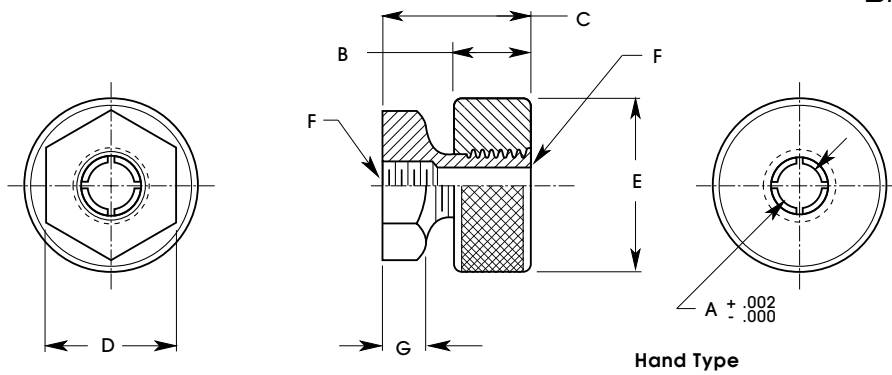


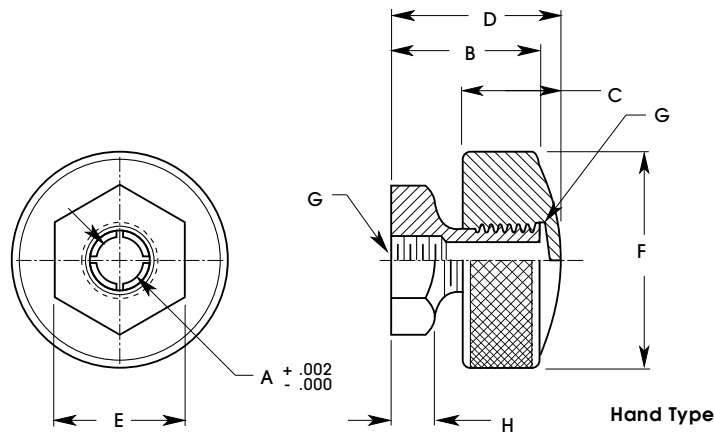
# POTENTIOMETER SHAFT LOCK

Brass—Nickel Plated



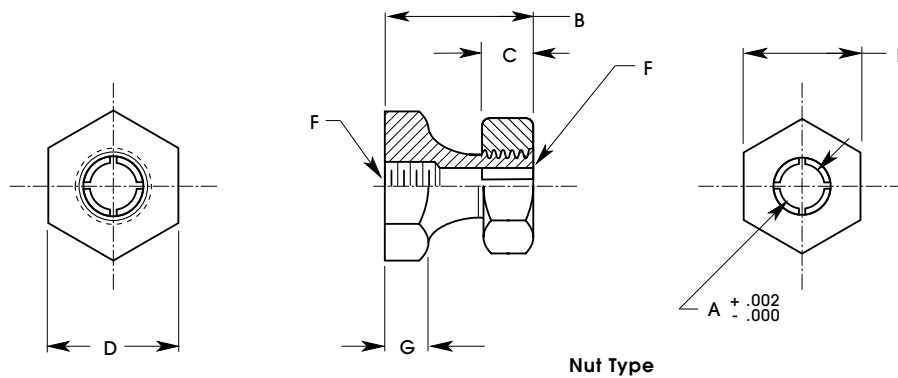
Hand Type

A	B	C	D	E	F	G	SHAFT DIAMETER	CATALOG NUMBER
.127	1/2	.218	3/8	3/4	1/4 x 32	.187	1/8	EH25-1
.252	1/2	.218	1/2	1	3/8 x 32	.187	1/4	EH25-2



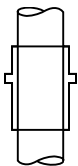
Hand Type

A	B	C	D	E	F	G	H	SHAFT DIAMETER	CATALOG NUMBER
.127	1/2	.343	5/8	3/8	3/4	1/4 x 32	.187	1/8	EH25-3
.252	1/2	.343	5/8	1/2	1	3/8 x 32	.187	1/4	EH25-4



Nut Type

A	B	C	D	E	F	G	SHAFT DIAMETER	CATALOG NUMBER
.127	3/8	.150	5/16	5/16	1/4 x 32	.140	1/8	EH25-5
.127	7/16	.187	5/16	3/8	1/4 x 32	.156	1/8	EH25-6
.127	1/2	.218	5/16	3/8	1/4 x 32	.187	1/8	EH25-7
.252	1/2	.250	7/16	1/2	3/8 x 32	.187	1/4	EH25-8
.252	9/16	.250	7/16	1/2	3/8 x 32	.187	1/4	EH25-9

**SECS -LO -F Low Friction Bearing systems for linear Rotary Motion**

The SECS line of low friction , self lubricating bearing system components for linear and/ or rotary motion applications offers a low cost efficient, and easy to use alternative to ball and roller bearings. The line includes aluminum and steel shafts, closed and opened type precision bushings, thin wall sleeve and flange bushings, opens type and closed, fixed diameter closed and open pillow blocks, and shaft carriers. These components provide a practical and inexpensive component set, suitable for a wide variety of bearing applications such as mechanisms for industrial and computer equipment applications. They may be used with other components in this catalog in complete mechanical packages.

**Special application Features**

The SECS - LO- F bearing system is inherently much more compact and easier to use than comparable ball and roller bearing systems. Since there are neither balls or rollers, the bearing system components are smaller. Especially notable in this respect is SECS' unique line of integral pillow blocks in which the bearing surfaces are coated directly on to the block bore. The shaft goes directly into the pillow block without the need for additional mounting components, thus providing the ultimate in simplification.

SECS also offers a line of standard, competitively sized bushings, as well as a corresponding miniature line. Because there are no brinelling problems, such as occur with ball and roller bearings, the SECS bushings may be assembled into place by utilizing an interference fit. The recommended hole dimension for installation of SECS bushings is nominal to .0005 undersized. Aside from simplifying assembly, no lock washers, grooves and shimming are required.

This unique SECS product line now makes possible simple rugged packaging, easy assembly, and noncritical field maintenance of mechanical and electromechanical equipment.

**Engineering Features**

The key to the bearing system is the use of a very hard, low friction coefficient self-lubricating coating applied to the aluminum shafts and bearing surfaces. This coating, 1-1/2 mils thick, has a high natural resistance to corrosion, (resists most acids), is electrically insulating, and has a 65-70 Rockwell C hardness.

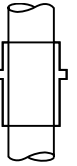
Steel shafts are AISI C-1060 case hardened and ground. Hardness: Rockwell 58 to 63 "C", and can be made available with the proprietary ARMOLLOY process.

**The Main Features of the Bearing System are Summarized Below:**

SECS-LO-F bearing may operate either linearly or in a rotary fashion, or in both modes simultaneously. Life is comparable to or exceeds that of more costly ball or roller types, when operated within load ratings.

They are self-lubricating, for clean, long life without the limitations of conventional lubricants. (They may be operated with added lubrication where required to special application, such as when completely immersed in a lubricant.)

The low coefficient of friction minimizes binding and chatter which may occur with higher friction bronze bearings.



They are inexpensive, appreciably less than the ball and roller alternatives.

They are ideal for the special requirements of simplicity, reliability and ease-of-maintenance, as required in equipment for the computer and aircraft industries.

They operate more quietly than ball and roller bearings, important in many computer room applications.

They do not brinell the shaft and are not damaged by intermittent peak loads, assembly is relatively noncritical.

They are more compact and lighter, for tight packaging requirements, low inertia assemblies.

They are electrically nonconductive, and do not provide a "noisy" intermittent path of electrical charge.

Corrosion resistance is excellent, the coating has passed the 240 hour salt spray test of para 811.1 of Federal Test Standard 751, is impervious to highly corrosive petroleum-based acids, and should operate without corrosion for more than 5 years in industrial environments.

Aluminum and steel shafts are available, the latter preferred for higher load capability.

They operate safely at very high temperatures when appropriately derated.

Assembly is less critical since bushings are relatively immune to damage from small inference fits in the their housing. Therefore they are easy to use.

Special assembly techniques have been devised using loose fits and locking in place with an appropriate bonding agent as part of an assembly alignment procedure. Contact SECS if additional information on these techniques is required.

The coefficient of friction varies, depending on load, comparing well with ball and roller bearing types under light load as in many computer equipment applications. The coefficient of friction increases to 0.1 at higher loads.

Load capacity for life of many millions of inches of linear motion, or many millions of rotations, may be estimated from the following formula:

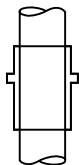
$$\text{Load (lbs.)} = \frac{K \cdot d^2 \cdot L}{L+d}$$

where  $d$  = Bearing Diameter, inches  
 $L$  = Bearing Length, inches  
 $K$  is a Proportionally constant approximately equal to 100 for thin-wall and flange bushings and Equal to 150 for standard bushings

The load determined by this formula permits substantially indefinite operation with negligible wear. Much higher loads can be handled for correspondingly reduced intervals. Check with SECS about higher load requirements.

# SECS-LO-F® PRECISION SHAFTS

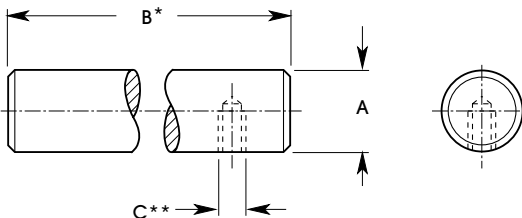
Shafts 1/8" thru 1"



USE IN CONJUNCTION WITH  
ULTRA-LO-F BUSHINGS,  
PILLOW BLOCKS and SHAFT CARRIERS

**Material:**

ALUMINUM ALLOY 6061-T6  
with ULTRA-LO-F® Finish  
Hardened: Rockwell 65-70 "C"  
STEEL-AISI C-1060  
Case Hardened & Ground  
Hardness: Rockwell 58-63 "C"  
(Special ARMOLOY® finish  
Available on Request)



A -.0005	B* +.030	C**	CATALOG NUMBER/MATERIAL	
			ALUMINUM	STEEL
.1245	19" MAX.		SLFSA-1	NOT AVAILABLE
.2495	SPECIFY	#2-64-NF	SLFSA-2	SLFSS-2
.3745	PART	#8-36-NF	SLFSA-3	SLFSS-3
.4995	NUMBER	#12-28-NF	SLFSA-5	SLFSS-5
.6245	PLUS	5/16-24-NF-UNF	SLFSA-6	SLFSS-6
.7495	REQUIRED	5/16-24-NF-UNF	SLFSA-7	SLFSS-7
.9995	LENGTH	3/8-24-UNF	SLFSA-10	SLFSS-10

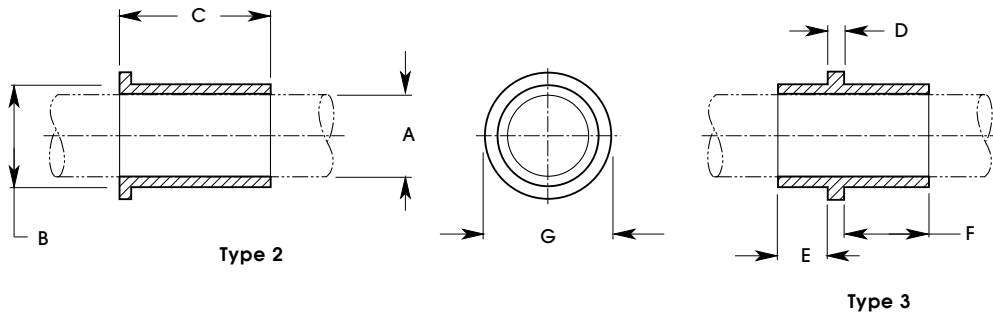
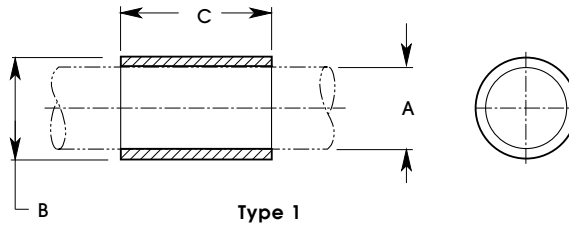
\*Aluminum shafts available up to 36 inches  
Steel Shafts available up to 8 feet

\*\*Shafts are supplied less tapped holes, if  
required it is suggested Secs Supply drilled  
or tapped shafts to your specifications

# THIN WALL BUSHINGS SECS-LO-F®

Shafts 1/8" thru 1"  
Aluminum 6061-T6 with Ultra-Lo-F® Finish

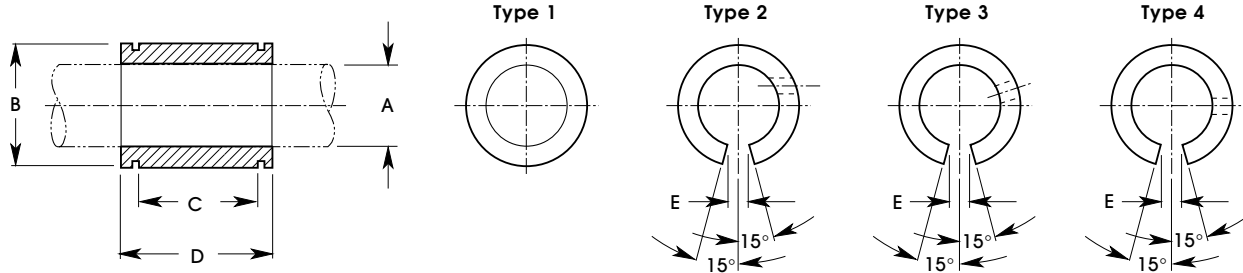
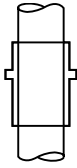
USE IN CONJUNCTION WITH SECS-LO-F PRECISION SHAFTS



A +.001	B -.001	C +.010	D	E	F	G	FIGURE REFERENCE	CATALOG NUMBER
.1250	.2500	.250					1	SLFBM-1-1
.2500	.3750	.375				SLFBM-1-2		
.3750	.5000	.437				SLFBM-1-3		
.5000	.6250	.625				SLFBM-1-5		
.6250	.7500	.750				SLFBM-1-6		
.7500	.9380	.812				SLFBM-1-7		
1.0000	1.1870	1.125				SLFBM-1-10		
.1250	.2500	.250	.062			.375	2	SLFBM-2-1
.2500	.3750	.375	.062			.500		SLFBM-2-2
.3750	.5000	.437	.062			.625		SLFBM-2-3
.5000	.6250	.625	.093			.750		SLFBM-2-5
.6250	.7500	.750	.093			.937		SLFBM-2-6
.7500	.9380	.812	.125			1.499		SLFBM-2-7
1.0000	1.1870	1.125	.125			1.562		SLFBM-2-10
.1250	.2500		.062	.094	.094	.375	3	SLFBM-3-1
.2500	.3750		.062	.156	.156	.500		SLFBM-3-2
.3750	.5000		.062	.125	.250	.625		SLFBM-3-3
.5000	.6250		.093	.250	.313	.750		SLFBM-3-5
.6250	.7500		.093	.250	.407	.937		SLFBM-3-6
.7500	.9380		.125	.312	.375	1.499		SLFBM-3-7
1.0000	1.1870		.125	.312	.688	1.562		SLFBM-3-10

# SECS-LO-F® CLOSED & OPEN BUSHINGS

Shafts 1/8" thru 1"  
 Aluminum 6061-T6 with Ultra-Lo-F® Finish  
 Hardness Rockwell 65-70 "C"

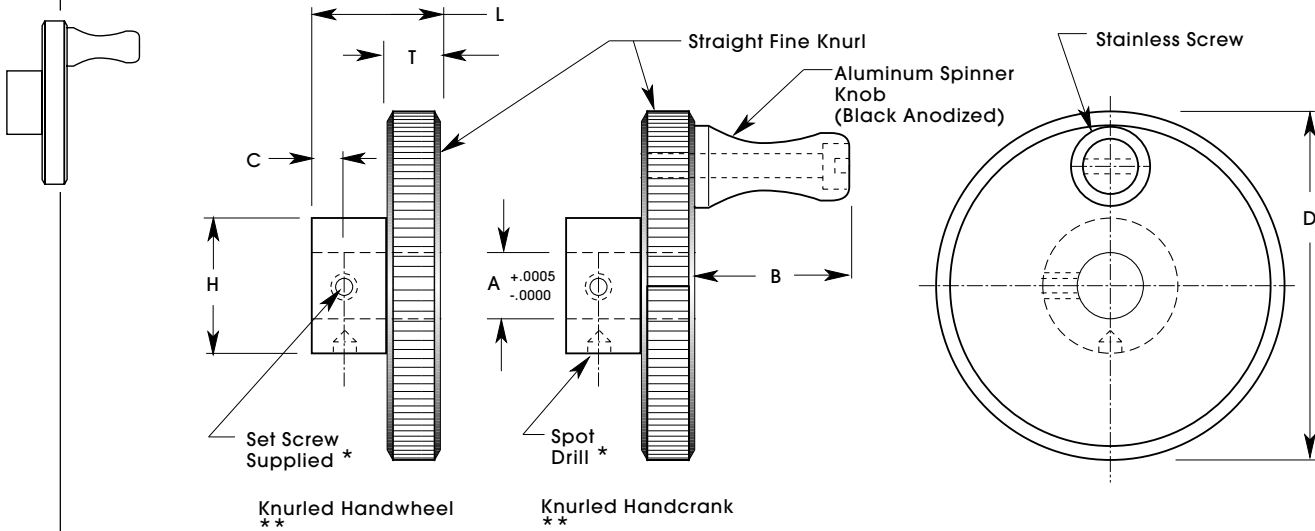


A +.001	B -.001	C +.010	D	E	FIGURE REFERENCE	CATALOG NUMBER
.1250	.250	.375	.500		1	SLFB-1-1
.2500	.500	.437	.750			SLFB-1-2
.3750	.625	.625	.875			SLFB-1-3
.5000	.875	.940	1.250			SLFB-1-5
.6250	1.125	1.000	1.500			SLFB-1-6
.7500	1.250	1.160	1.625			SLFB-1-7
1.0000	1.562	1.750	2.250			SLFB-1-10
.5000	.875	.940	1.250	5/16	2	SLFB-2-5
.6250	1.125	1.000	1.500	3/8		SLFB-2-6
.7500	1.250	1.160	1.625	7/16		SLFB-2-7
1.0000	1.562	1.750	2.250	9/16		SLFB-2-10
.5000	.875	.940	1.250	5/16	3	SLFB-3-5
.6250	1.125	1.000	1.500	3/8		SLFB-3-6
.7500	1.250	1.160	1.625	7/16		SLFB-3-7
1.0000	1.562	1.750	2.250	9/16		SLFB-3-10
.5000	.875	.940	1.250	5/16	4	SLFB-4-5
.6250	1.125	1.000	1.500	3/8		SLFB-4-6
.7500	1.250	1.160	1.625	7/16		SLFB-4-7
1.0000	1.562	1.750	2.250	9/16		SLFB-4-10

Grooves are Dimensioned to Accomodate Standard Retaining Ring Widths

# HANDCRANKS & HANDWHEELS

303 Stainless Steel  
Aluminum - Black Anodize



\* Aluminum Parts are Supplied with 2 Set Screws at 90°

\*\* Not Available on Aluminum Handcrank

303 STAINLESS STEEL

A	D	H	T	L	C	B	KNURLED HANDWHEEL	KNURLED HANDCRANK
							CATALOG NUMBER	CATALOG NUMBER
.1248 (1/8)	1 1-1/2 2	5/16	3/16	.375	.09	3/4	SENC1-1 SENC1-2 SENC1-3	SENC2-1 SENC2-2 SENC2-3
.1873 (3/16)	1 1-1/2 2	3/8	3/16	.406	.11	3/4	SENC1-4 SENC1-5 SENC1-6	SENC2-4 SENC2-5 SENC2-6
.2498 (1/4)	1 1-1/2 2	1/2	3/16	.437	.12	3/4	SENC1-7 SENC1-8 SENC1-9	SENC2-7 SENC2-8 SENC2-9
.3123 (5/16)	1 1-1/2 2	1/2	3/16	.437	.12	3/4	SENC1-10 SENC1-11 SENC1-12	SENC2-10 SENC2-11 SENC2-12
.3748 (3/8)	2 2-1/2 3	3/4	3/8	.875	.25	31/32	SENC1-13 SENC1-14 SENC1-15	SENC2-13 SENC2-14 SENC2-15
.4998 (1/2)	2-1/2 3 4	1	3/8	.875	.25	31/32	SENC1-16 SENC1-17 SENC1-18	SENC2-16 SENC2-17 SENC2-18

ALUMINUM BLACK ANODIZED

A	D	H	T	L	C	KNURLED HANDWHEEL	KNURLED HANDCRANK
						CATALOG NUMBER	CATALOG NUMBER
.125 (1/8)	1-1/8 1-5/8	5/8	3/16	7/16	3/4	SENC11-1 SENC11-2	SENC21-1 SENC21-2
.187 (3/16)	1-1/8 2-1/8	5/8	3/16	7/16	3/4	SENC11-3 SENC11-4	SENC21-3 SENC21-4
.250 (1/4)	1-5/8 2-1/8	5/8	3/16	7/16	3/4	SENC11-5 SENC11-6	SENC21-5 SENC21-6
.375 (3/8)	1-5/8 2-5/8	1	1/2	3/4	3/4 31/32	SENC11-7 SENC11-8	SENC21-7 SENC21-8
.500 (1/2)	2-5/8 3-1/2	1	1/2	3/4	31/32	SENC11-9 SENC11-10	SENC21-9 SENC21-10

# FAST LOCKING HUBS

Stainless Steel  
\*Tool Steel

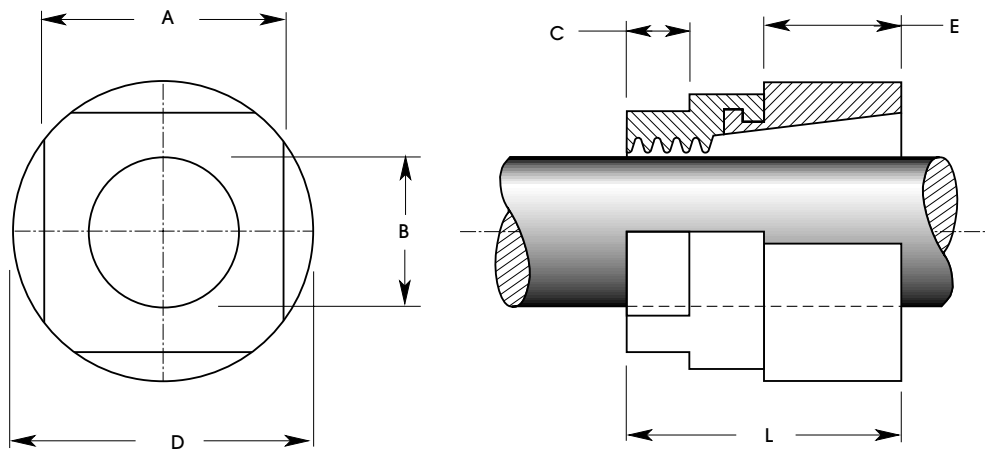
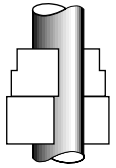
Simple and Fast Installation - Just Tighten  
Use With Commercial Shafting

NO DRILLING

NO PINNING

NO CLAMPING

Diameter "B" and "D" Concentric to .002\*



### Engineering Design Data

1A - Maximum in-oz of Torque that can be Transmitted

2A - Maximum Lbs of Thrust that can be Transmitted

3A - PSI Exerted on Hub

4A - PSI Exerted on Shaft

5A - Pounds of Torque Needed to Obtain Maximum Torque and

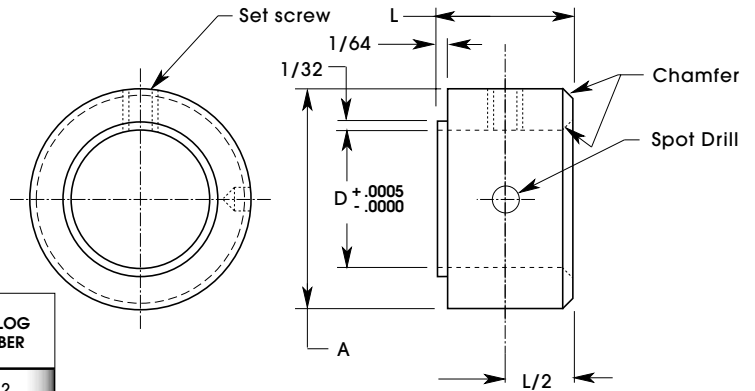
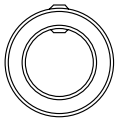
Thrust "1A" & "2A" at Initial Installation

B	D	L	E	A	C	1A	2A	3A	4A	5A	CATALOG NUMBER	
											STAINLESS STEEL	TOOL STEEL
3/16	5/8	3/4	3/8	1/2	1/8	100	700	5200	6800	125	SEHQ-SS3	SEHQ-TS3
1/4	5/8	3/4	3/8	1/2	1/8	150	788	5200	5700	125	SEHQ-SS4	SEHQ-TS4
5/16	3/4	7/8	7/16	5/8	1/8	200	892	3700	3650	150	SEHQ-SS5	SEHQ-TS5
3/8	3/4	7/8	7/16	5/8	1/8	250	925	3700	3050	150	SEHQ-SS6	SEHQ-TS6
1/2	7/8	1	1/2	3/4	3/16	350	980	2700	2500	175	SEHQ-SS8	SEHQ-TS8
5/8	1	1-1/8	5/8	7/8	3/16	450	995	1800	1580	200	SEHQ-SS10	SEHQ-TS10
11/16	1-1/2	1-1/2	3/4	1-1/4	5/16	1800	3500	5000	5500	1200	SEHQ-SS11	SEHQ-TS11
3/4	1-1/2	1-1/2	3/4	1-1/4	5/16	1800	4000	5000	5000	1200	SEHQ-SS12	SEHQ-TS12



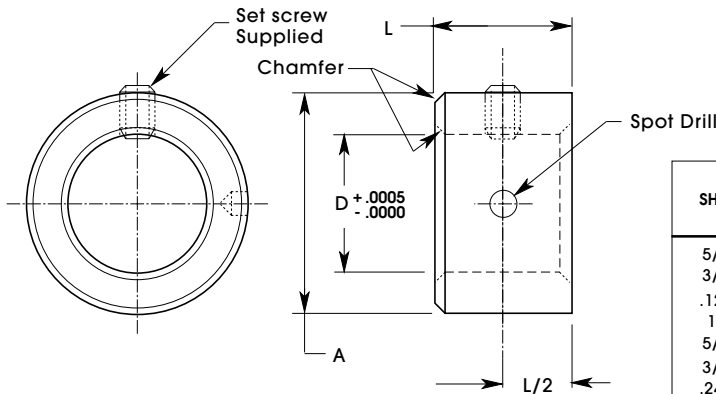
# PRECISION SHAFT COLLARS

303 Stainless Steel  
For Shafts 5/64" to 1-1/4"  
Precision Bores



SHAFT	D	L	A	SPOT DRILL	SET SCREW	CATALOG NUMBER
5/64	.0779	.120	7/32	# 78 (.016)	# 0-80	EH2-12
3/32	.0935	.120	1/4	# 78 (.016)	# 0-80	EH2-13
1/8	.1248	.180	5/16	# 69 (.028)	# 2-56	EH2-14
5/32	.1560	.180	5/16	# 69 (.028)	# 2-56	EH2-15
3/16	.1873	.220	3/8	# 60 (.040)	# 4-40	EH2-16
.2405	.2405	.250	1/2	# 50 (.070)	# 6-32	EH2-17
1/4	.2498	.250	1/2	# 50 (.070)	# 6-32	EH2-18
5/16	.3123	.250	1/2	# 50 (.070)	# 6-32	EH2-19
3/8	.3748	.375	3/4	# 31 (.120)	# 10-32	EH2-20
1/2	.4998	.437	1	# 25 (.149)	1/4-20	EH2-21
5/8	.6248	.500	1-1/4	# 25 (.149)	1/4-20	EH2-22
3/4	.7498	.562	1-1/2	# 22 (.157)	3/8-16	EH2-23
1	.9998	.625	2	# 22 (.157)	3/8-16	EH2-24
1-1/4	1.2498	.750	2-1/4	# 22 (.157)	3/8-16	EH2-25

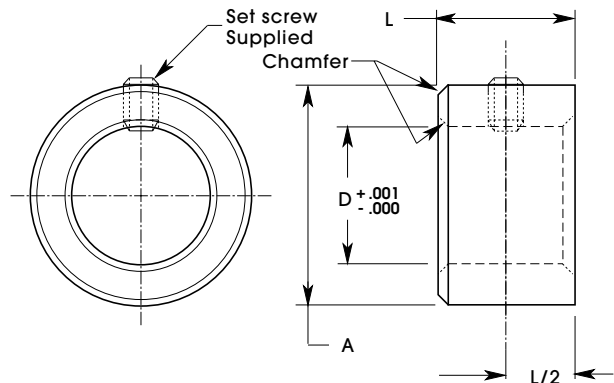
303 Stainless Steel  
For Shafts 5/64" to 1/2"  
Precision Bores



SHAFT	D	L	A	SPOT DRILL	SET SCREW	CATALOG NUMBER
5/64	.0779	.120	7/32	# 78 (.016)	# 0-80	EH2-9
3/32	.0935	.120	1/4	# 78 (.016)	# 0-80	EH2-10
.1200	.1200	.180	5/16	# 69 (.028)	# 2-56	EH2-4
1/8	.1248	.180	5/16	# 69 (.028)	# 2-56	EH2-1
5/32	.1560	.180	5/16	# 69 (.028)	# 2-56	EH2-5
3/16	.1873	.220	3/8	# 60 (.040)	# 4-40	EH2-2
.2405	.2405	.250	1/2	# 50 (.070)	# 6-32	EH2-6
1/4	.2498	.250	1/2	# 50 (.070)	# 6-32	EH2-3
5/16	.3123	.280	9/16	# 50 (.070)	# 6-32	EH2-7
3/8	.3748	.375	3/4	# 31 (.120)	# 10-32	EH2-8
1/2	.4998	.500	1	# 25 (.149)	1/4-20	EH2-11

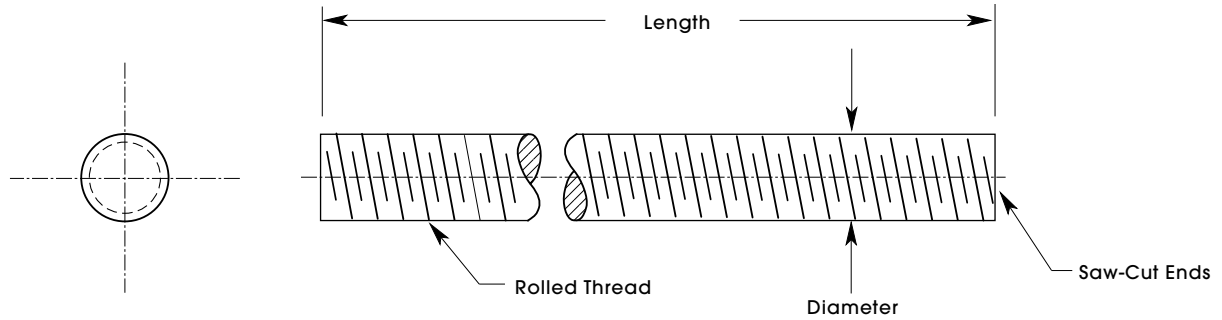
Cold Rolled Steel - Zinc Plated  
For Shafts 1/8" to 1-1/4"  
Commercial Bores

D	A	L	SET SCREW	CATALOG NUMBER
.125	3/8	1/4	# 6	EH2-26
.188	7/16	1/4	# 8	EH2-27
.250	1/2	5/16	# 10	EH2-28
.313	5/8	5/16	# 10	EH2-29
.375	3/4	3/8	1/4	EH2-30
.500	1	7/16	1/4	EH2-31
.625	1-1/8	1/2	1/4	EH2-32
.750	1-1/4	9/16	5/16	EH2-33
1.000	1-5/8	5/8	5/16	EH2-34
1.250	2	11/16	3/8	EH2-35



# THREADED STAINLESS ROD

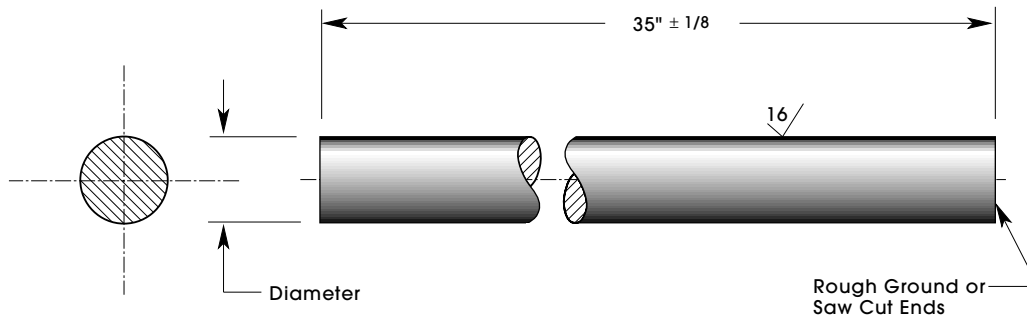
303 Stainless Steel  
Class 2A Thread  
Threads #2-56 thru 1/2-20



THREAD SIZE	LENGTH	DIAMETER	THREAD PITCH	CATALOG NUMBER
# 2-56	12	.086	.018	TSS-1
# 4-40	12	.112	.025	TSS-2
# 4-40	24	.112	.025	TSS-14
# 6-32	12	.138	.031	TSS-3
# 6-32	24	.138	.031	TSS-15
# 8-32	12	.164	.031	TSS-4
# 8-32	24	.164	.031	TSS-16
# 10-24	16	.190	.042	TSS-5
# 10-24	24	.190	.042	TSS-17
# 10-32	16	.190	.031	TSS-6
# 10-32	24	.190	.031	TSS-18
1/4-20	24	1/4	.050	TSS-7
1/4-28	24	1/4	.036	TSS-8
5/16-18	24	5/16	.055	TSS-9
5/16-24	24	5/16	.042	TSS-19
3/8-16	24	3/8	.062	TSS-10
3/8-24	24	3/8	.042	TSS-20
3/8-32	24	3/8	.031	TSS-11
1/2-13	36	1/2	.077	TSS-12
1/2-20	36	1/2	.050	TSS-13

# GROUND AND HARDENED SHAFTS

Cold Rolled Steel  
 Diameters 1/8 thru 1-1/4

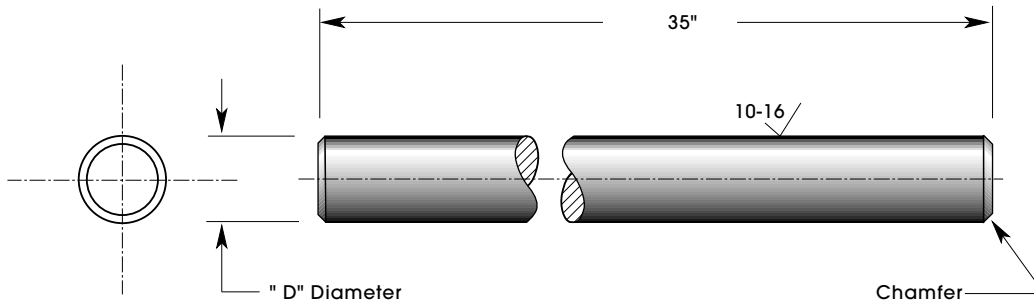


**Material:**  
 12L14 or 12L15 COLD ROLLED STEEL  
 LEADED

**Finish:**  
 OILED as an ANTI-OXIDENT  
 ROCKWELL B75-95

FRACTIONAL DIAMETER REFERENCE	ACTUAL DIAMETER	CATALOG NUMBER
1/8	.1247	HGSS-1
3/16	.1872	HGSS-2
1/4	.2497	HGSS-3
5/16	.3122	HGSS-4
3/8	.3747	HGSS-5
1/2	.4997	HGSS-6
5/8	.6247	HGSS-7
3/4	.7497	HGSS-8
1	.9997	HGSS-9
1-1/4	1.2497	HGSS-10

C1060 Steel Hardened to C60 - C65  
 440 Steel Hardened to C50 - C55



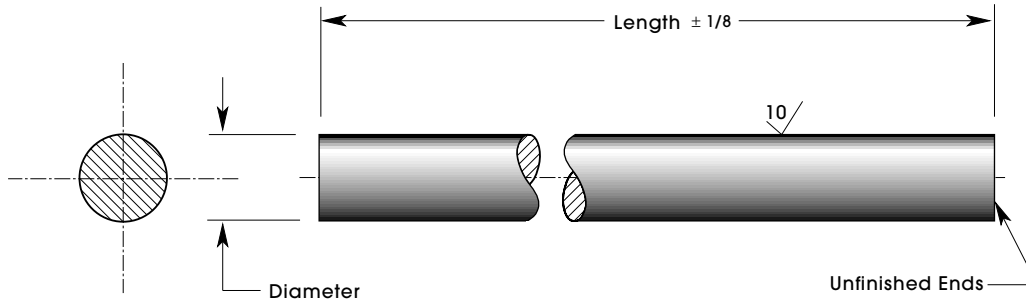
NOM. DIA.	D DIAMETER	MAX. LENGTH AVAILABLE TO ORDER	CATALOG NUMBER	
			C1060 STEEL	440 STEEL
1/4	.2490 -.0005	8 FT.	HGSS-11	-----
	.2495 -.0005		HGSS-12	-----
3/8	.3740 -.0005	11 FT.	HGSS-13	-----
	.3745 -.0005		HGSS-14	-----
	.3750 -.0005		HGSS-15*	-----
1/2	.4990 -.0005	11 FT.	HGSS-16	HGSS-28
	.4995 -.0005		HGSS-17	HGSS-29
	.5000 -.0005		HGSS-18*	-----
3/4	.7490 -.0005	11 FT.	HGSS-19	HGSS-24
	.7495 -.0005		HGSS-20	HGSS-25
	.7500 -.0005		HGSS-21*	-----
1	.9990 -.0005	12 FT.	HGSS-22	HGSS-26
	.9995 -.0005		HGSS-23	HGSS-27

\* These Shafts are also Available in 12" Lengths

# PRECISION GROUND SHAFTS

303 Stainless Steel Rockwell B75 - 90

Diameters 1/32 thru 1-1/4

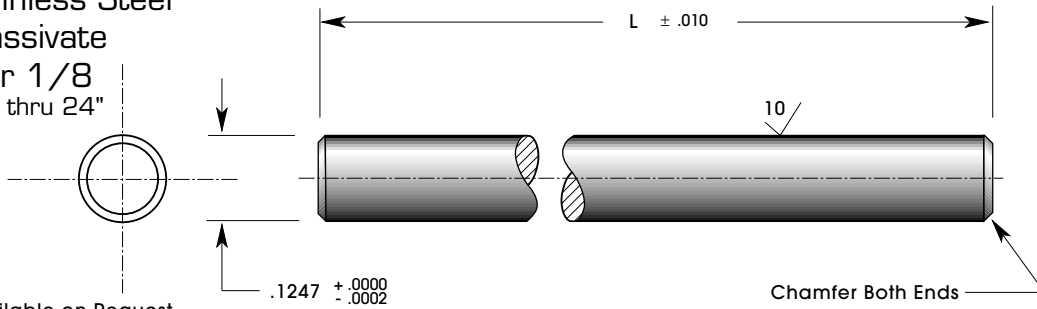


FRACTIONAL DIAMETER REF	ACTUAL DIAMETER	DIAMETER TOLERANCE +.0000	LENGTH	CATALOG NUMBER
1/32	.0313	-.0002	12	SS 1074
	.0317	-.0002	12	SS 1075
3/64	.0467	-.0002	12	SS 1076
1/16	.0548	-.0002	12	SS 1077
	.0622	-.0002	12	SS 175
	.0626	-.0002	12	SS 174
	.0630	-.0002	12	SS 1078
5/64	.0778	-.0002	12	SS 1079
	.0778	-.0002	14	SS 1080
	.0781	-.0002	12	SS 1081
	.0781	-.0002	14	SS 1082
3/32	.0786	-.0002	12	SS 1083
	.0934	-.0002	12	SS 177
	.0934	-.0002	18	SS 1084
	.0938	-.0002	12	SS 176
1/8	.0938	-.0002	18	SS 1085
	.0942	-.0002	12	SS 1086
	.1247	-.0002	24	SS 180
	.1250	-.0002	24	SS 179
5/32	.1251	-.0002	12	SS 1087
	.1251	-.0002	24	SS 178
	.1255	-.0002	24	SS 1088
	.1559	-.0002	24	SS 182
3/16	.1562	-.0002	24	SS 181
	.1567	-.0002	24	SS 1089
	.1872	-.0002	24	SS 185
7/32	.1875	-.0002	24	SS 184
	.1887	-.0002	24	SS 183
	.2184	-.0002	24	SS 1090
1/4	.2187	-.0002	24	SS 1091
	.2192	-.0002	24	SS 1092
	.2490	-.0003	36	SS 1093
	.2495	-.0003	36	SS 1094
	.2497	-.0002	24	SS 188
	.2497	-.0002	36	SS 1095
	.2500	-.0002	24	SS 187
	.2500	-.0002	36	SS 1096
	.2502	-.0002	36	SS 186
.2505	-.0002	36	SS 1097	

FRACTIONAL DIAMETER REF	ACTUAL DIAMETER	DIAMETER TOLERANCE +.0000	LENGTH	CATALOG NUMBER
5/16	.3122	-.0002	24	SS 1098
	.3125	-.0002	24	SS 1099
	.3130	-.0002	24	SS 1100
3/8	.3740	-.0003	36	SS 1101
	.3745	-.0003	36	SS 1102
	.3747	-.0002	16	SS 194
	.3747	-.0002	36	SS 1103
	.3750	-.0002	16	SS 193
	.3750	-.0002	36	SS 1104
1/2	.3755	-.0002	36	SS 1105
	.4990	-.0005	36	SS 1106
	.4995	-.0005	36	SS 1107
	.4997	-.0002	16	SS 197
	.4997	-.0002	36	SS 1108
	.5000	-.0002	16	SS 196
5/8	.5000	-.0002	36	SS 1109
	.5005	-.0002	36	SS 1110
	.6247	-.0004	36	SS 1111
	.6250	-.0004	36	SS 1112
3/4	.6255	-.0004	36	SS 1113
	.7490	-.0005	36	SS 1114
	.7495	-.0005	36	SS 1115
	.7497	-.0004	36	SS 1116
	.7500	-.0004	36	SS 1117
1	.7505	-.0004	36	SS 1118
	.9990	-.0005	36	SS 1119
	.9995	-.0005	36	SS 1120
	.9997	-.0004	36	SS 1121
	1.0000	-.0004	36	SS 1122
1-1/4	1.0005	-.0004	36	SS 1123
	1.2490	-.0005	36	SS 1124
	1.2495	-.0005	36	SS 1125
	1.2497	-.0004	36	SS 1126

# PRECISION GROUND SHAFTS

303 Stainless Steel \*  
Clear Passivate  
Diameter 1/8  
Lengths 1" thru 24"



\* 416 Available on Request

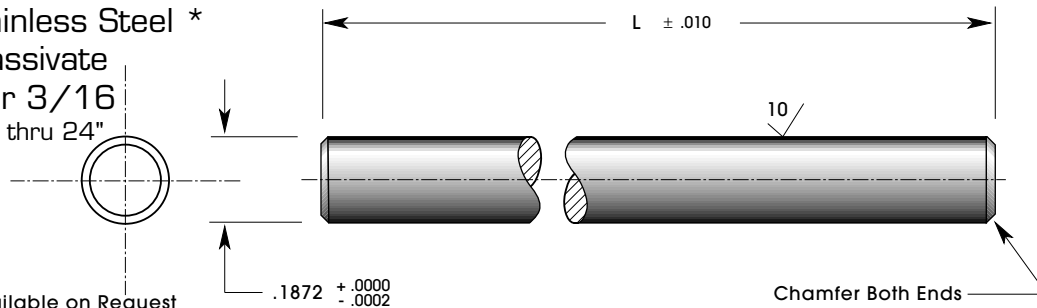
L	CATALOG NUMBER
1.000	SS 1
1.125	SS 2
1.250	SS 3
1.375	SS 4
1.500	SS 5
1.625	SS 6
1.750	SS 7
1.875	SS 8
2.000	SS 9
2.125	SS 10
2.250	SS 11
2.375	SS 12
2.500	SS 13
2.625	SS 14
2.750	SS 15
2.875	SS 16
3.000	SS 17
3.125	SS 18
3.250	SS 19
3.375	SS 20
3.500	SS 21
3.625	SS 22
3.750	SS 23
3.875	SS 24

L	CATALOG NUMBER
4.000	SS 25
4.125	SS 26
4.250	SS 27
4.375	SS 28
4.500	SS 29
4.625	SS 30
4.750	SS 31
4.875	SS 32
5.000	SS 33
5.125	SS 34
5.250	SS 35
5.375	SS 36
5.500	SS 37
5.625	SS 38
5.750	SS 39
5.875	SS 40
6.000	SS 41
6.125	SS 42
6.250	SS 43
6.375	SS 44
6.500	SS 45
6.625	SS 46
6.750	SS 47
6.875	SS 48

L	CATALOG NUMBER
7.000	SS 49
7.125	SS 50
7.250	SS 51
7.375	SS 52
7.500	SS 53
7.625	SS 54
7.750	SS 55
7.875	SS 56
8.000	SS 57
8.250	SS 1001
8.375	SS 1002
8.500	SS 1003
9.000	SS 1004
9.500	SS 1005

L	CATALOG NUMBER
10.000	SS 1006
11.000	SS 1007
12.000	SS 1008
13.000	SS 1009
14.000	SS 1010
15.000	SS 1011
16.000	SS 1012
18.000	SS 1013
20.000	SS 1014
22.000	SS 1015
24.000	SS 1016

303 Stainless Steel \*  
Clear Passivate  
Diameter 3/16  
Lengths 1" thru 24"



\* 416 Available on Request

L	CATALOG NUMBER
1.000	SS 58
1.125	SS 59
1.250	SS 60
1.375	SS 61
1.500	SS 62
1.625	SS 63
1.750	SS 64
1.875	SS 65
2.000	SS 66
2.125	SS 67
2.250	SS 68
2.375	SS 69
2.500	SS 70
2.625	SS 71
2.750	SS 72
2.875	SS 73
3.000	SS 74
3.125	SS 75
3.250	SS 76
3.375	SS 77
3.500	SS 78
3.625	SS 79
3.750	SS 80
3.875	SS 81

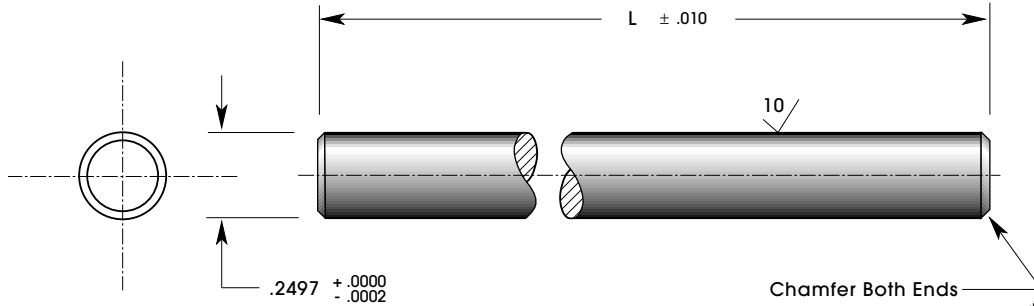
L	CATALOG NUMBER
4.000	SS 82
4.125	SS 83
4.250	SS 84
4.375	SS 85
4.500	SS 86
4.625	SS 87
4.750	SS 88
4.875	SS 89
5.000	SS 90
5.125	SS 91
5.250	SS 92
5.375	SS 93
5.500	SS 94
5.625	SS 95
5.750	SS 96
5.875	SS 97
6.000	SS 98
6.125	SS 99
6.250	SS 100
6.375	SS 101
6.500	SS 102
6.625	SS 103
6.750	SS 104
6.875	SS 105

L	CATALOG NUMBER
7.000	SS 106
7.125	SS 107
7.250	SS 108
7.375	SS 109
7.500	SS 110
7.625	SS 111
7.750	SS 112
7.875	SS 113
8.000	SS 114
8.250	SS 1017
8.375	SS 1018
8.500	SS 1019
9.000	SS 1020
9.500	SS 1021

L	CATALOG NUMBER
10.000	SS 1022
11.000	SS 1023
12.000	SS 1024
13.000	SS 1025
14.000	SS 1026
15.000	SS 1027
16.000	SS 1028
18.000	SS 1029
20.000	SS 1030
22.000	SS 1031
24.000	SS 1032

# PRECISION GROUND SHAFTS

303 Stainless \* - Clear Passivate  
Diameter 1/4  
Lengths 1" thru 24"



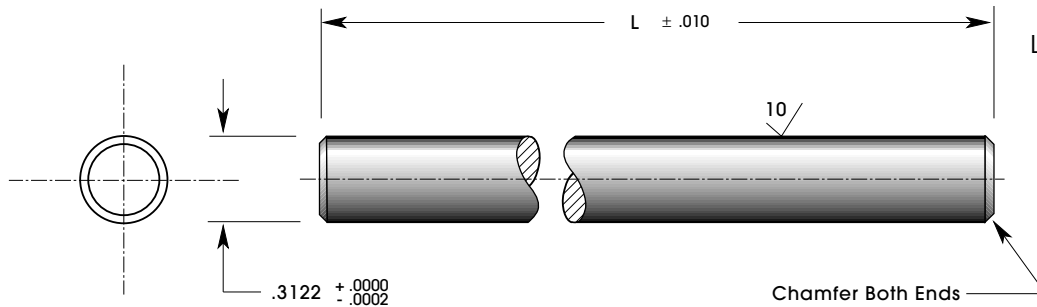
\* 416 Available on Request

L	CATALOG NUMBER
1.000	SS 115
1.125	SS 116
1.250	SS 117
1.375	SS 118
1.500	SS 119
1.625	SS 120
1.750	SS 121
1.875	SS 122
2.000	SS 123
2.125	SS 124
2.250	SS 125
2.375	SS 126
2.500	SS 127
2.625	SS 128
2.750	SS 129
2.875	SS 130
3.000	SS 131
3.125	SS 132
3.250	SS 133
3.375	SS 134
3.500	SS 135
3.625	SS 136
3.750	SS 137
3.875	SS 138

L	CATALOG NUMBER
4.000	SS 139
4.125	SS 140
4.250	SS 141
4.375	SS 142
4.500	SS 143
4.625	SS 144
4.750	SS 145
4.875	SS 146
5.000	SS 147
5.125	SS 148
5.250	SS 149
5.375	SS 150
5.500	SS 151
5.625	SS 152
5.750	SS 153
5.875	SS 154
6.000	SS 155
6.125	SS 156
6.250	SS 157
6.375	SS 158
6.500	SS 159
6.625	SS 160
6.750	SS 161
6.875	SS 162

L	CATALOG NUMBER
7.000	SS 163
7.125	SS 164
7.250	SS 165
7.375	SS 166
7.500	SS 167
7.625	SS 168
7.750	SS 169
7.875	SS 170
8.000	SS 171
8.250	SS 1033
8.500	SS 1034
9.000	SS 1035
9.500	SS 1036
10.000	SS 1037
10.500	SS 1038
11.000	SS 1039
12.000	SS 1040
13.000	SS 1041
14.000	SS 1042
15.000	SS 1043
16.000	SS 1044
18.000	SS 1045
20.000	SS 1046
22.000	SS 1047
24.000	SS 1048

303 Stainless Steel \* - Clear Passivate  
Diameter 5/16  
Lengths 1-3/8" thru 24"



\* 416 Available on Request

L	CATALOG NUMBER
1.375	SS 2000
1.500	SS 2001
1.625	SS 2002
1.750	SS 2003
1.875	SS 2004
2.000	SS 2005
2.125	SS 2006
2.250	SS 2007
2.375	SS 2008
2.500	SS 2009
2.625	SS 2010
2.750	SS 2011
2.875	SS 2012

L	CATALOG NUMBER
3.000	SS 2013
3.125	SS 2014
3.250	SS 2015
3.375	SS 2016
3.500	SS 2017
3.750	SS 2018
3.875	SS 2019
4.000	SS 2020
4.125	SS 2021
4.250	SS 2022
4.375	SS 2023
4.500	SS 2024
4.750	SS 2025
4.875	SS 2026

L	CATALOG NUMBER
5.000	SS 2027
5.125	SS 2028
5.375	SS 2029
5.500	SS 2030
5.625	SS 2031
5.750	SS 2032
5.875	SS 2033
6.000	SS 2034
6.250	SS 2035
6.500	SS 2036
6.750	SS 2037
7.000	SS 2038
7.250	SS 2039
7.500	SS 2040
7.750	SS 2041

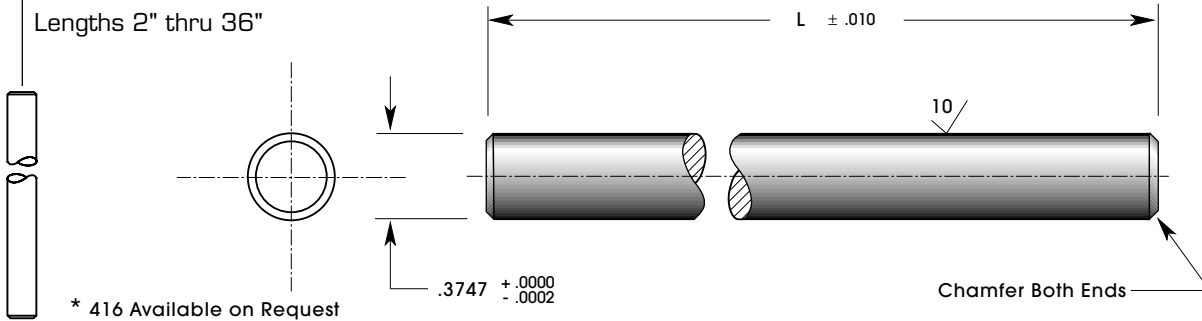
L	CATALOG NUMBER
8.000	SS 2042
8.500	SS 2043
9.000	SS 2044
9.500	SS 2045
10.000	SS 2046
11.000	SS 2047
12.000	SS 2048
13.000	SS 2049
14.000	SS 2050
15.000	SS 2051
16.000	SS 2052
18.000	SS 2053
20.000	SS 2054
22.000	SS 2055
24.000	SS 2056

# PRECISION GROUND SHAFTS

303 Stainless Steel \* - Clear Passivate

Diameter 3/8

Lengths 2" thru 36"



L	CATALOG NUMBER
2.000	SS 307
2.250	SS 308
2.500	SS 309
2.750	SS 310
3.000	SS 311
3.250	SS 312
3.500	SS 313
3.750	SS 314
4.000	SS 315
4.250	SS 316
4.500	SS 317
4.750	SS 318
5.000	SS 319
5.250	SS 320
5.500	SS 321
5.750	SS 322

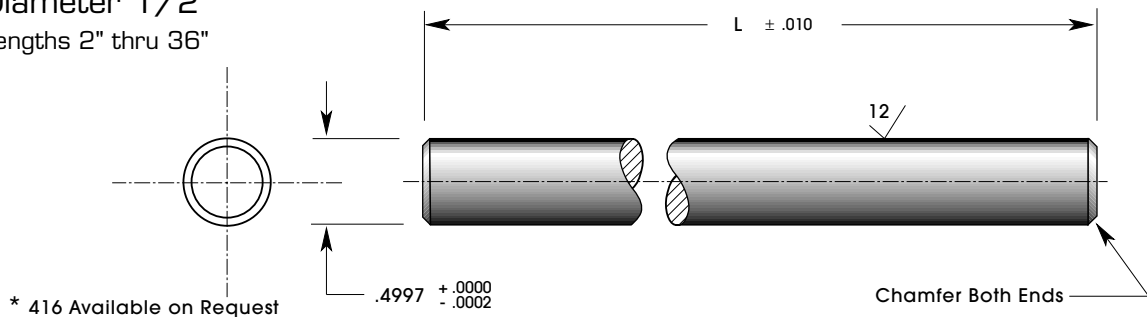
L	CATALOG NUMBER
6.000	SS 323
6.250	SS 324
6.500	SS 325
6.750	SS 326
7.000	SS 327
7.250	SS 328
7.500	SS 329
7.750	SS 330
8.000	SS 331
8.250	SS 332
8.500	SS 333
8.750	SS 334
9.000	SS 335
9.500	SS 336

L	CATALOG NUMBER
10.000	SS 337
11.000	SS 338
12.000	SS 339
13.000	SS 340
14.000	SS 341
15.000	SS 342
16.000	SS 343
18.000	SS 344
20.000	SS 345
22.000	SS 346
24.000	SS 347
26.000	SS 348
28.000	SS 349
30.000	SS 350
32.000	SS 351
34.000	SS 352
36.000	SS 353

303 Stainless Steel \* - Clear Passivate

Diameter 1/2

Lengths 2" thru 36"



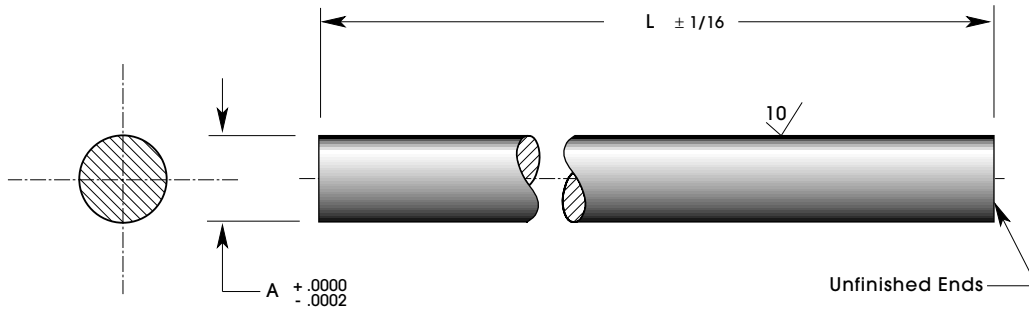
L	CATALOG NUMBER
2.000	SS 3001
2.125	SS 3002
2.250	SS 3003
2.375	SS 3004
2.500	SS 3005
2.625	SS 3006
2.750	SS 3007
2.875	SS 3008
3.000	SS 3009
3.125	SS 3010
3.250	SS 3011
3.375	SS 3012
3.500	SS 3013
3.625	SS 3014
3.750	SS 3015
3.875	SS 3016
4.000	SS 3017
4.125	SS 3018
4.250	SS 3019
4.375	SS 3020
4.500	SS 3021
4.625	SS 3022
4.750	SS 3023
4.875	SS 3024

L	CATALOG NUMBER
5.000	SS 3025
5.250	SS 3026
5.500	SS 3027
5.750	SS 3028
6.000	SS 3029
6.250	SS 3030
6.500	SS 3031
6.750	SS 3032
7.000	SS 3033
7.250	SS 3034
7.500	SS 3035
7.750	SS 3036
8.000	SS 3037
8.250	SS 3038
8.375	SS 3039
8.500	SS 3040
9.000	SS 3041
9.500	SS 3042

L	CATALOG NUMBER
10.000	SS 3043
11.000	SS 3044
12.000	SS 3045
13.000	SS 3046
14.000	SS 3047
15.000	SS 3048
16.000	SS 3049
18.000	SS 3050
20.000	SS 3051
22.000	SS 3052
24.000	SS 3053
26.000	SS 3054
28.000	SS 3055
30.000	SS 3056
32.000	SS 3057
34.000	SS 3058
36.000	SS 3059

# PRECISION GROUND SHAFTS

303 Stainless \* - Clear Passivate  
 Diameter 1/32 thru 1/2  
 Lengths 12" thru 24"



\* 416 Available on Request

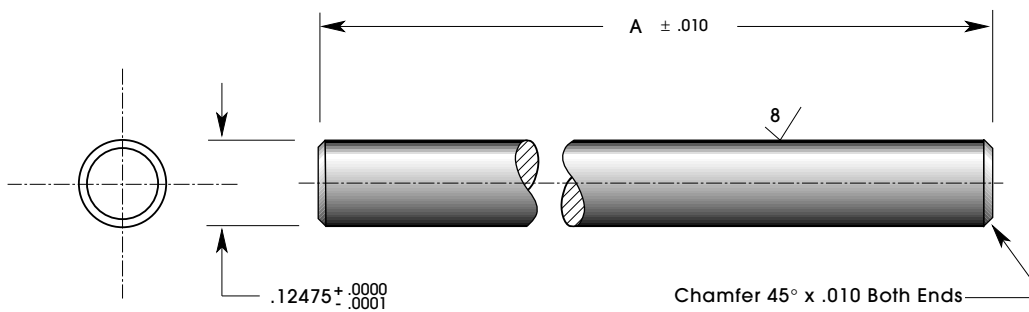
A	L	CATALOG NUMBER
.0626	12	SS 174
.0623	12	SS 175
.0938	12	SS 176
.0935	12	SS 177
.1252	24	SS 178
.1250	24	SS 179
.1247	24	SS 180
.1562	24	SS 181
.1560	24	SS 182
.1877	24	SS 183
.1875	24	SS 184
.1872	24	SS 185

A	L	CATALOG NUMBER
.2502	24	SS 186
.2500	24	SS 187
.2497	24	SS 188
.3127	16	SS 189
.3125	16	SS 190
.3123	16	SS 191
.3752	16	SS 192
.3750	16	SS 193
.3747	16	SS 194
.5002	16	SS 195
.5000	16	SS 196
.4997	16	SS 197

# ULTRA PRECISION GROUND SHAFTS

303 Stainless Steel - Clear Passivate  
 Diameter 1/8  
 Lengths 1" thru 5-3/8"

Straightness .0002 inch



L	CATALOG NUMBER
1.000	SS 198
1.125	SS 199
1.250	SS 200
1.375	SS 201
1.500	SS 202
1.625	SS 203
1.750	SS 204
1.875	SS 205
2.000	SS 206
2.125	SS 207
2.250	SS 208
2.375	SS 209
2.500	SS 210
2.625	SS 211
2.750	SS 212
2.875	SS 213

L	CATALOG NUMBER
3.000	SS 214
3.125	SS 215
3.250	SS 216
3.375	SS 217
3.500	SS 218
3.625	SS 219
3.750	SS 220
3.875	SS 221
4.000	SS 222
4.125	SS 223
4.250	SS 224
4.375	SS 225
4.500	SS 226
4.625	SS 227
4.750	SS 228
4.875	SS 229

L	CATALOG NUMBER
5.000	SS 230
5.125	SS 231
5.250	SS 232
5.375	SS 233



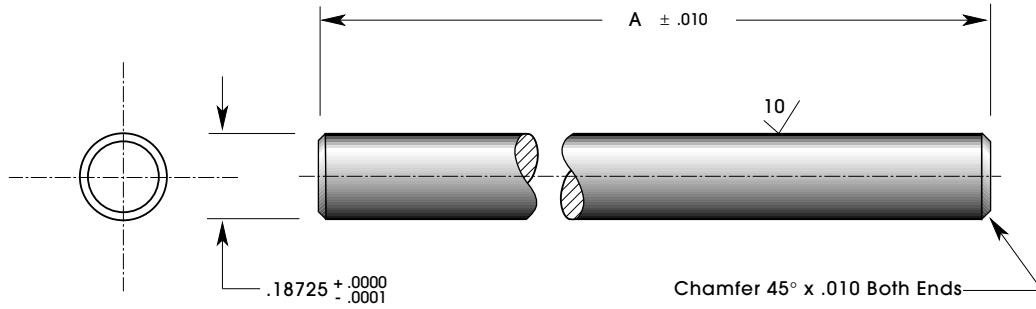
# PRECISION GROUND SHAFTS *ULTRA*

303 Stainless Steel - Clear Passivate

Diameter 1/4"

Lengths 1" thru 5-3/8"

Straightness .0002 inch



L	CATALOG NUMBER
1.000	SS 271
1.125	SS 272
1.250	SS 273
1.375	SS 274
1.500	SS 275
1.625	SS 276
1.750	SS 277
1.875	SS 278
2.000	SS 279
2.125	SS 280
2.250	SS 281
2.375	SS 282
2.500	SS 283
2.625	SS 284
2.750	SS 285
2.875	SS 286

L	CATALOG NUMBER
3.000	SS 287
3.125	SS 288
3.250	SS 289
3.375	SS 290
3.500	SS 291
3.625	SS 292
3.750	SS 293
3.875	SS 294
4.000	SS 295
4.125	SS 296
4.250	SS 297
4.375	SS 298
4.500	SS 299
4.625	SS 300
4.750	SS 301
4.875	SS 302

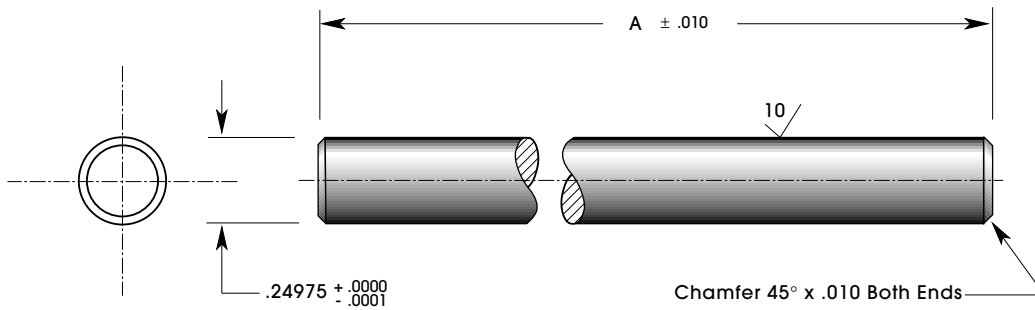
L	CATALOG NUMBER
5.000	SS 303
5.125	SS 304
5.250	SS 305
5.375	SS 306

303 Stainless Steel - Clear Passivate

Diameter 1/4"

Lengths 1" thru 5-3/8"

Straightness .0002 inch



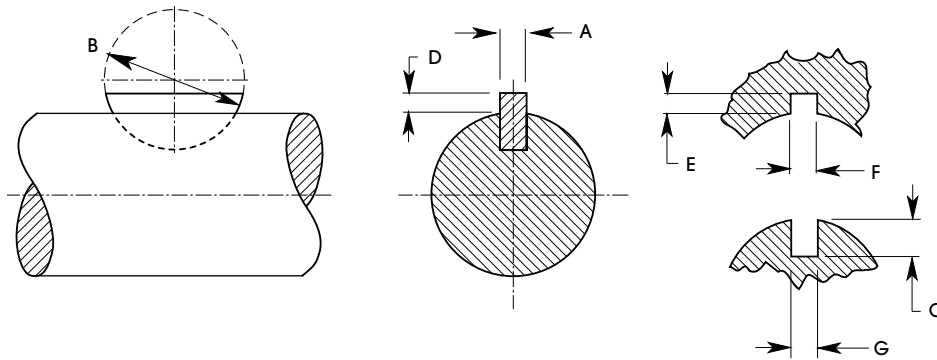
L	CATALOG NUMBER
1.000	SS 235
1.125	SS 236
1.250	SS 237
1.375	SS 238
1.500	SS 239
1.625	SS 240
1.750	SS 241
1.875	SS 242
2.000	SS 243
2.125	SS 244
2.250	SS 245
2.375	SS 246
2.500	SS 247
2.625	SS 248
2.750	SS 249
2.875	SS 250

L	CATALOG NUMBER
3.000	SS 251
3.125	SS 252
3.250	SS 253
3.375	SS 254
3.500	SS 255
3.625	SS 256
3.750	SS 257
3.875	SS 258
4.000	SS 259
4.125	SS 260
4.250	SS 261
4.375	SS 262
4.500	SS 263
4.625	SS 264
4.750	SS 265
4.875	SS 266

L	CATALOG NUMBER
5.000	SS 267
5.125	SS 268
5.250	SS 269
5.375	SS 270

# WOODRUFF KEYS

303 Stainless  
ANSI B17.2-1967, R 1978

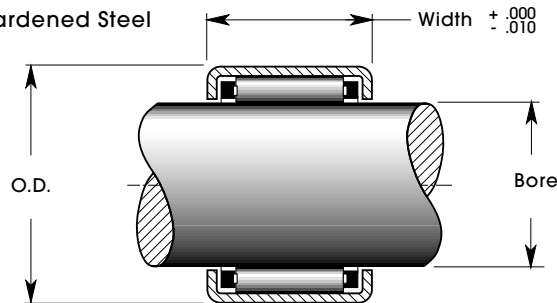


ANSI KEY No. (REF)	KEY SIZE		C + .005	D + .010	E + .005	F + .002	G + .0015	CATALOG NUMBER
	A + .001	B - .010						
202	.0625	.250	.0728	.0262	.0372	.0635	.0615	SEK-1
202.5	.0625	.312	.1038	.0262	.0372	.0635	.0615	SEK-2
302.5	.0938	.312	.0882	.0419	.0529	.0948	.0928	SEK-3
203	.0625	.375	.1358	.0262	.0372	.0635	.0615	SEK-4
303	.0938	.375	.1202	.0419	.0529	.0948	.0928	SEK-5
403	.1250	.375	.1045	.0575	.0685	.1260	.1240	SEK-6
204	.0625	.500	.1668	.0262	.0372	.0635	.0615	SEK-7
304	.0938	.500	.1511	.0419	.0529	.0948	.0928	SEK-8
404	.1250	.500	.1355	.0575	.0685	.1260	.1240	SEK-9
305	.0938	.625	.1981	.0419	.0529	.0948	.0928	SEK-10
405	.1250	.625	.1825	.0575	.0685	.1260	.1240	SEK-11
505	.1563	.625	.1669	.0731	.0841	.1573	.1553	SEK-12

# NEEDLE BEARINGS

High Velocity  
Demanding Loads  
Very Low Friction

**Material:**  
Roller Cup — Case Hardened Steel  
Needle Rollers — 521200 Hardened  
Bearing Cage — Low Hardened Steel

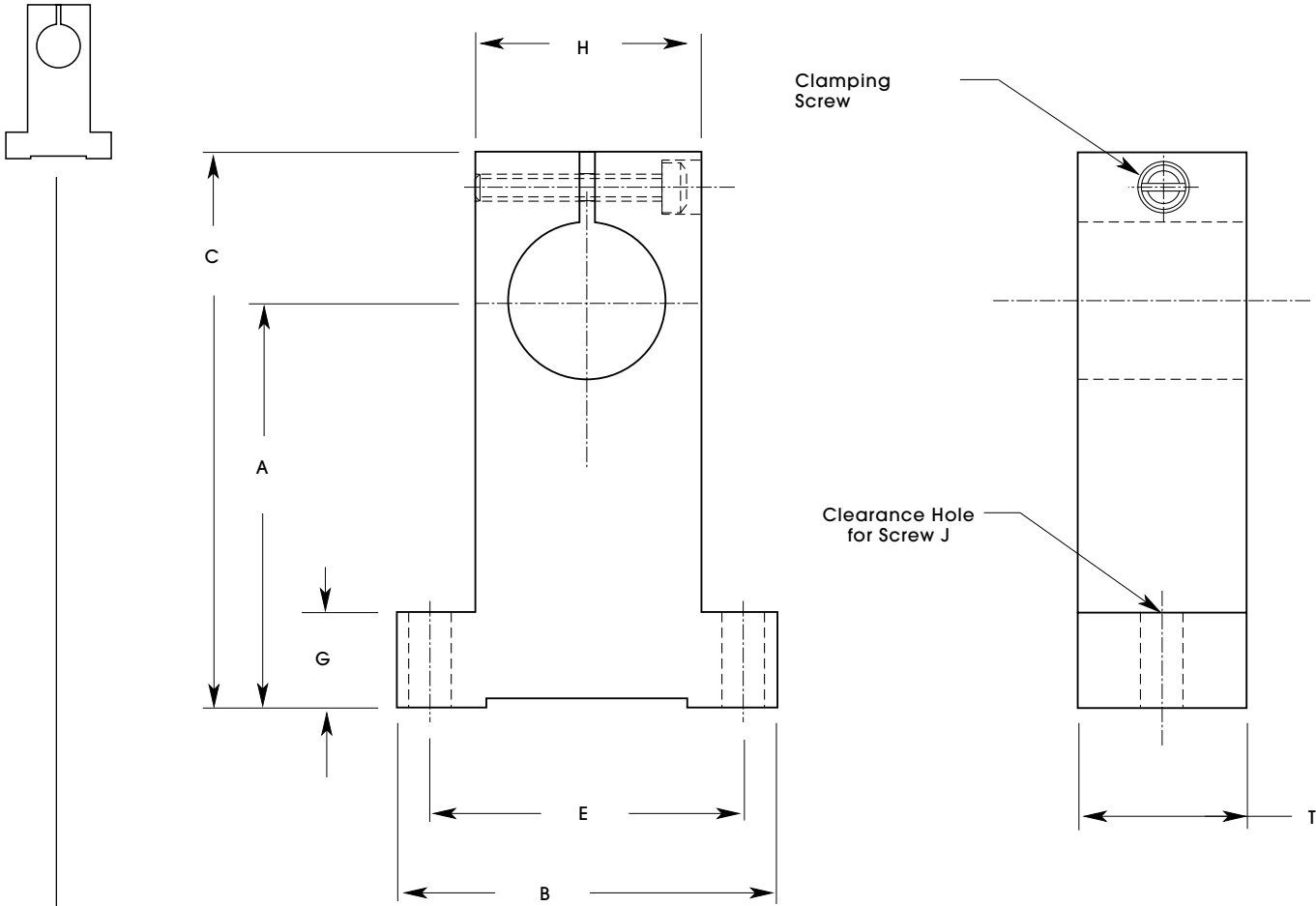


\* Plastic Bearing Cage

BORE	BEARING O.D.	HOUSING BORE DIAMETER	BEARING WIDTH	MAXIMUM SPEED RPM	DYNAMIC (lbs)	STATIC (lbs)	SHAFT DIAMETER	CATALOG NUMBER
1/8	.2500	.2500 - .2505	.250	70,000	161	80	.1250 - .1247	SE42BRN*
3/16	.3438	.3432 - .3437	.250	70,000	335	185	.1875 - .1872	SE43BRN*
3/16	.3438	.3432 - .3437	.375	70,000	540	345	.1875 - .1872	SE63BRN*
1/4	.4375	.4370 - .4380	.250	55,000	315	162	.2500 - .2495	SE44BRN
1/4	.4375	.4370 - .4380	.438	55,000	800	540	.2500 - .2495	SE74BRN
5/16	.5000	.4995 - .5005	.312	44,000	570	350	.3125 - .3120	SE55BRN
5/16	.5000	.4995 - .5005	.562	44,000	1,160	880	.3125 - .3120	SE95BRN
3/8	.5625	.5620 - .5630	.312	37,000	600	380	.3750 - .3745	SE56BRN
3/8	.5625	.5620 - .5630	.625	37,000	1,440	1,180	.3750 - .3745	SE016BRN
1/2	.6875	.6870 - .6880	.375	27,000	900	670	.5000 - .4995	SE68BRN
1/2	.6875	.6870 - .6880	.750	27,000	1,930	1,780	.5000 - .4995	SE218BRN
5/8	.8125	.8120 - .8130	.438	22,000	1,290	1,140	.6250 - .6245	SE701BRN
5/8	.8125	.8120 - .8130	.750	22,000	2,360	2,410	.6250 - .6245	SE2101BRN
3/4	1.0000	.9995 - 1.0005	.375	18,000	1,390	1,030	.7500 - .7495	SE621BRN
3/4	1.0000	.9995 - 1.0005	.750	18,000	3,000	2,750	.7500 - .7495	SE2121BRN
1	1.2500	1.2495 - 1.2505	.500	14,000	2,180	2,060	1.000 - .9995	SE861BRN
1	1.2500	1.2495 - 1.2505	1.000	14,000	4,650	5,200	1.000 - .9995	SE6161BRN

# SHAFT HANGER

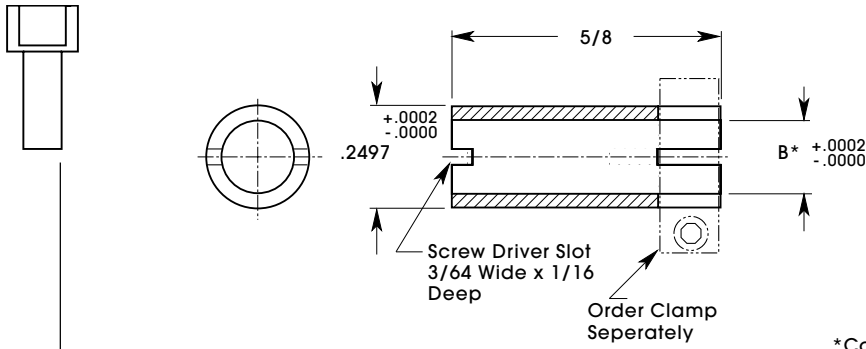
Black Anodized Aluminum  
Shafts 1/4" thru 1"



SHAFT DIA (REF)	$\pm .001$ A	B	C	E	T	G	H	J	CATALOG NUMBER
1/4	.562	1.13	1.13	.875	.38	.187	.63	# 6	SEHML-1
3/8	.687	1.25	1.31	.937	.50	.187	.63	# 8	SEHML-2
1/2	.750	1.50	1.44	1.125	.63	.250	.75	# 10	SEHML-3
3/4	1.062	1.88	1.88	1.500	.88	.500	1.00	1/4	SEHML-4
1	2.125	2.25	3.06	1.750	1.00	.625	1.25	1/4	SEHML-5

# SHAFT ADAPTER

303 Stainless Steel  
Shafts .1200" thru 3/16"

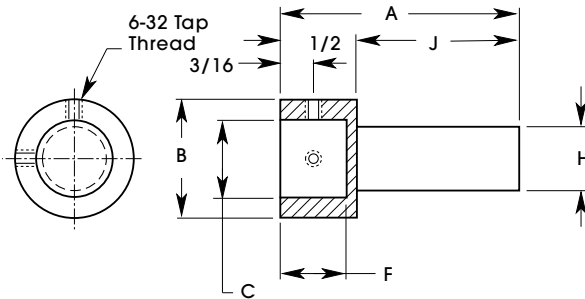


B BORE SIZE	SHAFT DIAMETER	CATALOG NUMBER
.1200	.1200	SEAS-3
.1248	1/8	SEAS-4
.1560	5/32	SEAS-1
.1772	.1772	SEAS-5
.1873	3/16	SEAS-2

\*Concentric Within .0003

# SHAFT EXTENDER AND REDUCER

303 Stainless Steel  
Shafts 1/4" thru 3/8"

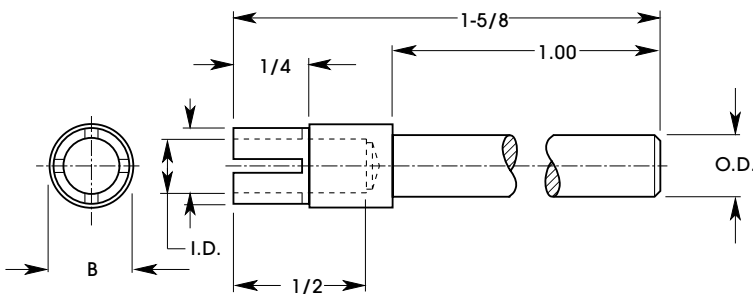


A	B	C	F	H	J	CATALOG NUMBER
1-1/8	7/16	1/4	3/8	1/4	5/8	EH21-2
1-1/8	7/16	1/4	7/16	1/4	5/8	EH21-3
1-1/8	7/16	1/4	7/16	3/8	5/8	EH21-4
1-1/8	7/16	1/4	3/8	3/8	5/8	EH21-5
1-3/4	7/16	1/4	7/16	1/4	1-1/4	EH21-6
1-3/4	7/16	1/4	3/8	1/4	1-1/4	EH21-7
1-1/8	1/2	1/4	7/16	1/4	5/8	EH21-8
1-1/8	1/2	1/4	3/8	1/4	5/8	EH21-9
1-3/4	1/2	1/4	7/16	1/4	1-1/4	EH21-10
1-3/4	1/2	1/4	3/8	1/4	1-1/4	EH21-11
1-1/8	1/2	1/4	7/16	3/8	5/8	EH21-12
1-1/8	1/2	1/4	3/8	3/8	5/8	EH21-13
1-3/4	1/2	1/4	7/16	3/8	1-1/4	EH21-14
1-3/4	1/2	1/4	3/8	3/8	1-1/4	EH21-15
1-1/8	9/16	3/8	7/16	12/4	5/8	EH21-16
1-1/8	9/16	3/8	3/8	1/4	5/8	EH21-17
1-3/4	9/16	3/8	7/16	1/4	1-1/4	EH21-18
1-3/4	9/16	3/8	3/8	1/4	1-1/4	EH21-19

Supplied with Two Set Screws @ 90°

# SHAFT EXTENDER *PRECISION*

303 Stainless Steel  
Shafts 1/8" thru 3/16"



SHAFT SIZE MALE FEMALE	I.D. +.0005 - .0000	O.D. +.0000 - .0003	A	B	CATALOG NUMBER
1/8 x 1/8	.1248	.1248	.188	.250	EH4-1
3/16 x 3/16	.1873	.1873	.250	.312	EH4-2
1/4 x 1/4	.2498	.2498	.312	.375	EH4-3
1/8 x 3/16	.1873	.1248	.250	.312	EH4-4
1/8 x 1/4	.2498	.1248	.312	.375	EH4-5
3/16 x 1/8	.2498	.1873	.312	.375	EH4-6
3/16 x 1/8	.1248	.1873	.188	.250	EH4-7
1/4 x 1/8	.1248	.2498	.188	.250	EH4-8
1/4 x 3/16	.1973	.2498	.250	.312	EH4-9
1/8 x .1200	.1200	.1248	.188	.250	EH4-10