



**Fastener** *Tool & Supply*

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***Proud distributor for  
Shur-Lok***





***Shur-Lok***

***Ring Locked & Key Ring  
Inserts and Studs***

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## KEY RING INSERTS & STUDS

Please contact us for information 949-474-6000

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Note: Installation and Removal tools go to McKinnon Industries – a Shur-Lok company.  
All other products not indicated please contact Shur-Lok Corporation 949-474-6000



# Fastening The Future



High performance  
**Ring Locked  
Inserts and Studs**  
are now available from  
a leading source of  
fastening solutions



**R**ing-Locked Inserts and Studs were designed for resistance to high torque-out and pullout loads. Both products utilize a lockring that prevents the stud or insert from backing out. These products are ideal for high fatigue and vibration environments found in gearboxes, turbo machinery, and vehicles for both aerospace and military markets.


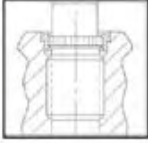


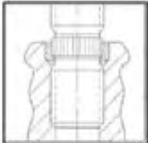

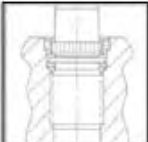

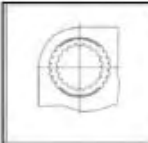

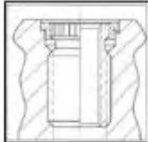

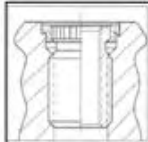




Various materials and finish combinations are available as well as internal thread-locking feature.

Ring locked inserts and studs are covered by "MS", "DOD", "LN" and "DIN" standards.

For fastener installation and removal tooling refer to McKinnon Industries, a Shur-Lok® Company.

Shur-Lok® design and manufacture quality aerospace fasteners, delivering fitting solutions for the most challenging applications. With a thorough knowledge of customers' exacting requirements, Shur-Lok® has developed thousands of proprietary designs, many of which have become industry standards.



<p><b>Standard Stud</b></p>  	<ul style="list-style-type: none"> <li>• Ring Locked Studs are mechanically locked-in STUDS.</li> <li>• Provide high strength threads in lower strength materials.</li> </ul>	<p>SLSF( ) &amp; SLSC( ) SERIES  SLSFJ( ) &amp; SLSFJT( ) SERIES  SLSFA( ) &amp; SLSFB( ) SERIES  SLSF5902( ) &amp; SLSFT5902( ) SERIES  SLSFR5902( ) SERIES</p> 
<p><b>Size-On-Size Stud</b></p>  	<ul style="list-style-type: none"> <li>• Ring Locked Studs with an attached locking providing a one piece assembly.</li> </ul>	<p>SLSFC( ) SERIES  SLSFCH( ) SERIES</p>
<p><b>Hydraulic Stud</b></p>  	<ul style="list-style-type: none"> <li>• Ring Locked Studs incorporating a flange acting as a backup for an O-ring to seal tapped threads.</li> </ul>	<p>SLSHF( )  SLSHC( ) SERIES</p>
<p><b>LockRing</b></p>  	<ul style="list-style-type: none"> <li>• Lockings serrated externally and internally to prevent rotation in various materials.</li> <li>• Partial external serrations available for minimum boss conditions.</li> </ul>	<p>SLRL( ) SERIES  SLRLRR( ) SERIES</p>
<p><b>Standard Insert</b></p>  	<ul style="list-style-type: none"> <li>• Ring Locked inserts are mechanically locked-in inserts</li> <li>• Available in both locking and non-locked configurations.</li> </ul>	<p>SLRJ( ) &amp; SLRDJ( ) SERIES  SLRD5903( ) SERIES  SLR1000( ) &amp; SLR1100( ) SERIES  SLRJ1200( ) &amp; SLRJ2000( ) SERIES</p>
<p><b>Captive Locking Insert</b></p>  	<ul style="list-style-type: none"> <li>• Ring Locked Inserts with an attached locking providing a one piece assembly.</li> </ul>	<p>SLCR( ) SERIES</p>
<p><b>Polyimide Resin Lock Insert</b></p>  	<ul style="list-style-type: none"> <li>• Ring Locked Insert with an internal thread non-metallic locking feature made from Polyimide resin.</li> </ul>	<p>SL05-13008-( ) SERIES</p>
<p><b>Hydraulic Insert</b></p>  	<ul style="list-style-type: none"> <li>• Ring Locked Insert incorporating a flange acting as a backup for an O-ring to seal tapped threads.</li> </ul>	<p>SLRJ1700( ) SERIES</p>

NOTICE: This drawing embodies a CONFIDENTIAL proprietary design originated by SHUR-LOK CORPORATION and all design, manufacturing, reproduction, use and sale rights regarding the same are expressly reserved. It is intended under a confidential relationship for a specific purpose, and the recipient agrees by accepting this drawing not to supply or disclose any information regarding it to any unauthorized person, or its representative in other projects, any special features peculiar to this design. All patent rights herein are expressly reserved by SHUR-LOK CORPORATION, Irvine, California.

This part has sufficient strength to meet the intended design loads and parameters. SHUR-LOK assumes no liability for parts not subjected to load conditions that exceed the design parameters. It is the user's responsibility to establish a Mean Time Between Failure for part performance. The Mean Time Between Failure must be specifically tested for during part qualification in order for this interval to be established. The requirements of customer or industry specifications and standards only apply to the extent specified on this drawing.

LT#	CON NO.	DATE	DRW#	CHKD	APPD	REL
NC	20524	SALES RELEASE			27MAR03	EM

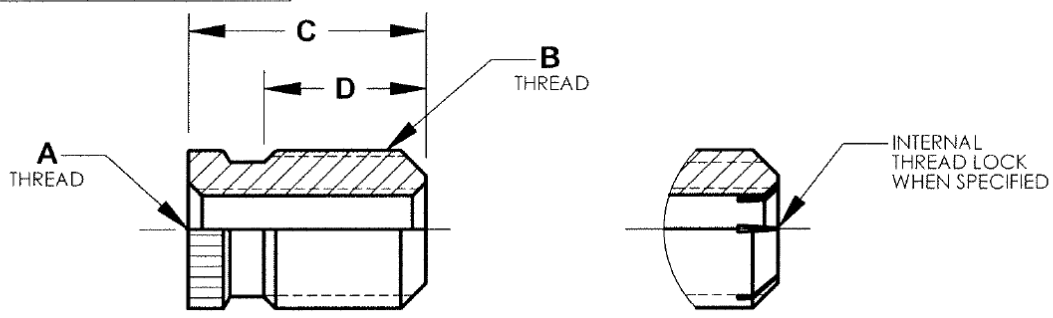


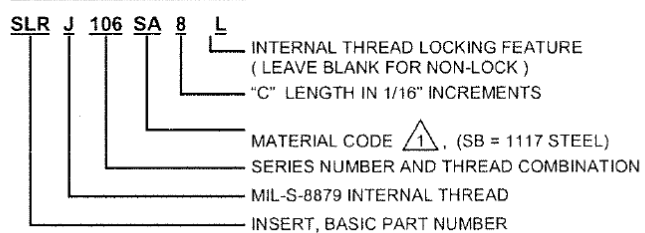
TABLE I

STUD		LOCKRING		A	B	C	D
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF.	MILITARY PART NO.	INTERNAL THREAD	EXTERNAL THREAD		
				UNJC-3B		±.015	±.015
SLRJ102SB4	MS51991-102	SLRLRR16SB5	MS51990-102P	.1120-40	.1900-24	.250	.150
SLRJ103SB5	MS51991-103	SLRLRR18SB6	MS51990-103P	.1380-32	.2160-24	.310	.190
SLRJ104SB6	MS51991-104	SLRLRR21SB6	MS51990-104P	.1640-32	.2500-20	.380	.250
SLRJ105SB7	MS51991-105	SLRLRR24SB7	MS51990-105P	.1900-24	.3125-18	.440	.290
SLRJ106SB8	MS51991-106	SLRLRR28SB8	MS51990-106P	.2500-20	.3750-16	.500	.330
SLRJ107SB9	MS51991-107	SLRLRR33SB9	MS51990-107P	.3125-18	.5000-13	.560	.360
SLRJ108SB10	MS51991-108	SLRLRR38SB9	MS51990-108P	.3750-16	.5625-12	.620	.420
SLRJ109SB11	MS51991-109	SLRLRR47SB10	MS51990-109P	.4375-14	.6250-11	.690	.460
SLRJ110SB12	MS51991-110	SLRLRR56SB11	MS51990-110P	.5000-13	.7500-10	.750	.490

NOTES:

- MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB0018 FOR OTHER MATERIALS.
- 2. HEAT TREAT: NONE.
- 3. FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, MIL-S-7742 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- 5. INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019 OR MS51995.
- 6. INSERT LENGTHS SHOWN ARE BASED ON INSTALLATION IN 2024-T4 ALUMINUM AND IN SUCH MATERIALS WILL ACCOMODATE TENSION LOADS UP TO THE STRENGTH OF A MATING BOLT HEAT TREATED TO 145,000 PSI UTS.
- IF THIS DESIGN CRITERIA IS REQUIRED IN PARENT MATERIALS OF LOWER MECHANICAL PROPERTIES, LONGER INSERT LENGTHS SHOULD BE SPECIFIED. MATING BOLTS SHOULD HAVE A THREAD ENGAGEMENT OF 1.5 DIAMETERS. IF INSERT HAS A THREAD LOCK THE BOLT SHOULD EXTEND THROUGH THE INSERT 2 PITCHES INCLUDING CHAMFER
- MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
- OTHER MS51991 INSERTS AND MS51990 LOCKRINGS ARE ALSO AVAILABLE.

EXAMPLE OF PART CODING



SALES DRAWING  
SOLIDWORKS DWG

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE		SHUR-LOK CORPORATION IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER COMACID WORKMANSHIP PRACTICES PER W/1002 ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES TO R .015 MAX. ALL FILE READY TO PP 21 MAX. 1/25 (X2) ALL SURFACES		DRAWN K. GAZI		27FEB03		TITLE INSERT - RING LOCKED COARSE THREAD INTERNAL COARSE THREAD EXTERNAL	
TOLERANCES XX .XX .XX ANGLES (XX) (X XX) ±.03 ±.010 ±.27 ±0.00 ±0.24		CHECKED D. KOEPPER		27MAR03		DRAWING NO. <b>SLRJ100</b>	
DIMENSION IN [ ] ARE MILLIMETERS		APPROVED K. GAZI		27MAR03		REV <b>NC</b>	
		MFG				SCALE NONE	
		QA				SIZE <b>A</b>	
		ESR NO				CAGE NO. 97393	
						SHEET 1 OF 1	

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LTN	BDNO	DATE	DRAWN	CHKD	APPD	REL
NC	20525	SALES RELEASE		27MAR03		EM

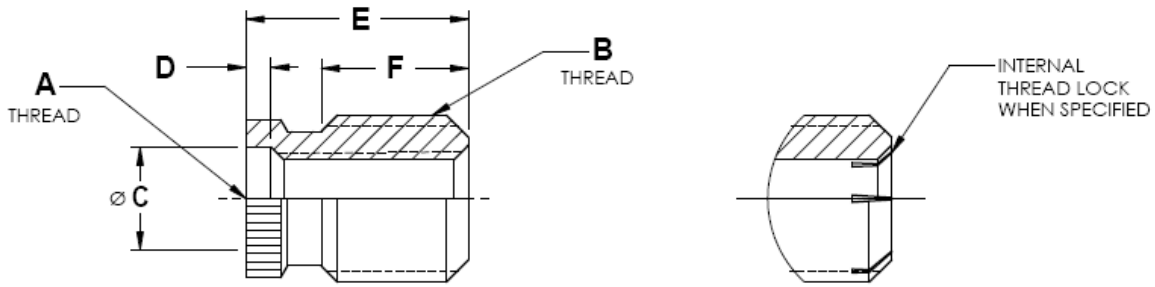


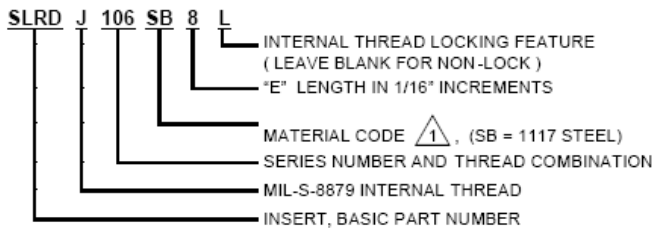
TABLE I

SHUR-LOK INSERT PART NO.	LOCKRING		A	B	C	D	E	F
	SHUR-LOK PART NO. REF	MILITARY PART NO. REF	INTERNAL THREAD	EXTERNAL THREAD MODIFIED	DIA			
	$\triangle 7$	$\triangle 7 \triangle 8$	UNJC-3B	$\triangle 4$	$\pm .015$	$\pm .005$	$\pm .015$	$\pm .015$
SLRDJ102SB4	SLRLRR16SB5	MS51990-102P	.1120-40	.1900-24	.113	.040	.250	.150
SLRDJ103SB5	SLRLRR18SB6	MS51990-103P	.1380-32	.2160-24	.140	.040	.310	.190
SLRDJ104SB6	SLRLRR21SB6	MS51990-104P	.1640-32	.2500-20	.166	.047	.380	.250
SLRDJ105SB7	SLRLRR24SB7	MS51990-105P	.1900-24	.3125-18	.196	.062	.440	.290
SLRDJ106SB8	SLRLRR28SB8	MS51990-106P	.2500-20	.3750-16	.257	.080	.500	.330
SLRDJ107SB9	SLRLRR33SB9	MS51990-107P	.3125-18	.5000-13	.323	.095	.560	.360
SLRDJ108SB10	SLRLRR38SB9	MS51990-108P	.3750-16	.5625-12	.386	.100	.620	.420
SLRDJ109SB11	SLRLRR47SB10	MS51990-109P	.4375-14	.6250-11	.453	.100	.690	.460
SLRDJ110SB12	SLRLRR56SB11	MS51990-110P	.5000-13	.7500-10	.516	.109	.750	.490

NOTES:

- $\triangle 1$  MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- HEAT TREAT: NONE.
- FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- $\triangle 4$  THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, FED-STD-H28/2 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019.
- INSERT LENGTHS SHOWN ARE BASED ON INSTALLATION IN 2024-T4 ALUMINUM AND WILL ACCOMMODATE TENSION LOADS UP TO THE STRENGTH OF A MATING BOLT HEAT TREATED TO 145,000 PSI UTS. IF THIS DESIGN CRITERIA IS REQUIRED IN PARENT MATERIALS OF LOWER MECHANICAL PROPERTIES, LONGER INSERT LENGTHS SHOULD BE SPECIFIED. MATING BOLTS SHOULD HAVE A THREAD ENGAGEMENT OF 1.5 DIAMETERS. IF INSERT HAS A THREAD LOCK THE BOLT SHOULD EXTEND THROUGH THE INSERT 2 PITCHES INCLUDING CHAMFER.
- $\triangle 7$  MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
- $\triangle 8$  OTHER MS51990 LOCKRINGS ARE ALSO AVAILABLE.

EXAMPLE OF PART CODING



SALES DRAWING  
SOLIDWORKS DWG

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE		SHUR-LOK CORPORATION	
DRAWING INTERPRETATION PER OASIS12 WORKMANSHIP PRACTICES PER INVOICE ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .01 (0.5) MAX ALL FILLET RADI .020 (0.51) MAX. 125 (1.27) ALL SURFACES.		DRAWN: K. GAZI		27FEB03		IRVINE, CALIFORNIA	
TOLERANCES XX .XX ANGLES 1X (X) (XX) .XX ±.01 ±.015 ±.02 ±.03 ±.05		CHECKED: D. KOEPPER		27MAR03		TITLE	
DIMENSION IN [ ] ARE MILLIMETERS		APPROVED: K. GAZI		27MAR03		INSERT - RING LOCKED WITH CBORE FINE THREAD INTERNAL COARSE THREAD EXTERNAL	
		INFO:				DRAWING NO.	
		D.A.:				SLRDJ100	
		B.R.N.O.:				REV. NC	
		SCALE: NONE		SIZE: A		CASE NO. 97393	
						SHEET 1 OF 1	

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This part has sufficient strength to meet the intended design loads and parameters. SHUR-LOK assumes no liability if parts are subjected to load conditions that exceed the design parameters. It is the user's responsibility to establish a Mean Time Between Failure for part performance. The Mean Time Between Failure must be specifically tested for during part qualification in order for this interval to be established. The requirements of customer or industry specifications and standards only apply to the extent specified on this drawing.

LTR	ED. NO.	DATE	DRAWN	CHECKED	APPROV.	REL.
NC	20521	SALES RELEASE		27MAR03		EM

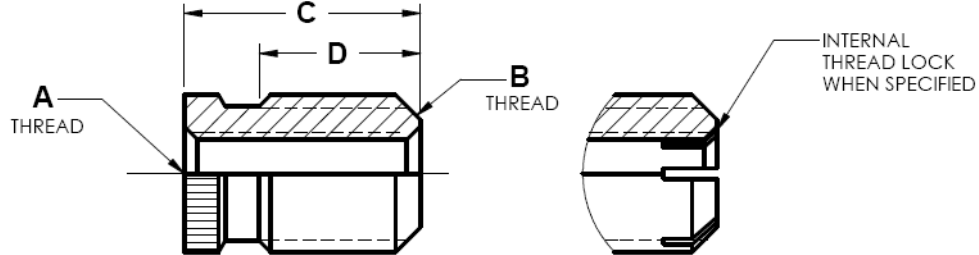


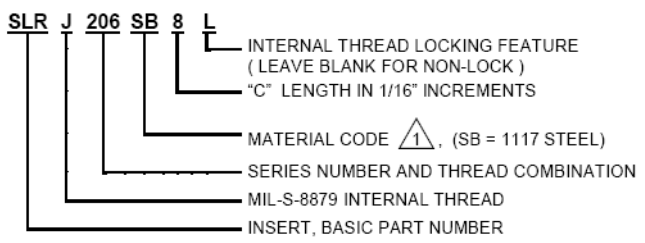
TABLE I

STUD		LOCKRING		A	B	C	D
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF.	MILITARY PART NO.	INTERNAL THREAD	EXTERNAL THREAD		
	△ 8	△ 7	△ 7 △ 8	UNJF-3B	△ 4	±.015	±.015
SLRJ202SB4	MS51991-202	SLRLRR16SB5	MS51990-102P	.1120-48	.1900-24	.250	.150
SLRJ203SB5	MS51991-203	SLRLRR18SB6	MS51990-103P	.1380-40	.2160-24	.310	.190
SLRJ204SB6	MS51991-204	SLRLRR21SB6	MS51990-104P	.1640-36	.2500-20	.380	.250
SLRJ205SB7	MS51991-205	SLRLRR24SB7	MS51990-105P	.1900-32	.3125-18	.440	.290
SLRJ206SB8	MS51991-206	SLRLRR28SB8	MS51990-106P	.2500-28	.3750-16	.500	.330
SLRJ207SB9	MS51991-207	SLRLRR33SB9	MS51990-107P	.3125-24	.5000-13	.560	.360
SLRJ208SB10	MS51991-208	SLRLRR38SB9	MS51990-108P	.3750-24	.5625-12	.620	.420
SLRJ209SB11	MS51991-209	SLRLRR47SB10	MS51990-109P	.4375-20	.6250-11	.690	.460
SLRJ210SB12	MS51991-210	SLRLRR56SB11	MS51990-110P	.5000-20	.7500-10	.750	.490

NOTES:

- MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- HEAT TREAT: NONE.
- FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, MIL-S-7742 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019 OR MS51995.
- INSERT LENGTHS SHOWN ARE BASED ON INSTALLATION IN 2024-T4 ALUMINUM AND IN SUCH MATERIALS WILL ACCOMMODATE TENSION LOADS UP TO THE STRENGTH OF A MATING BOLT HEAT TREATED TO 145,000 PSI UTS. IF THIS DESIGN CRITERIA IS REQUIRED IN PARENT MATERIALS OF LOWER MECHANICAL PROPERTIES, LONGER INSERT LENGTHS SHOULD BE SPECIFIED. MATING BOLTS SHOULD HAVE A THREAD ENGAGEMENT OF 1.5 DIAMETERS. IF INSERT HAS A THREAD LOCK, THE BOLT SHOULD EXTEND THROUGH THE INSERT 2 PITCHES INCLUDING CHAMFER.
- MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
- OTHER MS51991 INSERTS AND MS51990 LOCKRINGS ARE ALSO AVAILABLE.

EXAMPLE OF PART CODING



**SALES DRAWING  
SOLIDWORKS DWG**

<small>UNLESS OTHERWISE SPECIFIED</small> DRAWING INTERPRETATION PER CMM#012 WORKMANSHIP PRACTICES PER W4-1005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES: C2 (0.5) MAX ALL FILLET RADI: R20 (0.5) MAX. T25 (1.2) ALL SURFACES. <b>TOLERANCES</b> XX XXX ANGLES (X,X) (X,XX) ±.03 ±.010 ±.005 ±.005 ±.005 DIMENSION IN [ ] ARE MILLIMETERS	SIGNATURE	DATE	 <b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA TITLE INSERT - RING LOCKED FINE THREAD INTERNAL COARSE THREAD EXTERNAL DRAWING NO. <b>SLRJ200</b> SCALE NONE SIZE <b>A</b> CAGE NO. 97393 SHEET 1 OF 1
	DRAWN	27FEB03	
	CHECKED	27MAR03	
	APPROVED	27MAR03	
MFG.			REV.
D.A.			<b>NC</b>
ESR NO.			



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REV	CON NO	DATE	DESIGN	CHECKED	APPRO	REF
NC	20626	SALES RELEASE			27MAR03	EM

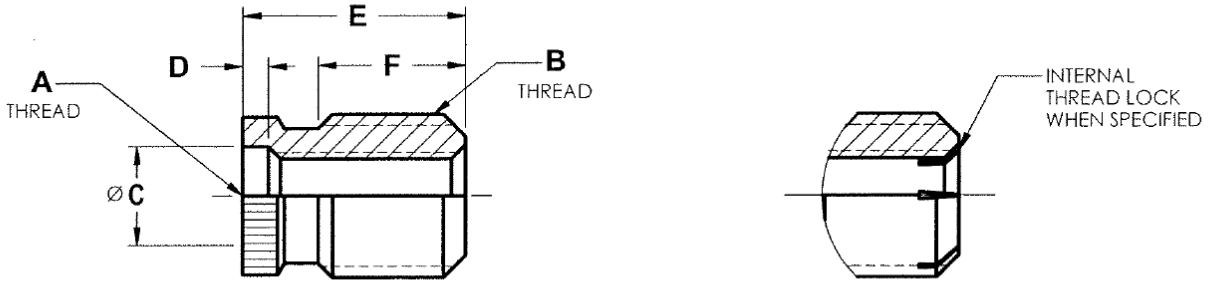


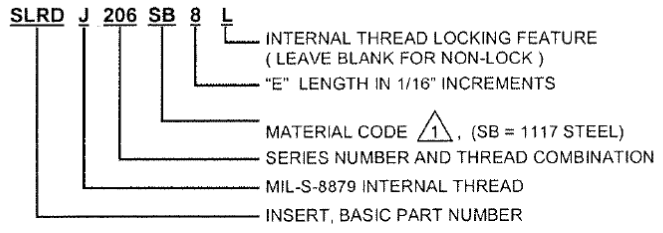
TABLE I

SHUR-LOK INSERT PART NO.	LOCKRING		A	B	C	D	E	F
	SHUR-LOK PART NO. REF	MILITARY PART NO. REF	INTERNAL THREAD	EXTERNAL THREAD MODIFIED	DIA			
	$\triangle 7$	$\triangle 7$ $\triangle 8$	UNJF-3B	$\triangle 4$	$\pm .015$	$\pm .015$	$\pm .015$	$\pm .015$
SLRDJ202SB4	SLRLRR16SB5	MS51990-102P	.1120-48	.1900-24	.113	.040	.250	.150
SLRDJ203SB5	SLRLRR18SB6	MS51990-103P	.1380-40	.2160-24	.140	.040	.310	.190
SLRDJ204SB6	SLRLRR21SB6	MS51990-104P	.1640-36	.2500-20	.166	.047	.380	.250
SLRDJ205SB7	SLRLRR24SB7	MS51990-105P	.1900-32	.3125-18	.196	.062	.440	.290
SLRDJ206SB8	SLRLRR26SB8	MS51990-106P	.2500-28	.3750-16	.257	.080	.500	.330
SLRDJ207SB9	SLRLRR33SB9	MS51990-107P	.3125-24	.5000-13	.323	.095	.560	.360
SLRDJ208SB10	SLRLRR38SB9	MS51990-108P	.3750-24	.5625-12	.386	.100	.620	.420
SLRDJ209SB11	SLRLRR47SB10	MS51990-109P	.4375-20	.6250-11	.453	.100	.690	.460
SLRDJ210SB12	SLRLRR56SB11	MS51990-110P	.5000-20	.7500-10	.516	.109	.750	.490

NOTES:

- MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- HEAT TREAT: NONE.
- FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, MIL-S7742 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019.
- INSERT LENGTHS SHOWN ARE BASED ON INSTALLATION IN 2024-T4 ALUMINUM AND IN SUCH MATERIALS WILL ACCOMODATE TENSION LOADS UP TO THE STRENGTH OF A MATING BOLT HEAT TREATED TO 145,000 PSI UTS. IF THIS DESIGN CRITERIA IS REQUIRED IN PARENT MATERIALS OF LOWER MECHANICAL PROPERTIES, LONGER INSERT LENGTHS SHOULD BE SPECIFIED. MATING BOLTS SHOULD HAVE A THREAD ENGAGEMENT OF 1.5 DIAMETERS. IF INSERT HAS A THREAD LOCK, THE BOLT SHOULD EXTEND THROUGH THE INSERT 2 PITCHES INCLUDING CHAMFER.
- MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
- OTHER MS51990 LOCKRINGS ARE ALSO AVAILABLE.

EXAMPLE OF PART CODING



SALES DRAWING  
SOLIDWORKS DWG

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE	<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA
DRAWN: K. GAZI		D. KOEPPER		27FEB03	
CHECKED: D. KOEPPER		K. GAZI		27MAR03	TITLE
APPROVED: K. GAZI				27MAR03	INSERT - RING LOCKED WITH CBORE FINE THREAD INTERNAL COARSE THREAD EXTERNAL
MFG.		DRAWING NO.			REV
CA		SLRDJ200			NC
ESR NO.		SCALE	SIZE	CAGE NO.	SHEET 1 OF 1
		NONE	A	97393	

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This part has sufficient strength to meet the intended design loads and parameters. SHUR-LOK assumes no liability if parts are subjected to load conditions that exceed the design parameters. It is the user's responsibility to establish a Mean Time Between Failure for part performance. The Mean Time Between Failure must be specifically tested for during part qualification in order for this interval to be established. The requirements of customer or industry specifications and standards only apply to the extent specified on this drawing.

LTR	EDNO	DATE	DRWN	CHKD	APPD	REL
NC	20522	SALES RELEASE			27MAR03	EM

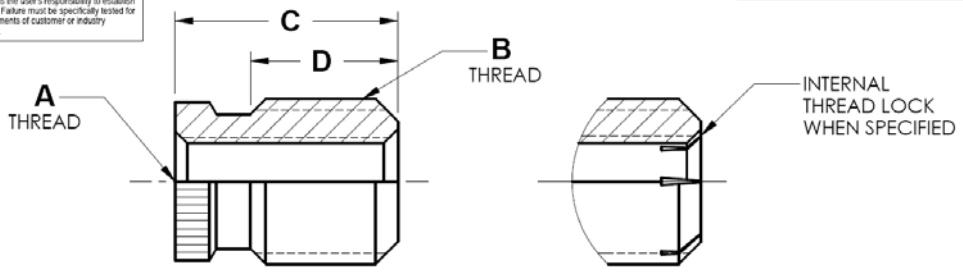


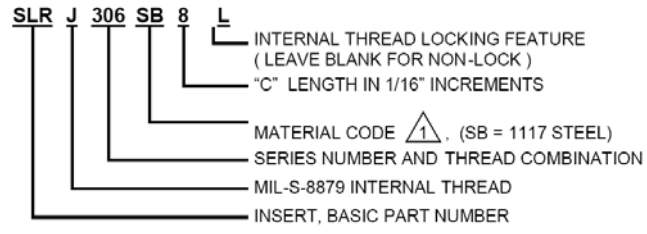
TABLE I

STUD		LOCKRING		A	B	C	D
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF	MILITARY PART NO. REF	INTERNAL THREAD	EXTERNAL THREAD		
	△ 8	△ 7	△ 7 △ 8	UNJF-3B	△ 4	±.015	±.015
SLRJ302SB4	----	SLRLRR16SB5	MS51990-102P	.1120-48	.1900-32	.250	.150
SLRJ303SB5	----	SLRLRR18SB6	MS51990-103P	.1380-40	.2160-28	.310	.190
SLRJ304SB6	----	SLRLRR21SB6	MS51990-104P	.1640-36	.2500-28	.380	.250
SLRJ305SB7	----	SLRLRR24SB7	MS51990-105P	.1900-32	.3125-24	.440	.290
SLRJ306SB8	----	SLRLRR28SB8	MS51990-106P	.2500-28	.3750-24	.500	.330
SLRJ307SB9	----	SLRLRR31SB9	----	.3125-24	.4375-20	.560	.380
SLRJ308SB10	----	SLRLRR38SB9	MS51990-108P	.3750-24	.5000-20	.620	.420
SLRJ309SB11	----	SLRLRR47SB10	MS51990-109P	.4375-20	.6250-18	.690	.460
SLRJ310SB12	----	SLRLRR56SB11	MS51990-110P	.5000.20	.7500-16	.750	.490
SLRJ311SB14	MS51991-311	SLRLRR64SB11	MS51990-111P	.5625-18	.8750-14	.880	.620
SLRJ312SB16	MS51991-312	SLRLRR72SB11	MS51990-112P	.6250-18	1.0000-14	1.000	.740
SLRJ312SB16F	MS51991-312.1	SLRLRR72SB11	MS51990-112P	.6250-18	1.0000-12	1.000	.740
SLRJ313SB18	MS51991-313	SLRLRR82SB12	MS51990-113P	.7500-16	1.1250-12	1.120	.800
SLRJ314SB20	MS51991-314	SLRLRR90SB12	MS51990-114P	.8750-14	1.2500-12	1.250	.900
SLRJ315SB22F	MS51991-315	SLRLRR100SB12	MS51990-115P	1.0000-12	1.3750-12	1.380	1.020
SLRJ315SB22	---	SLRLRR100SB12	MS51990-115P	1.0000-14UNJS	1.3750-12	1.380	1.020

NOTES:

- △ 1 MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB0018 FOR OTHER MATERIALS.
- HEAT TREAT: NONE.
- FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- △ 4 THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, FED-STD-H28/2 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019 OR MS51995.
- INSERT LENGTHS SHOWN ARE BASED ON INSTALLATION IN 2024-T4 ALUMINUM AND IN SUCH MATERIALS WILL ACCOMODATE TENSION LOADS UP TO THE STRENGTH OF A MATING BOLT HEAT TREATED TO 145,000 PSI UTS. IF THIS DESIGN CRITERIA IS REQUIRED IN PARENT MATERIALS OF LOWER MECHANICAL PROPERTIES, LONGER INSERT LENGTHS SHOULD BE SPECIFIED. MATING BOLTS SHOULD HAVE A THREAD ENGAGEMENT OF 1.5 DIAMETERS. IF INSERT HAS A THREAD LOCK, THE BOLT SHOULD EXTEND THROUGH THE INSERT 2 PITCHES INCLUDING CHAMFER
- △ 7 MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
- △ 8 OTHER MS51991 INSERTS AND MS51990 LOCKRINGS ARE ALSO AVAILABLE.

EXAMPLE OF PART CODING



**SALES DRAWING  
SOLIDWORKS DWG**

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE		SHUR-LOK CORPORATION IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER CMM4012 WORKMANSHIP PRACTICES PER WA11006. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES CO (0.5) MAX. ALL FILLET RADI (0.015) MAX. 125 (R) ALL SURFACES.		DRAWN K. GAZI		27FEB03		TITLE INSERT - RING LOCKED FINE THREAD INTERNAL FINE THREAD EXTERNAL	
TOLERANCES XX .XXX ANGLES (R)X (D)XX ● .1 (1) ● .1 (1) ● .1 (1) ● .1 (1)		CHECKED D. KOEPPER		27MAR03		DRAWING NO. <b>SLRJ300</b>	
DIMENSION IN ( ) ARE MILLIMETERS		APPROVED . GAZI		27MAR03		REV. <b>NC</b>	
		MFG.				SCALE NONE	
		Q.A.				SIZE A	
		ESR NO.				CAGE NO. 97393	
						SHEET 1 OF 1	

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This part has sufficient strength to meet the intended design loads and parameters. SHUR-LOK assumes no liability if parts are subjected to load conditions that exceed the design parameters. It is the user's responsibility to establish a Mean Time Between Failure for part performance. The Mean Time Between Failure must be specifically tested for during part qualification in order for this interval to be established. The requirements of customer or industry specifications and standards only apply to the extent specified on this drawing.

ETR	EQH NO	DATE	DRAWN	CHECKED	APPRO	REL
NC	20627	SALES RELEASE			27MAR03	EM

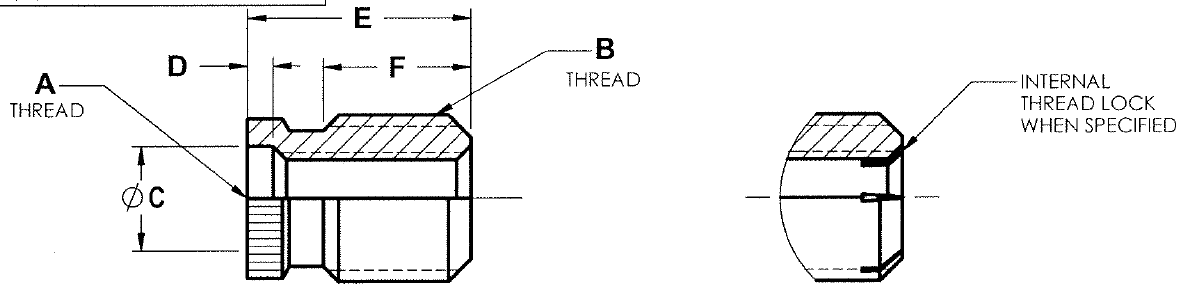


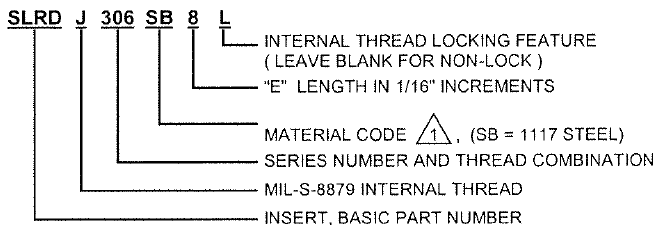
TABLE I

SHUR-LOK INSERT PART NO.	LOCKRING		A INTERNAL THREAD  UNJF-3B	B EXTERNAL THREAD MODIFIED  4	C DIA  ±.005	D  ±.005	E  ±.015	F  ±.015
	SHUR-LOK PART NO. REF 7	MILITARY PART NO. REF 7 8						
SLRDJ302SB4	SLRLRR16SB5	MS51990-102P	.1120-48	.1900-32	.113	.040	.250	.150
SLRDJ303SB5	SLRLRR18SB6	MS51990-103P	.1380-40	.2150-28	.140	.040	.310	.190
SLRDJ304SB6	SLRLRR21SB6	MS51990-104P	.1640-36	.2500-28	.166	.047	.380	.250
SLRDJ305SB7	SLRLRR24SB7	MS51990-105P	.1900-32	.3125-24	.196	.062	.440	.290
SLRDJ306SB8	SLRLRR28SB8	MS51990-106P	.2500-28	.3750-24	.257	.080	.500	.330
SLRDJ307SB9	SLRLRR31SB9	---	.3125-24	.4375-20	.323	.095	.560	.380
SLRDJ308SB10	SLRLRR38SB9	MS51990-108P	.3750-24	.5000-20	.386	.100	.620	.420
SLRDJ309SB11	SLRLRR47SB10	MS51990-109P	.4375-20	.6250-18	.453	.100	.690	.460
SLRDJ310SB12	SLRLRR56SB11	MS51990-110P	.5000-20	.7500-16	.516	.109	.750	.490
SLRDJ311SB14	SLRLRR64SB11	MS51990-111P	.5625-18	.8750-14	.578	.125	.880	.620
SLRDJ312SB16	SLRLRR72SB11	MS51990-112P	.6250-18	1.0000-14	.640	.140	1.000	.740
SLRDJ313SB18	SLRLRR82SB12	MS51990-113P	.7500-16	1.1250-12	.765	.156	1.120	.800
SLRDJ314SB20	SLRLRR90SB12	MS51990-114P	.8750-14	1.2500-12	.890	.178	1.250	.900

NOTES:

- 1 MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- 2 HEAT TREAT: NONE.
- 3 FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- 4 THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, MIL-S-7742 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- 5 INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019.
- 6 INSERT LENGTHS SHOWN ARE BASED ON INSTALLATION IN 2024-T4 ALUMINUM AND IN SUCH MATERIALS WILL ACCOMODATE TENSION LOADS UP TO THE STRENGTH OF A MATING BOLT HEAT TREATED TO 145,000 PSI UTS. IF THIS DESIGN CRITERIA IS REQUIRED IN PARENT MATERIALS OF LOWER MECHANICAL PROPERTIES, LONGER INSERT LENGTHS SHOULD BE SPECIFIED. MATING BOLTS SHOULD HAVE A THREAD ENGAGEMENT OF 1.5 DIAMETERS. IF INSERT HAS A THREAD LOCK, THE BOLT SHOULD EXTEND THROUGH THE INSERT 2 PITCHES INCLUDING CHAMFER.
- 7 MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
- 8 OTHER MS51990 LOCKRINGS ARE ALSO AVAILABLE.

EXAMPLE OF PART CODING



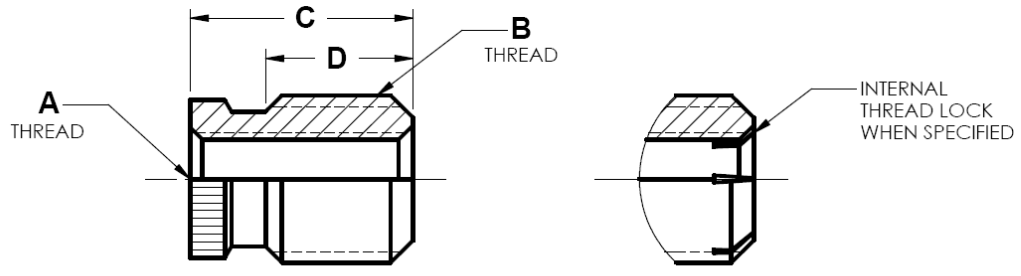
SALES DRAWING  
SOLIDWORKS DWG

UNLESS OTHERWISE SPECIFIED DRAWING INTERPRETATION PER CC-MR-012 WORKMANSHIP PRACTICES PER WAH106 ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT BREAK ALL SHARP EDGES .02 (0.5) MAX ALL RILET RADI .001 (0.01) MAX .0005 (0.005) ALL SURFACES TOLERANCES XX XXX ANGLES (XX) (X XX) ±.00 ±.010 ±.020 ±.030 ±.050 DIMENSION IN [ ] ARE MILLIMETERS	SIGNATURE K. GAZI	DATE 27FEB03	<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA TITLE INSERT - RING LOCKED WITH CBORE FINE THREAD INTERNAL FINE THREAD EXTERNAL DRAWING NO. <b>SLRDJ300</b> REV <b>NC</b>	
	CHECKED D. KOEPPER	DATE 27MAR03		
	APPROVED K. GAZI	DATE 27MAR03		
	MFG Q.E.			
ESR NO.	SCALE NONE	SIZE A	CAGE NO. 97383	SHEET 1 OF 1

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LTR	EON NO.	DATE	DRAWN	CHECKED	APPRO.	REL.
NC	20523	SALES RELEASE			27MAR03	EM

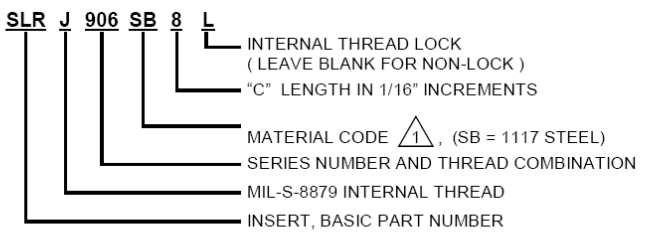


**TABLE I**

STUD	LOCKRING		A	B	C	D
	SHUR-LOK PART NO.	SHUR-LOK PART NO. REF.				
			INTERNAL THREAD CLASS-3B	EXTERNAL THREAD 	±.015	±.015
SLRJ902SB4	SLRLRR16SB5	MS51990-102P	.1120-40UNJC	.1900-32	.250	.150
SLRJ903SB5	SLRLRR18SB6	MS51990-103P	.1380-32UNJC	.2160-28	.310	.190
SLRJ904SB6	SLRLRR21SB6	MS51990-104P	.1640-32UNJC	.2500-28	.380	.250
SLRJ905SB7	SLRLRR24SB7	MS51990-105P	.1900-24UNJC	.3125-24	.440	.290
SLRJ906SB8	SLRLRR28SB8	MS51990-106P	.2500-20UNJC	.3750-24	.500	.330
SLRJ907SB9	SLRLRR31SB9	----	.3125-18UNJC	.4375-20	.560	.380
SLRJ908SB10	SLRLRR38SB9	MS51990-108P	.3750-16UNJC	.5000-20	.620	.420
SLRJ909SB11	SLRLRR47SB10	MS51990-109P	.4375-14UNJC	.6250-18	.690	.460
SLRJ910SB12	SLRLRR56SB11	MS51990-110P	.5000-13UNJC	.7500-16	.750	.490
SLRJ911SB14	SLRLRR64SB11	MS51990-111P	.5625-12UNJC	.8750-14	.880	.620
SLRJ912SB16	SLRLRR72SB11	MS51990-112P	.6250-11UNJC	1.0000-14	1.000	.740
SLRJ913SB18	SLRLRR82SB12	MS51990-113P	.7500-10UNJC	1.1250-12	1.120	.800
SLRJ914SB20	SLRLRR90SB12	MS51990-114P	.8750-9UNJC	1.1250-12	1.250	.900
SLRJ915SB22	SLRLRR100SB12	MS51990-115P	1.0000-8UNJC	1.3750-12	1.380	1.020

- NOTES:
- MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
  - HEAT TREAT: NONE.
  - FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
  - THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, MIL-S-7742 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
  - INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019.
  - INSERT LENGTHS SHOWN ARE BASED ON INSTALLATION IN 2024-T4 ALUMINUM AND WILL ACCOMODATE TENSION LOADS UP TO THE STRENGTH OF A MATING BOLT HEAT TREATED TO 145,000 PSI UTS. IF THIS DESIGN CRITERIA IS REQUIRED IN PARENT MATERIALS OF LOWER MECHANICAL PROPERTIES, LONGER INSERT LENGTHS SHOULD BE SPECIFIED. MATING BOLTS SHOULD HAVE A THREAD ENGAGEMENT OF 1.5 DIAMETERS. IF INSERT HAS A THREAD LOCK THE BOLT SHOULD EXTEND THROUGH THE INSERT 2 PITCHES INCLUDING CHAMFER.
  - MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
  - OTHER MS51991 INSERTS AND MS51990 LOCKRINGS ARE ALSO AVAILABLE.

**EXAMPLE OF PART CODING**



**SALES DRAWING  
SOLIDWORKS DWG**

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE		<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER CCMM012 WORKMANSHIP PRACTICES PER WAH005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.5) MAX ALL FILLET RADI .020 (0.51) MAX. 125 (1.2) ALL SURFACES.		DRAWN K. GAZI		27FEB03			
TOLERANCES XX XXX ANGLES [X.X] [XXX] ±.03 ±.010 ±.2° ±0.8) ±0.25)		CHECKED D. KOEPPER		27MAR03		DRAWING NO. <b>SLRJ900</b>	
DIMENSION IN [ ] ARE MILLIMETERS		APPROVED K. GAZI		27MAR03		REV. <b>NC</b>	
		MFG.				SCALE NONE	
		Q.A.				SIZE <b>A</b>	
		ESR NO.				CAGE NO. 97393	
						SHEET 1 OF 1	

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LTR	ECNO.	DATE	DRAWN	CHKD	APPO	REL
NC	20528	SALES RELEASE			27MAR03	EM

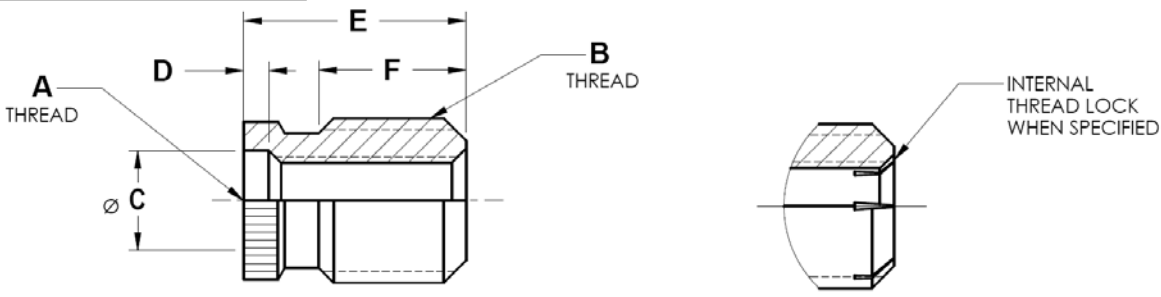


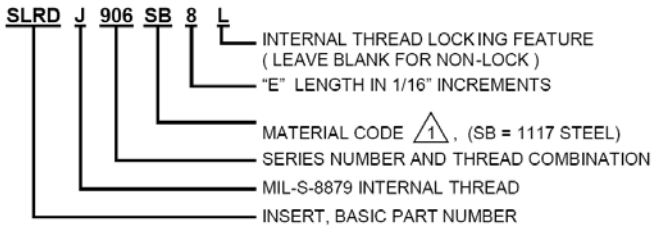
TABLE I

SHUR-LOK INSERT PART NO.	LOCKRING		A INTERNAL THREAD	B EXTERNAL THREAD MODIFIED	C DIA	D	E	F
	SHUR-LOK PART NO. REF	MILITARY PART NO. REF						
	7	7 8	CLASS-3B	4	±.005	±.005	±.015	±.015
SLRDJ902SB4	SLRLRR16SB5	MS51990-102P	.1120-40UNJC	.1900-32	.113	.040	.250	.150
SLRDJ903SB5	SLRLRR18SB6	MS51990-103P	.1380-32UNJC	.2160-28	.140	.040	.310	.190
SLRDJ904SB6	SLRLRR21SB6	MS51990-104P	.1640-32UNJC	.2500-28	.166	.047	.380	.250
SLRDJ905SB7	SLRLRR24SB7	MS51990-105P	.1900-24UNJC	.3125-24	.196	.062	.440	.290
SLRDJ906SB8	SLRLRR28SB8	MS51990-106P	.2500-20UNJC	.3750-24	.257	.080	.500	.330
SLRDJ907SB9	SLRLRR31SB9	---	.3125-18UNJC	.4375-20	.323	.095	.560	.380
SLRDJ908SB10	SLRLRR38SB9	MS51990-108P	.3750-16UNJC	.5000-20	.386	.100	.620	.420
SLRDJ909SB11	SLRLRR47SB10	MS51990-109P	.4375-14UNJC	.6250-18	.453	.100	.690	.460
SLRDJ910SB12	SLRLRR56SB11	MS51990-110	.5000-13UNJC	.7500-16	.516	.109	.750	.490
SLRDJ911SB14	SLRLRR64SB11	MS51990-111P	.5625-12UNJC	.8750-14	.578	.125	.880	.620
SLRDJ912SB16	SLRLRR72SB11	MS51990-112P	.6250-11UNJC	1.0000-14	.640	.140	1.000	.740
SLRDJ913SB18	SLRLRR82SA12	MS51990-113P	.7500-10UNJC	1.1250-12	.765	.156	1.120	.800

NOTES:

- MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- HEAT TREAT: NONE.
- FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, FED-STD-H28/2 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019.
- INSERT LENGTHS SHOWN ARE BASED ON INSTALLATION IN 2024-T4 ALUMINUM AND WILL ACCOMMODATE TENSION LOADS UP TO THE STRENGTH OF A MATING BOLT HEAT TREATED TO 145,000 PSI UTS. IF THIS DESIGN CRITERIA IS REQUIRED IN PARENT MATERIALS OF LOWER MECHANICAL PROPERTIES, LONGER INSERT LENGTHS SHOULD BE SPECIFIED. MATING BOLTS SHOULD HAVE A THREAD ENGAGEMENT OF 1.5 DIAMETERS. IF INSERT HAS A THREAD LOCK THE BOLT SHOULD EXTEND THROUGH THE INSERT 2 PITCHES INCLUDING CHAMFER.
- MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
- OTHER MS51990 LOCKRINGS ARE ALSO AVAILABLE.

EXAMPLE OF PART CODING



<small>UNLESS OTHERWISE SPECIFIED</small> DRAWING INTERPRETATION PER CCMM012 WORKMANSHIP PRACTICES PER WA11009. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .03 (0.5) MAX. ALL FILLET RADI .020 (0.5) MAX. 125 (R2) ✓ ALL SURFACES. TOLERANCES .XX .XXX ANGLE (CX) (CX) (CX) (CX) .03 .010 .015 .020 .030 .040 DIMENSION IN [ ] ARE MILLIMETERS	SIGNATURE	DATE	<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA TITLE: INSERT - RING LOCKED WITH CBORE COARSE THREAD INTERNAL FINE THREAD EXTERNAL DRAWING NO. <b>SLRDJ900</b> REV <b>NC</b> SCALE NONE SIZE <b>A</b> CASE NO. 97393 SHEET 1 OF 1
	DRAWN: K. GAZI	27FEB03	
	CHECKED: D. KOEPPER	27MAR03	
	APPROVED: K. GAZI	27MAR03	
MFG.			
G.A.			
ESR NO.			

**SALES DRAWING**  
**SOLIDWORKS DWG**



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This part has sufficient strength to meet the intended design loads and parameters. SHUR-LOK assumes no liability for parts subjected to load conditions that exceed the design parameters. It is the user's responsibility to establish a Mean Time Between Failure for part performance. The Mean Time Between Failure must be specifically tested for during part qualification in order for this interval to be established. The requirements of customer or industry specifications and standards only apply to the extent specified on this drawing.

LTR	EDN NO.	DATE	DRAWN	CHECKED	APPRO	REL
NC	20531	SALES RELEASE		27MAR03		EM

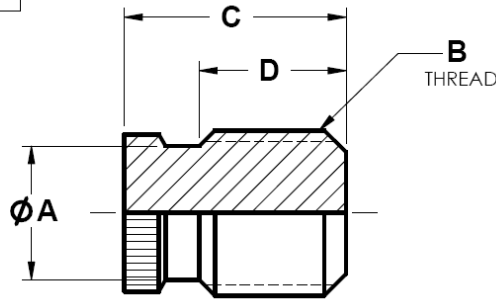


TABLE I

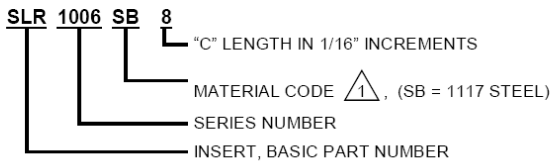
SHUR-LOK INSERT PART NO.	LOCKRING		A DIA MIN	B EXTERNAL THREAD	C ±.015	D ±.015
	SHUR-LOK PART NO. REF △6	MILITARY PART NO. REF △6 △7				
SLR1002SB4	SLRLRR16SB5	MS51990-102P	.143	.1900-32	.250	.150
SLR1003SB5	SLRLRR18SB6	MS51990-103P	.170	.2160-28	.310	.190
SLR1004SB6	SLRLRR21SB6	MS51990-104P	.192	.2500-28	.380	.250
SLR1005SB7	SLRLRR24SB7	MS51990-105P	.243	.3125-24	.440	.290
SLR1006SB8	SLRLRR28SB8	MS51990-106P	.300	.3750-24	.500	.330
SLR1007SB9	SLRLRR31SB9	----	.353	.4375-20	.560	.380
SLR1008SB10	SLRLRR38SB9	MS51990-108P	.442	.5000-20	.620	.420
SLR1009SB11	SLRLRR38SB9	MS51990-108P	.442	.5625-18	.690	.480
SLR1010SB12	SLRLRR47SB10	MS51990-109P	.548	.6250-18	.750	.520
SLR1011SB14	SLRLRR56SB11	MS51990-110P	.668	.7500-16	.880	.620
SLR1012SB16	SLRLRR64SB11	MS51990-111P	.763	.8750-14	1.000	.740
SLR1013SB18	SLRLRR72SB11	MS51990-112P	.877	1.0000-14	1.120	.870

NOTES:

- 1. MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- 2. HEAT TREAT: NONE.
- 3. FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- 4. INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019.

- 5. THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, FED-STD-H2B/2 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- 6. MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
- 7. OTHER MS51990 LOCKRINGS ARE ALSO AVAILABLE.

EXAMPLE OF PART CODING



<small>UNLESS OTHERWISE SPECIFIED</small> DRAWING INTERPRETATION PER CCM4012 WORKMANSHIP PRACTICES PER WAH1005 ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT BREAK ALL SHARP EDGES .02 (0.5) MAX ALL FILLET RADII .020 (0.5) MAX. <small>125</small> <small>125</small> <small>125</small> <small>125</small> <small>125</small> <small>125</small> ALL SURFACES TOLERANCES .XX .XX ANGLES [X.X] [X.X] [X.X] ±.03 ±.010 ±.2° ±0.8 ±0.25 DIMENSION IN [ ] ARE MILLIMETERS	SIGNATURE	DATE	<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA		
	DRAWN K. GAZI	27FEB03			
	CHECKED D. KOEPPER	27MAR03			
	APPROVED K. GAZI	27MAR03			
	MFG.				
QA			TITLE INSERT - RING LOCKED, SOLID FINE THREAD EXTERNAL		
ESR NO 83001BH	SCALE NONE	SIZE A	CAGE NO. 97393	DRAWING NO. <b>SLR1000</b>	REV. <b>NC</b>

**SALES DRAWING  
SOLIDWORKS DWG**

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LTR	EDN NO.	DATE	DRAWN	CHECKED	APPRO	REL
NC	20532	SALES RELEASE			27MAR03	EM

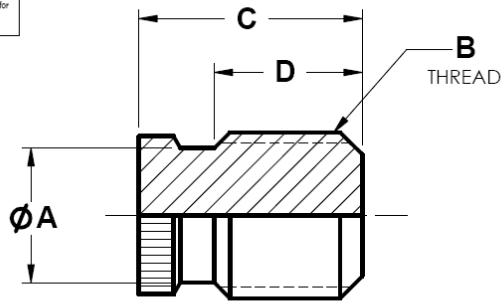


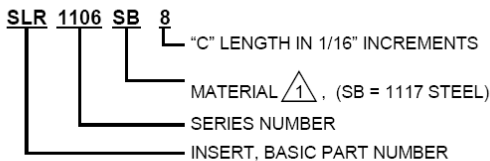
TABLE I

SHUR-LOK INSERT PART NO.	LOCKRING		A DIA MIN	B EXTERNAL THREAD 4	C ±.015	D ±.015
	SHUR-LOK PART NO. REF 6	MILITARY PART NO. REF 6 7				
SLR1102SB4	SLRLRR16SB5	MS51990-102P	.143	.1900-24	.250	.150
SLR1103SB5	SLRLRR18SB6	MS51990-103P	.170	.2160-24	.310	.190
SLR1104SB6	SLRLRR21SB6	MS51990-104P	.192	.2500-20	.380	.250
SLR1105SB7	SLRLRR24SB7	MS51990-105P	.243	.3125-18	.440	.290
SLR1106SB8	SLRLRR28SB8	MS51990-106P	.300	.3750-16	.500	.330
SLR1107SB9	SLRLRR31SB9	----	.353	.4375-14	.560	.380
SLR1108SB10	SLRLRR38SB9	MS51990-108P	.365	.5000-13	.620	.420
SLR1109SB11	SLRLRR38SB9	MS51990-108P	.440	.5625-12	.690	.480
SLR1110SB12	SLRLRR47SB10	MS51990-109P	.548	.6250-11	.750	.520
SLR1111SB14	SLRLRR56SB11	MS51990-110P	.607	.7500-10	.880	.620
SLR1112SB16	SLRLRR64SB11	MS51990-111P	.710	.8750-9	1.000	.740
SLR1113SB18	SLRLRR72SB11	MS51990-112P	.817	1.0000-8	1.120	.870

NOTES:

- 1 MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
2. HEAT TREAT: NONE.
3. FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- 4 THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, MIL-S-7742 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
5. INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019.
- 6 MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
- 7 OTHER MS51990 LOCKRINGS ARE ALSO AVAILABLE

EXAMPLE OF PART CODING



SALES DRAWING  
SOLIDWORKS DWG

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE		SHUR-LOK CORPORATION IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER CCM402 WORKMANSHIP PRACTICES PER WAI1005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.5) MAX. ALL FILED RADII .002 (0.1) MAX. 125 (1.2) ALL SURFACES.		DRAWN K. GAZI		27FEB03		TITLE INSERT - RING LOCKED, SOLID COARSE THREAD EXTERNAL	
TOLERANCES XX .XXX ANGLES D[X] [D.XX] ±.03 ±.010 ±.2° ±0.8 ±0.25		CHECKED D. KOEPPER		27MAR03		DRAWING NO. SLR1100	
DIMENSION IN [ ] ARE MILLIMETERS		APPROVED K. GAZI		27MAR03		REV/ NC	
		MFG.				SCALE NONE	
		Q.A.				SIZE A	
		ESR NO.				CAGE NO. 97393	
						SHEET 1 OF 1	

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LTR	EDN NO.	DATE	DRAWN	CHECKED	APPRO	REL
NC	20533	SALES RELEASE			27MAR03	EM
A	21941	26NOV03	DL	BS	BS	EM

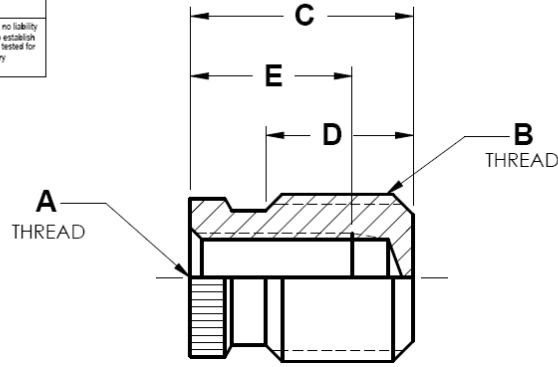


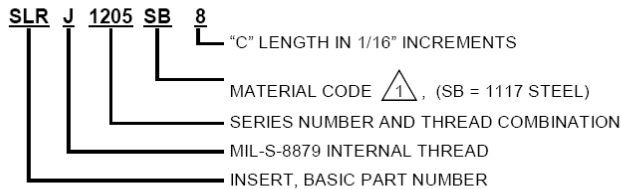
TABLE I

SHUR-LOK INSERT PART NO.	LOCKRING		A INTERNAL THREAD UNJF-3B	B EXTERNAL THREAD 4	C ±.015	D ±.015	E MINIMUM FULL THREAD DEPTH
	SHUR-LOK PART NO. REF 6	MILITARY PART NO. REF 6 7					
SLRJ1202SB4	SLRLRR16AB5	MS51990-102P	.1120-48	.1900-24	.310	.210	.16
SLRJ1203SB6	SLRLRR18AB6	MS51990-103P	.1380-40	.2160-24	.380	.260	.19
SLRJ1204SB7	SLRLRR21AB6	MS51990-104P	.1640-36	.2500-20	.440	.310	.25
SLRJ1205SB8	SLRLRR24AB7	MS51990-105P	.1900-32	.3125-18	.500	.350	.28
SLRJ1206SB10	SLRLRR28AB8	MS51990-106P	.2500-28	.3750-16	.620	.450	.38
SLRAJ1207SB11	SLRLRR33AB9	MS51990-107P	.3125-24	.5000-13	.690	.490	.41
SLRJ1208SB13	SLRLRR38AB9	MS51990-108P	.3750-24	.5625-12	.810	.600	.53
SLRJ1209SB16	SLRLRR47AB10	MS51990-109P	.4375-20	.6250-11	1.000	.770	.66
SLRJ1210SB17	SLRLRR56AB11	MS51990-110P	.5000-20	.7500-10	1.060	.810	.72


NOTES:

- 1 MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- 2 HEAT TREAT: NONE.
- 3 FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- 4 THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, MIL-S-7742 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- 5 INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019.
- 6 MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
- 7 OTHER MS51990 LOCKRINGS ARE ALSO AVAILABLE.

EXAMPLE OF PART CODING



**SALES DRAWING  
SOLIDWORKS DWG**

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE	 <b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER CC14012 WORKMANSHIP PRACTICES PER WAI1005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.5) MAX ALL FILET RADII .03 (0.5) MAX. 125 (R.2) ALL SURFACES. TOLERANCES .XX .XXX ANGLES (X.X) (X.XX) ±.03 ±.010 ±.2° ±(0.8) ±(0.25) DIMENSION IN ( ) ARE MILLIMETERS		DRAWN	K. GAZI	27FEB03		
		CHECKED	D. KOEPPER	27MAR03		
		APPROVED	K. GAZI	27MAR03		
		MFG.				
Q.A.					TITLE	INSERT - RING LOCKED, BLIND FINE THREAD INTERNAL COARSE THREAD EXTERNAL
ESR NO.					DRAWING NO.	<b>SLRJ1200</b>
					SCALE	NONE
					SIZE	A
					CAGE NO.	97393
					REV.	<b>A</b>
					SHEET	1 OF 1

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LTR	EDNO.	DATE	DRAWN	CHECKED	APPRO.	REL.
NC	20534	SALES RELEASE			27MAR03	EM

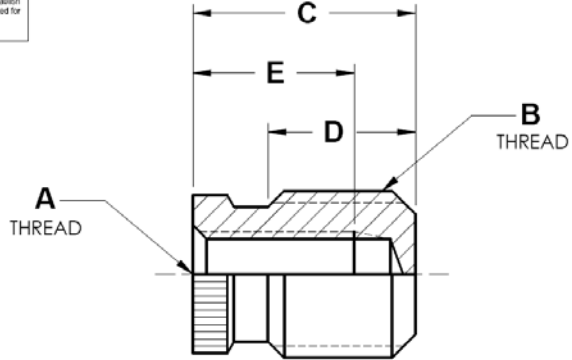


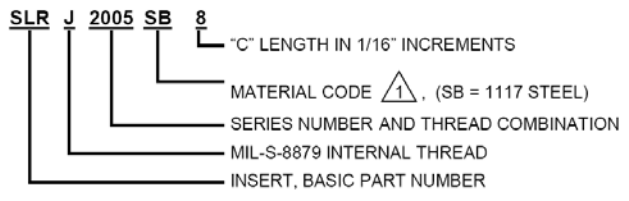
TABLE I

SHUR-LOK INSERT PART NO.	LOCKRING		A INTERNAL THREAD  UNJC CLASS-3B	B EXTERNAL THREAD  4	C	D	E MINIMUM FULL THREAD DEPTH
	SHUR-LOK PART NO. REF 6	MILITARY PART NO. REF 6 7					
SLRJ2002SB5	SLRLRR16SB5	MS51990-102P	.1120-40UNJC	.1900-24	.310	.210	.12
SLRJ2003SB6	SLRLRR18SB6	MS51990-103P	.1380-32UNJC	.2160-24	.380	.260	.16
SLRJ2004SB7	SLRLRR21SB6	MS51990-104P	.1640-32UNJC	.2500-20	.440	.310	.22
SLRJ2005SB8	SLRLRR24SB7	MS51990-105P	.1900-24UNJC	.3125-18	.500	.350	.25
SLRJ2006SB10	SLRLRR28SB8	MS51990-106P	.2500-20UNJC	.3750-16	.620	.450	.31
SLRJ2007SB11	SLRLRR33SB9	MS51990-107P	.3125-18UNJC	.5000-13	.690	.490	.38
SLRJ2008SB13	SLRLRR38SB9	MS51990-108P	.3750-16UNJC	.5625-12	.810	.600	.44
SLRJ2009SB16	SLRLRR47SB10	MS51990-109P	.4375-14UNJC	.6250-11	1.000	.770	.50
SLRJ2010SB17	SLRLRR56SB11	MS51990-110	.5000-13UNJC	.7500-10	1.060	.810	.62

NOTES:

- 1 MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- 2 HEAT TREAT: NONE.
- 3 FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- 4 THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, MIL-S-7742 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE
- 5 INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019.
- 6 MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
- 7 OTHER MS51990 LOCKRINGS ARE ALSO AVAILABLE.

EXAMPLE OF PART CODING



**SALES DRAWING  
SOLIDWORKS DWG**

<small>UNLESS OTHERWISE SPECIFIED</small> DRAWING INTERPRETATION PER CMM412 WORKMANSHIP PRACTICES PER WA11005 ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT BREAK ALL SHARP EDGES .02 (0.8) MAX ALL FILLET RADI .020 (0.5) MAX 125 (R2) / ALL SURFACES TOLERANCES .XX .XXX ANGLES (X.X) (X.XX) .03 .010 .005 .0025 DIMENSION IN [ ] ARE MILLIMETERS	SIGNATURE	DATE	<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA TITLE INSERT - RING LOCKED, BLIND COARSE THREAD INTERNAL COARSE THREAD EXTERNAL DRAWING NO. <b>SLRJ2000</b> REV <b>NC</b>
	DRAWN K. GAZI	27FEB03	
	CHECKED D. KOEPPER	27MAR03	
	APPROVED 27MAR03	27MAR03	
MFG.			SCALE NONE
Q.A.			SIZE A
ESR NO.			CAGE NO. 97383
			SHEET 1 OF 1

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LTR	EDN NO.	DATE	DRAWN	CHECKED	APPRO	REL
NC	20530	SALES RELEASE		02APR03		EM

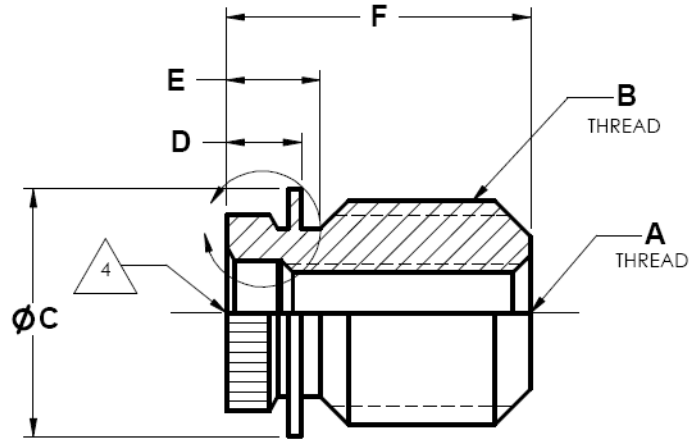
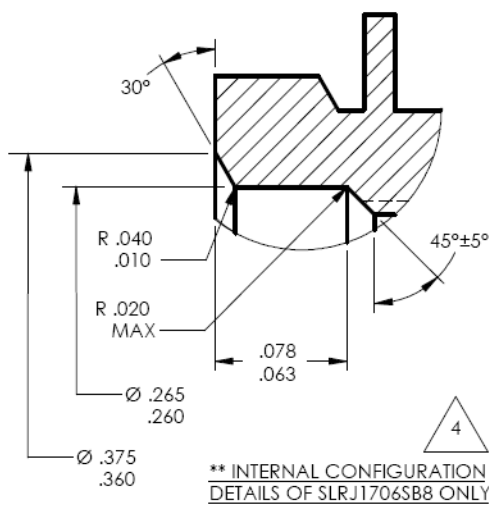


TABLE I

INSERT PART NUMBER	LOCKRING PART NUMBER 7 REF	A INTERNAL THREAD CLASS-3B	B EXTERNAL THREAD CLASS-3A	C DIA ±.005	D ±.015	E ±.005	F ±.015
** SLRJ1706SB8	SLRL33SB7	.2500-28UNJF	.4375-20UNF	.510	.176	.276	.500
SLRJ1707SB8	SLRL38SB7	.3125-24UNJF	.5000-20UNF	.588	.176	.276	.500
SLRJ1708SB8	SLRL47SB8	.3750-24UNJF	.6250-18UNF	.729	.191	.302	.500
SLRJ1709SB9	SLRL47SB8	.4375-20UNJF	.6250-18UNF	.729	.191	.302	.560
SLRJ1710SB9	SLRL56SB8	.5000-20UNJF	.7500-16UNF	.870	.191	.316	.560
SLRJ1711SB9	SLRL56SB8	.5625-18UNJF	.7500-16UNF	.870	.191	.316	.560
SLRJ1713SB10	SLRL72SB8	.7500-16UNJF	1.0000-14UNS	1.120	.191	.334	.620

NOTES:

- MATERIAL: 1117 STEEL PER ASTM A108. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- INSERTS ARE INSTALLED PER SHUR-LOK TSB 0019.
- INTERNAL CONFIGURATION MEETS THE REQUIREMENTS OF AS33649 EXCEPT SLRJ1706SB8.
- REFER TO SHUR-LOK SLAS3078 SERIES DRAWINGS 3000 PSI EXTERNAL SEALING CONFIGURATION.
- PROPERLY INSTALLED WITH DESIGNER'S CHOICE OF PACKING RING, THESE FASTENERS WILL EFFECT AN EXTERNAL SEAL OF 150 PSI. FOR O-RING INFORMATION SEE SHUR-LOK TSB 0019.
- THE HYDRAULIC INSERT IS USED IN CONJUNCTION WITH A THIN-SERIES "SLRL-SERIES" LOCKRING.

**SALES DRAWING  
SOLIDWORKS DWG**

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE		SHUR-LOK CORPORATION IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER COM4012 WORKMANSHIP PRACTICES PER WAT1005 ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT BREAK ALL SHARP EDGES .02 (0.5) MAX ALL FILLET RADI .020 (0.5) MAX TOLERANCES ±.03 ±.010 ±.02* ±0.08 ±0.25 DIMENSION IN [ ] ARE MILLIMETERS		DRAWN K. GAZI		28MAR03		TITLE INSERT - RING LOCKED, HYDRAULIC (150 PSI)	
		CHECKED D. KOEPPER		01APR03		DRAWING NO. <b>SLRJ1700</b>	
		APPROVED K. GAZI		02APR03		REV <b>NC</b>	
		MFG.				SCALE NONE	
		Q.A.				SIZE A	
		ESR NO.				CAGE NO. 97393	
						SHEET 1 OF 1	



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LTR	EDN NO.	DATE	DRWEN	CHKED	APPO	REL.
NC	20529	SALES RELEASE			22APR03	EM
A	22600	23SEP04	J.N	J.N	N.P	E.M

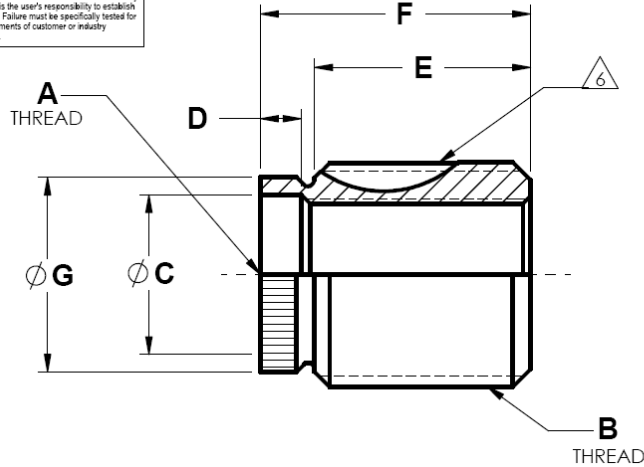


TABLE I

INSERT PART NUMBER	LOCKRING PART NUMBER	A INTERNAL THREAD UNJF-3B MIL-S-8879	B EXTERNAL THREAD $\triangle 4$			C DIA $\pm .005$	D $\pm .005$	E $\pm .015$	F $\pm .015$	G DIA $\pm .005$
			SIZE	PITCH DIA	MINOR DIA					
SLRDJ3604L	SLRL21SB4	.1640-32	.3125-18	.2769 - .2789	.2373 - .2468	.170	.075	.200	.280	.232
SLRDJ3605L	SLRL24SB5	.1900-32	.3750-16	.3347 - .3372	.2906 - .3011	.196	.075	.210	.310	.286
SLRDJ3606L	SLRL28SB5	.2500-28	.4375-14	.3916 - .3941	.3411 - .3529	.257	.083	.270	.380	.347
SLRDJ3607L	SLRL33SB6	.3125-24	.5000-13	.4506 - .4531	.3963 - .4087	.320	.097	.350	.470	.410
SLRDJ3608L	SLRL38SB7	.3750-24	.5625-12	.5091 - .5116	.4873 - .4998	.382	.097	.480	.620	.490
SLRDJ3609L	SLRL43SB7	.4375-20	.6250-11	.5668 - .5693	.5498 - .5603	.445	.113	.610	.750	.542

NOTES:

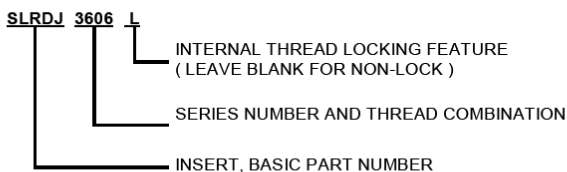
- MATERIAL: 4140 STEEL OR EQUIVALENT.
- HEAT TREAT: 160-180 KSI UTS.
- FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3. CARBON WAX LUBRICANT MFR'S OPTION ON PARTS WITH THREAD LOCK.

$\triangle 4$  THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, MIL-S-7742 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.

5. INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019.

$\triangle 6$  INTERNAL THREAD LOCKING FEATURE COMPLIES WITH APPLICABLE PORTION OF SPECIFICATION NASM 25027 FOR 450°F.

EXAMPLE OF PART CODING



UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE	<p><b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA</p>			
DRAWING INTERPRETATION PER CCM4512 WORKMANSHIP PRACTICES PER WA11002 ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.5) MAX ALL FILLET RADI .001 (0.025) MAX. 125 (2.2) ALL SURFACES.		DRAWN	K. GAZI	28MAR03				
		CHECKED	D. KOEPPER	01APR03				
		APPROVED	K. GAZI	22APR03				
		MFG.	-----	-----				
TOLERANCES .XX .XXX ANGLES [X.X] [X.X] $\pm .03$ $\pm .010$ $\pm 2^\circ$ $\pm 0.8$ $\pm 0.25$ DIMENSION IN [ ] ARE MILLIMETERS		Q.A.	-----	-----	TITLE <b>INSERT - RING LOCKED HIGH STRENGTH</b>			
		ESR NO.	-----	-----	DRAWING NO. <b>SLRDJ3600</b>			
		SCALE	NONE	SIZE	A	CASE NO. 97393	REV. <b>A</b>	SHEET 1 OF 1

**SALES DRAWING  
SOLIDWORKS DWG**

NOTE: This drawing includes a CONFIDENTIAL proprietary design created by SHUR-LOK CORPORATION and all design, manufacturing, inspection, and assembly requirements are the property of SHUR-LOK CORPORATION. The purchaser is to be held responsible for the accuracy of the drawing and for the use of the drawing and for the safety of the user. No responsibility is assumed by SHUR-LOK CORPORATION for the use of the drawing or for the safety of the user. All rights are reserved.

REV	DATE	BY	CHKD	APP	REL
NO	2002	SALES RELEASE	22APR03		EM
A	22APR03	22APR04	JH	JH	HP
					EM

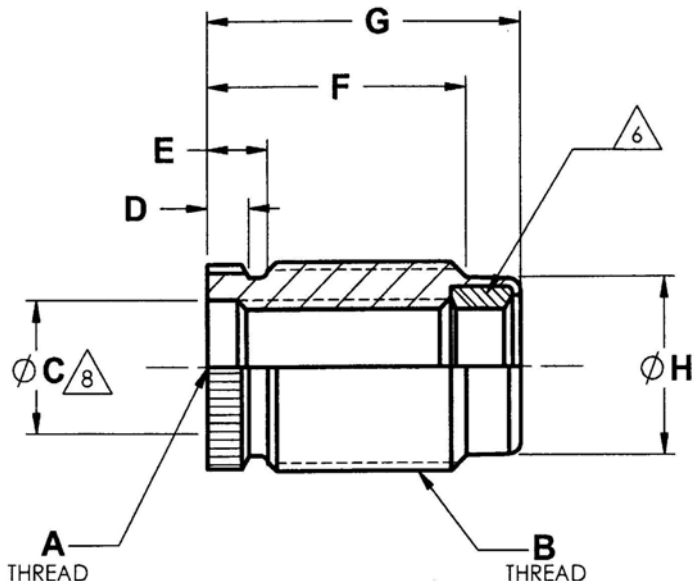


TABLE I

SHUR-LOK INSERT PART NO.	SHUR-LOK LOCKRING PART NO. REF	A INTERNAL THREAD UNJF-3B	B EXTERNAL THREAD	C DIA +.007 -.002	D ±.015	E ±.015	F ±.015	G ±.015	H DIA MAX
SL05-13008-050	SLRL24SU5	.1900-32	.3750-24	.196	.075	.105	.390	.456	.297
SL05-13008-060	SLRL28SU5	.2500-28	.4375-20	.257	.083	.105	.504	.602	.360
SL05-13008-070	SLRL33SU5	.3125-24	.5000-20	.320	.097	.120	.640	.775	.417
SL05-13008-080	SLRL38SU5	.3750-24	.5625-18	.382	.097	.140	.824	.999	.480

NOTES:

- 1 MATERIAL: A286 PER AMS5731 OR 5734.
- 2 HEAT TREAT: BRINELL 269 MIN.
- 3 FINISH: SOLID FILM LUBRICANT PER REQUIREMENTS OF MIL-L-46010 (TIOLUBE). NOTE: OVERSPRAY IS PERMISSIBLE ON INTERNAL THREAD LOCKING FEATURE.
- 4 THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, MIL-S-7742 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE. THREAD DIMENSIONS ARE PRIOR TO THE ADDITION OF SOLID FILM LUBE.
- 5 INSERTS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019.
- 6 POLYIMIDE RESIN (SP-1) TYPE INTERNAL THREAD LOCKING FEATURE.
- 7 MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
- 8 THREAD MARKS PERMISSIBLE INSIDE COUNTERBORE.

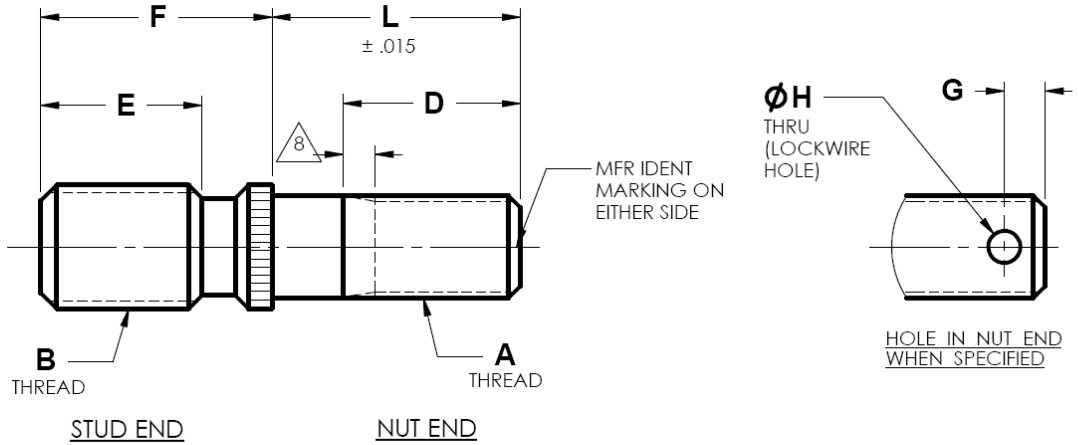
SALES DRAWING  
SOLIDWORKS DWG

<small>UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES - FRACTIONS DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS ALL DIMENSIONS APPLY UNLESS OTHERWISE SPECIFIED SURFACE FINISH: UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE TO BE TAKEN TO THE CENTER OF THE HOLE DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS</small>		SIGNATURE DATE CHECKED APPROVED MFG. QA EMP. NO.	SHUR-LOK CORPORATION IRVINE, CALIFORNIA <b>RESIN LOCKED INSERT</b> SL05-13008( ) SCALE: NONE REV: A SHEET 1 OF 1
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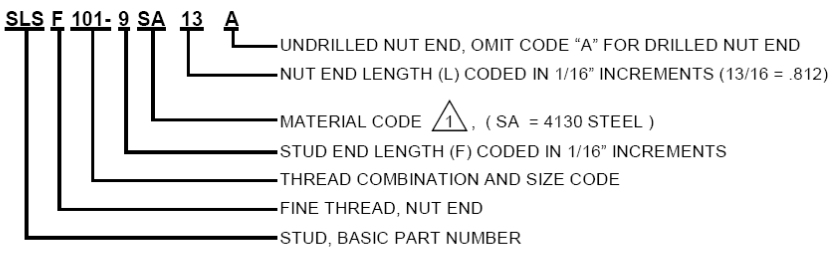
LTR	EON NO.	DATE	DRAWN	CHECKED	APPRO	REL
NC	20506	SALES RELEASE		27MAR03		EM



NOTES:

- 1 MATERIAL: 4130 STEEL PER MIL-S-6758. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
2. HEAT TREAT: 125,000 PSI UTS MIN.
3. FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TY II, CLASS 3.
- 4 THE NUT END WILL BE THREADED TO ITS FULL LENGTH WHEN LENGTH CODE 'L' IS EQUAL TO OR SHORTER THAN COLUMN 'C'. IF LENGTH CODE 'L' IS LONGER THAN COLUMN 'C' AND IF REQUIRED TO BE THREADED FULL LENGTH, USE PREFIX 'SLSFT' (EXAMPLE: SLSFT101-9SA10A) FOR 'L' CODES, SEE EXAMPLE OF PART CODING.
- 5 THE STUD END THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, FED-STD-H28/2 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
6. STUDS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019 OR MS51995.
7. STUD END THREAD LENGTHS SHOWN ARE BASED ON INSTALLATION IN 2024-T4 ALUMINUM AND WILL ACCOMODATE TENSION LOADS UP TO THE STRENGTH OF THE NUT END. IF THIS DESIGN CRITERIA IS REQUIRED IN PARENT MATERIALS OF LOWER MECHANICAL PROPERTIES, LONGER STUD END LENGTHS THAN SHOWN ABOVE IN COLUMN "F" SHOULD BE SPECIFIED.
- 8 MAX 2 INCOMPLETE THREADS.
- 9 MATING LOCKRING IS NOT INCLUDED WITH STUD IT MUST BE ORDERED SEPARATELY.

EXAMPLE OF PART CODING



**SALES DRAWING  
SOLIDWORKS DWG**





UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE	SHUR-LOK CORPORATION IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER CCMM02 WORKMANSHIP PRACTICES PER WAH005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.5) MAX ALL FILLET RADIUS (.020 (0.5)) MAX. 125 (L2) ALL SURFACES. <td>DRAWN</td> <td>K. GAZI</td> <td>03FEB03</td> <td rowspan="4">TITLE STUD - RING LOCKED FINE THREAD NUT END FINE OR COARSE THREAD STUD END</td>		DRAWN	K. GAZI	03FEB03		TITLE STUD - RING LOCKED FINE THREAD NUT END FINE OR COARSE THREAD STUD END
TOLERANCES XX .XX .XXX ANGLES [X.X] [XXX] ±.03 ±.010 ±.2" ±[0.8] ±[0.25]		CHECKED	D. KOEPPER	27MAR03	DRAWING NO. <b>SLSF</b>	
DIMENSION IN [ ] ARE MILLIMETERS		APPROVED	K. GAZI	27MAR03		
		MFG.			SCALE NONE	
		Q.A.			SIZE <b>A</b>	
		ESR NO.			CAGE NO. 97393	
					SHEET 1 OF 2	

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


LTR	EON NO.	DATE	DRAWN	CHECKED	APPRO	REL
NC	20506	SALES RELEASE			27MAR03	EM

**TABLE I**

STUD		LOCKRING		A	B	C	D	E	F	G	H
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF 	MILITARY PART NO. REF 	NUT END THREAD UNF-3A	STUD END (COARSE) THREAD 						DIA
SLSF71-4SA(L/A)	MS51989-102-(L)	SLRLRR16SA5	MS51990-102P	.1380-40	.1640-32	-7	.380	.140	.250	-----	-----
SLSF81-6SA(L/A)	MS51989-103-(L)	SLRLRR18SA6	MS51990-103P	.1640-36	.1900-24	-8	.410	.230	.380	.110	.070
SLSF91-7SA(L/A)	MS51989-104-(L)	SLRLRR21SA6	MS51990-104P	.1900-32	.2500-20	-8	.440	.280	.440	.120	.070
SLSF101-9SA(L/A)	MS51989-105-(L)	SLRLRR24SA7	MS51990-105P	.2500-28	.3125-18	-9	.500	.390	.560	.160	.076
SLSF111-11SA(L/A)	MS51989-106-(L)	SLRLRR28SA8	MS51990-106P	.3125-24	.3750-16	-10	.560	.510	.690	.160	.076
SLSF121-12SA(L/A)	MS51989-107-(L)	SLRLRR33SA9	MS51990-107P	.3750-24	.4375-14	-11	.620	.520	.750	.170	.106
SLSF131-13SA(L/A)	MS51989-108-(L)	SLRLRR38SA9	MS51990-108P	.4375-20	.5000-13	-12	.690	.570	.810	.170	.106
SLSF141-14SA(L/A)	MS51989-109-(L)	SLRLRR47SA10	MS51990-109P	.5000-20	.5625-12	-14	.810	.630	.880	.190	.106
SLSF151-16SA(L/A)	MS51989-110-(L)	SLRLRR47SA10	MS51990-109P	.5625-18	.6250-11	-16	.940	.720	1.000	.220	.141
SLSF161-18SA(L/A)	MS51989-111-(L)	SLRLRR56SA11	MS51990-110P	.6250-18	.7500-10	-17	1.000	.820	1.120	.220	.141
SLSF181-21SA(L/A)	MS51990-112-(L)	SLRLRR64SA11	MS51990-111P	.7500-16	.8750-9	-19	1.120	.990	1.310	.220	.141


**FINE THREAD NUT END AND COARSE THREAD STUD END**

**TABLE II**

STUD		LOCKRING		A	B	C	D	E	F	G	H
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF 	MILITARY PART NO. REF 	NUT END THREAD UNF-3A	STUD END (FINE) THREAD 						DIA
SLSF72-4SA(L/A)	MS51989-202-(L)	SLRLRR16SA5	MS51990-102P	.1380-40	.1640-36	-7	.380	.140	.250	-----	-----
SLSF82-6SA(L/A)	MS51989-203-(L)	SLRLRR18SA6	MS51990-103P	.1640-36	.1900-32	-8	.410	.250	.380	.110	.070
SLSF92-7SA(L/A)	MS51989-204-(L)	SLRLRR21SA6	MS51990-104P	.1900-32	.2500-28	-8	.440	.310	.440	.120	.070
SLSF102-9SA(L/A)	MS51989-205-(L)	SLRLRR24SA7	MS51990-105P	.2500-28	.3125-24	-9	.500	.420	.560	.160	.076
SLSF112-11SA(L/A)	MS51989-206-(L)	SLRLRR28SA8	MS51990-106P	.3125-24	.3750-24	-10	.560	.550	.690	.160	.076
SLSF122-12SA(L/A)	MS51989-207-(L)	SLRLRR33SA9	MS51990-107P	.3750-24	.4375-20	-11	.620	.550	.750	.170	.106
SLSF132-13SA(L/A)	MS51989-208-(L)	SLRLRR38SA9	MS51990-108P	.4375-20	.5000-20	-12	.690	.610	.810	.170	.106
SLSF142-14SA(L/A)	MS51989-209-(L)	SLRLRR47SA10	MS51990-109P	.5000-20	.5625-18	-14	.810	.670	.880	.190	.106
SLSF152-16SA(L/A)	MS51989-210-(L)	SLRLRR47SA10	MS51990-109P	.5625-18	.6250-18	-16	.940	.780	1.000	.220	.141
SLSF162-18SA(L/A)	MS51989-211-(L)	SLRLRR56SA11	MS51990-110P	.6250-18	.7500-16	-17	1.000	.880	1.120	.220	.141
SLSF182-21SA(L/A)	MS51990-212-(L)	SLRLRR64SA11	MS51990-111P	.7500-16	.8750-14	-19	1.120	1.050	1.310	.220	.141

**FINE THREAD NUT END AND FINE THREAD STUD END**

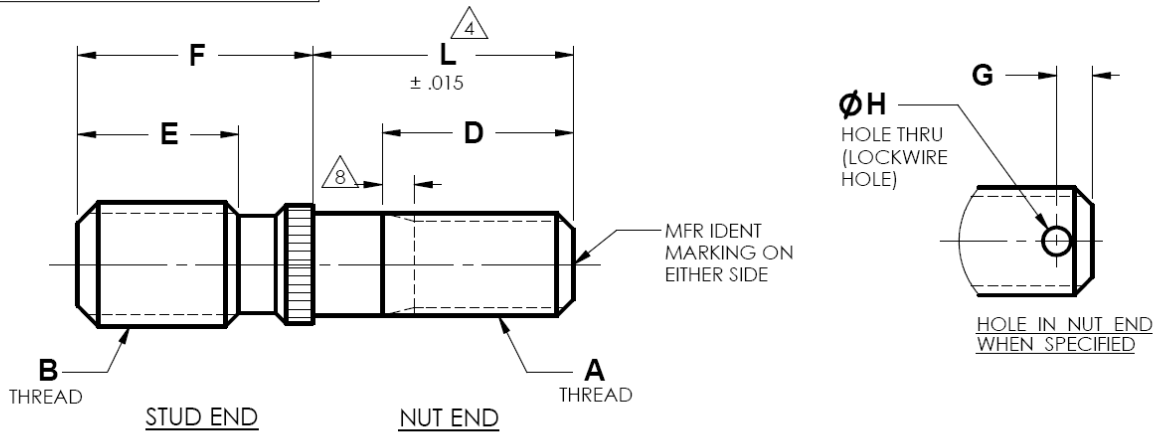
**SALES DRAWING  
SOLIDWORKS DWG**

<small>UNLESS OTHERWISE SPECIFIED</small> DRAWING INTERPRETATION PER CCMA012 WORKMANSHIP PRACTICES PER WIAH005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.5) MAX ALL FILET RADIUS .025 (0.5) MAX. 125 (1.2) ALL SURFACES. TOLERANCES .XX .XXX ANGLES D[X] [DXXX] ±.03 ±.010 ±.2° ±0.8 [±0.25] DIMENSION IN [ ] ARE MILLIMETERS	SIGNATURE	DATE	 <b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA TITLE STUD - RING LOCKED FINE THREAD NUT END FINE OR COARSE THREAD STUD END DRAWING NO. <b>SLSF</b> SCALE NONE SIZE <b>A</b> CAGE NO. 97393 SHEET 2 OF 2	
	DRAWN	K. GAZI		03FEB03
	CHECKED	D. KOEPPER		27MAR03
	APPROVED	K. GAZI		27MAR03
MFG.			REV. <b>NC</b>	

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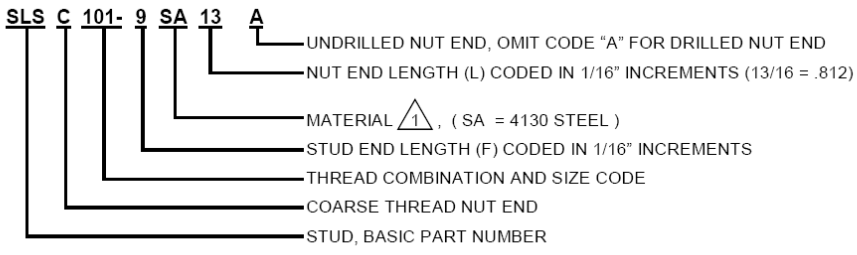
LTR	EDN NO.	DATE	DRAWN	CHECKED	APPRO	REL
NC	20508	SALES RELEASE			27MAR03	EM



NOTES:

- 1 MATERIAL: 4130 STEEL PER MIL-S-6758. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- 2. HEAT TREAT: 125,000 PSI UTS MIN.
- 3. FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 3.
- 4 THE NUT END WILL BE THREADED TO ITS FULL LENGTH WHEN LENGTH CODE 'L' IS EQUAL TO OR SHORTER THAN COLUMN 'C'. IF LENGTH CODE 'L' IS LONGER THAN COLUMN 'C' AND IF REQUIRED TO BE THREADED FULL LENGTH, USE PREFIX 'SLSFT' (EXAMPLE: SLSFT101-9SA10A) FOR 'L' CODES, SEE EXAMPLE OF PART CODING.
- 5 THE STUD END THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, FED-STD-H28/2 CLASS B OR NATIONAL CLASS 3 TAPPED HOLE.
- 6. STUDS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019 OR PER MS51995.
- 7. STUD END THREAD LENGTHS SHOWN ARE BASED ON INSTALLATION IN 2024-T4 ALUMINUM AND WILL ACCOMMODATE TENSION LOADS UP TO THE STRENGTH OF THE NUT END. IF THIS DESIGN CRITERIA IS REQUIRED IN PARENT MATERIALS OF LOWER MECHANICAL PROPERTIES, LONGER STUD END LENGTHS THAN SHOWN ABOVE IN COLUMN "F" SHOULD BE SPECIFIED.
- 8 MAX 2 INCOMPLETE THREADS.
- 9 MATING LOCKRING IS NOT INCLUDED WITH STUD. IT MUST BE ORDERED SEPARATELY.

EXAMPLE OF PART CODING



**SALES DRAWING  
SOLIDWORKS DWG**

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE	SHUR-LOK CORPORATION IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER CMM4012 WORKMANSHIP PRACTICES PER WAH005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES. (2) (0.5) MAX. ALL FILLET RADIUS (20) (0.5) MAX. 125 (1.2) ✓ ALL SURFACES. <td>DRAWN</td> <td>K. GAZI</td> <td>03FEB03</td> <td rowspan="4">TITLE STUD - RING LOCKED COARSE THREAD NUT END COARSE OR FINE THREAD STUD END</td>		DRAWN	K. GAZI	03FEB03		TITLE STUD - RING LOCKED COARSE THREAD NUT END COARSE OR FINE THREAD STUD END
TOLERANCES XX .XX ANGLES (X.X) (XX) ±.03 ±.010 ±2° ±(0.8) ±(0.25)		CHECKED	D. KOEPPER	27MAR03	DRAWING NO.	
DIMENSION IN [ ] ARE MILLIMETERS		APPROVED	K. GAZI	27MAR03	REV	
		MFG.			NC	
		Q.A.			SCALE NONE	
		ESR NO.			SIZE A	
					CAGE NO. 97393	
					SHEET 1 OF 2	







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



LTR	EDN NO.	DATE	DRAWN	CHECKED	APPRO	REL
NC	20508	SALES RELEASE			27MAR03	EM

TABLE I

STUD		LOCKRING		A	B	C	D	E	F	G	H
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF	MILITARY PART NO. REF	NUT END THREAD	STUD END THREAD						
				UNC-3A			±.015	±.015	±.015	±.015	DIA
SLSC71-4SA(L)A	MS51989-302-(L)	SLRLRR16SA5	MS51990-102P	.1380-32	.1640-32	-8	.380	.140	.250	-----	-----
SLSC81-6SA(L)A	MS51989-303-(L)	SLRLRR18SA6	MS51990-103P	.1640-32	.1900-24	-8	.410	.230	.380	.110	.070
SLSC91-7SA(L)A	MS51989-304-(L)	SLRLRR21SA6	MS51990-104P	.1900-24	.2500-20	-9	.440	.280	.440	.120	.070
SLSC101-9SA(L)A	MS51989-305-(L)	SLRLRR24SA7	MS51990-105P	.2500-20	.3125-18	-10	.500	.390	.560	.160	.076
SLSC111-11SA(L)A	MS51989-306-(L)	SLRLRR28SA8	MS51990-106P	.3125-18	.3750-16	-11	.560	.510	.690	.160	.076
SLSC121-12SA(L)A	MS51989-307-(L)	SLRLRR33SA9	MS51990-107P	.3750-16	.4375-14	-12	.620	.520	.750	.170	.106
SLSC131-13SA(L)A	MS51989-308-(L)	SLRLRR38SA9	MS51990-108P	.4375-14	.5000-13	-14	.690	.570	.810	.170	.106
SLSC141-14SA(L)A	MS51989-309-(L)	SLRLRR47SA10	MS51990-109P	.5000-13	.5625-12	-16	.810	.630	.880	.190	.106
SLSC151-16SA(L)A	MS51989-310-(L)	SLRLRR47SA10	MS51990-109P	.5625-12	.6250-11	-17	.940	.720	1.000	.220	.141
SLSC161-18SA(L)A	MS51989-311-(L)	SLRLRR56SA11	MS51990-110P	.6250-11	.7500-10	-19	1.000	.820	1.120	.220	.141
SLSC181-21SA(L)A	MS51990-312-(L)	SLRLRR64SA11	MS51990-111P	.7500-10	.8750-9	-22	1.120	.990	1.310	.220	.141


**COARSE THREAD NUT END AND COARSE THREAD STUD END**

TABLE II

STUD		LOCKRING		A	B	C	D	E	F	G	H
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF	MILITARY PART NO. REF	NUT END THREAD	STUD END THREAD						
				UNC-3A			±.015	±.015	±.015	±.015	DIA
SLSC72-4SA(L)A	MS51989-402-(L)	SLRLRR16SA5	MS51990-102P	.1380-32	.1640-36	-7	.380	.140	.250	-----	-----
SLSC82-6SA(L)A	MS51989-403-(L)	SLRLRR18SA6	MS51990-103P	.1640-32	.1900-32	-8	.410	.230	.380	.110	.070
SLSC92-7SA(L)A	MS51989-404-(L)	SLRLRR21SA6	MS51990-104P	.1900-24	.2500-28	-8	.440	.280	.440	.120	.070
SLSC102-11SA(L)A	MS51989-405-(L)	SLRLRR24SA7	MS51990-105P	.2500-20	.3125-24	-9	.500	.390	.560	.160	.076
SLSC112-11SA(L)A	MS51989-406-(L)	SLRLRR28SA8	MS51990-106P	.3125-18	.3750-24	-10	.560	.510	.690	.160	.076
SLSC122-12SA(L)A	MS51989-407-(L)	SLRLRR33SA9	MS51990-107P	.3750-16	.4375-20	-11	.620	.520	.750	.170	.106
SLSC132-13SA(L)A	MS51989-408-(L)	SLRLRR38SA9	MS51990-108P	.4375-14	.5000-20	-12	.690	.570	.810	.170	.106
SLSC142-14SA(L)A	MS51989-409-(L)	SLRLRR47SA10	MS51990-109P	.5000-13	.5625-18	-14	.810	.630	.880	.190	.106
SLSC152-16SA(L)A	MS51989-410-(L)	SLRLRR47SA10	MS51990-109P	.5625-12	.6250-18	-16	.940	.720	1.000	.220	.141
SLSC162-18SA(L)A	MS51989-411-(L)	SLRLRR56SA11	MS51990-110P	.6250-11	.7500-16	-17	1.000	.820	1.120	.220	.141
SLSC182-21SA(L)A	MS51990-412-(L)	SLRLRR64SA11	MS51990-111P	.7500-10	.8750-14	-19	1.120	.990	1.310	.220	.141

**COARSE THREAD NUT END AND FINE THREAD STUD END**

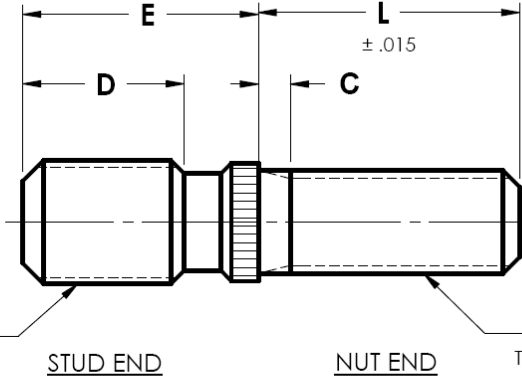
**SALES DRAWING  
SOLIDWORKS DWG**

UNLESS OTHERWISE SPECIFIED:		SIGNATURE		DATE		 <b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER CMM402 WORKMANSHIP PRACTICES PER WAH005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.5) MAX. ALL FILLET RADI .020 (0.5) MAX. $\sqrt{R}$ ALL SURFACES		DRAWN K. GAZI		03FEB03			
TOLERANCES X.XX XXXX ANGLES (X.X) (X.XX) ±.03 ±.010 ±.2° ±0.8 (±0.25) DIMENSION IN ( ) ARE MILLIMETERS		CHECKED D. KOEPPER		27MAR03		DRAWING NO.	
		APPROVED K. GAZI		27MAR03		REV	
		MFG.				SLSC	
		Q.A.				NC	
		ESR NO.		SCALE NONE		SIZE A	
				CAGE NO. 97393		SHEET 2 OF 2	

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LTR	EDN NO.	DATE	DRWEN	CHKED	APPO	REL.
NC	20509	SALES RELEASE			27MAR03	EM
A	22591	20SEP04	J.N	J.N	N.P	EM



MFR IDENT MARKING ON EITHER SIDE

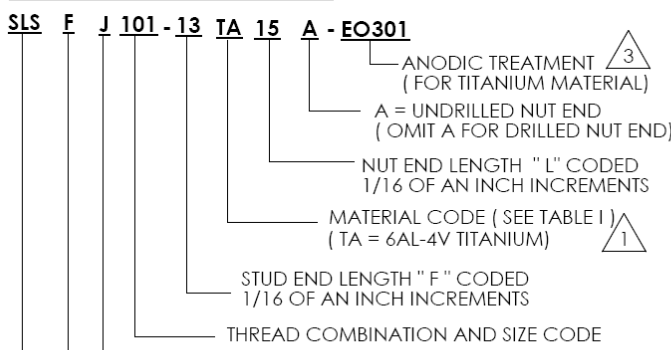
TABLE I

CODE	MATERIAL	SPECIFICATION	HEAT TREAT	FINISH
SA	4130 STEEL	MIL-S - 6758	125 KSI UTS MIN	CAD PLATE PER QQ-P-416, TYPE II, CLASS 3
SB	1117 STEEL	ASTM A108	NONE	
SM	303 SE CRES	ASTM A582 OR AMS5640		
SN	4340 STEEL OR 4140 STEEL	AMS6415, AMS6484 OR AMS6382	160 - 180 KSI UTS MIN	CAD PLATE PER QQ-P-416, TYPE II, CLASS 3
SU	A286 CRES	AMS5731, AMS5732, AMS5734 OR AMS5737	130 KSI UTS MIN	PASSIVATE PER AMS - QQ - P - 35
			140 - 200 KSI UTS MIN $\triangle 7$	CLEAN, DESCALE AND PASSIVATE PER ASTM A380 $\triangle 7$
S3	718 CRES	AMS5662	180 KSI UTS MIN	PASSIVATE PER AMS - QQ - P - 35
TA	6AL - 4V TITANIUM	AMS4967 OR MIL-T-9047 CONDITION A.	130 KSI UTS MIN	ANODIC TREATMENT PER AMS2488, TYPE II $\triangle 3$
TB	6AL - 4V TITANIUM	AMS4967	160 KSI UTS MIN	

NOTES:

- $\triangle 1$  MATERIAL: 4130 STEEL PER MIL - S - 6758. FOR OTHER MATERIAL SEE TABLE I.
2. HEAT TREAT: 125 KSI UTS MIN. (SEE TABLE I)
- $\triangle 3$  FINISH: SEE TABLE I. FOR TITANIUM WITH ANODIC TREATMENT PER AMS2488, TYPE II, ADD SUFFIX EO301.
- $\triangle 4$  THE STUD END THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO MIL-S-8879 CLASS 3B, FED-STD-H28/2 CLASS 3B, OR NATIONAL CLASS 3 TAPEED HOLE.
- $\triangle 5$  STUDS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019 OR PER MS51995.
- $\triangle 6$  MATING LOCKRING IS NOT INCLUDED WITH STUD. IT MUST BE ORDERED SEPARATELY.
- $\triangle 7$  THESE REQUIREMENTS ARE FOR PARTS INTERCHANGEABLE WITH MILITARY PART NUMBER MS51551C ( ) SERIES.

EXAMPLE OF PART CODING



SALES DRAWING  
SOLIDWORKS DWG

UNLESS OTHERWISE SPECIFIED  
DRAWING INTERPRETATION PER CCMS4012  
WORKMANSHIP PRACTICES PER VAL1002  
ALL DIMENSIONS APPLY AFTER PLATING  
AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT  
BREAK ALL SHARP EDGES, 02 (0.5) MAX  
ALL FILLET RADI, 020 (0.5) MAX,  
125 (2.2) ALL SURFACES.  
TOLERANCES  
XXX XXX ANGLES [XXX] [XXX]  
±.03 ±.010 ±.2° ±.018 ±.025  
DIMENSION IN [ ] ARE MILLIMETERS

SIGNATURE	DATE
DRAWN K. GAZI	03FEB03
CHECKED D. KOEPPER	27MAR03
APPROVED K. GAZI	27MAR03
MFG	
Q.A	
ESR NO.	

**SHUR-LOK CORPORATION**  
IRVINE, CALIFORNIA

TITLE  
STUD - RING LOCKED  
FINE THREAD NUT END  
COARSE OR FINE THREAD STUD END

DRAWING NO. **SLSFJ** REV. **A**

SCALE NONE SIZE **A** CASE NO. 97393 SHEET 1 OF 2

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LTR	EDN NO.	DATE	DRAWN	CHKD	APPD	REL.
NC	20509	SALES RELEASE			27MAR03	EM
A	22591	20SEP04	J.N	J.N	N.P	E.M

**TABLE II: FINE THREAD NUT END, COARSE THREAD STUD END**

STUD		LOCKRING		A	B	C	D	E
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF	MILITARY PART NO. REF	NUT END THREAD UNJF-3A	STUD END THREAD			
		△ 6	△ 6		△ 4	MAX	±.015	±.015
SLSFJ81-6SA(5 THRU 8)A	MS51551D103 (5 THRU 8 )	SLRLRR18SA6	MS51990-103P	.1640-36	.1900-24	.076	.230	.380
SLSFJ81-8SA(5 THRU 8)A	MS51551D103A (5 THRU 8)						.360	.500
SLSFJ81-10SA(5 THRU 8)A	MS51551D103B (5 THRU 8)						.480	.620
SLSFJ91-7SA(6 THRU 8)A	MS51551D104 (6 THRU 8)	SLRLRR21SA6	MS51990-104P	.1900-32	.2500-20	.082	.280	.440
SLSFJ91-9SA(6 THRU 8)A	MS51551D104A (6 THRU 8)						.410	.560
SLSFJ91-11SA(6 THRU 8)A	MS51551D104B (6 THRU 8)						.540	.690
SLSFJ101-9SA(6 THRU 9)A	MS51551D105 (6 THRU 9)	SLRLRR24SA7	MS51990-105P	.2500-28	.3125-18	.091	.390	.560
SLSFJ101-11SA(6 THRU 9)A	MS51551D105A (6 THRU 9)						.510	.690
SLSFJ101-13SA(6 THRU 9)A	MS51551D105B (6 THRU 9)						.630	.810
SLSFJ111-11SA(8 THRU 10)A	MS51551D106 (8 THRU 10)	SLRLRR28SA8	MS51990-106P	.3125-24	.3750-16	.103	.510	.690
SLSFJ111-14SA(8 THRU 10)A	MS51551D106A(8 THRU 10)						.700	.880
SLSFJ111-17SA(8 THRU 10)A	MS51551D106B(8 THRU 10)						.880	1.060
SLSFJ121-12SA(9 THRU 11)A	MS51551D107 (9 THRU 11)	SLRLRR33SA9	MS51990-107P	.3750-24	.4375-14	.103	.520	.750
SLSFJ121-15SA(9 THRU 11)A	MS51551D107A(9 THRU 11)						.710	.940
SLSFJ121-18SA(9 THRU 11)A	MS51551D107B(9 THRU 11)						.890	1.120
SLSFJ131-13SA(10 THRU 12)A	MS51551D108 (10 THRU 12)	SLRLRR38SA9	MS51990-108P	.4375-20	.5000-13	.120	.570	.810
SLSFJ131-16SA(10 THRU 12)A	MS51551D108A(10 THRU 12)						.760	1.000
SLSFJ131- 19SA(10 THRU 12)A	MS51551D108B(10 THRU 12)						.950	1.190

**TABLE III: FINE THREAD NUT END, FINE THREAD STUD END**

STUD		LOCKRING		A	B	C	D	E
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF	MILITARY PART NO. REF	NUT END THREAD UNJF-3A	STUD END THREAD			
		△ 6	△ 6		△ 4	MAX	±.015	±.015
SLSFJ82-6SA(5 THRU 8)A	MS51551D203 (5 THRU 8 )	SLRLRR18SA6	MS51990-103P	.1640-36	.1900-32	.076	.250	.380
SLSFJ82-8SA(5 THRU 8)A	MS51551D203A (5 THRU 8)						.380	.500
SLSFJ82-10SA(5 THRU 8)A	MS51551D203B (5 THRU 8)						.500	.620
SLSFJ92-7SA(6 THRU 8)A	MS51551D204 (6 THRU 8)	SLRLRR21SA6	MS51990-104P	.1900-32	.2500-28	.082	.310	.440
SLSFJ92-9SA(6 THRU 8)A	MS51551D204A (6 THRU 8)						.430	.560
SLSFJ92-11SA(6 THRU 8)A	MS51551D204B (6 THRU 8)						.560	.690
SLSFJ102-9SA(6 THRU 9)A	MS51551D205 (6 THRU 9)	SLRLRR24SA7	MS51990-105P	.2500-28	.3125-24	.091	.420	.560
SLSFJ102-11SA(6 THRU 9)A	MS51551D205A (6 THRU 9)						.550	.690
SLSFJ102-13SA(6 THRU 9)A	MS51551D205B (6 THRU 9)						.670	.810
SLSFJ112-11SA(8 THRU 10)A	MS51551D206 (8 THRU 10)	SLRLRR28SA8	MS51990-106P	.3125-24	.3750-24	.103	.550	.690
SLSFJ112-14SA(8 THRU 10)A	MS51551D206A(8 THRU 10)						.740	.880
SLSFJ112-17SA(8 THRU 10)A	MS51551D206B(8 THRU 10)						.920	1.060
SLSFJ122-12SA(9 THRU 11)A	MS51551D207 (9 THRU 11)	SLRLRR33SA9	MS51990-107P	.3750-24	.4375-20	.103	.550	.750
SLSFJ122-15SA(9 THRU 11)A	MS51551D207A(9 THRU 11)						.740	.940
SLSFJ122-18SA(9 THRU 11)A	MS51551D207B(9 THRU 11)						.920	1.120
SLSFJ132-13SA(10 THRU 12)A	MS51551D208 (10 THRU 12)	SLRLRR38SA9	MS51990-108P	.4375-20	.5000-20	.120	.610	.810
SLSFJ132-16SA(10 THRU 12)A	MS51551D208A(10 THRU 12)						.800	1.000
SLSFJ132- 19SA(10 THRU 12)A	MS51551D208B(10 THRU 12)						.990	1.190

**SALES DRAWING  
SOLIDWORKS DWG**

UNLESS OTHERWISE SPECIFIED:  
DRAWING INTERPRETATION PER CMM#12  
WORKMANSHIP PRACTICES PER WAI1005  
ALL DIMENSIONS APPLY AFTER PLATING  
AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT.  
BREAK ALL SHARP EDGES .02 [0.5] MAX  
ALL FILLET RADI .020 [0.5] MAX  
125 [1.2] / ALL SURFACES.  
TOLERANCES  
XXX .XXX ANGLES [XXX] [XXX]  
±.03 ±.010 ±.2° ±.0 [0.5] ±.0 [25]  
DIMENSION IN [ ] ARE MILLIMETERS

SIGNATURE	DATE
DRAWN K. GAZI	03FEB03
CHECKED D. KOEPPER	27MAR03
APPROVED K. GAZI	27MAR03
MFG	-----
QA	-----
ESR NO.	-----

**SHUR-LOK CORPORATION**  
IRVINE, CALIFORNIA

TITLE  
**STUD - RING LOCKED  
FINE THREAD NUT END  
COARSE OR FINE THREAD STUD END**

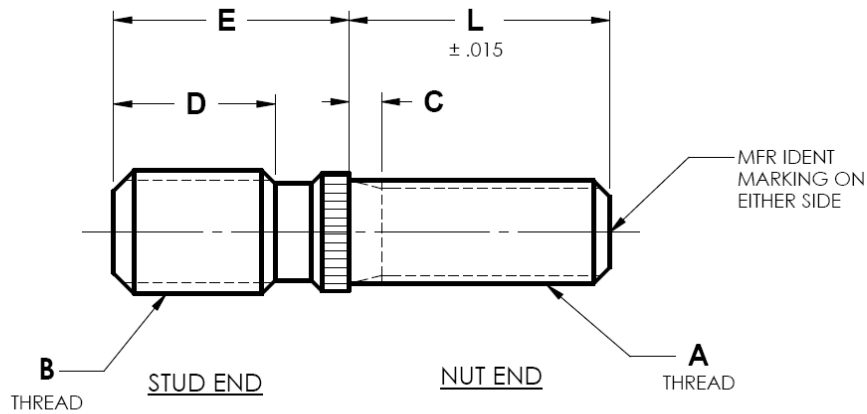
DRAWING NO. **SLSFJ** REV. **A**

SCALE NONE SIZE **A** CASE NO. 97393 SHEET 2 OF 2

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LTR	EDN NO.	DATE	DRAWN	CHECKED	APPRO	REL.
NC	20510	SALES RELEASE			27MAR03	EM



NOTES:

- 1 MATERIAL: 4130 STEEL PER MIL-S-6758. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- 2. HEAT TREAT: 125,000 PSI UTS MIN.
- 3. FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 3.
- 4. STUDS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019 OR PER MS51995.
- 5 THE STUD END THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, FED-STD-H28/2 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- 6 MATING LOCKRING IS NOT INCLUDED WITH STUD IT MUST BE ORDERED SEPARATELY.

EXAMPLE OF PART CODING

**SLSFTJ 92- 7 SA (9 thru 10) A**

- UNDRILLED NUT END, OMIT CODE "A" FOR DRILLED NUT END
- NUT END LENGTH ( L ) CODED IN 1/16" INCREMENTS ( 9/16 = .562 )
- MATERIAL CODE  $\triangle 1$  , ( SA = 4130 STEEL )
- STUD END LENGTH ( E ) CODED IN 1/16" INCREMENTS
- THREAD COMBINATION CODE
- BASIC PART NUMBER, MIL-S-8879 NUT END THREAD, **NO SHANK**

**SALES DRAWING  
SOLIDWORKS DWG**

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE	SHUR-LOK CORPORATION IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER CMM4012 WORKMANSHIP PRACTICES PER WIA11005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.5) MAX. ALL FILLET RADI .020 (0.51) MAX. 125 (R.2) ALL SURFACES.		DRAWN	K. GAZI	03FEB03		TITLE STUD - RING LOCKED TERMINAL - FINE THREAD NUT END FINE & COARSE THREAD STUD END
TOLERANCES XXX XXX ANGLES [X.X] [X.XX] ±.03 ±.010 ±.2° ±0.8 [±0.25]		CHECKED	D. KOEPPER	27MAR03	DRAWING NO. <b>SLSFTJ</b>	
DIMENSION IN [ ] ARE MILLIMETERS		APPROVED	K. GAZI	27MAR03	REV <b>NC</b>	
		MFG.			SCALE NONE	
		Q.A.			SIZE <b>A</b>	
		ESR NO.			CAGE NO. 97393	
					SHEET 1 OF 2	

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LTR	ECN NO.	DATE	DRAWN	CHECKED	APPRO	REL.
NC	20510	SALES RELEASE			27MAR03	EM

TABLE I

STUD		LOCKRING		A	B	C	D	E
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF	MILITARY PART NO. REF	NUT END THREAD UNJF-3A	STUD END THREAD			
							±.015	±.015
SLSFTJ81-6SA(9 THRU 10)A	MS51551D03 (9 THRU 10)	SLRLRR18SA6	MS51990-103P	.1640-36	.1900-24	.076	.230	.440
SLSFTJ81-8SA(9 THRU 10)A	MS51551D03A (9 THRU 10)						.360	.560
SLSFTJ81-10SA(9 THRU 10)A	MS51551D103B (9 THRU 10)						.480	.690
SLSFTJ91-7SA(9 THRU 10)A	MS51551D104 (9 THRU 10)	SLRLRR21SA6	MS51990-104P	.1900-32	.2500-20	.082	.380	.390
SLSFTJ91-9SA(9 THRU 10)A	MS51551D104A (9 THRU 10)						.500	.510
SLSFTJ91-11SA(9 THRU 10)A	MS51551D104B (9 THRU 10)						.620	.630
SLSFTJ101-11SA(10 THRU 11)A	MS51551D105 (10 THRU 11)	SLRLRR24SA7	MS51990-105P	.2500-28	.3125-18	.091	.280	.560
SLSFTJ101-11SA(10 THRU 10)A	MS51551D105A (10 THRU 11)						.410	.690
SLSFTJ101-13SA(10 THRU 11)A	MS51551D105B (10 THRU 11)						.540	.810
SLSFTJ111-11SA(11 THRU 12)A	MS51551D106 (11 THRU 12)	SLRLRR28SA8	MS51990-106P	.3125-24	.3750-16	.103	.510	.690
SLSFTJ111-14SA(11 THRU 12)A	MS51551D106A(11 THRU 12)						.700	.880
SLSFTJ111-17SA(11 THRU 12)A	MS51551D106B(11 THRU 12)						.880	1.060
SLSFTJ121-12SA(12 THRU 13)A	MS51551D107 (12 THRU 13)	SLRLRR33SA9	MS51990-107P	.3750-24	.4375-14	.103	.520	.750
SLSFTJ121-15SA(12 THRU 13)A	MS51551D107A(12 THRU 13)						.710	.940
SLSFTJ121-18SA(12 THRU 13)A	MS51551D107B(12 THRU 13)						.890	1.120
SLSFTJ131-13SA(13 THRU 14)A	MS51551D108 (13 THRU 14)	SLRLRR38SA9	MS51990-108P	.4375-20	.5000-13	.120	.570	.810
SLSFTJ131-16SA(13 THRU 14)A	MS51551D108D(13 THRU 14)						.760	1.000
SLSFTJ131-19SA(13 THRU 14)A	MS51551D108B(13 THRU 14)						.950	1.190
SLSFTJ141-14SA(15 THRU 16)A	MS51551D109(15 THRU 16)	SLRLRR47SA10	MS51990-109P	.5000-12	.5625-12	.120	.630	.880
SLSFTJ141-17SA(15 THRU 16)A	MS51551D109A(15 THRU 16)						.810	1.060
SLSFTJ141-21SA(15 THRU 16)A	MS51551D109B(15 THRU 16)						1.060	1.310

**FINE THREAD NUT END  
COARSE THRAD STUD END**

TABLE II

STUD		LOCKRING		A	B	C	D	E
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF	MILITARY PART NO. REF	NUT END THREAD UNJF-3A	STUD END THREAD			
							±.015	±.015
SLSFTJ82-6SA(9 THRU 10)A	MS51551D203 (9 THRU 10)	SLRLRR18SA6	MS51990-103P	.1640-36	.1900-32	.076	.250	.440
SLSFTJ82-8SA(9 THRU 10)A	MS51551D203A (9 THRU 10)						.380	.560
SLSFTJ82-10SA(9 THRU 10)A	MS51551D203B (9 THRU 10)						.500	.690
SLSFTJ92-7SA(9 THRU 10)A	MS51551D204 (9 THRU 10)	SLRLRR21SA6	MS51990-104P	.1900-32	.2500-28	.082	.310	.390
SLSFTJ92-9SA(9 THRU 10)A	MS51551D204A (9 THRU 10)						.430	.510
SLSFTJ92-11SA(9 THRU 10)A	MS51551D204B (9 THRU 10)						.560	.630
SLSFTJ102-9SA(10 THRU 11)A	MS51551D205 (10 THRU 11)	SLRLRR24SA7	MS51990-105P	.2500-28	.3125-24	.091	.420	.560
SLSFTJ102-11SA(10 THRU 10)A	MS51551D205A (10 THRU 11)						.550	.690
SLSFTJ102-13SA(10 THRU 11)A	MS51551D205B (10 THRU 11)						.670	.810
SLSFTJ112-11SA(11 THRU 12)A	MS51551D206 (11 THRU 12)	SLRLRR28SA8	MS51990-106P	.3125-24	.3750-24	.103	.550	.690
SLSFTJ112-14SA(11 THRU 12)A	MS51551D206A(11 THRU 12)						.740	.880
SLSFTJ112-17SA(11 THRU 12)A	MS51551D206B(11 THRU 12)						.920	1.060
SLSFTJ122-12SA(12 THRU 13)A	MS51551D207 (12 THRU 13)	SLRLRR33SA9	MS51990-107P	.3750-24	.4375-20	.103	.550	.750
SLSFTJ122-15SA(12 THRU 13)A	MS51551D207A(12 THRU 13)						.740	.940
SLSFTJ122-18SA(12 THRU 13)A	MS51551D207B(12 THRU 13)						.920	1.120
SLSFTJ132-13SA(13 THRU 14)A	MS51551D208 (13 THRU 14)	SLRLRR38SA9	MS51990-108P	.4375-20	.5000-20	.120	.610	.810
SLSFTJ132-16SA(13 THRU 14)A	MS51551D208D(13 THRU 14)						.800	1.000
SLSFTJ132-19SA(13 THRU 14)A	MS51551D208B(13 THRU 14)						.990	1.190
SLSFTJ142-14SA(15 THRU 16)A	MS51551D209(15 THRU 16)	SLRLRR47SA10	MS51990-109P	.5000-12	.5625-18	.120	.670	.880
SLSFTJ142-17SA(15 THRU 16)A	MS51551D209A(15 THRU 16)						.850	1.060
SLSFTJ142-21SA(15 THRU 16)A	MS51551D209B(15 THRU 16)						1.100	1.310

**FINE THREAD NUT END  
FINE THRAD STUD END**

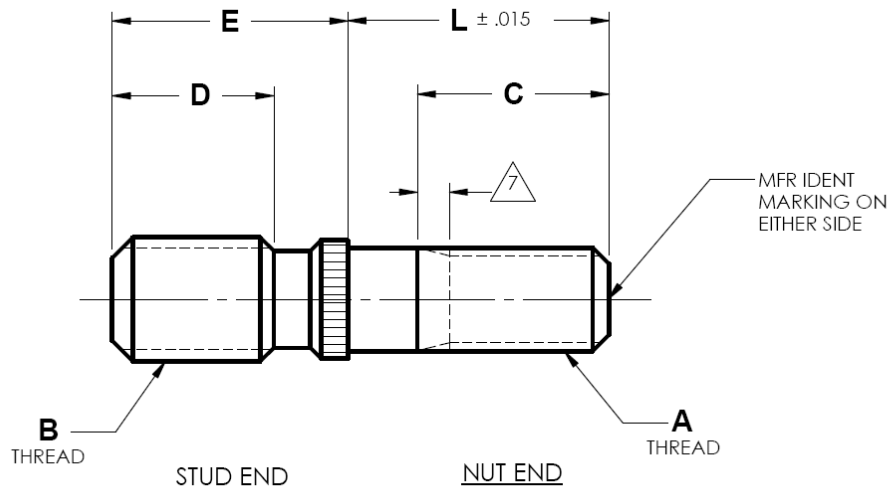
**SALES DRAWING  
SOLIDWORKS DWG**

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE		<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA						
DRAWING INTERPRETATION PER CMM402 WORKMANSHIP PRACTICES PER WAH1005 ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.9) MAX ALL FILED RADII (.0010-.01) MAX. 125 (1.2) ALL SURFACES.		DRAWN	K. GAZI	03FEB03		TITLE	STUD - RING LOCKED TERMINAL - FINE THREAD NUT END FINE & COARSE THREAD STUD END					
TOLERANCES XX .XXX ANGLES [X.X] [X.XX] ±.03 ±.010 ±.2° ±0.8 [±0.25] DIMENSION IN [ ] ARE MILLIMETERS		CHECKED	D. KOEPPER	27MAR03		DRAWING NO.	<b>SLSFTJ</b>					
		APPROVED	K. GAZI	27MAR03		REV.	<b>NC</b>					
		MFG.			SCALE	NONE	SIZE	A	CAGE NO.	97393	SHEET	2 OF 2

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This part has sufficient strength to meet the intended design loads and parameters. SHUR-LOK assumes no liability if parts are subjected to load conditions that exceed the design parameters. It is the user's responsibility to establish a Mean Time Between Failure for part performance. The Mean Time Between Failure must be specifically tested for during part qualification in order for this interval to be established. The requirements of customer or industry specifications and standards only apply to the extent specified on this drawing.

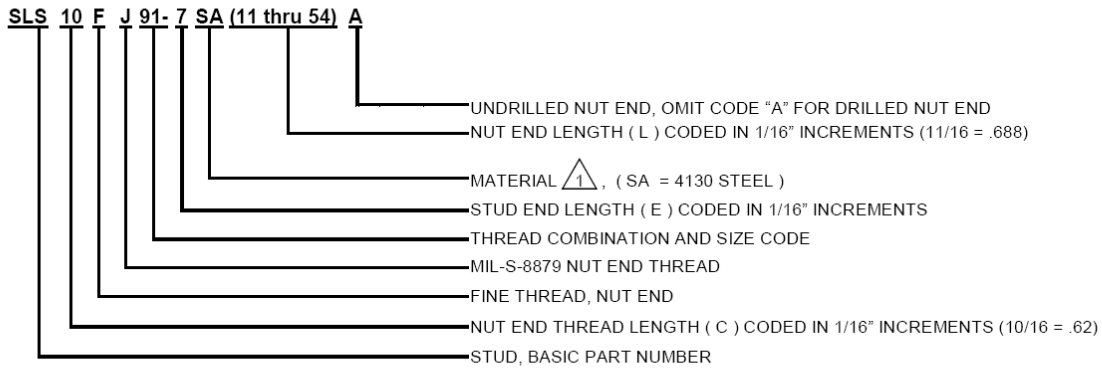
LTR	ECN NO.	DATE	DRAWN	CHECKED	APPRO	REL
NC	20511	SALES RELEASE			27MAR03	EM



NOTES:

- 1 MATERIAL: 4130 STEEL PER MIL-S-6758. SEE SHUR-LOK TSB 0018 TABLE I, FOR OTHER MATERIALS.
- 2. HEAT TREAT: 125,000 PSI UTS MIN.
- 3. FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 3.
- 4 THE STUD END THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, FED-STD-H28/2 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- 5. STUDS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019 OR PER MS1995.
- 6 MATING LOCKRING IS NOT INCLUDED WITH STUD IT MUST BE ORDERED SEPARATELY.
- 7 2 MAX INCOMPLETE THREADS.
- 8. STUDS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019 OR PER MS1995.
- 9 WHEN STUD END THREAD IS REQUIRED TO BE STANDARD THREAD (NOT SPECIAL PITCH), ADD SUFFIX CODE TO PART NUMBER AS FOLLOWS:  
 "EO254" - FOR THD PER FED-STD-H28/2 CLASS 3A  
 "EO302" - FOR THD PER MIL-S-8879 CLASS 3A.

EXAMPLE OF PART CODING



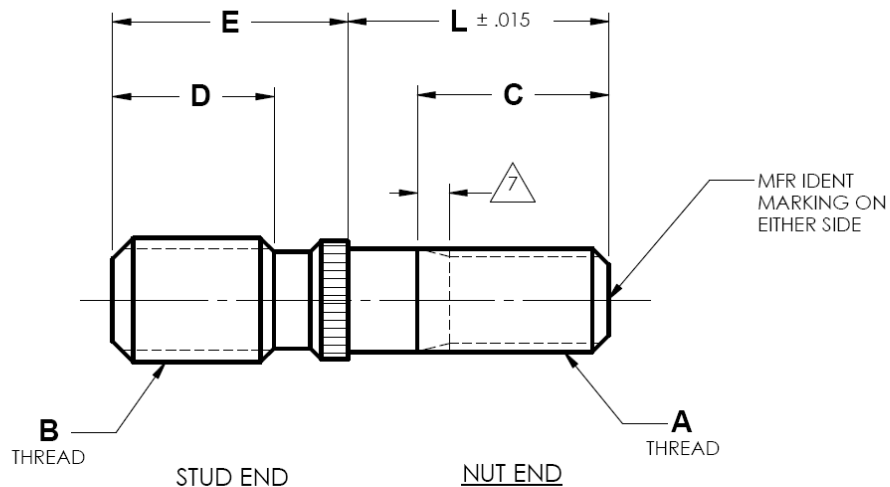
**SALES DRAWING  
SOLIDWORKS DWG**

<small>UNLESS OTHERWISE SPECIFIED</small> DRAWING INTERPRETATION PER CC44012 WORKMANSHIP PRACTICES PER W441005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.5) MAX. ALL FILED RADII .002 (0.1) MAX. 125 (1.2) ALL SURFACES. TOLERANCES .XX .XXX ANGLES (X.X) (X.XX) ±.03 ±.010 ±.2° ±0.8 ±0.25 DIMENSION IN [ ] ARE MILLIMETERS	SIGNATURE	DATE	<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA TITLE STUD - RING LOCKED FINE THREAD NUT END COARSE AND FINE THREAD STUD END DRAWING NO. <b>SLS-( )-FJ</b> REV <b>NC</b>
	DRAWN K. GAZI	03FEB03	
	CHECKED D. KOEPPER	27MAR03	
	APPROVED K. GAZI	27MAR03	
MFG.			SCALE NONE
Q.A.			SIZE A
ESR NO.			CAGE NO. 97393
			SHEET 1 OF 2

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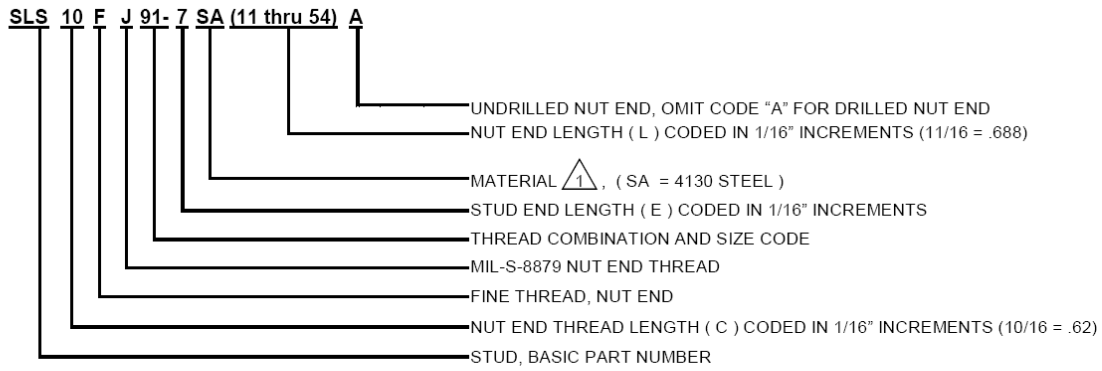
LTR	EON NO.	DATE	DRAWN	CHECKED	APPRO	REL
NC	20511	SALES RELEASE		27MAR03		EM



NOTES:

- 1 MATERIAL: 4130 STEEL PER MIL-S-6758. SEE SHUR-LOK TSB 0018 TABLE I, FOR OTHER MATERIALS.
- 2. HEAT TREAT: 125,000 PSI UTS MIN.
- 3. FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 3.
- 4 THE STUD END THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, FED-STD-H28/2 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- 5. STUDS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019 OR PER MS51995.
- 6 MATING LOCKRING IS NOT INCLUDED WITH STUD IT MUST BE ORDERED SEPARATELY.
- 7 2 MAX INCOMPLETE THREADS.
- 8. STUDS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019 OR PER MS51995.
- 9 WHEN STUD END THREAD IS REQUIRED TO BE STANDARD THREAD (NOT SPECIAL PITCH), ADD SUFFIX CODE TO PART NUMBER AS FOLLOWS:  
 "EO254" - FOR THD PER FED-STD-H28/2 CLASS 3A  
 "EO302" - FOR THD PER MIL-S-8879 CLASS 3A.

EXAMPLE OF PART CODING



**SALES DRAWING  
SOLIDWORKS DWG**

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE		<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER CCM402 WORKMANSHIP PRACTICES PER WAH005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.5) MAX. ALL FILED FROM .002 (0.1) MAX. 125 (1.2) ALL SURFACES.		DRAWN	K. GAZI		03FEB03		
TOLERANCES		CHECKED	D. KOEPPER		27MAR03		TITLE STUD - RING LOCKED FINE THREAD NUT END COARSE AND FINE THREAD STUD END
.XX .XXX ANGLES [D.X] [D.XX] ±.03 ±.010 ±.2° ±0.8] ±0.25]		APPROVED	K. GAZI		27MAR03		
DIMENSION IN [ ] ARE MILLIMETERS		MFG.					DRAWING NO.
		Q.A.					<b>SLS(-)FJ</b>
		ESR NO.					REV. <b>NC</b>
		SCALE	NONE		SIZE <b>A</b>		CAGE NO. 97393
						SHEET 1 OF 2	

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This part has sufficient strength to meet the intended design loads and parameters. SHUR-LOK assumes no liability if parts are subjected to local conditions that exceed the design parameters. It is the user's responsibility to establish a Mean Time Between Failure for part performance. The Mean Time Between Failure must be specifically tested for during part qualification in order for this interval to be established. The requirements of customer or industry specifications and standards only apply to the extent specified on this drawing.

LTR	EDN NO.	DATE	DRAWN	CHKD	APPO	REL
NC	22839	SALES RELEASE			23FEB05	EM

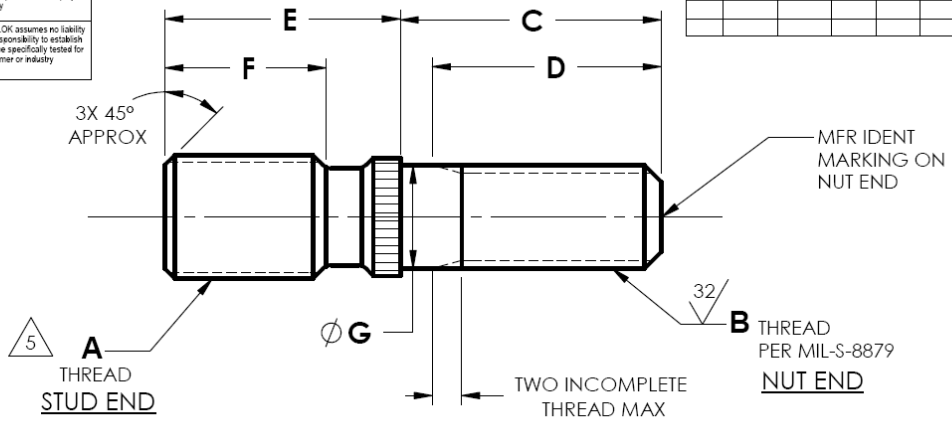


TABLE I

CODE	MATERIAL	SPECIFICATION	HEAT TREAT	FINISH
SU	A286 CRES	AMS5731, AMS5732, AMS5734 OR AMS5737	130 KSI UTS MIN	PASSIVATE PER AMS - QQ - P - 35
			140 - 200 KSI UTS MIN	CLEAN, DESCALE AND PASSIVATE PER ASTM A380

TABLE II

SHUR-LOK PART NUMBER	GENERAL ELECTRIC PART NUMBER	A STUD END THREAD 5	B NUT END THREAD UNJF-3A	C	D	E	F	Ø G	MATING LOCKRING 7
SLSFAJ121-12SU-16.5A	4038T93P05	.4380-14NS	.3750-24	1.02-1.04	.812 MIN	.735-.765	.505-.535	.370-.375	SLRLRR33SU9

NOTES:

- CUSTOMER: GENERAL ELECTRIC  
DRAWING NUMBER: 4038T93
- MATERIAL: SEE TABLE I
- HEAT TREAT: SEE TABLE I
- FINISH: SEE TABLE I
- THE STUD END THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER PER MS51989 - APPLICABLE SIZE.
- MUST CONFORM TO GENERAL ELECTRIC SPEC:  
a) M50TF9, CL-A (VENDOR DESIGNED PARTS)  
b) P23TF4, CL-A (REVISION LETTER MARKING). MARKING SHALL INCLUDE LATEST REV LETTER.
- MATING LOCKRING IS NOT INCLUDED WITH STUD. IT MUST BE ORDERED SEPARATELY.

**SALES DRAWING  
SOLIDWORKS DWG**

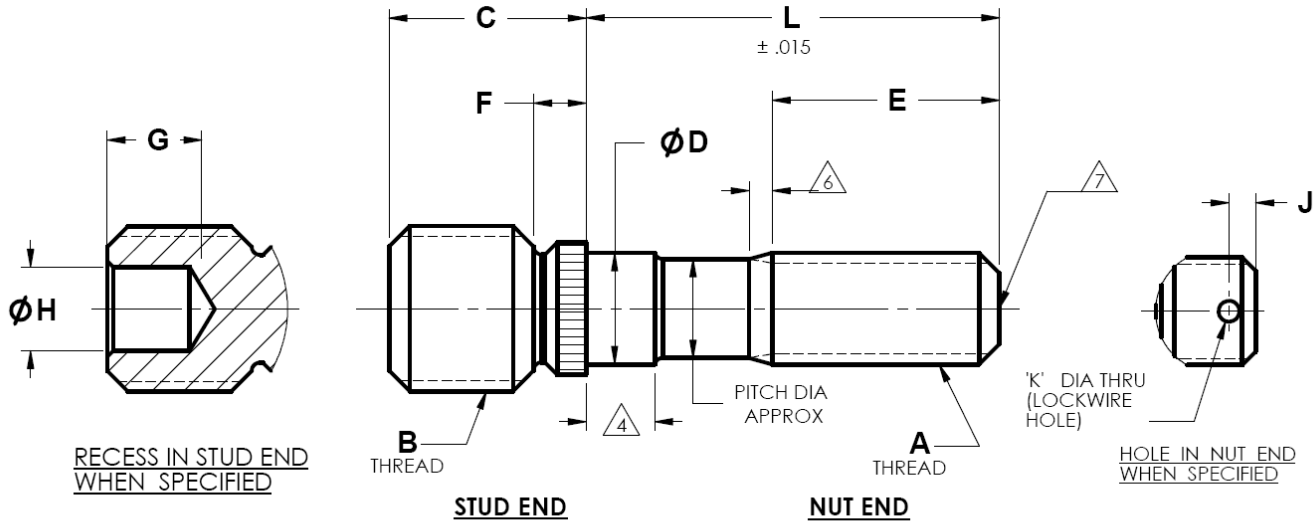
UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE	<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA
DRAWING INTERPRETATION PER CMM4012 WORKMANSHIP PRACTICES PER VIA11005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.5) MAX. ALL FILET RADI .008 (0.2) MAX. 125 (1.2) ALL SURFACES.		DRAWN	J. NGUYEN	17FEB05	
TOLERANCES XX .XX ANGLES [X.X] [X.X] ±.03 ±.010 ±2° ±0.8 ±[0.25]		CHECKED	J. NGUYEN	17FEB05	TITLE
DIMENSION IN [ ] ARE MILLIMETERS		APPROVED	N. PATEL	23FEB05	STUD - LOCKED IN
		MFG.	G. BROCKWAY	23FEB05	DRAWING NO.
		Q.A.			<b>SLSFAJ121-12SU-16.5A</b>
		ESR NO.			REV. <b>NC</b>
		SCALE	NONE	SIZE	<b>A</b>
		CAGE NO.	97393	SHEET	1 OF 1



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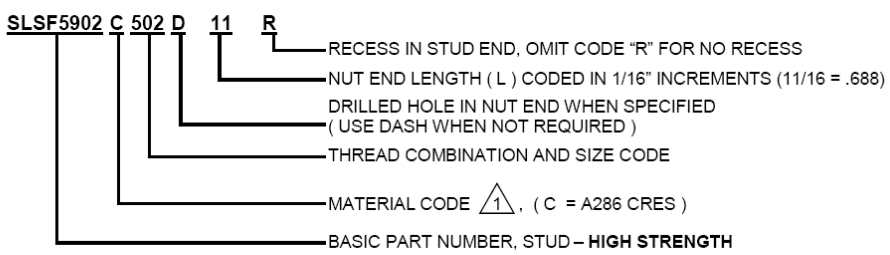
LTR	EDN NO.	DATE	DRAWN	CHECKED	APPRO	REL
NC	20514	SALES RELEASE			27MAR03	EM



NOTES:

- 1 MATERIAL: A286 CRES PER AMS5731, AMS5732, AMS5734 OR AMS5737. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- 2. HEAT TREAT: 140,000 PSI UTS MIN.
- 3. FINISH: CLEAN DESCALE AND PASSIVATE PER ASTM A380.
- 4 WHEN "L" LENGTH CODE IS EQUAL TO OR LONGER THAN CODES SHOWN IN COLUMN "M", SHANK LENGTH WILL BE (D MAX/2). OTHERWISE IT WILL BE REDUCED.
- 5 THE STUD END THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, FED-STD-H28/2 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- 6 MAX 2 INCOMPLETE THREADS.
- 7 MANUFACTURER'S IDENTIFICATION MARKING.
- 8 MATING LOCKRING IS NOT INCLUDED WITH STUD. IT MUST BE ORDERED SEPARATELY.
- 9. STUDS ARE INSTALLED AND REMOVED PER SHUR-LOK TSB 0019 OR PER MS51995.

EXAMPLE OF PART CODING



**SALES DRAWING  
SOLIDWORKS DWG**




<small>UNLESS OTHERWISE SPECIFIED</small> DRAWING INTERPRETATION PER CC4M012 WORKMANSHIP PRACTICES PER WAH005 ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT BREAK ALL SHARP EDGES .02 (0.5) MAX ALL FILET RADI: 0.00 (0.5) MAX. 125 (A,2) <small>ALL SURFACES</small> <small>TOLERANCES</small> .XX .XXX ANGLES [D.X] [D.XX] ±.03 ±.010 ±.2" ±0.8] ±0.25] DIMENSION IN [ ] ARE MILLIMETERS	SIGNATURE	DATE	<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA TITLE STUD - RING LOCKED HIGH STRENGTH SHORT, MEDIUM AND LONG DRAWING NO. <b>SLSF5902</b> REV. <b>NC</b>	
	DRAWN K. GAZI	03FEB03		
	CHECKED D. KOEPPER	27MAR03		
	APPROVED K. GAZI	27MAR03		
ESR NO.	SCALE NONE	SIZE A	CAGE NO. 97393	SHEET 1 OF 3

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LTR	EON NO.	DATE	DRAWN	CHECKED	APPRO	REL
NC						SEE SHEET 1




**TABLE I : SHORT STUD END LENGTH**

STUD		LOCKRING		A	B	C	D
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF 	MILITARY PART NO. REF 	NUT END THREAD UNJF-3A	STUD END THREAD 	±.020	DIA
SLSF5902C502 - (10 THRU 64)	MS51992C502 - (10 THRU 64)	SLRLRR1997E102	MS51997E102P	.1900-32	.3125-24	.386	.186-.189
SLSF5902C503 - (13 THRU 64)	MS51992C503 - (13 THRU 64)	SLRLRR1997E103	MS51997E103P	.2500-28	.3750-24	.486	.246-.249
SLSF5902C504 - (15 THRU 64)	MS51992C504 - (15 THRU 64)	SLRLRR1997E104	MS51997E104P	.3125-24	.4375-20	.627	.309-.312
SLSF5902C505 - (17 THRU 64)	MS51992C505 - (17 THRU 64)	SLRLRR1997E105	MS51997E105P	.3750-24	.5000-20	.762	.371-.374
SLSF5902C506 - (19 THRU 64)	MS51992C506 - (19 THRU 64)	SLRLRR1997E106	MS51997E106P	.4375-20	.6250-18	.808	.433-.437
SLSF5902C507 - (20 THRU 64)	MS51992C507 - (20 THRU 64)	SLRLRR1997E107	MS51997E107P	.5000-20	.7500-16	.883	.495-.499
SLSF5902C508 - (23 THRU 64)	MS51992C508 - (23 THRU 64)	SLRLRR1997E108	MS51997E108P	.6250-18	.8750-14	1.153	.620-.624


**TABLE I CONTINUED**

STUD		E	F	G	H	J	K	M
SHUR-LOK PART NO.	MILITARY PART NO.	±.015	±.015	REF	±.005	±.015	DIA + .005 - .002	
SLSF5902C502 - (10 THRU 64)	MS51992C502 - (10 THRU 64)	.469	.128	.205	.174	.120	.067	10
SLSF5902C503 - (13 THRU 64)	MS51992C503 - (13 THRU 64)	.594	.142	.281	.202	.160	.067	13
SLSF5902C504 - (15 THRU 64)	MS51992C504 - (15 THRU 64)	.688	.176	.380	.205	.160	.067	15
SLSF5902C505 - (17 THRU 64)	MS51992C505 - (17 THRU 64)	.750	.200	.480	.222	.170	.096	17
SLSF5902C506 - (19 THRU 64)	MS51992C506 - (19 THRU 64)	.812	.200	.517	.324	.170	.096	19
SLSF5902C507 - (20 THRU 64)	MS51992C507 - (20 THRU 64)	.875	.200	.563	.438	.190	.096	20
SLSF5902C508 - (23 THRU 64)	MS51992C508 - (23 THRU 64)	1.000	.255	.773	.470	.220	.128	23

**TABLE II : MEDIUM STUD END LENGTH**

STUD		LOCKRING		A	B	C	D
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF 	MILITARY PART NO. REF 	NUT END THREAD UNJF-3A	STUD END THREAD 	±.020	DIA
SLSF5902C642 - (10 THRU 64)	MS51992C642 - (10 THRU 64)	SLRLRR1997E102	MS51997E102P	.1900-32	.3125-24	.433	.186-.189
SLSF5902C643 - (13 THRU 64)	MS51992C643 - (13 THRU 64)	SLRLRR1997E103	MS51997E103P	.2500-28	.3750-24	.568	.246-.249
SLSF5902C644 - (15 THRU 64)	MS51992C644 - (15 THRU 64)	SLRLRR1997E104	MS51997E104P	.3125-24	.4375-20	.725	.309-.312
SLSF5902C645 - (17 THRU 64)	MS51992C645 - (17 THRU 64)	SLRLRR1997E105	MS51997E105P	.3750-24	.5000-20	.893	.371-.374
SLSF5902C646 - (19 THRU 64)	MS51992C646 - (19 THRU 64)	SLRLRR1997E106	MS51997E106P	.4375-20	.6250-18	.948	.433-.437
SLSF5902C647 - (20 THRU 64)	MS51992C647 - (20 THRU 64)	SLRLRR1997E107	MS51997E107P	.5000-20	.7500-16	1.038	.495-.499
SLSF5902C648 - (23 THRU 64)	MS51992C648 - (23 THRU 64)	SLRLRR1997E108	MS51997E108P	.6250-18	.8750-14	1.364	.620-.624

**TABLE II CONTINUED**

STUD		E	F	G	H	J	K	M
SHUR-LOK PART NO.	MILITARY PART NO.	±.015	±.015	REF	DIA ±.005	±.015	DIA + .005 - .002	
SLSF5902C642 - (10 THRU 64)	MS51992C642 - (10 THRU 64)	.469	.128	.252	.174	.120	.067	10
SLSF5902C643 - (13 THRU 64)	MS51992C643 - (13 THRU 64)	.594	.142	.353	.202	.160	.067	13
SLSF5902C644 - (15 THRU 64)	MS51992C644 - (15 THRU 64)	.688	.176	.478	.205	.160	.067	15
SLSF5902C645 - (17 THRU 64)	MS51992C645 - (17 THRU 64)	.750	.200	.611	.222	.170	.096	17
SLSF5902C646 - (19 THRU 64)	MS51992C646 - (19 THRU 64)	.812	.200	.657	.324	.170	.096	19
SLSF5902C647 - (20 THRU 64)	MS51992C647 - (20 THRU 64)	.875	.200	.718	.438	.190	.096	20
SLSF5902C648 - (23 THRU 64)	MS51992C648 - (23 THRU 64)	1.000	.255	.984	.470	.220	.128	23

		<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA	
TITLE		STUD - RING LOCKED HIGH STRENGTH SHORT, MEDIUM AND LONG	
DRAWING NO.		<b>SLSF5902</b>	REV.
		<b>NC</b>	
SCALE	SIZE	CAGE NO.	SHEET 2 OF 3
NONE	A	97393	

**SALES DRAWING**  
**SOLIDWORKS DWG**

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The part has sufficient strength to meet the intended design loads and parameters. SHUR-LOK assumes no liability for use of this part in conditions not covered by design parameters. It is the user's responsibility to conduct a stress/strain analysis for part performance. The stress/strain analysis must be specifically noted for during part qualification in order for this release to be established. The requirements of customer or industry specifications and standards only apply to the extent specified on this drawing.

LTR	CHKD	DATE	DRAWN	CHKD	APPD	REL.
NC						SEE SHEET 1

TABLE III : LONG STUD END LENGTH





STUD		LOCKRING		A	B	C	D
SHUR-LOK PART NO.	MILITARY PART NO.	SHUR-LOK PART NO. REF 	MILITARY PART NO. REF 	NUT END THREAD UNJF-3A	STUD END THREAD 	$\pm .020$	DIA
SLSF5902C802 - (10 THRU 64)	MS51992C802 - (10 THRU 64)	SLRLRR1997E102	MS51997E102P	1900-32	3125-18	.511	.186 - .189
SLSF5902C803 - (13 THRU 64)	MS51992C803 - (13 THRU 64)	SLRLRR1997E103	MS51997E103P	2500-28	3750-16	.673	.246-.249
SLSF5902C804 - (15 THRU 64)	MS51992C804 - (15 THRU 64)	SLRLRR1997E104	MS51997E104P	3125-24	4375-14	.868	.309-.312
SLSF5902C805 - (17 THRU 64)	MS51992C805 - (17 THRU 64)	SLRLRR1997E105	MS51997E105P	3750-24	5000-13	1.076	.371-.374
SLSF5902C806 - (19 THRU 64)	MS51992C806 - (19 THRU 64)	SLRLRR1997E106	MS51997E106P	4375-20	6250-11	1.155	433-.437
SLSF5902C807 - (20 THRU 64)	MS51992C807 - (20 THRU 64)	SLRLRR1997E107	MS51997E107P	5000-20	7500-10	1.267	495-.499
SLSF5902C808 - (23 THRU 64)	MS51992C808 - (23 THRU 64)	SLRLRR1997E108	MS51997E108P	6250-18	8750-9	1.656	620-.624

TABLE III CONTINUED

STUD		E	F	G	H	J	K	M
SHUR-LOK PART NO.	MILITARY PART NO.	$\pm .015$	$\pm .015$	REF	DIA $\pm .005$	$\pm .015$	DIA $+ .005$ $- .002$	
SLSF5902C802 - (10 THRU 64)	MS51992C802 - (10 THRU 64)	.469	.128	.330	.146	.120	.067	10
SLSF5902C803 - (13 THRU 64)	MS51992C803 - (13 THRU 64)	.594	.142	.468	.157	.160	.067	13
SLSF5902C804 - (15 THRU 64)	MS51992C804 - (15 THRU 64)	.688	.176	.621	.153	.160	.067	15
SLSF5902C805 - (17 THRU 64)	MS51992C805 - (17 THRU 64)	.750	.200	.794	.146	.170	.096	17
SLSF5902C806 - (19 THRU 64)	MS51992C806 - (19 THRU 64)	.812	.200	.864	.239	.170	.096	19
SLSF5902C807 - (20 THRU 64)	MS51992C807 - (20 THRU 64)	.875	.200	.947	.369	.190	.096	20
SLSF5902C808 - (23 THRU 64)	MS51992C808 - (23 THRU 64)	1.000	.255	1.276	.378	.220	.128	23

SALES DRAWING  
SOLIDWORKS DWG

		<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA	
TITLE STUD - RING LOCKED HIGH STRENGTH SHORT, MEDIUM AND LONG			
DRAWING NO.		REV.	
<b>SLSF5902</b>		<b>NC</b>	
SCALE NONE	SIZE <b>A</b>	CAGE NO. 97363	SHEET 3 OF 3

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LTR	EDN NO.	DATE	DRAWN	CHEKED	APPRO	REL
NC	20516	SALES RELEASE		27MAR03		EM

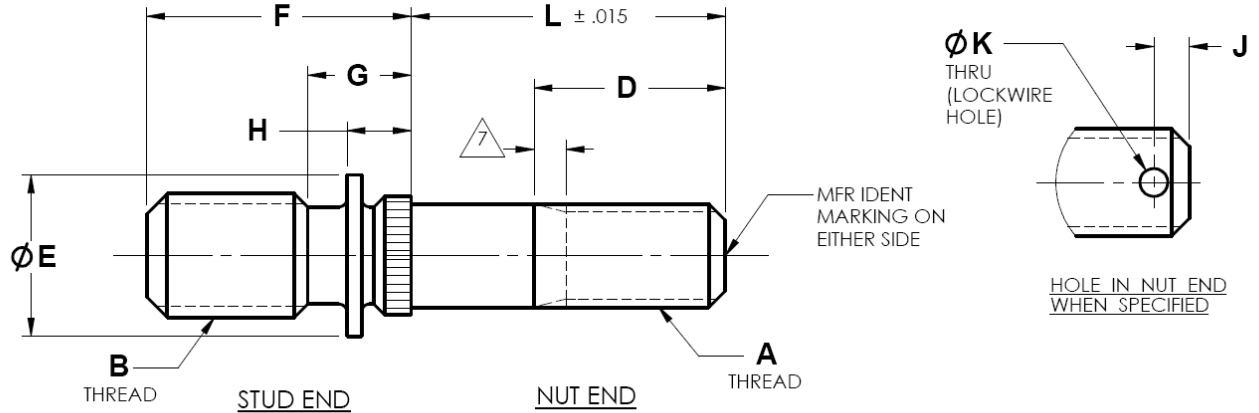


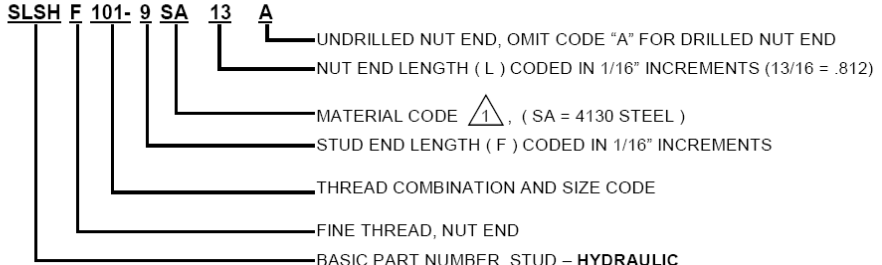
TABLE I

STUD PART NUMBER	LOCKRING PART NUMBER REF	A NUT END THREAD	B STUD END THREAD	C	D	E DIA	F	G	H	J	K
	8	UNF-3A	5	4	±.015	+ .000 - .005	±.015	±.005	±.005	±.015	DIA
SLSHF101-9SA( JA)	SLRL24SA5	.2500-28	.3125-18	-10	.500	.371	.560	.221	.138	.160	.076
SLSHF111-11SA( JA)	SLRL28SA6	.3125-24	.3750-16	-11	.560	.433	.690	.240	.147	.160	.076
SLSHF121-12SA( JA)	SLRL33SA7	.3750-24	.4375-14	-12	.620	.510	.750	.283	.176	.170	.106
SLSHF131-13SA( JA)	SLRL38SA7	.4375-20	.5000-13	-13	.690	.588	.810	.291	.176	.170	.106
SLSHF144-14SA( JA)	SLRL47SA8	.5000-20	.6250-11	-15	.810	.729	.880	.327	.191	.190	.106
SLSHF151-16SA( JA)	SLRL47SA8	.5625-18	.6250-11	-17	.940	.729	1.000	.327	.191	.220	.141
SLSHF161-18SA( JA)	SLRL56SA8	.6250-18	.7500-10	-18	1.000	.870	1.120	.341	.191	.220	.141
SLSHF181-21SA( JA)	SLRL64SA8	.7500-16	.8750-9	-20	1.120	.995	1.310	.358	.191	.220	.141
SLSHF201-24SA( JA)	SLRL72SA8	.8750-14	1.0000-8	-22	1.250	1.120	1.500	.378	.191	.250	.141

NOTES:

- 1 MATERIAL: 4130 STEEL PER MIL-S-6758. SEE SHUR-LOK TSB 0018 FOR OTHER MATERIALS.
- 2 HEAT TREAT: 125,000 PSI UTS MIN.
- 3 FINISH: CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 3.
- 4 DIMENSION "L" WILL BE THREADED ITS FULL LENGTH WHEN IT IS "C" DASH LENGTH OR SHORTER. FOR NUT END LENGTH SEE PART CODING.
- 5 THE STUD END THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A MIL-S-8879 CLASS 3B, FED-STD-H28/2 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HO.E
- 6 HYDRAULIC STUDS ARE INSTALLED PER SHUR-LOK TSB 0019.
- 7 MAX 2 INCOMPLETE THREADS.
- 8 MATING LOCKRING IS NOT INCLUDED WITH STUD. IT MUST BE ORDERED SEPARATELY.

EXAMPLE OF PART CODING



UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE		<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER CC4042 WORKMANSHIP PRACTICES PER WAH005. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES: .02 (0.5) MAX ALL FILET RADI: .020 (0.5) MAX. 125 (3.2) ALL SURFACES.		DRAWN K. GAZI		03FEB03			
TOLERANCES XX .XXX ANGLES [X.X] [XX] ±.03 ±.010 ±2° ±0.8 [±0.25]		CHECKED D. KOEPPER		27MAR03		DRAWING NO.	
DIMENSION IN [ ] ARE MILLIMETERS		APPROVED K. GAZI		27MAR03		REV	
		MFG.				<b>SLSHF</b>	
		Q.A.				<b>NC</b>	
		ESR NO.				SCALE NONE SIZE <b>A</b> CAGE NO. 97393 SHEET 1 OF 1	

**SALES DRAWING  
SOLIDWORKS DWG**

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LR	CHK NO.	DATE	DRAWN	CHKD	APPO	REL.
NC	22651	SALES RELEASE			29OCT04	EM
A	22750	07.JAN05	J.N	G.B	J.N	EM

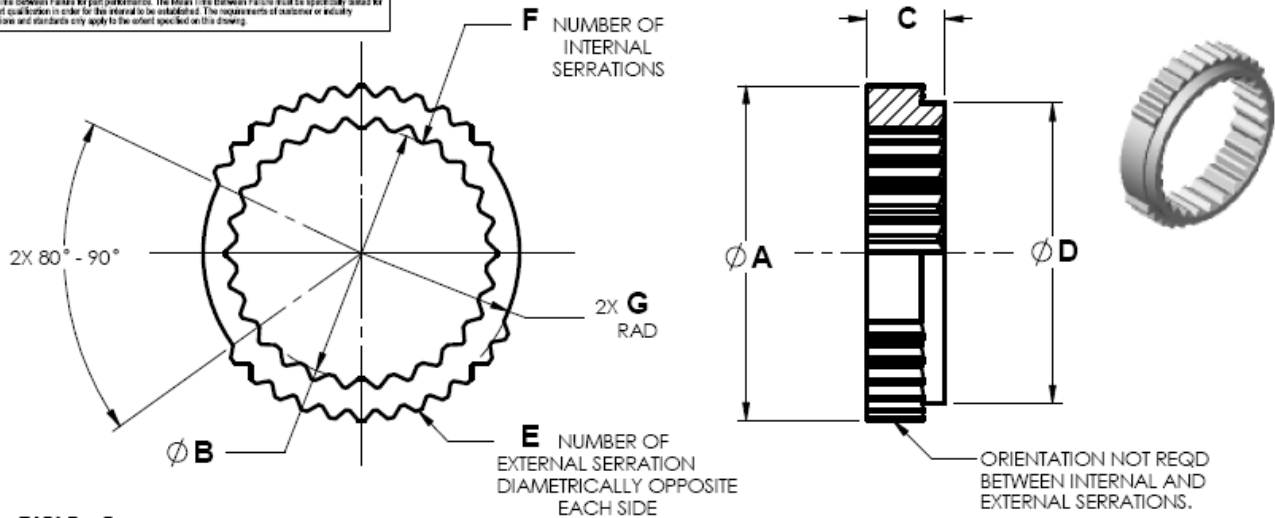
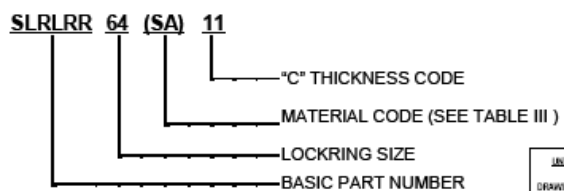


TABLE I

LOCKRING				$\phi A$	$\phi B$	<b>C</b>	$\phi D$	<b>E</b>	<b>F</b>	<b>G RAD</b>
( 1117 MATERIAL )	MILITARY PART NO. REF	( A286 MATERIAL )	MILITARY PART NO. REF	+0.005 -0.004	+0.004 -0.003	+0.005	+0.005	REF		REF
SLRLRR16SA5	MS51990-102P	SLRLRR16SU5	MS51990E102P	.274	.161	.084	.223	10	14	.120
SLRLRR18SA6	MS51990-103P	SLRLRR18SU6	MS51990E103P	.308	.189	.099	.255	10	16	.135
SLRLRR21SA6	MS51990-104P	SLRLRR21SU6	MS51990E104P	.354	.213	.099	.298	12	13	.159
SLRLRR24SA7	MS51990-105P	SLRLRR24SU7	MS51990E105P	.399	.266	.112	.343	12	17	.180
SLRLRR28SA8	MS51990-106P	SLRLRR28SU8	MS51990E106P	.468	.323	.138	.400	14	20	.214
SLRLRR31SA9	-	SLRLRR31SU9	-	.514	.375	.145	.452	16	23	.236
SLRLRR33SA9	MS51990-107P	SLRLRR33SU9	MS51990E107P	.545	.390	.145	.480	18	24	.252
SLRLRR38SA7	-	SLRLRR38SU7	-	.624	.468	.112	.560	20	26	.293
SLRLRR38SA9	MS51990-108P	SLRLRR38SU9	MS51990E108P	.624	.468	.145	.560	20	26	.293
SLRLRR47SA10	MS51990-109P	SLRLRR47SU10	MS51990E109P	.767	.574	.161	.702	22	26	.362
SLRLRR56SA11	MS51990-110P	SLRLRR56SU11	MS51990E110P	.910	.695	.176	.837	24	30	.431
SLRLRR64SA11	MS51990-111P	SLRLRR64SU11	MS51990E111P	1.040	.795	.176	.958	20	30	.492
SLRLRR72SA11	MS51990-112P	SLRLRR72SU11	MS51990E112P	1.170	.908	.176	1.078	22	38	.551
SLRLRR82SA12	MS51990-113P	SLRLRR82SU12	MS51990E113P	1.326	1.035	.193	1.232	20	36	.629
SLRLRR90SA12	MS51990-114P	SLRLRR90SU12	MS51990E114P	1.456	1.189	.193	1.371	20	48	.692
SLRLRR100SA12	MS51990-115P	SLRLRR100SU12	MS51990E115P	1.611	1.282	.193	1.509	16	42	.770

- NOTES:
- 1 MATERIAL ( SEE TABLE III )  
FOR EXAMPLE: SA - 4130 ALLOY STEEL  
PER AMS 6370 OR 4140 PER AMS 6382  
OR 8740 PER AMS 6322.
  - 2 FINISH : SEE TABLE III
  - 3 HARDNESS: SEE TABLE III
  - 4. MACHINED SURFACES TO BE 125 MICRINCH Ra,  
EXCEPT SERRATIONS.

EXAMPLE OF PART CODING



**SALES DRAWING  
SOLIDWORKS DWG**

UNLESS OTHERWISE SPECIFIED		SIGNATURE		DATE		<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA	
DRAWING INTERPRETATION PER COMPANY WORKMANSHIP PRACTICES PER PARTS AND PRIOR TO THE ADDITION OF SOLID FILLSUBRCANE		DRAWN: J. NGUYEN		29OCT04			
BREAK ALL SHARP EDGES .02 (0.8) MAX		CHECKED: J. NGUYEN		29OCT04		LOCKRING	
ALL FILLET RADI .020 (0.8) MAX		APPROVED: N. PATEL		29OCT04		MS51990-( ) TYPE	
TOLERANCES		MFG: _____		DRAWING NO.		REV.	
.XX .XX ANGLES (X.X) (X.X)		D.A. _____		SCALE NONE		A	
±.01 ±.010 ±.02 ±.030 ±.020		ERR NO. _____		SIZE A		DAGENO. 97383	
DIMENSION IN ( ) ARE MILLIMETERS						SHEET 1 OF 2	

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LR	REV. NO.	DATE	DRAWN	CHECKED	APPRO.	REL.
A						SEE SHEET 1

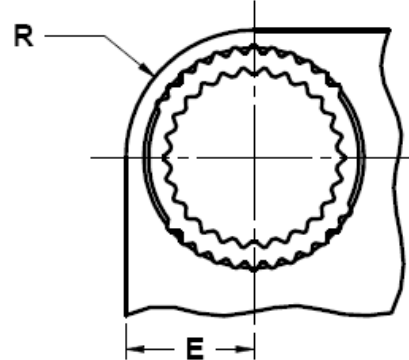


TABLE II

SHUR-LOK PART NO.	MILITARY PART NO. REF	SHUR-LOK PART NO.	MILITARY PART NO. REF	CBORE DIA +.003 -.000		R MIN	E MIN
				AL	MAG		
SLRLRR16SA5	MS51990-102P	SLRLRR16SU5	MS51990E102P	.250	.258	.17	.155
SLRLRR18SA6	MS51990-103P	SLRLRR18SU6	MS51990E103P	.281	.291	.20	.175
SLRLRR21SA6	MS51990-104P	SLRLRR21SU6	MS51990E104P	.328	.337	.22	.200
SLRLRR24SA7	MS51990-105P	SLRLRR24SU7	MS51990E105P	.375	.381	.25	.230
SLRLRR28SA8	MS51990-106P	SLRLRR28SU8	MS51990E106P	.437	.448	.31	.270
SLRLRR31SA9	-	SLRLRR31SU9	-	.484	.495	.34	.300
SLRLRR33SA9	MS51990-107P	SLRLRR33SU9	MS51990E107P	.515	.526	.36	.320
SLRLRR38SA7	-	SLRLRR38SU7	-	.593	.601	.42	.365
SLRLRR38SA9	MS51990-108P	SLRLRR38SU9	MS51990E108P	.593	.601	.42	.365
SLRLRR47SA10	MS51990-109P	SLRLRR47SU10	MS51990E109P	.734	.747	.50	.450
SLRLRR56SA11	MS51990-110P	SLRLRR56SU11	MS51990E110P	.875	.888	.62	.535
SLRLRR64SA11	MS51990-111P	SLRLRR64SU11	MS51990E111P	1.000	1.015	.69	.605
SLRLRR72SA11	MS51990-112P	SLRLRR72SU11	MS51990E112P	1.125	1.139	.75	.675
SLRLRR82SA12	MS51990-113P	SLRLRR82SU12	MS51990E113P	1.281	1.298	.89	.765
SLRLRR90SA12	MS51990-114P	SLRLRR90SU12	MS51990E114P	1.406	1.427	.95	.830
SLRLRR100SA12	MS51990-115P	SLRLRR100SU12	MS51990E115P	1.562	1.579	1.06	.915


TABLE III

CODE	MATERIAL	SPECIFICATION	HEAT TREAT	FINISH
SA	4130 STEEL OR 4140 STEEL OR 8740 STEEL	PER AMS 6370 OR PER AMS 6382 OR PER AMS 6322	CASE HARDEN 36-45 HRC	CAD PLATE PER QQ-P-416, TYPE II, CLASS 3
SB	1117 STEEL	ASTM A108		
SM	303 SE CRES	ASTM A581 OR ASTM A582	NONE	PASSIVATE PER AMS - QQ - P - 35
SU	A286 CRES	AMS5731, AMS5732, OR AMS5734	269 HB MIN	PASSIVATE PER AMS - QQ - P - 35
S3C	718 CRES	AMS5662	230 KSI UTS MIN	

**LOCKRING INSTALLATION:**

"R" AND "E" ARE MINIMUM BOSS DIMENSIONS FOR INSTALLATION INTO ALUMINUM OR MAGNESIUM PARENT MATERIAL.

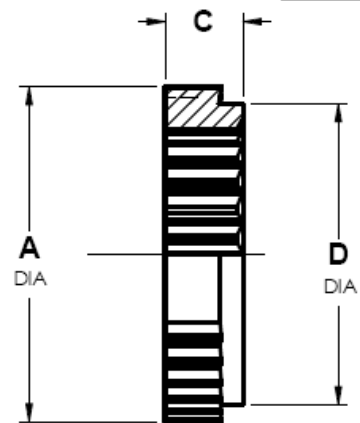
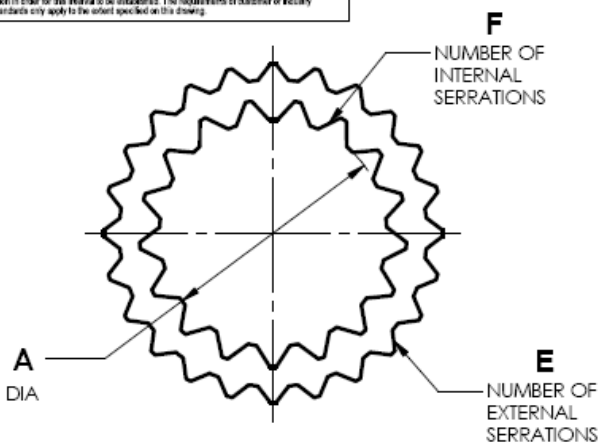
**SALES DRAWING  
SOLIDWORKS DWG**

 <b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA			
TITLE		LOCKRING MS51990-( ) TYPE	
DRAWING NO.		<b>SLRLRR</b>	
SCALE		SIZE	REV.
NONE		A	A
CAGE NO.		SHEET 2 OF 2	
97363			

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LR	ECRNO.	DATE	DRAWN	CHKD	APPO	REL.
NC	20996	SALES RELEASE			12MAR03	EM
A	21989	18DEC03	BS	NP	BS	EM
B	22894	03FEB05	DL	NP	NP	EM



NOTES:

1 MATERIAL: SB - 1117 STEEL PER ASTM A108.  
SU - A286 CRES PER AMS5731 OR AMS5734.

NOTE: SEE SHUR-LOK TSB0018 FOR OTHER MATERIALS.

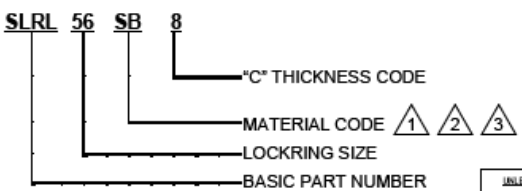
2 FINISH: SB - CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CL3.  
SU - PASSIVATE PER AMS-QQ-P-35.

3 HARDNESS: SB - CASE HARDENED TO 36-45 HRC.  
SU - HARDENED TO 289 HB MIN.  
NOTE: FOR 1117 STEEL CASE HARDENED TO 50-60 HRC, ADD SUFFIX EO238 TO LOCKRING PART NUMBER. (EXAMPLE: SLRL56SB8EO238)

TABLE I

LOCKRING PART NUMBER		A DIA	B DIA	C	D DIA	E	F
( 1117 MATERIAL )	( A286 MATERIAL )	±.005	±.005	±.005	±.005		
SLRL21SB4	SLRL21SU4	.354	.213	.068	.298	24	13
SLRL24SB5	SLRL24SU5	.399	.266	.081	.343	24	17
SLRL28SB5	SLRL28SU5	.468	.323	.081	.400	26	20
SLRL28SB6	SLRL28SU6	.468	.323	.099	.400	26	20
SLRL31SB6	SLRL31SU6	.514	.375	.099	.452	30	23
SLRL33SB6	SLRL33SU6	.545	.390	.099	.480	34	24
SLRL33SB7	SLRL33SU7	.545	.390	.115	.480	34	24
SLRL38SB7	SLRL38SU7	.624	.468	.115	.560	36	26
SLRL38SB9	SLRL38SU9	.624	.468	.145	.560	36	26
SLRL43SB7	SLRL43SU7	.699	.520	.115	.636	36	26
SLRL47SB8	SLRL47SU8	.767	.574	.130	.702	40	26
SLRL56SB8	SLRL56SU8	.910	.695	.130	.837	44	30
SLRL64SB8	SLRL64SU8	1.040	.795	.130	.958	38	30
SLRL72SB8	SLRL72SU8	1.170	.908	.130	1.078	40	38

EXAMPLE OF PART CODING



SALES DRAWING  
SOLIDWORKS DWG

UNLESS OTHERWISE SPECIFIED  
DRAWING INTERPRETATION PER COMBUSTION WORKSHOP PRACTICES PER PARTS. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT.  
BREAK ALL SHARP EDGES .02 (0.5) MAX ALL FLEET RADIUS .005 (0.5) MAX.  
TOLERANCES:  
X.X .XX ANGLES (X.X) (X.X) ±.03 ±.010 ±.02" ±.010 ±.025  
DIMENSION IN ( ) ARE MILLIMETERS

SIGNATURE	DATE
DRAWN: K. GAZI	12MAR03
CHECKED: T. RIVERON	12MAR03
APPROVED: K. GAZI	12MAR03
MFG: ---	---
QA: ---	---
ESR NO.	

**SHUR-LOK CORPORATION**  
IRVINE, CALIFORNIA

TITLE: LOCKRING - THIN

DRAWING NO. **SLRL** REV. **B**

SCALE: NONE SIDE **A** CASE NO. 97383 SHEET 1 OF 1

NOTICE: This drawing embodies a CONFIDENTIAL proprietary design originated by SHUR-LOK CORPORATION, and all design, manufacturing, reproduction, use and sales rights regarding the same are expressly reserved. It is intended under a confidential relationship for a specific purpose, and the recipient agrees by accepting this drawing not to supply or disclose any information regarding it to any unauthorized person, or to incorporate in other projects any special features peculiar to this design. All patent rights herein are expressly reserved by SHUR-LOK CORPORATION, Irvine, California.

This part has sufficient strength to meet the intended design loads and parameters. SHUR-LOK assumes no liability for failure or damage to load conditions that exceed the design parameters. It is the user's responsibility to establish a Mean Time Between Failures for part performance. The Mean Time Between Failures must be specifically stated for design part qualification in order for the material to be established. The requirements of customer or industry specifications and standards only apply to the extent specified on this drawing.

LR	ECR NO.	DATE	DRAWN	CHKD	APPO	REL.
NC	22649	SALES RELEASE			29OCT04	EM

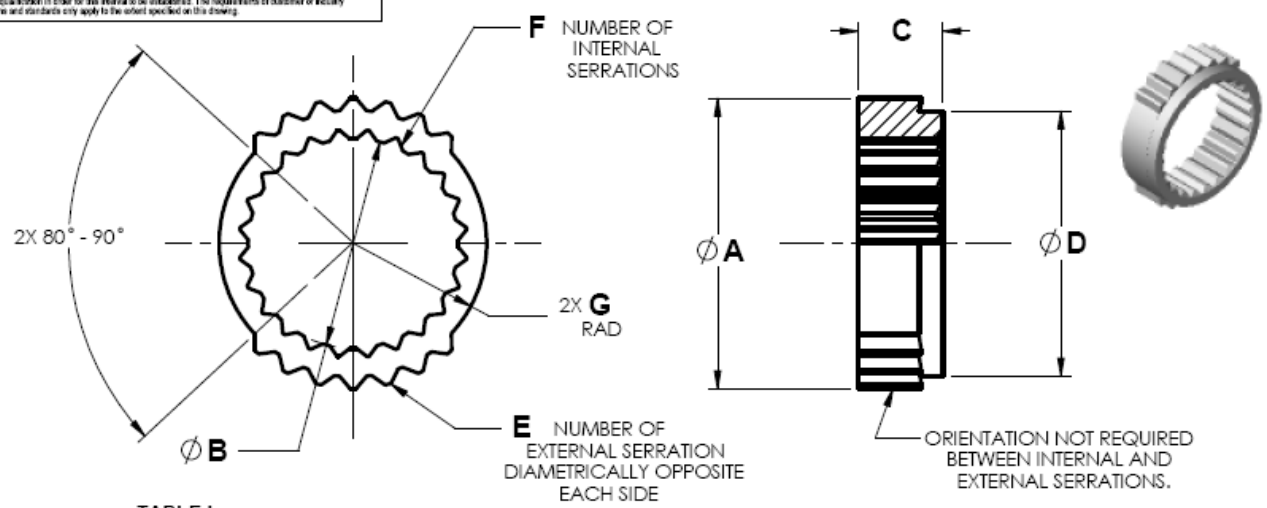
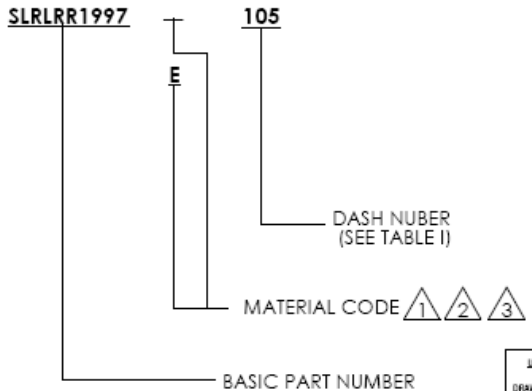


TABLE I

SHUR - LOK SLRLRR1997 DASH NUMBER	SHUR - LOK SLRLRR1997 DASH NUMBER	$\phi A$ + .005 - .004	$\phi B$ + .004 - .003	C + .010 - .005	$\phi D$ + .008 - .007	E	F	G RAD $\pm .005$
- 102	E102	.353	.213	.100	.305	4	13	.154
- 103	E103	.416	.266	.110	.368	5	17	.186
- 104	E104	.478	.323	.138	.430	6	20	.217
- 105	E105	.541	.390	.157	.493	7	24	.248
- 106	E106	.657	.468	.157	.606	7	26	.304
- 107	E107	.782	.574	.161	.731	8	26	.366
- 108	E108	.907	.695	.213	.856	9	30	.429
- 109	E109	1.034	.794	.213	.981	10	30	.492

EXAMPLE OF PART CODING



NOTES:

- 1 MATERIAL:
  - a) "- " 1117 STEEL PER ASTM A108.
  - b) "E" A286 CRES PER AMS5731, AMS5734 OR AMS5737.
- 2 FINISH:
  - a) FOR 1117 STEEL: CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 3.
  - b) FOR A286 CRES: PASSIVATE PER AMS-QQ-P-35.
- 3 HEAT TREAT:
  - a) FOR 1117 STEEL: HEAT TREAT TO 36-45 HRC. 4
  - b) FOR A286 CRES: HEAT TREAT TO 269 HB MIN.
- 4 FOR MATERIAL 1117 STEEL HEAT TREAT TO 55-60 HRC, ADD SUFFIX EO238 TO LOCKRING PART NUMBER ( EX: SLRLRR1997-104EO238)

<small>UNLESS OTHERWISE SPECIFIED:</small> DRAWING INTERPRETATION PER COMAD2 WORKMANSHIP PRACTICES PER WARRICK. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. BREAK ALL SHARP EDGES .02 (0.5) MAX ALL FILLET RADIUS .020 (0.5) MAX. 125 (R4) ALL SURFACES TOLERANCES .XX .XX ANGLES .XX (XX) .XX .XX .XX DIMENSION IN ( ) ARE MILLIMETERS	SIGNATURE	DATE	<b>SHUR-LOK CORPORATION</b> IRVINE, CALIFORNIA  <b>LOCKRING, HIGH - STRENGTH</b>  DRAWING NO. <b>SLRLRR1997</b> REV. <b>NC</b>
	DRAWN J. NGUYEN	29OCT04	
	CHECKED J. NGUYEN	29OCT04	
	APPROVED N. PATEL	29OCT04	
MFG. _____	_____	_____	SCALE NONE
D.A. _____	_____	_____	SIZE <b>A</b>
EBR NO. _____	_____	_____	CASE NO. 97363
			SHEET 1 OF 1



**MS51990  
LOCKRINGS**

<b>MS PART NUMBER</b>	<b>ROSAN P/N</b>	<b>SHUR-LOK P/N</b>
MS51990-102P	RLRR16SB5	SLRLRR16SB5
MS51990-103P	RLRR18SB6	SLRLRR18SB6
MS51990-104P	RLRR21SB6	SLRLRR21SB6
MS51990-105P	RLRR24SB7	SLRLRR24SB7
MS51990-106P	RLRR28SB8	SLRLRR28SB8
MS51990-107P	RLRR33SB9	SLRLRR33SB9
MS51990-108P	RLRR38SB9	SLRLRR38SB9
MS51990-109P	RLRR47SB10	SLRLRR47SB10
MS51990-110P	RLRR56SB11	SLRLRR56SB11
MS51990-111P	RLRR64SB11	SLRLRR64SB11
MS51990-112P	RLRR72SB11	SLRLRR72SB11
MS51990-113P	RLRR82SB12	SLRLRR82SB12
MS51990-114P	RLRR90SB12	SLRLRR90SB12
MS51991-115P	RLRR100SB12	SLRLRR100SB12

<b>MS PART NUMBER</b>	<b>ROSAN P/N</b>	<b>SHUR-LOK P/N</b>
MS51990E102P	RLRR16SU5	SLRLRR16SB5
MS51990E103P	RLRR18SU6	SLRLRR18SU6
MS51990E104P	RLRR21SU6	SLRLRR21SU6
MS51990E105P	RLRR24SU7	SLRLRR24SU7
MS51990E106P	RLRR28SU8	SLRLRR28SU8
MS51990E107P	RLRR33SU9	SLRLRR33SU9
MS51990E108P	RLRR38SU9	SLRLRR38SY9
MS51990E109P	RLRR47SU10	SLRLRR47SU10
MS51990E110P	RLRR56SU11	SLRLRR56SU11
MS51990E111P	RLRR64SU11	SLRLRR64SU11
MS51990E112P	RLRR72SU11	SLRLRR72SU11
MS51990E113P	RLRR82SU12	SLRLRR82SU12
MS51990E114P	RLRR90SU12	SLRLRR90SU12
MS51990E115P	RLRR100SU12	SLRLRR100SU12

**MS51997  
LOCKRINGS**

<b>MS PART NUMBER</b>	<b>ROSAN P/N</b>	<b>SHUR-LOK P/N</b>
MS51997-102P	RLRR1997-102	SLRLRR1997-102
MS51997-103P	RLRR1997-103	SLRLRR1997-103
MS51997-104P	RLRR1997-104	SLRLRR1997-104
MS51997-105P	RLRR1997-105	SLRLRR1997-105
MS51997-106P	RLRR1997-106	SLRLRR1997-106
MS51997-107P	RLRR1997-107	SLRLRR1997-107
MS51997-108P	RLRR1997-108	SLRLRR1997-108
MS51997-109P	RLRR1997-109	SLRLRR1997-109
MS51997E102P	RLRR1997E-102	SLRLRR1997-102
MS51997E103P	RLRR1997E-103	SLRLRR1997-103
MS51997E104P	RLRR1997E-104	SLRLRR1997-104
MS51997E105P	RLRR1997E-105	SLRLRR1997-105
MS51997E106P	RLRR1997E-106	SLRLRR1997-106
MS51997E107P	RLRR1997E-107	SLRLRR1997-107
MS51997E108P	RLRR1997E-108	SLRLRR1997-108
MS51997E109P	RLRR1997E-109	SLRLRR1997-109

## MS51989 STUDS

MS PART NUMBER	SHUR-LOK P/N	ROSAN P/N
MS51989-102-(* )	SLSF71-4SA(* )A	SF71-4SA(* )A
MS51989-103-(* )	SLSF81-6SA(* )A	SF81-6SA(* )A
MS51989-104-(* )	SLSF91-7SA(* )A	SF91-7SA(* )A
MS51989-105-(* )	SLSF101-9SA(* )A	SF101-9SA(* )A
MS51989-106-(* )	SLSF111-11SA(* )A	SF111-11SA(* )A
MS51989-107-(* )	SLSF121-12SA(* )A	SF121-12SA(* )A
MS51989-108-(* )	SLSF131-13SA(* )A	SF131-13SA(* )A
MS51989-109-(* )	SLSF141-14SA(* )A	SF141-14SA(* )A
MS51989-110-(* )	SLSF151-16SA(* )A	SF151-16SA(* )A
MS51989-111-(* )	SLSF161-18SA(* )A	SF161-18SA(* )A
MS51989-112-(* )	SLSF181-21SA(* )A	SF181-21SA(* )A
MS51989E102-(* )	SLSF71-4SU(* )A	SF71-4SU(* )A
MS51989E103-(* )	SLSF81-6SU(* )A	SF81-6SU(* )A
MS51989E104-(* )	SLSF91-7SU(* )A	SF91-7SU(* )A
MS51989E105-(* )	SLSF101-9SU(* )A	SF101-9SU(* )A
MS51989E106-(* )	SLSF111-11SU(* )A	SF111-11SU(* )A
MS51989E107-(* )	SLSF121-12SU(* )A	SF121-12SU(* )A
MS51989E108-(* )	SLSF131-13SU(* )A	SF131-13SU(* )A
MS51989E109-(* )	SLSF141-14SU(* )A	SF141-14SU(* )A
MS51989E110-(* )	SLSF151-16SU(* )A	SF151-16SU(* )A
MS51989E111-(* )	SLSF161-18SU(* )A	SF161-18SU(* )A
MS51989E112-(* )	SLSF181-21SU(* )A	SF181-21SU(* )A
MS51989-103D(* )	SLSF81-6SA(* )	SF81-6SA(* )
MS51989-104D(* )	SLSF91-7SA(* )	SF91-7SA(* )
MS51989-105D(* )	SLSF101-9SA(* )	SF101-9SA(* )
MS51989-106D(* )	SLSF111-11SA(* )	SF111-11SA(* )
MS51989-107D(* )	SLSF121-12SA(* )	SF121-12SA(* )
MS51989-108D(* )	SLSF131-13SA(* )	SF131-13SA(* )
MS51989-109D(* )	SLSF141-14SA(* )	SF141-14SA(* )
MS51989-110D(* )	SLSF151-16SA(* )	SF151-16SA(* )
MS51989-111D(* )	SLSF161-18SA(* )	SF161-18SA(* )
MS51989-112D(* )	SLSF181-21SA(* )	SF181-21SA(* )
MS51989E103D(* )	SLSF81-6SU(* )	SF81-6SU(* )
MS51989E104D(* )	SLSF91-7SU(* )	SF91-7SU(* )
MS51989E105D(* )	SLSF101-9SU(* )	SF101-9SU(* )
MS51989E106D(* )	SLSF111-11SU(* )	SF111-11SU(* )
MS51989E107D(* )	SLSF121-12SU(* )	SF121-12SU(* )
MS51989E108D(* )	SLSF131-13SU(* )	SF131-13SU(* )
MS51989E109D(* )	SLSF141-14SU(* )	SF141-14SU(* )
MS51989E110D(* )	SLSF151-16SU(* )	SF151-16SU(* )
MS51989E111D(* )	SLSF161-18SU(* )	SF161-18SU(* )
MS51989E112D(* )	SLSF181-21SU(* )	SF181-21SU(* )

MS PART NUMBER	SHUR-LOK P/N	ROSAN P/N
MS51989-202-(* )	SLSF72-4SA(* )A	SF72-4SA(* )A
MS51989-203-(* )	SLSF82-6SA(* )A	SF82-6SA(* )A
MS51989-204-(* )	SLSF92-7SA(* )A	SF92-7SA(* )A
MS51989-205-(* )	SLSF102-9SA(* )A	SF102-9SA(* )A
MS51989-206-(* )	SLSF112-11SA(* )A	SF112-11SA(* )A
MS51989-207-(* )	SLSF122-12SA(* )A	SF122-12SA(* )A
MS51989-208-(* )	SLSF132-13SA(* )A	SF132-13SA(* )A
MS51989-209-(* )	SLSF142-14SA(* )A	SF142-14SA(* )A
MS51989-210-(* )	SLSF152-16SA(* )A	SF152-16SA(* )A
MS51989-211-(* )	SLSF162-18SA(* )A	SF162-18SA(* )A
MS51989-212-(* )	SLSF182-21SA(* )A	SF182-21SA(* )A
MS51989E202-(* )	SLSF72-4SU(* )A	SF72-4SU(* )A
MS51989E203-(* )	SLSF82-6SU(* )A	SF82-6SU(* )A
MS51989E204-(* )	SLSF92-7SU(* )A	SF92-7SU(* )A
MS51989E205-(* )	SLSF102-9SU(* )A	SF102-9SU(* )A
MS51989E206-(* )	SLSF112-11SU(* )A	SF112-11SU(* )A
MS51989E207-(* )	SLSF122-12SU(* )A	SF122-12SU(* )A
MS51989E208-(* )	SLSF132-13SU(* )A	SF132-13SU(* )A
MS51989E209-(* )	SLSF142-14SU(* )A	SF142-14SU(* )A
MS51989E210-(* )	SLSF152-16SU(* )A	SF152-16SU(* )A
MS51989E211-(* )	SLSF162-18SU(* )A	SF162-18SU(* )A
MS51989E212-(* )	SLSF182-21SU(* )A	SF182-21SU(* )A
MS51989-203D(* )	SLSF82-6SA(* )	SF82-6SA(* )
MS51989-204D(* )	SLSF92-7SA(* )	SF92-7SA(* )
MS51989-205D(* )	SLSF102-9SA(* )	SF102-9SA(* )
MS51989-206D(* )	SLSF112-11SA(* )	SF112-11SA(* )
MS51989-207D(* )	SLSF122-12SA(* )	SF122-12SA(* )
MS51989-208D(* )	SLSF132-13SA(* )	SF132-13SA(* )
MS51989-209D(* )	SLSF142-14SA(* )	SF142-14SA(* )
MS51989-210D(* )	SLSF152-16SA(* )	SF152-16SA(* )
MS51989-211D(* )	SLSF162-18SA(* )	SF162-18SA(* )
MS51989-212D(* )	SLSF182-21SA(* )	SF182-21SA(* )
MS51989E203D(* )	SLSF82-6SU(* )	SF82-6SU(* )
MS51989E204D(* )	SLSF92-7SU(* )	SF92-7SU(* )
MS51989E205D(* )	SLSF102-9SU(* )	SF102-9SU(* )
MS51989E206D(* )	SLSF112-11SU(* )	SF112-11SU(* )
MS51989E207D(* )	SLSF122-12SU(* )	SF122-12SU(* )
MS51989E208D(* )	SLSF132-13SU(* )	SF132-13SU(* )
MS51989E209D(* )	SLSF142-14SU(* )	SF142-14SU(* )
MS51989E210D(* )	SLSF152-16SU(* )	SF152-16SU(* )
MS51989E211D(* )	SLSF162-18SU(* )	SF162-18SU(* )
MS51989E212D(* )	SLSF182-21SU(* )	SF182-21SU(* )

**MS51989 STUDS**

<b>MS PART NUMBER</b>	<b>SHUR-LOK P/N</b>	<b>ROSAN P/N</b>
MS51989-402-(* )	SLSC72-4SA(* )A	SC72-4SA(* )A
MS51989-403-(* )	SLSC82-6SA(* )A	SC82-6SA(* )A
MS51989-404-(* )	SLSC92-7SA(* )A	SC92-7SA(* )A
MS51989-405-(* )	SLSC102-9SA(* )A	SC102-9SA(* )A
MS51989-406-(* )	SLSC112-11SA(* )A	SC112-11SA(* )A
MS51989-407-(* )	SLSC122-12SA(* )A	SC122-12SA(* )A
MS51989-408-(* )	SLSC132-13SA(* )A	SC132-13SA(* )A
MS51989-409-(* )	SLSC142-14SA(* )A	SC142-14SA(* )A
MS51989-410-(* )	SLSC152-16SA(* )A	SC152-16SA(* )A
MS51989-411-(* )	SLSC162-18SA(* )A	SC162-18SA(* )A
MS51989-412-(* )	SLSC182-21SA(* )A	SC182-21SA(* )A
MS51989E402-(* )	SLSC72-4SU(* )A	SC72-4SU(* )A
MS51989E403-(* )	SLSC82-6SU(* )A	SC82-6SU(* )A
MS51989E404-(* )	SLSC92-7SU(* )A	SC92-7SU(* )A
MS51989E405-(* )	SLSC102-9SU(* )A	SC102-9SU(* )A
MS51989E406-(* )	SLSC112-11SU(* )A	SC112-11SU(* )A
MS51989E407-(* )	SLSC122-12SU(* )A	SC122-12SU(* )A
MS51989E408-(* )	SLSC132-13SU(* )A	SC132-13SU(* )A
MS51989E409-(* )	SLSC142-14SU(* )A	SC142-14SU(* )A
MS51989E410-(* )	SLSC152-16SU(* )A	SC152-16SU(* )A
MS51989E411-(* )	SLSC162-18SU(* )A	SC162-18SU(* )A
MS51989E412-(* )	SLSC182-21SU(* )A	SC182-21SU(* )A
MS51989-403D(* )	SLSC82-6SA(* )	SC82-6SA(* )
MS51989-404D(* )	SLSC92-7SA(* )	SC92-7SA(* )
MS51989-405D(* )	SLSC102-9SA(* )	SC102-9SA(* )
MS51989-406D(* )	SLSC112-11SA(* )	SC112-11SA(* )
MS51989-407D(* )	SLSC122-12SA(* )	SC122-12SA(* )
MS51989-408D(* )	SLSC132-13SA(* )	SC132-13SA(* )
MS51989-409D(* )	SLSC142-14SA(* )	SC142-14SA(* )
MS51989-410D(* )	SLSC152-16SA(* )	SC152-16SA(* )
MS51989-411D(* )	SLSC162-18SA(* )	SC162-18SA(* )
MS51989-412D(* )	SLSC182-21SA(* )	SC182-21SA(* )
MS51989E403D(* )	SLSC82-6SU(* )	SC82-6SU(* )
MS51989E404D(* )	SLSC92-7SU(* )	SC92-7SU(* )
MS51989E405D(* )	SLSC102-9SU(* )	SC102-9SU(* )
MS51989E406D(* )	SLSC112-11SU(* )	SC112-11SU(* )
MS51989E407D(* )	SLSC122-12SU(* )	SC122-12SU(* )
MS51989E408D(* )	SLSC132-13SU(* )	SC132-13SU(* )
MS51989E409D(* )	SLSC142-14SU(* )	SC142-14SU(* )
MS51989E410D(* )	SLSC152-16SU(* )	SC152-16SU(* )
MS51989E411D(* )	SLSC162-18SU(* )	SC162-18SU(* )
MS51989E412D(* )	SLSC182-21SU(* )	SC182-21SU(* )

<b>MS PART NUMBER</b>	<b>SHUR-LOK P/N</b>	<b>ROSAN P/N</b>
MS51989-302-(* )	SLSC71-4SA(* )A	SC71-4SA(* )A
MS51989-303-(* )	SLSC81-6SA(* )A	SC81-6SA(* )A
MS51989-304-(* )	SLSC91-7SA(* )A	SC91-7SA(* )A
MS51989-305-(* )	SLSC101-9SA(* )A	SC101-9SA(* )A
MS51989-306-(* )	SLSC111-11SA(* )A	SC111-11SA(* )A
MS51989-307-(* )	SLSC121-12SA(* )A	SC121-12SA(* )A
MS51989-308-(* )	SLSC131-13SA(* )A	SC131-13SA(* )A
MS51989-309-(* )	SLSC141-14SA(* )A	SC141-14SA(* )A
MS51989-310-(* )	SLSC151-16SA(* )A	SC151-16SA(* )A
MS51989-311-(* )	SLSC161-18SA(* )A	SC161-18SA(* )A
MS51989-312-(* )	SLSC181-21SA(* )A	SC181-21SA(* )A
MS51989E302-(* )	SLSC71-4SU(* )A	SC71-4SU(* )A
MS51989E303-(* )	SLSC81-6SU(* )A	SC81-6SU(* )A
MS51989E304-(* )	SLSC91-7SU(* )A	SC91-7SU(* )A
MS51989E305-(* )	SLSC101-9SU(* )A	SC101-9SU(* )A
MS51989E306-(* )	SLSC111-11SU(* )A	SC111-11SU(* )A
MS51989E307-(* )	SLSC121-12SU(* )A	SC121-12SU(* )A
MS51989E308-(* )	SLSC131-13SU(* )A	SC131-13SU(* )A
MS51989E309-(* )	SLSC141-14SU(* )A	SC141-14SU(* )A
MS51989E310-(* )	SLSC151-16SU(* )A	SC151-16SU(* )A
MS51989E311-(* )	SLSC161-18SU(* )A	SC161-18SU(* )A
MS51989E312-(* )	SLSC181-21SU(* )A	SC181-21SU(* )A
MS51989-303D(* )	SLSC81-6SA(* )	SC81-6SA(* )
MS51989-304D(* )	SLSC91-7SA(* )	SC91-7SA(* )
MS51989-305D(* )	SLSC101-9SA(* )	SC101-9SA(* )
MS51989-306D(* )	SLSC111-11SA(* )	SC111-11SA(* )
MS51989-307D(* )	SLSC121-12SA(* )	SC121-12SA(* )
MS51989-308D(* )	SLSC131-13SA(* )	SC131-13SA(* )
MS51989-309D(* )	SLSC141-14SA(* )	SC141-14SA(* )
MS51989-310D(* )	SLSC151-16SA(* )	SC151-16SA(* )
MS51989-311D(* )	SLSC161-18SA(* )	SC161-18SA(* )
MS51989-312D(* )	SLSC181-21SA(* )	SC181-21SA(* )
MS51989E303D(* )	SLSC81-6SU(* )	SC81-6SU(* )
MS51989E304D(* )	SLSC91-7SU(* )	SC91-7SU(* )
MS51989E305D(* )	SLSC101-9SU(* )	SC101-9SU(* )
MS51989E306D(* )	SLSC111-11SU(* )	SC111-11SU(* )
MS51989E307D(* )	SLSC121-12SU(* )	SC121-12SU(* )
MS51989E308D(* )	SLSC131-13SU(* )	SC131-13SU(* )
MS51989E309D(* )	SLSC141-14SU(* )	SC141-14SU(* )
MS51989E310D(* )	SLSC151-16SU(* )	SC151-16SU(* )
MS51989E311D(* )	SLSC161-18SU(* )	SC161-18SU(* )
MS51989E312D(* )	SLSC181-21SU(* )	SC181-21SU(* )

## MS51992 STUDS

MS PART NUMBER	SHUR-LOK P/N	ROSAN P/N
MS51992A642-8	SLSFT5902A642-8	SFT5902A642-8
MS51992A642-(9 thru 64)	SLSFT5902A642-(9 thru 64)	SFT5902A642-(9 thru 64)
MS51992A643-9	SLSFT5902A642-8	SFT5902A643-9
MS51992A634-10	SLSFT5902A642-8	SFT5902A643-10
MS51992A643-11	SLSFT5902A642-8	SFT5902A643-11
MS51992A643-(12 thru 64)	SLSFT5902A643-(12 thru 64)	SFT5902A643-(12 thru 64)
MS51992A644-11	SLSFT5902A644-12	SFT5902A644-11
MS51992A644-12	SLSFT5902A644-13	SFT5902A644-12
MS51992A644-(13 thru 64)	SLSFT5902A644-(13 thru 64)	SFT5902A644-(13 thru 64)
MS51992A645-12	SLSFT5902A645-12	SFT5902A645-12
MS51992A645-13	SLSFT5902A645-13	SFT5902A645-13
MS51992A645-(14 thru 64)	SLSFT5902A645-(14 thru 64)	SFT5902A642-(14 thru 64)
MS51992A646-15	SLSFT5902A646-15	SFT5902A646-15
MS51992A646-(16 thru 64)	SLSFT5902A646-(16 thru 64)	SFT5902A646-(16 thru 64)
MS51992A647-16	SLSFT5902A647-16	SFT5902A647-16
MS51992A647-(17 thru 64)	SLSFT5902A647-(17 thru 64)	SFT5902A647-(17 thru 64)
MS51992A648-18	SLSFT5902A642-8	SFT5902A648-18
MS51992A648-(19 thru 64)	SLSFT5902A648-(19 thru 64)	SFT5902A648-(19 thru 64)
MS51992A802-8	SLSFT5902A802-8	SFT5902A802-8
MS51992A802-(9 thru 64)	SLSFT5902A802-(9 thru 64)	SFT5902A802-(9 thru 64)
MS51992A803-9	SLSFT5902A803-9	SFT5902A803-9
MS51992A803-10	SLSFT5902A803-10	SFT5902A803-10
MS51992A803-11	SLSFT5902A803-11	SFT5902A803-11
MS51992A803-(12 thru 64)	SLSFT5902A803-(12 thru 64)	SFT5902A803-(12 thru 64)
MS51992A804-11	SLSFT5902A804-11	SFT5902A804-11
MS51992A804-12	SLSFT5902A804-12	SFT5902A804-12
MS51992A804-(13 thru 64)	SLSFT5902A804-(13 thru 64)	SFT5902A804-(13 thru 64)
MS51992A805-12	SLSFT5902A805-12	SFT5902A805-12
MS51992A805-13	SLSFT5902A805-12	SFT5902A805-12
MS51992A805-(14 thru 64)	SLSFT5902A805-(14 thru 64)	SFT5902A805-(14 thru 64)
MS51992A806-15	SLSFT5902A806-15	SFT5902A806-15
MS51992A806-(16 thru 64)	SLSFT5902A806-(16 thru 64)	SFT5902A806-(16 thru 64)
MS51992A807-16	SLSFT5902A806-16	SFT5902A807-16
MS51992A807-(17 thru 64)	SLSFT5902A806-(17 thru 64)	SFT5902A807-(17 thru 64)
MS51992A808-18	SLSFT5902A808-18	SFT5902A808-18
MS51992A808-(19 thru 64)	SLSFT5902A808-(19 thru 64)	SFT5902A808-(19 thru 64)

## MS51992 STUDS

MS PART NUMBER	SHUR-LOK P/N	ROSAN P/N
MS51992B502-8	SLSFT5902B502-8	SFT5902B502-8
MS51992B502-(9 thru 64)	SLSFT5902B502-(9 thru 64)	SFT5902B502-(9 thru 64)
MS51992B503-9	SLSFT5902B503-9	SFT5902B503-9
MS51992B503-10	SLSFT5902B503-10	SFT5902B503-10
MS51992B503-11	SLSFT5902B503-11	SFT5902B503-11
MS51992B503-(12 thru 64)	SLSFT5902B503-(12 thru 64)	SFT5902B503-(12 thru 64)
MS51992B504-11	SLSFT5902B504-11	SFT5902B504-11
MS51992B504-12	SLSFT5902B504-12	SFT5902B504-12
MS51992B504-(13 thru 64)	SLSFT5902B504-(13 thru 64)	SFT5902B504-(13 thru 64)
MS51992B505-12	SLSFT5902B505-12	SFT5902B505-12
MS51992B505-13	SLSFT5902B505-13	SFT5902B505-13
MS51992B505-(14 thru 64)	SLSFT5902B505-(14 thru 64)	SFT5902B505-(14 thru 64)
MS51992B506-15	SLSFT5902B506-15	SFT5902B506-15
MS51992B506-(16 thru 64)	SLSFT5902B506-(16 thru 64)	SFT5902B506-(16 thru 64)
MS51992B507-16	SLSFT5902B507-16	SFT5902B507-16
MS51992B507-(17 thru 64)	SLSFT5902B507-(17 thru 64)	SFT5902B507-(17 thru 64)
MS51992B508-18	SLSFT5902B508-18	SFT5902B508-18
MS51992B508-(19 thru 64)	SLSFT5902B508-(19 thru 64)	SFT5902B508-(19 thru 64)
MS51992C502-8	SLSFT5902C502-8	SFT5902C502-8
MS51992C502-8(9 thru 64)	SLSFT5902C502-(9 thru 64)	SFT5902C502-(9 thru 64)
MS51992C503-9	SLSFT5902C503-9	SFT5902C503-9
MS51992C503-10	SLSFT5902C503-10	SFT5902C503-10
MS51992C503-11	SLSFT5902C503-11	SFT5902C503-11
MS51992C503-(12 thru 64)	SLSFT5902C503-(12 thru 64)	SFT5902C503-(12 thru 64)
MS51992C504-11	SLSFT5902C504-11	SFT5902C504-11
MS51992C504-12	SLSFT5902C504-12	SFT5902C504-12
MS51992C504-(13 thru 64)	SLSFT5902C504-(13 thru 64)	SFT5902C504-(13 thru 64)
MS51992C505-12	SLSFT5902C505-12	SFT5902C505-12
MS51992C505-13	SLSFT5902C505-12	SFT5902C505-12
MS51992C505-(14 thru 64)	SLSFT5902C505-(14 thru 64)	SFT5902C505-(14 thru 64)
MS51992C506-15	SLSFT5902C506-15	SFT5902C506-15
MS51992C506-(16 thru 64)	SLSFT5902C506-(16 thru 64)	SFT5902C506-(16 thru 64)
MS51992C507-16	SLSFT5902C506-16	SFT5902C507-16
MS51992C507-(17 thru 64)	SLSFT5902C506-(17 thru 64)	SFT5902C507-(17 thru 64)
MS51992C508-18	SLSFT5902C508-18	SFT5902C508-18
MS51992C508-(19 thru 64)	SLSFT5902C508-(19 thru 64)	SFT5902C508-(19 thru 64)

## MS51992 STUDS

MS PART NUMBER	SHUR-LOK P/N	ROSAN P/N
MS51992C642-8	SLSFT5902C642-8	SFT5902C642-8
MS51992C642-(9 thru 64)	SLSFT5902C642-(9 thru 64)	SFT5902C642-(9 thru 64)
MS51992C643-9	SLSFT5902C643-9	SFT5902C643-9
MS51992C643-10	SLSFT5902C643-10	SFT5902C643-10
MS51992C643-11	SLSFT5902C643-11	SFT5902C643-11
MS51992C643-(12 thru 64)	SLSFT5902C643-(12 thru 64)	SFT5902C643-(12 thru 64)
MS51992C644-11	SLSFT5902C644-11	SFT5902C644-11
MS51992C644-12	SLSFT5902C644-12	SFT5902C644-12
MS51992C644-(13 thru 64)	SLSFT5902C644-(13 thru 64)	SFT5902C644-(13 thru 64)
MS51992C645-12	SLSFT5902C645-12	SFT5902C645-12
MS51992C645-13	SLSFT5902C645-13	SFT5902C645-13
MS51992C645-(14 thru 64)	SLSFT5902C645-(14 thru 64)	SFT5902C645-(14 thru 64)
MS51992C646-15	SLSFT5902C646-15	SFT5902C646-15
MS51992C646-(16 thru 64)	SLSFT5902C646-(16 thru 64)	SFT5902C646-(16 thru 64)
MS51992C647-16	SLSFT5902C647-16	SFT5902C647-16
MS51992C647-(17 thru 64)	SLSFT5902C647-(17 thru 64)	SFT5902C647-(17 thru 64)
MS51992C648-18	SLSFT5902C648-18	SFT5902C648-18
MS51992C648-(19 thru 64)	SLSFT5902C648-(19 thru 64)	SFT5902C648-(19 thru 64)
MS51992C802-8	SLSFT5902C802-8	SFT5902C802-8
MS51992C802-8(9 thru 64)	SLSFT5902C802-(9 thru 64)	SFT5902C802-(9 thru 64)
MS51992C803-9	SLSFT5902C803-9	SFT5902C803-9
MS51992C803-10	SLSFT5902C803-10	SFT5902C803-10
MS51992C803-11	SLSFT5902C803-11	SFT5902C803-11
MS51992C803-(12 thru 64)	SLSFT5902C803-(12 thru 64)	SFT5902C803-(12 thru 64)
MS51992C804-11	SLSFT5902C804-11	SFT5902C804-11
MS51992C804-12	SLSFT5902C804-12	SFT5902C804-12
MS51992C804-(13 thru 64)	SLSFT5902C804-(13 thru 64)	SFT5902C804-(13 thru 64)
MS51992C805-12	SLSFT5902C805-12	SFT5902C805-12
MS51992C805-13	SLSFT5902C805-12	SFT5902C805-12
MS51992C805-(14 thru 64)	SLSFT5902C805-(14 thru 64)	SFT5902C805-(14 thru 64)
MS51992C806-15	SLSFT5902C806-15	SFT5902C806-15
MS51992C806-(16 thru 64)	SLSFT5902C806-(16 thru 64)	SFT5902C806-(16 thru 64)
MS51992C807-16	SLSFT5902C806-16	SFT5902C807-16
MS51992C807-(17 thru 64)	SLSFT5902C806-(17 thru 64)	SFT5902C807-(17 thru 64)
MS51992C808-18	SLSFT5902C808-18	SFT5902C808-18
MS51992C808-(19 thru 64)	SLSFT5902C808-(19 thru 64)	SFT5902C808-(19 thru 64)

## MS51992 STUDS

MS PART NUMBER	SHUR-LOK P/N	ROSAN P/N
MS51992E502-8	SLSFT5902E502-8	SFT5902E502-8
MS51992E502-(9 thru 64)	SLSFT5902E502-(9 thru 64)	SFT5902E502-(9 thru 64)
MS51992E503-9	SLSFT5902E503-9	SFT5902E503-9
MS51992E503-10	SLSFT5902E503-10	SFT5902E503-10
MS51992E503-11	SLSFT5902E503-11	SFT5902E503-11
MS51992E503-(12 thru 64)	SLSFT5902E503-(12 thru 64)	SFT5902E503-(12 thru 64)
MS51992E504-11	SLSFT5902E504-11	SFT5902E504-11
MS51992E504-12	SLSFT5902E504-12	SFT5902E504-12
MS51992E504-(13 thru 64)	SLSFT5902E504-(13 thru 64)	SFT5902E504-(13 thru 64)
MS51992E505-12	SLSFT5902E505-12	SFT5902E505-12
MS51992E505-13	SLSFT5902E505-13	SFT5902E505-13
MS51992E505-(14 thru 64)	SLSFT5902E505-(14 thru 64)	SFT5902E505-(14 thru 64)
MS51992E506-15	SLSFT5902E506-15	SFT5902E506-15
MS51992E506-(16 thru 64)	SLSFT5902E506-(16 thru 64)	SFT5902E506-(16 thru 64)
MS51992E507-16	SLSFT5902E507-16	SFT5902E507-16
MS51992E507-(17 thru 64)	SLSFT5902E507-(17 thru 64)	SFT5902E507-(17 thru 64)
MS51992E508-18	SLSFT5902E508-18	SFT5902E508-18
MS51992E508-(19 thru 64)	SLSFT5902E508-(19 thru 64)	SFT5902E508-(19 thru 64)
MS51992E642-8	SLSFT5902E642-8	SFT5902E642-8
MS51992E642-8(9 thru 64)	SLSFT5902E642-(9 thru 64)	SFT5902E642-(9 thru 64)
MS51992E643-9	SLSFT5902E643-9	SFT5902E643-9
MS51992E643-10	SLSFT5902E643-10	SFT5902E643-10
MS51992E643-11	SLSFT5902E643-11	SFT5902E643-11
MS51992E643-(12 thru 64)	SLSFT5902E643-(12 thru 64)	SFT5902E643-(12 thru 64)
MS51992E644-11	SLSFT5902E644-11	SFT5902E644-11
MS51992E644-12	SLSFT5902E644-12	SFT5902E644-12
MS51992E644-(13 thru 64)	SLSFT5902E644-(13 thru 64)	SFT5902E644-(13 thru 64)
MS51992E645-12	SLSFT5902E645-12	SFT5902E645-12
MS51992E645-13	SLSFT5902E645-12	SFT5902E645-12
MS51992E645-(14 thru 64)	SLSFT5902E645-(14 thru 64)	SFT5902E645-(14 thru 64)
MS51992E646-15	SLSFT5902E646-15	SFT5902E646-15
MS51992E646-(16 thru 64)	SLSFT5902E646-(16 thru 64)	SFT5902E646-(16 thru 64)
MS51992E647-16	SLSFT5902E646-16	SFT5902E647-16
MS51992E647-(17 thru 64)	SLSFT5902E646-(17 thru 64)	SFT5902E647-(17 thru 64)
MS51992E648-18	SLSFT5902E648-18	SFT5902E648-18
MS51992E648-(19 thru 64)	SLSFT5902E648-(19 thru 64)	SFT5902E648-(19 thru 64)

## MS51992 STUDS

MS PART NUMBER	SHUR-LOK P/N	ROSAN P/N
MS51992E802-8	SLSFT5902E802-8	SFT5902E802-8
MS51992E802-(9 thru 64)	SLSFT5902E802-(9 thru 64)	SFT5902E802-(9 thru 64)
MS51992E803-9	SLSFT5902E803-9	SFT5902E803-9
MS51992E803-10	SLSFT5902E803-10	SFT590E803-10
MS51992E803-11	SLSFT5902E803-11	SFT5902E803-11
MS51992E803-(12 thru 64)	SLSFT5902E803-(12 thru 64)	SFT5902E803-(12 thru 64)
MS51992E804-11	SLSFT5902E804-11	SFT5902E804-11
MS51992E804-12	SLSFT5902E804-12	SFT5902E804-12
MS51992E804-(13 thru 64)	SLSFT5902E804-(13 thru 64)	SFT5902E804-(13 thru 64)
MS51992E805-12	SLSFT5902E805-12	SFT5902E805-12
MS51992E805-13	SLSFT5902E805-13	SFT5902E805-13
MS51992E805-(14 thru 64)	SLSFT5902E805-(14 thru 64)	SFT5902E805-(14 thru 64)
MS51992E806-15	SLSFT5902E806-15	SFT5902E806-15
MS51992E806-(16 thru 64)	SLSFT5902E806-(16 thru 64)	SFT5902E806-(16 thru 64)
MS51992E807-16	SLSFT5902E807-16	SFT5902E807-16
MS51992E807-(17 thru 64)	SLSFT5902E807-(17 thru 64)	SFT5902E807-(17 thru 64)
MS51992E808-18	SLSFT5902E808-18	SFT5902E808-18
MS51992E808-(19 thru 64)	SLSFT5902E808-(19 thru 64)	SFT5902E808-(19 thru 64)



## MS51497 STUDS

MS PART NUMBER	ROSAN P/N	SHUR-LOK P/N
MS51497A642-8	SFR5902A642-8	SLSFR5902A642-8
MS51497A642-(9 thru 64)	SFR5902A642-(9 thru 64)	SLSFR5902A642-(9 thru 64)
MS51497A643-9	SFR5902A643-9	SLSFR5902A643-9
MS51497A643-10	SFR5902A643-10	SLSFR5902A643-10
MS51497A643-11	SFR5902A643-11	SLSFR5902A643-11
MS51497A643-(12 thru 64)	SFR5902A643-(12 thru 64)	SLSFR5902A643-(12 thru 64)
MS51497A644-11	SFR5902A644-11	SLSFR5902A644-11
MS51497A644-12	SFR5902A644-12	SLSFR5902A644-12
MS51497A644-(13 thru 64)	SFR5902A644-(13 thru 64)	SLSFR5902A644-(13 thru 64)
MS51497A645-12	SFR5902A645-12	SLSFR5902A645-12
MS51497A645-13	SFR5902A645-13	SLSFR5902A645-13
MS51497A645-(14 thru 64)	SFR5902A645-(14 thru 64)	SLSFR5902A645-(14 thru 64)
MS51497A646-15	SFR5902A646-15	SLSFR5902A646-15
MS51497A646-(16 thru 64)	SFR5902A646-(16 thru 64)	SLSFR5902A646-(16 thru 64)
MS51497A647-16	SFR5902A647-16	SLSFR5902A647-16
MS51497A647-(17 thru 64)	SFR5902A647-(17 thru 64)	SLSFR5902A647-(17 thru 64)
MS51497A648-18	SFR5902A648-18	SLSFR5902A648-18
MS51497A648-(19 thru 64)	SFR5902A648-(19 thru 64)	SLSFR5902A648-(19 thru 64)
MS51497A802-8	SFR5902A802-8	SLSFR5902A802-8
MS51497A802-8(9 thru 64)	SFR5902A802-(9 thru 64)	SLSFR5902A802-(9 thru 64)
MS51497A803-9	SFR5902A803-9	SLSFR5902A803-9
MS51497A803-10	SFR5902A803-10	SLSFR5902A803-10
MS51992A803-11	SFR5902A803-11	SLSFR5902A803-11
MS51992A803-(12 thru 64)	SFR5902A803-(12 thru 64)	SLSFR5902A803-(12 thru 64)
MS51992A804-11	SFR5902A804-11	SLSFR5902A804-11
MS51992A804-12	SFR5902A804-12	SLSFR5902A804-12
MS51992A804-(13 thru 64)	SFR5902A804-(13 thru 64)	SLSFR5902A804-(13 thru 64)
MS51992A805-12	SFR5902A805-12	SLSFR5902A805-12
MS51992A805-13	SFR5902A805-12	SLSFR5902A805-12
MS51992A805-(14 thru 64)	SFR5902A805-(14 thru 64)	SLSFR5902A805-(14 thru 64)
MS51992A806-15	SFR5902A806-15	SLSFR5902A806-15
MS51992A806-(16 thru 64)	SFR5902A806-(16 thru 64)	SLSFR5902A806-(16 thru 64)
MS51992A807-16	SFR5902A807-16	SLSFR5902A806-16
MS51992A807-(17 thru 64)	SFR5902A807-(17 thru 64)	SLSFR5902A806-(17 thru 64)
MS51992A808-18	SFR5902A808-18	SLSFR5902A808-18
MS51992A808-(19 thru 64)	SFR5902A808-(19 thru 64)	SLSFR5902A808-(19 thru 64)

## MS51497 STUDS

MS PART NUMBER	SHUR-LOK P/N	ROSAN P/N
MS51497B502-8	SLSFR5902B502-8	SFR5902B502-8
MS51497B502-(9 thru 64)	SLSFR5902B502-(9 thru 64)	SFR5902B502-(9 thru 64)
MS51497B503-9	SLSFR5902B503-9	SFR5902B503-9
MS51497B503-10	SLSFR5902B503-10	SFR5902B503-10
MS51497B503-11	SLSFR5902B503-11	SFR5902B503-11
MS51497B503-(12 thru 64)	SLSFR5902B503-(12 thru 64)	SFR5902B503-(12 thru 64)
MS51497B504-11	SLSFR5902B504-11	SFR5902B504-11
MS51497B504-12	SLSFR5902B504-12	SFR5902B504-12
MS51497B504-(13 thru 64)	SLSFR5902B504-(13 thru 64)	SFR5902B504-(13 thru 64)
MS51497B505-12	SLSFR5902B505-12	SFR5902B505-12
MS51497B505-13	SLSFR5902B505-13	SFR5902B505-13
MS51497B505-(14 thru 64)	SLSFR5902B505-(14 thru 64)	SFR5902B505-(14 thru 64)
MS51497B506-15	SLSFR5902B506-15	SFR5902B506-15
MS51497B506-(16 thru 64)	SLSFR5902B506-(16 thru 64)	SFR5902B506-(16 thru 64)
MS51497B507-16	SLSFR5902B507-16	SFR5902B507-16
MS51497B507-(17 thru 64)	SLSFR5902B507-(17 thru 64)	SFR5902B507-(17 thru 64)
MS51497B508-18	SLSFR5902B508-18	SFR5902B508-18
MS51497B508-(19 thru 64)	SLSFR5902B508-(19 thru 64)	SFR5902B508-(19 thru 64)
MS51497C502-8	SLSFR5902C502-8	SFR5902C502-8
MS51497C502-8(9 thru 64)	SLSFR5902C502-(9 thru 64)	SFR5902C502-(9 thru 64)
MS51497C503-9	SLSFR5902C503-9	SFR5902C503-9
MS51497C503-10	SLSFR5902C503-10	SFR5902C503-10
MS51992C503-11	SLSFR5902C503-11	SFR5902C503-11
MS51992C503-(12 thru 64)	SLSFR5902C503-(12 thru 64)	SFR5902C503-(12 thru 64)
MS51992C504-11	SLSFR5902C504-11	SFR5902C504-11
MS51992C504-12	SLSFR5902C504-12	SFR5902C504-12
MS51992C504-(13 thru 64)	SLSFR5902C504-(13 thru 64)	SFR5902C504-(13 thru 64)
MS51992C505-12	SLSFR5902C505-12	SFR5902C505-12
MS51992C505-13	SLSFR5902C505-12	SFR5902C505-12
MS51992C505-(14 thru 64)	SLSFR5902C505-(14 thru 64)	SFR5902C505-(14 thru 64)
MS51992C506-15	SLSFR5902C506-15	SFR5902C506-15
MS51992C506-(16 thru 64)	SLSFR5902C506-(16 thru 64)	SFR5902C506-(16 thru 64)
MS51992C507-16	SLSFR5902C506-16	SFR5902C507-16
MS51992C507-(17 thru 64)	SLSFR5902C506-(17 thru 64)	SFR5902C507-(17 thru 64)
MS51992C508-18	SLSFR5902C508-18	SFR5902C508-18
MS51992C508-(19 thru 64)	SLSFR5902C508-(19 thru 64)	SFR5902C508-(19 thru 64)

## MS51497 STUDS

MS PART NUMBER	SHUR-LOK P/N	ROSAN P/N
MS51497C642-8	SLSFR5902C642-8	SFR5902C642-8
MS51497C642-(9 thru 64)	SLSFR5902C642-(9 thru 64)	SFR5902C642-(9 thru 64)
MS51497C643-9	SLSFR5902C643-9	SFR5902C643-9
MS51497C643-10	SLSFR5902C643-10	SFR5902C643-10
MS51497C643-11	SLSFR5902C643-11	SFR5902C643-11
MS51497C643-(12 thru 64)	SLSFR5902C643-(12 thru 64)	SFR5902C643-(12 thru 64)
MS51497C644-11	SLSFR5902C644-11	SFR5902C644-11
MS51497C644-12	SLSFR5902C644-12	SFR5902C644-12
MS51497C644-(13 thru 64)	SLSFR5902C644-(13 thru 64)	SFR5902C644-(13 thru 64)
MS51497C645-12	SLSFR5902C645-12	SFR5902C645-12
MS51497C645-13	SLSFR5902C645-13	SFR5902C645-13
MS51497C645-(14 thru 64)	SLSFR5902C645-(14 thru 64)	SFR5902C645-(14 thru 64)
MS51497C646-15	SLSFR5902C646-15	SFR5902C646-15
MS51497C646-(16 thru 64)	SLSFR5902C646-(16 thru 64)	SFR5902C646-(16 thru 64)
MS51497C647-16	SLSFR5902C647-16	SFR5902C647-16
MS51497C647-(17 thru 64)	SLSFR5902C647-(17 thru 64)	SFR5902C647-(17 thru 64)
MS51497C648-18	SLSFR5902C648-18	SFR5902C648-18
MS51497C648-(19 thru 64)	SLSFR5902C648-(19 thru 64)	SFR5902C648-(19 thru 64)
MS51497C802-8	SLSFR5902C802-8	SFR5902C802-8
MS51497C802-8(9 thru 64)	SLSFR5902C802-(9 thru 64)	SFR5902C802-(9 thru 64)
MS51497C803-9	SLSFR5902C803-9	SFR5902C803-9
MS51497C803-10	SLSFR5902C803-10	SFR5902C803-10
MS51992C803-11	SLSFR5902C803-11	SFR5902C803-11
MS51992C803-(12 thru 64)	SLSFR5902C803-(12 thru 64)	SFR5902C803-(12 thru 64)
MS51992C804-11	SLSFR5902C804-11	SFR5902C804-11
MS51992C804-12	SLSFR5902C804-12	SFR5902C804-12
MS51992C804-(13 thru 64)	SLSFR5902C804-(13 thru 64)	SFR5902C804-(13 thru 64)
MS51992C805-12	SLSFR5902C508-12	SFR5902C805-12
MS51992C805-13	SLSFR5902C805-12	SFR5902C805-12
MS51992C805-(14 thru 64)	SLSFR5902C805-(14 thru 64)	SFR5902C805-(14 thru 64)
MS51992C806-15	SLSFR5902C806-15	SFR5902C806-15
MS51992C806-(16 thru 64)	SLSFR5902C806-(16 thru 64)	SFR5902C806-(16 thru 64)
MS51992C807-16	SLSFR5902C806-16	SFR5902C807-16
MS51992C807-(17 thru 64)	SLSFR5902C806-(17 thru 64)	SFR5902C807-(17 thru 64)
MS51992C808-18	SLSFR5902C808-18	SFR5902C808-18
MS51992C808-(19 thru 64)	SLSFR5902C808-(19 thru 64)	SFR5902C808-(19 thru 64)

## MS51497 STUDS

MS PART NUMBER	SHUR-LOK P/N	ROSAN P/N
MS51497D502-8	SLSFR5902D502-8	SFR5902D502-8
MS51497D502-(9 thru 64)	SLSFR5902D502-(9 thru 64)	SFR5902D502-(9 thru 64)
MS51497D503-9	SLSFR5902D503-9	SFR5902D503-9
MS51497D503-10	SLSFR5902D503-10	SFR5902D503-10
MS51497D503-11	SLSFR5902D503-11	SFR5902D503-11
MS51497D503-(12 thru 64)	SLSFR5902D503-(12 thru 64)	SFR5902D503-(12 thru 64)
MS51497D504-11	SLSFR5902D504-11	SFR5902D504-11
MS51497D504-12	SLSFR5902D504-12	SFR5902D504-12
MS51497D504-(13 thru 64)	SLSFR5902D504-(13 thru 64)	SFR5902D504-(13 thru 64)
MS51497D505-12	SLSFR5902D505-12	SFR5902D505-12
MS51497D505-13	SLSFR5902D505-13	SFR5902D505-13
MS51497D505-(14 thru 64)	SLSFR5902D505-(14 thru 64)	SFR5902D505-(14 thru 64)
MS51497D506-15	SLSFR5902D506-15	SFR5902D506-15
MS51497D506-(16 thru 64)	SLSFR5902D506-(16 thru 64)	SFR5902D506-(16 thru 64)
MS51497D507-16	SLSFR5902D507-16	SFR5902D507-16
MS51497D507-(17 thru 64)	SLSFR5902D507-(17 thru 64)	SFR5902D507-(17 thru 64)
MS51497D508-18	SLSFR5902D508-18	SFR5902D508-18
MS51497D508-(19 thru 64)	SLSFR5902D508-(19 thru 64)	SFR5902D508-(19 thru 64)
MS51497E502-8	SLSFR5902E502-8	SFR5902E502-8
MS51497E502-8(9 thru 64)	SLSFR5902E502-(9 thru 64)	SFR5902E502-(9 thru 64)
MS51497E503-9	SLSFR5902E503-9	SFR5902E503-9
MS51497E503-10	SLSFR5902E503-10	SFR5902E503-10
MS51992E503-11	SLSFR5902E503-11	SFR5902E503-11
MS51992E503-(12 thru 64)	SLSFR5902E503-(12 thru 64)	SFR5902E503-(12 thru 64)
MS51992E504-11	SLSFR5902E504-11	SFR5902E504-11
MS51992E504-12	SLSFR5902E504-12	SFR5902E504-12
MS51992E504-(13 thru 64)	SLSFR5902E504-(13 thru 64)	SFR5902E504-(13 thru 64)
MS51992E505-12	SLSFR5902E505-12	SFR5902E505-12
MS51992E505-13	SLSFR5902E505-12	SFR5902E505-12
MS51992E505-(14 thru 64)	SLSFR5902E505-(14 thru 64)	SFR5902E505-(14 thru 64)
MS51992E506-15	SLSFR5902E506-15	SFR5902E506-15
MS51992E506-(16 thru 64)	SLSFR5902E506-(16 thru 64)	SFR5902E506-(16 thru 64)
MS51992E507-16	SLSFR5902E506-16	SFR5902E507-16
MS51992E507-(17 thru 64)	SLSFR5902E506-(17 thru 64)	SFR5902E507-(17 thru 64)
MS51992E508-18	SLSFR5902E508-18	SFR5902E508-18
MS51992E508-(19 thru 64)	SLSFR5902E508-(19 thru 64)	SFR5902E508-(19 thru 64)

## MS51497 STUDS

MS PART NUMBER	SHUR-LOK P/N	ROSAN P/N
MS51497E642-8	SLSFR5902E642-8	SFR5902E642-8
MS51497E642-(9 thru 64)	SLSFR5902E642-(9 thru 64)	SFR5902E642-(9 thru 64)
MS51497E643-9	SLSFR5902E643-9	SFR5902E643-9
MS51497E643-10	SLSFR5902E643-10	SFR5902E643-10
MS51497E643-11	SLSFR5902E643-11	SFR5902E643-11
MS51497E643-(12 thru 64)	SLSFR5902E643-(12 thru 64)	SFR5902E643-(12 thru 64)
MS51497E644-11	SLSFR5902E644-11	SFR5902E644-11
MS51497E644-12	SLSFR5902E644-12	SFR5902E644-12
MS51497E644-(13 thru 64)	SLSFR5902E644-(13 thru 64)	SFR5902E644-(13 thru 64)
MS51497E645-12	SLSFR5902E645-12	SFR5902E645-12
MS51497E645-13	SLSFR5902E645-13	SFR5902E645-13
MS51497E645-(14 thru 64)	SLSFR5902E645-(14 thru 64)	SFR5902E645-(14 thru 64)
MS51497E646-15	SLSFR5902E646-15	SFR5902E646-15
MS51497E646-(16 thru 64)	SLSFR5902E646-(16 thru 64)	SFR5902E646-(16 thru 64)
MS51497E647-16	SLSFR5902E647-16	SFR5902E647-16
MS51497E647-(17 thru 64)	SLSFR5902E647-(17 thru 64)	SFR5902E647-(17 thru 64)
MS51497E648-18	SLSFR5902E648-18	SFR5902E648-18
MS51497E648-(19 thru 64)	SLSFR5902E648-(19 thru 64)	SFR5902E648-(19 thru 64)
MS51497E802-8	SLSFR5902E802-8	SFR5902E802-8
MS51497E802-8(9 thru 64)	SLSFR5902E802-(9 thru 64)	SFR5902E802-(9 thru 64)
MS51497E803-9	SLSFR5902E803-9	SFR5902E803-9
MS51497E803-10	SLSFR5902E803-10	SFR5902E803-10
MS51992E803-11	SLSFR5902E803-11	SFR5902E803-11
MS51992E803-(12 thru 64)	SLSFR5902E803-(12 thru 64)	SFR5902E803-(12 thru 64)
MS51992E804-11	SLSFR5902E804-11	SFR5902E804-11
MS51992E804-12	SLSFR5902E804-12	SFR5902E804-12
MS51992E804-(13 thru 64)	SLSFR5902E804-(13 thru 64)	SFR5902E804-(13 thru 64)
MS51992E805-12	SLSFR5902E508-12	SFR5902E805-12
MS51992E805-13	SLSFR5902E805-12	SFR5902E805-12
MS51992E805-(14 thru 64)	SLSFR5902E805-(14 thru 64)	SFR5902E805-(14 thru 64)
MS51992E806-15	SLSFR5902E806-15	SFR5902E806-15
MS51992E806-(16 thru 64)	SLSFR5902E806-(16 thru 64)	SFR5902E806-(16 thru 64)
MS51992E807-16	SLSFR5902E806-16	SFR5902E807-16
MS51992E807-(17 thru 64)	SLSFR5902E806-(17 thru 64)	SFR5902E807-(17 thru 64)
MS51992E808-18	SLSFR5902E808-18	SFR5902E808-18
MS51992E808-(19 thru 64)	SLSFR5902E808-(19 thru 64)	SFR5902E808-(19 thru 64)

## MS51991 INSERTS

MS* PART NUMBER	SHUR-LOK* P/N	ROSAN* P/N
MS51991-202	SLRJ202SB4	RJ202SB4
MS51991-203	SLRJ203SB5	RJ203SB5
MS51991-204	SLRJ204SB6	RJ204SB6
MS51991-205	SLRJ205SB7	RJ205SB7
MS51991-206	SLRJ206SB8	RJ206SB8
MS51991-207	SLRAJ207SB9	RAJ207SB9
MS51991-208	SLRJ208SB10	RJ208SB10
MS51991-209	SLRJ209SB11	RJ209SB11
MS51991-210	SLRJ210SB12	RJ210SB12
MS51991E202	SLRJ202SU4	RJ202SU4
MS51991E203	SLRJ203SU5	RJ203SU5
MS51991E204	SLRJ204SU6	RJ204SU6
MS51991E205	SLRJ205SU7	RJ205SU7
MS51991E206	SLRJ206SU8	RJ206SU8
MS51991E207	SLRAJ207SU9	RAJ207SU9
MS51991E208	SLRJ208SU10	RJ208SU10
MS51991E209	SLRJ209SU11	RJ209SU11
MS51991E210	SLRJ210SU12	RJ210SU12

MS* PART NUMBER	SHUR-LOK* P/N	ROSAN* P/N
MS51991-202	SLRJ202SB4	RJ202SB4
MS51991-203	SLRJ203SB5	RJ203SB5
MS51991-204	SLRJ204SB6	RJ204SB6
MS51991-205	SLRJ205SB7	RJ205SB7
MS51991-206	SLRJ206SB8	RJ206SB8
MS51991-207	SLRAJ207SB9	RAJ207SB9
MS51991-208	SLRJ208SB10	RJ208SB10
MS51991-209	SLRJ209SB11	RJ209SB11
MS51991-210	SLRJ210SB12	RJ210SB12
MS51991E202	SLRJ202SU4	RJ202SU4
MS51991E203	SLRJ203SU5	RJ203SU5
MS51991E204	SLRJ204SU6	RJ204SU6
MS51991E205	SLRJ205SU7	RJ205SU7
MS51991E206	SLRJ206SU8	RJ206SU8
MS51991E207	SLRAJ207SU9	RAJ207SU9
MS51991E208	SLRJ208SU10	RJ208SU10
MS51991E209	SLRJ209SU11	RJ209SU11
MS51991E210	SLRJ210SU12	RJ210SU12

MS* PART NUMBER	SHUR-LOK* P/N	ROSAN* P/N
MS51991-311	SLRJ311SB14	RJ311SB14
MS51991-312	SLRJ312SB16	RJ312SB16
MS51991-312.1	SLRJ312SB16F	RJ312SB16F
MS51991-313	SLRJ313SB18	RJ313SB18
MS51991-314	SLRJ314SB20	RJ314SB20
MS51991-315	SLRJ315SB22F	RJ315SB22F
MS51991E311	SLRJ311SU14	RJ311SU14
MS51991E312	SLRJ312SU16	RJ312SU16
MS51991E312.1	SLRJ312SU16F	RJ312SU16F
MS51991E313	SLRJ313SU18	RJ313SU18
MS51991E314	SLRJ314SU20	RJ314SU20
MS51991E315	SLRJ315SU22F	RJ315SU22F

## MS51993 INSERTS

MS* PART NUMBER	SHUR-LOK* P/N	ROSAN* P/N
MS51993M643	SLRD5903M643	RD5903M643
MS51993M644	SLRD5903M644	RD5903M644
MS51993M645	SLRD5903M645	RD5903M645
MS51993M646	SLRD5903M646	RD5903M646
MS51993M647	SLRD5903M647	RD5903M647
MS51993M648	SLRD5903M648	RD5903M648
MS51993S643	SLRD5903S643	RD5903S643
MS51993S644	SLRD5903S644	RD5903S644
MS51993S645	SLRD5903S645	RD5903S645
MS51993S646	SLRD5903S646	RD5903S646
MS51993S647	SLRD5903S647	RD5903S647
MS51993S648	SLRD5903S648	RD5903S648
MS51993T643	SLRD5903T643	RD5903T643
MS51993T644	SLRD5903T644	RD5903T644
MS51993T645	SLRD5903T645	RD5903T645
MS51993T646	SLRD5903T646	RD5903T646
MS51993T647	SLRD5903T647	RD5903T647
MS51993T648	SLRD5903T648	RD5903T648

MS* PART NUMBER	SHUR-LOK* P/N	ROSAN* P/N
MS51993M503	SLRD5903M503	RD5903M503
MS51993M504	SLRD5903M504	RD5903M504
MS51993M505	SLRD5903M505	RD5903M505
MS51993M506	SLRD5903M506	RD5903M506
MS51993M507	SLRD5903M507	RD5903M507
MS51993M508	SLRD5903M508	RD5903M508
MS51993S503	SLRD5903S503	RD5903S503
MS51993S504	SLRD5903S504	RD5903S504
MS51993S505	SLRD5903S505	RD5903S505
MS51993S506	SLRD5903S506	RD5903S506
MS51993S507	SLRD5903S507	RD5903S507
MS51993S508	SLRD5903S508	RD5903S508
MS51993T503	SLRD5903T503	RD5903T503
MS51993T504	SLRD5903T504	RD5903T504
MS51993T505	SLRD5903T505	RD5903T505
MS51993T506	SLRD5903T506	RD5903T506
MS51993T507	SLRD5903T507	RD5903T507
MS51993T508	SLRD5903T508	RD5903T508

MS* PART NUMBER	SHUR-LOK* P/N	ROSAN* P/N
MS51993M803	SLRD5903M803	RD5903M803
MS51993M804	SLRD5903M804	RD5903M804
MS51993M805	SLRD5903M805	RD5903M805
MS51993M806	SLRD5903M806	RD5903M806
MS51993M807	SLRD5903M807	RD5903M807
MS51993M808	SLRD5903M808	RD5903M808
MS51993S803	SLRD5903S803	RD5903S803
MS51993S804	SLRD5903S804	RD5903S804
MS51993S805	SLRD5903S805	RD5903S805
MS51993S806	SLRD5903S806	RD5903S806
MS51993S807	SLRD5903S807	RD5903S807
MS51993S808	SLRD5903S808	RD5903S808
MS51993T803	SLRD5903T803	RD5903T803
MS51993T804	SLRD5903T804	RD5903T804
MS51993T805	SLRD5903T805	RD5903T805
MS51993T806	SLRD5903T806	RD5903T806
MS51993T807	SLRD5903T807	RD5903T807
MS51993T808	SLRD5903T808	RD5903T808

## MS51498 INSERTS

MS* PART NUMBER	SHUR-LOK* P/N	ROSAN* P/N
MS51498M643	SLRDR5903M643	RDR5903M643
MS51498M644	SLRDR5903M644	RDR5903M644
MS51498M645	SLRDR5903M645	RDR5903M645
MS51498M646	SLRDR5903M646	RDR5903M646
MS51498M647	SLRDR5903M647	RDR5903M647
MS51498M648	SLRDR5903M648	RDR5903M648
MS51498S643	SLRDR5903S643	RDR5903S643
MS51498S644	SLRDR5903S644	RDR5903S644
MS51498S645	SLRDR5903S645	RDR5903S645
MS51498S646	SLRDR5903S646	RDR5903S646
MS51498S647	SLRDR5903S647	RDR5903S647
MS51498S648	SLRDR5903S648	RDR5903S648
MS51498T643	SLRDR5903T643	RDR5903T643
MS51498T644	SLRDR5903T644	RDR5903T644
MS51498T645	SLRDR5903T645	RDR5903T645
MS51498T646	SLRDR5903T646	RDR5903T646
MS51498T647	SLRDR5903T647	RDR5903T647
MS51498T648	SLRDR5903T648	RDR5903T648

MS* PART NUMBER	SHUR-LOK* P/N	ROSAN* P/N
MS51498M503	SLRDR5903M503	RDR5903M503
MS51498M504	SLRDR5903M504	RDR5903M504
MS51498M505	SLRDR5903M505	RDR5903M505
MS51498M506	SLRDR5903M506	RDR5903M506
MS51498M507	SLRDR5903M507	RDR5903M507
MS51498M508	SLRDR5903M508	RDR5903M508
MS51498S503	SLRDR5903S503	RDR5903S503
MS51498S504	SLRDR5903S504	RDR5903S504
MS51498S505	SLRDR5903S505	RDR5903S505
MS51498S506	SLRDR5903S506	RDR5903S506
MS51498S507	SLRDR5903S507	RDR5903S507
MS51498S508	SLRDR5903S508	RDR5903S508
MS51498T503	SLRDR5903T503	RDR5903T503
MS51498T504	SLRDR5903T504	RDR5903T504
MS51498T505	SLRDR5903T505	RDR5903T505
MS51498T506	SLRDR5903T506	RDR5903T506
MS51498T507	SLRDR5903T507	RDR5903T507
MS51498T508	SLRDR5903T508	RDR5903T508

MS* PART NUMBER	SHUR-LOK* P/N	ROSAN* P/N
MS51498M803	SLRDR5903M803	RDR5903M803
MS51498M804	SLRDR5903M804	RDR5903M804
MS51498M805	SLRDR5903M805	RDR5903M805
MS51498M806	SLRDR5903M806	RDR5903M806
MS51498M807	SLRDR5903M807	RDR5903M807
MS51498M808	SLRDR5903M808	RDR5903M808
MS51498S803	SLRDR5903S803	RDR5903S803
MS51498S804	SLRDR5903S804	RDR5903S804
MS51498S805	SLRDR5903S805	RDR5903S805
MS51498S806	SLRDR5903S806	RDR5903S806
MS51498S807	SLRDR5903S807	RDR5903S807
MS51498S808	SLRDR5903S808	RDR5903S808
MS51498T803	SLRD5903T803	RDR5903T803
MS51498T804	SLRD5903T804	RDR5903T804
MS51498T805	SLRD5903T805	RDR5903T805
MS51498T806	SLRD5903T806	RDR5903T806
MS51498T807	SLRD5903T807	RDR5903T807
MS51498T808	SLRD5903T808	RDR5903T808