3/4	4-40	93060					
13/16	4-40	93062					
7/8	4-40	93065					
15/16	4-40	93066					
1	4-40	93070					
1-1/8	4-40	93075					
1-1/4	4-40	93080					
1-1/2	4-40	93085					
1-3/4	4-40	93090					
2	4-40	93095					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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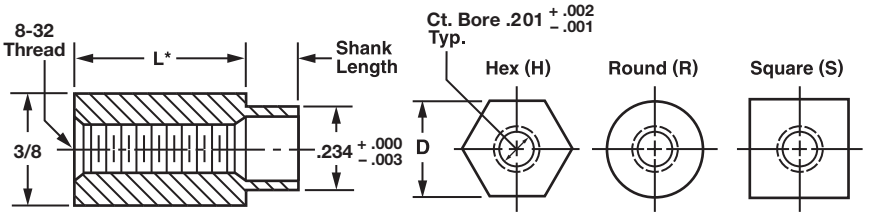
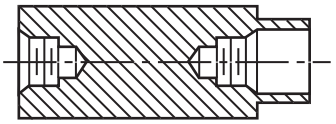
SWAGE STANDOFFS - THREADED & CLEAR HOLE

3/8" Hex, Round or Square - 8-32 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

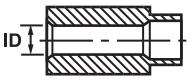


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: Q12010-H-SS-.105-12
.091 - ID

ORDER EXAMPLE:

12010 - H - SS - .105 - 12 - HT

- **12010** — Basic Part Number
- **H** — Hex (H), Round (R) or Square (S)
- **SS** — Material: See chart
- **.105** — Shank Length: See chart or fill in your own length
- **12** — Finish: See page 277
- **HT** — Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 12040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -30	HA-60	1/8-3/16
	RA-31	HA-61	1/4-7/16
	RA-32	HA-62	1/2-11/16
	RA-33	HA-63	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 60 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	8-32	12010					
3/16	8-32	12015					
1/4	8-32	12020					
5/16	8-32	12025					
3/8	8-32	12030					
7/16	8-32	12035					
1/2	8-32	12040					
9/16	8-32	12045					
5/8	8-32	12050					
11/16	8-32	12055					
3/4	8-32	12060					
13/16	8-32	12062					
7/8	8-32	12065					
1	8-32	12070					
1-1/8	8-32	12075					
1-1/4	8-32	12080					
1-1/2	8-32	12085					
1-3/4	8-32	12090					
2	8-32	12095					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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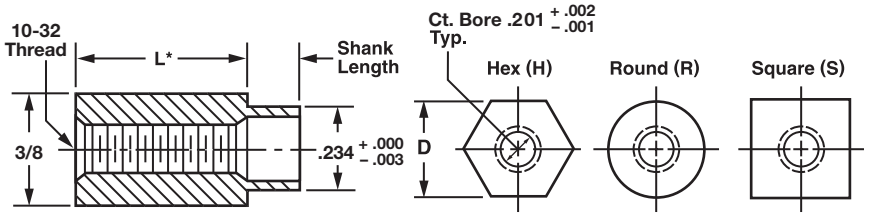
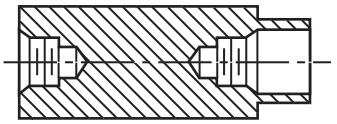
SWAGE STANDOFFS - THREADED & CLEAR HOLE

3/8" Hex, Round or Square - 10-32 Thd.



See page 281 for depth of thread.
See page 45 for installation instruc ions.



Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS

Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W13010-H-SS-.105-12
.140 - ID

ORDER EXAMPLE:

13010 - H - SS - .105 - 12 - HT

- 13010: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 13040-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -30	HA-60	1/8-3/16
	RA-31	HA-61	1/4-7/16
	RA-32	HA-62	1/2-11/16
	RA-33	HA-63	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 60 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	10-32	13010					
3/16	10-32	13015					
1/4	10-32	13020					
5/16	10-32	13025					
3/8	10-32	13030					
7/16	10-32	13035					
1/2	10-32	13040					
9/16	10-32	13045					
5/8	10-32	13050					
11/16	10-32	13055					
3/4	10-32	13060					
13/16	10-32	13062					
7/8	10-32	13065					
1	10-32	13070					
1-1/8	10-32	13075					
1-1/4	10-32	13080					
1-1/2	10-32	13085					
1-3/4	10-32	13090					
2	10-32	13095					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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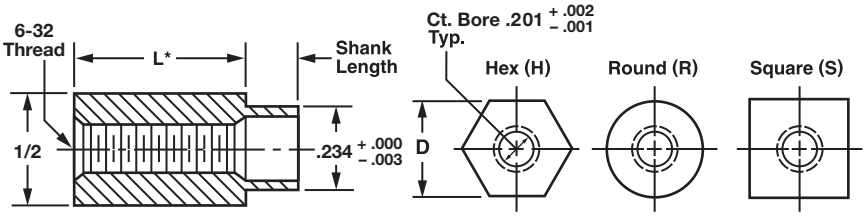
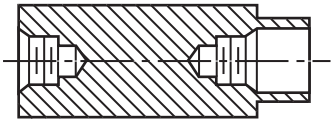
SWAGE STANDOFFS - THREADED & CLEAR HOLE

1/2" Hex, Round or Square - 6-32 Thd.



See page 281 for depth of thread.
See page 45 for installa ion instructions.

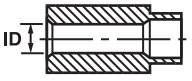


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: Q13200-H-SS-.105-12
.091 - ID

ORDER EXAMPLE:

13200 - H - SS - .105 - 12 - HT

13200	H	SS	.105	12	HT
Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart	Shank Length: See chart or fill in your own length	Finish: See page 277	Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 13212-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -34	HA-64	1/8-3/16
	RA-35	HA-65	1/4-7/16
	RA-36	HA-66	1/2-11/16
	RA-37	HA-67	3/4 & up

EXAMPLE: P - 5 ← PUNCH RA - 34 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	6-32	13200					
3/16	6-32	13202					
1/4	6-32	13204					
5/16	6-32	13206					
3/8	6-32	13208					
7/16	6-32	13210					
1/2	6-32	13212					
9/16	6-32	13214					
5/8	6-32	13216					
11/16	6-32	13218					
3/4	6-32	13220					
13/16	6-32	13222					
7/8	6-32	13224					
1	6-32	13226					
1-1/8	6-32	13228					
1-1/4	6-32	13230					
1-1/2	6-32	13232					
1-3/4	6-32	13234					
2	6-32	13236					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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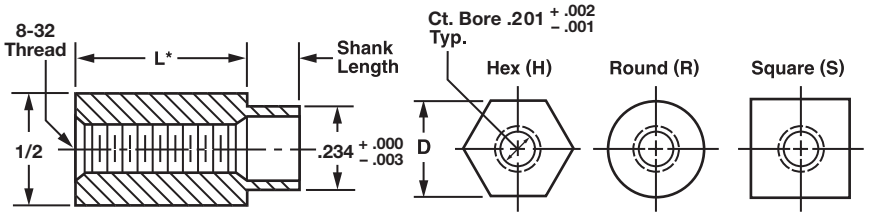
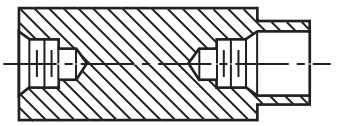
SWAGE STANDOFFS - THREADED & CLEAR HOLE

1/2" Hex, Round or Square - 8-32 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

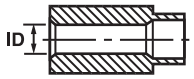


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W13238-H-SS-.105-12
.140 - ID

ORDER EXAMPLE:

13238 - H - SS - .105 - 12 - HT

- 13238: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 13250-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -34	HA-64	1/8-3/16
	RA-35	HA-65	1/4-7/16
	RA-36	HA-66	1/2-11/16
	RA-37	HA-67	3/4 & up

EXAMPLE: P - 5 ← PUNCH RA - 34 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	8-32	13238					
3/16	8-32	13240					
1/4	8-32	13242					
5/16	8-32	13244					
3/8	8-32	13246					
7/16	8-32	13248					
1/2	8-32	13250					
9/16	8-32	13252					
5/8	8-32	13254					
11/16	8-32	13256					
3/4	8-32	13258					
13/16	8-32	13260					
7/8	8-32	13262					
1	8-32	13264					
1-1/8	8-32	13266					
1-1/4	8-32	13268					
1-1/2	8-32	13270					
1-3/4	8-32	13272					
2	8-32	13274					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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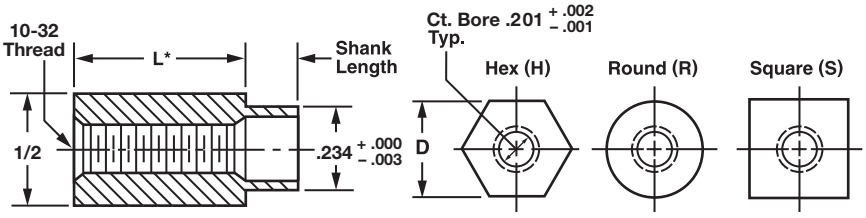
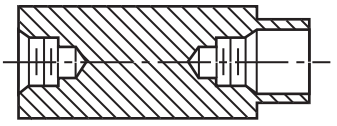
SWAGE STANDOFFS - THREADED & CLEAR HOLE

1/2" Hex, Round or Square - 10-32 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

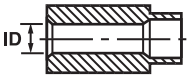


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W13276-H-SS-.105-12
.140 - ID

ORDER EXAMPLE:

13276 - H - SS - .105 - 12 - HT

- 13276: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 12: Finish: See page 277
- HT: Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 13288-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	Hex	
P-5	RA -34	HA-64	1/8-3/16
	RA-35	HA-65	1/4-7/16
	RA-36	HA-66	1/2-11/16
	RA-37	HA-67	3/4 & up

EXAMPLE: P - 5 ← PUNCH RA - 34 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	10-32	13276					
3/16	10-32	13278					
1/4	10-32	13280					
5/16	10-32	13282					
3/8	10-32	13284					
7/16	10-32	13286					
1/2	10-32	13288					
9/16	10-32	13290					
5/8	10-32	13292					
11/16	10-32	13294					
3/4	10-32	13296					
13/16	10-32	13298					
7/8	10-32	13300					
1	10-32	13302					
1-1/8	10-32	13304					
1-1/4	10-32	13306					
1-1/2	10-32	13308					
1-3/4	10-32	13310					
2	10-32	13312					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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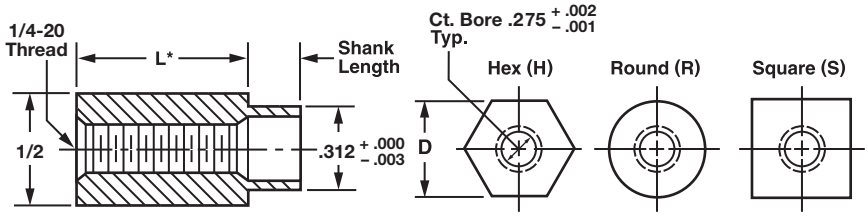
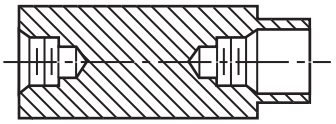
SWAGE STANDOFFS - THREADED & CLEAR HOLE

1/2" Hex, Round or Square - 1/4-20 Thd.



See page 281 for depth of thread.
See page 45 for installation instructions.

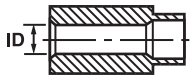


Available Material (see page 275)			
A	Aluminum	Ph**	Phenolic (Paper)
B	Brass	Phl**	Phenolic (Linen)
C	Copper	L**	Polycarbonate (Lexan)
S	Steel	PA**	A.B.S
SS	Stainless Steel	PP**	P.V.C
N	Nylon	T	Teflon
D	Delrin	F**	Fiber

**Supplied in round only.

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.091	Q	.156	XX
.115	U	.171	X
.120	V	.194	Y
.140	W	.215	Z
.150	WW	.257	ZZ

Prefix letter code to part number.
EXAMPLE: W13314-H-SS-.105-12
.040 - ID

ORDER EXAMPLE:

13314 - H - SS - .105 - 12 - HT

13314	H	SS	.105	12	HT
Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart	Shank Length: See chart or fill in your own length	Finish: See page 277	Hi-Torque Option: See page 45

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 13326-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-8	RA -34	HA-64	1/8-3/16
	RA-35	HA-65	1/4-7/16
	RA-36	HA-66	1/2-11/16
	RA-37	HA-67	3/4 & up

EXAMPLE: P - 8 ← PUNCH RA - 34 ← ANVIL

L Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish	HT Option
1/8	1/4-20	13314					
3/16	1/4-20	13316					
1/4	1/4-20	13318					
5/16	1/4-20	13320					
3/8	1/4-20	13322					
7/16	1/4-20	13324					
1/2	1/4-20	13326					
9/16	1/4-20	13328					
5/8	1/4-20	13330					
11/16	1/4-20	13332					
3/4	1/4-20	13334					
13/16	1/4-20	13336					
7/8	1/4-20	13338					
1	1/4-20	13340					
1-1/8	1/4-20	13342					
1-1/4	1/4-20	13344					
1-1/2	1/4-20	13346					
1-3/4	1/4-20	13348					
2	1/4-20	13350					

NOTE: Where L dimension is 1/2 or longer, see page 281 for depth of thread.

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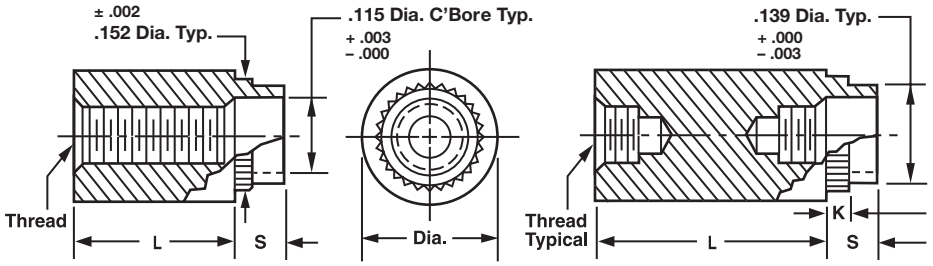
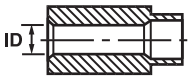
POSITIVE LOCKING SWAGE STANDOFF

Threaded and Clear Hole - 3/16" Round - 2-56 or 4-40 Thd.



See page 281 for depth of thread.

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code	
ID +.010 –.000	Code Letter
.091	Q
.115	U

Prefix letter code to part number.
EXAMPLE: U67200-R-SS-.105-12
.115 - ID

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	S - Shank Length for Swage Type	K Knurl
1/32	.075	1/32
1/16	.105	1/16
3/32	.135	3/32
1/8	.165	1/8
3/16	.230	5/32
1/4	.290	3/16

ORDER EXAMPLE:

67200 - 256 - A - .105 - 1

- 67200 — Basic Part Number
- 256 — Thread Size
- A — Material: See chart
- .105 — Shank Length: See chart or fill in your own length
- 1 — Finish: See page 277

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 67202-4-40-A-.105-1 (L=.200)
Hex material available, add an H to the part number.
EXAMPLE: 67202-H-4-40-A-.105-1

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-3	RA -18	HA-48	1/8-3/16
	RA-19	HA-49	1/4-7/16
	RA-20	HA-50	1/2-11/16
	RA-21	HA-51	3/4 & up

EXAMPLE: P - 3 ← PUNCH HA - 48 ← ANVIL

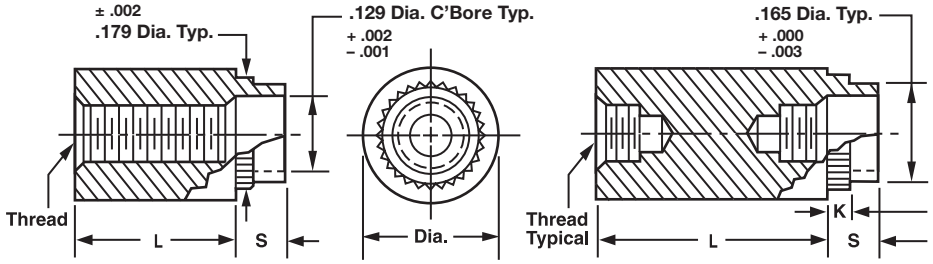
Panel hole size* should be: .140 +.005 -.000

Length	Basic Part Number	Thread 2-56 or 4-40	Material	Shank Length	Finish
1/8	67200				
3/16	67202				
1/4	67204				
5/16	67206				
3/8	67208				
7/16	67210				
1/2	67212				
9/16	67214				
5/8	67216				
11/16	67218				
3/4	67220				
13/16	67222				
7/8	67224				
15/16	67226				
1	67228				
1-1/4	67230				
1-1/2	67232				
1-3/4	67234				
2	67236				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
*See page 45 for installation instructions.

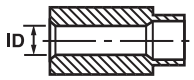
POSITIVE LOCKING SWAGE STANDOFF

Threaded and Clear Hole - 7/32" Round - 2-56 or 4-40 Thd.



See page 281 for depth of thread.

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 –.000	Code Letter	ID +.010 –.000	Code Letter
.091	Q	.120	V
.115	U	.140	W

Prefix letter code to part number.
EXAMPLE: W67250-R-SS-.105-12
.140 - ID

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

STAKING TOOLS ARE NOT AVAILABLE FOR THIS PART NUMBER

Board Thickness	S - Shank Length for Swage Type	K Knurl
1/32	.075	1/32
1/16	.105	1/16
3/32	.135	3/32
1/8	.165	1/8
3/16	.230	5/32
1/4	.290	3/16

ORDER EXAMPLE:

67250 - 256 - A - .105 - 1

- 67250: Basic Part Number
- 256: Thread Size
- A: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 1: Finish: See page 277

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 67252 -4-40 A .105 - 1 (L=.200)

Panel hole size* should be: .166 +.005 -.000

TECH TIP

Download 3D CAD models of this and other parts in a wide range of standard formats at www.accuratescrew.com.

Length	Basic Part Number	Thread 2-56 or 4-40	Material	Shank Length	Finish
1/8	67250				
3/16	67252				
1/4	67254				
5/16	67256				
3/8	67258				
7/16	67260				
1/2	67262				
9/16	67264				
5/8	67266				
11/16	67268				
3/4	67270				
13/16	67272				
7/8	67274				
15/16	67276				
1	67278				
1-1/4	67280				
1-1/2	67282				
1-3/4	67284				
2	67286				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
*See page 45 for installation instructions.

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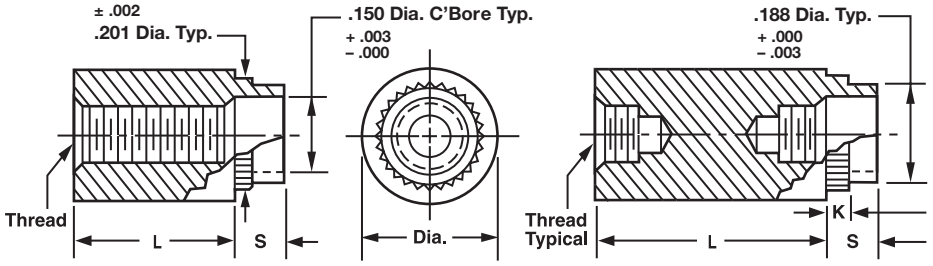
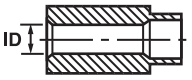
POSITIVE LOCKING SWAGE STANDOFF

Threaded and Clear Hole - 1/4" Round - 4-40 or 6-32 Thd.



See page 281 for depth of thread.

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 –.000	Code Letter	ID +.010 –.000	Code Letter
.091	Q	.140	W
.115	U	.150	WW
.120	V	.156	XX

Prefix letter code to part number.
EXAMPLE: W67300-R-SS-.105-12
.140 - ID

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	S - Shank Length for Swage Type	K Knurl
1/32	.075	1/32
1/16	.105	1/16
3/32	.135	3/32
1/8	.165	1/8
3/16	.230	5/32
1/4	.290	3/16

ORDER EXAMPLE:

67300 - 440 - A - .105 - 1

- 67300: Basic Part Number
- 440: Thread Size
- A: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 1: Finish: See page 277

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 67302-440-A-.105-1 (L=.200)
Hex material is available, add an H to the part number.
EXAMPLE: 67300-H-6-32-A-.105-1

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-4	RA -22	HA-52	1/8-3/16
	RA-23	HA-53	1/4-7/16
	RA-24	HA-54	1/2-11/16
	RA-25	HA-55	3/4 & up

EXAMPLE: P - 4 ← PUNCH HA - 52 ← ANVIL

Panel hole size* should be: .188 +.005 -.000

Length	Basic Part Number	Thread 4-40 or 6-32	Material	Shank Length	Finish
1/8	67300				
3/16	67302				
1/4	67304				
5/16	67306				
3/8	67308				
7/16	67310				
1/2	67312				
9/16	67314				
5/8	67316				
11/16	67318				
3/4	67320				
13/16	67322				
7/8	67324				
15/16	67326				
1	67328				
1-1/4	67330				
1-1/2	67332				
1-3/4	67334				
2	67336				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
*See page 45 for installation instructions.

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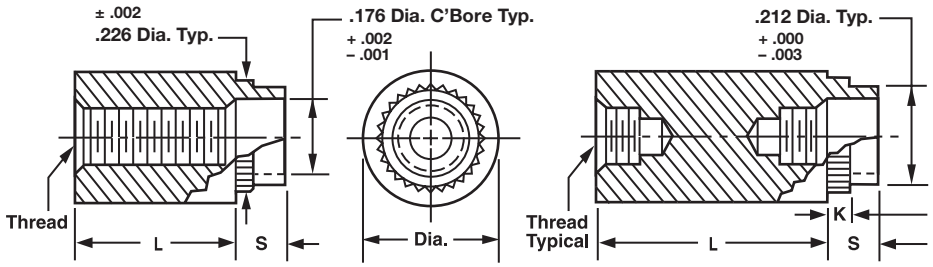
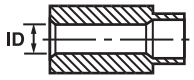
POSITIVE LOCKING SWAGE STANDOFF

Threaded and Clear Hole - 9/32" Round - 4-40 or 6-32 Thd.



See page 281 for depth of thread.

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 –.000	Code Letter	ID +.010 –.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W		

Prefix letter code to part number.
EXAMPLE: W67350-R-SS-.105-12
.140 - ID

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	S - Shank Length for Swage Type	K Knurl
1/32	.075	1/32
1/16	.105	1/16
3/32	.135	3/32
1/8	.165	1/8
3/16	.230	5/32
1/4	.290	3/16

ORDER EXAMPLE:

67350 - 440 - A - .105 - 1

- 67350 — Basic Part Number
- 440 — Thread Size
- A — Material: See chart
- .105 — Shank Length: See chart or fill in your own length
- 1 — Finish: See page 277

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 67352-440-A-.105-1 (L=.200)

STAKING TOOLS
ARE NOT AVAILABLE
FOR THIS PART NUMBER

Panel hole size* should be: .213 +.005 -.000

Length	Basic Part Number	Thread 4-40 or 6-32	Material	Shank Length	Finish
1/8	67350				
3/16	67352				
1/4	67354				
5/16	67356				
3/8	67358				
7/16	67360				
1/2	67362				
9/16	67364				
5/8	67366				
11/16	67368				
3/4	67370				
13/16	67372				
7/8	67374				
15/16	67376				
1	67378				
1-1/4	67380				
1-1/2	67382				
1-3/4	67384				
2	67386				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
*See page 45 for installation instructions.

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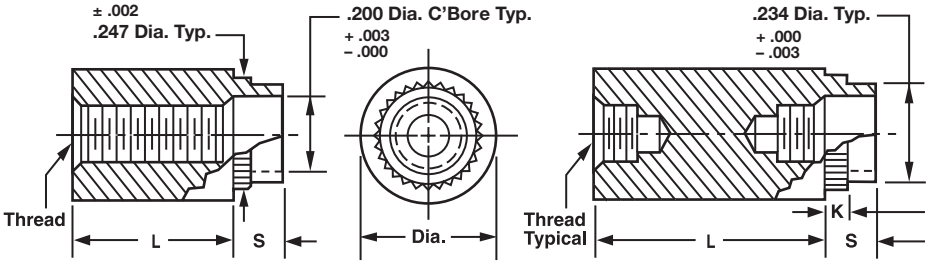
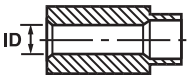
POSITIVE LOCKING SWAGE STANDOFF

Threaded and Clear Hole - 5/16" Round - 6-32, 8-32 or 10-32 Thd.



See page 281 for depth of thread.

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 –.000	Code Letter	ID +.010 –.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W67400-R-SS-.105-12
.140 - ID

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	S - Shank Length for Swage Type	K Knurl
1/32	.075	1/32
1/16	.105	1/16
3/32	.135	3/32
1/8	.165	1/8
3/16	.230	5/32
1/4	.290	3/16

ORDER EXAMPLE:

67400 - 632 - A - .105 - 1

- 67400: Basic Part Number
- 632: Thread Size
- A: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 1: Finish: See page 277

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 67400-632-A-.105-1 (L=.200)
Hex material is available, add an H to the part number.
EXAMPLE: 67400-H-632-A-.105-1

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -26	HA-56	1/8-3/16
	RA-27	HA-57	1/4-7/16
	RA-28	HA-58	1/2-11/16
	RA-29	HA-59	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 56 ← ANVIL

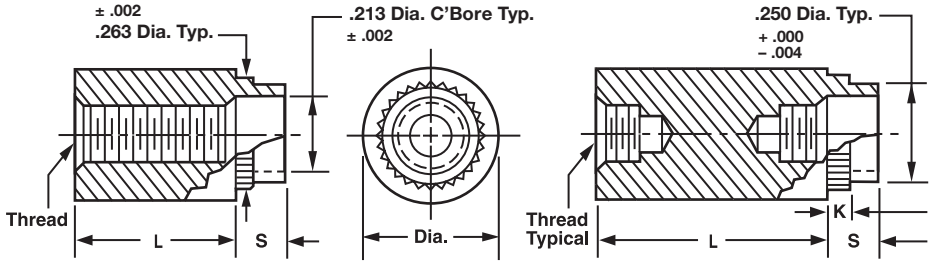
Panel hole size* should be: .234 +.005 -.000

Length	Basic Part Number	Thread 6-32, 8-32 or 10-32	Material	Shank Length	Finish
1/8	67400				
3/16	67402				
1/4	67404				
5/16	67406				
3/8	67408				
7/16	67410				
1/2	67412				
9/16	67414				
5/8	67416				
11/16	67418				
3/4	67420				
13/16	67422				
7/8	67424				
15/16	67426				
1	67428				
1-1/4	67430				
1-1/2	67432				
1-3/4	67434				
2	67436				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
*See page 45 for installation instruc ions.

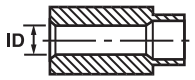
POSITIVE LOCKING SWAGE STANDOFF

Threaded and Clear Hole - 11/32" Round - 6-32, 8-32 or 10-32 Thd.



See page 281 for depth of thread.

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 –.000	Code Letter	ID +.010 –.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W		

Prefix letter code to part number.
EXAMPLE: W67450-R-SS-.105-12
.140 - ID

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	S - Shank Length for Swage Type	K Knurl
1/32	.075	1/32
1/16	.105	1/16
3/32	.135	3/32
1/8	.165	1/8
3/16	.230	5/32
1/4	.290	3/16

ORDER EXAMPLE:

67450 - 632 - A - .105 - 1

- 67450 — Basic Part Number
- 632 — Thread Size
- A — Material: See chart
- .105 — Shank Length: See chart or fill in your own length
- 1 — Finish: See page 277

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 67452-632-A-.105-1 (L=.200)

STAKING TOOLS
ARE NOT AVAILABLE
FOR THIS PART NUMBER

Panel hole size* should be: .250 +.005 -.000

Length	Basic Part Number	Thread 6-32, 8-32 or 10-32	Material	Shank Length	Finish
1/8	67450				
3/16	67452				
1/4	67454				
5/16	67456				
3/8	67458				
7/16	67460				
1/2	67462				
9/16	67464				
5/8	67466				
11/16	67468				
3/4	67470				
13/16	67472				
7/8	67474				
15/16	67476				
1	67478				
1-1/4	67480				
1-1/2	67482				
1-3/4	67484				
2	67486				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
*See page 45 for installation instructions.

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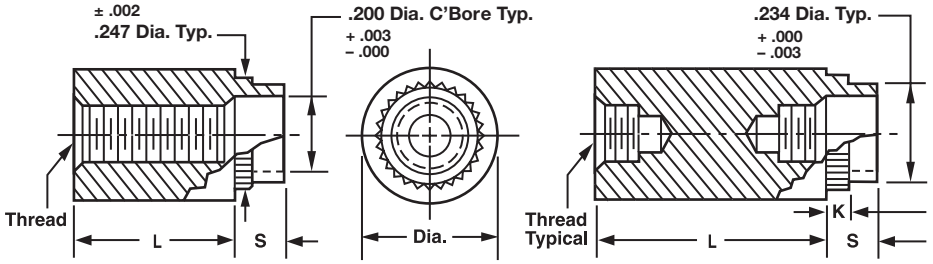
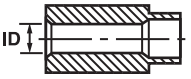
POSITIVE LOCKING SWAGE STANDOFF

Threaded and Clear Hole - 3/8" Round - 6-32 or 8-32 or 10-32 Thd.



See page 281 for depth of thread.

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 –.000	Code Letter	ID +.010 –.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W67500-R-SS-.105-12
.140 - ID

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	S - Shank Length for Swage Type	K Knurl
1/32	.075	1/32
1/16	.105	1/16
3/32	.135	3/32
1/8	.165	1/8
3/16	.230	5/32
1/4	.290	3/16

ORDER EXAMPLE:

67500 - 632 - A - .105 - 1

- 67500: Basic Part Number
- 632: Thread Size
- A: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 1: Finish: See page 277

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 67502-632-A-.105-1 (L=.200)
Hex Material available,add an H to the part number.
EXAMPLE: 67500-H-632-A-.105-1

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -30	HA-60	1/8-3/16
	RA-31	HA-61	1/4-7/16
	RA-32	HA-62	1/2-11/16
	RA-33	HA-63	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 60 ← ANVIL

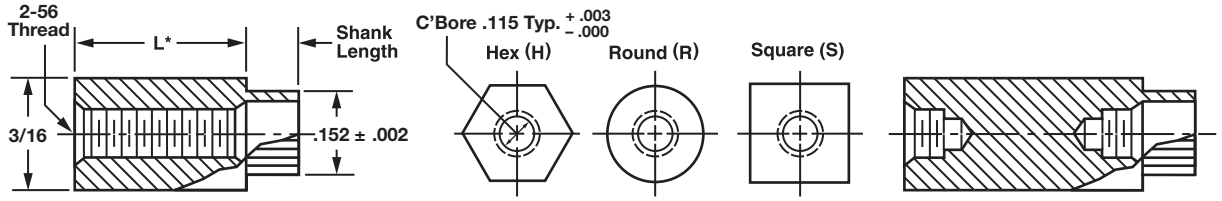
Panel hole size* should be: .234 +.005 -.000

Length	Basic Part Number	Thread 6-32, 8-32 or 10-32	Material	Shank Length	Finish
1/8	67500				
3/16	67502				
1/4	67504				
5/16	67506				
3/8	67508				
7/16	67510				
1/2	67512				
9/16	67514				
5/8	67516				
11/16	67518				
3/4	67520				
13/16	67522				
7/8	67524				
15/16	67526				
1	67528				
1-1/4	67530				
1-1/2	67532				
1-3/4	67534				
2	67536				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
*See page 45 for installation instructions.

KNURLED STANDOFFS

Threaded and Clear Hole - 3/16" Hex, Round or Squar e - 2-56 Thd.



Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS

Available ID and Appropriate Code	
ID +.010 -.000	Code Letter
.070	P
.091	Q
.115	U

Prefix letter code to part number.
EXAMPLE: P901000-R-SS-.105-12
.070 - ID

ORDER EXAMPLE:

901000 - H - SS - .105 - 1

- 901000: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 1: Finish: See page 277

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 901014-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-3	RA -18	HA-48	1/8-3/16
	RA-19	HA-49	1/4-7/16
	RA-20	HA-50	1/2-11/16
	RA-21	HA-51	3/4 & up

EXAMPLE: P - 3 ← PUNCH HA - 48 ← ANVIL

Panel hole size** should be: .140 +.005 -.000

Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish
1/8	2-56	901000				
5/32	2-56	901002				
3/16	2-56	901004				
1/4	2-56	901006				
5/16	2-56	901008				
3/8	2-56	901010				
7/16	2-56	901012				
1/2	2-56	901014				
9/16	2-56	901016				
5/8	2-56	901018				
11/16	2-56	901020				
3/4	2-56	901022				
13/16	2-56	901024				
7/8	2-56	901026				
15/16	2-56	901028				
1	2-56	901030				
1-3/16	2-56	901032				
1-1/4	2-56	901034				
1-3/8	2-56	901036				
1-1/2	2-56	901038				
1-3/4	2-56	901040				
2	2-56	901042				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
**See page 45 for installation instructions.

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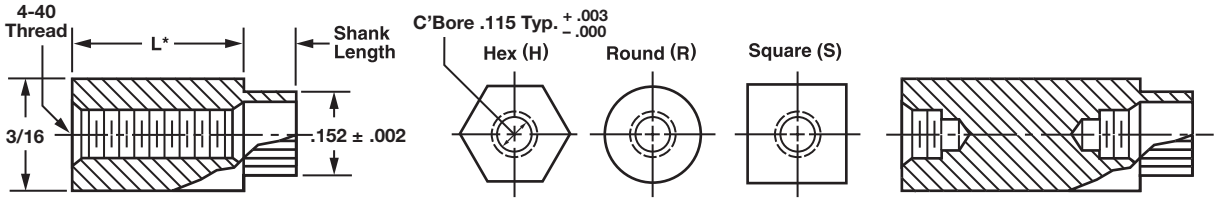
KNURLED STANDOFFS

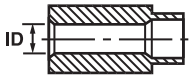
Threaded and Clear Hole - 3/16" Hex, Round or Squar e - 4-40 Thd.



Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code	
ID +.010 –.000	Code Letter
.070	P
.091	Q
.115	U

Prefix letter code to part number.
EXAMPLE: P901084-R-SS-.105-12
.070 - ID

ORDER EXAMPLE:

901084 - H - SS - .105 - 1

- 901084: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 1: Finish: See page 277

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 901098-R-SS-.105-12 (L=.525)

Panel hole size** should be: .140 +.005 -.000

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-3	RA -18	HA-48	1/8-3/16
	RA-19	HA-49	1/4-7/16
	RA-20	HA-50	1/2-11/16
	RA-21	HA-51	3/4 & up

EXAMPLE: P - 3 ← PUNCH HA - 48 ← ANVIL

Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish
3/32	4-40	901084				
1/8	4-40	901086				
3/16	4-40	901088				
1/4	4-40	901090				
5/16	4-40	901092				
3/8	4-40	901094				
7/16	4-40	901096				
1/2	4-40	901098				
9/16	4-40	901100				
5/8	4-40	901102				
11/16	4-40	901104				
3/4	4-40	901106				
13/16	4-40	901108				
7/8	4-40	901110				
1	4-40	901112				
1-3/16	4-40	901114				
1-1/4	4-40	901116				
1-3/8	4-40	901118				
1-1/2	4-40	901120				
1-3/4	4-40	901122				
2	4-40	901124				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
**See page 45 for installation instructions.

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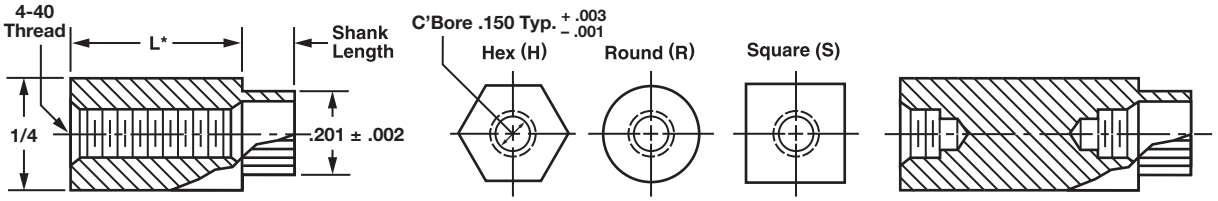
KNURLED STANDOFFS

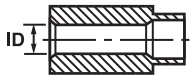
Threaded and Clear Hole - 1/4" Hex, Round or Squar e - 4-40 Thd.



Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 −.000	Code Letter	ID +.010 −.000	Code Letter
.070	P	.140	W
.091	Q	.150	WW
.115	U	.156	XX
.120	V		

Prefix letter code to part number.
EXAMPLE: P901044-R-SS-.105-12
.070 - ID

ORDER EXAMPLE:

901044 - H - SS - .105 - 1

- 901044: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 1: Finish: See page 277

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 901056-R-SS-.105-12 (L=.525)

Panel hole size** should be: .188 +.005 -.000

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-4	RA -22	HA-52	1/8-3/16
	RA-23	HA-53	1/4-7/16
	RA-24	HA-54	1/2-11/16
	RA-25	HA-55	3/4 & up

EXAMPLE: P - 4 ← PUNCH HA - 52 ← ANVIL

Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish
1/8	4-40	901044				
3/16	4-40	901046				
1/4	4-40	901048				
5/16	4-40	901050				
3/8	4-40	901052				
7/16	4-40	901054				
1/2	4-40	901056				
9/16	4-40	901058				
5/8	4-40	901060				
11/16	4-40	901062				
3/4	4-40	901064				
13/16	4-40	901066				
7/8	4-40	901068				
15/16	4-40	901070				
1	4-40	901072				
1-1/8	4-40	901074				
1-1/4	4-40	901076				
1-1/2	4-40	901078				
1-3/4	4-40	901080				
2	4-40	901082				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
**See page 45 for installation instructions.

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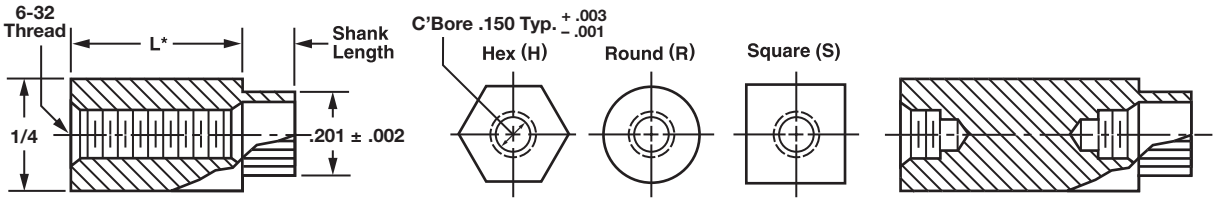
KNURLED STANDOFFS

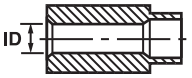
Threaded and Clear Hole - 1/4" Hex, Round or Squar e - 6-32 Thd.



Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 -.000	Code Letter	ID +.010 -.000	Code Letter
.091	Q	.140	W
.115	U	.150	WW
.120	V	.156	XX

Prefix letter code to part number.
EXAMPLE: W901126-R-SS-.105-12
.140 - ID

ORDER EXAMPLE:

901126 - H - SS - .105 - 1

- 901126: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 1: Finish: See page 277

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 901144-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-4	RA -22	HA-52	1/8-3/16
	RA-23	HA-53	1/4-7/16
	RA-24	HA-54	1/2-11/16
	RA-25	HA-55	3/4 & up

EXAMPLE: P - 4 ← PUNCH HA - 52 ← ANVIL

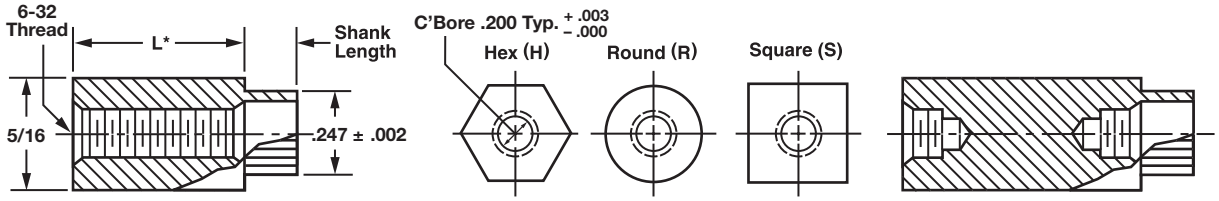
Panel hole size** should be: .188 +.005 -.000

Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish
1/8	6-32	901126				
3/16	6-32	901128				
7/32	6-32	901130				
1/4	6-32	901132				
9/32	6-32	901134				
5/16	6-32	901136				
11/32	6-32	901138				
3/8	6-32	901140				
7/16	6-32	901142				
1/2	6-32	901144				
9/16	6-32	901146				
5/8	6-32	901148				
11/16	6-32	901150				
3/4	6-32	901152				
13/16	6-32	901154				
7/8	6-32	901156				
15/16	6-32	901158				
1	6-32	901160				
1-1/8	6-32	901162				
1-1/4	6-32	901164				
1-3/8	6-32	901166				
1-1/2	6-32	901168				
1-3/4	6-32	901170				
2	6-32	901172				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
**See page 45 for installation instructions.

KNURLED STANDOFFS

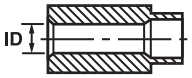
Threaded and Clear Hole - 5/16" Hex, Round or Square - 6-32 Thd.



Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 -.000	Code Letter	ID +.010 -.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W901174-R-SS-.105-12
.140 - ID

ORDER EXAMPLE:

901174 - H - SS - .105 - 1

- 901174: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 1: Finish: See page 277

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 901186-R-SS-.105-12 (L=.525)

Panel hole size** should be: .234 +.005 -.000

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	Hex	
P-5	RA -26	HA-56	1/8-3/16
	RA-27	HA-57	1/4-7/16
	RA-28	HA-58	1/2-11/16
	RA-29	HA-59	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 56 ← ANVIL

Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish
1/8	6-32	901174				
3/16	6-32	901176				
1/4	6-32	901178				
5/16	6-32	901180				
3/8	6-32	901182				
7/16	6-32	901184				
1/2	6-32	901186				
9/16	6-32	901188				
5/8	6-32	901190				
11/16	6-32	901192				
3/4	6-32	901194				
13/16	6-32	901196				
7/8	6-32	901198				
1	6-32	901200				
1-1/8	6-32	901202				
1-1/4	6-32	901204				
1-1/2	6-32	901206				
1-3/4	6-32	901208				
2	6-32	901210				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
**See page 45 for installation instructions.

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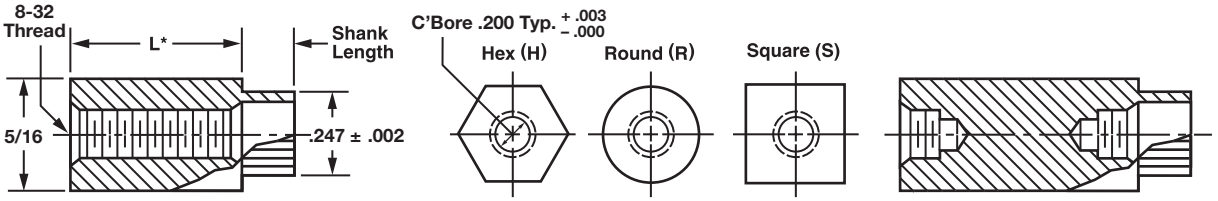
KNURLED STANDOFFS

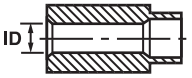
Threaded and Clear Hole - 5/16" Hex, Round or Squar e - 8-32 Thd.



Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 –.000	Code Letter	ID +.010 –.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W901212-R-SS-.105-12
.140 - ID

ORDER EXAMPLE:

901212 - H - SS - .105 - 1

- 901212: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 1: Finish: See page 277

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 901212-R-SS-.105-12 (L=.525)

Panel hole size** should be: .234 +.005 -.000

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -26	HA-56	1/8-3/16
	RA-27	HA-57	1/4-7/16
	RA-28	HA-58	1/2-11/16
	RA-29	HA-59	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 56 ← ANVIL

Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish
1/8	8-32	901212				
5/32	8-32	901214				
3/16	8-32	901216				
1/4	8-32	901218				
5/16	8-32	901220				
3/8	8-32	901222				
7/16	8-32	901224				
1/2	8-32	901226				
9/16	8-32	901228				
5/8	8-32	901230				
11/16	8-32	901232				
3/4	8-32	901234				
13/16	8-32	901236				
7/8	8-32	901238				
1	8-32	901240				
1-1/8	8-32	901242				
1-1/4	8-32	901244				
1-1/2	8-32	901246				
1-3/4	8-32	901248				
2	8-32	901250				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
**See page 45 for installation instructions.

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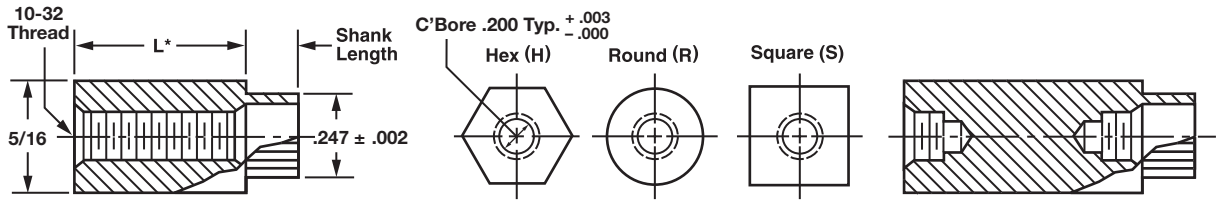
KNURLED STANDOFFS

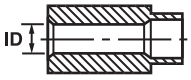
Threaded and Clear Hole - 5/16" Hex, Round or Squar e - 10-32 Thd.



Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 -.000	Code Letter	ID +.010 -.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W901252-R-SS-.105-12
.140 - ID

ORDER EXAMPLE:

901252 - H - SS - .105 - 1

- 901252: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 1: Finish: See page 277

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 901266-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -26	HA-56	1/8-3/16
	RA-27	HA-57	1/4-7/16
	RA-28	HA-58	1/2-11/16
	RA-29	HA-59	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 56 ← ANVIL

Panel hole size** should be: .234 +.005 -.000

Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish
1/8	10-32	901252				
5/32	10-32	901254				
3/16	10-32	901256				
1/4	10-32	901258				
5/16	10-32	901260				
3/8	10-32	901262				
7/16	10-32	901264				
1/2	10-32	901266				
9/16	10-32	901268				
5/8	10-32	901270				
11/16	10-32	901272				
3/4	10-32	901274				
13/16	10-32	901276				
7/8	10-32	901278				
1	10-32	901280				
1-1/8	10-32	901282				
1-1/4	10-32	901284				
1-1/2	10-32	901286				
1-3/4	10-32	901288				
2	10-32	901290				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
**See page 45 for installation instructions.

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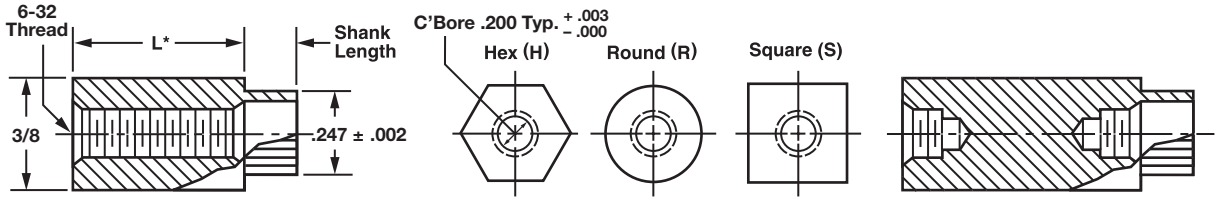
KNURLED STANDOFFS

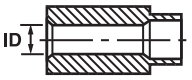
Threaded and Clear Hole - 3/8" Hex, Round or Squar e - 6-32 Thd.



Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 –.000	Code Letter	ID +.010 –.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W901292-R-SS-.105-12
.140 - ID

ORDER EXAMPLE:

901292 - H - SS - .105 - 1

- 901292 — Basic Part Number
- H — Hex (H), Round (R) or Square (S)
- SS — Material: See chart
- .105 — Shank Length: See chart or fill in your own length
- 1 — Finish: See page 277

*L dimension may be changed, add required length to the closest part number.
EXAMPLE: 901304-R-SS-.105-12 (L=.525)

Panel hole size** should be: .234 +.005 -.000

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -30	HA-60	1/8-3/16
	RA-31	HA-61	1/4-7/16
	RA-32	HA-62	1/2-11/16
	RA-33	HA-63	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 60 ← ANVIL

Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish
1/8	6-32	901292				
3/16	6-32	901294				
1/4	6-32	901296				
5/16	6-32	901300				
3/8	6-32	901298				
7/16	6-32	901302				
1/2	6-32	901304				
9/16	6-32	901306				
5/8	6-32	901308				
11/16	6-32	901310				
3/4	6-32	901312				
13/16	6-32	901314				
7/8	6-32	901316				
1	6-32	901318				
1-1/8	6-32	901320				
1-1/4	6-32	901322				
1-1/2	6-32	901324				
1-3/4	6-32	901326				
2	6-32	901328				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
**See page 45 for installation instructions.

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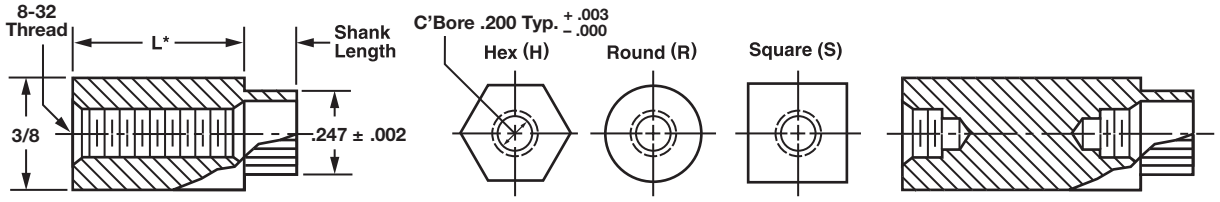
KNURLED STANDOFFS

Threaded and Clear Hole - 3/8" Hex, Round or Squar e - 8-32 Thd.



Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS

Available ID and Appropriate Code			
ID +.010 –.000	Code Letter	ID +.010 –.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W901330-R-SS-.105-12
.140 - ID

ORDER EXAMPLE:

901330 - H - SS - .105 - 1

- 901330: Basic Part Number
- H: Hex (H), Round (R) or Square (S)
- SS: Material: See chart
- .105: Shank Length: See chart or fill in your own length
- 1: Finish: See page 277

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 901342-R-SS-.105-12 (L=.525)

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -30	HA-60	1/8-3/16
	RA-31	HA-61	1/4-7/16
	RA-32	HA-62	1/2-11/16
	RA-33	HA-63	3/4 & up

EXAMPLE: P - 5 ← PUNCH HA - 60 ← ANVIL

Panel hole size** should be: .234 +.005 -.000

Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish
1/8	8-32	901330				
3/16	8-32	901332				
1/4	8-32	901334				
5/16	8-32	901336				
3/8	8-32	901338				
7/16	8-32	901340				
1/2	8-32	901342				
9/16	8-32	901344				
5/8	8-32	901346				
11/16	8-32	901348				
3/4	8-32	901350				
13/16	8-32	901352				
7/8	8-32	901354				
1	8-32	901356				
1-1/8	8-32	901358				
1-1/4	8-32	901360				
1-1/2	8-32	901362				
1-3/4	8-32	901364				
2	8-32	901366				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
**See page 45 for installation instructions.

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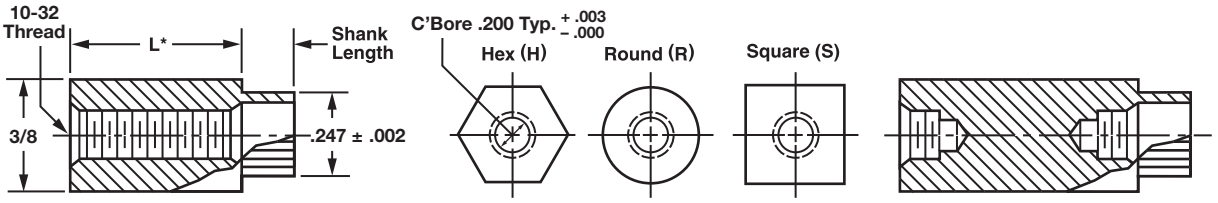
KNURLED STANDOFFS

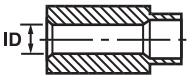
Threaded and Clear Hole - 3/8" Hex, Round or Squar e - 10-32 Thd.



Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Board Thickness	Recommended Shank Length for Swage
1/32	.075
1/16	.105
3/32	.135
1/8	.165
3/16	.230
1/4	.290

CLEAR HOLE STANDOFFS



Available ID and Appropriate Code			
ID +.010 -.000	Code Letter	ID +.010 -.000	Code Letter
.091	Q	.150	WW
.115	U	.156	XX
.120	V	.171	X
.140	W	.194	Y

Prefix letter code to part number.
EXAMPLE: W901368-R-SS-.105-12
.140 - ID

ORDER EXAMPLE:

901368 - H - SS - .105 - 1

- **901368** — Basic Part Number
- **H** — Hex (H), Round (R) or Square (S)
- **SS** — Material: See chart
- **.105** — Shank Length: See chart or fill in your own length
- **1** — Finish: See page 277

*L dimension may be changed, add required length to the closest part number .
EXAMPLE: 901380-R-SS-.105-12 (L=.525)

Panel hole size** should be: .234 +.005 -.000

Swage Tooling			
Punch Part Number	Anvil Part Number		Length
	Round	He x	
P-5	RA -30	HA-60	1/8-3/16
	RA-31	HA-61	1/4-7/16
	RA-32	HA-62	1/2-11/16
	RA-33	HA-63	3/4 & up

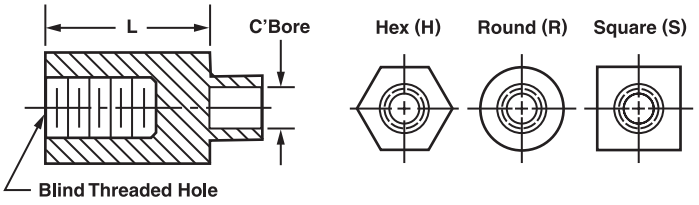
EXAMPLE: P - 5 ← PUNCH HA - 60 ← ANVIL

Length	Thread	Basic Part Number	H or R or S	Material	Shank Length	Finish
1/8	10-32	901368				
3/16	10-32	901370				
1/4	10-32	901372				
5/16	10-32	901374				
3/8	10-32	901376				
7/16	10-32	901378				
1/2	10-32	901380				
9/16	10-32	901382				
5/8	10-32	901384				
11/16	10-32	901386				
3/4	10-32	901388				
13/16	10-32	901390				
7/8	10-32	901392				
1	10-32	901394				
1-1/8	10-32	901396				
1-1/4	10-32	901398				
1-1/2	10-32	901400				
1-3/4	10-32	901402				
2	10-32	901404				

NOTE: Where L dimension is 3/4 or longer, see page 281 for depth of thread.
**See page 45 for installation instructions.

BLIND THREADED HOLE STANDOFFS

Thread	Depth of Blind Hole	Code
0-80	.187 Min. Full Thread	A
2-56	.187 Min. Full Thread	B
3-48	.187 Min. Full Thread	C
4-40	.250 Min. Full Thread	H
6-32	.375 Min. Full Thread	I
8-32	.437 Min. Full Thread	S
10-32	.500 Min. Full Thread	K
1/4-20	.500 Min. Full Thread	L



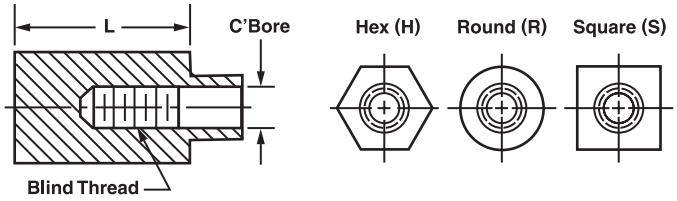
ORDER EXAMPLE:

H - 13010 - H - A - .075 - 1 - HT

- **H** — Blind Hole Depth: See chart
- **13010** — Basic Part Number
- **H** — Hex (H), Round (R) or Square (S)
- **A** — Material: See chart on Standoff page
- **.075** — Shank Length: See chart or fill in your own length
- **1** — Finish: See page 277
- **HT** — Hi-Torque Option

Refer to Threaded Standoffs on page 46-88 for basic configuration, specifications, material, etc.
Add letter designation to part number according to the charts.

Thread	Depth of Blind Hole	Code
0-80	.187 Min. Full Thread	AA
2-56	.187 Min. Full Thread	BB
3-48	.187 Min. Full Thread	CC
4-40	.250 Min. Full Thread	HH
6-32	.375 Min. Full Thread	II
8-32	.437 Min. Full Thread	SS
10-32	.500 Min. Full Thread	KK
1/4-20	.500 Min. Full Thread	LL



ORDER EXAMPLE:

HH - 13010 - H - A - .075 - 1 - HT

- **HH** — Blind Hole Depth: See chart
- **13010** — Basic Part Number
- **H** — Hex (H), Round (R) or Square (S)
- **A** — Material: See chart on Standoff page
- **.075** — Shank Length: See chart or fill in your own length
- **1** — Finish: See page 277
- **HT** — Hi-Torque Option

Refer to Threaded Standoffs on pages 46-88 for basic configuration, specifications, material, etc.
Add letter designation to part number according to the charts.

TECH TIP

For flush flaring into counter-sink hole, use a shank length of .020 shorter than board thickness.

NOTES: Depth of thread will vary in shorter lengths L. The maximum depth, minimum of 1-1/2 threads for shear length, will be threaded .

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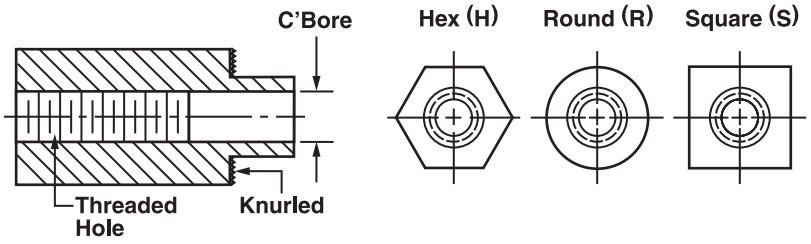
FACE KNURLED THREADED STANDOFFS



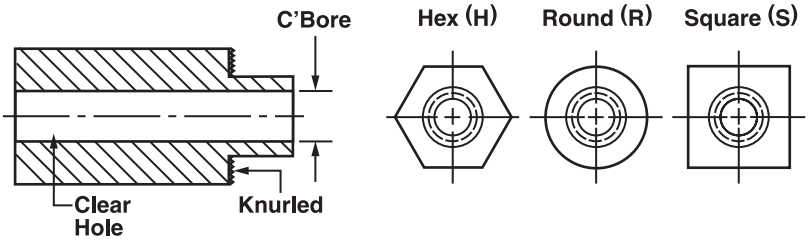
ORDER EXAMPLE:

J - 13010 - H - A - .075 - 1

J	13010	H	A	.075	1
Knurled	Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart on Standoff page	Shank Length: See chart or fill in your own length	Finish: See page 277

Refer to Threaded/Clear Hole Standoffs on pages 46-71 for basic part number, basic configurations, specifications, material, etc.
Add letter designation J to part number for Knurled.

FACE KNURLED CLEAR HOLE STANDOFFS



ORDER EXAMPLE:

J - Q - 13010 - H - A - .075 - 1

J	Q	13010	H	A	.075	1
Knurled	Clearance Hole: See chart	Basic Part Number	Hex (H), Round (R) or Square (S)	Material: See chart on Standoff page	Shank Length: See chart or fill in your own length	Finish: See page 277

Refer to Threaded/Clear Hole Standoffs on pages 46-71 for basic part number, basic configurations, specifica ions, material, etc.

Add letter designation J to part number for Knurled.
Add letter designation to part number for Clearance Hole according to the chart.

Clearance Hole	Letter Designation
.091	Q
.098	QQ
.115	U
.120	V
.140	W
.150	WW
.156	XX
.171	X
.194	Y
.215	Z
.257	ZZ

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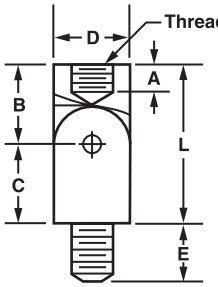
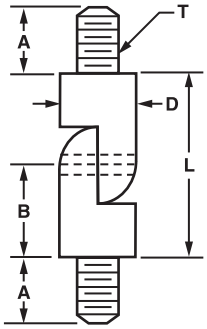
HINGED STANDOFF FOR TERMINAL BOARDS

Finish	Material
Cadmium plate per QQ-P-416 class 2, type 2 and gold iridite	Made of brass mil. spec. QQ-B-626A comp. 22-1/2 hard

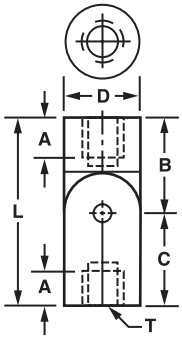
ORDER EXAMPLE:
20088
Basic Part Number



Part Number	T Thread	L Length	D Diameter	E	A	C	B
20074	4-40	.625	.187	.250	.172	.250	.375
20076	4-40	.875	.187	.250	.250	.250	.625
20078	6-32	.625	.250	.312	.172	.250	.375
20080	6-32	.875	.250	.312	.250	.250	.625
20082	8-32	.625	.250	.312	.172	.250	.375
20084	8-32	.875	.250	.312	.250	.250	.625



Part Number	T Thread	L Length	D Diameter	A	B
20088	4-40	1/2	.187	.250	.250
20090	6-32	1/2	.250	.312	.250
20092	8-32	1/2	.250	.312	.250



Part Number	T Thread	D Diameter	L Length	A	B	C
20094	4-40	.187	3/4	.172	.375	.375
20095	4-40	.187	1	.250	.375	.625
20095A	4-40	.187	1-1/4	.250	.625	.625
20096	6-32	.250	3/4	.172	.375	.375
20097	6-32	.250	1	.250	.375	.625
20097A	6-32	.250	1-1/4	.250	.625	.625
20098	8-32	.250	3/4	.172	.375	.375
20099	8-32	.250	1	.250	.375	.625
20099A	8-32	.250	1-1/4	.250	.625	.625

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HI-TORQUE LOCKING FASTENERS

Applications and Installations

Hi-Torque Fasteners Offer A Number Of Advantages In A Wide Variety Of Styles

- Wear and corrosion resistant
- Magnetic carbon and stainless steel for strong threads and maximum life
- Simplified design
- No loose nuts, washers or lock pins
- Easy to install with ordinary tools

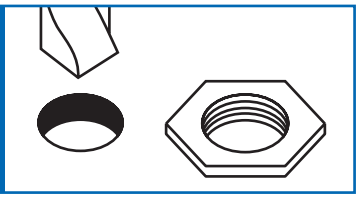
Hi-Torque Locking Fastener Applications Are Virtually Unlimited

Their integral, captivated design speeds handling and assembly operations in a wide variety of applications in the electronic, instrument, aircraft and other industries. The ability of these fasteners to provide long-wearing stainless steel threads for aluminum, brass, mild steel, thermoplastic panels or chassis makes them ideal for fastening components, terminal boards, wire and cable harnesses, circuit boards, tube sockets and sub-assemblies. Their extreme durability makes them a must where repeated fastening and unfastening takes place. The unified design of the Floating Nuts simplifies adjusting hole misalignments, particularly in difficult-to-reach places. Self-locking styles provide added resistance to vibration and shock in fastening applications.

Installation

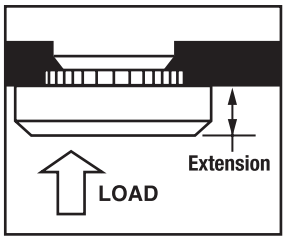
- No special tools or chassis preparations required
- Drilled or punched hole
- Insert into the prescribed size hole
- Press into place

DRILL AND PRESS



MINIATURE STANDOFFS

Hi-Torque Locking Fasteners



Superior fastening performance is provided by the miniature press nut through strong, permanent, wear-resistant threads for soft brass, aluminum, mild steel, or thermoplastic panels, part or chassis. Thread depth and load retention is made constant regardless of sheet material or thickness. Extension E provides additional threads for thin, brittle materials.

Threads provided are class 2B, MIL-S-7742 for materials of Rockwell hardness 70 or less (stainless steel nuts) and 85 or less (carbon steel nuts) for hole sizes .108 up to .150.

Typical retention forces are 150 lbs. push-out, and 25 inch lbs. torque-out in standard chassis aluminum.

Captive hardware facilitates easy one-side installing for assemblies in normally hard-to-reach places.

Steel Inserts: for use in low carbon steels that are 1/2 hard or softer and for stainless steel in the annealed condition.

Stainless steel inserts: for use in most aluminums or in low carbon steels that are 1/4 hard or softer.

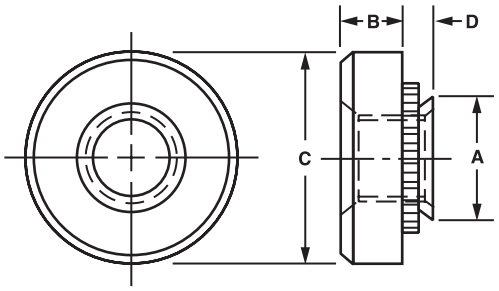
The Cadmium Plate Finish (7) for Carbon Steel and the Passivate Finish (12) for Stainless Steel is recommended.

Available Material (see page 275)	
S	Carbon Steel
SS	Stainless Steel

ORDER EXAMPLE:

66060 - SS - 12

- 66060: Basic Part Number
- SS: Material: See chart
- 12: Finish: See page 277



Tolerances (unless noted): Decimals ±.005, Frac ±1/64

Basic Part No.	Thread Size	D Max	Sheet Thickness	Hole Size in Sheet	A Max	C Dia	B Length
66060	0-80	.030	.032-.039	.109-.112	.108	11/64	3/64
66062	0-80	.038	.040-up				
66064	1-64	.030	.032-.039	.120-.123	.119	3/16	
66066	1-64	.038	.040-up				
66068	2-56	.030	.032-.039	.136-.139	.135	13/64	
66070	2-56	.038	.040-up				
66072	3-48	.030	.032-.039	.147-.150	.146	7/32	
66074	3-48	.038	.040-up				

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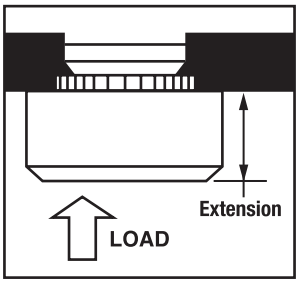
KNURLED STANDOFFS

Hi-Torque Locking Fasteners



The Knurled Standoffs permit quick and neat fastening of components, terminal boards, brackets and sub-assemblies in hard-to-get at places without the need for nuts and wrenches, washers or lockpins.

Stainless steel inserts: for use in most aluminums or in low carbon steels that are 1/4 hard or softer.

Steel inserts: for use in low carbon steels that are 1/2 hard or softer and for stainless steel in the annealed condition.

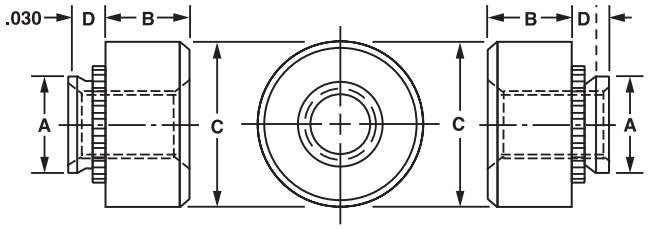
Cadmium Plate Finish (7) for carbon steel and the Passivate Finish (12) for stainless steel is recommended.

Available Material (see page 275)	
S	Carbon Steel
SS	Stainless Steel

ORDER EXAMPLE:

66076 - SS - 12

- 66076: Basic Part Number
- SS: Material: See chart
- 12: Finish: See page 277



Part configuration for sheet thickness .032-.039

Undercut shape may vary.

Basic Part No.	Thread Size	D Max	Sheet Thickness	Hole Size in Sheet	A +.000 -.003	C Dia	B Length ± .010
66076	2-56	.030	.032-.039	.166 .169	.165	1/4	.070
66078		.038	.040-.055				
66080		.054	.056-.090				
66082		.087	.091- up				
66084	3-48	.030	.032-.039				
66086		.038	.040-.055				
66088		.054	.056-.090				
66090		.087	.091- up				
66092	4-40	.030	.032-.039				
66094		.038	.040-.055				
66096		.054	.056-.090				
66098		.087	.091- up				
66100	6-32	.030	.032-.039	.187 .190	.187	9/32	
66102		.038	.040-.055				
66104		.054	.056-.090				
66106		.087	.091- up				
66108	8-32	.030	.032-.039	.213 .216	.212	5/16	
66110		.038	.040-.055				
66112		.054	.056-.090				
66114		.087	.091- up				
66116	10-24	.030	.032-.039	.250 .253	.249	11/32	
66118		.038	.040-.055				
66120		.054	.056-.090				
66122		.087	.091- up				
66124	10-32	.030	.032-.039				
66126		.038	.040-055				
66128		.054	.056-.090				
66130		.087	.091- up				

Basic Part No.	Thread Size	D Max	Sheet Thickness	Hole Size in Sheet	A +.000 -.003	C Dia	B Length ± .010
66132	12-24	.038	.040-.055	.277 .280	.276	3/8	.130
66134		.054	.056-.090				
66136		.087	.091- up				
66138	12-28	.038	.040-.055				
66140		.054	.056-.090				
66142		.087	.091- up				
66144	1/4-20	.054	.056-.090	.344 .347	.343	7/16	.170
66146		.087	.091-.124				
66148		.120	.125- up				
66150	1/4-28	.054	.056-.090				
66152		.087	.091-.124				
66154		.120	.125- up				
66156	5/16-18	.054	.056-.090	.413 .416	.411	1/2	.230
66158		.087	.091-.124				
66160		.120	.125- up				
66162	5/16-24	.054	.056-.090				
66164		.087	.091-.124				
66166		.120	.125- up				
66168	3/8-16	.087	.091-.124	.500 .503	.498	9/16	.270
66170		.120	.125-.249				
66172		.235	.250- up				
66174	3/8-24	.087	.091-124				
66176		.120	.125-.249				
66178		.235	.250- up				

Tolerances (unless noted):
Decimals ±.005, Frac ±1/64

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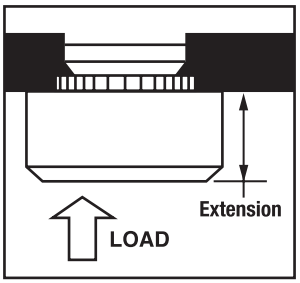
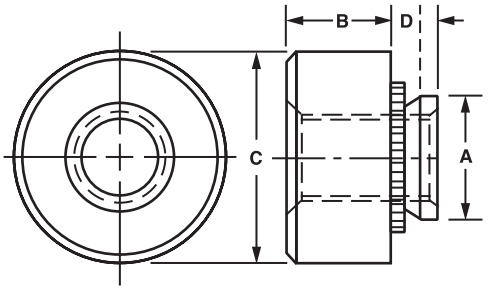
KNURLED STANDOFFS

Hi-Torque Locking Fasteners



This fastener provides durable threads for strong, uniform attachment at all points on panels and chassis of varying thickness and material. Extension E provides additional thread length for thin panel without restricting flush mounting at the panel front.

Knurled Standof fs permit quick and neat fastening of components, terminal boards, brackets and sub-assemblies in hard-to-reach places without the need for nuts and wrenches, washers or lockpins.



Undercut shape may vary.

Available Material (see page 275)
Aluminum 2011 T3

ORDER EXAMPLE:

66180 - 22

Basic Part Number — Finish: See page 277

Basic Part No.	Thread Size	D +.000 -.005	Sheet Thickness	Hole Size in Sheet	A +.000 -.003	C Dia	B Length ± .010
66180	2-56	.038	.040 -.055	.166	.165	1/4	.070
66182		.054	.056 - up	.169			
66184	4-40	.038	.040 -.055	.187	.187		.090
66186		.054	.056 - up	.190			
66188	6-32	.038	.040 -.055	.213	.212	9/32	
66190		.054	.056 - up	.216			
66192	8-32	.038	.040 -.055	.234	.233	5/16	.130
66194		.054	.056 - up	.237			
66195		.087	.091 -.124				
66196	10-24	.038	.040 -.055	.296	.295	3/8 .160	
66198		.054	.056 - up	.299			
66200	10-32	.038	.040 -.055				
66202		.054	.056 - up				
66204	1/4-20	.054	.056 -.090	.344	.343	7/16	.170
66206		.087	.091 -.124	.347			
66208		.120	.125 - up				
66210	1/4-28	.054	.056 -.090				
66212		.087	.091 -.124				
66214		.120	.125 - up				

Basic Part No.	Thread Size	D +.000 -.005	Sheet Thickness	Hole Size in Sheet	A +.000 -.003	C Dia	B Length ± .010
66216	5/16-18	.054	.056 -.090	.413 .416	.411	1/2 .230	
66218		.087	.091 -.124				
66220		.120	.125 - up				
66222	5/16-24	.054	.056 -.090				
66224		.087	.091 -124				
66226		.120	.125 - up				
66228	3/8-16	.087	.091 -.124	.500 .503	.498	9/16	.270
66230		.120	.125 -.249				
66232		.235	.250 - up				
66234	3/8-24	.087	.091 -.124				
66236		.120	.125 -.249				
66238		.235	.250 - up				

Tolerances (unless noted):
Decimals ±.005, Frac ±1/64

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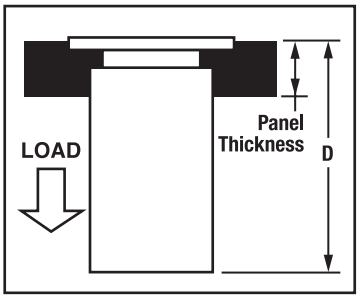
FLUSH STANDOFFS

Hi-Torque Locking Fasteners - Blind or Tapped Through



These fasteners have an extended section which provides additional securing-thread length and also serves as a threaded standoff spacer for mounting panels or brackets to a chassis. These blind-thread-seal press nuts protect against oil and moisture penetration without the need for sealing washers. Thru-threaded units permit two-ended mounting; extension on one end, flush-to-panel on the other.

Corrosion-proof stainless steel and light-weight aluminum press nuts provide non-magnetic hardware for mounting components and sub-assemblies in hard-to-reach places, without the need for nuts, wrenches, washers, or other extraneous hardware.

The reversed blind standoff is excellent for outdoor use, because it protects against climatic elements.

Maximum recommended panel hardness: Type NC nuts, Rockwell B-70, Type NA nuts, Rockwell B-60. Threads: Class 2B, MIL-S-7742.

Aluminum inserts: for use in grades of aluminum that are non-heat treatable or that have an O or H temper.

Stainless steel inserts: for use in most aluminums or in low carbon steels that are 1/4 hard or softer.

Material		Finish
A	Aluminum 7075-T6	None (1)
SS	300 Stainless Steel	Passivate (12)

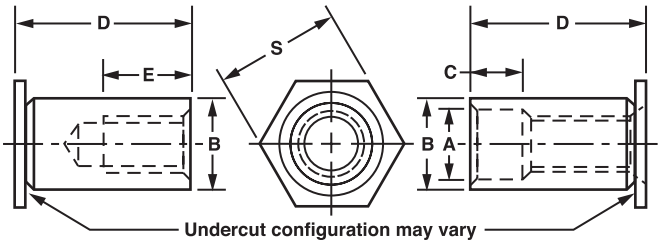
ORDER EXAMPLE:

66264 - 4 - SS - 12

- 66264: Basic Part Number
- 4: Length in 32nds: See chart
- SS: Material: See chart
- 12: Finish: See page 277

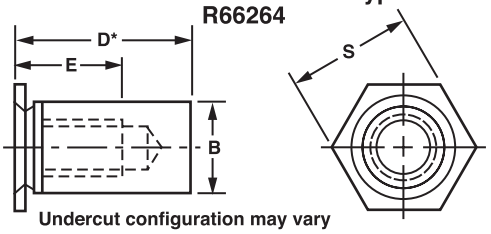
To reverse thread for Blind Standoffs 8 and up, add prefix **R** to part number. **EXAMPLE: R-66264-8-SS-12**

Blind Thread Type 66264 | **Through Thread Type 66276**



Blind Thread Part No.	Through Thread Part No.	Thread Size	B +.000 -.005	S	A Dia	Hole Size in Sheet
66264	66276	4-40	.165	3/16	.125	.166-.169
66266	66278	4-40	.212	1/4	.125	.213-.216
66268	66280	6-32	.212	1/4	.156	.213-.216
66270	66282	6-32	.280	5/16	.156	.281-.284
66272	66284	8-32	.280	5/16	.188	.281-.284
66274	66286	10-32	.280	5/16	.203	.281-.284

Reversed Blind Thread Type R66264



*D dimension in 32nds

Recommended Use:
4-40 & 6-32 IN SHEET .040-UP
8-32 & 10-32 IN SHEET .050-UP

D = Length in 32nds	-4	-6	-8	-10	-12	-14	-16	-18	-20	-22	-24	-26	-28	-30	-32	-34
D = Length in Inches	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16	1	1-1/16
C = Counterbore Depth	None				3/16				5/16				7/16			
E = Min Thread Depth	5/64	1/8	5/32			3/16	1/4 DP 16 - 20		3/8 DP 22 - 32							

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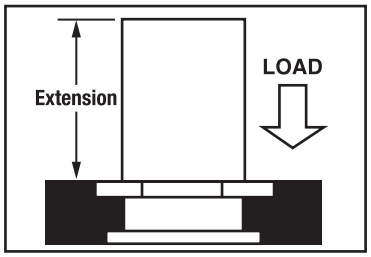
REVERSE FLUSH STANDOFFS

Hi-Torque Locking Fasteners - Stainless Steel

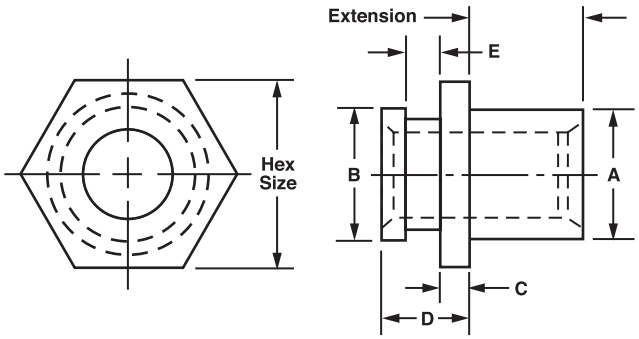


The round extension nuts are designed for standoff applications. These nuts have a round extension on the hex side which provides extra threads beyond the panel surface.

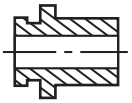
Stainless Steel Inserts: for use in most aluminums or in low carbon steels that are 1/4 hard or softer.

Passivate Finish (12) for Stainless Steel is recommended.

Extension Leng hs beyond 3/8 available. Contact ASM for price and delivery.



CLEAR HOLE STANDOFFS



Available ID and Appropriate Code	
ID +.004 −.003	Code Letter
.093	A
.116	B
.140	C
.171	D
.196	E

Prefix letter code to part number.
EXAMPLE: A66288-4-SS-062-12
.093 - ID

ORDER EXAMPLE:

66288 - 4 - .062 - 12

- 66288: Basic Part Number
- 4: Extension Length in 32nds: See chart
- .062: Panel Thickness: See chart
- 12: Finish: See page 277

Extension Length in 32nds	
1 = 1/32	5 = 5/32
2 = 1/16	6 = 3/16
3 = 3/32	7 = 7/32
4 = 1/8	8 = 1/4

Part Number	Thread	Mounting Hole ± .002	B Diameter ± .002	A Diameter ± .005	Hex Size	Panel Thickness
66288	2-56	.161	.157	.156	3/16	See Chart 1
66290		.203	.199	.203	1/4	
66292	4-40	.161	.157	.156	3/16	
66294		.203	.199	.203	1/4	
66296	6-32	.203	.199	.218	1/4	
66298		.265	.261	.250	5/16	
66300	8-32	.265	.261	.250	5/16	
66302	10-32			.281		
66304	1/4-20	.386	.382	.344	7/16	See Chart 2
66306	1/4-28					

	Panel Thickness	D ± .004	C ± .003	E ± .003
CHART 1	.040	.038	.012	.018
	1/16 (.062)	.058	.019	.029
	3/32 (.093)	.085	.029	.043
	1/8 (.125)	.117		
	5/32 (.156)	.147		
	3/16 (.187)	.177		
CHART 2	1/8 (.125)	.117	.029	.043
	5/32 (.156)	.147		
	3/16 (.187)	.177		
	1/4 (.250)	.236		
	5/16 (.312)	.296		

NOTES: For applications requiring additional threads and extensions contact ASM.

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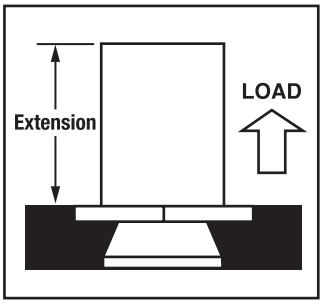
BLIND STANDOFFS

Hi-Torque Locking Fasteners - Stainless Steel Type 303



The blind standoff is recommended for use in blind-hole applications such as plates, castings and behind front panels. This non-magnetic stainless steel standoff locks into aluminum, mild steel, soft brass and other materials of Rockwell Hardness RB 70 or less. Typical holding specifications for a type 66312 unit in standard chassis aluminum 5052 H34 are 150 lbs. pull-out, 30 lbs. torque-out; and for a type 66326 - unit are 200 lbs. pull-out and 40 lbs. torque-out. In addition to permitting mar-free panel surface, these standoffs present an inherent seal against external contaminants such as dirt, oil and moisture. For DIRECT Stud mounting with inherent seal, use Blind Head Press Stud.

These are designed to provide permanent threads in blind hole applications such as front panels, plates and castings having a Rockwell hardness of RB 70 or less.

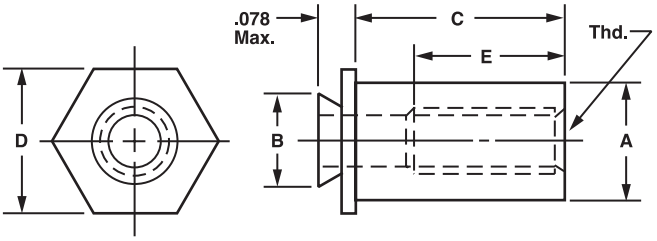
The Standoffs are available in thread sizes from 4-40 NC2B – 1/4-20 NC2B and lengths that are listed in the table.

This blind head standoff is easily fastened to the panel by placing it in a counterbored hole and pressing using an arbor press or other steady pressure device.

ORDER EXAMPLE:

66312 - SS - 12

66312	SS	12
Basic Part Number	Material: See chart	Finish: See page 277



Part Number	Thread	C Length +.002 -.005	B Max	D Hex Size ± .005	A Max	E Full Thd Min Dpth	Mounting Hole
66312	4-40	3/16	.212	1/4	.165	3/16	.213-.216
66314		1/4					
66316		5/16					
66318	6-32	1/4	.289	5/16	.213	1/4	.290-.293
66320		5/16					
66322		3/8					
66324		1/2					
66326	8-32	5/16	.311	11/32	.245	1/4	.312-.315
66328		3/8					
66330		1/2					
66332	10-24	3/8	.343	3/8	.290	3/8	.344-.347
66334		1/2					
66336		5/8					
66338	10-32	3/8	.343	3/8	.290	3/8	.344-.347
66340		1/2					
66342		5/8					
66344	1/4-20	5/8	.389	7/16	.354	3/8	.390-.393
66346		3/4					
66348		1					

Tolerances (unless noted):
Decimals +.005, Frac. +1/64

Typical pull-out values in aluminum 5052 H34 are:

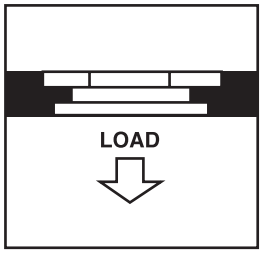
Thread	Pull-out	Torque-Out
4-40 thread	150#	30"#
8-32 thread	200#	40"#

Stainless steel inserts*: for use in most aluminums or in low carbon steels that are 1/4 hard or softer.

*The Passivate Finish (12) for stainless steel is recommended.

FLUSH NUT STYLE I

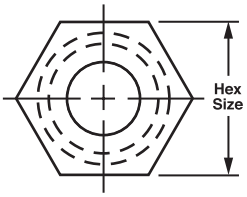
Hi-Torque Locking Fasteners - Stainless Steel

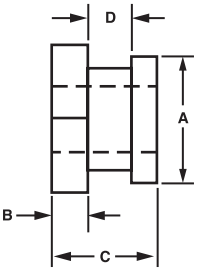


Hi-Torque Locking Fasteners are simply pressed into place in a drilled or punched hole, using an arbor press, hydraulic press, or other steady-pressure tool. Cold flow of panel material into channel grooves and knurls provides permanent push, pull and torque-resistant installation.

Flush Nut Style I non-magnetic stainless steel Hi-Torque Locking Fasteners fit flush on both surfaces of panel, replacing tapped holes, providing both the strength and wear resistance of a nut.

Stainless steel inserts*: for use in most aluminums or in low carbon steels that are 1/4 hard or softer.





ORDER EXAMPLE:

66000 - .062 - 12

- 66000: Basic Part Number
- .062: Panel Thickness: See chart
- 12: Finish: See page 277

Part Number	Thread	Mounting Hole ± .002	Panel Thickness	A Dia ± .002	Hex Size
66000	2-56	.161	See Chart 1	.157	3/16
66002		.203		.199	1/4
66004	4-40	.161		.157	3/16
66006		.203		.199	1/4
66008	6-32	.203		.199	1/4
66010		.265		.261	5/16
66012	8-32	.265		.261	5/16
66014	10-32				
66016	1/4-20	.386	See Chart 2	.382	7/16
66018	1/4-28				

	Panel Thickness	C Dim ± .004	B Dim ± .003	D Dim ± .003
CHART 1	.040	.038	.012	.018
	1/16 (.062)	.058	.019	.029
	3/32 (.093)	.085	.029	.043
	1/8 (.125)	.117		
	5/32 (.156)	.147		
	3/16 (.187)	.177		
CHART 2	1/8 (.125)	.117	.029	.043
	5/32 (.156)	.147		
	3/16 (.187)	.177		
	1/4 (.250)	.236		
	5/16 (.312)	.296		

TECH TIP

Parts go through a 5-stage cleaning process before plating.

* The Passivate Finish (12) for Stainless Steel is recommended.

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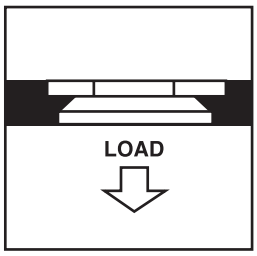
FLUSH NUT STYLE II

Hi-Torque Locking Fasteners - Stainless Steel



Flush Nut Style II non-magnetic stainless steel are recommended for use where mounting hardware protrusion above either mounting surface cannot be permitted.

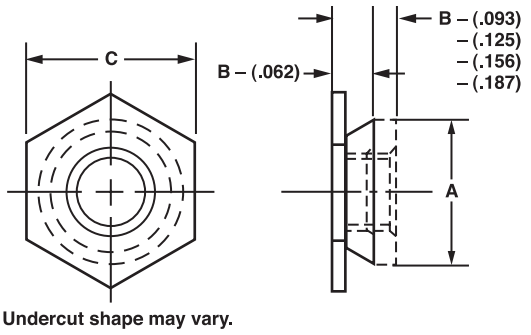
Convenient hardware for mounting in hard-to reach places, Flush Nut Style II nuts provide hard, durable threads of Class 2B, MIL -S -7742 for soft brass, aluminum, mild steel or thermoplastic panels, parts or chassis of .061 sheet thickness or larger , where additional threads provided in extension type nut is not required. They eliminate the need for wrenches and nuts, washers and lockpins.

Typical retention values for 66024 nut in alloy 5052 H39 aluminum are 200 lbs. push-out, and 25-inch lbs. torque-out.

Maximum recommended panel hardness is: Rockwell B-70.

Stainless steel inserts: for use in most aluminums or in low carbon steels that are 1/4 hard or softer .

Tolerances (unless noted): Decimals ± .005, Frac. ± 1/64



Undercut shape may vary.

ORDER EXAMPLE:

66024 - 12

Basic Part Number

Finish: See page 277

Basic Part Number	Thread	B Max	Sheet Thickness	Mounting Hole	A +.000 -.003	Hex Size-C
66024	2-56	.060	.061-.090	.172	.171	3/16
66026		.090	.091- up	.175		
66028	4-40	.060	.061-.090	.172		
66030		.090	.091- up	.175		
66032	6-32	.060	.061-.090	.213	.212	1/4
66034		.090	.091- up	.215		
66036	8-32	.060	.061-.090	.290	.289	5/16
66038		.090	.091- up	.295		
66040	10-24	.060	.061-.090	.312	.311	11/32
66042		.090	.091- up	.315		
66044	10-32	.060	.061-.090	.312		
66046		.090	.091- up	.315		
66048	1/4-20	.120	.125-.155	.344	.343	3/8
66050		.151	.156-.186			
66052		.182	.187- up	.347		
66054	1/4-28	.120	.125-.155	.344		
66056		.151	.156-.186			
66058		.182	.187- up	.347		

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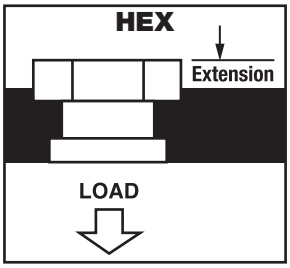
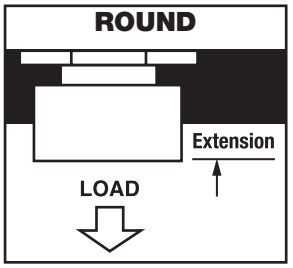
EXTENSION NUTS

Hi-Torque Locking Fasteners - Stainless Steel



Hex Extensions Nuts are dimensionally the same as Flush style except for extension beyond the panel surface on the hex side. Recommended for thin panels as extension provides additional threads. Extension may be used as a spacer or standoff for mounting panels or brackets to chassis.



Round Extension Nuts are dimensionally similar to FL and Hex styles except that the nut opposite the hex is extended beyond the panel surface. Provides additional threads in thin panels and may be used as a standoff mounting.

Stainless steel inserts: for use in most aluminums or in low carbon steels that are 1/4 hard or softer.

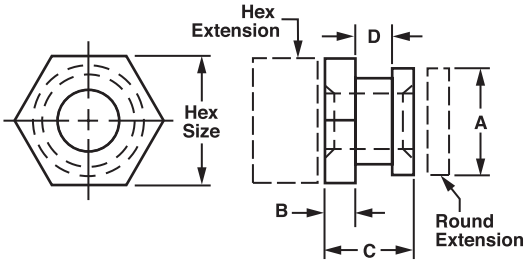
ORDER EXAMPLE:

66240 - H - .062 - 2 - 12

Basic Part Number	Hex (H), Round (R) or Square (S)	Panel Thickness: See chart	Optional Extension Length in 32nds: See note & chart	Finish: See page 277

Dimensions are for flush type nuts. To convert to dimensions of Hex or Round styles, add extension leng hs to C dimension.

Extension Length in 32nds*
1 = 1/32
2 = 1/16
3 = 3/32
4 = 1/8
5 = 5/32
6 = 3/16
7 = 7/32
8 = 1/4



Part Number	Thread	Mount Hole +.002	A Dia ± .002	Hex Size	Panel Thickness
66240	2-56	.161	.157	3/16	See Chart 1
66242		.203	.199	1/4	
66244	4-40	.161	.157	3/16	
66246		.203	.199	1/4	
66248	6-32	.203	.199	1/4	
66250		.265	.261	5/16	
66252	8-32	.265	.261	5/16	
66254	10-32				
66256	1/4-20	.386	.382	7/16	See Chart 2
66258	1/4-28				

	Panel Thickness	C Dim ± .004	B Dim ± .003	D Dim ± .003
CHART 1	.040	.038	.012	.018
	1/16 (.062)	.058	.019	.029
	3/32 (.093)	.085	.029	.043
	1/8 (.125)	.117		
	5/32 (.156)	.147		
	3/16 (.187)	.177		
CHART 2	1/8 (.125)	.117	.029	.043
	5/32 (.156)	.147		
	3/16 (.187)	.177		
	1/4 (.250)	.236		
	5/16 (.312)	.296		

TECH TIP

Captive screw assemblies can be supplied with a variety of dif ferent flat and captive washers.

*Extension lengths beyond 3/8 available. Check factory for price and delivery.

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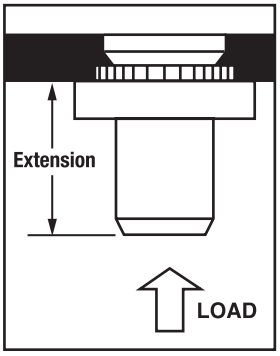
BLIND NUTS

Hi-Torque Locking Fasteners - Stainless Steel - Carbon Steel



This non-magnetic stainless steel fastener is ideal for use in assemblies requiring a moisture seal and in corrosive atmospheres. It presents an inherent seal against entrance of dirt, oils and moisture, which cannot be supplied by nut and screw type hardware without elaborate seals and a time-consuming assembly procedure.

The fastener also provides the usual mounting capability for tight or normally inaccessible places. Extension E provides additional thread length for thin panels.

Our Extension Stainless Steel precision blind press nuts will provide strong threads of class 2B MIL-S-7742 for use in aluminum, mild steel and other materials of Rockwell Hardness 70 or less.

Typical push-out and torque-out maximums for a 66356-040-12 nut in standard chassis aluminum are 170 lbs., and 20 inch lbs. respectively.

Steel inserts**: for use in low carbon steels that are 1/2 hard or softer and for stainless steel in the annealed condition.

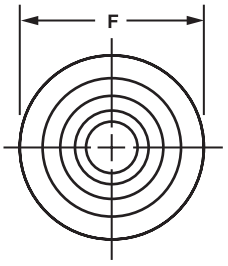
Stainless steel inserts**: for use in most aluminums or in low carbon steels that are 1/4 hard or softer.

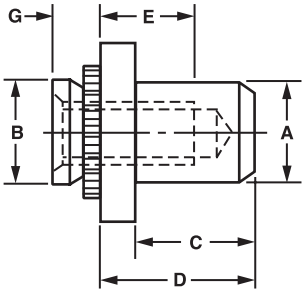
ORDER EXAMPLE:

66344 - .040 - 12

Basic Part Number	Panel Thickness	Finish: See page 277

See page 103 for part numbers and dimension info.





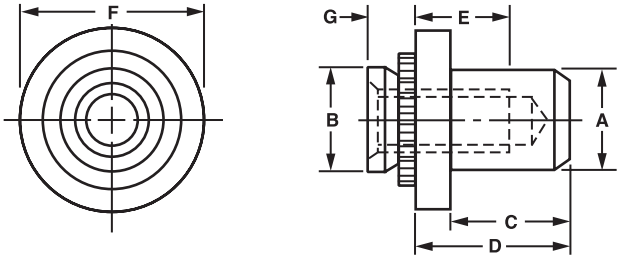
TECH TIP

Our new in-house passivation process, certified to QQP35C-AMS2700B-MIL F 14072D, further improves our lead times.

**The Cadmium Plate Finish (7) for Carbon Steel and the Passivate Finish (12) for Stainless Steel is recommended.

BLIND NUTS

Hi-Torque Locking Fasteners



Stainless Steel

Basic Part Number	Thread	G Max	Sheet Thickness	Hole Size	B Max	F ± .010	A Max	D ± .010	C Max	E
66344 - 040	4-40	.038	.040-.055	.166 .169	.165	1/4	.149	.38	.335	3/16
66346 - 056		.054	.056-.090							
66348 - 091		.087	.091- up							
66350 - 040	6-32	.038	.040-.055	.187 .190	.186	9/32	.169	.38	.335	3/16
66352 - 056		.054	.056-.090							
66354 - 091		.087	.091- up							
66356 - 040	8-32	.038	.040-.055	.213 .216	.212	5/16	.204	.44	.385	1/4
66358 - 056		.054	.056-.090							
66360 - 091		.087	.091- up							
66362 - 040	10-24	.038	.040-.055	.250 .253	.249	11/32	.235	.44	.385	1/4
66364 - 056		.054	.056-.090							
66366 - 091		.087	.091- up							
66368 - 040	10-32	.038	.040-.055							
66370 - 056		.054	.056-.090							
66372 - 091		.087	.091- up							
66374 - 056	1/4-20	.054	.056-.090	.344 .347	.342	7/16	.305	.56	.500	5/16
66376 - 091		.087	.091-.124							
66378 - 125		.120	.125- up							

Carbon Steel

Basic Part Number	Thread	G Max	Sheet Thickness	Hole Size	B Max	F ± .010	A Max	D ± .010	C Max	E
66380 - 040	4-40	.038	.040-.055	.166 .169	.165	1/4	.149	.38	.335	3/16
66382 - 056		.054	.056-.090							
66384 - 091		.087	.091- up							
66386 - 040	6-32	.038	.040-.055	.187 .190	.186	9/32	.169	.38	.335	3/16
66380 - 056		.054	.056-.090							
66390 - 091		.087	.091- up							
66392 - 040	8-32	.038	.040-.055	.213 .216	.212	5/16	.204	.44	.385	1/4
66394 - 056		.054	.056-.090							
66396 - 091		.087	.091- up							
66398 - 040	10-24	.038	.040-.055	.250 .253	.249	11/32	.235	.44	.385	1/4
66400 - 056		.054	.056-.090							
66402 - 091		.087	.091- up							
66404 - 040	10-32	.038	.040-.055							
66406 - 056		.054	.056-.090							
66408 - 091		.087	.091- up							
66410 - 056	1/4-20	.054	.056-.090	.344 .347	.342	7/16	.305	.56	.500	5/16
66412 - 091		.087	.091-.124							
66414 - 125		.120	.125- up							

Tolerances (unless noted): Decimals ± .005, Frac. ± 1/64

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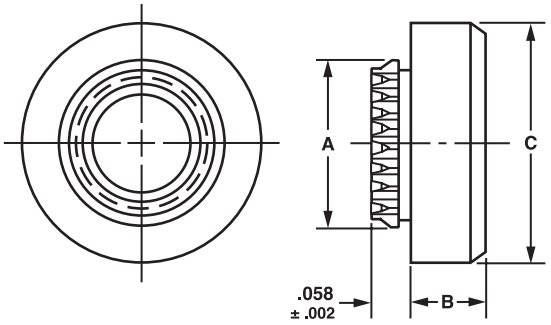
PRESS NUT-SPLINE

Hi-Torque Locking Fasteners - Carbon Steel, Stainless Steel



Spline-Type press nuts (carbon-steel and non-magnetic stainless-steel) are designed to provide wear resistant, strong threads of class 2B MIL-S-7742 for plastic and non-ductile materials such as glass-composite boards, epoxies, polycarbonates, nylon and paper as well as for aluminum and zinc castings.

The torque resisting splines literally cut their way down into the mounting material, biting in for torque resistance and providing a holding collar against pull-out forces.

Push-out and torque-out values for a 66490 press nut in glass epoxy laminate are 100 lbs., and 20 inch lbs. respectively.

Steel inserts: for use in low carbon steels that are 1/2 hard or softer and for stainless steel in the annealed condition.

Stainless steel inserts: for use in most aluminums or in low carbon steels that are 1/4 hard or softer.

The Cadmium Plate Finish (7) for Carbon Steel and the Passivate Finish (12) for Stainless Steel is recommended.

Parts designed for material thickness .060 and up.

Available Material (see page 275)	
S	Carbon Steel
SS	Stainless Steel

ORDER EXAMPLE:

66472 - SS - 12

- 66472: Basic Part Number
- SS: Material: See chart
- 12: Finish: See page 277

Part Number	Thread	B	C Stock	A ±.003	Hole Size in Sheet
66472	2-56	1/16	7/32	.165	.146-.150
66474	3-48		15/64	.177	.158-.162
66476	4-40		7/32	.184	.166-.170
66478	6-32		9/32	.231	.213-.217
66480	8-32	3/32	11/32	.268	.250-.254
66482	10-24	1/8	3/8	.290	.272-.276
66484	10-32				
66486	1/4-20	15/64	7/16	.346	.328-.332

TECH TIP

The specially engineered spline bevels minimize destructive compression forces normally developed on entry, which can fracture non-ductile brittle materials.

Tolerances (unless noted): Decimals ± .005, Frac. ± 1/64

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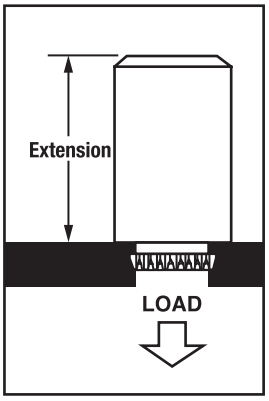
SPLINE PRESS EXTENSION NUT

Hi-Torque Locking Fasteners - Carbon Steel, Stainless Steel



Spline Press Extension Nuts are made or case-hardened carbon steel and non-magnetic stainless steel.

The torque resisting splines literally cut their way down into the mounting material, biting in for torque resistance and providing a holding collar against pull-out forces. The specially engineered spline bevels minimize destructive compression forces normally encountered on entry , which can fracture non-ductile substrate materials. The extension enables the user to space brackets and other associated hardware away from the chassis housing.

Typical push-out, and torque-out values in glass epoxy laminate are 100 lbs., and 20 inch lbs. respectively.

Steel inserts*: for use in low carbon steels that are 1/2 hard or softer and for stainless steel in the annealed condition.

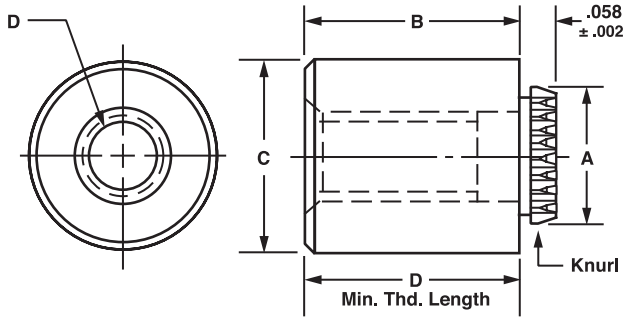
Stainless steel inserts*: for use in most aluminums or in low carbon steels that are 1/4 hard or softer.

Available Material (see page 275)	
S	Carbon Steel
SS	Stainless Steel

ORDER EXAMPLE:

66488 - SS - 16 - 12

- 66488: Basic Part Number
- SS: Material: See chart
- 16: Extension Length in 32nds: See chart
- 12: Finish: See page 277



Part Number	D		C Stock	A ± .003	Mounting Hole Size
	Thread	Hole Size +.004 –.003			
66488	4-40	–	7/32	.184	.166-.170
66490	6-32	–	9/32	.231	.213-.217
66492	–	.116	7/32	.184	.166-.170
66494	–	.143	9/32	.231	.213-.217

B Length in 32nds	4	8	12	16	20	24	28	32
Length in inches	.125	.250	.375	.500	.625	.750	.875	1.00
D Minimum Thread Length	Tapped Thru			3/8 ± 1/64				

TECH TIP

Spline press extension nuts are designed for use in thin metal panels and brittle plastic parts where tapped holes are not satisfactory.

*The Cadmium Plate Finish (7) for Carbon Steel and the Passivate Finish (12) for Stainless Steel is recommended.

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BLIND PRESS STUD

Hi-Torque Locking Fasteners

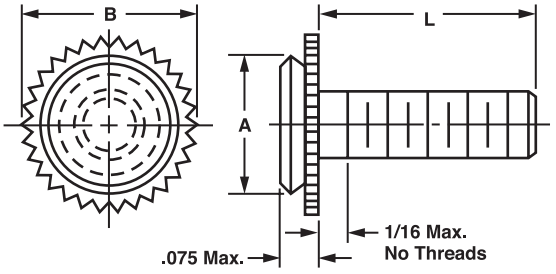
Type BSTK Press Studs are designed for fully-seated-knurl installation in .093 or thicker stock, to provide consistently superior torque and pull-out resistance. They are mounted in blind holes in panels, plates and castings of aluminum, soft brass, mild steel or thermoplastic panels and other materials of Rockwell Hardness B70 or less, (stainless); B50 (aluminum).

This fastener type is ideally suited for front panel work where no hardware can be visible. Aluminum studs are lightweight and can be anodized with the panel after assembly, eliminating the potential for scratching the front panel. For highly corrosive, and salt-spray environments, we recommend the use of stainless studs.

Typical pull-out and torque-out maximum values for stainless steel stud in standard chassis aluminum are 100 lbs., 40 inch lbs., respectively.

All threads are Class 2A, MIL-S-7742.

Available Material (see page 275)	
A	Aluminum
SS	Stainless Steel



ORDER EXAMPLE:

66568 - SS - 20 - 12

- 66568: Basic Part Number
- SS: Material: See chart
- 20: Extension Length in 32nds: See chart
- 12: Finish: See page 277

Part Number	Thread	A Max	Mtg Hole Counterbore Dia	B Stock Size
66568	4-40	.171	.172-.175	13/64
66570	6-32	.212	.213-.216	1/4
66572	8-32	.289	.290-.293	21/64

L Dimension in 32nds*		
6 = 3/16	12 = 3/8	20 = 5/8
8 = 1/4	14 = 7/16	24 = 3/4
10 = 5/16	18 = 9/16	32 = 1

*Other leng hs available. Consult factory for price and delivery.

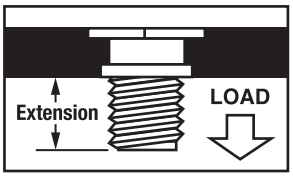
Thread Size	L Length in 32nds							
	1/4	3/8	1/2	5/8	3/4	1	1-1/4	1-1/2
4-40	-8	-12	-16	-20	-24	-32	-40	-48
6-32								
8-32								

Recommended Finishes	
Passivate (12)	Stainless Steel
None (1)	Aluminum

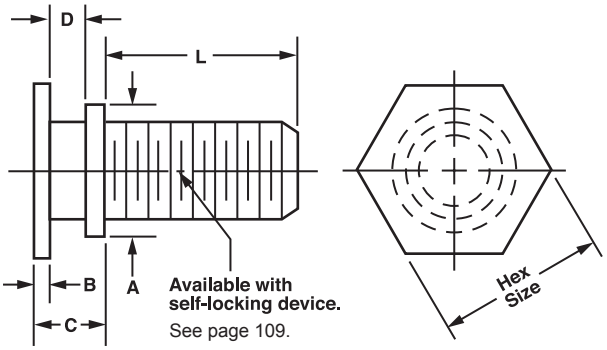
INSTALLATION NOTE: Minimum panel thickness .093
Conterbore flat bottom hole to depth .080 +.005 /-.000. Tolerances (unless noted): Decimals ± .005, Frac. ± 1/64.

FLUSH STUD

Hi-Torque Locking Fasteners - Stainless Steel, Passivate Finish



These style studs provide mounting studs in soft materials, without any projection beyond the outside surface. With stud locked in panel, assembly of other parts is easier and faster . Hex, major and minor diameters same as flush style.



Available with self-locking device.
See page 109.

ORDER EXAMPLE:

66548 - .062 - 6 - 12

Basic Part Number	Panel Thickness: See chart	Extension Length in 32nds: See chart	Finish: See page 277

L Dimension in 32nds*		
6 = 3/16	12 = 3/8	20 = 5/8
8 = 1/4	14 = 7/16	24 = 3/4
10 = 5/16	18 = 9/16	32 = 1

*Other lengths available. Consult factory for price and delivery.

Part Number	Thread	Mounting Hole ± .002	A Dia ± .002	Hex Size	Panel Thickness
66548	2-56	.161	.157	3/16	See Chart 1
66550		.203	.199	1/4	
66552	4-40	.161	.157	3/16	
66554		.203	.199	1/4	
66556	6-32	.203	.199	1/4	
66558		.265	.261	5/16	
66560	8-32	.265	.261	5/16	
66562	10-32				
66564	1/4-20	.386	.382	7/16	See Chart 2
66566	1/4-28				

	Panel Thickness	C ± .004	B ± .003	D ± .003
CHART 1	.040	.038	.012	.018
	1/16 (.062)	.058	.019	.029
	3/32 (.093)	.085	.029	.043
	1/8 (.125)	.117		
	5/32 (.156)	.147		
	3/16 (.187)	.177		
	1/4 (.250)	.236		
CHART 2	1/8 (.125)	.117	.029	.043
	5/32 (.156)	.147		
	3/16 (.187)	.177		
	1/4 (.250)	.236		
	5/16 (.312)	.296		

TECH TIP

Visit www.accuratescrew.com for more Tech Tips!

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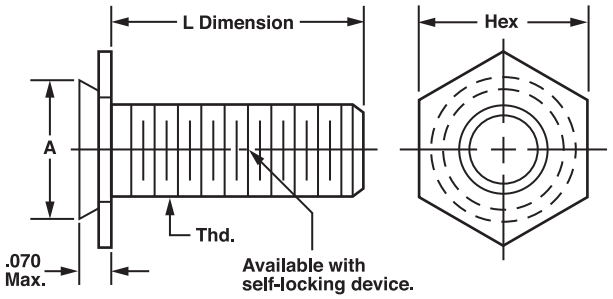
CONCEALED HEAD STUD

Hi-Torque Locking Fasteners

These concealed head studs are designed for permanent installation in “blind holes”. Studs are made of corrosion resistant stainless steel and are designed with a hex head that provides permanent installation in panels, chassis and aluminum die castings.

No special tooling is required. Quick and easy installation is achieved by pressing the concealed head stud into place in a counterbored hole with an arbor press or other pressure device. Cold flow of the displaced panel material captivates and locks the stud into place securely and positively . Parts are available in lengths of 1/4" up, thread sizes are from 4-40 to 5/16-18. All threads Class 2A.



ORDER EXAMPLE:

66580 - SS - 20 - 12

66580	SS	20	12
Basic Part Number	Material: See chart	Stud Length in 32nds: See chart	Finish: See page 277

Available Material (see page 275)	
S	Carbon Steel
SS	Stainless Steel

Recommended Finishes	
Carbon Steel	Cadmium (7)
Stainless Steel	Passivate (12)

L Dimension in 32nds												
Part Number	Thread	1/4	3/8	1/2	5/8	3/4	1	1-1/4	1-1/2	Mounting Hole Dia ± .003	A Dia Max	Hex Size
66580	4-40	-8	-12	-16	-20	-24	-32	-40	-48	.172	.171	3/16
66582	6-32									.213	.212	1/4
66584	8-32									.290	.289	5/16
66586	10-24									.312	.311	11/32
66588	10-32									.312	.311	11/32
66590	1/4-20									.344	.343	3/8

TECH TIP

Concealed head studs are designed for permanent installation in “blind holes”.

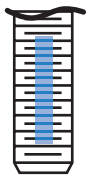
NOTES: The Cadmium Plate Finish (7) for Carbon Steel and the Passivate Finish (12) for Stainless Steel is recommended.
Minimum panel thickness 3/32"
Depth of counterbore in panel .080 +.005

SELF-LOCKING DEVICES

ASM offers the broadest range of top quality self-locking fasteners available today for both military and commercial applications. ASM is your QPL APPROVED SOURCE for Patch fasteners which meet or exceed the requirements of Specifications MIL-F-18240, IFI 124 and IFI 524. Call or write for quotations.

PELLET Add SLD to end of part number
ASM Pellet is a special, tough Nylon plug, inserted into a drilled hole, which makes any threaded fastener self-locking and self-sealing while leaving it fully adjustable. Its high internal strength and resiliency help resist, deformation after repeated use.
RECOMMENDED FOR ALL MATERIALS INCLUDING PLASTICS (NYLON, ETC.)

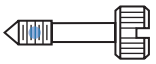
EXTERNAL PATCH Add PAT to end of part number
INTERNAL PATCH (for #6-32 & larger) Add IPAT to part number
(Slight over spray may be evident on face.) Yellow Patch processes make threaded fasteners of all sizes and configurations self-locking and self-sealing, while leaving them fully adjustable. Yellow Patch is completely dry and fused to the fastener, requiring no curing time after installation. Its internal strength and resiliency remain high, even after continual re-use.
NOT RECOMMENDED FOR PLASTICS (NYLON, ETC OR ALUMINUM). RECOMMENDED FOR METAL ONLY.



STRIP Add SLDS to end of part number
Strip is a tough bar of Nylon, inserted into a milled slot in a threaded fastener , which makes it self-locking and self-sealing. Ideal for military and commercial fasteners. Strip performs well in both high and low temperature extremes. Its compressibility, resiliency and strength allow repeated removals or adjustments. Excellent for use in non-metallic material; i.e. nylon, teflon, etc.
RECOMMENDED FOR ALL MATERIALS INCLUDING PLASTICS (NYLON, ETC.)

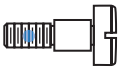
These features can be added to...

Male/Female Standoffs
(pages 27-33, 38-40)

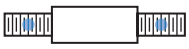


Captive Screws
(pages 113-114)

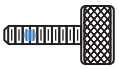
Male Spacer Adapters
(page 41)



Shoulder Screws
(pages 158-164)

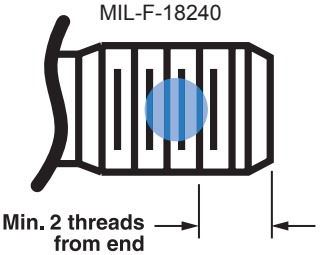


Double Ended Male Standoff
(pages 34-35)



Thumb Screws
(pages 168-170)

SELF-LOCKING DEVICE
MIL-F-18240



ORDER EXAMPLE:

14040 - H - A - .500 - 1 - SLD

- 14040 — Basic Part Number
- H — Hex (H), Round (R) or Square (S)
- A — Material
- .500 — Length: Fill in your length, any increment
- 1 — Finish
- SLD — Self-Locking Device

SUGGESTED PELLET DIAMETERS FOR THREAD SIZES INDICATED (Bolts, Screws & Set Screws)

Threaded Diameter	#0	#1	#2	#3	#4	#5	#6	#8	#10	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
Nylon Pellet Diameter	.030	.030	.030	.050	.050	.063	.063	.080	.093	.108	.125	.140	.140	.153	.153	.170	.184	.184	.184

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The Latest Innovation in Fastener Technology!

FMR2002

Front-Mount Retainer Assembly

WHAT IS THE FMR2002?

- The FMR2002 is a new patented multi-purpose fastener developed by ASM that is available externally/internally threaded for use as a retainer assembly (Fig. A) or threaded standoff (Fig. C) - plus it can be ordered without internal threads for use as a clear-hole standoff/spacer (Fig. B).
- The FMR2002 **is completely installed from the front of a panel** due to its unique external threaded design – you simply drill, tap, and install with a standard socket or open ended wrench.
- The FMR2002 is produced hex-headed and is available in brass, steel, or stainless steel.

HOW DOES THE FMR2002 SAVE TIME AND MONEY?

- **Reduces Panel Assembly Time** up to 20% due to the unique completely front mount (or single-sided) installation process.
- **Cuts Production Setup Costs** because there is no need for anvil/punch sets or equipment, such as an arbor press, punch press, or drill press.
- **Eliminates Product Rejection Rates** on bent, cracked, or bulging panels because, unlike traditional swaged or flared products that require a pressing force for installation, the FMR2002 simply screws tightly into place.
- **Allows Onsite Product Repair** due to its external threaded design and installation, which enables the FMR2002 to be easily removed and reused.

Call our Sales Department today at 1-888-208-2008 for complete details.

Visit our Web site at www.accuratescrew.com to view a video clip of the FMR2002's easy front mount installation.

Fig. A

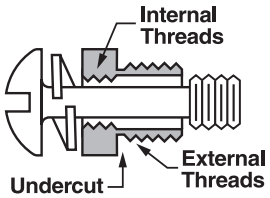


Fig. B

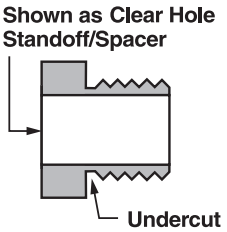
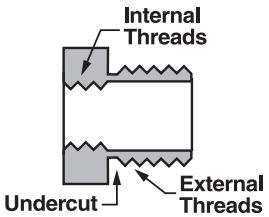


Fig. C



(Available assembly head style info. located on page 112)

FMR2002

Front-Mount Retainer Assembly

The FMR2002 is an excellent alternative to existing flared and swage standoff products...

In Applications With Restricted Installation Space

The FMR2002 completely installs from the front (or a single-side) of a panel using a standard socket or open ended wrench (Fig. C). This dramatically reduces clearance and accessibility constraints normally associated with traditional retainer/standoff products that require installation using a press, anvil, or punch (Fig. D).

In Applications With Panel Edge Distortion Concerns

The FMR2002 can be installed much closer to the edge of a panel (Fig. E) than a traditional retainer/standoff without concerns about panel distortion. This is possible because the shank portion of the FMR2002 is screwed in rather than pressed, which lessens the force and stress applied to the panel material, eliminating any bulging or cracking issues (Fig. F).

THE FMR2002 IS A PERFECT CHOICE FOR USE IN PCB APPLICATIONS!

See Fig. G

Fig. C

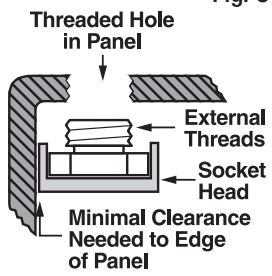


Fig. D

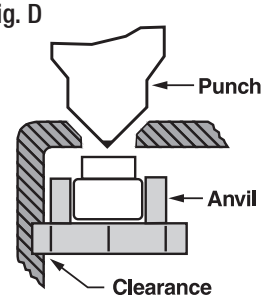


Fig. E

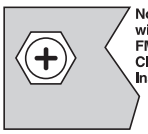


Fig. F

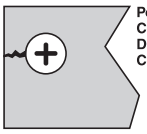
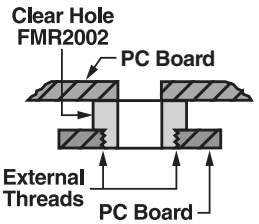


Fig. G



For FMR2002 standoff information please refer to the product section starting on pa ge 7.

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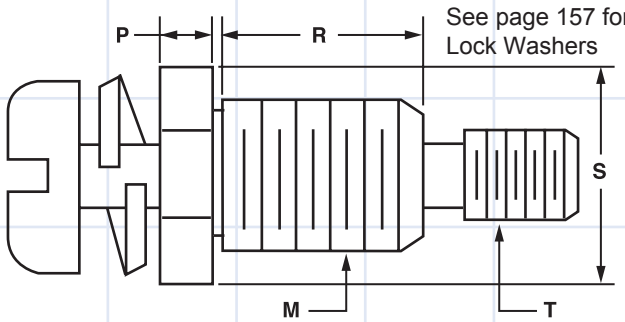
FMR2002 Front-Mount Retainer Assembly

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel



See page 157 for Lock Washers

ORDER EXAMPLE:

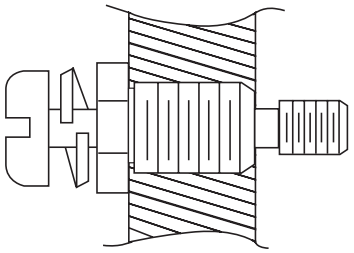
114050 - PS - .500 - U - SS - 12

- 114050 — Basic Part Number: See styles below for page number
- PS — Pan Head Slotted (PS) or Phillips (PP)
- .500 — Length
- U — Shank Code: See chart below
- SS — Material: See chart above
- 12 — Finish: See page 277

T Captive Screw Thread	P	M	S Hex
2-56	.062	8-32	3/16
4-40	.093	10-32	1/4
6-32	.093	1/4-28	5/16
8-32	.093	1/4-28	5/16
10-32	.093	5/16-24	3/8
10-24	.093	5/16-24	3/8
1/4-20	.125	3/8-24	7/16

Shank Code	R ± .003
U	.125
V	.187
W	.250
X	.312
Y	.375
Z	.500

ASSEMBLY INSTALLED



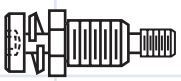
AVAILABLE SCREW STYLES

The NEW FMR2002 is available in aluminum, brass, steel and stainless steel in the screw styles shown below . Refer to these pages for screw dimensions.

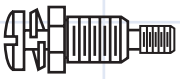
FRONT-MOUNT PAN HEAD, SLOTTED or PHILLIPS. See page 117.

FRONT-MOUNT ROUND HEAD SCREW, SLOTTED or PHILLIPS. See page 126.

FRONT-MOUNT HEX SOCKET LOW HEAD SCREW. See page 139.

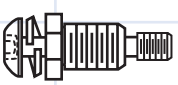


FRONT-MOUNT BINDING HEAD SCREW, SLOTTED ONLY. See page 120.



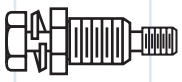
FRONT-MOUNT SOCKET HEAD CAP SCREW See page 129.

FRONT-MOUNT HEX SOCKET BUTTON HEAD SCREW. See page 141.

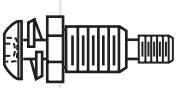


FRONT-MOUNT FILLISTER HEAD SCREW, SLOTTED or PHILLIPS. See page 123.

FRONT-MOUNT HEX HEAD SCREW See page 132.

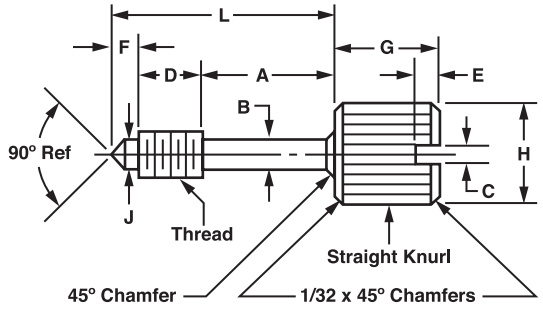


FRONT-MOUNT 6-LOBE SOCKET BUTTON HEAD SCREW. See page 144.



CAPTIVE PANEL SCREWS

For Retainers and Split Washers, see pages 190-197.



ORDER EXAMPLE:

702 - 1.500 - SS - 12

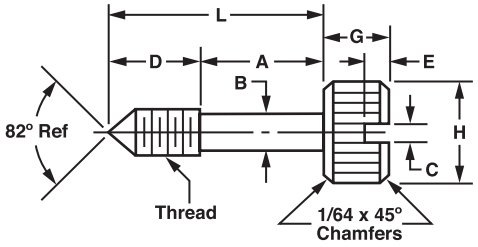
- 702 — Basic Part Number
- 1.500 — Length
- SS — Material: See chart
- 12 — Finish: See page 277

NS suffix indicates No Slot.
EXAMPLE: 702-1.500-SS-12-NS

Optional self-locking device available. Add SLD to end of part number (see page 109).

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

Basic Part No.	Thread	L ± .015 Increments of 1/16	H Dia +.015 -.005	G Lgth ± 1/64	C +.005 -.000	E +.010 -.000	D +.000 -.015	F Ref.	B ± .005	A ± .010	J +.000 -.016	Knurl Teeth per inch	Knurl Diametrical Pitch	Chamfer 45° Max.
700	4-40 UNC-2A	.375 to 1.0	5/16 x 5/16		.047	.078	.125	5/64	.078	–	.078	40.7	128	.022
702	6-32 UNC-2A	.500 to 2.0	5/16 x 5/16		.047	.078	.212	3/32	.095	–	.095	40.7	128	.022
704	8-32 UNC-2A	.500 to 2.0	5/16 x 5/16		.047	.078	.212	3/32	.120	–	.120	40.7	128	.022
706	10-24 UNC-2A	.625 to 2.0	3/8 x 7/16		.063	.094	.250	5/32	.130	–	.130	30.6	96	.030
708	10-32 UNF-2A	.625 to 2.0	3/8 x 7/16		.063	.094	.250	5/32	.130	–	.130	30.6	96	.030
710	1/4-20 UNC-2A	.750 to 3.0	1/2 x 9/16		.078	.094	.313	3/16	.175	–	.175	30.6	96	.038
712	1/4-28 UNF-2A	.750 to 3.0	1/2 x 9/16		.078	.094	.313	3/16	.175	–	.175	30.6	96	.038
714	5/16-18 UNC-2A	1.000 to 3.0	5/8 x 11/16		.094	.125	.375	1/4	.230	–	.230	20.4	64	.041
716	5/16-24 UNF-2A	1.000 to 3.0	5/8 x 11/16		.094	.125	.375	1/4	.230	–	.230	20.4	64	.041
717	3/8-16 UNC-2A	1.000 to 3.0	5/8 x 11/16		.094	.125	.375	1/4	.280	–	.280	20.4	64	.041



Basic Part No.	Thread	L ± .015 Increments of 1/16	H Dia +.015 –.005	G Lngth ± 1/64	C +.005 –.000	E +.010 –.000	D ± 1/64	B ± .005	A ± .010	Knurl Pitch
718	4-40 UNC-2A	.375 to 2.0	5/16 x 3/16		.031-.041	.063	9/32	.078	–	40
720	6-32 UNC-2A	.375 to 2.0	5/16 x 3/16		.040-.050	.063	9/32	.095	–	40
722	6-32 UNC-2A	.375 to 2.0	3/8 x 3/16		.040-.050	.063	9/32	.095	–	40
724	8-32 UNC-2A	.625 to 2.0	7/16 x 1/4		.063	.063	3/8	.120	–	40
726	10-24 UNC-2A	.625 to 3.0	7/16 x 1/4		.063	.063	3/8	.130	–	30
728	10-32 UNF-2A	.625 to 3.0	7/16 x 1/4		.063	.063	3/8	.130	–	30
730	12-24 UNC-2A	.625 to 3.0	9/16 x 1/4		.063	.094	3/8	.152	–	30
732	1/4-20 UNC-2A	.625 to 3.0	9/16 x 1/4		.063	.094	3/8	.175	–	30
734	1/4-20 UNC-2A	.625 to 3.0	3/4 x 1/4		.063	.125	3/8	.175	–	30
736	1/4-28 UNF-2A	.625 to 3.0	9/16 x 1/4		.063	.094	3/8	.175	–	30
738	1/4-28 UNF-2A	.625 to 3.0	3/4 x 1/4		.063	.125	3/8	.175	–	30
740	5/16-24 UNF-2A	.625 to 3.0	9/16 x 1/4		.063	.094	3/8	.235	–	30

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CAPTIVE PANEL SCREWS

For Retainers & Split Washers, see pages 190-197.

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

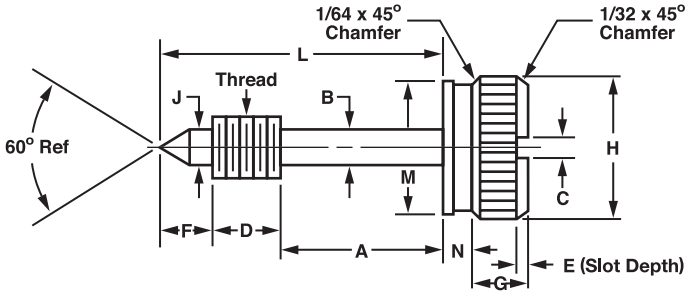
ORDER EXAMPLE:

745 - 1.500 - SS - 12

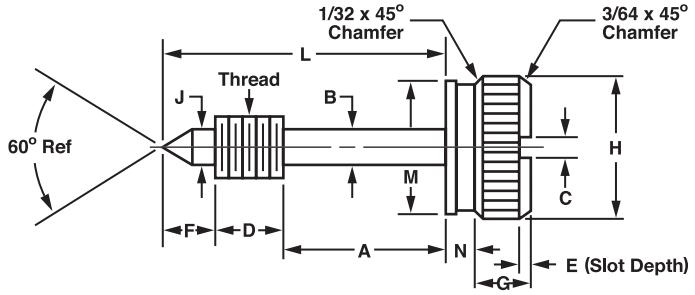
- 745 — Basic Part Number
- 1.500 — Length
- SS — Material: See chart
- 12 — Finish: See page 277

NS suffix indicates No Slot.
EXAMPLE: 745-1.500-SS-12-NS

Optional self-locking device available. Add SLD to end of part number (see page 109).



Basic Part No.	Thread	L ± .015 Increments of 1/16	H Dia +.015 -.005	G Lngth ± .1/64	C +.005 -.000	E +.010 -.000	D +.010 -.005	F Ref.	B ± .005	A ± .010	J +.000 -.016	M ± .010	N ± .010	Knurl Pitch
745	4-40 UNC-2A	.375 to 2.0	5/16 x 1/8		.047	.078	3/16	1/8	.078	–	.078	13/64	1/16	40
747	6-32 UNC-2A	.500 to 2.0	5/16 x 1/8		.047	.078	3/16	1/8	.095	–	.095	13/64	1/16	40



Basic Part No.	Thread	L ± .015 Increments of 1/16	H Dia +.015 -.005	G Lngth ± .1/64	C +.005 -.000	E +.010 -.000	D +.010 -.005	F Ref.	B ± .005	A ± .010	J +.000 -.016	M ± .010	N ± .010	Knurl Pitch
749	8-32 UNC-2A	.625 to 2.0	1/2 x 3/16		.063	.078	1/4	1/8	.120	–	.120	13/32	1/16	40
751	8-32 UNC-2A	.625 to 2.0	5/8 x 3/16		.063	.078	1/4	1/8	.120	–	.120	1/2	1/16	40
752	10-24 UNC-2A	.625 to 3.0	1/2 x 3/16		.063	.094	1/4	1/8	.130	–	.130	13/32	1/16	30
753	10-32 UNF-2A	.625 to 3.0	1/2 x 3/16		.063	.094	1/4	1/8	.130	–	.130	13/32	1/16	30
755	10-32 UNF-2A	.625 to 3.0	5/8 x 3/16		.063	.094	1/4	1/8	.130	–	.130	1/2	1/16	30
757	12-24 UNC-2A	.625 to 3.0	5/8 x 3/16		.078	.094	1/4	1/8	.152	–	.152	1/2	1/16	30
759	1/4-20 UNC-2A	.625 to 3.0	5/8 x 3/16		.078	.094	3/8	1/4	.175	–	.175	1/2	1/16	30
761	1/4-20 UNC-2A	.750 to 3.0	3/4 x 1/4		.078	.094	3/8	1/4	.175	–	.175	1/2	1/8	30

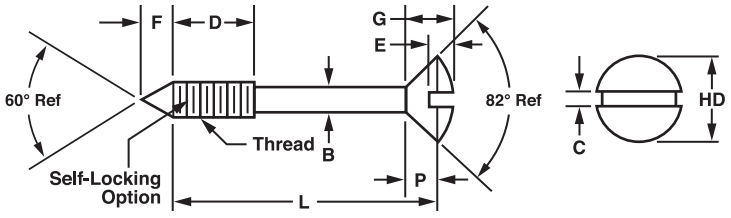
TECH TIP

ASM can manufacture knurled captive panel screws with six lobe and hex drive featur es.

CAPTIVE SCREWS

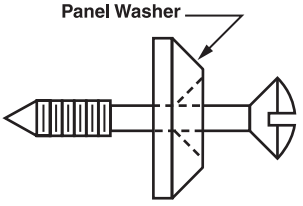
Retainers & Split Washers, see pages 190-197.

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel



Captive Panel Screw Assembly

Panel Washer
See top of page 243 for details.



ORDER EXAMPLE:

771 - 1.500 - SS - 12

- 771: Basic Part Number
- 1.500: Length
- SS: Material: See chart
- 12: Finish: See page 277

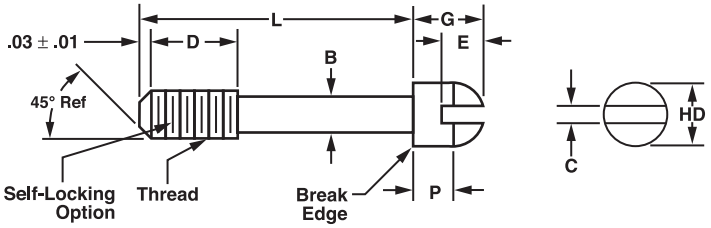
NS suffix indicates No Slot.
EXAMPLE: 765-.375-SS-12-NS ◄**No Slot**
Optional self-locking device available. Add SLD to end of part number (see page 109).

CAPTIVE PANEL SCREW ASSEMBLY ORDER EXAMPLE:

771 - 1.500 - SS - A - 12

- 771: Basic Part Number
- 1.500: Length
- SS: Material: See chart
- A: Assembly with Panel Washer
- 12: Finish: See page 277

Basic Part No.	Thread	L ± .015 Increments of 1/16	HD			G		C		E		D ± .010	F ± .005	B ± .005	P +.020 -.000
			Max Sharp	Min Sharp	Abs Min	Max	Min	Max	Min	Max	Min				
765	4-40 UNC-2A	.375 to 2.0	.225	.207	.195	.104	.084	.039	.031	.059	.049	3/16	.096	.078	.067
767	6-32 UNC-2A	.500 to 2.0	.279	.257	.244	.128	.105	.048	.039	.074	.060	1/4	.121	.095	.083
769	8-32 UNC-2A	.500 to 2.0	.332	.308	.292	.152	.126	.054	.045	.088	.072	1/4	.142	.120	.100
771	10-24 UNC-2A	.625 to 3.0	.385	.359	.340	.176	.148	.060	.050	.103	.084	1/4	.164	.130	.116
773	10-32 UNF-2A	.625 to 3.0	.385	.359	.340	.176	.148	.060	.050	.103	.084	1/4	.164	.130	.116



Basic Part No.	Thread	L ± .015 Increments of 1/16	HD		G		C		E		D ± .010	B ± .005	P	
			Max	Min	Max	Min	Max	Min	Max	Min			Max	Min
775	2-56 UNC-2A	.250 to 2.0	.140	.124	.083	.066	.031	.023	.037	.025	1/8	.061	.062	.053
777	3-48 UNC-2A	.250 to 2.0	.161	.145	.095	.077	.035	.027	.043	.030	1/8	.070	.070	.161
779	4-40 UNC-2A	.312 to 2.0	.183	.166	.107	.088	.039	.031	.048	.035	5/32	.078	.079	.069
781	4-48 UNF-2A	.312 to 2.0	.183	.166	.107	.088	.039	.031	.048	.035	5/32	.078	.079	.069
783	6-32 UNC-2A	.375 to 3.0	.226	.208	.132	.111	.048	.039	.060	.045	3/16	.095	.096	.086
785	6-40 UNF-2A	.375 to 3.0	.226	.208	.132	.111	.048	.039	.060	.045	3/16	.095	.096	.086
787	8-32 UNC-2A	.500 to 3.0	.270	.250	.156	.133	.054	.045	.071	.054	3/16	.120	.113	.102
789	10-24 UNC-2A	.625 to 3.0	.313	.292	.180	.156	.060	.050	.083	.064	1/4	.130	.130	.118
791	10-32 UNF-2A	.625 to 3.0	.313	.292	.180	.156	.060	.050	.083	.064	1/4	.130	.130	.118

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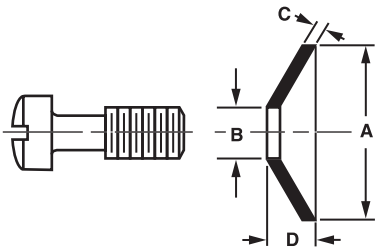
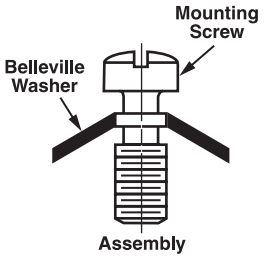
CAPTIVE SCREWS - LOCK ASSEMBLY

Available For All Captive Panel Screws

In Any Head Styles and Thread Sizes – In Steel or Stainless Steel





ORDER EXAMPLE:

114070 - FS - .500 - SS - BW - 12

Basic Part Number	Fillister Head Slotted (FS) or Phillips (FP)	Length: L	Material: See chart	Belleville Washer	Finish: See page 277

Select captive screws from pages 117-156.

Add BW to end of part number.

For Stainless Steel Screws:
EXAMPLE: 114070-FS-.500-SS-BW-12
(SS = Stainless Steel; BW = Belleville Washer)

For Steel Screws:
EXAMPLE: 114070-FS-.500-S-BW-7
(S = Heat-treated Spring Steel; BW = Belleville Washer)

Available Material (see page 275)	
S	Spring Steel
SS	Stainless Steel

Belleville Washer Selection Data

Supplied assembled • Availability is from stock - 2 weeks

Thread	B ID	A OD	C Thickness	D Height	Belleville Washer #	See Page
2-56	.078	.150	.008	.028	24007	227
4-40	.097	.203	.010	.030	24023	227
6-32	.119	.200	.005	.030	24043	227
8-32	.156	.312	.025	.040	24087 (ID .156)	228
10-32	.173	.365	.015	.035	24105	228
1/4-20	.234	.562	.030	.050	24165 (ID .234)	229
3/8-16	.334	.620	.015	.080	24231	229

Belleville Washer Specs
Spring Steel Screws: Heat Treated Spring Steel QQ-S-700/ASTM A 684
Stainless Steel Screws: Stainless Steel - Type 301-304

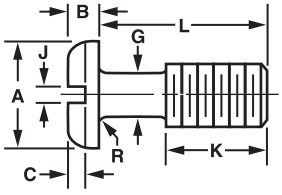
TECH TIP

Most of our fasteners are made from 300 series stainless steel which is non-magnetic and can not be heat treated.

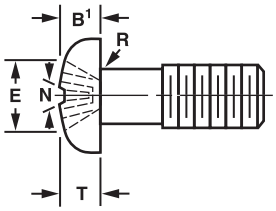
NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

PAN HEAD CAPTIVE PANEL SCREWS - Slotted or Phillips

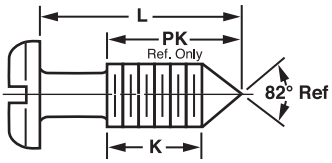
For Captive Panel Screw assemblies, see below and page 118.



Slotted Head (PS)



Phillips Head (PP)



Lead Point Option

ORDER EXAMPLE:

114050 - PS - .500 - SS - 12

Basic Part Number	Pan Head Slotted (PS) or Pan Head Phillips (PP)	Length: L	Material: See chart	Finish: See page 277

To add the Lead Point option, add prefix **P** to part number. **EXAMPLE: P1114050-PS-.500-SS-12**

Available Material (see page 275)	
B	Brass, composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel, 18-8, 302-304 series

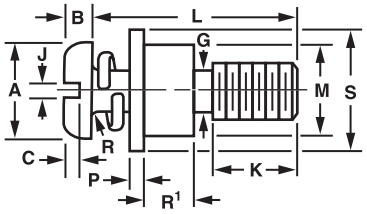
Thread	Basic Part Number	A Head Dia Max	A Head Dia Min	Height of Head B Slotted Max	Height of Head B Slotted Min	Height of Head B1 Recessed Max	Height of Head B1 Recessed Min	C Slot Depth Max	C Slot Depth Min	J Slot Width Max	J Slot Width Min	Dimension of Recess E Diameter Max	Dimension of Recess E Diameter Min	Dimension of Recess T Depth Max	Dimension of Recess T Depth Min	Dimension of Recess N Width Min	K ±.010	G ±.005	L*	PK Ref. Only
*2-56	114050	.181	.155	.053	.045	062	.053	.031	.022	.031	.023	.104	091	.059	.041	.017	1/8	.061	.250 - .750	.17
4-40	114052	.238	.205	.068	.058	080	.070	.040	.030	.039	.031	.122	.109	.078	.060	.019	5/32	.078	.312 - 1.00	22
6-32	114054	.294	.256	.082	.072	097	.087	.050	.037	.048	.039	.166	.153	.091	.066	.028	3/16	.095	.375 - 1.00	26
8-32	114056	.347	.306	.096	.085	.115	.105	.058	.045	.054	.045	.182	.169	.108	.082	.030	3/16	.120	.375 - 1.00	28
10-24	114059	.403	.357	.110	.099	.133	.122	.068	.053	.060	.050	.199	.186	.124	.100	.031	1/4	.130	.500 - 1.25	36
10-32	114058	.403	.357	.110	.099	.133	.122	.068	.053	.060	.050	.199	.186	.124	.100	.031	1/4	.130	.500 - 1.25	36
1/4-20	114051	.517	.473	.144	.130	.175	.162	.087	.070	.075	.064	.281	268	.161	.135	.036	1/4	.175	.500 - 3.00	39

*Not available with O-ring. For L tolerance, see page 281. Increments of 1/16" is recommended, however , any length may be specified.

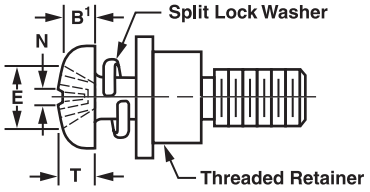
PAN HEAD CAPTIVE PANEL SCREW ASSEMBLY

Slotted or Phillips

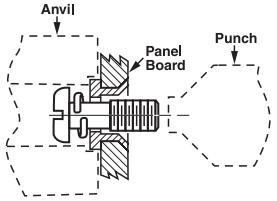
Slotted



Phillips



Easy One Step Installation Procedure



Flare Tool supplied by ASM. Countersink 82° by approximately 1/2 board thickness.

ORDER EXAMPLE:

114050 - PS - .500 - B - SS - 12

Basic Part Number	Pan Head Slotted (PS) or Pan Head Phillips (PP)	Length: L	Shank Code: See chart	Material: See chart	Finish: See page 277

ALSO AVAILABLE AS AN FMR2002 ASSEMBLY
(see pages 110-112 for more information)

Order Example:
114050-PS-.500-U-SS-12

Thread	M Dia Min	M Dia Max	Mounting Hole Dia +.003 -.000	S Dia	P	Tooling Anvil	Tooling Punch
2-56	.185	.188	.188	1/4	.062	FA-2	FP-2
4-40	.231	.234	.234	5/16	.093	FA-4	FP-4
6-32	.231	.234	.234	3/8	.093	FA-6	FP-6
8-32	.231	.234	.234	1/2	.093	FA-8	FP-8
10-32	.231	.234	.234	1/2	.093	FA-10	FP-10
1/4-20	.309	.312	.312	9/16	.125	FA-25	FP-25

Shank Code	Board Thickness	R1 ± .003
A	1/32	.027
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

NOTE: R =.030 Max.

Available Material (see page 275)	
B	Brass, composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series, ASTMA 580/A580M-98

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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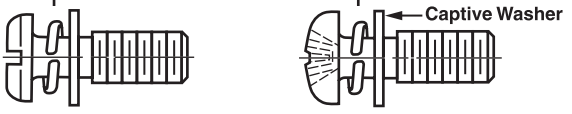
PAN HEAD CAPTIVE PANEL SCREW ASSEMBLY

Split Lock Washer (G)
See page 157 for details.



ORDER EXAMPLE:

114050 - PS - .250 - SS - G - 12

Part Number: See page 117	Pan Head Slotted (PS) or Phillips (PP)	Length: L	Material: See page 117	Assembly w/Split (G) L'Washer & Flat Washer	Finish: See page 277

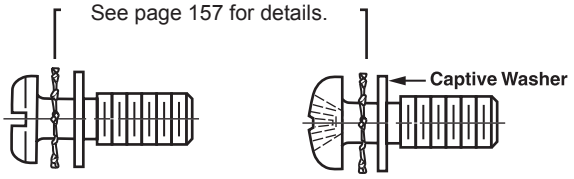
Internal Tooth Lock Washer (H)
See page 157 for details.

ORDER EXAMPLE:

114050 - PS - .250 - SS - H - 12

Part Number: See page 117	Pan Head Slotted (PS) or Phillips (PP)	Length: L	Material: See page 117	Assembly w/Internal (H) L'Washer & Flat Washer	Finish: See page 277

External Tooth Lock Washer (J)
See page 157 for details.



ORDER EXAMPLE:

114050 - PS - .250 - SS - J - 12

Part Number: See page 117	Pan Head Slotted (PS) or Phillips (PP)	Length: L	Material: See page 117	Assembly w/External (J) L'Washer & Flat Washer	Finish: See page 277

Belleville Washer
see page 116.

Captive Washer Specifications		
Screw Size	Outside Dia ± .010	T* ± .005 Thickness
2	.187	.020
4	.255	.030
6	.312	.030
8	.312	.030
10	.375	.030
1/4	.500	.045**

See page 117 for screw dimensions.

MATERIAL CHART

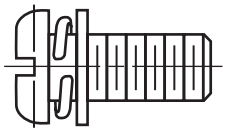
Brass Captive Screw Assembly (B) will be furnished with silicone bronze split lock washers conforming to ASTM B99, copper alloy no. 651 or no. 655. Internal and external Phosphor Bronze lock washers conforming to ASM B159, copper alloy no. 510. Brass flat washers will be no. 260.

Stainless Steel Captive Screw Assembly (SS) will be furnished with stainless steel flat washers conforming to AISI type 302 or 305 and lock washers of stainless steel type 18-8.

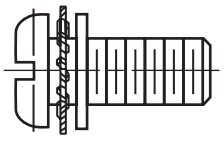
Steel Captive Screw Assembly (S) will be furnished with steel flat washers of low carbon steel 1006-1010 soft and steel lock washer conforming to ASTM A366.

PAN HEAD PANEL SCREW ASSEMBLY - FULL THREAD

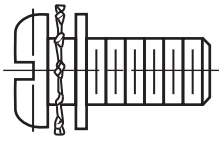
Split Lock Washer (GF)
See page 157 for details



Internal Tooth Lock Washer (HF)
See page 157 for details



External Tooth Lock Washer (JF)
See page 157 for details



ORDER EXAMPLE:

114050 - PS - .250 - SS - GF - 12

Part Number: See page 117	Pan Head Slotted (PS) or Phillips (PP)	Length: L	Material: See page 117	Assembly w/Split (GF), Internal (HF) or External (JF)	Finish: See page 277

* Fully threaded up to the flat washer.

** Maximum length 1.50 inches.

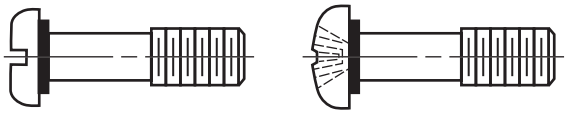
NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

SELF-SEALING WASHERS

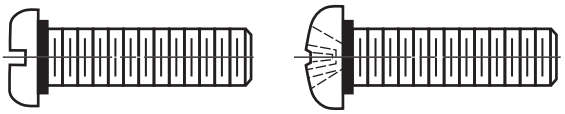
Material: #60 Medium Durameter Neoprene

For Metric style, see page 147.

Pan Head Captive Panel Screw
Slotted or Phillips



Pan Head Full Thread Panel Screw
Slotted or Phillips



ORDER EXAMPLE:

S - 114050 - PS - .500 - SS - 12

Self-Sealing	Basic Screw Part Number	Pan Head Slotted (PS) or Phillips (PP)	Length: L	Material: See page 117	Finish: See page 277

Any one dimension change, add to part number.
EXAMPLE: S-114050-PS-.500-SS-F-12 (K=3/16)

ORDER EXAMPLE:

S - 114050 - PS - .500 - SS - F - 12

Self-Sealing	Basic Screw Part Number	Pan Head Slotted (PS) or Phillips (PP)	Length: L	Material: See page 117	Full Thread	Finish: See page 277

For L tolerance, see page 281. Increments of 1/16" is recommended, however, any leng h may be specified.
Cost difference is negligible, additional delivery time approximately 1-1/2 weeks.

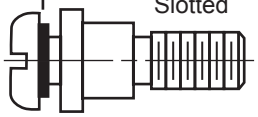
SELF-SEALING ASSEMBLY

Pan Head Captive Panel Screw - Slotted or Phillips

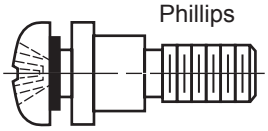
For Metric Style, see page 147.

Self-Sealing Washers
Material: #60 Medium Durameter Neoprene

Slotted



Phillips



ORDER EXAMPLE:

S - 114050 - PS - .500 - B - SS - 12

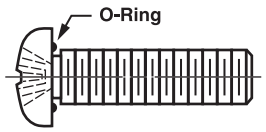
Self-Sealing	Basic Screw Part Number	Pan Head Slotted (PS) or Phillips (PP)	Length: L	Shank Code: See chart on page 116	Material: See page 117	Finish: See page 277

Any one dimension change add to part number. **EXAMPLE: S-114050-PS-.500-B-SS-F-12 (K=3/16)**

For L tolerance, see page 281. Increments of 1/16" is recommended, however, any length may be specified. Cost difference is negligible, additional delivery time approximately 1-1/2 weeks.

SELF-SEALING FULL THREAD

Phillips Pan Head with Integral Silicone O-Ring



(Available in full thread only)

ORDER EXAMPLE:

SR - 114052 - PP - .250 - SS - 12

Self-Sealing with Integral Silicone O-Ring	Basic Screw Part Number	Pan Head Phillips (PP)	Length: L	Material: See page 117	Finish: See page 277

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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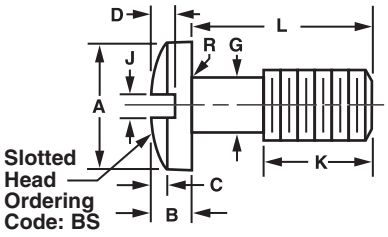
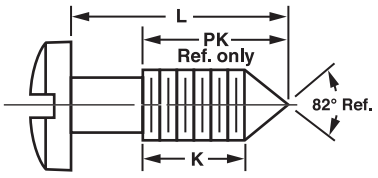
BINDING HEAD CAPTIVE SCREW

Slotted Only

For Binding Head Captive Screw assembly, see pages 121-122. For Retainer Washers, see page 147.

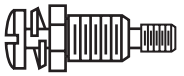


Slotted Head (BS)



Lead Point Option

ALSO AVAILABLE AS AN FMR2002 ASSEMBLY
(see pages 110-112 for more information)



Order Example:
114060-BS-.500-U-SS-12

ORDER EXAMPLE:

114060 - BS - .500 - SS - 12

114060	BS	.500	SS	12
Basic Part Number	Binding Head Slotted (BS)	Length: L	Material: See chart	Finish: See page 277

To add the Lead Point Option, add prefix **P** to part number.
EXAMPLE: P114060-BS-.500-SS-12

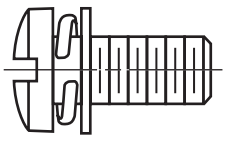
Available Material (see page 275)	
B	Brass, composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel, 18-8, 302-304 series

Thread	Basic Part Number	A Head Dia		B Head Height		C Head Oval Height		D Slot Depth		J Slot Width		K ± .010	G ± .005	L*	PK Ref. Only
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min				
2-56	114060	.181	.171	.050	.043	.018	.013	.030	.020	.031	.023	1/8	.061	.250 - .750	.17
4-40	114062	.235	.223	.068	.061	.025	.018	.042	.030	.039	.031	5/32	.078	.312 - 1.00	.22
6-32	114064	.290	.275	.087	.078	.032	.024	.053	.040	.048	.039	3/16	.095	.375 - 1.00	.26
8-32	114066	.344	.326	.105	.095	.039	.029	.065	.050	.054	.045	3/16	.120	.375 - 1.00	.28
10-24	114069	.399	.378	.123	.112	.045	.034	.077	.060	.060	.050	1/4	.130	.500 - 1.25	.36
10-32	114068	.399	.378	.123	.112	.045	.034	.077	.060	.060	.050	1/4	.130	.500 - 1.25	.36
1/4-20	114061	.525	.498	.165	.152	.061	.046	.105	.084	.075	.064	1/4	.175	.500 - 3.00	.39

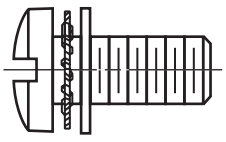
*For L tolerance, see page 281. Increments of 1/16" is recommended, however , any length may be specified. Cost dif ference is negligible, addi ional delivery time approximately 1-1/2 weeks.

BINDING HEAD PANEL SCREW ASSEMBLY - FULL THREAD

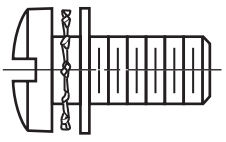
Split Lock Washer (GF)
See page 157 for details.



Internal Tooth Lock Washer (HF)
See page 157 for details.



External Tooth Lock Washer (JF)
See page 157 for details.



ORDER EXAMPLE:

114060 - BS - .500 - SS - GF - 12

114060	BS	.500	SS	GF	12
Part Number: See page 120	Binding Head Slotted (BS)	Length: L	Material: See page 120	Assembly w/Split (GF), Internal (HF) or External (JF)	Finish: See page 277

See page 157 for details on split, internal and external tooth washers.

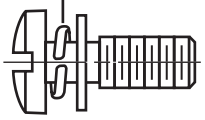
* Fully threaded up to the flat washer.

** Maximum length 1.50 inches.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

BINDING HEAD CAPTIVE PANEL SCREW ASSEMBLY

Split Lock Washer (G)
See page 157 for details.

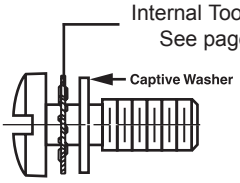


ORDER EXAMPLE:

114060 - BS - .500 - SS - G - 12

Part Number: See page 120	Binding Head Slotted (BS)	Length: L	Material: See page 120	Assembly w/Split (G) L'Washer & Flat Washer	Finish: See page 277

Internal Tooth Lock Washer (H)
See page 157 for details.

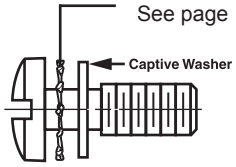


ORDER EXAMPLE:

114060 - BS - .500 - SS - H - 12

Part Number: See page 120	Binding Head Slotted (BS)	Length: L	Material: See page 120	Assembly w/Internal (H) L'Washer & Flat Washer	Finish: See page 277

External Tooth Lock Washer (J)
See page 157 for details.



ORDER EXAMPLE:

114060 - BS - .500 - SS - J - 12

Part Number: See page 120	Binding Head Slotted (BS)	Length: L	Material: See page 120	Assembly w/External (J) L'Washer & Flat Washer	Finish: See page 277

Belleville Washer
see page 116.

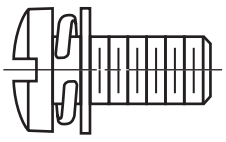
Captive Washer Specifications		
Screw Size	**Outside Dia ± .010**	**T* ± .005 Thickness**
2	.187	.020
4	.255	.030
6	.312	.030
8	.375	.030
10	.500	.030
1/4	.562	.045**

See page 120 for screw dimensions.

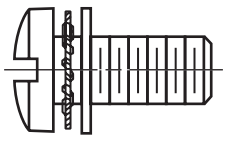
Available Material (see page 275)	
B	Brass, composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

BINDING HEAD PANEL SCREW ASSEMBLY - FULL THREAD

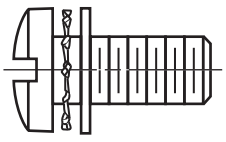
Split Lock Washer (GF)
See page 157 for details.



Internal Tooth Lock Washer (HF)
See page 157 for details.



External Tooth Lock Washer (JF)
See page 157 for details.



ORDER EXAMPLE:

114060 - BS - .500 - SS - GF - 12

Part Number: See page 120	Binding Head Slotted (BS)	Length: L	Material: See page 120	Assembly w/Split (GF), Internal (HF) or External (JF)	Finish: See page 277

See page 157 for details on split, internal and external tooth washers.

* Fully threaded up to the flat washer.

** Maximum length 1.50 inches.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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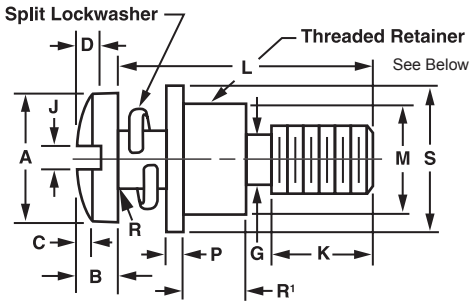
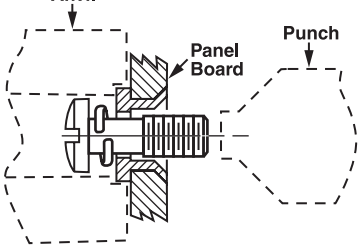
BINDING HEAD CAPTIVE PANEL SCREW ASSEMBLY

Slotted Only

For split lock washers, see page 157.





Easy One Step Installation Procedure
Flare Tool supplied by ASM countersink 82° by approximately 1/2 board thickness.

ORDER EXAMPLE:

114060 - BS - .500 - B - SS - 12

114060	BS	.500	B	SS	12
Basic Part Number	Binding Head Slotted (BS)	Length: L	Shank Code: See chart	Material: See chart	Finish: See page 277

Available Material (see page 275)	
B	Brass, composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

Thread	Basic Part Number	A Head Dia		B Head Height		C Head Oval Height		D Slot Depth		J Slot Width		K ± .010	G ± .005	L* Length
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min			
2-56	114060	.181	.171	.050	.043	.018	.013	.030	.020	.031	.023	1/8	.061	.250 - .750
4-40	114062	.235	.223	.068	.061	.025	.018	.042	.030	.039	.031	5/32	.078	.312 - 1.00
6-32	114064	.290	.275	.087	.078	.032	.024	.053	.040	.048	.039	3/16	.095	.375 - 1.00
8-32	114066	.344	.326	.105	.095	.039	.029	.065	.050	.054	.045	3/16	.120	.375 - 1.00
10-24	114069	.399	.378	.123	.112	.045	.034	.077	.060	.060	.050	1/4	.130	.500 - 1.25
10-32	114068	.399	.378	.123	.112	.045	.034	.077	.060	.060	.050	1/4	.130	.500 - 1.25
1/4-20	114061	.525	.498	.165	.152	.061	.046	.105	.084	.075	.064	1/4	.175	.500 - 3.00

*For L tolerance, see page 281. Increments of 1/16" is recommended, however , any length may be specified.

Retainer and Flare Tooling Data

Thread	M Dia		Mounting Hole Dia +.003 -.000	S Dia	P	Tooling	
	Min	Max				Anvil	Punch
2-56	.185	.188	.188	1/4	.062	FA-2	FP-2
4-40	.231	.234	.234	5/16	.093	FA-4	FP-4
6-32	.231	.234	.234	3/8	.093	FA-6	FP-6
8-32	.231	.234	.234	1/2	.093	FA-8	FP-8
10-32	.231	.234	.234	1/2	.093	FA-10	FP-10
1/4-20	.309	.312	.312	9/16	.125	FA-25	FP-25

Shank Code	Board Thickness	R^1 ± .003
A	1/32	.027
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

TECH TIP

Metric sizes and threads available on many different products we manufacture.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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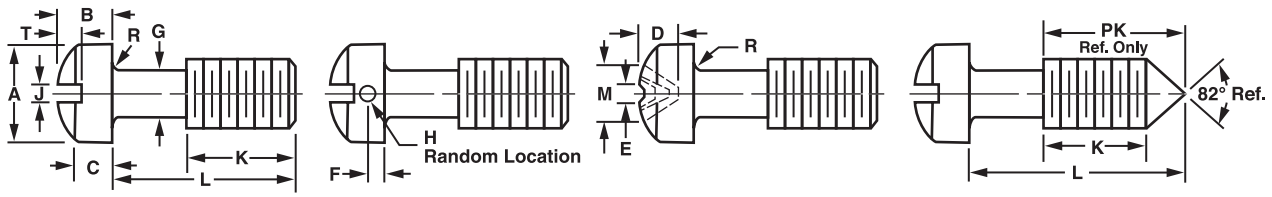
FILLISTER HEAD CAPTIVE SCREW

Slotted or Phillips

For Fillister Head Captive Screw assembly, see page 124-125. For Retainer Washers, see page 147.

Slotted Head (FS) | Slotted (with hole) | Phillips Head (FP) | Lead Point Option



Available Material (see page 275)	
B	Brass, composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel, 18-8, 302-304 series

TECH TIP

Metric sizes and threads are available on many of the products we manufacture.

ORDER EXAMPLE:

114070 - FS - .500 - SS - 12

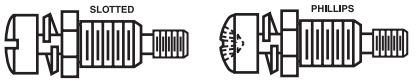
Basic Part Number	Fillister Head Slotted (FS) or Phillips (FP)	Length: L	Material: See chart	Finish: See page 277

To add a drilled hole, prefix **H** to part number.
EXAMPLE: H114070-FS-.500-SS-12

To add the Lead Point Option, prefix **P** to part number.
EXAMPLE: P114070-FS-.500-SS-12

ALSO AVAILABLE AS AN FMR2002 ASSEMBLY

(see pages 110-112 for more information)



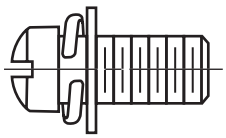
Order Example:
114070-FS-.500-U-SS-12

Thread	Basic Part Number	A Head Dia Max	A Head Dia Min	B Total Height Max	B Total Height Min	C Side Height Max	C Side Height Min	J Slot Width Max	J Slot Width Min	T Slot Depth Max	T Slot Depth Min	M Dia Max	M Dia Min	D Depth Max	D Depth Min	E Width Min	K ± .010	G ± .005	H Nom.	F Nom.	L*	PK Ref. Only
		Height of Head										Dimensions of Recess										
2-56	114070	.140	.124	.083	.066	.062	.053	.031	.023	.037	.025	--	--	.059	.041	.017	1/8	.061	.031	.026	.250 to .750	.17
4-40	114072	.183	.166	.107	.088	.079	.069	.039	.031	.048	.035	.122	.109	.078	.060	.019	5/32	.078	.037	.035	.312 to 1.00	.22
6-32	114074	.226	.208	.132	.111	.096	.086	.048	.039	.060	.045	.166	.153	.091	.066	.028	3/16	.095	.046	.043	.375 to 1.00	.26
8-32	114076	.270	.250	.156	.133	.113	.102	.054	.045	.071	.054	.182	.169	.108	.082	.030	3/16	.120	.046	.043	.500 to 1.00	.28
10-24	114079	.313	.292	.180	.156	.130	.118	.060	.050	.083	.064	.199	.186	.124	.100	.031	1/4	.130	.046	.043	.500 to 1.25	.36
10-32	114078	.313	.292	.180	.156	.130	.118	.060	.050	.083	.064	.199	.186	.124	.100	.031	1/4	.130	.046	.043	.500 to 1.25	.36
1/4-20	114071	.414	.389	.237	.207	.170	.155	.075	.064	.109	.082	.281	.268	.161	.135	.036	1/4	.175	.062	.062	.500 to 3.00	.39

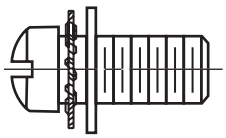
*For L tolerance, see page 281. Increments of 1/16" is recommended, however, any length may be specified. Cost difference is negligible, addi ional delivery time approximately 1-1/2 weeks.

FILLISTER HEAD SCREW ASSEMBLY - FULL THREAD

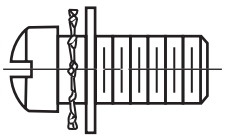
Split Lock Washer (GF)
See page 157 for details.



Internal Tooth Lock Washer (HF)
See page 157 for details.



External Tooth Lock Washer (JF)
See page 157 for details.



ORDER EXAMPLE:

114070 - FS - .500 - SS - GF - 12

Part Number: See page 123	Fillister Head Slotted (FS)	Length: L	Material: See page 123	Assembly w/Split (GF), Internal (HF) or External (JF)	Finish: See page 277

* Fully threaded up to the flat washer.

** Maximum length 1.50 inches.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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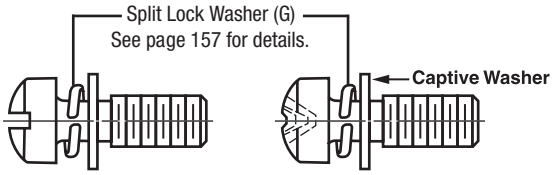
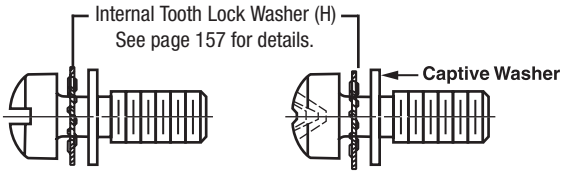
FILLISTER HEAD CAPTIVE SCREW ASSEMBLY



ORDER EXAMPLE:

114070 - FS - .500 - SS - G - 12

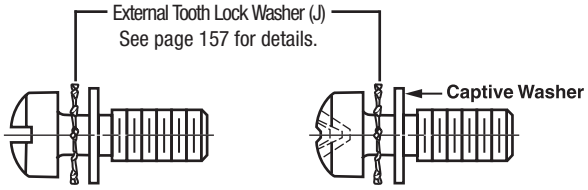
Part Number: See page 123	Fillister Head Slotted (FS) or Phillips (FP)	Length: L	Material: See page 123	Assembly w/Split (G) L'Washer & Flat Washer	Finish: See page 277



ORDER EXAMPLE:

114070 - FS - .500 - SS - H - 12

Part Number: See page 123	Fillister Head Slotted (FS) or Phillips (FP)	Length: L	Material: See page 123	Assembly w/Internal (H) L'Washer & Flat Washer	Finish: See page 277



ORDER EXAMPLE:

114070 - FS - .500 - SS - J - 12

Part Number: See page 123	Fillister Head Slotted (FS) or Phillips (FP)	Length: L	Material: See page 123	Assembly w/External (J) L'Washer & Flat Washer	Finish: See page 277

Belleville Washer
see page 116.

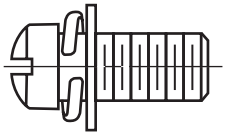
Captive Washer Specifications		
Screw Size	Outside Dia ± .010	T* ± .005 Thickness
2	.187	.020
4	.255	.030
6	.312	.030
8	.312	.030
10	.375	.030
1/4	.500	.045**

See page 123 for screw dimensions.

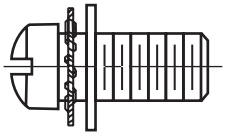
Available Material (see page 275)	
B	Brass, composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

FILLISTER HEAD SCREW ASSEMBLY - FULL THREAD

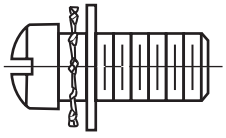
Split Lock Washer (GF)
See page 157 for details.



Internal Tooth Lock Washer (HF)
See page 157 for details.



External Tooth Lock Washer (JF)
See page 157 for details.



ORDER EXAMPLE:

114070 - FS - .500 - SS - GF - 12

Part Number: See page 123	Fillister Head Slotted (FS)	Length: L	Material: See page 123	Assembly w/Split (GF), Internal (HF) or External (JF)	Finish: See page 277

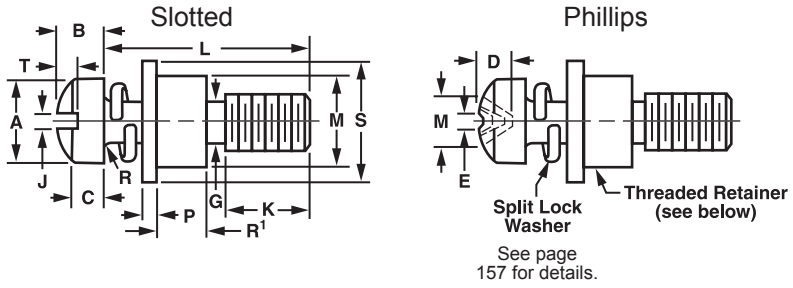
* Fully threaded up to the flat washer.

** Maximum length 1.50 inches.

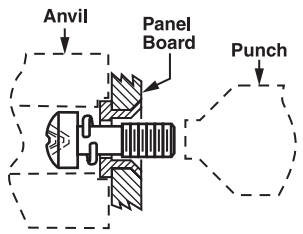
NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

FILLISTER HEAD CAPTIVE PANEL SCREW ASSEMBLY

Slotted or Phillips



See page 157 for details.



Easy One Step Installation Procedure
Flare Tool Supplied by ASM. Countersink 82° by approximately 1/2 board thickness.

ORDER EXAMPLE:

114070 - FS - .500 - B - SS - 12

Basic Part Number	Fillister Head Slotted (FS) or Phillips (FP)	Length: L	Shank Code: See chart	Material: See chart	Finish: See page 277

Available Material (see page 275)	
B	Brass, composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

		Height of Head										Dimensions of Recess							
Thread	Basic Part Number	A Head Dia		B Total Height		C Side Height		J Slot Width		T Slot Depth		M Dia		D Depth		E Width	K ± .010	G ± .005	L*
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Min			
2-56	114070	.140	.124	.083	.066	.062	.053	.031	.023	.037	.025	--	--	.059	.041	.017	1/8	.061	.250 to .750
4-40	114072	.183	.166	.107	.088	.079	.069	.039	.031	.048	.035	.122	.109	.078	.060	.019	5/32	.078	.312 to 1.00
6-32	114074	.226	.208	.132	.111	.096	.086	.048	.039	.060	.045	.166	.153	.091	.066	.028	3/16	.095	.375 to 1.00
8-32	114076	.270	.250	.156	.133	.113	.102	.054	.045	.071	.054	.182	.169	.108	.082	.030	3/16	.120	.500 to 1.00
10-24	114079	.313	.292	.180	.156	.130	.118	.060	.050	.083	.064	.199	.186	.124	.100	.031	1/4	.130	.500 to 1.25
10-32	114078	.313	.292	.180	.156	.130	.118	.060	.050	.083	.064	.199	.186	.124	.100	.031	1/4	.130	.500 to 1.25
1/4-20	114071	.414	.389	.237	.207	.170	.155	.075	.064	.109	.082	.281	.268	.161	.135	.036	1/4	.175	.500 to 3.00

*For L tolerance, see page 281. Increments of 1/16" is recommended, however , any length may be specified. Cost dif ference is negligible, addi ional delivery time approximately 1-1/2 weeks.

Retainer and Flare Tooling Data

Thread	M Dia		Mounting Hole Dia +.003 -.000	S Dia.	P	Tooling	
	Min	Max				Anvil	Punch
2-56	.185	.188	.188	1/4	.062	FA-2	FP-2
4-40	.231	.234	.234	5/16	.093	FA-4	FP-4
6-32	.231	.234	.234	3/8	.093	FA-6	FP-6
8-32	.231	.234	.234	1/2	.093	FA-8	FP-8
10-32	.231	.234	.234	1/2	.093	FA-10	FP-10
1/4-20	.309	.312	.312	9/16	.125	FA-25	FP-25

Shank Code	Board Thickness	R^1 ± .003
A	1/32	.027
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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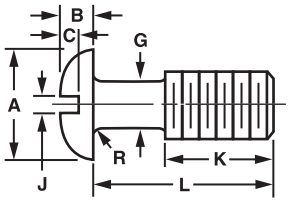
ROUND HEAD CAPTIVE SCREW

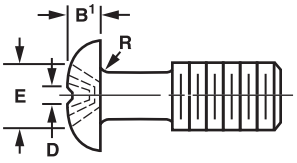
Slotted or Phillips

For Round Head Captive Screw assembly, see pages 127-128. For Retainer Washers, see page 147.

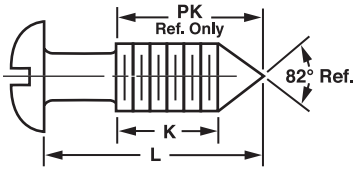
Slotted Head (RS)



Phillips Head (RP)



Lead Point Option



Available Material (see page 275)	
B	Brass, composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel, 18-8, 302-304 series

ORDER EXAMPLE:

114080 - RS - .500 - SS - 12

- 114080: Basic Part Number
- RS: Round Head Slotted (RS) or Phillips (RP)
- .500: Length: L
- SS: Material: See chart
- 12: Finish: See page 277

To add the Lead Point option, prefix **P** to part number.
EXAMPLE: P114080-RS-.500-SS-12

ALSO AVAILABLE AS AN FMR2002 ASSEMBLY

(see pages 110-112 for more information)

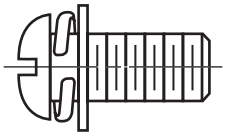
Order Example:
114080-RS-.500-U-SS-12

Thread	Basic Part Number	A Head Dia Max	A Head Dia Min	B Head Hght Max	B Head Hght Min	J Slot Width Max	J Slot Width Min	C Slot Depth Max	C Slot Depth Min	Dimension of Recess E Diameter Max	E Diameter Min	B1 Depth Max	B1 Depth Min	D Width Max	K ± .010	G ± .005	L*	PK Ref. Only
2-56	114080	.162	.146	.069	.059	.031	.023	.048	.037	.100	.087	.053	.034	.017	1/8	.061	.250 to .75	.17
4-40	114082	.211	.193	.086	.075	.039	.031	.058	.044	.118	.105	.072	.053	.019	5/32	.078	.312 to 1.00	.22
6-32	114084	.260	.240	.103	.091	.048	.039	.068	.051	.162	.149	.084	.056	.027	3/16	.095	.375 to 1.00	.26
8-32	114086	.309	.287	.120	.107	.054	.045	.077	.058	.178	.165	.101	.075	.030	3/16	.120	.375 to 1.00	.28
10-24	114089	.359	.334	.137	.123	.060	.050	.087	.065	.195	.182	.119	.093	.031	1/4	.130	.500 to 1.25	.36
10-32	114088	.359	.334	.137	.123	.060	.050	.087	.065	.195	.182	.119	.093	.031	1/4	.130	.500 to 1.25	.36
1/4-20	114081	.472	.443	.175	.160	.075	.064	.109	.082	.268	.255	.147	.121	.034	1/4	.175	.500 to 3.00	.39

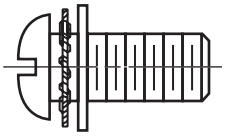
*For L tolerance, see page 281. Increments of 1/16" is recommended, however, any length may be specified. Cost difference is negligible, addi ional delivery time approximately 1-1/2 weeks.

ROUND HEAD PANEL SCREW ASSEMBLY - FULL THREAD

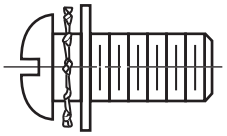
Split Lock Washer (GF)
See page 157 for details.



Internal Tooth Lock Washer (HF)
See page 157 for details.



External Tooth Lock Washer (JF)
See page 157 for details.



ORDER EXAMPLE:

114080 - RS - .500 - SS - GF - 12

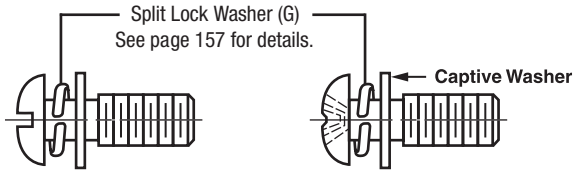
- 114080: Part Number: See page 126
- RS: Round Head Slotted (RS)
- .500: Length: L
- SS: Material: See page 126
- GF: Assembly w/Split (GF), Internal (HF) or External (JF)
- 12: Finish: See page 277

* Fully threaded up to the flat washer.

** Maximum length 1.50 inches.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

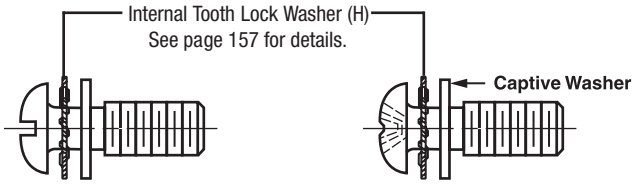
ROUND HEAD CAPTIVE PANEL SCREW ASSEMBLY



ORDER EXAMPLE:

114080 - RS - .500 - SS - G - 12

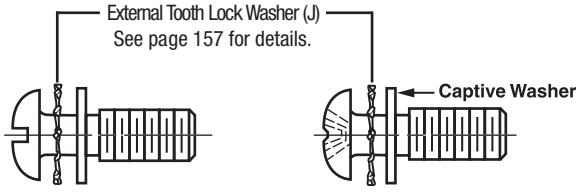
Part Number: See page 126	Round Head Slotted (RS) or Phillips (RP)	Length: L	Material: See page 126	Assembly w/Split (G) L'Washer & Flat Washer	Finish: See page 277



ORDER EXAMPLE:

114080 - RS - .500 - SS - H - 12

Part Number: See page 126	Round Head Slotted (RS) or Phillips (RP)	Length: L	Material: See page 126	Assembly w/Internal (H) L'Washer & Flat Washer	Finish: See page 277



ORDER EXAMPLE:

114080 - RS - .500 - SS - J - 12

Part Number: See page 126	Round Head Slotted (RS) or Phillips (RP)	Length: L	Material: See page 126	Assembly w/External (J) L'Washer & Flat Washer	Finish: See page 277

Belleville Washer
see page 116.

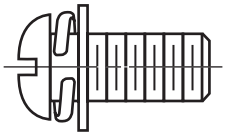
Captive Washer Specifications		
Screw Size	Outside Dia ± .010	T* ± .005 Thickness
2	.250	.020
4	.312	.030
6	.312	.030
8	.500	.030
10	.500	.030
1/4	.562	.045**

See page 126 for screw dimensions.

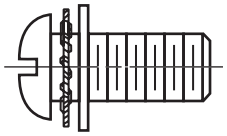
Available Material (see page 275)	
B	Brass, composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

ROUND HEAD PANEL SCREW ASSEMBLY - FULL THREAD

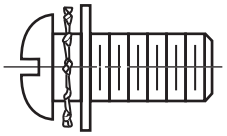
Split Lock Washer (GF)
See page 157 for details.



Internal Tooth Lock Washer (HF)
See page 157 for details.



External Tooth Lock Washer (JF)
See page 157 for details.



ORDER EXAMPLE:

114080 - RS - .500 - SS - GF - 12

Part Number: See page 126	Round Head Slotted (RS)	Length: L	Material: See page 126	Assembly w/Split (GF), Internal (HF) or External (JF)	Finish: See page 277

* Fully threaded up to the flat washer.

** Maximum length 1.50 inches.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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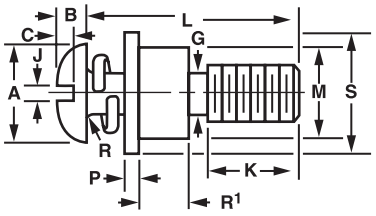
ROUND HEAD CAPTIVE PANEL SCREW ASSEMBLY

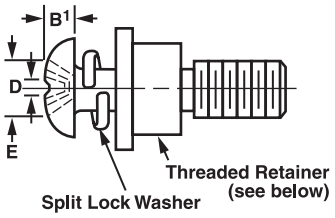
Slotted or Phillips

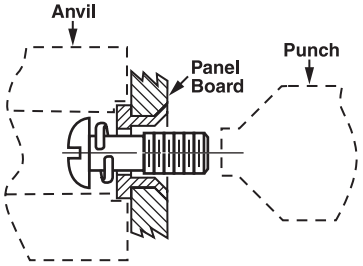
For Split Lock Washers, see page 157.

SLOTTED



PHILLIPS





Easy One Step Installation Procedure
Flare Tool Supplied by ASM. Countersink 82° by approximately 1/2 board thickness.

ORDER EXAMPLE:

114080 - RS - .500 - B - SS - 12

114080	RS	.500	B	SS	12
Basic Part Number	Round Head Slotted (RS) or Phillips (RP)	Length: L	Shank Code: See chart	Material: See chart	Finish: See page 277

Available Material (see page 275)	
B	Brass, composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

Thread	Basic Part Number	A Head Dia		B Head Height		J Slot Width		C Slot Depth		Dimension of Recess E Diameter		Dimension of Recess B1 Depth		Dimension of Recess D Width	K ± .010	G ± .005	L*
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Min			
2-56	114080	.162	.146	.069	.059	.031	.023	.048	.037	.100	.087	.053	.034	.017	1/8	.061	.250 to .75
4-40	114082	.211	.193	.086	.075	.039	.031	.058	.044	.118	.105	.072	.053	.019	5/32	.078	.312 to 1.00
6-32	114084	.260	.240	.103	.091	.048	.039	.068	.051	.162	.149	.084	.056	.027	3/16	.095	.375 to 1.00
8-32	114086	.309	.287	.120	.107	.054	.045	.077	.058	.178	.165	.101	.075	.030	3/16	.120	.375 to 1.00
10-24	114089	.359	.334	.137	.123	.060	.050	.087	.065	.195	.182	.119	.093	.031	1/4	.130	.500 to 1.25
10-32	114088	.359	.334	.137	.123	.060	.050	.087	.065	.195	.182	.119	.093	.031	1/4	.130	.500 to 1.25
1/4-20	114081	.472	.443	.175	.160	.075	.064	.109	.082	.268	.255	.147	.121	.034	1/4	.175	.500 to 3.00

*For L tolerance, see page 281. Increments of 1/16" is recommended, however , any length may be specified. Cost dif ference is negligible, addi ional delivery time approximately 1-1/2 weeks.

Retainer and Flare Tooling Data

Thread	M Dia Min	M Dia Max	Mounting Hole Dia +.003 -.000	S Dia	P	Tooling Anvil	Tooling Punch
2-56	.185	.188	.188	1/4	.062	FA-2	FP-2
4-40	.231	.234	.234	5/16	.093	FA-4	FP-4
6-32	.231	.234	.234	3/8	.093	FA-6	FP-6
8-32	.231	.234	.234	1/2	.093	FA-8	FP-8
10-32	.231	.234	.234	1/2	.093	FA-10	FP-10
1/4-20	.309	.312	.312	9/16	.125	FA-25	FP-25

Shank Code	Board Thickness	R1 ± .003
A	1/32	.027
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

TECH TIP

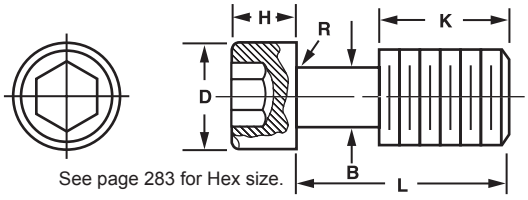
Remember when installing flare type standoffs and retainers to use 82° c'sink approximately 1/2 the thickness of the boar d.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

CAPTIVE SOCKET HEAD CAP SCREWS

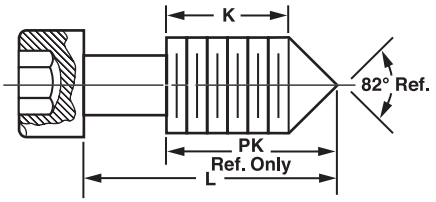
1960 Series

For Captive Socket Head Cap Screw assembly, see page 130-131.



See page 283 for Hex size.

Lead Point Option



ALSO AVAILABLE AS AN FMR2002 ASSEMBLY
(see pages 110-112 for more information)

Order Example:
114112-.500-U-SS-12

ORDER EXAMPLE:

114112 - .500 - SS - 12

- 114112: Basic Part Number
- .500: Length: L
- SS: Material: See chart
- 12: Finish: See page 277

To add the Lead Point option, prefix **P** to part number.
EXAMPLE: P114112-.500-SS-12

To order Slotted Hex Head, add SDS to part number .
EXAMPLE: 114112-.500-SS-SDS-12

TECH TIP

All socket cap screws are class 3A threads unless other specified.

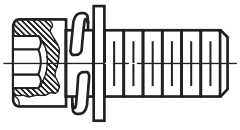
Available Material (see page 275)	
S	Steel, ASTM-A-108-93 (12L14) QQ-S-637
SS	Stainless Steel, 18-8, 302-304 series

Basic Part Number	Thread	D		H		L*	K ± .010	B ± .005	PK Ref. Only
		Max	Min	Max	Min				
114112	2-56	.140	.134	.086	.083	.250 - 1.00	1/8	.061	.17
114114	4-40	.183	.176	.112	.108	.250 - 1.00	5/32	.078	.22
114116	6-32	.226	.218	.138	.134	.375 - 1.25	3/16	.095	.26
114118	8-32	.270	.262	.164	.159	.375 - 1.25	3/16	.120	.28
114127	10-24	.312	.303	.190	.185	.500 - 1.50	1/4	.130	.36
114120	10-32	.312	.303	.190	.185	.500 - 1.50	1/4	.130	.36
114121	1/4-20	.375	.365	.250	.244	.500 - 3.00	1/4	.175	.39
114111	1/4-28	.375	.365	.250	.244	.375 - 3.00	1/4	.175	.39
114113	5/16-18	.469	.457	.312	.306	.500 - 3.50	3/8	.230	.55
114115	3/8-16	.562	.550	.375	.368	.500 - 5.00	3/8	.280	.59
114117	7/16-14	.656	.642	.438	.430	.750 - 4.00	3/8	.344	.62
114119	1/2-13	.750	.735	.500	.492	.750 - 8.00	3/8	.400	.66

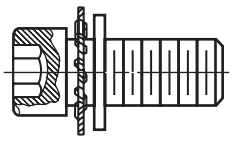
*For L tolerance, see page 281. Increments of 1/16" is recommended, however , any length may be specified. Cost dif ference is negligible, addi ional delivery time approximately 1-1/2 weeks.

SOCKET HEAD CAP SCREW ASSEMBLY - FULL THREAD

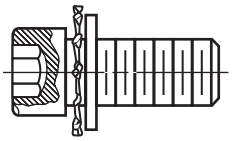
Split Lock Washer (GF)
See page 157 for details.



Internal Tooth Lock Washer (HF)
See page 157 for details.



External Tooth Lock Washer (JF)
See page 157 for details.



ORDER EXAMPLE:

114112 - .500 - SS - GF - 12

- 114112: Part Number: See page 129
- .500: Length: L
- SS: Material: See page 129
- GF: Assembly w/Split (GF), Internal (HF) or External (JF)
- 12: Finish: See page 277

* Fully threaded up to the flat washer.

** Maximum length 1.50 inches.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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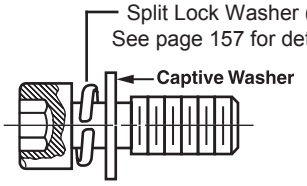
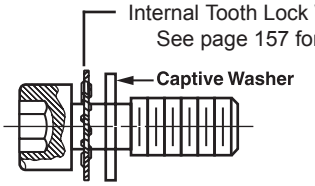
CAPTIVE SOCKET HEAD CAP SCREW ASSEMBLY



ORDER EXAMPLE:

114112 - .500 - SS - G - 12

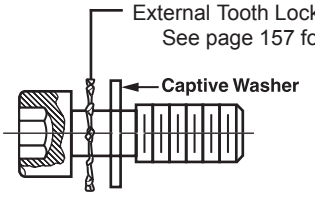
114112	.500	SS	G	12
Part Number: See page 129	Length: L	Material: See page 129	Assembly w/Split (G) L'Washer & Flat Washer	Finish: See page 277



ORDER EXAMPLE:

114112 - .500 - SS - H - 12

114112	.500	SS	H	12
Part Number: See page 129	Length: L	Material: See page 129	Assembly w/Internal (H) L'Washer & Flat Washer	Finish: See page 277



ORDER EXAMPLE:

114112 - .500 - SS - J - 12

114112	.500	SS	J	12
Part Number: See page 129	Length: L	Material: See page 129	Assembly w/External (J) L'Washer & Flat Washer	Finish: See page 277

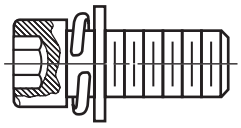
Belleville Washer
see page 116.

Captive Washer Specifications		
Screw Size	Outside Dia ± .010	T* ± .005 Thickness
2	.187	.020
4	.255	.030
6	.312	.030
8	.312	.030
10	.375	.030
1/4	.500	.045**
5/16	.625	.085

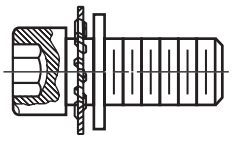
See page 129 for screw dimensions.

SOCKET HEAD CAP SCREW ASSEMBLY - FULL THREAD

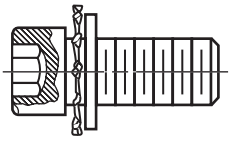
Split Lock Washer (GF)
See page 157 for details.



Internal Tooth Lock Washer (HF)
See page 157 for details.



External Tooth Lock Washer (JF)
See page 157 for details.



ORDER EXAMPLE:

114112 - .500 - SS - GF - 12

114112	.500	SS	GF	12
Part Number: See page 129	Length: L	Material: See page 129	Assembly w/Split (GF), Internal (HF) or External (JF)	Finish: See page 277

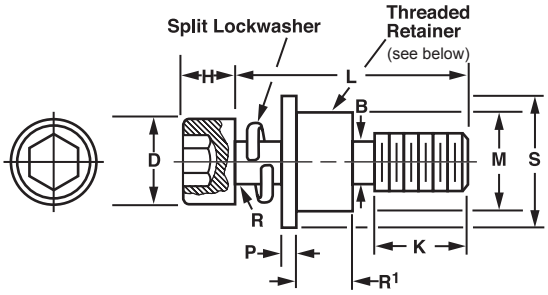
* Fully threaded up to the flat washer.

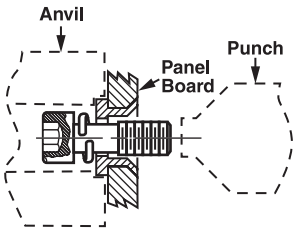
** Maximum length 1.50 inches.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

SOCKET HEAD CAP SCREW
CAPTIVE PANEL SCREW ASSEMBLY

See page 157 for Split Lock Washer.





Easy One Step Installation Procedure
Flare Tool supplied by ASM.
Countersink 82° by approximately 1/2 board thickness.

ORDER EXAMPLE:

114112 - .500 - B - SS - 12

Basic Part Number	Length: L	Shank Code: See chart	Material: See chart	Finish: See page 277

Available Material (see page 275)	
S	Steel, ASTM-A-108-93 (12L14) QQ-S-637
SS	Stainless Steel, 18-8, 302-304 series

Basic Part Number	Thread	D		H		L*	K ± .010	B ± .005
		Max	Min	Max	Min			
114112	2-56	.140	.134	.086	.083	.250-0.625	1/8	.061
114114	4-40	.183	.176	.112	.108	.250-0.625	5/32	.078
114116	6-32	.226	.218	.138	.134	.375-1.25	3/16	.095
114118	8-32	.270	.262	.164	.159	.375-1.25	3/16	.120
114127	10-24	.312	.303	.190	.185	.500-1.50	1/4	.130
114120	10-32	.312	.303	.190	.185	.500-1.50	1/4	.130
114121	1/4-20	.375	.365	.250	.244	.500-3.00	1/4	.175
114111	1/4-28	.375	.365	.250	.244	.375-3.00	1/4	.175
114113	5/16-18	.469	.457	.312	.306	.500-3.50	3/8	.230
114115	3/8-16	.562	.550	.375	.368	.500-5.00	3/8	.280
114117	7/16-14	.656	.642	.438	.430	.750- 4.00	3/8	.344
114119	1/2-13	.750	.735	.500	.492	.750-8.00	3/8	.400

*For L tolerance, see page 281. Increments of 1/16" is recommended, however, any length may be specified. Cost difference is negligible, addi ional delivery time approximately 1-1/2 weeks.

Retainer and Flare Tooling Data

Thread	M Dia		Mounting Hole Dia +.003 -.000	S Dia	P	Tooling	
	Min	Max				Anvil	Punch
2-56	.185	.188	.188	1/4	.062	FA-2	FP-2
4-40	.231	.234	.234	5/16	.093	FA-4	FP-4
6-32	.231	.234	.234	3/8	.093	FA-6S	FP-6S
8-32	.231	.234	.234	1/2	.093	FA-8S	FP-8S
10-32	.231	.234	.234	1/2	.093	FA-10S	FP-10S
1/4-20	.309	.312	.312	9/16	.125	FA-25S	FP-25S

Shank Code	Board Thickness	R^1 ± .003
A	1/32	.027
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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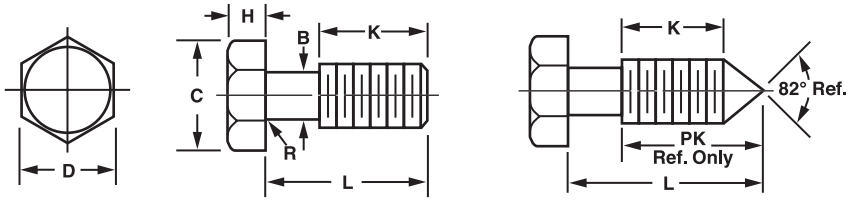
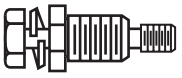
HEX HEAD CAPTIVE MACHINE SCREW

For Hex Captive Machine Screw assembly, see pages 133-134. For Retainer Washers, see page 147.



ALSO AVAILABLE AS AN FMR2002 ASSEMBLY
(see pages 110-112 for more information)



Order Example:
114102-.500-U-SS-12

ORDER EXAMPLE:

114102 - .500 - SS - 12

114102	.500	SS	12
Basic Part Number	Length: See chart or fill in length	Material: See chart	Finish: See page 277

To add the Lead Point, add he prefix **P** to part number.
EXAMPLE: P114104-.500-SS-12
(P = Lead Point Option)

To order **SLOTTED** Hex Head, add **SDS** to part number.
EXAMPLE: 114104-.500-SS-SDS-12
(SDS = Slotted Hex Head)

Available Material (see page 275)	
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel, 18-8, 302-304 series

Basic Part Number	Thread	D		H		L*	C	K ± .010	B ± .005	PK Ref. Only
		Max	Min	Max	Min		Min			
114102	2-56	.125	.120	.050	.040	.250-.625	.134	1/8	.061	.17
114104	4-40	.188	.181	.060	.049	.250-.625	.202	5/32	.078	.22
114106	6-32	.250	.244	.093	.080	.375-1.25	.272	3/16	.095	.26
114108	8-32	.250	.244	.110	.096	.500-1.25	.272	3/16	.120	.28
114107	10-24	.312	.305	.120	.105	.500-1.25	.340	1/4	.130	.36
114110	10-32	.312	.305	.120	.105	.500-1.25	.340	1/4	.130	.36
114109	1/4-20	.438	.428	.163	.150	.625-1.25	.488	1/4	.175	.39
114103	5/16-18	.500	.489	.211	.195	.625-1.25	.557	1/4	.230	.43
114105	3/8-16	.562	.551	.243	.226	.625-1.50	.628	3/8	.280	.59

*For L tolerance, see page 281. Increments of 1/16" is recommended, however, any length may be specified. Cost difference is negligible, additional delivery time approximately 1-1/2 weeks.

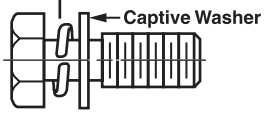
TECH TIP

Downloadable 3D CAD models available in the following formats: DXF, Pro/E, IGES and STEP at www.accuratescrew.com.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

HEX HEAD CAPTIVE MACHINE SCREW ASSEMBLY

Split Lock Washer (G)
See page 157 for details.

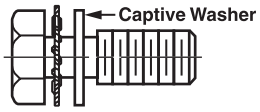


ORDER EXAMPLE:

114102 - .500 - SS - G - 12

114102	.500	SS	G	12
Part Number: See page 132	Length: L	Material: See page 132	Assembly w/Split (G) L'Washer & Flat Washer	Finish: See page 277

Internal Tooth Lock Washer (H)
See page 157 for details.

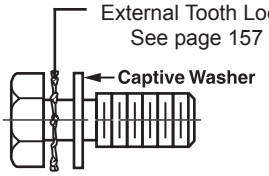


ORDER EXAMPLE:

114102 - .500 - SS - H - 12

114102	.500	SS	H	12
Part Number: See page 132	Length: L	Material: See page 132	Assembly w/Internal (H) L'Washer & Flat Washer	Finish: See page 277

External Tooth Lock Washer (J)
See page 157 for details.



ORDER EXAMPLE:

114102 - .500 - SS - J - 12

114102	.500	SS	J	12
Part Number: See page 132	Length: L	Material: See page 132	Assembly w/External (J) L'Washer & Flat Washer	Finish: See page 277

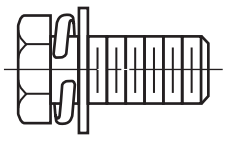
Belleville Washer
see page 116.

Captive Washer Specifications		
Screw Size	Outside Dia ± .010	T ± .005 Thickness
2	.187	.020
4	.255	.030
6	.312	.030
8	.312	.030
10	.375	.030
1/4	.500	.045**
5/16	.625	.085

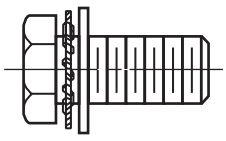
See page 132 for screw dimensions.

HEX HEAD MACHINE SCREW ASSEMBLY - FULL THREAD

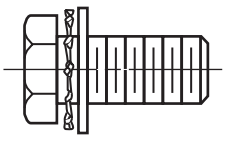
Split Lock Washer (GF)
See page 157 for details.



Internal Tooth Lock Washer (HF)
See page 157 for details.



External Tooth Lock Washer (JF)
See page 157 for details.



ORDER EXAMPLE:

114102 - .500 - SS - GF - 12

114102	.500	SS	GF	12
Part Number: See page 132	Length: L	Material: See page 132	Assembly w/Split (GF), Internal (HF) or External (JF)	Finish: See page 277

* Fully threaded up to the flat washer.

** Maximum length 1.50 inches.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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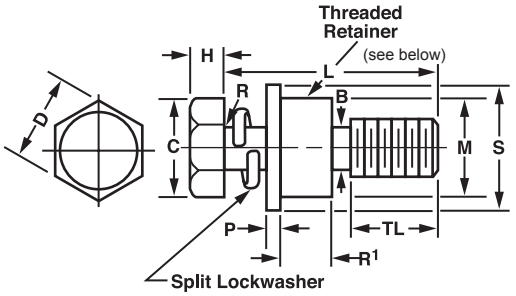
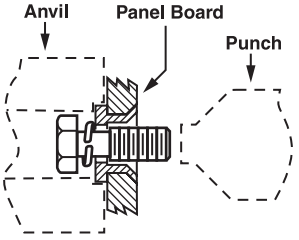
HEX HEAD MACHINE SCREW
CAPTIVE PANEL SCREW ASSEMBLY

See page 157 for Split Lock Washer.





Easy One Step Installation Procedure
Flare Tool Supplied by ASM.
Countersink 82° by approximately
1/2 board thickness.

ORDER EXAMPLE:

114102 - .500 - B - SS - 12

Basic Part Number	Length: L	Shank Code: See chart	Material: See chart	Finish: See page 277

Available Material (see page 275)	
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel, 18-8, 302-304 series

Basic Part Number	Thread	D		H		L*	C	TL ± .010	B ± .005
		Max	Min	Max	Min		Min		
114102	2-56	.125	.120	.050	.040	.375-.750	.134	1/8	.061
114104	4-40	.188	.181	.060	.049	.375-1.00	.202	5/32	.078
114106	6-32	.250	.244	.093	.080	.500-1.00	.272	3/16	.095
114108	8-32	.250	.244	.110	.096	.500-1.00	.272	3/16	.120
114107	10-24	.312	.305	.120	.105	.750-1.25	.340	1/4	.130
114110	10-32	.312	.305	.120	.105	.750-1.25	.340	1/4	.130
114109	1/4-20	.438	.428	.163	.150	.750-3.00	.488	1/4	.175
114105	3/8-16	.562	.551	.243	.226	.625-1.50	.628	3/8	.280

*For L tolerance, see page 281. Increments of 1/16" is recommended, however , any length may be specified. Cost dif ference is negligible, addi ional delivery time approximately 1-1/2 weeks.

Retainer and Flare Tooling Data

Thread	M Dia		Mounting Hole Dia +.003 -.000	S Dia	P	Tooling	
	Min	Max				Anvil	Punch
2-56	.185	.188	.188	1/4	.062	FA-2	FP-2
4-40	.231	.234	.234	5/16	.093	FA-4	FP-4
6-32	.231	.234	.234	3/8	.093	FA-6	FP-6
8-32	.231	.234	.234	1/2	.093	FA-8	FP-8
10-32	.231	.234	.234	1/2	.093	FA-10	FP-10
1/4-20	.309	.312	.312	9/16	.125	FA-25	FP-25

Shank Code	Board Thickness	R^1 ± .003
A	1/32	.027
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

FLAT HEAD CAPTIVE MACHINE SCREWS

Phillips

For Retainer Washers, see page 147.

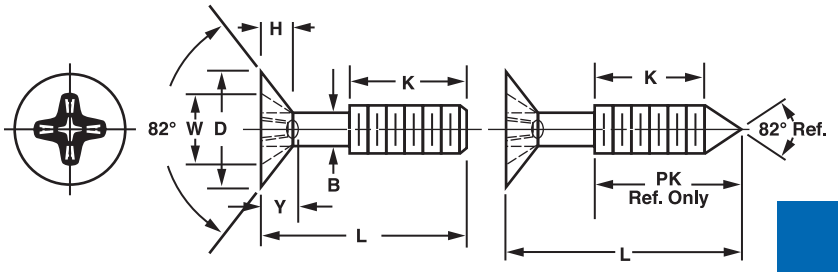
Self-Locking Device available, see page 109.

ORDER EXAMPLE:

114122 - .430 - SS - 12

- 114122: Basic Part Number
- .430: Length
- SS: Material: See chart
- 12: Finish: See page 277

To add the Lead Point, add the prefix **P** to part number.
EXAMPLE: P114122-.430-SS-12
Any one dimension change add to part number:
EXAMPLE: 114122-.500-SS-12 (K=3/16)



Basic Part Number	Thread	D Head Dia Max	D Head Dia Min	H Ref	W Diameter Max	W Diameter Min	Y Depth Max	Y Depth Min	K ± .010	B ± .005	L*	PK Ref Only
114122	2-56	.172	.147	.051	.102	.089	.063	.047	1/8	.061	.43-.625	.17
114124	4-40	.225	.195	.067	.128	.115	.089	.073	5/32	.078	.43-.625	.22
114126	6-32	.279	.244	.083	.174	.161	.106	.083	3/16	.095	.43-2.00	.26
114128	8-32	.332	.292	.100	.189	.176	.121	.098	3/16	.120	.43-2.00	.28
114130	10-32	.385	.340	.116	.204	.191	.136	.113	1/4	.130	.43-2.00	.36
114123	1/4-20	.507	.452	.153	.283	.270	.171	.148	.1/4	.175	.43-3.00	.39
114125	5/16-18	.635	.568	.191	.365	.352	.216	.194	1/4	.230	.50-3.50	.43

Available Material (see page 275)	
B	Brass, Composition 360
S	Steel, low carbon 1018 ATSM 108
SS	Stainless Steel, 18-8, 302-304 series

*For L tolerance, see page 281. Increments of 1/16" is recommended, however, any length may be specified. Cost difference is negligible, additional delivery time approximately 1-1/2 weeks.

FLAT HEAD CAPTIVE MACHINE SCREWS

Slotted

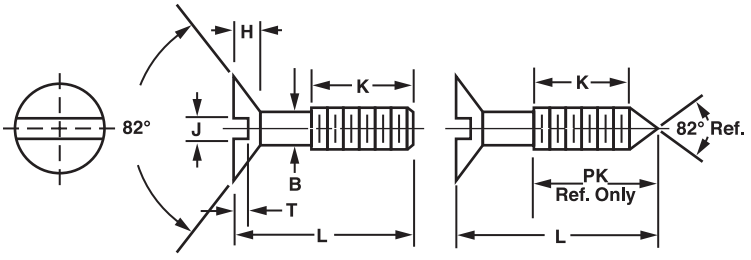
For Metric style see page 156.

ORDER EXAMPLE:

904960 - .430 - SS - 12

- 904960: Basic Part Number
- .430: Length
- SS: Material: See chart
- 12: Finish: See page 277

To add the Lead Point, add the prefix **P** to part number.
EXAMPLE: P904960-.430-SS-12
Any one dimension change add to part number:
EXAMPLE: 904960-.500-SS-12 (K=3/16)



Basic Part Number	Thread	A Head Dia Max	A Head Dia Min	H Ref	J Slot Width Max	J Slot Width Min	T Slot Depth Max	T Slot Depth Min	K ± .010	B ± .005	L*	PK Ref Only
904960	2-56	.172	.147	.051	.031	.023	.023	.015	1/8	.061	.430-1.00	.17
904962	4-40	.225	.195	.067	.039	.031	.030	.020	5/32	.078	.430-1.50	.22
904964	6-32	.279	.244	.083	.048	.039	.038	.024	3/16	.095	.430-3.00	.26
904966	8-32	.332	.292	.100	.054	.045	.045	.029	3/16	.120	.430-3.00	.28
904968	10-32	.385	.340	.116	.060	.050	.053	.034	1/4	.130	.430-3.00	.36
904970	1/4-20	.507	.452	.153	.075	.064	.070	.046	1/4	.175	.430-4.00	.39
904972	5/16-18	.635	.568	.191	.084	.072	.088	.058	1/4	.230	.500-3.50	.43

Available Material (see page 275)	
B	Brass, Composition 360
S	Steel, low carbon 1018 ATSM 108
SS	Stainless Steel, 18-8, 302-304 series, ASTMA580/A580M-98

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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FLAT HEAD CAPTIVE MACHINE SCREWS

Phillips

For Retainer Washers, see page 147.

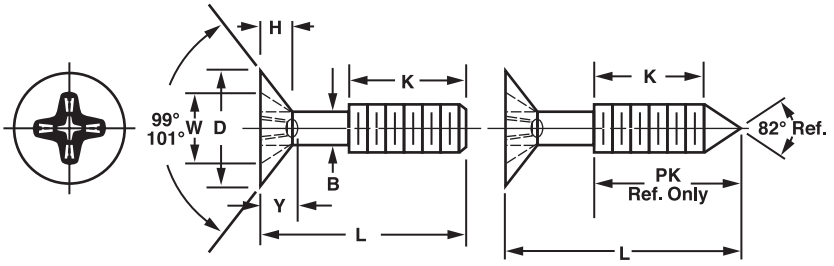
Self-Locking Device available, see page 109.

ORDER EXAMPLE:

114215 - .500 - SS - 12

- 114215: Basic Part Number
- .500: Length
- SS: Material: See chart
- 12: Finish: See page 277

To add the Lead Point, add the prefix **P** to part number.
EXAMPLE: P114215-.500-SS-12
Any one dimension change add to part number:
EXAMPLE: 114215-.500-SS-12 (K=3/16)



Basic Part Number	Thread	D Head Dia Max	D Head Dia Min	H Ref	W Diameter Max	W Diameter Min	Y Depth Max	Y Depth Min	K ± .010	B ± .005	L*	PK Ref Only
114215	2-56	.172	.143	.037	.097	.087	.063	.033	1/8	.061	.430-.625	.17
114217	4-40	.225	.191	.049	.136	.126	.089	.050	5/32	.078	.430-.625	.22
114219	6-32	.279	.238	.060	.162	.152	.106	.065	3/16	.095	.430-2.00	.26
114221	8-32	.332	.285	.072	.191	.179	.124	.081	3/16	.120	.430-2.00	.28
114223	10-32	.385	.333	.083	.225	.213	.147	.097	1/4	.130	.430-2.00	.36
114225	1/4-20	.507	.442	.110	.294	.282	.192	.136	1/4	.175	.500-3.00	.39

Available Material (see page 275)	
S	Steel, low carbon 1018 ATSM 108
SS	Stainless Steel, 18-8, 302-304 series

*L +.000-.031 recommended increments of 1/16, however, any length may be specified. Cost difference is negligible, additional delivery time approximately 1-1/2 weeks.

FLAT HEAD CAPTIVE MACHINE SCREWS

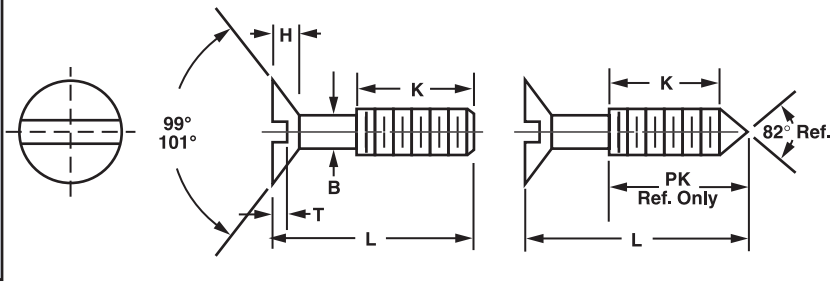
Slotted

ORDER EXAMPLE:

904961 - .500 - SS - 12

- 904961: Basic Part Number
- .500: Length
- SS: Material: See chart
- 12: Finish: See page 277

To add the Lead Point, add the prefix **P** to part number.
EXAMPLE: P904961-.430-SS-12
Any one dimension change add to part number:
EXAMPLE: 904961-.500-SS-12 (K=3/16)



Basic Part Number	Thread	A Head Dia Max	A Head Dia Min	H Ref	J Slot Width Max	J Slot Width Min	T Slot Depth Max	T Slot Depth Min	K ± .010	B ± .005	L*	PK Ref Only
904961	2-56	.172	.143	.037	.031	.023	.019	.012	1/8	.061	.430-1.00	.17
904963	4-40	.225	.191	.049	.039	.031	.024	.017	5/32	.078	.430-1.50	.22
904965	6-32	.279	.238	.060	.048	.039	.030	.022	3/16	.095	.430-3.00	.26
904967	8-32	.332	.285	.072	.054	.045	.036	.027	3/16	.120	.430-3.00	.28
904969	10-32	.385	.333	.083	.060	.050	.042	.031	1/4	.130	.430-3.00	.36
904971	1/4-20	.507	.442	.110	.075	.064	.055	.042	1/4	.175	.500-4.00	.39
904973	5/16-18	.635	.556	.138	.084	.072	.069	.053	1/4	.230	.500-3.50	.43

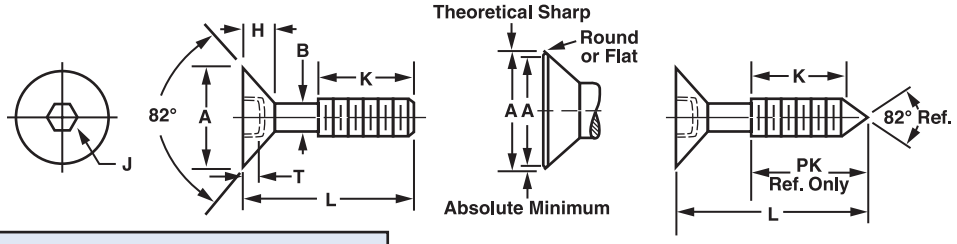
Available Material (see page 275)	
S	Steel, low carbon 1018 ATSM 108
SS	Stainless Steel, 18-8, 302-304 series, ASTMA580/A580M-98

*L +.000-.031 recommended increments of 1/16, however, any length may be specified. Cost difference is negligible, additional delivery time approximately 1-1/2 weeks.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

HEX SOCKET FLAT CAPTIVE HEAD SCREWS

For Retainer Washers, see page 147.



ORDER EXAMPLE:

114132 - .430 - SS - 12

- 114132: Basic Part Number
- .430: Length
- SS: Material: See chart
- 12: Finish: See page 277

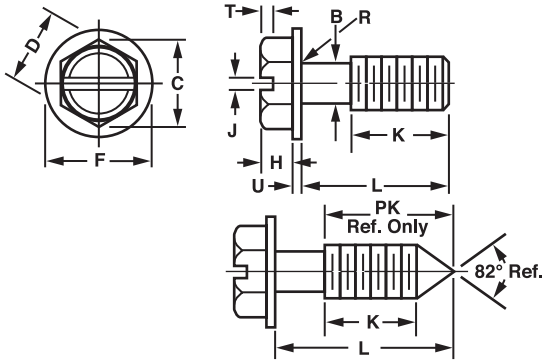
Any one dimension change add to part number.
EXAMPLE: 114132-.430-SS-12 (K=3/16)
To add the Lead Point, add the prefix **P** to part number.
EXAMPLE: P114132-.430-SS-12

Available Material (see page 275)	
B	Brass, Composition 70/30
S	Steel, ASTM-A-108-93 (12L14) QQ-S-637
SS	Stainless Steel, 18-8, 302-304 series

Basic Part Number	Thread	A Head Dia Max†	A Head Dia Abs. Min	H Head Height Ref.	H Head Height Flush Tol.	J Hex Socket Size Nominal	T Key Engage. Min	K ± .010	B ± .005	L* Increments of 1/16th	PK Ref Only
114132	4-40	.255	.218	.083	.011	1/16 .062	.055	5/32	.078	.43-1.50	.22
114133	6-32	.307	.263	.097	.013	5/64 .078	.066	3/16	.095	.43-3.00	.26
114134	8-32	.359	.311	.112	.014	3/32 .094	.076	3/16	.120	.43-3.00	.28
114135	10-32	.411	.359	.127	.015	1/8 .125	.087	1/4	.130	.43-3.00	.36
114136	1/4-20	.531	.480	.161	.016	5/32 .156	.111	1/4	.175	.50-3.50	.39

†Theoretical Sharp Max.
*For L tolerance, see page 281. Increments of 1/16" is recommended, however, any length may be specified.
Cost difference is negligible, addi ional delivery time approximately 1-1/2 weeks.

HEX WASHER HEAD



ORDER EXAMPLE:

115100 - .500 - SS - 12

- 115100: Basic Part Number
- .500: Length
- SS: Material: See chart
- 12: Finish: See page 277

**Any one dimension change add to part number.
EXAMPLE: 115100-.500-SS-12 (K=3/16)
To add the Lead Point, add the prefix **P** to part number.
EXAMPLE: P115100-.500-SS-12

Basic Part Number	Nominal Thread Size	F Washer Dia Max	F Washer Dia Min	U Washer Thickness Max	U Washer Thickness Min	J Max	J Min	T Max	T Min	K ± .010	L*	B ± .005	D Width Across Flats Max	D Width Across Flats Min	C Width Across Corners Min	H Height of Head Min	H Height of Head Max	PK Ref Only
115100	4-40	.243	.225	.019	.011	.039	.031	.042	.025	5/32	.312-1.00	.078	.187	.181	.202	.060	.049	.17
115102	6-32	.328	.302	.025	.015	.048	.039	.053	.033	3/16	.375-1.00	.095	.250	.244	.272	.093	.080	.22
115104	8-32	.348	.322	.031	.019	.054	.045	.074	.052	3/16	.500-1.50	.120	.250	.244	.272	.110	.096	.26
115106	10-32	.414	.384	.031	.019	.060	.050	.080	.057	1/4	.500-1.50	.130	.312	.305	.340	.120	.105	.28
115108	12-24	.432	.398	.039	.022	.067	.056	.103	.077	1/4	.500-1.250	.157	.312	.305	.340	.155	.139	.28
115110	1/4-20	.520	.480	.050	.030	.075	.064	.111	.083	1/4	.500-1.500	.175	.375	.367	.409	.190	.172	.36
115112	1/4-28	.520	.480	.050	.030	.075	.064	.111	.083	1/4	.500-2.00	.175	.375	.367	.409	.190	.172	.36
115114	5/16-18	.676	.624	.055	.035	.084	.072	.134	.100	1/4	.500-3.00	.230	.500	.489	.545	.230	.208	.43

*For L tolerance, see page 281. Increments of 1/16" is recommended, however, any length may be specified.
Cost difference is negligible, addi ional delivery time approximately 1-1/2 weeks.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE.
Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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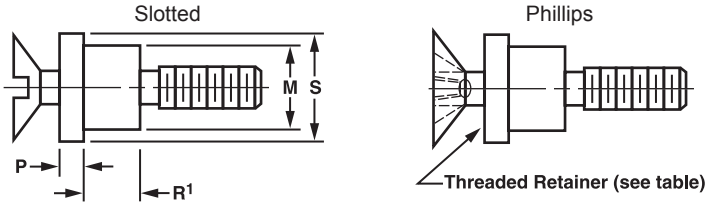
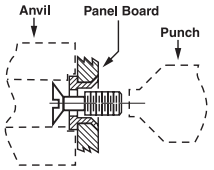
CAPTIVE PANEL SCREW ASSEMBLY LOW PROFILE

82° Flat Head - Slotted or Phillips





Easy One Step Installation Procedure
Flare Tool supplied by ASM.
Countersink 82° by approximately 1/2 board thickness.

Part Number	Thread
904960	2-56
904962	4-40
904964	6-32
904966	8-32
904968	10-32
904970	1/4-20

Part Number	Thread
114122	2-56
114124	4-40
114126	6-32
114128	8-32
114130	10-32
114123	1/4-20

Available Material (see page 275)	
S	Steel Alloy, low carbon 1018 ASTM 108
SS	Stainless Steel, 18-8, 302-304 series

For screw dimensions, see page 135.

ORDER EXAMPLE:

904960 - .500 - B - SS - 12

Basic Part Number	Length	Shank Code: See chart	Material: See chart	Finish: See page 277

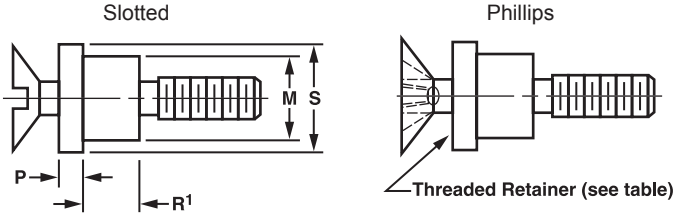
Retainer and Flare Tooling Data

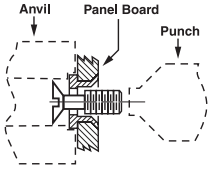
Thread	M Dia		Mounting Hole Dia +.003 -.000	S Dia	P	Tooling	
	Min	Max				Anvil	Punch
2-56	.185	.188	.188	1/4	.122	AFH-2	FP-2
4-40	.231	.234	.234	5/16	.154	AFH-4	FP-4
6-32	.231	.234	.234	3/8	.185	AFH-6	FP-6
8-32	.231	.234	.234	1/2	.220	AFH-8	FP-8
10-32	.231	.234	.234	1/2	.252	AFH-10	FP-10
1/4-20	.309	.312	.312	5/8	.326	AFH-25	FP-25

Shank Code	Board Thickness	R1 ± .003
A	1/32	.027
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

CAPTIVE PANEL SCREW ASSEMBLY LOW PROFILE

100° Flat Head - Slotted or Phillips





Easy One Step Installation Procedure
Flare Tool supplied by ASM.
Countersink 82° by approximately 1/2 board thickness.

Part Number	Thread
904961	2-56
904963	4-40
904965	6-32
904967	8-32
904969	10-32
904971	1/4-20

Part Number	Thread
114215	2-56
114217	4-40
114219	6-32
114221	8-32
114223	10-32
114225	1/4-20

Available Material (see page 275)	
S	Steel Alloy, low carbon 1018 ASTM 108
SS	Stainless Steel, 18-8, 302-304 Series ASTMA580/A580M-98

For screw dimensions see page 136.

ORDER EXAMPLE:

904961 - .500 - B - SS - 12

Basic Part Number	Length	Shank Code: See chart	Material: See chart	Finish: See page 277

Retainer and Flare Tooling Data

Thread	M Dia		Mounting Hole Dia +.003 -.000	S Dia	P	Tooling	
	Min	Max				Anvil	Punch
2-56	.185	.188	.188	1/4	.108	AFH-2	FP-2
4-40	.231	.234	.234	5/16	.144	AFH-4	FP-4
6-32	.231	.234	.234	3/8	.173	AFH-6	FP-6
8-32	.231	.234	.234	1/2	.185	AFH-8	FP-8
10-32	.231	.234	.234	1/2	.196	AFH-10	FP-10
1/4-20	.309	.312	.312	5/8	.280	AFH-25	FP-25

Shank Code	Board Thickness	R1 ± .003
A	1/32	.027
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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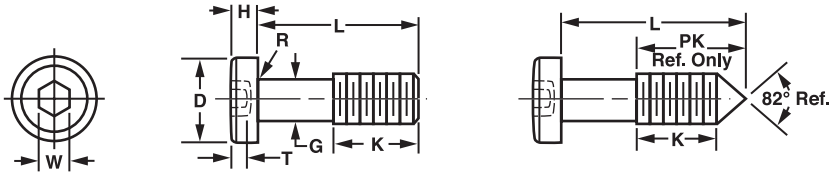
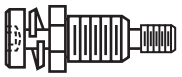
HEX SOCKET LOW HEAD CAP SCREW CAPTIVE

For Hex Socket Low Head Cap Scr ew Assembly

For Retainer Washers, see page 147.



ALSO AVAILABLE AS AN FMR2002 ASSEMBLY
(see pages 110-112 for more information)



Order Example:
116050-.500-U-SS-12

ORDER EXAMPLE:

116054 - .500 - SS - 12

- 116054: Basic Part Number
- .500: Length
- SS: Material: See chart
- 12: Finish: See page 277

To add the Lead Point, add the prefix **P** to part number.
EXAMPLE: P116050-.500-SS-12

Any one dimension change add to part number:
EXAMPLE: 116054-.500-SS-12 (K=3/16)

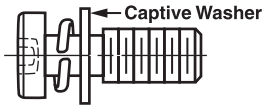
Available Material (see page 275)	
**B	Brass, Composition 360
S	Steel, ASTM-A-108-93 (12L14) QQ-S-637
SS	Stainless Steel, 18-8, 302-304 series

Basic Part Number	Thread	Basic Screw Dia	D		H		W Socket Size	T Engage. Min	G ± .005	K ± .010	L*	PK Ref Only
			Max	Min	Max	Min						
116050	4-40	.112	.183	.178	.056	.053	.050	.038	.078	5/32	.375-1.25	.22
116052	6-32	.138	.226	.221	.069	.066	.062	.050	.095	3/16	.375-1.25	.26
116054	8-32	.164	.270	.265	.082	.079	.078	.060	.120	3/16	.375-1.25	.28
116056	10-32	.190	.312	.307	.095	.092	.093	.072	.130	1/4	.375-1.50	.36
116058	1/4-20	.250	.375	.369	.125	.121	.125	.094	.175	1/4	.375-3.00	.39
116060	5/16-18	.312	.437	.431	.156	.152	.156	.120	.230	1/4	.500-3.00	.43

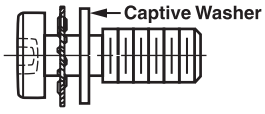
L tolerance-1" under +0-1/32 above +0-1/16 recommended increments of 1/16 however any length may be specified. Cost difference is negligible, additional delivery time approximately 1-1/2 weeks.

HEX SOCKET LOW HEAD CAP SCREW ASSEMBLY

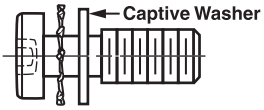
Split Lock Washer (G)
See page 157 for details.



Internal Tooth Lock Washer (H)
See page 157 for details.



External Tooth Lock Washer (J)
See page 157 for details.



ORDER EXAMPLE:

116054 - 500 - SS - G - 12

- 116054: Basic Part Number
- 500: Length
- SS: Material: See chart
- G: Assy with Split (G) L'Washer and Flat Washer
- 12: Finish: See page 277

ORDER EXAMPLE:

116054 - 500 - SS - H - 12

- 116054: Basic Part Number
- 500: Length
- SS: Material: See chart
- H: Assy with Internal (H) L'Washer and Flat Washer
- 12: Finish: See page 277

ORDER EXAMPLE:

116054 - 500 - SS - J - 12

- 116054: Basic Part Number
- 500: Length
- SS: Material: See chart
- J: Assy with External (J) L'Washer and Flat Washer
- 12: Finish: See page 277

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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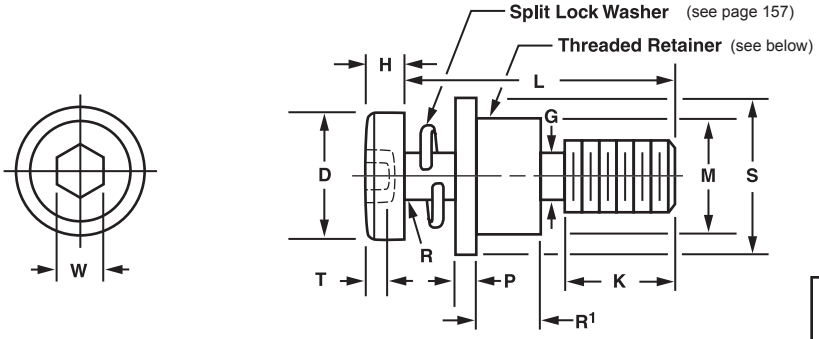
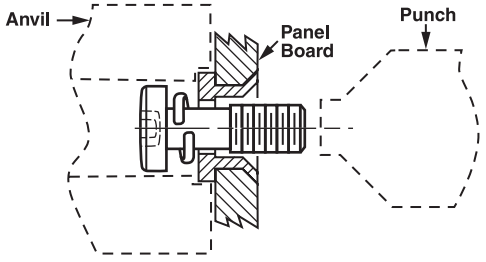
HEX SOCKET LOW HEAD
CAPTIVE PANEL SCREW ASSEMBLY - LOW PROFILE



Screw and Retainer Available Material (see page 275)	
B	Brass, composition 360
S	Steel ASTM-A-108-93(12L14)QQ-S-637
SS	Stainless Steel 18-8, 302-304 series



Easy One-Step Installation Procedure
Flare Tool supplied by ASM.
Countersink 82° by approximately 1/2 board thickness.

ORDER EXAMPLE:

116054 - .500 - B - SS - 12

Basic Part Number	Length	Shank Code	Material: See chart	Finish: See page 277

Any one dimension change add to part number.
EXAMPLE: 116054-.500-SS-12 (K=1/8)

Basic Part Number	Thread	D Screw Dia	D		H		W Socket Size	T Engagement	G ± .005	K ± .010	L*
			Max	Min	Max	Min		Min			
116054	8-32	.164	.270	.265	.082	.079	.078	.060	.120	3/16	.375-1.25
116056	10-32	.190	.312	.307	.095	.092	.093	.072	.130	1/4	.375-1.50
116058	1/4-20	.250	.375	.369	.125	.121	.125	.094	.175	1/4	.375-3.00

*For L tolerance, see page 281. Increments of 1/16" is recommended, however, any length may be specified. Cost difference is negligible, addi ional delivery time approximately 1-1/2 weeks.

Retainer and Flare Tooling Data

Thread	M Dia		Mounting Hole Dia +.003 -.000	S Dia	P	Tooling	
	Min	Max				Anvil	Punch
8-32	.231	.234	.234	3/8	.093	FA-8H	FP-8H
10-32	.231	.234	.234	1/2	.093	FA-10H	FP-10H
1/4-20	.309	.312	.312	1/2	.125	FA-25H	FP-25H

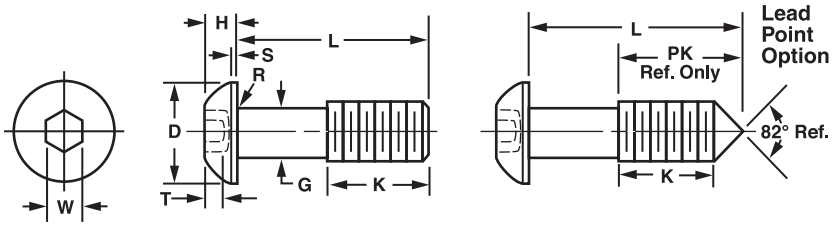
Shank Code	Board Thickness	R1 ± .003
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

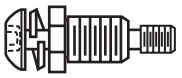
HEX SOCKET BUTTON HEAD SCREWS CAPTIVE

For Hex Socket Button Head Scr ew Assembly

For Retainer Washers, see page147.



ALSO AVAILABLE AS AN FMR2002 ASSEMBLY
(see pages 110-112 for more information)



Order Example:
116064-.500-U-SS-12

ORDER EXAMPLE:

116064 - .500 - SS - 12

- 116064: Basic Part Number
- .500: Length
- SS: Material: See chart
- 12: Finish: See page 277

To add the Lead Point, add the prefix **P** to part number.
EXAMPLE: P116064-.500-SS-12
Any one dimension change add to part number:
EXAMPLE: 116064-.500-SS-12 (K=1/8)

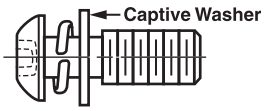
Available Material (see page 275)	
B	Brass, Composition 70/30
S	Steel, ASTM-A-108-93 (12L14) QQ-S-637
SS	Stainless Steel, 18-8, 302-304 series

Basic Part Number	Thread	D		H		S Head Side Height Ref.	W Nom.		T Min	G ± .005	K ± .010	L*	PK Ref Only
		Max	Min	Max	Min								
116064	4-40	.213	.201	.059	.051	.015	.1/16	.062	.035	.078	5/32	.250-.500	.22
116066	6-32	.262	.250	.073	.063	.015	5/64	.078	.044	.095	3/16	.250-.625	.26
116068	8-32	.312	.298	.087	.077	.015	3/32	.094	.052	.120	3/16	.250-.750	.28
116070	10-32	.361	.347	.101	.091	.020	1/8	.125	.070	.130	1/4	.250-1.00	.36
116078	1/4-20	.437	.419	.132	.122	.031	5/32	.156	.087	.175	1/4	.375-1.00	.39
116080	5/16-18	.547	.527	.166	.152	.031	3/16	.188	.105	.230	1/4	.375-1.00	.43

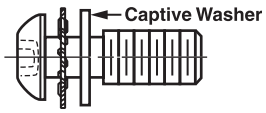
*L tolerance-1" under +0-1/32 above +0-1/16 recommended increments of 1/16 however any length may be specified. Cost difference is negligible, addi ional delivery time approximately 1-1/2 weeks.

HEX SOCKET BUTTON HEAD CAP SCREW ASSEMBLY

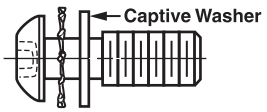
Split Lock Washer (G)
See page 157 for details.



Internal Tooth Lock Washer (H)
See page 157 for details.



External Tooth Lock Washer (J)
See page 157 for details.



ORDER EXAMPLE:

116064 - 500 - SS - G - 12

- 116064: Basic Part Number
- 500: Length
- SS: Material: See chart
- G: Assy with Split (G) L'Washer and Flat Washer
- 12: Finish: See page 277

ORDER EXAMPLE:

116064 - 500 - SS - H - 12

- 116064: Basic Part Number
- 500: Length
- SS: Material: See chart
- H: Assy with Internal (H) L'Washer and Flat Washer
- 12: Finish: See page 277

ORDER EXAMPLE:

116064 - 500 - SS - J - 12

- 116064: Basic Part Number
- 500: Length
- SS: Material: See chart
- J: Assy with External (J) L'Washer and Flat Washer
- 12: Finish: See page 277

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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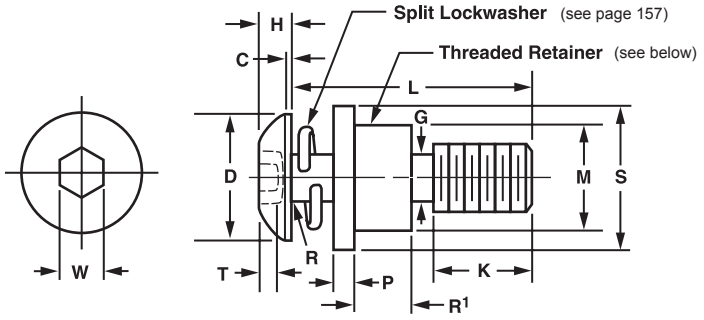
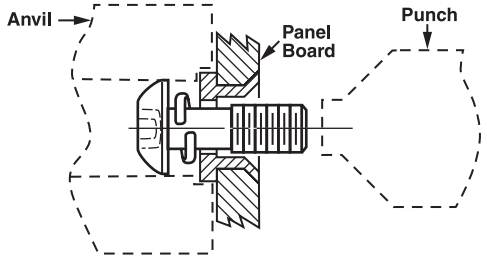
HEX SOCKET BUTTON HEAD CAPTIVE PANEL SCREW ASSEMBLY





Easy One Step Installation Procedure
Flare Tool supplied by ASM.
Countersink 82° by approximately 1/2 board thickness.

ORDER EXAMPLE:

116064 - .500 - B - SS - 12

Basic Part Number	Length	Shank Code	Material: See chart	Finish: See page 277

Any one dimension change add to part number.
EXAMPLE: 116064-.500-SS-12 (K=1/8)

Screw and Retainer Available Material (see page 275)	
B	Brass, composition 360
S	Steel ASTM-A-108-93(12L14)QQ-S-637
SS	Stainless Steel 18-8, 302-304 series

Basic Part Number	Thread	D		H		S Head Side Height	W	T	G	K	L*
		Max	Min	Max	Min	Ref.	Nom	Min	± .005	± .010	
116064	4-40	.213	.201	.059	.051	.015	1/16 .062	.035	.078	5/32	.250-.500
116066	6-32	.262	.250	.073	.063	.015	5/64 .078	.044	.095	3/16	.250-.625
116068	8-32	.312	.298	.087	.077	.015	3/32 .094	.052	.120	3/16	.250-.750
116070	10-32	.361	.347	.101	.091	.020	1/8 .125	.070	.130	1/4	.250-1.00
116078	1/4-20	.437	.419	.132	.122	.031	5/32 .156	.087	.175	1/4	.375-1.00

*For L tolerance see page 281. Increments of 1/16" recommended however any length may be specified.
Cost difference is negligible, addi ional delivery time approximately 1-1/2 weeks.

Retainer and Flare Tooling Data

Thread	M Dia		Mounting Hole Dia +.003 -.000	S Dia	P	Tooling	
	Min	Max				Anvil	Punch
4-40	.231	.234	.234	5/16	.093	FA-4	FP-4
6-32	.231	.234	.234	3/8	.093	FA-6	FP-6
8-32	.231	.234	.234	1/2	.093	FA-8B	FP-8B
10-32	.231	.234	.234	1/2	.093	FA-10B	FP-10B
1/4-20	.309	.312	.312	9/16	.125	FA-25B	FP-25B

Shank Code	Board Thickness	R1 ± .003
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

TORX SOCKET BUTTON HEAD CAPTIVE SCREWS

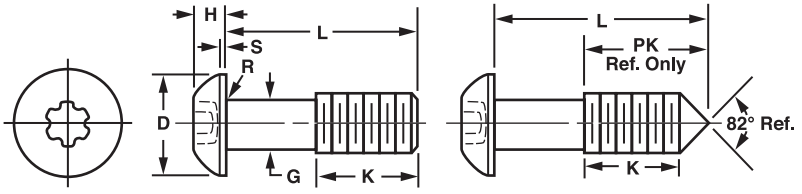
For Torx Socket Button Head Screw Assembly

ORDER EXAMPLE:

T116064 - .500 - SS - 12

- T116064: Basic Part Number
- .500: Length
- SS: Material: See chart
- 12: Finish: See page 277

**Any one dimension change add to part number.
EXAMPLE: T116064-.500-SS-12 (K=1/8)
To add the Lead Point, prefix **P** to part number.
EXAMPLE: PT116064-.500-SS-12



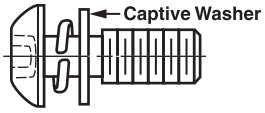
Available Material (see page 275)	
AS	Alloy Steel, Type 4037 ASTM A574-92A-40-45 RC
SS	Stainless Steel

Basic Part Number	Thread	D		H		G ± .005	K ± .010	L*	PK Ref Only
		Max	Min	Max	Min				
T116064	4-40	.213	.201	.059	.051	.078	5/32	.250-.500	.22
T116066	6-32	.262	.250	.073	.063	.095	3/16	.250-.625	.26
T116068	8-32	.312	.298	.087	.077	.120	3/16	.250-.750	.28
T116070	10-32	.361	.347	.101	.091	.130	1/4	.250-1.00	.36
T116078	1/4-20	.437	.419	.132	.122	.175	1/4	.375-1.00	.39
T116080	5/16-18	.547	.527	.166	.152	.230	1/4	.375-1.00	.43

*L tolerance-1" under +0-1/32 above +0-1/16 recommended increments of 1/16 however any leng h may be specified. Cost difference is negligible, additional delivery time approximately 1-1/2 weeks.

TORX SOCKET BUTTON HEAD CAPTIVE SCREW ASSEMBLY

Split Lock Washer (G)
See page 157 for details.

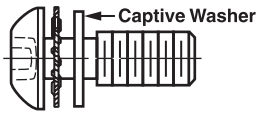


ORDER EXAMPLE:

T116064 - 500 - SS - G - 12

- T116064: Basic Part Number
- 500: Length
- SS: Material: See chart
- G: Assy with Split (G) L'Washer and Flat Washer
- 12: Finish: See page 277

Internal Tooth Lock Washer (H)
See page 157 for details.

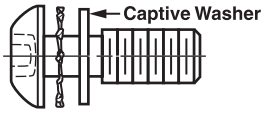


ORDER EXAMPLE:

T116064 - 500 - SS - H - 12

- T116064: Basic Part Number
- 500: Length
- SS: Material: See chart
- H: Assy with Internal (H) L'Washer and Flat Washer
- 12: Finish: See page 277

External Tooth Lock Washer (J)
See page 157 for details.



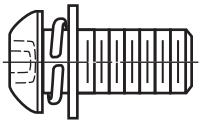
ORDER EXAMPLE:

T116064 - 500 - SS - J - 12

- T116064: Basic Part Number
- 500: Length
- SS: Material: See chart
- J: Assy with External (J) L'Washer and Flat Washer
- 12: Finish: See page 277

TORX HEAD PANEL SCREW ASSEMBLY - FULL THREAD

Split Lock Washer (GF)



Also available with
Internal Tooth Lock Washer (HF)
and
External Tooth Lock Washer (JF)
See page 157 for details.

ORDER EXAMPLE:

T116064 - .250 - SS - GF - 12

- T116064: Basic Part Number
- .250: Length
- SS: Material: See chart
- GF: Assembly w/Split (GF), Internal (HF) or External (JF)
- 12: Finish: See page 277

Available Material (see page 275)	
S	Steel ASTM-A-108-93(12L14) QQ-S-637
SS	Stainless Steel 18-8, 302-304 series

BELLEVILLE WASHER
See page 116

Captive Washers Specifications		
Screw Size	Outside Dia ± .010	T* Thickness ± .005
4	.255	.030
6	.312	.030
8	.375	.030
10	.375	.030
1/4	.375	.045**
5/16	.625	.085

*Fully threaded up to the flat washer.
**Maximum length 1.50 in.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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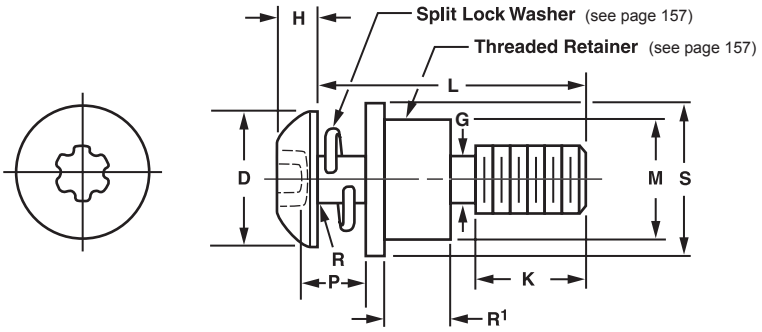
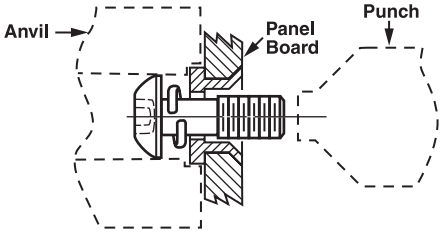
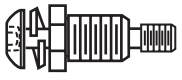
TORX SOCKET BUTTON HEAD CAPTIVE PANEL SCREW ASSEMBLY





Easy One Step Installation Procedure
Flare Tool supplied by ASM.
Countersink 82° by approximately 1/2 board thickness.

ALSO AVAILABLE AS AN FMR2002 ASSEMBLY
(see pages 110-112 for more information)



Order Example:
T116064-.500-B-U-SS-12

ORDER EXAMPLE:

T116064 - .500 - B - SS - 12

- T116064: Basic Part Number
- .500: Length
- B: Shank Code
- SS: Material: See chart
- 12: Finish: See page 277

Any one dimension change add to part number.
EXAMPLE: T116064-.500-SS-12 (K=1/8)

Screw and Retainer Available Material (see page 275)	
S	Steel ASTM-A-108-93(12L14)QQ-S-637
SS	Stainless Steel 18-8, 302-304 series

Basic Part Number	Thread	D		H		G ± .005	K ± .010	L*
		Max	Min	Max	Min			
T116064	4-40	.213	.201	.059	.051	.078	5/32	.250-.500
T116066	6-32	.262	.250	.073	.063	.095	3/16	.250-.625
T116068	8-32	.312	.298	.087	.077	.120	3/16	.250-.750
T116070	10-32	.361	.347	.101	.091	.130	1/4	.250-1.00
T116078	1/4-20	.437	.419	.132	.122	.175	1/4	.375-1.00

*For L tolerance see page 281. Increments of 1/16" recommended, however any length may be specified.
Cost difference is negligible, additional delivery time approximately 1-1/2 weeks.

Retainer and Flare Tooling Data

Thread	M Dia		Mounting Hole Dia +.003 -.000	S Dia	P	Tooling	
	Min	Max				Anvil	Punch
4-40	.231	.234	.234	5/16	.093	FA-4	FP-4
6-32	.231	.234	.234	3/8	.093	FA-6	FP-6
8-32	.231	.234	.234	7/16	.093	FA-8B	FP-8B
10-32	.231	.234	.234	7/16	.093	FA-10B	FP-10B
1/4-20	.309	.312	.312	9/16	.125	FA-25B	FP-25B

Shank Code	Board Thickness	R1 ± .003
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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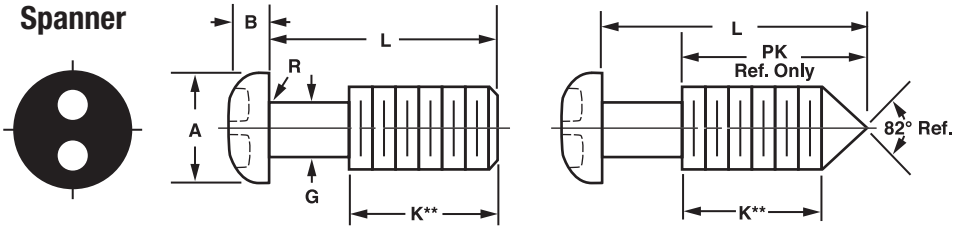
SECURITY SCREW PAN HEAD CAPTIVE

18/8 Stainless Steel Only



ORDER EXAMPLE:

115050 - .375 - SS - 1

- 115050: Basic Part Number
- .375: Length
- SS: Material: See chart
- 1: Finish: See page 277

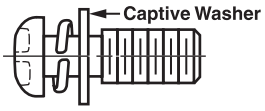
To add the Lead Point, add the prefix **P** to part number.
EXAMPLE: P115050-.375- SS-1
**Any one dimension change add to part number:
EXAMPLE: 115050-.375-SS-1 (K=3/16)

Basic Part Number	Thread	A Head Diameter		B Head Height		K** ± .010	G ± .005	L*	PK Ref Only
		Max	Min	Max	Min				
115050	4-40	.219	.205	.068	.058	5/32	.078	.250-1.5	.22
115052	6-32	.270	.256	.082	.072	3/16	.095	.375-3.0	.26
115054	8-32	.322	.306	.096	.085	3/16	.120	.500-4.0	.28
115056	10-32	.373	.357	.110	.099	1/4	.130	.500-4.0	.36
115062	1/4-20	.492	.473	.144	.130	1/4	.175	.500-4.0	.39

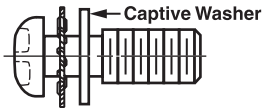
*L +.000-.031 recommended increments of 1/16, however, any length may be specified.
Cost difference is negligible, addi ional delivery time approximately 1-1/2 weeks.

SECURITY SCREW PAN HEAD CAPTIVE ASSEMBLY

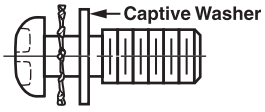
Split Lock Washer (G)
See page 157 for details.



Internal Tooth Lock Washer (H)
See page 157 for details.



External Tooth Lock Washer (J)
See page 157 for details.



ORDER EXAMPLE:

115050 - 500 - SS - G - 12

- 115050: Basic Part Number
- 500: Length
- SS: Material: See chart
- G: Assy with Split (G) L'Washer and Flat Washer
- 12: Finish: See page 277

ORDER EXAMPLE:

115050 - 500 - SS - H - 12

- 115050: Basic Part Number
- 500: Length
- SS: Material: See chart
- H: Assy with Internal (H) L'Washer and Flat Washer
- 12: Finish: See page 277

ORDER EXAMPLE:

115050 - 500 - SS - J - 12

- 115050: Basic Part Number
- 500: Length
- SS: Material: See chart
- J: Assy with External (J) L'Washer and Flat Washer
- 12: Finish: See page 277

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE.
Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

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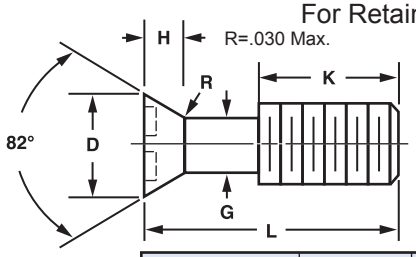
SECURITY SCREW CAPTIVE - FLAT HEAD

For Retainer Washers, see page 147.

Spanner



18-8 Stainless Steel Only

ORDER EXAMPLE:

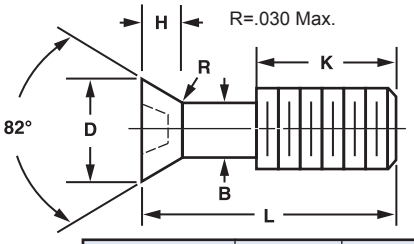
115068 - .500 - SS - 1

115068: Basic Part Number; .500: Length; SS: 18-8 Stainless Steel; 1: Finish: See page 277

Basic Part Number	Thread	D Head Diameter		H Head Height		K ± .010	G ± .005	L ± 1/32
		Max	Min	Max	Min			
115068	4-40	.225	.200	.067	.055	5/32	.078	.250-.50
115070	6-32	.279	.249	.083	.069	3/16	.095	.375-3.0
115072	8-32	.332	.300	.100	.084	3/16	.120	.375-4.0
115074	10-32	.385	.348	.116	.098	1/4	.130	.500-4.0
115080	1/4-20	.507	.462	.153	.131	1/4	.175	.500-4.0

SECURITY SCREW PIN SOCKET - FLAT HEAD

Pin Socket



18-8 Stainless Steel Only

ORDER EXAMPLE:

115086 - .500 - SS - 1

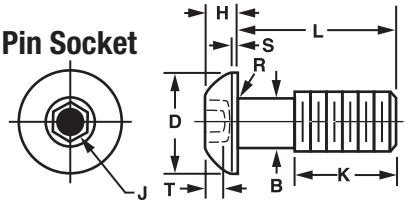
115086: Basic Part Number; .500: Length; SS: 18-8 Stainless Steel; 1: Finish: See page 277

Basic Part Number	Thread	D Head Diameter		H Head Height		J Hex Socket Screw	K ± .010	B ± .005	L ± 1/32
		Max	Min	Max	Min				
115086	6-32	.307	.263	.097	.013	1/8	3/16	.078	.375-1.0
115088	8-32	.359	.311	.112	.014	1/8	3/16	.120	.375-1.5
115090	10-32	.411	.359	.127	.015	5/32	1/4	.130	.500-2.0
115094	1/4-20	.531	.480	.161	.016	5/32	.1/4	.175	.500-2.0

NOTE: Standard Fastener products having a class 2A thread, once plated, may not enter 2A GO and NO-GO GAGES.

SECURITY SCREW SOCKET PIN HEAD - BUTTON

Pin Socket



18-8 Stainless Steel Only
Slight flat and/or countersunk permissible

ORDER EXAMPLE:

115087 - .500 - SS - 1

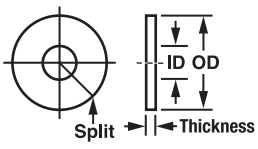
115087: Basic Part Number; .500: Length; SS: 18-8 Stainless Steel; 1: Finish: See page 277

Basic Part Number	Thread	D Head Diameter		H Head Height		S Head Side Height	J Hex Socket Size	T Key Engage-ment	L Length	K ± .010	B ± .005
		Max	Min	Max	Min						
115087	6-32	.262	.250	.073	.063	.015	1/8	.044	.250-1.0	3/16	.078
115089	8-32	.312	.298	.087	.077	.015	1/8	.052	.375-1.0	3/16	.120
115091	10-32	.361	.347	.101	.091	.020	5/32	.070	.250-2.0	1/4	.130
115093	1/4-20	.437	.419	.132	.122	.031	5/32	.087	.500-2.0	1/4	.175

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Thread UNC-3A (except 10-32 UNF-3A) R =.030 Max.

PANEL SCREW RETAINER WASHERS

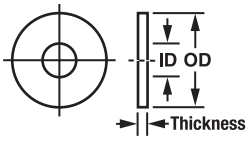
STAINLESS STEEL



ORDER EXAMPLE: 800008 - SS
(800008: Basic Part Number; SS: Stainless Steel)

Basic Part Number	Thread	ID ± .005	OD ± .005	T ± .005
800007 SS	2-56	.075	.156	.010
800008 SS	4-40	.093	.171	
800009 SS	6-32	.112		
800010 SS	8-32	.146	.312	.012
800011 SS	10-24	.166		
800012 SS	10-32			
800013 SS	12-24	.190		
800014 SS	1/4-20	.204		
800015 SS	1/4-28	.214		
800016 SS	5/16-24	.265	.375	
800016a SS	5/16-18			

NYLON

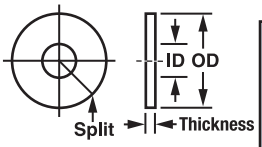


ORDER EXAMPLE: 800000 - N
(800000: Basic Part Number; N: Nylon)

Basic Part Number	Thread	ID ± .005	OD ± .005	T ± .005
800007 N	2-56	.075	.156	.010
800000 N	4-40	.100	.171	.015
800001 N	6-32	.125		.020
800002 N	8-32	.152	.312	
800003 N	10-24	.167		
800004 N	10-32	.173		
800005 N	12-24	.193		
800006 N	1/4-20	.228		.030
800007a N	1/4-28			
800007b N	5/16-18	.265	.375	.031
800007c N	5/16-24			

METRIC PANEL SCREW RETAINER WASHERS

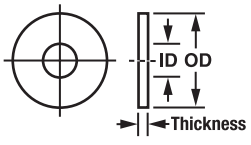
STAINLESS STEEL



ORDER EXAMPLE: M 800002 - SS
(800002: Basic Part Number; SS: Stainless Steel)

Stainless Steel Part Number	Thread	ID ± .15	OD ± .15	T ± .15
M 800002 SS	M 3 x 0.5	2.4	4.4	.25
M 800003 SS	M 3.5 x 0.6	2.9		
M 800004 SS	M 4 x 0.7	3.8	8	.32
M 800005 SS	M 5 x 0.8	4.3		
M 800006 SS	M 6 x 1	5.2		
M 800007 SS	M 8 x 1.2	6.7	9.5	

NYLON



ORDER EXAMPLE: M 800007 - N
(800007: Basic Part Number; N: Nylon)

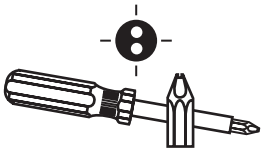
Nylon Part Number	Thread	ID ± .15	OD ± .15	T ± .15
M 800007 N	M 3 x 0.5	2.5	4.3	0.39
M 800008 N	M 3.5 x 0.6	3.2		0.51
M 800009 N	M 4 x 0.7	3.8	8	0.32
M 800010 N	M 5 x 0.8	4.4	7.9	0.51
M 800011 N	M 6 x 1	5.8		0.76

All dimensions are metric.

Material - Stainless Steel type 303 ASTM-A-581, 582.

SECURITY TOOLS

SPANNER



Sizes 4, 6, 8, 10, 12, 1/4

DRIVERS: Complete handle with bit. Please specify size.

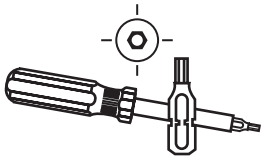
ORDER EXAMPLE: SP - 4
(SP: Spanner; 4: Spanner Size)

BITS ONLY: Available in 5/16" hex drive

ORDER EXAMPLE: SPB - 4
(SPB: Spanner Bit; 4: Spanner Size)

Driver Socket	
Thread	Bit Size
6-32	1/8
8-32	1/8
10-32	5/32
10-24	5-32
1/4-20	5/32
5/16	3/16

PIN SOCKET



Tamperproof hex size: 1/4"

DRIVERS: Complete handle with bit. Please specify size.

ORDER EXAMPLE: SP - 4
(SP: Socket Pin Head; 4: Driver Socket)

BITS ONLY: Available in 1/8" hex drive

ORDER EXAMPLE: SPHB - 4
(SPHB: Socket Pin Head Bit; 4: Driver Socket)

NOTE: Standard Fastener products having a class 2A thread, once plated, may not enter 2A GO and NO-GO GAGES.

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METRIC PAN HEAD CAPTIVE PANEL SCREW

Available Material (see page 275)	
B	Brass, Type M558
S	Carbon Steel property class 8.8
SS	Stainless Steel, 18-8

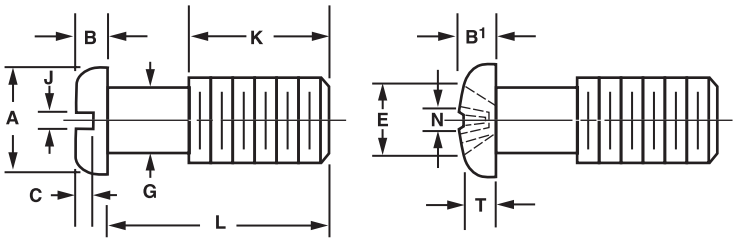
ORDER EXAMPLE:

1810 - 8 - SS - PS - 12

1810	8	SS	PS	12
Basic Part Number	Length in mm	Material: See chart	Head Style: Slotted (PS) or Phillips (PP)	Finish: See page 277

Any one dimension change add to part number:
EXAMPLE: 1810-8-SS-PS-12 (K=4.5)
All dimensions in millimeters.

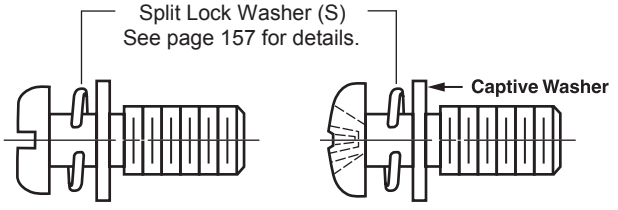
Pan Head Captive Panel Screw
Slotted (PS) or Phillips (PP)



Basic Part Number	Thread and Pitch	A Head Dia		Head Height B Slotted		Head Height B1 Phillips		Slot C Depth	Slot J Width	Recess E Dia		Recess T Depth		Recess N Width	K ± .25 mm	G ± .12 mm	L* Nom Length mm
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min				
Not Avail.	M 2 x .4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1810	M 2.5 x.45	5.0	4.7	1.5	1.3	2.1	1.9	0.6	0.6	2.85	2.52	1.73	1.33	0.70	4.0	1.7	8-20
1812	M 3 x .5	5.6	5.3	1.8	1.6	2.4	2.2	0.7	0.8	3.06	2.73	1.93	1.56	0.74	5.0	2.0	10-50
Not Avail.	M 3.5 x .6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1814	M 4 x .7	8.0	7.6	2.4	2.2	3.1	2.8	1.0	1.2	4.57	4.24	2.70	2.20	0.93	6.0	2.8	12-80
1816	M 5 x .8	9.5	9.1	3.0	2.7	3.7	3.4	1.2	1.2	5.07	4.74	3.20	2.70	1.0	6.0	3.7	12-80
1818	M 6 x 1.0	12.0	11.5	3.6	3.3	4.6	4.3	1.4	1.6	7.09	6.76	4.06	3.56	1.14	8.0	4.2	16-100

*L ±1 5 mm recommended increments of even number mm however , any length may be specified.

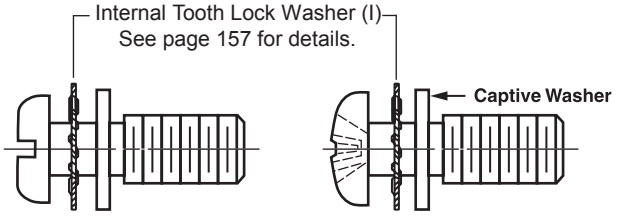
METRIC PAN HEAD CAPTIVE PANEL SCREW ASSEMBLY



ORDER EXAMPLE:

1810 - 8 - SS - PS - S - 12

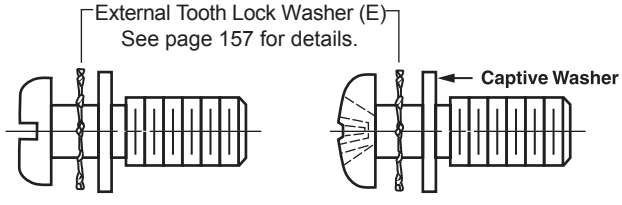
1810	8	SS	PS	S	12
Basic Part Number	Length in mm	Material: See chart	Pan Head Slotted (PS) or Phillips (PP)	Assembly w/Split (S) L'Washer & Flat Washer	Finish: See page 277



ORDER EXAMPLE:

1810 - 8 - SS - PS - I - 12

1810	8	SS	PS	I	12
Basic Part Number	Length in mm	Material: See chart	Pan Head Slotted (PS) or Phillips (PP)	Assembly w/Internal (I) L'Washer & Flat Washer	Finish: See page 277



ORDER EXAMPLE:

1810 - 8 - SS - PS - E - 12

1810	8	SS	PS	E	12
Basic Part Number	Length in mm	Material: See chart	Pan Head Slotted (PS) or Phillips (PP)	Assembly w/External (E) L'Washer & Flat Washer	Finish: See page 277

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Fastener after captivation may not accept GO GAGE on last inside thread.

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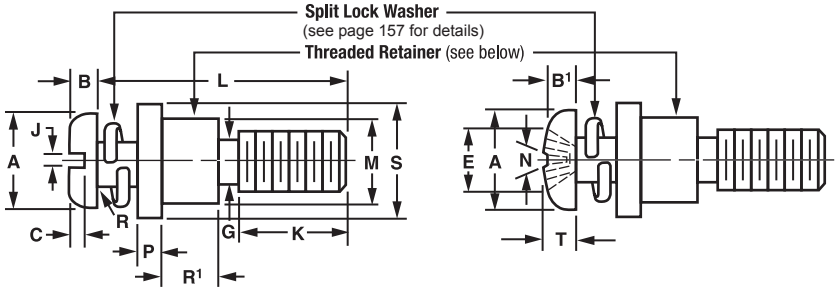
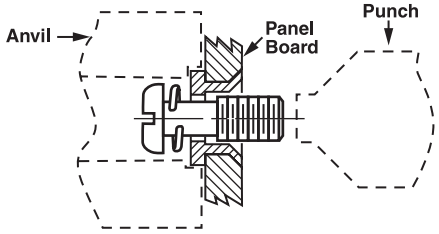
METRIC PAN HEAD CAPTIVE PANEL SCREW ASSEMBLY



Specify S for Split Lock Washer assembly



Easy One Step Installation Procedure
(typical for all assemblies)
Flare tool supplied by ASM. Countersink 82° by approximately 1/2 board thickness.

ORDER EXAMPLE:

1810 - PS - 8 - B - SS - E - 12

1810	PS	8	B	SS	E	12
Basic Part Number	Pan Head Slotted (PS) or Phillips (PP)	Length in mm	Shank Code: See chart below	Material: See chart	Washer Type: See page 157	Finish: See page 277

Any one dimension change add to part number. **EXAMPLE: 1810-8-SS-E-12 (K-4.5)**

Screw Available Material	
B	Brass, Type M558
S	Carbon Steel property class 8.8
SS	Stainless Steel, 18-8

Retainer Available Material	
B	Brass QQ B-626 Comp 360 1/2 Hard ASTMB-16
S	Steel ASTM-A-108, QQ-S-637(12L14)
SS	Stainless Steel, ASTM-A-581, A-582 (Non-magnetic) 303 series

All dimensions are in millimeters.

Basic Part Number	Thread and Pitch	A Head Dia		Head Height B Slotted		Head Height B1 Phillips		Slot C Depth	Slot J Width	Recess E Dia		Recess T Depth		Recess N Width	K ± .25 mm	G ± .12 mm	L* Nom Length mm
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	nom			
Not Avail.	M 2 x .4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1810	M 2.5 x.45	5.0	4.7	1.5	1.3	2.1	1.9	0.6	0.7	2.85	2.46	1.78	1.38	0.70	4.0	1.7	8-20
1812	M 3 x .5	5.6	5.3	1.8	1.6	2.4	2.2	0.7	0.8	3.06	2.30	1.96	1.56	0.74	5.0	2.0	10-50
Not Avail.	M 3.5 x .6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1814	M 4 x .7	9.5	7.6	2.4	2.2	3.1	2.8	1.0	1.2	4.57	4.20	2.76	2.31	0.93	6.0	2.8	12-80
1816	M 5 x .8	10.0	9.1	3.0	2.7	3.7	3.4	1.2	1.2	5.07	4.71	3.20	2.70	1.00	6.0	3.7	12-80
1818	M 6 x 1.0	12.0	11.5	3.6	3.3	4.6	4.3	1.4	1.6	7.09	6.64	4.07	3.62	1.14	8.0	4.2	16-100

*L ± 1.5 mm recommended increments of even number mm however, any leng h may be specified.

Retainer and Flare Tooling Data

All dimensions are in inches.

Shank Code	Board Thickness	R1 ± .003
A	1/32	.027
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

Thread	M Dia Min	M Dia Max	Mounting Hole Dia +.003 -.000	S Dia	P	Tooling Anvil	Tooling Punch
M 2 x .4 Not Avail.	–	–	–	–	–	–	–
M 2.5 x 4.5	.175	.178	.178	.375	.062	MA2.5	MP2.5
M 3 x .5	.197	.200	.200	.437	.060	MA3	MP3
M 3.5 x 6 Not Avail.	–	–	–	–	–	–	–
M 4 x .7	.237	.240	.240	.531	.093	MA4	MP4
M 5 x .8	.278	.281	.281	.625	.093	MA5	MP5
M 6 x 1.0	.318	.321	.321	.625	.125	MA6	MP6

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Fastener after captivation may not accept GO GAGE on last inside thread.

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METRIC CHEESE HEAD CAPTIVE PANEL SCREW

ORDER EXAMPLE:

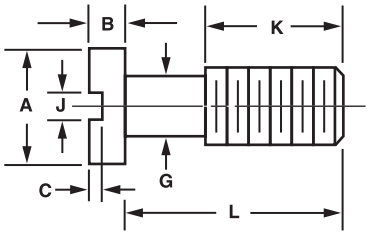
1820 - 8 - SS - 12

Basic Part Number	Length in mm	Material: See chart	Finish: See page 277

Any one dimension change add to part number:
EXAMPLE: 1820-8-SS-12 (K=4.5)
All dimensions are in millimeters

Available Material (see page 275)	
B	Brass, Type M558
S	Carbon Steel 4.8
SS	Stainless Steel, 18-8

Slotted

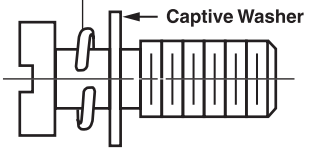


Basic Part Number	Thread and Pitch	A Head Dia Nom	B Head Height	C Slot Depth Max	J Slot Width Nom	K ± .25 mm	G ± .12 mm	L* Nom Length in mm
1820	M 2 x .4	3.8	1.3	.85	0.5	4.0	1.2	8-30
1821	M 2.5 x.45	4.5	1.6	1.00	0.6	4.0	1.7	8-30
1822	M 3 x .5	5.5	2	1.30	0.8	5.0	2.0	10-60
1823	M 3.5 x .6	6.0	2.4	1.40	0.8	5.0	2.3	10-35
1824	M 4 x .7	7.0	2.6	1.60	1.0	6.0	2.8	12-80
1825	M 5 x .8	8.5	3.3	2.00	1.2	6.0	3.7	12-100
1826	M 6 x 1.0	10.0	3.9	2.30	1.2	8.0	4.2	16-100

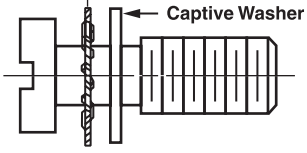
*L ± 1.5 mm recommended increments of even number mm however , any leng h may be specified.

METRIC CHEESE HEAD CAPTIVE PANEL SCREW ASSEMBLY

Split Lock Washer (S)
See page 157 for details



Internal Tooth Lock Washer (I)
See page 157 for details



ORDER EXAMPLE:

1820 - 8 - SS - S - 12

Basic Part Number	Length in mm	Material: See chart	Assembly w/Split (S) L'Washer & Flat Washer	Finish: See page 277

To order Captive Washer only, prefix part number with W. **EXAMPLE: W1820**

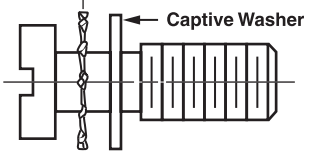
ORDER EXAMPLE:

1820 - 8 - SS - I - 12

Basic Part Number	Length in mm	Material: See chart	Assembly w/Internal (I) L'Washer & Flat Washer	Finish: See page 277

To order Captive Washer only, prefix part number with W. **EXAMPLE: W1820**

External Tooth Lock Washer (E)
See page 157 for details



ORDER EXAMPLE:

1820 - 8 - SS - E - 12

Basic Part Number	Length in mm	Material: See chart	Assembly w/External (E) L'Washer & Flat Washer	Finish: See page 277

To order Captive Washer only, prefix part number with W. **EXAMPLE: W1820**

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Fastener after captivation may not accept GO GAGE on last inside thread.

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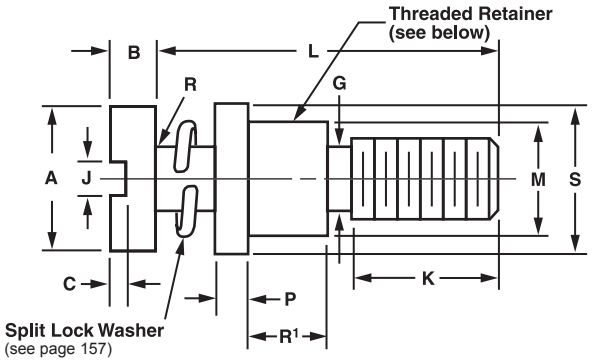
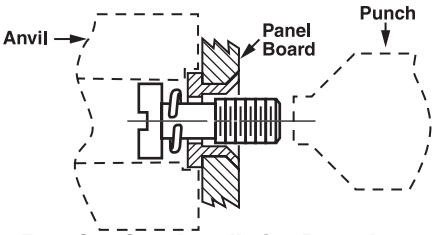
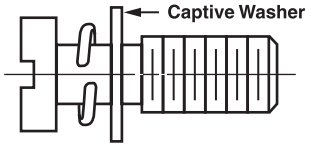
METRIC CHEESE HEAD CAPTIVE PANEL SCREW ASSEMBLY



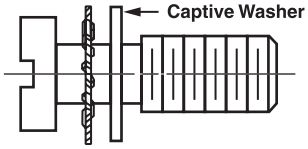


Easy One Step Installation Procedure
(typical for all assemblies)
Flare tool supplied by ASM. Countersink 82° by approximately 1/2 board thickness.

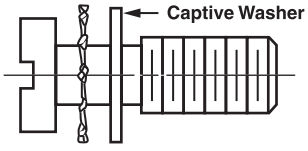
Specify "S" for
Split Lock Washer



Specify "I" for
Internal Tooth Lock Washer



Specify "E" for
External Tooth Lock Washer



ORDER EXAMPLE:

1820 - 8 - B - SS - E - 1

1820	8	B	SS	E	1
Basic Part Number	Length in mm	Shank Code	Material: See chart	Washer Type: See page 157	Finish: See page 277

Any one dimension change add to part number. **EXAMPLE: 1820-8-SS-12 (K=4.5)**

All dimensions in millimeters

Basic Part Number	Thread and Pitch	A Head Dia Nom	B Head Height	C Slot Depth Max	J Slot Width Nom	K ± .25 mm	G ± .12 mm	L* Nom Length in mm
1820	M 2 x .4	3.8	1.3	.85	0.5	4.0	1.2	8-30
1821	M 2.5 x .45	4.5	1.6	1.00	0.6	4.0	1.7	8-30
1822	M 3 x .5	5.5	2.0	1.30	0.8	5.0	2.0	10-60
1823	M 3.5 x .6	6.0	2.4	1.40	0.8	5.0	2.3	10-35
1824	M 4 x .7	7.0	2.6	1.60	1.0	6.0	2.8	12-80
1825	M 5 x .8	8.5	3.3	2.00	1.2	6.0	3.7	12-100
1826	M 6 x 1.0	10.0	3.9	2.30	1.2	8.0	4.2	16-100

*L ±1.5 mm recommended increments of even number mm however, any length may be specified.

Retainer and Flare Tooling Data

All dimensions are in inches.

Shank Code	Board Thickness	R^1 ± .003
A	1/32	.027
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

Thread	M Dia		Mounting Hole Dia +.003 -.000	S Dia	P	Tooling	
	Min	Max				Anvil	Punch
M 2x.4	.153	.156	.156	.312	.062	MA 2	MP 2
M 2.5x.45	.175	.178	.178	.375	.062	MA 2.5	MP 2.5
M 3x.5	.197	.200	.200	.437	.060	MA3	MP3
M 3.5x6	.215	.218	.218	.437	.093	MA 3.5	MP 3.5
M 4x.7	.237	.240	.240	.531	.093	MA4	MP4
M 5x.8	.278	.281	.281	.625	.093	MA5	MP5
M 6x1.0	.318	.321	.321	.625	.125	MA6	MP6

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Fastener after captivation may not accept GO GAGE on last inside thread.

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METRIC CAPTIVE SOCKET HEAD CAP SCREW

For Retainer Washers see page 147.

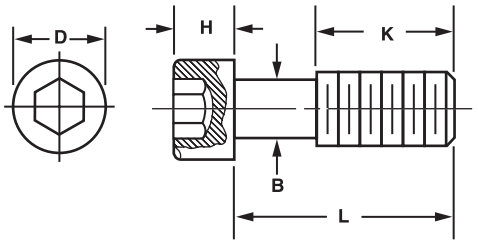
ORDER EXAMPLE:

1830 - 8 - SS - 12

Basic Part Number	Length in mm	Material: See chart	Finish: See page 277

Any one dimension change add to part number:
EXAMPLE: 1830-8-SS-12 (K=4.5)

Available Material (see page 275)	
B	Brass, Type M558
S	ASTM-A-108-93 (12L14) QQ-S-637
SS	Stainless Steel, 18-8



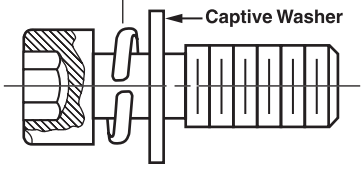
All dimensions are in millimeters.

Basic Part Number	Thread and Pitch	D Max	H Max	K ± .25 mm	B ± .12 mm	L Length* (even number mm only)
Not Avail	M 2 x .4	–	–	–	–	–
Not Avail	M 2.5 x .45	–	–	–	–	–
1830	M 3 x .5	5.5	3.0	4.0	2.0	8-30
Not Avail	M 3.5 x .6	–	–	–	–	–
1832	M 4 x .7	7.0	4.0	4.0	2.8	8-50
1834	M 5 x .8	8.5	5.0	4.0	3.7	8-70
1836	M 6 x 1.0	10.0	6.0	6.0	4.2	8-120
1838	M 8 x 1.25	13.0	8.0	8.0	6.0	8-120

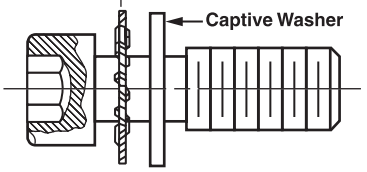
*L ±1.5 mm recommended increments of even number mm however , any length may be specified.

METRIC CAPTIVE SOCKET HEAD CAP SCREW ASSEMBLY

Split Lock Washer (S)
See page 157 for details.



Internal Tooth Lock Washer (I)
See page 157 for details.



ORDER EXAMPLE:

1830 - 8 - SS - S - 12

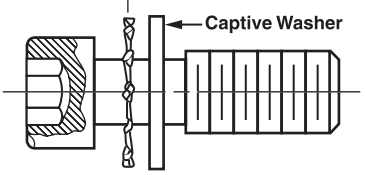
Basic Part Number	Length in mm	Material: See chart	Assembly w/Split (S) L'Washer & Flat Washer	Finish: See page 277

ORDER EXAMPLE:

1830 - 8 - SS - I - 12

Basic Part Number	Length in mm	Material: See chart	Assembly w/Internal (I) L'Washer & Flat Washer	Finish: See page 277

External Tooth Lock Washer (E)
See page 157 for details.



ORDER EXAMPLE:

1830 - 8 - SS - E - 12

Basic Part Number	Length in mm	Material: See chart	Assembly w/External (E) L'Washer & Flat Washer	Finish: See page 277

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Fastener after captivation may not accept GO GAGE on last inside thread.

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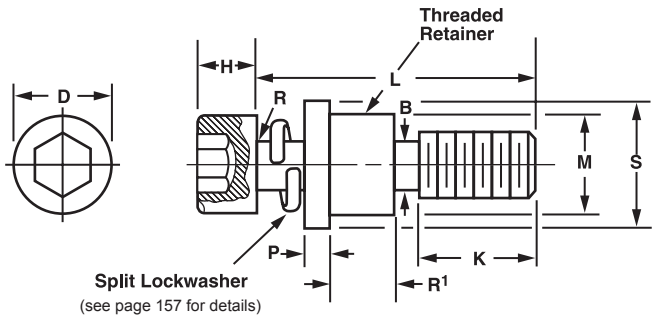
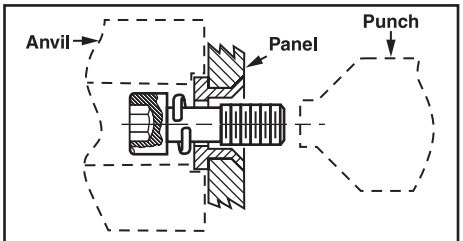
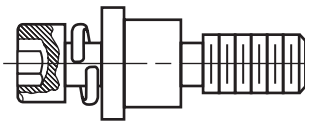
METRIC CAPTIVE SOCKET HEAD CAP SCREW ASSEMBLY



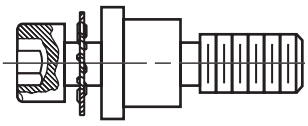


Easy One Step Installation Procedure
(typical for all assemblies)
Flare tool supplied by ASM. Countersink 82° by approximately 1/2 board thickness.

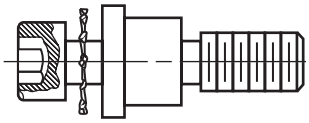
Specify "S" for Split Lock Washer



Specify "I" for Internal Tooth Lock Washer



Specify "E" for External Tooth Lock Washer



ORDER EXAMPLE:

1830 - 8 - B - SS - E - 12

1830	8	B	SS	E	12
Basic Part Number	Length in mm	Shank Code	Material: See chart	Washer Type: See page 157	Finish: See page 277

Any one dimension change add to part number. **EXAMPLE: 1820-8-SS-12 (K=4.5)**

All dimensions are in millimeters.

Screw Available Material	
S	ASTM-A-108-93 (12L14) QQ-S-637
SS	Stainless Steel, 18-8

Basic Part Number	Thread and Pitch	D Max	H Max	K ± .25 mm	B ± .12 mm	L Length* (even number mm only)
Not Avail	M 2 x .4	–	–	–	–	–
Not Avail	M 2.5 x .45	–	–	–	–	–
1830	M 3 x .5	5.5	3.0	4.0	2.0	8-30
Not Avail	M 3.5 x .6	–	–	–	–	–
1832	M 4 x .7	7.0	4.0	4.0	2.8	8-50
1834	M 5 x .8	8.5	5.0	4.0	3.7	8-70
1836	M 6 x 1.0	10.0	6.0	6.0	4.2	8-120

*L ±1.5 mm recommended increments of even number mm however, any length may be specified.

Retainer Available Material	
B	Brass QQ-B-626 Comp 360 1/2 Hard ASTMB-16
S	ASTM-A-108-93 (12L14) QQ-S-637
SS	Stainless Steel ASTM-A-581, A582 (Non-Magnetic) 303 series

Retainer and Flare Tooling Data

All Dimensions are in inches.

Shank Code	Board Thickness	R^1 ± .003
A	1/32	.027
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

Thread	M Dia		Mounting Hole Dia +.003 -.000	S Dia	P	Tooling	
	Min	Max				Anvil	Punch
M2x.4 Not Avail	–	–	–	–	–	–	–
M2.5x4.5 Not Avail	–	–	–	–	–	–	–
M3x.5	.197	.200	.200	.437	.060	MA3	MP3
M3.5x6 Not Avail	–	–	–	–	–	–	–
M4x.7	.237	.240	.240	.531	.093	MA4	MP4
M5x.8	.278	.281	.281	.625	.093	MA5	MP5
M6x1.0	.318	.321	.321	.625	.125	MA6	MP6

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Fastener after captivation may not accept GO GAGE on last inside thread.

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METRIC HEX HEAD CAPTIVE MACHINE SCREW

For Retainer Washers see page 147.

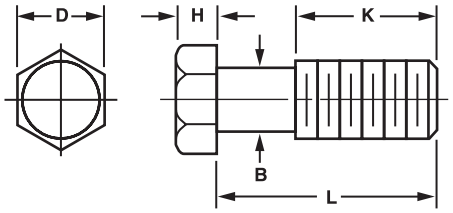
ORDER EXAMPLE:

1840 -10 - SS - 12

Basic Part Number	Length in mm	Material: See chart	Finish: See page 277

Slotted Hex Head, add **SDS** to part number.
EXAMPLE: 1840-10-SS-SDS-12

Available Material (see page 275)	
B	Brass, Type M558
S	ASTM-A-108-93 (12L14) QQ-S-637
SS	Stainless Steel, 18-8

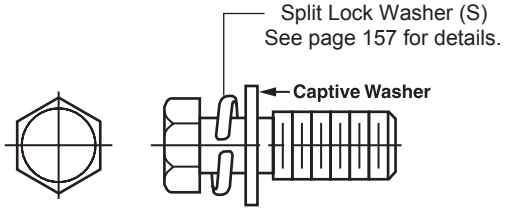


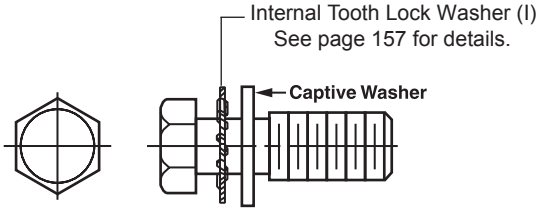
All dimensions are in millimeters.

Basic Part Number	Thread and Pitch	D		H		K ± .25 mm	B ± .12 mm	L Length* (even number mm only)
		Min	Max	Min	Max			
Not Avail	M 2x.4	–	–	–	–	–	–	–
Not Avail	M 2.5x.45	–	–	–	–	–	–	–
1840	M 3x.5	5.32	5.5	1.88	2.21	5.0	2.0	10-30
Not Avail	M 3.5x.6	–	–	–	–	–	–	–
1842	M 4x.7	6.78	7.0	2.68	2.92	6.0	2.8	12-50
1844	M 5x.8	7.78	8.0	3.35	3.65	6.0	3.7	12-60
1846	M 6x1.0	9.78	10.0	3.85	4.15	8.0	4.2	16-100

*L ±1.5 mm recommended increments of even number mm however , any length may be specified.

METRIC HEX HEAD CAPTIVE MACHINE SCREW ASSEMBLY





ORDER EXAMPLE:

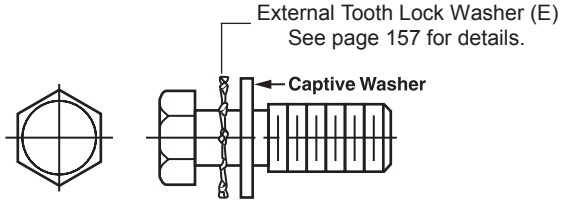
1840 -10- SS - S - 12

Basic Part Number	Length in mm	Material: See chart	Assembly w/Split (S) L'Washer & Flat Washer	Finish: See page 277

ORDER EXAMPLE:

1840 -10- SS - I - 12

Basic Part Number	Length in mm	Material: See chart	Assembly w/Internal (I) L'Washer & Flat Washer	Finish: See page 277



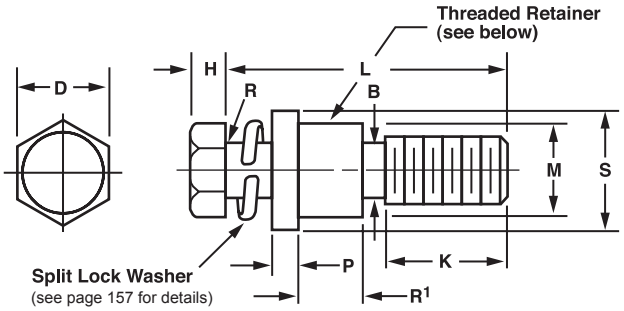
ORDER EXAMPLE:

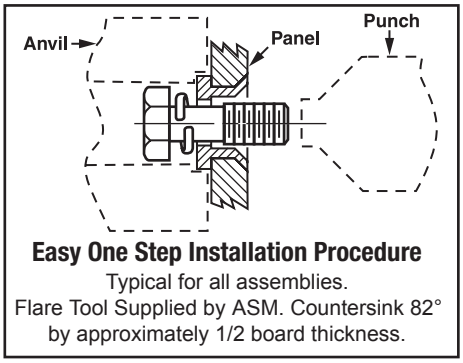
1840 -10- SS - E - 12

Basic Part Number	Length in mm	Material: See chart	Assembly w/External (E) L'Washer & Flat Washer	Finish: See page 277

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Fastener after captivation may not accept GO GAGE on last inside thread.

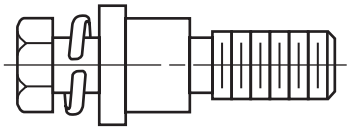
METRIC HEX HEAD CAPTIVE MACHINE SCREW ASSEMBLY



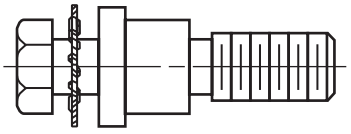


Easy One Step Installation Procedure
Typical for all assemblies.
Flare Tool Supplied by ASM. Countersink 82° by approximately 1/2 board thickness.

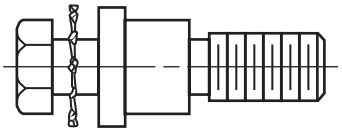
Specify "S" for Split Lock Washer



Specify "I" for Internal Tooth Lock Washer



Specify "E" for External Tooth Lock Washer



ORDER EXAMPLE:

1840 -10 - B - SS - E - 12

1840	10	B	SS	E	12
Basic Part Number	Length in mm	Shank Code	Material: See chart	Washer Type: See page 157	Finish: See page 277

Any one dimension change, add to part number. **EXAMPLE: 1840-10-SS-E-1 (K=4.5)**

All dimensions are in millimeters

Screw Available Material	
S	ASTM-A-108-93 (12L14) QQ-S-637
SS	Stainless Steel, 18-8
B	Brass Type M558

Basic Part Number	Thread and Pitch	D		H		K ± .25 mm	B ± .12 mm	L Length* (even number mm only)
		Min	Max	Min	Max			
Not Avail	M 2x.4	–	–	–	–	–	–	–
Not Avail	M 2.5 x .45	–	–	–	–	–	–	–
1840	M 3 x .5	5.32	5.5	1.88	2.21	5.0	2.0	10-30
Not Avail	M 3.5 x .6	–	–	–	–	–	–	–
1842	M 4 x .7	6.78	7.0	2.68	2.92	6.0	2.8	12-50
1844	M 5 x .8	7.78	8.0	3.35	3.65	6.0	3.7	12-60
1846	M 6 x 1.0	9.78	10.0	3.85	4.15	8.0	4.2	16-100

*L ±1.5 mm recommended increments of even number mm however, any length may be specified.

Retainer Available Material	
B	Brass QQ-B-626 Comp 360 1/2 Hard ASTMB-16
S	ASTM-A-108-93 (12L14) QQ-S-637
SS	Stainless Steel ASTM-A-581, A582 (Non-Magnetic) 303 series

Retainer and Flare Tooling Data

All dimensions are in inches.

Shank Code	Board Thickness	R¹ ±.003
A	1/32	.027
B	1/16	.060
C	3/32	.104
D	1/8	.144
E	3/16	.221
F	1/4	.301

Thread	M Dia		Mounting Hole Dia +.003 -.000	S Dia	P	Tooling	
	Min	Max				Anvil	Punch
M2x.4 Not Avail	–	–	–	–	–	–	–
M2.5x4.5 Not Avail	–	–	–	–	–	–	–
M3x.5	.197	.200	.200	.437	.060	MA3	MP3
M3.5x6 Not Avail	–	–	–	–	–	–	–
M4x.7	.237	.240	.240	.531	.093	MA4	MP4
M5x.8	.278	.281	.281	.625	.093	MA5	MP5
M6x1.0	.318	.321	.321	.625	.125	MA6	MP6

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Fastener after captivation may not accept GO GAGE on last inside thread.

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METRIC FLAT HEAD CROSS-RECESSED CAPTIVE MACHINE SCREW

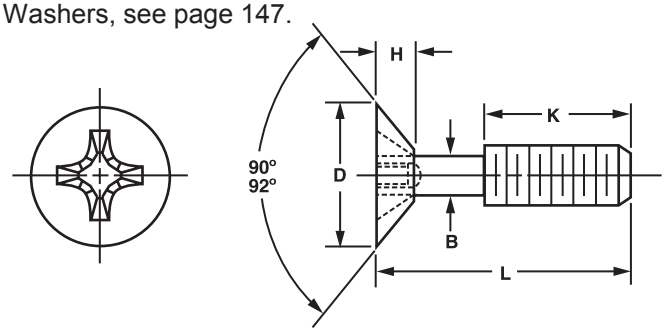
For Retainer Washers, see page 147.

ORDER EXAMPLE:

1850 - 8 - SS - 12

Basic Part Number	Length in mm	Material: See chart	Finish: See page 277

Change any one dimension, add to part number.
EXAMPLE: 1850-8-SS-12 (K=4.5)



Basic Part Number	Thread and Pitch	D Head Dia	H Max	K ± .25 mm	B ± .12 mm	L* (even number mm only)
1850	M 2x.4	3.8	1.2	4.0	1.2	8-20
1852	M 2.5x.45	4.7	1.5	4.0	1.7	8-20
1854	M 3x.5	5.6	1.65	5.0	2.0	10-50
Not Avail	M 3.5x.6	–	–	–	–	–
1856	M 4x.7	7.5	2.2	6.0	2.8	12-80
1858	M 5x.8	9.2	2.5	6.0	3.7	12-80
1859	M 6x1.0	11.0	3.0	8.0	4.2	16-80

Available Material (see page 275)	
B	Brass, Type M558
S	Carbon Steel property class 4.8
SS	Stainless Steel, 18-8

All dimensions are in millimeters

*L ±1.5 mm recommended increments of even number mm however, any length may be specified.

METRIC FLAT HEAD SLOTTED CAPTIVE MACHINE SCREW

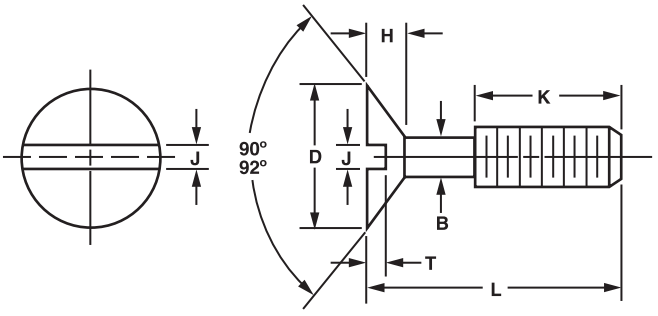
Available Material (see page 275)	
B	Brass, Type M558
S	Carbon Steel property class 4.8
SS	Stainless Steel, 18-8

ORDER EXAMPLE:

1860 - 8 - SS - 12

Basic Part Number	Length in mm	Material: See chart	Finish: See page 277

Change any one dimension, add to part number.
EXAMPLE: 1860-8-SS-12 (K=4.5)



All dimensions are in millimeters.

Basic Part Number	Thread and Pitch	D Head Dia	H Max	J Slot Width Nom	T Slot Depth Max	K ± .25	B ± .12	L* (even number mm only)
1860	M 2x.4	3.8	1.2	0.5	0.6	4.0	1.2	8-30
1862	M 2.5x.45	4.7	1.5	0.6	0.75	4.0	1.7	8-30
1864	M 3x.5	5.5	1.65	0.8	0.85	5.0	2.0	10-50
Not Avail	M 3.5x.6	–	–	–	–	–	–	–
1866	M 4x.7	8.4	2.7	1.2	1.3	6.0	2.8	12-80
1868	M 5x.8	9.3	2.7	1.2	1.4	6.0	3.7	12-80
1869	M 6x1.0	11.3	3.3	1.6	1.6	8.0	4.2	16-80

*L ±1.5 mm recommended increments of even number mm however, any length may be specified.

NOTE: Standard fastener products having a class 2A thread, once plated, may not exit GO GAGE. Fastener after captivation may not accept GO GAGE on last inside thread.

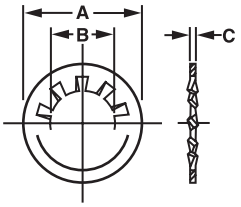
LOCK WASHERS

Internal Tooth Lock Washers

ORDER EXAMPLE:
903133 - S - 32
Basic Part Number | Material: See chart | Finish: See page 277

STANDARD

American Standard Available Material (see page 275)	
S	Spring Steel HRC 42-47
SS	Stainless Steel, Type 304
B	Phosphorus Bronze conforming to ASM B159 Copper Alloy No. 510



Basic Part Number	Normal Washer Size	A OD		B ID		C Thickness	
		Min	Max	Min	Max	Min	Max
903133	2	.175	.200	.089	.095	.010	.015
903135	4	.255	.270	.115	.123	.015	.019
903137	6	.275	.295	.141	.150	.017	.021
903139	8	.325	.340	.168	.176	.018	.023
903141	10	.365	.381	.195	.204	.020	.025
903143	1/4	.460	.478	.256	.267	.023	.028
903145	5/16	.594	.610	.320	.332	.028	.034
903147	3/8	.670	.694	.384	.398	.032	.040
903149	7/16	.740	.789	.448	.464	.032	.040

METRIC

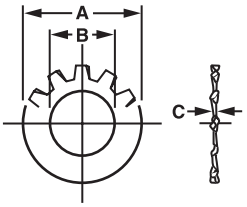
Metric Available Material (see page 275)	
S	Spring Steel HRC 42-47
SS	Stainless Steel, Type 304

Basic Part Number	Normal Washer Size	A OD		B ID		C Thickness	
		Min	Max	Min	Max	Min	Max
903180	M2	4.40	4.70	2.25	2.40	.25	.35
903181	M2.5	5.35	5.45	2.65	2.80	.25	.35
903183	M3	6.85	7.35	3.15	3.30	.35	.50
903184	M3.5	7.55	8.05	3.65	3.80	.40	.55
903185	M4	8.25	8.75	4.15	4.30	.45	.60
903186	M5	10.00	10.50	5.15	5.30	.55	.70
903187	M6	12.20	12.95	6.20	6.50	.55	.70

External Tooth Lock Washers

STANDARD

American Standard Available Material (see page 275)	
S	Spring Steel HRC 42-47
SS	Stainless Steel, Type 304
B	Phosphorus Bronze conforming to ASM B159 Copper Alloy No. 510



Basic Part Number	Normal Washer Size	A OD		B ID		C Thickness	
		Min	Max	Min	Max	Min	Max
Not Avail.	2	–	–	–	–	–	–
903132	4	.245	.260	.115	.123	.015	.019
903134	6	.305	.320	.141	.150	.016	.022
903136	8	.365	.381	.168	.176	.018	.023
903138	10	.395	.410	.195	.204	.020	.025
903140	12	.460	.475	.221	.231	.023	.028
903142	1/4	.494	.510	.256	.267	.023	.028
903144	5/16	.588	.610	.320	.332	.028	.034
903146	3/8	.670	.694	.384	.398	.032	.040
903148	7/16	.740	.760	.448	.464	.032	.040

METRIC

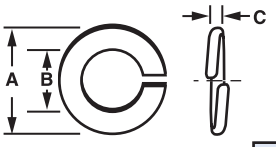
Metric Available Material (see page 275)	
S	Spring Steel HRC 42-47
SS	Stainless Steel, Type 304

Basic Part Number	Normal Washer Size	A OD		B ID		C Thickness	
		Min	Max	Min	Max	Min	Max
903188	M2	–	–	2.25	2.40	.25	.35
903189	M2.5	5.45	5.85	2.65	2.80	.25	.35
903190	M3	6.85	7.35	3.15	3.30	.35	.50
903191	M3.5	7.55	8.05	3.65	3.80	.40	.55
903192	M4	8.50	9.00	4.15	4.30	.45	.60
903193	M5	10.00	10.50	5.15	5.30	.50	.65
903194	M6	12.20	12.95	6.20	6.50	.55	.70

Split Lock Washers

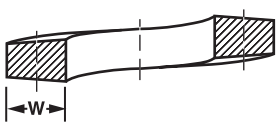
STANDARD

American Standard Available Material (see page 275)	
S	Steel (1008)
SS	Stainless Steel (18-8)
B	Silicone Bronze conforming to ASM B99 Copper Alloy 651 or 655



Basic Part Number	Normal Washer Size	A OD	B ID		W Washer Section Width*	C Washer Section Thickness
		Max[2]	Min	Max	Approx.	
903150	2	.172	.088	.094	.035	.020
903152	4	.209	.115	.121	.040	.025
903154	5	.236	.128	.134	.047	.031
903156	6	.250	.141	.148	.047	.031
903158	8	.293	.168	.175	.055	.040
903160	10	.334	.194	.202	.062	.047
903162	12	.377	.221	.229	.070	.056
903164	1/4	.489	.255	.263	.109	.062
903166	5/16	.586	.318	.328	.125	.078
903168	3/8	.683	.382	.393	.141	.094
903170	7/16	.779	.446	.459	.156	.109

*American Standard washer width is approximate.



METRIC

Metric Available Material (see page 275)	
S	Spring Steel HRC 44-51
SS	Stainless Steel, Type 304 or 316

Basic Part Number	Screw Dia	A OD	B ID	C Thickness
903195	M2	4.4	2.1	.5
903196	M2.5	5.1	2.6	.6
903197	M3	6.2	3.1	.8
903198	M3.5	6.7	3.6	.8
903199	M4	7.6	4.1	.9
903200	M5	9.2	5.1	1.2
903201	M6	11.8	6.1	1.6

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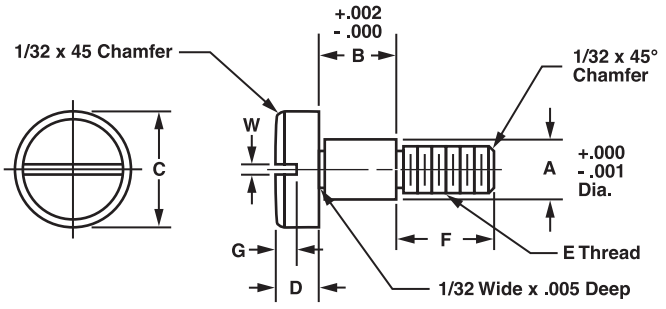
SLOTTED HEAD SHOULDER SCREW



ORDER EXAMPLE:

17000 - SS - 12 - SLD

- 17000 — Basic Part Number
- SS — Material: See chart
- 12 — Finish: See page 277
- SLD — Self-Locking Device Option: See page 109

Basic Part Number	A +.000 -.001	B +.002 -.000		C	D	E	F
17000 1/8	1/8 .1245	1/8	.1250	1/4	1/8	#4-40	5/32
17002		3/16	.1875				
17004		1/4	.2500				
17006		5/16	.3125				
17008		3/8	.3750				
17012		7/16	.4370				
17009		1/2	.5000				
17169		5/8	.6250				
17170		3/4	.7500				
17171		7/8	.8750				
17172		1	1.0000				
17011	5/32 .1562	1/8	.1250	9/32		#6-32	3/16
17013		3/16	.1875				
17015		1/4	.2500				
17017		5/16	.3125				
17001		3/8	.3750				
17027		7/16	.4375				
17029		1/2	.5000				
17003		9/16	.5625				
17033		5/8	.6250				
17035		11/16	.6875				
17037		3/4	.7500				
17173		7/8	.8750				
17174		1	1.0000				
17175		1-1/4	1.2500				
17176		1-1/2	1.5000				
17010	3/16 .1870	1/8	.1250	5/16	5/32	#8-32	
17005		3/16	.1875				
17014		1/4	.2500				
17016		5/16	.3125				
17018		3/8	.3750				
17019		7/16	.4370				
17020		1/2	.5000				
17021		9/16	.5625				
17022		5/8	.6250				
17023		11/16	.6875				
17024		3/4	.7500				
17025		7/8	.8750				

Available Material (see page 275)	
A	Aluminum
B	Brass
N*	Nylon
S	Steel
SS	Stainless Steel
D*	Delrin

*Nylon and Delrin tolerance A and B = ± .002

Screw Driver Slot	
G ±.015	W ±.015
.062	.062

TECH TIP

Tolerances on fractions are larger than tolerances on decimals.

NOTE: This product also available with the Self-Locking Device, see page 109.
Tolerance A & B ±.005 unless otherwise specified.

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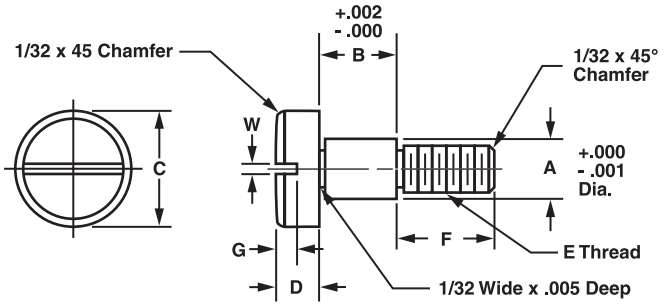
SLOTTED HEAD SHOULDER SCREW

ORDER EXAMPLE:

17026 - SS - 12 - SLD

- 17026: Basic Part Number
- SS: Material: See chart
- 12: Finish: See page 277
- SLD: Self-Locking Device Option: See page 109



Basic Part Number	A +.000 -.001	B +.002 -.000		C	D	E	F
17026	3/16 .1870	1	1.0000	5/16	5/32	#8-32	3/16
17028		1-1/4	1.2500				
17031		1-3/8	1.375				
17030		1-1/2	1.5000				
17177		1-5/8	1.6250				
17178		1-3/4	1.7500				
17180		2	2.0000				
17032	1/4 .2495	1/8	.1250	3/8	3/16	#10-32	1/4
17034		3/16	.1875				
17036		1/4	.2500				
17038		5/16	.3125				
17040		3/8	.3750				
17041		7/16	.4370				
17042		1/2	.5000				
17043		9/16	.5625				
17044		5/8	.6250				
17045		11/16	.6875				
17046		3/4	.7500				
17047		7/8	.8750				
17048		1	1.0000				
17050		1-1/4	1.2500				
17051		1-3/8	1.375				
17052		1-1/2	1.5000				
17181		1-5/8	1.6250				
17182		1-3/4	1.7500				
17183		2	2.0000				
17054	5/16 .3120		.2505	1/2	7/32	1/4-20	7/16
17100			.2505	7/16			3/8
17056			.3125	1/2			7/16
17102			.3125	7/16			3/8
17058			.3750	1/2			7/16
17104			.3750	7/16			3/8
17060			.5000	1/2			7/16
17106			.5000	7/16			3/8
17061			.5625	1/2			7/16
17108			.5625	7/16			3/8
17062			.6250	1/2			7/16
17110			.6250	7/16			3/8

Available Material (see page 275)	
A	Aluminum
B	Brass
N*	Nylon
S	Steel
SS	Stainless Steel
D*	Delrin

*Nylon and Delrin tolerance A and B = ± .002

Screw Driver Slot	
G ±.015	W ±.015
.062	.062

TECH TIP

Straight or diamond knurl can be applied to most screw head styles.

NOTE: This product also available with the Self-Locking Device, see page 109.
Tolerance A & B ±.005 unless otherwise specified.

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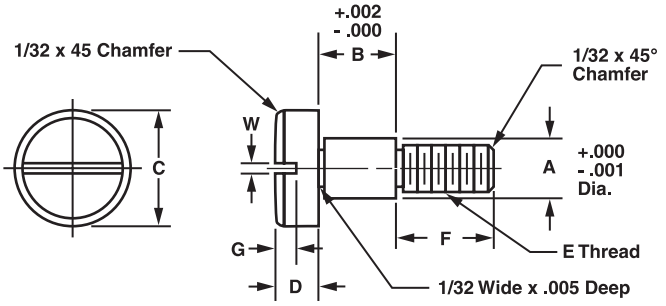
SLOTTED HEAD SHOULDER SCREW



ORDER EXAMPLE:

17063 - SS - 12 - SLD

Basic Part Number	Material: See chart	Finish: See page 277	Self-Locking Device Option: See page 109

Basic Part Number	A +.000 -.001	B +.002 -.000	C	D	E	F
17063	5/16 .3120	.6875	1/2	7/32	1/4-20	7/16
17112		.6875	7/16			3/8
17064		.7500	1/2			7/16
17114		.7500	7/16			3/8
17065		.8750	1/2			7/16
17116		.8750	7/16			3/8
17089		1.0000	1/2			7/16
17118		1.0000	7/16			3/8
17184		1.2500	1/2			7/16
17185		1.5000	7/16			3/8
17186		1.7500	1/2			7/16
17187		2.0000	7/16			3/8
17066	3/8 .3745	.3125	1/2	7/32	1/4-20	7/16
17068		.3750				7/16
17122		.3750				3/8
17070		.5000				7/16
17124		.5000				3/8
17071		.5625				7/16
17126		.5625				3/8
17072 .625						7/16
17128		.6250				3/8
17073		.6875				7/16
17130		.6875				3/8
17057		.7500				7/16
17132		.7500				3/8
17090		.8750				7/16
17134		.8750				3/8
17091		1.0000				7/16
17136		1.0000				3/8
17188		1.2500				3/8
17189		1.5000				3/8
17190		1.7500				3/8
17191		2.0000				3/8
17074		.3125	9/16	1/4	5/16-18	1/2
17076		.3750	9/16	1/4		1/2
17140		.3750	1/2	7/32		7/16
17078		.5000	9/16	1/4		1/2
17142		.5000	1/2	7/32		7/16

Available Material (see page 275)	
A	Aluminum
B	Brass
N*	Nylon
S	Steel
SS	Stainless Steel
D*	Delrin

*Nylon and Delrin tolerance A and B = ± .002

Screw Driver Slot	
G ±.015	W ±.015
.062	.062

TECH TIP

Our new in-house passivation process, certified to QQP35C-AMS2700B-MIL F 14072D, further improves our lead times.

NOTE: This product also available with the Self-Locking Device, see page 109.
Tolerance ±.005 unless otherwise specified.

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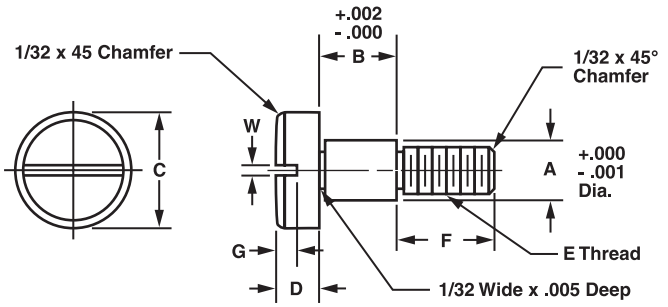
SLOTTED HEAD SHOULDER SCREW



ORDER EXAMPLE:

17079 - SS - 12 - SLD

Basic Part Number	Material: See chart	Finish: See page 277	Self-Locking Device Option: See page 109

Basic Part Number	A +.000 -.001	B +.002 -.000	C	D	E	F
17079	3/8 .3745	.5625	9/16	1/4	5/16-18	1/2
17144		.5625	1/2	7/32		7/16
17080		.6250	9/16	1/4		1/2
17146		.6250	1/2	7/32		7/16
17081		.6875	9/16	1/4		1/2
17148		.6875	1/2	7/32		7/16
17092		.7500	9/16	1/4		1/2
17150		.7500	1/2	7/32		7/16
17093		.8750	9/16	1/4		1/2
17152		.8750	1/2	7/32		7/16
17094		1.0000	9/16	1/4		1/2
17151		1.0000	1/2	7/32		7/16
17192		1.250	9/16	1/4		1/2
17193		1.500	1/2	1/4		1/2
17194		1.750	9/16	1/4		1/2
17195		2.0000	1/2	1/4		1/2
17153	1/2 .4995	.2500	5/8	1/4	3/8-16	1/2
17154		.3125	5/8	1/4		1/2
17155		.3750	5/8	1/4		1/2
17082		.5000	3/4	5/16		5/8
17156		.5000	5/8	1/4		1/2
17083		.5625	3/4	5/16		5/8
17158		.5625	5/8	1/4		1/2
17084		.6250	3/4	5/16		5/8
17160		.6250	5/8	1/4		1/2
17085		.6875	3/4	5/16		5/8
17162		.6875	5/8	1/4		1/2
17086		.7500	3/4	5/16		5/8
17164		.7500	5/8	1/4		1/2
17087		.8750	3/4	5/16		5/8
17166		.8750	5/8	1/4		1/2
17088		1.0000	3/4	5/16		5/8
17168		1.0000	5/8	1/4		1/2
17196		1.2500	3/4	1/4		1/2
17197		1.5000	5/8	1/4		1/2
17198		1.7500	3/4	1/4		1/2
17199		2.0000	5/8	1/4		1/2

Available Material (see page 275)	
A	Aluminum
B	Brass
N*	Nylon
S	Steel
SS	Stainless Steel
D*	Delrin

*Nylon and Delrin tolerance A and B = ± .002

Screw Driver Slot	
G ±.015	W ±.015
.062	.062

TECH TIP

Galling is often referred to as cold welding. This occurs when the surfaces of male and female threads come in contact with heavy pressure. Stainless steel fasteners are more susceptible to thread galling, which also occurs with other alloys.

NOTE: This product also available with the Self-Locking Device, see page 109.
Tolerance ±.005 unless otherwise specified.

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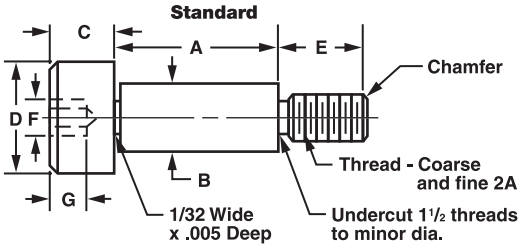
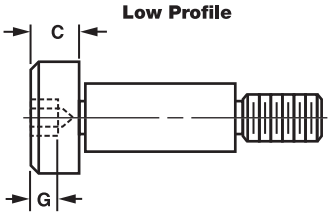
SOCKET HEAD SHOULDER SCREW





Available Material (see page 275)	
A	Aluminum
B	Brass
N*	Nylon
S	Steel
SS	Stainless Steel
D*	Delrin

*Nylon and Delrin tolerance
A and B = ± .002

Available with Self-Locking Device, see page 109

ORDER EXAMPLE:

67501 - SS - 12 - SLD

Basic Part Number	Material: See chart	Finish: See page 277	Self-Locking Device Option: See page 109

ORDER EXAMPLE:

LP - 67501 - SS - 12 - SLD

Low Profile	Basic Part Number	Material: See chart	Finish: See page 277	Self-Locking Device Option: See page 109

Basic Part Number	A +.002 -.000	Thread	D ±.004	B +.000 -.001	C ±.010		E ±.005	F	G Min Nominal	
					Std	Low Profile			Std	Low Profile
67501	.1250	4-40	1/4	.1245	1/8	3/32	5/32	5/64	1/16	1/32
67503	.1875									
67505	.2500									
67507	.3125									
67509	.3750									
67511	.4375									
67513	.5000									
67515	.1250	6-32	9/32	.1560	1/8	5/64	3/16	3/32	5/64	1/32
67517	.1875									
67519	.2500									
67521	.3125									
67523	.3750									
67525	.4375									
67527	.5000									
67529	.5625									
67531	.6250									
67533	.6875									
67535	.7500									
67537	.1250	8-32	5/16	.1870	5/32	7/64	3/16	3/32	5/64	1/32
67538	.1875									
67540	.2500									
67542	.3125									
67544	.3750									
67546	.4375									
67548	.5000									
67550	.5625									
67552	.6250									
67554	.6875									
67556	.7500									
67558	.8750									
67560	1.0000									
67562	1.2500									
67564	1.3750									
67566	1.5000									

NOTE: Low Profile is not recommended for high torque installation.

SOCKET HEAD SHOULDER SCREW

Basic Part Number	A +.002 -.000	Thread	D ±.004	B +.000 -.001	C ±.010		E ±.005	F	G Min Nominal	
					Std	Low Profile			Std	Low Profile
67568	.1250	10-32	3/8	.2495	3/16	1/8	1/4	1/8	3/32	1/32
67570	.1875									
67572	.2500									
67574	.3125									
67576	.3750									
67578	.4375									
67580	.5000									
67582	.5625									
67584	.6250									
67586	.6875									
67588	.7500									
67590	.8750									
67592	1.0000									
67594	1.2500									
67596	1.3750									
67598	1.5000									
67600	.2500	1/4-20	7/16	.3120	7/32	1/8	3/8	5/32	1/8	1/32
67602	.3125									
67604	.3750									
67606	.5000									
67608	.6250									
67610	.7500									
67612	.8750									
67614	1.0000									
67616	.2500	1/4-20	1/2	.3745	7/32	1/8	3/8	5/32	1/8	1/32
67618	.3125									
67620	.3750									
67622	.5000									
67624	.6250									
67626	.7500									
67628	.8750									
67630	1.0000									
67632	.2500	5/16-18	1/2	.3745	7/32	3/32	7/16	3/16	5/32	1/32
67634	.3125									
67636	.3750									
67638	.5000									
67640	.6250									
67642	.7500									
67644	.8750									
67646	1.0000									
67648	.2500	3/8-16	5/8	.4995	1/4	3/32	1/2	1/4	3/16	1/32
67650	.3125									
67652	.3750									
67654	.5000									
67656	.6250									
67658	.7500									
67660	.8750									
67662	1.0000									

NOTE: Low Profile is not recommended for high torque installation.

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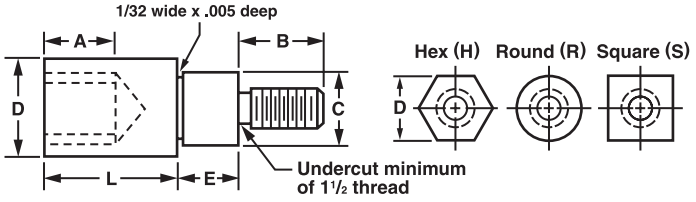
MALE/FEMALE SHOULDER SCREW



Thread	B	A	Thread	B	A
2-56	3/16	5/32	10-32	1/2	3/8
4-40	1/4	3/16	12-24	1/2	3/8
6-32	3/8	1/4	1/4-20	1/2	3/8
8-32	7/16	3/8	5/16-18	1/2	3/8
10-24	1/2	3/8	3/8-16	1/2	3/8

When L dimension is equal to or smaller than A, the depth will be maximum possible or a minimum of 1-1/2 threads, whichever is greater.

ORDER EXAMPLE:

16500 - H - SS - .500 - 12

- **16500** — Basic Part Number
- **H** — Hex (H), Round (R) or Square (S)
- **SS** — Material: See chart
- **.500** — Length: Fill in length, any increment
- **12** — Finish: See page 277

*If any dimension, tolerance, thread, etc. changes are required, add he requirement to the end of the part number. **EXAMPLE: 16592H-SS-.500-12 (E=3/32)**
Self-locking device (page 109) may be added to male thread.
Add **SLD** to part number. **EXAMPLE: 16592 H-SS-.500-12-SLD**

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel
N	Nylon
D	Delrin
C	Copper
T	Teflon

D*	Thread	C* +.000 -.002	E* +.003 -.000	Basic Part Number
3/16	4-40	.124	1/8	16500
			3/16	16502
			1/4	16504
			3/8	16506
			7/16	16508
			1/2	16510
1/4	6-32	.156	1/8	16512
			3/16	16514
			1/4	16516
			3/8	16518
			7/16	16520
			1/2	16522
			9/16	16524
			5/8	16526
			11/16	16528
			3/4	16530
5/16	8-32	.187	1/8	16532
			3/16	16534
			1/4	16536
			3/8	16538
			7/16	16540
			1/2	16542
			9/16	16544
			5/8	16546
			11/16	16548
			3/4	16550
			7/8	16552
			1	16554
			1-1/4	16556
			1-3/8	16558
			1-1/2	16560
3/8	10-32	.249	1/8	16562
			3/16	16564
			1/4	16566
			3/8	16568
			7/16	16570
			1/2	16572
			9/16	16574
			5/8	16576
			11/16	16578
			3/4	16580
			7/8	16582
3/8	10-32	.249	1	16584
			1-1/4	16586
			1-3/8	16588
			1-1/2	16590
1/2	1/4-20	.312	1/8	16592
			3/16	16594
			1/4	16596
			3/8	16598
			7/16	16600
			1/2	16602
			9/16	16604
			5/8	16606
			11/16	16608
			3/4	16610
			7/8	16612
			1	16614
			1-1/4	16616
			1-3/8	16618
			1-1/2	16620
1/2	5/16-18	.374	3/8	16622
			7/16	16624
			1/2	16626
			9/16	16628
			5/8	16630
			11/16	16632
			3/4	16634
			1	16636
			1-1/4	16638
			1-3/8	16640
			1-1/2	16642
5/8	3/8-16	.499	3/8	16644
			7/16	16646
			1/2	16648
			9/16	16650
			5/8	16652
			11/16	16654
			3/4	16656
			1	16658
			1-1/4	16660
			1-3/8	16662
			1-1/2	16664

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PUSHER TYPE THUMB SCREW

Full Thread

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

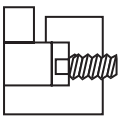
ORDER EXAMPLE:

900 - A - 22

- 900: Basic Part Number
- A: Material: See chart
- 22: Finish: See page 277

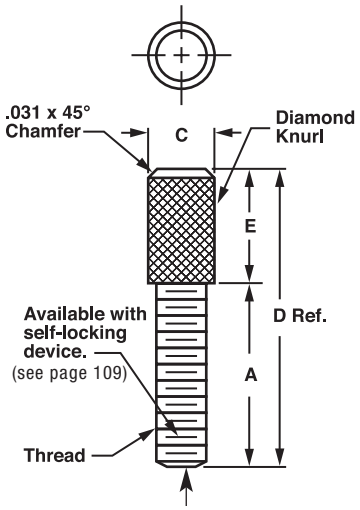
Screw driver slot is available (see page 281 for dimensions).
Add **SDS** to part number. **EXAMPLE: 900-A-SDS-22**
*Any one dimension may be changed by adding to part number .
EXAMPLE: 900-A-22 (E = .350)

SOFT TOUCH PARTS



When inserted, these pellets provide the perfect "soft touch" to prevent marring or scratching often caused by metal-to-metal contact. The pellet gives full face contact with a curved shaft. To order soft touch just add **ST** to the part number.

EXAMPLE: 900-A-22-ST
Material: Nylon LP - 410 Natural
See page 276 for sizes.



Soft Touch parts available.

Basic Part No.	Thread	A* ±.010	E ±.015	D ±.015	C +.020 -.000
900	4-40	5/8	3/8	1	3/16
901		3/4		1-1/8	
902		7/8		1-1/4	
903		1		1-3/8	
904		1-1/8		1-1/2	
905		1-1/4		1-5/8	
906		1-3/8		1-3/4	
907		1-1/2		1-7/8	
908		1-5/8		2	
909		1-3/4		2-1/8	
910		1-7/8		2-1/4	
911		2		2-3/8	
912	6-32	5/8		1	
913		3/4		1-1/8	
914		7/8		1-1/4	
915		1		1-3/8	
916		1-1/8		1-1/2	
917		1-1/4		1-5/8	
918		1-3/8		1-3/4	
919		1-1/2		1-7/8	
920		1-5/8		2	
921		1-3/4		2-1/8	
922		1-7/8		2-1/4	
923		2		2-3/8	
924	8-32	5/8		1	
925		3/4		1-1/8	
926		7/8		1-1/4	
927		1		1-3/8	
928		1-1/8		1-1/2	
929		1-1/4		1-5/8	
930		1-3/8		1-3/4	
931		1-1/2		1-7/8	
932		1-5/8		2	
933		1-3/4		2-1/8	
934		1-7/8		2-1/4	
935		2		2-3/8	

Basic Part No.	Thread	A* ±.010	E ±.015	D ±.015	C +.020 -.000
936	10-24	5/8	1/2	1-1/8	1/4
937		3/4		1-1/4	
938		7/8		1-3/8	
939		1		1-1/2	
940		1-1/8		1-5/8	
941		1-1/4		1-3/4	
942		1-3/8		1-7/8	
943		1-1/2		2	
944		1-5/8		2-1/8	
946		1-3/4		2-1/4	
948		1-7/8		2-3/8	
950		2		2-1/2	
952	10-32	5/8		1-1/8	
954		3/4		1-1/4	
956		7/8		1-3/8	
958		1		1-1/2	
960		1-1/8		1-5/8	
962		1-1/4		1-3/4	
964		1-3/8		1-7/8	
966		1-1/2		2	
968		1-5/8		2-1/8	
970		1-3/4		2-1/4	
972		1-7/8		2-3/8	
974		2		2-1/2	
976	1/4-20	5/8		1-1/8	5/16
978		3/4		1-1/4	
980		7/8		1-3/8	
982		1		1-1/2	
984		1-1/8		1-5/8	
986		1-1/4		1-3/4	
988		1-3/8		1-7/8	
990		1-1/2		2	
992		1-5/8		2-1/8	
994		1-3/4		2-1/4	
996		1-7/8		2-3/8	
998		2		2-1/2	

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PUSHER TYPE THUMB SCREW

Captive Thread

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

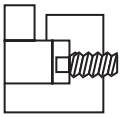
ORDER EXAMPLE:

C900 - A - 22

- C900 — Basic Part Number
- A — Material: See chart
- 22 — Finish: See page 277

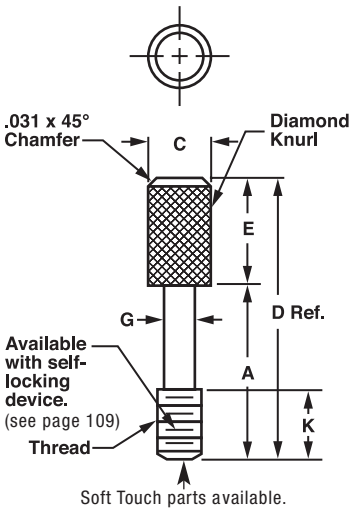
Screw driver slot is available (see page 281 for dimensions).
Add **SDS** to part number. **EXAMPLE: C900-A-SDS-22**
*Any one dimension may be changed by adding to part number .
EXAMPLE: C900-A-22 (K = 1/4)

SOFT TOUCH PARTS



When inserted, these pellets provide the perfect "soft touch" to prevent marring or scratching often caused by metal-to-metal contact. The pellet gives full face contact with a curved shaft. To order soft touch just add **ST** to the part number.

EXAMPLE: C900-A-22-ST
Material: Nylon LP - 410 Natural
See page 275 for sizes.

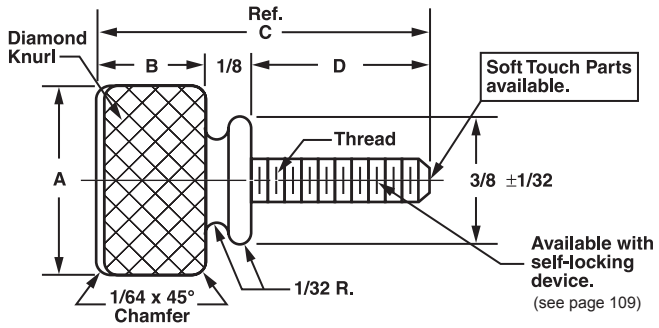


Soft Touch parts available.

Basic Part No.	Thread	A ±.010	E ±.015	D ±.015	C +.020 -.000	K* ±.010	G ±.015
C900	4-40	5/8	3/8	1	3/16	5/16	.078
C901		3/4		1-1/8		3/8	
C902		7/8		1-1/4		7/16	
C903		1		1-3/8		1/2	
C904		1-1/8		1-1/2		9/16	
C905		1-1/4		1-5/8		5/8	
C906		1-3/8		1-3/4		11/16	
C907		1-1/2		1-7/8		3/4	
C908		1-5/8		2		13/16	
C909		1-3/4		2-1/8		7/8	
C910		1-7/8		2-1/4		15/16	
C911		2		2-3/8		1	
C912	6-32	5/8		1		5/16	.095
C913		3/4		1-1/8		3/8	
C914		7/8		1-1/4		7/16	
C915		1		1-3/8		1/2	
C916		1-1/8		1-1/2		9/16	
C917		1-1/4		1-5/8		5/8	
C918		1-3/8		1-3/4		11/16	
C919		1-1/2		1-7/8		3/4	
C920		1-5/8		2		13/16	
C921		1-3/4		2-1/8		7/8	
C922		1-7/8		2-1/4		15/16	
C923		2		2-3/8		1	
C924	8-32	5/8		1		5/16	.120
C925		3/4		1-1/8		3/8	
C926		7/8		1-1/4		7/16	
C927		1		1-3/8		1/2	
C928		1-1/8		1-1/2		9/16	
C929		1-1/4		1-5/8		5/8	
C930		1-3/8		1-3/4		11/16	
C931		1-1/2		1-7/8		3/4	
C932		1-5/8		2		13/16	
C933		1-3/4		2-1/8		7/8	
C934		1-7/8		2-1/4		15/16	
C935		2		2-3/8		1	

Basic Part No.	Thread	A ±.010	E ±.015	D ±.015	C +.020 -.000	K* ±.010	G ±.015
C936	10-24	5/8	1/2	1-1/8	1/4	5/16	.130
C937		3/4		1-1/4		3/8	
C938		7/8		1-3/8		7/16	
C939		1		1-1/2		1/2	
C940		1-1/8		1-5/8		9/16	
C941		1-1/4		1-3/4		5/8	
C942		1-3/8		1-7/8		11/16	
C943		1-1/2		2		3/4	
C944		1-5/8		2-1/8		13/16	
C946		1-3/4		2-1/4		7/8	
C948		1-7/8		2-3/8		15/16	
C950		2		2-1/2		1	
C952	10-32	5/8		1-1/8		5/16	
C954		3/4		1-1/4		3/8	
C956		7/8		1-3/8		7/16	
C958		1		1-1/2		1/2	
C960		1-1/8		1-5/8		9/16	
C962		1-1/4		1-3/4		5/8	
C964		1-3/8		1-7/8		11/16	
C966		1-1/2		2		3/4	
C968		1-5/8		2-1/8		13/16	
C970		1-3/4		2-1/4		7/8	
C972		1-7/8		2-3/8		15/16	
C974		2		2-1/2		1	
C976	1/4-20	5/8		1-1/8	5/16	5/16	.175
C978		3/4		1-1/4		3/8	
C980		7/8		1-3/8		7/16	
C982		1		1-1/2		1/2	
C984		1-1/8		1-5/8		9/16	
C986		1-1/4		1-3/4		5/8	
C988		1-3/8		1-7/8		11/16	
C990		1-1/2		2		3/4	
C992		1-5/8		2-1/8		13/16	
C994		1-3/4		2-1/4		7/8	
C996		1-7/8		2-3/8		15/16	
C998		2		2-1/2		1	

THUMB SCREW



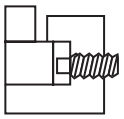
ORDER EXAMPLE:

18000 - A - 1

- **18000** — Basic Part Number
- **A** — Material: See chart
- **1** — Finish: See page 277

Screw driver slot is available, add **SDS** to part number. (For slot dimensions see page 281.) **EXAMPLE: 18000-A-SDS-1**
*Any one dimension may be changed, by adding to part number. **EXAMPLE: 18000-A-1 (A-1/2)**

SOFT TOUCH PARTS



When inserted, these pellets provide the perfect "soft touch" to prevent marring or scratching often caused by metal-to-metal contact. The pellet gives full face contact with a curved shaft. To order soft touch just add **ST** to the part number.

EXAMPLE: 18000-A-1-ST
Material: Nylon LP - 410 Natural
See page 276 for sizes.

Available Material (see page 275)	
B	Brass
N*	Nylon
S	Steel
SS	Stainless Steel
D*	Delrin

*Knurl is less pronounced than with metallic knurling. See page 187 for knurled nylon thumb screws.

Basic Part No.	Thread	A* +.020 -.000	B* ±.015	C* ±.015	D* ±.010	Basic Part No.	Thread	A* +.020 -.000	B* ±.015	C* ±.015	D* ±.010
18000	4-40	3/8	3/16	5/8	5/16	18016	8-32	7/16	3/16	15/16	5/8
18002	4-40	3/8	3/16	11/16	3/8	18018	10-32	7/16	3/16	11/16	3/8
18004	4-40	3/8	3/16	3/4	7/16	18020	10-32	7/16	3/16	13/16	1/2
18006	6-32	3/8	3/16	11/16	3/8	18022	10-32	7/16	3/16	15/16	5/8
18008	6-32	3/8	3/16	3/4	7/16	18024	1/4-20	1/2	1/4	3/4	3/8
18010	6-32	3/8	3/16	13/16	1/2	18026	1/4-20	1/2	1/4	7/8	1/2
18012	8-32	7/16	3/16	11/16	3/8	18028	1/4-20	1/2	1/4	1	5/8
18014	8-32	7/16	3/16	13/16	1/2	18030	1/4-20	1/2	1/4	1-1/8	3/4

TECH TIP

Some finishes will change the major and pitch diameter of the class 2A external threads. If required, allowances can be made to ensure the parts maintain the correct major and pitch diameter.

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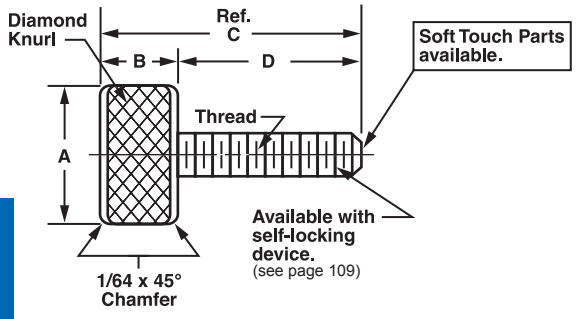
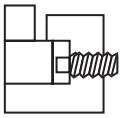
PUSHER TYPE THUMB SCREW

See page 187 for molded thumb screws.

Full Thread



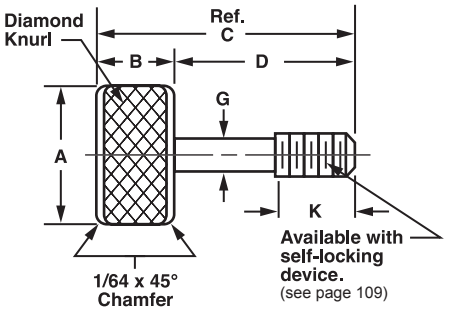
SOFT TOUCH PARTS



When inserted, these pellets provide the perfect "soft touch" to prevent marring or scratching often caused by metal-to-metal contact. The pellet gives full face contact with a curved shaft. To order soft touch just add **ST** to the part number.

EXAMPLE: 18040-A-22-ST
Material: Nylon LP - 410 Natural
See page 276 for sizes.

Captive Thread



ORDER EXAMPLE:

18040 - A - 22

Basic Part Number	Material: See chart	Finish: See page 277

Screw Driver Slot Option - add SDS to part number
EXAMPLE: 18040-A-SDS-22
Change any dimension, add changes to end of part number .
EXAMPLE: 18040-A -22 (A=1/2)

Available Material (see page 275)	
A	Aluminum
B	Brass
N**	Nylon
S	Steel
SS	Stainless Steel
D**	Delrin

**Knurl is less pronounced than metallic knurling.

ORDER EXAMPLE:

C18040 - A - 22

Basic Part Number	Material: See chart	Finish: See page 277

Change any dimension, add changes to end of part number .
EXAMPLE: C18040-A-22 (K=1/8)

Basic Part Number	Thread	A ±.020	B ±.015	C ±.015	D ±.015
18040	4-40	5/16	3/16	1/2	5/16
18042				9/16	3/8
18044				5/8	7/16
18046				11/16	1/2
18048	6-32			1/2	5/16
18050				9/16	3/8
18052				5/8	7/16
18054				11/16	1/2
18056	8-32	3/8		9/16	3/8
18058				5/8	7/16
18060				11/16	1/2
18062				3/4	9/16
18064				13/16	5/8
18066	10-32	7/16		9/16	3/8
18068				5/8	7/16
18070				11/16	1/2
18072				3/4	9/16
18074				13/16	5/8
18076	1/4-20	1/2	1/4	3/4	1/2
18078				13/16	9/16
18080				7/8	5/8
18082				15/16	11/16
18084				1	3/4
18090				2-3/4	2-1/2

Basic Part Number	Thread	A ±.020	B ±.015	C ±.015	D ±.015	K ±.010	G ±.005
C18040	4-40	5/16	3/16	1/2	5/16	5/32	.078
C18042				9/16	3/8	3/16	
C18044				5/8	7/16	7/32	
C18046				11/16	1/2	1/4	
C18048	6-32			1/2	5/16	5/32	.095
C18050				9/16	3/8	3/16	
C18052				5/8	7/16	7/32	
C18054				11/16	1/2	1/4	
C18056	8-32	3/8		9/16	3/8	3/16	.120
C18058				5/8	7/16	7/32	
C18060				11/16	1/2	1/4	
C18062				3/4	9/16	9/32	
C18064				13/16	5/8	5/16	
C18066	10-32	7/16		9/16	3/8	3/16	.130
C18068				5/8	7/16	7/32	
C18070				11/16	1/2	1/4	
C18072				3/4	9/16	9/32	
C18074				13/16	5/8	5/16	
C18076	1/4-20	1/2	1/4	3/4	1/2	1/4	.175
C18078				13/16	9/16	9/32	
C18080				7/8	5/8	5/16	
C18082				15/16	11/16	11/32	
C18084				1	3/4	3/8	
C18090				2-3/4	2-1/2	1-1/4	

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KNURLED THUMB SCREW

See page 187 for molded thumb screws.

ORDER EXAMPLE:

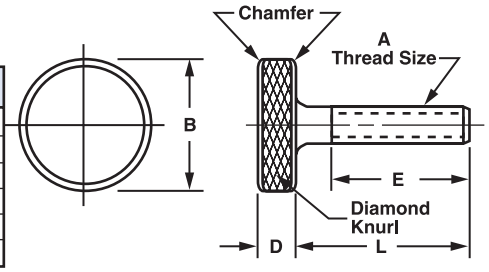
901700 - A - 1

- 901700 — Basic Part Number
- A — Material: See chart
- 1 — Finish: See page 277

Any dimension may be changed by adding to part number .
EXAMPLE: 901700-A-1 (D = 1/2)

Available Material (see page 275)	
A	Aluminum
B	Brass
N**	Nylon
S	Steel
SS	Stainless Steel
D**	Delrin

**Knurl is less pronounced han metallic knurling.



Basic Part No.	A Thread	B	D	E	L Lgth
901700	4-40	1/4	1/8	5/16	3/8
901702		1/4	1/2	7/16	1/2
901704		1/4	1/2	5/8	3/4
901706		3/8	1/8	5/16	3/8
901708		3/8	1/8	7/16	1/2
901710	6-32	1/4	1/2	7/16	1/2
901712		1/4	1/2	5/8	3/4
901714		1/4	1/2	13/16	1
901718		3/8	1/8	5/16	3/8
901720		3/8	1/8	3/8	1/2
901722	8-32	1/4	1/2	7/16	1/2
901724		1/4	1/2	5/8	3/4
901726		1/4	1/2	13/16	1
901728		3/8	1/8	5/16	3/8
901730		3/8	1/8	3/8	1/2
901732	10-24	3/8	3/16	7/16	1/2
901734		3/8	3/16	5/8	3/4
901736		3/8	3/16	13/16	1
901738		1/2	3/16	5/8	3/4
901740		1/2	3/16	13/16	1
901742		1/2	3/16	1	1-1/4
901744		1/2	3/16	1-1/4	1-1/2
901746		3/4	3/16	5/8	3/4
901748	10-32	3/8	3/16	7/16	1/2
901750		3/8	3/16	5/8	3/4
901752		3/8	3/16	13/16	1
901754		3/8	3/16	1	1-1/4
901756		1/2	3/16	5/8	3/4
901758		1/2	3/16	13/16	1
901760		1/2	3/16	1	1-1/4
901762	10-32	1/2	3/16	1-1/4	1-1/2
901764		3/4	3/16	5/8	3/4
901766		3/4	3/16	13/16	1
901768		3/4	3/16	1	1-1/4
901770		3/4	3/16	1-1/4	1-1/2
901772	1/4-20	3/4	3/16	5/8	3/4
901774		3/4	3/16	13/16	1
901776		3/4	3/16	1	1-1/4
901778		3/4	3/16	1-1/4	1-1/2
901780		3/4	3/16	1-5/8	2
901782		1	3/16	5/8	3/4
901784		1	3/16	13/16	1
901786		1	3/16	1	1-1/4
901788		1	3/16	1-1/4	1-1/2
901790		1	3/16	1-5/8	2

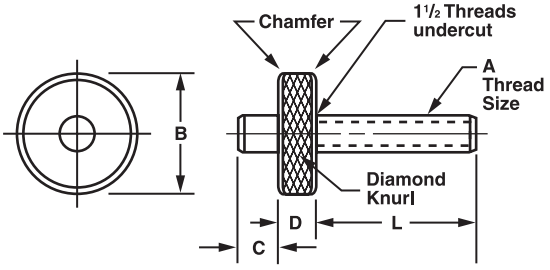
KNURLED JACK SCREW

ORDER EXAMPLE:

68001 - A - 1

- 68001 — Basic Part Number
- A — Material: See chart
- 1 — Finish: See page 277

Any dimension may be changed by adding to part number .
EXAMPLE: 68001-A-22 (B = 5/8)



Part Number	A Thread	B	C	D	L Lgth
68001	4-40	1/4	1/8	1/8	1/2
68003	4-40	3/8	1/8	1/4	3/4
68005	6-32	1/4	1/8	1/8	3/4
68007	6-32	3/8	1/8	1/4	1
68009	8-32	1/4	1/8	1/8	3/4
68011	8-32	1/4	1/8	1/4	1
68013	10-32	1/2	1/4	1/4	1
68015	10-32	3/4	1/4	1/4	1-1/4
68017	1/4-20	3/4	1/4	3/8	1-1/4
68019	1/4-20	1	1/4	3/8	1-1/2
68021	3/8-16	1-1/8	1/4	3/8	1-1/4
68023	3/8-16	1-1/8	1/4	3/8	1-5/8
68025	3/8-16	1-1/8	1/4	3/8	2
68027	1/2-13	1-1/8	1/4	3/8	1-1/4
68029	1/2-13	1-1/8	1/4	3/8	1-5/8
68031	1/2-13	1-1/8	1/4	3/8	2
68033	1/2-13	1-1/8	1/4	3/8	2-1/2
68035	5/8-11	1-3/8	1/4	3/8	1-5/8
68037	5/8-11	1-3/8	1/4	3/8	2
68039	5/8-11	1-3/8	1/4	3/8	2-1/2

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

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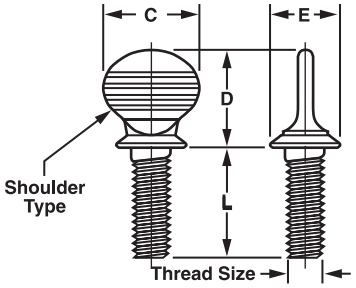
THUMB SCREW

Shoulder Type



FLAT POINT

FLAT
F

ORDER EXAMPLE:

900005 - S - F - 7

- 900005: Basic Part Number
- S: Material: Steel
- F: Flat Point
- 7: Finish*: See page 277

*The Cadmium Plate Finish (7) is recommended for Steel.

Thread Size	C Head Width		D Head Height		E Shoulder Dia.	
	Max.	Min.	Max.	Min.	Max.	Min.
6-32	0.31	0.29	0.33	0.31	0.25	0.23
8-32	0.36	0.34	0.38	0.36	0.31	0.29
10-32	0.42	0.40	0.48	0.46	0.35	0.32
1/4-20	0.55	0.52	0.64	0.61	0.47	0.44
5/16-18	0.70	0.67	0.78	0.75	0.59	0.56
3/8-16	0.83	0.80	0.95	0.92	0.76	0.71

Approximate dimensions are for reference only.

Basic Part Number	Thread	L Length	Material
900005*	6-32	1/2	
900009*	6-32	3/4	
900011	6-32	1	
900015*	8-32	1/2	
900019*	8-32	3/4	
900021	8-32	1	
900025*	10-24	1/2	
900029*	10-24	3/4	
900031*	10-24	1	
900030*	10-32	3/4	
900032*	10-32	1	
900034	10-32	1-1/2	
900036	10-32	2	
900041*	1/4-20	3/4	
900043*	1/4-20	1	
900047*	1-4/20	1-1/2	
900049*	1/4-20	2	
900053*	5/16-18	1/2	
900055*	5/16-18	3/4	
900057*	5/16-18	1	
900059	5/16-18	1-1/4	
900061*	5/16-18	1-1/2	
900063	5/16-18	2	
900065	5/16-18	2-1/2	
900067	5/16-18	3	
900069*	3/8-16	3/4	
900071*	3/8-16	1	
900073	3/8-16	1-1/4	
900075*	3/8-16	1-1/2	
900077*	3/8-16	2	
900079	3/8-16	2-1/2	
900081	3/8-16	3	

*Shoulder Type Only. Shoulder Type Thumb Screws with Standard Coarse Threaded and Flat Point in Steel are carried in stock. All others are approximately 14-16 weeks delivery and 5,000 minimum order.

TECH TIP

Don't have a 3D CAD softwae package or viewer? Not a problem! You can view our parts from www.accuratescrew.com in 3D right in your web browser (Internet Explorer only)!

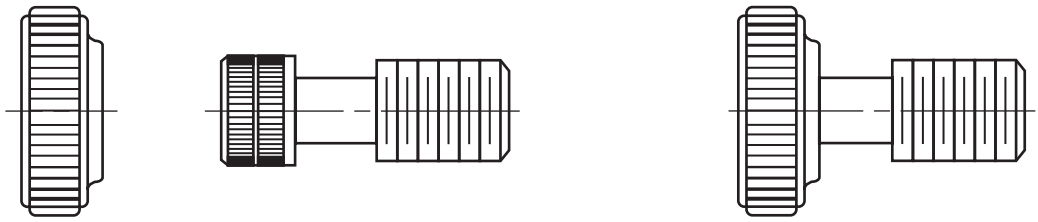
CAPTIVE THUMB SCREW WITH KNOBS

Knobs Are Pressed On Securely - They Won't Come off

Knob
(see below)

Screw
(see below)

Assembled



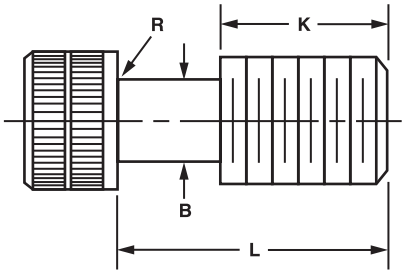
ORDER EXAMPLE:

114116 - .500 - SS - K - BL - 12

114116	.500	SS	K	BL	12
Basic Part Number	Length: See chart	Material: See chart	Knob Code: Knurled (K), Rosette (R) or Tee (T)	Knob Color: See chart	Finish: See page 277

Select knob and screw from charts.

Select SCREW From Charts Below

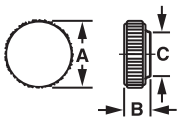


Material For Captive Thumb Screws Specifications (see page 275)	
S	Heat Treated Alloy Steel
SS	Stainless Steel 18-8

Screw Part No.	Thread	Increments of 1/16	K ±.010	B ±.005
114114	4-40	.250-.625	5/32	.078
114116	6-32	.375-1.250	3/16	.095
114118	8-32	.375-1.250	3/16	.120
114120	10-32	.375-1.500	1/4	.130
114121	1/4-20	.375-3.000	1/4	.175
114111	1/4-28	.375-3.000	1/4	.175
114113	5/16-18	.500-3.500	3/8	.230
114115	3/8-16	.500-5.000	3/8	.280

Select KNOB From Charts Below

Knurled Knob
Code Letter (K)

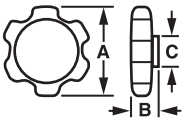


Screw Size	Knob Specs A	B	C
#4	5/16	11/64	9/32
#6	3/8	3/16	21/64
#8	1/2	7/32	3/8
#10	5/8	1/4	27/64
1/4	3/4	5/16	1/2
5/16	1	13/32	19/32

Material: Dupont Delrin

Colors Available	Code
Black	BL
Red	R
Gray	G

Rosette Knob
Code Letter (R)

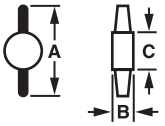


Screw Size	Knob Specs A	B	C
1/4	1-1/2	3/8	1/2
5/16	1-1/2	13/32	37/64
3/8	1-1/2	15/32	45/64

Material: Dupont Delrin

Colors Available	Code
Black	BL
Gray	G
Beige	B

Tee Knob
Code Letter (T)



Screw Size	Knob Specs A	B	C
#10	1	1/4	7/16
1/4	1-1/4	5/16	33/64
5/16	1-1/2	13/32	5/8
3/8	1-3/4	15/32	23/32

Material: Dupont Delrin

Colors Available	Code
Black	BL
Red	R
Gray	G
Beige	B

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SOCKET HEAD CAP SCREW

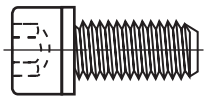
Self-Sealing/Self-Locking Devices available, see page 109.

ORDER EXAMPLE:

63004 -SS - 12

- 63004 — Basic Part Number
- -SS — Stainless Steel 18-8
- 12 — Finish: See page 277

To order Low Profile Head, add **LP** to part number (available in 4-40 thread and up only).
EXAMPLE: 63004-SS-LP__-7



For Tolerances, head dimensions, and other specifications, see pages 281-287.

THREAD: Fully formed threads - Unified National Coarse and Fine. Available in 4-40 and up only.

Available Material (see page 275)
Stainless Steel 18-8

Diameter / Threads per Inch / Key Size	Length Under Head*	Basic Part Number
#0 / .80 UNF / .050 Key	1/8	63000
	3/16	63002
	5/16	63004
	1/4	63006
	1/2	63008
	3/8	63010
	5/8	63012
	3/4	63014
	1	63016
#1 / 72 UNF / 1/16 Key	1/8	63018
	3/16	63020
	1/4	63022
	3/8	63024
	1/2	63026
	5/8	63028
	3/4	63030
	1	63032
#2 / 56 UNC / 5/64 Key	1/8	63034
	3/16	63036
	7/32	63038
	1/4	63040
	5/16	63042
	3/8	63044
	7/16	63046
	1/2	63048
	5/8	63050
	3/4	63052
	7/8	63054
	1	63056
#3 / 48 UNC / 5/64 Key	1/8	63058
	3/16	63060
	1/4	63062
	5/16	63064
	3/8	63066
	5/8	63068
	1/2	63070
	3/4	63072
#3 48 UNC / 5/64 Key	7/8	63074
	1	63076
#4 / 40 UNC / 3/32 Key	1/8	63078
	3/16	63080
	1/4	63082
	5/16	63084
	3/8	63086
	7/16	63088
	1/2	63090
	9/16	63092
	5/8	63094
	3/4	63098
	7/8	63096
	1	63100
	1-1/4	63102
	1-3/8	63104
	1-1/2	63106
#5 / .40 UNC / 3/32 Key	1-3/4	63108
	2	63110
	1/8	63112
	3/16	63114
	1/4	63116
	5/16	63118
	3/8	63120
	7/16	63122
	1/2	63124
	5/8	63126
	3/4	63130
	7/8	63128
	1	63132
	1-1/4	63134
	1-1/2	63136
	2	63138
#6 / 32 UNC	1/8	63140
	3/16	63142
	1/4	63144
	3/8	63146
#6 / 32 UNC	7/16	63148
	1/2	63150
	9/16	63152
	5/8	63154
	3/4	63156
	7/8	63158
	1	63160
	1-1/8	63162
	1-1/4	63164
	1-3/8	63166
	1-1/2	63168
	1-3/4	63170
	2	63172
	2-1/4	63174
	2-1/2	63176
	2-3/4	63178
	3	63180
#6 / 40 UNF	3/16	63182
	1/4	63184
	5/16	63186
	3/8	63188
	7/16	63190
	1/2	63192
	5/8	63194
	3/4	63198
	7/8	63196
	7/8	63200
	1	63202
	1-1/4	63204
	1-1/2	63206
#8 / 32 UNC	1/8	63208
	3/16	63210
	1/4	63212
	5/16	63214
	3/8	63216
	7/16	63218
	1/2	63220
#8 / 32 UNC	9/16	63222
	5/8	63224
	3/4	63226
	7/8	63228
	1	63230
	1-1/8	63232
	1-1/4	63234
	1-3/8	63236
	1-1/2	63238
	1-3/4	63240
	2	63242
	2-1/4	63244
	2-1/2	63246
	3	63248
	3-1/4	63250
	4	63251
#8 / 36 UNF	1/4	63252
	3/8	63254
	1/2	63256
	5/8	63258
	3/4	63260
	7/8	63262
	1	63264
	1-1/4	63266
	1-1/2	63268
	2	63270
#10 / 24 UNC	1/4	63272
	5/16	63274
	3/8	63276
	7/16	63278
	1/2	63280
	9/16	63282
	5/8	63284
	11/16	63286
	3/4	63288
	7/8	63290
	1	63292
#10 / 24 UNC	1-1/8	63294
	1-1/4	63296
	1-3/8	63298
	1-1/2	63300
	1-5/8	63302
	1-3/4	63304
	2	63306
	2-1/4	63308
	2-1/2	63310
	2-3/4	63312
	3	63314
	3-1/2	63316
	4	63318
#10 / 32 UNF	1/4	63320
	5/16	63322
	3/8	63324
	7/16	63326
	1/2	63328
	9/16	63330
	5/8	63332
	11/16	63334
	3/4	63336
	7/8	63338
	1	63340
	1-1/8	63342
	1-1/4	63344
	1-3/8	63346
	1-1/2	63348
	1-5/8	63350
	1-3/4	63352
	2	63354
	2-1/4	63356
	2-1/2	63358
	2-3/4	63360
	3	63362
	3-1/4	63364
	3-1/2	63366
	4	63368

* Tolerances, see page 281

NOTE: Standard socket products have a class 3A threads, however, once plated, threads will not enter 3A GO, NO GO Cages. Minimum thread length is 2-1/2 times diameter.

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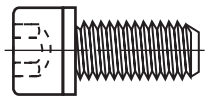
SOCKET HEAD CAP SCREW

Self-Sealing/Self-Locking Devices available, see page 109.



For Tolerances, head dimensions, and other specifications, see pages 281-287.
THREAD: Fully formed threads - Unified National Coarse and Fine.
Minimum thread length 2.5 x diameter. Available in 4-40 and up only.

Available Material (see page 275)
Stainless Steel 18-8, 302 Series

ORDER EXAMPLE:

63438 -SS - 12

- 63438: Basic Part Number
- -SS: Stainless Steel 18-8
- -12: Finish: See page 277

To order Low Profile Head, add **LP** to part number.
EXAMPLE: 63438-SS-LP__-7

Diameter / Threads per Inch	Length Under Head*	Basic Part Number
1/4 – 20 UNC	1/4	63370
	5/16	63372
	3/8	63374
	7/16	63376
	1/2	63378
	9/16	63380
	5/8	63382
	3/4	63384
	7/8	63386
	1	63388
	1-1/8	63390
	1-1/4	63392
	1-3/8	63394
	1-1/2	63396
	1-5/8	63398
	1-3/4	63400
	1-7/8	63402
	2	63404
	2-1/4	63406
	2-3/8	63408
	2-1/2	63410
	2-3/4	63412
	3	63414
	3-1/4	63416
	3-1/2	63418
	3-3/4	63420
	4	63422
	4-1/2	63424
	5	63426
	5-1/2	63428
	6	63430
	8	63432
1/4 – 28 UNF	1/4	63434
	7/16	63436
	3/8	63438
	1/2	63440
	9/16	63442
	5/8	63444
	3/4	63446
	7/8	63448
	1	63450
	1-1/8	63452
	1-1/4	63454
	1-3/8	63456
	1-1/2	63458
	1-3/4	63460
	2	63462
	2-1/4	63464
	2-1/2	63466
1/4 – 28 UNF	2-3/4	63468
	3	63470
	3-1/4	63472
	3-1/2	63474
	4	63476
	4-1/2	63478
	5	63480
	5-1/2	63482
	6	63484
5/16 – 18 UNC	1/4	63486
	5/16	63488
	3/8	63490
	1/2	63492
	5/8	63494
	3/4	63496
	7/8	63498
	1	63500
	1-1/8	63502
	1-1/4	63504
	1-3/8	63506
	1-7/16	63508
	1-1/2	63510
	1-5/8	63512
	1-3/4	63514
	2	63516
	2-1/8	63518
	2-1/4	63520
	2-1/2	63522
	2-3/4	63524
	3	63526
	3-1/4	63528
	3-1/2	63530
	3-3/4	63532
	4	63534
	4-1/2	63536
	5	63538
	5-1/2	63540
	6	63542
	8	63544
5/16 – 24 UNF	3/8	63546
	1/2	63548
	5/8	63550
	3/4	63552
	7/8	63554
	1	63556
	1-1/4	63558
	1-1/2	63560
	1-5/8	63562
	1-3/4	63564
5/16 – 24 UNF	2	63566
	2-1/4	63568
	2-1/2	63570
	2-3/4	63572
	3	63574
	3-1/4	63576
	3-1/2	63578
	3-3/4	63580
	4	63582
	4-1/2	63584
	5	63586
	5-1/2	63588
	6	63590
3/8 – 16 UNC	3/8	63592
	1/2	63594
	5/8	63596
	3/4	63598
	7/8	63600
	1	63602
	1-1/8	63604
	1-1/4	63606
	1-3/8	63608
	1-1/2	63610
	1-5/8	63612
	1-3/4	63614
	1-7/8	63616
	2	63618
	2-1/4	63620
	2-1/2	63622
	2-3/4	63624
	3	63626
	3-1/4	63628
	3-1/2	63630
	3-3/4	63632
	4	63634
	4-1/4	63638
	4-1/2	63640
	4-3/4	63642
	5	63644
	5-1/2	63646
	6	63648
	6-1/2	63650
	7	63652
	8	63654
3/8 – 24 UNF	3/8	63656
	1/2	63658
	5/8	63660
	3/4	63662
	7/8	63664
3/8 – 24 UNF	1	63666
	1-1/8	63668
	1-1/4	63670
	1-1/2	63672
	1-3/4	63674
	2	63676
	2-1/4	63678
	2-1/2	63680
	2-3/4	63682
	3	63684
	3-1/4	63686
	3-1/2	63688
	4	63690
	4-1/2	63692
	5	63694
	5-1/2	63696
	6	63698
7/16 – 14 UNC	1/2	63700
	5/8	63702
	3/4	63704
	7/8	63706
	1	63708
	1-1/4	63710
	1-3/8	63712
	1-1/2	63714
	1-3/4	63716
	1-7/8	63718
	2	63720
	2-1/4	63722
	2-1/2	63724
	2-3/4	63726
	3	63728
	3-1/4	63730
	3-1/2	63732
	4	63734
	4-1/2	63736
	5	63738
	5-1/2	63740
	6	63742
7/16 – 20 UNF	1/2	63744
	5/8	63746
	3/4	63748
	7/8	63750
	1	63752
	1-1/4	63754
	1-1/2	63756
	1-3/4	63758
	2	63760
	2-1/4	63762
7/16 – 20 UNF	2-1/2	63764
	2-3/4	63766
	3	63768
	3-1/4	63770
	3-1/2	63772
	4	63774
	6	63776
1/2 – 13 UNC	3/8	63778
	1/2	63780
	5/8	63782
	3/4	63784
	7/8	63786
	1	63788
	11/8	63790
	1-1/4	63792
	1-3/8	63794
	1-1/2	63796
	1-5/8	63798
	1-3/4	63800
	1-7/8	63802
	2	63804
	2-1/4	63806
	2-3/8	63808
	2-1/2	63810
	2-3/4	63812
	3	63814
	3-1/4	63816
	3-1/2	63818
	3-3/4	63820
	4	63822
	4-1/4	63824
	4-1/2	63826
	4-3/4	63828
	5	63830
	5-1/4	63832
	5-1/2	63834
	6	63836
	7	63838
	7-1/2	63840
	8	63842
	8-1/2	63844
	9	63846
	9-1/2	63848
	10	63850
	11	63852
	12	63854

*Tolerances, see page 281

NOTE: Standard socket products have a class 3A threads, however, once plated, threads will not enter 3A GO, NO GO Cages. Minimum thread length is 2-1/2 times diameter.

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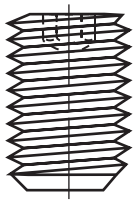
SOCKET SET SCREW

Cup Point



Thread
Fully Formed Threads Unified National Coarse and Fine 3A

Available Material (see page 275)	
SS	Stainless Steel 18-8, 302 Series

ORDER EXAMPLE:

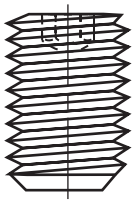
99100 -SS - 12

- 99100: Basic Part Number
- -SS: Stainless Steel 18-8
- 12: Finish: See page 277

Diameter / Threads per Inch / Key Size	Overall Length	Basic Part Number
#0 80 UNF .028 Key	1/16	99100
	3/32	99102
	1/8	99104
	3/16	99106
	1/4	99107
#1 72 UNF .035 Key	1/16	99108
	3/32	99110
	1/8	99112
	3/16	99114
	1/4	99116
#2 56 UNC .035 Key	1/16	99118
	3/32	99120
	1/8	99122
	3/16	99124
	1/4	99126
#3 48 UNC .050 Key	3/32	99128
	1/8	99130
	3/16	99132
	1/4	99136
#4 40 UNC .050 Key	1/8	99138
	3/16	99140
	1/4	99142
	5/16	99144
	3/8	99146
	1/2	99148
	5/8	99150
#4 48 UNF .050 Key	1/8	99152
	3/16	99154
	1/4	99156
	5/16	99158
	3/8	99160
	1/2	99162
	5/8	99164
#5 40 UNC 1/16 Key	1/8	99166
	3/16	99168
#5 40 UNC 1/16 Key	1/4	99170
	5/16	99172
	3/8	99174
	1/2	99176
	5/8	99178
	3/4	99180
#5 44 UNF 1/16 Key	1/8	99182
	3/16	99184
	1/4	99186
	5/16	99188
	3/8	99190
	1/2	99192
	5/8	99194
	3/4	99196
#6 32 UNC 1/16 Key	1/8	99198
	3/16	99200
	1/4	99204
	5/16	99206
	3/8	99208
#6 40 UNF 1/16 Key	1/8	99210
	3/16	99212
	1/4	99214
	5/16	99216
	3/8	99218
#8 32 UNC 5/64 Key	1/8	99220
	3/16	99222
	1/4	99224
	5/16	99226
	3/8	99228
	7/16	99230
	1/2	99232
	5/8	99234
	3/4	99236
	7/8	99238
	1	99240
#8 36 UNF 5/64 Key	1/8	99242
	3/16	99244
	1/4	99246
	5/16	99248
	3/8	99250
	7/16	99252
	1/2	99254
	5/8	99256
	3/4	99258
	7/8	99260
	1	99262
#10 24 UNC 3/32 Key	3/16	99264
	1/4	99266
	5/16	99268
	3/8	99270
	7/16	99272
	1/2	99274
	5/8	99276
	3/4	99278
	7/8	99280
	1	99282
	1-1/4	99284
#10 32 UNF 3/32 Key	3/16	99286
	1/4	99288
	5/16	99290
	3/8	99292
	7/16	99294
	1/2	99296
	5/8	99298
	3/4	99300
	7/8	99302
	1	99304
	1-1/4	99306
1/4 20 UNC 1/8 Key	3/16	99308
	1/4	99310
1/4 20 UNC 1/8 Key	5/16	99312
	3/8	99314
	7/16	99316
	1/2	99318
	5/8	99320
	3/4	99322
	7/8	99324
	1	99326
	1-1/4	99328
	1-1/2	99330
	1-3/4	99332
	2	99334
1/4 28 UNF 1/8 Key	3/16	99336
	1/4	99338
	5/16	99340
	3/8	99342
	7/16	99344
	1/2	99346
	5/8	99348
	3/4	99350
	7/8	99352
	1	99354
	1-1/4	99356
	1-1/2	99358
	1-3/4	99360
	2	99362
5/16 18 UNC 5/32 Key	1/4	99364
	5/16	99366
	3/8	99367
	7/16	99368
	1/2	99370
	5/8	99372
	3/4	99374
	7/8	99376
	1	99378
5/16 18 UNC 5/32 Key	1-1/4	99380
	1-1/2	99382
	1-3/4	99384
	2	99386
5/16 24 UNF 5/32 Key	1/4	99388
	5/16	99390
	3/8	99391
	7/16	99392
	1/2	99394
	5/8	99396
	3/4	99398
	7/8	99400
	1	99402
	1-1/4	99404
	1-1/2	99406
	1-3/4	99408
	2	99410
3/8 16 UNC 3/16 Key	1/4	99412
	5/16	99414
	3/8	99416
	7/16	99418
	1/2	99420
	5/8	99422
	3/4	99424
	7/8	99426
	1	99428
	1-1/4	99430
	1-1/2	99432
	1-3/4	99434
	2	99436
	2-1/2	99438
3/8 24 UNF 3/16 Key	1/4	99440
	5/16	99442
	3/8	99444
	7/16	99446

SOCKET SET SCREW

Cup Point



Thread
Fully Formed Threads Unified National Coarse and Fine 3A

Available Material (see page 275)	
SS	Stainless Steel 18-8, 302 Series

ORDER EXAMPLE:

99448 -SS - 12

- 99448: Basic Part Number
- SS: Stainless Steel 18-8
- 12: Finish: See page 277

Diameter / Threads per Inch / Key Size	Overall Length	Basic Part Number
3/8 24 UNF 3/16 Key	1/2	99448
	5/8	99450
	3/4	99452
	7/8	99454
	1	99456
	1-1/4	99458
	1-1/2	99460
	1-3/4	99462
	2	99464
	2-1/2	99466
7/16 14 UNC 7/32 Key	3/8	99468
	7/16	99470
	1/2	99472
	5/8	99474
	3/4	99476
	7/8	99478
	1	99480
	1-1/4	99482
	1-1/2	99484
	2	99486
7/16 20 UNF 7/32 Key	3/8	99488
	7/16	99490
	1/2	99492
	5/8	99494
	3/4	99496
	7/8	99498
	1	99500
	1-1/4	99502
	1-1/2	99504
	2	99506
1/2 13 UNC 1/4 Key	3/8	99508
	7/16	99510
	1/2	99512
	5/8	99514
	3/4	99516
	7/8	99518
	1	99520
	1-1/4	99522
	1-1/2	99524
	1-3/4	99526
1/2 13 UNC	2	99528
	2-1/2	99530
	3	99532
1/2 20 UNF 1/4 Key	3/8	99534
	7/16	99536
	1/2	99538
	5/8	99540
	3/4	99542
	7/8	99544
	1	99546
	1-1/4	99548
	1-1/2	99550
	1-3/4	99552
	2	99554
	2-1/2	99556
	3	99558
5/8 11 UNC 5/16 Key	1/2	99560
	5/8	99562
	3/4	99564
	7/8	99566
5/8 11 UNC 5/16 Key	1	99568
	1-1/4	99570
	1-1/2	99572
	1-3/4	99574
	2	99576
	2-1/2	99578
	3	99580
5/8 18 UNF 5/16 Key	1/2	99582
	5/8	99584
	3/4	99586
	7/8	99588
	1	99590
	1-1/4	99592
	1-1/2	99594
	1-3/4	99596
	2	99598
	2-1/2	99600
	3	99602
3/4 10 UNC 3/8 KEY	5/8	99604
	3/4	99606
3/4 10 UNC 3/8 Key	1	99608
	1-1/4	99610
	1-1/2	99612
	1-3/4	99614
	2	99616
	2-1/2	99618
	3	99620
7/8 9 UNC 1/2 Key	7/8	99622
	1	99624
	1-1/2	99626
	2	99628
	2-1/2	99630
	3	99632
1 8 UNC 9/16 Key	1	99634
	1-1/2	99636
	2	99638
	2-1/2	99640
	3	99642

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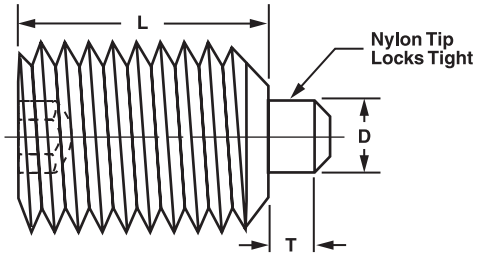
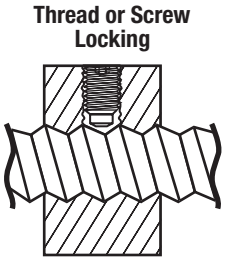
NYLON TIP HEX SOCKET SET SCREW





ORDER EXAMPLE:

111324 - SS - 11

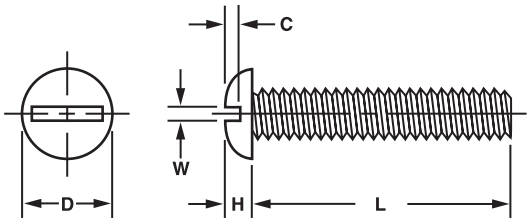
Basic Part Number	Stainless Steel 18-8	Finish: See page 277

Available Material (see page 275)	
SS	Stainless Steel 18-8, 302 Series

Thread	D	T	L	Part Number	Material
2-56	1/32	1/32	1/8	111324 SS	18-8 Stainless Steel
	1/32	1/32	1/4	111326 SS	18-8 Stainless Steel
4-40	1/16	1/32	1/8	111328 SS	18-8 Stainless Steel
	1/16	1/32	1/4	111330 SS	18-8 Stainless Steel
	1/16	1/32	3/8	111332 SS	18-8 Stainless Steel
6-32	1/16	1/32	1/8	111334 SS	18-8 Stainless Steel
	1/16	1/32	1/4	111336 SS	18-8 Stainless Steel
	1/16	1/32	3/8	111338 SS	18-8 Stainless Steel
8-32	7/64	3/64	1/8	111340 SS	18-8 Stainless Steel
	7/64	3/64	3/16	111342 SS	18-8 Stainless Steel
	7/64	3/64	1/4	111344 SS	18-8 Stainless Steel
	7/64	3/64	3/8	111346 SS	18-8 Stainless Steel
	7/64	3/64	1/2	111348 SS	18-8 Stainless Steel
10-24	1/8	3/64	3/16	111350 SS	18-8 Stainless Steel
	1/8	3/64	1/4	111352 SS	18-8 Stainless Steel
	1/8	3/64	3/8	111354 SS	18-8 Stainless Steel
	1/8	3/64	1/2	111356 SS	18-8 Stainless Steel
	1/8	3/64	5/8	111358 SS	18-8 Stainless Steel
10-32	1/8	3/64	3/16	111360 SS	18-8 Stainless Steel
	1/8	3/64	1/4	111362 SS	18-8 Stainless Steel
	1/8	3/64	3/8	111364 SS	18-8 Stainless Steel
	1/8	3/64	1/2	111366 SS	18-8 Stainless Steel
	1/8	3/64	5/8	111368 SS	18-8 Stainless Steel
1/4-20	1/8	1/16	1/4	111370 SS	18-8 Stainless Steel
	1/8	1/16	5/16	111372 SS	18-8 Stainless Steel
	1/8	1/16	3/8	111374 SS	18-8 Stainless Steel
	1/8	1/16	1/2	111376 SS	18-8 Stainless Steel
	1/8	1/16	5/8	111378 SS	18-8 Stainless Steel
	1/8	1/16	3/4	111380 SS	18-8 Stainless Steel
1/4-28	1/8	1/16	1/4	111382 SS	18-8 Stainless Steel
	1/8	1/16	5/16	111384 SS	18-8 Stainless Steel

SLOTTED ROUND HEAD MACHINE SCREW

Self-sealing devices, see page 119. Self-locking devices, see page 109.



Available Material (see page 275)	
N	Nylon, Zytel 101 UL 94V2
B	Brass, Composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel, 18-8, 302-304 series

Captive Nylon Screws
See page 186 for details.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Thread Size	D	H	W	C
2	.135-.165	.045-.075	.013-.043	.030-.060
3	.169-.187	.067-.078	.027-.035	.040-.053
4	.193-.225	.055-.086	.020-.050	.035-.065
6	.240-.275	.085-.115	.030-.060	.045-.075
8	.275-.309	.095-.125	.035-.065	.050-.080
10	.310-.359	.115-.145	.040-.070	.060-.090
1/4	.443-.490	.145-.175	.055-.085	.075-.109

ORDER EXAMPLE:

112424 - SS - 1

- 112424: Basic Part Number
- SS: Material: See chart
- 1: Finish: See page 277

Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 112424-N-2 ← Black

Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L
112424	1-64	3/16	112496	4-40	1-1/4	112568	10-24	1/4
112426	2-56	1/8	112498	6-32	3/32	112570	10-24	5/16
112428	2-56	5/32	112500	6-32	1/8	112572	10-24	3/8
112430	2-56	3/16	112502	6-32	3/16	112574	10-24	1/2
112432	2-56	1/4	112504	6-32	1/4	112576	10-24	5/8
112434	2-56	9/32	112506	6-32	5/16	112578	10-24	3/4
112436	2-56	5/16	112508	6-32	3/8	112580	10-24	1
112438	2-56	3/8	112510	6-32	7/16	112582	10-24	1-1/4
112440	2-56	7/16	112512	6-32	1/2	112584	10-24	1-1/2
112442	2-56	1/2	112514	6-32	5/8	112586	10-32	1/8
112444	2-56	9/16	112516	6-32	3/4	112588	10-32	3/16
112446	2-56	5/8	112518	6-32	1	112590	10-32	1/4
112448	2-56	3/4	112520	6-32	1-1/8	112592	10-32	5/16
112450	2-56	1	112522	6-32	1-1/4	112594	10-32	3/8
112452	3-48	1/8	112524	6-32	1-1/2	112696	10-32	1/2
112454	3-48	3/16	112526	6-32	1-3/4	112598	10-32	5/8
112456	3-48	1/4	112528	6-40	3/8	112600	10-32	3/4
112458	3-48	3/8	112530	8-32	1/8	112602	10-32	7/8
112460	3-48	1/2	112532	8-32	3/16	112604	10-32	1
112462	3-48	9/16	112534	8-32	1/4	112606	10-32	1-1/4
112464	4-40	1/8	112536	8-32	5/16	112608	10-32	1-1/2
112466	4-40	9/64	112538	8-32	3/8	112610	10-32	2
112468	4-40	3/16	112540	8-32	7/16	112612	1/4-20	1/4
112470	4-40	1/4	112542	8-32	1/2	112614	1/4-20	5/16
112472	4-40	9/32	112544	8-32	5/8	112616	1/4-20	3/8
112474	4-40	5/16	112546	8-32	3/4	112618	1/4-20	1/2
112476	4-40	3/8	112548	8-32	7/8	112620	1/4-20	5/8
112478	4-40	7/16	112550	8-32	1	112622	1/4-20	3/4
112480	4-40	1/2	112552	8-32	1-1/8	112624	1/4-20	7/8
112482	4-40	9/16	112554	8-32	1-1/4	112626	1/4-20	1
112484	4-40	5/8	112556	8-32	1-3/8	112628	1/4-20	1-1/4
112486	4-40	11/16	112558	8-32	1-1/2	112630	1/4-20	1-1/2
112488	4-40	3/4	112560	8-32	1-3/4	112632	1/4-20	1-3/4
112490	4-40	7/8	112562	8-32	2	112634	1/4-20	2
112492	4-40	1	112564	10-24	1/8			
112494	4-40	1-1/8	112566	10-24	3/16			

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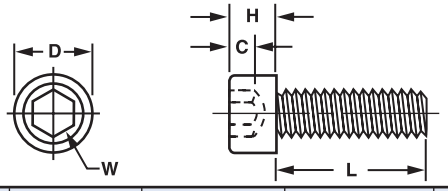
HEXAGON SOCKET HEAD CAP SCREW

Self-sealing devices, see page 119. Self-locking devices, see page 109.



Thread Size	D	H	W	C
4	.165-.195	.095-.125	3/32	.051
6	.207-.237	.121-.151	7/64	.064
8	.250-.280	.147-.177	9/64	.077
10	.295-.325	.173-.203	5/32	.090
1/4	.355-.385	.163-.233	3/16	.120

Available Material (see page 275)	
SS	Stainless SteeL 18-8, 302-304 series
N	Nylon Zytel 101 ul 94v2

ORDER EXAMPLE:
112832 - SS - 12
Basic Part Number | Material: See chart | Finish: See page 277
Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 112832-N-2 ←Black

Captive Nylon Screws
See page 186 for details.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L
112832	4-40	1/8	112908	8-32	5/8	112984	1/4-20	3/4
112834	4-40	3/16	112910	8-32	3/4	112986	1/4-20	7/8
112836	4-40	1/4	112912	8-32	1	112988	1/4-20	1
112838	4-40	9/32	112914	8-32	1-1/8	112990	1/4-20	1-1/4
112840	4-40	5/16	112916	8-32	1-1/4	112992	1/4-20	1-1/2
112842	4-40	3/8	112918	8-32	1-3/8	112994	1/4-20	1-3/4
112844	4-40	7/16	112920	8-32	1-1/2	112996	1/4-20	2
112846	4-40	1/2	112922	8-32	1-3/4	112998	5/16-18	1/2
112848	4-40	5/8	112924	8-32	2	113000	5/16-18	3/4
112850	4-40	11/16	112926	10-24	1/8	113002	5/16-18	1
112852	4-40	3/4	112928	10-24	3/16	113004	5/16-18	1-1/4
112854	4-40	7/8	112930	10-24	1/4	113006	5/16-18	1-1/2
112856	4-40	1	112932	10-24	5/16	113008	5/16-18	2
112858	4-40	1-1/8	112934	10-24	3/8	113010	5/16-18	2-1/2
112860	4-40	1-1/4	112936	10-24	1/2	113012	5/16-18	3
112862	6-32	3/32	112938	10-24	5/8	113014	3/8-16	1/2
112864	6-32	1/8	112940	10-24	3/4	113016	3/8-16	3/4
112866	6-32	3/16	112942	10-24	1	113018	3/8-16	1
112868	6-32	1/4	112944	10-24	1-1/4	113020	3/8-16	1-1/4
112870	6-32	5/16	112946	10-24	1-1/2	113022	3/8-16	1-1/2
112872	6-32	3/8	112948	10-32	1/8	113024	3/8-16	2
112874	6-32	7/16	112950	10-32	3/16	113026	3/8-16	2-1/2
112876	6-32	1/2	112952	10-32	1/4	113028	3/8-16	3
112878	6-32	5/8	112954	10-32	5/16	113030	1/2-13	1/2
112880	6-32	3/4	112956	10-32	3/8	113032	1/2-13	3/4
112882	6-32	1	112958	10-32	1/2	113034	1/2-13	1
112884	6-32	1-1/8	112960	10-32	5/8	113036	1/2-13	1-1/4
112886	6-32	1-1/4	112962	10-32	3/4	113038	1/2-13	1-1/2
112888	6-32	1-1/2	112964	10-32	7/8	113040	1/2-13	2
112890	6-32	1-3/4	112966	10-32	1	113042	1/2-13	2-1/2
112892	6-40	3/8	112968	10-32	1-1/4	113044	1/2-13	3
112894	8-32	1/8	112970	10-32	1-1/2	113046	5/8-11	1/2
112896	8-32	3/16	112972	10-32	2	113048	5/8-11	3/4
112898	8-32	1/4	112974	1/4-20	1/4	113050	5/8-11	1
112900	8-32	5/16	112976	1/4-20	5/16	113052	5/8-11	1-1/2
112902	8-32	3/8	112978	1/4-20	3/8	113054	5/8-11	2
112904	8-32	7/16	112980	1/4-20	1/2	113056	5/8-11	2-1/2
112906	8-32	1/2	112982	1/4-20	5/8	113058	5/8-11	3

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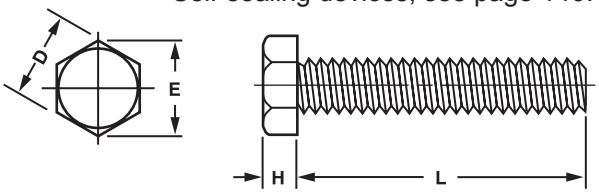
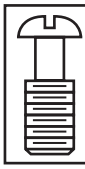
HEX HEAD MACHINE SCREW

Self-sealing devices, see page 119. Self-locking devices, see page 109.



Available Material (see page 275)	
N	Nylon Zytel 101 UL 94V2
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series



Captive Nylon Screws
See page 186 for details.

Thread Size	D	E	H
2	.110-.140	.125-.155	.025-.055
4	.165-.195	.195-.220	.040-.070
6	.235-.265	.268-.298	.070-.100
8	.235-.265	.268-.298	.095-.125
10	.295-.325	.325-.355	.105-.120
1/4	.395-.438	.440-.505	.190-.150

ORDER EXAMPLE:

111826 - SS - 1

- 111826: Basic Part Number
- SS: Material: See chart
- 1: Finish: See page 277

Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 111826-N-2 ← Black

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L
111826	2-56	1/8	111894	6-32	5/16	111962	10-24	3/8
111828	2-56	3/16	111896	6-32	3/8	111964	10-24	1/2
111830	2-56	1/4	111898	6-32	7/16	111966	10-24	5/8
111832	2-56	9/32	111900	6-32	1/2	111968	10-24	3/4
111834	2-56	5/16	111902	6-32	5/8	111970	10-24	1
111836	2-56	3/8	111904	6-32	11/16	111972	10-24	1-1/4
111838	2-56	7/16	111906	6-32	3/4	111974	10-24	1-1/2
111840	2-56	1/2	111908	6-32	1	111976	10-32	1/8
111842	2-56	9/16	111910	6-32	1-1/8	111978	10-32	3/16
111844	2-56	5/8	111912	6-32	1-1/4	111980	10-32	1/4
111846	2-56	3/4	111914	6-32	1-1/2	111982	10-32	5/16
111848	2-56	7/8	111916	6-32	1-3/4	111984	10-32	3/8
111850	2-56	1	111918	6-40	3/8	111986	10-32	1/2
111852	4-40	1/8	111920	8-32	1/8	111988	10-32	5/8
111854	4-40	9/64	111922	8-32	3/16	111990	10-32	3/4
111856	4-40	3/16	111924	8-32	1/4	111992	10-32	7/8
111858	4-40	1/4	111926	8-32	5/16	111994	10-32	1
111860	4-40	9/32	111928	8-32	3/8	111996	10-32	1-1/4
111862	4-40	5/16	111930	8-32	7/16	111998	10-32	1-1/2
111864	4-40	3/8	111932	8-32	1/2	112000	10-32	2
111866	4-40	7/16	111934	8-32	5/8	112002	1/4-20	1/4
111868	4-40	1/2	111936	8-32	3/4	112004	1/4-20	5/16
111870	4-40	9/16	111938	8-32	7/8	112006	1/4-20	3/8
111872	4-40	5/8	111940	8-32	1	112008	1/4-20	1/2
111874	4-40	11/16	111942	8-32	1-1/8	112010	1/4-20	5/8
111876	4-40	3/4	111944	8-32	1-1/4	112012	1/4-20	3/4
111878	4-40	7/8	111946	8-32	1-3/8	112014	1/4-20	7/8
111880	4-40	1	111948	8-32	1-1/2	112016	1/4-20	1
111882	4-40	1-1/8	111950	8-32	1-3/4	112018	1/4-20	1-1/4
111884	4-40	1-1/4	111952	8-32	2	112020	1/4-20	1-1/2
111886	6-32	3/32	111954	10-24	1/8	112022	1/4-20	1-3/4
111888	6-32	1/8	111956	10-24	3/16	112024	1/4-20	2
111890	6-32	3/16	111958	10-24	1/4			
111892	6-32	1/4	111960	10-24	5/16			

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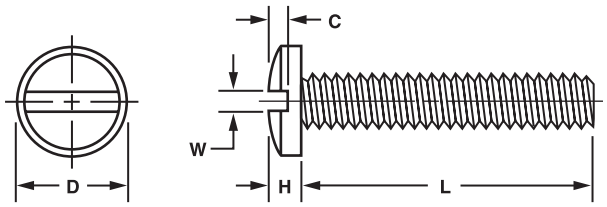
SLOTTED BINDING HEAD MACHINE SCREW

Self-sealing devices, see page 119. Self-locking devices, see page 109.



Thread Size	D	H	W	C
2	.160-.190	.035-.065	.013-.043	.010-.040
4	.220-.250	.050-.080	.020-.050	.020-.050
6	.275-.305	.065-.095	.030-.060	.030-.060
8	.326-.365	.085-.115	.035-.065	.035-.065
10	.365-.399	.105-.135	.040-.070	.040-.070
1/4	.485-.525	.140-.170	.055-.085	.055-.105

Available Material (see page 275)	
N	Nylon Zytel 101 UL 94V2
B	Brass, Composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

ORDER EXAMPLE:

111430 - SS - 1

- 111430: Basic Part Number
- SS: Material: See chart
- 1: Finish: See page 277

Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 111430-N-2 ← Black

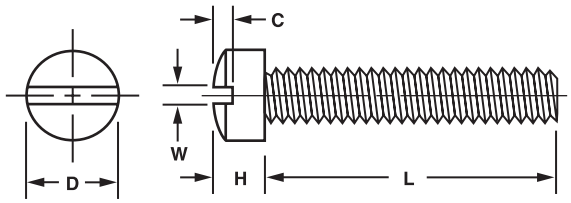
Captive Nylon Screws
See page 186 for details.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L
111430	2-56	1/8	111496	6-32	5/16	111562	10-24	5/16
111432	2-56	3/16	111498	6-32	3/8	111564	10-24	3/8
111434	2-56	1/4	111500	6-32	7/16	111566	10-24	1/2
111436	2-56	9/32	111502	6-32	1/2	111568	10-24	5/8
111438	2-56	5/16	111504	6-32	5/8	111570	10-24	3/4
111440	2-56	3/8	111506	6-32	11/16	111572	10-24	1
111442	2-56	7/16	111508	6-32	3/4	111574	10-24	1-1/4
111444	2-56	1/2	111510	6-32	1	111576	10-24	1-1/2
111446	2-56	9/16	111512	6-32	1-1/8	111578	10-32	1/8
111448	2-56	5/8	111514	6-32	1-1/4	111580	10-32	3/16
111450	2-56	3/4	111516	6-32	1-1/2	111582	10-32	1/4
111452	2-56	1	111518	6-32	1-3/4	111584	10-32	5/16
111454	4-40	1/8	111520	6-40	3/8	111586	10-32	3/8
111456	4-40	9/64	111522	8-32	1/8	111588	10-32	1/2
111458	4-40	3/16	111524	8-32	3/16	111590	10-32	5/8
111460	4-40	1/4	111526	8-32	1/4	111592	10-32	3/4
111462	4-40	9/32	111528	8-32	5/16	111594	10-32	7/8
111464	4-40	5/16	111530	8-32	3/8	111596	10-32	1
111466	4-40	3/8	111532	8-32	7/16	111598	10-32	1-1/4
111468	4-40	7-16	111534	8-32	1/2	111600	10-32	1-1/2
111470	4-40	1/2	111536	8-32	5/8	111602	10-32	2
111472	4-40	9/16	111538	8-32	3/4	111604	1/4-20	1/4
111474	4-40	5/8	111540	8-32	7/8	111606	1/4-20	5/16
111476	4-40	11/16	111542	8-32	1	111608	1/4-20	3/8
111478	4-40	3/4	111544	8-32	1-1/8	111610	1/4-20	1/2
111480	4-40	7/8	111546	8-32	1-1/4	111612	1/4-20	5/8
111482	4-40	1	111548	8-32	1-3/8	111614	1/4-20	3/4
111484	4-40	1-1/8	111550	8-32	1-1/2	111616	1/4-20	7/8
111486	4-40	1-1/4	111552	8-32	1-3/4	111618	1/4-20	1
111488	6-32	3/32	111554	8-32	2	111620	1/4-20	1-1/4
111490	6-32	1/8	111556	10-24	1/8	111622	1/4-20	1-1/2
111492	6-32	3/16	111558	10-24	3/16	111624	1/4-20	1-3/4
111494	6-32	1/4	111560	10-24	1/4	111626	1/4-20	2

SLOTTED FILLISTER HEAD MACHINE SCREW

Self-sealing devices, see page 119. Self-locking devices, see page 109.



Thread Size	D	H	W	C
2	.124-.155	.053-.090	.015-.045	.015-.045
4	.165-.195	.085-.115	.020-.050	.025-.055
6	.200-.230	.110-.140	.030-.060	.035-.065
8	.240-.270	.133-.165	.035-.065	.045-.075
10	.285-.315	.156-.190	.040-.070	.055-.085
1/4	.385-.415	.207-.245	.055-.085	.075-.105

Available Material (see page 275)	
N	Nylon Zytel 101 UL 94V2
B	Brass, Composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

ORDER EXAMPLE:
111628 - SS - 1
Basic Part Number | Material: See chart | Finish: See page 277
Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 111628-N-2 ← Black

Captive Nylon Screws
See page 186 for details.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L
111628	2-56	1/8	111694	6-32	5/16	111760	10-24	5/16
111630	2-56	3/16	111696	6-32	3/8	111762	10-24	3/8
111632	2-56	1/4	111698	6-32	7/16	111764	10-24	1/2
111634	2-56	9/32	111700	6-32	1/2	111766	10-24	5/8
111636	2-56	5/16	111702	6-32	5/8	111768	10-24	3/4
111638	2-56	3/8	111704	6-32	11/16	111770	10-24	1
111640	2-56	7/16	111706	6-32	3/4	111772	10-24	1-1/4
111642	2-56	1/2	111708	6-32	1	111774	10-24	1-1/2
111644	2-56	9/16	111710	6-32	1-1/8	111776	10-32	1/8
111646	2-56	5/8	111712	6-32	1-1/4	111778	10-32	3/16
111648	2-56	3/4	111714	6-32	1-1/2	111780	10-32	1/4
111650	2-56	1	111716	6-32	1-3/4	111782	10-32	5/16
111652	4-40	1/8	111718	6-40	3/8	111784	10-32	3/8
111654	4-40	9/64	111720	8-32	1/8	111786	10-32	1/2
111656	4-40	3/16	111722	8-32	3/16	111788	10-32	5/8
111658	4-40	1/4	111724	8-32	1/4	111790	10-32	3/4
111660	4-40	9/32	111726	8-32	5/16	111792	10-32	7/8
111662	4-40	5/16	111728	8-32	3/8	111794	10-32	1
111664	4-40	3/8	111730	8-32	7/16	111796	10-32	1-1/4
111666	4-40	7/16	111732	8-32	1/2	111798	10-32	1-1/2
111668	4-40	1/2	111734	8-32	5/8	111800	10-32	2
111670	4-40	9/16	111736	8-32	3/4	111802	1/4-20	1/4
111672	4-40	5/8	111738	8-32	7/8	111804	1/4-20	5/16
111674	4-40	11/16	111740	8-32	1	111806	1/4-20	3/8
111676	4-40	3/4	111742	8-32	1-1/8	111808	1/4-20	1/2
111678	4-40	7/8	111744	8-32	1-1/4	111810	1/4-20	5/8
111680	4-40	1	111746	8-32	1-3/8	111812	1/4-20	3/4
111682	4-40	1-1/8	111748	8-32	1-1/2	111814	1/4-20	7/8
111684	4-40	1-1/4	111750	8-32	1-3/4	111816	1/4-20	1
111686	6-32	3/32	111752	8-32	2	111818	1/4-20	1-1/4
111688	6-32	1/8	111754	10-24	1/8	111820	1/4-20	1-1/2
111690	6-32	3/16	111756	10-24	3/16	111822	1/4-20	1-3/4
111692	6-32	1/4	111758	10-24	1/4	111824	1/4-20	2

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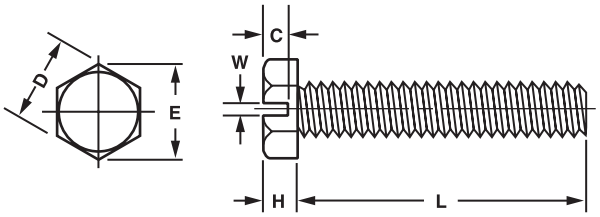
SLOTTED HEX HEAD MACHINE SCREW

Self-sealing devices, see page 119. Self-locking devices, see page 109.



Thread Size	D	E	H	W	C
2	.110-.140	.125-.155	.025-.055	.013-.043	.010-.040
4	.165-.195	.195-.220	.040-.070	.020-.050	.020-.050
6	.235-.265	.268-.298	.070-.100	.030-.060	.030-.060
8	.235-.265	.268-.298	.095-.125	.035-.065	.040-.070
10	.295-.325	.325-.355	.095-.125	.040-.070	.055-.085
1/4	.395-.438	.440-.505	.190-.150	.055-.085	.075-.105

Available Material (see page 275)	
N	Nylon Zytel 101 UL 94V2
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

ORDER EXAMPLE:

112026 - SS - 1

- 112026: Basic Part Number
- SS: Material: See chart
- 1: Finish: See page 277

Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 112026-N-2 ← Black

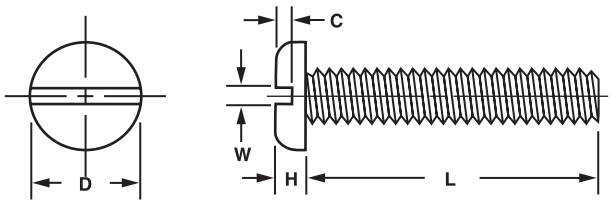
Captive Nylon Screws
See page 186 for details.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L
112026	2-56	1/8	112092	6-32	5/16	112158	10-24	3/8
112028	2-56	3/16	112094	6-32	3/8	112160	10-24	1/2
112030	2-56	1/4	112096	6-32	7/16	112162	10-24	5/8
112032	2-56	9/32	112098	6-32	1/2	112164	10-24	3/4
112034	2-56	5/16	112100	6-32	5/8	112166	10-24	1
112036	2-56	3/8	112102	6-32	3/4	112168	10-24	1-1/4
112038	2-56	7/16	112104	6-32	1	112170	10-24	1-1/2
112040	2-56	1/2	112106	6-32	1-1/8	112172	10-32	1/8
112042	2-56	9/16	112108	6-32	1-1/4	112174	10-32	3/16
112044	2-56	5/8	112110	6-32	1-1/2	112176	10-32	1/4
112046	2-56	3/4	112112	6-32	1-3/4	112178	10-32	5/16
112048	2-56	1	112114	6-40	3/8	112180	10-32	3/8
112050	4-40	1/8	112116	8-32	1/8	112182	10-32	1/2
112052	4-40	9/64	112118	8-32	3/16	112184	10-32	5/8
112054	4-40	3/16	112120	8-32	1/4	112186	10-32	3/4
112056	4-40	1/4	112122	8-32	5/16	112188	10-32	7/8
112058	4-40	9/32	112124	8-32	3/8	112190	10-32	1
112060	4-40	5/16	112126	8-32	7/16	112192	10-32	1-1/4
112062	4-40	3/8	112128	8-32	1/2	112194	10-32	1-1/2
112064	4-40	7/16	112130	8-32	5/8	112196	10-32	2
112066	4-40	1/2	112132	8-32	3/4	112198	1/4-20	1/4
112068	4-40	9/16	112134	8-32	7/8	112200	1/4-20	5/16
112070	4-40	5/8	112136	8-32	1	112202	1/4-20	3/8
112072	4-40	11/16	112138	8-32	1-1/8	112204	1/4-20	1/2
112074	4-40	3/4	112140	8-32	1-1/4	112206	1/4-20	5/8
112076	4-40	7/8	112142	8-32	1-3/8	112208	1/4-20	3/4
112078	4-40	1	112144	8-32	1-1/2	112210	1/4-20	7/8
112080	4-40	1-1/8	112146	8-32	1-3/4	112212	1/4-20	1
112082	4-40	1-1/4	112148	8-32	2	112214	1/4-20	1-1/4
112084	6-32	3/32	112150	10-24	1/8	112216	1/4-20	1-1/2
112086	6-32	1/8	112152	10-24	3/16	112218	1/4-20	1-3/4
112088	6-32	3/16	112154	10-24	1/4	112220	1/4-20	2
112090	6-32	1/4	112156	10-24	5/16			

SLOTTED PAN HEAD MACHINE SCREW

Self-sealing devices, see page 119. Self-locking devices, see page 109.



Available Material (see page 275)	
N	Nylon Zytel 101 UL 94V2
B	Brass, Composition 360
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

Captive Nylon Screws
See page 186 for details.

Thread Size	D	H	W	C
2	.145-.175	.035-.065	.013-.043	.010-.040
3	.180-.193	.051-.060	.027-.035	.026-.036
4	.195-.225	.050-.080	.020-.050	.020-.050
6	.250-.280	.060-.090	.030-.060	.030-.060
8	.305-.335	.065-.096	.035-.065	.035-.065
10	.350-.380	.095-.125	.040-.070	.045-.075
1/4	.460-.492	.130-.175	.055-.085	.070-.100

ORDER EXAMPLE:
112222 - SS - 1
Basic Part Number | Material: See chart | Finish: See page 277
Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 112222-N-2 ← Black

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L
112222	2-56	1/8	112290	6-32	1/4	112358	10-24	5/16
112224	2-56	3/16	112292	6-32	5/16	112360	10-24	3/8
112226	2-56	1/4	112294	6-32	3/8	112362	10-24	1/2
112228	2-56	9/32	112296	6-32	7/16	112364	10-24	5/8
112230	2-56	5/16	112298	6-32	1/2	112366	10-24	3/4
112232	2-56	3/8	112300	6-32	5/8	112368	10-24	1
112234	2-56	7/16	112302	6-32	11/16	112370	10-24	1-1/4
112236	2-56	1/2	112304	6-32	3/4	112372	10-24	1-1/2
112238	2-56	9/16	112306	6-32	1	112374	10-32	1/8
112240	2-56	5/8	112308	6-32	1-1/8	112376	10-32	3/16
112242	2-56	3/4	112310	6-32	1-1/4	112378	10-32	1/4
112244	2-56	7/8	112312	6-32	1-1/2	112380	10-32	5/16
112246	2-56	1	112314	6-32	1-3/4	112382	10-32	3/8
112248	3-48	1/4	112316	6-40	3/8	112384	10-32	1/2
112250	3-48	1/8	112318	8-32	1/8	112386	10-32	5/8
112252	4-40	9/64	112320	8-32	3/16	112388	10-32	3/4
112254	4-40	3/16	112322	8-32	1/4	112390	10-32	7/8
112256	4-40	1/4	112324	8-32	5/16	112392	10-32	1
112258	4-40	9/32	112326	8-32	3/8	112394	10-32	1-1/4
112260	4-40	5/16	112328	8-32	7/16	112396	10-32	1-1/2
112262	4-40	3/8	112330	8-32	1/2	112398	10-32	2
112264	4-40	7/16	112332	8-32	5/8	112400	1/4-20	1/4
112266	4-40	1/2	112334	8-32	3/4	112402	1/4-20	5/16
112268	4-40	9/16	112336	8-32	7/8	112404	1/4-20	3/8
112270	4-40	5/8	112338	8-32	1	112406	1/4-20	1/2
112272	4-40	11/16	112340	8-32	1-1/8	112408	1/4-20	5/8
112274	4-40	3/4	112342	8-32	1-1/4	112410	1/4-20	3/4
112276	4-40	7/8	112344	8-32	1-3/8	112412	1/4-20	7/8
112278	4-40	1	112346	8-32	1-1/2	112414	1/4-20	1
112280	4-40	1-1/8	112348	8-32	1-3/4	112416	1/4-20	1-1/4
112282	4-40	1-1/4	112350	8-32	2	112418	1/4-20	1-1/2
112284	6-32	3/32	112352	10-24	1/8	112420	1/4-20	1-3/4
112286	6-32	1/8	112354	10-24	3/16	112422	1/4-20	2
112288	6-32	3/16	112356	10-24	1/4			

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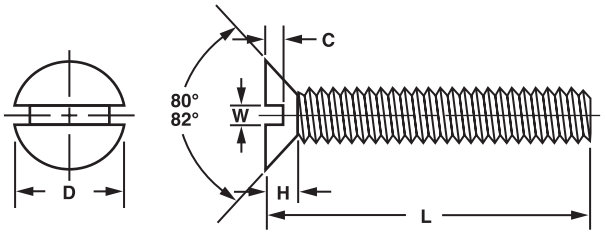
SLOTTED FLAT COUNTERSUNK HEAD MACHINE SCREW

Self-sealing devices, see page 119. Self-locking devices, see page 109.



Thread Size	D	H	W	C
2	.140-.172	.040-.060	.013-.043	.005-.035
4	.195-.225	.055-.085	.020-.050	.020-.040
6	.244-.295	.070-.100	.030-.060	.015-.045
8	.290-.332	.085-.115	.035-.065	.020-.050
10	.340-.385	.105-.135	.040-.070	.030-.060
1/4	.450-.507	.140-.170	.055-.085	.055-.085

Available Material (see page 275)	
N	Nylon Zytel 101 UL 94V2
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

ORDER EXAMPLE:
113260 - SS - 1
Basic Part Number | Material: See chart | Finish: See page 277
Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 113260-N-2 ← Black

Captive Nylon Screws
See page 186 for details.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

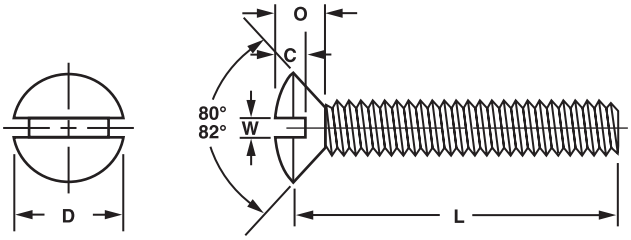
Basic Part Number	Thread	L	Basic Part Number	Thread	L
113260	2-56	3/16	113312	8-32	1/8
113262	2-56	1/4	113314	8-32	1/4
113264	2-56	5/16	113316	8-32	5/16
113266	2-56	3/8	113318	8-32	3/8
113268	2-56	7/16	113320	8-32	7/16
113270	2-56	1/2	113322	8-32	1/2
113272	2-56	9/16	113324	8-32	9/16
113274	2-56	3/4	113326	8-32	5/8
113276	4-40	1/8	113328	8-32	3/4
113278	4-40	5/32	113330	8-32	1
113280	4-40	3/16	113332	10-24	1/2
113282	4-40	1/4	113334	10-24	3/4
113284	4-40	5/16	113336	10-24	1
113286	4-40	3/8	113338	10-32	1/4
113288	4-40	1/2	113340	10-32	5/16
113290	4-40	5/8	113342	10-32	3/8
113292	4-40	3/4	113344	10-32	1/2
113294	4-40	1	113346	10-32	3/4
113296	6-32	1/4	113348	10-32	1
113298	6-32	5/16	113350	1/4-20	1/4
113300	6-32	3/8	113352	1/4-20	1/2
113302	6-32	1/2	113354	1/4-20	5/8
113304	6-32	5/8	113356	1/4-20	3/4
113306	6-32	3/4	113358	1/4-20	1
113308	6-32	1	113360	1/4-20	1-1/2
113310	6-32	1-1/8	113362	1/4-20	2

TECH TIP

A286 stainless steel is recommended for high strength stainless steel requirements.

SLOTTED OVAL COUNTERSUNK HEAD MACHINE SCREW

Self-sealing devices, see page 119. Self-locking devices, see page 109.



Thread Size	D	O	W	C
2	.140-.172	.055-.085	.013-.043	.005-.045
4	.195-.225	.075-.105	.020-.050	.010-.059
6	.244-.295	.095-.128	.030-.060	.015-.074
8	.290-.332	.125-.155	.035-.065	.020-.088
10	.340-.385	.145-.176	.040-.070	.030-.103
1/4	.450-.507	.197-.235	.055-.085	.055-.136

Available Material (see page 275)	
N	Nylon Zytel 101 UL 94V2
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

ORDER EXAMPLE:

113364 - SS - 1

- 113364: Basic Part Number
- SS: Material: See chart
- 1: Finish: See page 277

Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 113364-N-2 ← Black

Captive Nylon Screws
See page 186 for details.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Basic Part Number	Thread	L	Basic Part Number	Thread	L
113364	2-56	3/16	113416	8-32	1/8
113366	2-56	1/4	113418	8-32	1/4
113368	2-56	5/16	113420	8-32	5/16
113370	2-56	3/8	113422	8-32	3/8
113372	2-56	7/16	113424	8-32	7/16
113374	2-56	1/2	113426	8-32	1/2
113376	2-56	9/16	113428	8-32	9/16
113378	2-56	3/4	113430	8-32	5/8
113380	4-40	1/8	113432	8-32	3/4
113382	4-40	5/32	113434	8-32	1
113384	4-40	3/16	113436	10-24	1/2
113386	4-40	1/4	113438	10-24	3/4
113388	4-40	5/16	113440	10-24	1
113390	4-40	3/8	113442	10-32	1/4
113392	4-40	1/2	113444	10-32	5/16
113394	4-40	5/8	113446	10-32	3/8
113396	4-40	3/4	113448	10-32	1/2
113398	4-40	1	113450	10-32	3/4
113400	6-32	1/4	113452	10-32	1
113402	6-32	5/16	113454	1/4-20	1/4
113404	6-32	3/8	113456	1/4-20	1/2
113406	6-32	1/2	113458	1/4-20	5/8
113408	6-32	5/8	113460	1/4-20	3/4
113410	6-32	3/4	113462	1/4-20	1
113412	6-32	1	113464	1/4-20	1-1/2
113414	6-32	1-1/8	113466	1/4-20	2

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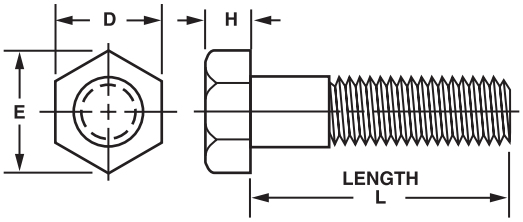
HEX CAP SCREW

Self-sealing devices, see page 119. Self-locking devices, see page 109.



Thread Size	D	E	H
1/4	.395-.438	.440-.505	.150-.190
5/16	.470-.500	.546-.577	.195-.235
3/8	.544-.580	.610-.650	.226.268
1/2	.725-.755	.826-.866	.302-.364
5/8	.906-.950	1.033-1.115	.375-.444

Available Material (see page 275)	
N	Nylon Zytel 101 UL 94V2
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

ORDER EXAMPLE:
113468 - SS - 1
Basic Part Number | Material: See chart | Finish: See page 277
Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 113468-N-2 ←Black

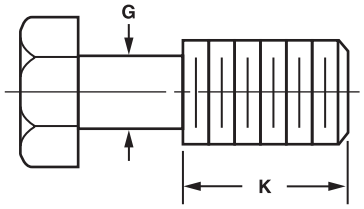
Captive Nylon Screws
See page 186 for details.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L
113468	1/4-20	1/2	113496	5/16-18	1/2	113524	3/8-16	1/2	113552	1/2-13	1/2	113580	5/8-11	1/2
113470	1/4-20	3/4	113498	5/16-18	3/4	113526	3/8-16	3/4	113554	1/2-13	3/4	113582	5/8-11	3/4
113472	1/4-20	1	113500	5/16-18	1	113528	3/8-16	1	113556	1/2-13	1	113584	5/8-11	1
113474	1/4-20	1-1/4	113502	5/16-18	1-1/4	113530	3/8-16	1-1/4	113558	1/2-13	1-1/4	113586	5/8-11	1-1/2
113476	1/4-20	1-1/2	113504	5/16-18	1-1/2	113532	3/8-16	1-1/2	113560	1/2-13	1-1/2	113588	5/8-11	2
113478	1/4-20	2	113506	5/16-18	2	113534	3/8-16	2	113562	1/2-13	2	113590	5/8-11	2-1/2
113480	1/4-20	2-1/2	113508	5/16-18	2-1/2	113536	3/8-16	2-1/2	113564	1/2-13	2-1/2	113592	5/8-11	3
113482	1/4-20	3	113510	5/16-18	3	113538	3/8-16	3	113566	1/2-13	3	113594	5/8-11	3-1/2
113484	1/4-20	3-1/2	113512	5/16-18	3-1/2	113540	3/8-16	3-1/2	113568	1/2-13	3-1/2	113596	5/8-11	4
113486	1/4-20	4	113514	5/16-18	4	113542	3/8-16	4	113570	1/2-13	4	113598	5/8-11	4-1/2
113488	1/4-20	4-1/2	113516	5/16-18	4-1/2	113544	3/8-16	4-1/2	113572	1/2-13	4-1/2	113600	5/8-11	5
113490	1/4-20	5	113518	5/16-18	5	113546	3/8-16	5	113574	1/2-13	5	113602	5/8-11	5-1/2
113492	1/4-20	5-1/2	113520	5/16-18	5-1/2	113548	3/8-16	5-1/2	113576	1/2-13	5-1/2	113604	5/8-11	6
113494	1/4-20	6	113522	5/16-18	6	113550	3/8-16	6	113578	1/2-13	6			

CAPTIVE PANEL SCREW

Available in all head styles.

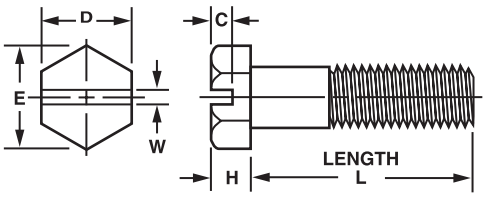


ORDER EXAMPLE:
113468 - N - 2 - CAP
Basic Part Number | Nylon | Color: See chart | Captive

Thread Size	G ±.005	K ±1/64
2	.061	1/8
3	.070	5/32
4	.078	5/32
6	.095	3/16
8	.120	3/16
10	.130	1/4
1/4	.175	3/8
5/16	.230	1/2
3/8	.280	5/8
1/2	.390	5/8
5/8	.490	3/4

SLOTTED HEX CAP SCREW

Self-sealing devices, see page 119. Self-locking devices, see page 109.



Thread Size	D	E	H	W	C
1/4	.395-.438	.440-.505	.150-.190	.055-.085	.075-.105
5/16	.470-.500	.546-.577	.195-.235	.065-.095	.095-.125
3/8	.544-.580	.610-.650	.226-.268	.075-.105	.125-.155
1/2	.725-.755	.826-.866	.302-.364	.085-.115	.145-.175
5/8	.906-.950	1.033-1.115	.375-.444	.095-.125	.155-.185

Available Material (see page 275)	
N	Nylon Zytel 101 UL 94V2
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

ORDER EXAMPLE:

113606 - SS - 1

- 113606: Basic Part Number
- SS: Material: See chart
- 1: Finish: See page 277

Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 113606-N-2 ← Black

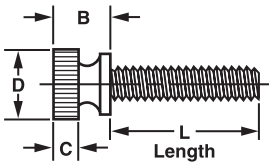
Captive Nylon Screws
See page 186 for details.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L
113606	1/4-20	1/2	113634	5/16-18	1/2	113662	3/8-16	1/2	113690	1/2-13	1/2	113718	5/8-11	1/2
113608	1/4-20	3/4	113636	5/16-18	3/4	113664	3/8-16	3/4	113692	1/2-13	3/4	113720	5/8-11	3/4
113610	1/4-20	1	113638	5/16-18	1	113666	3/8-16	1	113694	1/2-13	1	113722	5/8-11	1
113612	1/4-20	1-1/4	113640	5/16-18	1-1/4	113668	3/8-16	1-1/4	113696	1/2-13	1-1/4	113724	5/8-11	1-1/2
113614	1/4-20	1-1/2	113642	5/16-18	1-1/2	113670	3/8-16	1-1/2	113698	1/2-13	1-1/2	113726	5/8-11	2
113616	1/4-20	2	113644	5/16-18	2	113672	3/8-16	2	113700	1/2-13	2	113728	5/8-11	2-1/2
113618	1/4-20	2-1/2	113646	5/16-18	2-1/2	113674	3/8-16	2-1/2	113702	1/2-13	2-1/2	113730	5/8-11	3
113620	1/4-20	3	113648	5/16-18	3	113676	3/8-16	3	113704	1/2-13	3	113732	5/8-11	3-1/2
113622	1/4-20	3-1/2	113650	5/16-18	3-1/2	113678	3/8-16	3-1/2	113706	1/2-13	3-1/2	113734	5/8-11	4
113624	1/4-20	4	113652	5/16-18	4	113680	3/8-16	4	113708	1/2-13	4	113736	5/8-11	4-1/2
113626	1/4-20	4-1/2	113654	5/16-18	4-1/2	113682	3/8-16	4-1/2	113710	1/2-13	4-1/2	113738	5/8-11	5
113628	1/4-20	5	113656	5/16-18	5	113684	3/8-16	5	113712	1/2-13	5	113740	5/8-11	5-1/2
113630	1/4-20	5-1/2	113658	5/16-18	5-1/2	113686	3/8-16	5-12	113714	1/2-13	5-1/2	113742	5/8-11	6
113632	1/4-20	6	113660	5/16-18	6	113688	3/8-16	6	113716	1/2-13	6			

KNURLED NYLON THUMB SCREW

Self-Sealing/Self-Locking Devices available, see page 109.



Thread Size	D ± .015	B ± .015	C ± .015
4-40	.300	.280	.120
6-32	.360	.275	.125
8-32	.425	.305	.140
10-24	.425	.325	.140
10-32	.425	.325	.140
1/4-20	.540	.365	.155

Available Material (see page 275)	
N	Nylon, Zytel 101 UL 94V2

ORDER EXAMPLE:

113744 - N - 2

- 113744: Basic Part Number
- N: Nylon
- 2: Color: See chart

Choose color from chart, otherwise Natural is provided.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L
113744	4-40	1/4	113760	6-32	1	113776	10-24	1
113746	4-40	3/8	113762	8-32	3/16	113778	10-24	1-1/4
113748	4-40	1/2	113764	8-32	3/8	113780	10-32	3/8
113750	4-40	3/4	113766	8-32	1/2	113782	10-32	1/2
113752	6-32	1/4	113768	8-32	3/4	113784	10-32	3/4
113754	6-32	3/8	113770	8-32	1	113786	10-32	1
113756	6-32	1/2	113772	10-24	1/2	113788	1/4-20	1/2
113758	6-32	3/4	113774	10-24	3/4	113790	1/4-20	3/4

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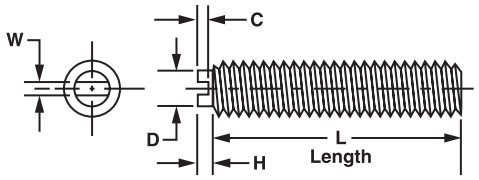
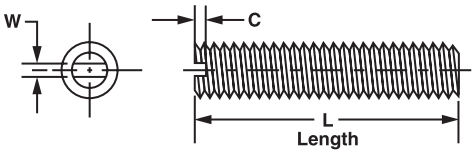
SLOTTED SET SCREW

NYLON



STEEL – STAINLESS STEEL



Thread Size	D ± .015	H ± .015	W ± .015	C ± .015
2	.055	.035	.018	.020
4	.075	.045	.020	.025
6	.100	.055	.025	.030
8	.120	.055	.028	.035
10	.150	.060	.035	.050
1/4	.175	.080	.040	.060

Available Material (see page 275)	
N	Nylon Zytel 101 UL 94V2
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

ORDER EXAMPLE:
112636 - SS - 12

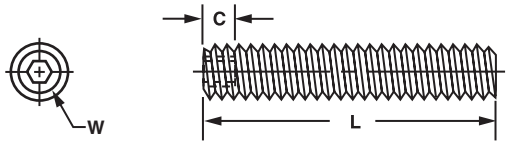
- 112636: Basic Part Number
- SS: Material: See chart
- 12: Finish: See page 277

Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 112636-N-2 ← Black

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Basic Part Number	Thread	L	Basic Part Number	Thread	L	Basic Part Number	Thread	L
112636	2-56	3/32	112702	6-32	5/16	112768	10-24	3/8
112638	2-56	1/8	112704	6-32	3/8	112770	10-24	1/2
112640	2-56	3/16	112706	6-32	7/16	112772	10-24	5/8
112642	2-56	1/4	112708	6-32	1/2	112774	10-24	3/4
112644	2-56	9/32	112710	6-32	5/8	112776	10-24	1
112646	2-56	5/16	112712	6-32	3/4	112778	10-24	1-1/4
112648	2-56	3/8	112714	6-32	1	112780	10-24	1-1/2
112650	2-56	7/16	112716	6-32	1-1/8	112782	10-32	1/8
112652	2-56	1/2	112718	6-32	1-1/4	112784	10-32	3/16
112654	2-56	5/8	112720	6-32	1-1/2	112786	10-32	1/4
112656	2-56	3/4	112722	6-32	1-3/4	112788	10-32	5/16
112658	2-56	1	112724	6-40	3/8	112790	10-32	3/8
112660	4-40	1/8	112726	8-32	1/8	112792	10-32	1/2
112662	4-40	5/32	112728	8-32	3/16	112794	10-32	5/8
112664	4-40	3/16	112730	8-32	1/4	112796	10-32	3/4
112666	4-40	1/4	112732	8-32	5/16	112798	10-32	7/8
112668	4-40	9/32	112734	8-32	3/8	112800	10-32	1
112670	4-40	5/16	112736	8-32	7/16	112802	10-32	1-1/4
112672	4-40	3/8	112738	8-32	1/2	112804	10-32	1-1/2
112674	4-40	7/16	112740	8-32	5/8	112806	10-32	2
112676	4-40	1/2	112742	8-32	3/4	112808	1/4-20	1/4
112678	4-40	9/16	112744	8-32	7/8	112810	1/4-20	5/16
112680	4-40	5/8	112746	8-32	1	112812	1/4-20	3/8
112682	4-40	11/16	112748	8-32	1-1/8	112814	1/4-20	1/2
112684	4-40	3/4	112750	8-32	1-1/4	112816	1/4-20	5/8
112686	4-40	7/8	112752	8-32	1-3/8	112818	1/4-20	3/4
112688	4-40	1	112754	8-32	1-1/2	112820	1/4-20	7/8
112690	4-40	1-1/8	112756	8-32	1-3/4	112822	1/4-20	1
112692	4-40	1-1/4	112758	8-32	2	112824	1/4-20	1-1/4
112694	6-32	3/32	112760	10-24	1/8	112826	1/4-20	1-1/2
112696	6-32	1/8	112762	10-24	3/16	112828	1/4-20	1-3/4
112698	6-32	3/16	112764	10-24	1/4	112830	1/4-20	2
112700	6-32	1/4	112766	10-24	5/16			

SOCKET SET SCREW



Thread Size	W ± .015	C ± .015
4	.050	.070
6	.062	.080
8	.078	.090
10	.094	.100
1/4	.125	.125
5/16	.156	.156
3/8	.188	.188
1/2	.250	.250
5/8	.312	.312

Available Material (see page 275)	
N	Nylon Zytel 101 UL 94V2
S	Steel, low carbon 1018 ASTM 108
SS	Stainless Steel 18-8, 302-304 series

ORDER EXAMPLE:

113060 - SS - 12

- 113060: Basic Part Number
- SS: Material: See chart
- 12: Finish: See page 277

Choose color from chart, otherwise Natural is provided.
For Nylon parts: **Example:** 113060-N-2 ← Black

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Basic Part Number	Thread	L ± .015	Basic Part Number	Thread	L ± .015	Basic Part Number	Thread	L ± .015
113060	4-40	1/8	113128	8-32	1/8	113196	10-32	3/4
113062	4-40	9/64	113130	8-32	3/16	113198	10-32	7/8
113064	4-40	5/32	113132	8-32	1/4	113200	10-32	1
113066	4-40	3/16	113134	8-32	5/16	113202	10-32	1-1/4
113068	4-40	1/4	113136	8-32	3/8	113204	10-32	1-1/2
113070	4-40	9/32	113138	8-32	7/16	113206	10-32	2
113072	4-40	5/16	113140	8-32	1/2	113208	1/4-20	1/4
113074	4-40	3/8	113142	8-32	5/8	113210	1/4-20	5/16
113076	4-40	7/16	113144	8-32	3/4	113212	1/4-20	3/8
113078	4-40	1/2	113146	8-32	1	113214	1/4-20	1/2
113080	4-40	9/16	113148	8-32	1-1/8	113216	1/4-20	5/8
113082	4-40	5/8	113150	8-32	1-1/4	113218	1/4-20	3/4
113084	4-40	11/16	113152	8-32	1-3/8	113220	1/4-20	7/8
113086	4-40	3/4	113154	8-32	1-1/2	113222	1/4-20	1
113088	4-40	7/8	113156	8-32	1-3/4	113224	1/4-20	1-1/4
113090	4-40	1	113158	8-32	2	113226	1/4-20	1-1/2
113092	4-40	1-1/8	113160	10-24	1/8	113228	1/4-20	1-3/4
113094	4-40	1-1/4	113162	10-24	3/16	113230	1/4-20	2
113096	6-32	3/32	113164	10-24	1/4	113232	5/16-18	1/2
113098	6-32	1/8	113166	10-24	5/16	113234	5/16-18	3/4
113100	6-32	3/16	113168	10-24	3/8	113236	5/16-18	1
113102	6-32	1/4	113170	10-24	1/2	113238	3/8-16	1/2
113104	6-32	5/16	113172	10-24	5/8	113240	3/8-16	3/4
113106	6-32	3/8	113174	10-24	3/4	113242	3/8-16	1
113108	6-32	7/16	113176	10-24	1	113244	1/2-13	1/2
113110	6-32	1/2	113178	10-24	1-1/4	113246	1/2-13	3/4
113112	6-32	5/8	113180	10-24	1-1/2	113248	1/2-13	1
113114	6-32	3/4	113182	10-32	1/8	113250	1/2-13	1-1/4
113116	6-32	1	113184	10-32	3/16	113252	5/8-11	1/2
113118	6-32	1-1/8	113186	10-32	1/4	113254	5/8-11	3/4
113120	6-32	1-1/4	113188	10-32	5/16	113256	5/8-11	1
113122	6-32	1-1/2	113190	10-32	3/8	113258	5/8-11	1-1/2
113124	6-32	1-3/4	113192	10-32	1/2			
113126	6-40	3/8	113194	10-32	5/8			

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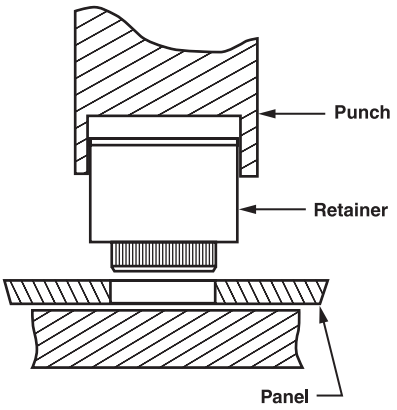
METHOD OF INSTALLATION

Series 400000 Retainers Only

Drill hole to press in.

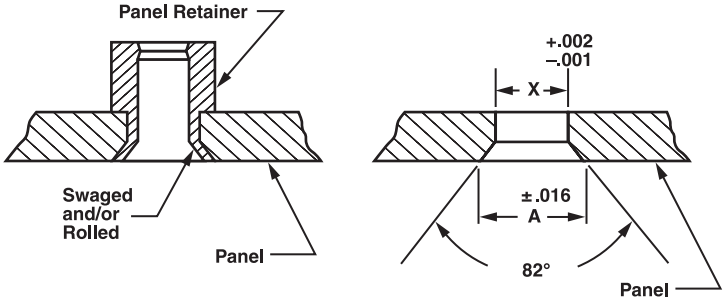
Recommended Diameters	
Shank Diameter	Recommended Panel Hole Diameter +.002 –.000
.198	.188
.228	.218
.280	.270
.366	.356
.414	.404
.479	.469



METHOD OF INSTALLATION

Series 500000, 550000, 600000, 650000, 700000 and 750000 Retainers Only

See page 45 for installation information.



Countersink formula: A = X + .045 minimum or .078 maximum

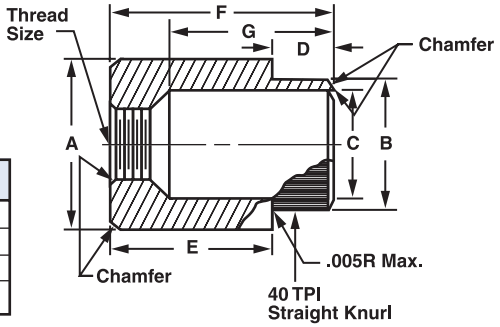
Retainer Shank Diameter	X Drill or Punch
.188	.191
.218	.221
.250	.257
.270	.272
.356	.359
.404	.407
.433	.437

TECH TIP

For shank diameters .270 and below start with a .045 min when calculating the diameter (“A”) of the countersink.

SERIES 400000 RETAINER

For Captive Screws, see pages 113-156.



ORDER EXAMPLE:
400001 - S - 12

- 400001 — Basic Part Number
- S — Material: See chart
- 12 — Finish: See page 277

If any one dimension or tolerance change is required, add to end of part number. **EXAMPLE: 400001-SS-12 (A=1/2)**

For method of installation, see page 190.

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

Basic Part Number	Thread	Panel Thickness	A ±.004	B ±.002	C +.004 -.001	D ±.005	E ±.005	F ±.010	G ±.005
400001	4-40	.048 - .072	1/4	.198	.150	.050	.200	1/4	.164
400002	4-40	.074 - .109	1/4	.198	.150	.080	.170	1/4	.164
400003	4-40	.119 - .156	1/4	.198	.150	.125	.125	1/4	.164
400004	6-32	.048 - .072	1/4	.198	.150	.050	.262	5/16	.210
400005	6-32	.074 - .109	1/4	.198	.150	.080	.232	5/16	.210
400006	6-32	.119 - .156	1/4	.198	.150	.125	.187	5/16	.210
400007	6-32	.188	1/4	.198	.150	.188	.125	5/16	.210
400008	8-32	.048 - .072	5/16	.228	.188	.050	.262	5/16	.208
400009	8-32	.074 - .109	5/16	.228	.188	.080	.232	5/16	.208
400010	8-32	.119 - .156	5/16	.228	.188	.125	.187	5/16	.208
400011	8-32	.188	5/16	.228	.188	.188	.124	5/16	.208
400012	10-24	.048 - .072	3/8	.280	.228	.050	.325	3/8	.236
400013	10-24	.074 - .109	3/8	.280	.228	.080	.295	3/8	.236
400014	10-24	.119 - .156	3/8	.280	.228	.125	.250	3/8	.236
400015	10-24	.188	3/8	.280	.228	.188	.187	3/8	.236
400016	10-24	.250	3/8	.280	.228	.250	.125	3/8	.236
400017	10-32	.048 - .072	3/8	.280	.228	.050	.325	3/8	.236
400018	10-32	.074 - .109	3/8	.280	.228	.080	.295	3/8	.236
400019	10-32	.119 - .156	3/8	.280	.228	.125	.250	3/8	.236
400021	10-32	.188	3/8	.280	.228	.188	.187	3/8	.236
400022	10-32	.250	3/8	.280	.228	.250	.125	3/8	.236
400023	1/4-20	.048 - .072	1/2	.366	.295	.050	.387	7/16	.292
400024	1/4-20	.074 - .109	1/2	.366	.295	.080	.357	7/16	.292
400025	1/4-20	.119 - .156	1/2	.366	.295	.125	.312	7/16	.292
400026	1/4-20	.188	1/2	.366	.295	.188	.249	7/16	.292
400027	1/4-20	.250	1/2	.366	.295	.250	.187	7/16	.292
400028	1/4-28	.048 - .072	1/2	.366	.295	.050	.387	7/16	.292
400029	1/4-28	.074 - .109	1/2	.366	.295	.080	.357	7/16	.292
400031	1/4-28	.119 - .156	1/2	.366	.295	.125	.312	7/16	.292
400032	1/4-28	.188	1/2	.366	.295	.188	.249	7/16	.292
400033	1/4-28	.250	1/2	.366	.295	.250	.187	7/16	.292
400034	5/16-18	.048 - .072	5/8	.414	.347	.050	.450	1/2	.358
400035	5/16-18	.074 - .109	5/8	.414	.347	.080	.420	1/2	.358
400036	5/16/18	.119 - .156	5/8	.414	.347	.125	.375	1/2	.358
400037	5/16-18	.188	5/8	.414	.347	.188	.312	1/2	.358
400038	5/16-18	.250	5/8	.414	.347	.250	.250	1/2	.358
400039	3/8-16	.074 - .109	3/4	.479	.406	.080	.482	9/16	.418
400041	3/8-16	.119 - .156	3/4	.479	.406	.125	.437	9/16	.418
400042	3/8-16	.188	3/4	.479	.406	.188	.374	9/16	.418
400043	3/8-16	.250	3/4	.479	.406	.250	.312	9/16	.418

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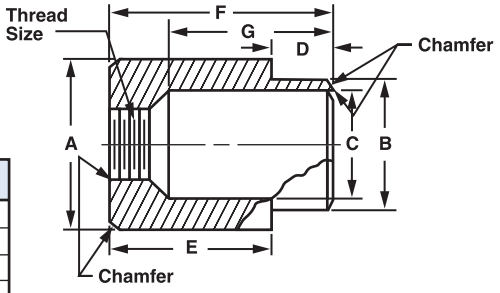
SERIES 500000 RETAINER

For Captive Screws, see pages 113-156.



For method of installation, see page 190.

ORDER EXAMPLE:
500001 - S - 1

- 500001: Basic Part Number
- S: Material: See chart
- 1: Finish: See page 277

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

Basic Part Number	Thread	Panel Thickness	A ±.004	B +.000 -.003	C +.004 -.001	D ±.005	E ±.005	F ±.010	G +.005 -.010
500001	4-40	.052 - .067	9/32	.250	.210	.062	.312	3/8	.263
500002	4-40	.084 - .099	9/32	.250	.210	.093	.281	3/8	.263
500003	4-40	.109 - .140	9/32	.250	.210	.125	.250	3/8	.263
500004	6-32	.052 - .067	9/32	.250	.210	.062	.313	3/8	.265
500005	6-32	.084 - .099	9/32	.250	.210	.093	.282	3/8	.265
500006	6-32	.109 - .140	9/32	.250	.210	.125	.250	3/8	.265
500007	8-32	.052 - .067	17/32	.433	.386	.062	.500	9/16	.388
500008	8-32	.084 - .099	17/32	.433	.386	.093	.469	9/16	.388
500009	8-32	.109 - .140	17/32	.433	.386	.125	.437	9/16	.388
500010	8-32	.171 - .203	17/32	.433	.386	.187	.375	9/16	.388
500011	8-32	.234 - .265	17/32	.433	.386	.250	.312	9/16	.388
500012	10-24	.052 - .067	17/32	.433	.386	.062	.500	9/16	.395
500013	10-24	.084 - .099	17/32	.433	.386	.093	.469	9/16	.395
500014	10-24	.109 - .140	17/32	.433	.386	.125	.437	9/16	.395
500015	10-24	.171 - .203	17/32	.433	.386	.187	.375	9/16	.395
500016	10-24	.234 - .265	17/32	.433	.386	.250	.312	9/16	.395
500017	10-32	.052 - .067	17/32	.433	.386	.062	.500	9/16	.395
500018	10-32	.084 - .099	17/32	.433	.386	.093	.469	9/16	.395
500019	10-32	.109 - .140	17/32	.433	.386	.125	.437	9/16	.395
500020	10-32	.171 - .203	17/32	.433	.386	.187	.375	9/16	.395
500021	10-32	.234 - .265	17/32	.433	.386	.250	.312	9/16	.395
500022	12-24	.052 - .067	17/32	.433	.386	.062	.500	9/16	.396
500023	12-24	.084 - .099	17/32	.433	.386	.093	.469	9/16	.396
500024	12-24	.109 - .140	17/32	.433	.386	.125	.437	9/16	.396
500025	12-24	.171 - .203	17/32	.433	.386	.187	.375	9/16	.396
500026	12-24	.234 - .265	17/32	.433	.386	.250	.312	9/16	.396
500027	1/4-20	.052 - .067	17/32	.433	.386	.062	.500	9/16	.403
500028	1/4-20	.084 - .099	17/32	.433	.386	.093	.469	9/16	.403
500029	1/4-20	.109 - .140	17/32	.433	.386	.125	.437	9/16	.403
500030	1/4-20	.171 - .203	17/32	.433	.386	.187	.375	9/16	.403
500031	1/4-20	.234 - .265	17/32	.433	.386	.250	.312	9/16	.403
500032	1/4-28	.052 - .067	17/32	.433	.386	.062	.500	9/16	.403
500033	1/4-28	.084 - .099	17/32	.433	.386	.093	.469	9/16	.403
500034	1/4-28	.109 - .140	17/32	.433	.386	.125	.437	9/16	.403
500035	1/4-28	.171 - .203	17/32	.433	.386	.187	.375	9/16	.403
500036	1/4-28	.234 - .265	17/32	.433	.386	.250	.312	9/16	.403

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SERIES 550000 RETAINER

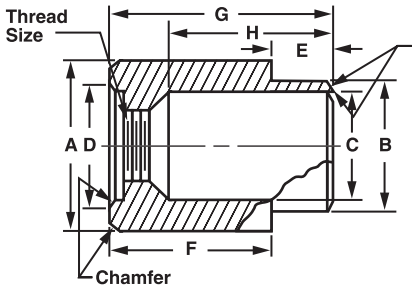
For method of installation, see page 190.

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

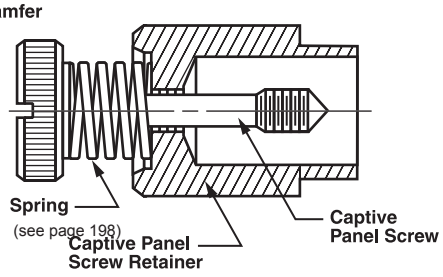
ORDER EXAMPLE:
550001 - S - 1

- 550001: Basic Part Number
- S: Material: See chart
- 1: Finish: See page 277

Captive Panel Screw and Spring must be ordered separately.



Choose appropriate screw from pages 113-114.



Basic Part Number	Thread	Panel Thickness	A ±.004	B +.000 -.003	C +.004 -.001	D +.005 -.000	E ±.005	F ±.005	G ±.010	H +.005 -.010
550001	4-40	.052/ .067	9/32	.250	.210	.192	.062	.375	7/16	.263
550002	4-40	.084/ .099	9/32	.250	.210	.192	.093	.344	7/16	.263
550003	4-40	.109/ .140	9/32	.250	.210	.192	.125	.312	7/16	.263
550004	6-32	.052/ .067	9/32	.250	.210	.192	.062	.375	7/16	.266
550005	6-32	.084/ .099	9/32	.250	.210	.192	.093	.344	7/16	.266
550006	6-32	.109/ .140	9/32	.250	.210	.192	.125	.312	7/16	.266
550007	8-32	.052/ .067	17/32	.433	.386	.312	.062	.563	5/8	.388
550008	8-32	.084/ .099	17/32	.433	.386	.312	.093	.532	5/8	.388
550009	8-32	.109/ .140	17/32	.433	.386	.312	.125	.500	5/8	.388
550010	8-32	.171/ .203	17/32	.433	.386	.312	.187	.438	5/8	.388
550011	8-32	.234/ .265	17/32	.433	.386	.312	.250	.375	5/8	.388
550012	10-24	.052/ .067	17/32	.433	.386	.312	.062	.563	5/8	.393
550013	10-24	.084/ .099	17/32	.433	.386	.312	.093	.532	5/8	.393
550014	10-24	.109/ .140	17/32	.433	.386	.312	.125	.500	5/8	.393
550015	10-24	.171/ .203	17/32	.433	.386	.312	.187	.438	5/8	.393
550016	10-24	.234/ .265	17/32	.433	.386	.312	.250	.375	5/8	.393
550017	10-32	.052/ .067	17/32	.433	.386	.312	.062	.563	5/8	.393
550018	10-32	.084/ .099	17/32	.433	.386	.312	.093	.532	5/8	.393
550019	10-32	.109/ .140	17/32	.433	.386	.312	.125	.500	5/8	.393
550020	10-32	.171/ .203	17/32	.433	.386	.312	.187	.438	5/8	.393
550021	10-32	.234/ .265	17/32	.433	.386	.312	.250	.375	5/8	.393
550022	12-24	.052/ .067	17/32	.433	.386	.312	.062	.563	5/8	.397
550023	12-24	.084/ .099	17/32	.433	.386	.312	.093	.532	5/8	.397
550024	12-24	.109/ .140	17/32	.433	.386	.312	.125	.500	5/8	.397
550025	12-24	.171/ .203	17/32	.433	.386	.312	.187	.438	5/8	.397
550028	12-24	.234/ .265	17/32	.433	.386	.312	.250	.375	5/8	.397
550029	1/4-20	.052/ .067	17/32	.433	.386	.312	.062	.563	5/8	.405
550030	1/4-20	.084/ .099	17/32	.433	.386	.312	.093	.532	5/8	.405
550031	1/4-20	.109/ .140	17/32	.433	.386	.312	.125	.500	5/8	.405
550032	1/4-20	.171/ .203	17/32	.433	.386	.312	.187	.438	5/8	.405
550033	1/4-20	.234/ .265	17/32	.433	.386	.312	.250	.375	5/8	.405
550034	1/4-28	.084/ .099	17/32	.433	.386	.312	.093	.532	5/8	.405
550035	1/4-28	.109/ .140	17/32	.433	.386	.312	.125	.500	5/8	.405
550036	1/4-28	.171/ .203	17/32	.433	.386	.312	.187	.438	5/8	.405
550037	1/4-28	.234/ .265	17/32	.433	.386	.312	.250	.375	5/8	.405

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SERIES 600000 RETAINER

For method of installation, see page 190.

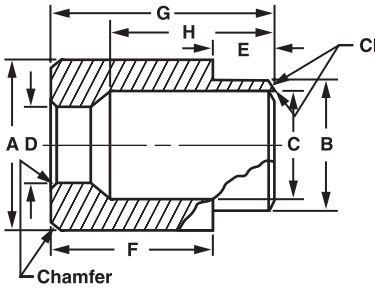
Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

ORDER EXAMPLE:

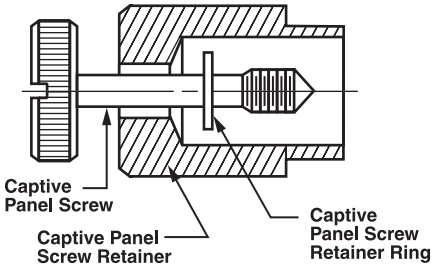
600001 - S - 1

- 600001: Basic Part Number
- S: Material: See chart
- 1: Finish: See page 277

Captive Panel Screw and Retainer Ring must be ordered separately.



Choose appropriate screw from pages 113, 119.



See page 147.

Basic Part Number	Thread	Panel Thickness	A ±.004	B +.000 -.003	C +.004 -.001	D +.004 -.001	E ±.005	F ±.005	G ±.010	H +.005 -.010
600001	4-40	.052/ .067	9/32	.250	.210	.125	.062	.312	3/8	.299
600002	4-40	.084/ .099	9/32	.250	.210	.125	.093	.281	3/8	.299
600003	4-40	.109/ .140	9/32	.250	.210	.125	.125	.250	3/8	.299
600004	6-32	.052/ .067	9/32	.250	.210	.152	.062	.313	3/8	.304
600007	6-32	.084/ .099	9/32	.250	.210	.152	.093	.282	3/8	.304
600008	6-32	.109/ .140	9/32	.250	.210	.152	.125	.250	3/8	.304
600009	8-32	.052/ .067	17/32	.433	.386	.177	.062	.500	9/16	.447
600010	8-32	.084/ .099	17/32	.433	.386	.177	.093	.469	9/16	.447
600011	8-32	.109/ .140	17/32	.433	.386	.177	.125	.437	9/16	.447
600012	8-32	.171/ .203	17/32	.433	.386	.177	.187	.375	9/16	.447
600013	8-32	.234/ .265	17/32	.433	.386	.177	.250	.312	9/16	.447
600014	10-24	.052/ .067	17/32	.433	.386	.203	.062	.500	9/16	.464
600015	10-24	.084/ .099	17/32	.433	.386	.203	.093	.469	9/16	.464
600018	10-24	.109/ .140	17/32	.433	.386	.203	.125	.437	9/16	.464
600019	10-24	.171/ .203	17/32	.433	.386	.203	.187	.375	9/16	.464
600020	10-24	.234/ .265	17/32	.433	.386	.203	.250	.312	9/16	.464
600021	10-32	.052/ .067	17/32	.433	.386	.203	.062	.500	9/16	.464
600022	10-32	.084/ .099	17/32	.433	.386	.203	.093	.469	9/16	.464
600023	10-32	.109/ .140	17/32	.433	.386	.203	.125	.437	9/16	.464
600026	10-32	.171/ .203	17/32	.433	.386	.203	.187	.375	9/16	.464
600027	10-32	.234/ .265	17/32	.433	.386	.203	.250	.312	9/16	.464
600028	12-24	.052/ .067	17/32	.433	.386	.228	.062	.500	9/16	.459
600029	12-24	.084/ .099	17/32	.433	.386	.228	.093	.469	9/16	.459
600030	12-24	.109/ .140	17/32	.433	.386	.228	.125	.437	9/16	.459
600031	12-24	.171/ .203	17/32	.433	.386	.228	.187	.375	9/16	.459
600032	12-24	.234/ .265	17/32	.433	.386	.228	.250	.312	9/16	.459
600033	1/4-20	.052/ .067	17/32	.433	.386	.257	.062	.500	9/16	.475
600034	1/4-20	.084/ .099	17/32	.433	.386	.257	.093	.469	9/16	.475
600035	1/4-20	.109/ .140	17/32	.433	.386	.257	.125	.437	9/16	.475
600036	1/4-20	.171/ .203	17/32	.433	.386	.257	.187	.375	9/16	.475
600037	1/4-20	.234/ .265	17/32	.433	.386	.257	.250	.312	9/16	.475
600038	1/4-28	.052/ .067	17/32	.433	.386	.257	.062	.500	9/16	.475
600039	1/4-28	.084/ .099	17/32	.433	.386	.257	.093	.469	9/16	.475
600040	1/4-28	.109/ .140	17/32	.433	.386	.257	.125	.437	9/16	.475
600041	1/4-28	.171/ .203	17/32	.433	.386	.257	.187	.375	9/16	.475
600042	1/4-28	.234/ .265	17/32	.433	.386	.257	.250	.312	9/16	.475

SERIES 650000 RETAINER

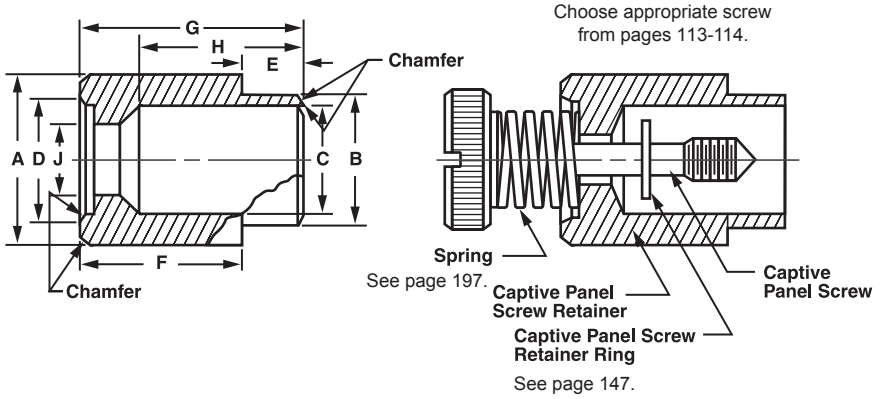
For method of installation, see page 190.

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

ORDER EXAMPLE:
650001 - S - 1

Basic Part Number | Material: See chart | Finish: See page 277

Captive Panel Screw and Retainer Ring must be ordered separately.



Basic Part Number	Thread	Panel Thickness	A ±.004	B +.000 -.003	C +.004 -.001	D +.005 -.000	E ±.005	F ±.005	G ±.010	H +.005 -.010	J +.004 -.001
650001	4-40	.052/ .067	9/32	.250	.210	.192	.062	.375	7/16	.299	.125
650002	4-40	.084/ .099	9/32	.250	.210	.192	.093	.344	7/16	.299	.125
650003	4-40	.109/ .140	9/32	.250	.210	.192	.125	.312	7/16	.299	.125
650004	6-32	.052/ .067	9/32	.250	.210	.192	.062	.375	7/16	.305	.150
650005	6-32	.084/ .099	9/32	.250	.210	.192	.093	.344	7/16	.305	.150
650006	6-32	.109/ .140	9/32	.250	.210	.192	.125	.312	7/16	.305	.150
650007	8-32	.052/ .067	17/32	.433	.386	.312	.062	.563	5/8	.427	.175
650008	8-32	.084/ .099	17/32	.433	.386	.312	.093	.532	5/8	.427	.175
650009	8-32	.109/ .140	17/32	.433	.386	.312	.125	.500	5/8	.427	.175
650010	8-32	.171/ .203	17/32	.433	.386	.312	.187	.438	5/8	.427	.175
650011	8-32	.234/ .265	17/32	.433	.386	.312	.250	.375	5/8	.427	.175
650012	10-24	.052/ .067	17/32	.433	.386	.312	.062	.563	5/8	.432	.203
650013	10-24	.084/ .099	17/32	.433	.386	.312	.093	.532	5/8	.432	.203
650014	10-24	.109/ .140	17/32	.433	.386	.312	.125	.500	5/8	.432	.203
650015	10-24	.171/ .203	17/32	.433	.386	.312	.187	.438	5/8	.432	.203
650016	10-24	.234/ .265	17/32	.433	.386	.312	.250	.375	5/8	.432	.203
650017	10-32	.052/ .067	17/32	.433	.386	.312	.062	.563	5/8	.432	.203
650018	10-32	.084/ .099	17/32	.433	.386	.312	.093	.532	5/8	.432	.203
650019	10-32	.109/ .140	17/32	.433	.386	.312	.125	.500	5/8	.432	.203
650020	10-32	.171/ .203	17/32	.433	.386	.312	.187	.438	5/8	.432	.203
650021	10-32	.234/ .265	17/32	.433	.386	.312	.250	.375	5/8	.432	.203
650022	12-24	.052/ .067	17/32	.433	.386	.312	.062	.563	5/8	.438	.228
650023	12-24	.084/ .099	17/32	.433	.386	.312	.093	.532	5/8	.438	.228
650024	12-24	.109/ .140	17/32	.433	.386	.312	.125	.500	5/8	.438	.228
650025	12-24	.171/ .203	17/32	.433	.386	.312	.187	.438	5/8	.438	.228
650026	12-24	.234/ .265	17/32	.433	.386	.312	.250	.375	5/8	.438	.228
650027	1/4-20	.052/ .067	17/32	.433	.386	.312	.062	.563	5/8	.445	.257
650028	1/4-20	.084/ .099	17/32	.433	.386	.312	.093	.532	5/8	.445	.257
650029	1/4-20	.109/ .140	17/32	.433	.386	.312	.125	.500	5/8	.445	.257
650030	1/4-20	.171/ .203	17/32	.433	.386	.312	.187	.438	5/8	.445	.257
650031	1/4-20	.234/ .265	17/32	.433	.386	.312	.250	.375	5/8	.445	.257
650032	1/4-28	.052/ .067	17/32	.433	.386	.312	.062	.563	5/8	.445	.257
650033	1/4-28	.084/ .099	17/32	.433	.386	.312	.093	.532	5/8	.445	.257
650034	1/4-28	.109/ .140	17/32	.433	.386	.312	.125	.500	5/8	.445	.257
650035	1/4-28	.171/ .203	17/32	.433	.386	.312	.187	.438	5/8	.445	.257
650036	1/4-28	.234/ .265	17/32	.433	.386	.312	.250	.375	5/8	.445	.257

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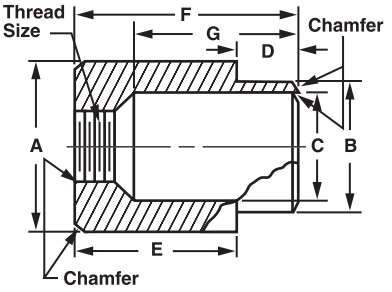
SERIES 700000 RETAINER - Small Profile

For Captive Screws, see pages 113-156.

Basic Part Number	Thread	Panel Thickness	A ±.004	B +.000 -.003	C +.004 -.001	D ±.005	E ±.005	F ±.010	G +.005 -.010
700001	4-40	.052/ .067	1/4	.188	.150	.062	.188	1/4	.161
700002	4-40	.084/ .099	1/4	.188	.150	.093	.157	1/4	.161
700003	4-40	.109/ .140	1/4	.188	.150	.125	.125	1/4	.161
700004	6-32	.052/ .067	1/4	.188	.150	.062	.250	5/16	.210
700005	6-32	.084/ .099	1/4	.188	.150	.093	.219	5/16	.210
700006	6-32	.109/ .140	1/4	.188	.150	.125	.188	5/16	.210
700007	8-32	.052/ .067	3/8	.218	.188	.062	.250	5/16	.210
700008	8-32	.084/ .099	3/8	.218	.188	.093	.219	5/16	.210
700009	8-32	.109/ .140	3/8	.218	.188	.125	.187	5/16	.210
700010	8-32	.171/ .203	3/8	.218	.188	.187	.125	5/16	.210
700011	10-24	.052/ .067	3/8	.270	.228	.062	.313	3/8	.236
700012	10-24	.084/ .099	3/8	.270	.228	.093	.282	3/8	.236
700013	10-24	.109/ .140	3/8	.270	.228	.125	.250	3/8	.236
700014	10-24	.171/ .203	3/8	.270	.228	.187	.188	3/8	.236
700015	10-24	.234/ .265	3/8	.270	.228	.250	.125	3/8	.236
700016	10-32	.052/ .067	3/8	.270	.228	.062	.313	3/8	.236
700017	10-32	.084/ .099	3/8	.270	.228	.093	.282	3/8	.236
700018	10-32	.109/ .140	3/8	.270	.228	.125	.250	3/8	.236
700019	10-32	.171/ .203	3/8	.270	.228	.187	.188	3/8	.236
700020	10-32	.234/ .265	3/8	.270	.228	.250	.125	3/8	.236
700021	12-24	.052/ .067	3/8	.270	.228	.062	.313	3/8	.239
700022	12-24	.084/ .099	3/8	.270	.228	.093	.282	3/8	.239
700023	12-24	.109/ .140	3/8	.270	.228	.125	.250	3/8	.239
700024	12-24	.171/ .203	3/8	.270	.228	.187	.188	3/8	.239
700025	12-24	.234/ .265	3/8	.270	.228	.250	.125	3/8	.239
700026	1/4-20	.052/ .067	1/2	.356	.295	.062	.375	7/16	.295
700027	1/4-20	.084/ .099	1/2	.356	.295	.093	.344	7/16	.295
700028	1/4-20	.109/ .140	1/2	.356	.295	.125	.312	7/16	.295
700029	1/4-20	.171/ .203	1/2	.356	.295	.187	.250	7/16	.295
700030	1/4-20	.234/ .265	1/2	.356	.295	.250	.187	7/16	.295
700031	1/4-28	.052/ .067	1/2	.356	.295	.062	.375	7/16	.295
700032	1/4-28	.084/ .099	1/2	.356	.295	.093	.344	7/16	.295
700033	1/4-28	.109/ .140	1/2	.356	.295	.125	.312	7/16	.295
700034	1/4-28	.171/ .203	1/2	.356	.295	.187	.250	7/16	.295
700035	1/4-28	.234/ .265	1/2	.356	.295	.250	.187	7/16	.295
700036	5/16-24	.052/ .067	1/2	.404	.343	.062	.375	7/16	.297
700037	5/16-24	.084/ .099	1/2	.404	.343	.093	.344	7/16	.297
700038	5/16-24	.109/ .140	1/2	.404	.343	.125	.312	7/16	.297
700039	5/16-24	.171/ .203	1/2	.404	.343	.187	.250	7/16	.297
700040	5/16-24	.234/ .265	1/2	.404	.343	.250	.187	7/16	.297

For method of installation, see page 190.

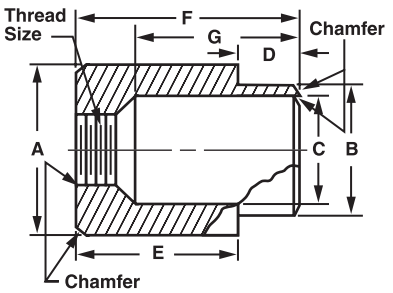


Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

ORDER EXAMPLE:
700001 - S - 1
Basic Part Number | Material: See chart | Finish: See page 277

SERIES 750000 RETAINER - Heavy Duty

Basic Part Number	Thread	Panel Thickness	A ±.004	B +.000 -.003	C +.004 -.001	D ±.005	E ±.005	F ±.005	G +.005 -.010
750001	6-32	.109/ .140	9/16	.406	.343	.165	.312	.477	.242
750002	6-32	.171/ .203	9/16	.406	.343	.230	.312	.542	.307
750003	6-32	.234/ .265	9/16	.406	.343	.290	.312	.602	.367
750004	8-32	.109/ .140	9/16	.406	.343	.165	.312	.477	.248
750005	8-32	.171/ .203	9/16	.406	.343	.230	.312	.542	.315
750006	8-32	.234/ .265	9/16	.406	.343	.290	.312	.602	.373
750007	10-32	.109/ .140	9/16	.406	.343	.165	.312	.477	.252
750008	10-32	.171/ .203	9/16	.406	.343	.230	.312	.542	.318
750009	10-32	.234/ .265	9/16	.406	.343	.290	.312	.602	.378
750010	12-24	.109/ .140	9/16	.406	.343	.165	.312	.477	.256
750011	12-24	.171/ .203	9/16	.406	.343	.230	.312	.542	.321
750012	12-24	.234/ .265	9/16	.406	.343	.290	.312	.602	.381
750013	1/4-20	.109/ .140	9/16	.406	.343	.165	.312	.477	.261
750014	1/4-20	.171/ .203	9/16	.406	.343	.230	.312	.542	.326
750015	1/4-20	.234/ .265	9/16	.406	.343	.290	.312	.602	.386

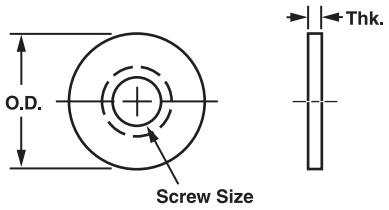


PANEL SCREW RETAINER WASHERS

Special Internal Thread

ORDER EXAMPLE:
W114050 - SS - 12
Basic Part Number | Material: See chart | Finish: See page 277

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel



Solid washers thread easily over any captive screw.

Part Number	Screw Size	OD +.020 -.005	Thk +.005	Part Number	Screw Size	OD +.020 -.005	Thk +.005
W114050	2	.187	.020	W114066	8	.375	.030
W114080	2	.250	.020	W114086	8	.500	.030
W114052	4	.255	.030	W114058	10	.375	.030
W114082	4	.312	.030	W114068	10	.500	.030
W114054	6	.312	.030	W114051	1/4	.500	.045
W114056	8	.312	.030	W114061	1/4	.562	.045

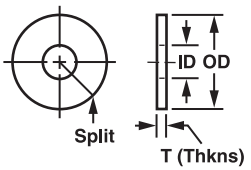
PANEL SCREW RETAINER WASHERS

Used with 600000-650000 Retainers (see pages 194-195)

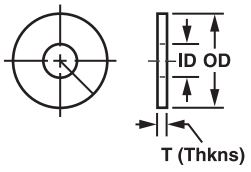
ORDER EXAMPLE:
800007 - SS
Basic Part Number | Material: See chart

Available Material (see page 275)	
SS	Stainless Steel, type 303 ASTM-A-581-582
N	Nylon

STAINLESS STEEL



NYLON



Stainless Steel Part No.	Thread	Ref ID	OD ±.005	T ±.005	Nylon Part No.	Thread	Ref ID	OD ±.005	T ±.005
800007 SS	2-56	.075	.156	.010	800007 N	2-56	.075	.156	.010
800008 SS	4-40	.093	.171	.010	800000 N	4-40	.100	.171	.015
800009 SS	6-32	.112	.171	.010	800001 N	6-32	.125	.171	.020
800010 SS	8-32	.146	.312	.012	800002 N	8-32	.152	.312	.020
800011 SS	10-24	.166	.312	.012	800003 N	10-24	.167	.312	.020
800012 SS	10-32	.166	.312	.012	800004 N	10-32	.173	.312	.020
800013 SS	12-24	.190	.312	.012	800005 N	12-24	.193	.312	.020
800014 SS	1/4-20	.204	.312	.012	800006 N	1/4-20	.228	.312	.030
800015 SS	1/4-28	.214	.312	.012	800007aN	1/4-28	.228	.312	.030
800016 SS	5/16-24	.265	.375	.010	800007bN	5/16-24	.265	.375	.031
800016aSS	5/16-18	.265	.375	.010	800007cN	5/16-18	.265	.375	.031

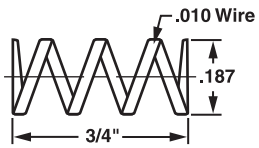
Available Material (see page 275)
Stainless Steel Wire ASTM-A-313,Type 302, Cond. B

STAINLESS STEEL SPRINGS

For Retainers 550000-650000

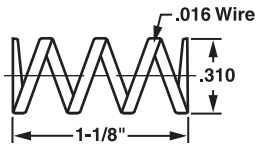
(see pages 193-195)

Used with 4-40 or 6-32 Threaded Panel Screws
COMPRESSED HEIGHT APPROX. .06



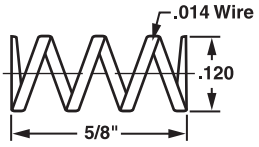
Part No.
EX-1

Used with 8-32 up to or 1/4-28 Threaded Panel Screws
COMPRESSED HEIGHT APPROX. .12



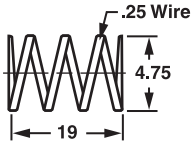
Part No.
EX-2

Used with 2-56 Threaded Panel Screws
COMPRESSED HEIGHT APPROX. .18

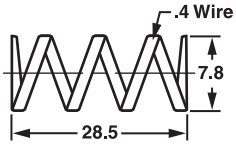


Part No.
EX-3

METRIC SPRINGS



Part No.
MEX-4



Part No.
MEX-5

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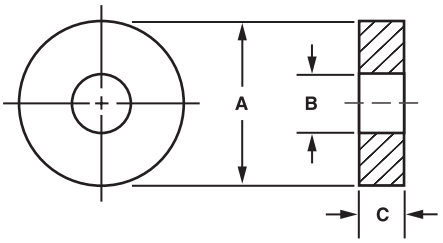
FLAT WASHERS



Tolerances
A = +.020 -.005
B = ±.010
C = ±.003 up to .032 thick
±.006 .033 to .062 thick
±.009 .063 to .093 thick
±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

10 - .015 - S - 1

- **10** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 10-015-N-2 ◄BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 10-.015-S-1 (A = .443 ± .005)
See chart for recommended thickness C, but any thickness can be ordered.

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
0	.022	.040	10			
	.026	.100	10a			
	.028	.186	10b			
	.030	.105	10c			
	.031	.309	10d			
	.036	.093	10e			
	.036	.125	11			
	.036	.187	12			
	.036	.860	12a			
	.037	.078	13			
	.038	.422	13a			
	.039	.250	13b			
	.039	.373	13c			
	.039	.750	13d			
	.041	.615	13e			
	.042	.433	13f			
	.043	.732	13g			
	.045	.306	13h			
	.047	.208	13k			
	.048	.121	14			
	.051	.165	14a			
	.051	1.650	14b			
	.052	.250	14c			
	.053	.510	14d			
	.054	.375	15			
	.055	.156	16			
	.055	.396	16a			
	.056	.150	16b			
	.057	.182	16c			
	.058	.627	16d			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
0	.060	.156	100			
	.060	.310	100a			
	.060	1.568	100b			
	.061	.141	100c			
	.061	.162	100d			
	.062	.125	17			
	.062	.180	18			
	.062	.218	19			
	.062	.262	19a			
	.062	.312	19b			
	.062	.480	19c			
	.063	.086	20			
	.063	.187	20a			
	.063	.250	20b			
	.063	.407	20c			
	.063	.498	20d			
	.063	.750	20e			
	.063	.900	20f			
	.064	.186	20g			
	.064	.435	20h			
	.064	.535	20k			
	.065	.156	20j			
	.065	.187	105			
	.066	.234	105a			
	.066	.400	105b			
	.066	.530	105c			
	.066	.600	105d			
	.066	.686	105e			
	.067	.219	21			
	.067	.281	21a			

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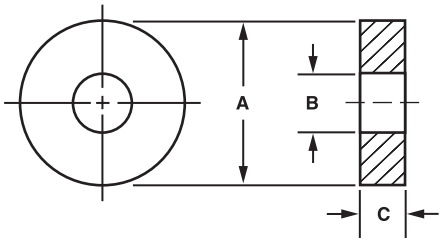

Tolerances
A = +.020 -.005
B = ±.010
C = ±.003 up to .032 thick
±.006 .033 to .062 thick
±.009 .063 to .093 thick
±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

22 - .015 - S - 1

- **22** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 22-015-N-2 ◄BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 22-.015-S-1 (A = .373 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
0	.067	.375	22			
	.067	.533	22a			
	.067	.625	22b			
	.068	.130	23			
	.068	.200	23a			
	.068	.235	23b			
	.069	.218	23c			
	.070	.185	23d			
	.070	.220	23e			
	.070	.235	24			
	.071	.425	24a			
	.072	.500	24b			
	.074	.251	24c			
1	.075	.156	25			
	.075	.195	25a			
	.076	.650	25b			
	.077	.191	25c			
	.077	.483	25d			
	.077	1.000	25e			
	.078	.187	26			
	.078	.210	27			
	.078	.289	27a			
	.078	.375	28			
	.079	.434	28a			
	.080	.187	110			
	.080	1.125	110a			
	.080	1.870	110b			
	.081	.180	110c			
	.081	.373	110d			
	.081	.494	110e			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
1	.082	.180	29			
	.082	.180	29a			
	.083	.250	30			
	.085	.496	30a			
	.085	.705	30b			
	.086	.185	30c			
	.087	.624	30d			
	.087	.749	30e			
	.088	.215	30f			
	.088	.312	30g			
	.088	.370	30h			
	.088	1.180	30k			
2	.089	.149	31			
	.089	.180	31a			
	.089	.187	120			
	.089	.188	32			
	.089	.248	32a			
	.089	.281	33			
	.089	.725	33a			
	.089	1.185	33b			
	.090	.250	115			
	.090	.312	115a			
	.090	.388	115b			
	.090	.440	115c			
	.090	.530	115d			
	.090	.750	115e			
	.091	.220	115f			
	.091	.275	115g			
	.091	.621	115h			
	.091	.746	115k			

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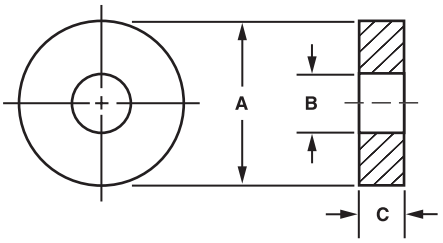

Tolerances	
A =	+.020 -.005
B =	±.010
C =	±.003 up to .032 thick
	±.006 .033 to .062 thick
	±.009 .063 to .093 thick
	±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

34 - .015 - S - 1

- **34** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 34-015-N-2 ←BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 34-.015-S-1 (A = .250 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish	Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
	.092	.970	115j				2	.096	.652	42e			
	.093	.156	34				2	.096	.809	42f			
	.093	.187	35				2	.097	.300	42g			
	.093	.203	35a				2	.097	.315	42h			
	.093	.250	36				2	.097	.372	42k			
	.093	.272	36a				3	.098	.236	42j			
	.093	.312	36b				3	.098	.283	42L			
	.093	.369	36c				3	.098	.410	43			
	.093	.625	37				2	.098	.500	43a			
	.093	.700	37a				3	.098	.750	43b			
	.093	1.499	37b				2	.099	.250	44			
	.094	.186	37c				2	.099	.374	44a			
	.094	.250	37d				2	.099	.402	44b			
	.094	.375	38				2	.099	.472	44c			
	.094	.395	39				3	.100	.190	45			
2	.094	.499	39a				2	.100	.249	45a			
	.094	.552	39b				2	.100	.300	45b			
	.094	.623	39c				2	.100	.375	45c			
	.094	.643	40				3	.100	.740	45d			
	.094	.809	40a				3	.100	.746	45e			
	.095	.312	40b				3	.101	.370	45f			
	.095	.313	41				2	.101	.714	45g			
	.095	.375	41a				3	.102	.500	45h			
	.095	.445	41b				3	.103	.250	45k			
	.095	.629	41c				3	.104	.312	45j			
	.096	.219	42				3	.104	.537	45L			
	.096	.270	42a				3	.104	.562	45m			
	.096	.498	42b				3	.105	.250	125			
	.096	.572	42c				3	.105	.260	46			
	.096	.625	42d				3	.105	.313	46a			

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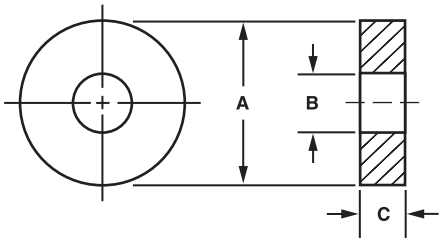

Tolerances	
A =	+.020 -.005
B =	±.010
C =	±.003 up to .032 thick
	±.006 .033 to .062 thick
	±.009 .063 to .093 thick
	±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

46b - .015 - S - 1

- **46b** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 46b-015-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 46b-.015-S-1 (A = .500 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
3	.105	.397	46b			
	.106	.187	46c			
	.106	.295	46d			
	.108	.187	46e			
	.108	.251	46f			
	.108	.308	46g			
	.108	.405	46h			
	.109	.343	47			
	.110	.185	47a			
	.110	.218	48			
	.110	.248	49			
	.110	.375	49a			
	.111	.714	49b			
	.112	.435	49c			
	.113	.188	49d			
	.113	.327	49e			
	.114	.375	49f			
	.114	1.703	49g			
	.115	.147	50			
	.115	.187	50a			
	.115	.209	51			
	.115	.214	52			
	.115	.270	53			
	.115	.500	54			
	.115	.590	54a			
	.116	.634	54b			
	.116	.810	54c			
	.117	.250	54d			
	.117	.369	54e			
	.117	.765	54f			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
4	.117	1.000	54g			
	.118	.150	55			
	.118	.185	55a			
	.118	.248	55b			
	.118	.275	55c			
	.118	.280	55d			
	.118	.311	55e			
	.118	.342	55f			
	.118	.387	55g			
	.118	.439	55h			
	.118	.488	55k			
	.118	.560	55j			
	.118	.600	55L			
	.118	.652	55m			
	.118	.714	55n			
	.118	.736	55p			
	.119	.230	56			
	.119	.250	130			
	.119	.310	130a			
	.119	.470	130b			
	.119	.687	130c			
	.119	.703	130d			
	.120	.180	57			
	.120	.192	57a			
	.120	.214	58			
	.120	.260	58a			
	.120	.280	59			
	.120	.281	135			
	.120	.310	60			
	.120	.314	61			

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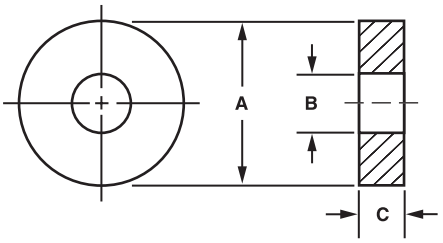

Tolerances	
A =	+.020 -.005
B =	±.010
C =	±.003 up to .032 thick
	±.006 .033 to .062 thick
	±.009 .063 to .093 thick
	±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

61a - .015 - S - 1

- **61a** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 61a-015-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 61a-.015-S-1 (A = .312 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
4	.120	.406	61a			
	.120	.430	61b			
	.120	.450	61c			
	.120	.700	61d			
	.120	1.062	61e			
	.120	1.782	61f			
	.122	.498	61g			
	.123	.375	61h			
	.124	.187	61k			
	.124	.203	62			
	.124	.250	62a			
	.124	.312	62b			
	.124	.500	63			
	.124	.655	63a			
	.125	.187	63b			
	.125	.247	63c			
	.125	.250	64			
	.125	.281	65			
	.125	.310	66			
	.125	.312	67			
	.125	.375	67a			
	.125	.432	67b			
	.125	.500	67c			
	.125	.714	67d			
	.125	.870	67e			
	.125	.960	67f			
	.125	1.150	67g			
	.125	1.308	67h			
	.125	1.325	67k			
	.125	1.425	67j			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
4	.125	1.436	67L			
	.125	1.625	67m			
	.125	1.745	67n			
	.125	.250	67p			
	.125	.358	67r			
5	.126	.360	68			
	.126	.381	68a			
	.126	.437	68b			
	.126	.498	68c			
	.126	.623	68d			
	.126	1.328	68e			
	.127	.253	68f			
	.127	.310	68g			
	.127	.550	68h			
	.127	.876	68k			
	.127	1.184	68j			
	.127	1.250	68L			
	.128	.190	68m			
	.128	.238	69			
	.128	.250	69a			
	.128	.300	69b			
	.128	.410	70			
	.128	.440	71			
	.128	.528	71a			
	.128	.600	71b			
	.128	.609	71c			
	.128	.625	71d			
	.128	.748	72			
	.128	1.190	72a			
	.129	.188	73			

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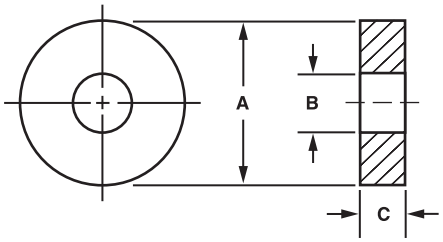

Tolerances
A = +.020 -.005
B = ±.010
C = ±.003 up to .032 thick
±.006 .033 to .062 thick
±.009 .063 to .093 thick
±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

73a - .015 - S - 1

- **73a** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 73a-015-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 73a-.015-S-1 (A = .625 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
5	.129	.234	73a			
	.129	.250	74			
	.129	.279	74a			
	.129	.311	74b			
	.129	.324	75			
	.129	.375	75a			
	.129	.437	75b			
	.129	.500	75c			
	.129	.552	75d			
	.129	.682	75e			
	.129	.750	75f			
	.129	.815	75g			
	.130	.234	76			
	.130	.250	76a			
	.130	.296	76b			
	.130	.312	76c			
	.130	.317	77			
	.130	.374	77a			
	.130	.386	77b			
	.130	.430	77c			
	.130	.597	77d			
	.130	.625	77e			
	.130	.688	78			
	.130	.855	78a			
	.130	1.160	78b			
	.130	1.473	78c			
	.130	1.500	78d			
	.131	.355	78e			
	.131	.555	78f			
	.131	.950	78g			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
5	.131	.998	78h			
	.132	.312	78k			
	.132	.345	78j			
	.132	.372	79			
	.132	.623	79a			
	.133	.240	80			
	.133	.437	80a			
	.133	.627	80b			
	.133	.875	80c			
	.134	.250	80d			
	.134	.312	80e			
	.134	1.140	80f			
	.135	.175	81			
	.135	.235	81a			
	.135	.270	81b			
	.135	.278	81c			
	.136	.250	82			
	.136	.438	82a			
	.136	.500	82b			
	.136	.748	82c			
	.137	.249	82d			
	.137	.311	82e			
	.137	.406	83			
	.137	.623	83a			
	.137	.707	84			
	.137	.829	84a			
	.138	.250	84b			
	.138	.579	84c			
	.139	.748	84d			
	.139	1.325	84e			

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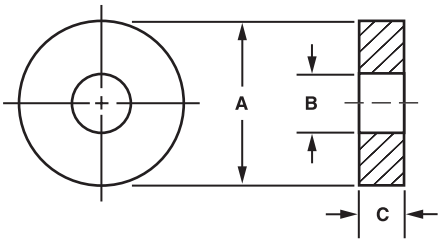

Tolerances	
A =	+.020 -.005
B =	±.010
C =	±.003 up to .032 thick
	±.006 .033 to .062 thick
	±.009 .063 to .093 thick
	±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

84f - .015 - S - 1

- **84f** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 84f-015-N-2 ←BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 84f-.015-S-1 (A = .500 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
6	.140	.247	84f			
	.140	.280	140			
	.140	.305	140a			
	.140	.312	85			
	.140	.375	86			
	.140	.550	86a			
	.140	.714	86b			
	.140	1.180	86c			
	.140	1.250	86d			
	.140	1.299	86e			
	.141	.247	86f			
	.141	.250	88			
	.141	.265	88a			
	.141	.376	88b			
	.141	.432	89			
	.141	.437	89a			
	.141	1.325	89b			
	.142	.281	89c			
	.142	.311	89d			
	.142	.373	89e			
	.142	.500	89f			
	.142	.505	90			
	.142	1.000	90a			
	.143	.283	90b			
	.143	.312	90c			
	.143	.353	90d			
	.143	.460	90e			
	.143	.531	90f			
	.144	.247	90g			
	.144	.312	90h			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
6	.144	.375	91			
	.144	.476	91a			
	.144	.500	91b			
	.144	.821	91c			
	.144	1.370	91d			
	.145	.185	92			
	.145	.242	92a			
	.145	.251	92b			
	.145	.280	92c			
	.145	.342	92d			
	.145	.390	92e			
	.145	.402	92f			
	.145	.406	93			
	.145	.559	93a			
	.145	.625	93b			
	.145	.640	94			
	.145	.750	95			
	.146	.250	95a			
	.146	.270	96			
	.146	.312	96a			
	.146	.370	96b			
	.146	.750	96c			
	.147	.250	97			
	.147	.268	97a			
	.147	.312	145			
	.147	.375	98			
	.147	.400	98a			
	.147	.437	98b			
	.147	.500	99			
	.147	.576	99a			

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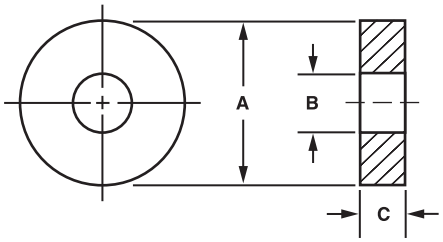

Tolerances
A = +.020 -.005
B = ±.010
C = ±.003 up to .032 thick
±.006 .033 to .062 thick
±.009 .063 to .093 thick
±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

99b - .015 - S - 1

- **99b** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 99b-015-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 99b-.015-S-1 (A = .400 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
6	.147	.590	99b			
	.147	.622	99c			
	.147	.688	99d			
	.147	.748	99e			
	.147	1.000	101			
	.148	.314	101a			
	.148	.419	101b			
	.148	.623	101c			
	.149	.187	101d			
	.149	.374	101e			
	.149	.435	101f			
	.149	.470	101g			
	.150	.312	101h			
	.150	.345	101k			
	.150	.375	101j			
	.150	.500	101L			
	.150	.633	102			
	.150	.916	102a			
	.150	1.000	102b			
	.151	.312	102c			
	.151	.400	102d			
	.151	.443	104			
	.151	.625	104a			
	.151	1.028	104b			
	.152	.250	104c			
	.152	.528	104d			
	.152	1.250	106			
	.153	.500	106a			
	.155	.250	106b			
	.155	.312	106c			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
6	.155	.750	106d			
	.155	1.125	106e			
	.155	1.295	106f			
	.156	.250	106g			
	.156	.312	107			
	.156	.385	107a			
	.156	.438	108			
	.156	.638	108a			
	.156	.998	108b			
	.156	1.050	108c			
	.156	1.187	108d			
	.156	1.500	108e			
	.156	1.832	108f			
	.157	.312	108g			
	.157	.375	108h			
	.157	.500	108k			
	.157	.995	108j			
	.157	1.325	108L			
	.158	.248	108m			
	.158	.355	108n			
	.158	.375	108p			
	.158	.440	108r			
	.158	.470	108s			
	.158	.531	108t			
	.158	.562	108u			
	.158	.619	108v			
	.158	.685	108w			
	.159	.312	108x			
	.159	.345	108y			
	.159	.373	108z			

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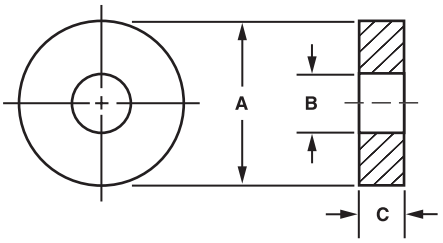

Tolerances	
A =	+.020 -.005
B =	±.010
C =	±.003 up to .032 thick
	±.006 .033 to .062 thick
	±.009 .063 to .093 thick
	±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

109 - .015 - S - 1

- **109** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 109-015-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 109-.015-S-1 (A = .400 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
6	.159	.375	109			
	.160	.250	109a			
	.160	.323	109b			
	.160	.434	109c			
	.160	.547	109d			
	.160	.562	111			
	.160	.749	111a			
	.160	.830	111b			
	.160	1.120	111c			
	.161	.250	111d			
	.161	.343	111e			
	.161	.560	111f			
	.161	.621	111g			
	.161	.650	111h			
	.161	.749	111k			
	.162	.250	111j			
	.162	.313	111m			
	.162	.375	111n			
	.162	.386	111p			
	.162	.495	111r			
	.162	.540	111s			
	.162	1.100	111t			
	.163	.920	111u			
	.164	.250	111v			
	.164	.360	111w			
	.164	.438	112			
	.164	.454	113			
	.164	1.556	113a			
	.165	.312	113b			
	.165	.490	113c			
6	.165	.562	113d			
	.165	.565	113e			
	.165	1.065	113f			
	.165	1.165	113g			
	.166	.250	113h			
	.166	.561	113k			
	.166	.696	113j			
	.166	.750	113m			
	.167	.250	132			
	.167	.277	114			
	.167	.300	114a			
	.167	.425	116			
	.167	.490	116a			
	.168	.250	116b			
	.168	.373	116c			
	.168	.375	150			
	.168	.500	117			
	.168	.624	117a			
	.168	.875	117b			
	.168	1.570	117c			
	.169	.250	117d			
	.169	.437	117e			
	.169	.472	117f			
	.169	1.704	117g			
8	.170	.250	117h			
	.170	.275	117k			
	.170	.315	117j			
	.170	.360	118			
	.170	.390	119			
	.170	.440	119a			

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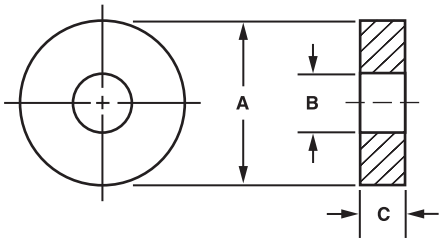

Tolerances	
A =	+.020 -.005
B =	±.010
C =	±.003 up to .032 thick
	±.006 .033 to .062 thick
	±.009 .063 to .093 thick
	±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

119b - .015 - S - 1

- **119b** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 119b-015-N-2 ←BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 119b-.015-S-1 (A = .750 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
8	.170	.500	119b			
	.170	.785	119c			
	.170	.877	119d			
	.170	1.000	119e			
	.170	1.280	119f			
	.170	1.490	119g			
	.171	.312	121			
	.171	.378	121a			
	.171	.406	121b			
	.171	.625	121c			
	.171	.750	122			
	.171	.997	122a			
	.172	.250	122b			
	.172	.346	122c			
	.172	.376	122d			
	.172	.410	123			
	.172	.437	124			
	.172	.750	126			
	.172	1.000	126a			
	.172	1.325	126b			
	.173	.375	127			
	.173	.625	128			
	.173	.748	128a			
	.173	1.000	129			
	.173	1.627	129a			
	.174	.290	131			
	.174	.310	131a			
	.174	.375	133			
	.174	.439	133a			
	.174	.500	133b			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
8	.174	.937	133c			
	.175	.343	134			
	.175	.373	134a			
	.175	.875	134b			
	.175	1.320	134c			
	.176	.434	134d			
	.177	.275	136			
	.177	.500	137			
	.177	1.438	138			
	.178	.562	139			
	.180	.875	141			
	.182	.278	142			
	.185	.437	143			
	.187	.312	144			
	.187	.380	146			
	.187	1.791	147			
	.188	.260	148			
	.188	.500	149			
	.188	1.400	151			
	.189	.750	152			
10	.190	.322	153			
	.190	.640	154			
	.191	.522	156			
	.192	.343	157			
	.192	.370	158			
	.192	.406	159			
	.192	.468	161			
	.193	.500	162			
	.195	.245	163			
	.195	.354	164			

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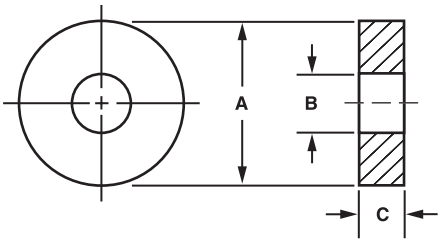

Tolerances	
A =	+.020 -.005
B =	±.010
C =	±.003 up to .032 thick
	±.006 .033 to .062 thick
	±.009 .063 to .093 thick
	±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

155 - .015 - S - 1

- **155** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 155-015-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 155-.015-S-1 (A = .375 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
10	.195	.437	155			
	.196	.375	166			
	.196	.437	167			
	.196	.750	168			
	.198	.683	169			
	.199	.312	171			
	.199	.500	172			
	.199	.750	173			
	.199	1.500	174			
	.200	.325	176			
	.200	.359	177			
	.200	.500	179			
	.201	.460	181			
	.202	.632	182			
	.203	.309	183			
	.203	.375	184			
	.203	.437	187			
	.203	.469	188			
	.209	.438	160			
12	.219	.390	189			
	.219	.443	191			
	.220	.365	192			
	.220	.635	193			
	.221	.468	196			
	.222	.300	198			
	.222	.372	210			
	.222	.500	202			
	.222	.730	203			
	.222	1.000	204			
	.222	1.130	206			
	.222	1.500	207			
1/4	.251	.329	208			
	.252	.420	209			
	.252	.450	9745			
	.252	.500	211			
	.252	.592	212			
	.252	.752	213			
	.253	.470	214			
	.253	.562	215			
	.253	.878	216			
	.254	.400	217			
	.254	.622	218			
	.254	1.063	219			
	.255	.340	220			
	.255	.375	221			
	.255	.481	222			
	.255	.505	223			
	.255	1.062	224			
	.256	.695	225			
	.257	.410	226			
	.257	.620	227			
	.257	.694	228			
	.257	1.125	229			
	.258	.318	230			
	.258	.747	231			
	.258	1.443	232			
	.259	.875	233			
	.260	.300	234			
	.260	.400	235			
	.260	.473	236			

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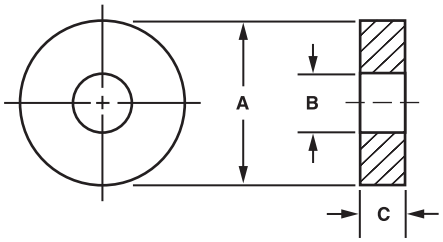

Tolerances	
A =	+.020 -.005
B =	±.010
C =	±.003 up to .032 thick
	±.006 .033 to .062 thick
	±.009 .063 to .093 thick
	±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

237 - .015 - S - 1

- **237** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 237-015-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 237-.015-S-1 (A = .870 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
1/4	.260	.500	237			
	.260	.562	238			
	.260	.625	239			
	.260	.687	178			
	.260	1.000	240			
	.261	.375	241			
	.261	1.000	242			
	.261	1.500	243			
	.263	.432	244			
	.263	.500	245A			
	.263	.510	245			
	.263	.800	246			
	.265	.375	247			
	.265	.430	248			
	.265	.500	249			
	.265	.562	165			
	.265	.625	175			
	.265	.870	250			
	.265	1.125	251			
	.266	.408	252			
	.267	.523	253			
	.268	.580	254			
	.270	.750	255			
	.270	1.000	256			
	.270	1.130	257			
	.270	1.250	258			
	.273	1.375	259			
	.274	.438	260			
	.276	.500	261			
	.280	.562	170			
	.281	.625	262			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
1/4	.282	.361	263			
	.282	.750	264			
	.283	.495	265			
	.283	.512	266			
	.284	.420	267			
	.284	.543	268			
	.289	.555	269			
	.295	.574	270			
	.296	.375	271			
	.300	.750	273			
	.300	1.997	9748			
	.310	.687	9747			
	.310	.875	274			
	.311	.544	275			
5/16	.312	.500	276			
	.312	.562	277			
	.312	.625	278			
	.312	.734	279			
	.312	.750	280			
	.312	1.000	281			
	.312	1.250	282			
	.314	.420	283			
	.314	.512	284			
	.315	.370	285			
	.315	.484	286			
	.315	.500	287			
	.315	.562	288			
	.315	1.156	289			
	.316	.600	290			
	.317	.739	291			
	.318	.437	292			

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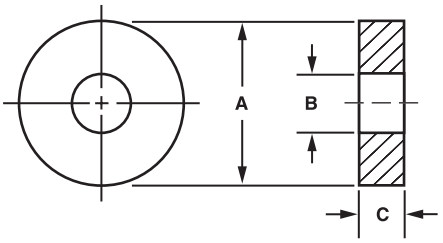

Tolerances	
A =	+.020 -.005
B =	±.010
C =	±.003 up to .032 thick
	±.006 .033 to .062 thick
	±.009 .063 to .093 thick
	±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

293 - .015 - S - 1

- **293** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 293-015-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 293-.015-S-1 (A = .370 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
1/4	.318	.751	293			
	.321	.764	294			
	.324	.520	295			
	.325	.383	296			
	.325	.500	297			
	.325	.562	298			
	.325	.625	299			
	.325	.870	300			
	.326	.412	301			
	.327	.750	302			
	.328	.562	303			
	.328	1.000	304			
	.328	1.375	305			
	.330	.370	306			
	.331	.521	307			
	.333	.500	308			
	.335	.390	309			
	.335	.625	310			
	.335	.750	311			
	.336	.875	312			
	.340	.687	180			
	.340	.875	185			
	.343	.500	313			
	.343	.687	314			
	.343	.750	315			
	.360	.625	316			
	.370	.880	317			
	.372	.753	318			
	.373	.503	319			
	.374	.866	320			
	.374	1.005	321			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
3/8	.375	.487	322			
	.375	.500	323			
	.375	.531	324			
	.375	.625	325			
	.375	.656	326			
	.375	.875	327			
	.375	1.000	328			
	.375	1.130	329			
	.375	1.250	330			
	.375	1.632	331			
	.377	.562	332			
	.378	.482	333			
	.378	.563	334			
	.378	.720	335			
	.378	.750	336			
	.380	.683	337			
	.380	.812	338			
	.380	1.125	339			
	.381	.782	340			
	.382	.507	341			
	.382	.683	342			
	.382	2.256	343			
	.384	.564	344			
	.384	2.750	345			
	.385	.625	346			
	.385	1.000	347			
	.387	.654	348			
	.390	.625	349			
	.390	.836	350			
	.390	.870	351			
	.391	1.000	352			

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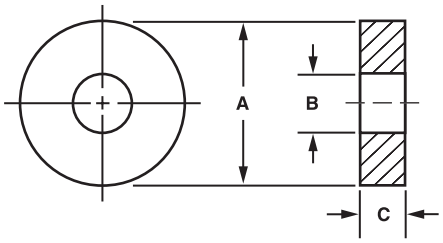

Tolerances	
A =	+.020 -.005
B =	±.010
C =	±.003 up to .032 thick
	±.006 .033 to .062 thick
	±.009 .063 to .093 thick
	±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

353 - .015 - S - 1

- **353** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 353-015-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 353-.015-S-1 (A = .750 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
3/8	.394	.567	353			
	.395	1.844	354			
	.398	1.875	355			
	.401	.750	356			
	.402	1.000	194			
	.405	.812	190			
	.406	.890	357			
	.409	1.000	358			
	.407	.800	359			
	.410	.568	360			
	.415	.750	361			
	.416	.628	362			
	.421	.781	363			
	.423	.556	364			
	.425	.720	365			
	.435	.630	366			
7/16	.437	.750	367			
	.437	1.000	368			
	.437	1.250	369			
	.437	1.500	370			
	.437	3.375	371			
	.437	3.750	372			
	.439	.875	373			
	.440	.635	374			
	.440	.750	375			
	.440	.784	376			
	.441	.722	377			
	.441	.825	378			
	.442	.620	379			
	.442	.692	380			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
7/16	.442	.812	381			
	.443	.875	382			
	.443	1.005	383			
	.444	.724	384			
	.448	.678	385			
	.449	.780	386			
	.450	.815	387			
	.451	.750	388			
	.455	1.000	389			
	.458	.750	390			
	.463	.875	391			
	.468	.921	392			
	.470	.968	393			
	.470	1.000	394			
	.473	.927	395			
	.477	.625	396			
	.480	.750	397			
	.490	.812	398			
1/2	.500	.687	399			
	.500	.750	400			
	.500	.875	401			
	.500	1.000	402			
	.500	1.125	197			
	.500	1.250	403			
	.500	1.500	404			
	.500	1.875	405			
	.503	.625	406			
	.503	.693	407			
	.503	.945	408			
	.504	.812	409			

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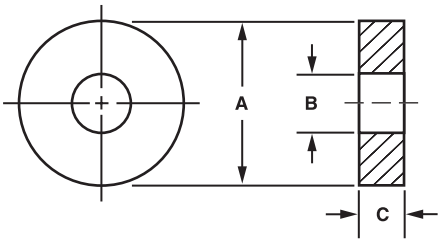

Tolerances	
A =	+.020 -.005
B =	±.010
C =	±.003 up to .032 thick
	±.006 .033 to .062 thick
	±.009 .063 to .093 thick
	±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

410 - .015 - S - 1

- **410** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 410-015-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 410-.015-S-1 (A = .750 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
1/2	.505	.661	410			
	.505	.750	411			
	.505	.812	412			
	.505	.875	413			
	.505	1.000	414			
	.505	1.250	415			
	.506	.620	416			
	.510	.570	417			
	.510	.740	418			
	.510	.990	419			
	.513	.718	420			
	.515	.660	421			
	.515	.750	422			
	.515	.812	423			
	.515	.875	424			
	.515	2.000	425			
	.516	.656	426			
	.518	.635	427			
	.520	1.063	428			
	.520	1.187	429			
	.526	1.000	430			
	.528	.940	431			
	.530	.750	432			
	.531	1.000	195			
	.531	1.062	433			
	.535	.720	434			
	.535	1.000	435			
	.535	1.281	436			
	.536	1.062	437			
	.538	1.385	438			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
1/2	.540	.750	439			
	.541	.721	440			
	.541	.843	441			
	.545	.875	442			
	.547	.620	443			
	.550	.875	444			
	.560	.810	445			
	.560	1.380	446			
	.562	.688	447			
	.562	.750	448			
	.562	.875	449			
	.562	1.000	450			
	.562	1.250	199			
	.562	1.375	451			
	.567	1.380	452			
	.570	.886	453			
	.572	.755	454			
	.573	.985	455			
	.574	.748	456			
	.574	.984	457			
	.578	1.062	458			
	.578	2.188	459			
	.580	.750	460			
	.588	1.125	461			
	.594	1.188	462			
	.599	1.474	463			
	.600	.812	464			
	.600	.875	465			
	.609	1.474	466			
	.625	.750	467			

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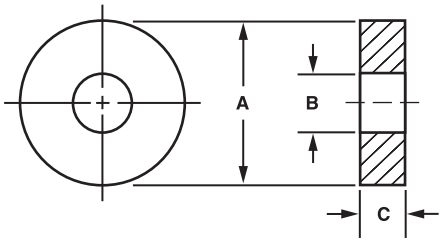

Tolerances	
A =	+.020 -.005
B =	±.010
C =	±.003 up to .032 thick
	±.006 .033 to .062 thick
	±.009 .063 to .093 thick
	±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

468 - .015 - S - 1

- **468** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 468-015-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 468-.015-S-1 (A = .875 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
5/8	.625	.875	468			
	.625	1.000	469			
	.625	1.239	470			
	.625	1.250	471			
	.625	1.375	472			
	.629	1.493	473			
	.630	.812	474			
	.630	1.000	475			
	.630	1.125	476			
	.630	1.187	477			
	.630	1.260	478			
	.636	.875	479			
	.640	.786	480			
	.640	1.120	481			
	.640	1.188	482			
	.640	1.193	483			
	.640	2.375	484			
	.641	.904	485			
	.645	.844	486			
	.645	.938	487			
	.645	1.062	488			
	.646	.746	489			
	.651	1.250	490			
	.656	1.250	200			
	.656	1.312	491			
	.659	.882	492			
	.670	.970	493			
	.687	.875	494			
	.687	1.000	495			
	.687	1.062	496			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
5/8	.687	1.250	497			
	.687	1.500	498			
	.687	1.750	499			
	.688	1.500	9600			
	.688	1.750	9601			
	.690	.812	9602			
	.690	.943	9603			
	.694	1.156	9604			
	.695	1.346	9605			
	.707	1.138	9607			
	.718	.970	9608			
	.728	1.250	9609			
3/4	.750	1.000	9610			
	.750	1.180	9611			
	.750	1.188	9612			
	.750	1.250	9613			
	.750	1.500	9614			
	.752	1.625	9615			
	.753	1.006	9616			
	.754	1.420	9617			
	.755	.875	9618			
	.755	1.005	9619			
	.755	1.500	9620			
	.760	.990	9621			
	.765	1.312	9622			
	.767	1.077	9623			
	.768	.890	9624			
	.781	1.244	9625			
	.784	.872	9626			
	.812	1.000	9627			

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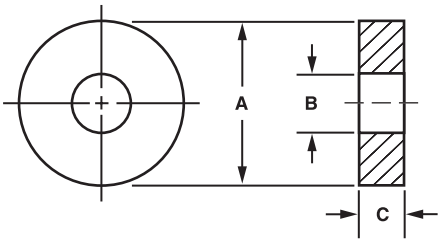

Tolerances
A = +.020 -.005
B = ±.010
C = ±.003 up to .032 thick
±.006 .033 to .062 thick
±.009 .063 to .093 thick
±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

9628 -.015- S - 1

- **9628** — Basic Part Number
- **.015** — C Thickness: See chart or fill in any length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 9628-015-N-2 ←BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 9628-.015-S-1 (A = 1.420 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
3/4	.812	1.250	9628			
	.812	1.375	205			
	.812	1.469	9629			
	.812	1.500	9630			
	.812	1.750	9631			
	.812	1.875	9632			
	.812	2.000	9633			
	.815	1.068	9634			
	.817	1.000	9635			
	.817	1.474	9636			
	.817	2.005	9637			
	.820	.961	9638			
	.839	1.384	9639			
	.839	1.438	9640			
	.840	1.437	9641			
	.843	1.190	9642			
	.845	1.125	9643			
	.853	1.420	9644			
7/8	.875	1.125	9645			
	.875	1.250	9646			
	.875	1.500	9647			
	.878	1.132	9648			
	.879	1.246	9649			
	.879	1.640	9650			
	.879	2.000	9651			
	.880	1.130	9652			
	.890	1.500	9653			
	.893	1.136	9654			
	.895	1.218	9746			
	.901	1.750	9655			

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
7/8	.937	1.250	9656			
	.937	1.500	9657			
	.937	1.750	9658			
	.937	2.250	9659			
	.940	1.187	9660			
	.947	1.312	9661			
1.00	1.000	1.250	9662			
	1.000	1.375	9663			
	1.000	1.500	9664			
	1.000	1.750	9665			
	1.000	2.000	9666			
	1.004	1.562	9667			
	1.004	1.875	9668			
	1.004	2.250	9669			
	1.010	1.250	9670			
	1.015	1.750	9671			
	1.020	1.330	9672			
	1.026	2.000	9673			
	1.031	1.500	9674			
	1.062	2.000	9675			
	1.062	2.500	9676			
	1.067	2.005	9677			
	1.067	2.505	9678			
	1.069	1.250	9679			
	1.073	1.312	9680			
	1.073	1.365	9681			
	1.073	1.500	9682			
	1.078	1.812	9683			
	1.078	1.880	9684			
	1.081	1.639	9685			

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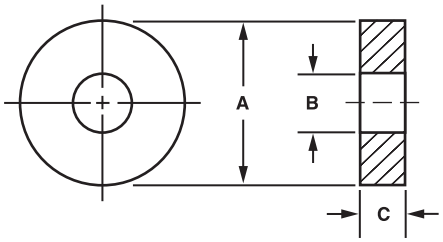

Tolerances
A = +.020 -.005
B = ±.010
C = ±.003 up to .032 thick
±.006 .033 to .062 thick
±.009 .063 to .093 thick
±.010 for .094 and over

Tighter tolerances for the A, B, & C dimensions can be provided. See order example.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Recommended Thickness "C"	
.010	.125
.015	.156
.020	.187
.030	.250
.040	.312
.045	.375
.060	.437
.062	.500
.093	

ORDER EXAMPLE:

9690 -.015- S - 1

- 9690 — Basic Part Number
- .015 — C Thickness: See chart or fill in any length
- S — Material: See chart
- 1 — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 9690-015-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 9690-.015-S-1 (A = 1.260 ± .005)

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber
GM	Glass Melamine G 5	GE	Glass Epoxy G10
GS	Glass Silicone G 7	UL*	ULTEM 1000

* ULTEM 1000 - UL Rating 94V-0

Screw Size	B ID	A OD	Basic Part No.	C Thickness	Material	Finish
1.00	1.129	2.095	9690			
	1.129	2.500	9691			
	1.135	1.370	9692			
	1.137	1.625	9693			
	1.165	1.562	9694			
	1.187	2.500	9695			
	1.187	2.750	9696			
	1.188	1.732	9697			
	1.195	1.436	9698			
	1.198	1.750	9699			
1.25	1.250	2.750	9700			
	1.252	2.000	9701			
	1.254	2.350	9702			
	1.258	1.507	9703			
	1.260	1.812	9704			
	1.260	1.875	9705			
	1.265	2.005	9706			
	1.279	1.611	9707			
	1.281	1.750	9708			
	1.312	2.750	9709			
	1.312	3.000	9710			
	1.323	1.615	9711			
	1.323	1.875	9712			
	1.324	1.575	9713			
	1.328	2.062	9714			
	1.328	2.067	9715			
	1.347	1.888	9716			
	1.379	2.585	9717			
1.25	1.421	1.812	9718			
	1.437	3.250	9719			
	1.443	2.000	9720			
1.50	1.504	2.820	9721			
	1.505	2.000	9722			
	1.506	1.998	9723			
	1.510	2.062	9724			
	1.525	2.150	9725			
	1.562	3.250	9726			
	1.562	3.500	9727			
	1.572	2.125	9728			
	1.635	1.865	9729			
	1.635	2.188	9730			
	1.640	2.375	9731			
	1.699	2.250	9732			
	1.790	2.440	9733			
	1.827	2.375	9734			
	1.863	2.645	9735			
	1.885	2.115	9736			
	1.890	2.375	9737			
	1.890	2.625	9738			
	1.947	2.500	9739			
	1.950	3.000	9740			
2.00	2.073	2.625	9741			
	2.198	2.750	3742			
	2.265	3.000	9743			
	2.515	3.250	9744			

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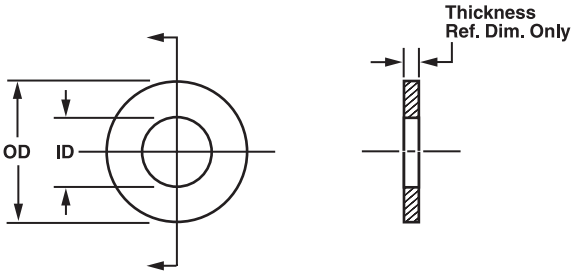
NEOPRENE FLAT WASHERS

Durameter - Medium #60



ORDER EXAMPLE:

9800 -.016

Basic Part Number — Thickness

Thicknesses and Tolerances Available	
.015 - .031	±.005
.047	±.006
.062	±.008
.093	±.012
.125	±.015

TECH TIP

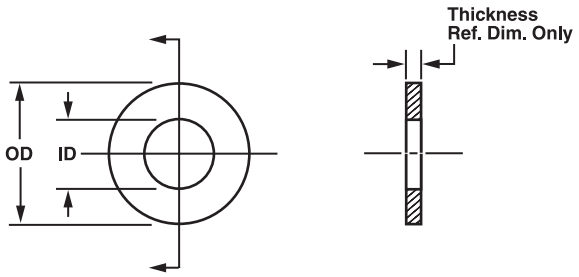
Tolerances on fractions are larger than the tolerances on decimals.

Basic Part Number	Screw Size	Inside Dia ±.010	Outside Dia ±.010
9800	0	.070	.199
9801	0	.070	.312
9802	0	.070	.242
9808	1	.086	.242
9810	1	.086	.329
9811	1	.086	.375
9812	2	.093	.235
9816	2	.093	.390
9820	3	.109	.235
9822	3	.109	.283
9823	3	.108	.500
9824	3	.109	.390
9828	4	.120	.380
9830	4	.120	.529
9832	4	.125	.250
9836	6	.150	.380
9838	6	.150	.400
9840	6	.150	.478
9842	6	.150	.644
9844	6	.156	.375
9849	6	.156	.750
9850	6	.156	2.000
9851	6	.156	1.00
9854	8	.171	.380
9856	8	.171	.430
9862	8	.187	.312
9863	8	.187	.500
9864	10	.203	.443
9866	10	.203	.465

NOTES: Tensile Strength, PSI 1500
Hardness, 50-70 SDH
Resistance to Continuous Heat, °F 175

NEOPRENE FLAT WASHERS

Durameter - Medium #60



ORDER EXAMPLE:

9871 -.016

Basic Part Number — Thickness

Thicknesses and Tolerances Available	
.015 - .031	±.005
.047	±.006
.062	±.008
.093	±.012
.125	±.015

Basic Part Number	Screw Size	Inside Dia ±.010	Outside Dia ±.010
9871	10	.203	1.000
9872		.265	.505
9877		.265	.625
9878		.265	.745
9882		.328	.567
9884		.328	.687
9886		.328	.812
9887		.328	1.000
9892		.390	.745
9893		.390	.781
9894		.390	.865
9898		.453	.755
98100		.453	.880
98102		.515	.750
98103		.453	1.00
98104		.515	.880
98106		.515	1.000
98110		.640	.875
98112		.640	1.000
98113		.640	1.250
98117		.687	1.000
98118		.765	1.000
98120		.765	1.187
98124		.890	1.250
98128		1.015	1.250
98130		1.015	1.500
98133		1.015	2.00

NOTES: Tensile Strength, PSI 1500
Hardness, 50-70 SDH
Resistance to Continuous Heat, °F 175

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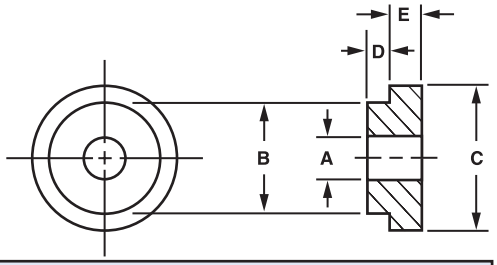
SHOULDER WASHERS



Color	Code	Color	Code
Natural	1	Brown	6
Black	2	Orange	7
Red	3	Green	8
Blue	4	Yellow	9
Purple	5		

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	F ber
GE	Glass Epoxy G10	UL	ULTEM 1000 - UL Rating 94V-O

ORDER EXAMPLE:

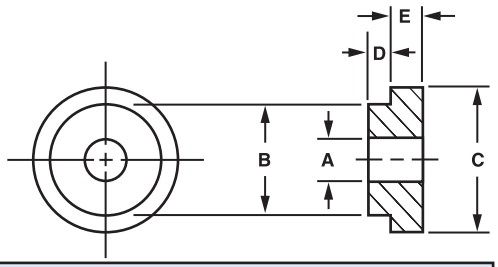
15000 - .060 - .030 - S - 1

- **15000** — Basic Part Number
- **.060** — Shoulder Length E: Fill in length
- **.030** — Shank Length D: Fill in length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 15000-.060-.030-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 15000-.060-.030-S-1 (A = .078)
Internal threaded Shoulder Washers are available. Add desired thread to part number (see pa ge 281).
EXAMPLE: 15010-.050-.050-B-1 (A = 2-56)

Screw Size	A ± .005	B ± .010	C ± .010	Basic Part Number	E Shoulder Length ± .005	D Shank Length ± .005	Material	Finish
00	.046	.140	.187	15000				
	.051	.090	.127	15002				
	.053	.125	.250	15004				
	.055	.125	.344	15006				
0	.062	.090	.156	15008				
	.062	.156	.250	15010				
	.063	.125	.187	15012				
	.070	.105	.140	15014				
1	.078	.150	.215	15016				
	.083	.123	.240	15018				
2	.090	.122	.187	15020				
	.090	.131	.187	15022				
	.090	.187	.313	15024				
	.092	.151	.219	15026				
	.093	.115	.140	15028				
	.093	.122	.250	15030				
	.093	.125	.187	15032				
	.093	.125	.234	15034				
	.093	.140	.250	15036				
	.093	.152	.312	15038				
	.093	.154	.250	15040				
	.094	.137	.250	15042				
	.095	.155	.265	15044				
	.096	.180	.312	15046				
	.097	.125	.187	15048				
	.098	.136	.312	15050				
	.098	.140	.250	15052				
	.098	.170	.218	15054				
	.098	.190	.250	15056				
	.099	.128	.312	15058				
	.100	.187	.250	16060				
	.100	.187	.375	15062				
3	.103	.160	.250	15064				
	.103	.192	.316	15066				
	.106	.165	.312	15068				
	.106	.170	.250	15070				
	.107	.152	.224	15072				

SHOULDER WASHERS



Color	Code	Color	Code
Natural	1	Brown	6
Black	2	Orange	7
Red	3	Green	8
Blue	4	Yellow	9
Purple	5		

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	F ber
GE	Glass Epoxy G10	UL	ULTEM 1000 - UL Rating 94V-O

ORDER EXAMPLE:

15074 - .060 - .030 - S - 1

- **15074** — Basic Part Number
- **.060** — Shoulder Length E: Fill in length
- **.030** — Shank Length D: Fill in length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 15074-.060-.030-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 15074-.060-.030-S-1 (A = .125)
Internal threaded Shoulder Washers are available. Add desired thread to part number (see page 281).
EXAMPLE: 15074-.060-.060-S-1 (A = 2-56)

Screw Size	A ± .005	B ± .010	C ± .010	Basic Part Number	E Shoulder Length ± .005	D Shank Length ± .005	Material	Finish
3	.110	.187	.250	15074				
	.110	.203	.312	15076				
	.111	.244	.375	15078				
	.112	.150	.250	15080				
	.112	.185	.312	15082				
	.113	.146	.250	15084				
	.113	.187	.245	15086				
	.114	.150	.312	15088				
4	.115	.136	.200	15090				
	.115	.147	.235	15092				
	.115	.175	.281	15094				
	.115	.187	.250	15096				
	.115	.187	.343	15098				
	.116	.150	.250	15100				
	.116	.158	.316	15102				
	.116	.187	.281	15104				
	.118	.137	.250	15105				
	.118	.150	.250	15106				
	.118	.177	.281	15108				
	.120	.150	.250	15110				
	.120	.180	.312	15112				
	.120	.185	.250	15114				
	.120	.190	.312	15116				
	.120	.190	.375	15118				
	.120	.214	.312	15120				
	.120	.216	.375	15122				
	.120	.248	.625	15124				
	.121	.245	.375	15126				
	.123	.187	.312	15128				
	.125	.156	.250	15130				
	.125	.171	.437	15132				
	.125	.175	.312	15134				
	.125	.187	.313	15136				
	.125	.187	.375	15138				
	.125	.190	.312	15140				
	.125	.190	.375	15142				
	.125	.199	.243	15144				

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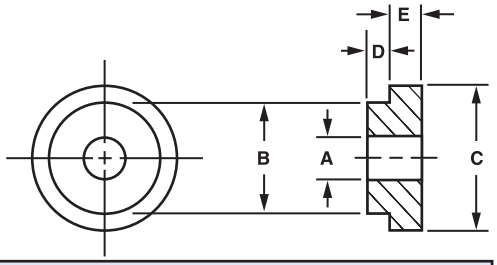


Color	Code	Color	Code
Natural	1	Brown	6
Black	2	Orange	7
Red	3	Green	8
Blue	4	Yellow	9
Purple	5		

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	F ber
GE	Glass Epoxy G10	UL	ULTEM 1000 - UL Rating 94V-O

ORDER EXAMPLE:

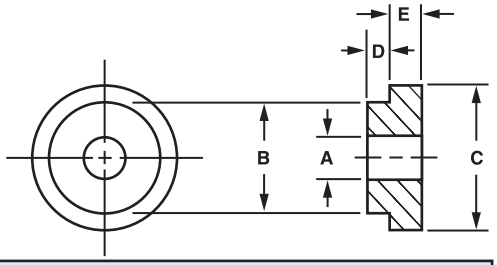
15146 - .060 - .030 - S - 1

- **15146** — Basic Part Number
- **.060** — Shoulder Length E: Fill in length
- **.030** — Shank Length D: Fill in length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 15146-.060-.030-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 15146-.060-.030-S-1 (A = .136)
Internal threaded Shoulder Washers are available. Add desired thread to part number (see page 281).
EXAMPLE: 15146-.060-.060-B-1 (A = 2-56)

Screw Size	A ± .005	B ± .010	C ± .010	Basic Part Number	E Shoulder Length ± .005	D Shank Length ± .005	Material	Finish
4	.125	.203	.421	15146				
	.125	.218	.312	15148				
	.125	.218	.343	15150				
	.125	.241	.312	15152				
	.125	.250	.375	15154				
	.125	.312	.375	15156				
	.125	.312	.625	15158				
	.126	.197	.312	15160				
	.127	.155	.265	15162				
5	.128	.150	.234	15164				
	.128	.185	.312	15166				
	.128	.185	.375	15168				
	.128	.187	.312	15170				
	.128	.193	.281	15172				
	.128	.203	.375	15174				
	.128	.218	.312	15176				
	.128	.250	.375	15178				
	.128	.265	.320	15180				
	.129	.185	.345	15182				
	.129	.185	.378	15184				
	.129	.212	.437	15186				
	.130	.177	.281	15188				
	.130	.185	.335	15190				
	.130	.187	.343	15192				
	.130	.192	.437	15194				
	.130	.208	.312	15196				
	.130	.250	.375	15198				
	.133	.219	.343	15200				
	.133	.240	.355	15202				
	.133	.187	.312	15204				
	.135	.187	.328	15206				
	.135	.187	.437	15208				
	.136	.185	.312	15210				
	.136	.187	.250	15212				
	.136	.187	.312	15214				
	.136	.221	.312	15216				
	.136	.245	.375	15218				

SHOULDER WASHERS



Color	Code	Color	Code
Natural	1	Brown	6
Black	2	Orange	7
Red	3	Green	8
Blue	4	Yellow	9
Purple	5		

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	F ber
GE	Glass Epoxy G10	UL	ULTEM 1000 - UL Rating 94V-O

ORDER EXAMPLE:

15220 - .060 - .030 - S - 1

- **15220** — Basic Part Number
- **.060** — Shoulder Length E: Fill in length
- **.030** — Shank Length D: Fill in length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 15220-.060-.030-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 15220-.060-.030-S-1 (A = .150)
Internal threaded Shoulder Washers are available. Add desired thread to part number (see page 281).
EXAMPLE: 15220-.060-.060-SS-1 (A = 4-40)

Screw Size	A ± .005	B ± .010	C ± .010	Basic Part Number	E Shoulder Length ± .005	D Shank Length ± .005	Material	Finish
5	.136	.437	.562	15220				
	.138	.190	.281	15222				
	.139	.183	.312	15224				
6	.140	.170	.290	15226				
	.140	.185	.312	15228				
	.140	.185	.378	15230				
	.140	.187	.234	15232				
	.140	.187	.312	15234				
	.140	.187	.328	15236				
	.140	.210	.312	15238				
	.140	.210	.375	15240				
	.140	.212	.437	15242				
	.140	.224	.343	15244				
	.140	.234	.500	15246				
	.140	.237	.375	15248				
	.141	.182	.320	15250				
	.141	.187	.250	15252				
	.141	.187	.312	15254				
	.141	.250	.375	15256				
	.144	.187	.313	15258				
	.144	.213	.310	15260				
	.144	.250	.437	15262				
	.144	.281	.437	15264				
	.144	.312	.437	15266				
	.146	.248	.375	15268				
	.147	.172	.312	15270				
	.147	.187	.375	15272				
	.147	.255	.375	15274				
	.147	.360	.500	15276				
	.150	.203	.247	15278				
	.150	.250	.355	15280				
	.152	.199	.378	15282				
	.155	.245	.360	15284				
	.156	.250	.375	15286				
	.156	.250	.437	15288				
	.156	.250	.500	15290				
	.156	.312	.500	15292				

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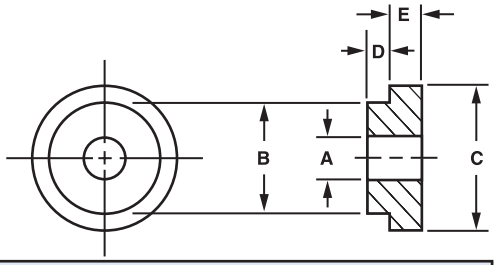

Color	Code	Color	Code
Natural	1	Brown	6
Black	2	Orange	7
Red	3	Green	8
Blue	4	Yellow	9
Purple	5		

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	F ber
GE	Glass Epoxy G10	UL	ULTEM 1000 - UL Rating 94V-O

ORDER EXAMPLE:

15294 - .060 - .030 - S - 1

- **15294** — Basic Part Number
- **.060** — Shoulder Length E: Fill in length
- **.030** — Shank Length D: Fill in length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 15294-.060-.030-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 15294-.060-.030-S-1 (A = .175)
Internal threaded Shoulder Washers are available. Add desired thread to part number (see page 281).
EXAMPLE: 15294-.060-.040-SS-1 (A = 4-40)

Screw Size	A ± .005	B ± .010	C ± .010	Basic Part Number	E Shoulder Length ± .005	D Shank Length ± .005	Material	Finish
6	.160	.220	.343	15294				
	.160	.250	.375	15296				
	.161	.275	.433	15298				
	.162	.218	.359	15300				
	.162	.250	.625	15302				
	.163	.213	.437	15304				
	.163	.229	.312	15306				
	.163	.430	.625	15308				
	.165	.281	.625	15310				
	.165	.312	.437	15312				
	.166	.268	.500	15314				
	.168	.250	.375	15316				
8	.168	.250	.437	15318				
	.169	.215	.375	15320				
	.169	.218	.312	15322				
	.169	.236	.384	15324				
	.169	.245	.437	15326				
	.169	.245	.440	15328				
	.169	.250	.380	15330				
	.169	.278	.562	15332				
	.170	.205	.344	15334				
	.170	.234	.375	15336				
	.170	.245	.390	15338				
	.170	.250	.312	15340				
	.170	.263	.437	15342				
	.170	.312	.562	15344				
	.171	.250	.375	15346				
	.171	.250	.500	15348				
	.173	.300	.468	15350				
	.173	.370	.500	15352				
	.173	.437	.562	15354				
	.174	.218	.375	15356				
	.174	.250	.375	15358				
	.175	.260	.437	15360				
	.176	.213	.437	15362				
	.178	.312	.500	15364				
	.185	.255	.365	15366				

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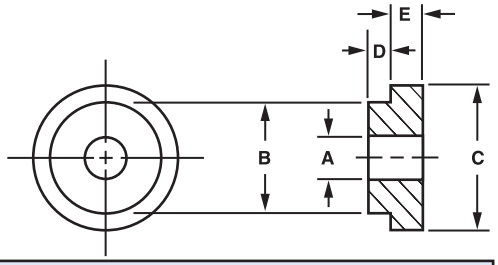

Color	Code	Color	Code
Natural	1	Brown	6
Black	2	Orange	7
Red	3	Green	8
Blue	4	Yellow	9
Purple	5		

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	F ber
GE	Glass Epoxy G10	UL	ULTEM 1000 - UL Rating 94V-O

ORDER EXAMPLE:

15368 - .060 - .030 - S - 1

- **15368** — Basic Part Number
- **.060** — Shoulder Length E: Fill in length
- **.030** — Shank Length D: Fill in length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 15368-.060-.030-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 15368-.060-.030-S-1 (A = .199)
Internal threaded Shoulder Washers are available. Add desired thread to part number (see page 281).
EXAMPLE: 15368-.040-.040-B-1 (A = 4-40)

Screw Size	A ± .005	B ± .010	C ± .010	Basic Part Number	E Shoulder Length ± .005	D Shank Length ± .005	Material	Finish
8	.187	.250	.312	15368				
	.187	.250	.375	15370				
	.187	.250	.500	15372				
	.187	.265	.375	15374				
	.187	.281	.437	15376				
	.187	.281	1.500	15378				
	.187	.312	.562	15380				
	.187	.372	.437	15382				
	.188	.280	.500	15384				
	.190	.265	.500	15386				
	.190	.312	.500	15388				
	.191	.275	.406	15390				
	.192	.309	.625	15392				
	.193	.246	.500	15394				
	.193	.257	.375	15396				
	.193	.312	.440	15398				
	.193	.368	.500	15400				
10	.194	.233	.281	15402				
	.194	.277	.531	15404				
	.194	.308	.375	15406				
	.194	.495	.750	15408				
	.195	.240	.375	15410				
	.195	.310	.437	15412				
	.195	.310	.625	15414				
	.196	.250	.312	15416				
	.196	.250	.380	15418				
	.196	.300	.500	15420				
	.196	.300	.581	15422				
	.196	.308	.375	15424				
	.196	.312	.625	15426				
	.196	.375	.625	15428				
	.198	.247	.750	15430				
	.199	.248	.500	15432				
	.199	.300	.468	15434				
	.199	.341	.750	15436				
	.200	.240	.500	15438				
	.200	.245	.530	15440				

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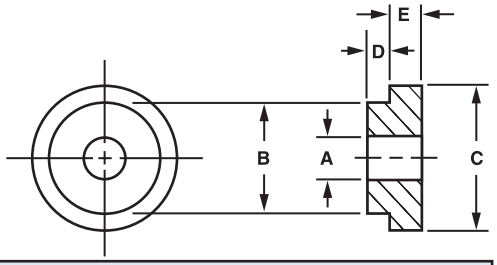


Color	Code	Color	Code
Natural	1	Brown	6
Black	2	Orange	7
Red	3	Green	8
Blue	4	Yellow	9
Purple	5		

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	F ber
GE	Glass Epoxy G10	UL	ULTEM 1000 - UL Rating 94V-O

ORDER EXAMPLE:

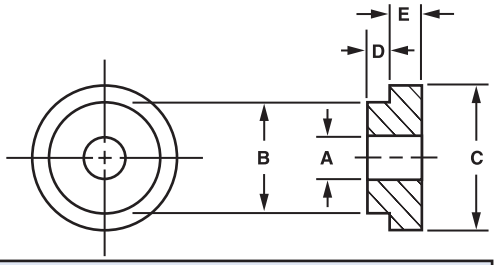
15442 - .060 - .030 - S - 1

- **15442** — Basic Part Number
- **.060** — Shoulder Length E: Fill in length
- **.030** — Shank Length D: Fill in length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 15442-.060-.030-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 15442-.060-.030-S-1 (A = .215)
Internal threaded Shoulder Washers are available. Add desired thread to part number (see page 281).
EXAMPLE: 15442-.060-.060-S-1 (A = 4-40)

Screw Size	A ± .005	B ± .010	C ± .010	Basic Part Number	E Shoulder Length ± .005	D Shank Length ± .005	Material	Finish
10	.200	.245	.531	15442				
	.200	.250	.437	15444				
	.200	.252	.375	15446				
	.200	.260	.399	15448				
	.200	.280	.437	15450				
	.200	.303	.390	15452				
	.200	.304	.375	15454				
	.200	.430	.625	15456				
	.201	.358	.750	15458				
	.201	.358	1.000	15460				
	.201	.358	1.375	15462				
	.203	.250	.500	15464				
	.203	.296	.468	15466				
	.203	.312	.437	15468				
	.203	.312	.750	15470				
	.203	.313	.390	15472				
	.204	.270	.500	15474				
	.205	.324	.590	15476				
	.205	.500	1.375	15478				
	.206	.358	1.000	15480				
	.208	.275	.380	15482				
	.210	.245	.437	15484				
	.210	.281	.437	15486				
	.212	.272	.343	15488				
	.215	.380	.635	15490				
	.218	.310	.500	15492				
	.218	.375	.500	15494				
	.218	.375	.625	15496				
12	.220	.281	.375	15498				
	.223	.312	.500	15500				
	.234	.365	.500	15502				
	.235	.335	.500	15504				
1/4	.250	.312	.375	15506				
	.250	.312	.750	15008				
	.250	.343	.437	15510				
	.250	.343	.625	15512				
	.250	.375	.500	15514				

SHOULDER WASHERS



Color	Code	Color	Code
Natural	1	Brown	6
Black	2	Orange	7
Red	3	Green	8
Blue	4	Yellow	9
Purple	5		

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	F ber
GE	Glass Epoxy G10	UL	ULTEM 1000 - UL Rating 94V-O

ORDER EXAMPLE:

15516 - .060 - .030 - S - 1

- **15516** — Basic Part Number
- **.060** — Shoulder Length E: Fill in length
- **.030** — Shank Length D: Fill in length
- **S** — Material: See chart
- **1** — Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 15516-.060-.030-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 15516-.060-.030-S-1 (A = .305)
Internal threaded Shoulder Washers are available. Add desired thread to part number (see page 281).
EXAMPLE: 15516-.060-.030-S-1 (A = 4-40)

Screw Size	A ± .005	B ± .010	C ± .010	Basic Part Number	E Shoulder Length ± .005	D Shank Length ± .005	Material	Finish
1/4	.250	.437	.625	15516				
	.252	.372	.500	15518				
	.253	.307	.438	15520				
	.253	.308	.500	15522				
	.253	.312	.437	15524				
	.255	.275	.437	15526				
	.255	.341	.500	15528				
	.257	.310	.750	15530				
	.257	.312	.560	15532				
	.257	.323	.420	15534				
	.258	.344	.500	15536				
	.260	.310	.437	15538				
	.260	.312	.500	15540				
	.260	.338	.515	15542				
	.260	.365	.500	15544				
	.260	.375	.500	15545				
	.260	.375	.625	15546				
	.260	.503	.750	15548				
	.265	.345	.500	15550				
	.265	.359	.625	15552				
	.265	.365	.500	15554				
	.265	.370	.750	15556				
	.265	.484	.875	15558				
	.268	.430	.625	15560				
	.280	.343	.437	15562				
	.281	.312	.625	15564				
	.281	.375	.750	15566				
	.281	.421	.500	15568				
	.281	.500	.750	15570				
	.281	.562	1.000	15572				
	.286	.349	.531	15574				
	.290	.387	.562	15576				
	.296	.339	.531	15578				
	.305	.437	.750	15580				
	.312	.432	.562	15582				
	.312	.437	.500	15584				
	.312	.500	.625	15586				

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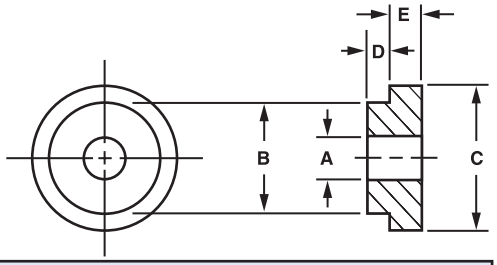
SHOULDER WASHERS



Color	Code	Color	Code
Natural	1	Brown	6
Black	2	Orange	7
Red	3	Green	8
Blue	4	Yellow	9
Purple	5		

Available Material (see page 275)			
A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	F ber
GE	Glass Epoxy G10	UL	ULTEM 1000 - UL Rating 94V-O

ORDER EXAMPLE:

15590 - .060 - .030 - S - 1

- **15590** — Basic Part Number
- **.060** — Shoulder Length E: Fill in length
- **.030** — Shank Length D: Fill in length
- **S** — Material: See chart
- **1** — Finish: See page 277

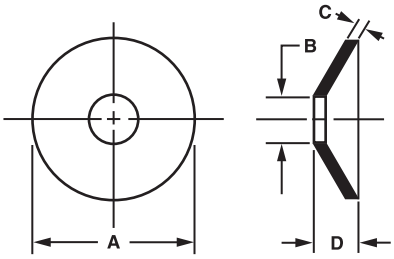
EXAMPLE FOR NYLON AND DELRIN PARTS: 15590-.060-.030-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided.
If a different tolerance and/or dimension change is required, add to part number.
EXAMPLE: 15590-.060-.030-S-1 (A = .125)
Internal threaded Shoulder Washers are available. Add desired thread to part number (see pa ge 281).
EXAMPLE: 15590-.060-.030-N-1 (A = 4-40)

Screw Size	A ± .005	B ± .010	C ± .010	Basic Part Number	E Shoulder Length ± .005	D Shank Length ± .005	Material	Finish
5/16	.321	.437	.750	15590				
	.323	.375	.750	15592				
	323	.437	.562	15594				
	.327	.355	.750	15596				
	.330	.520	.750	15598				
	.343	.437	.625	15600				
	.343	.562	1.000	15602				
	.345	.470	.625	15604				
	.375	.500	.625	15606				
	.375	.500	.687	15608				
	.375	.500	.750	15610				
	.375	.500	1.000	15612				
	.375	.625	1.000	15614				
	.377	.435	.614	15616				
	.380	.430	.625	15618				
	.380	.442	.625	15620				
	.380	.500	.625	15622				
	.380	.558	.812	15624				
3/8	.385	.500	.625	15626				
	.385	.562	.687	15628				
	.386	.443	.562	15630				
	.386	.484	.687	15632				
	.400	.503	.750	15634				
	.406	.500	.625	15636				
	.406	.574	.625	15638				
	.437	.496	.625	15640				
	.437	.562	.750	15642				
	.437	.593	.875	15644				
	.438	.600	.750	15646				
7/16	.452	.562	.688	15648				
	.463	.506	.625	15650				
	.477	.559	.650	15652				
	.500	.562	.750	15654				
	.500	.750	.1.000	15656				
	.505	.569	.875	15658				
	.508	.558	.890	15660				
1/2	.513	.572	.796	15662				

BELLEVILLE WASHERS - SPRING STEEL

Conical discs are widely used as compression springs to support large loads where space in the direction of loading is limited. Many conical spring washers are designed with a height which will result in a partial recovery after an initial deflection. Excessive cone heights do not add materially to the spring action, since there is a specific amount of springback available. However, a permanent set can result which may cause internal strains and washer failure. The true Belleville washer is an approximately linear rate spring of conical form designed to deflect from its initial height to the flat position without a loss in height caused by a permanent set due to stresses exceeding the elastic limit of the washer material.

Basic Part Number	Screw Size	Dimensions				Calc. Load at Flat Position (Lbs)	Approx. Load (Lbs)	Approx. Deflection (Ins)
		B	A	D	C			
24000		.056	.125	.010	.005	7.2	2.4	.001
24001	#0	.066	.156	.025	.010	109.2	-	<.001
24002		.066	.218	.032	.010	78.0	19.5	.001
24005		.066	.312	.018	.008	9.0	5.2	.003
24007	#1	.078	.150	.028	.008	88.6	-	<.001
24008		.078	.187	.020	.010	50.4	9.3	.001
24009		.078	.218	.045	.010	-	-	<.001
24012		.078	.250	.046	.015	282.5	46.1	.001
24011		.087	.196	.025	.010	70.3	14.2	.001
24013	#2	.094	.187	.025	.010	81.8	16.5	.001
24015		.094	.250	.040	.010	82.7	26.3	.001
24017		.094	.312	.060	.015	263.0	56.7	.001
24019		.094	.343	.020	.005	2.6	5.3	.005
24021		.094	.375	.050	.010	48.0	38.0	.002
24023		.097	.203	.030	.010	90.1	21.2	.001
24025		.100	.200	.040	.020	760.8	-	<.001
24027		.103	.200	.031	.006	26.1	18.1	.001
24029		.103	.312	.055	.030	1174.8	77.6	.001
24031	#3	.106	.240	.050	.008	67.1	44.0	.001
24033		.111	.300	.055	.012	141.8	44.2	.001
24035		.111	.375	.045	.010	41.9	29.2	.002
24037		.115	.250	.025	.005	7.3	10.7	.002
24039	#4	.118	.375	.050	.030	648.4	89.4	.002
24041		.118	.400	.035	.020	126.3	35.3	.003
24043		.119	.200	.030	.005	16.9	16.6	.001
24045		.120	.365	.060	.045	1737.7	127.4	.001
24047		.125	.250	.020	.010	30.4	10.4	.002
24049		.125	.250	.045	.020	608.6	60.1	.001
24051		.125	.312	.050	.030	968.9	68.3	.001
24053		.128	.250	.020	.008	18.9	11.7	.003
24050		.128	.312	.065	.032	-	-	-
24055		.128	.318	.060	.010	86.4	43.6	.001
24057		.128	.318	.060	.015	262.6	56.6	.001
24059		.128	.437	.050	.030	476.4	65.7	.002
24061		.128	.550	.060	.015	85.2	51.8	.002
24063		.128	.625	.060	.015	66.8	52.5	.004
24065	#5	.130	.243	.020	.012	46.4	15.0	.002
24067		.130	.315	.015	.003	0.5	2.0	.008
24069		.130	.365	.040	.020	205.1	38.0	.002
24071		.133	.300	.045	.012	114.0	23.4	.001
24073		.133	.300	.045	.015	202.5	32.4	.001
24075		.133	.312	.060	.016	329.0	62.1	.001



Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = +.005
-.015

ORDER EXAMPLE:

24000 - 31A

Basic Part Number — Thickness

Available in Stainless Steel* Type 301-304.
Add SS to part number. **EXAMPLE: 24000-SS-12**

301-304 Stainless Steel — Passivate Finish

*Load and deflection data does not apply to Stainless Steel.

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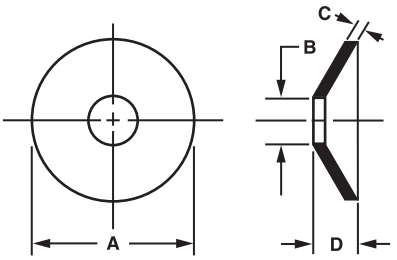
BELLEVILLE WASHERS - SPRING STEEL

Basic Part Number	Screw Size	Dimensions				Calc. Load at Flat Position (LBS)	Approx. Load (LBS)	Approx. Deflection (INS)
		B	A	D	C			
24077	#6	.144	.281	.030	.010	48.8	21.6	.002
24079		.144	.300	.050	.012	135.8	38.0	.001
24081		.144	.425	.050	.020	225.6	65.9	.003
24083		.148	.375	.055	.040	1188.2	176.4	.002
24085		.148	.500	.070	.040	1294.1	130.0	.002
24087		.153	.312	.040	.025	453.1	78.0	.002
24089		.153	.375	.060	.010	62.3	61.1	.002
24091		.153	.375	.060	.015	189.5	79.2	.002
24093		.153	.438	.050	.030	479.6	97.0	.003
24095		.153	.500	.040	.020	107.9	44.6	.005
24097		.153	.562	.060	.030	432.1	104.2	.004
24099		.156	.625	.040	.015	36.5	27.8	.001
24101		.160	.307	.025	.015	69.8	26.5	.003
24103	#8	.168	.437	.055	.040	870.0	129.2	.002
24105		.173	.365	.035	.015	93.7	33.7	.003
24107		.175	.500	.070	.030	736.3	142.6	.003
24109		.175	.562	.065	.040	855.0	135.7	.003
24111		.182	.380	.079	.020	608.0	97.7	.001
24113		.183	.400	.011	.005	0.8	0.8	.006
24115		.185	.306	.016	.006	5.0	5.4	.006
24117		.185	.375	.055	.040	1288.9	191.4	.002
24119		.185	.500	.060	.032	630.6	111.2	.003
24121		.185	.625	.075	.040	966.2	181.0	.004
24123		.187	.437	.020	.010	9.3	9.3	.010
24125		.187	.437	.060	.010	46.5	66.5	.003
24127		.187	.437	.060	.015	141.5	59.1	.002
24129		.195	.370	.027	.015	58.1	26.2	.004
24131		.195	.562	.045	.030	218.3	97.8	.006
24133	#10	.196	.480	.050	.030	411.3	108.6	.004
24135		.201	.500	.075	.030	849.6	171.6	.003
24137		.204	.437	.060	.010	48.1	68.7	.003
24139		.204	.509	.060	.010	33.7	62.2	.004
24141		.204	.509	.060	.015	102.4	80.4	.004
24143		.204	.561	.050	.025	212.6	73.1	.005
24145		.205	.586	.031	.015	26.8	22.7	.011
24149		.207	.375	.020	.005	2.7	5.9	.007
24151		.207	.562	.060	.040	695.9	164.2	.004
24153		.207	.625	.050	.030	234.2	88.8	.006
24155		.208	.396	.030	.020	99.9	44.7	.004
24157		.219	.406	.032	.020	116.2	46.5	.004
24159	#12	.223	.435	.035	.020	122.3	53.5	.005
24161		.223	.435	.065	.050	1912.2	273.5	.002



Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = +.005
- .015

ORDER EXAMPLE:

24077 - 31A

Basic Part Number — Thickness

Available in Stainless Steel* Type 301-304.
Add SS to part number. **EXAMPLE: 24077-SS-12**

301-304 Stainless Steel — Passivate Finish

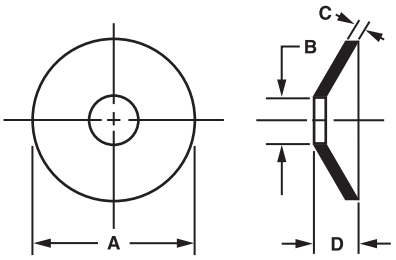
*Load and deflection data does not apply to Stainless Steel.

TECH TIP

Belleville spring washers can solve spring problems of high loads in a limited space with small deflections.

BELLEVILLE WASHERS - SPRING STEEL

Basic Part Number	Screw Size	Dimensions				Calc. Load at Flat Position (LBS)	Approx. Load (LBS)	Approx. Deflection (INS)
		B	A	D	C			
24163	#12	.223	.485	.080	.060	3331.1	396.3	.002
24165		.223	.562	.050	.030	297.9	96.2	.005
24167		.223	.685	.050	.030	194.7	94.5	.008
24169		.223	.685	.100	.050	2254.3	285.5	.003
24171		.252	.437	.090	.030	1787.5	146.0	.001
24173	1/4	.255	.500	.040	.025	180.3	72.1	.005
24175		.255	.610	.032	.008	5.8	12.6	.013
24177		.255	.870	.110	.062	2546.3	400.2	.005
24179		.256	.406	.031	.006	7.5	17.5	.004
24181		.256	.694	.080	.015	78.2	106.3	.005
24183		.256	.694	.080	.025	306.4	144.8	.005
24185		.260	.500	.034	.018	72.6	42.8	.007
24187		.260	.562	.040	.020	92.7	49.8	.007
24189		.261	.493	.040	.025	189.9	75.9	.005
24191		.264	.752	.060	.020	96.4	74.8	.008
24193		.265	.740	.090	.040	999.1	233.3	.005
24195		.266	.626	.012	.008	.9	.9	.004
24197		.271	.406	.027	.020	85.2	62.2	.005
24199		.275	.600	.038	.018	59.1	40.5	.009
24201		.281	.871	.064	.045	386.0	195.9	.009
24203		.281	.910	.080	.032	320.4	145.2	.008
24205		.283	.593	.076	.050	1716.2	319.8	.004
24207		.296	.500	.125	.060	12133.2	400.7	.001
24209	5/16	.316	.690	.054	.032	276.1	125.1	.008
24211		.319	.492	.020	.010	9.9	9.9	.010
24213		.322	.620	.048	.032	265.3	128.8	.007
24215		.323	.500	.025	.010	14.3	14.3	.009
24217		.323	.500	.045	.025	299.0	87.3	.004
24219		.323	.906	.061	.031	186.0	107.8	.012
24221		.325	.750	.103	.086	3434.2	829.3	.004
24223		.325	.870	.050	.010	9.0	31.5	.016
24225		.326	.600	.030	.020	44.5	44.5	.010
24227		.326	.620	.085	.010	38.2	107.8	.004
24229		.328	.688	.062	.016	73.8	84.0	.007
24231		.334	.620	.080	.015	113.8	126.6	.004
24233		.334	.620	.080	.025	445.0	172.6	.004
24235		.340	1.250	.150	.090	4717.6	753.8	.007
24236		.343	.875	.112	.060	2898.3	445.8	.005
24237		.348	1.119	.083	.062	674.6	399.0	.012
24239		.353	.665	.035	.016	34.7	30.7	.013
24241		.379	1.110	.125	.062	2071.3	485.0	.008



Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = +.005
-.015

ORDER EXAMPLE:

24163 - 31A

Basic Part Number — **Thickness**

Available in Stainless Steel* Type 301-304.
Add SS to part number. **EXAMPLE: 24163-SS-12**

301-304 Stainless Steel — Passivate Finish

*Load and deflection data does not apply to Stainless Steel.

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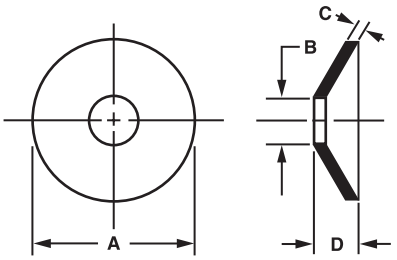
BELLEVILLE WASHERS - SPRING STEEL

Basic Part Number	Screw Size	Dimensions				Calc. Load at Flat Position (LBS)	Approx. Load (LBS)	Approx. Deflection (INS)
		B	A	D	C			
24243	3/8	.380	.750	.055	.040	327.0	203.9	.009
24245		.382	.683	.080	.015	96.5	131.1	.005
24247		.382	.683	.080	.025	378.1	178.7	.005
24249		.382	.741	.055	.040	339.1	211.4	.009
24251		.390	.625	.045	.022	143.4	71.8	.007
24253		.390	.740	.060	.040	459.1	205.6	.008
24255		.390	.740	.080	.062	1538.7	536.9	.006
24257		.390	1.100	.080	.050	529.1	265.9	.013
24259		.390	1.500	.095	.036	206.4	168.0	.019
24261		.395	1.242	.135	.080	3084.8	688.0	.009
24263		.402	.787	.053	.032	213.9	129.0	.011
24265		.402	1.100	.069	.032	171.8	118.5	.016
24267		.402	1.100	.069	.040	263.0	169.9	.016
24269		.405	.875	.110	.062	2736.7	510.2	.006
24271		.406	.607	.045	.018	107.5	61.0	.006
24273		.406	1.000	.090	.062	1169.5	419.5	.009
24275		.406	1.180	.092	.062	873.5	388.6	.012
24277		.406	1.187	.129	.109	3125.1	1270.2	.008
24279		.406	1.250	.096	.072	970.1	545.0	.013
24283		.440	.785	.080	.015	73.1	132.8	.007
24285		.440	.785	.080	.025	286.7	180.8	.007
24287	7/16	.448	.860	.062	.031	243.4	132.2	.011
24289		.450	.785	.070	.040	653.0	210.4	.007
24291	1/2	.500	1.109	.035	.010	3.6	6.1	.025
24293		.504	1.000	.080	.015	41.9	115.2	.012
24295		.504	1.000	.080	.025	164.1	156.5	.012
24297		.504	1.000	.085	.035	409.5	217.7	.011
24299		.505	1.250	.135	.062	1948.9	564.5	.010
24301		.515	1.250	.112	.065	1453.4	497.1	.012
24303		.515	1.475	.110	.060	845.9	397.0	.017
24305		.516	1.500	.250	.112	14658.3	1787.9	.007
24307		.531	1.625	.162	.134	4319.2	1887.3	.012
24309		.545	1.547	.125	.083	1711.9	735.8	.016
24311		.562	1.625	.139	.109	2504.3	1287.7	.015
24313		.562	1.625	.187	.093	4873.8	1141.2	.012
24315		.563	1.340	.095	.050	554.2	307.8	.018
24317		.563	1.573	.107	.050	492.3	302.8	.021
24319		.567	1.125	.075	.040	338.1	204.1	.016
24321		.635	1.250	.082	.040	330.1	219.1	.019
24323		.700	1.067	.110	.060	2318.7	570.0	.008
24325		.700	1.360	.080	.040	267.7	200.5	.023



Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = +.005
-.015

ORDER EXAMPLE:

24243 - 31A

Basic Part Number — Thickness

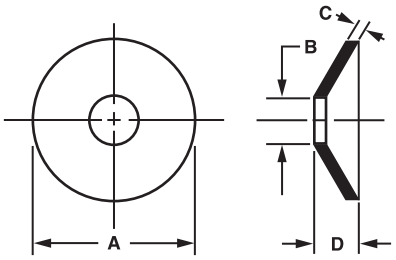
Available in Stainless Steel* Type 301-304.
Add SS to part number. **EXAMPLE: 24243-SS-12**

301-304 Stainless Steel — Passivate Finish

*Load and deflection data does not apply to Stainless Steel.

BELLEVILLE WASHERS - SPRING STEEL

Basic Part Number	Screw Size	Dimensions				Calc. Load at Flat Position (LBS)	Approx. Load (LBS)	Approx. Deflection (INS)
		B	A	D	C			
24327	3/4	.760	1.500	.093	.045	372.5	265.7	.024
24329		.770	1.250	.050	.020	34.6	35.1	.030
24331		.770	1.500	.125	.062	1288.8	574.6	.017
24333		.781	1.343	.110	.062	1346.9	535.3	.014
24335		.803	1.570	.104	.060	743.0	462.0	.023
24337		.812	1.180	.033	.012	6.8	7.6	.021
24339		.817	2.362	.171	.080	1421.5	788.7	.029
24341		.830	1.248	.043	.016	17.7	19.2	.027
24343		.960	1.250	.065	.005	1.6	40.9	.017
24345	1.00	1.004	1.554	.050	.020	23.7	24.1	.030
24347		1.010	2.000	.130	.065	853.6	557.1	.030
24349		1.031	1.500	.065	.032	126.4	126.4	.033
24351		1.093	1.565	.047	.018	18.6	19.7	.029
24353		1.120	1.382	.096	.032	440.5	457.1	.009
24355		1.120	2.250	.103	.062	366.2	366.2	.041
24357		1.260	2.000	.122	.062	827.6	559.1	.030
24359		1.260	2.500	.160	.080	1252.1	847.0	.039
24361		1.270	2.060	.085	.040	153.1	153.1	.045
24363		1.390	2.700	.100	.060	–	–	–
24365		1.484	1.995	.080	.030	104.9	113.2	.045



Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = +.005
-.015

ORDER EXAMPLE:

24327 - 31A

Basic Part Number — Thickness

Available in Stainless Steel* Type 301-304.
Add SS to part number. **EXAMPLE: 24327-SS-12**

301-304 Stainless Steel — Passivate Finish

*Load and deflection data does not apply to Stainless Steel.

TECH TIP

Nylon locking elements prevent screws and fasteners from backing out due to vibration.

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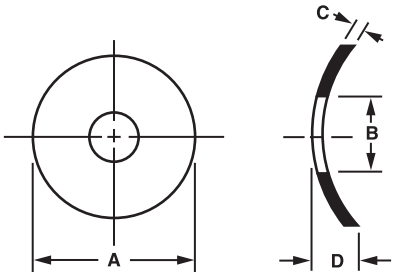

The cylindrically curved washer is well-suited for applications requiring flexibility and light loads (from ounces up to about a hundred pounds), and repeated cycles through a range of motion. Of the cylindrically curved, wave and Belleville types, the cylindrically curved washer exhibits the most uniform spring constant over the widest range of deflection.

Spherically curved washers are frequently made as segments of spheres instead of segments of cylinders. Although they are not true conical washers, they have approximately the same spring characteristics. However, the load capacity of spherically curved washers varies considerably when deflected near the flat position. The spherical shape tends to add a stiffening effect so that, in general, spherically curved washers will have slightly higher spring rates than comparable conical washers.

Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = ±.010

ORDER EXAMPLE:

24417 - 1

Basic Part Number — **Finish: See page 277**

Available in Stainless Steel* Type 17-7 Ph (heat treated).
Add SS to part number. **EXAMPLE: 24417-SS-12**
(SS = 17-7 Stainless Steel; 12 = Passivate Finish)

Available in Beryllium Copper* ASTM-B194 (heat treated).
Add BC to part number. **EXAMPLE: 24417-BC-1**
(BC = Beryllium Copper)

*Load and deflection data does not apply to Stainless Steel or Beryllium Copper.

Basic Part Number	Screw Size	Dimensions				Calc. Load at flat pos. (LBS)	Approx Deflection (INS)
		B ID	A OD	D	C		
24417	#00	.040	.105	.018	.006	3.2	.002
24419		.043	.088	.015	.004	1.2	.002
24421		.047	.120	.025	.004	1.4	.004
24423		.047	.120	.032	.004	1.4	.004
24425		.051	.378	.047	.005	3.1	.035
24427		.052	.133	.035	.005	2.2	.004
24429		.055	.240	.040	.015	25.4	.005
24431		.055	.350	.060	.005	3.0	.030
24433		.059	.183	.047	.005	2.4	.008
24435	#0	.064	.130	.025	.006	2.6	.003
24437		.064	.130	.032	.006	2.6	.003
24439		.064	.250	.030	.003	0.9	.025
24441		.064	.379	.047	.010	12.1	.018
24443		.065	.133	.037	.008	4.7	.003
24445		.065	.371	.065	.018	39.1	.009
24447**		.067	.600	.100	.004	1.8	.096
24449		.068	.145	.030	.005	1.9	.005
24451		.070	.240	.055	.005	2.5	.014
24453		.075	.158	.047	.003	0.6	.010
24455	#1	.084	.130	.035	.008	3.3	.003
24459		.092	.163	.047	.005	1.5	.006
24461		.093	.170	.026	.004	1.0	.009
24463	#2	.095	.312	.077	.007	4.9	.017
24465		.095	.320	.055	.008	6.6	.016
24467		.096	.140	.031	.003	0.4	.008
24469		.096	.250	.040	.005	2.2	.015
24471		.097	.193	.047	.005	1.8	.009
24473		.097	.193	.047	.010	7.2	.005
24475		.097	.210	.040	.010	7.8	.005
24477		.097	.302	.030	.006	3.5	.019
24479		.097	.302	.030	.008	8.0	.012
24481		.098	.403	.047	.006	3.9	.033
24483		.098	.438	.060	.010	11.3	.023
24485		.099	.205	.040	.010	7.5	.005
24487		.100	.625	.090	.010	12.3	.048
24489		.101	.147	.040	.005	1.1	.005
24491	#3	.109	.203	.032	.005	1.6	.010
24493		.109	.250	.062	.005	2.0	.015
24495		.112	.220	.025	.003	0.6	.020
24497		.112	.240	.040	.010	7.8	.007
24499		.112	.273	.047	.005	2.1	.018
24501		.112	.375	.090	.005	2.5	.034
24503		.112	.437	.090	.005	2.7	.047
24505	#4	.117	.313	.047	.008	5.8	.015
24507		.118	.203	.032	.005	1.5	.010
24509		.122	.250	.036	.016	19.2	.005
24511		.122	.377	.060	.007	4.8	.025

** This item is available in Beryllium Copper only.

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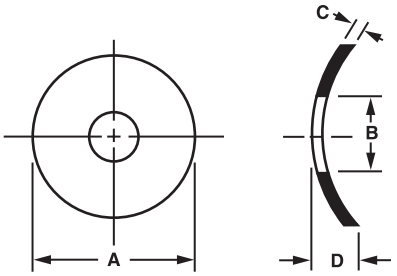

Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = ±.010

ORDER EXAMPLE:

24513 - 1

Basic Part Number — **Finish: See page 277**

Available in Stainless Steel* Type 17-7 Ph (heat treated).
Add SS to part number. **EXAMPLE: 24513-SS-12**
17-7 Stainless Steel; Passivate Finish

Available in Beryllium Copper* ASTM-B194 (heat treated).
Add BC to part number. **EXAMPLE: 24513-BC-1**
Beryllium Copper

*Load and Deflection data does not apply to Stainless Steel or Beryllium Copper.

TECH TIP

The cylindrically curved washer is well-suited for applications requiring flexibility and light loads (from ounces up to about a hundred pounds).

Basic Part Number	Screw Size	Dimensions				Calc. Load at flat pos. (LBS)	Approx Deflection (INS)
		B ID	A OD	D	C		
24513	#4	.122	.378	.047	.008	6.3	.022
24515		.125	.247	.062	.003	0.6	.025
24517		.125	.247	.062	.005	1.8	.015
24519		.125	.250	.047	.008	4.6	.010
24521		.125	.250	.047	.012	10.5	.006
24523		.125	.406	.070	.008	6.4	.025
24525		.126	.213	.035	.005	1.4	.011
24527		.127	.176	.032	.010	4.0	.004
24529		.127	.213	.018	.005	1.4	.011
24531		.127	.406	.050	.005	2.5	.040
24470		.127	.500	.068	.012	–	–
24533		.128	.198	.040	.008	3.3	.006
24535		.128	.230	.047	.008	4.1	.008
24537		.128	.240	.041	.005	1.7	.014
24539		.128	.240	.041	.008	4.3	.009
24541		.128	.250	.025	.012	10.3	.006
24543		.128	.750	.030	.005	–	–
24545	#5	.130	.219	.032	.007	2.9	.008
24549		.130	.468	.060	.005	2.6	.054
24551		.130	.687	.060	.010	10.3	.050
24553		.132	.503	.078	.010	10.8	.031
24555		.133	.285	.062	.006	2.8	.017
24557		.134	.437	.094	.010	10.1	.023
24559		.135	.245	.032	.006	2.3	.012
24561		.135	.285	.062	.006	2.7	.017
24563		.136	.312	.062	.006	2.9	.020
24565		.136	.312	.062	.010	8.2	.012
24567		.136	.370	.035	.008	5.9	.021
24569		.136	.400	.065	.010	9.6	.020
24571		.137	.250	.020	.005	1.6	.015
24573		.137	.253	.047	.005	1.6	.016
24575		.137	.283	.047	.008	4.8	.012
24577		.137	.283	.062	.005	1.8	.020
24579		.137	.283	.062	.010	7.5	.010
24581		.139	.317	.062	.010	8.2	.012
24583	#6	.140	.365	.065	.005	2.2	.033
24585		.140	.406	.060	.005	2.4	.040
24587		.140	.490	.080	.020	41.9	.015
24589		.140	.562	.060	.012	15.8	.032
24591		.141	.213	.048	.008	3.1	.007
24593		.141	.281	.047	.008	4.6	.012
24595		.141	.373	.062	.010	9.1	.017
24597		.141	.467	.058	.010	10.2	.027
24599		.144	.312	.047	.016	20.2	.007
24601		.144	.312	.048	.016	20.2	.007
24603		.145	.312	.030	.003	0.4	.027
24605		.145	.490	.080	.005	2.5	.059

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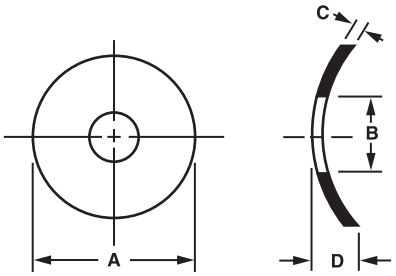

Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = ±.010

ORDER EXAMPLE:

24607 - 1

Basic Part Number — Finish: See page 277

Available in Stainless Steel* Type 17-7 Ph (heat treated).
Add SS to part number. **EXAMPLE: 24607-SS-12**
(SS = 17-7 Stainless Steel; 12 = Passivate Finish)

Available in Beryllium Copper* ASTM-B194 (heat treated).
Add BC to part number. **EXAMPLE: 24607-BC-1**
(BC = Beryllium Copper)

*Load and Deflection data does not apply to Stainless Steel or Beryllium Copper.

Basic Part Number	Screw Size	Dimensions				Calc. Load at flat pos. (LBS)	Approx Deflection (INS)
		B ID	A OD	D	C		
24607	#6	.147	.640	.062	.005	1.6	.057
24609		.148	.200	.060	.015	8.5	.003
24611		.149	.277	.060	.004	1.0	.023
24613		.149	.277	.062	.007	3.3	.013
24615		.149	.322	.030	.010	7.8	.013
24617		.150	.240	.045	.010	5.5	.007
24619		.150	.275	.062	.005	1.6	.018
24621		.155	.312	.062	.010	7.3	.012
24623		.157	.381	.062	.010	8.6	.018
24625		.159	.562	.070	.015	23.6	.026
24627		.161	.249	.047	.005	1.2	.015
24629		.161	.249	.047	.007	2.5	.011
24631		.161	.249	.047	.010	5.1	.008
24633		.161	.301	.047	.005	1.7	.022
24635		.161	.302	.080	.005	1.7	.022
24637	#8	.166	.270	.030	.008	3.6	.011
24639		.168	.280	.046	.010	5.8	.010
24641		.169	.312	.030	.005	1.6	.024
24643		.169	.437	.060	.005	2.2	.047
24645		.169	.517	.090	.010	9.8	.033
24647		.169	.518	.062	.015	22.2	.022
24649		.170	.405	.062	.010	8.5	.020
24651		.172	.241	.040	.006	1.5	.012
24653		.172	.302	.048	.005	1.5	.022
24655		.172	.344	.050	.006	2.6	.024
24657		.172	.365	.065	.005	1.9	.033
24659		.172	.562	.070	.015	22.9	.026
24661		.173	.625	.030	.015	11.2	.015
24663		.174	.250	.040	.015	10.0	.005
24665		.174	.322	.064	.005	1.6	.025
24667		.174	.400	.030	.006	2.1	.024
24669		.177	.993	.062	.010	5.2	.052
24671		.178	.375	.090	.010	7.7	.017
24673		.178	.498	.062	.030	84.8	.010
24675		.185	.315	.062	.015	13.6	.008
24677		.187	.440	.030	.010	7.1	.020
24679		.187	.440	.062	.010	8.4	.024
24681		.187	.562	.078	.008	6.2	.048
24683		.188	.314	.047	.005	1.4	.024
24685		.188	.375	.040	.008	4.6	.021
24687		.189	.312	.062	.004	0.9	.030
24689		.189	.343	.030	.010	6.5	.014
24691		.190	.375	.050	.005	1.8	.034
24693		.188	.314	.047	.005	9.0	.031
24695		.193	.375	.066	.006	1.1	.043
24697		.193	.437	.065	.008	5.2	.029

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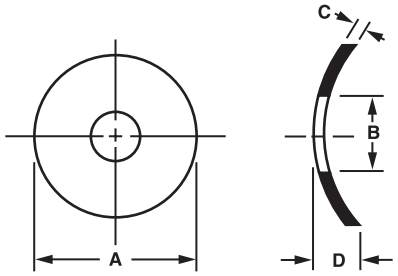

Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = ±.010

ORDER EXAMPLE:

24699 - 1

Basic Part Number — **Finish: See page 277**

Available in Stainless Steel* Type 17-7 Ph (heat treated).
Add SS to part number. **EXAMPLE: 24699-SS-12**
17-7 Stainless Steel — Passivate Finish

Available in Beryllium Copper* ASTM-B194 (heat treated).
Add BC to part number. **EXAMPLE: 24699-BC-1**
Beryllium Copper

*Load and Deflection data does not apply to Stainless Steel or Beryllium Copper.

TECH TIP

The cylindrically curved washer exhibits the most uniform spring constant over the widest range of deflection.

Basic Part Number	Screw Size	Dimensions				Calc. Load at flat pos. (LBS)	Approx Deflection (INS)
		B ID	A OD	D	C		
24699	#10	.194	.370	.050	.008	4.4	.021
24701		.194	.375	.070	.006	2.5	.029
24703		.194	.630	.090	.020	40.6	.024
24705		.195	.277	.060	.005	1.0	.019
24707		.195	.312	.030	.010	5.5	.012
24709		.195	.400	.060	.016	19.2	.012
24711		.195	.490	.030	.010	6.0	.020
24713		.195	.562	.070	.008	6.1	.048
24715		.196	.750	.093	.020	43.3	.034
24717		.198	.442	.062	.010	8.0	.024
24719		.199	.375	.041	.010	6.8	.017
24721		.199	.443	.055	.005	2.0	.048
24723		.200	.302	.045	.005	1.2	.022
24725		.200	.430	.070	.010	7.8	.023
24727		.200	.990	.062	.010	5.0	.052
24729		.201	.300	.050	.010	4.8	.011
24731		.201	.374	.065	.005	1.6	.034
24733		.202	.312	.062	.010	5.1	.012
24735		.202	.505	.062	.005	2.0	.057
24737		.202	.505	.062	.012	12.6	.026
24480		.203	.322	.060	.015	–	–
24739		.203	.365	.032	.005	1.3	.027
25100		.203	.375	.062	.005	1.6	.034
25102		.203	.375	.062	.010	6.7	.017
25104		.203	.406	.047	.005	1.8	.040
25106		.203	.438	.070	.010	7.8	.023
25108		.203	.500	.080	.015	19.6	.020
25110		.203	.501	.074	.015	19.6	.020
25112		.204	.438	.070	.010	7.8	.023
25114		.204	.565	.052	.025	58.5	.016
25116		.204	.640	.045	.005	0.9	.040
25118		.205	.369	.080	.005	1.6	.033
25120		.205	.500	.080	.015	19.4	.020
25122		.205	1.010	.085	.063	463.9	.020
25124		.208	.563	.062	.012	13.3	.032
25126	#12	.220	.406	.060	.005	1.6	.040
25128		.220	.740	.130	.010	10.3	.067
25130		.228	.375	.041	.010	5.7	.017
25132		.228	.468	.125	.016	19.2	.017
25134		.231	.423	.050	.010	6.6	.022
25136		.234	.438	.077	.010	6.8	.023
25138		.234	.630	.062	.012	13.2	.040
25140		.235	.325	.047	.010	4.0	.013
25142		.235	.410	.062	.010	6.2	.021
25144		.239	.438	.095	.010	6.6	.023
25146		.239	.500	.050	.015	17.2	.020
25148		.239	.625	.100	.015	20.3	.032

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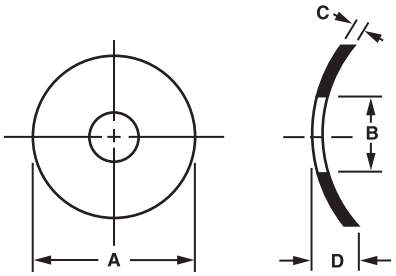

Tolerances
A = ±.010 B = Up to/including No. 10: ±.005 Over No. 10: ±.010 C = Commercial D = ±.010

ORDER EXAMPLE:

25150 - 1

Basic Part Number — **Finish: See page 277**

Available in Stainless Steel* Type 17-7 Ph (heat treated).
Add SS to part number. **EXAMPLE: 25150-SS-12**
(SS = 17-7 Stainless Steel; 12 = Passivate Finish)

Available in Beryllium Copper* ASTM-B194 (heat treated).
Add BC to part number. **EXAMPLE: 25150-BC-1**
(BC = Beryllium Copper)

*Load and Deflection data does not apply to Stainless Steel or Beryllium Copper.

Basic Part Number	Screw Size	Dimensions				Calc. Load at flat pos. (LBS)	Approx Deflection (INS)
		B ID	A OD	D	C		
25150	#14	.250	.437	.047	.010	6.2	.023
25152		.250	.437	.090	.010	6.2	.023
25154		.250	.495	.125	.007	3.5	.043
25156		.250	.500	.078	.006	2.6	.051
25158		.250	.562	.078	.020	32.5	.019
25160		.250	.625	.078	.020	35.2	.024
25162		.251	.562	.037	.007	2.1	.030
25164		.251	.750	.070	.030	87.8	.023
25166		.252	1.065	.093	.015	21.2	.078
25168	1/4	.253	.406	.030	.005	0.8	.025
25170		.253	.469	.047	.010	6.7	.027
25172		.254	.497	.100	.006	2.5	.050
25174		.254	.497	.100	.010	7.1	.030
25176		.255	.750	.093	.012	13.9	.057
25178		.256	.406	.032	.006	1.5	.026
25180		.257	.438	.040	.005	1.1	.035
25182		.257	.438	.047	.015	13.6	.016
25184		.258	.680	.080	.010	9.1	.057
25186		.259	.406	.062	.018	17.2	.011
25188		.259	.562	.080	.018	25.6	.021
25190		.259	.691	.070	.006	2.1	.064
25192		.260	.495	.125	.007	3.4	.043
25194		.260	.508	.055	.015	16.1	.021
25196		.261	.740	.130	.010	9.4	.067
25198		.261	.875	.060	.030	89.0	.030
25200		.262	.378	.062	.005	1.1	.035
25202		.262	.378	.062	.010	4.5	.017
25204		.262	.438	.050	.010	5.8	.023
25206		.262	.562	.060	.008	5.0	.048
25208		.263	.433	.047	.005	1.3	.042
25210		.263	.433	.047	.008	3.6	.029
25212		.263	.433	.047	.015	12.9	.015
25214		.263	.437	.062	.005	1.4	.047
25216		.263	.437	.062	.008	3.7	.029
25218		.263	.437	.062	.012	8.4	.019
25220		.265	.406	.044	.010	5.0	.020
25222		.265	.406	.062	.010	5.0	.020
25224		.265	.490	.092	.008	4.3	.037
25226		.265	.500	.070	.020	27.5	.015
25228		.265	.508	.093	.010	7.0	.032
25230		.265	.508	.093	.015	15.7	.021
25232		.265	.508	.093	.028	59.0	.011
25234		.265	.552	.075	.008	4.8	.047
25236		.265	.562	.125	.025	48.4	.015
25238		.265	.625	.075	.015	19.0	.032
25240		.269	.435	.068	.010	5.5	.023
25242		.270	.380	.060	.010	4.2	.018

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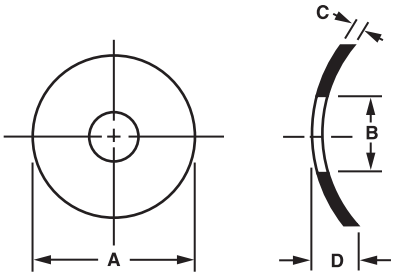

Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = ±.010

ORDER EXAMPLE:

25244 - 1

Basic Part Number — Finish: See page 277

Available in Stainless Steel* Type 17-7 Ph (heat treated).
Add SS to part number. **EXAMPLE: 25244-SS-12**
17-7 Stainless Steel — Passivate Finish

Available in Beryllium Copper* ASTM-B194 (heat treated).
Add BC to part number. **EXAMPLE: 25244-BC-1**
Beryllium Copper

*Load and Deflection data does not apply to Stainless Steel or Beryllium Copper.

Basic Part Number	Screw Size	Dimensions				Calc. Load at flat pos. (LBS)	Approx Deflection (INS)
		B ID	A OD	D	C		
25244	1/4	.270	.500	.060	.010	6.7	.031
25246		.270	.500	.060	.020	26.9	.015
25248		.272	.496	.060	.010	6.6	.030
25250		.275	.599	.055	.010	7.9	.044
25252		.275	.600	.035	.018	17.9	.017
25254		.280	.375	.030	.005	0.6	.025
25256		.280	.500	.090	.010	6.4	.031
25258		.280	.552	.075	.015	16.2	.025
25260		.280	.625	.093	.006	2.9	.080
25262		.280	.625	.093	.008	5.1	.060
25264		.280	.625	.093	.010	8.0	.048
25266		.280	.625	.093	.012	11.6	.040
25268		.280	.625	.093	.015	18.2	.032
25270		.280	.625	.093	.020	32.3	.024
25272		.280	.740	.135	.010	9.1	.067
25274		.290	.437	.060	.005	1.2	.047
25276		.296	.551	.085	.010	6.7	.037
25278		.301	.671	.093	.012	11.6	.046
25280		.312	.562	.093	.020	26.0	.019
25282		.315	.500	.060	.010	5.4	.031
25284		.315	.625	.062	.010	7.2	.048
25286	5/16	.315	.625	.095	.010	7.2	.048
25288		.316	.490	.040	.010	5.2	.029
25290		.316	.625	.098	.020	29.0	.024
25292		.319	.500	.075	.015	11.9	.020
25294		.320	.625	.080	.012	10.3	.040
25296		.320	.688	.080	.010	7.8	.058
25298		.323	.415	.062	.003	0.2	.059
25300		.323	.415	.062	.008	2.0	.026
25302		.323	.415	.062	.015	7.3	.014
25304		.326	.490	.062	.010	4.9	.029
25306		.326	1.000	.093	.050	247.1	.024
25308		.327	.620	.085	.010	6.9	.047
25310		.328	.500	.080	.008	3.2	.038
25312		.328	.562	.080	.008	3.9	.048
25314		.328	.562	.125	.025	38.1	.015
25316		.330	.750	.187	.030	73.9	.023
25318		.330	.875	.040	.010	2.9	.030
25320		.331	.622	.093	.006	2.4	.079
25322		.331	.622	.093	.012	9.8	.039
25324		.331	.622	.093	.015	15.4	.032
25326		.331	.622	.093	.025	42.8	.019
25328		.346	.761	.187	.020	31.9	.035
25330		.363	.672	.080	.015	15.1	.037
25332		.375	.600	.070	.025	34.3	.018
25334		.375	.750	.140	.020	29.3	.034
25336		.375	.870	.109	.010	8.3	.093

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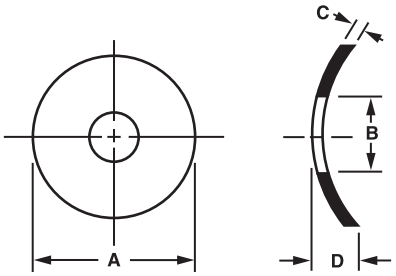


Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = ±.010

ORDER EXAMPLE:

25338 - 1

Basic Part Number — Finish: See page 277

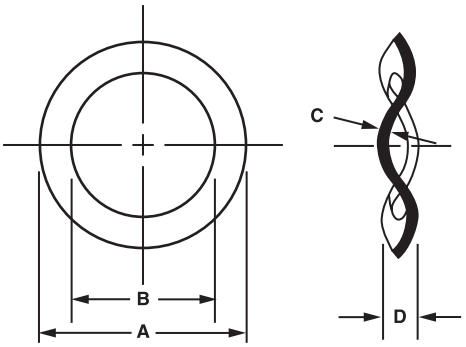
Available in Stainless Steel* Type 17-7 Ph (heat treated).
Add SS to part number. **EXAMPLE: 25338-SS-12**
17-7 Stainless Steel — Passivate Finish

Available in Beryllium Copper* ASTM-B194 (heat treated).
Add BC to part number. **EXAMPLE: 25338-BC-1**
Beryllium Copper

*Load and Deflection data does not apply to Stainless Steel or Beryllium Copper.

Basic Part Number	Screw Size	Dimensions				Calc. Load at flat pos. (LBS)	Approx Deflection (INS)
		B ID	A OD	D	C		
25338	5/16	.377	.465	.093	.006	0.9	.044
24664		.378	.562	.080	.010	–	–
25340		.378	.685	.100	.005	1.3	.095
25342		.379	.500	.070	.010	3.5	.031
25344		.379	.563	.080	.010	4.7	.039
25346		.379	.563	.080	.020	19.1	.019
25348		.379	.686	.093	.010	6.5	.058
25350	3/8	.383	.625	.078	.010	5.6	.048
25352		.383	.691	.070	.008	3.5	.062
25354		.385	.687	.040	.016	10.9	.024
25356		.390	.553	.075	.006	1.5	.062
25358		.390	.740	.140	.010	6.9	.067
25360		.390	.740	.140	.020	27.7	.033
25362		.391	.656	.125	.025	37.0	.021
25364		.400	.600	.093	.012	7.0	.037
25366		.406	.524	.060	.010	3.3	.034
25368		.438	.740	.140	.015	13.4	.045
25370		.439	.623	.093	.012	6.2	.040
25372	7/16	.455	.740	.140	.010	5.6	.067
25374		.468	.686	.130	.005	1.1	.115
25376		.470	.870	.116	.010	6.7	.093
25378		.474	.709	.115	.015	10.9	.041
25380		.477	.708	.120	.010	4.17	.061
25382		.502	1.003	.093	.012	8.3	.081
25384	1/2	.504	.938	.100	.032	69.4	.034
25386		.505	.740	.125	.010	4.6	.067
25388		.505	.740	.130	.015	10.4	.045
25390		.505	.815	.093	.029	46.9	.028
25394		.514	.874	.032	.020	6.2	.012
25396		.515	.875	.125	.015	13.5	.062
25398		.516	.744	.093	.010	4.4	.068
25402		.520	.870	.109	.010	5.9	.093
25404		.525	.980	.110	.021	30.0	.056
25406		.531	.873	.156	.010	5.7	.093
25408		.537	.753	.093	.012	6.0	.058
25410		.585	.875	.135	.010	4.8	.094
25412		.600	.850	.080	.020	17.2	.044
25414		.614	.880	.062	.020	15.7	.042
25416	5/8	.640	.750	.050	.010	1.2	.040
25418		.640	.875	.060	.010	2.1	.050
25420		.640	1.000	.100	.030	47.5	.041
25422		.658	1.750	.219	.020	36.6	.187
25424		.665	.980	.100	.020	18.8	.059
25426		.720	1.000	.150	.015	9.2	.081
25428	3/4	.765	.910	.100	.020	9.3	.051
25430		.890	1.093	.130	.010	2.2	.120
25432		.890	1.095	.093	.032	28.1	.046

WAVE WASHERS - SPRING STEEL



When the load is static or the working range is small, and the allowable amount of axial space is limited, the use of a wave washer is an ef ficient method of obtaining the required loading. Loads obtainable from wave washers are usually in the range of a few pounds to hundreds of pounds. These springs are often used as cushion springs or cushion spacers between parts on shafts, or to take up the expected amount of variation in assembled parts. W ave washers can be made in a very large range of sizes.

Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = ±.010

ORDER EXAMPLE:

24981 - 1

Basic Part Number — **Finish: See page 277**

Available in Stainless Steel* Type 17-7 Ph (heat treated).
Add SS to part number. **EXAMPLE: 24981-SS-12**
17-7 Stainless Steel; Passivate Finish

Available in Beryllium Copper* ASTM-B194 (heat treated).
Add BC to part number. **EXAMPLE: 24981-BC-1**
Beryllium Copper

*Load and Deflection data does not apply to Stainless Steel or Beryllium Copper.

Basic Part Number	Dimensions				No. of Waves	Approx. Max Load (LBS)	Approx Deflection (INS)
	B ID	A OD	D	C			
24981	.093	.205	.030	.004	3	–	.004
24983	.096	.187	.025	.005	3	7.0	.003
24985	.096	.250	.030	.004	3	–	.005
24987	.098	.152	.032	.005	3	4.0	.002
24989	.110	.196	.033	.012	3	33.7	.001
24991	.110	.250	.040	.008	3	–	.003
24993	.120	.225	.030	.006	3	9.4	.003
24995	.125	.250	.062	.032	3	–	.001
24997	.128	.250	.015	.003	3	2.5	.008
24741	.128	.281	.045	.006	3	–	.005
24743	.128	.402	.035	.007	3	–	.007
24745	.129	.375	.040	.005	3	–	.009
24747	.131	.249	.015	.003	3	2.4	.008
24749	.132	.222	.032	.005	3	5.1	.004
24751	.143	.282	.042	.005	3	7.1	.006
24753	.154	.281	.042	.005	3	6.1	.006
24755	.155	.281	.045	.006	3	8.7	.005
24757	.160	.345	.060	.012	3	–	.003
24759	.165	.250	.025	.005	3	3.7	.006
24761	.167	.375	.040	.006	3	–	.008
24763	.167	.375	.040	.016	3	–	.003
24765	.169	.306	.060	.008	3	15.5	.005
24767	.169	.500	.050	.016	3	–	.005
24769	.175	.375	.030	.007	4	–	.004
24771	.180	.343	.030	.010	3	26.9	.005
24773	.185	.375	.035	.006	3	–	.009
24775	.187	.265	.060	.008	3	7.1	.004
24777	.190	.281	.030	.010	3	13.4	.004
24779	.193	.280	.040	.016	3	27.9	.002
24781	.198	.438	.060	.015	4	–	.003
24783	.198	.438	.060	.025	4	–	.002
24785	.200	.307	.060	.008	3	9.9	.005
24787	.201	.308	.040	.005	3	–	–
24789	.203	.368	.045	.016	3	62.2	.003
24791	.203	.375	.031	.005	3	6.3	.011
24793	.203	.376	.055	.006	4	16.2	.005
24795	.203	.438	.050	.010	4	–	.004
24797	.206	.360	.060	.010	3	22.4	.005
24799	.219	.414	.071	.020	3	105.9	.003

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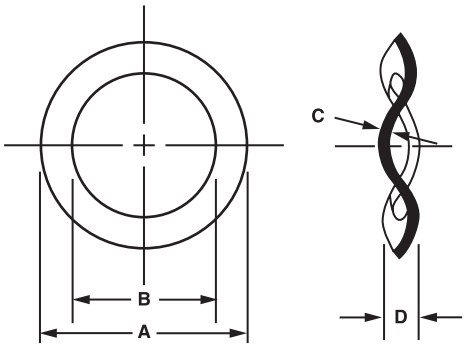
WAVE WASHERS - SPRING STEEL



Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = ±.010

ORDER EXAMPLE:

24801 - 1

Basic Part Number — **Finish: See page 277**

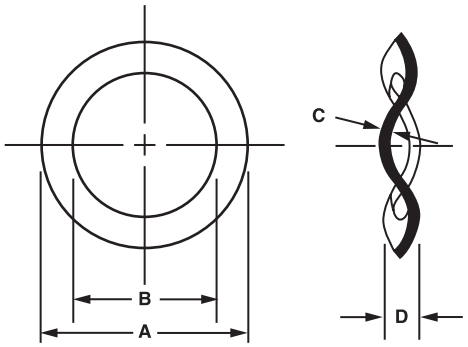
Available in Stainless Steel* Type 17-7 Ph (heat treated).
Add SS to part number. **EXAMPLE: 24801-SS-12**
(SS = 17-7 Stainless Steel; 12 = Passivate Finish)

Available in Beryllium Copper* ASTM-B194 (heat treated).
Add BC to part number. **EXAMPLE: 24801-BC-1**
(BC = Beryllium Copper)

*Load and Deflection data does not apply to Stainless Steel or Beryllium Copper.

Basic Part Number	Dimensions				No. of Waves	Approx. Max Load (LBS)	Approx Deflection (INS)
	B ID	A OD	D	C			
24801	.221	.374	.050	.010	3	20.7	.006
24803	.252	.750	.086	.012	3	–	.014
24805	.255	.345	.030	.008	3	5.5	.008
24807	.265	.365	.030	.006	3	3.4	.011
24809	.265	.375	.030	.010	4	19.6	.004
24811	.265	.406	.030	.016	3	34.6	.005
24813	.265	.432	.045	.016	3	42.1	.005
24815	.265	.500	.045	.006	3	9.5	.016
24817	.265	.500	.045	.008	3	16.8	.012
24819	.265	.500	.045	.010	3	26.3	.010
24821	.265	.500	.045	.016	3	59.3	.007
24823	.265	.562	.070	.010	3	–	.011
24825	.288	.410	.062	.005	3	2.8	.006
24827	.290	.531	.070	.010	3	24.8	.011
24829	.312	.463	.031	.016	4	54.6	.004
24831	.312	.463	.050	.020	4	97.2	.003
24833	.322	.420	.040	.006	3	2.3	.015
24835	.325	.500	.055	.008	3	10.0	.014
24837	.325	.500	.055	.015	3	35.1	.008
24839	.328	.682	.062	.010	3	–	.017
24841	.335	.562	.060	.010	4	36.0	.008
24843	.346	.562	.080	.003	3	–	–
24845	.346	.562	.080	.005	3	4.6	.028
24847	.346	.562	.080	.010	3	18.5	.014
24849	.355	.500	.045	.005	3	2.7	.024
24851	.355	.561	.080	.010	3	17.0	.014
24853	.365	.485	.060	.006	3	2.7	.020
24855	.382	.625	.080	.007	3	9.2	.024
24857	.385	.500	.050	.005	3	1.5	.026
24859	.385	.500	.050	.010	3	6.3	.013
24861	.385	.531	.035	.010	3	9.6	.015
24863	.386	.495	.050	.010	3	10.3	.013
24865	.390	.562	.060	.010	3	12.0	.015
24867	.390	.625	.080	.016	3	40.1	.012
24869	.390	.655	.093	.010	3	20.3	.018
24871	.390	.655	.110	.016	3	45.7	.012
24873	.390	.655	.110	.020	3	81.2	.009
24875	.406	.650	.085	.010	3	17.7	.019
24877	.420	.524	.068	.003	3	0.8	.050

WAVE WASHERS - SPRING STEEL



Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = ±.010

ORDER EXAMPLE:

24879 - 1

Basic Part Number — Finish: See page 277

Available in Stainless Steel* Type 17-7 Ph (heat treated).
Add SS to part number. **EXAMPLE: 24879-SS-12**
17-7 Stainless Steel — Passivate Finish

Available in Beryllium Copper* ASTM-B194 (heat treated).
Add BC to part number. **EXAMPLE: 24879-BC-1**
Beryllium Copper

*Load and Deflection data does not apply to Stainless Steel or Beryllium Copper.

Basic Part Number	Dimensions				No. of Waves	Approx. Max Load (LBS)	Approx Deflection (INS)
	B ID	A OD	D	C			
24879	.437	.550	.036	.010	3	9.6	.016
24881	.440	.618	.040	.004	3	1.3	.036
24883	.440	.618	.040	.008	3	6.8	.023
24885	.441	.654	.075	.010	3	13.6	.020
24887	.441	.655	.094	.010	3	13.7	.020
24889	.441	.655	.094	.016	3	30.8	.013
24891	.441	.750	.080	.015	3	47.2	.016
24893	.445	.610	.094	.004	3	1.4	.047
24895	.445	.610	.094	.006	3	3.3	.031
24897	.445	.610	.094	.010	3	9.3	.019
24899	.450	.605	.050	.007	3	4.0	.027
24901	.455	.870	.094	.010	3	27.0	.029
24903	.470	.880	.045	.005	4	11.5	.034
24905	.470	.880	.045	.007	4	22.6	.025
24907	.490	.610	.032	.008	4	–	–
24909	.505	.656	.070	.006	4	4.0	.021
24911	.505	.750	.045	.010	3	13.7	.026
24913	.515	.865	.093	.010	3	20.3	.032
24915	.520	.740	.080	.016	3	25.6	.018
24917	.530	.780	.125	.012	3	22.3	.022
24923	.545	.852	.080	.032	3	168.9	.010
24925	.560	.750	.045	.010	3	8.0	.029
24927	.563	.760	.110	.018	3	27.4	.016
24929	.565	.687	.062	.010	3	8.1	.026
24931	.580	.730	.040	.010	3	9.6	.029
24933	.609	.859	.062	.010	3	10.8	.036
24935	.620	.750	.045	.010	4	14.1	.018
24937	.640	.866	.045	.020	3	41.6	.017
24939	.641	.875	.125	.008	3	5.8	.048
24941	.642	1.000	.105	.016	3	36.6	.030
24943	.650	.790	.062	.010	3	8.1	.035
24945	.688	.937	.141	.012	3	12.9	.037
24947	.691	1.000	.092	.010	3	12.3	.048
24949	.695	.945	.078	.025	3	55.4	.018
24951	.700	.850	.090	.010	3	8.1	.040
24953	.700	.875	.090	.007	3	4.5	.059
24955	.718	.920	.050	.010	3	9.2	.040
24957	.718	1.000	.087	.010	3	10.1	.049
24959	.750	1.000	.136	.012	3	11.2	.043
24961	.767	1.125	.105	.016	3	27.3	.040

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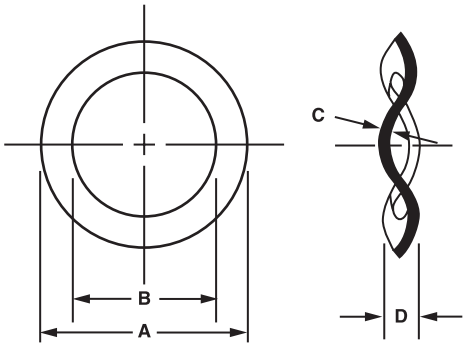
WAVE WASHERS - SPRING STEEL



Tolerances

A = ±.010
B = Up to/including
No. 10: ±.005
Over No. 10: ±.010
C = Commercial
D = ±.010

ORDER EXAMPLE:

24963 - 1

Basic Part Number — Finish: See page 277

Available in Stainless Steel* Type 17-7 Ph (heat treated).
Add SS to part number. **EXAMPLE: 24963-SS-12**
(SS = 17-7 Stainless Steel; 12 = Passivate Finish)

Available in Beryllium Copper* ASTM-B194 (heat treated).
Add BC to part number. **EXAMPLE: 24963-BC-1**
(BC = Beryllium Copper)

*Load and Deflection data does not apply to Stainless Steel or Beryllium Copper.

TECH TIP

Our full thread captive screw assemblies are a good alternative to SEMS screws.

Basic Part Number	Dimensions				No. of Waves	Approx. Max Load (LBS)	Approx Deflection (INS)
	B ID	A OD	D	C			
24963	.780	1.060	.120	.008	3	5.6	.071
24965	.781	1.000	.080	.012	3	14.8	.044
24967	.781	1.000	.080	.020	3	41.2	.027
24969	.800	.900	.090	.018	3	15.9	.027
24971	.812	.983	.080	.010	3	7.9	.054
24973	.812	1.095	.062	.010	3	7.1	.052
24975	.828	1.432	.125	.020	3	87.4	.043
25000	.856	1.102	.075	.012	3	8.4	.054
25002	.885	1.311	.125	.007	4	11.8	.065
25004	.901	1.150	.060	.012	3	12.0	.048
25096	.910	1.410	.120	.020	3	64.0	.045
25008	.914	1.078	.120	.005	3	1.4	.115
25010	.915	1.110	.120	.010	3	8.0	.069
25012	.926	1.116	.090	.018	3	25.2	.039
25014	.959	1.115	.055	.020	3	24.5	.035
25016	.960	1.110	.048	.012	3	5.2	.036
25018	.970	1.210	.062	.012	4	23.6	.037
25020	1.014	1.245	.145	.028	3	67.2	.031
25022	1.015	1.250	.050	.006	3	0.9	.044
25024	1.016	1.437	.156	.012	3	15.9	.084
25026	1.016	1.500	.085	.016	3	29.8	.070
25028	1.044	1.235	.090	.018	3	22.7	.048
25030	1.068	1.368	.072	.020	3	41.3	.050
25032	1.093	1.365	.093	.012	3	12.8	.081
25034	1.135	1.470	.062	.012	3	4.6	.050
25036	1.185	1.437	.075	.020	3	30.7	.055
25038	1.201	1.543	.105	.016	3	26.7	.079
25040	1.250	1.453	.090	.016	4	28.6	.043
25042	1.250	2.004	.140	.032	3	160.6	.059
25044	1.310	1.556	.172	.020	3	28.7	.069
25046**	1.437	1.690	.035	.005	4	–	–
25048**	1.500	1.820	.125	.010	4	–	–
25050	1.565	2.010	.150	.032	3	106.8	.067
25052**	1.656	1.985	.045	.010	4	–	–
25054	1.700	1.800	.050	.025	4	14.4	.025
25056	1.750	2.000	.150	.025	4	62.1	.053
25058	1.781	2.000	.187	.020	4	34.5	.067
25060	2.000	2.250	.200	.020	3	19.7	.151
25062	2.032	2.875	.215	.016	4	44.2	.151
25064	3.475	3.790	.100	.050	4	81.2	.050

**Beryllium Copper only.

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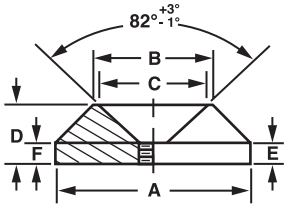
PANEL SCREW WASHERS

For Panel Screw*



Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

ORDER EXAMPLE:

800200 - A - 1

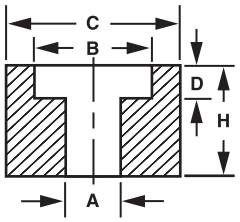
Basic Part Number | Material: See chart | Finish: See page 277

If any one dimension change is required, add to part number.
EXAMPLE: 800200-A-1 (A=5/8)

Basic Part Number	Thd Size	A ± .005	B ± .005	C ± .005	D +.000 -.010	E ± .005	F Thd Depth ± .012
800200	4-40	3/8	.265	.234	.156	1/64	.062
800210	6-32	7/16	.328	.296	.171	1/32	.078
800215	8-32	9/16	.375	.343	.203	1/32	.078
800220	10-24	5/8	.421	.390	.218	1/32	.078
800225	10-32	5/8	.421	.390	.218	1/32	.078

*See page 115 for associated screws.

COUNTERBORE WASHERS



Color	Code	Color	Code
Natural	1	Brown	6
Black	2	Orange	7
Red	3	Green	8
Blue	4	Yellow	9
Purple	5		

Available Material (see page 275)	
A	Aluminum
B	Brass
N	Nylon
S	Steel
SS	Stainless Steel
D	Delrin

ORDER EXAMPLE:

17400 - A - 1

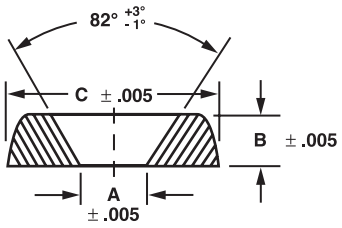
Basic Part Number | Material: See chart | Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 17400-N-2 ◄BLACK
Choose color from chart, otherwise Natural is provided.

Basic Part No.	Screw Size	C ± .010	B ± .005	A ± .005	D ± .005	H ± .005
17400	6	.370	.275	.155	.125	.250
17402	6	.490	.310	.145	.145	.255
17404	5/16	.490	.375	.310	.070	.755
17406	5/16	.565	.440	.325	.050	.355

FINISHING WASHERS

Countersunk or finishing washers used with flat-headed screws provide a smooth appearance for display cases, automotive assemblies, sheet metal construction, cabinet work, and electrical cabinets and racks.



Available Material (see page 275)	
A	Aluminum
B	Brass
N	Nylon
S	Steel
SS	Stainless Steel
D	Delrin

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

ORDER EXAMPLE:

16001 - A - 1

Basic Part Number | Material: See chart | Finish: See page 277

EXAMPLE FOR NYLON AND DELRIN PARTS: 16001-N-2 ◄BLACK
Choose color from chart, otherwise Natural is provided.

Basic Part Number	Screw Size	C	B	A
16001	4	.437	.100	.120
16003	6	.437	.100	.143
16005	8	.515	.115	.171
16007	10	.580	.152	.191
16009	12	.609	.160	.225
16011	1/4	.683	.183	.251

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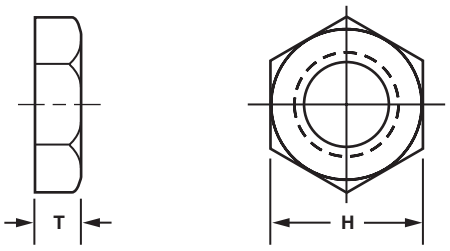
POTENTIOMETER, VOLUME CONTROL AND SWITCH NUTS

Hexagon



Available Material (see page 275)	
A	Aluminum
B*	Brass
N	Nylon
S*	Steel
SS	Stainless Steel

* Normally stocked; others allow approximately 2 weeks for delivery.

ORDER EXAMPLE:

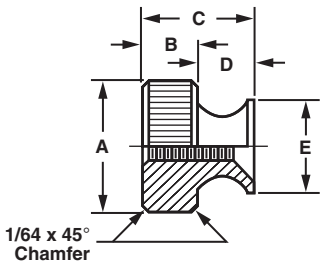
903000 - B - 9

- 903000: Basic Part Number
- B: Material: See chart
- 9: Finish: See page 277

Thickness may be changed to accommodate your requirements, add to part number.
EXAMPLE: 903000-B-9 (T = .250)

Thread Size	Basic Part Number	Dimensions	
		H Hex	T Thickness
2-56	903000	3/16	1/16
3-48	903002	3/16	1/16
4-36	903004	1/4	3/32
4-40	903006	1/4	3/32
6-32	903008	5/16	7/64
8-32	903010	5/16	1/8
10-32	903012	5/16	1/8
12-24	903014	3/8	1/8
1/4-20	903016	7/16	3/16
1/4-28	903018	3/8	3/32
1/4-28	903020	3/8	1/8
1/4-28	903022	7/16	.100
1/4-32	903024	5/16	1/16
1/4-32	903026	5/16	5/64
1/4-32	903028	11/32	1/16
1/4-32	903030	11/32	1/8
1/4-32	903032	3/8	3/32
1/4-32	903034	3/8	1/8
1/4-40	903036	5/16	1/16
5/16-24	903038	7/16	1/8
5/16-32	903040	7/16	.101
3/8-27	903042	1/2	1/16
3/8-32	903044	1/2	1/16
3/8-32	903046	1/2	3/32
3/8-32	903048	1/2	1/8
3/8-32	903050	9/16	3/32
7/16-28	903052	9/16	3/32
15/32-32	903054	9/16	1/16
15/32-32	903056	9/16	5/64
15/32-32	903058	9/16	3/32
15/32-32	903060	5/8	1/16
15/32-32	903062	5/8	5/64
1/2-32	903064	9/16	5/64
1/2-28	903066	5/8	1/8
5/8-24	903068	3/4	3/32

KNURLED THUMB NUTS



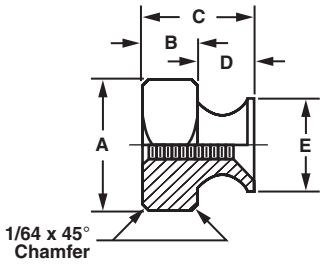
ORDER EXAMPLE:
67300 - A - 1
Basic Part Number | Material: See chart | Finish: See page 277

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

For parts not listed, contact sales office.

Basic Part Number	Thread	A +.020 -.000	B ± .015	C Ref.	D ± .010	E ± .031
67300	2-56	1/4	1/8	1/4	1/8	3/16
67302	4-40	5/16	1/8	1/4	1/8	1/4
67304	6-32	3/8	1/8	9/32	5/32	11/32
67306	8-32	7/16	1/8	9/32	5/32	3/8
67308	10-24	1/2	5/32	11/32	3/16	13/32
67310	10-32	1/2	5/32	11/32	3/16	13/32
67312	1/4-20	9/16	5/32	3/8	7/32	15/32
67314	5/16-18	5/8	3/16	13/32	7/32	17/32
67316	3/8-16	3/4	7/32	15/32	1/4	5/8

HEX THUMB NUTS



ORDER EXAMPLE:
67300 - A - 1
Basic Part Number | Material: See chart | Finish: See page 277

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

For parts not listed, contact sales office.

Basic Part Number	Thread	A Hex	B ± .015	C Ref.	D ± .010	E ± .031
67318	2-56	1/4	1/8	1/4	1/8	3/16
67320	4-40	5/16	1/8	1/4	1/8	1/4
67322	6-32	3/8	1/8	9/32	5/32	11/32
67324	8-32	7/16	1/8	9/32	5/32	3/8
67326	10-24	1/2	5/32	11/32	3/16	13/32
67328	10-32	1/2	5/32	11/32	3/16	13/32
67330	1/4-20	9/16	5/32	3/8	7/32	15/32
67334	5/16-18	5/8	3/16	13/32	7/32	17/32
67336	3/8-16	3/4	7/32	15/32	1/4	5/8

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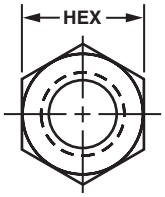
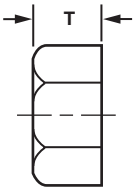
HEX MACHINE SCREW NUTS

Standard and Stock Size





Available Material (see page 275)	
B	Brass
S	Steel
SS	Stainless Steel
N	Nylon
D	Delrin

ORDER EXAMPLE:

3608 - SS - 12

Basic Part Number | **Material: See chart** | **Finish: See page 277**

Any one dimension may be changed, add to the part number.
EXAMPLE: 3609-SS-12 (T = .375)

Thread	Hex	Thickness	Basic Part Number	Finish
2-56	3/16	1/16	3608	
4-40	1/4	3/32	3609	
6-32	5/16	7/64	3613	
8-32	11/32	1/8	3617	
10-32	3/8	1/8	3622	
1/4-20	7/16	3/16	3626	
1/4-28	7/16	3/16	3630	
5/16-18	1/2	17/64	3631	
3/8-16	5/8	21/64	3632	
3/8-24	5/8	21/64	3636	
1/2-13	3/4	7/16	3640	
1/2-20	3/4	7/16	3642	
5/8-11	15/16	35/64	3644	
5/8/18	15/16	35/64	3646	
3/4-10	1-1/8	41/64	3648	
3/4-16	1-1/8	41/64	3649	

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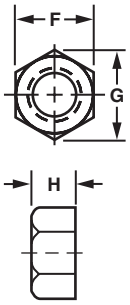
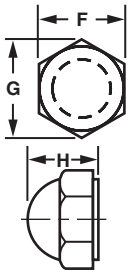
ASSORTED NYLON NUTS

Stocked in Nylon Zytel 101 UL 94V2

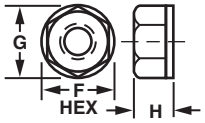
HEX



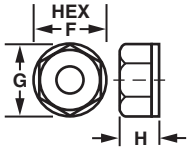
CAP



LOCK**



SELF-THREADING



Basic Part Number	Thread	F	G	H
113794	2-56	.180	.205	.070
113796	3-48	.180	.205	.070
113798	4-40	.250	.275	.100
113800	6-32	.305	.350	.120
113802	6-40	.305	.350	.120
113804	8-32	.335	.380	.130
113806	10-24	.365	.420	.135
113808	10-32	.365	.420	.135
113810	1/4-20	.425	.510	.200
113812	1/4-28	.425	.510	.200
113814	5/16-18	.500	.575	.270
113816	3/8-16	.560	.630	.330
113818	1/2-13	.750	.860	.430
113820	5/8-11	.925	1.05	.550
113822	4-40	.250	.275	.280
113824	6-32	.305	.350	.345
113826	8-32	.330	.385	.375
113828	10-24	.365	.420	.400
113830	10-32	.365	.420	.400
113832	1/4-20	.425	.510	.475
113823	1/4-28	.425	.510	.475
113825	5/16-18	.500	.575	.530
113827	3/8-16	.560	.630	.620
113829	1/2-13	.750	.860	.810
113831	5/8-11	.925	1.05	1.00
113834	2-56	.180	.205	.140
113836	4-40	.250	.275	.180
113838	6-32	.305	.350	.200
113840	8-32	.335	.380	.230
113842	10-24	.365	.420	.250
113844	10-32	.365	.420	.250
113846	1/4-20	.425	.510	.275
113848	2-56	.180	.205	.110
113850	4-40	.250	.275	.180
113852	6-32	.305	.350	.200
113854	8-32	.335	.380	.230
113856	10-24	.365	.420	.250
113858	10-32	.365	.420	.250
113860	1/4-20	.425	.510	.275

Other material available, check with factory.

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

ORDER EXAMPLE:

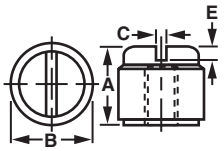
113794 - N - 1

- 113794: Basic Part Number
- N: Nylon
- 1: Color: See chart

Choose color from chart, otherwise Natural is provided.

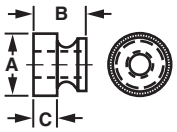
**Locking element is located approx. on last two threads at exit side of nut with minor diameter undersize.

SLOTTED



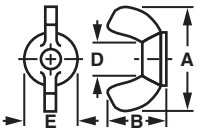
Part Number	Thread	A	B	C	E
113862	4-40	.280	.317	.039	045
113864	6-32	.324	.348	.044	.051
113866	8-32	.378	.381	.049	.059
113868	10-24	.357	.412	.056	.068
113870	10-32	.357	.412	.056	.068
113872	1/4-20	.383	.492	.070	.088

THUMB



Part Number	Thread	A	B	C
113874	4-40	.300	.280	.120
113876	6-32	.360	.275	.125
113878	8-32	.425	.305	.140
113880	10-24	.425	.325	.140
113882	10-32	.425	.325	.140
113884	1/4-20	.540	.365	.155

WING



Part Number	Thread	A	B	D	E
113886	4-40	.90	.50	.25	.41
113888	6-32				
113890	8-32				
113892	10-24				
113894	10-32				
113896	10-24	1.10	.63	.30	.56
113898	10-32				
113900	1/4-20				
113902	1/4-28				
113904	1/4-20	1.38	.72	.36	.65
113906	1/4-28				
113908	5/16-18				
113910	3/8-16				
113912	7/16-14	1.75	.90	.58	.85
113914	1/2-13				
113916	9/16-12				

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BLIND NUTS

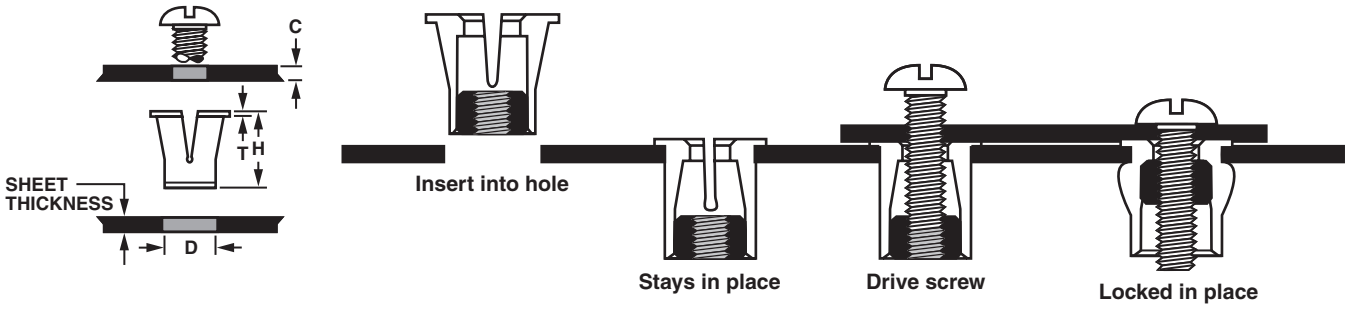
This Blind Nut fastener consists of a knurled aluminum/brass nut in a tapered wall nylon cage. Driving a screw into the nut during assembly draws the nut up, expanding the cage wall and locking it into the hole.

Blind Nuts are priced competitively , require only production tolerance round holes; have the lowest assembly cost of any blind nut; and thereby reduce the in-place cost.

FEATURES AND ADVANTAGES

- Spring tension of nylon cage securely holds nut in hole prior to final assembly
- Fits all sheet thicknesses. It can be used in metal, fiberglass and plastic
- Protects prefinished or brittle surfaces as only the nylon comes in contact with sheet material
- Makes assembly rattle-proof and dampens vibration
- Made from corrosion resistant materials; the nylon cage and the aluminum/brass nut

Insert into either drilled or stamped holes with finger pr essure, requires no special installation tools.



How To Use Blind Nuts

1. Drill or stamp a hole to dimension D.
2. Push fastener into hole with finger pressure or light tap.
3. Select screw length as specified.
4. Locate component to be attached over Blind Nut and insert screw .
5. Drive screw until solid resistance is felt.
6. The component to be attached must not turn while driving the screw. Torque must not be transmitted from the screw head to the head of nylon cage. Washers alone are not acceptable since they will turn.

Available Material	
A	Aluminum
B	Brass

ORDER EXAMPLE:
301019 - A - 4-40
Basic Part Number | Material: See chart | Thread

Basic Part Number	Available Threads			H Cage Length	T Head Thick	D Hole Size	Minimum Recommended Screw Length	Average Pullout
	UNC	UNF	Metric					
301019A 301019B*	4-40	4-48	m2.5	5/16	.030	.250 +.003 -.000	5/16 + Dim C	25 lbs
301020A 301020B*	6-32	6-40	m3	3/8	.030	.312 +.004 -.000	3/8 + Dim C	85 lbs
301030A* 301030B*	8-32	–	m4	1/2	.030	.406 +.005 -.000	1/2 +Dim C	220 lbs
301040A 301040B*	10-24	–	m5	1/2	.030	.406 +.005 -.000	1/2 + Dim C	220 lbs
301045A 301045B*	–	10-32	m5	1/2	.030	.406 +.005 -.000	1/2 + Dim C	220 lbs
301050A 301050B*	1/4-20	–	m6	5/8	.030	.500 +.006 -.000	5/8 + Dim C	275 lbs
301055A* 301055B	–	1/4-28	m6	5/8	.030	.500 +.006 -.000	5/8 + Dim C	275 lbs
301056A* 301056B	5/16-18	5/16-24	m8	.672	.030	.562 +.006 -.000	11/16 + Dim C	300 lbs

*Available from stock, all others allow 4 to 6 weeks.

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KNURLED PHENOLIC HAND SCREWS & NUTS

HAND SCREWS:
Cadmium Plated, Steel Male Threads

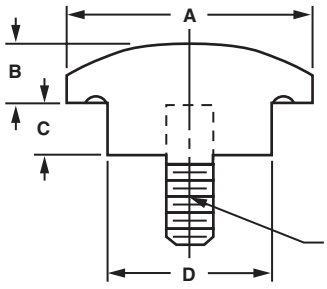
HAND NUTS:
Brass Female Threads

The metal screws and bushings cannot slip in the head under high torque loads because they are permanently locked in during the molding operation. Molded of phenolic plastic, these hand nuts and screws are excellent electrical insulators and have high heat resistance (up to 300° F) and are highly resistant to most chemicals and solvents.

Available in Black only.

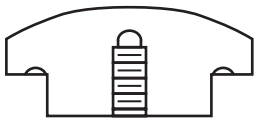
Styles Available:

Hand Screw

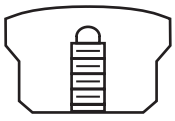


Available with self-locking device.
See page 109.

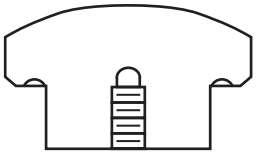
Hand Nut



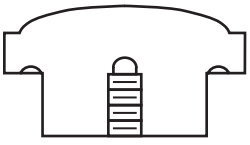
Nut or Screw Type
Fig. III



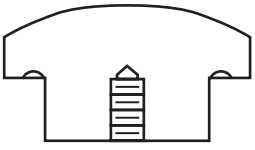
Nut or Screw Type
Fig. IV



Nut or Screw Type
Fig. V



Nut or Screw Type
Fig. VI



Basic Part Number	Nuts Tapped Hole Size	Screws Threaded Stud Size & Length	A Head Dia & Style	B	C	D
101010	8-32	–	3/4 fig. III	1/4	9/32	5/8
101012	10-32	–				
101014	1/4-20	–				
101016	–	8-32x1/2				
101018	–	8-32x3/4				
101020	–	8-32x1				
101022	–	10-32x3/4				
101024	–	10-32x1				
101026	–	1/4-20x3/4				
101028	–	1/4-20x1				
101030	10-32	–	1 fig. IV	11/32	5/16	5/8
101032	1/4-20	–				
101034	–	10-32x1/2				
101036	–	10-32x3/4				
101038	–	10-32x1				
101040	–	1/4-20x1/2				
101042	–	1/4-20x3/4				
101044	–	1/4-20x1				
101046	–	1/4-20x1-1/2				
101048	10-32	–	1-3/8 fig. V	13/32	3/8	3/4
101050	1/4-20	–				
101052	5/16-18	–				
101054	3/8-16	–				
101056	–	1/4-20x1/2				
101058	–	1/4-20x3/4				
101060	–	1/4-20x1				
101062	–	1/4-20x1-1/2				
101064	–	5/16-18x3/4				
101066	–	5/16-18x1				
101068	–	5/16-18x1-1/2				
101070	–	5/16-18x2				
101072	–	3/8-16x1				
101074	–	3/8-16x1-1/2				
101076	–	3/8-16x2				
101078	1/4-20	–	1-7/8 fig. VI	1/2	1/2	1
101080	5-16-18	–				
101082	3/8-16	–				
101084	–	1/4-20x1/2				
101086	–	1/4-20x3/4				
101088	–	1/4-20x1				
101090	–	1/4-20x1-1/2				
101092	–	5/16-18x3/4				
101093	–	5/16-18x1				
101094	–	5/16-18x1-1/2				
101095	–	5/16-18x2				
101096	–	3/8-16x1				
101097	–	3/8-16x1-1/2				
101098	–	3/8-16x2				

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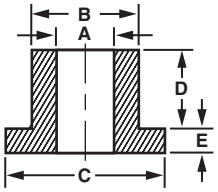

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Available Material (see page 275)

A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber

ORDER EXAMPLE:

17200 - A - 1

- 17200: Basic Part Number
- A: Material: See chart
- 1: Finish: See page 277

EXAMPLE FOR NYLON & DELRIN PARTS:
17200-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided. If any one dimension or tolerance change is required, add to part number. **EXAMPLE: 17200-A-1 (A=.080)**

Screw Size	A ID ± .005	B Shank OD ± .005	C Flange OD ± .005	D Shank Length ± .005	E Flange Thkns ± .005	Basic Part Number	Material	Finish
2	.093	.125	.187	.125	.062	17200		
	.093	.125	.187	.187	.062	17202		
	.093	.125	.187	.250	.062	17204		
	.093	.125	.187	.312	.062	17206		
	.093	.125	.187	.375	.062	17208		
4	.116	.215	.312	.168	.050	17301		
	.120	.310	.500	.130	.057	17303		
	.125	.156	.250	.125	.062	17210		
	.125	.156	.250	.187	.062	17212		
	.125	.156	.250	.250	.062	17214		
	.125	.531	.640	.171	.109	17305		
	.125	.234	.375	.109	.031	17307		
	.125	.234	.375	.140	.031	17309		
	.125	.250	.562	.250	.250	17311		
	.125	.312	.625	.098	.037	17313		
6	.140	.187	.375	.063	.062	17315		
	.140	.359	.625	.312	.031	17317		
	.141	.234	.375	.087	.093	17319		
	.144	.211	.275	.031	.140	17321		
	.147	.172	.312	.125	.062	17216		
	.147	.172	.312	.187	.062	17218		
	.157	.228	.290	.148	.031	17323		
	.150	.250	.375	.156	.062	17325		
	.156	.375	.625	.187	.125	17327		
	.165	.250	.375	.046	.062	17329		
8	.170	.380	.450	.155	.220	17331		
	.171	.242	.500	.062	.093	17333		
	.174	.218	.375	.187	.062	17220		
	.174	.218	.375	.250	.062	17222		
	.174	.218	.375	.312	.062	17224		
	.174	.218	.375	.375	.062	17226		
	.174	.218	.375	.437	.062	17228		
	.174	.218	.375	.500	.062	17230		
	.178	.300	.500	.750	.093	17335		
	.180	.292	.437	.031	.065	17337		
	.180	.328	.500	.218	.218	17339		
	.187	.296	.500	.050	.070	17341		
	.187	.310	.500	.168	.050	17343		
	.187	.312	.500	.140	.100	17345		
	.190	.312	.687	.212	.062	17347		
	.190	.343	.875	.141	.140	17349		

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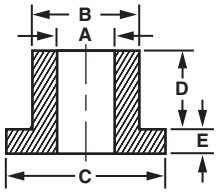

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Available Material (see page 275)

A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber

ORDER EXAMPLE:

17351 - A - 1

- 17351: Basic Part Number
- A: Material: See chart
- 1: Finish: See page 277

EXAMPLE FOR NYLON & DELRIN PARTS:
17351-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided. If any one dimension or tolerance change is required, add to part number. **EXAMPLE: 17351-A-1 (A=.080)**

Screw Size	A ID ± .005	B Shank OD ± .005	C Flange OD ± .005	D Shank Length ± .005	E Flange Thkns ± .005	Basic Part Number	Material	Finish
8	.190	.371	.578	.303	.038	17351		
10	.192	.375	.625	.377	.070	17353		
	.195	.250	.550	.062	.031	17355		
	.195	.300	.500	.406	.093	17357		
	.196	.300	.583	.156	.125	17359		
	.196	.300	.500	.375	.125	17361		
	.196	.312	.500	.171	.046	17363		
	.196	.343	.500	.406	.187	17365		
	.197	.296	.500	.125	.125	17367		
	.197	.681	.781	.125	.062	17369		
	.200	.250	.437	.187	.062	17232		
	.200	.250	.437	.250	.062	17234		
	.200	.250	.437	.312	.062	17236		
	.200	.250	.437	.375	.062	17238		
	.200	.250	.437	.437	.062	17240		
	.200	.250	.437	.500	.062	17242		
	.200	.300	.562	.260	.120	17371		
	.200	.312	.500	.187	.062	17373		
	.201	.437	1.000	.250	.187	17375		
	.203	.312	.437	.038	.093	17377		
	.203	.531	.625	.500	.125	17379		
	.210	.343	.625	.140	.062	17381		
12	.218	.359	.555	.530	.103	17383		
	.218	.359	.484	.172	.062	17385		
	.219	.315	.562	.141	.078	17387		
	.222	.697	.750	.250	.187	17389		
	.234	.353	.656	.178	.103	17391		
	.235	.355	.650	.171	.109	17393		
	.237	.312	.500	.300	.062	17395		
	.238	.375	.500	.125	.125	17397		
	.240	.359	.665	.115	.109	17399		
14	.250	.296	.395	.178	.040	17401		
	.250	.312	.500	.344	.156	17403		
	.250	.359	.500	.093	.062	17405		
	.250	.370	.710	.150	.053	17407		
	.250	.375	.500	.375	.234	17409		
	.250	.437	1.000	.500	.250	17411		
	.250	.500	1.000	.093	.171	17413		
1/4	.252	.371	.578	.302	.038	17415		
	.252	.375	.500	.250	.234	17417		
	.253	.440	.937	.165	.125	17419		

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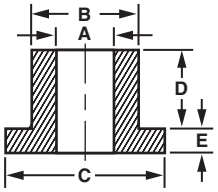

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Available Material (see page 275)

A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber

ORDER EXAMPLE:

17421 - A - 1

- 17421: Basic Part Number
- A: Material: See chart
- 1: Finish: See page 277

EXAMPLE FOR NYLON & DELRIN PARTS:
17421-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided. If any one dimension or tolerance change is required, add to part number. **EXAMPLE: 17421-A-1 (A=.080)**

Screw Size	A ID ± .005	B Shank OD ± .005	C Flange OD ± .005	D Shank Length ± .005	E Flange Thkns ± .005	Basic Part Number	Material	Finish
1/4	.255	.311	.437	.072	.062	17421		
	.255	.312	.625	.203	.031	17423		
	.255	.320	.625	.109	.031	17425		
	.255	.370	1.250	.062	.062	17427		
	.255	.375	.635	.212	.062	17429		
	.255	.377	.500	.687	.062	17431		
	.255	.386	.718	.140	.156	17433		
	.255	.490	.750	.110	.090	17435		
	.256	.375	.750	.682	.062	17437		
	.256	.380	.500	.437	.062	17439		
	.258	.317	.562	.313	.062	17441		
	.260	.312	.500	.187	.062	17244		
	.260	.312	.500	.250	.062	17246		
	.260	.312	.500	.312	.062	17248		
	.260	.312	.500	.375	.062	17250		
	.260	.312	.500	.437	.062	17252		
	.260	.312	.500	.500	.062	17254		
	.260	.348	.562	.518	.031	17443		
	.260	.363	.500	.438	.062	17445		
	.260	.372	.500	.125	.125	17447		
	.260	.443	.562	.250	.062	17449		
	.260	.609	.750	.050	.125	17451		
	.263	.375	.500	.375	.062	17453		
	.265	.339	.750	.188	.062	17455		
	.265	.375	.625	.140	.140	17457		
	.265	.377	.500	.687	.062	17459		
	.266	.359	.625	.171	.250	17461		
	.273	.375	.500	.710	.040	17463		
	.280	.615	1.000	.625	.125	17465		
	.281	.380	.500	.125	.125	17467		
	.281	.500	.875	.500	.250	17469		
	.296	.370	.609	.187	.109	17471		
	.310	.370	.500	.225	.035	17256		
	.310	.455	.560	.085	.060	17258		
	.310	.355	.458	.288	.040	17473		
5/16	.312	.365	.615	.130	.035	17475		
	.312	.412	.562	1.312	.050	17477		
	.312	.500	.796	.782	.218	17479		
	.312	.800	.980	1.375	.187	17481		
	.315	.365	.562	.281	.062	17483		
	.317	.500	1.281	.125	.125	17485		

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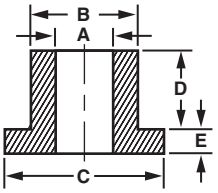

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Available Material (see page 275)

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S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber

ORDER EXAMPLE:

17487 - A - 1

- 17487: Basic Part Number
- A: Material: See chart
- 1: Finish: See page 277

EXAMPLE FOR NYLON & DELRIN PARTS:
17487-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided. If any one dimension or tolerance change is required, add to part number. **EXAMPLE: 17487-A-1 (A=.080)**

Screw Size	A ID ± .005	B Shank OD ± .005	C Flange OD ± .005	D Shank Length ± .005	E Flange Thkns ± .005	Basic Part Number	Material	Finish
5/16	.318	.437	.625	.500	.062	17487		
	.318	.437	.625	.503	.075	17489		
	.390	.320	.750	.406	.125	17491		
	.320	.437	.625	.250	.062	17493		
	.321	.470	.625	.312	.062	17495		
	.323	.370	.437	.062	.050	17497		
	.323	.370	.437	.137	.050	17499		
	.325	.437	.625	.531	.093	17501		
	.332	.443	.625	.750	.093	17503		
	.332	.450	.750	.125	.062	17505		
	.335	.617	.870	.490	.130	17260		
	.337	.462	.625	.562	.062	17507		
	.350	.375	.500	.343	.265	17509		
	.365	.685	1.238	.185	.310	17262		
	.370	.906	1.000	.375	.062	17511		
	.375	.500	.555	.100	.060	17264		
	.375	.430	.500	.220	.030	17266		
	.375	.493	.755	.030	.125	17268		
	.375	.490	.755	1.010	.130	17270		
	.375	.490	.995	.050	.175	17272		
	.375	.430	.695	.375	.062	17513		
	.375	.437	.625	.062	.031	17515		
	.375	.468	.687	.093	.078	17517		
	.375	.468	.687	.188	.062	17519		
	.375	.496	.750	.242	.070	17521		
	.375	.500	.625	.060	.133	17523		
	.375	.500	.625	.133	.060	17525		
	.375	.500	.625	.253	.062	17527		
	.375	.500	.750	.156	.312	17529		
	.375	.500	.750	.438	.062	17531		
	.375	.500	.750	.190	.065	17533		
	.375	.500	1.125	.190	.500	17535		
	.375	.500	.745	.750	.062	17537		
	.375	.500	.734	.625	.312	17539		
	.375	.500	.734	.625	.312	17541		
3/8	.380	.500	.750	.296	.078	17543		
	.380	.500	.625	.515	.031	17545		
	.380	.525	.765	1.218	.218	17547		
	.380	.560	.750	.562	.250	17549		
	.380	.575	.625	.250	.062	17551		
	.380	.625	1.125	.250	.125	17553		

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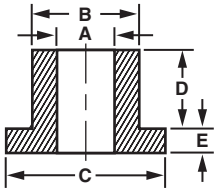
BUSHINGS



Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Available Material (see page 275)

A	Aluminum	Ph	Phenolic (Paper)
B	Brass	Phl	Phenolic (Linen)
C	Copper	L	Polycarbonate(Lexan)
S	Steel	PA	A.B.S.
SS	Stainless Steel	PP	P.V.C.
N	Nylon	T	Teflon
D	Delrin	F	Fiber

ORDER EXAMPLE:

17555 - A - 1

- 17555: Basic Part Number
- A: Material: See chart
- 1: Finish: See page 277

EXAMPLE FOR NYLON & DELRIN PARTS:
17555-N-2 ← BLACK
Choose color from chart, otherwise Natural is provided. If any one dimension or tolerance change is required, add to part number. **EXAMPLE: 17555-A-1 (A=.080)**

Screw Size	A ID ± .005	B Shank OD ± .005	C Flange OD ± .005	D Shank Length ± .005	E Flange Thkns ± .005	Basic Part Number	Material	Finish
3/8	.382	.500	1.000	.500	.062	17555		
	.382	.531	.656	.671	.109	17557		
	.385	.500	.750	.065	.185	17274		
	.385	.505	.625	.562	.187	17559		
	.385	.570	.750	.539	.086	17561		
	.385	.625	.750	.500	.093	17563		
	.390	.515	.640	.750	.062	17565		
	.392	.510	.637	.309	.062	17567		
	.400	.500	.750	.090	.130	17276		
	.406	.690	.750	.312	.125	17569		
	.415	.560	.750	.550	.080	17278		
	.415	.625	.703	2.000	.062	17571		
	.420	.560	.615	.315	.375	17280		
	.422	.750	.984	.500	.125	17573		
	.430	.500	.750	.036	.187	17282		
	.434	.747	.993	.115	.135	17575		
7/16	.442	.630	1.275	.750	.187	17577		
	.442	.630	1.250	1.250	.437	17579		
	.447	.625	.750	.125	.062	17581		
	.450	.625	1.275	.740	.125	17583		
	.453	.520	.625	.156	.046	17585		
	.453	.627	.750	.500	.093	17587		
	.470	.531	.937	.062	.087	17589		
	.470	.531	.937	.190	.084	17591		
	.470	.531	.937	.468	.087	17593		
	.472	.575	.625	.257	.062	17595		
	.484	.531	.625	.110	.036	17597		
1/2	.500	.620	.875	.190	.065	17284		
	.500	.906	1.000	.375	.062	17599		
	.505	.690	.810	.370	.130	17286		
	.505	.690	.810	.430	.065	17288		
	.506	.628	.750	1.380	.060	17601		
	.508	.578	.750	.343	.031	17603		
	.510	.625	.875	.375	.125	17605		
	.515	.637	.750	.187	.250	17607		
	.520	.625	.796	.359	.062	17609		
	.522	.630	.750	.187	.062	17611		
	.531	.747	.993	.240	.135	17613		
	.565	.665	.750	.647	.040	17615		
	.578	.687	.921	.735	.046	17617		
	.593	.785	.900	.375	.125	17619		

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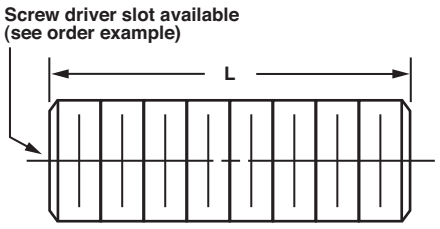
THREADED STUD
18/8 Stainless Steel



Class 1A Rolled Thread

Nom. Std. Size In.	Tolerance on Length - In.	
	For Lengths 6 In. and Shorter	For Lengths Over 6 In.
To 5/16	±0.03	±0.06
Over 5/16 to 3/4	±0.06	±0.12
Over 3/4 to 1-1/4	±0.12	±0.19
Over 1-1/4	±0.25	±0.25

Thread Size	Basic Part Number	L Length (1/2 minimum)	Finish
4-40	900560		
6-32	900562		
8-32	900564		
10-24	900566		
10-32	900568		
12-24	900570		
1/4-20	900572		
1/4-28	900574		
5/16-18	900576		
5/16-24	900578		
3/8-16	900580		
3/8-24	900582		
7/16-14	900584		
1/2-13	900586		
1/2-20	900588		
9/16-12	900590		
5/8-11	900592		
3/4-10	900594		
7/8-9	900596		
1-8	900598		
1-1/8-7	900600		
1-1/4-7	900602		

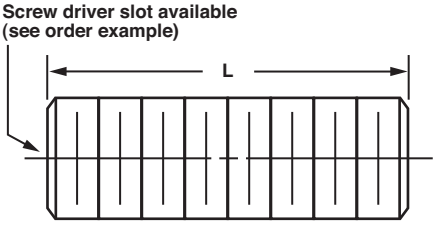
ORDER EXAMPLE:

900560 - .500 - 12

- **900560** — Basic Part Number
- **.500** — Length: Fill in your length
- **12** — Finish: See page 277

Screw Driver Slot is available (.060 X .060), one end only, 8-32 thread and larger, add **SDS** to part number. **EXAMPLE: 900560-.500-SDS-12**
Self-Locking Device is available (one sided only), add **SLD** (Pellet Type) or **SLDS** (Strip Type) to part number.
EXAMPLE: 900560-.500-SLD or SLDS-12

THREADED STUD
316 Stainless Steel



Class 1A Rolled Thread

Nom. Std. Size In.	Tolerance on Length - In.	
	For Lengths 6 In. and Shorter	For Lengths Over 6 In.
To 5/16	±0.03	±0.06
Over 5/16 to 3/4	±0.06	±0.12
Over 3/4 to 1-1/4	±0.12	±0.19
Over 1-1/4	±0.25	±0.25

Thread Size	Basic Part Number	L Length (1/2 minimum)	Finish
1/4-20	900604		
5/16-18	900606		
3/8-16	900608		
1/2-13	900610		
5/8-11	900612		
3/4-10	900614		
7/8-9	900616		
1-8	900618		

ORDER EXAMPLE:

900604 - .500 - 12

- **900604** — Basic Part Number
- **.500** — Length: Fill in your length
- **12** — Finish: See page 277

Screw Driver Slot is available (.060 X .060), one end only, 8-32 thread and larger, add **SDS** to part number. **EXAMPLE: 900604-.500-SDS-12**
Self-Locking Device is available (one sided only), add **SLD** (Pellet Type) or **SLDS** (Strip Type) to part number.
EXAMPLE: 900604-.500-SLD or SLDS-12

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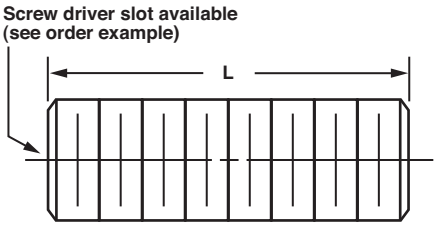
THREADED STUD

Low Carbon Steel (1008-1020)



Class 1A Rolled Thread

Thread Size	Basic Part Number	L Length (1/2 minimum)	Finish
6-32	900620		
8-32	900622		
10-24	900624		
10-32	900626		
1/4-20	900628		
1/4-28	900630		
5/16-18	900632		
5/16-24	900634		
3/8-16	900636		
3/8-24	900638		
7/16-14	900640		
7/16-20	900642		
1/2-13	900644		
1/2-20	900646		
9/16-12	900648		
9/16-18	900650		
5/8-11	900652		
5/8-18	900654		
3/4-10	900656		
3/4-16	900658		
7/8-9	900660		
7/8-14	900662		
1-8	900664		
1-14	900666		
1-1/8-7	900668		
1-1/4-7	900670		
1-3/8-6	900672		
1-1/2-6	900674		
1-3/4-5	900676		
2-4-1/2	900678		

Nom. Std. Size In.	Tolerance on Length - In.	
	For Lengths 6 In. and Shorter	For Lengths Over 6 In.
To 5/16	±0.03	±0.06
Over 5/16 to 3/4	±0.06	±0.12
Over 3/4 to 1-1/4	±0.12	±0.19
Over 1-1/4	±0.25	±0.25

ORDER EXAMPLE:

900620 - .500 - 7

- **900620** — Basic Part Number
- **.500** — Length: Fill in your length
- **7** — Finish: See page 277

Screw Driver Slot is available (.060 X .060), one end only, 8-32 thread and larger, add **SDS** to part number. **EXAMPLE: 900620-.500-SDS-7**
Self-Locking Device is available (one sided only), add **SLD** (Pellet Type) or **SLDS** (Strip Type) to part number.
EXAMPLE: 900620-.500-SLD or SLDS-7

TECH TIP

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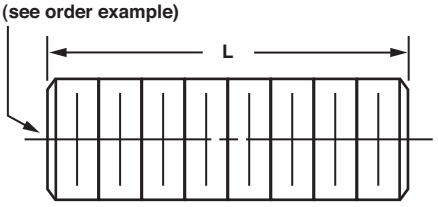
THREADED STUD
Alloy Steel (4140)

Screw driver slot available
(see order example)



Class 1A Rolled Thread

Thread Size	Basic Part Number	L Length (1/2 minimum)	Finish
1/4-20	900680		
5/16-18	900682		
3/8-16	900684		
1/2-13	900686		
5/8-11	900688		
3/4-10	900690		
7/8-9	900692		
1-8	900694		
1-1/8-8	900696		
1-1/4-8	900698		
1-3/8-8	900700		
1-1/2-8	900702		
1-3/4-8	900704		
2-8	900706		

Nom. Std. Size In.	Tolerance on Length - In.	
	For Lengths 6 In. and Shorter	For Lengths Over 6 In.
To 5/16	±0.03	±0.06
Over 5/16 to 3/4	±0.06	±0.12
Over 3/4 to 1-1/4	±0.12	±0.19
Over 1-1/4	±0.25	±0.25

ORDER EXAMPLE:

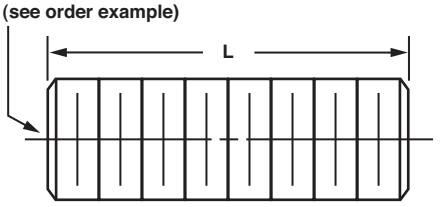
900680 - .500 - 7

Basic Part Number | Length: Fill in your length | Finish: See page 277

Screw Driver Slot is available (.060 X .060), one end only, 8-32 thread and larger, add **SDS** to part number. **EXAMPLE: 900680-.500-SDS-7**
Self-Locking Device is available (one sided only), add **SLD** (Pellet Type) or **SLDS** (Strip Type) to part number.
EXAMPLE: 900680-.500-SLD or SLDS-7

THREADED STUD
Nylon

Screw driver slot available
(see order example)



Class 1A Rolled Thread

Color	Code
Natural	1
Black	2
Red	3
Blue	4
Purple	5
Brown	6
Orange	7
Green	8
Yellow	9

Thread Size	Basic Part Number	L Length (1/2 minimum)	Finish
4-40	900708		
6-32	900710		
8-32	900712		
10-24	900714		
10-32	900716		
1/4-20	900718		
5/16-18	900720		
3/8-16	900722		
1/2-13	900724		

Nom. Std. Size In.	Tolerance on Length - In.	
	For Lengths 6 In. and Shorter	For Lengths Over 6 In.
To 5/16	±0.03	±0.06
Over 5/16 to 3/4	±0.06	±0.12
Over 3/4 to 1-1/4	±0.12	±0.19
Over 1-1/4	±0.25	±0.25

ORDER EXAMPLE:

900708 - .500 - 1

Basic Part Number | Length: Fill in your length | Color: See chart

Screw Driver Slot is available (.060 X .060), one end only, 8-32 thread and larger, add **SDS** to part number. **EXAMPLE: 900708-.500-SDS-1**
Self-Locking Device is available (one sided only), add **SLD** (Pellet Type) or **SLDS** (Strip Type) to part number.
EXAMPLE: 900708-.500-SLD or SLDS-1
Choose color from chart, otherwise Natural is provided.
EXAMPLE PART NUMBER FOR NYLON: 900708-.500-2 ◄ Black

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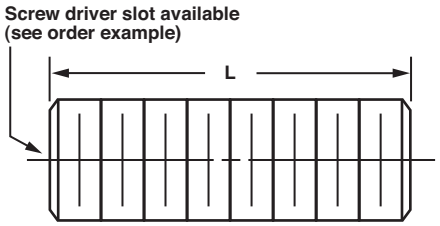
THREADED STUD
Aluminum (2011)



Class 1A Rolled Thread

Thread Size	Basic Part Number	L Length (1/2 minimum)	Finish
6-32	900500		
8-32	900502		
10-24	900504		
10-32	900506		
1/4-20	900508		
5/16-18	900510		
3/8-16	900512		
1/2-13	900514		

Nom. Std. Size In.	Tolerance on Length - In.	
	For Lengths 6 In. and Shorter	For Lengths Over 6 In.
To 5/16	±0.03	±0.06
Over 5/16 to 3/4	±0.06	±0.12
Over 3/4 to 1-1/4	±0.12	±0.19
Over 1-1/4	±0.25	±0.25

ORDER EXAMPLE:

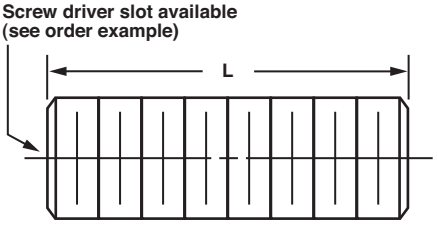
900500 - .500 - 22

Basic Part Number | Length: Fill in your length | Finish: See page 277

Screw Driver Slot is available (.060 X .060), one end only, 8-32 thread and larger, add **SDS** to part number. **EXAMPLE: 900500-.500-SDS-22**
Self-Locking Device is available (one sided only), add **SLD** (Pellet Type) or **SLDS** (Strip Type) to part number.
EXAMPLE: 900500-.500-SLD or SLDS-22

THREADED STUD
Brass (CDA360)

Thread Size	Basic Part Number	L Length (1/2 minimum)	Finish
4-40	900518		
6-32	900520		
8-32	900522		
10-24	900524		
10-32	900526		
12-24	900528		
1/4-20	900530		
1/4-28	900532		
5/16-18	900534		
5/16-24	900536		
3/8-16	900538		
3/8-24	900540		
7/16-14	900542		
1/2-13	900544		
1/2-20	900546		
5/8-11	900548		
5/8-18	900550		
3/4-10	900552		
7/8-9	900554		
1-8	900556		



Class 1A Rolled Thread

Nom. Std. Size In.	Tolerance on Length - In.	
	For Lengths 6 In. and Shorter	For Lengths Over 6 In.
To 5/16	±0.03	±0.06
Over 5/16 to 3/4	±0.06	±0.12
Over 3/4 to 1-1/4	±0.12	±0.19
Over 1-1/4	±0.25	±0.25

ORDER EXAMPLE:

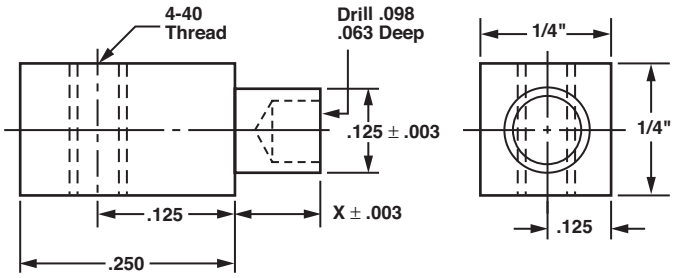
900518 - .500 - 7

Basic Part Number | Length: Fill in your length | Finish: See page 277

Screw Driver Slot is available (.060 X .060), one end only, 8-32 thread and larger, add **SDS** to part number. **EXAMPLE: 900518-.500-SDS-7**
Self-Locking Device is available (one sided only), add **SLD** (Pellet Type) or **SLDS** (Strip Type) to part number.
EXAMPLE: 900518-.500-SLD or SLDS-7

CHASSIS FASTENERS

1/4" - SQUARE



Recommended Shank Length
.075
.105
.135
.165
.230
.290

X = Length of Shank

ORDER EXAMPLE:

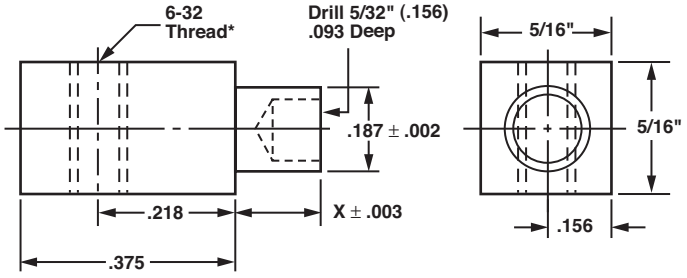
1700 - B - .105 - 7

Basic Part Number	Material: See chart	Shank Length: Fill in your length	Finish: See page 277

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

Length	Basic Part Number	Material	Shank Length	Finish
.250	1700			

5/16" - SQUARE



Recommended Shank Length
.075
.105
.135
.165
.230
.290

X = Leng h of Shank

ORDER EXAMPLE:

1800 - B - .105 - 7

Basic Part Number	Material: See chart	Shank Length: Fill in your length	Finish: See page 277

*4-40 thread is available on special order, add **4-40** to the part number. **EXAMPLE: 1800-B-.075-7 (4-40)**

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

Length	Basic Part Number	Material	Shank Length	Finish
.375	1800			

NOTE: Standard materials. Other materials on special order.

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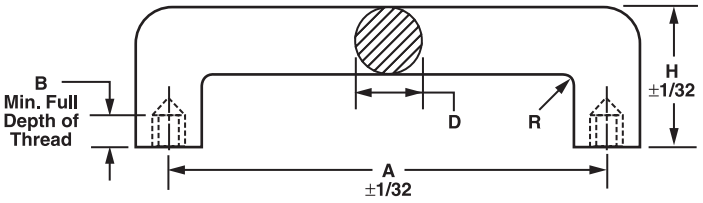
ROUND HANDLES



ORDER EXAMPLE:

8400 - 1.500 - 256 - SS - 12

Basic Part Number	Length A between centers	Thread	Material: See chart	Finish: See page 277

If metric thread is required, add to part number.
EXAMPLE: 8400-1.500-M2-SS-12

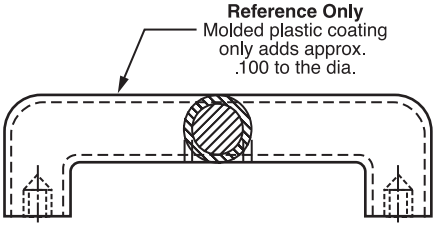
If a different thread depth **B** is required, add requirement to part number.
EXAMPLE: 8400-1.500-256-SS-12 (B = 256 x 3/8)

Thread	B Min. Depth of Thread
2-56	3/16
4-40	1/4

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel 12L14
SS	Stainless Steel, Type 303

Diameter	Height	Approx Radius	Basic Part Number	Length A ±1/32	Thread	Material	Finish
1/8	1/2	1/8	8400				
	3/4		8402				
	1		8404				
	1-1/4		8406				
	1-1/2		8408				
	2		8410				
5/32	3/4	5/32	8412				
	1		8100				
	1-1/4		8416				
	1-1/2		8418				
	2		8420				
3/16	3/4	3/16	8424				
	7/8		8426				
	1		8428				
	1-1/8		8430				

FIRM GRIP MOLDED PLASTIC COATING



Recommended Colors		OTHER COLORS (6 Weeks Delivery)	
Black	BL	White	W
Blue	B	Yellow	Y
Red	R	Clear	C
Green	G	Orange	O
		Brown	BR
		Purple	P

ORDER EXAMPLE:

8400 - 4.00 - 256 - A - 1 - FG - BL

Basic Part Number	Length A between centers	Thread	Material: See chart	Finish: See page 277	Firm Grip: See note below	Color: See chart

TECH TIP

Firm grip handles available in ten different colors.

NOTE: Where "H" dimension is 1" or smaller, thread will be minimum depth possible or minimum of 3 full threads.

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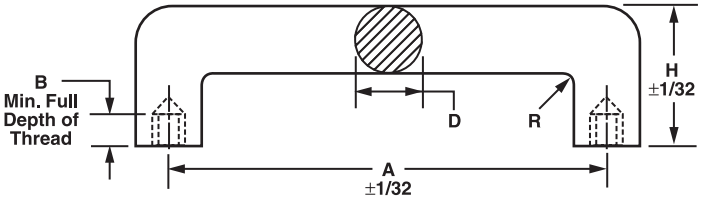
ROUND HANDLES



Thread	B Min. Depth of Thread
2-56	3/16
4-40	1/4
6-32	9/32
8-32	5/16
10-24	3/8
10-32	3/8
1/4-20	9/16
1/4-28	9/16

ORDER EXAMPLE:

8432 - 1.500 - 632 - SS - 12

- 8432: Basic Part Number
- 1.500: Length A between centers
- 632: Thread
- SS: Material: See chart
- 12: Finish: See page 277

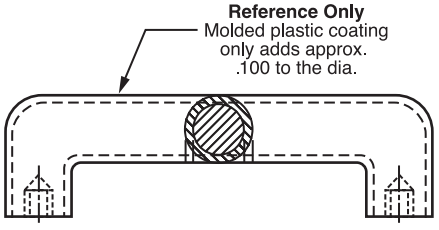
If metric thread is required, add to part number.
EXAMPLE: 8432-1.500-M3-SS-12

If a different thread depth **B** is required, add requirement to part number.
EXAMPLE: 8432-1.500-6-32-SS-12 (B = 6-32 x 3/8)

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel 12L14
SS	Stainless Steel, Type 303

Diameter	Height	Approx Radius	Basic Part Number	Length A ±1/32	Thread	Material	Finish
3/16	1-1/4	3/16	8432				
	1-1/2		8434				
	2		8436				
1/4	1	1/4	8103				
	1-1/4		8104				
	1-1/2		8105				
	2		8106				
	2-1/2		8107				
	2-3/4		8108				
	3		8438				
	3-1/2		8440				
	4		8442				
	4-1/4		8444				
5/16	1	5/16	8110				

FIRM GRIP MOLDED PLASTIC COATING



Recommended Colors		OTHER COLORS (6 Weeks Delivery)	
Black	BL	White	W
Blue	B	Yellow	Y
Red	R	Clear	C
Green	G	Orange	O
		Brown	BR
		Purple	P

ORDER EXAMPLE:

8432 - 4.00 - 256 - A - 1 - FG - BL

- 8432: Basic Part Number
- 4.00: Length A between centers
- 256: Thread
- A: Material: See chart
- 1: Finish: See page 277
- FG: Firm Grip: See note below
- BL: Color: See chart

TECH TIP

ASM can supply the hardware for all of our handles.

NOTE: Where "H" dimension is 1 or smaller, thread will be minimum dep h possible or minimum of 3 full threads.

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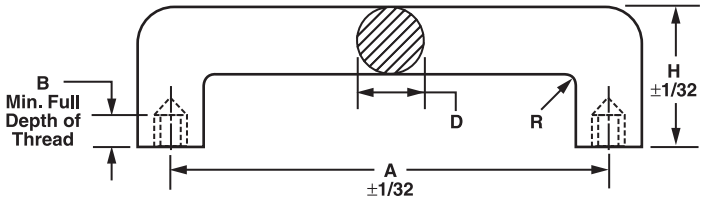
ROUND HANDLES



Thread	B Min. Depth of Thread
2-56	3/16
4-40	1/4
6-32	9/32
8-32	5/16
10-24	3/8
10-32	3/8
1/4-20	9/16
1/4-28	9/16

ORDER EXAMPLE:

8113 - 1.500 - 256 - SS - 12

- 8113: Basic Part Number
- 1.500: Length A between centers
- 256: Thread
- SS: Material: See chart
- 12: Finish: See page 277

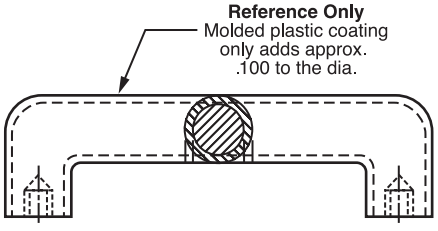
If metric thread is required, add to part number.
EXAMPLE: 8113-1.500-M3-SS-12

If a different thread depth **B** is required, add requirement to part number.
EXAMPLE: 8113-1.500-632-SS-12 (B =632 x 3/8)

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel 12L14
SS	Stainless Steel, Type 303

Diameter	Height	Approx Radius	Basic Part Number	Length A ±1/32	Thread	Material	Finish
5/16	1-1/4	5/16	8113				
	1-5/16		8109				
	1-3/8		8114				
	1-1/2		8112				
	1-3/4		8115				
	1-7/8		8118				
	2		8116				
	2-1/4		8117				
	3		8122				
	3-1/2		8119				
	4		8120				
	5		8446				
3/8	1-9/32	3/8	8121				
	1-5/16		8124				
	1-1/2		8127				
	1-3/4		8130				

FIRM GRIP MOLDED PLASTIC COATING



Recommended Colors		OTHER COLORS (6 Weeks Delivery)	
Black	BL	White	W
Blue	B	Yellow	Y
Red	R	Clear	C
Green	G	Orange	O
		Brown	BR
		Purple	P

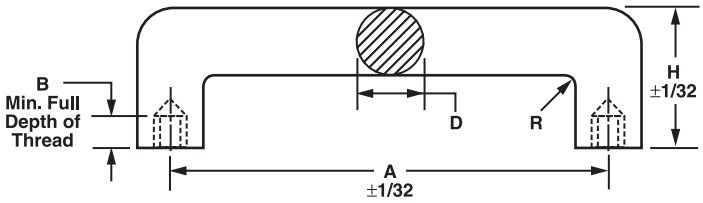
ORDER EXAMPLE:

8113 - 4.00 - 256 - A - 1 - FG - BL

- 8113: Basic Part Number
- 4.00: Length A between centers
- 256: Thread
- A: Material: See chart
- 1: Finish: See page 277
- FG: Firm Grip: See note below
- BL: Color: See chart

NOTE: Where "H" dimension is 1 or smaller, thread will be minimum depth possible or minimum of 3 full threads.

ROUND HANDLES



Thread	B Min. Depth of Thread
2-56	3/16
4-40	1/4
6-32	9/32
8-32	5/16
10-24	3/8
10-32	3/8
1/4-20	9/16
1/4-28	9/16
5/16-18	9/16

ORDER EXAMPLE:

8133 - 1.500 - 632 - SS - 12

8133	1.500	632	SS	12
Basic Part Number	Length A between centers	Thread	Material: See chart	Finish: See page 277

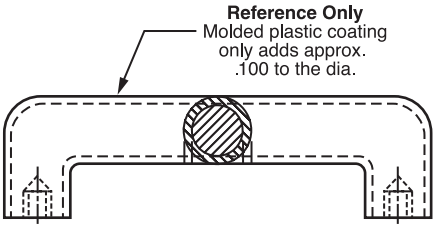
If metric thread is required, add to part number.
EXAMPLE: 8133-1.500-M3-SS-12

If a different thread depth **B** is required, add requirement to part number.
EXAMPLE: 8133-1.500-632-SS-12 (B = 6-32 x 3/8)

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel 12L14
SS	Stainless Steel, Type 303

Diameter	Height	Approx Radius	Basic Part Number	Length A ±1/32	Thread	Material	Finish
3/8	1-7/8	3/8	8133				
	2		8123				
	2-3/8		8125				
	2-1/2		8139				
	3		8126				
	4		8128				
1/2	1-5/8	1/2	8132				
	1-3/4		8134				
	1-7/8		8135				
	2		8136				
	2-3/8		8137				
	2-1/2		8140				
	3		8138				
	4		8142				
	5		8141				

FIRM GRIP MOLDED PLASTIC COATING



Recommended Colors		OTHER COLORS (6 Weeks Delivery)	
Black	BL	White	W
Blue	B	Yellow	Y
Red	R	Clear	C
Green	G	Orange	O
		Brown	BR
		Purple	P

ORDER EXAMPLE:

8133 - 4.00 - 256 - A - 1 - FG - BL

8133	4.00	256	A	1	FG	BL
Basic Part Number	Length A between centers	Thread	Material: See chart	Finish: See page 277	Firm Grip: See note below	Color: See chart

NOTE: Where "H" dimension is 1 or smaller, thread will be minimum dep h possible or minimum of 3 full threads.

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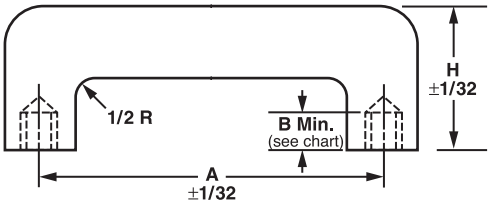
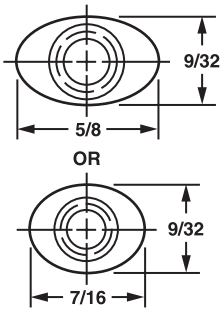
OVAL HANDLES





Recommended Length A ±1/32	
2.000	4.562
2.250	5.000
2.500	6.000
3.000	6.437
3.500	7.000
4.000	8.000
4.250	9.000
4.500	12.000

ORDER EXAMPLE:

9300 - 2.00 - 10-32 - SS - 12

Basic Part Number	Length A between centers	Thread	Material: See chart	Finish: See page 277

If metric thread is required, add to part number.
EXAMPLE: 9300-1.500-M3-SS-12

If a different thread depth **B** is required, add requirement to part number.
EXAMPLE: 9300-1.500-632-SS-12 (B = 6-32 x 3/8)

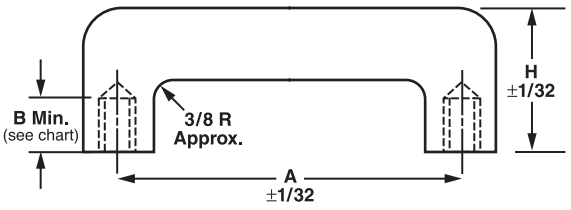
Available Material (see page 275)	
A	Aluminum
SS	Stainless Steel

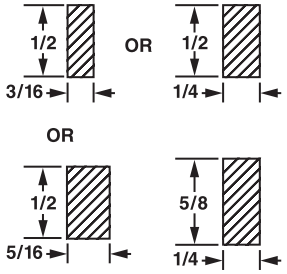
Thread	B Min. Depth of Thread
2-56	3/16
4-40	1/4
6-32	9/32
8-32	5/16
10-32	3/8

Oval	Height	Basic Part Number	See chart for recommended Length A ± 1/32	Thread	Material	Finish
7/16 x 9/32	1	9300				
	1-9/32	9302				
	1-1/2	9304				
	1-3/4	9306				
	2	9308				
5/8 x 9/32	1	9310				
	1-9/32	9312				
	1-1/2	9314				
	1-3/4	9316				
	2	9318				
	2-1/4	9320				
	2-1/2	9322				
	3	9324				
	4	9326				

NOTE: Where H dimension is 1" or smaller, thread will be maximum depth possible or minimum of 3 full threads.

RECTANGLE HANDLES





Recommended Length "A" ±1/32
2.000
3.000
4.000
5.000
6.000
7.000
8.000
9.000
10.000

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

ORDER EXAMPLE:

9400 - 2.00 - 440 - B - 7

Basic Part Number	Length A between centers	Thread	Material: See chart	Finish: See page 277

If metric thread is required, add to part number.
EXAMPLE: 9400-1.500-M3-SS-12

If a different thread depth **B** is required, add requirement to part number.
EXAMPLE: 9400-1.500-632-SS-12 (B = 6-32 x 3/8)

Thread	B Min. Depth of Thread
2-56	3/16
4-40	1/4
6-32	9/32
8-32	5/16
10-32	3/8

Rectangle	Height	Basic Part Number	See above for Recommended Length "A" ±1/32	Thread	Material	Finish
1/2 x 3/16	1-1/2	9400				
	1-3/4	9402				
	2	9405				
1/2 x 1/4	1-1/2	Δ 9407				
	1-3/4	Δ 9409				
	2	Δ 9411				
1/2 x 5/16	1-1/2	Δ 9413				
	1-3/4	Δ 9415				
	2	Δ 9416				
5/8 x 1/4	1	Δ 9418				
	1-1/2	Δ 9423				
	1-3/4	Δ 9425				
	2	Δ 9426				

Δ Not available in Brass

NOTE: Where H dimension is 1" or smaller, thread will be maximum depth possible or minimum of 3 full threads.

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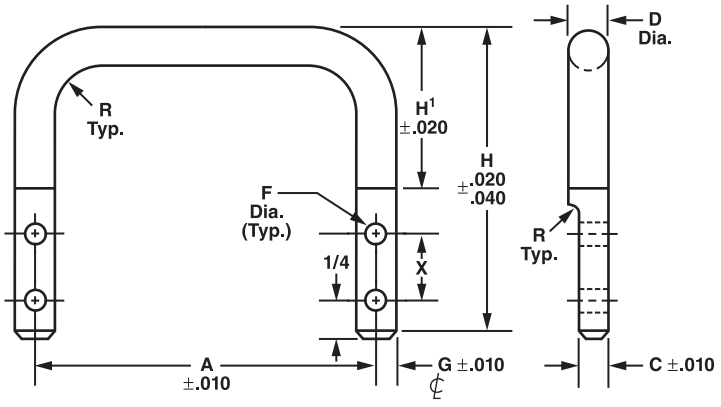
SIDE MOUNTED ROUND HANDLE



ORDER EXAMPLE:

114032 - 1.000 - A - 22

- 114032: Basic Part Number
- 1.000: Length A between centers
- A: Material: See chart
- 22: Finish: See page 277

Any one dimension or tolerance may be changed by adding to part number .
EXAMPLE: 114032-1.000-A-22MOD (X=.625)

Available Material (see page 275)	
A	Aluminum
B	Brass
S	Steel
SS	Stainless Steel

Basic Part Number	D Diameter	Radius	H +.020 -.040	H^1 ±.020	F ±.005	G ±.010	C ±.010	X ±.010	A ±.010	Material	Finish
114032	5/16	5/16	2.56	1.40	.204	.156	.219	.41			
114034			3.06	1.90							
114036			3.56	2.40							
114038	3/8	3/8	2.56	1.40		.187	.282				
114040			3.06	1.90							
114042			3.56	2.40							
114044	1/2	3/8	2.56	1.40		.250	.407				
114046			3.06	1.90							
114048			3.56	2.40							

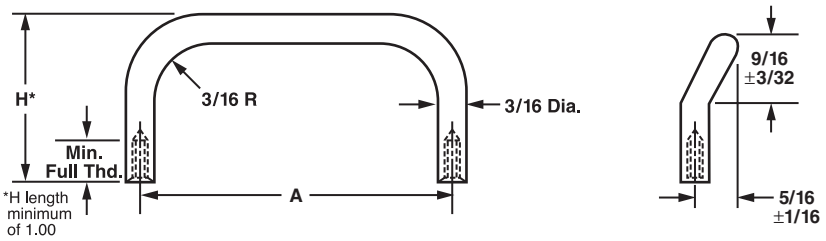
TECH TIP

Not sure whether the part you selected will fit in your application? Download a 3D CAD model of the part (in the format of your choice) from www.accuratescrew.com and find out!

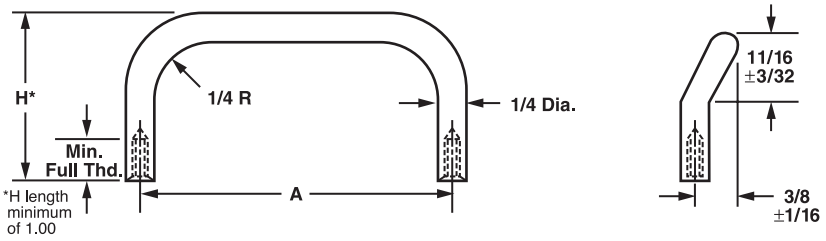
OFFSET INTERNAL THREAD HANDLES

See pages 260-263 for complete information.

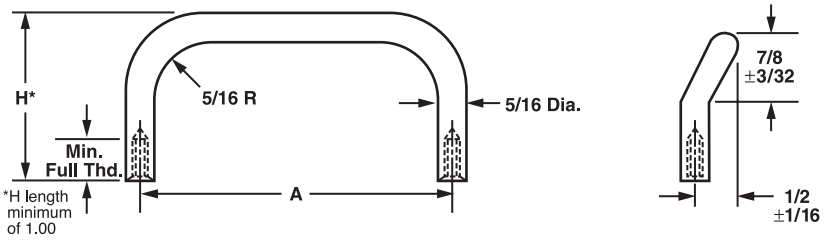
3/16 Round



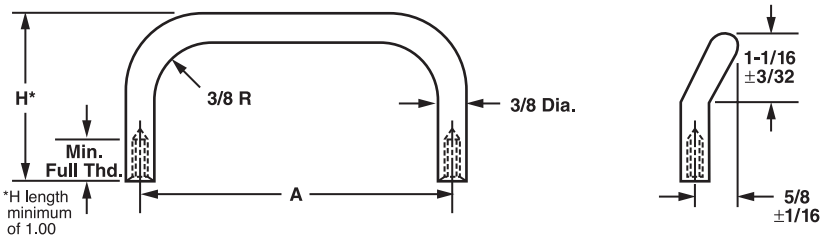
1/4 Round



5/16 Round



3/8 Round



ORDER EXAMPLE:

8428 - 2.00 - 440 - SS - F - 1

8428	2.00	440	SS	F	1
Basic Part Number	Length A between centers	Thread	Material: See chart	Offset	Finish: See page 277

NOTE: H-length minimum of 1.00

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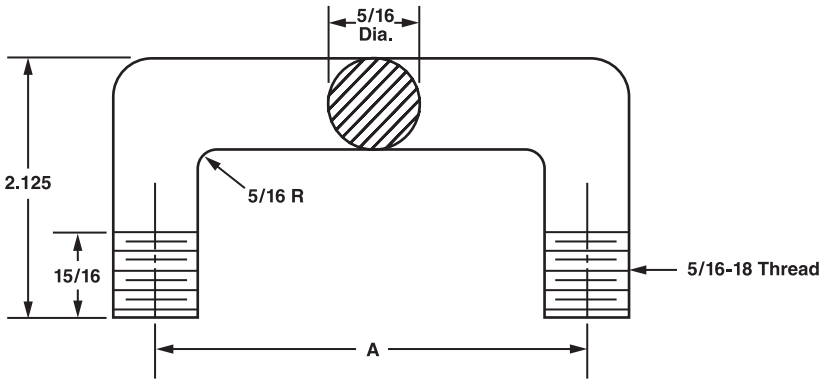
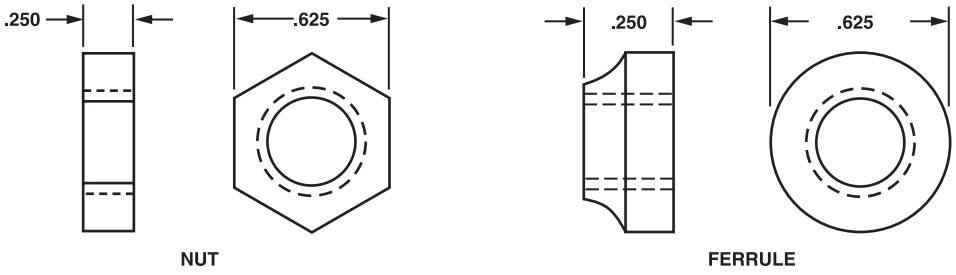
ROUND EXTERNAL THREADED HANDLES



Threaded ferrule and nut supplied with above handles.



Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

ORDER EXAMPLE:

9100 - 3.000 - SS - 12

9100	3.000	SS	12
Basic Part Number	Fill in required length	Material: See chart	Finish: See page 277

L = min. 2.00

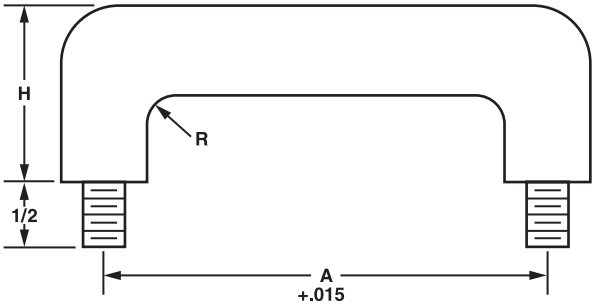
TECH TIP

We can bend our handles up to 1/2" OD.

ROUND EXTERNAL THREADED HANDLES WITH SHOULDERS

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Dia.	Recommended Thread
3/16	4-40 or 6-32
1/4	8-32 or 10-32
5/16	10-32 or 1/4-20
3/8	10-32, 1/4-20, or 5/16-18
1/2	10-32, 1/4-20, 5/16-18 or 3/8-24



ORDER EXAMPLE:

9200 - 2.00 - 440 - SS - 12

- 9200: Basic Part Number
- 2.00: Length "A" minimum center-to-center "L" 2.00
- 440: Thread
- SS: Material: See chart
- 12: Finish: See page 277

Part No.	Diameter	Height	Approx. Radius	Length A ± .015	Thread	Material	Finish
9200	3/16	1	3/16				
9202		1-1/2					
9204		2					
9206	1/4	1	1/4				
9208		1-1/2					
9210		2					
9212	5/16	1-13/16	5/16				
9214		2					
9216		2-1/4					
9218	3/8	2	3/8				
9220		2-1/2					
9222		3					
9224	1/2	2-1/2	1/2				
9226		3					
9228		3-1/2					
9230		4					

*Minimum center-to-center "L" 2.00

Nuts and washers not supplied.

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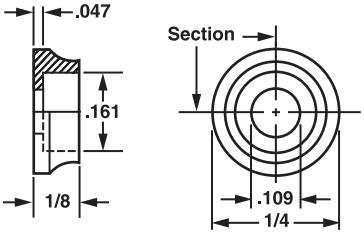
FERRULES

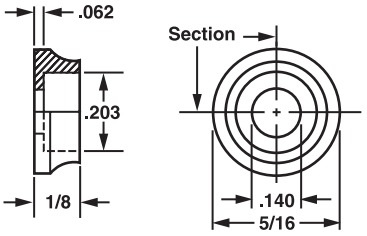
For 5/32" Diameter Handles

For 2-56 Thread
Part Number **8200**



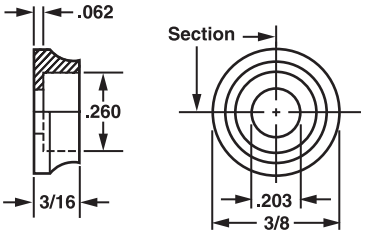
For 3/16" Diameter Handles

For 4-40 Thread
Part Number **8201**



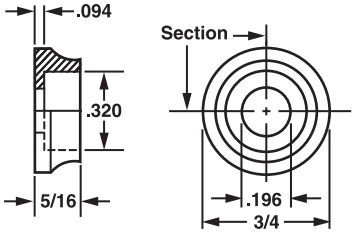
For 1/4" Diameter Handles

For 10-32 Thread
Part Number **8204**

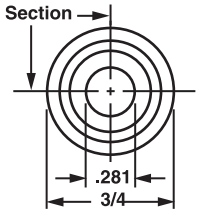


For 5/16" Diameter Handles

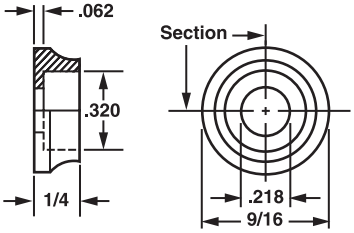
For 8-32 Thread
Part Number **8202**



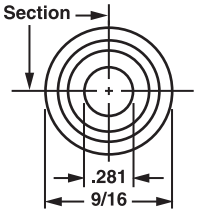
For 1/4-20 Thread
Part Number **8202A**



For 10-32 Thread
Part Number **8208**

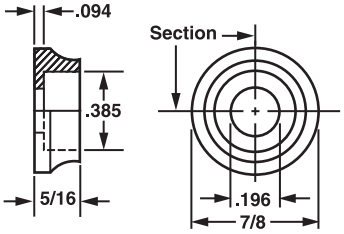


For 1/4-20 Thread
Part Number **8208A**

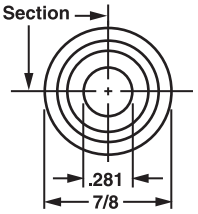


For 3/8" Diameter Handles

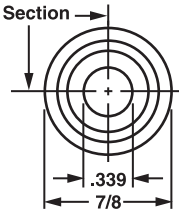
For 10-32 Thread
Part Number **8206**



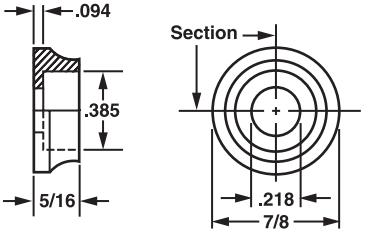
For 1/4-20 Thread
Part Number **8206A**



For 5/16-18 Thread
Part Number **8206B**

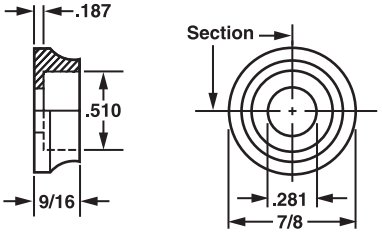


For 10-32 Thread
Part Number **8210**

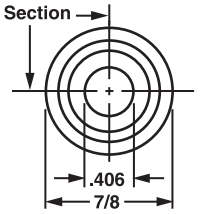


For 1/2" Diameter Handles

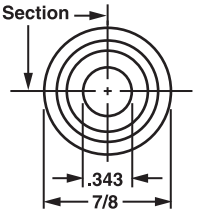
For 1/4-20 Thread
Part Number **8209**



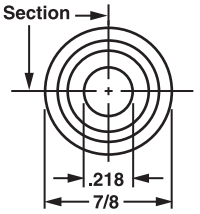
For 3/8-24 Thread
Part Number **8209A**



For 5/16-18 Thread
Part Number **8209B**



For 10-32 Thread
Part Number **8209C**



ORDER EXAMPLE:

8200 - SS - 12

- **8200** — Basic Part Number
- **SS** — Material: See chart
- **12** — Finish: See page 277

Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
SS	Stainless Steel

FOLDING HANDLES

Available Material (see page 275)	
A	Aluminum
B	Brass*
C	Copper*
S	Steel*
SS	Stainless Steel

*Round only

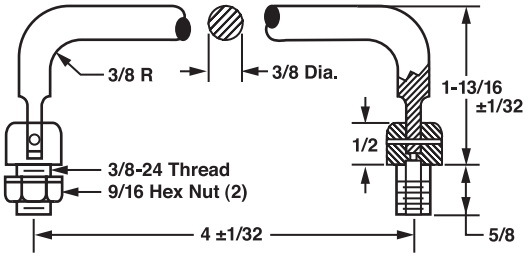
Indicate 90° or 180° in Part Number
90° Folding (Two Position)
180° Folding (Three Position)

Part Number 9500

ORDER EXAMPLE:

9500 - 90° - SS - 12

- 9500: Basic Part Number
- 90°: 90° Folding 2-position
- SS: Material: See chart
- 12: Finish: See page 277

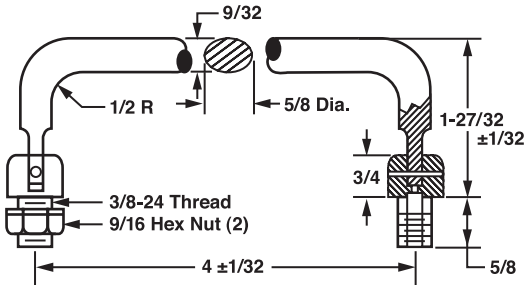


Part Number 9504

ORDER EXAMPLE:

9504 - 180° - SS - 12

- 9504: Basic Part Number
- 180°: 180° Folding 3-position
- SS: Material: See chart
- 12: Finish: See page 277

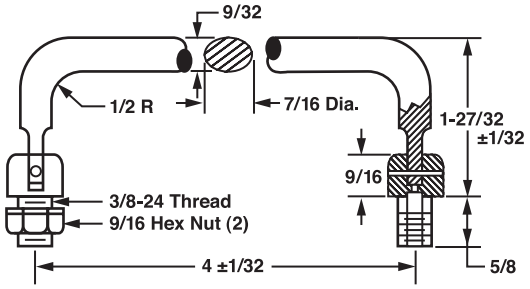


Part Number 9506

ORDER EXAMPLE:

9506 - 90° - SS - 12

- 9506: Basic Part Number
- 90°: 90° Folding 2-position
- SS: Material: See chart
- 12: Finish: See page 277

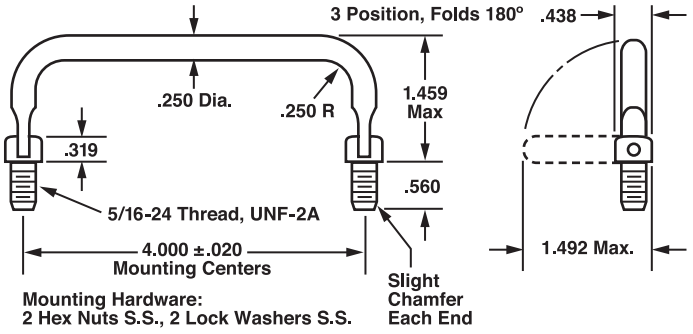


Part Number 9501

ORDER EXAMPLE:

9501 - 180° - SS - 12

- 9501: Basic Part Number
- 180°: 180° Folding 3-position
- SS: Material: See chart
- 12: Finish: See page 277



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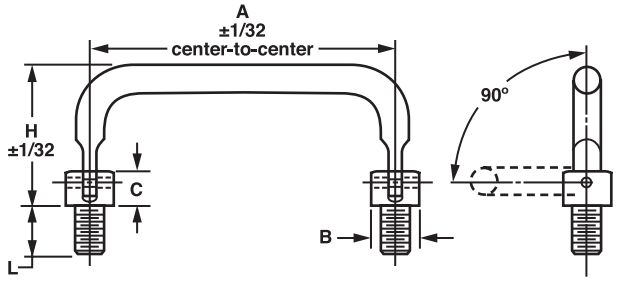
FOLDING - EXTERNAL THREAD ROUND

90° 2-Position Spring Loaded Detents



Available Material (see page 275)	
A	Aluminum
B	Brass
C	Copper
S	Steel
SS	Stainless Steel

Diameter	Available Thread	L	C	B
1/4 OD	1/4-28	9/16	5/16	7/16
5/16 OD	5/16-24	5/8	3/8	9/16
3/8 OD	3/8-24	5/8	1/2	5/8

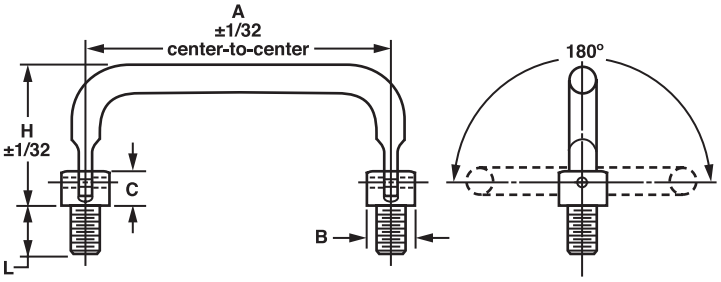
ORDER EXAMPLE:

16684 - 3.000 - A - 3

Basic Part Number	A Center-to-Center	Material: See chart	Finish: See page 277

Basic Part Number	Diameter	H Height	A See Note Below	Material	Finish
16684	1/4	1.460			
16686	5/16	1.530			
16688		1.850			
16690	3/8	1.530			
16692		1.625			
16694		1.850			
16696		2.375			

180° 3-Position Spring Loaded Detents



Available Material (see page 275)	
A	Aluminum
B	Brass
SS	Stainless Steel

Diameter	Available Thread	L	C	B
1/4 OD	1/4-28	9/16	5/16	7/16
5/16 OD	5/16-24	5/8	3/8	9/16
3/8 OD	3/8-24	5/8	1/2	5/8

ORDER EXAMPLE:

16698 - 3.000 - A - 3

Basic Part Number	A Center-to-Center	Material: See chart	Finish: See page 277

Basic Part Number	Diameter	H Height	A See Note Below	Material	Finish
16698	1/4	1.460			
16700	5/16	1.530			
16702		1.850			
16704	3/8	1.530			
16706		1.625			
16708		1.850			
16710		2.375			

NOTES: Nuts and washers are included.
The "A" center-to-center dimension must be 2.500

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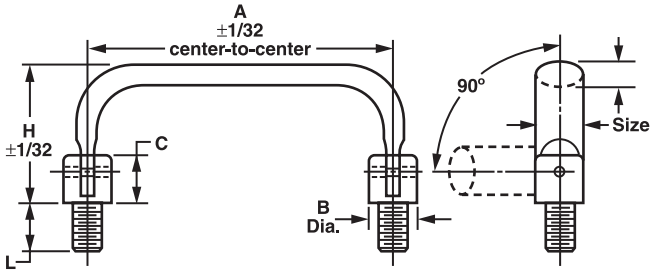
FOLDING - EXTERNAL THREAD OVAL

90° 2-Position Spring Loaded Detents



Available Material (see page 275)	
A	Aluminum
SS	Stainless Steel

Oval Size	Available Thread	L	C	B
7/16 x 9/32	5/16-24	5/8	9/16	7/16
5/8 x9/32	3/8-24		3/4	5/8

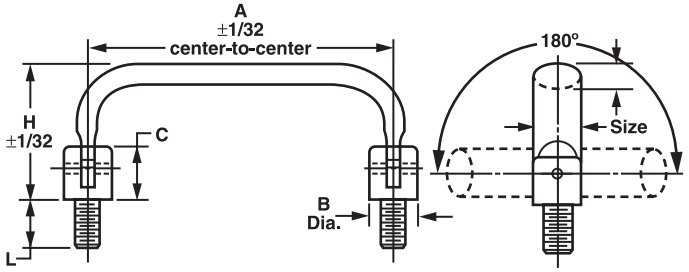
ORDER EXAMPLE:

16712 - 3.000 - A - 3

- 16712: Basic Part Number
- 3.000: A Center-to-Center
- A: Material: See chart
- 3: Finish: See page 277

Basic Part Number	Size	H Height	A See Note Below	Material	Finish
16712	7/16 x 9/32	1.695			
16714		1.791			
16716		1.843			
16718		2.125			
16728	5/8 x 9/32	1.695			
16730		1.791			
16732		1.843			
16734		2.125			

180° 3-Position Spring Loaded Detents



Available Material (see page 275)	
A	Aluminum
SS	Stainless Steel

Oval Size	Available Thread	L	C	B
7/16 x 9/32	5/16-24	5/8	9/16	7/16
5/8 x9/32	3/8-24		3/4	5/8

ORDER EXAMPLE:

16736 - 3.000 - A - 3

- 16736: Basic Part Number
- 3.000: A Center-to-Center
- A: Material: See chart
- 3: Finish: See page 277

Basic Part Number	Size	H Height	A See Note Below	Material	Finish
16736	7/16 x 9/32	1.695			
16738		1.791			
16740		1.843			
16742		2.125			
16752	5/8 x 9/32	1.695			
16754		1.791			
16756		1.843			
16758		2.125			

NOTE: Nuts and washers are included.
The "A" center-to-center dimension must be 2.500

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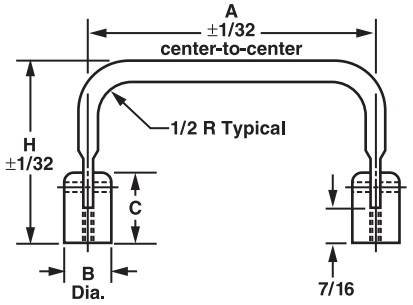
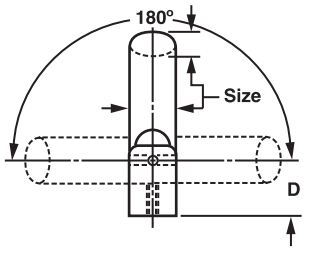
FOLDING - INTERNAL THREAD OVAL

180° Infinite Position





Oval Size	Available Thread	B	C	D
7/16 X 9/32	8-32	7/16	7/8	21/32
5/8 X9/32	10-32	5/8	1-1/16	3/4

Available Material (see page 275)	
A	Aluminum
SS	Stainless Steel

ORDER EXAMPLE:

16768 - 3.000 - A - 3

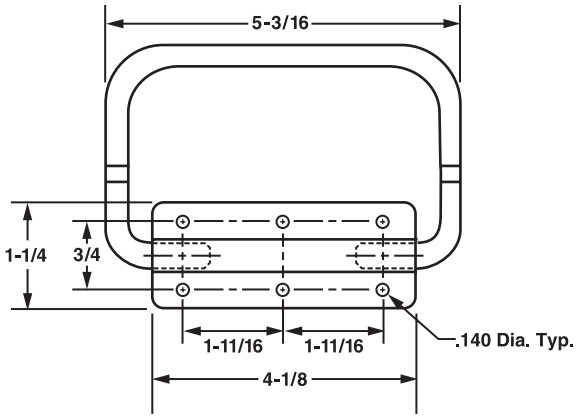
- 16768: Basic Part Number
- 3.000: A Center-to-Center*
- A: Material: See chart
- 3: Finish: See page 277

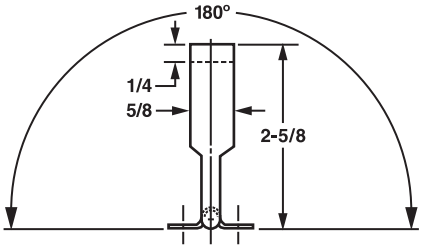
Basic Part Number	Oval Size	H Height	Basic Part Number	Size	H Height
16768	7/16 X 9/32	2.000			
16770		2.500			
16772		3.000			
16780	5/8 X 9/32	2.000			
16782		2.500			
16784		3.000			

***NOTE:** The "A" center-to-center dimension must be 2.500

FOLDING - WITH MOUNTING PLATE

Rectangular 180° Free Fall





Available Material (see page 275)
Aluminum Alloy

ORDER EXAMPLE:

16792

- 16792: Basic Part Number

Basic Part Number	Mounting Plate	Handle Finish	Plate Finish
16792	With Holes	Black Epoxy	Black Anodized
16794		Gray Epoxy	Clear Anodized
16796	Without Holes for Spot Welding	Black Epoxy	Black Anodized
16798		Gray Epoxy	Clear Anodized

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MATERIAL SPECIFICATIONS

Machined Products

Material	Code	Material Specifications For Machined Products
Aluminum**	A	2011i-T3 AMS QQ-A225/3, 2024-T351 AMS-QQA-225/6A & ASTM B211-03, 6061-T6 QQA225 8E, 6063-T52 QQA225-8E
Brass	B	ASTM B16-92, Alloy-C36000 temper - HO2 - half hard QQ-B-626D-Alloy 360, temper - half hard
Copper	C	ASTM-B-301-96, Alloy-C14500 temper-HO2-half hard (Tellurium); ASTM B103 & ASTM B139 Alloy-C54400 (Phos. Bronze)
Delrin	D	ASTM-D-4181-97, natural, long term service, temperature 200°F UL - 94 HB, virgin grade
Fiber	F	ASTM-D-710-97 UL97HB maximum service temperature 230° F
Glass Epoxy	GE	MIL-1-24768/27-(GEE-F) 25 Feb. 92. G10 UL 94 V-0
Nylon*	N	LP-410-natural 6/6, ASTM-D-4066-96A natural, service virgin grade temperature 210°F UL 94HB, Polyamides (nylon)
Phenolic - Paper	PH	MIL-I-24768/11-92 PBG-P and NEMA grade XX, paper service temperature 266°F, UL 94 rating of HB
Phenolic - Linen	PHL	MIL-I-24768/13-92 FBE and NEMA grade LE, linen service temperature 257°F, UL 94 rating of HB
A.B.S.	PA	A.B.S. ASTM-D-4673-96-natural, service temperature 160°F UL-94 HB
Lexan	L	Polycarbonate (Lexan) ASTM-D-3935-94-PC, 110 B34720. Continuous usage temperature 250°F U-94 V-2
P.V.C.	PP	P.V.C. round only L.P. 1036 service temperature 140°F UL-94 VO Tolerances: 1/2 diameter and under +.010, -.000 over 1/2 diameter + .020, -.000
Rulon	AR	Operating temperature range -400° to 550°F standard grade color - maroon, non-flammable UL -94 V0
Stainless Steel+	SS	ASTM-A581, 582-95b & QQS-764B condition A (303 series non-magnetic); AMS-5732, AMS-5737 & ASTM-A453 (A286 series); AMS-5643Q, ASTM A484-03a & AMS-2303E (17-4PH)
Steel	S	ASTM-A-108-03 (12L14), QQ-S-637, ASTM A331 (4140/4142), AMS2301J (4130)
Teflon	T	ASTM-D-1710-91A, type I, grade I, class A; upper service temperature 500°F, UL 94 rating of V0, virgin grade
ULTEM 1,000 Polyethermide***	UL	Polyethermide ASTM-D-5205-96, PEI-0113 Recommended for high heat applications to 340°F, UL 94 VO

Stamped Products

Material	Material Specifications For Stamped Products
Aluminum	QQ-A250/1F thru QQ-A250/29A ASTM-B-209-93, AMS 4037
Brass	ASTM-B-36-91 AEL, AMS-4505
Phosphate Bronze	ASTM B-103, AMS-4510
Beryllium Copper	ASTM B-194, AMS-4532
Copper	STM-B-152-97A, AMS-4500
Delrin	ASTM-D-4181-97, natural, long term service, temperature
Fiber	ASTM-D-710-97 UL 94HB, maximum service temperature
Glass Melamine-G9	MIL-I-24768/1-92 GME, maximum recommended operating temperature of 284°F UL 94 rating of V-0
Glass Silicone-G7	MIL-I-24768/17-92 GSG maximum recommended operating temperature of 428°F UL 94 rating of V-0
Glass Epoxy-G10	MIL-I-24768/27-(GEE-F) maximum recommended operating temperature of 284°F UL 94 rating of V-0
Nylon*	LP-410-natural 6/6, ASTM-D-4066-96A natural. Service temperature 210°F UL 94 HB
Phenolic - Paper	Paper MIL-I-24768/11-92 PBG service temperature 266°F UL 94 rating of
Phenolic - Linen	Linen MIL-I-24768/13 92 FBE Service temperature 257°F UL 94 rating of HB
A.B.S	ASTM-D-4673-96-natural Service temperature 160°F UL-94 HB
Lexan	ASTM-D-3935-94-PC 110, B34720 continuous usage temp. 250°F UL-94V
Plastic	LP-535-E, ASTM-D-1784-97
Spring Steel	QQ-S-700, ASTM-A-684, AMS5120
Steel	QQ-S-698, ASTM-A-109-98 & A-366-366m-97, AMS 5040
Teflon	ASTM-D-3293, ASTM-D-1710-96, type I, grade I, class A UL 94 VO
ULTEM 1,000 Polyethermide***	ASTM-D-5205-96, PEI-0113 UL 94 VO

*LP/410 self extinguishing, melting point 480ºF, deformation under load 122ºF

**Aluminum 2011i-T3 is a no lead material and is RoHS compliant.

*** ULTEM 1000
Polyethermide is a high heat and flame resistant polymer with low smoke properties specifically designed by General Electric. Available in round only.

+ Stainless steel type A-286 excellent service up to 1300°F requiring high strength and good corrosion resistance.

Flame Resistance: Exceptional flame resistance with a limiting oxygen index and low NBS smoke evolution make UL TEM 1000 polyethermide ideal for interior components in aircraft, bus and other vehicles where such properties are required.

Properties: High heat resistance; exceptional flame retardance - U.L.V-O rated; low smoke; high dielectric strength; low dissipation factor over wide frequency range; stable dielectric constant over varying temperatures and frequencies; outstanding mechanical properties; broad chemical resistance; excellent machinability; transparent.

RoHS Compliant: RoHS compliance of cadmium plating depends on the classification of the end use of each product. Cadmium plating is RoHS compliant unless the end product is in contact with food, human skin or indoor air. Each customer must determine if their product's end use meets the requirements for RoHS certification.

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TABLE OF MATERIAL PROPERTIES

Non-Metallic Materials Approximate Values

	Delrin	Vulcanized Fiber	Glass Epoxy G10	Glass Melamine G9	Glass Silicone G7	Neoprene
Dielectric strength v/mil (short time)	400-465	150-260	750-800	400-450	400	-
Dielectric constant @1000 kc	3.7	4-7	-	-	-	-
Power factor A 1000 kc	-	.03-.08	-	-	-	-
Tensile strength, psi	10,000	6,000-12,000	45,000	44,000	18000	1600
Shear strength, psi	-	11,000-15,000	22,000	18,000	17,000	-
Compressive strength, psi	18,000	20,000-30,000	55,000 (flat)	70000 (flat)	45,000	-
Elongation, %	30	-	-	-	-	300
Flexural strength, psi	14,000	12,000-20,000	70,000	61,000	25,000	-
Modulus of elasticity, ksi	380	750	2,700	2,000	1,200	-
Hardness	R112	R80-R100	M110	M115	M105	50-70 SDH
Specific gravity	1.42	1.0-1.5	1.8	1.9	1.78	1.23
Thermal conductivity btu/hr/sq. ft/°F	-	0.25	-	-	-	-
Specific heat, btu/lb/°F	-	0.37	-	-	-	-
Resistance to continuous heat °F	212	212	284	284	428	178
Water absorption %	0.12	16-28	0.15	0.6	0.02	-

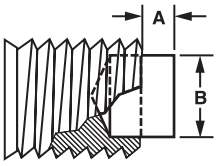
	Nylon*	Phenolic		Teflon**	Ultem	
		LE	Paper		1000	2300
Dielectric strength v/mil (short time)	500	500-625	-	300	710-830	630-770
Dielectric constant @1000 kc	3.7	-	-	2	3.15	3.7
Power factor A 1000 kc	-	5.2	-	-	-	-
Tensile strength, psi	10000	13000	13500	3000-5000	15200	24500
Shear strength, psi	-	13500	11500	-	15000	14000
Compressive strength, psi	-	36000 (flat)	25000 (flat)	1700	21900	30700
Elongation, %	25	-	-	300-500	7-8	n/a
Flexural strength, psi	12500	22000	22000	-	22000	33000
Modulus of elasticity, ksi	350	1600	-	72	480	1300
Hardness	R115	M100	M95	50-65 SHD	M109	M114
Specific gravity	1.15-1.16	1.34	1.35	2.13-2.22	1.27	1.51
Thermal conductivity btu/hr/sq. ft/°F	1.67	-	-	1.7	0.22	1.98
Specific heat, btu/lb/°F	0.4	-	-	-	-	-
Resistance to continuous heat °F	428	257	266	621	392-410	410-414
Water absorption %	1.2	1.9	2	0.01	0.25	0.16

*Nylon - UL 94 HB rating **Teflon - Non-flammable

Metallic Materials Typical Approximate Values

	Aluminum 2011i-T3	Beryllium Copper	Brass (HOH)	Copper	Phos. Bronze	Steel (12L14)	Stainless Steel (303)	Stainless Steel (304)	Stainless Steel (316)	A286	Stainless Steel (17-4 PH)
Tensile strength, psi	46000	117000	68000	38000	75000	78000	90000	75000	75000	90000	160000
Shear strength, ksi	-	7250	5370	6670	5660	11600	11200	-	11900	11200	11200
Elongation, %	10	45	53	60	50	22	50	40	40	40	5
Modulus of elasticity, ksi	10600	18500	14100	17000	15000	29000	28000	29000	29000	29200	28600
Hardness	R_B75	R_B45-85	R_B62	50 Vickers	R_B80	R_B68	R_B83	R_B92	R_B95	R_B85	R_c36
Specific gravity	2.77	8.41	8.5	8.94	8.89	-	-	-	-	7.92	-
Melting point °F	1180	1590-1800	1630-1650	1980	1710-1830	2765	2550-2590	2550-2590	2530-2620	2500-2610	2560-2625
Electrical resistivity (microhm-cm) 4.49		7.68	6.63	1.7	9.1	17.4	72	72	74	91	98
Thermal conductivity (BTU/hr/ft²/°F)	70	819	798	2670	604	360	112	113	101	105	124
Coef. of thermal expansion (in/in°F) (10^6)	12.9	9.89	11.4	9.5-9.9	9.61	6.39-8.17	10.2	11	10.8	9.78	6.28
Specific Heat (btu/lb/°F)	0.23	0.10	0.09	0.09	0.09	0.11	0.12	0.12	0.11	0.1	0.11

Soft Touch Tip



SPECIFICATIONS

Thread	A Tip Protrusion	B Tip Dia.	Thread	A Tip Protrusion	B Tip Dia.	Thread	A Tip Protrusion	B Tip Dia.
2-56	1/32	1/32	10-32	3/64	3/32	3/8-16	3/32	3/16
4-40	1/32	1/16	1/4-20	1/16	1/8	3/8-24	3/32	3/16
6-32	1/32	1/16	1/4-28	1/16	1/8	1/2-13	1/8	1/4
8-32	3/64	3/32	5/16-18	3/32	3/16	1/2-20	1/8	1/4
10-24	3/64	3/32	5/16-24	3/32	3/16			

NOTE: Information listed above was obtained from charts of various manufacturers and is intended for comparison of materials only . ASM assumes no obligation or liability in using the above material or product for a specific application.

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FINISHES

1	NO FINISH
2	ANODIZE - MIL-A-8625F - Type II - Class 2 - (sulphuric) Hot water seal (dk. gray)
3	ANODIZE - MIL-A 8625F - Type II - Class 1 - (sulphuric) Hot water seal (clear)
3a	ANODIZE - MIL-A-8625F - Type II - Class 2 - (sulphuric) Hot water seal (blue)
3b	ANODIZE - MIL-A-8625F - Type II - Class 2 - (sulphuric) Hot water seal (red)
4b	ANODIZE - MIL-A-8625F - Type II - Class 2 - (dyed gold)
5	ANODIZE - MIL-A-8625F - Type II - Class 2 Hot water seal (black)
6	CADMIUM PLATE - SAE-AMS-QQ-P-416 - Type I - Class 2* Clear chromate
6a	CADMIUM PLATE - SAE-AMS-QQ-P-416 - Type II - Class 2* Color chromate finish
7	CADMIUM PLATE COMMERCIAL - Type I - Classes 1, 2, 3*
8	CADMIUM PLATE - SAE-AMS-QQ-P-416 - Type II - Class 3* Color chromate finish
9	NICKEL PLATE - SAE-AMS-QQ-N-290 1 - Grade G (Thickness - .0002-SB) (single layer coating fully bright)
9a	NICKEL PLATE - SAE-AMS-QQ-N-290 1 - Grade F (Thickness - .0004-SB) (single layer coating fully bright)
10	SILVER PLATE - ASTM-B700 - Type II - Grade B (thickness -.0003) 99-S-365
11	BLACK OXIDE - MIL-DTL-13924D - Class 4 For 300 series corrosion resistance steel alloys only
11a	BLACK OXIDE - MIL-DTL-13924D - Class 1 (For plain carbon and low alloy steels)
12	PASSIVATE - MIL-F-14072-D (ER) AMEND #1 - Type I (Finish #E300 - passivate per ASTM-A-380-96)
12a	PASSIVATE - AMS-QQ-P-35, ASTM A967 - Type II
15	ALODINE 1200**
16	GOLD FLASH (thickness -.00003 to .00005)
17	GOLD FLASH over nickel flash (thickness - .00003 to .00005)
18	GOLD PLATE - AMS 2422, ASTM B488 - Type II - Grade C - Class 2 (thickness .00010 minimum)
19	TIN PLATE - (hot dipped) ASTM B 339 “PIG TIN” Grade A - Type II
20	TIN PLATE - (electro deposit) ASTM 8545 - Type I MIL-T-10727
20a	TIN PLATE - (electro deposit) plus solderability ASTM B 545-92 - Class C
20b	TIN/LEAD - per ASTM B579**
21	BRIGHT DIP (brass finish)
22	CHEMICAL FILM - MIL-C-5541-E - Class 3 (clear)
23	CHEMICAL FILM - MIL-C-5541-E - Class 1a (gold)**
24	GOLD FLASH - 0.000015 thick over silver plate (0.0003 thickness)
26	CHROMIUM PLATING - SAE-AMS-QQ-C-320 (bright finish) Class 1 - Type I
27	CHROMIUM PLATING - SAE-AMS-QQ-C-320 (satin finish) Class 1 - Type II
28	CHROMIUM PLATING - SAE-AMS-QQ-C-320 (engineering) Class 2
29	CLEAR LACQUER
30	WATER DIP LACQUER
31	ZINC PLATE - ASTM B633/85 Type I - Class FE/ZN5-SC-1 (thickness .00025)
31a	ZINC PLATE - colored chromate - ASTM B633/85 Type II - FE/ZN5- SC-1 (thickness -.00025)
31b	ZINC PLATE - colorless (clear) chromate - ASTM B633/85, Type III - Class FE/ZN5-S.C-1 (thickness .00025)
31d	ZINC PLATE - (phosphate coat) - ASTM B633/85 - Type V Class FE/ZN5-SC-1 (thickness .00025)
31e	ZINC PLATE - per ASTM B633 - Type II - (olive drab)
32	SOLDER PLATE - (.0001 TO -.0003 thick; solder per J-STD-004, SN 60 PG 40) over nickel plate thickness 0.0001-0.0005 in AC/W SAE-AMS-P-81728 plus solderability
34	BLACK PHOSPHATE - DOD-DTL-16232 TYZ TYM
35	BLACK ZINC - QQ-Z-325 - TYPE II
37	BLACK FINISH - (used on steel parts - strictly cosmetic)
38	ELECTRO TIN PLATE - over copper flash - ASTM B545 - Type I
39	LUBRICANT - Solid film - heat cured - corrosion inhibiting - MIL-PRF-46010F - Type I - cure temperature of 150 $\pm$3°C
39a	LUBRICANT - Solid film - heat cured - corrosion inhibiting - MIL-PRF-46010F - Type II - cure temperature of 204 $\pm$3°C Types II and III
40	ELECTRO POLISH - No military specification assigned. An electric process used to remove the outer layer of material to brighten primarily steel, stainless steel and brass alloys.

***RoHS Compliant:** RoHS compliance of cadmium plating depends on the classification of the end use of each product. Cadmium plating is RoHS compliant unless the end product is in contact with food, human skin or indoor air. Each customer must determine if their product's end use meets the requirements for RoHS certification.

****These plating codes are not RoHS compliant and we do not offer a substitute for these platings. Do not specify these finishes if RoHS certification is required.

RECOMMENDED FINISHES FOR MATERIAL

ALUMINUM:

Anodize Finishes - (2, 3, 3a, 3b): Anodized finishes are intended to provide corrosion resistance, improve paint adhesion and abrasion resistance, for aluminum and aluminum alloy parts. Good dielectric properties.

Anodize (Hard) Finishes - (5): Color will vary from light tan to black depending on alloy and thickness. Provides very hard ceramic type coating. Good dielectric properties. Corrosion resistance is good.

Caution - (5): Anodize finishes are recommended on aluminum alloys of 1/2" in diameter or greater due to the higher current required to apply said coating.

Silver Plated Finish - (10): Use on aluminum to enhance conductivity.

Alodine - (15): Provides protection and corrosion resistance. For aluminum and aluminum alloys.

Iridite - (22): Primarily used for protection against corrosion where lower electrical resistance is required. Will improve adhesion of paint systems on aluminum and aluminum alloys.

Lubricant - solid film, heat cured, corrosion inhibiting - (39, 39a): Reduces wear and prevents galling when used on aluminum and aluminum alloys.

BRASS:

Nickel Plated finishes - (9, 9a): Nickel finish is hard, bright - has an attractive look - and is corrosive resistant. Copper plated - Copper - Copper alloys - Zinc, Zinc based alloys and brass parts. Steel parts.

Bright Dip - (21): Used to brighten brass material.

Tin Plate - (19, 20, 20a, 38): Depending on the thickness/application specified by the customer. Tin plate can be utilized for articles to be soldered; to prevent galling; to prevent corrosion or to prevent formation of case during nutriding.

Tin Plate - (20b): ASTM B 579

Clear Lacquer - (29): Provides protective tarnish and corrosion resistance, used mostly on brass.

Water Dip Lacquer - (30): Provides protective tarnish and corrosion resistance, used mostly on brass.

Zinc Plate - (31, 31a, 31b, 31d, 31e): Electro deposited zinc coatings applied to brass articles provides protection from corrosion.

Black Zinc - (35): Provides corrosion resistance, decorative, used on brass.

Black Satin Finish - (37): Is a decorative finish, used on brass.

COPPER:

Nickel Plate finishes - (9, 9a): Nickel finish is hard, bright, - has an attractive look - and is corrosive resistant. Copper plated - Copper - Copper Alloys.

Silver Plate Finish - (10): Semi-bright in appearance. Good corrosion resistance depending on base metal. Will tarnish easily. Solderability is excellent but decreases with age. For articles such as terminals which are to be soldered. Also used on copper to enhance electrical conductivity.

Lubricant - solid film, heat cured, corrosion inhibiting - (39, 39a): Reduces wear and prevents galling.

STAINLESS STEEL:

Passivate - (12, 12a): A process designed to remove foreign metals from the surface of stainless steel and corrosion resistant steels and to prevent natural tendency of surface to oxidize.

Zinc Plate - (31, 31a, 31b, 31d, 31e): Electro deposited zinc coatings applied to brass, steel and stainless steel articles provides protection from corrosion. Service lift of zinc coating is a function of its thickness and the type of environment to which it is exposed. Bright or dull finish acceptable.

Black Zinc - (35): Provides corrosion resistance, decorative, used on stainless steel.

Black Satin Finish - (37): Is a decorative finish, used on stainless steel.

Lubricant - solid film, heat cured, corrosion inhibiting - (39, 39a): Reduces wear and prevents galling when used on stainless steel.

Black Oxide - (11, 11a): For 300 series corrosion resistance - steel only.

STEEL:

Cadmium - (6, 6a, 7, 8): Bright silvery supplementary treatments for Type II can be golden, iridescent. Corrosion resistance is very good.

Black Oxide - (11, 11a): Black oxide coatings; without supplementary preservative treatment are used when black surface is required. Limited corrosion protection under mildly corrosive conditions, For decorative purposes or decrease in light reflection.

Chromium Platings - (26): Provides a bright decorative finish; corrosion protection; wear resistance and pleasing appearance.

(27): Known as industrial or hard chromium; provides wear and abrasion resistance and incidental corrosion protection of parts as the specified thickness of the plating may afford.

Zinc Plate - (31, 31a, 31b, 31d, 31e): Electro deposited zinc coatings applied to iron, steel, stainless steel and brass articles provides protection from corrosion. Service life of zinc coating is a function of its thickness and the type of environment to which it is exposed. Bright or dull finish is acceptable.

Black Zinc - (35): Provides corrosion resistance, decorative, used on steel alloys.

Solder Plate - (32): Provides corrosion protection and solderability.

Black Phosphate - (34): Provides corrosion resistance; also acts as a lubricant.

(28): Engineering chromium is usually applied directly to base metal and is finished by grinding to the specific dimensions.

Black Finish - (37): Is a decorative finish, used on steel alloys.

Lubricant - solid film, heat cured, corrosion inhibiting - (39, 39a): Reduces wear and prevents galling when used on steel alloys.

ALLOY STEEL:

Cadmium - (6, 6a, 7, 8): Bright silvery supplementary treatments for type II can be golden, iridescent. Corrosion resistance is very good.

Nickel Plate Finishes - (9, 9a): Nickel Finish is hard, bright - has an attractive look - and is corrosive resistant. Copper plated - Copper - Copper alloys - Zinc, Zinc based alloys and Brass parts. Steel parts.

Black Oxide - (11, 11a): Black oxide coatings; with or without supplementary preservative treatment are used when black surface is required. Limited corrosion protection under mildly corrosive conditions. For decorative purposes or decrease in light reflection.

Zinc Plate - (31, 31a, 31b, 31d): Electro deposited zinc coatings applied to iron or stainless steel, and brass articles provides protection from corrosion. Service life of zinc coating is a function of its thickness and the type of environment to which it is exposed. Bright or dull finish is acceptable.

Black Phosphate - (34): Provides corrosion resistance; also acts as a lubricant. (28): Engineering chromium is usually applied directly to base metal and is finished by grinding to the specified dimensions.

Solder Plate - (32): Provides corrosion protection and solderability.

Black Chrome Satin - (33): Decorative.

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METRIC SPECIFICATIONS

CONVERSION TABLE
To convert inches to millimeters multiply inches x 25.4
To convert millimeters to inches multiply millimeters x 0.039370

SPACERS
Tolerances in manufacture of Standoffs and Spacers
Length: up to 100MM long ±.13 MM O.D. ±.152 MM

METRIC THREADS

Clearance Hole

Diameter x Pitch	Clearance Hole Range
1.6 x 0.35	1.8 - 2.1
2.0 x 0.40	2.2 - 2.8
2.5 x 0.45	2.7 - 3.1
3.0 x 0.50	3.2 - 3.6
3.5 x 0.60	3.5 - 4.2
4.0 x 0.70	4.2 - 4.8
5.0 x 0.80	5.3 - 6.0
6.0 x 1.00	6.3 - 7.0
6.3 x 1.00	6.7 - 7.5
8.0 x 1.25	8.5 - 9.5

Recommended Thread Sizes

Diameter x Pitch
M1.6 x 0.35
2.0 x 0.40
2.5 x 0.45
3.0 x 0.50
3.5 x 0.60
4.0 x 0.70
5.0 x 0.80
6.0 x 1.00
8.0 x 1.25
10.0 x 1.50
12.0 x 1.75
14.0 x 2.00

Depth of Thread
Recommended blind hole thread engagement (drilled and tapped both ends)

Thread Size	Screw Engagement
M 2.5	4.8mm
3.0	8.4
3.5	9.5
4.0	11.1
5.0	12.7
6.0	14.3
8.0	14.3

Length of Thread

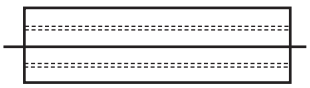
Brass, Aluminum & Steel Parts: M2.5 thread is tapped thru 15.9MM in length. M3 and larger thread is tapped thru 25.4 MM in length.

Stainless Steel & Nylon Parts: M2.5 thread is tapped thru 9.6 MM in length M3 thread is tapped thru 12.7 MM in length.

M3.5 and larger thread is tapped thru 25.4MM in length. For lengths longer than specified above, see **DEPTH OF THREAD CHART.**

HOW TO ORDER METRIC PARTS

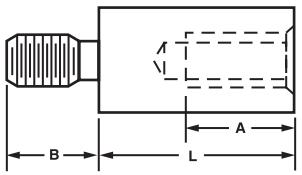
Step 1 Choose American Standard part number from our catalog.
EXAMPLE OF THREADED SPACER: 1130-R-SS- .250-12


Metric Thread

Step 2 Simply add your metric requirements to our part number.
EXAMPLE OF METRIC THREADED SPACER: 1130-R-SS-.250-12 (M 3.5 x 0.6 Thd.) ← *Just add requirement here.*

HOW TO ORDER METRIC MALE/FEMALE STANDOFF

Choose American Standard part number from our catalog.
EXAMPLE OF MALE FEMALE STANDOFF:
14010-H-SS-.625-12



MALE/FEMALE SPECIFICATION

Metric Thread	A Min Depth	B
M 2.5 x .45	3.97	4.76
3.0 x 0.5	4.76	6.35
3.5 x 0.6	6.35	9.53
4.0 x 0.7	9.53	11.10
5.0 x 0.8	9.53	12.70
6.0 x 1.0	12.70	15.00
8.0 x 1.25	12.70	15.00

Then simply add your metric requirements to our part number.
EXAMPLE:
14010-H-SS-.625-12 (M3.0 x .5 Thread) ← *Just add requirement here.*

Or if you need a longer Male thread:
EXAMPLE:
14010-H-SS-.625-12 (B = 3.0 x .5 Thread, B= 7.5 MM Length) ← *Just add requirement here.*

NOTE: When the body length L is less than or equal to the thread depth A we will provide the maximum number of threads possible.

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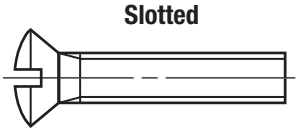
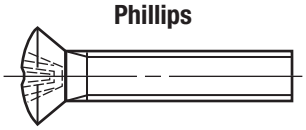
METRIC SCREW SPECIFICATIONS FOR REFERENCE ONLY

Oval Head Machine Screw

Slotted



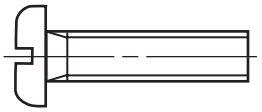
Phillips



Thread Size d	M2	M2.5	M3	M4	M5	M6
Head Hght Max k	1.7	2.1	2.4	3.7	3.9	4.7
Head Dia Max d2	4.4	5.5	6.3	9.4	10.4	12.6
Driver Size No.	1	1	1	2	2	3

Dimensions in millimeters

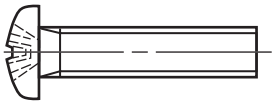
Pan Head Slotted Machine Screw



Thread Size d	M3	M4	M5	M6
Head Hght k	1.8	2.4	3	3.6
Head Dia d2	6	8	10	12
Pitch p	.50	.70	.80	1

Dimensions in millimeters

Pan Head Cross Recessed Machine Screw

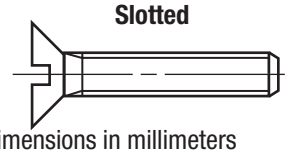


Dimensions in millimeters

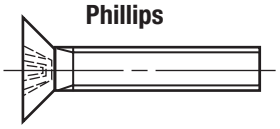
Thread Size d	M2	M2.5	M3	M4	M5	M6
Head Hght k	1.6	2	2.4	3.1	3.8	4.6
Head Dia d2	4	5	6	8	10	12
Driver Sz No.	1	1	1	2	2	3

Flat Head Machine Screw

Slotted



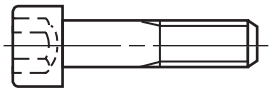
Phillips



Dimensions in millimeters

Thread Size d	M2	M2.5	M3	M4	M5	M6	M8	M10
Head Hght k	1.2	1.5	1.65	2.2	2.5	3	4	5
Head Dia d2	3.8	4.7	5.6	7.5	9.2	11	14.5	18
Pitch p	.40	.45	.50	.7	.8	1	1.25	1.50

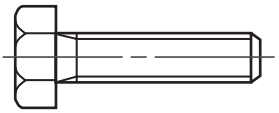
Socket Head Cap Screw



Dimensions in millimeters

Thread Size d	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20
Head Hght k	3	4	5	6	8	10	12	14	16	20
Head Dia d2	5.5	7	8.5	10	13	16	10	21	24	30
Hex Key Sz s	2.5	3	4	5	6	8	10	12	14	17

Hexagon Head Cap Screw

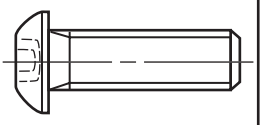


Dimensions in millimeters

Thread Size d	M4	M5	M6	M8	M10	M12	M14	M16	M20	M24
Head Hght k	2.8	3.5	4	5.5	7	8	9	10	13	15
Across Flats s	7	8	10	13	17	19	22	24	30	36
Pitch p.7	.8	1	1.25	1.5	1.75	2	2	2.5	3	

Button Head

Head Dia. B Max.	Head Hgt R Max	Socket Sz S Nom.
5.7	1.65	2
7.6	2.20	2.5
9.5	2.75	3
10.5	3.30	4
14.0	4.40	5
17.5	5.50	6
21.0	6.60	8
28.0	8.80	10



Dimensions in millimeters

Important Data, Metric Machine Screws

Nom Screw Length	Tolerance on Length mm
to 3 mm incl.	0.2
over 3 to 10 mm	0.3
over 10 to 16 mm	0.4
over 16 to 50 mm	0.5
over 50 mm	1.0

Position of Head : The axis of the head shall be loca ted at true position rela tive to the axis of the screw shank within a tolerance zone ha ving a diameter equivalent to 6% of the specified maximum head diameter , or the specified maximum width across flats of hex and hex flange heads, regardless of feature size.

All tolerances are plus and minus.

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TOLERANCES

All dimensions in inches unless otherwise specified.
Two Place Decimal . . . . . .±.010
Three Place Decimal . . . . . .±.005
Fractions . . . . . .±1/64"
Note:
1. Up to 4" long all spacers and standoffs are kept to ±.005.
2. 4" to 6" long ±.008.
3. Over 6" long ±.010.

SPECIAL CLOSE TOLERANCES are available.
Just add to part number.
EXAMPLE: 2030R - A - .500 - 1 (MOD L=±.002)
DIAMETER: St'd Commercial Tolerances on bar & rod.

ROUND - COLD FINISHED:
Under 5/16" . . . . . .±.001"
5/16" to 1/2", incl. . . . . .±.0015
1/2" to 1", incl. . . . . .±.002

IMPORTANT DATA: MACHINE SCREWS

ECCENTRICITY: The heads of machine screws shall not be eccentric with the body beyond a tolerance of 3% of the maximum head diameter.

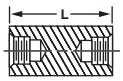
TOLERANCE IN LENGTH: The length for socket head cap screw class 3A UNRC see table on page 286.

NOMINAL SCREW SIZE	0 - 12	1/4 - 3/4
NOMINAL SCREW LENGTH	TOLERANCE ON LENGTH	
Up to 1/2 in., incl.	-0.02	-0.03
Over 1/2 to 1 in., incl	-0.03	-0.03
Over 1 to 2 in., incl.	-0.06	-0.06
Over 2 in., incl.	-0.09	-0.09

FOR LEAD POINT CAPTIVE SCREW ONLY		
NOMINAL SCREW SIZE	0 - 12	1/4 - 3/4
NOMINAL SCREW LENGTH	TOLERANCE ON LENGTH	
Up to 1/2 in., incl.	-0.03	-0.04
Over 1/2 to 1 in., incl	-0.04	-0.04
Over 1 to 2 in., incl.	-0.07	-0.07
Over 2 in., incl.	-0.09	-0.09

THREAD INFORMATION

Tapped thru when L Length is NOT longer than dimension shown.



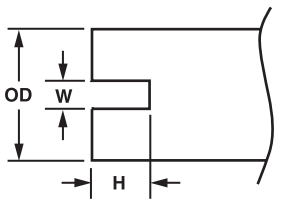
Use the "Blind Tap Depth" part of chart below when L Length is longer than shown at left.

SURFACES
63

Thread	L Length Not Longer than Shown		Blind Tap Depth Min.
	L Aluminum, Brass, Steel, Nylon	L Stainless Steel	L Aluminum, Brass, Steel, St. Steel, Nylon Min Screw Engagement
0-80	3/8	1/4	3/16
1-72	3/8	1/4	3/16
2-56	1/2	3/8	3/16
3-48	1/2	3/8	3/16
3-56	1/2	3/8	3/16
4-40	1	3/4	1/4
4-48	1	3/4	1/4
5-40	1	3/4	5/16
6-32	1	3/4	3/8
6-40	1	3/4	3/8
8-32	1	3/4	7/16
10-24	1	3/4	1/2
10-32	1	3/4	1/2
12-24	1	3/4	1/2
1/4-20	1-1/4	1-1/4	5/8
1/4-28	1-1/4	1-1/4	5/8
5/16-18	1-1/4	1-1/4	5/8
5/16-24	1-1/4	1-1/4	5/8
3/8-16	1-1/4	1-1/4	5/8
3/8-24	1-1/4	1-1/4	5/8
7/16-14	1-1/4	1-1/4	5/8
7/16-20	1-1/4	1-1/4	5/8
1/2-13	1-1/4	1-1/4	5/8
1/2-20	1-1/4	1-1/4	5/8

SCREWDRIVER SLOT DIMENSIONS

Unless otherwise specified



OD Diameter Max	W		H	
	Max	Min	Max	Min
Up to .160	.031	.023	.030	.022
.161 to .182	.035	.027	.034	.026
.183 to .204	.039	.031	.038	.030
.205 to .225	.039	.031	.042	.025
.226 to .269	.048	.039	.053	.033
.270 to .312	.054	.045	.074	.052
.313 to .413	.060	.050	.080	.057
.414 and up	.075	.064	.111	.083

NOTES:
1. Threads are supplied cut or rolled at our option unless specifically noted on order.
2. Responsibility ends with customer inspection or 10 days after customer receives parts. No returns will be accepted without prior approval from factory in writing.
3. All parts are stocked in plain finish. Parts will be plated to customer specifications.
4. The items in this catalog are designed and manufactured to be functional. Engineering evaluation and quality assurance evaluations should be accomplished with functionability as a prime criteria.
5. All threads are Class 2A and Class 2B Commercial, except Socket Head Cap Screws which are Class 3A Threads. Once plated will not enter 3A GO and NO GO GAGES.

MATERIAL COMPATIBILITY SELECTION DATA

Galvanic Corrosion

Similar metals are compatible; dissimilar metals are not . When dissimilar metals contact in the presence of an electrolyte, a galvanic action occurs which causes one of the metals to corrode at a much faster than normal rate, while the other corrodes more slowly, if at all. The rate, location and extent of the corrosion depends on three factors:

– the difference in electrical potentials
– the conductivity strength of the corroding medium
– the relative sizes of the contacting areas

All metals have electrical potentials. Through research, the potentials of different base metals and their alloys, when exposed to sea water, were measured and then ranked into a series.

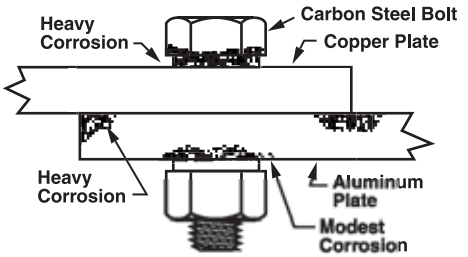
Galvanic Series

Table 1 presents the Galvanic Series of Metals and Alloys. The various metals are grouped. Those within the same group are reasonably compatible when used together; those from dif ferent groups cause a corrosion problem. Some metals – basically those with significant contents of nickel and chromium – are included in the Series both in their active and passive conditions. Passivation (surface cleaning and sealing) lowers the metal' s electrical potential and improves its corrosion behavior.

In an electrical couple, the metal of higher electrical potential is the cathode (-), that of the lower the anode (+). Current flows from the cathode to the anode, from the anode through the electrolyte (corroding medium) and back to the cathode. Corrosion occurs at the point the current leaves the anode to enter the electrolyte. When dissimilar metals contact, the anode corrodes, the cathode survives.

Study of the Galvanic Series suggests that steel and aluminum are reasonably compatible; but, if titanium and aluminum contact, the aluminum, as the anode, will corrode. Fig. 1 illustrates an example. The bolt, where it contacts the aluminum, will not corrode, because it is now the cathode. The aluminum plate in contact with the bolt may corrode, but only slightly because of the minor dif ference in their electropotentials and the large anode-to-cathode area ratio. The aluminum plate will corrode where its exposed exterior surfaces contact the copper plate. The aluminum plate may also corrode on its interior surface, but not to the same degree, because the corroding medium and oxygen supply are largely sealed out due to the bolt's clamping action.

• Figure 1 •
Effects of Galvanic Corrosion



• Table 1 •
Galvanic Series of Metals and Alloys

+ Corroded End (anodic, or least noble)
Magnesium
Magnesium alloys
Zinc
Aluminum 1100
Cadmium
Aluminum 2024-T4
Steel or Iron
Cast Iron
Chromium-Iron (active)
Ni-Resist cast iron
Type 304 Stainless (active)
Type 316 Stainless (active)
Lead tim solders
Lead
Tin
Nickel (active)
Inconel nickel-chromium alloy (active)
Hastelloy Alloy C (active)
Brass
Copper
Bronzes
Copper-nickel alloys
Monel nickel-copper alloy
Silver solder
Nickel (passive)
Inconel nickel-chromium alloy (passive)
Chromium-Iron (passive)
Type 304 Stainless (passive)
Type 316 Stainless (passive)
Hastelloy Alloy C (passive)
Silver
Titanium
Graphite
Gold
Platinum
– Protect End (cathodic, or most noble)

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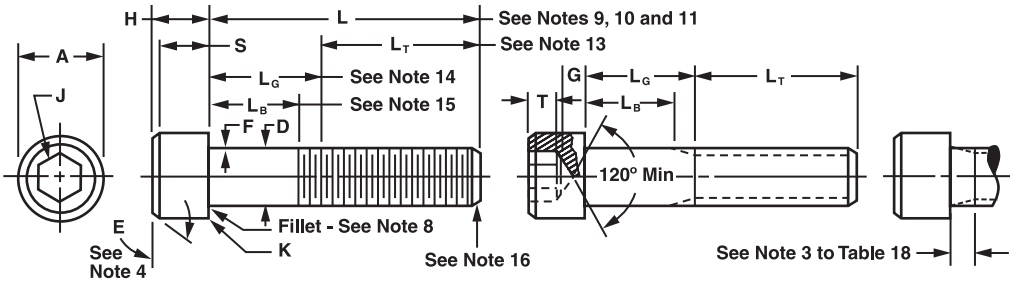

• Table 1 •
Dimensions of Hexagon and Spline Socket Head Cap Screws (1960 Series)

Nominal Size or Basic Screw Diameter		D Body Diameter		A Head Diameter		H Head Height		S Head Side Height	J Hex Socket Size		T Key Engagmt	G Wall Thkns	K Chamfer or Radius
		Max	Min	Max	Min	Max	Min	Max	Nominal		Min	Min	Max
0	0.0600	0.0600	0.0568	0.096	0.091	0.060	0.057	0.054		0.050	0.025	0.020	0.003
1	0.0730	0.0730	0.0695	0.118	0.112	0.073	0.070	0.066	1/16	0.062	0.031	0.025	0.003
2	0.0860	0.0860	0.0822	0.140	0.134	0.086	0.083	0.077	5/64	0.078	0.038	0.029	0.003
3	0.0990	0.0990	0.0949	0.161	0.154	0.099	0.095	0.089	5/64	0.078	0.044	0.034	0.003
4	0.1120	0.1120	0.1075	0.183	0.176	0.112	0.108	0.101	3/32	0.094	0.051	0.038	0.005
5	0.1250	0.1250	0.1202	0.205	0.198	0.125	0.121	0.112	3/32	0.094	0.057	0.043	0.005
6	0.1380	0.1380	0.1329	0.226	0.218	0.138	0.134	0.124	7/64	0.109	0.064	0.047	0.005
8	0.1640	0.1640	0.1585	0.270	0.262	0.164	0.159	0.148	9/64	0.141	0.077	0.056	0.005
10	0.1900	0.1900	0.1840	0.312	0.303	0.190	0.185	0.171	5/32	0.156	0.090	0.065	0.005
1/4	0.2500	0.2500	0.2435	0.375	0.365	0.250	0.244	0.225	3/16	0.188	0.120	0.095	0.008
5/16	0.3125	0.3125	0.3053	0.469	0.457	0.312	0.306	0.281	1/4	0.250	0.151	0.119	0.008
3/8	0.3750	0.3750	0.3678	0.562	0.550	0.375	0.368	0.337	5/16	0.312	0.182	0.143	0.008
7/16	0.4375	0.4375	0.4294	0.656	0.642	0.438	0.430	0.394	3/8	0.375	0.213	0.166	0.010
1/2	0.5000	0.5000	0.4919	0.750	0.735	0.500	0.492	0.450	3/8	0.375	0.245	0.190	0.010
5/8	0.6250	0.6250	0.6163	0.938	0.921	0.625	0.616	0.562	1/2	0.500	0.307	0.238	0.010
3/4	0.7500	0.7500	0.7406	1.125	1.107	0.750	0.740	0.675	5/8	0.625	0.370	0.285	0.010
7/8	0.8750	0.8750	0.8647	1.312	1.293	0.875	0.864	0.787	3/4	0.750	0.432	0.333	0.015
1	1.0000	1.0000	0.9886	1.500	1.479	1.000	0.988	0.900	3/4	0.750	0.495	0.380	0.015
See Notes	1	2,15		3				4	21				6

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(CONTINUED)

Notes to Table 1:

1. Nominal Size. Where specifying nominal size in decimals, zeros preceding decimal and in the fourth decimal place shall be omitted.

2. Body. The term body refers to the unthreaded cylindrical portion of the shank for those screws not threaded to the head.

3. Head Diameter. Heads may be plain or knurled at the option of the manufacturer, unless otherwise specified by the customer. For knurled screws the maximum head diameter shall be measured across the tops of the knurl and the minimum head diameter shall be the diameter of the unknurled portion, or the diameter across the tops of the knurl for those screws not ha ving an unknurled portion, just above the radius or chamfer a t the bottom edge of the head.

4. Head Chamfer. The head shall be chamfered. The chamfer E shall be at an angle of 30 - 45 degrees with the plane of the top of the head. The edge between the top of the head and the chamfer may be slightly rounded.

5. Bearing Surf ace. The plane of the bearing surface shall be perpendicular to the axis of the screw within a maximum devia tion of 1 degree.

6. Edge of Head. The edge between the bearing surface and the side of the head may be broken (rounded or chamfered) but the radius or chamfer measured along the bearing surface shall not exceed the values listed for K.

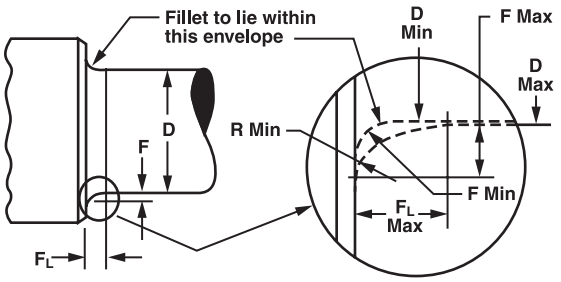
7. Concentricity.

a. The head shall be concentric with the shank within 1% of the basic screw diameter, D maximum, (2% total runout) or 0.006 inch total runout, whichever is greater, when held within one diameter of the head but beyond the fillet.

b. The socket shall be concentric with the shank within 1-1/2% of the basic screw diameter, D maximum. (3% total runout) or 0.005 inch whichever is greater for sizes through 1/2 in and 3% (6% total runout) for sizes above 1/2 in.

c. Total runout between thread, body and head: Screws shall assemble into a compound hole which is threaded at one end to the basic thread size (3B minimum), for a length equivalent to 1-1/2 D, counterbored at the other end to diameter A_e listed in Table 1C, and whose center portion is equal to D_e. Diameters D_e and A_e shall be concentric with the axis of the thread. The length of the center portion shall be equal to the screw length minus two screw diameters (2D). The starting thread shall be chamfered and the junction between diameters A_e and D_e shall be rounded to a value equal to F maximum.

Figure 1. Underhead Fillet Detail



• Table 1A •
Dimensions of Underhead Fillets

Nominal Screw Size	F Fillet Extension		F_L Fillet Length	R Juncture Radius
	Max	Min	Max	Min
0	0.007	0.003	0.012	0.002
1	0.007	0.003	0.012	0.003
2	0.008	0.004	0.014	0.003
3	0.008	0.004	0.014	0.004
4	0.009	0.005	0.015	0.004
5	0.010	0.006	0.017	0.005
6	0.010	0.006	0.017	0.005
8	0.012	0.007	0.020	0.006
10	0.014	0.009	0.024	0.006
1/4	0.014	0.009	0.024	0.007
5/16	0.017	0.012	0.029	0.009
3/8	0.020	0.015	0.034	0.012
7/16	0.023	0.018	0.039	0.014
1/2	0.026	0.020	0.044	0.016
5/8	0.032	0.024	0.054	0.021
3/4	0.039	0.030	0.066	0.025
7/8	0.044	0.034	0.075	0.031
1	0.050	0.040	0.085	0.034

8. Fillet. For all lengths of screws the form of the underhead fillet shall be optional, as depicted in Figure 1, provided it is a smooth and continuous conca ve cur ve fairing into the bearing surface of the head and the screw shank within the envelope established by the limits for fillet extension, length and juncture radius specified in Table 1A.

9. Length. The length of the screw shall be measured parallel to the axis of the screw from the plane of the bearing surface under the head to the plane of the flat of the point. the portion of the screw contained within dimension L is commonly called the shank. The basic length dimension on the product shall be the nominal length expressed as a two-place decimal.

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10. Length Tolerances. The allowable tolerance on length shall be as tabulated below:

Nominal Screw Size	0 thru 3/8, incl	7/16 thru 3/4, incl	7/8 thru 1-1/2, incl	Over 1-1/2
Nominal Screw Length	**Tolerance on Length**			
Up to 1 inch., incl.	-0.03	-0.03	-0.05	–
Over 1 in to 2-1/2 , incl.	-0.04	-0.06	-0.10	-0.18
Over 2-1/2 to 6, incl.	-0.06	-0.08	-0.14	-0.20
Over 6	-0.12	-0.12	-0.20	-0.24

11. Length Tolerances. The allowable tolerance for **LEAD POINT** captive screws only shall be as tabula ted below:

Nominal Screw Size	0 thru 3/8, incl	7/16 thru 3/4, incl	7/8 thru 1-1/2, incl	Over 1-1/2
Nominal Screw Length	**Tolerance on Length**			
Up to 1 inch., incl.	.04	.04	.06	–
Over 1 in to 2-1/2 , incl.	.05	.07	.11	.19
Over 2-1/2 to 6, incl.	.07	.09	.15	.21
Over 6	.13	.13	.21	.25

12. Threads. Threads shall be Unified external threads with radius root: Class 3A UNC and UNF Series for screw sizes 0 (0.060 in.) through 1 in.: Class 2A UNC and UNF Series for sizes over 1 in. to 1-1/2 in., inclusive: and Class 2A UNC Series for sizes larger that 1-1/2 in.

Class 3A does not provide a pla ting allo wance. When pla ted products are required it is recommended that they be procured from the manufacturer. (See paragraph 1.8).

13. Thread Length, L_T. The length of thread shall be measured, parallel to the axis of screw , from the extreme point to the last complete (full form) thread. The thread length on socket head ca p screws shall be as defined by Table 1B and notes thereto.

14. Griping Gaging Length, L_G. The grip ga ging length is the distance, measured parallel to the axis of screw , from the bearing surface of the head to the first complete (full form) thread under the head (see Table 1B).

15. Body Length, L_B. The bod y length is the length, measured parallel to the axis of screw , of the unthreaded portion of the shank (See table 1B).

16. Screw P oint Chamfer . The point shall be fla t or slightly concave and chamfered. The plane of the point shall be approximately normal to the axis of the screw . The chamfer shall extend slightly belo w the root of the thread and the edge between the flat and chamfer may be slightly rounded. The included angle of the point should be a pproximately 90 degrees. Chamfering of screw sizes up to and inc luding size 8 (0.164 in.) shall be optional.

17. Material. Steel, corrosion resistant. Cap screws shall be fabricated from austenitic corrosion resistant steel of types 18-8, AISI 384, or equivalent types, and shall ha ve a minimum tensile strength of 80,000 psi for sizes up to and inc luding 5/8 in. and 70,000 psi for sizes larger than 5/8 in.

18. Surface Roughness. For allo y steel screws of up to and including 5/8 in., and nominal lengths equal to or less than 8 times the basic screw diameter , the surface roughness of the screws before pla ting shall not exceed 63 microinches (arithmetical average) on the fillet and head bearing surfaces, nor exceed 32 microinches (arithmetical average) on the threads.

For larger sizes, longer lengths, and corrosion resistant steel screws, the surface roughness of the screws prior to pla ting shall not exceed 125 micro-inches (arithmetical a verage) on the bod y (see Note 2), fillet (see Note 8) and head bearing surfaces.

Normally, it shall be sufficient to ascertain tha t these surfaces on screws have the equivalent of a smooth machined finish by visual comparison with kno w surface standards. However, where it is practical and deemed necessar y to measure these surfaces with commercially available equipment, roughness measurements shall be taken axially on the bod y and fillet surfaces, and circumferentially on the bearing surface.

19. Drawings. On socket screw drawings when the distance from the bearing surface of the head to the threading is dimensioned, regardless of type of thread representa tion, the dimension should be noted to indica te whether Bod y Length or Grip Length is required.

20. See Table 7 for spline socket dimensions, and Appendix 1 for gaging of spline sockets.

21. See Table 6 for hexagon socket dimensions, and Appendix 1 for gaging of hexagon sockets.

22. Designation. Hexagon and Spline Socket Head Ca p Screws shall be designa ted by the follo wing data in the sequence sho wn: Nominal size (number, fractional or decimal equivalent); threads per inch; length (fractional or decimal equivalent); product name; material; and protective coating, if required. See examples below:

6-32 x 3/4 Hexagon Socket Head Cap Screw, Alloy Steel

.138 - 32 x .75 Spline Socket Head Ca p Screws,
Alloy Steel, Cadmium Plated.

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Table 1B Body and Grip Lengths for Socket Head Cap Screws (1960 Series)

Nom Size	0		1		2		3		4		5		6		8		10	
Nom Length	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B
3/4	.25	.19																
7/8	.25	.19	.25	.17	.25	.16	.25	.15										
1	.50	.44	.25	.17	.25	.16	.25	.15	.25	.12	.25	.12						
1-1/4	.75	.69	.62	.55	.62	.54	.62	.52	.25	.12	.25	.12	.50	.34	.38	.22	.38	.17
1-1/2	. . .	. . .	.88	.80	.88	.79	.88	.77	.75	.62	.75	.62	.50	.34	.38	.22	.38	.17
1-3/4	. . .	. . .	. . .	. . .	1.12	1.04	1.12	1.02	.75	.62	.75	.62	1.00	.84	.88	.72	.88	.67
2	. . .	. . .	. . .	. . .	. . .	. . .	1.38	1.27	1.25	1.12	1.25	1.12	1.00	.84	.88	.72	.88	.67
2-1/4	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1.25	1.12	1.25	1.12	1.50	1.34	1.38	1.22	1.38	1.17
2-1/2	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1.75	1.62	1.50	1.34	1.38	1.22	1.38	1.17
2-3/4	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	2.00	1.84	1.88	1.72	1.88	1.67
3	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1.88	1.72	1.88	1.67
3-1/4	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	2.38	2.22	2.38	2.17
3-1/2	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	2.38	2.17
3-3/4	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	2.88	2.67
4	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	2.88	2.67

Nom Size	1/4		5/16		3/8		7/16		1/2		5/8		3/4		7/8		1	
Nom Length	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B
1-1/2	.50	.25																
1-3/4	.50	.25	.62	.35	.50	.19												
2	1.00	.75	.62	.35	.50	.19	.62	.27										
2-1/4	1.00	.75	1.12	.85	1.00	.69	.62	.27	.75	.36								
2-1/2	1.50	1.25	1.12	.85	1.00	.69	1.12	.77	.75	.36	.75	.30						
2-3/4	1.50	1.25	1.62	1.35	1.50	1.19	1.12	.77	.75	.36	.75	.30						
3	2.00	1.75	1.62	1.35	1.50	1.19	1.62	1.27	1.50	1.12	.75	.30	1.00	.50				
3-1/4	2.00	1.75	2.12	1.85	2.00	1.69	1.62	1.27	1.50	1.12	1.50	1.04	1.00	.50	1.00	.44		
3-1/2	2.50	2.25	2.12	1.85	2.00	1.69	2.12	1.77	1.50	1.12	1.50	1.04	1.00	.50	1.00	.44	1.00	.38
3-3/4	2.50	2.25	2.62	2.35	2.50	2.19	2.12	1.77	2.25	1.86	1.50	1.04	1.00	.50	1.00	.44	1.00	.38
4	3.00	2.75	2.62	2.35	2.50	2.19	2.62	2.27	2.25	1.86	2.25	1.80	2.00	1.50	1.00	.44	1.00	.38
4-1/4	3.00	2.75	3.12	2.85	3.00	2.69	2.62	2.27	2.25	1.86	2.25	1.80	2.00	1.50	2.00	1.44	1.00	.38
4-1/2	3.50	3.25	3.12	2.85	3.00	2.69	3.12	2.77	3.00	2.62	2.25	1.80	2.00	1.50	2.00	1.44	2.00	1.38
4-3/4	3.50	3.25	3.62	3.35	3.50	3.19	3.12	2.77	3.00	2.62	3.00	2.54	2.00	1.50	2.00	1.44	2.00	1.38
5 4.00		3.75	3.62	3.35	3.50	3.19	3.62	3.27	3.00	2.62	3.00	2.54	3.00	2.50	2.00	1.44	2.00	1.38
5-1/4	. . .	. . .	4.12	3.85	4.00	3.69	3.62	3.27	3.75	3.36	3.00	2.54	3.00	2.50	3.00	2.44	2.00	1.38
5-1/2	. . .	. . .	4.12	3.85	4.00	3.69	4.12	3.77	3.75	3.36	3.75	3.30	3.00	2.50	3.00	2.44	3.00	2.38
5-3/4	. . .	. . .	4.62	4.35	4.50	4.19	4.12	3.77	3.75	3.36	3.75	3.30	3.00	2.50	3.00	2.44	3.00	2.38
6	. . .	. . .	4.62	4.35	4.50	4.19	4.62	4.27	4.50	4.12	3.75	3.30	4.00	3.50	3.00	2.44	3.00	2.38
6-1/4	. . .	. . .	5.12	4.85	5.00	4.69	4.62	4.27	4.50	4.12	4.50	4.04	4.00	3.50	4.00	3.44	3.00	2.38
6-1/2	. . .	. . .	. . .	. . .	5.00	4.69	5.12	4.77	4.50	4.12	4.50	4.04	4.00	3.50	4.00	3.44	4.00	3.38
6-3/4	. . .	. . .	. . .	. . .	5.50	5.19	5.12	4.77	5.25	4.86	4.50	4.04	4.00	3.50	4.00	3.44	4.00	3.38
7	. . .	. . .	. . .	. . .	5.50	5.19	5.62	5.27	5.25	4.86	5.25	4.80	5.00	4.50	4.00	3.44	4.00	3.38
7-1/4	. . .	. . .	. . .	. . .	6.00	5.69	5.62	5.27	5.25	4.86	5.25	4.80	5.00	4.50	5.00	4.44	4.00	3.38
7-1/2	. . .	. . .	. . .	. . .	6.00	5.69	6.12	5.77	6.00	5.62	5.25	4.80	5.00	4.50	5.00	4.44	5.00	4.38
7-3/4	. . .	. . .	. . .	. . .	. . .	. . .	6.12	5.77	6.00	5.62	6.00	5.54	5.00	4.50	5.00	4.44	5.00	4.38
8	. . .	. . .	. . .	. . .	. . .	. . .	6.62	6.27	6.00	5.62	6.00	5.54	6.00	5.50	5.00	4.44	5.00	4.38
8-1/2	. . .	. . .	. . .	. . .	. . .	. . .	7.12	6.77	7.00	6.62	6.75	6.30	6.00	5.50	6.00	5.44	6.00	5.38
9	. . .	. . .	. . .	. . .	. . .	. . .	7.62	7.27	7.00	6.62	6.75	6.30	7.00	6.50	6.00	5.44	6.00	5.38
9-1/2	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	8.00	7.62	7.75	7.30	7.00	6.50	7.00	6.44	7.00	6.38
10	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	8.00	7.62	7.75	7.30	8.00	7.50	7.00	6.44	7.00	6.38
11	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	9.25	8.80	9.00	8.50	8.00	7.44	8.00	7.38
12	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	10.25	9.80	10.00	9.50	9.00	8.44	9.00	8.38
13	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	11.00	10.50	10.00	9.44	10.00	9.38
14	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	12.00	11.50	11.00	10.44	11.00	10.38
15	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	13.00	12.50	12.00	11.44	12.00	11.38
16	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	13.00	12.44	13.00	12.38
17	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	14.00	13.44	14.00	13.38
18	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	15.00	14.44	15.00	14.38
19	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	16.00	15.38
20	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	17.00	16.38

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(CONTINUED)

Notes to Table 1B:

1. The tabulated L_G values are maximum and represent the minimum design grip length of the screw. They shall be measured from the bearing surface of the head to the face of a GO thread ring gage, having the thread countersink and/or counterbore removed, which has been assembled by hand as far as the thread will permit. The tabulated L_B values are minimum and represent the minimum body length of the screw. They are equal to L_G minus 5 times the pitch of the UNRC thread for the respective screw size.

2. Screws having nominal lengths falling between those for which L_G and L_B values are tabulated in Table 1B shall have L_G and L_G dimensions conforming with those of the next shorter tabulated nominal length for the respective screw size. For example: for a 1/4 inch size screw, 1-7/8 inch long, L_G=0.50 inch and L_B =0.25 inch.

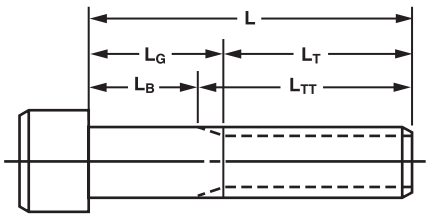
3. For screws of nominal length above the heavy line in Table 1B the complete (full form) threads measured with a thread ring gage, having the thread chamfer and/or counterbore removed, shall extend to within two pitches (threads) of the head for sizes 0 (0.060 in.) through 5/8 inches inclusive and shall extend as close to the head as is practical for sizes larger than 5/8 inches.

Screws over 1 inch in diameter and of lengths shorter than the minimum thread length L_T plus 5 times the pitch of the UNRC thread for the respective screw size shall have complete (full form) threads extending as close to the head as is practicable. See Note 4 for L_T values.

4. For screws of nominal lengths longer than those for which L_G and L_B values are tabulated in Table 1B and for screws over 1 inch in diameter, the maximum grip gaging length L_G and the minimum body length L_B of the screws shall be determined as follows:

$$L_G = L - L_T$$
$$L_B = L - L_{TT}$$

Where: L = Nominal length
L_T = Minimum thread length tabulated below
L_{TT} = Maximum total thread length tabulated below



Nominal Size or Basic Screw Diameter		L_T Thread Length Min	L_{TT} Total Thread Length Max	Nominal Size or Basic Screw Diameter		L_T Thread Length Min	L_{TT} Total Thread Length Max
0	0.0600	0.50	0.62	7/8	0.8750	2.25	3.69
1	0.0730	0.62	0.77	1	1.0000	2.50	4.12
2	0.0860	0.62	0.80	1-1/8	1.1250	2.81	4.65
3	0.0990	0.62	0.83	1-1/4	1.2500	3.12	5.09
4	0.1120	0.75	0.99	1-3/8	1.3750	3.44	5.65
5	0.1250	0.75	1.00	1-1/2	1.5000	3.75	6.08
6	0.1380	0.75	1.05	1-3/4	1.7500	4.38	7.13
8	0.1640	0.88	1.19	2	2.0000	5.00	8.11
10	0.1900	0.88	1.27	2-1/4	2.2500	5.62	8.99
1/4	0.2500	1.00	1.50	2-1/2	2.5000	6.25	10.00
5/16	0.3125	1.12	1.71	2-3/4	2.7500	6.88	10.87
3/8	0.3750	1.25	1.94	3	3.0000	7.50	11.75
7/16	0.4375	1.38	2.17	3-1/4	3.2500	8.12	12.63
1/2	0.5000	1.50	2.38	3-1/2	3.5000	8.75	13.50
5/8	0.6250	1.75	2.82	3-3/4	3.7500	9.38	14.37
3/4	0.7500	2.00	3.25	4	4.0000	10.00	15.25

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