

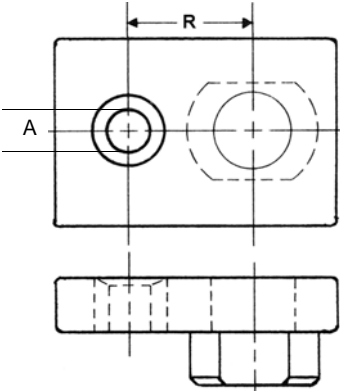
**LJ - LS - TLJ - HLS -  
HTW - TW Lock Screws**

# Lock Screw Locating Jigs for Lock Screws & Round Clamps



**\$46.11**

**TLJ & LJ LOCK SCREW LOCATING JIGS**

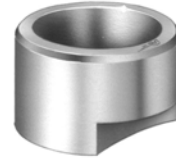


FOR CHART  
DIMENSION  
REFERENCE  
AND  
SF, SFX, SFTE,  
SEE THIS  
SECTION.  
ALL SIZES  
\$43.50

To properly locate lock screws or round clamp attaching screws, select the correct **UNITED** Locating Jig.



**LS, HLS, HTW  
LARGER TYPE  
LOCATING LOCK  
SCREWS**



**RC  
ROUND  
CLAMPS**  
See Page A15.

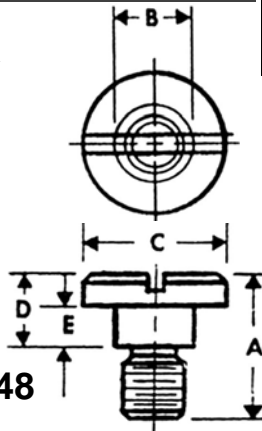
JIG NO.	A JIG LINER I.D.	F HEAD DIA	G HEAD THICKNESS	H LOCK STEP	J MILL DEPTH	L MILL ANGLE	X LOCATION FLAT CLAMP	R LOCATION LOCKSREW	LOCK SCREWS	ROUND CLAMP	FLAT CLAMP
LJ-0	#29	5/16	3/16	3/32	3/32	55°		17/64	LS-0,HLS-0	RC-1	F-1
TLJ-1	#29	5/16	3/16	3/32	3/32	55°		17/64	LS-0,HLS-0		
TLJ-2	#21	7/16			9/64	30°		23/64	TW-2		
LJ-1	F	35/64			11/64	65°	5/8	1/2	LS-1,HLS-1		
TLJ-4	#21	5/8	1/4	1/8	15/64	30°	45/64	29/64	TW-2		
TLJ-5	#21	5/8			15/64	30°	47/64	29/64	TW-2		
LJ-2	F	51/64			19/64	65°	3/4	5/8	LS-1,HLS-1		
TLJ-6	#21	7/8			23/64	65°	51/64	37/64	TW-2		
TLJ-7	#21	7/8			23/64	30°	53/64	37/64	TW-2		
LJ-3	F	1-3/64			27/64	50°	57/64	3/4	LS-1,HLS-1		
TLJ-9	F	1-1/4			31/64	30°	1-1/64	53/64	TW-7		
LJ-4	F	1-27/64			19/32	35°	1-7/64	59/64	LS-2,HLS-2		
TLJ-11	F	1-1/2			39/64	30°	1-1/4	61/64	TW-7		
TLJ-12	F	1-5/8			43/64	30°	1-13/64	1-1/64	LS-2,HLS-2		
LJ-5	F	1-51/64			25/32	30°	1-19/64	1-7/64	LS-2,HLS-2		
TLJ-14	F	1-7/8			51/64	30°	1-21/64	1-9/64	LS-2,HLS-2		
LJ-6	5/16	2-19/64			1"	30°	1-41/64	1-25/64	LS-3,HLS-3	RC-3	F-3
LJ-7	5/16	2-51/64			1-1/4	25°	1-57/64	1-41/64	LS-3,HLS-3	RC-3	F-3

**LOCK SCREWS  
PROVIDE CLOSER  
HOLE SPACING**

SLOTTED

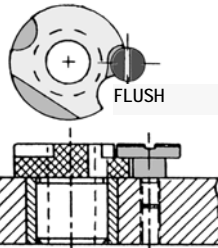


**\$0.48**

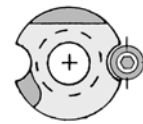


ANSI AND  
THIN WALL  
LOCK  
SCREWS

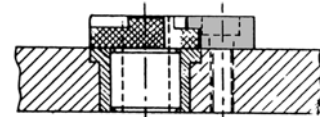
LOCK SCREW  
WITH L  
HEADLESS  
LINER FOR  
FLUSH  
MOUNTING



L LINER WITH LS LOCK SCREW



Use ROUND  
CLAMP with L  
or HL Liners  
Flush.



HL LINER WITH RC CLAMP

**LS LOCK SCREWS  
TW (THIN WALL) LOCK SCREWS  
LS-00 thru LS-5, TW-1 thru TW-7**

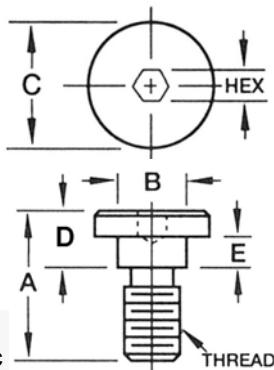
**LS 45¢**

TW	HEX	LS	A	B	C	D	E	THD	HEX	O.D. SF
		LS-00	5/16	1/8	1/4	1/8	.063	4-40		5/32 Discontinued
		HLS-0	LS-0	7/16	3/16	5/16	.100	8-32	3/32	3/16
TW-1	HTW-1		7/16	3/16	5/16	3/16	.100	8-32	3/32	
TW-2	HTW-2		1/2	1/4	3/8	1/4	.138	10-32	1/8	1/4 - 3/8 - 7/16
TLJ-3	HTW-3		11/16	1/4	7/16	3/8	.200	10-32	1/8	
		HLS-1	LS-1	5/8	3/8	5/8	.138	5/16-18	3/16	1/2 - 3/4
TW-7	HTW-7		3/4	3/8	5/8	3/8	.200	5/16-18	3/16	7/8 - 1-1/4
TW-4	HTW-4		7/8	3/8	9/16	1/2	.263	5/16-18	3/16	
TW-5	HTW-5		1"	3/8	5/8	5/8	.325	5/16-18	3/16	
		HLS-2	LS-2	7/8	3/8	5/8	.200	5/16-18	3/16	1" - 1-3/8
		HLS-3	LS-3	1"	7/16	3/4	.200	3/8-16	7/32	1-3/4 - 2-1/4
		HLS-4	LS-4	1-1/16	7/16	3/4	.231	3/8-16	7/32	
		HLS-5	LS-5	1-1/8	7/16	3/4	.263	3/8-16	7/32	

HEX



**\$0.64**



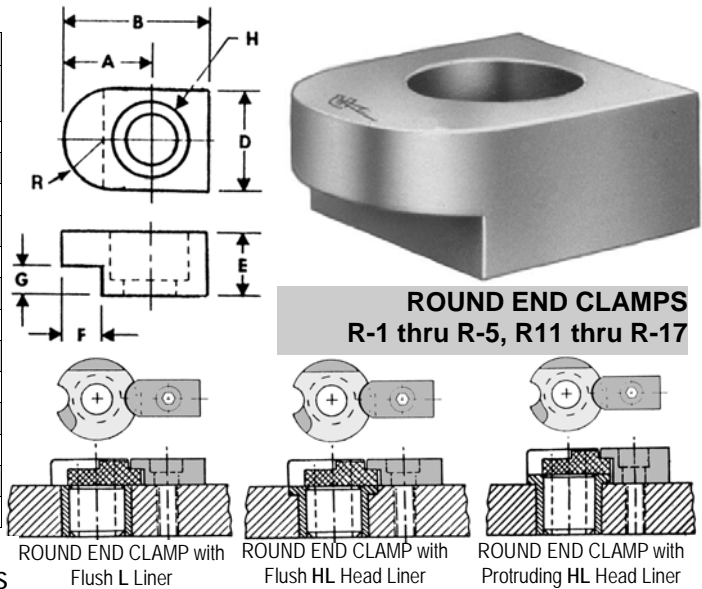
**HLS HEX LOCK SCREWS  
HLS-0 thru HLS-5  
HTW-1 thru HTW-7**

**60¢**

# Secure Clamping for Renewable Bushings

Round End Clamps,  
Flat & Round Clamps

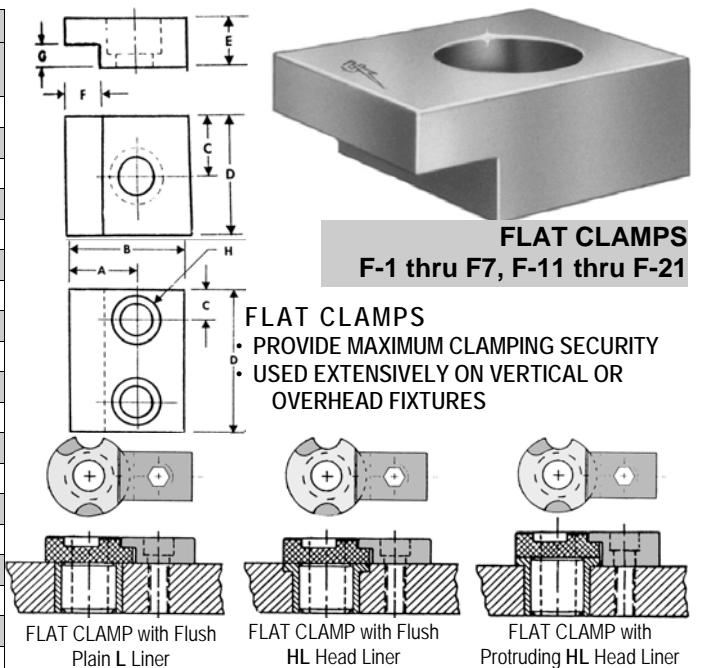
ROUND END CLAMPS For Flush Mounting of Liners									
PART NO.	A	B	D	E	F	G	H		PRICE
R-1	7/16	3/4	5/8	5/16	3/16	1/8	1/4 S.H. CAP SCREW		2.55
R-2	1/2	3/4	5/8	3/8	1/4	3/16	1/4 S.H. CAP SCREW		2.55
R-3	5/8	1"	3/4	3/8	5/16	3/16	5/16 S.H. CAP SCREW		2.55
R-4	11/64	1-1/8	3/4	7/16	5/16	7/32	3/8 S.H. CAP SCREW		2.60
R-5	11/64	1-1/8	3/4	1/2	5/16	1/4	3/8 S.H. CAP SCREW		2.60
ROUND END CLAMPS For Projected Mounting of Shoulder Liners									
R-11	7/16	3/4	5/8	3/8	3/16	1/4	1/4 S.H. CAP SCREW		2.60
R-12	1/2	3/4	5/8	1/2	1/4	5/16	1/4 S.H. CAP SCREW		2.60
R-13	1/2	3/4	5/8	1/2	1/4	3/8	5/16 S.H. CAP SCREW		2.60
R-14	5/8	1"	3/4	1/2	5/16	3/8	3/8 S.H. CAP SCREW		2.72
R-15	11/16	1-1/8	3/4	5/8	5/16	13/32	3/8 S.H. CAP SCREW		2.72
R-16	11/16	1-1/8	3/4	5/8	5/16	7/16	3/8 S.H. CAP SCREW		2.72
R-17	11/16	1-1/8	3/4	3/4	5/16	15/32	3/8 S.H. CAP SCREW		2.72



## ROUND END CLAMPS

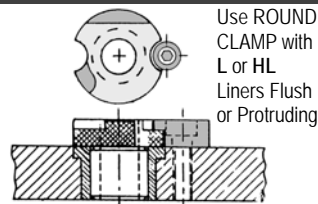
- LARGER BEARING SURFACE THAN ROUND CLAMPS OR LOCK SCREWS

FLAT CLAMPS For Flush Mounting of Liners										
PART NO.	NO. HOLES	A	B	C	D	E	F	G	H	PRICE
F-1	1	1/2	7/8	5/16	5/8	5/16	3/16	1/8	1/4 S.H. CAP SCREW	2.55
F-2	1	5/8	1"	1/2	1"	3/8	1/4	3/16	5/16 S.H. CAP SCREW	2.55
F-3	1	5/8	1-1/8	1/2	1"	3/8	5/16	3/16	5/16 S.H. CAP SCREW	2.55
F-4	1	51/64	1-11/64	5/8	1-1/4	3/8	27/64	7/32	3/8 S.H. CAP SCREW	2.83
F-5	2	51/64	1-11/64	3/8	1-3/4	3/8	27/64	7/32	3/8 S.H. CAP SCREW	2.83
F-6	1	51/64	1-11/64	5/8	1-1/4	1/2	27/64	1/4	3/8 S.H. CAP SCREW	2.83
F-7	2	51/64	1-11/64	3/8	1-3/4	1/2	27/64	1/4	3/8 S.H. CAP SCREW	2.83
FLAT CLAMPS For Projected Mounting of Shoulder Liners										
F-11	1	1/2	7/8	5/16	5/8	3/8	3/16	1/4	1/4 S.H. CAP SCREW	2.60
F-12	1	5/8	1"	1/2	1"	1/2	1/4	5/16	5/16 S.H. CAP SCREW	2.60
F-13	1	5/8	1"	1/2	1"	1/2	1/4	3/8	5/16 S.H. CAP SCREW	2.60
F-14	1	5/8	1-1/8	5/8	1-1/4	1/2	5/16	3/8	3/8 S.H. CAP SCREW	2.60
F-15	2	5/8	1-1/8	3/8	1-3/4	1/2	5/16	3/8	3/8 S.H. CAP SCREW	2.83
F-16	1	51/64	1-11/64	5/8	1-1/4	5/8	27/64	13/32	3/8 S.H. CAP SCREW	2.83
F-17	2	51/64	1-11/64	3/8	1-3/4	5/8	27/64	13/32	3/8 S.H. CAP SCREW	2.83
F-18	1	51/64	1-11/64	5/8	1-1/4	5/8	27/64	7/16	3/8 S.H. CAP SCREW	2.83
F-19	2	51/64	1-11/64	3/8	1-3/4	5/8	27/64	7/16	3/8 S.H. CAP SCREW	2.83
F-20	1	51/64	1-11/64	5/8	1-1/4	3/4	27/64	15/32	3/8 S.H. CAP SCREW	2.83
F-21	2	51/64	1-11/64	3/8	1-3/4	3/4	27/64	15/32	3/8 S.H. CAP SCREW	2.83

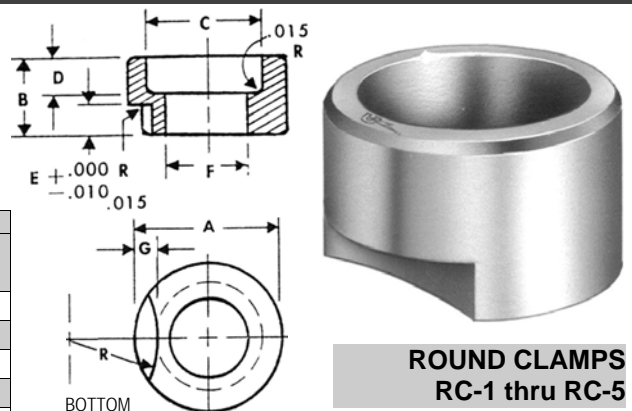


## ROUND CLAMPS

- GREATER SECURITY THAN LOCK SCREWS
- A PRACTICAL STRONGER CLAMP THAN LOCK SCREWS
- SAME SPACING
- SIMPLE INSTALLATION



ROUND CLAMPS											
PART NO.	A	B	C	D	E	F	G	R	SOCKET SCREW SIZE	REPLACES LOCK SCREW	PRICE
RC-1	5/8	5/16	31/64	5/32	1/8	21/64	.109	35/64	5/16-18	LS-1	1.98
RC-2	5/8	7/16	31/64	7/32	3/16	21/64	.125	59/64	5/16-18	LS-2	1.98
RC-3	3/4	1/2	37/64	9/32	.1875	25/64	.156	1-13/32	3/8-16	LS-3	1.98
RC-4	3/4	17/32	37/64	1/4	.2187	25/64	.156	2-1/2	3/8-16	LS-4	1.98
RC-5	3/4	9/16	37/64	1/4	.2500	25/64	.156	2-1/2	3/8-16	LS-5	1.98



Sets of Slip Fit Drill & Reamer Bushings

# Economical Slip Fit Bushings in SETS!



**UTK-SF-13 SET**      **13**      **SMALL SHOP SET**  
Drill or Reamer Bushings      1/16 to 1/4 by 64ths

Set includes THIRTEEN SF Bushings all 1/2" long:  
1 each  
SF-20-8- 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 11/64, 3/16  
SF-32-8- 13/64, 7/32, 15/64, 1/4

Order as:  
UTK-SFD-13 DRILL BUSHINGS SET  
UTK-SFD-13-DB DRILL BUSHINGS WITH 1 DRILL BAR-5/16"-1/2"  
UTK-SFR-13 REAMER BUSHINGS SET  
UTK-SFR-13-DB REAMER BUSHINGS WITH 1 DRILL BAR-5/16"-1/2"  
UTK-SFDR-26-DB ALL Drill & Reamer Bushings above with 1 DRILL BAR-5/16"-1/2"



**UTK-SF-15 SET**      **15**      **TOOL MAKERS SET**  
Drill or Reamer Bushings      1/16 to 1/2 by 32nds

Set includes FIFTEEN SF Bushings all 1/2" long:  
1 each  
SF-20-8- 1/16, 3/32, 1/8, 5/32, 3/16  
SF-32-8- 7/32, 1/4, 9/32, 5/16, 11/32  
SF-48-8- 3/8, 13/32, 7/16, 15/32, 1/2

Order as:  
UTK-SFD-15 DRILL BUSHINGS SET  
UTK-SFD-15-DB DRILL BUSHINGS & 2 DRILL BARS-5/16"-1/2"-3/4"  
UTK-SFR-15 REAMER BUSHINGS SET  
UTK-SFR-15-DB REAMER BUSHINGS & 2 DRILL BARS-5/16"-1/2"-3/4"  
UTK-SFDR-30-DB ALL Drill & Reamer Bushings above & 2 DRILL BARS-5/16"-1/2"-3/4"



**UTK-SF-21 SET**      **21**      **MID-RANGE SET**  
Drill or Reamer Bushings      1/16 to 3/8 by 64ths

Set includes TWENTY-ONE SF Bushings all 1/2" long:  
1 each  
SF-20-8- 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 11/64, 3/16  
SF-32-8- 13/64, 7/32, 15/64, 1/4, 17/64, 9/32, 19/64, 5/16, 21/64  
SF-48-8- 11/32, 23/64, 3/8

Order as:  
UTK-SFD-21 DRILL BUSHINGS SET  
UTK-SFD-21-DB DRILL BUSHINGS WITH 2 DRILL BARS-5/16"-1/2"-3/4"  
UTK-SFR-21 REAMER BUSHINGS SET  
UTK-SFR-21-DB REAMER BUSHINGS & 2 DRILL BARS-5/16"-1/2"-3/4"  
UTK-SFDR-42-DB ALL Drill & Reamer Bushings above & 2 DRILL BARS-5/16"-1/2"-3/4"

**UNITED's SF Drill & Reamer Bushings available in Sets!**

Preferred by:  
• Mechanics  
• Machinists  
• Retrofitters  
• Toolmakers  
• Specialists

**UNITED Sets satisfy the requirements of any metalworking shop.**

**All Sets provided in attractive and distinctive black molded cases 2 to 3" thick—fits in tool box.**

**UNITED SF DRILL & REAMER BUSHINGS** in Sets of the most popular sizes!

Sets available in **Drill Bushings (D)**, **Reamer Bushings (R)** and you can add a compact **Drill Bar (DB)**.

Specify **UTK-SF D, R** or add **DB** to Part No.

For All items, specify **UTK-SFDR- # -DB**.

## TOLERANCES ON INSIDE DIAMETERS

For REAMER BUSHINGS		For DRILL BUSHINGS	
I. D. RANGE	TOLERANCE OVER NOM.	I. D. RANGE	TOLERANCE OVER NOM.
Up to .2500	+ .0005 to + .0008	Up to .2500	+ .0001 to + .0004
Over .2500 to 1.0000	+ .0006 to + .0010	Over .2500 to .7500	+ .0001 to + .0005
Over 1.0000	+ .0008 to + .0012	Over .7500 to 1.5000	+ .0002 to + .0006
		Over 1.5000 to 1.8750	+ .0003 to + .0007

# Molded Custom Cases With Matching Drill Bars

Sets of SF Bushings  
with Drill Bars Added

Simplify  
your  
location and  
fixturing!

ADD  
Double End  
DRILL BARS  
to your SF  
Drill or  
Reamer  
Bushings  
Set.

Drill Bars  
provide  
accurate  
location and  
alignment of  
drilled  
holes.

You get  
**UNITED'S**  
Best Bars!

**UTK-SF-22**                      **22**                      **MINI-WIRE SET**  
SET                                      Drill or Reamer Bushings                      #80 to #61

Set includes TWENTY-TWO SF Bushings all 1/2" long:  
1 each  
**SF-20-8-** #80, 79, 1/64, 78, 77, 76, 75, 74, 73, 72, 71,  
70, 69, 68, 1/32, 67, 66, 65, 64, 63, 62, 61

Order as:  
UTK-SFD-22 DRILL BUSHINGS SET  
UTK-SFD-22-DB DRILL BUSHINGS WITH 1 DRILL BAR-1/2"-3/4"  
UTK-SFR-22 REAMER BUSHINGS SET  
UTK-SFR-22-DB REAMER BUSHINGS WITH 1 DRILL BAR-1/2"-3/4"  
UTK-SFDR-44-DB ALL Drill & Reamer Bushings above with 1 DRILL BAR-1/2"-3/4"



**UTK-SFM-25**                      **25**                      **METRIC SET**  
SET                                      MM Drill or Reamer Bushings(.0394 THRU .5118)                      1mm to 13mm METRIC

Set includes TWENTY-FIVE SFM Bushings all 1/2" long:  
1 each  
**SFM-20-8-** 1.00mm, 1.50mm, 2.00mm, 2.50mm, 3.00mm,  
3.50mm, 4.00mm, 4.50mm, 5.00mm (.0394 thru .1968)  
**SFM-32-8-** 5.50mm, 6.00mm, 6.50mm, 7.00mm, 7.50mm,  
8.00mm, 8.50mm (.2165 thru .3346)  
**SFM-48-8-** 9.00mm, 9.50mm, 10.00mm, 10.50mm,  
11.00mm, 11.50mm, 12.00mm, 12.50mm, 13.00mm  
(.3543 thru .5188)

Order as:  
UTK-SFMD-25 DRILL BUSHINGS SET  
UTK-SFMD-25-DB DRILL BUSHINGS & 2 DRILL BARS-5/16-1/2-3/4"  
UTK-SFMR-25 REAMER BUSHINGS SET  
UTK-SFMR-25-DB REAMER BUSHINGS & 2 DRILL BARS-5/16-1/2-3/4"  
UTK-SFMDR-50-DB ALL Drill & Reamer Bushings above & 2 DRILL BARS-5/16-1/2-3/4"



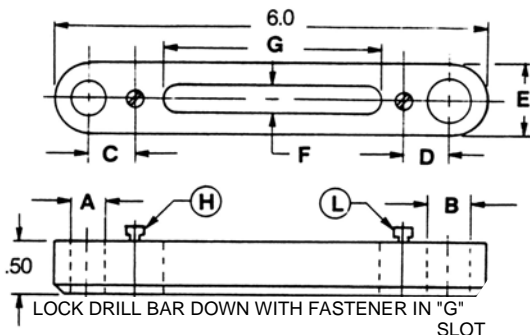
## DOUBLE END DRILL BARS

### Long Wear SF Drill & Reamer Bushings Sets!

- Premium Steel
- Durable
- Clearly labeled sizes for easy selection
- In quality custom molded cases only 2" to 3" thick
- Fits your tool box, rollaway, crib or shelf
- Organized
- Useful

**UNITED** Sets provide the most efficient way to keep your tools!

To get **UNITED'S** best in matching size Drill Bars,  
Simply add 'DB' to Part No. and we will do the rest!



### DOUBLE END DRILL BARS

UNITED PART NO.	A +.0005 -.0000	B +.0005 -.0000	C	D	E	F	G Travel	Lockscrews included		Use with Bushings
								H	L	
DBL-20-32	.3126	.5003	.500	.625	3/4	3/8	3-1/8	LS-1	LS-1	SF20-8 / SF32-8
DBL-32-48	.5003	.7503	.625	.578	1-1/8	3/8	2-5/8	LS-1	LS-1	SF32-8 / SF48-8

7-24-98

12200 WOODRUFF AVE. • DOWNEY, CA 90241-5608 • TELEPHONE (562) 803-1521 / (800)421-3466 IN CA / 800-486-3466 • FAX (562) 803-6898 / (800)486-3465

**Sets of Slip Fit Drill & Reamer Bushings**

# A Variety of Slip Fit Bushings in SETS!



**UTK-SF-26 SET**      **26**      **LETTER SET**  
 Drill or Reamer Bushings      A thru Z

**Set includes TWENTY-SIX SF Bushings all 1/2" long:**  
 1 each  
**SF-32-8-** A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R  
**SF-48-8-** S, T, U, V, W, X, Y, Z

**Order as:**  
 UTK-SFD-26 DRILL BUSHINGS SET  
 UTK-SFD-26-DB DRILL BUSHINGS WITH 1 DRILL BAR-1/2"-3/4"  
 UTK-SFR-26 REAMER BUSHINGS SET  
 UTK-SFR-26-DB REAMER BUSHINGS WITH 1 DRILL BAR-1/2"-3/4"  
 UTK-SFDR-52-DB ALL Drill & Reamer Bushings above with 1 DRILL BAR-1/2"-3/4"



**UTK-SF-29 SET**      **29**      **COMPREHENSIVE SET**  
 Drill or Reamer Bushings      1/16 to 1/2 by 64ths

**Set includes TWENTY-NINE SF Bushings all 1/2" long:**  
 1 each  
**SF-20-8-** 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 11/64, 3/16  
**SF-32-8-** 13/64, 7/32, 15/64, 1/4, 17/64, 9/32, 19/64, 5/16, 21/64, 11/32  
**SF-48-8-** 23/64, 3/8, 25/64, 13/32, 27/64, 7/16, 29/64, 5/32, 31/64, 1/2

**Order as:**  
 UTK-SFD-29 DRILL BUSHINGS SET  
 UTK-SFD-29-DB DRILL BUSHINGS & 2 DRILL BARS-5/16-1/2-3/4"  
 UTK-SFR-29 REAMER BUSHINGS SET  
 UTK-SFR-29-DB REAMER BUSHINGS & 2 DRILL BARS-5/16-1/2-3/4"  
 UTK-SFDR-58-DB ALL Drill & Reamer Bushings above & 2 DRILL BARS-5/16-1/2-3/4"



**UTK-SF-60 SET**      **60**      **LARGE WIRE SET**  
 Drill or Reamer Bushings      #60 to #1

**Set includes SIXTY SF Bushings all 1/2" long:**  
 1 each  
**SF-20-8-** #60, 59, 58, 57, 56, 55, 54, 53, 52, 51, 50, 49, 48, 47, 46, 45, 44, 43, 42, 41, 40, 39, 38, 37, 36, 35, 34, 33, 32, 31, 30, 29, 28, 27, 26, 25, 24, 23, 22, 21  
**SF-32-8-** 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1

**Order as:**  
 UTK-SFD-60 DRILL BUSHINGS SET  
 UTK-SFD-60-DB DRILL BUSHINGS WITH 1 DRILL BAR-5/16"-1/2"  
 UTK-SFR-60 REAMER BUSHINGS SET  
 UTK-SFR-60-DB REAMER BUSHINGS WITH 1 DRILL BAR-5/16"-1/2"  
 UTK-SFDR-120-DB ALL Drill & Reamer Bushings above with 1 DRILL BAR-5/16"-1/2"

**ADD UNITED's Double End DRILL BARS to your SF Drill or Reamer Bushings Set.**

**Simplify your location and fixturing!**

**Drill Bars provide accurate location and alignment of drilled holes.**

**You get UNITED's Best Bars!**

**UNITED Sets satisfy the requirements of any metalworking shop.**

**UNITED SF DRILL & REAMER BUSHINGS** in Sets of the most popular sizes! Sets available in **Drill Bushings (D)**, **Reamer Bushings (R)** and you can add a compact **Drill Bar (DB)**. Specify **UTK-SF D, R** or add **DB** to Part No. For All items, specify **UTK-SFDR- # -DB**.

**TOLERANCES ON INSIDE DIAMETERS**

For REAMER BUSHINGS			For DRILL BUSHINGS		
I. D. RANGE	TOLERANCE OVER NOM.		I. D. RANGE	TOLERANCE OVER NOM.	
Up to .2500	+ .0005 to	+ .0008	Up to .2500	+ .0001 to	+ .0004
Over .2500 to 1.0000	+ .0006 to	+ .0010	Over .2500 to .7500	+ .0001 to	+ .0005
Over 1.0000	+ .0008 to	+ .0012	Over .7500 to 1.5000	+ .0002 to	+ .0006
			Over 1.5000 to 1.8750	+ .0003 to	+ .0007

**With UNITED You are Locked In With the Best!**

# Molded Custom Cases With Matching Drill Bars

Sets of SF Bushings  
with Drill Bars Added

UTK-SF-  
162  
SET

**162**  
Drill or Reamer  
Bushings

COMPLETE SET  
#80 thru 13MM

Set includes ONE HUNDRED SIXTY-TWO SF Bushings all 1/2" long:

1 each:

**SF-20-8-** #80, 79, 1/64, 78, 77, 76, 75, 74, 73, 72, 71, 70, 69, 68, 1/32, 67, 66, 65, 64, 63, 62, 61, 1.00mm, #60, 59, 58, 57, 56, 55, 54, 1.50mm, 53, 1/16, 52, 51, 50, 49, 48, 5/64, 47, 2.00mm, 46, 45, 44, 43, 42, 3/32, 41, 40, 2.50mm, 39, 38, 37, 36, 7/64, 35, 34, 33, 32, 3.00mm, 31, 1/8, 30, 29, 3.50mm, 28, 9/64, 27, 26, 25, 24, 23, 5/32, 22, 4.00mm, 21, 20, 19, 18, 11/64

**SF-32-8-** 17, 16, 4.50mm, 15, 14, 13, 3/16, 12, 11, 10, 9, 5.00mm, 8, 7, 13/64, 6, 5, 4, 3, 5.50mm, 7/32, 2, 1, A, 15/64, 6.00mm, B, C, D, E, 1/4, 6.50mm, F, G, 17/64, H, I, 7.00mm, J, K, 9/32, L, M, 7.50mm, 19/64, N, 5/16, 8.00mm, O, P, 21/64, Q, 8.50mm, R, 11/32

**SF-48-8-** S, 9.00mm, T, 23/64, U, 9.50mm, 3/8, V, W, 25/64, 10.00mm, X, Y, 13/32, Z, 10.50mm, 27/64, 11.00mm, 7/16, 11.50mm, 29/64, 15/32, 12.00mm, 31/64, 12.50mm, 1/2, 13.00mm

Order as:

UTK-SFD-162 DRILL BUSHINGS SET

UTK-SFD-162-DB DRILL BUSHINGS & 2 DRILL BARS 5/16"-1/2"-3/4"

UTK-SFR-162 REAMER BUSHINGS SET

UTK-SFR-162-DB REAMER BUSHINGS & 2 DRILL BARS 5/16"-1/2"-3/4"

UTK-SFDR-324-DB ALL Drill & Reamer Bushings above and 2 DRILL BARS 5/16"-1/2"-3/4"



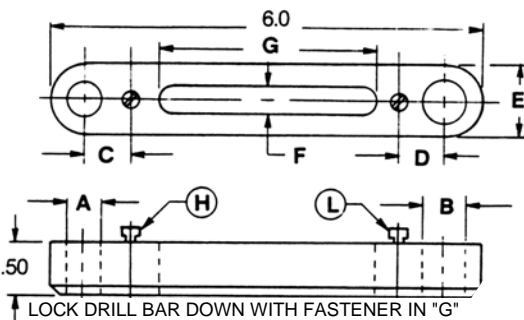
EVERY BUSHING YOU NEED IN A COMPACT  
CUSTOM MOLDED CASE WITH  
MATCHING DRILL BARS FROM **UNITED!**

## Long Wear SF Drill & Reamer Bushings Sets!

- Premium Steel
- Durable
- Clearly labeled sizes for easy selection
- In quality custom molded cases only 2" to 3" thick
- Fits your tool box, rollaway, crib or shelf
- Organized
- Useful

UNITED Sets provide the most efficient way to keep your tools!

To get **UNITED's** best in matching size Drill Bars,  
Simply add 'DB' to Part No. and we will do the rest!



## DOUBLE END DRILL BARS

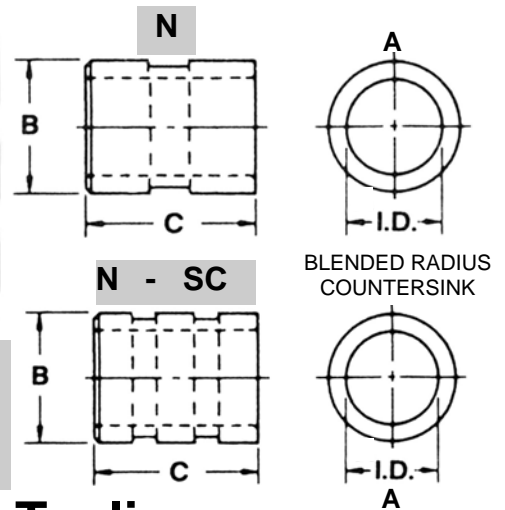


UNITED PART NO.	A +.0005 -.0000	B +.0005 -.0000	C	D	E	F	G Travel	Lockscrews included		Use with Bushings
								H	L	
DBL-20-32	.3126	.5003	.500	.625	3/4	3/8	3-1/8	LS-1	LS-1	SF20-8 / SF32-8
DBL-32-48	.5003	.7503	.625	.578	1-1/8	3/8	2-5/8	LS-1	LS-1	SF32-8 / SF48-8

# Nurlock & Ser-Cast Bushings for Plastic

# For Plastic Tooling

## A.N.S.I. Standard N and SC Bushings For Potting or Cast Tooling Installation



### N NURLOCK

- 1 Groove: 1/4 thru 1/2 long
- 2 Grooves: 3/4 thru 1-1/2 long
- 3 Grooves: 1-3/4 thru 3" long

### SC SER-CAST

## N and SC Bushings For Plastic Tooling

For Potted or Cast installation. The Nurlock Diamond Knurls provide superior holding strength. They resist rotational and axial force.

UNITED's special Ser-Cast serrations allow pressing into soft materials or plastic fixtures while providing excellent holding strength.

MILLIMETER DRILL SIZES HAVE BEEN ADDED TO I.D. RANGE. RC-61-65 IN THE HOLE

SPECIFY 'N' FOR NURLOCK.

SPECIFY 'SC' FOR SER-CAST

ALL UNITED STANDARD BUSHINGS ARE MANUFACTURED TO UNITED AND ANSI STANDARDS.

For greatest accuracy, align and locate by I.D.

For Quantity Discount Pricing, see below.

A I.D. DRILL RANGE		B O.D. SIZE		PICK ANSI SYMBOL	C OVERALL LENGTH / ANSI LENGTH SYMBOL BY 16ths													
INCH / METRIC NOMINAL	U.S.A. INCH DECIMAL	U.S.A. INCH NOM.	U.S.A. INCH ACTUAL		1/4	5/16	3/8	1/2	3/4	1"	1-3/8	1-1/2	1-3/4	2-1/8	2-1/2	3"		
#55 - 1/16 1.30 - 1.60MM	.0520 - .0625 .0512 - .0630	13/64	.218 - .213	N-13 SC-13	8.71	9.23	9.76	9.99										
#52 - #39 1.65 - 2.50MM	.0635 - .0995 .0650 - .0984	13/64	.218 - .213	N-13 SC-13	8.71	9.23	9.76	9.99										
#40 - 9/64 2.35 - 4.90MM	.0980 - .1406 .0925 - .1929	1/4	.265 - .260	N-16 SC-16	6.24	6.43	6.94	7.16	8.94									
1/8 - #10 3.10 - 4.90MM	.1250 - .1935 .1220 - .1929	5/16	.327 - .322	N-20 SC-20	4.98	5.40	5.82	5.90	6.94	8.10								
5/32 - F 3.90 - 6.50MM	.1562 - .2570 .1535 - .2559	13/32	.421 - .416	N-26 SC-26	4.48	4.98	5.09	5.51	5.90	6.94								
5/32 - O 3.90 - 8.00MM	.1562 - .3160 .1535 - .3150	1/2	.515 - .510	N-32 SC-32		4.98	5.09	5.51	5.90	6.94								
5/16 - 7/16 8.80 - 11.00MM	.3125 - .4375 .3465 - .4331	5/8	.640 - .635	N-40 SC-40			4.48	4.48	5.40	5.82	6.94							
5/16 - 17/32 8.80 - 13.00MM	.3125 - .5312 .3465 - .5118	3/4	.765 - .760	N-48 SC-48			4.98	4.98	5.40	5.82	7.91							
1/2 - 21/32 12.50 - 16.50MM	.5000 - .6562 .4921 - .6496	7/8	.890 - .885	N-56 SC-56				7.53	6.64	6.94	7.16	7.78	8.94	9.86				
1/2 - 49/64 12.50 - 19.50MM	.5000 - .7656 .4921 - .7677	1"	1.015 - 1.010	N-64 SC-64					6.94	6.94	7.59	8.20	8.94	9.86				
1/2 - 1-1/32 12.50 - 26.00MM	.5000 - 1.0312 .4921 - 1.0236	1-3/8	1.390 - 1.385	N-88 SC-88						11.11	11.11	11.11	12.67	13.72	14.76	16.95	19.02	25.33
I. D. RANGES		O. D. SIZES		ANSI SYMBOL	1/4	5/16	3/8	1/2	3/4	1"	1-3/8	1-1/2	1-3/4	2-1/8	2-1/2	3"		
NUMBER OF GROOVES					1	1	1	1	2	2	2	2	3	3	3	3		

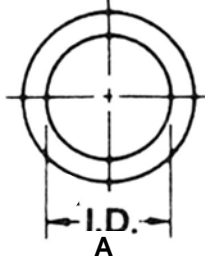
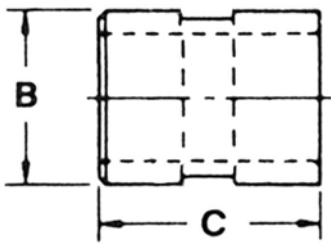
QTY	1-2	3-5	6-11	12-23	24-49	50-99	100-199	200-499	500-999	1000 & UP
DISCOUNT LIST	-6%	-23%	-30%	-35%	-42%	-47%	-51%	-53%	-56%	

# NL Nurlock Liners for Plastic Tooling

A.N.S.I. Standards

NL Nurlock Liners

Nurlock Liners' Diamond Grooves provide excellent holding strength!



FOR POTTED OR CAST IN FIXTURES

When drilling, locate the I.D. accurately on a gauge pin before potting or casting for the best in locations.



**NURLOCK LINER FOR PLASTIC NL**

**HARDNESS** — Rockwell RC-61-65 in the hole.

**1 Groove:** 1/4 thru 1/2 long

**RADIUS COUNTERSINK** — All Bushings feature a radius countersink on the drill entrance end.

**2 Grooves:** 5/8 thru 1-1/2 long

**3 Grooves:** 1-3/4 thru 3" long

MILLIMETER DRILL SIZES HAVE BEEN ADDED TO I.D. RANGE.

For Quantity Discount Pricing, see below.

A I.D. DRILL RANGE		B O.D. SIZE		ANSI SYMBOL	C NL LENGTH OVERALL / ANSI LENGTH SYMBOL BY 16ths															
INCH/METRIC NOMINAL	U.S.A INCH. DECIMAL	U.S.A. INCH NOM.	DECIMAL		1/4 -4	5/16 -5	3/8 -6	1/2 -8	5/8 -10	3/4 -12	1" -16	1-1/4 -20	1-3/8 -22	1-1/2 -24	1-3/4 -28	2" -32	2-1/8 -34	2-1/4 -36	2-1/2 -40	3" -48
3/32	.0938 - .0941	7/32	.233 - .228	NL-14	23.37	24.42	24.73	25.13	26.50	27.33										
1/8	.1251 - .1254	1/4	.265 - .260	NL-16	6.64	6.94	7.35	7.78	9.67	10.90	10.90									
5/32 4.00MM	.1563 - .1566 .1575	9/32	.296 - .291	NL-18	15.59	16.41	16.64	16.95	17.86	18.70	22.13									
3/16 5.00MM	.1876 - .1879 .1969	5/16	.327 - .322	NL-20	5.19	6.02	5.90	6.64	7.16	8.62	8.62	9.14	10.27							
5/16 6.00MM	.3126 - .3129 .2362	1/2	.515 - .510	NL-32	5.09	5.09	5.71	5.90	6.64	6.64	7.35	8.62	8.62	10.07	11.32					
5/16 8.00MM	.3126 - .3129 .3150	9/16	.577 - .572	NL-36	5.71	4.98	4.98	4.98	5.71	5.71	7.35	7.35	7.35	8.62	10.07					
3/8 10.00MM	.3751 - .3754 .3937	5/8	.640 - .635	NL-40	5.90	4.98	4.98	4.98	5.90	5.90	7.35	7.35	7.35	8.62	10.07	11.73	11.73			
7/16 12.00MM	.4377 - .4380 .4724	5/8	.640 - .635	NL-40	5.90	4.98	4.98	4.98	5.90	5.90	7.35	7.35	7.35	8.62	10.07	11.73	11.73			
1/2 12.00MM	.5002 - .5005 .4724	3/4	.765 - .760	NL-48	6.02	4.98	5.90	5.90	6.02	6.02	6.64	8.62	8.62	9.36	10.17	11.96	11.96	22.02	22.02	
9/16 15.00MM	.5627 - .5630 .5906	7/8	.890 - .885	NL-56	7.78	7.78	8.20	7.16	7.28	7.28	7.78	8.52	8.52	9.43	10.48	12.15	12.15	14.14	14.14	22.65
5/8 15.00MM	.6252 - .6255 .5906	7/8	.890 - .885	NL-56		7.78	8.20	7.16	7.28	7.28	7.78	8.52	8.52	9.55	10.48	12.15	12.15	14.14	14.14	22.65
3/4 18.00MM	.7503 - .7506 .7087	1"	1.015 - 1.010	NL-64		7.59	7.16	7.16	7.35	7.35	8.10	8.62	8.62	9.67	10.58	12.15	12.15	14.14	14.14	22.65
7/8 22.00MM	.8754 - .8757 .8661	1-1/4	1.265 - 1.260	NL-80			11.42	11.42	11.83	9.76	11.42	13.08	13.08	14.02	15.38	17.86	17.86	20.45	20.45	27.02
1" 26.00MM	1.0004 - 1.0007 1.0236	1-3/8	1.390 - 1.385	NL-88			11.42	11.42	9.76	11.42	13.08	13.08	14.02	15.38	17.86	17.86	20.45	20.45	27.02	
1-1/8 30.00MM	1.1255 - 1.1259 1.1811	1-1/2	1.515 - 1.510	NL-96			11.73	11.73	10.71	11.73	13.19	13.19	14.54	15.59	18.18	18.18	20.56	20.56	28.37	
1-1/4 30.00MM	1.2505 - 1.2509 1.1811	1-5/8	1.640 - 1.635	NL-104				11.73	10.71	11.73	13.19	13.19	14.54	15.59	18.18	18.18	20.45	20.45	28.37	
1-3/8 35.00MM	1.3756 - 1.3760 1.3780	1-3/4	1.765 - 1.760	NL-112				12.15	11.63	12.15	13.50	13.50	15.25	15.59	18.18	18.18	20.56	20.56	30.88	
1-1/2 35.00MM	1.5006 - 1.5010 1.3780	1-7/8	1.890 - 1.885	NL-120					11.63	12.15	13.50	13.50	15.25	15.59	18.18	18.18	20.56	20.56	30.88	
1-3/4 42.00MM	1.7508 - 1.7512 1.6535	2-1/4	2.265 - 2.260	NL-144					15.90	14.76	16.41	16.41	17.66	17.66	19.63	19.63	22.13	22.13	32.80	
2-1/4 55.00MM	2.2510 - 2.2515 2.1654	2-3/4	2.765 - 2.760	NL-176						19.63	17.66	20.25	20.25	21.28	21.28	24.10	24.10	27.02	27.02	36.34
I. D. RANGES		O. D. SIZES		ANSI SYMBOL	1/4 -4	5/16 -5	3/8 -6	1/2 -8	5/8 -10	3/4 -12	1" -16	1-1/4 -20	1-3/8 -22	1-1/2 -24	1-3/4 -28	2" -32	2-1/8 -34	2-1/4 -36	2-1/2 -40	3" -48
NUMBER OF GROOVES					1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3
QTY DISCOUNT					1-2 LIST	3-5 -6%	6-11 -23%	12-23 -30%	24-49 -35%	50-99 -42%	100-199 -47%	200-499 -51%	500-999 -53%	1000 & UP -56%						



**HG and FG  
Bushings for Plastic**

# Plastic Tooling Specials

A.N.S.I. Standard HG and FG Bushings



**HEXGRIP  
ELIMINATES  
MOST SPIN OUT**

BLENDED RADIUS

ALL UNITED STANDARD BUSHINGS  
ARE MANUFACTURED TO UNITED  
AND ANSI STANDARDS.

RC-61-65 in the hole

MILLIMETER DRILL SIZES HAVE  
BEEN ADDED TO I.D. RANGE.



**FLANGE  
GROOVE  
HAS  
SUPERIOR  
HOLD**

**FG FLANGE GROOVE  
HAS ONE TO FOUR GROOVES**

**3/8" LENGTH HAS 1 3/32" GROOVE**

**1/2" LENGTH HAS 1 1/8" GROOVE**

**3/4" LENGTH HAS 2 1/8" GROOVE**

**1" LENGTH HAS 3 1/8" GROOVE**

**1-3/8" LENGTH HAS 4 1/8" GROOVE**

SPECIFY 'HG' FOR HEX GRIP

For Quantity Discount Pricing,  
see below.

SPECIFY 'FG' FOR FLANGE GROOVE

A I.D. DRILL RANGE		B O.D. SIZE		HEX SIZE	SELECT APPROPRIATE ANS I SYMBOL	C OVERALL LENGTH ANS I LENGTH SYMBOL BY 16ths				
INCH / METRIC NOMINAL	U.S.A. INCH DECIMAL	NOM.	ACTUAL			3/8	1/2	3/4	1"	1-3/8
						-6	-8	-12	-16	-22
#55 - 1/16 1.30 - 1.60MM	.0520 - .0625 .0512 - .0630	9/32	.290 - .270	5/16	HG-18 FG-18	18.70	16.95	21.19	24.93	29.17
#52 - #39 1.65 - 2.50MM	.0635 - .0995 .0650 - .0984	9/32	.290 - .270	5/16	HG-18 FG-18	9.14	9.43	10.58	11.73	0.00
#38 - 9/64 2.55MM - 4.90MM	.1015 - .1406 .1004 - .1929	9/32	.290 - .270	5/16	HG-18 FG-18	7.78	9.43	10.58	11.32	0.00
#29 - #10 3.40MM - 4.90MM	.1360 - .1935 .1339 - .1929	7/16	.447 - .427	1/2	HG-28 FG-28	6.64	6.64	7.35	8.94	12.15
#9 - F 4.90MM - 6.50MM	.1960 - .2570 .1929 - .2559	7/16	.447 - .427	1/2	HG-28 FG-28	5.90	6.02	6.64	7.78	8.94
F - 5/16 6.50MM - 8.80	.2570 - .3125 .2559 - .3465	1/2	.510 - .490	5/8	HG-32 FG-32	5.90	6.02	6.64	7.78	8.94
G - 11/32 6.60MM - 8.70MM	.2610 - .3437 .2598 - .3425	5/8	.635 - .615	3/4	HG-40 FG-40	5.90	6.02	6.64	7.78	8.94
Q - 21/32 8.40MM - 16.50MM	.3320 - .6562 .3307 - .6496	7/8	.885 - .865	1"	HG-56 FG-56	8.31	7.35	6.94	7.78	8.62
41/64 - 49/64 16.00MM - 19.50MM	.6406 - .7656 .6299 - .7677	1-1/16	1.072 - 1.052	1-3/8	HG-68 FG-68		6.94	7.78	8.10	8.94
3/4 - 1-1/32 19.00MM - 26.00MM	.7500 - 1.0312 .7480 - 1.0236	1-3/8	1.385 - 1.365	1-3/4	HG-88 FG-88		11.73	10.07	11.73	13.29
I. D. RANGES		O. D. SIZES			ANS I SYMBOL	3/8	1/2	3/4	1"	1-3/8
						-6	-8	-12	-16	-22

QTY DISCOUNT	1-2 LIST	3-5 -6%	6-11 -23%	12-23 -30%	24-49 -35%	50-99 -42%	100-199 -47%	200-499 -51%	500-999 -53%	1000 & UP -56%
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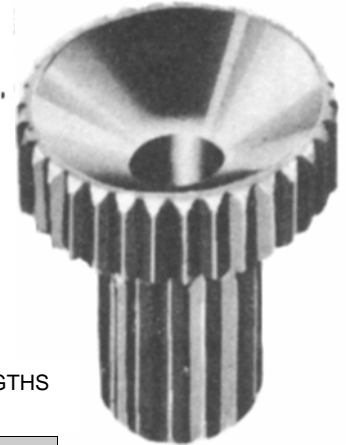
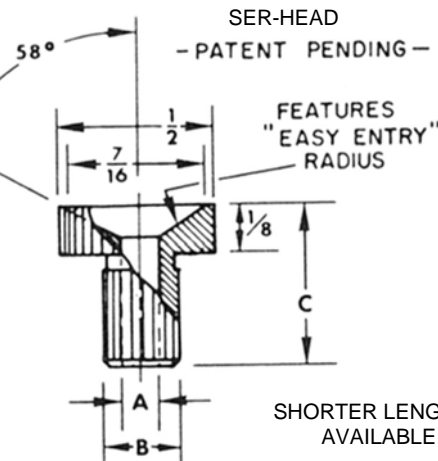
With UNITED You are Locked In With the Best!

# Plastic Tooling Specials

A.N.S.I. Standard SH and SP Bushings

**SH—SP**  
**Bushings for Plastic**

**SER-HEAD with Easy Entry Radius —**  
**Radius —**  
**Designed to prevent spin out or push out.**  
**Great for template tooling.**  
**“Can’t Miss”**  
**Easy Entry Radius!**



For Quantity Discount Pricing on both styles, see below.

SPECIFY 'SH' FOR SER-HEAD

RC-61-65

SHORTER LENGTHS AVAILABLE

A I.D. DRILL RANGE		B O.D. SIZE		ANSI SYMBOL	C OVERALL LENGTH / ANSI LENGTH 16ths				
INCH / METRIC NOMINAL	U.S.A. INCH DECIMAL	NOM.	ACTUAL		1/2	3/4	1"	1-3/8	1-3/4
#55 - 1.30 1/16 - 1.60MM	.0520 - .0625 .0512 - .0630	13/64	.218 - .213	SH-13	16.64	18.37	20.81		
#52 - 1.65 #39 - 2.50MM	.0635 - .0995 .0650 - .0984	13/64	.218 - .213	SH-13	10.17	11.42	13.60		
#40 - 2.45 9/64 - 3.50MM	.0980 - .1406 .0965 - .1378	1/4	.265 - .260	SH-16	9.23	11.00	13.50		
1/8 - 3.10 #10 - 4.90MM	.1250 - .1935 .1220 - .1929	5/16	.327 - .322	SH-20	9.03	10.39	12.47	13.59	
5/32 - 3.90 F - 6.50MM	.1562 - .2570 .1535 - .2559	13/32	.421 - .416	SH-26	8.52	9.86	11.11	12.15	13.08
I. D. RANGES		O. D. SIZES		ANSI SYMBOL	1/2	3/4	1"	1-3/8	1-3/4

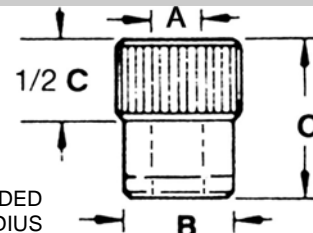
**SH**  
**SER-HEAD**



**SP**  
**SER-PRESS**

**SER-PRESS prevents spin out**  
**EASY PRESS IN — Used on steel,**  
**aluminum, magnesium, masonite wood**

Serrated diameter is .014 to .020 larger than ground body diameter. Ground diameter concentric .0005" T.I.R.



SPECIFY 'SP' FOR SER-PRESS

RC-61-65

BLENDED RADIUS

A I.D. DRILL RANGE		B O.D. SIZE		SELECT ANSI SYMBOL	C OVERALL LENGTH / ANSI LENGTH SYMBOL BY 16ths								
INCH / METRIC NOMINAL	U.S.A. INCH DECIMAL	NOM.	ACTUAL		1/4	5/16	3/8	1/2	3/4	1"	1-3/8		
#55 - 1.30 1/16 - 1.60MM	.0520 - .0625 .0512 - .0630	13/64	.2031 - .2029	SP-13	10.48	11.96	12.35	13.08					
#52 - 1.65 #39 - 2.50MM	.0635 - .0995 .0650 - .0984	13/64	.2031 - .2029	SP-13	10.48	11.96	12.35	12.93					
#40 - 2.45 9/64 - 3.50MM	.0980 - .1406 .0965 - .1378	1/4	.2500 - .2498	SP-16	8.20	8.82	9.43	9.99					
1/8 - 3.10 #10 - 4.90MM	.1250 - .1935 .1220 - .1929	5/16	.3125 - .3123	SP-20		7.16	7.59	7.91	8.62				
5/32 - 3.90 F - 6.50MM	.1562 - .2570 .1535 - .2559	13/32	.4062 - .4060	SP-26	6.02	6.13	6.64	6.94	7.59	8.82			
5/32 - 3.90 O - 8.00MM	.1562 - .3160 .1535 - .3150	1/2	.5000 - .4998	SP-32		6.13	6.64	6.94	7.59	8.82			
5/16 - 7.90 7/16 - 11.00MM	.3125 - .4375 .3110 - .4331	5/8	.6250 - .6248	SP-40			6.34	6.34	7.59	7.91			
5/16 - 7.90 17/32 - 13.00MM	.3125 - .5312 .3110 - .5118	3/4	.7500 - .7498	SP-48			6.94	6.94	7.16	7.91			
1/2 - 12.50 21/32 - 16.50MM	.5000 - .6562 .4921 - .6496	7/8	.8750 - .8748	SP-56			9.23	8.20	8.62	8.94			
1/2 - 12.50 49/64 - 19.00MM	.5000 - .7656 .4921 - .7480	1"	1.0000 - .9998	SP-64				8.62	8.62	9.14	9.67		
I. D. RANGES		O. D. SIZES		ANSI SYMBOL	1/4	5/16	3/8	1/2	3/4	1"	1-3/8		

QTY DISCOUNT	1-2 LIST	3-5 -6%	6-11 -23%	12-23 -30%	24-49 -35%	50-99 -42%	100-199 -47%	200-499 -51%	500-999 -53%	1000 & UP -56%
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2-15-06

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**A23**