



**Fastener** *Tool & Supply*

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





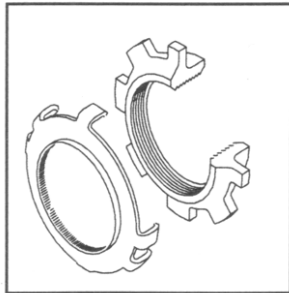
Shur-Lok

# Bearing Locknuts Catalog

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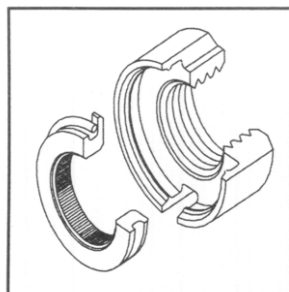
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## STA-LOK POSITIVE LOCKING SYSTEM



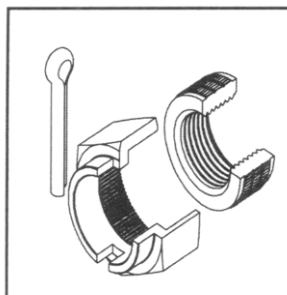
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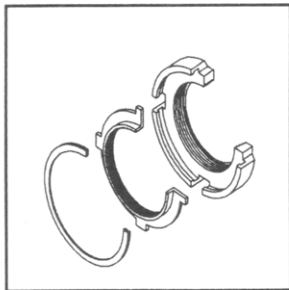
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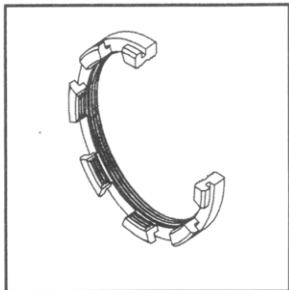
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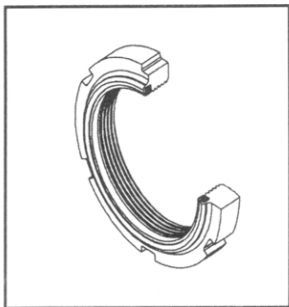
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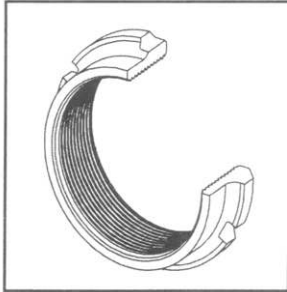
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TSB001 STA-LOK POSITIVE LOCKING SYSTEM ..... Technical Sales Bulletin  
Contact Shur-Lok For a Copy

## INTRODUCTION

Shur-Lok provides a variety of locknut types to meet almost any design challenge. Our Locknuts are used for many different applications including turbo-machinery, gearboxes, transmissions, aircraft structure, aircraft landing gear and high vibration helicopter applications.

Whether your design requirements include high vibration, high RPM, superior strength, reduced weight, high temperature or corrosion protection, Shur-Lok can offer a design to meet your needs. Our Product Engineering Group can assist you with your special or custom designs, or you can select from our existing product series. Sizes ranging from .250 to 8.00 inches in diameter can be provided. Metric thread equivalents are also available.

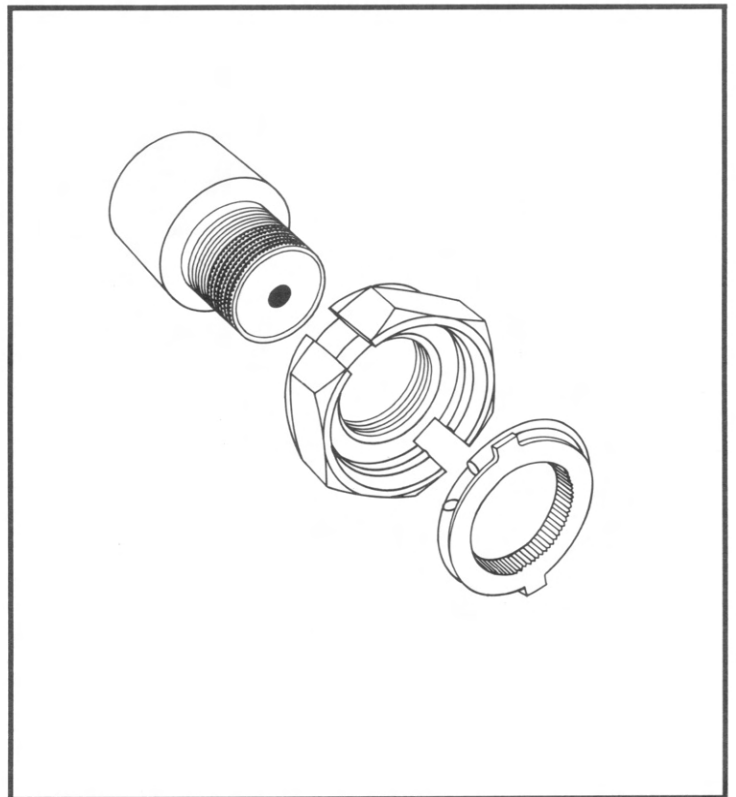
Locknuts can be produced from almost any commercially available materials. These include Alloys that offer weight, corrosion, strength and temperature benefits. Commonly used materials are Titanium, A286 CRES, Inconel, 300 series stainless steel and all alloy carbon steels.

The 2 basic locknut types offered by Shur-Lok are *positive lock* and *prevailing torque* locknuts.

*Positive lock locknuts*, compromise a family of parts that are designed to prevent any unthreading or backing off of the nut by utilizing a mechanical or positive stop. In order for a positively locked locknut to lose preload or locking function when installed, requires the shearing of metal.

Installation and removal of this type of locknut, requires a secondary locking component, such as a lockwasher.

The Shur-Lok positive locking systems provide the most adaptable and balanced positive locking systems available. The foundation of this family of parts, is our **STA-LOK** system. The **STA-LOK** system uses extremely small serrations in its design to provide precise torque setting of the locknut this system has been the design standard, proven through out the years, in the rigorous operating conditions of helicopter gearboxes, engine assemblies and aircraft landing gear.

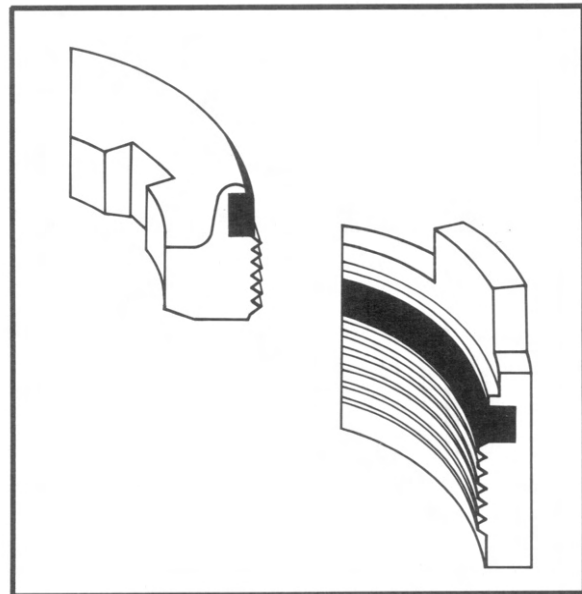


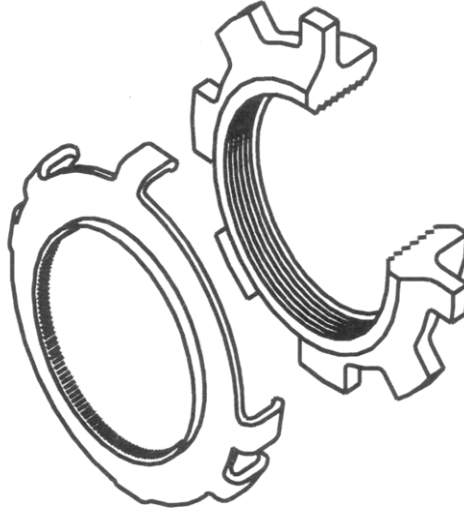
**Prevailing torque locknuts** are exactly what the term implies. Unlike a positive lock, prevailing torque locknuts provide a frictional force or prevailing torque between the nut and the shaft. This frictional force is created through interference between the nut locking feature and the shaft thread. The resulting prevailing torque, resists unlocking of the threaded joint. In the event that an “untightening” force acts on the seated nut that is higher than the nut’s prevailing torque and seating torque, the nut will loosen only until the force is removed. When the force is removed, the locknut’s frictional or prevailing torque will prevent the nut from further coming off the shaft or the bolt. This example describes prevailing torque function for an internally threaded locknut. An externally threaded locknut functions in an identical manner, with the exception that it is typically threaded into a housing or an internal shaft thread.

This brochure illustrates standard series of both positive and prevailing torque locknuts. We encourage the use of standard series when possible as this eliminates the lead time associated with custom designs. In the event that your application cannot be satisfied by a standard series, Shur-Lok welcomes the submittal of your specific design criteria. Shur-Lok has a comprehensive network of technical sales people that are available to work with you on your custom design.

***Locknut Styles available within the Categories of Prevailing and Positive Lock Types:***

Various styles and designs of locknuts are available within the categories of Prevailing Torque and Positive Lock. Those designs are listed below. See indicated pages for a detailed description of applications and benefits.





## STA-LOK, BEARING, RETAINING

### FEATURES AND BENEFITS

- ▶ Positive mechanical lock that is not dependent on lubricants or plating for repeatability
- ▶ Achieves precise preload - serrations provide adjustment that eliminates back-off or over-torque.
- ▶ Maintains fatigue strength at reduced weight. External serrations in the nonload carrying portion of the thread eliminates keyways allowing reduction of shaft wall thickness or diameter.
- ▶ Key way stress concentrations are eliminated.
- ▶ Internal serrations of washer mates with serrated shaft
- ▶ SL60 series nut and washer supplied as separate components under NAS 1493 and NAS 1443 part numbers.
- ▶ SL61 series washer incorporates an additional removal feature.

### SHAFT/BOLT SERRATIONS

Broaching serrations on shaft/bolt is required. For installation and removal of locknuts and lockwashers refer to Technical Sales Bulletin - TSB 0001.

### APPLICATIONS

- ▶ Interference type - where there is high RPM and/or load reversals.
- ▶ Where achieving precise preload is critical and existing nuts cannot provide adequate adjustment.
- ▶ Where vibration is present.
- ▶ Where weight reduction is a priority and shaft wall thickness or diameter can be reduced.
- ▶ Where a positive mechanical lock is required.

### SERRATIONS - CLEARANCE OR INTERFERENCE FIT

Interference fit is provided by Shur-Lok.

### THREAD SIZE

.391 through 4.325 inch.

**Metric sizes available on request.**





# LOCKNUT



TABLE I

SHUR-LOK SL60N DASH NO	NAS1493 BASIC PART NUMBER	T THREAD ANSI/AFBMA STD 8.2 CLASS 3B	φ A +.005 [+0.13] -.015 [-0.38]	B +.005 [+0.13] -.000 [-0.00]	φ D ± .005 [0.13]	E +.010 [+0.13] -.000 [-0.00]	φ F +.000 [+0.00] -.005 [-0.13]	φ G +.000 [+0.00] -.005 [-0.13]
1	NAS1493-1	.391-32 NS	.719 [18.26]	.188 [4.78]	.599 [15.21]	.125 [3.18]	.512 [13.00]	.401 [10.19]
2	NAS1493-2	.469-32 NS	.812 [20.62]	.188 [4.78]	.693 [17.60]	.125 [3.18]	.606 [15.39]	.479 [12.17]
3	NAS1493-3	.586-32 NS	.938 [23.83]	.219 [5.56]	.817 [20.75]	.125 [3.18]	.730 [18.54]	.596 [15.14]
4	NAS1493-4	.664-32 NS	1.062 [26.97]	.219 [5.56]	.943 [23.95]	.125 [3.18]	.856 [21.74]	.674 [17.12]
5	NAS1493-5	.781-32 NS	1.188 [30.18]	.250 [6.35]	1.067 [27.10]	.188 [4.78]	.980 [24.89]	.791 [20.09]
6	NAS1493-6	.969-32 NS	1.375 [34.93]	.250 [6.35]	1.255 [31.88]	.188 [4.78]	1.168 [29.67]	.979 [24.87]
7	NAS1493-7	1.173-18 NS	1.688 [42.88]	.281 [7.14]	1.505 [38.23]	.188 [4.78]	1.418 [36.02]	1.183 [30.05]
8	NAS1493-8	1.376-18 NS	1.906 [48.41]	.281 [7.14]	1.724 [43.79]	.188 [4.78]	1.637 [41.58]	1.386 [35.20]
9	NAS1493-9	1.563-18 NS	2.094 [53.19]	.281 [7.14]	1.911 [48.54]	.250 [6.35]	1.824 [46.33]	1.573 [39.95]
10	NAS1493-10	1.767-18 NS	2.312 [58.72]	.312 [7.92]	2.130 [54.10]	.250 [6.35]	2.043 [51.89]	1.777 [45.14]
11	NAS1493-11	1.967-18 NS	2.500 [63.50]	.312 [7.92]	2.317 [58.85]	.250 [6.35]	2.230 [56.64]	1.977 [50.22]
12	NAS1493-12	2.157-18 NS	2.750 [69.85]	.312 [7.92]	2.567 [65.20]	.250 [6.35]	2.480 [62.99]	2.167 [55.04]
13	NAS1493-13	2.360-18 NS	2.938 [74.63]	.344 [8.74]	2.755 [69.98]	.250 [6.35]	2.668 [67.77]	2.370 [60.20]
14	NAS1493-14	2.548-18 NS	3.125 [79.38]	.344 [8.74]	2.943 [74.75]	.250 [6.35]	2.856 [72.54]	2.558 [64.97]
15	NAS1493-15	2.751-18 NS	3.344 [84.94]	.344 [8.74]	3.161 [80.29]	.250 [6.35]	3.074 [78.08]	2.761 [70.13]
16	NAS1493-16	2.933-12 NS	3.688 [93.68]	.375 [9.53]	3.443 [87.45]	.375 [9.52]	3.356 [85.24]	2.943 [74.75]
17	NAS1493-17	3.137-12 NS	3.906 [99.21]	.375 [9.53]	3.661 [92.99]	.375 [9.52]	3.574 [90.78]	3.147 [79.93]
18	NAS1493-18	3.340-12 NS	4.125 [104.78]	.375 [9.53]	3.880 [98.55]	.375 [9.52]	3.793 [96.34]	3.350 [85.09]
19	NAS1493-19	3.527-12 NS	4.312 [109.52]	.375 [9.53]	4.067 [103.30]	.375 [9.52]	3.980 [101.09]	3.537 [89.84]
20	NAS1493-20	3.730-12 NS	4.531 [115.09]	.406 [10.31]	4.286 [108.86]	.375 [9.52]	4.199 [106.65]	3.740 [95.00]
21	NAS1493-21	3.918-12 NS	4.719 [119.86]	.406 [10.31]	4.474 [113.64]	.375 [9.52]	4.387 [111.43]	3.928 [99.77]
22	NAS1493-22	4.122-12 NS	4.906 [124.61]	.406 [10.31]	4.661 [118.39]	.500 [12.70]	4.574 [116.18]	4.132 [104.95]
23	NAS1493-23	4.325-12 NS	5.125 [130.18]	.406 [10.31]	4.880 [123.95]	.500 [12.70]	4.793 [121.74]	4.335 [110.11]

TABLE II

MATERIAL	HEAT TREAT
4130 ALLOY STEEL PER MIL-S-6758 CONDITION F DASH SIZE 1 - 6	NONE
4130 ALLOY STEEL PER MIL-S-6758 CONDITION D, OR AMS 6361 OR MIL-T-6756 TYPE I SEAMLESS DASH SIZE 7 - 23	26-33 HRC PER MIL-H-6875

TABLE III

FINISH CODE	FINISH
F	BLACK OXIDE, DULITE OR EQUIVALENT PER MIL-C-13924, CLASS 1, GRADE C.
NONE	CADMIUM PLATE PER QQ-P-416, TYPE II CLASS 2.

METRIC SIZES AVAILABLE ON REQUEST

UNLESS OTHERWISE SPECIFIED  
INTERPRET DIMENSIONS & TOLERANCES PER  
ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
PLATING AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT. 125 [3.2] ALL SURFACES  
TOLERANCES  
.XX .XXX ANGLES [X.X] [X.XX]  
±.03 ±.010 ±2° ±[0.8] ±[0.25]  
DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK CORPORATION  
IRVINE, CALIFORNIA 92614  
TELEPHONE: (714) 474-6000

**SHUR-LOK**

SHUR-LOK INTERNATIONAL, S.A.  
PETIT-RECHAIN, BELGIUM  
TELEPHONE: (32) 87-32.07.11

**LOCKNUT, STA-LOK  
BEARING RETAINING (NAS 1493)**

**SL60N**

SHEET 2 OF 2

REVISION (C) 10 APR 1997



TABLE I

SHUR-LOK SL60W DASH NUMBER  1	NAS1443 BASIC PART NUMBER	REQUIRED MAJOR DIA FOR SHAFT +0.000 -0.050 [+0.000] [-0.127]	φA	B  +0.10 -0.00 (+0.25) [-0.00]	φD  +0.05 -0.00 (+0.13) [-0.00]	E	φF	G	J  NO. OF SERR.	L  +0.10 -0.00 (+0.25) [-0.00]	MAX SHAFT RPM	APPROX
												WEIGHT LB/100 PIECES  LB [Kg]
SL60W1	NAS1443-1	.3910 [9.931]	.531 [13.49]	.128 [3.25]	.604 [15.34]	.095 [2.41]	.464 [11.79]	.024 [0.61]	30	.150 [3.81]	113,000	.45 [.20]
SL60W2	NAS1443-2	.4690 [11.913]	.625 [15.88]	.128 [3.25]	.698 [17.73]	.115 [2.92]	.551 [14.00]	.024 [0.61]	36	.150 [3.81]	101,400	.52 [.24]
SL60W3	NAS1443-3	.5860 [14.884]	.750 [19.05]	.159 [4.04]	.822 [20.88]	.115 [2.92]	.677 [17.20]	.050 [1.27]	46	.150 [3.81]	78,650	.66 [.30]
SL60W4	NAS1443-4	.6640 [16.866]	.875 [22.23]	.159 [4.04]	.948 [24.08]	.115 [2.92]	.734 [18.64]	.050 [1.27]	52	.150 [3.81]	72,650	.71 [.32]
SL60W5	NAS1443-5	.7810 [19.837]	1.000 [25.40]	.190 [4.83]	1.072 [27.23]	.178 [4.52]	.855 [21.72]	.050 [1.27]	61	.213 [5.41]	56,750	1.04 [.47]
SL60W6	NAS1443-6	.9690 [24.613]	1.188 [30.18]	.190 [4.83]	1.260 [32.00]	.178 [4.52]	1.042 [26.47]	.050 [1.27]	76	.213 [5.41]	52,150	1.26 [.57]
SL60W7	NAS1443-7	1.1730 [29.794]	1.438 [36.52]	.221 [5.61]	1.510 [38.35]	.178 [4.52]	1.255 [31.88]	.050 [1.27]	93	.213 [5.41]	40,150	1.61 [.73]
SL60W8	NAS1443-8	1.3760 [34.950]	1.656 [69.66]	.221 [5.61]	1.729 [43.92]	.178 [4.52]	1.455 [36.96]	.050 [1.27]	109	.213 [5.41]	37,850	1.88 [.85]
SL60W9	NAS1443-9	1.5630 [39.700]	1.844 [46.84]	.221 [5.61]	1.916 [48.67]	.240 [6.10]	1.642 [41.71]	.050 [1.27]	124	.275 [6.99]	36,050	2.10 [.95]
SL60W10	NAS1443-10	1.7670 [44.882]	2.062 [52.37]	.252 [6.40]	2.135 [54.18]	.240 [6.10]	1.842 [46.79]	.050 [1.27]	140	.275 [6.99]	29,250	2.64 [1.20]
SL60W11	NAS1443-11	1.9670 [49.962]	2.250 [57.15]	.252 [6.40]	2.322 [58.98]	.240 [6.10]	2.042 [51.87]	.050 [1.27]	156	.275 [6.99]	28,550	2.65 [1.20]
SL60W12	NAS1443-12	2.1570 [54.788]	2.500 [63.50]	.252 [6.40]	2.572 [65.33]	.240 [6.10]	2.230 [56.64]	.050 [1.27]	171	.275 [6.99]	26,900	3.33 [1.51]
SL60W13	NAS1443-13	2.3600 [59.944]	2.688 [68.28]	.284 [7.21]	2.760 [70.10]	.240 [6.10]	2.442 [62.03]	.050 [1.27]	188	.275 [6.99]	23,200	3.38 [1.53]
SL60W14	NAS1443-14	2.5480 [64.719]	2.875 [73.03]	.284 [7.21]	2.948 [74.88]	.240 [6.10]	2.630 [66.80]	.050 [1.27]	203	.275 [6.99]	22,450	3.45 [1.56]
SL60W15	NAS1443-15	2.7510 [69.875]	3.094 [78.59]	.284 [7.21]	3.166 [80.42]	.240 [6.10]	2.830 [71.88]	.050 [1.27]	219	.275 [6.99]	21,650	4.10 [1.86]
SL60W16	NAS1443-16	2.9330 [74.498]	3.375 [85.73]	.305 [7.75]	3.448 [87.58]	.365 [9.27]	3.005 [76.33]	.050 [1.27]	233	.400 [10.16]	18,800	5.34 [2.42]
SL60W17	NAS1443-17	3.1370 [79.680]	3.594 [91.29]	.317 [8.05]	3.666 [93.12]	.365 [9.27]	3.217 [81.71]	.050 [1.27]	250	.400 [10.16]	18,100	5.75 [2.61]
SL60W18	NAS1443-18	3.3400 [84.836]	3.813 [96.85]	.315 [8.00]	3.885 [98.68]	.365 [9.27]	3.417 [86.79]	.050 [1.27]	266	.400 [10.16]	17,640	6.27 [2.84]
SL60W19	NAS1443-19	3.5270 [89.586]	4.000 [101.60]	.315 [8.00]	4.072 [103.43]	.365 [9.27]	3.605 [91.57]	.050 [1.27]	281	.400 [10.16]	17,300	6.33 [2.87]
SL60W20	NAS1443-20	3.7300 [94.742]	4.219 [107.16]	.339 [8.61]	4.291 [108.99]	.365 [9.27]	3.805 [96.65]	.050 [1.27]	297	.400 [10.16]	15,250	7.17 [3.25]
SL60W21	NAS1443-21	3.9180 [99.517]	4.406 [111.91]	.337 [8.56]	4.482 [113.84]	.365 [9.27]	3.999 [101.57]	.050 [1.27]	312	.400 [10.16]	14,880	7.23 [3.28]
SL60W22	NAS1443-22	4.1220 [104.699]	4.594 [116.69]	.356 [9.04]	4.666 [118.52]	.490 [12.45]	4.192 [106.48]	.050 [1.27]	328	.525 [13.34]	14,560	7.89 [3.58]
SL60W23	NAS1443-23	4.3250 [109.855]	4.812 [122.22]	.347 [8.81]	4.885 [124.08]	.490 [12.45]	4.405 [111.89]	.050 [1.27]	345	.525 [13.34]	14,230	8.25 [3.74]

TABLE II

FINISH CODE	FINISH
NONE	BLACK OXIDE PER MIL-C-13924, CLASS 1, GRADE C PLUS MIL-C-16173 GRADE 3 COMPOUND
P	CADMIUM PLATE PER QQ-P-416, TYPE II, CLASS 2
S	SILVER PLATE PER AMS 2412, .0001-.0005 [0.003-0.013] THICKNESS

**METRIC SIZES AVAILABLE ON REQUEST**

UNLESS OTHERWISE SPECIFIED  
INTERPRET DIMENSIONS & TOLERANCES PER  
ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
PLATING AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT. 125 [3.2] ALL SURFACES  
TOLERANCES  
.XX .XXX ANGLES [X.X] [X.X.X]  
±.03 ±.010 ±2° ±[0.8] ±[0.25]  
DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK CORPORATION  
IRVINE, CALIFORNIA 92614  
TELEPHONE: (714) 474-6000

## SHUR-LOK

SHUR-LOK INTERNATIONAL, S.A.  
PETIT-RECHAIN, BELGIUM  
TELEPHONE: (32) 87-32.07.11

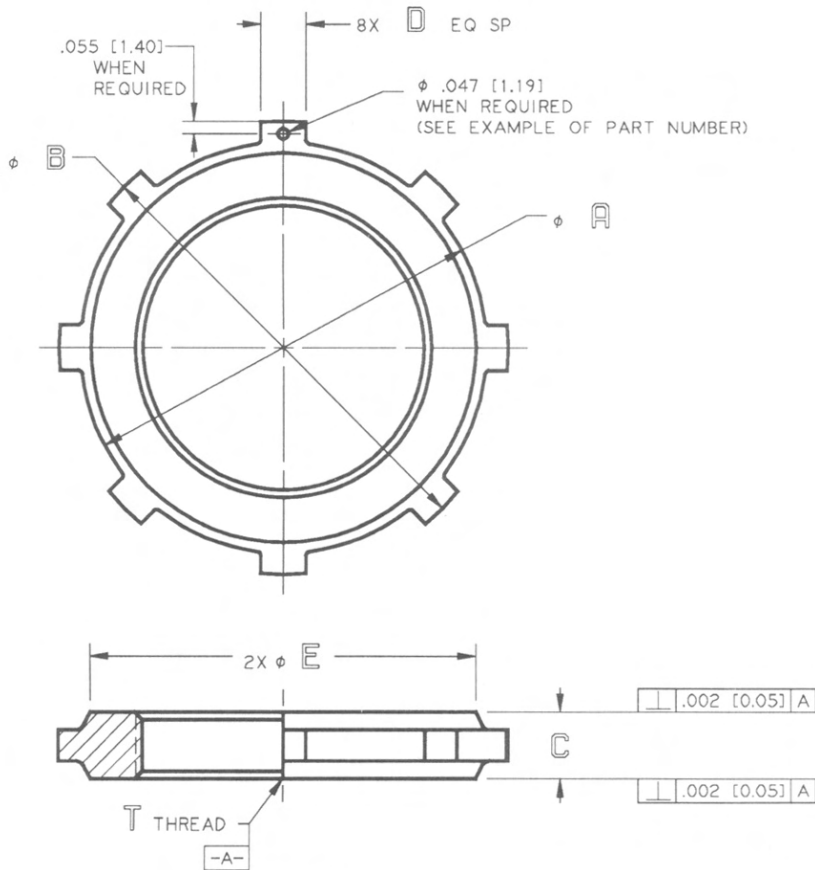
### LOCKWASHER STA-LOK BEARING LOCKNUT. RETAINING (NAS 1443)

# SL60W

SHEET **2** OF **2**

REVISION (N) 03 APR 1997

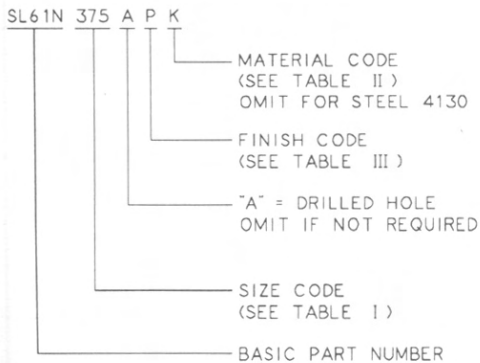
# LOCKNUT —STA-LOK



### NOTES:

1. MAGNETIC PARTICLE INSPECT PER ASTM E1444 FOR 4130 MATERIAL. LIQUID PENETRANT INSPECT PER MIL-STD-6866 FOR A286 CRES MATERIAL.
2. ALL DIAMETERS  $\phi \pm .005 [0.13] \text{ (M)} \text{ (A)} \text{ (M)}$
3. DASH NUMBERS 1 THRU 31 WITH THREAD PER ANSI/AFBMA STD 8.2 IN TABLE I CORRESPOND TO MATING SL61W, SL60W OR NAS1443 SERIES LOCKWASHERS.
4. DASH NUMBERS 375 THRU 1625 WITH THREAD PER MIL-S-8879 IN TABLE I CORRESPOND TO MATING SL61W SERIES LOCKWASHERS. DASH 3730 USES SL61W20X ) LOCKWASHER.
5. HEAT TREAT 26-33 HRC PER MIL-H-6875.
6. REFER TO TSB 0001 FOR INSTALLATION OF LOCKNUTS AND LOCKWASHERS.
7. THESE LOCKNUTS ARE INTENDED FOR USE WITH LOCKWASHERS TO PROVIDE A POSITIVE TORSIONAL LOCK BETWEEN SHAFT AND BEARING LOCKNUT FOR POSITIVE BEARING RETENTION, WHEREVER VIBRATION IS A FACTOR OR WHERE A PRECISE TORQUE SETTING MUST BE HELD.
8. "N" FINISH CODE FOR 4130 MATERIAL INDICATES PART WITH NO FINISH. DIP IN LIGHT OIL FOR PROTECTION. FOR CRES PARTS NO OIL IS REQUIRED.

### EXAMPLE OF PART CODING



METRIC SIZES AVAILABLE ON REQUEST

REVISION G 06 MAR 1997

UNLESS OTHERWISE SPECIFIED  
 INTERPRET DIMENSIONS & TOLERANCES PER  
 ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
 PLATING AND PRIOR TO THE ADDITION OF SOLID  
 FILM LUBRICANT. 125 [3.2] ALL SURFACES

TOLERANCES	XX	XXX	ANGLES	[X.X.]	[X.X.X]
	±.03	±.010	±2°	±[0.8]	±[0.25]

DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK CORPORATION  
 IRVINE, CALIFORNIA 92614  
 TELEPHONE: (714) 474-6000

**SHUR-LOK**

SHUR-LOK INTERNATIONAL, S.A.  
 PETIT-RECHAIN, BELGIUM  
 TELEPHONE: (32) 87-32.07.11

**SL61N**

**LOCKNUT, STA-LOK  
 BEARING RETAINING**

SHEET 1 OF 3

# LOCKNUT —STA—LOK



TABLE I

SIZE CODE	T THREAD		φ A		φ B	C	D	φ E
	ANSI/AFBMA STD 8.2 CLASS 3	PER MIL-S-8879 CLASS-3B	+0.01 -0.00	+{0.25} -{0.00}				
250	_____	.2500-28UNJF					.095 [2.41]	
1	.391-32 NS	_____					.125 [3.18]	
312-18	_____	.3125-18UNJC	.594 [15.09]	.719 [18.26]	.188 [4.78]		.095 [2.41]	.512 [13.00]
312-24	_____	.3125-24UNJF						
375	_____	.3750-32UNJEF						
375-24	_____	.3750-24UNJF						
2	.469-32 NS	_____						
437	_____	.4375-28UNJEF	.688 [17.48]	.812 [20.62]	.188 [4.78]	.125 [3.18]	.606 [15.39]	
3	.586-32 NS	_____	.812 [17.48]	.938 [23.83]	.219 [5.56]	.125 [3.18]	.730 [18.54]	
500	_____	.5000-28UNJEF						
562	_____	.5625-24UNJEF						
4	.664-32 NS	_____	.938 [23.83]	1.062 [26.97]	.219 [5.56]	.125 [3.18]	856 [21.74]	
625	_____	.6250-24UNJEF						
5	.781-32 NS	_____	1.062 [26.97]	1.188 [30.18]	.250 [6.35]	.188 [4.78]	.980 [24.89]	
750	_____	.7500-20UNJEF						
6	.969-32 NS	_____	1.250 [31.75]	1.375 [34.93]	.250 [6.35]	.188 [4.78]	1.168 [29.67]	
875	_____	.8750-20UNJEF						
7	1.173-18 NS	_____	1.500 [38.10]	1.688 [42.88]	.281 [7.14]	.188 [4.78]	1.418 [36.02]	
1000	_____	1.0000-16UNJ						
1125	_____	1.1250-16UNJ						
8	1.376-18 NS	_____	1.719 [43.43]	1.906 [48.41]	.281 [7.14]	.188 [4.78]	1.637 [41.58]	
1250	_____	1.2500-16UNJ						
1375	_____	1.3750-16UNJ						
9	1.563-18 NS	_____	1.906 [48.41]	2.094 [53.19]	.281 [7.14]	.250 [6.35]	1.824 [46.33]	
1500	_____	1.5000-16UNJ						
10	1.767-18 NS	_____	2.125 [53.98]	2.312 [58.72]	.312 [7.92]	.250 [6.35]	2.043 [51.89]	
1625	_____	1.6250-16UNJ						
11	1.967-18 NS	_____	2.312 [58.93]	2.500 [63.50]	.312 [7.92]	.250 [6.35]	2.230 [56.64]	
12	2.157-18 NS	_____						
13	2.360-18 NS	_____	2.750 [69.85]	2.938 [74.63]	.344 [8.74]	.250 [6.35]	2.668 [67.78]	
14	2.548-18 NS	_____						
15	2.751-18 NS	_____	2.938 [74.63]	3.125 [79.38]	.344 [8.74]	.250 [6.35]	2.856 [72.54]	
16	2.933-12 NS	_____						
17	3.137-12 NS	_____	3.156 [80.16]	3.344 [84.94]	.344 [8.74]	.250 [6.35]	3.074 [78.08]	
18	3.340-12 NS	_____						
19	3.527-12 NS	_____	3.438 [87.33]	3.688 [93.68]	.375 [9.53]	.375 [9.53]	3.356 [85.24]	
20	3.730-12 NS	_____						
21	3.918-12 NS	_____	3.656 [92.87]	3.906 [99.21]	.375 [9.53]	.375 [9.53]	3.574 [90.78]	
22	4.122-12 NS	_____						
23	4.325-12 NS	_____	3.875 [98.43]	4.125 [104.78]	.375 [9.53]	.375 [9.53]	3.793 [96.34]	
25	4.716-12 NS	_____						
25	4.716-12 NS	_____	4.062 [103.17]	4.312 [109.52]	.375 [9.53]	.375 [9.53]	3.980 [96.52]	
31	5.888-12 NS	_____						
3730	_____	3.7300-12UNJS	4.281 [108.74]	4.531 [115.09]	.406 [10.31]	.375 [9.53]	4.199 [106.64]	
21	3.918-12 NS	_____	4.469 [113.51]	4.719 [119.86]	.406 [10.31]	.375 [9.53]	4.387 [111.43]	
22	4.122-12 NS	_____	4.656 [118.26]	4.906 [124.61]	.406 [10.31]	.500 [12.70]	4.574 [116.18]	
23	4.325-12 NS	_____	4.875 [123.83]	5.125 [130.18]	.406 [10.31]	.500 [12.70]	4.793 [121.74]	
25	4.716-12 NS	_____	5.567 [141.40]	5.812 [147.62]	.432 [10.97]	.500 [12.70]	5.410 [137.41]	
31	5.888-12 NS	_____	6.950 [176.53]	7.250 [184.15]	.670 [17.02]	.625 [15.88]	6.793 [172.54]	

METRIC SIZES AVAILABLE ON REQUEST

REVISION (C) 06 MAR 1997

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**TOLERANCES**

.XX	.XXX	ANGLES	[X.X]	[X.XX]
±.03	±.010	±2°	±[0.8]	±[0.25]

DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK CORPORATION  
 IRVINE, CALIFORNIA 92614  
 TELEPHONE: (714) 474-6000

## SHUR-LOK

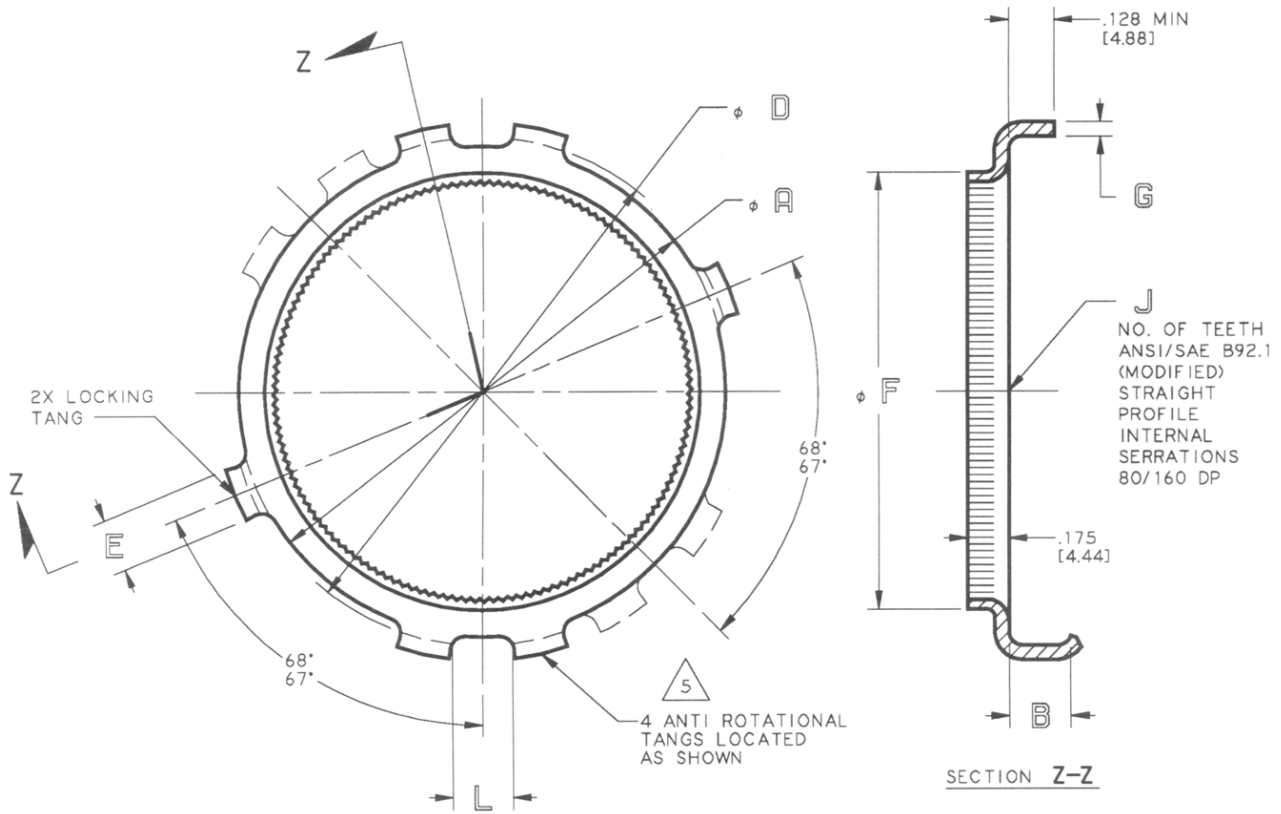
SHUR-LOK INTERNATIONAL, S.A.  
 PETIT-RECHAIN, BELGIUM  
 TELEPHONE: (32) 87-32.07.11

# SL61N

## LOCKNUT, STA-LOK BEARING RETAINING

SHEET **2** OF **3**

# LOCKWASHER



**NOTES:**

- 1 DASH NUMBERS IN TABLE I CORRESPOND TO MATING SHUR-LOK SL60N (NAS1493) SERIES LOCKNUTS.
- 2. OUT OF ROUNDNESS IS PERMISSIBLE. THIS CONDITION CORRECTS ITSELF UPON INSTALLATION.
- 3. MAGNETIC PARTICLE INSPECT PER ASTM E1444.
- 4. MATERIAL: ALLOY STEEL 4130 PER MIL-S-18729 OR MIL-S-6758. HEAT TREATED PER MIL-H-6875 TO 34-38 HRC.
- 5 ANTI ROTATIONAL TANGS MAY BE LOCATED EITHER SIDE OF LOCKING TANG.
- 6. REFER TO TSB 0001 FOR INSTALLATION AND REMOVAL OF LOCKNUTS AND LOCKWASHERS.
- 7. CONSULT SHUR-LOK TECHNICAL SERVICES DEPARTMENT FOR ALTERNATE MATERIALS AND FINISHES.
- 8. THIS LOCKWASHER SERIES CONFORMS TO NAS1443.

**EXAMPLE OF PART CODING:**



**APPLICATION:**

THIS LOCKWASHER IS INTENDED FOR USE WITH AN SL60N (NAS1493) SERIES BEARING LOCKNUT TO PROVIDE POSITIVE TORSIONAL LOCK BETWEEN SHAFT AND BEARING LOCKNUT FOR POSITIVE BEARING RETENTION, WHEREVER VIBRATION IS A FACTOR OR WHERE PRECISE TORQUE SETTING MUST BE HELD.

**METRIC SIZES AVAILABLE ON REQUEST**

REVISION (N) 03 APR 1997

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**TOLERANCES**  

.XX	.XXX	ANGLES	[X.X]	[X.X.X]
±.03	±.010	±2°	±[0.8]	±[0.25]

 DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK CORPORATION  
 IRVINE, CALIFORNIA 92614  
 TELEPHONE: (714) 474-6000



SHUR-LOK INTERNATIONAL, S.A.  
 PETIT-RECHAIN, BELGIUM  
 TELEPHONE: (32) 87-32.07.11

**LOCKWASHER STA-LOK  
 BEARING LOCKNUT, RETAINING (NAS 1443)**

**SL60W**

SHEET 1 OF 2



TABLE II

MATL CODE	MATERIAL
NONE	4130 ALLOY STEEL PER MIL-S-6758, AMS 6361 OR MIL-T-6736 <span style="float: right;">△ 5</span>
K	A286 CRES PER AMS 5737 OR MIL-T-6736

TABLE III

FINISH CODE	FINISH
F	BLACK OXIDE PER MIL-C-13924 CLASS 1, PLUS MIL-C-16173, GRADE 3
P	CADMIUM PLATE PER QQ-P-416, TYPE II, CLASS 2
S	SILVER PLATE PER AMS 2410
D	DRY FILM LUBE PER MIL-L-46010 TYPE 1
N	NO FINISH <span style="float: right;">△ 8</span>

TABLE IV

DASH NO.	MIL-S-8879 SPECIAL THREAD FROM TABLE I	MAJOR DIA	PITCH DIA	MINOR DIA
3730	3.7300-12 UNJS-3B	3.7484 3.7300	3.6822 3.6759	3.6588 3.6488

METRIC SIZES AVAILABLE ON REQUEST

REVISION G 06 MAR 1997

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 TOLERANCES  
 .XX .XXX ANGLES [X.X] [X.X.X]  
 ±.03 ±.010 ±2° ±[0.8] ±[0.25]  
 DIMENSIONS IN [ ] ARE MILLIMETERS

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**SHUR-LOK**

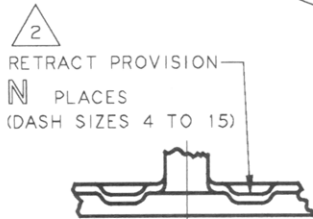
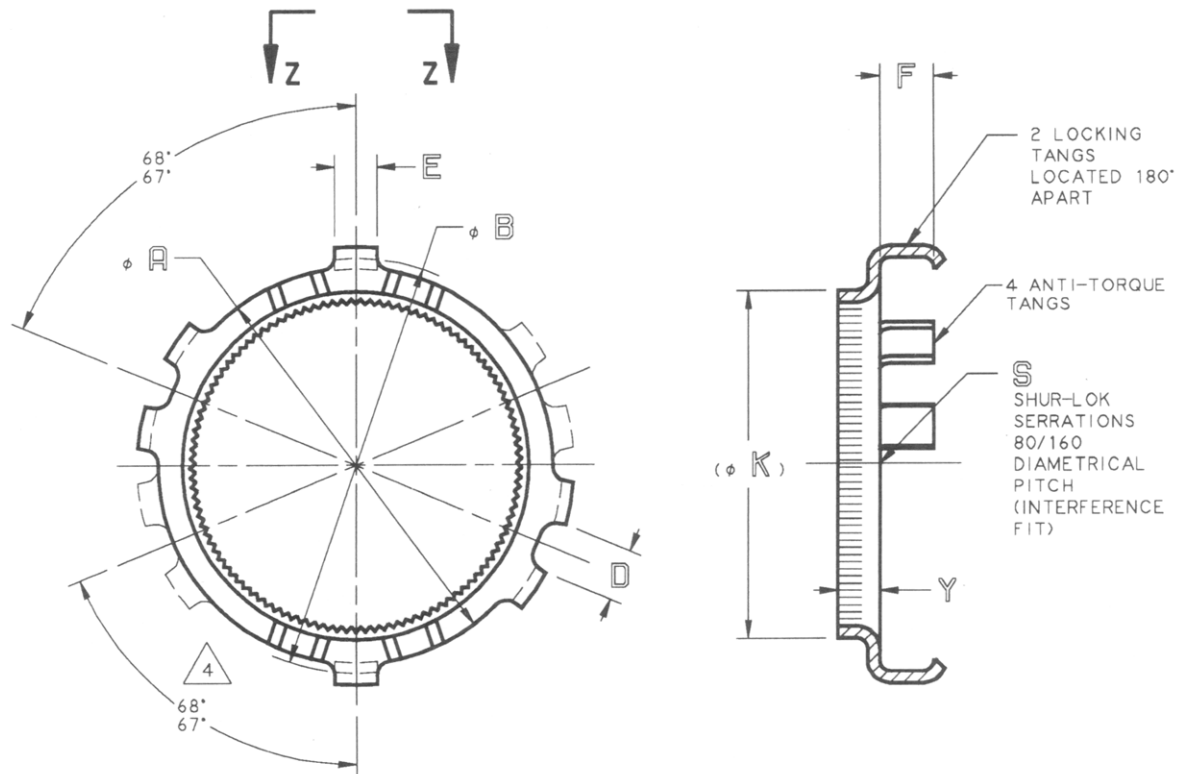
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**SL61N**

**LOCKNUT, STA-LOK  
 BEARING RETAINING**

SHEET **3** OF **3**

# LOCKNUT —STA—LOK



VIEW Z - Z

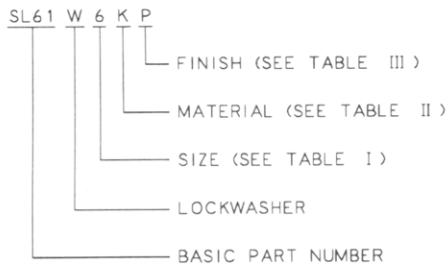
### NOTES:

- 1 DASH NUMBERS IN TABLE I CORRESPOND TO MATING SHUR-LOK SL61N SERIES LOCKNUTS.
- 2 THIS LOCKWASHER IS EQUIPPED WITH RETRACT PROVISION FOR REMOVAL OF LOCKWASHER FROM LOCKNUT.
3. MAGNETIC PARTICLE INSPECT ASTM E1444 FOR 4130 MATERIAL. LIQUID PENETRANT INSPECT MIL-STD-6866 FOR CRES MATERIAL.
- 4 OPTIONAL LOCATIONS OF THE 2 LOCKING TANGS AND RETRACT PROVISION LOCATED  $180^\circ$  APART.
- 5 MAJOR DIAMETER OF MATING SHAFT MUST BE HELD AT MAX MAJOR DIAMETER  $+0.000/-0.002$ .
6. CONSULT SHUR-LOK FOR ALTERNATE MATERIALS AND FINISHES.
7. FOR INSTALLATION AND REMOVAL REFER TO TECHNICAL SALES BULLETIN - TSB 0001.
8. OUT OF ROUNDNESS IS PERMISSIBLE. THIS CONDITION CORRECTS ITSELF UPON INSTALLATION.

### APPLICATION:

THIS LOCKWASHER IS INTENDED FOR USE WITH AN SL61N SERIES BEARING LOCKNUT TO PROVIDE POSITIVE TORSIONAL LOCK FOR POSITIVE BEARING RETENTION BETWEEN SHAFT AND BEARING LOCKNUT WHEREVER VIBRATION IS A FACTOR OR WHERE PRECISE TORQUE SETTING MUST BE HELD.

### EXAMPLE OF PART CODING



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TOLERANCES  
.XX .XXX ANGLES [X.X] [X.X.X]  
 $\pm 0.03$   $\pm 0.10$   $\pm 2^\circ$   $\pm [0.8]$   $\pm [0.25]$

DIMENSIONS IN [ ] ARE MILLIMETERS

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IRVINE, CALIFORNIA 92614  
TELEPHONE: (714) 474-6000

**SHUR-LOK**

SHUR-LOK INTERNATIONAL, S.A.  
PETIT-RECHAIN, BELGIUM  
TELEPHONE: (32) 87-32.07.11

**LOCKWASHER, RETAINING STA-LOK  
BEARING LOCKNUT, SAE SERIES**

**SL61W**

SHEET 1 OF 3

REVISION (N) 17 APR 1997



# LOCKWASHER STA-LOK



TABLE 1

SIZE DASH NO	SHAFT THD MAX REF	ΦA	ΦB ±.005 [0.13]	D	E	F	ΦK REF	Y	S NUMBER OF SERR	N	OPERATING RPM MAX	APPROX WEIGHT LB/100 PIECES
1	.391 [9.93]	.531 [13.49]	.609 [15.47]	—	.095 [2.42]	.133 [3.38]	.464 [11.79]	.175 [4.45]	30		113,000	.45
2	.467 [11.86]	.625 [15.88]	.703 [17.86]	.155 [3.94]	.115 [2.92]	.133 [3.38]	.551 [13.99]	.175 [4.45]	36		101,400	.53
3	.586 [14.88]	.750 [19.05]	.827 [21.01]	.155 [3.94]	.115 [2.92]	.164 [4.17]	.677 [17.20]	.175 [4.45]	46	N/A	78,650	.66
4	.664 [16.87]	.875 [22.23]	.953 [24.21]	.155 [3.94]	.115 [2.92]	.164 [4.17]	.734 [18.64]	.175 [4.45]	52		72,650	.70
5	.780 [19.81]	1.000 [25.40]	1.077 [27.36]	.218 [5.54]	.178 [4.52]	.195 [4.95]	.855 [21.72]	.175 [4.45]	61		56,750	1.03
6	.968 [24.59]	1.188 [30.18]	1.265 [32.13]	.218 [5.54]	.178 [4.52]	.195 [4.95]	1.042 [26.47]	.175 [4.45]	76		52,150	1.25
7	1.173 [29.79]	1.438 [36.53]	1.515 [38.48]	.218 [5.54]	.178 [4.52]	.226 [5.74]	1.255 [31.88]	.175 [4.45]	93		40,150	1.61
8	1.376 [34.95]	1.656 [42.06]	1.734 [44.04]	.218 [5.54]	.178 [4.52]	.226 [5.74]	1.455 [36.96]	.175 [4.45]	109	4	37,850	1.87
9	1.563 [39.70]	1.844 [46.84]	1.921 [48.79]	.280 [7.11]	.240 [6.10]	.226 [5.74]	1.642 [41.71]	.175 [4.45]	124		36,050	2.09
10	1.767 [44.88]	2.062 [52.37]	2.140 [54.36]	.280 [7.11]	.240 [6.10]	.257 [6.53]	1.842 [46.79]	.175 [4.45]	140		29,250	2.64
11	1.967 [49.96]	2.250 [57.15]	2.327 [59.11]	.280 [7.11]	.240 [6.10]	.257 [6.53]	2.042 [51.87]	.175 [4.45]	156		28,550	2.36
12	2.155 [54.74]	2.500 [63.50]	2.577 [65.46]	.280 [7.11]	.240 [6.10]	.257 [6.53]	2.230 [56.64]	.175 [4.45]	171		26,900	3.33
13	2.360 [59.94]	2.688 [68.28]	2.765 [70.23]	.280 [7.11]	.240 [6.10]	.289 [7.34]	2.442 [62.03]	.175 [4.45]	188	6	23,200	3.37
14	2.548 [64.72]	2.875 [73.03]	2.953 [75.01]	.280 [7.11]	.240 [6.10]	.289 [7.34]	2.630 [66.80]	.175 [4.45]	203		22,450	3.45
15	2.751 [69.88]	3.094 [78.59]	3.171 [80.54]	.280 [7.11]	.240 [6.10]	.289 [7.34]	2.830 [71.88]	.175 [4.45]	219		21,650	4.10
16	2.930 [74.42]	3.375 [85.73]	3.453 [87.71]	.405 [10.29]	.365 [9.27]	.310 [7.87]	3.005 [76.33]	.175 [4.45]	233		18,800	5.33
17	3.137 [79.68]	3.594 [91.29]	3.671 [93.24]	.405 [10.29]	.365 [9.27]	.322 [8.19]	3.217 [81.71]	.175 [4.45]	250		18,100	5.75
18	3.340 [83.82]	3.813 [96.85]	3.890 [98.81]	.405 [10.29]	.365 [9.27]	.320 [8.13]	3.417 [86.79]	.175 [4.45]	266		17,640	6.27
19	3.527 [89.59]	4.000 [101.60]	4.077 [103.55]	.405 [10.29]	.365 [9.27]	.320 [8.13]	3.605 [91.57]	.175 [4.45]	281		17,300	6.33
20	3.730 [94.74]	4.219 [107.16]	4.296 [109.12]	.405 [10.29]	.365 [9.27]	.344 [8.74]	3.805 [96.65]	.175 [4.45]	297	N/A	15,250	7.16
21	3.917 [99.49]	4.406 [111.91]	4.487 [113.97]	.405 [10.29]	.365 [9.27]	.342 [8.68]	3.992 [101.40]	.175 [4.45]	312		14,880	7.23
22	4.117 [104.57]	4.594 [116.69]	4.671 [118.64]	.530 [13.46]	.490 [12.45]	.361 [9.18]	4.192 [106.48]	.175 [4.45]	328		14,560	7.89
23	4.325 [109.86]	4.812 [122.22]	4.890 [124.21]	.530 [13.46]	.490 [12.45]	.352 [8.95]	4.405 [111.89]	.175 [4.45]	345		14,230	8.25
25	4.716 [119.79]	5.427 [137.85]	5.582 [142.06]	.530 [13.46]	.490 [12.45]	.342 [8.69]	4.792 [121.72]	.375 [9.53]	376		TBD	TBD
31	5.888 [149.56]	6.810 [172.97]	6.965 [176.91]	.655 [16.64]	.615 [15.62]	.580 [14.73]	5.967 [151.56]	.375 [9.53]	470		TBD	TBD

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**TOLERANCES**  
 .XX .XXX ANGLES [X.X] [X.XX]  
 ±.03 ±.010 ±2° ±[0.8] ±[0.25]  
 DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK COPORATION  
 IRVINE, CALIFORNIA 92614  
 TELEPHONE: (714) 474-8000



SHUR-LOK INTERNATIONAL, S.A.  
 PETIT-RECHAIN, BELGIUM  
 TELEPHONE: (32) 87-32.07.11

## SL61W

### LOCKWASHER RETAINING STA-LOK BEARING LOCKNUT, SAE SERIES

SHEET **2** OF **3**

REVISION (N) 17 APR 1997



TABLE I CONTINUED

SIZE DASH NO.	$\phi$ A	$\phi$ B $\pm .005$ [0.13]	D $\pm .005$ [0.13]	E	F $\pm .005$ [0.13]	$\phi$ K REF	R M $\pm .005$ [0.13]
372	.531 [13.49]	.609 [15.47]	.112 [2.84]	.095 [2.42]	.133 [3.38]	.436 [11.76]	.037 [0.95]
375	.531 [13.49]	.609 [15.47]	.112 [2.84]	.095 [2.42]	.133 [3.38]	.436 [11.76]	.037 [0.95]
437	.625 [15.88]	.703 [17.86]	.155 [3.94]	.115 [2.92]	.133 [3.38]	.553 [13.34]	.041 [1.03]
500	.750 [19.05]	.827 [21.01]	.155 [3.94]	.115 [2.92]	.164 [4.17]	.588 [14.94]	.045 [1.15]
562	.750 [19.05]	.827 [21.01]	.155 [3.94]	.115 [2.92]	.164 [4.17]	.650 [16.51]	.045 [1.15]
625	.875 [22.23]	.948 [24.08]	.155 [3.94]	.115 [2.92]	.164 [4.17]	.693 [17.61]	.049 [1.25]
750	1.000 [25.40]	1.077 [27.36]	.218 [5.54]	.178 [4.52]	.195 [4.95]	.830 [21.03]	.049 [1.25]
875	1.188 [30.18]	1.265 [32.13]	.218 [5.54]	.178 [4.52]	.195 [4.95]	.955 [24.26]	.039 [0.99]
1000	1.438 [36.53]	1.515 [38.48]	.218 [5.54]	.178 [4.52]	.226 [5.74]	1.080 [27.43]	.044 [1.13]
1125	1.438 [36.53]	1.515 [38.48]	.218 [5.54]	.178 [4.52]	.226 [5.74]	1.205 [30.61]	.044 [1.13]
1250	1.656 [42.06]	1.734 [44.04]	.218 [5.54]	.178 [4.52]	.226 [5.74]	1.330 [33.78]	.044 [1.13]
1375	1.656 [42.06]	1.734 [44.04]	.218 [5.54]	.178 [4.52]	.226 [5.74]	1.455 [36.96]	.044 [1.13]
1500	1.844 [46.84]	1.921 [48.79]	.280 [7.11]	.240 [6.10]	.226 [5.74]	1.580 [40.13]	.044 [1.13]
1562	1.844 [46.84]	1.921 [48.79]	.280 [7.11]	.240 [6.10]	.226 [5.74]	1.642 [41.71]	.049 [1.25]
1625	2.062 [52.37]	2.140 [54.36]	.280 [7.11]	.240 [6.10]	.257 [6.53]	1.705 [43.31]	.049 [1.25]

TABLE II

MATL CODE	MATERIAL & HEAT TREAT
NONE	4130 ALLOY STEEL PER MIL-S-18729, COND A, OR MIL-S-6758. HEAT TREAT 34-38 HRC PER MIL-H-6875
C	Z8CND17-04 PER AIR 9160 (1100-1250 MPa) OR 17-7 PH PER MIL-S-25043 OR AMS 5528 COND. H1050
K	A286 CRES PER AMS 5737 OR AMS 5525 140 KSI UTS MIN

TABLE III

CODE	FINISH
NONE	BLACK OXIDE PER MIL-C-13924, CLASS 1 PLUS MIL-C-16173 GRADE 3 COMPOUND
P	CADMIUM PLATE PER QQ-P-416, TYPE II CLASS 2.
S	SILVER PLATE PER AMS 2412, .0001-.0005 [0.003-0.013] THICKNESS
Y	PASSIVATE PER QQ-P-35

METRIC SIZES AVAILABLE ON REQUEST

UNLESS OTHERWISE SPECIFIED  
 INTERPRET DIMENSIONS & TOLERANCES PER  
 ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
 PLATING AND PRIOR TO THE ADDITION OF SOLID  
 FILM LUBRICANT. 125 [3.2]  ALL SURFACES

TOLERANCES  
 .XX .XXX ANGLES [X.X] [X.X.X]  
 ±.03 ±.010 ±2° ±[0.8] ±[0.25]

DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK CORPORATION  
 IRVINE, CALIFORNIA 92614  
 TELEPHONE: (714) 474-6000

## SHUR-LOK

SHUR-LOK INTERNATIONAL, S.A.  
 PETIT-RECHAIN, BELGIUM  
 TELEPHONE: (32) 87-32.07.11

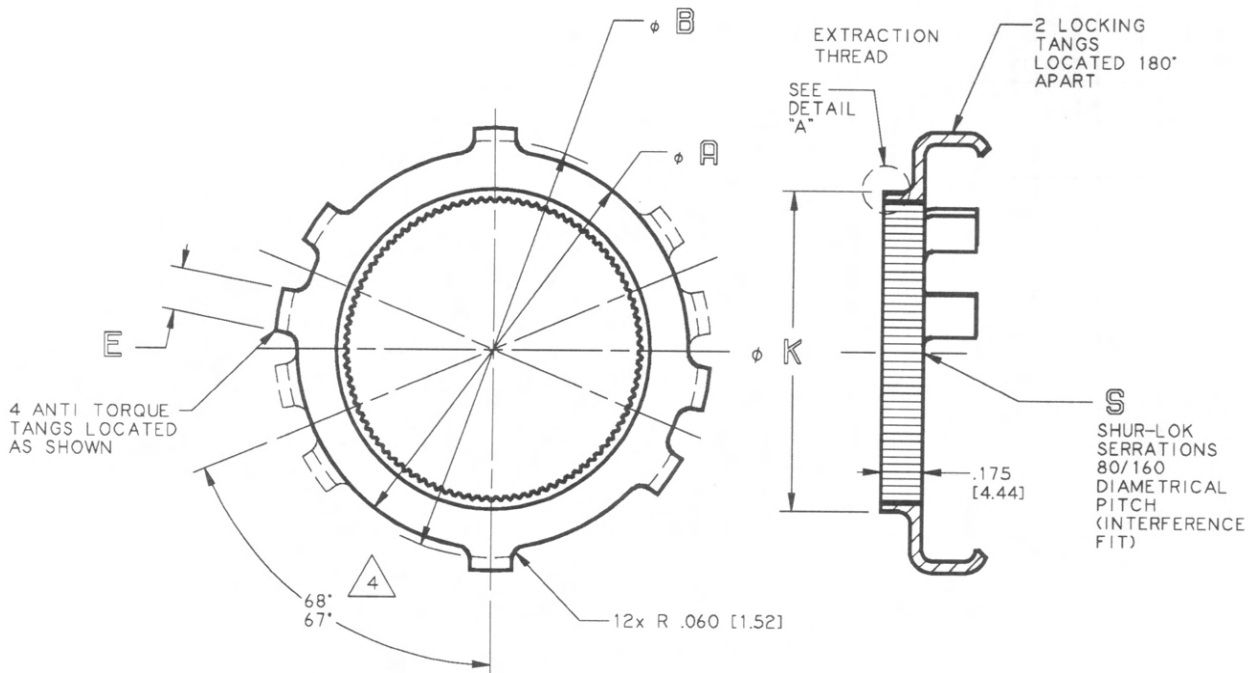
### LOCKWASHER, RETAINING STA-LOK BEARING LOCKNUT, SAE SERIES

# SL61W

SHEET **3** OF **3**

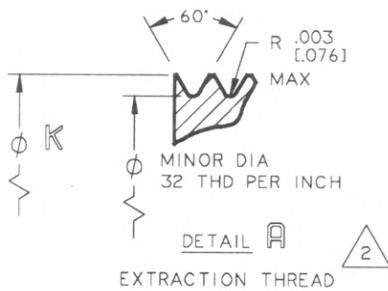
REVISION (N) 17 APR 1997

# LOCKWASHER STA-LOK

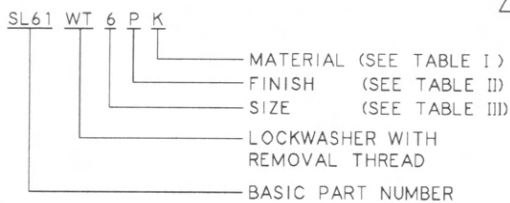


### NOTES:

- 1 DASH NUMBERS IN TABLE III CORRESPOND TO MATING SL61N SERIES LOCKNUTS.
- 2 THIS LOCKWASHER IS EQUIPPED WITH AN EXTRACTION THREAD FOR ATTACHING EXTRACTION TOOL TO REMOVE LOCKWASHER FROM LOCKNUT.
3. MAGNETIC PARTICLE INSPECT ASTM E1444 FOR 4130 MATERIAL, LIQUID PENETRANT INSPECT MIL-STD-6866 FOR CRES MATERIAL.
- 4 OPTIONAL LOCATIONS OF THE 2 LOCKING TANGS.
- 5 MAJOR DIAMETER OF MATING SHAFT MUST BE HELD AT MAX MAJOR DIAMETER  $+0.000/-0.002$ .
6. CONSULT SHUR-LOK TECHNICAL SERVICES DEPARTMENT FOR ALTERNATE MATERIALS AND FINISHES.
7. FOR INSTALLATION AND REMOVAL REFER TO TECHNICAL SALES BULLETIN - TSB 0001.
8. OUT OF ROUNDNESS IS PERMISSIBLE, THIS CONDITION CORRECTS ITSELF UPON INSTALLATION.
- 9 MAJOR THREAD DIA MODIFIED PER  $K$  DIMENSION.



### EXAMPLE OF PART CODING



### APPLICATION:

THIS LOCKWASHER IS INTENDED FOR USE WITH AN SL61N SERIES BEARING LOCKNUT TO PROVIDE POSITIVE TORSIONAL LOCK BETWEEN SHAFT AND BEARING LOCKNUT FOR POSITIVE BEARING RETENTION, WHEREVER VIBRATION IS A FACTOR OR WHERE PRECISE TORQUE SETTING MUST BE HELD.

METRIC SIZES AVAILABLE ON REQUEST

UNLESS OTHERWISE SPECIFIED INTERPRET DIMENSIONS & TOLERANCES PER ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT. 125 [3.2]

TOLERANCES		ANGLES		[X.X.]		[X.X.X]	
.XX	.XXX	$\pm 2^\circ$		$\pm [0.8]$		$\pm [0.25]$	
$\pm .03$	$\pm .010$						

DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK COPORATION  
IRVINE, CALIFORNIA 92614  
TELEPHONE: (714) 474-6000

## SHUR-LOK

SHUR-LOK INTERNATIONAL, S.A.  
PETIT-RECHAIN, BELGIUM  
TELEPHONE: (32) 87-32.07.11

### LOCKWASHER, RETAINING REMOVAL- THREADED STA-LOK, SAE SERIES

# SL61WT

SHEET 1 OF 2

REVISION (N) 25 MAR 1997

# LOCKWASHER STA-LOK



TABLE I

MATL CODE	MATERIAL AND HEAT TREAT
NONE	4130 STEEL BAR PER MIL-S-6758 - FOR SIZE DASH 3 AND UNDER. 4130 STEEL SHEET PER MIL-S-18729 CONDA - FOR SIZE DASH 4 AND OVER. HEAT TREAT ALL HRC 34-38 PER MIL-H-6875
K	A286 CRES PER AMS 5737 OR AMS 5525 140 KSI UTS MIN

TABLE II

CODE	FINISH
F	BLACK OXIDE PER MIL-C-13924, CLASS I, PLUS MIL-C-16173, GRADE 3 OIL.
P	CAD PLATE PER QQ-P-416, TYPE II, CLASS 2 BAKE AT 375F ± 25F FOR THREE HOURS MIN WITHIN FOUR HOURS AFTER PLATING.
S	SILVER PLATE PER AMS 2412, PLATING THICKNESS TO BE 0.003-0.013 ON THREADS.
Y	PASSIVATE PER QQ-P-35

TABLE III

SIZE DASH NO. 	SHAFT THD MAX REF 	$\phi A$	$\phi B$ ±.005 [0.13]	E	$\phi K$	EXTRACTION THREAD SIZE UNJS-3A MOD 	NUMBER OF SERR 
0	.250 [6.35]	.531 [13.49]	.609 [15.47]	.100 [2.54]	.463 [11.76]	.4701-32	19
2	.4675 [11.86]	.625 [15.88]	.703 [17.86]	.115 [2.92]	.550 [13.97]	.5581-32	36
3	.586 [14.88]	.750 [19.05]	.827 [21.01]	.115 [2.92]	.677 [17.20]	.6831-32	46
4	.664 [16.87]	.875 [22.23]	.953 [24.21]	.115 [2.92]	.734 [18.64]	.7381-32	52
5	.7800 [19.81]	1.000 [25.40]	1.077 [27.36]	.178 [4.52]	.855 [21.72]	.8701-32	61
6	.9675 [24.57]	1.188 [30.18]	1.265 [32.13]	.178 [4.52]	1.042 [26.47]	1.0581-32	76
8	1.376 [29.79]	1.656 [42.06]	1.734 [44.04]	.178 [4.52]	1.455 [36.96]	1.4711-32	109
9	1.563 [39.95]	1.844 [46.84]	1.921 [48.79]	.240 [6.10]	1.642 [41.71]	1.6581-32	124
10	1.767 [39.70]	2.062 [52.37]	2.140 [54.36]	.240 [6.10]	1.842 [46.79]	1.8581-32	140
11	1.967 [44.88]	2.250 [57.15]	2.327 [59.11]	.240 [6.10]	2.042 [51.87]	2.0581-32	156
12	2.1550 [49.96]	2.500 [63.50]	2.577 [65.46]	.240 [6.10]	2.230 [56.64]	2.2461-32	171
14	2.5480 [54.74]	2.875 [73.03]	2.953 [75.01]	.240 [6.10]	2.630 [66.80]	2.6461-32	203
312	.3125 [7.94]	.531 [13.49]	.609 [15.47]	.100 [2.54]	.463 [11.76]	.4701-32	24
375	.3750 [9.53]	.531 [13.49]	.609 [15.47]	.100 [2.54]	.463 [11.76]	.4701-32	29
437	.4375 [11.11]	.625 [15.88]	.703 [17.86]	.115 [2.92]	.525 [13.34]	.5331-32	34
500	.5000 [12.70]	.750 [19.05]	.827 [21.01]	.115 [2.92]	.588 [14.94]	.5961-32	39
562	.5625 [14.29]	.750 [19.05]	.827 [21.01]	.115 [2.92]	.650 [16.51]	.6581-32	44
625	.6250 [15.88]	.875 [22.23]	.948 [24.08]	.115 [2.92]	.693 [17.60]	.7011-32	49
750	.7500 [19.05]	1.000 [25.40]	1.077 [27.36]	.178 [4.52]	.830 [21.08]	.8461-32	59
875	.8750 [22.23]	1.188 [30.18]	1.265 [32.13]	.178 [4.52]	.955 [24.26]	.9711-32	69
1000	1.0000 [25.40]	1.438 [36.53]	1.515 [38.48]	.178 [4.52]	1.080 [27.43]	1.0961-32	79
1125	1.1250 [28.58]	1.438 [36.53]	1.515 [38.48]	.178 [4.52]	1.205 [30.61]	1.2211-32	89
1250	1.2500 [31.75]	1.656 [42.06]	1.734 [44.04]	.178 [4.52]	1.330 [33.78]	1.3461-32	99
1375	1.3750 [34.93]	1.656 [42.06]	1.734 [44.04]	.178 [4.52]	1.455 [36.96]	1.4711-32	109
1500	1.5000 [38.10]	1.844 [46.84]	1.921 [48.79]	.240 [6.10]	1.580 [40.13]	1.5961-32	119
1562	1.5625 [39.69]	1.844 [46.84]	1.921 [48.79]	.240 [6.10]	1.642 [41.71]	1.6581-32	124
1625	1.6250 [41.28]	2.062 [52.37]	2.140 [54.36]	.240 [6.10]	1.705 [43.31]	1.7211-32	129

METRIC SIZES AVAILABLE ON REQUEST

UNLESS OTHERWISE SPECIFIED  
INTERPRET DIMENSIONS & TOLERANCES PER  
ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
PLATING AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT. 125 [3.2] ✓ ALL SURFACES

TOLERANCES  

.XX	.XXX	ANGLES	[X.X.]	[X.X.X]
±.03	±.010	±2°	±[0.8]	±[0.25]

 DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK CORPORATION  
IRVINE, CALIFORNIA 92614  
TELEPHONE: (714) 474-6000

## SHUR-LOK

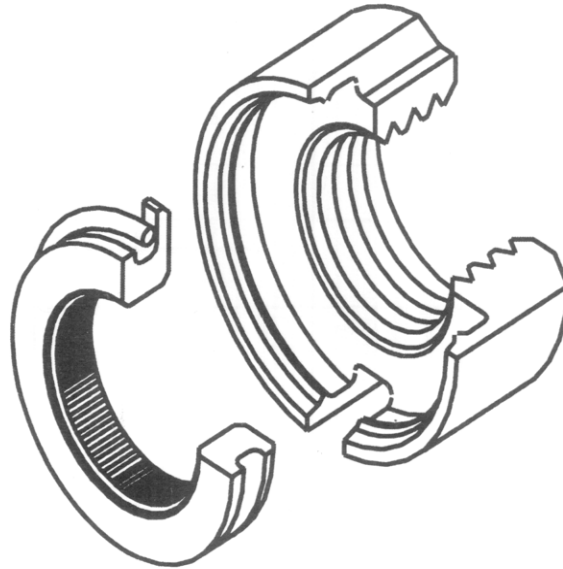
SHUR-LOK INTERNATIONAL, S.A.  
PETIT-RECHAIN, BELGIUM  
TELEPHONE: (32) 87-32.07.11

### LOCKWASHER, RETAINING REMOVAL- THREADED, STA-LOK, SAE SERIES

# SL61WT

SHEET **2** OF **2**

REVISION N 25 MAR 1997



## STA-LOK, SNAP-IN

### FEATURES AND BENEFITS

- ▶ Positive mechanical lock that is not dependent on lubricants or plating for repeatability.
- ▶ Achieves precise preload - serrations provide adjustment that eliminates back-off or over-torque.
- ▶ Maintains fatigue strength at reduced weight. External serrations in the nonload carrying portion of the thread eliminates keyways allowing reduction of shaft wall thickness or diameter.
- ▶ Key way stress concentrations are eliminated.
- ▶ Internal serrations of washer mates with serrated shaft.
- ▶ Serration clearance for ease of washer installation and removal.
- ▶ External lugs of serrated washer engages slots of nut.
- ▶ Internal groove of nut accepts retaining ring of washer.
- ▶ Can be designed in various wrenching configurations.

### SHAFT/BOLT SERRATIONS

Broaching is required on shaft or bolt. For installation and removal of locknuts and lockwashers, refer to Technical Sales Bulletin - TSB 0001.

### APPLICATIONS

- ▶ Where ease of installation is preferred.
- ▶ Non-rotating applications where positive retention is desired.
- ▶ Where achieving precise preload is critical and existing nuts cannot provide adequate adjustment.
- ▶ Where weight reduction is a priority and shaft wall thickness or diameter can be reduced. For example: where keyway can be eliminated.
- ▶ Allows for better shaft balance than conventional positive locks.

### SERRATION CLEARANCE OR INTERFERENCE FIT

Clearance fit is provided by Shur-Lok for ease of installation.

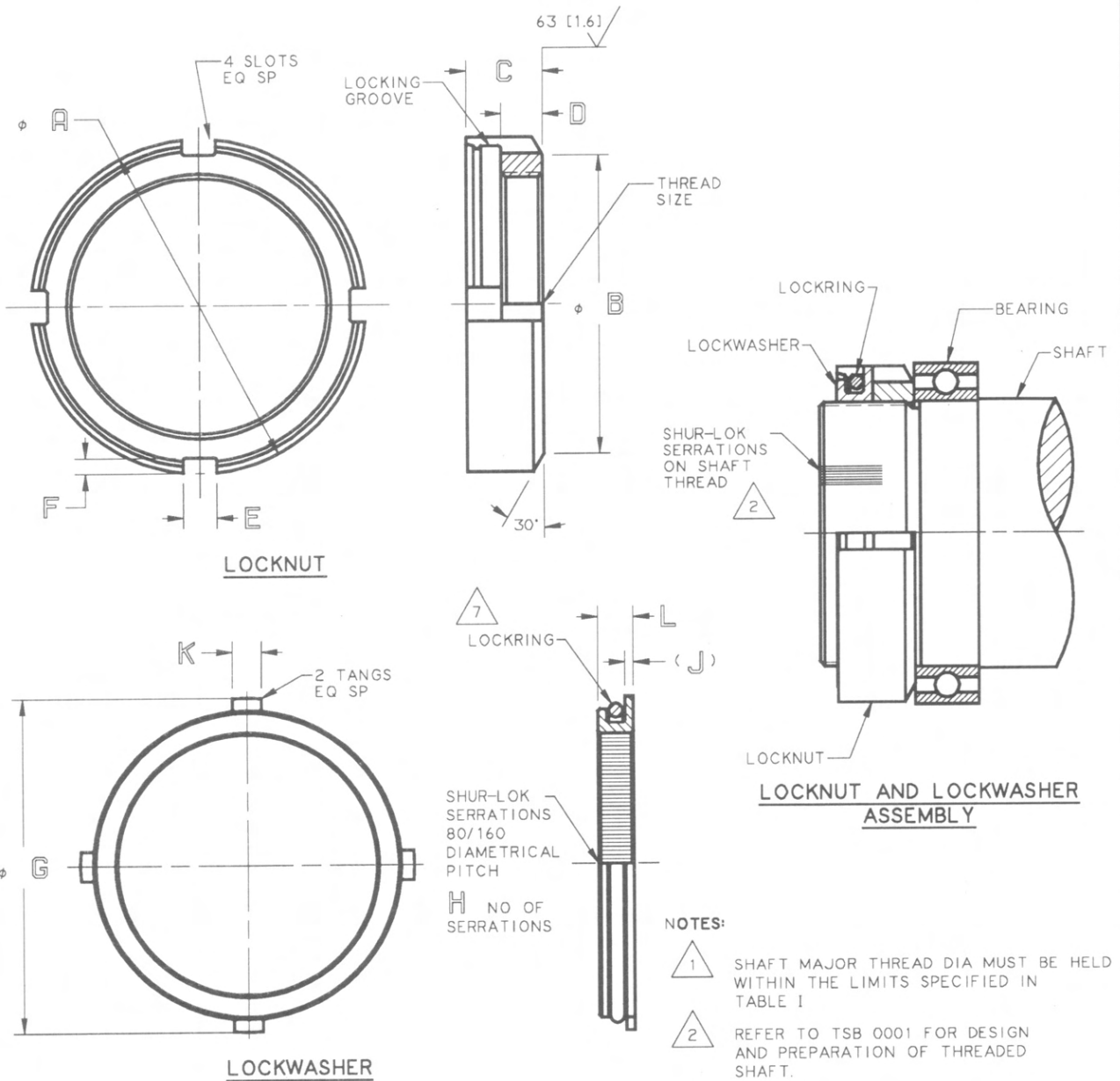
### THREAD SIZE

.250 inch and larger.

**Metric sizes available on request.**



# POSITIVE LOCK LOCKNUT



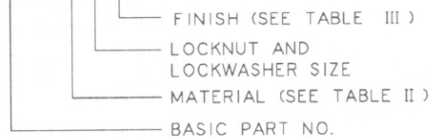
**LOCKNUT**

**LOCKNUT AND LOCKWASHER ASSEMBLY**

**LOCKWASHER**

**EXAMPLE OF PART CODING**

LOCKNUT: SLN7080 C 6 F  
 LOCKWASHER: SLW7080 C 6 F



**NOTES:**

- 1 SHAFT MAJOR THREAD DIA MUST BE HELD WITHIN THE LIMITS SPECIFIED IN TABLE I
- 2 REFER TO TSB 0001 FOR DESIGN AND PREPARATION OF THREADED SHAFT.
- 3 "LH" INDICATES LEFT HAND THREAD WHEN ADDED TO LOCKNUT PART NO.
- 4 THE SUFFIX "B" BETWEEN THE SIZE NUMBER AND THE FINISH CODE INDICATES BUTTRESS THREAD PER FED-STD-H28/14. EXAMPLE: SLN7080-16BF. (SEE TABLE I).
- 5 THREAD PER AMERICAN NATIONAL FORM NS. CLASS 3B PER ANSI/AFBMA STD 8.2 (SEE TABLE I).
- 6 HEAT TREAT: 23-33 HRC PER MIL-H-6875.

**METRIC SIZES AVAILABLE ON REQUEST**

UNLESS OTHERWISE SPECIFIED  
 INTERPRET DIMENSIONS & TOLERANCES PER  
 ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
 PLATING AND PRIOR TO THE ADDITION OF SOLID  
 FILM LUBRICANT. 125 [3.2] ALL SURFACES  
 TOLERANCES  
 .XX .XXX ANGLES [X.X] [X.XX]  
 ±.03 ±.010 ±2° ±[0.8] ±[0.25]  
 DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK CORPORATION  
 IRVINE, CALIFORNIA 92614  
 TELEPHONE: (714) 474-6000

**SHUR-LOK**

SHUR-LOK INTERNATIONAL, S.A.  
 PETIT-RECHAIN, BELGIUM  
 TELEPHONE: (32) 87-32.07.11

**SL7080**

**LOCKNUT AND LOCKWASHER  
 STA-LOK, SNAP-IN**

SHEET 1 OF 2

REVISION (J) 27 FEB 1997

# POSITIVE LOCK LOCKNUT



TABLE I




SIZE	LOCKNUT THREAD SIZE 	FOR SHAFT THD MAJOR DIA 		φ A	φ B	C	D	E	F	φ G	H	J	K	L	LOCK RING REF	CALC WEIGHT /ASSY LB (Kg)
		MAX	MIN													
1	.391-32	.391 [9.93]	.386 [9.80]	.812 [20.62]	.512 [13.00]	.369 [9.37]	.188 [4.78]	.190 [4.83]	.110 [2.79]	.812 [20.62]	30	.060 [1.52]	.160 [4.06]	.181 [4.60]	.042 [1.07]	.03 [.014]
2	.469-32	.469 [11.91]	.462 [11.73]	.875 [22.23]	.606 [15.39]	.390 [9.91]	.188 [4.78]	.190 [4.83]	.110 [2.79]	.875 [22.23]	36	.060 [1.52]	.160 [4.06]	.202 [5.13]	.063 [1.60]	.04 [.018]
3	.586-32	.586 [14.88]	.581 [14.76]	1.000 [25.40]	.730 [18.54]	.421 [10.69]	.219 [5.56]	.190 [4.83]	.110 [2.79]	1.000 [25.40]	46	.060 [1.52]	.160 [4.06]	.202 [5.13]	.063 [1.60]	.05 [.023]
4	.664-32	.664 [16.87]	.659 [16.74]	1.125 [28.58]	.856 [21.74]	.439 [11.15]	.219 [5.56]	.190 [4.83]	.110 [2.79]	1.125 [28.58]	52	.060 [1.52]	.160 [4.06]	.220 [5.59]	.081 [2.06]	.07 [.032]
5	.781-32	.780 [19.81]	.775 [19.69]	1.250 [31.75]	.930 [23.62]	.470 [11.94]	.250 [6.35]	.190 [4.83]	.110 [2.79]	1.250 [31.75]	61	.060 [1.52]	.160 [4.06]	.220 [5.59]	.081 [2.06]	.08 [.036]
6	.969-32	.967 [24.56]	.962 [24.43]	1.437 [36.50]	1.168 [29.67]	.470 [11.94]	.250 [6.35]	.190 [4.83]	.110 [2.79]	1.437 [36.50]	76	.060 [1.52]	.160 [4.06]	.220 [5.59]	.081 [2.06]	.10 [.045]
7	1.173-18	1.173 [29.79]	1.168 [29.67]	1.688 [42.88]	1.418 [36.02]	.522 [13.26]	.281 [7.14]	.250 [6.35]	.110 [2.79]	1.688 [42.88]	93	.060 [1.52]	.220 [5.59]	.241 [6.12]	.096 [2.44]	.14 [.064]
8	1.376-18	1.376 [34.95]	1.371 [34.92]	1.875 [47.63]	1.637 [41.58]	.522 [13.26]	.281 [7.14]	.250 [6.35]	.110 [2.79]	1.875 [47.63]	109	.060 [1.52]	.220 [5.59]	.241 [6.12]	.096 [2.44]	.17 [.077]
9	1.563-18	1.563 [39.67]	1.558 [39.57]	2.062 [52.37]	1.824 [46.33]	.522 [13.26]	.281 [7.14]	.250 [6.35]	.110 [2.79]	2.062 [52.37]	124	.060 [1.52]	.220 [5.59]	.241 [6.12]	.096 [2.44]	.21 [.095]
10	1.767-18	1.767 [48.88]	1.762 [44.75]	2.250 [57.15]	2.043 [51.89]	.553 [14.05]	.312 [7.92]	.250 [6.35]	.110 [2.79]	2.250 [57.15]	140	.060 [1.52]	.220 [5.59]	.241 [6.12]	.096 [2.44]	.25 [.113]
11	1.967-18	1.967 [49.96]	1.962 [49.83]	2.500 [63.50]	2.230 [56.64]	.577 [14.66]	.312 [7.92]	.250 [6.35]	.110 [2.79]	2.500 [63.50]	156	.065 [1.65]	.220 [5.59]	.265 [6.73]	.105 [2.67]	.31 [.141]
12	2.157-18	2.155 [54.74]	2.150 [54.61]	2.750 [69.85]	2.480 [62.99]	.577 [14.66]	.312 [7.92]	.250 [6.35]	.110 [2.79]	2.750 [69.85]	171	.065 [1.65]	.220 [5.59]	.265 [6.73]	.105 [2.67]	.38 [.172]
13	2.360-18	2.360 [59.94]	2.355 [59.82]	2.937 [74.60]	2.668 [68.28]	.609 [15.47]	.344 [8.74]	.250 [6.35]	.110 [2.79]	2.937 [74.60]	188	.065 [1.65]	.220 [5.59]	.265 [6.73]	.105 [2.67]	.43 [.195]
14	2.548-18	2.548 [64.72]	2.543 [64.59]	3.125 [79.38]	2.856 [72.54]	.609 [15.47]	.344 [8.74]	.375 [9.53]	.110 [2.79]	3.125 [79.38]	203	.065 [1.65]	.345 [8.76]	.265 [6.73]	.105 [2.67]	.45 [.204]
15	2.751-18	2.751 [69.88]	2.746 [69.75]	3.375 [85.73]	3.074 [78.08]	.624 [15.85]	.344 [8.74]	.375 [9.53]	.125 [3.18]	3.375 [85.73]	219	.070 [1.78]	.345 [8.76]	.280 [7.11]	.125 [3.18]	.53 [.240]
16	2.933-12	2.930 [74.42]	2.925 [74.30]	3.562 [90.47]	3.356 [85.24]	.655 [16.64]	.375 [9.53]	.375 [9.53]	.125 [3.18]	3.562 [90.47]	233	.070 [1.78]	.345 [8.76]	.280 [7.11]	.125 [3.18]	.60 [.272]
16B 	2.933-12 BUTTRESS	2.930 [74.42]	2.925 [74.30]	3.562 [90.47]	3.356 [85.24]	.655 [16.64]	.375 [9.53]	.375 [9.53]	.125 [3.18]	3.562 [90.47]	233	.070 [1.78]	.345 [8.76]	.280 [7.11]	.125 [3.18]	.60 [.272]
17	3.137-12	3.137 [79.68]	3.132 [79.55]	3.906 [99.21]	3.574 [90.78]	.655 [16.64]	.375 [9.53]	.375 [9.53]	.125 [3.18]	3.906 [99.21]	250	.070 [1.78]	.345 [8.76]	.280 [7.11]	.125 [3.18]	.64 [.290]
18	3.340-12	3.340 [84.84]	3.335 [84.71]	4.125 [104.78]	3.793 [96.34]	.655 [16.64]	.375 [9.53]	.375 [9.53]	.125 [3.18]	4.125 [104.78]	266	.070 [1.78]	.345 [8.76]	.280 [7.11]	.125 [3.18]	.67 [.303]
19	3.527-12	3.527 [89.59]	3.522 [89.46]	4.312 [109.52]	3.930 [99.82]	.655 [16.64]	.375 [9.53]	.375 [9.53]	.125 [3.18]	4.312 [109.52]	281	.070 [1.78]	.345 [8.76]	.280 [7.11]	.125 [3.18]	.71 [.322]
20	3.730-12	3.730 [94.74]	3.725 [94.62]	4.531 [115.09]	4.199 [106.65]	.655 [16.64]	.375 [9.53]	.375 [9.53]	.125 [3.18]	4.531 [115.09]	297	.070 [1.78]	.345 [8.76]	.280 [7.11]	.125 [3.18]	.78 [.354]

TABLE II


MATL CODE	MATERIAL	
-	STEEL 4130 PER AMS 6370 OR AMS 6371	
C	CRES 303 PER ASTM-A-581 OR ASTM-A-582	
CA	CRES A286 PER AMS 5737	
N	INCONEL 718 PER AMS 5662	

TABLE III

FINISH CODE	FINISH
F	BLACK OXIDE PER MIL-C-13924
P	CAD PLATE PER QQ-P-416, TYPE II, CLASS 2
NONE	PASSIVATE PER QQ-P-35
FM	BLACK OXIDE PER MIL-C-13924 AND DRI-FILM LUBE PER MIL-L-46010, TYPE I
NF	NO FINISH

**METRIC SIZES AVAILABLE ON REQUEST**

REVISION J 27 FEB 1997

UNLESS OTHERWISE SPECIFIED  
INTERPRET DIMENSIONS & TOLERANCES PER  
ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
PLATING AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT. 125 [3.2] ✓ ALL SURFACES

TOLERANCES

XX	XXX	ANGLES	[X.X.]	[X.X.X]
±.03	±.010	±2°	±[0.8]	±[0.25]

DIMENSIONS IN [ ] ARE MILLIMETERS

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TELEPHONE: (714) 474-6000

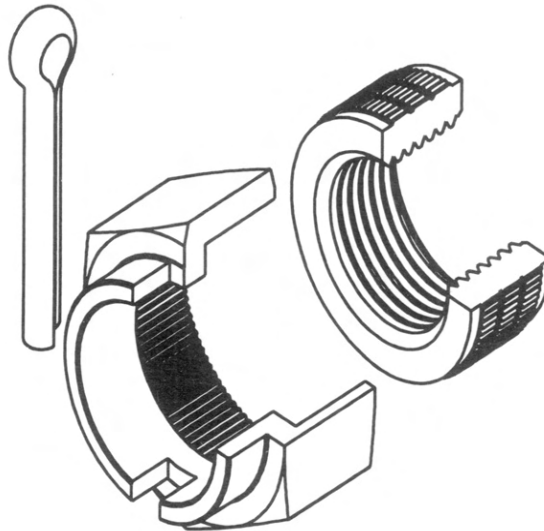
SHUR-LOK

SHUR-LOK INTERNATIONAL, S.A.  
PETIT-RECHAIN, BELGIUM  
TELEPHONE: (32) 87-32.07.11

LOCKNUT AND LOCKWASHER  
STA-LOK, SNAP-IN

SL7080

SHEET **2** OF **2**



## STA-LOK, COTTER KEY

### FEATURES AND BENEFITS

- ▶ Positive Mechanical Lock that is not dependent on lubricants or plating for repeatability.
- ▶ Achieves precise preload - serrations provide adjustment that eliminates back-off or over-torque.
- ▶ Typically interchangeable with most castellated nuts.
- ▶ External serrations on nut mates with internal serrations of cap.
- ▶ Serration clearance for ease of cap installation and removal.
- ▶ Can be designed in various wrenching configurations.
- ▶ Use sealant for applications with minor vibration.
- ▶ Free-running nut minimizes thread damage on mating part.

### APPLICATIONS

Where achieving precise preload is critical and castellated nuts cannot provide adequate adjustment.

### INSTALLATION SHAFT/BOLT SERRATIONS

Hex-cap is first used to thread and wrench serrated nut, then remounted to align its slots with keyhole in shaft. Cotter key is then fitted to lock assembly. Broaching serrations on shaft not required, as nut is locked with cotter pins. For installation & removal refer to TSB0005.

### SERRATIONS - CLEARANCE OR INTERFERENCE FIT

Clearance fit is provided by Shur-Lok.

### THREAD SIZE

.312 inch and larger.

**Metric sizes available on request.**



# LOCKNUT — STA-LOK

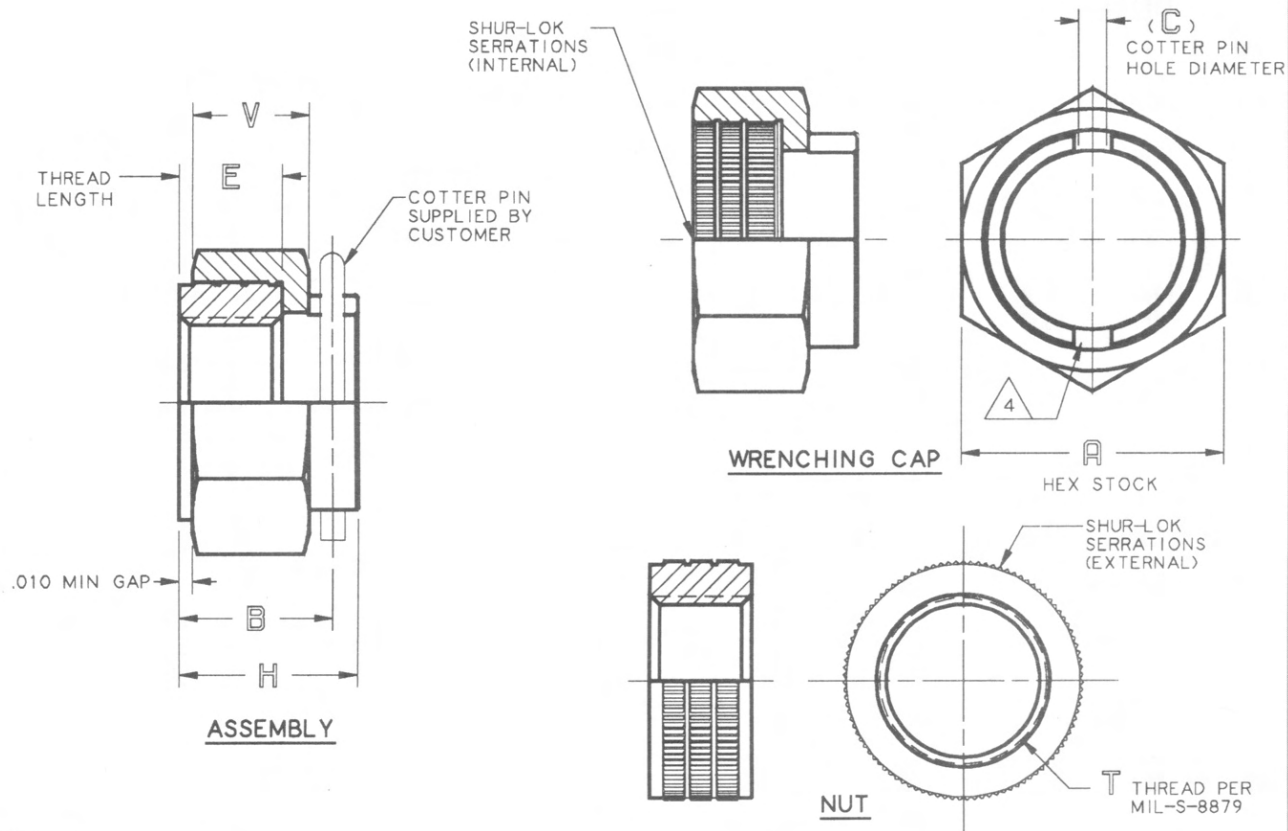


TABLE I

DASH NO.	T <sup>T</sup> THREAD	A HEX	B	C	E	H	V	COTTER PIN MS24665	APPROX. WEIGHT /100 PCS LB [Kg]
	UNJF-3B							REF	
5	.3125-24	.625 [15.88]	.377 [9.58]	.109 [2.77]	.195 [4.95]	.485 [12.32]	.258 [6.55]	-302	2.5 [1.1]
6	.3750-24	.688 [17.48]	.400 [10.16]	.109 [2.77]	.227 [5.77]	.508 [12.90]	.281 [7.14]	-302	3.1 [1.4]
7	.4375-20	.812 [20.63]	.424 [10.77]	.109 [2.77]	.260 [6.60]	.532 [13.51]	.305 [7.75]	-302	4.9 [2.2]
8	.5000-20	.875 [22.23]	.538 [13.67]	.141 [3.58]	.323 [8.20]	.675 [17.15]	.386 [9.80]	-372	6.5 [2.9]
9	.5625-18	1.000 [25.40]	.538 [13.67]	.141 [3.58]	.324 [8.23]	.675 [17.15]	.387 [9.83]	-372	8.8 [4.0]
10	.6250-18	1.125 [28.58]	.694 [17.63]	.203 [5.16]	.387 [9.83]	.865 [21.97]	.481 [12.22]	-515	13.6 [6.2]
12	.7500-16	1.312 [33.33]	.734 [18.64]	.203 [5.16]	.446 [11.33]	.905 [22.99]	.521 [13.23]	-515	20.2 [9.2]
14	.8750-14	1.500 [38.10]	.817 [20.75]	.203 [5.16]	.510 [12.95]	.988 [25.10]	.604 [15.34]	-515	28.2 [12.8]

NOTES:

- MATERIAL: CRES 17-4PH PER AMS 5643 OR EQUIV.
- HEAT TREAT: COND H-1025 OR H-1100 PER MIL-H-6875. TENSILE TESTING NOT REQD. VERIFICATION OF UTS BY ROCKWELL HARDNESS TESTING WITH CORRELATION TO AMS 2759/3.
- FINISH:  
NUT - SILVER PLATED PER AMS 2410 OR AMS 2411 ENTIRE NUT OR THREADS ONLY, - MANUFACTURE'S OPTION.  
CAP - PASSIVATE PER ASTM A967.

4 SURFACE 250 [6.3] RMS IN SLOTTED AREAS.

EXAMPLE OF PART CODING:

SL7458-12

DASH NUMBER SIZE (SEE TABLE I)  
BASIC PART NO.

METRIC SIZES AVAILABLE ON REQUEST

UNLESS OTHERWISE SPECIFIED  
INTERPRET DIMENSIONS & TOLERANCES PER  
ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
PLATING AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT. 125 [3.2] ALL SURFACES  
TOLERANCES  
XX XXX ANGLES [X.X] [X.X.X]  
±.03 ±.010 ±2° ±[0.8] ±[0.25]  
DIMENSIONS IN [ ] ARE MILLIMETERS

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TELEPHONE: (714) 474-6000

**SHUR-LOK**

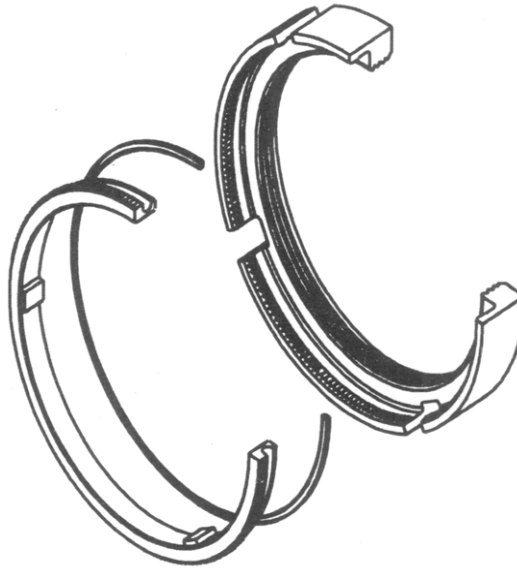
SHUR-LOK INTERNATIONAL, S.A.  
PETIT-RECHAIN, BELGIUM  
TELEPHONE: (32) 87-32.07.11

**LOCKNUT —STA-LOK,  
PRECISE ADJUSTING**

**SL 7458**

SHEET 1 OF 1

REVISION C 18 SEP 1997



## STA-LOK, KEWAY

### FEATURES AND BENEFITS

- ▶ Positive mechanical lock that is not dependent on lubricants or plating for repeatability.
- ▶ Achieves precise preload - serrations provide adjustment that eliminates back-off or over-torque.
- ▶ Eliminates sheet metal tab and cup washers that can cause foreign object damage problems or preload loss sometimes associated with this type of soft washers.
- ▶ Internal keyed lug on washer mates with shaft keyway.
- ▶ Internal serrations of nut mates with external serrations of washer.
- ▶ Split ring engages internal nut groove for positive retention.
- ▶ Split ring is preassembled to serrated washer.
- ▶ Can be designed in various wrenching configurations
- ▶ Free-running nut minimizes thread damage on mating part.

### APPLICATIONS

- ▶ Retrofit keyed washers where precise preload must be achieved.
- ▶ New designs where keying shafts is preferred over serrating shafts.
- ▶ Where achieving precise preload is critical.

### SHAFT/BOLT SERRATIONS

Broaching serrations of shaft not required, as nut is locked with keyways.

### SERRATIONS - CLEARANCE OR INTERFERENCE FIT

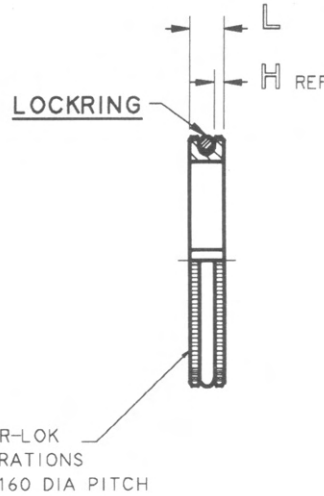
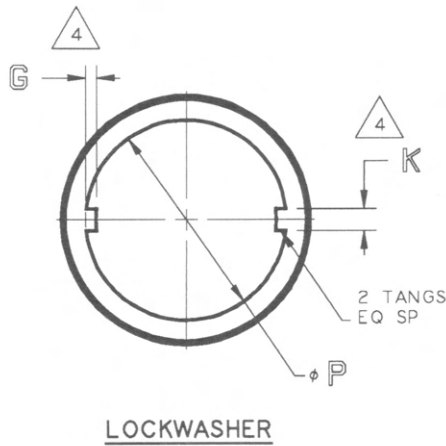
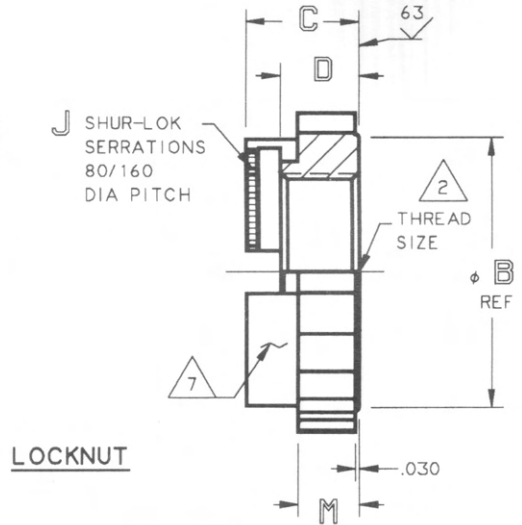
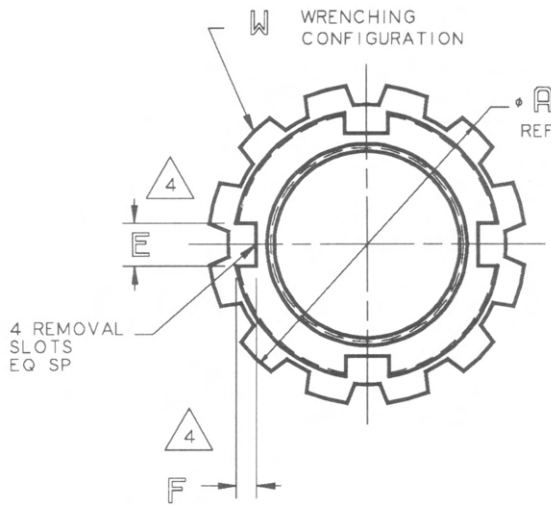
Clearance fit.

### THREAD SIZE

.500 inch and larger.

**Metric sizes available on request.**

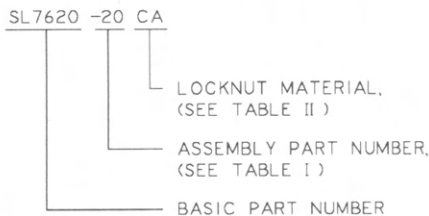
# LOCKNUT



### NOTES:

1. LOCKWASHER WITH LOCKRING TO BE INSTALLED INTO LOCKNUT AFTER ALIGNMENT WITH PREPARED KEYSLOT ON SHAFT.
2. THREAD PER MIL-S-8879, CLASS 3B (SEE TABLE I).
3. AXIAL TENSILE STRENGTH =  $0.65 \times FTU \times \text{NUT SHEAR AREA}$ .
4. SURFACES  $\sqrt{250}$  IN AREA INDICATED.
5. MATERIAL HEAT TREAT AND FINISH:  
 LOCKNUT - SEE TABLE II  
 LOCKWASHER: - CRES A286 PER AMS 5737, 140 KSI MIN PASSIVATE PER ASTM A967 AND DRY FILM LUBRICANT PER ASS272 TYPE I.  
 LOCKRING - CRES 302 PER ASTM A313 - SPRING TEMPER. OR CRES 17-7PH PER AMS 5678, PASSIVATE PER ASTM A967.
6. SEE EXAMPLE OF PART CODING FOR ASSEMBLY AND LOCKNUT. ADD MATERIAL CODE SUFFIX "CA" OR "N" TO REQUIRED PART NUMBER AS SHOWN. EXAMPLE: SL7620-12CA OR SL7620-20N.
7. LASER MARK SHUR-LOK ASSEMBLY PART NUMBER IN AREA INDICATED.

### EXAMPLE OF PART CODING



METRIC SIZES AVAILABLE ON REQUEST

UNLESS OTHERWISE SPECIFIED INTERPRET DIMENSIONS & TOLERANCES PER ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER PLATING AND PRIOR TO THE ADDITION OF SOLID FILM LUBRICANT.  $\sqrt{125}$  [3.2] ALL SURFACES

TOLERANCES

.XX	.XXX	ANGLES	[X.X]	[X.X.X]
±.03	±.010	±2°	±[0.8]	±[0.25]

DIMENSIONS IN [ ] ARE MILLIMETERS

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 IRVINE, CALIFORNIA 92614  
 TELEPHONE: (714) 474-6000

**SHUR-LOK**

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 PETIT-RECHAIN, BELGIUM  
 TELEPHONE: (32) 87-32.07.11

**SL 7620**

**LOCKNUT — KEY-FAST**

SHEET 1 OF 2

REVISION C 04 SEP 1997

# LOCKNUT



TABLE I

ASSEMBLY PART NUMBER	LOCKNUT THREAD SIZE	φ A REF	φ B REF	C	D	E	F	J NUMBER OF SERRS	M	AXIAL TENSILE STRENGTH	
										CA	N
SL7620-6	.3750-24 UNJF	1.037-1.049	.908	.390	.230	.150	.070	54	.130	15,200	19,600
SL7620-8	.5000-20 UNJF	1.185-1.197	1.038	.440	.260	.150	.090	64	.160	24,000	30,000
SL7620-10	.6250-18 UNJF	1.333-1.345	1.169	.500	.300	.190	.110	74	.205	35,000	46,200
SL7620-12	.7500-16 UNJF	1.480-1.493	1.298	.550	.330	.190	.110	84	.205	42,000	56,000
SL7620-14	.8750-14 UNJF	1.628-1.641	1.429	.595	.375	.190	.110	94	.250	58,000	76,000
SL7620-16	1.0000-12 UNJF	1.775-1.788	1.559	.645	.425	.190	.110	104	.300	78,000	102,000
SL7620-18	1.1250-12 UNJF	1.924-1.937	1.690	.711	.470	.250	.142	114	.345	98,000	130,000
SL7620-20	1.2500-12 UNJF	1.998-2.011	1.755	.766	.525	.250	.142	124	.400	124,000	163,000
SL7620-22	1.3750-12 UNJF	2.145-2.158	1.885	.791	.550	.250	.142	134	.425	143,000	189,000
SL7620-24	1.5000-12 UNJF	2.293-2.307	2.016	.791	.550	.250	.142	144	.425	156,000	207,000
SL7620-26	1.6250-12 UNJ	2.440-2.454	2.146	.791	.550	.250	.142	154	.425	170,000	225,000
SL7620-28	1.7500-12 UNJ	2.589-2.603	2.276	.791	.550	.250	.142	164	.425	184,000	242,000

TABLE I CONTINUED

	LOCKNUT PART NUMBER	LOCKWASHER PART NUMBER	LOCKRING PART NUMBER	G	H	K	L	φ P
				±.005	REF	±.003		±.005
MS33787-28	SLN7620-6	SLW7620-6	SLR7620-6	.060	.060	.060	.160	.400
MS33787-32	SLN7620-8	SLW7620-8	SLR7620-8	.065	.060	.080	.180	.525
MS33787-36	SLN7620-10	SLW7620-10	SLR7620-10	.068	.050	.110	.200	.650
MS33787-40	SLN7620-12	SLW7620-12	SLR7620-12	.070	.060	.110	.220	.770
MS33787-44	SLN7620-14	SLW7620-14	SLR7620-14	.075	.060	.110	.220	.895
MS33787-48	SLN7620-16	SLW7620-16	SLR7620-16	.083	.060	.110	.220	1.020
MS33787-52	SLN7620-18	SLW7620-18	SLR7620-18	.083	.060	.146	.241	1.145
MS33787-54	SLN7620-20	SLW7620-20	SLR7620-20	.083	.060	.146	.241	1.270
MS33787-58	SLN7620-22	SLW7620-22	SLR7620-22	.083	.060	.146	.241	1.395
MS33787-62	SLN7620-24	SLW7620-24	SLR7620-24	.083	.060	.146	.241	1.520
MS33787-66	SLN7620-26	SLW7620-26	SLR7620-26	.083	.060	.146	.241	1.645
MS33787-70	SLN7620-28	SLW7620-28	SLR7620-28	.083	.060	.146	.241	1.770

TABLE II FOR LOCKNUT ONLY

MATERIAL CODE	MATERIAL	HEAT TREAT	FINISH
CA	A286 PER AMS 5737 140 KSI MIN	NONE	PASSIVATE PER ASTM A967 DRY FILM LUBRICANT PER AS5272 TYPE I
N	INCONEL 718 PER AMS 5662	AGE PER AMS 5663 185 KSI MIN	DRY FILM LUBRICANT PER AS5272 TYPE I

METRIC SIZES AVAILABLE ON REQUEST

UNLESS OTHERWISE SPECIFIED  
INTERPRET DIMENSIONS & TOLERANCES PER  
ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
PLATING AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT. 125 [3.2] ALL SURFACES  
TOLERANCES  
XX .XXX ANGLES [X.X] [X.X.X]  
±.03 ±.010 ±2° ±[0.8] ±[0.25]  
DIMENSIONS IN [ ] ARE MILLIMETERS

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## SHUR-LOK

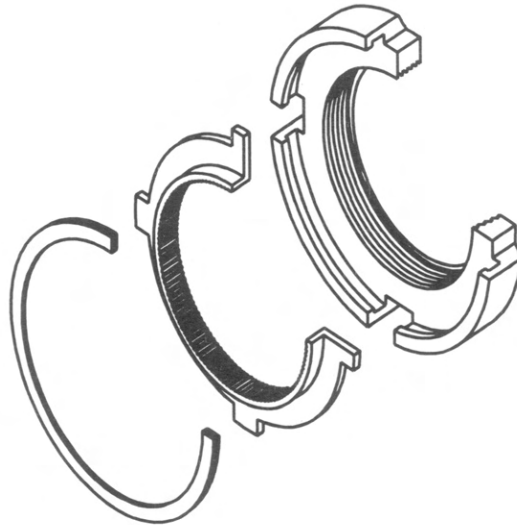
SHUR-LOK INTERNATIONAL, S.A.  
PETIT-RECHAIN, BELGIUM  
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# SL7620

### LOCKNUT — KEY-FAST

SHEET **2** OF **2**

REVISION C 04 SEP 1997



## STA-LOK, SPIRAL POSITIVE LOCK

### FEATURES AND BENEFITS

- ▶ Positive mechanical lock that is not dependent on lubricants or plating for repeatability.
- ▶ Achieves precise preload-serrations provide adjustment that eliminates back-off or over-torque.
- ▶ Maintains fatigue strength at reduced weight. External serrations in the nonload carrying portion of the thread. Eliminates keyways allowing reduction of shaft wall thickness or diameter.
- ▶ Key way stress concentrations are eliminated.
- ▶ Internal serrations of washer mates with serrated shaft.
- ▶ Designed with either interference fit or clearance fit.
- ▶ External lugs of serrated washer engages slots of nut.
- ▶ Spiral retaining ring feeds into internal groove of nut to provide positive retention of washer.
- ▶ Nut, washer, and spiral retaining ring supplied as separate components.
- ▶ Can be designed in various wrenching configurations.

### APPLICATIONS

- ▶ Interference type where there is high RPM and/or load reversals.
- ▶ Clearance type for ease of installation in non-rotating applications.
- ▶ Where achieving precise preload is critical and existing nuts cannot provide adequate adjustment.
- ▶ Where weight reduction is a priority and shaft wall thickness or diameter can be reduced.
- ▶ Where a positive mechanical lock is required.

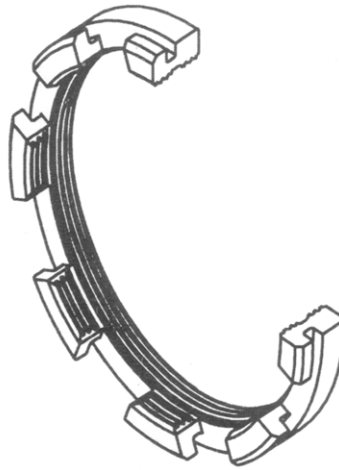
### SHAFT/BOLT SERRATIONS

Broaching serrations on shaft/bolt is required. For installation and removal of locknuts and lockwashers refer to Technical Sales Bulletin-TSB 0001.

### SERRATIONS - CLEARANCE OR INTERFERENCE FIT

Customer Specified:  
Interference fit recommended for high RPM applications.  
Clearance fit recommended for non-rotating applications.

**Metric sizes available on request**



## FACE WRENCHING METALLIC LOCK

### FEATURES AND BENEFITS

- ▶ One piece design.
- ▶ High temperature capability (limited by material selected).
- ▶ 50 cycle reusability capable with proper plating and use of lubricants.
- ▶ Available in alloy steel and A286 materials.
- ▶ Retains locking ability even when installed on other than original shaft.
- ▶ Minimal envelope.
- ▶ Face wrenching (castellated).
- ▶ Locking feature less sensitive to high seating torque.

### NOTATIONS

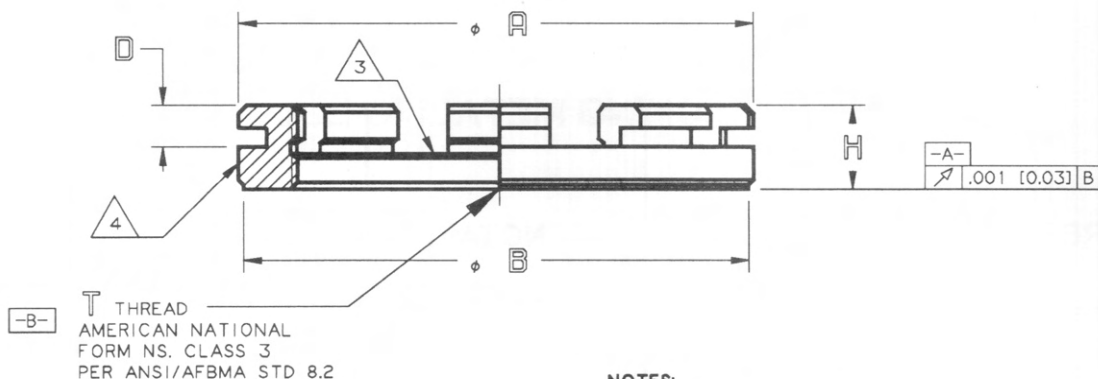
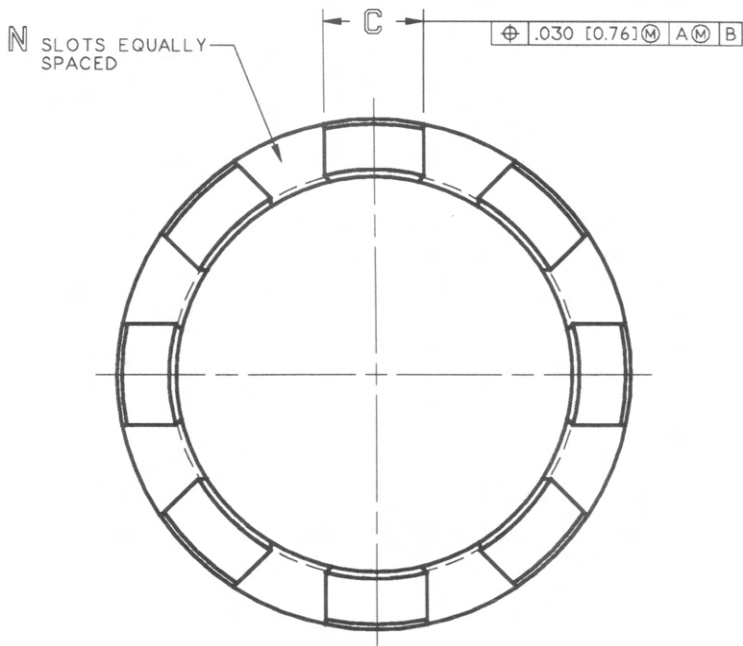
- ▶ Should not be used without a secondary Lubricant.
- ▶ Not recommended for keyed shafts.

### THREAD SIZE

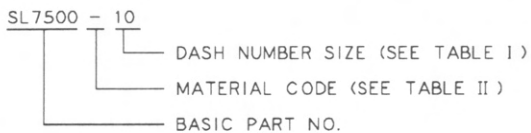
- ▶ 1.250 inch and larger.

**Metric sizes available on request.**

# LOCKNUT



### EXAMPLE OF PART CODING:



### NOTES:

- MAGNETIC PARTICLE INSPECT PER ASTM E1444, OR FLUORESCENT PENETRANT INSPECT PER ASTM E1417.
- ALL DIAMETERS  $\oplus \phi .005 [0.13] \text{M} \text{B} \text{M}$
- $\triangle 3$  SUFACE 250 [6.3] RMS IN AREA INDICATED.
- $\triangle 4$  PART AND LOT NUMBERS ELECTROCHEMICAL ETCHED OR LASER MARKED PER AS478.
- FINISH: SILVER PLATE PER AMS 2410 OR AMS 2411.
- CONSULT SHUR-LOK ENGINEERING DEPARTMENT FOR OTHER MATERIALS, FINISHES OR SIZES.

METRIC SIZES AVAILABLE ON REQUEST

REVISION D 18 SEP 1997

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INTERPRET DIMENSIONS & TOLERANCES PER  
ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
PLATING AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT. 125 [3.2] ALL SURFACES

TOLERANCES	XX	.XXX	ANGLES	[X.X.]	[X.X.X]
	$\pm .03$	$\pm .010$	$\pm 2^\circ$	$\pm [0.8]$	$\pm [0.25]$

DIMENSIONS IN [ ] ARE MILLIMETERS

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IRVINE, CALIFORNIA 92614  
TELEPHONE: (714) 474-6000

## SHUR-LOK

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TELEPHONE: (32) 87-32.07.11

### LOCKNUT - FACE WRENCHING FEATURE

# SL7500

SHEET 1 OF 2

# LOCKNUT



TABLE I

DASH NO.	T THREAD	$\phi$ A	$\phi$ B	C	D	H	N	APPROX. WEIGHT 100 PCS LBS [Kg]
		+0.000 -0.005 [+0.000] [-0.13]	+0.000 -0.005 [+0.000] [-0.13]	+0.000 -0.010 [+0.000] [-0.25]				
1	2.157-18	2.711 [68.85]	2.656 [67.46]	.540 [13.72]	.222 [5.64]	.449 [11.40]	8	19.63 [8.90]
2	2.360-18	2.895 [73.53]	2.840 [72.14]	.565 [14.35]	.222 [5.64]	.449 [11.40]	8	20.75 [9.41]
3	2.548-18	3.118 [79.20]	2.840 [72.14]	.616 [15.65]	.222 [5.64]	.449 [11.40]	8	23.33 [10.58]
4	2.751-18	3.368 [85.55]	3.313 [84.15]	.660 [16.76]	.222 [5.64]	.449 [11.40]	8	26.71 [12.12]
5	2.933-12	3.618 [91.90]	3.563 [90.50]	.710 [18.03]	.333 [8.46]	.671 [17.04]	8	47.80 [21.63]
6	3.137-12	3.899 [99.03]	3.844 [97.64]	.765 [19.43]	.333 [8.46]	.671 [17.04]	8	55.38 [25.12]
7	3.340-12	4.086 [103.78]	4.031 [102.39]	.540 [13.72]	.333 [8.46]	.671 [17.04]	12	57.37 [26.02]
8	3.527-12	4.265 [108.33]	4.210 [106.93]	.565 [14.35]	.333 [8.46]	.671 [17.04]	12	60.13 [27.27]
9	3.730-12	4.425 [112.40]	4.370 [111.0]	.592 [15.04]	.333 [8.46]	.671 [17.04]	12	60.43 [27.41]
10	3.918-12	4.675 [118.75]	4.620 [117.35]	.616 [15.65]	.333 [8.46]	.671 [17.04]	12	67.66 [30.69]
11	4.122-12	4.895 [124.33]	4.840 [122.94]	.642 [16.31]	.333 [8.46]	.671 [17.04]	12	72.14 [32.72]
12	4.325-12	5.135 [130.43]	5.080 [129.03]	.660 [16.76]	.333 [8.46]	.671 [17.04]	12	78.34 [35.53]

TABLE II

CODE	MATERIAL
-	ALLOY STEEL 4130 PER MIL-S-6758 OR AMS 6370, AMS 6371 (TUBING) F <sub>tu</sub> = 150 Ksi min.
C	A286 CRES PER AMS 5737

TABLE III · PERFORMANCE DATA

DASH NO.	T THREAD	MAX LOCKING TORQUE		MIN LOCKING TORQUE	
		in-lb	N-m	in-lb	N-m
1	2.157-18	805	[91]	120	[14]
2	2.360-18	860	[97]	130	[15]
3	2.548-18	895	[101]	138	[16]
4	2.751-18	950	[107]	145	[16]
5	2.933-12	985	[111]	155	[18]
6	3.137-12	1030	[116]	160	[18]
7	3.340-12	1070	[121]	170	[19]
8	3.527-12	1100	[124]	178	[20]
9	3.730-12	1145	[129]	185	[21]
10	3.918-12	1175	[133]	190	[22]
11	4.122-12	1200	[136]	200	[23]
12	4.325-12	1230	[139]	205	[23]

METRIC SIZES AVAILABLE ON REQUEST

UNLESS OTHERWISE SPECIFIED  
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PLATING AND PRIOR TO THE ADDITION OF SOLID  
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TOLERANCES  
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±.03 ±.010 ±2° ±[0.8] ±[0.25]  
DIMENSIONS IN [ ] ARE MILLIMETERS

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**SHUR-LOK**

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**LOCKNUT -  
FACE WRENCHING FEATURE**

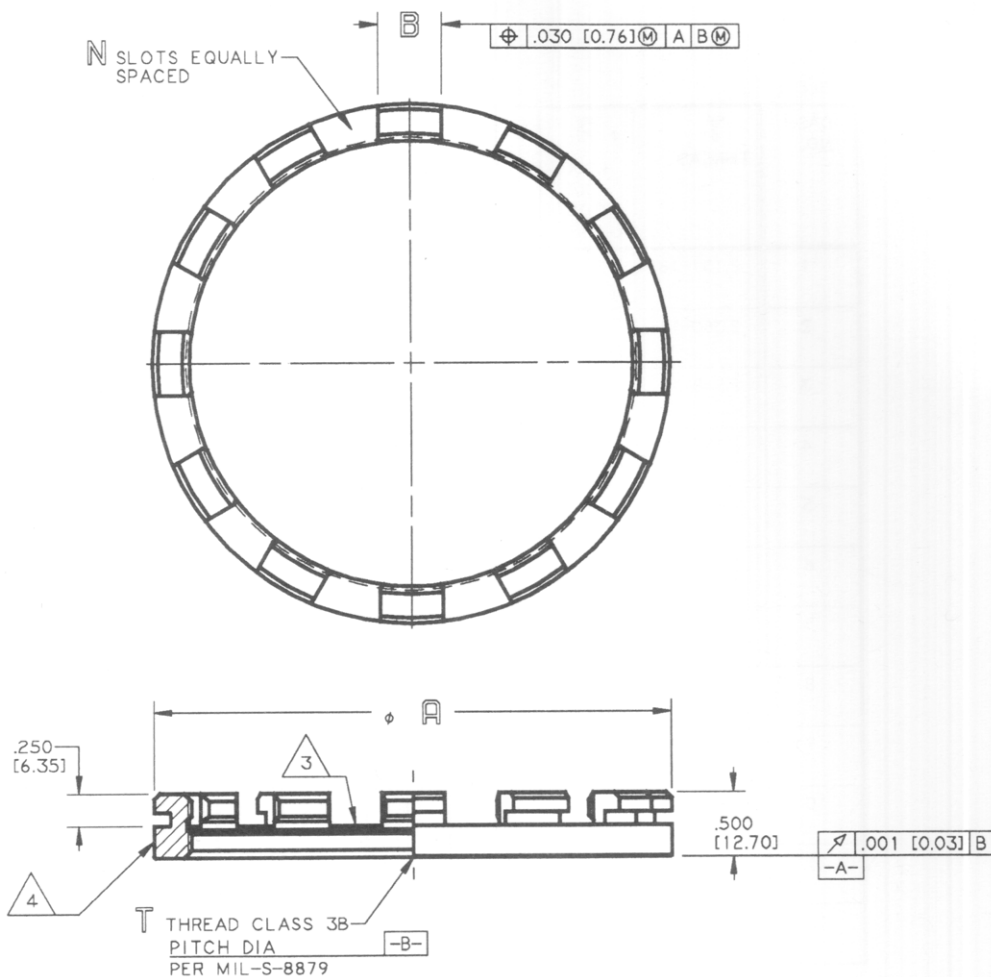
**SL7500**

SHEET 2 OF 2

REVISION D 18 SEP 1997

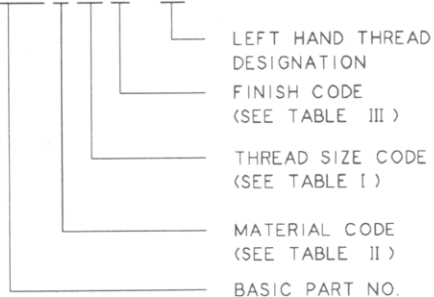


# LOCKNUT - FACE WRENCHING



## EXAMPLE OF PART CODING:

SL7501 - 36 N - LH



## NOTES:

- MAGNETIC PARTICLE INSPECT PER ASTM E1444, OR FLUORESCENT PENETRANT INSPECT PER ASTM E1417.
- ALL DIAMETERS:  $\phi \phi .005 [0.13] \text{M} \text{B} \text{M}$
- $\triangle 3$  SURFACE 250 [6.3] RMS IN AREA INDICATED.
- $\triangle 4$  PART AND LOT NUMBERS ELECTROCHEMICAL ETCHED OR LASER MARKED PER AS478.
- CONSULT SHUR-LOK TECHNICAL SERVICES DEPARTMENT FOR OTHER MATERIALS, FINISHES OR SIZES.

METRIC SIZES AVAILABLE ON REQUEST

UNLESS OTHERWISE SPECIFIED  
INTERPRET DIMENSIONS & TOLERANCES PER  
ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
PLATING AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT. 125 [3.2] ALL SURFACES

TOLERANCES

XX	XXX	ANGLES	[X.X]	[X.X.X]
±.03	±.010	±2°	±[0.8]	±[0.25]

DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK COPORATION  
IRVINE, CALIFORNIA 92614  
TELEPHONE: (714) 474-6000

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**SL 7501**

**LOCKNUT, BEARING  
FACE WRENCHING**

SHEET 1 OF 2

REVISION E 18 SEP 1997

# LOCKNUT — FACE WRENCHING



TABLE I :

SIZE CODE	T THREAD	φ A +0.00 -0.05 [+0.00] [-0.13]	B +0.00 -0.10 [+0.00] [-0.25]	N	APPROX. WEIGHT PER 100 PCS LBS [Kg]
25	1.5625-16UNJ	1.876 [47.65]	.484 [12.29]	6	9.97 [4.52]
28	1.7500-16UNJ	2.137 [54.28]	.514 [13.06]	6	12.44 [5.64]
32	2.0000-16UNJ	2.411 [61.24]	.438 [11.13]	8	14.90 [6.76]
36	2.2500-16UNJ	2.683 [68.15]	.490 [12.45]	8	17.46 [7.92]
40	2.5000-16UNJ	2.955 [75.06]	.540 [13.72]	8	20.19 [9.16]
44	2.7500-16UNJ	3.225 [81.92]	.592 [15.04]	8	23.00 [10.43]
48	3.0000-16UNJ	3.493 [88.72]	.642 [16.31]	8	25.84 [11.72]
52	3.2500-16UNJ	3.761 [95.53]	.464 [11.79]	12	28.83 [13.08]
56	3.5000-16UNJ	4.027 [102.29]	.498 [12.65]	12	31.85 [14.42]
60	3.7500-16UNJ	4.291 [109.00]	.532 [13.51]	12	34.85 [15.81]
64	4.0000-16UNJ	4.555 [115.70]	.565 [14.35]	12	37.97 [17.22]
68	4.2500-16UNJ	4.816 [122.33]	.628 [15.95]	12	43.41 [19.69]

TABLE II :

CODE	MATERIAL
-	ALLOY STEEL, 4130 PER MIL-S-6758 OR AMS 6370, AMS 6371 (TUBING) F <sub>tu</sub> = 150 KSI MIN.
C	CRES A286 PER AMS5737

TABLE III :

CODE	FINISH
NO CODE	SILVER PLATE .0002 [0.05] MIN THICKNESS PER AMS 2411
N	NEDOX SF-2 ANTI-GALLANT COATING, .0002-.0006 [0.05-.015] THICKNESS ON ALL SURFACES. ( MFR GENERAL MAGNAPLATE )

TABLE IV · PERFORMANCE DATA

SIZE CODE	T THREAD	MAX LOCKING TORQUE		MIN LOCKING TORQUE	
		in-lb	N-m	in-lb	N-m
25	1.5625-16UNJ				
28	1.7500-16UNJ				
32	2.0000-16UNJ	765	[86]	110	[14]
36	2.2500-16UNJ	825	[93]	120	[14]
40	2.5000-16UNJ	890	[101]	135	[15]
44	2.7500-16UNJ	950	[107]	145	[16]
48	3.0000-16UNJ	1000	[113]	155	[18]
52	3.2500-16UNJ	1050	[119]	165	[19]
56	3.5000-16UNJ	1100	[124]	175	[20]
60	3.7500-16UNJ	1150	[130]	185	[21]
64	4.0000-16UNJ	1200	[136]	195	[22]
68	4.2500-16UNJ				

METRIC SIZES AVAILABLE ON REQUEST

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ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
PLATING AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT. 125 [3.2] ALL SURFACES  
TOLERANCES  
.XX .XXX ANGLES [X.X] [X.XX]  
±.03 ±.010 ±2° ±[0.8] ±[0.25]  
DIMENSIONS IN [ ] ARE MILLIMETERS

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**SHUR-LOK**

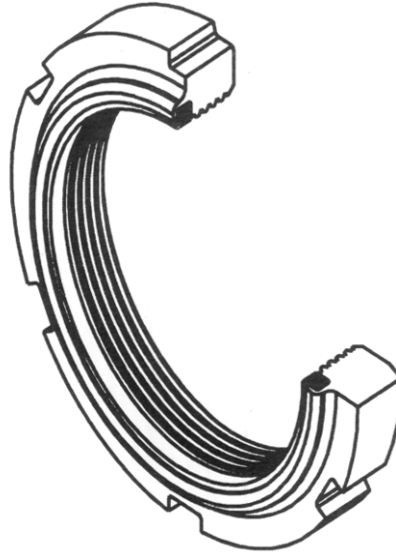
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PETIT-RECHAIN, BELGIUM  
TELEPHONE: (32) 87-32.07.11

**SL7501**

**LOCKNUT, BEARING  
FACE WRENCHING**

SHEET **2** OF **2**

REVISION (E) 18 SEP 1997



## (VESPEL) NON-METALLIC LOCK

### FEATURES AND BENEFITS

- ▶ Various wrenching options:
  - Slots
  - Holes
  - Hexagon
- ▶ Locking feature adaptable to various nut designs.
- ▶ Available in wide variety of materials and finishes.
- ▶ Qualified vespel material on various military programs.
- ▶ Does not externally trap dirt, debris, etc. (No slot or castellations).

### NOTATIONS

- ▶ Should not be used without a secondary lubricant.
- ▶ Not recommended for keyed (slotted) shafts.
- ▶ Max operating temperature 450°F.
- ▶ Locking feature performance is very sensitive to shaft variations.
- ▶ Seating torques will have a more damaging effect on reusability for vespel than on metallic locknuts.

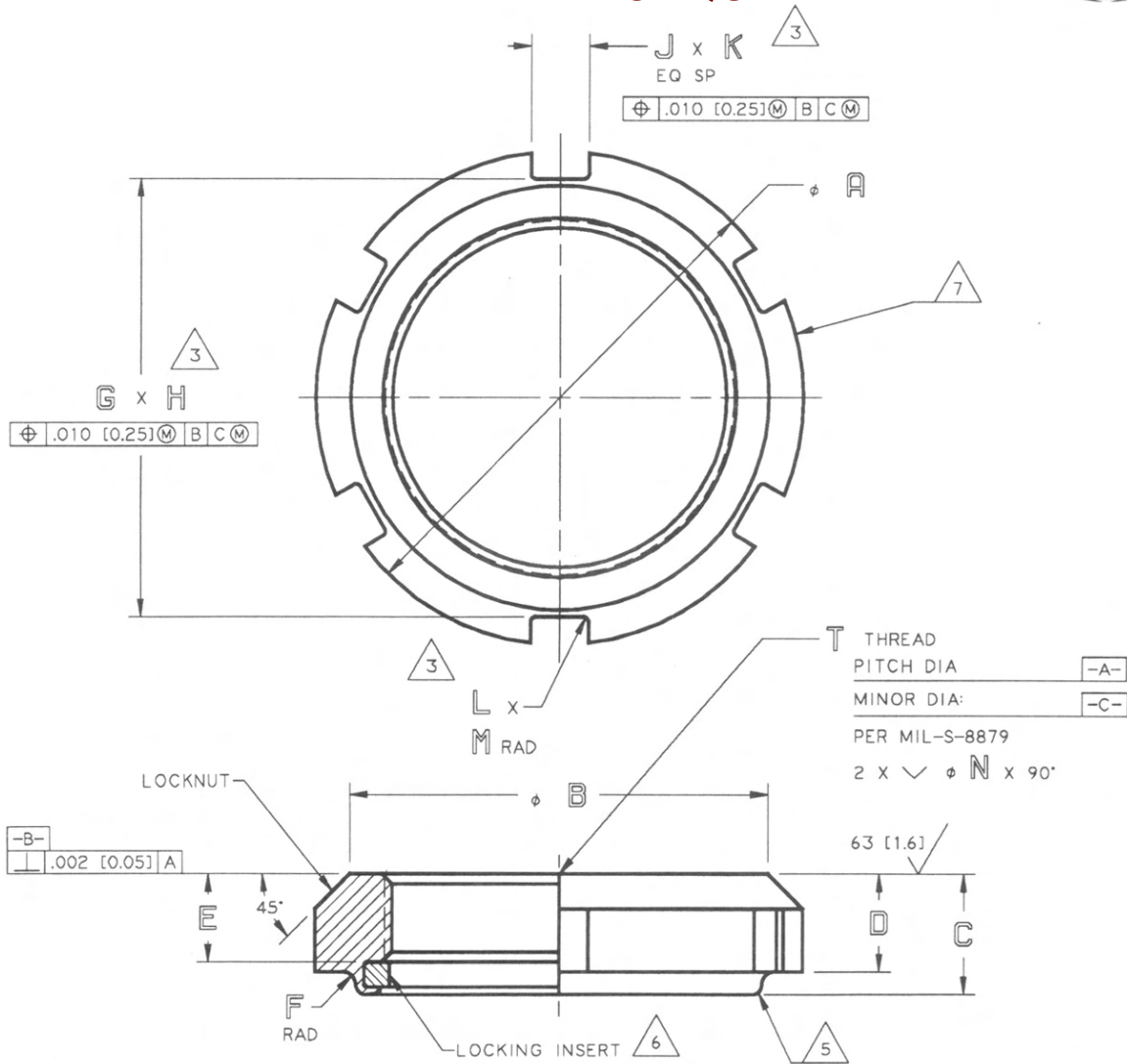
### THREAD SIZE

.250 inch and larger.

Metric sizes available on request.



# LOCKNUT — PREVAILING TORQUE



### NOTES:

- MAGNETIC PARTICLE INSPECT PER ASTM E1444 OR FLUORESCENT PENETRANT INSPECT PER ASTM E1417.
- ALL DIAMETERS  $\phi$  .005 [0.13] A
- SURFACE 250 [6.3] RMS IN AREA INDICATED.
- WHEN TESTED ON MANDREL WITH UNJ-3A THREADS PER MIL-S-8879 LUBRICATED WITH OIL PER MIL-L-7808 OR MIL-L-23699. TORQUE REQUIREMENTS PER TABLE III MUST BE MET.
- ABSENCE OF SILVER PLATE PERMITTED IN ROLLOVER AREA. ANY FLAKING REMOVED PRIOR TO SHIPMENT.
- SPLIT LOCKING MFG OPTION.
- PART NUMBER MARKED WITH SHUR-LOK PART NUMBER (LASER MARKING MFG OPTION) SPLIT MARKING PERMISSIBLE.
- CONSULT SHUR-LOK TECHNICAL SERVICES DEPARTMENT FOR OTHER MATERIALS, FINISHES AND SIZES.

### EXAMPLE OF PART CODING:

SL7515 EG 24  
 THD SIZE CODE SEE TABLE I  
 MATERIAL AND FINISH CODE SEE TABLE II  
 BASIC PART NO.

**METRIC SIZES AVAILABLE ON REQUEST**

REVISION (B) 18 SEP 1997

UNLESS OTHERWISE SPECIFIED  
 INTERPRET DIMENSIONS & TOLERANCES PER  
 ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
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 FILM LUBRICANT. 125 [3.2] ALL SURFACES  
 TOLERANCES  
 .XX .XXX ANGLES [X.X] [X.X.X]  
 ±.03 ±.010 ±2° ±[0.8] ±[0.25]  
 DIMENSIONS IN [ ] ARE MILLIMETERS

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**LOCKNUT — VESPEL LOCKING FEATURE**

**SL7515**

SHEET 1 OF 3

# LOCKNUT — PREVAILING TORQUE



TABLE I

SIZE CODE	T THREAD -16UNJ-3B	φA	φB	C ±.015 [±0.08]	D	E	F RAD	G	H	J	K	L	M RAD	φN
8	.5000	1.060 [26.92]	.782 [19.86]	.406 [10.31]	.326 [8.28]	.284 [7.21]	.050 [1.27]	2	.842 [21.39]	4	.125 [3.17]	8	.020 [0.51]	.530 [13.46]
14	.8750	1.439 [36.55]	1.157 [29.39]	.406 [10.31]	.326 [8.28]	.284 [7.21]	.050 [1.27]	2	1.217 [30.91]	4	.125 [3.17]	8	.020 [0.51]	.905 [22.99]
16	1.0000	1.565 [39.75]	1.282 [32.56]	.406 [10.31]	.326 [8.28]	.284 [7.21]	.050 [1.27]	2	1.342 [34.09]	4	.125 [3.17]	8	.020 [0.51]	1.030 [26.16]
18	1.1250	1.691 [42.95]	1.407 [35.74]	.406 [10.31]	.326 [8.28]	.284 [7.21]	.050 [1.27]	2	1.467 [37.26]	4	.125 [3.17]	8	.020 [0.51]	1.155 [29.34]
20	1.2500	1.818 [46.18]	1.532 [38.91]	.406 [10.31]	.326 [8.28]	.284 [7.21]	.050 [1.27]	2	1.592 [40.44]	4	.125 [3.17]	8	.020 [0.51]	1.280 [32.51]
22	1.3750	1.944 [49.38]	1.657 [42.09]	.406 [10.31]	.326 [8.28]	.284 [7.21]	.050 [1.27]	2	1.717 [43.61]	4	.125 [3.17]	8	.020 [0.51]	1.405 [35.69]
24	1.5000	2.070 [52.58]	1.782 [45.26]	.406 [10.31]	.326 [8.28]	.284 [7.21]	.050 [1.27]	3	1.842 [46.79]	6	.250 [6.35]	12	.020 [0.51]	1.530 [38.86]
25	1.5625	2.133 [54.18]	1.844 [46.84]	.406 [10.31]	.326 [8.28]	.284 [7.21]	.050 [1.27]	3	1.904 [48.36]	6	.250 [6.35]	12	.020 [0.51]	1.592 [40.44]
26	1.6250	2.196 [55.78]	1.907 [48.44]	.406 [10.31]	.326 [8.28]	.284 [7.21]	.050 [1.27]	3	1.967 [49.96]	6	.250 [6.35]	12	.020 [0.51]	1.655 [42.04]
28	1.7500	2.322 [58.98]	2.032 [51.61]	.406 [10.31]	.326 [8.28]	.284 [7.21]	.050 [1.27]	3	2.092 [53.14]	6	.250 [6.35]	12	.020 [0.51]	1.780 [45.21]
32	2.0000	2.575 [65.41]	2.282 [57.96]	.413 [10.49]	.333 [8.46]	.290 [7.37]	.050 [1.27]	3	2.342 [59.49]	6	.250 [6.35]	12	.020 [0.51]	2.030 [51.56]
36	2.2500	2.828 [71.83]	2.532 [64.31]	.425 [10.79]	.345 [8.76]	.302 [7.67]	.050 [1.27]	3	2.592 [65.84]	6	.250 [6.35]	12	.020 [0.51]	2.280 [57.91]
40	2.5000	3.080 [78.23]	2.781 [70.64]	.437 [11.10]	.357 [9.07]	.314 [7.98]	.050 [1.27]	3	2.841 [72.16]	6	.250 [6.35]	12	.020 [0.51]	2.530 [64.26]
44	2.7500	3.332 [84.63]	3.031 [76.99]	.450 [11.43]	.370 [9.40]	.328 [8.33]	.050 [1.27]	3	3.091 [78.51]	6	.250 [6.35]	12	.020 [0.51]	2.780 [70.61]
48	3.0000	3.585 [91.06]	3.281 [83.34]	.463 [11.76]	.383 [9.73]	.340 [8.64]	.050 [1.27]	4	3.341 [84.86]	8	.250 [6.35]	16	.020 [0.51]	3.030 [76.96]

TABLE II

ITEM	MATL CODE	MATERIAL	HEAT TREAT	FINISH
LOCKNUT	EG	ALLOY STEEL 4340 PER AMS6414 OR AMS6415	26-32 HRC PER MIL-H-6875	SILVER PLATE .0002 [0.05] MIN THICKNESS PER AMS2411 ON ALL SURFACES
	EK			BLACK OXIDE PER MIL-C-13924, CL1
	FM	CRES A286 PER AMS5737	140 KSI MIN	SILVER PLATE .0002 [0.05] MIN THICKNESS PER AMS2411 ON ALL SURFACES
LOCKING INSERT	—	VESPEL SP1 (DUPONT)	—	—

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PLATING AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT. 125 [3.2] ALL SURFACES

TOLERANCES  

.XX	.XXX	ANGLES	[X.X]	[X.X.X]
±.03	±.010	±2°	±[0.8]	±[0.25]

 DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK CORPORATION  
IRVINE, CALIFORNIA 92614  
TELEPHONE: (714) 474-6000

## SHUR-LOK

SHUR-LOK INTERNATIONAL, S.A.  
PETIT-RECHAIN, BELGIUM  
TELEPHONE: (32) 87-32.07.11

### LOCKNUT — VESPEL LOCKING FEATURE

# SL7515


SHEET **2** OF **3**

REVISION (B) 18 SEP 1997

# LOCKNUT —PREVAILING TORQUE



TABLE III: TORQUE PERFORMANCE

SIZE CODE	 MANDREL THREDS -16UN-J-3A PER MIL-S-8879	MAX INSTL TORQUE IN-LB [N.m]	MIN FIRST CYCLE BREAKAWAY TORQUE IN-LB [N.m]	MIN FIFTEENTH CYCLE BREAKAWAY TORQUE IN-LB [N.m]	MAX INSTALLATION AND MIN BREAKAWAY TORQUES TO BE MEASURED ON MANDRELS AS DEFINED BELOW					
					DIMENSIONS FOR MAX INSTALLATION TORQUE TEST MANDREL			DIMENSIONS FOR MIN BREAKAWAY TORQUE TEST MANDREL		
					MAJOR DIA	PITCH DIA	MINOR DIA	MAJOR DIA	PITCH DIA	MINOR DIA
8	.5000	120 [13.6]	20 [2.3]	10 [1.1]	5000 [12.700]	4576 [11.623]	4205 - 4278 [10.681] - [10.866]	.4906 [12.461]	4576 [11.623]	.4205 - 4278 [10.681] - [10.866]
14	.8750	370 [41.8]	75 [8.5]	35 [4.0]	8750 [22.225]	8326 [21.148]	.7954 - .8028 [20.203] - [20.391]	.8656 [21.986]	8326 [21.148]	.7954 - .8028 [20.203] - [20.391]
16	1.0000	480 [54.2]	95 [10.7]	45 [5.1]	10000 [25.400]	9575 [24.320]	.9203 - .9278 [23.376] - [23.566]	.9906 [25.161]	9575 [24.320]	.9203 - .9278 [23.376] - [23.566]
18	1.1250	610 [68.9]	125 [14.1]	60 [6.8]	11250 [28.575]	10825 [27.495]	1.0452 - 1.0528 [26.548] - [26.741]	1.1156 [28.336]	10825 [27.495]	1.0452 - 1.0528 [26.548] - [26.741]
20	1.2500	750 [84.7]	155 [17.5]	75 [8.5]	12500 [31.750]	12075 [30.670]	1.1702 - 1.1778 [29.723] - [29.916]	1.2406 [31.511]	12075 [30.670]	1.1702 - 1.1778 [29.723] - [29.916]
22	1.3750	910 [102.8]	185 [20.9]	90 [10.2]	13750 [34.925]	13324 [33.843]	1.2951 - 1.3028 [32.896] - [33.091]	1.3656 [34.686]	13324 [33.843]	1.2951 - 1.3028 [32.896] - [33.091]
24	1.5000	1085 [122.6]	220 [24.9]	110 [12.4]	15000 [38.100]	14574 [37.018]	1.4201 - 1.4278 [36.071] - [36.266]	1.4906 [37.861]	14574 [37.018]	1.4201 - 1.4278 [36.071] - [36.266]
25	1.5625	1175 [132.8]	240 [27.1]	120 [13.6]	15625 [39.688]	15199 [38.605]	1.4826 - 1.4903 [37.658] - [37.854]	1.5531 [39.449]	15199 [38.605]	1.4826 - 1.4903 [37.658] - [37.854]
26	1.6250	1270 [143.5]	260 [29.4]	130 [14.7]	16250 [41.275]	15824 [40.193]	1.5451 - 1.5528 [39.246] - [39.441]	1.6156 [41.036]	15824 [40.193]	1.5451 - 1.5528 [39.246] - [39.441]
28	1.7500	1475 [166.6]	300 [33.9]	150 [16.9]	17500 [44.450]	17074 [43.368]	1.6700 - 1.6778 [42.418] - [42.616]	1.7406 [44.211]	17074 [43.368]	1.6700 - 1.6778 [42.418] - [42.616]
32	2.0000	1930 [218.1]	395 [44.6]	195 [22.0]	20000 [50.800]	19574 [49.718]	1.9200 - 1.9278 [48.768] - [48.966]	1.9906 [50.561]	19574 [49.718]	1.9200 - 1.9278 [48.768] - [48.966]
36	2.2500	2440 [275.7]	500 [56.5]	250 [28.2]	22500 [57.150]	22074 [56.068]	2.1700 - 2.1778 [55.118] - [55.316]	2.2406 [56.911]	22074 [56.068]	2.1700 - 2.1778 [55.118] - [55.316]
40	2.5000	3015 [340.6]	620 [70.1]	310 [35.0]	25000 [63.500]	24574 [62.418]	2.4199 - 2.4278 [61.465] - [61.666]	2.4906 [63.261]	24574 [62.418]	2.4199 - 2.4278 [61.465] - [61.666]
44	2.7500	3645 [411.8]	750 [84.7]	375 [42.4]	27500 [69.850]	27074 [68.768]	2.6699 - 2.6778 [67.815] - [68.016]	2.7406 [69.611]	27074 [68.768]	2.6699 - 2.6778 [67.815] - [68.016]
48	3.0000	4340 [490.4]	895 [101.1]	445 [50.3]	30000 [76.200]	29573 [75.115]	2.9198 - 2.9278 [74.163] - [74.366]	2.9906 [75.961]	29573 [75.115]	2.9198 - 2.9278 [74.163] - [74.366]

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FILM LUBRICANT. 125 [3.2] ALL SURFACES  
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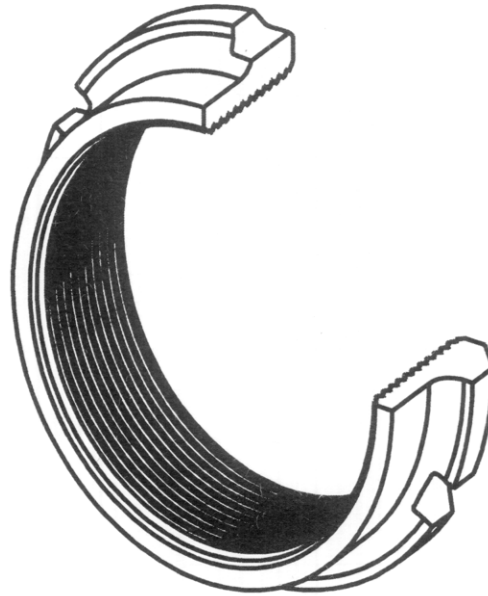
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### LOCKNUT - VESPEL LOCKING FEATURE

# SL 7515

SHEET **3** OF **3**

REVISION (B) 18 SEP 1997



## CRIMP LOCK

### FEATURES AND BENEFITS

- ▶ Proven and reliable locking feature.
- ▶ One piece design.
- ▶ Various wrenching options:
  - Slots
  - Holes
  - Hexagon
- ▶ High temperature capability (limited by material selected).
- ▶ High axial load capability.

### NOTATIONS

- ▶ Should not be used without a secondary lubricant.
- ▶ Locking feature may remove shaft plating.

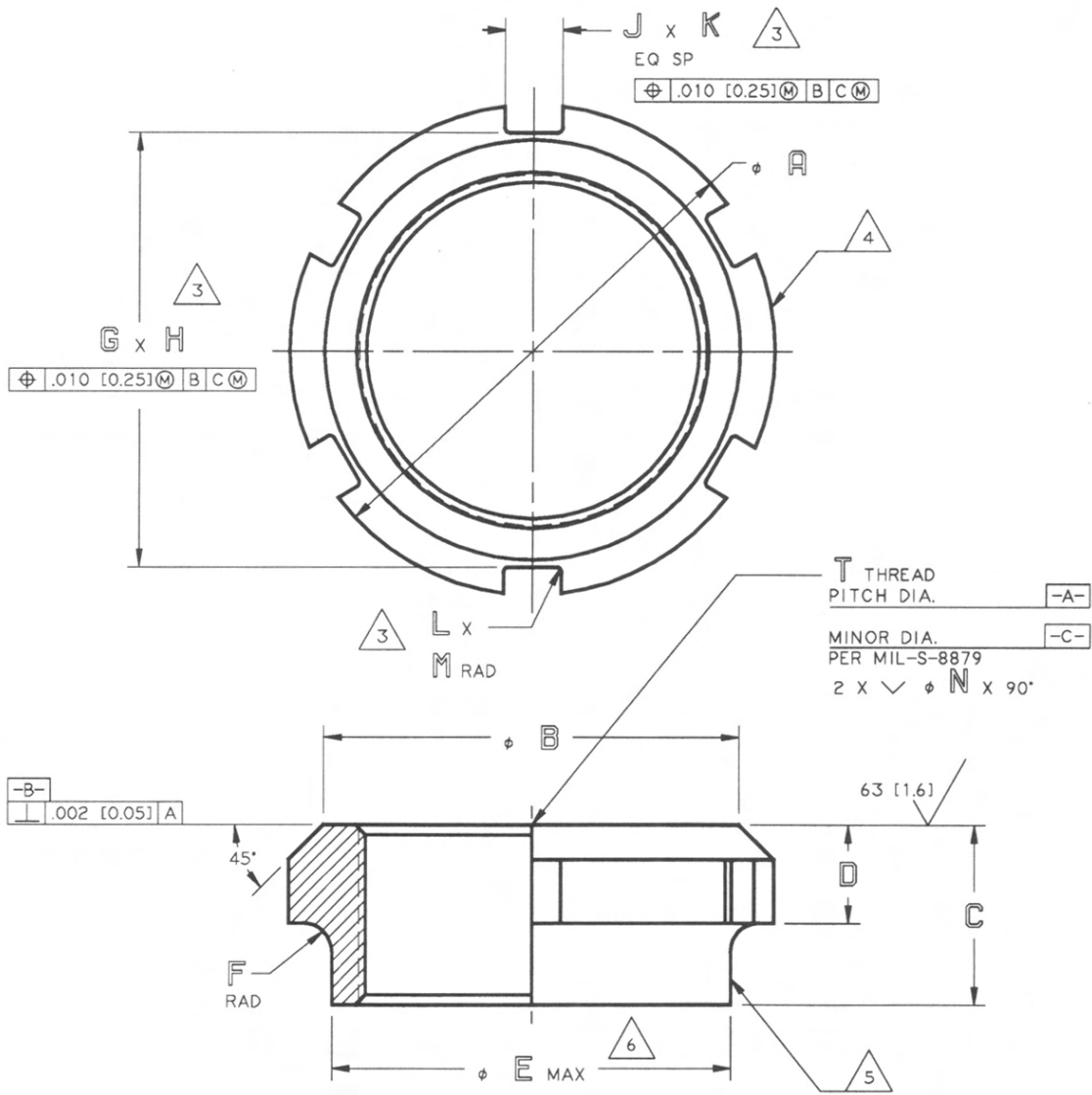
### THREAD SIZE

- ▶ .500 to 3.00 inch.

Metric sizes available on request.



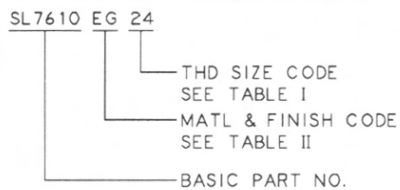
# LOCKNUT PREVAILING TORQUE



**NOTES:**

- MAGNETIC PARTICLE INSPECT PER ASTM E1444 FOR 4340 STEEL. FLUORESCENT PENETRANT INSPECT PER ASTM E1417 FOR A286 STEEL.
- ALL DIAMETERS  $\oplus \phi .005 [0.13] \text{M} A \text{M}$
- $\triangle 3$  SURFACE 250 [6.3] RMS IN AREA INDICATED.
- $\triangle 4$  PART MARKED WITH SHUR-LOK PART NUMBER (LASER MARKING MFG OPTION). SPLIT MARKING PERMISSIBLE.
- $\triangle 5$  THIS DIAMETER DEFORMED TO PROVIDE SELF LOCKING FEATURE. TOOL MARKS PERMISSIBLE.
- $\triangle 6$  NOTED DIMENSION IS PRIOR TO DEFORMATION FOR SELF LOCKING FEATURE.
- $\triangle 7$  ATTAIN TORQUE REQUIREMENTS PER TABLE III WHEN TESTED ON MANDREL WITH UNJ-3A THREADS PER TABLE III LUBRICATED WITH OIL PER MIL-L-7808 OR MIL-L-23699.
- CONSULT SHUR-LOK TECHNICAL SERVICES DEPARTMENT FOR OTHER MATERIALS, FINISHES AND SIZES.

**EXAMPLE OF PART CODING:**



METRIC SIZES AVAILABLE ON REQUEST

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 FILM LUBRICANT. 125 [3.2] ALL SURFACES

TOLERANCES  
 .XX .XXX ANGLES [X.X] [X.X.X]  
 $\pm .03 \pm .010 \pm 2^\circ \pm [0.8] \pm [0.25]$

DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK COPORATION  
 IRVINE, CALIFORNIA 92614  
 TELEPHONE: (714) 474-6000

**SHUR-LOK**

SHUR-LOK INTERNATIONAL, S.A.  
 PETIT-RECHAIN, BELGIUM  
 TELEPHONE: (32) 87-32.07.11

**LOCKNUT -  
METALLIC, SELF LOCKING**

**SL 7610**

SHEET 1 OF 3

REVISION (A) 18 SEP 1997



# LOCKNUT PREVAILING TORQUE



TABLE I

SIZE CODE	T THREAD -16UNJ-3B	φA	φB	C ±.015 [±0.38]	D	φE MAX	F RAD	G	H	J	K	L	M RAD	φN
8	.5000	1.060 [26.92]	.782 [19.86]	.546 [10.31]	.326 [8.28]	.665 [16.89]	.060 [1.52]	2	.842 [21.39]	4	.125 [3.17]	8	.020 [0.51]	.530 [13.46]
14	.8750	1.439 [36.55]	1.157 [29.39]	.546 [13.87]	.326 [8.28]	1.040 [26.42]	.060 [1.52]	2	1.217 [30.91]	4	.125 [3.17]	8	.020 [0.51]	.905 [22.99]
16	1.0000	1.565 [39.75]	1.282 [32.56]	.546 [13.87]	.326 [8.28]	1.165 [29.59]	.060 [1.52]	2	1.342 [34.09]	4	.125 [3.17]	8	.020 [0.51]	1.030 [26.16]
18	1.1250	1.691 [42.95]	1.407 [35.74]	.546 [13.87]	.326 [8.28]	1.290 [32.77]	.060 [1.52]	2	1.467 [37.26]	4	.125 [3.17]	8	.020 [0.51]	1.155 [29.34]
20	1.2500	1.818 [46.18]	1.532 [38.91]	.546 [13.87]	.326 [8.28]	1.415 [35.94]	.060 [1.52]	2	1.592 [40.44]	4	.125 [3.17]	8	.020 [0.51]	1.280 [32.51]
22	1.3750	1.944 [49.38]	1.657 [42.09]	.546 [13.87]	.326 [8.28]	1.540 [39.12]	.060 [1.52]	2	1.717 [43.61]	4	.125 [3.17]	8	.020 [0.51]	1.405 [35.69]
24	1.5000	2.070 [52.58]	1.782 [45.26]	.766 [19.46]	.326 [8.28]	1.730 [43.94]	.120 [3.05]	3	1.842 [46.79]	6	.250 [6.35]	12	.020 [0.51]	1.530 [38.86]
25	1.5625	2.133 [54.18]	1.844 [46.84]	.766 [19.46]	.326 [8.28]	1.795 [45.59]	.120 [3.05]	3	1.904 [48.36]	6	.250 [6.35]	12	.020 [0.51]	1.592 [40.44]
26	1.6250	2.196 [55.78]	1.907 [48.44]	.766 [19.46]	.326 [8.28]	1.855 [47.12]	.120 [3.05]	3	1.967 [49.96]	6	.250 [6.35]	12	.020 [0.51]	1.655 [42.04]
28	1.7500	2.322 [58.98]	2.032 [51.61]	.766 [19.46]	.326 [8.28]	1.990 [50.55]	.120 [3.05]	3	2.092 [53.14]	6	.250 [6.35]	12	.020 [0.51]	1.780 [45.21]
32	2.0000	2.575 [65.41]	2.282 [57.96]	.772 [19.61]	.333 [8.46]	2.230 [56.64]	.120 [3.05]	3	2.342 [59.49]	6	.250 [6.35]	12	.020 [0.51]	2.030 [51.56]
36	2.2500	2.828 [71.83]	2.532 [64.31]	.785 [19.94]	.345 [8.76]	2.480 [62.99]	.120 [3.05]	3	2.592 [65.84]	6	.250 [6.35]	12	.020 [0.51]	2.280 [57.91]
40	2.5000	3.080 [78.23]	2.781 [70.64]	.798 [20.27]	.357 [9.07]	2.730 [69.34]	.120 [3.05]	3	2.841 [72.16]	6	.250 [6.35]	12	.020 [0.51]	2.530 [64.26]
44	2.7500	3.332 [84.63]	3.031 [76.99]	.810 [20.57]	.370 [9.40]	2.980 [75.69]	.120 [3.05]	3	3.091 [78.51]	6	.250 [6.35]	12	.020 [0.51]	2.780 [70.61]
48	3.0000	3.585 [91.06]	3.281 [83.34]	.825 [20.96]	.383 [9.73]	3.230 [82.04]	.120 [3.05]	4	3.341 [84.86]	8	.250 [6.35]	16	.020 [0.51]	3.030 [76.96]

TABLE II

MATL CODE	MATERIAL	HEAT TREAT	FINISH
EG	ALLOY STEEL 4340 PER AMS 6414 OR AMS 6415	26-32 HRC PER MIL-H-6875	SILVER PLATE .0002 [.005] MIN THICKNESS PER AMS 2411 ON ALL SURFACES
FM	CRES A286 PER AMS 5737	140 KSI MIN	SILVER PLATE .0002 [.005] MIN THICKNESS PER AMS 2411 ON ALL SURFACES

METRIC SIZES AVAILABLE ON REQUEST

UNLESS OTHERWISE SPECIFIED  
INTERPRET DIMENSIONS & TOLERANCES PER  
ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
PLATING AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT. 125 [3.2] ALL SURFACES  
TOLERANCES  
XX .XXX ANGLES [X.X] [X.X.X]  
±.03 ±.010 ±2° ±[0.8] ±[0.25]  
DIMENSIONS IN [ ] ARE MILLIMETERS

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### LOCKNUT - METALLIC, SELF LOCKING

# SL7610

SHEET **2** OF **3**

REVISION A 18 SEP 1997

# LOCKNUT PREVAILING TORQUE



TABLE III: TORQUE PERFORMANCE

SIZE CODE	MANDREL THREADS -16UNJ-3A PER MIL-S-8879  7	MAX INSTL TORQUE IN-LB [N.m]	MIN FIFTEENTH CYCLE BREAKAWAY TORQUE IN-LB [N.m]	MAX INSTALLATION AND MIN BREAKAWAY TORQUES TO BE MEASURED ON MANDRELS AS DEFINED BELOW					
				DIMENSIONS FOR MAX INSTALLATION TORQUE TEST MANDREL			DIMENSIONS FOR MIN BREAKAWAY TORQUE TEST MANDREL		
				MAJOR DIA	PITCH DIA	MINOR DIA	MAJOR DIA	PITCH DIA	MINOR DIA
				+0.0000 -0.0005 [+0.0000] [-0.013]	+0.0000 -0.0005 [+0.0000] [-0.013]		+0.0005 -0.0000 [+0.013] [-0.0000]	+0.0005 -0.0000 [+0.013] [-0.0000]	
8	.5000	450 [50.8]	50 [5.6]	.5000 [12.700]	.4594 [11.669]	.4205 - .4278 [10.681] - [10.866]	.4906 [12.461]	.4559 [11.580]	.4205 - .4278 [10.681] - [10.866]
14	.8750	530 [59.9]	64 [7.2]	.8750 [22.225]	.8344 [21.194]	.7954 - .8028 [20.203] - [20.391]	.8656 [21.986]	.8308 [21.285]	.7954 - .8028 [20.203] - [20.391]
16	1.0000	560 [63.3]	70 [7.9]	1.0000 [25.400]	.9594 [24.369]	.9203 - .9278 [23.376] - [23.566]	.9906 [25.161]	.9557 [24.275]	.9203 - .9278 [23.376] - [23.566]
18	1.1250	585 [66.1]	75 [8.5]	1.1250 [28.575]	1.0844 [27.544]	1.0452 - 1.0528 [26.548] - [26.741]	1.1156 [28.336]	1.0807 [27.450]	1.0452 - 1.0528 [26.548] - [26.741]
20	1.2500	615 [69.5]	80 [8.5]	1.2500 [31.750]	1.2094 [30.719]	1.1702 - 1.1778 [29.723] - [29.916]	1.2406 [31.511]	1.2056 [30.622]	1.1702 - 1.1778 [29.723] - [29.916]
22	1.3750	640 [72.3]	85 [9.6]	1.3750 [34.925]	1.3344 [33.894]	1.2951 - 1.3028 [32.896] - [33.091]	1.3656 [34.686]	1.3306 [33.797]	1.2951 - 1.3028 [32.896] - [33.091]
24	1.5000	690 [78.0]	90 [10.2]	1.5000 [38.100]	1.4594 [37.069]	1.4201 - 1.4278 [36.071] - [36.266]	1.4906 [37.861]	1.4555 [36.970]	1.4201 - 1.4278 [36.071] - [36.266]
25	1.5625	715 [80.8]	93 [10.5]	1.5625 [39.688]	1.5219 [38.656]	1.4826 - 1.4903 [37.658] - [37.854]	1.5531 [39.449]	1.5180 [38.557]	1.4826 - 1.4903 [37.658] - [37.854]
26	1.6250	740 [83.6]	95 [10.7]	1.6250 [41.275]	1.5844 [40.244]	1.5451 - 1.5528 [39.246] - [39.441]	1.6156 [41.036]	1.5805 [40.145]	1.5451 - 1.5528 [39.246] - [39.441]
28	1.7500	790 [89.3]	100 [11.3]	1.7500 [44.450]	1.7094 [43.419]	1.6700 - 1.6778 [42.418] - [42.616]	1.7406 [44.211]	1.7054 [43.317]	1.6700 - 1.6778 [42.418] - [42.616]
32	2.0000	885 [100.0]	110 [12.4]	2.0000 [50.800]	1.9594 [49.769]	1.9200 - 1.9278 [48.768] - [48.966]	1.9906 [50.561]	1.9554 [49.667]	1.9200 - 1.9278 [48.768] - [48.966]
36	2.2500	980 [110.7]	120 [13.6]	2.2500 [57.150]	2.2094 [56.119]	2.1700 - 2.1778 [55.118] - [55.316]	2.2406 [56.911]	2.2053 [56.015]	2.1700 - 2.1778 [55.118] - [55.316]
40	2.5000	1075 [121.5]	135 [15.3]	2.5000 [63.500]	2.4594 [62.469]	2.4199 - 2.4278 [61.465] - [61.666]	2.4906 [63.261]	2.4553 [62.365]	2.4199 - 2.4278 [61.465] - [61.666]
44	2.7500	1175 [132.8]	145 [16.4]	2.7500 [69.850]	2.7094 [68.819]	2.6699 - 2.6778 [67.815] - [68.016]	2.7406 [69.611]	2.7053 [68.720]	2.6699 - 2.6778 [67.815] - [68.016]
48	3.0000	1300 [146.9]	155 [17.5]	3.0000 [76.200]	2.9594 [75.169]	2.9198 - 2.9278 [74.163] - [74.366]	2.9906 [75.916]	2.9552 [75.062]	2.9198 - 2.9278 [74.163] - [74.366]

METRIC SIZES AVAILABLE ON REQUEST

UNLESS OTHERWISE SPECIFIED  
INTERPRET DIMENSIONS & TOLERANCES PER  
ANSI Y14.5M. ALL DIMENSIONS APPLY AFTER  
PLATING AND PRIOR TO THE ADDITION OF SOLID  
FILM LUBRICANT. 125 [3.2] ALL SURFACES  
TOLERANCES  
XX .XXX ANGLES [X.X] [X.X.X]  
±.03 ±.010 ±2° ±[0.8] ±[0.25]  
DIMENSIONS IN [ ] ARE MILLIMETERS

SHUR-LOK CORPORATION  
IRVINE, CALIFORNIA 92614  
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SHUR-LOK

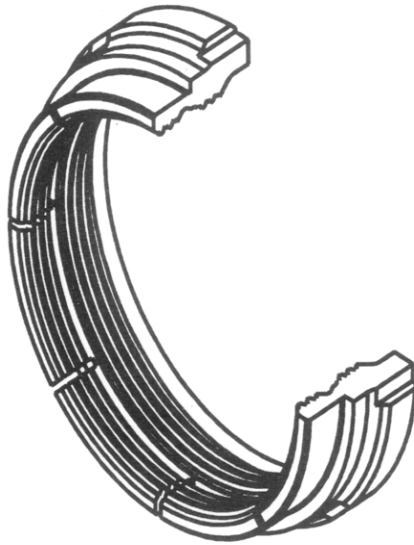
SHUR-LOK INTERNATIONAL, S.A.  
PETIT-RECHAIN, BELGIUM  
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LOCKNUT -  
METALLIC, SELF LOCKING

SL 7610

SHEET **3** OF **3**

REVISION (A) 18 SEP 1997



## SEGMENTED LOCK

### FEATURES AND BENEFITS

- ▶ One piece design.
- ▶ Various wrenching options:
  - Slots
  - Holes
  - Hexagon
- ▶ High temperature capability (limited by material selected).
- ▶ Locking feature adaptable to various nut designs.
- ▶ 50 cycle reusability capable with proper plating and use of lubricants.
- ▶ Locking feature less sensitive to high seating torque.
- ▶ Comparatively higher axial load capability.

### NOTATION

- ▶ May be affected by extreme RPM.
- ▶ Should not be used without a secondary lubricant.

### THREAD SIZE

- ▶ 1.250 inch and larger.

**Metric sizes available on request.**

**APPENDIX B**  
**INTERNATIONAL SPECIFICATIONS FOR STEELS**

USA	FRANCE	EUROPE		GERMANY	GREAT BRITAIN	COMMERCIAL SPECIFICATION
		AECMA	EN			
<b>STAINLESS STEELS</b>						
303	Z10CNF18.09			1.4305		
304	Z6CN18.09			1.4301		
(AISI 431) MIL-S-18732	Z15CN17-03 AIR9160	FE-PM 42	2136	1.4044	5S80	A.P.X.
	Z8CND17.04 AIR9160					A.P.X. 4
15-5 PH AMS 5659		FE-PM 64		1.4546		
17-4 PH AMS 5643	Z6CNU17-0 4 AIR9160	FE-PM 61		1.4548		X17U4
17-7 PH MIL-S-25043						
13-8 MO AMS 5629				1.4534		
		FE-PM 66	prEN 2506		2S 145	
A 286 AMS 5737 (Bars), AMS 5525(Tubes)	E-Z6NCT25 AIR9165	FE-PA 92 HT	prEN 2303 prEN 2304	1.4944 (Bars)	BSHR51 DTD 5076	
INCONEL 718 AMS 5662	NC19FeNb AIR9165	NI-P 100 HT	prEN 2404 prEN 2405	2.4668		
<b>STRUCTURAL STEELS</b>						
	30NCD16 AIR9160					
	E30NCD16 AIR9160					
(SAE 4135)	35CD4 AIR 9160	FE-PL 45		1.7220	708H37 ?	
	35NCD16 AIR9160					
	E35NCD16 AIR9160					
SAE 4140 MIL-S-5626	40CD4 AIR9160					
SAE4130 MIL-S-6758 (Bars) MLS-1872 9(Tubes)	25CD4S AIR9160	FE-PL 43S	2206	1.7214	S-142(Bars) S-534 (Tubes)	
SAE 4340 MIL-S-8844 AMS 6414	(40NCD7) AIR9160			1.6944	817M40? 3S99 ?	
<b>MACHINING STEELS</b>						
				1.0737		9SMnPb36
				1.0726		35S20