



ANSI/ABMA 8.2:1999 (Stabilized Maintenance 2010)

# AMERICAN NATIONAL STANDARD

***Accredited Standards  
Committee B3***



## Ball And Roller Mounting Accessories Inch Design ANSI/ABMA 8.2:1999



Secretariat

American Bearing  
Manufacturers Association

ANSI/ABMA 8.2:1999

Reaffirmed 2008  
Stabilized Maintenance 2010



**ABMA**  
*American Bearing Manufacturers Association*

ABMA  
2025 M Street, NW  
Suite 800  
Washington, DC 20036  
Ph: 202-367-1155  
Fax: 202-367-2155  
E-mail: [info@americanbearings.org](mailto:info@americanbearings.org)  
[www.americanbearings.org](http://www.americanbearings.org)

## **AMERICAN NATIONAL STANDARD**

### **(This is not an approved part of the standard)**

Approval of an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus means substantial agreement has been reached by directly and materially affected interests. This signifies the concurrence of more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that an effort be made toward their resolution.

The use of an American National Standard is completely voluntary; their existence does not in any respect preclude anyone, whether they approved the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat of the sponsor whose name appears on the title page of this standard.

**CAUTION NOTICE:** This American National Standard may be revised or withdrawn at any time.

**This standard is maintained under stabilized maintenance and will be reviewed by Accredited Standards Committee B3 on a 10-year cycle. Any materially affected and interested party that feels this standard should be revised or withdrawn should submit their rationale for revision or withdrawal to the B3 Secretariat at the address below.**

Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute or online at [www.ANSI.org](http://www.ANSI.org).

Published by

American Bearing Manufacturers Association  
2025 M Street, N.W., Suite 800  
Washington, DC 20036  
Copyright © 2011 by American Bearing Manufacturers Association

All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior written permission of the publisher.

Printed in the United States of America

BALL AND ROLLER  
MOUNTING ACCESSORIES  
INCH DESIGN

Section	Contents	Page
1. Scope	.....	1
2. Identification code	.....	1
3. General specifications	.....	7
4. Locknuts and removal nuts – Dimensions	.....	8
5. Lockwashers and lockplates – Dimensions	.....	14
6. Adapter sleeves and withdrawal sleeves – Dimensions	.....	20
7. Shafts – Dimensions	.....	32
8. Adapter assembly part numbers, and withdrawal sleeve and removal nut selection	.....	38
9. Tolerance limits	.....	41
Appendix - Thread specifications	.....	A1
List of Tables	.....	iv



## LIST OF TABLES

Table No.	Title	Page
	<b>Dimensions</b>	
4.1	Locknut dimensions series N-00, AN-00, TN and TAN	
	Part 1 - Dimensions shown in mm.....	8
	Part 2 - Dimensions shown in inches.....	9
4.2	Locknut dimensions series N-000	
	Part 1 - Dimensions shown in mm .....	10
	Part 2 - Dimensions shown in inches .....	11
4.3	Removal nut dimensions Series RN and ARN	
	Part 1 - Dimensions shown in mm .....	12
	Part 2 - Dimensions shown in inches .....	13
5.1	Lockwasher dimensions series W-00 and W-000	
	Part 1 - Dimensions shown in mm .....	14
	Part 2 - Dimensions shown in inches .....	15
5.2	Lockwasher dimensions series TW-000 and WH-00	
	Part 1 - Dimensions shown in mm .....	16
	Part 2 - Dimensions shown in inches .....	17
5.3	Lockplate dimensions series P-000	
	Part 1 - Dimensions shown in mm .....	18
	Part 2 - Dimensions shown in inches .....	19
6.1	Adapter sleeve dimensions series S-00 and S-100	
	Part 1 - Dimensions shown in mm .....	20
	Part 2 - Dimensions shown in inches .....	21
6.2	Adapter Sleeve dimensions series S-3000, S-3100 and S-3200	
	Part 1 - Dimensions shown in mm .....	22
	Part 2 - Dimensions shown in inches .....	23
6.3	Withdrawal sleeve dimensions series SK-00, ASK-00 and SK-2200	
	Part 1 - Dimensions shown in mm .....	24
	Part 2 - Dimensions shown in inches .....	25
6.4	Withdrawal sleeve dimensions series SK-100 and ASK-100	
	Part 1 - Dimensions shown in mm .....	26
	Part 2 - Dimensions shown in inches .....	27
6.5	Withdrawal sleeve dimensions series SKX-00 and ASKX-00	
	Part 1 - Dimensions shown in mm .....	28
	Part 2 - Dimensions shown in inches .....	29
6.6	Withdrawal sleeve dimensions series XX-100 and ASKX-100	
	Part 1 - Dimensions shown in mm .....	30
	Part 2 - Dimensions shown in inches .....	31
7.1	Shaft dimensions for locknuts series N-00 and AN-00	
	Part 1 - Dimensions shown in mm .....	32
	Part 2 - Dimensions shown in inches .....	33
7.2	Shaft dimensions for locknuts series N-00, TN and TAN (for tapered roller bearings)	
	Part 1 - Dimensions shown in mm .....	34
	Part 2 - Dimensions shown in inches .....	35

LIST OF TABLES

Table No.	Title	Page
7.3	Shaft dimensions for locknuts series N-000	
	Part 1 - Dimensions shown in mm .....	36
	Part 2 - Dimensions shown in inches .....	37
<b>Adapter assembly part numbers, and withdrawal sleeve and removal nut selection</b>		
8.1	Adapter assembly part numbers for series 30, 31, 02, and 22.....	38
8.2	Adapter assembly part numbers for series 32, 03, and 23.....	39
8.3	Withdrawal sleeve and removal nut selection.....	40
<b>Tolerance Limits</b>		
9.1	Locknuts and removal nuts - Dimension tolerances	
	Part 1 - Dimensions shown in mm .....	41
	Part 2 - Dimensions shown in inches .....	41
9.2	Chamfer face runout and nut width variation	
	Part 1 - Dimensions shown in mm .....	42
	Part 2 - Dimensions shown in inches .....	42
9.3	Adapter sleeve - Dimension tolerances	
	Part 1 - Dimensions shown in mm .....	43
	Part 2 - Dimensions shown in inches .....	43
9.4	Adapter sleeve wall thickness variation tolerances	
	Part 1 - Dimensions shown in mm .....	43
	Part 2 - Dimensions shown in inches .....	43
9.5	Withdrawal sleeves - All series	
	Part 1 - Dimensions shown in mm .....	44
	Part 2 - Dimensions shown in inches .....	44
<b>Appendix</b>		
A-1	Tolerance limits – Lockwashers.....	A2
A-2	Thread dimensions K, threads, Unified Form Special – Internal.....	A3
A-3	Thread dimensions K, threads, Unified Form Special – External.....	A4
A-4	Thread dimensions M, threads, Acme Class 3G, General Purpose.....	A5
Figure A1	Thread form, K, threads.....	A6
Figure A2	Thread form, M, threads.....	A7

# **BALL AND ROLLER BEARING MOUNTING ACCESSORIES INCH DESIGN**

## **1. Scope**

Mounting accessories covered in this standard are commonly used for the location or fixing of ball and roller bearings to the shaft of a machine or mechanism. The purpose of the standard is to establish dimensions and minimum physical properties of these components consistent and compatible with ABMA and ANSI Standards relating to ball and roller bearings. Products manufactured in accordance with this standard will fulfill the expected function when used with properly-designed shafts. This standard covers:

**1.1 Locknuts and removal nuts** - Locknuts and removal nuts for ball bearings, cylindrical, spherical, and tapered roller bearings.

**1.2 Locking devices** - Lockwashers and lockplates for ball bearings, cylindrical, spherical and tapered roller bearings.

**1.3 Mounting sleeves** - Adapter sleeves and withdrawal sleeves, for ball bearings and spherical roller bearings.

**1.4 Shaft dimensions** - Required dimensions for threads, keyways, and reliefs for shafts.

**1.5 General information** - Symbols, definitions, part numbers, materials, tolerances, and threads.

## **2. Identification code**

### **2.1 Definitions**

#### **2.1.1 Locknuts and removal nuts**

**2.1.1.1 Bearing locknut** - A fastener with internal threads utilized to secure and/or position the inner ring of a rolling element bearing to a shaft or mounting sleeve. (Some sizes may be used as removal nuts.)

**2.1.1.2 Removal nut** - A fastener with internal threads utilized to facilitate disassembly of a bearing from the withdrawal sleeve.

**2.1.1.3 Face runout** - A dimensional characteristic denoting total indicator reading at the locknut chamfer face while locknut is rotated one revolution on the axis of its threaded pitch diameter. Also denoted as squareness of the face with thread.

**2.1.1.4 Locknut slot** - Slots are provided on the outer diameter of locknuts and removal nuts. These slots aid in tightening with a spanner wrench or other types of turning tools and permit locking of the nut in final position, except on larger locknuts utilizing lockplates rather than lockwashers.

**2.1.1.5 Chamfer face** - The locknut face adjoining large O.D. chamfer, the face normally positioned against lockwasher or bearing.

**2.1.1.6 Face parallelism** - A term defining the parallel relationship between the chamfer face of the locknut and the opposite face of locknut.

## 2.1.2 Locking devices

**2.1.2.1 Lockwasher** - A washer used in conjunction with bearing locknut to maintain in locking engagement the adjusted or tightened position of a bearing locknut with respect to the shaft or mounting sleeve. A washer key tang projects from the lockwasher bore, to engage a key slot in the shaft or mounting sleeve. The O.D. periphery of the lockwasher is provided with a quantity of tangs, one of which is bent down into a locknut slot to provide the locking of the mounting system.

**2.1.2.2 Key tang** - The tang projecting inwardly from the bore of lockwasher is designed to engage with a shaft or mounting sleeve key slot. The key tang is either bent at 90° to one face of lockwasher or is straight, depending on type of lockwasher.

**2.1.2.3 Locking tang** - A tang on outer periphery of lockwasher, which engages with a locknut slot. A quantity of equally-spaced tangs is provided, with an appropriate single tang bent into engagement with a locknut slot to complete locking of system.

**2.1.2.4 Lockplate** - A locking device bolted to the face of large inch designed locknuts after final positioning of the locknut on shaft or mounting sleeve. The lockplate is a flat stamped metal plate with a projecting key for engagement with shaft or mounting sleeve key slot. Two holes at appropriate spacing mate with drilled and tapped holes on the exposed face of locknut.

## 2.1.3 Mounting sleeves

**2.1.3.1 Adapter sleeve** - A sleeve utilized for mounting of a tapered bore bearing to a straight shaft. The sleeve has a tapered O.D. for engagement with a tapered bore bearing, and a threaded O.D. end portion for a bearing locknut. The adapter sleeve is pulled into the tapered bearing bore by tightening the locknut. Compression of the sleeve by the tapered engagement results in tightening of the slotted adapter sleeve to the straight shaft.

**2.1.3.2 Adapter assembly** - An assembly consisting of the adapter sleeve, the appropriate locknut and a lockwasher or lockplate (larger sizes utilize a lockplate). The assembly of lockplate type includes two cap screws and lock wire.

**2.1.3.3 Withdrawal sleeve** - A sleeve utilized for the mounting of tapered bore bearings to a cylindrical shaft and to facilitate disassembly. The sleeve has a tapered O.D. for engagement with a tapered bore bearing and a threaded O.D. end portion for a bearing removal nut. The installation of a bearing with a withdrawal sleeve requires a threaded and shouldered shaft design whereby the bearing is located against a shaft shoulder and the withdrawal sleeve is forced into the space between bearing bore and shaft seat, small end first, by tightening a locknut on the threaded portion of shaft.

## 2.2 Part numbers

**2.2.1 Part numbering systems** - The explanation of the part numbers for bearing mounting accessories is divided into two sections: one for individual components including locknuts, removal nuts, lockwashers, lockplates, and adapter sleeves; the other for adapter sleeve assemblies. Within their own type, bearing mounting accessories are grouped into series. Each series number and each part number in the series has a prefix letter. An explanation of the prefix letters and a description of the various series of mounting accessories contained in this standard follow:



### 2.2.1.1 Prefix letters

Prefix	Type of accessory	Explanation
AN	Locknut	Amer. Std. threads*
N	Locknut	Amer. Std. or Acme threads
P	Lockplate	
RN	Removal nut	
ARN		
S	Adapter sleeve	
ASK	Withdrawal sleeve	
ASKX		
SK	Withdrawal sleeve	
SKX		
TAN		Amer. Std. threads (for tapered roller bearings)
TN	Locknut	Key tang bent in under the locknut and material thickness greater than the W lockwasher
TW	Lockwasher	
WH		
W	Lockwasher	Key tang bent away from the locknut, or flat

\* Locknut sizes AN-15 through AN-30 were originally made with 11 pitch threads and numbered N-15 through N-30. The 11 pitch thread nuts were discontinued and replaced by the 12 pitch thread nuts and numbered AN- 15 through AN-30.

### 2.2.1.2 Series numbers

#### 2.2.1.2.1 Locknuts and removal nuts

Part number	Series	Description
N-00 to N-44	N-00	Normal series
AN-15 to AN-40	AN-00	Normal series
N-022 to N-950	N-000	Low profile series
ARN22 to ARN26	ARN	Removal nut
RN10 to RN64	RN	Removal nut
TN-065 to TN-14	TN	
TAN-15 to TAN-140	TAN	



**2.2.1.2.2 Locking Devices**

**2.2.1.2.2.1 Lockwashers**

Part number	Series	Description
TW-100 to TW-140	TW	Thick series – inner key tang bent toward locknut
WH-00 to WH-40	WH	Same as TW-100 to TW-140
W-00 to W-44	W-00	Thin series – inner key tang bent away from locknut
W-022 to W-044	W-000	Straight key tang

**2.2.1.2.2.2 Lockplates**

Part number	Series	Description
P-48 to P-950	P-000	

**2.2.1.2.2.3 Mounting Sleeves**

Part number	Series	Description (for bearing series)
S-04 to S-52	S-00	31, 02, 22, 03
S-104 to S-152	S-100	23, 32
S-3024 to S-30/950	S-3000	30
S-3156 to S-31/850	S-3100	31
S-3256 to S-32/750	S-3200	32
SK-8 to SK-64	SK-00	22
ASK-13 to ASK-26	ASK-00	22
SK-2215 to SK-2216	SK-2200	22
SK-108 to SK-156	SK-100	23
ASK-113 to ASK-124	ASK-100	23
SKX-10 to SKX-64	SKX-00	22
ASKX-22 to ASKX-26	ASKX-00	22
SKX-110 to SKX-156	SKX-100	23
ASKX-122 to ASKX-126	ASKX-100	23

## 2.3 Symbols

### 2.3.1 Locknuts and removal nuts

Symbol	Applicable characteristics
A	Reference notation for relation of two or more characteristics
C	Outside diameter
D	Nut width
d	Thread major diameter
E	Face diameter
G	Slot width
H	Slot depth
K <sub>1</sub>	Thread designation - Unified Special Form (# threads per inch)
M <sub>1</sub>	Thread designation - Acme Class 3G, General purpose (# threads per inch)
S <sub>d</sub>	Chamfer face runout, or squareness of face with thread
S <sub>1</sub>	Tap depth for lockplate cap screw
T <sub>1</sub>	Tap size for lockplate cap screw
Y	Bolt circle diameter (where applicable)
D <sub>1</sub>	Chamfer depth
L <sub>1</sub>	Counterbore depth
U	Counterbore diameter
V <sub>ds</sub>	Nut width variation (parallelism)

### 2.3.2 Locking devices

#### 2.3.2.1 Lockwashers

Symbol	Applicable characteristics
B	Diameter over locking tangs
E	Face diameter (not including outer tangs)
Q	Lockwasher material thickness
R	Inside diameter or bore
S	Key tang width
T	Locking tang width
V	Key tang projection
X	Inside dimension to key tang
K	Centerline to key tang top outer

### 2.3.2.2 Lockplates

Symbol	Applicable characteristics
A <sub>1</sub>	Lockplate height at key
B <sub>1</sub>	Lockplate height above key
C <sub>1</sub>	Distance between cap screw hole centers
D <sub>1</sub>	Lockplate height at end
E <sub>1</sub>	Cap screw hole distance from top edge of plate
F <sub>1</sub>	Key location from large end of plate
G <sub>1</sub>	Key width
J <sub>2</sub>	Cap screw size
K <sub>2</sub>	Hole size for cap screw
L <sub>2</sub>	Length of lockplate
M <sub>2</sub>	Cap screw hole location from large end of lockplate
Q <sub>1</sub>	Lockplate thickness

### 2.3.3 Mounting sleeves

#### 2.3.3.1 Adapter sleeves

Symbol	Applicable characteristics
A	Diameter large end of adapter taper (sharp corner)
B	Thread major diameter
K <sub>1</sub>	Number of threads per inch
d	Bore diameter
F	Slot width
G	Thread length, including relief
L	Sleeve length
P	Slot width (where applicable)
T	Slot depth (where applicable)
V	Wall thickness variation with respect to bore in a single radial plane

#### 2.3.3.2 Withdrawal sleeves

Symbol	Applicable characteristics
A	Diameter small end of bearing inner ring taper (sharp corner)
B	Thread major diameter
C	Undercut width
D <sub>1</sub>	Undercut diameter
K <sub>1</sub>	Number of threads per inch
d	Bore diameter
F	Slot width
G	Thread length, excluding relief
L	Sleeve length
S	Standoff on small end from bearing face
V	Wall thickness variation with respect to bore in a single radial plane



### 3. General specifications

#### 3.1 Materials

**3.1.1 Locknuts, removal nuts, lockplates and mounting sleeves** - Shall be made of ferrous material such as forgings, compressed powder, castings, hot rolled and cold drawn bars or tubing, except leaded steel. Regardless of chemistry or process method, the physical characteristics shall meet a minimum hardness 55 HRB, minimum tensile strength 345 MPa (50,000 psi), minimum yield strength 172 MPa (25,000 psi), and minimum elongation 10% for all materials, except cast material shall be minimum elongation 7%. Any deviation from the mentioned specifications must be with a full understanding between the supplier and the user, and the nut, plate or sleeve shall be significantly marked.

**3.1.2 Lockwasher** - Shall be made of ferrous material that when heat treated to “full anneal” will permit a tang to be bent back without fracture, either against or with the grain, on a radius equal to one-half the stock thickness.

#### 3.2 Tolerances

**3.2.1 Dimensional tolerances** - Tolerance Tables are provided for Adapter Sleeves, Locknuts, Withdrawal Sleeves, and Lockwashers. Tolerances are not provided for all dimensional characteristics, as those not provided are essentially noncritical and not an appropriate part of this standard. It is expected such characteristics will be controlled in accordance with good manufacturing practice. As a guideline, undesignated tolerances are suggested at 0.51 mm (0.020”) or 0.4% of the dimension value, whichever is greater.

**3.2.2 Thread tolerances** - Thread tolerances for locknuts, removal nuts, adapter sleeves, withdrawal sleeves, and shafting are not specified by this standard. Data is provided in the Appendix as a reference.

**3.2.3 Surface finish** - Surface finish specifications are not a part of this standard, with the exception of series TN and TAN locknuts, and with the exception that all functional and mating surfaces shall be in accordance with good manufacturing practice and compatible with the expected function or usage.

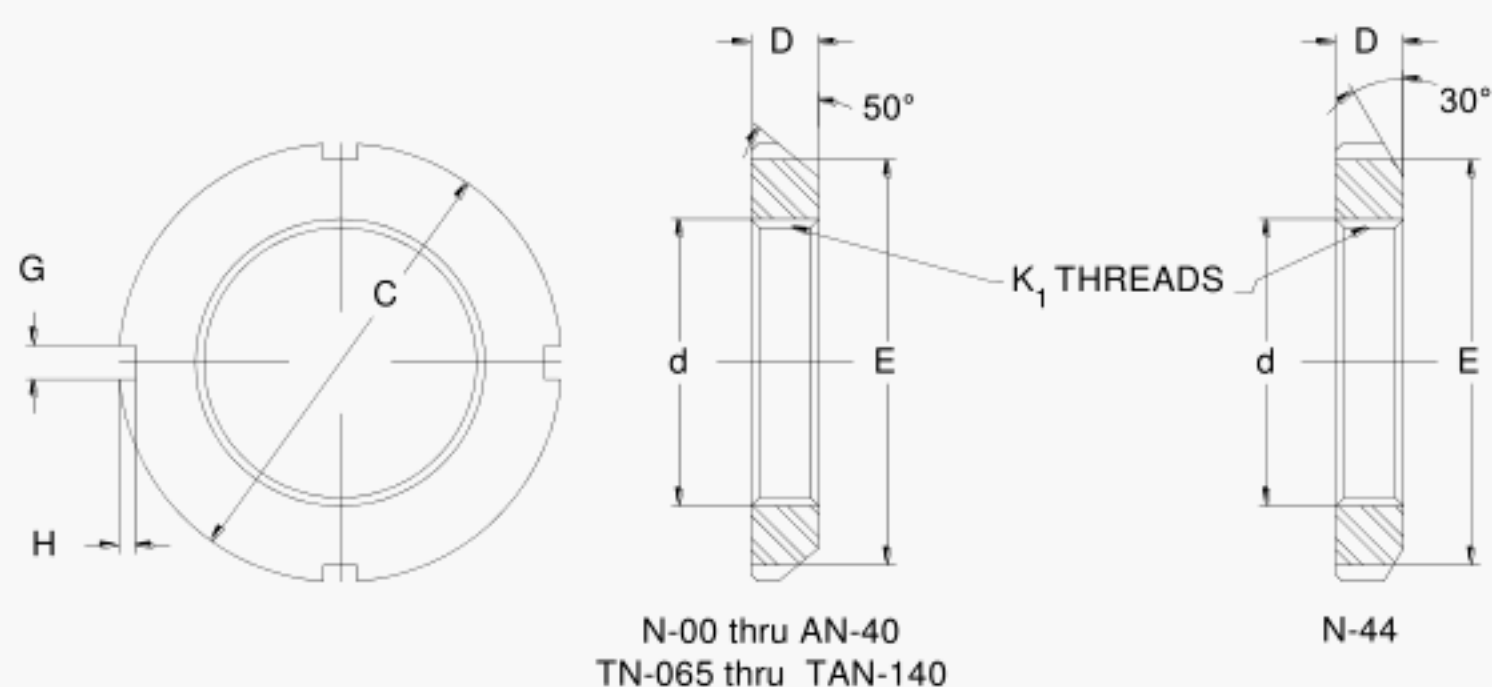
Surface finish requirement on series TN and TAN locknut faces is as follows:

	Micro- metres (max.)	Micro- inches (max.)
TN-065 through TN-11	2.5	100
TN-12 through TAN-22	3.0	120
TAN-24 through TAN-140	3.8	150

**3.2.4 Other characteristics** - Other characteristics such as chamfers, corners fillets, broken corners, etc. may be provided in accordance with normal function or assembly of the component with mating parts.

Sharp corners, burrs, nicks, and other blemishes which may interfere with performance or assembly of component, or which shall cause part to be unsafe in normal handling and installation, are not permitted.

**Table 4.1 - Part 1**  
**Locknut Dimensions**  
**Inch Design Series**  
**N-00, AN-00, TN and TAN**



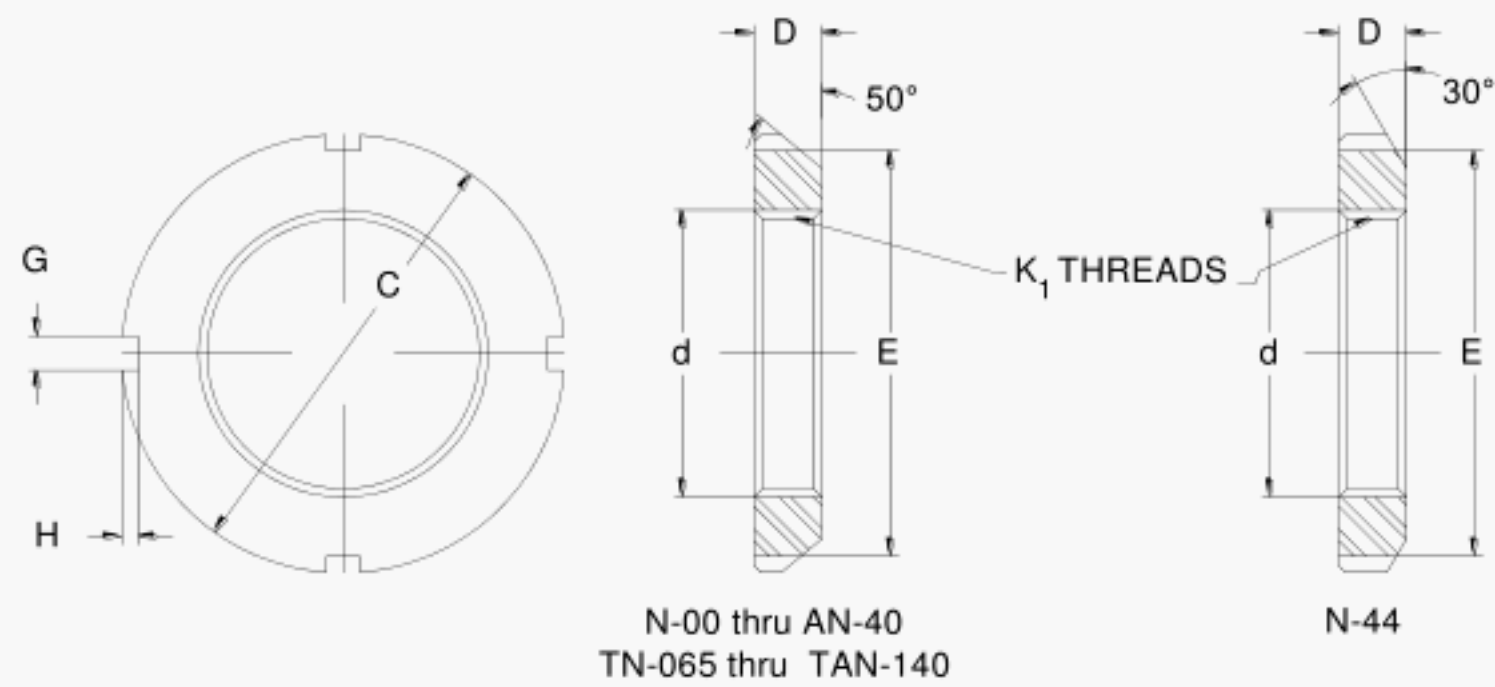
Part 1

Dimensions in millimeters

Locknut Number		Threads <sup>(1)</sup>		Outside Diameter C max.	Face Diameter E max.	Nut Width D max.		Slot Width G min.	Slot Depth H max.
		Major Diameter d nom.	No. per inch K <sub>1</sub>			N-00	TN-00		
N-00	TN-065	0.391	32	19.18	15.88	5.82		3.05	1.85
N-01		0.469	32	22.35	18.26	8.20		3.05	1.85
N-02		0.586	32	25.53	20.65	8.20		3.05	2.64
N-03		0.664	32	28.70	23.82	8.99		3.05	2.64
N-04		0.781	32	35.05	28.58	9.78		4.52	2.64
N-05		0.969	32	39.83	32.54	10.57		4.52	2.64
N-06		1.173	18	44.58	38.10	10.57		4.52	2.64
-		1.312	18	52.53	46.05	—	11.38	4.52	2.64
N-07		1.376	18	52.53	46.05	11.38	11.38	4.52	2.64
N-08		1.563	18	57.28	50.80	11.38	11.38	6.10	2.64
N-09		1.167	18	64.41	57.94	11.38	11.38	6.10	2.64
N-10		1.967	18	68.40	61.92	12.95	12.95	6.10	2.64
N-11		2.157	18	75.54	67.46	12.95	12.95	6.10	3.43
N-12		2.360	18	80.29	72.24	13.74	13.74	6.10	3.43
N-13		2.548	18	85.85	77.80	14.55	14.55	6.10	3.43
N-14		2.751	18	92.20	84.15	14.55	14.55	6.10	3.43
AN-15	TAN-15	2.933	12	98.55	90.50	15.34	15.34	9.14	3.43
AN-16	TAN-16	3.137	12	105.69	97.64	15.34	15.34	9.14	3.43
AN-17	TAN-17	3.340	12	112.04	102.39	16.13	16.13	9.14	4.22
AN-18	TAN-18	3.527	12	118.39	108.74	17.73	17.73	9.14	4.22
AN-19	TAN-19	3.730	12	125.55	115.90	18.52	18.52	9.14	4.22
AN-20	TAN-20	3.918	12	131.90	122.25	19.30	19.30	9.14	4.22
AN-21	TAN-21	4.122	12	138.25	127.00	19.30	19.30	12.32	5.03
AN-22	TAN-22	4.325	12	145.39	134.14	20.09	20.09	12.32	5.03
AN-24	TAN-24	4.716	12	155.70	144.48	20.90	20.90	12.32	5.03
AN-26	TAN-26	5.106	12	171.58	157.18	22.48	22.48	15.49	6.60
AN-28	TAN-128	5.497	12	180.31	165.89	24.08	30.43	15.49	6.60
AN-30	TAN-130	5.888	12	195.40	179.40	24.87	32.00	15.49	7.39
AN-32	TAN-132	6.284	8	204.93	188.92	26.44	32.79	15.49	7.39
AN-34	TAN-134	6.659	8	219.99	203.99	27.25	34.39	15.49	7.39
AN-36	TAN-136	7.066	8	230.33	212.72	28.04	35.97	18.67	8.20
AN-38	TAN-138	7.412	8	240.64	223.04	28.83	35.97	18.67	8.20
AN-40	TAN-140	7.847	8	250.16	232.56	30.43	38.35	18.67	8.20
N-44		8.628	8	279.53	250.01	32.00		24.89	12.95

<sup>(1)</sup> Thread diameter is in inches.  
For tolerances see Table 9.1, Part 1.

**Table 4.1 - Part 2**  
**Locknut Dimensions**  
**Inch Design Series**  
**N-00, AN-00, TN and TAN**



Part 2

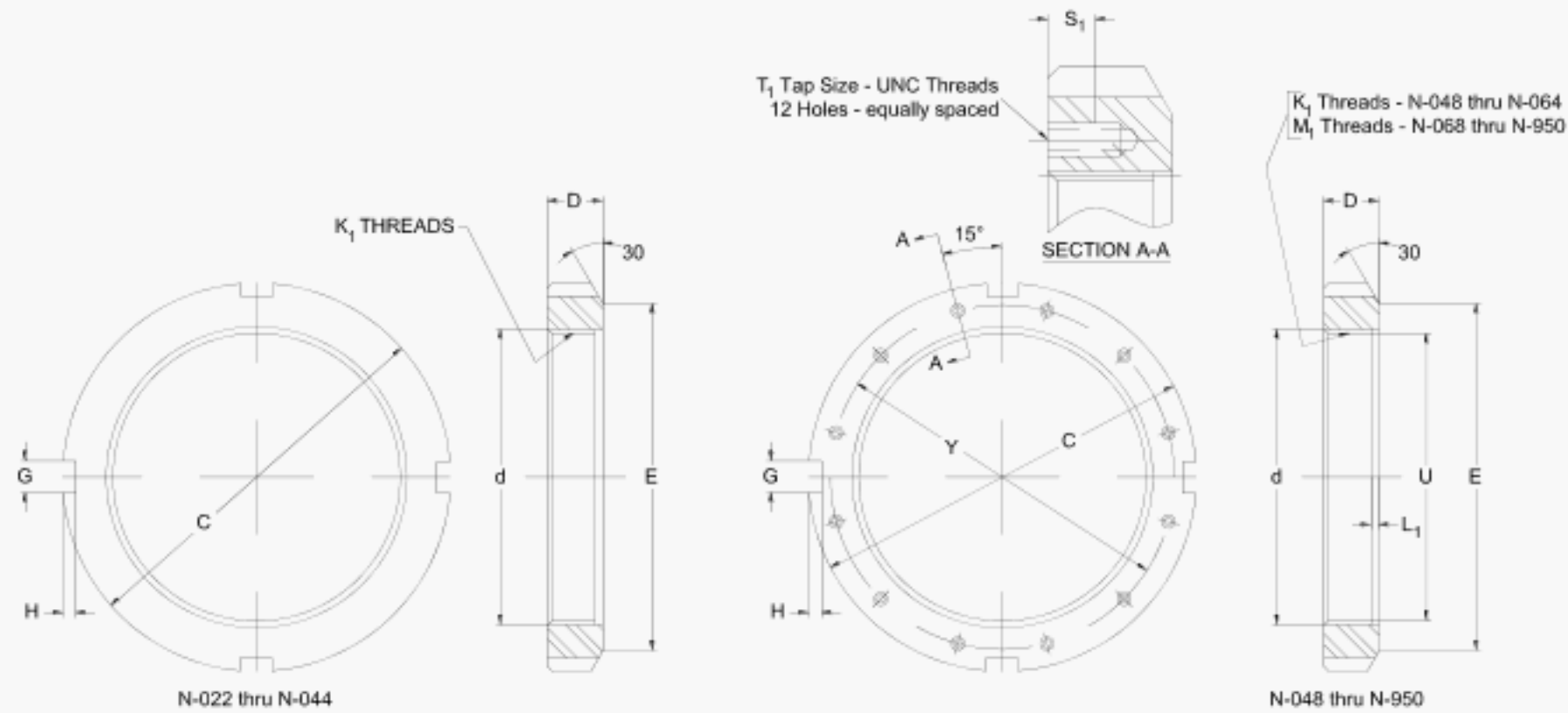
Dimensions in inches

Locknut Number		Threads		Outside Diameter C max.	Face Diameter E max.	Nut Width D max.		Slot Width G min.	Slot Depth H max.
		Major Diameter d nom.	No. per inch K <sub>1</sub>			N-00	TN-00		
N-00	TN-065	0.391	32	0.755	0.625	0.229		0.120	0.073
N-01		0.469	32	0.880	0.719	0.323		0.120	0.073
N-02		0.586	32	1.005	0.813	0.323		0.120	0.104
N-03		0.664	32	1.130	0.938	0.354		0.120	0.104
N-04		0.781	32	1.380	1.125	0.385		0.178	0.104
N-05		0.969	32	1.568	1.281	0.416		0.178	0.104
N-06		1.173	18	1.755	1.500	0.416		0.178	0.104
—		1.312	18	2.068	1.813	—	0.448	0.178	0.104
N-07	TN-07	1.376	18	2.068	1.813	0.448	0.448	0.178	0.104
N-08	TN-08	1.563	18	2.255	2.000	0.448	0.448	0.240	0.104
N-09	TN-09	1.167	18	2.536	2.281	0.448	0.448	0.240	0.104
N-10	TN-10	1.967	18	2.693	2.438	0.510	0.510	0.240	0.104
N-11	TN-11	2.157	18	2.974	2.656	0.510	0.510	0.240	0.135
N-12	TN-12	2.360	18	3.161	2.844	0.541	0.541	0.240	0.135
N-13	TN-13	2.548	18	3.380	3.063	0.573	0.573	0.240	0.135
N-14	TN-14	2.751	18	3.630	3.313	0.573	0.573	0.240	0.135
AN-15	TAN-15	2.933	12	3.880	3.563	0.604	0.604	0.360	0.135
AN-16	TAN-16	3.137	12	4.161	3.844	0.604	0.604	0.360	0.135
AN-17	TAN-17	3.340	12	4.411	4.031	0.635	0.635	0.360	0.166
AN-18	TAN-18	3.527	12	4.661	4.281	0.698	0.698	0.360	0.166
AN-19	TAN-19	3.730	12	4.943	4.563	0.729	0.729	0.360	0.166
AN-20	TAN-20	3.918	12	5.193	4.813	0.760	0.760	0.360	0.166
AN-21	TAN-21	4.122	12	5.443	5.000	0.760	0.760	0.485	0.198
AN-22	TAN-22	4.325	12	5.724	5.281	0.791	0.791	0.485	0.198
AN-24	TAN-24	4.716	12	6.130	5.688	0.823	0.823	0.485	0.198
AN-26	TAN-26	5.106	12	6.755	6.188	0.885	0.885	0.610	0.260
AN-28	TAN-128	5.497	12	7.099	6.531	0.948	1.198	0.610	0.260
AN-30	TAN-130	5.888	12	7.693	7.063	0.979	1.260	0.610	0.291
AN-32	TAN-132	6.284	8	8.068	7.438	1.041	1.291	0.610	0.291
AN-34	TAN-134	6.659	8	8.661	8.031	1.073	1.354	0.610	0.291
AN-36	TAN-136	7.066	8	9.068	8.375	1.104	1.416	0.735	0.323
AN-38	TAN-138	1.412	8	9.474	8.781	1.135	1.416	0.735	0.323
AN-40	TAN-140	7.847	8	9.849	9.156	1.198	1.510	0.735	0.323
N-44		8.628	8	11.005	9.843	1.260		0.980	0.510

For tolerances see Table 9.1, Part 2.



**Table 4.2 - Part 1**  
**Locknut Dimensions**  
**Inch Design**  
**Series N-000**



Part 1

Dimensions in millimeters

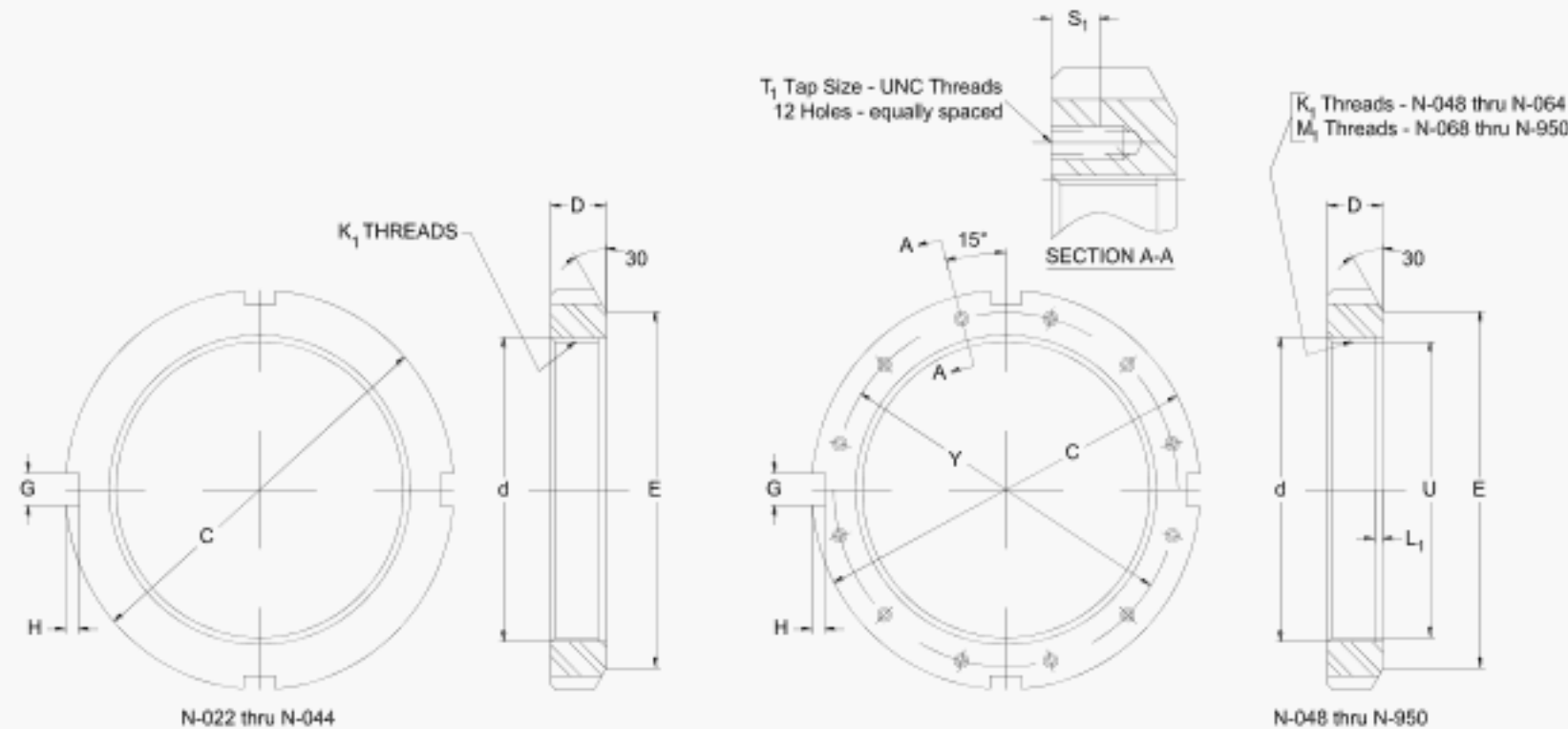
Locknut Number	Threads <sup>(1)</sup>			Outside Diameter	Face Diameter	Nut Width	Slot		Counterbore of threads		Tapped Holes <sup>(2)</sup> For Mounting Lockplates		
	Major Diameter	No. per inch					Width	Depth	Diameter	Depth	B.C. Dia.	Tap Size	Depth
		d nom.	K <sub>1</sub>										
N-022	4.325	12		135.08	124.49	20.09	12.32	5.03					
N-024	4.716	12		144.60	134.95	20.90	12.32	5.03					
N-026	5.106	12		155.70	144.86	22.48	12.32	5.03					
N-028	5.497	12		165.23	155.17	24.08	12.32	5.03					
N-030	5.888	12		181.10	169.88	24.87	15.49	5.82					
N-032	6.284	8		190.63	180.19	26.44	15.49	5.82					
N-034	6.659	8		200.15	190.09	27.25	15.49	5.82					
N-036	7.066	8		209.68	200.03	28.04	15.49	5.82					
N-038	7.472	8		220.80	209.96	28.83	15.49	5.82					
N-040	7.847	8		239.85	222.25	30.43	18.67	8.20					
N-044	8.628	8		260.48	242.09	32.00	21.84	9.78					
N-048	9.442	6		290.65	269.88	34.39	21.84	9.78			264.74	5/16-18	15.88
N-052	10.192	6		309.70	289.71	35.97	21.84	9.78			286.97	5/16-18	15.88
N-056	11.004	6		330.33	310.36	38.35	24.89	9.78			307.59	5/16-18	15.88
N-060	11.785	6		360.50	335.76	39.95	24.89	12.95			332.99	3/8-16	19.05
N-064	12.562	6		381.13	356.39	42.32	24.89	12.95			352.04	3/8-16	19.05
N-068	13.339		5	400.18	376.25	45.49	24.89	12.95	339.22	9.53	374.27	3/8-16	19.05
N-072	14.170		5	419.23	393.70	45.49	31.24	12.95	360.32	9.53	393.32	3/8-16	19.05
N-076	14.957		5	450.98	422.28	48.67	31.24	15.34	380.31	9.53	418.72	1/2-13	22.23
N-080	15.745		5	470.03	442.93	52.65	31.24	15.34	400.33	9.53	437.77	1/2-13	22.23
N-084	16.532		5	490.68	461.98	52.65	34.42	15.34	420.32	9.53	459.99	1/2-13	22.23
N-088	17.319		5	520.83	488.95	60.58	34.42	15.34	440.31	9.53	485.39	5/8-11	31.75
N-092	18.107		5	539.88	525.48	60.58	34.42	15.34	460.32	9.53	507.62	5/8-11	31.75
N-096	18.894		5	560.53	527.05	60.58	37.59	15.34	480.31	9.53	525.09	5/8-11	31.75
N-500	19.682		5	579.58	550.88	68.66	37.59	15.34	500.33	9.53	548.89	5/8-11	31.75
N-530	20.867		4	630.38	590.55	68.66	40.77	20.90	530.53	12.70	593.34	5/8-11	31.75
N-560	22.048		4	649.43	609.60	75.01	40.77	20.90	560.53	12.70	612.39	5/8-11	31.75
N-600	23.623		4	700.23	660.40	75.01	40.77	20.90	600.53	12.70	658.44	5/8-11	31.75
N-630	24.804		4	730.38	688.98	75.01	47.12	20.90	630.53	12.70	691.77	5/8-11	31.75
N-670	26.379		4	779.60	739.78	79.76	47.12	20.90	670.53	12.70	736.22	5/8-11	31.75
N-710	27.961		3	830.40	779.48	90.88	50.29	25.65	710.90	17.48	777.49	5/8-11	31.75
N-750	29.536		3	870.08	820.75	90.88	56.64	25.65	750.90	17.48	818.77	5/8-11	31.75
N-800	31.504		3	920.88	869.95	90.88	56.64	25.65	800.89	17.48	879.09	5/8-11	31.75
N-850	33.473		3	979.63	923.93	90.88	62.99	25.65	850.90	17.48	926.72	3/4-10	38.10
N-900	35.441		3	1,030.43	974.73	100.41	62.99	25.65	900.89	17.48	980.69	3/4-10	38.10
N-950	37.410		3	1,092.33	1,028.70	100.41	62.99	25.65	950.90	17.48	1,031.49	3/4-10	38.10

For tolerances see Table 9.1, Part 1.

<sup>(1)</sup> Thread diameter is in inches.

<sup>(2)</sup> Tap size is in inch designation.

**Table 4.2 - Part 2**  
**Locknut Dimensions**  
**Inch Design**  
**Series N-000**



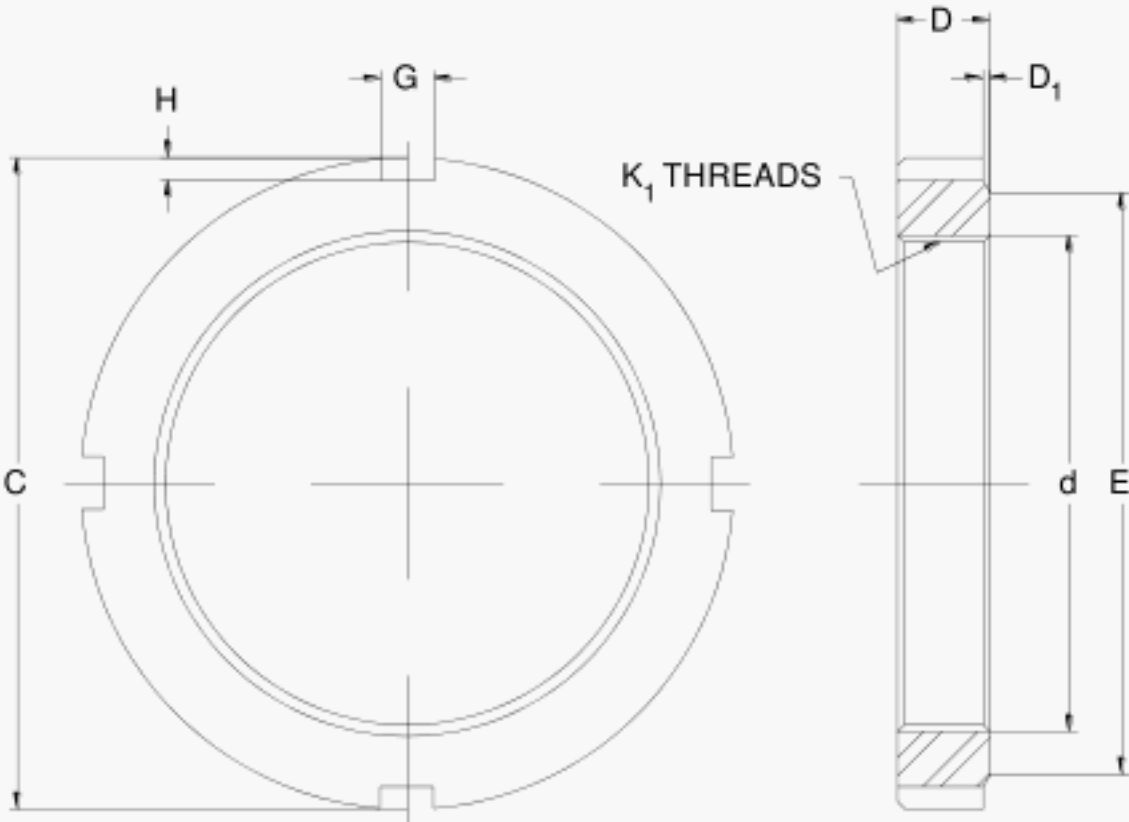
Part 2

Dimensions in inches

Locknut Number	Threads			Outside Diameter C max.	Face Diameter E max.	Nut Width D max.	Slot		Counterbore of threads		Tapped Holes For Mounting Lockplates				
	Major Diameter d nom.	No. per inch					Width G min.	Depth H max.	Diameter U min.	Depth L <sub>1</sub> min.	B.C. Dia. Y min.	Tap Size T <sub>1</sub>	Depth S <sub>1</sub> min.		
		K <sub>1</sub>	M <sub>1</sub>												
N-022	4.325	12		5.318	4.901	0.791	0.485	0.198							
N-024	4.716	12		5.693	5.313	0.823	0.485	0.198							
N-026	5.106	12		6.130	5.703	0.885	0.485	0.198							
N-028	5.497	12		6.505	6.109	0.948	0.485	0.198							
N-030	5.888	12		7.130	6.688	0.979	0.610	0.229							
N-032	6.284	8		7.505	7.094	1.041	0.610	0.229							
N-034	6.659	8		7.880	7.484	1.073	0.610	0.229							
N-036	7.066	8		8.255	7.875	1.104	0.610	0.229							
N-038	7.472	8		8.693	8.266	1.135	0.610	0.229							
N-040	7.847	8		9.443	8.750	1.198	0.735	0.323							
N-044	8.628	8		10.255	9.531	1.260	0.860	0.385							
N-048	9.442	6		11.443	10.625	1.354	0.860	0.385							
N-052	10.192	6		12.193	11.406	1.416	0.860	0.385							
N-056	11.004	6		13.005	12.219	1.510	0.980	0.385							
N-060	11.785	6		14.193	13.219	1.573	0.980	0.510							
N-064	12.562	6	5	15.005	14.031	1.666	0.980	0.510			13.860	3/8-16	0.750		
N-068	13.339			15.755	14.813	1.791	0.980	0.510			13.355	0.375	14.735	3/8-16	0.750
N-072	14.170			16.505	15.500	1.791	1.230	0.510			14.186	0.375	15.485	3/8-16	0.750
N-076	14.957			17.755	16.625	1.916	1.230	0.604			14.973	0.375	16.485	1/2-13	0.875
N-080	15.745			18.505	17.438	2.073	1.230	0.604			15.761	0.375	17.235	1/2-13	0.875
N-084	16.532		5	19.318	18.188	2.073	1.355	0.604	16.548	0.375	18.110	1/2-13	0.875		
N-088	17.319		5	20.505	19.250	2.385	1.355	0.604	17.335	0.375	19.110	5/8-11	1.250		
N-092	18.107		5	21.255	20.688	2.385	1.355	0.604	18.123	0.375	19.985	5/8-11	1.250		
N-096	18.894		5	22.068	20.750	2.385	1.480	0.604	18.910	0.375	20.673	5/8-11	1.250		
N-500	19.682		5	22.818	21.688	2.703	1.480	0.604	19.698	0.375	21.610	5/8-11	1.250		
N-530	20.867		4	24.818	23.250	2.703	1.605	0.823	20.887	0.500	23.360	5/8-11	1.250		
N-560	22.048		4	25.568	24.000	2.953	1.605	0.823	22.068	0.500	24.110	5/8-11	1.250		
N-600	23.623		4	27.568	26.000	2.953	1.605	0.823	23.643	0.500	25.923	5/8-11	1.250		
N-630	24.804		4	28.755	27.125	2.953	1.855	0.823	24.824	0.500	27.235	5/8-11	1.250		
N-670	26.379		4	30.693	29.125	3.140	1.855	0.823	26.399	0.500	28.985	5/8-11	1.250		
N-710	27.961		3	32.693	30.688	3.578	1.980	1.010	27.988	0.688	30.610	5/8-11	1.250		
N-750	29.536		3	34.255	32.313	3.578	2.230	1.010	29.563	0.688	32.235	5/8-11	1.250		
N-800	31.504		3	36.255	34.250	3.578	2.230	1.010	31.531	0.688	34.610	5/8-11	1.250		
N-850	33.473		3	38.568	36.375	3.578	2.480	1.010	33.500	0.688	36.485	3/4-10	1.500		
N-900	35.441		3	40.568	38.375	3.953	2.480	1.010	35.468	0.688	38.610	3/4-10	1.500		
N-950	37.410		3	43.005	40.500	3.953	2.480	1.010	37.437	0.688	40.610	3/4-10	1.500		

For tolerances see Table 9.1, Part 2.

**Table 4.3 - Part 1**  
**Removal Nut Dimensions**  
**Inch Design**  
**Series RN and ARN**



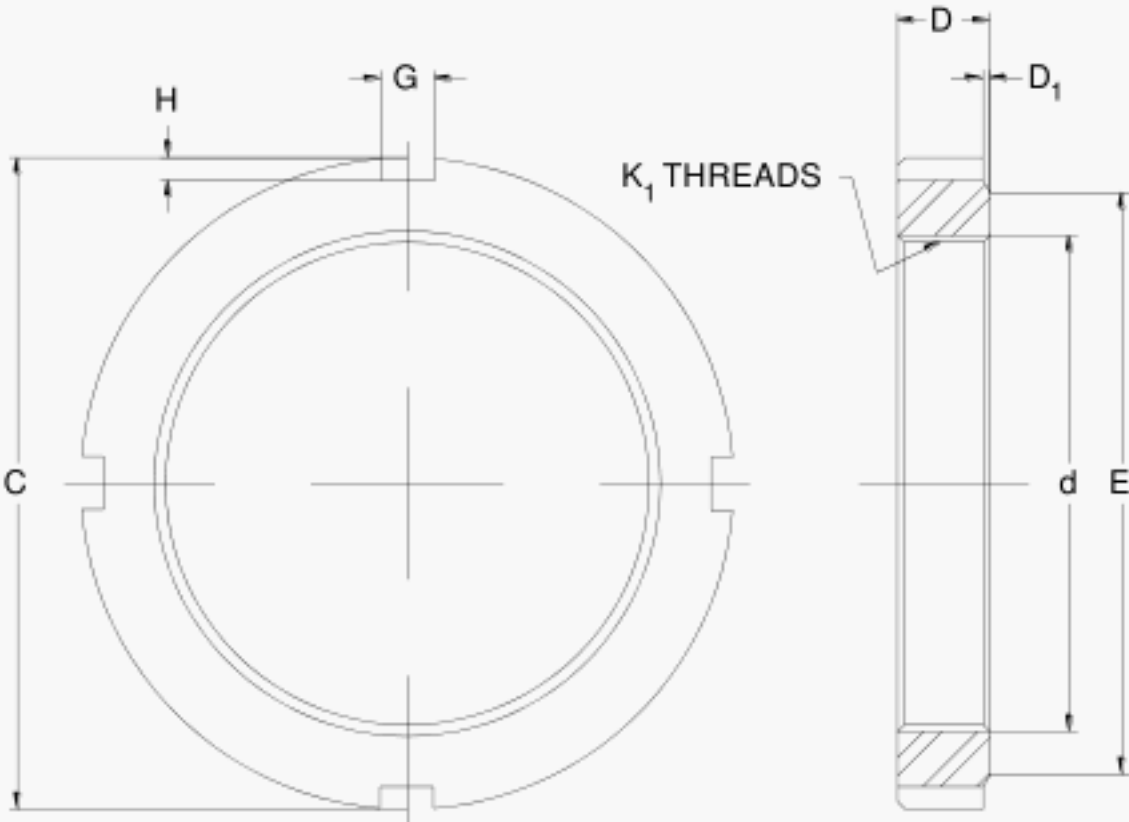
RN10 thru RN64 and ARN 22 thru ARN28

Part 1		Dimensions in millimeters						
Removal Nut Number	Threads <sup>(1)</sup>		Outside Diameter C max.	Face Diameter E max.	Nut Width D max.	Slot		Chamfer Depth D <sub>1</sub> max.
	Major Diameter d nom.	No. per inch K <sub>1</sub>				Width G min.	Depth H max.	
RN10	2.204	18	77.77	65.07	15.09	6.10	3.43	1.98
RN11	2.407	18	83.34	71.42	15.09	6.10	3.43	1.98
RN12	2.626	18	88.90	77.77	16.66	6.10	3.43	1.98
ARN22	4.778	12	160.32	136.53	19.84	15.49	6.60	3.58
ARN24	5.185	12	176.23	142.88	21.44	15.49	7.39	3.58
ARN26	5.622	12	185.72	153.97	23.01	15.49	7.39	3.58
RN28	6.097	8	201.63	166.70	24.61	15.49	7.39	3.58
RN30	6.503	8	211.12	179.37	26.19	18.67	8.20	3.58
RN32	6.925	8	227.03	192.07	26.19	18.67	8.20	3.58
RN34	7.331	8	236.52	204.77	27.79	21.84	9.78	3.58
RN36	7.753	8	250.83	217.50	27.79	21.84	9.78	3.58
RN38	8.191	8	271.48	231.78	29.36	21.84	9.78	3.58
RN56	11.973	6	385.78	344.47	37.29	31.24	12.95	5.16
RN60	12.942	6	427.02	369.09	42.32	31.24	12.95	5.16
RN64	13.723	6	452.42	361.95	42.52	31.24	12.95	5.16

For tolerances see Table 9.1, Part 1.  
<sup>(1)</sup> Thread diameter is in inches.



**Table 4.3 - Part 2**  
**Removal Nut Dimensions**  
**Inch Design**  
**Series RN and ARN**

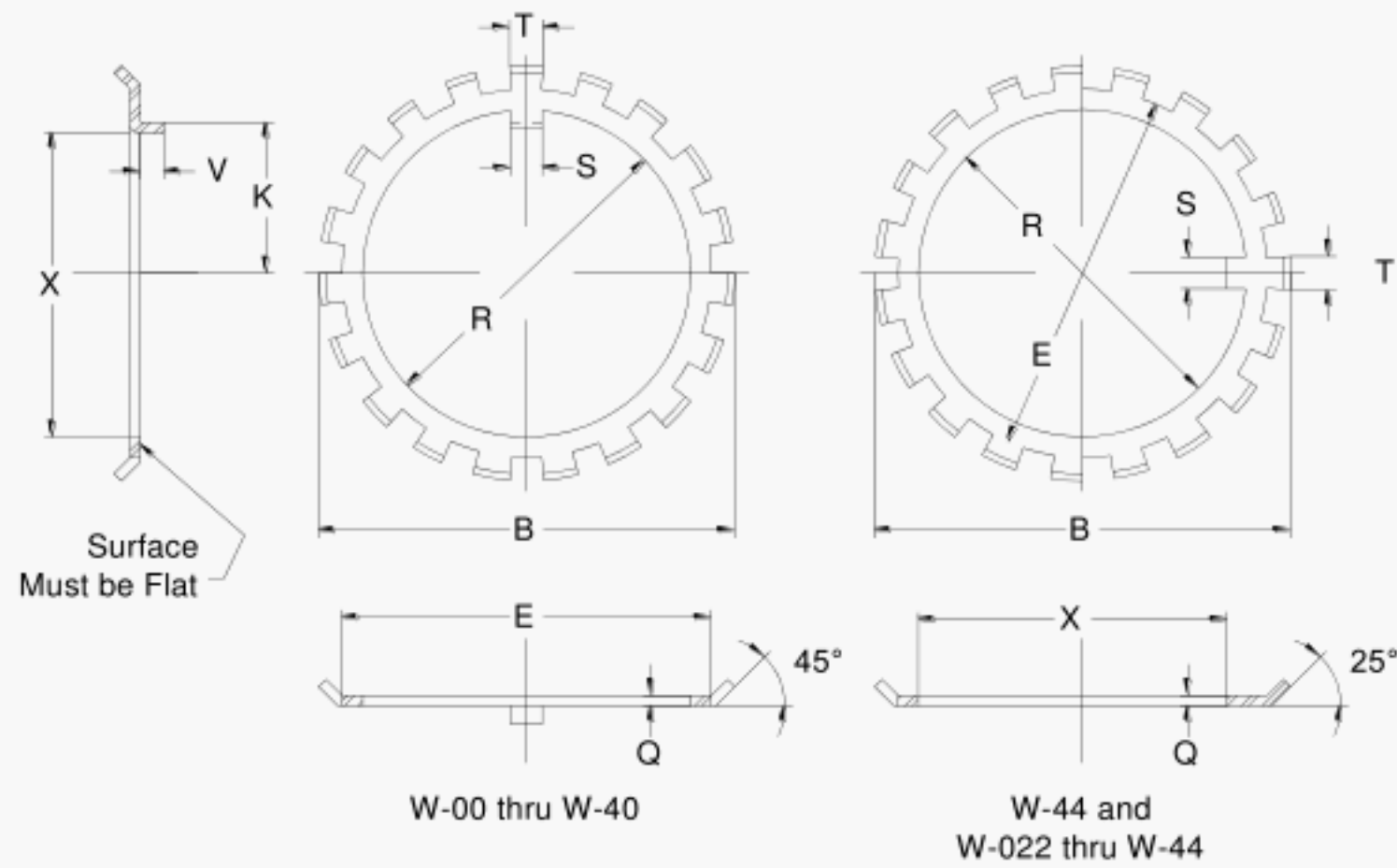


RN10 thru RN64 and ARN 22 thru ARN28

Part 2		Dimensions in inches						
Removal Nut Number	Threads		Outside Diameter C max.	Face Diameter E max.	Nut Width D max.	Slot		Chamfer Depth D <sub>1</sub> max.
	Major Diameter d nom.	No. per inch K <sub>1</sub>				Width G min.	Depth H max.	
RN10	2.204	18	3.062	2.562	0.594	0.240	0.135	0.078
RN11	2.407	18	3.281	2.812	0.594	0.240	0.135	0.078
RN12	2.626	18	3.500	3.062	0.656	0.240	0.135	0.078
ARN22	4.778	12	6.312	5.375	0.781	0.610	0.260	0.141
ARN24	5.185	12	3.938	5.625	0.844	0.610	0.291	0.141
ARN26	5.622	12	7.312	6.062	0.906	0.610	0.291	0.141
RN28	6.097	8	7.938	6.563	0.969	0.610	0.291	0.141
RN30	6.503	8	8.312	7.062	1.031	0.735	0.323	0.141
RN32	6.925	8	8.938	7.562	1.031	0.735	0.323	0.141
RN34	7.331	8	9.312	8.062	1.094	0.860	0.385	0.141
RN36	7.753	8	9.875	8.563	1.094	0.860	0.385	0.141
RN38	8.191	8	10.688	9.125	1.156	0.860	0.385	0.141
RN56	11.973	6	15.188	13.562	1.468	1.230	0.510	0.203
RN60	12.942	6	16.812	14.531	1.666	1.230	0.510	0.203
RN64	13.723	6	17.812	14.250	1.674	1.230	0.510	0.203

For tolerances see Table 9.1, Part 2

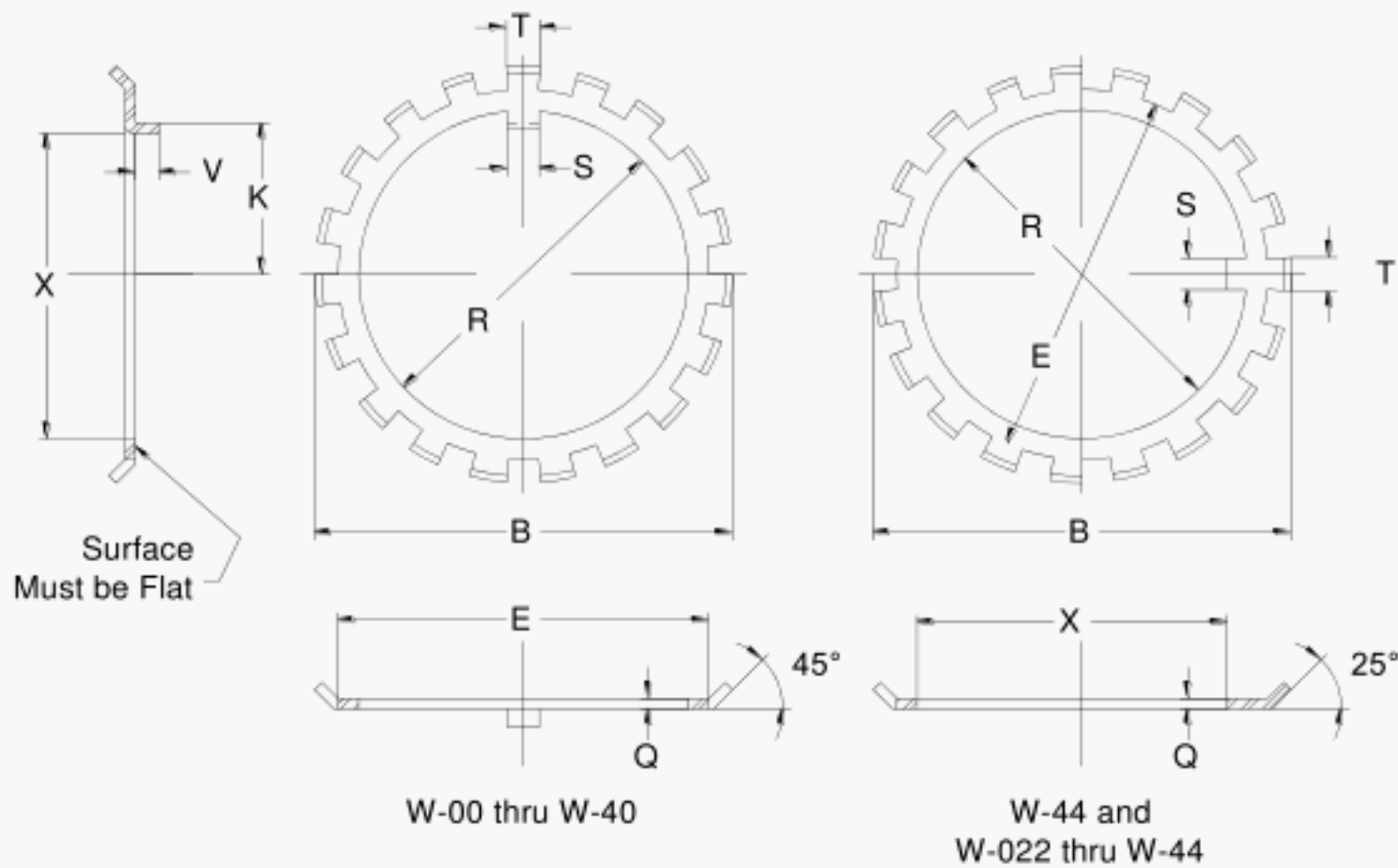
**Table 5.1 - Part 1**  
**Lockwasher Dimensions**  
**Inch Design**  
**Series W-00 and W-000**



Part 1		Dimensions in millimeters															
Lockwasher Number		Bore R		Face Diameter E min.		Diameter Over Tangs B max.		Inside Dimension X min.	Centerline to Key Top K max.	Key Width S max.		Projection V min.	No. of Tangs	Tang Width T max.		Material Thickness Q min.	
		min.	max.	W-00	W-000	W-00	W-000	W-00 & W-000	W-00	W-00	W-000	W-00		W-00	W-000	W-00	W-000
W-00		10.31	10.69	16.64		22.23		8.48	4.95	3.05		1.57	9	3.05		0.81	
W-01		12.29	12.67	19.02		25.81		10.46	5.99	3.05		1.57	9	3.05		0.81	
W-02		15.27	15.65	21.41		29.36		13.44	7.54	3.05		1.57	11	3.05		0.81	
W-03		17.25	17.63	24.59		33.73		15.42	8.56	3.05		1.57	11	3.05		0.81	
W-04		20.35	20.73	29.34		38.89		18.52	10.01	4.47		1.57	11	4.22		0.81	
W-05		25.12	25.63	33.30		43.66		23.09	12.55	4.47		2.39	13	4.22		1.02	
W-06		30.30	30.81	38.86		48.82		27.76	15.09	4.47		2.39	13	4.22		1.02	
W-07		35.46	35.97	46.81		57.15		32.92	17.60	4.47		2.39	15	4.22		1.02	
W-08		40.21	40.72	51.56		62.71		37.54	19.91	7.37		2.39	15	5.94		1.22	
W-09		45.52	46.15	58.70		69.44		42.85	22.50	7.37		3.18	17	5.94		1.22	
W-10		50.60	51.24	62.69		74.22		47.93	25.04	7.37		3.18	19	5.94		1.22	
W-11		55.42	56.06	68.22		78.97		52.55	27.56	7.37		3.18	19	5.94		1.35	
W-12		60.96	61.60	73.00		84.94		57.58	30.15	7.37		3.18	19	5.94		1.35	
W-13		65.74	66.37	78.56		90.88		62.36	32.66	7.37		3.18	19	5.94		1.35	
W-14		70.89	71.53	84.91		97.23		67.51	35.18	7.37		4.78	19	5.94		1.35	
W-15		75.51	76.28	91.26		104.37		71.98	37.69	7.37		4.78	19	8.33		1.57	
W-16		80.70	81.46	98.40		111.13		77.17	40.13	8.97		4.78	19	8.33		1.57	
W-17		86.23	87.00	103.15		117.48		82.63	42.65	8.97		4.78	19	8.33		1.57	
W-18		90.98	91.74	109.50		125.43		86.82	45.16	8.97		4.78	19	8.33		2.13	
W-19		96.52	97.28	116.66		132.56		92.35	47.68	8.97		4.78	19	8.33		2.13	
W-20		101.30	102.06	123.01		139.70		96.75	50.19	8.97		6.35	19	8.33		2.13	
W-21		106.48	107.24	127.76		144.86		101.93	52.68	8.97		6.35	19	9.91		2.13	
W-22	W-022	111.63	112.40	134.90	125.76	154.00	144.48	106.30	55.19	8.97	8.89	6.35	19	9.91	9.91	2.92	2.92
W-24	W-024	121.95	122.71	145.24	136.22	164.31	157.18	116.61	60.22	8.97	8.89	6.35	19	9.91	9.91	2.92	2.92
W-26	W-026	131.85	132.74	157.94	146.13	178.59	168.28	126.21	65.15	11.05	11.91	6.35	19	13.21	9.91	2.92	2.92
W-28	W-028	141.78	142.67	166.65	156.44	188.93	180.19	136.14	69.98	14.99	15.09	6.35	19	13.21	9.91	2.92	2.92
W-30	W-030	151.97	152.86	108.16	171.15	204.80	196.06	145.54	75.01	14.99	15.09	7.95	19	13.21	13.21	3.71	2.92
W-32	W-032	162.28	163.17	189.69	181.46	214.33	207.16	155.65	80.03	14.99	15.09	7.95	19	13.21	13.21	3.71	2.92
W-34	W-034	171.81	172.69	204.75	191.47	230.20	218.29	165.18	84.89	18.16	18.26	7.95	19	13.21	13.21	3.71	2.92
W-36	W-036	182.14	183.03	213.49	201.40	239.73	228.60	175.51	89.92	18.16	18.26	7.95	19	16.38	13.21	3.71	2.92
W-38	W-038	192.46	193.34	223.80	211.33	250.83	239.73	185.83	94.95	18.16	18.26	7.95	19	16.38	13.21	3.71	2.92
W-40	W-040	202.74	203.63	233.32	223.62	261.95	253.21	196.11	99.82	21.34	21.44	7.95	19	16.38	16.38	3.71	2.92
W-44	W-044	221.01	221.89	251.59	243.83	290.53	264.31	211.51		23.88	24.00		19	22.30	19.56	3.71	2.92

For tolerances see Table A.1, Part 1.

**Table 5.1 - Part 2**  
**Lockwasher Dimensions**  
**Inch Design**  
**Series W-00 and W-000**



Part 2

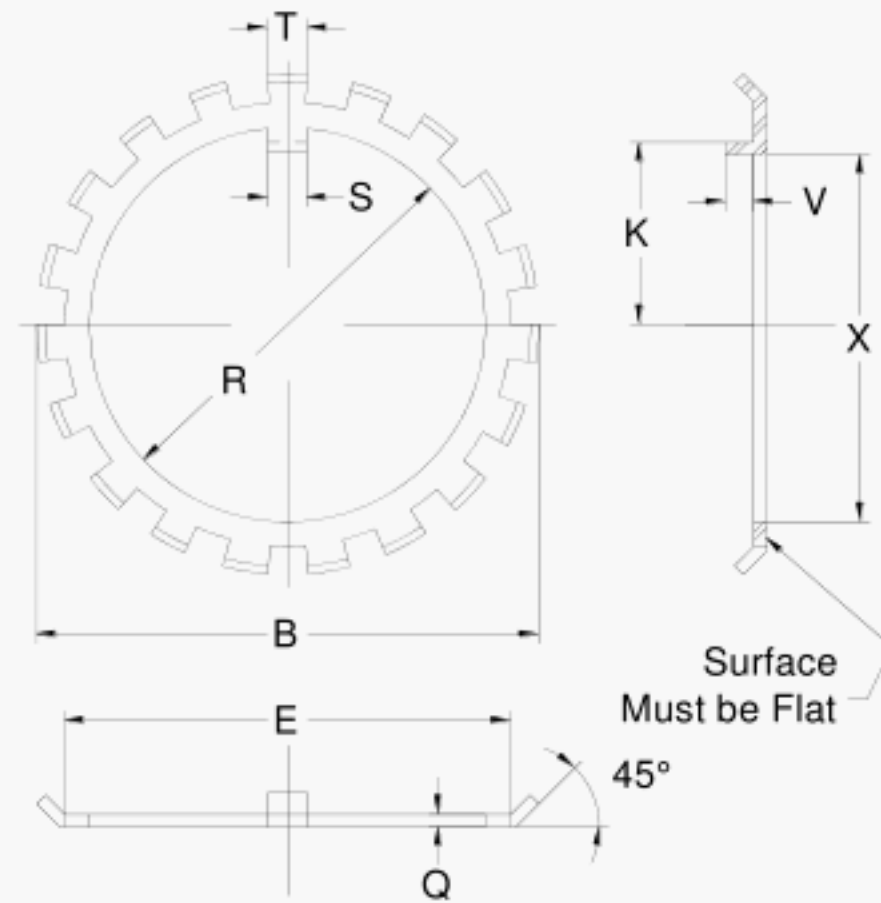
Dimensions in inches

Lockwasher Number		Bore R		Face Diameter E min.		Diameter Over Tangs B max.		Inside Dimension X min.	Centerline to Key Top K max.	Key Width S max.		Projection V min.	No. of Tangs	Tang Width T max.		Material Thickness Q min.	
		min.	max.	W-00	W-000	W-00	W-000	W-00 & W-000	W-00	W-00	W-000	W-00		W-00	W-000	W-00	W-000
W-00		0.406	0.421	0.655		0.875		0.334	0.195	0.120		0.062	9	0.120		0.032	
W-01		0.484	0.499	0.749		1.016		0.412	0.236	0.120		0.062	9	0.120		0.032	
W-02		0.601	0.616	0.843		1.156		0.529	0.297	0.120		0.062	11	0.120		0.032	
W-03		0.679	0.694	0.968		1.328		0.607	0.337	0.120		0.062	11	0.120		0.032	
W-04		0.801	0.816	1.155		1.531		0.729	0.394	0.176		0.062	11	0.166		0.032	
W-05		0.989	1.009	1.311		1.719		0.909	0.494	0.176		0.094	13	0.166		0.040	
W-06		1.193	1.213	1.530		1.922		1.093	0.594	0.176		0.094	13	0.166		0.040	
W-07		1.396	1.416	1.843		2.250		1.296	0.693	0.176		0.094	15	0.166		0.040	
W-08		1.583	1.603	2.030		2.469		1.478	0.784	0.290		0.094	15	0.234		0.048	
W-09		1.792	1.817	2.311		2.734		1.687	0.886	0.290		0.125	17	0.234		0.048	
W-10		1.992	2.017	2.468		2.922		1.887	0.986	0.290		0.125	19	0.234		0.048	
W-11		2.182	2.207	2.686		3.109		2.069	1.085	0.290		0.125	19	0.234		0.053	
W-12		2.400	2.425	2.874		3.344		2.267	1.187	0.290		0.125	19	0.234		0.053	
W-13		2.588	2.613	3.093		3.578		2.455	1.286	0.290		0.125	19	0.234		0.053	
W-14		2.791	2.816	3.343		3.828		2.658	1.385	0.290		0.188	19	0.234		0.053	
W-15		2.973	3.003	3.593		4.109		2.834	1.484	0.290		0.188	19	0.328		0.062	
W-16		3.177	3.207	3.874		4.375		3.038	1.580	0.353		0.188	19	0.328		0.062	
W-17		3.395	3.425	4.061		4.625		3.253	1.679	0.353		0.188	19	0.328		0.062	
W-18		3.582	3.612	4.311		4.938		3.418	1.778	0.353		0.188	19	0.328		0.084	
W-19		3.800	3.830	4.593		5.219		3.636	1.877	0.353		0.188	19	0.328		0.084	
W-20		3.988	4.018	4.843		5.500		3.809	1.976	0.353		0.250	19	0.328		0.084	
W-21		4.192	4.222	5.030		5.703		4.013	2.074	0.353		0.250	19	0.390		0.084	
W-22	W-022	4.395	4.425	5.311	4.951	6.063	5.688	4.185	2.173	0.353	0.350	0.250	19	0.390	0.390	0.115	0.115
W-24	W-024	4.801	4.831	5.718	5.363	6.469	5.188	4.591	2.371	0.353	0.350	0.250	19	0.390	0.390	0.115	0.115
W-26	W-026	5.191	5.226	6.218	5.753	7.031	5.625	4.969	2.565	0.435	0.469	0.250	19	0.520	0.390	0.115	0.115
W-28	W-028	5.582	5.617	6.561	6.159	7.438	7.094	5.360	2.755	0.590	0.594	0.250	19	0.520	0.390	0.115	0.115
W-30	W-030	5.983	6.018	7.093	6.738	8.063	7.719	5.730	2.953	0.590	0.594	0.313	19	0.520	0.520	0.146	0.115
W-32	W-032	6.389	6.424	7.468	7.144	8.438	8.156	6.128	3.151	0.590	0.594	0.313	19	0.520	0.520	0.146	0.115
W-34	W-034	6.764	6.799	8.061	7.538	9.063	8.594	6.503	3.342	0.715	0.719	0.313	19	0.520	0.520	0.146	0.115
W-36	W-036	7.171	7.206	8.405	7.929	9.438	9.000	6.910	3.540	0.715	0.719	0.313	19	0.645	0.520	0.146	0.115
W-38	W-038	7.577	7.612	8.811	8.320	9.875	9.438	7.316	3.738	0.715	0.719	0.313	19	0.645	0.520	0.146	0.115
W-40	W-040	7.982	8.017	9.186	8.804	10.313	9.969	7.121	3.930	0.840	0.844	0.313	19	0.645	0.645	0.146	0.115
W-44	W-044	8.701	8.736	9.905	9.600	11.438	10.406	8.327		0.940	0.945		19	0.878	0.770	0.146	0.115

For tolerances see Table A.1, Part 2.



**Table 5.2 - Part 1**  
**Lockwasher Dimensions**  
**Inch Design**  
**Series TW and WH**



TW-100 thru TW-140  
WH-00 thru WH40

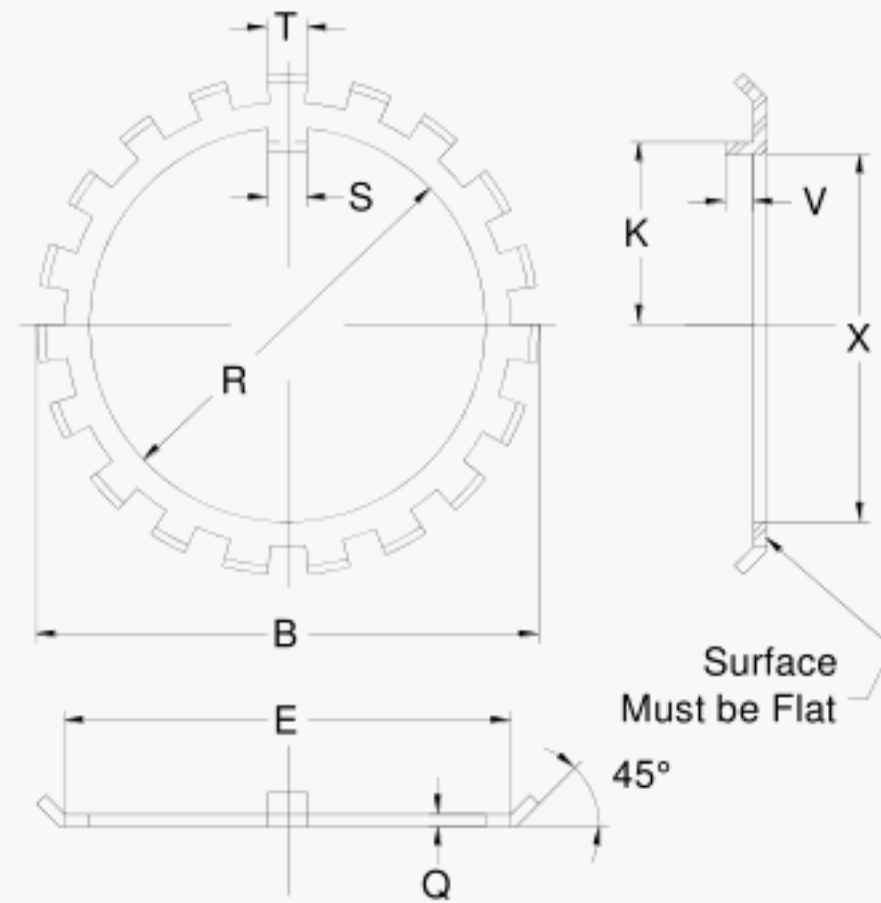
Part 1

Dimensions in millimeters

Lockwasher Number		Bore R		Face Diameter E	Diameter Over Tangs B	Inside Dimension. X	Centerline to Key Top K	Key Width S	Projection V	No. of Tangs	Tang Width T	Material Thickness Q	
		min.	max.	min.	max.	min.	max.	max.	min.		max.	min.	max.
TW-100	WH-00	10.31	10.69	16.64	22.63	7.95	4.47	3.05	0.780	9	3.05	0.81	1.17
TW-101	WH-01	12.29	12.67	19.02	26.19	10.33	5.51	3.05	0.780	9	3.05	0.81	1.17
TW-102	WH-02	15.27	15.65	21.41	29.36	12.73	7.06	3.05	0.780	11	3.05	1.22	1.60
TW-103	WH-03	17.25	17.63	24.59	34.14	14.30	8.05	3.05	0.780	11	3.05	1.22	1.60
TW-104	WH-04	20.35	20.73	29.34	39.70	17.88	9.47	4.47	0.780	11	4.22	1.22	1.60
TW-105	WH-05	25.12	25.63	33.30	43.26	22.25	11.91	4.47	1.194	13	4.22	1.32	1.70
TW-106	WH-06	30.30	30.81	38.86	49.61	27.00	14.20	4.47	1.194	13	4.22	1.32	1.70
TW-065	WH-065	33.86	34.37	46.81	56.74	30.20	16.00	4.47	1.194	15	4.22	1.32	1.70
TW-107	WH-07	35.46	35.97	46.81	57.15	31.78	16.81	4.47	1.194	15	4.22	1.32	1.70
TW-108	WH-08	40.21	40.72	51.56	63.09	36.55	18.97	7.37	1.194	15	5.94	1.57	1.96
TW-109	WH-09	45.52	46.15	58.70	69.06	42.09	21.67	7.37	1.575	17	5.94	1.57	1.96
TW-110	WH-10	50.60	51.24	62.69	74.22	47.24	24.23	7.37	1.575	17	5.94	1.57	1.96
TW-111	WH-11	55.42	56.06	68.22	78.97	52.02	26.67	7.37	1.575	17	5.94	1.57	1.96
TW-112	WH-12	60.96	61.60	73.00	84.94	57.18	29.36	7.37	1.575	19	5.94	1.83	2.21
TW-113	WH-13	65.74	66.37	78.56	90.88	61.54	31.75	7.37	1.575	19	5.94	1.83	2.21
TW-114	WH-14	70.89	71.53	84.91	97.23	66.70	34.37	7.37	2.390	19	5.94	1.83	2.21
TW-115	WH-15	75.51	76.28	91.26	104.37	70.66	36.30	7.37	2.390	19	8.33	2.16	2.57
TW-116	WH-16	80.70	81.46	98.40	111.91	76.23	38.81	8.97	2.390	19	8.33	2.16	2.57
TW-117	WH-17	86.23	87.00	103.40	118.26	81.00	41.53	8.97	2.390	19	8.33	2.16	2.57
TW-118	WH-18	90.98	91.74	109.75	126.19	85.75	43.92	8.97	2.390	19	8.33	2.92	3.35
TW-119	WH-19	96.52	97.28	116.91	133.35	90.50	46.51	8.97	2.390	19	8.33	2.92	3.35
TW-120	WH-20	101.30	102.05	123.26	140.49	95.68	48.92	8.97	3.180	19	8.33	2.92	3.35
TW-121	WH-21	106.48	107.24	128.01	145.64	100.05	51.51	8.97	3.180	19	9.91	2.92	3.35
TW-122	WH-22	111.63	112.40	135.15	154.00	105.59	54.10	8.97	3.180	19	9.91	3.30	3.73
TW-124	WH-24	121.95	122.71	145.49	165.88	115.11	59.08	8.97	3.180	19	9.91	3.94	4.39
TW-126	WH-26	131.85	132.74	158.19	179.78	124.64	63.96	11.05	3.180	19	13.21	3.94	4.39
TW-128	WH-28	141.78	142.67	166.90	190.09	134.57	68.76	14.99	3.180	19	13.21	3.94	4.39
TW-130	WH-30	151.97	152.86	180.41	205.97	143.69	73.76	14.99	3.962	19	13.21	4.90	5.38
TW-132	WH-32	162.28	163.17	190.45	215.49	154.00	78.49	14.99	3.962	19	13.21	4.90	5.38
TW-134	WH-34	171.81	172.69	205.51	231.37	163.55	83.11	18.16	3.962	19	13.21	4.90	5.38
TW-136	WH-36	182.14	183.03	214.25	240.89	173.86	88.32	18.16	3.962	19	16.38	4.90	5.38
TW-138	WH-38	192.46	193.34	224.56	252.02	184.18	93.50	18.16	3.962	19	16.38	4.90	5.38
TW-140	WH-40	202.74	203.63	234.08	264.31	193.70	98.12	21.34	3.962	19	16.38	4.90	5.38

For tolerances see Table A.1, Part 1.

**Table 5.2 - Part 2**  
**Lockwasher Dimensions**  
**Inch Design**  
**Series TW and WH**



TW-100 thru TW-140  
WH-00 thru WH40

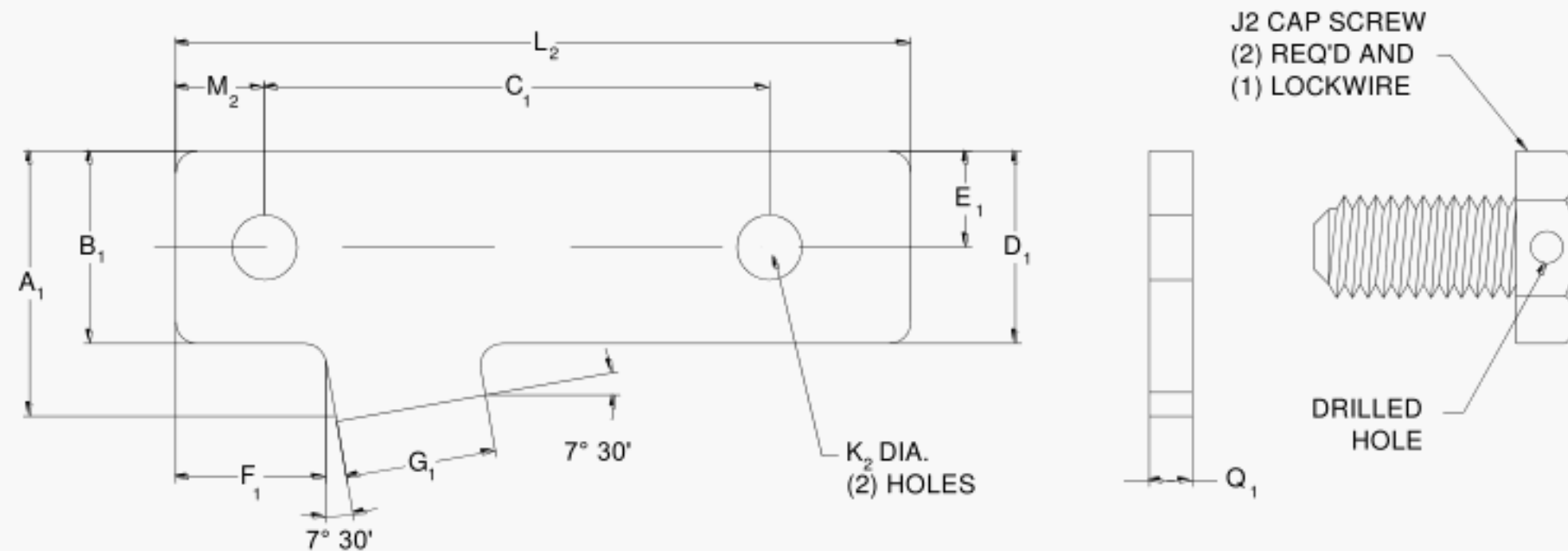
Part 2

Dimensions in inches

Lockwasher Number		Bore R		Face Diameter E	Diameter Over Tangs B	Inside Dimension. X	Centerline to Key Top K	Key Width S	Projection V	No. of Tangs	Tang Width T	Material Thickness Q	
		min.	max.	min.	max.	min.	max.	max.	min.		max.	min.	max.
TW-100	WH-00	0.406	0.421	0.655	0.891	0.313	0.176	0.120	0.031	9	0.120	0.032	0.046
TW-101	WH-01	0.484	0.499	0.749	1.031	0.407	0.217	0.120	0.031	9	0.120	0.032	0.046
TW-102	WH-02	0.601	0.616	0.843	1.156	0.501	0.278	0.120	0.031	11	0.120	0.048	0.063
TW-103	WH-03	0.679	0.694	0.968	1.344	0.563	0.317	0.120	0.031	11	0.120	0.048	0.063
TW-104	WH-04	0.801	0.816	1.155	1.563	0.704	0.373	0.176	0.031	11	0.166	0.048	0.063
TW-105	WH-05	0.989	1.009	1.311	1.703	0.876	0.469	0.176	0.047	13	0.166	0.052	0.067
TW-106	WH-06	1.193	1.213	1.530	1.953	1.063	0.559	0.176	0.047	13	0.166	0.052	0.067
TW-065	WH-065	1.333	1.353	1.843	2.234	1.189	0.630	0.176	0.047	15	0.166	0.052	0.067
TW-107	WH-07	1.396	1.416	1.843	2.250	1.251	0.662	0.176	0.047	15	0.166	0.052	0.067
TW-108	WH-08	1.583	1.603	2.030	2.484	1.439	0.747	0.290	0.047	15	0.234	0.062	0.077
TW-109	WH-09	1.792	1.817	2.311	2.719	1.657	0.853	0.290	0.062	17	0.234	0.062	0.077
TW-110	WH-10	1.992	2.017	2.468	2.922	1.860	0.954	0.290	0.062	17	0.234	0.062	0.077
TW-111	WH-11	2.182	2.207	2.686	3.109	2.048	1.050	0.290	0.062	17	0.234	0.062	0.077
TW-112	WH-12	2.400	2.425	2.874	3.344	2.251	1.156	0.290	0.062	19	0.234	0.072	0.087
TW-113	WH-13	2.588	2.613	3.093	3.578	2.423	1.250	0.290	0.062	19	0.234	0.072	0.087
TW-114	WH-14	2.791	2.816	3.343	3.828	2.626	1.353	0.290	0.094	19	0.234	0.072	0.087
TW-115	WH-15	2.973	3.003	3.593	4.109	2.782	1.429	0.290	0.094	19	0.328	0.085	0.101
TW-116	WH-16	3.177	3.207	3.874	4.406	3.001	1.528	0.353	0.094	19	0.328	0.085	0.101
TW-117	WH-17	3.395	3.425	4.071	4.656	3.189	1.635	0.353	0.094	19	0.328	0.085	0.101
TW-118	WH-18	3.582	3.612	4.321	4.968	3.376	1.729	0.353	0.094	19	0.328	0.115	0.132
TW-119	WH-19	3.800	3.830	4.603	5.250	3.563	1.831	0.353	0.094	19	0.328	0.115	0.132
TW-120	WH-20	3.988	4.018	4.853	5.531	3.767	1.926	0.353	0.125	19	0.328	0.115	0.132
TW-121	WH-21	4.192	4.222	5.040	5.734	3.939	2.028	0.353	0.125	19	0.390	0.115	0.132
TW-122	WH-22	4.395	4.425	5.321	6.063	4.157	2.130	0.353	0.125	19	0.390	0.130	0.147
TW-124	WH-24	4.801	4.831	5.728	6.531	4.532	2.326	0.353	0.125	19	0.390	0.155	0.173
TW-126	WH-26	5.191	5.226	6.228	7.078	4.907	2.518	0.435	0.125	19	0.520	0.155	0.173
TW-128	WH-28	5.582	5.617	6.571	7.484	5.298	2.707	0.590	0.125	19	0.520	0.155	0.173
TW-130	WH-30	5.983	6.018	7.103	8.109	5.657	2.904	0.590	0.156	19	0.520	0.193	0.212
TW-132	WH-32	6.389	6.424	7.498	8.484	6.063	3.090	0.590	0.156	19	0.520	0.193	0.212
TW-134	WH-34	6.764	6.799	8.091	9.109	6.439	3.272	0.715	0.156	19	0.520	0.193	0.212
TW-136	WH-36	7.171	7.206	8.435	9.484	6.845	3.477	0.715	0.156	19	0.645	0.193	0.212
TW-138	WH-38	7.577	7.612	8.841	9.922	7.251	3.681	0.715	0.156	19	0.645	0.193	0.212
TW-140	WH-40	7.982	8.017	9.216	10.406	7.626	3.863	0.840	0.156	19	0.645	0.193	0.212

For tolerances see Table A.1, Part 2.

**Table 5.3 - Part 1**  
**Lockplate Dimensions**  
**Inch Design**  
**Series P-000**



Part 1

Dimensions in millimeters

Lockplate Number	Thickness Q <sub>1</sub> min.	Height		Hole Center C <sub>1</sub> max.	Height D <sub>1</sub> max.	Height E <sub>1</sub> max.	Key		Capscrew Size <sup>(1)</sup> J <sub>2</sub>	Hole Size K <sub>2</sub> min.	Length L <sub>2</sub> min.	M <sub>2</sub> max.
		A <sub>1</sub> max.	B <sub>1</sub> max.				Location F <sub>1</sub> max.	Width G <sub>1</sub> max.				
P-48	3.18	28.58	19.05	68.86	15.88	7.92	15.88	25.40	5/16-18x5/8	9.53	88.90	10.31
P-52	3.18	29.36	20.65	74.63	16.66	8.94	16.66	27.00	5/16-18x5/8	9.53	95.25	10.31
P-56	3.18	29.36	19.84	79.96	15.88	8.48	16.66	28.58	5/16-18x5/8	9.53	100.03	10.31
P-60	3.18	34.93	24.61	86.54	21.44	11.68	21.44	31.75	3/8-16x3/4	11.13	110.34	11.91
P-64	3.18	33.32	26.19	91.47	19.84	10.77	20.62	33.35	3/8-16x3/4	11.13	115.09	11.91
P-68	3.18	31.75	24.61	97.23	19.84	10.01	20.62	34.93	3/8-16x3/4	11.13	120.65	11.91
P-72	3.18	31.75	25.40	102.16	19.05	10.01	20.62	34.93	3/8-16x3/4	11.13	124.61	11.13
P-76	3.18	38.10	27.79	108.74	23.01	11.71	28.58	34.93	1/2-13x7/8	14.27	138.13	15.09
P-80	3.18	37.31	27.79	113.66	23.01	12.52	26.19	38.10	1/2-13x7/8	14.27	145.26	15.88
P-84	3.18	39.67	30.18	119.41	23.83	12.57	26.97	38.10	1/2-13x7/8	14.27	147.62	14.27
P-88	3.18	42.06	32.54	125.98	26.21	13.49	30.96	42.88	5/8-11x1	17.48	158.75	15.88
P-92	3.18	42.06	34.11	131.72	29.36	15.06	30.18	42.88	5/8-11x1	17.48	163.12	15.88
P-96	3.96	39.67	33.32	136.25	27.00	14.30	35.71	42.88	5/8-11x1-1/4	17.48	167.49	15.88
P-500	3.96	42.88	32.54	142.39	28.58	14.30	32.54	42.88	5/8-11x1-1/4	17.48	173.84	15.88
P-530	3.96	53.98	39.70	153.92	34.93	14.30	38.10	42.88	5/8-11x1-1/4	17.48	185.72	15.88
P-560	3.96	47.63	34.14	158.85	28.58	14.30	38.10	42.88	5/8-11x1-1/4	17.48	190.50	15.88
P-600	3.96	50.80	36.53	170.76	31.75	14.30	39.67	42.88	5/8-11x1-1/4	17.48	203.20	15.88
P-630	3.96	53.19	42.06	179.37	36.53	18.24	39.67	47.63	5/8-11x1-1/4	17.48	211.12	15.88
P-670	3.96	53.57	42.88	190.75	36.53	17.48	43.66	47.63	5/8-11x1-1/4	17.48	222.25	15.88
P-710	3.96	55.58	42.88	201.57	36.53	17.48	47.63	47.63	5/8-11x1-1/4	17.48	233.38	15.88
P-750	4.78	55.58	42.88	212.17	36.53	17.48	47.63	47.63	5/8-11x1-1/4	17.48	243.69	15.88
P-800	4.78	56.36	42.88	227.84	36.53	17.48	53.98	47.63	5/8-11x1-1/4	17.48	259.56	15.88
P-850	4.78	62.71	48.41	240.18	41.28	20.65	59.54	47.63	3/4-10x1-1/2	20.62	277.83	19.05
P-900	4.78	61.93	49.20	254.25	40.46	19.05	63.50	47.63	3/4-10x1-1/2	20.62	292.10	19.05
P-950	4.78	64.29	47.63	267.34	40.46	19.05	66.68	47.63	3/4-10x1-1/2	20.62	304.80	19.05

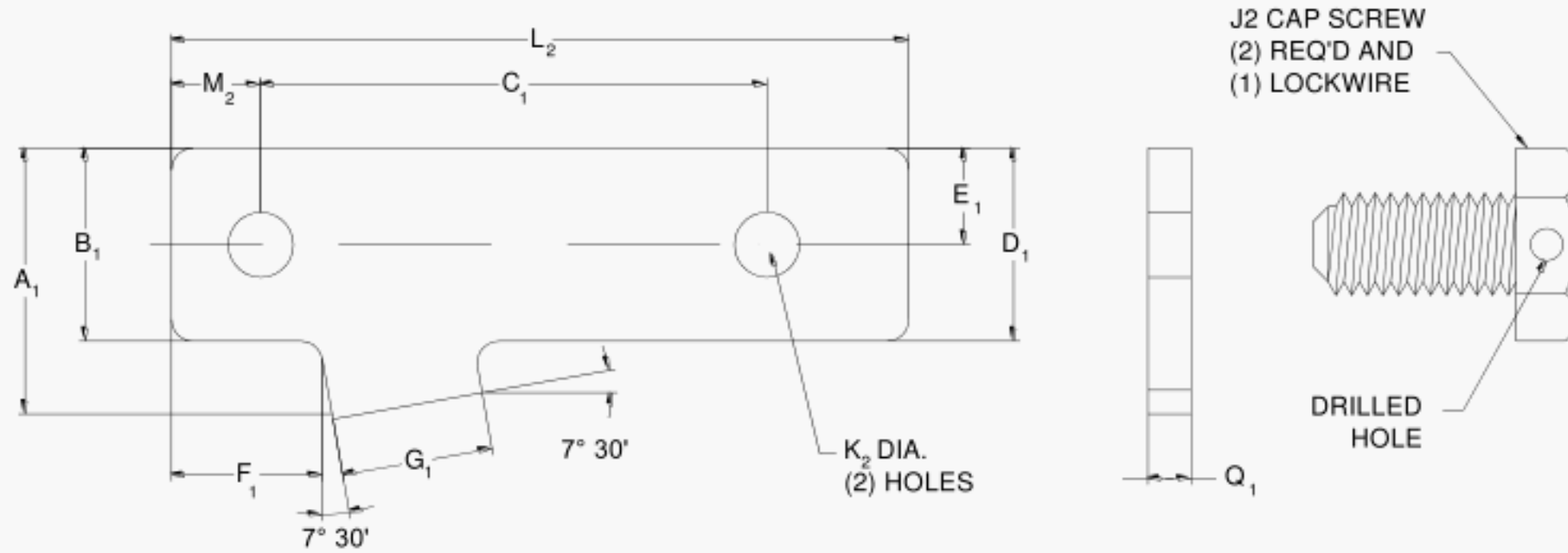
Note: Tolerances on dimension B<sub>1</sub>, D<sub>1</sub> and E<sub>1</sub> are +0/-0.38 mm.

Tolerance on dimension on dimension G<sub>1</sub> is +0/-0.76 mm.

Lockplates P-48 and P-56 should be fitted at assembly when used with a 228.6 mm and 266.7 mm shaft size.

<sup>(1)</sup> Cap screw size is in inch designation.

**Table 5.3 - Part 2  
Lockplate Dimensions  
Inch Design  
Series P-000**



Part 2

Dimensions in inches

Lockplate Number	Thickness Q <sub>1</sub> min.	Height		Hole Center C <sub>1</sub> max.	Height D <sub>1</sub> max.	Height E <sub>1</sub> max.	Key		Capscrew Size <sup>(1)</sup> J <sub>2</sub>	Hole Size K <sub>2</sub> min.	Length	
		A <sub>1</sub> max.	B <sub>1</sub> max.				Location F <sub>1</sub> max.	Width G <sub>1</sub> max.			L <sub>2</sub> min.	M <sub>2</sub> max.
P-48	0.125	1.125	0.750	2.711	0.625	0.312	0.625	1.000	5/16-18x5/8	0.375	3.500	0.406
P-52	0.125	1.156	0.813	2.938	0.656	0.352	0.656	1.063	5/16-18x5/8	0.375	3.750	0.406
P-56	0.125	1.156	0.781	3.148	0.625	0.334	0.656	1.125	5/16-18x5/8	0.375	3.938	0.406
P-60	0.125	1.375	0.969	3.407	0.844	0.460	0.844	1.250	3/8-16x3/4	0.438	4.344	0.469
P-64	0.125	1.312	1.031	3.601	0.781	0.424	0.812	1.313	3/8-16x3/4	0.438	4.531	0.469
P-68	0.125	1.250	0.969	3.828	0.781	0.394	0.812	1.375	3/8-16x3/4	0.438	4.750	0.469
P-72	0.125	1.250	1.000	4.022	0.750	0.394	0.812	1.375	3/8-16x3/4	0.438	4.906	0.438
P-76	0.125	1.500	1.094	4.281	0.906	0.461	1.125	1.375	1/2-13x7/8	0.562	5.438	0.594
P-80	0.125	1.469	1.094	4.475	0.906	0.493	1.031	1.500	1/2-13x7/8	0.562	5.719	0.625
P-84	0.125	1.562	1.188	4.701	0.938	0.495	1.062	1.500	1/2-13x7/8	0.562	5.812	0.562
P-88	0.125	1.656	1.281	4.960	1.032	0.531	1.219	1.688	5/8-11x1	0.688	6.250	0.625
P-92	0.125	1.656	1.343	5.186	1.156	0.593	1.188	1.688	5/8-11x1	0.688	6.422	0.625
P-96	0.156	1.562	1.312	5.364	1.063	0.563	1.406	1.688	5/8-11x1-1/4	0.688	6.594	0.625
P-500	0.156	1.688	1.281	5.606	1.125	0.563	1.281	1.688	5/8-11x1-1/4	0.688	6.844	0.625
P-530	0.156	2.125	1.563	6.060	1.375	0.563	1.500	1.688	5/8-11x1-1/4	0.688	7.312	0.625
P-560	0.156	1.875	1.344	6.254	1.125	0.563	1.500	1.688	5/8-11x1-1/4	0.688	7.500	0.625
P-600	0.156	2.000	1.438	6.723	1.250	0.563	1.562	1.688	5/8-11x1-1/4	0.688	8.000	0.625
P-630	0.156	2.094	1.656	7.062	1.438	0.718	1.562	1.875	5/8-11x1-1/4	0.688	8.312	0.625
P-670	0.156	2.109	1.688	7.510	1.438	0.688	1.719	1.875	5/8-11x1-1/4	0.688	8.750	0.625
P-710	0.156	2.188	1.688	7.936	1.438	0.688	1.875	1.875	5/8-11x1-1/4	0.688	9.188	0.625
P-750	0.188	2.188	1.688	8.353	1.438	0.688	1.875	1.875	5/8-11x1-1/4	0.688	9.594	0.625
P-800	0.188	2.219	1.688	8.970	1.438	0.688	2.125	1.875	5/8-11x1-1/4	0.688	10.219	0.625
P-850	0.188	2.469	1.906	9.456	1.625	0.813	2.344	1.875	3/4-10x1-1/2	0.812	10.938	0.750
P-900	0.188	2.438	1.937	10.010	1.593	0.750	2.500	1.875	3/4-10x1-1/2	0.812	11.500	0.750
P-950	0.188	2.531	1.875	10.525	1.593	0.750	2.625	1.875	3/4-10x1-1/2	0.812	12.000	0.750

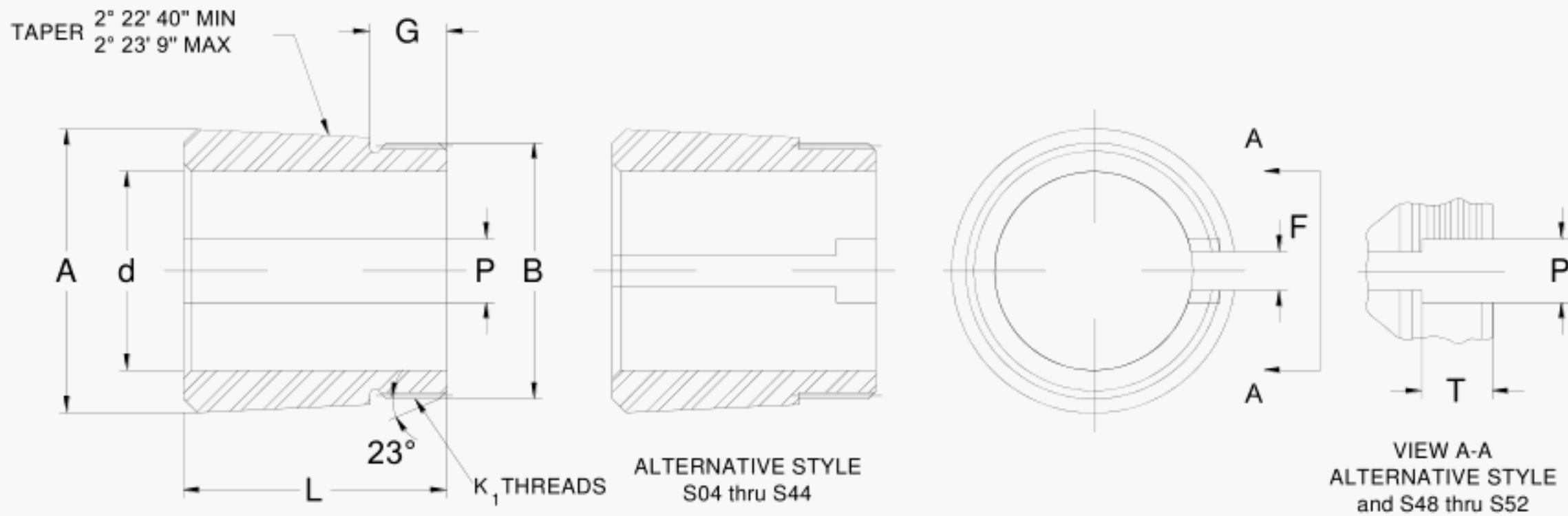
Note: Tolerances on dimension B<sub>1</sub>, D<sub>1</sub> and E<sub>1</sub> are +0/-0.015 inches.

Tolerance on dimension on dimension G<sub>1</sub> is +0/-0.030 inches.

Lockplates P-48 and P-56 should be fitted at assembly when used with a 9 in. and 10 1/2 in. shaft size.



**Table 6.1 - Part 1**  
**Adapter Sleeve Dimensions**  
**Inch Design**  
**Series S-00 for Bearing Series 31, 02, 22, and 03**  
**Series S-100 for Bearing Series 23 and 32**



Part 1

Dimensions in millimeters

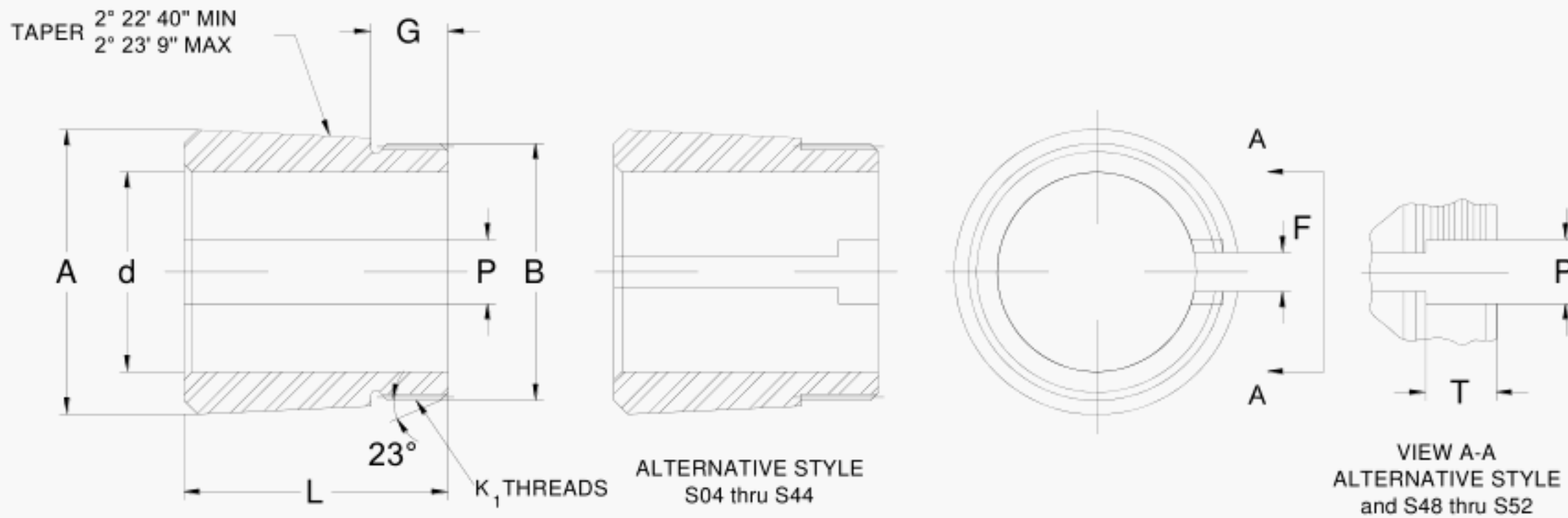
Sleeve Number		Sleeve Bore Diameter d max.	Diameter to Sharp Corner A min.		Sleeve Length L min.		Threads <sup>(1)</sup>			Width F min.	Locking Tab slot <sup>(2)</sup>	
			S00	S100	S00	S100	Major Diameter B max.	No. per Inch K <sub>1</sub>	G max.		Width P min.	Depth T min.
S04	S104	17.58	21.72	22.23	31.09	37.08	0.78	32	13.49	1.73	6.10	17.54
S05	S105	19.15	26.72	27.48	31.98	41.07	0.97	32	14.48	1.73	6.10	18.82
S06	S106	23.93	31.90	32.82	34.11	45.19	1.17	18	16.05	1.73	6.10	20.87
S07	S107	30.28	37.06	38.07	36.80	48.82	1.38	18	16.87	1.73	6.10	21.93
S08	S108	33.45	42.14	43.23	37.95	50.93	1.56	18	17.07	2.13	9.27	22.19
S09	S109	36.63	47.32	48.49	39.98	53.92	1.77	18	17.07	2.13	9.21	22.19
S10	S110	42.98	52.58	53.90	44.58	60.55	1.97	18	18.64	2.13	9.21	24.23
S11	S111	49.33	57.73	59.16	46.61	63.65	2.16	18	18.77	2.13	9.27	24.40
S12	S112	52.50	62.99	64.39	50.27	67.28	2.36	18	19.56	2.13	9.27	25.43
S13	S113	55.68	68.15	69.57	53.09	70.13	2.55	18	20.37	2.13	9.27	26.48
S14	S114	58.85	73.51	74.93	57.51	74.55	2.75	18	20.37	2.13	9.27	26.48
S15	S115	62.03	78.49	80.14	58.06	78.08	2.93	12	22.99	2.92	9.27	29.89
S16	S116	68.38	83.64	85.39	60.10	81.13	3.14	12	22.99	2.92	10.87	29.89
S17	S117	74.73	88.82	90.58	62.89	83.87	3.34	12	23.77	2.92	10.87	30.90
S18	S118	81.08	93.98	95.91	66.95	89.99	3.53	12	25.91	2.92	10.87	33.68
S19	S119	84.25	99.16	101.14	69.85	93.78	3.73	12	26.70	2.92	10.87	34.71
S20	S120	87.43	104.32	106.65	72.62	100.61	3.92	12	27.51	2.92	10.87	35.76
S21	S121	93.78	109.58	112.06	75.62	105.59	4.12	12	27.51	2.92	10.87	35.76
S22	S122	100.13	114.91	117.32	81.18	110.19	4.33	12	29.08	3.71	10.87	37.80
S24	S124	106.48	125.40	127.89	87.78	117.81	4.72	12	29.87	3.71	10.87	38.83
S26	S126	112.83	135.89	138.48	95.30	126.29	5.11	12	31.47	3.71	14.02	40.91
S28	S128	125.53	146.23	149.07	100.86	134.95	5.50	12	33.05	3.71	18.80	42.97
S30	S130	131.88	156.64	159.56	107.47	142.52	5.89	12	34.65	3.71	18.80	45.05
S32	S132	138.23	167.23	170.08	116.03	150.11	6.28	8	38.61	3.71	18.80	50.19
S34	S134	150.93	177.72	180.57	122.86	156.92	6.66	8	39.40	6.10	21.97	51.22
S36	S136	163.63	188.06	191.06	127.71	163.73	7.07	8	40.21	6.10	21.97	52.27
S38	S138	176.33	198.48	201.65	133.38	171.40	7.47	8	41.00	6.10	21.97	53.30
S40	S140	182.68	208.81	212.22	139.04	179.96	7.85	8	42.57	6.10	25.15	55.34
S44	S144	201.73	229.64	232.49	149.63	184.84	8.63	8	43.38	6.10	25.15	56.39
S48	S148	227.13	250.90	253.85	168.35	205.71	9.42	6	50.52	7.67	28.58	12.70
S52	S152	239.83	272.64	275.13	192.61	222.61	10.19	6	54.23	7.67	30.18	12.70

<sup>(1)</sup> Thread dimensions are in inches.

<sup>(2)</sup> Applicable to alternative design, and S48 and S52 adapter sleeves.

For tolerances see Table 9.3, Part 1 and Table 9.4, Part 1.

**Table 6.1 - Part 2**  
**Adapter Sleeve Dimensions**  
**Inch Design**  
**Series S-00 for Bearing Series 31, 02, 22, and 03**  
**Series S-100 for Bearing Series 23 and 32**



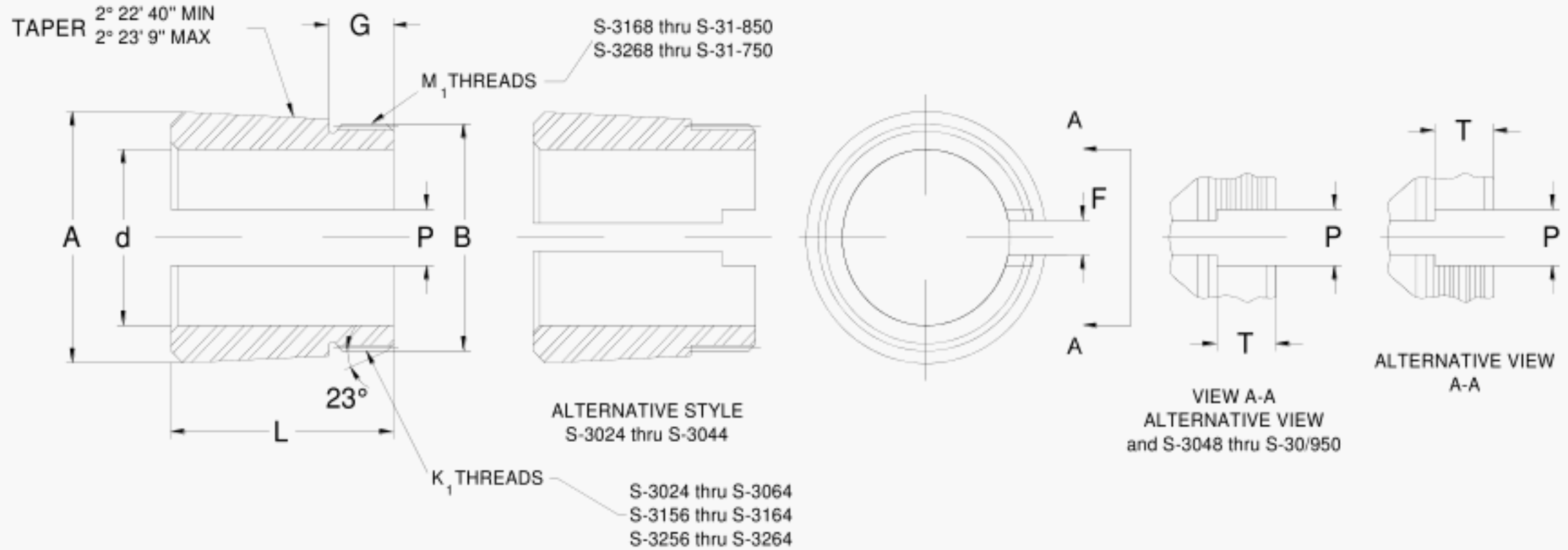
Part 2

Dimensions in inches

Sleeve Number		Sleeve Bore Diameter d max.	Diameter to Sharp Corner A min.		Sleeve Length L min.		Threads <sup>(1)</sup>			Width F min.	Locking Tab slot <sup>(1)</sup>	
							Major Diameter B max.	No. per Inch K <sub>1</sub>	G max.		Width P min.	Depth T min.
			S00	S100	S00	S100						
S04	S104	0.692	0.855	0.875	1.224	1.460	0.781	32	0.531	0.068	0.240	0.691
S05	S105	0.754	1.052	1.082	1.259	1.617	0.969	32	0.570	0.068	0.240	0.741
S06	S106	0.942	1.256	1.292	1.343	1.779	1.173	18	0.632	0.068	0.240	0.822
S07	S107	1.192	1.459	1.499	1.449	1.922	1.376	18	0.664	0.068	0.240	0.863
S08	S108	1.317	1.659	1.702	1.494	2.005	1.563	18	0.672	0.084	0.365	0.874
S09	S109	1.442	1.863	1.909	1.574	2.123	1.767	18	0.672	0.084	0.365	0.874
S10	S110	1.692	2.070	2.122	1.755	2.384	1.967	18	0.734	0.084	0.365	0.954
S11	S111	1.942	2.273	2.329	1.835	2.506	2.157	18	0.739	0.084	0.365	0.961
S12	S112	2.067	2.480	2.535	1.979	2.649	2.360	18	0.770	0.084	0.365	1.001
S13	S113	2.192	2.683	2.739	2.090	2.761	2.540	18	0.802	0.084	0.365	1.043
S14	S114	2.317	2.894	2.950	2.264	2.935	2.751	18	0.802	0.084	0.365	1.043
S15	S115	2.442	3.090	3.155	2.286	3.074	2.933	12	0.905	0.115	0.365	1.177
S16	S116	2.692	3.293	3.362	2.366	3.194	3.137	12	0.905	0.115	0.428	1.177
S17	S117	2.942	3.497	3.566	2.476	3.302	3.340	12	0.936	0.115	0.428	1.217
S18	S118	3.192	3.700	3.776	2.636	3.543	3.527	12	1.020	0.115	0.428	1.326
S19	S119	3.317	3.904	3.982	2.750	3.692	3.730	12	1.051	0.115	0.428	1.367
S20	S120	3.442	4.107	4.199	2.859	3.961	3.918	12	1.083	0.115	0.428	1.408
S21	S121	3.692	4.314	4.412	2.977	4.157	4.122	12	1.083	0.115	0.428	1.408
S22	S122	3.942	4.524	4.619	3.196	4.338	4.325	12	1.145	0.146	0.428	1.488
S24	S124	4.192	4.937	5.035	3.456	4.638	4.716	12	1.176	0.146	0.428	1.529
S26	S126	4.442	5.350	5.452	3.752	4.972	5.106	12	1.239	0.146	0.552	1.611
S28	S128	4.942	5.757	5.869	3.971	5.313	5.497	12	1.301	0.146	0.740	1.692
S30	S130	5.192	6.167	6.282	4.231	5.611	5.888	12	1.364	0.146	0.740	1.774
S32	S132	5.442	6.584	6.696	4.568	5.910	6.284	8	1.520	0.146	0.740	1.976
S34	S134	5.942	6.997	7.109	4.837	6.178	6.659	8	1.551	0.240	0.865	2.017
S36	S136	6.442	7.404	7.522	5.028	6.446	7.066	8	1.583	0.240	0.865	2.058
S38	S138	6.942	7.814	7.939	5.251	6.748	7.472	8	1.614	0.240	0.865	2.098
S40	S140	7.192	8.221	8.355	5.474	7.085	7.847	8	1.676	0.240	0.990	2.179
S44	S144	7.942	9.041	9.153	5.891	7.277	8.628	8	1.708	0.240	0.990	2.220
S48	S148	8.942	9.878	9.994	6.628	8.099	9.422	6	1.989	0.302	1.125	0.500
S52	S152	9.442	10.734	10.832	7.583	8.764	10.192	6	2.135	0.302	1.188	0.500

<sup>(1)</sup> Applicable to alternative design, and S48 and S52 adapter sleeves.  
For tolerances see Table 9.3, Part 2 and Table 9.4, Part 2.

**Table 6.2 - Part 1**  
**Adapter Sleeve Dimensions**  
**Inch Design**  
**Series S-3000 for Bearing Series 30**  
**Series S-3100 for Bearing Series 31**  
**Series S-3200 for Bearing Series 32**

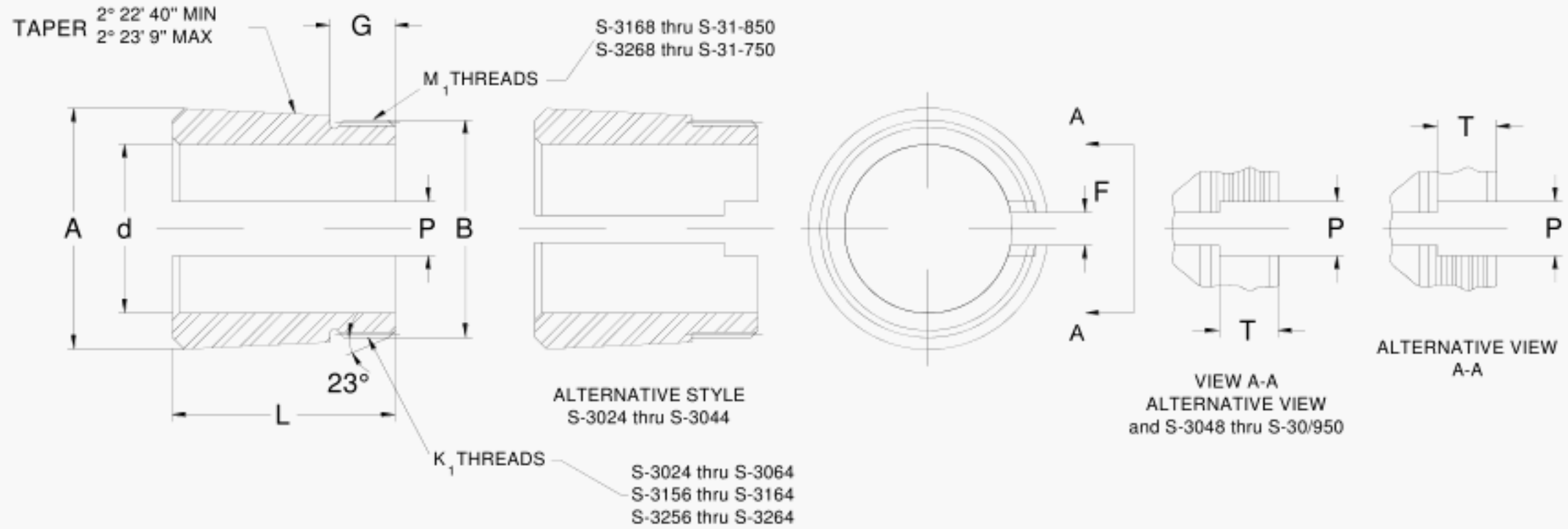


Sleeve Number			Sleeve Bore Diameter d max.	Diameter to Sharp Corner A min.			Sleeve Length L min.			Threads <sup>(1)</sup>					Dimensions in millimeters				
										Major Diameter B nom.	No. per Inch		G max.		Slot Width F min.	Locking Tab slot			
				K1	M1	Width P min.	Depth T min.												
				S-3000	S-3100	S-3200	S-3000	S-3100	S-3200	S-3000	S-3100	S-3200	nom.			S-3000	S-3100	min.	min.
S-3024			106.48	124.21					74.60			4.716	12		32.00		3.71	10.87	41.60
S-3026			112.83	134.72					81.97			5.106	12		33.60		3.71	14.02	43.68
S-3028			125.53	144.81					84.58			5.497	12		35.18		3.71	18.80	45.73
S-3030			131.88	155.07					88.44			5.888	12		36.97		3.71	18.80	48.06
S-3032			138.23	165.40					94.01			6.284	8		37.54		3.71	18.80	48.80
S-3034			150.93	176.00					101.83			6.659	8		38.35		6.10	21.97	49.86
S-3036			163.63	186.59					109.91			7.066	8		39.14		6.10	21.97	50.88
S-3038			176.33	196.70					111.81			7.472	8		40.74		6.10	21.97	52.96
S-3040			182.68	207.29					120.40			7.847	8		42.32		6.10	25.15	55.02
S-3044			201.73	227.99					130.05			8.628	8		44.70		6.10	25.15	58.11
S-3048			227.13	248.18					137.72			9.442	6		50.24		7.67	28.58	12.70
S-3052			239.88	269.24					152.63			10.192	6		54.23		7.67	30.18	12.70
S-3056	S-3156	S-3256	265.28	289.41	292.76	295.25	157.00	197.00	227.00	11.004	6		56.62	56.62	7.67	31.75	12.70		
S-3060	S-3160	S-3260	277.98	310.41	313.92	316.59	170.61	212.60	244.60	11.785	6		58.19	58.19	7.67	34.93	12.70		
S-3064	S-3164	S-3264	303.38	330.71	335.31	337.97	176.17	231.17	263.17	12.562	6		60.58	60.58	7.67	36.53	12.70		
S-3068	S-3168	S-3268	316.08	351.71	356.46	359.31	191.34	248.34	282.35	13.303		5	64.54	64.54	7.67	38.10	12.70		
S-3072	S-3172	S-3272	341.48	371.83	376.66	379.98	192.25	250.24	290.25	14.134		5	64.54	64.54	9.27	38.10	12.70		
S-3076	S-3176	S-3276	354.18	391.92	396.82	400.66	196.42	255.42	301.42	14.921		5	61.72	67.72	9.27	38.10	12.70		
S-3080	S-3180	S-3280	381.15	413.00	417.32	422.00	213.39	265.40	321.41	15.709		5	71.70	73.28	9.27	41.28	12.70		
S-3084	S-3184	S-3284	400.20	433.22	439.37	443.38	215.60	289.61	337.62	16.496		5	71.70	74.88	9.27	41.28	12.70		
S-3088	S-3188	S-3288	419.25	453.85	459.59	464.08	231.14	300.15	354.15	17.283		5	81.99	81.99	9.27	46.02	12.70		
S-3092	S-3192	S-3292	431.95	474.35	480.77	485.42	237.13	314.15	370.15	18.071		5	81.99	84.40	9.27	46.02	12.70		
S-3096	S-3196	S-3296	457.35	494.51	501.42	506.60	239.93	322.94	384.94	18.858		5	82.80	85.19	9.27	46.02	12.70		
S-30/500	S-31/500	S-32/500	470.05	514.68	522.76	528.75	249.89	346.89	418.87	19.646		5	90.75	93.12	9.27	46.02	12.70		
S-30/530	S-31/530	S-32/530	495.45	546.28	553.54	560.45	268.71	355.70	438.68	20.827		4	90.75	93.12	12.45	46.02	12.70		
S-30/560	S-31/560	S-32/560	533.55	577.11	584.20	591.29	285.04	370.05	455.04	22.008		4	97.10	99.47	12.45	46.02	12.70		
S-30/600	S-31/600	S-32/600	558.95	617.63	625.96	633.30	290.86	390.86	478.87	23.583		4	99.47	99.47	12.45	46.02	12.70		
S-30/630	S-31/630	S-32/630	609.75	648.64	657.23	665.30	302.87	405.87	502.87	24.764		4	99.47	99.47	12.45	50.80	12.70		
S-30/670	S-31/670	S-32/670	635.15	690.25	699.06	707.57	326.01	432.00	534.01	26.339		4	104.24	104.24	12.45	50.80	15.88		
S-30/710	S-31/710	S-32/710	673.25	730.73	739.83	748.56	343.13	452.15	557.15	27.914		3	115.34	117.73	12.45	50.80	15.88		
S-30/750	S-31/750	S-32/750	711.35	772.01	781.58	790.75	357.96	472.95	583.74	29.489		3	115.34	117.73	12.45	50.80	15.88		
S-30/800	S-31/800		749.45	822.68	832.41		365.96	482.96		31.457		3	115.34	117.73	12.45	50.80	15.88		
S-30/850	S-31/850		800.25	873.94	884.61		380.77	508.76		33.426		3	116.15	120.90	12.45	50.80	15.88		
S-30/900			851.05	924.61			398.30			35.394		3	125.68		12.45	50.80	15.88		
S-30/950			927.05	976.33			418.90			37.363		3	125.68		12.45	50.80	15.88		

<sup>(1)</sup> Threads diameter is in inches.  
For tolerances see Table 9.3, Part 1 and Table 9.4, Part 1.



**Table 6.2 - Part 2**  
**Adapter Sleeve Dimensions**  
**Inch Design**  
**Series S-3000 for Bearing Series 30**  
**Series S-3100 for Bearing Series 31**  
**Series S-3200 for Bearing Series 32**

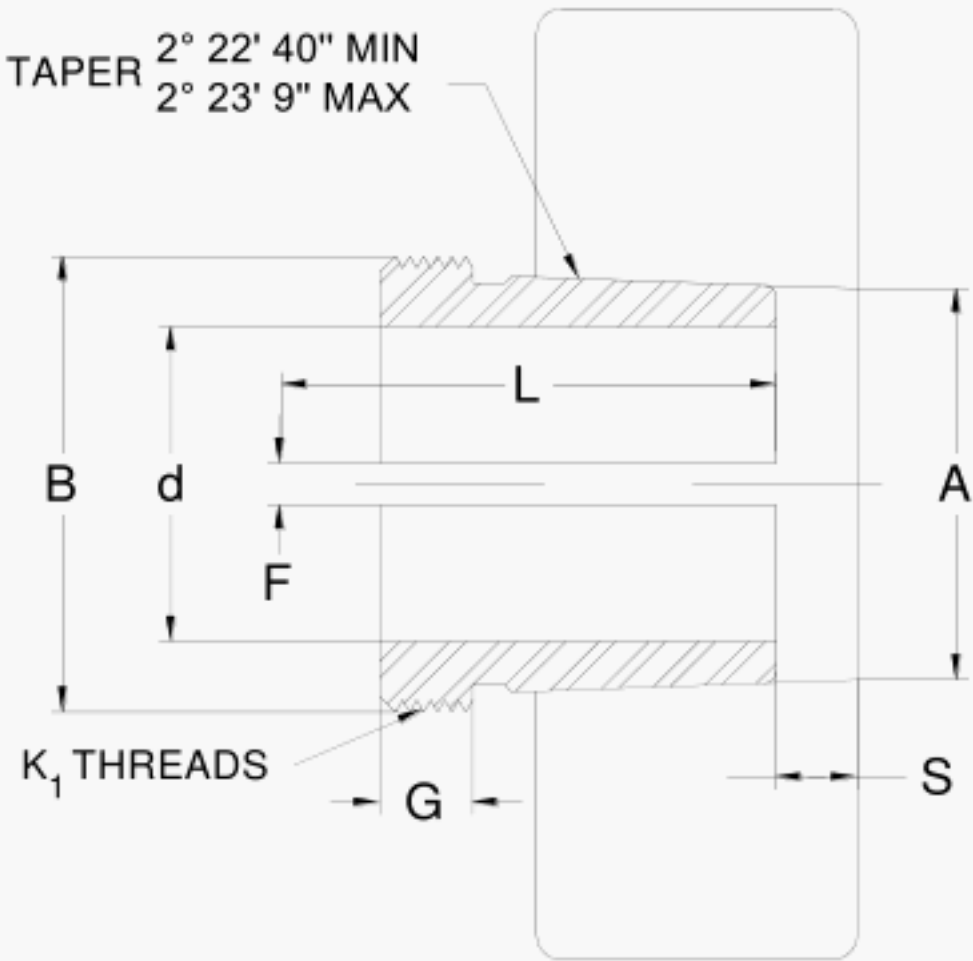


Sleeve Number			Sleeve Bore Diameter d max.	Diameter to Sharp Corner A min.			Sleeve Length L min.			Threads				Slot Width F min.	Locking Tab slot		
										Major Diameter B nom.	No. per Inch		G max.		Width P min.	Depth T min.	
				K1	M1	S-3000	S-3100										
				S-3000	S-3100	S-3200	S-3000	S-3100	S-3200	nom.							
S-3024			4.192	4.890			2.937			4.716	12		1.260	0.146	0.428	1.638	
S-3026			4.442	5.304			3.227			5.106	12		1.323	0.146	0.552	1.720	
S-3028			4.942	5.701			3.330			5.497	12		1.385	0.146	0.740	1.800	
S-3030			5.192	6.105			3.482			5.888	12		1.416	0.146	0.740	1.892	
S-3032			5.442	6.512			3.701			6.284	8		1.478	0.146	0.740	1.921	
S-3034			5.942	6.929			4.009			6.659	8		1.510	0.240	0.865	1.963	
S-3036			6.442	7.346			4.327			7.066	8		1.541	0.240	0.865	2.003	
S-3038			6.942	7.744			4.402			7.472	8		1.604	0.240	0.865	2.085	
S-3040			7.192	8.161			4.740			7.847	8		1.666	0.240	0.990	2.166	
S-3044			7.942	8.976			5.120			8.628	8		1.760	0.240	0.990	2.288	
S-3048			8.942	9.771			5.422			9.442	6		1.978	0.302	1.125	0.500	
S-3052			9.444	10.600			6.009			10.192	6		2.135	0.302	1.188	0.500	
S-3056	S-3156	S-3256	10.444	11.394	11.526	11.624	6.181	7.756	8.937	11.004	6		2.229	2.229	0.302	1.250	0.500
S-3060	S-3160	S-3260	10.944	12.221	12.359	12.464	6.717	8.370	9.630	11.785	6		2.291	2.291	0.302	1.375	0.500
S-3064	S-3164	S-3264	11.944	13.020	13.201	13.306	6.936	9.101	10.361	12.562	6		2.385	2.385	0.302	1.438	0.500
S-3068	S-3168	S-3268	12.444	13.847	14.034	14.146	7.533	9.777	11.116	13.303		5	2.541	2.541	0.302	1.500	0.500
S-3072	S-3172	S-3272	13.444	14.639	14.829	14.960	7.569	9.852	11.427	14.134		5	2.541	2.541	0.365	1.500	0.500
S-3076	S-3176	S-3276	13.944	15.430	15.623	15.774	7.733	10.056	11.867	14.921		5	2.666	2.666	0.365	1.500	0.500
S-3080	S-3180	S-3280	15.006	16.260	16.430	16.614	8.401	10.449	12.654	15.709		5	2.823	2.885	0.365	1.625	0.500
S-3084	S-3184	S-3284	15.756	17.056	17.298	17.456	8.488	11.402	13.292	16.496		5	2.823	2.948	0.365	1.625	0.500
S-3088	S-3188	S-3288	16.506	17.868	18.094	18.271	9.100	11.817	13.943	17.283		5	3.228	3.228	0.365	1.812	0.500
S-3092	S-3192	S-3292	17.006	18.675	18.928	19.111	9.336	12.368	14.573	18.071		5	3.228	3.323	0.365	1.812	0.500
S-3096	S-3196	S-3296	18.006	19.469	19.741	19.945	9.446	12.714	15.155	18.858		5	3.260	3.354	0.365	1.812	0.500
S-30/500	S-31/500	S-32/500	18.506	20.263	20.581	20.817	9.838	13.657	16.491	19.646		5	3.573	3.666	0.365	1.812	0.500
S-30/530	S-31/530	S-32/530	19.506	21.507	21.793	22.065	10.579	14.004	17.271	20.827		4	3.573	3.666	0.490	1.812	0.500
S-30/560	S-31/560	S-32/560	21.006	22.721	23.000	23.279	11.222	14.569	17.915	22.008		4	3.823	3.916	0.490	1.812	0.500
S-30/600	S-31/600	S-32/600	22.006	24.316	24.644	24.933	11.451	15.388	18.853	23.583		4	3.916	3.916	0.490	1.812	0.500
S-30/630	S-31/630	S-32/630	24.006	25.537	25.875	26.193	11.924	15.979	19.798	24.764		4	3.916	3.916	0.490	2.000	0.500
S-30/670	S-31/670	S-32/670	25.006	27.175	27.522	27.857	12.835	17.008	21.024	26.339		4	4.104	4.104	0.490	2.000	0.625
S-30/710	S-31/710	S-32/710	26.506	28.769	29.127	29.471	13.509	17.801	21.935	27.914		3	4.541	4.635	0.490	2.000	0.625
S-30/750	S-31/750	S-32/750	28.006	30.394	30.771	31.132	14.093	18.620	22.982	29.489		3	4.541	4.635	0.490	2.000	0.625
S-30/800	S-31/800		29.506	32.389	32.772		14.408	19.014		31.457		3	4.541	4.635	0.490	2.000	0.625
S-30/850	S-31/850		31.506	34.407	34.827		14.991	20.030		33.426		3	4.573	4.760	0.490	2.000	0.625
S-30/900			33.506	36.402			15.681			35.394		3	4.948		0.490	2.000	0.625
S-30/950			36.506	38.438			16.492			37.363		3	4.948		0.490	2.000	0.625

For tolerances see Table 9.3, Part 2 and Table 9.4, Part 2.



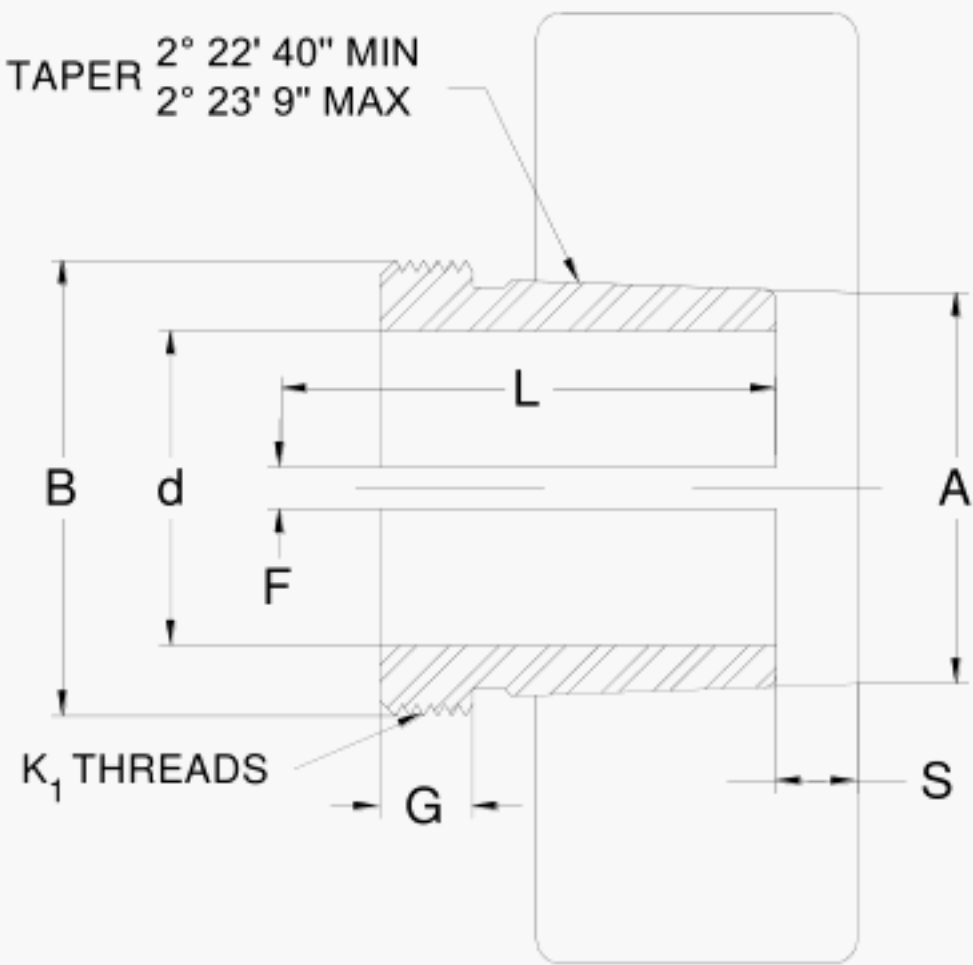
**Table 6.3 - Part 1**  
**Withdrawal Sleeve Dimensions**  
**Inch Design**  
**Series SK-00, ASK-00, and SK-2200**



Part 1		Dimensions in millimeters						
Sleeve Number	Bearing Taper Diameter A ref.	Sleeve Bore d nom.	Sleeve Length L max.	Bearing Standoff S nom.	Slot Width F min.	Thread Length G nom.	Threads per Inch K <sub>1</sub>	Thread Major Diameter B nom. <sup>(1)</sup>
SK-8	40.00	35.00	30.00	3.00	1.32	6.00	18	1.767
SK-9	45.00	40.00	32.00	3.00	1.32	6.00	18	1.967
SK-10	50.00	45.00	35.00	3.00	1.32	7.00	18	2.204
SK-11	55.00	50.00	37.00	3.00	1.32	7.00	18	2.407
SK-12	60.00	55.00	40.00	3.00	1.32	7.50	18	2.626
ASK-13	65.00	60.00	42.00	3.00	2.13	7.50	12	2.933
ASK-14	70.00	60.00	44.00	4.00	2.13	7.50	12	3.137
ASK-15	75.00	65.00	47.00	4.00	2.13	8.00	12	3.340
ASK-16	80.00	70.00	50.00	4.00	2.13	9.00	12	3.527
ASK-17	85.00	75.00	52.00	4.00	2.13	9.00	12	3.730
ASK-18	90.00	80.00	53.00	4.00	2.13	9.00	12	3.918
ASK-19	95.00	85.00	57.00	4.00	2.13	10.00	12	4.122
ASK-20	100.00	90.00	59.00	4.00	2.92	10.50	12	4.325
ASK-22	110.00	100.00	65.00	4.00	2.92	11.00	12	4.778
ASK-24	120.00	110.00	72.00	4.00	2.92	12.00	12	5.185
ASK-26	130.00	115.00	78.00	4.00	2.92	12.00	12	5.622
SK-28	140.00	125.00	82.00	5.00	2.92	13.00	8	6.097
SK-30	150.00	135.00	88.00	5.00	2.92	14.00	8	6.503
SK-32	160.00	140.00	96.00	5.00	4.52	14.00	8	6.925
SK-34	170.00	150.00	104.00	5.00	4.52	16.00	8	7.331
SK-36	180.00	160.00	104.00	5.00	4.52	16.00	8	7.753
SK-38	190.00	170.00	112.00	5.00	4.52	18.00	8	8.191
SK-40	200.00	180.00	118.00	5.00	4.52	18.00	8	8.628
SK-44	220.00	200.00	130.00	6.00	4.52	18.00	6	9.442
SK-48	240.00	220.00	144.00	6.00	4.52	20.00	6	10.192
SK-52	260.00	240.00	155.00	6.00	4.52	20.00	6	11.004
SK-56	280.00	260.00	155.00	8.00	7.67	20.00	6	11.973
SK-60	300.00	280.00	170.00	8.00	7.67	25.00	6	12.942
SK-64	320.00	300.00	180.00	10.00	7.67	25.00	6	13.723
SK-2215	75.00	65.00	44.00	4.00	2.13	9.00	12	3.340
SK-2216	80.00	70.00	44.00	4.00	2.13	9.00	12	3.527

<sup>(1)</sup> Thread diameter is in inches.  
For tolerances see Table 9.5, Part 1.

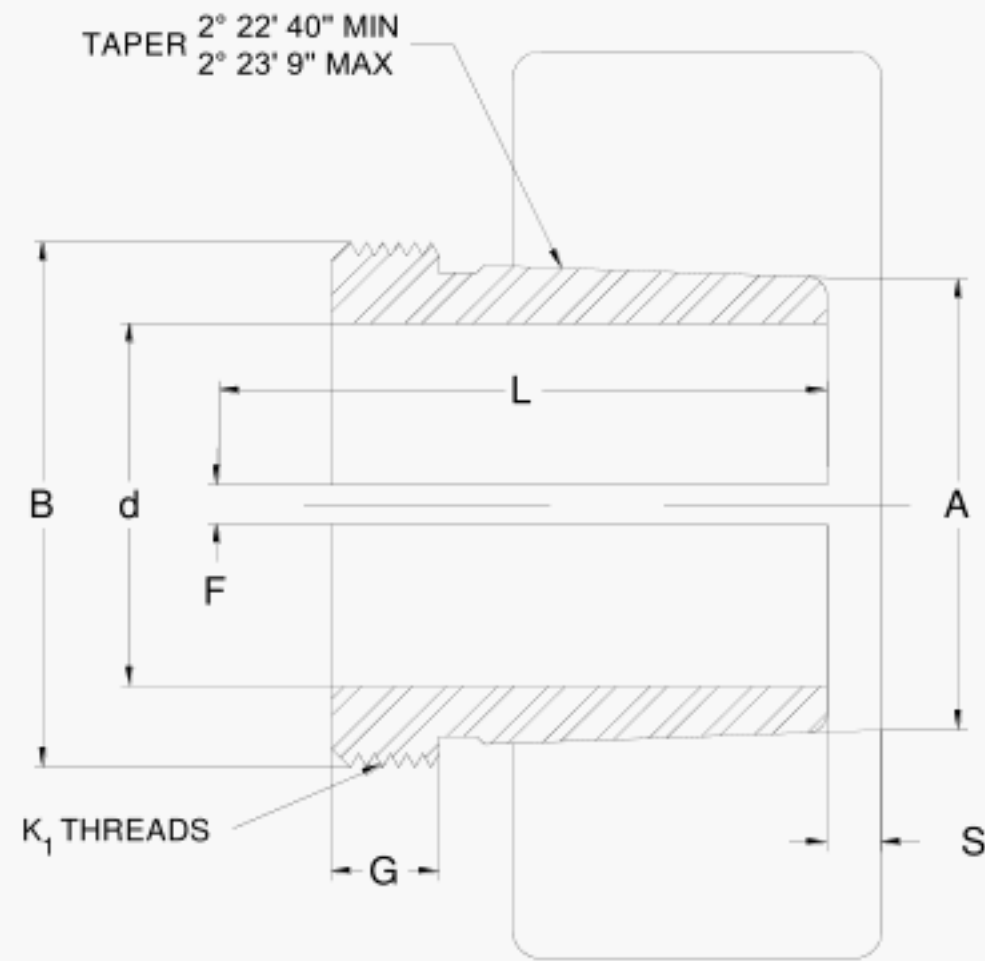
**Table 6.3 - Part 2**  
**Withdrawal Sleeve Dimensions**  
**Inch Design**  
**Series SK-00, ASK-00, and SK-2200**



Part 2		Dimensions in inches						
Sleeve Number	Bearing Taper Diameter A ref.	Sleeve Bore d nom.	Sleeve Length L max.	Bearing Standoff S nom.	Slot Width F min.	Thread Length G nom.	Threads per Inch K <sub>1</sub>	Thread Major Diameter B nom.
SK-8	1.575	1.3780	1.181	0.118	0.052	0.236	18	1.767
SK-9	1.772	1.5748	1.260	0.118	0.052	0.236	18	1.967
SK-10	1.969	1.7717	1.378	0.118	0.052	0.276	18	2.204
SK-11	2.165	1.9685	1.457	0.118	0.052	0.276	18	2.407
SK-12	2.362	2.1654	1.575	0.118	0.052	0.295	18	2.626
ASK-13	2.559	2.3622	1.654	0.118	0.084	0.295	12	2.933
ASK-14	2.756	2.3622	1.732	0.157	0.084	0.295	12	3.137
ASK-15	2.953	2.5590	1.850	0.157	0.084	0.315	12	3.340
ASK-16	3.150	2.7559	1.969	0.157	0.084	0.354	12	3.527
ASK-17	3.346	2.9528	2.047	0.157	0.084	0.354	12	3.730
ASK-18	3.543	3.1496	2.087	0.157	0.084	0.354	12	3.918
ASK-19	3.740	3.3465	2.244	0.157	0.084	0.399	12	4.122
ASK-20	3.937	3.5433	2.323	0.157	0.115	0.413	12	4.325
ASK-22	4.331	3.9370	2.559	0.157	0.115	0.433	12	4.778
ASK-24	4.724	4.3307	2.835	0.157	0.115	0.472	12	5.185
ASK-26	5.118	4.5276	3.071	0.157	0.115	0.472	12	5.622
SK-28	5.512	4.9213	3.228	0.197	0.115	0.512	8	6.097
SK-30	5.906	5.3150	3.465	0.197	0.115	0.551	8	6.503
SK-32	6.299	5.5118	3.780	0.197	0.178	0.551	8	6.925
SK-34	6.693	5.9055	4.094	0.197	0.178	0.630	8	7.331
SK-36	7.087	6.2992	4.094	0.197	0.178	0.630	8	7.753
SK-38	7.480	6.6929	4.409	0.197	0.178	0.709	8	8.191
SK-40	7.874	7.0866	4.646	0.197	0.178	0.709	8	8.628
SK-44	8.661	7.8740	5.118	0.236	0.178	0.709	6	9.442
SK-48	9.449	8.6614	5.669	0.236	0.178	0.787	6	10.192
SK-52	10.236	9.4488	6.102	0.236	0.178	0.787	6	11.004
SK-56	11.024	10.2362	6.102	0.315	0.302	0.787	6	11.973
SK-60	11.811	11.0236	6.693	0.315	0.302	0.984	6	12.942
SK-64	12.598	11.8110	7.087	0.394	0.302	0.984	6	13.723
SK-2215	2.953	2.5590	1.732	0.157	0.084	0.354	12	3.340
SK-2216	3.150	2.7559	1.732	0.157	0.084	0.354	12	3.527

For tolerances see Table 9.5, Part 2.

**Table 6.4 - Part 1**  
**Withdrawal Sleeve Dimensions**  
**Inch Design**  
**Series SK-100 and ASK-100**



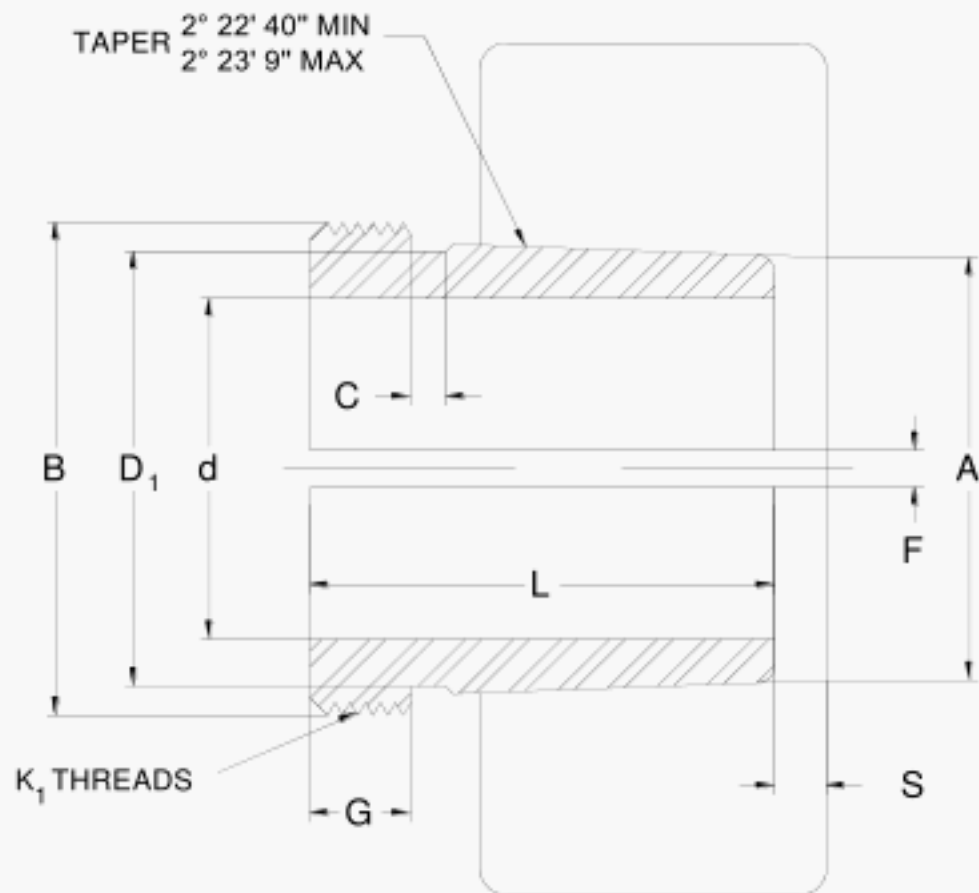
Part 1		Dimensions in millimeters						
Sleeve Number	Bearing Taper Diameter A ref.	Sleeve Bore d nom.	Sleeve Length L max.	Bearing Standoff S nom.	Slot Width F min.	Thread Length G nom.	Threads per Inch K <sub>1</sub>	Thread Major Diameter <sup>(1)</sup> B nom.
SK-108	40.00	35.00	40.00	3.00	1.32	7.00	18	1.767
SK-109	45.00	40.00	44.00	3.00	1.32	7.00	18	1.967
SK-110	50.00	45.00	50.00	3.00	1.32	8.00	18	2.204
SK-111	55.00	50.00	54.00	3.00	1.32	9.00	18	2.407
SK-112	60.00	55.00	57.00	3.00	1.32	10.00	18	2.626
ASK-113	65.00	60.00	61.00	3.00	2.13	11.00	12	2.933
ASK-114	70.00	60.00	65.00	4.00	2.13	12.00	12	3.137
ASK-115	75.00	65.00	69.00	4.00	2.13	12.00	12	3.340
ASK-116	80.00	70.00	72.00	4.00	2.13	12.00	12	3.527
ASK-117	85.00	75.00	75.00	4.00	2.13	13.00	12	3.730
ASK-118	90.00	80.00	80.00	4.00	2.13	14.00	12	3.918
ASK-119	95.00	85.00	85.00	4.00	2.13	15.00	12	4.122
ASK-120	100.00	90.00	90.00	4.00	2.92	15.00	12	4.325
ASK-122	110.00	100.00	98.00	4.00	2.92	16.00	12	4.778
ASK-124	120.00	110.00	105.00	4.00	2.92	17.00	12	5.185
SK-126	130.00	115.00	115.00	4.00	2.92	19.00	12	5.622
SK-128	140.00	125.00	125.00	5.00	2.92	20.00	8	6.097
SK-130	150.00	135.00	135.00	5.00	2.92	24.00	8	6.503
SK-132	160.00	140.00	140.00	6.00	4.52	24.00	8	6.925
SK-134	170.00	150.00	146.00	6.00	4.52	24.00	8	7.331
SK-136	180.00	160.00	154.00	6.00	4.52	26.00	8	7.753
SK-138	190.00	170.00	160.00	7.00	4.52	26.00	8	8.191
SK-140	200.00	180.00	170.00	7.00	4.52	30.00	8	8.628
SK-144	220.00	200.00	181.00	8.00	4.52	30.00	6	9.442
SK-148	240.00	220.00	189.00	8.00	4.52	30.00	6	10.192
SK-152	260.00	240.00	200.00	8.00	4.52	30.00	6	11.004
SK-156	280.00	260.00	210.00	8.00	7.67	30.00	6	11.973

<sup>(1)</sup> Thread diameter is in inches.  
For tolerances see Table 9.5, Part 1.





**Table 6.5 - Part 1**  
**Withdrawal Sleeve Dimensions**  
**Inch Design**  
**Series SKX-00 and ASKX-00\***



Part 1								Dimensions in millimeters		
Sleeve Number	Taper Diameter A ref.	Sleeve Bore d nom.	Sleeve Length L max.	Bearing Standoff S nom.	Slot Width F min.	Thread Length G nom.	Threads per Inch K <sub>1</sub>	Thread Diameter <sup>(2)</sup> B nom.	Undercut Diameter D <sub>1</sub> max.	Undercut Width C min.
SKX-10	50.00	45.00	35.00	3.00	1.32	9.00	18	2.157	—	—
SKX-11	55.00	50.00	37.00	3.00	1.32	8.00	18	2.360	—	—
SKX-12	60.00	55.00	40.00	3.00	1.32	7.50	18	2.548	62.90	0.70
ASKX-22	110.00	100.00	65.00	4.00	2.92	11.00	12	4.716	—	—
ASKX-24	120.00	110.00	72.00	4.00	2.92	12.00	12	5.106	—	—
ASKX-26	130.00	115.00	78.00	4.00	2.92	12.00	12	5.497	—	—
SKX-28	140.00	125.00	82.00	5.00	2.92	13.00	8	5.888	—	—
SKX-30	150.00	135.00	88.00	5.00	2.92	14.00	8	6.284	155.60	6.00
SKX-32	160.00	140.00	96.00	5.00	4.52	14.00	8	6.659	165.10	7.00
SKX-34	170.00	150.00	104.00	5.00	4.52	16.00	8	7.066	175.40	7.00
SKX-36	180.00	160.00	104.00	5.00	4.52	16.00	8	7.472	185.70	7.00
SKX-38	190.00	170.00	112.00	5.00	4.52	18.00	8	7.847	195.20	7.00
SKX-56	280.00	260.00	155.00	8.00	7.67	20.00	6	11.785	—	—
SKX-60	300.00	280.00	170.00	8.00	7.67	25.00	6	12.562	—	—
SKX-64	320.00	300.00	180.00	10.00	7.67	25.00	5 <sup>(1)</sup>	13.339	332.20	15.00

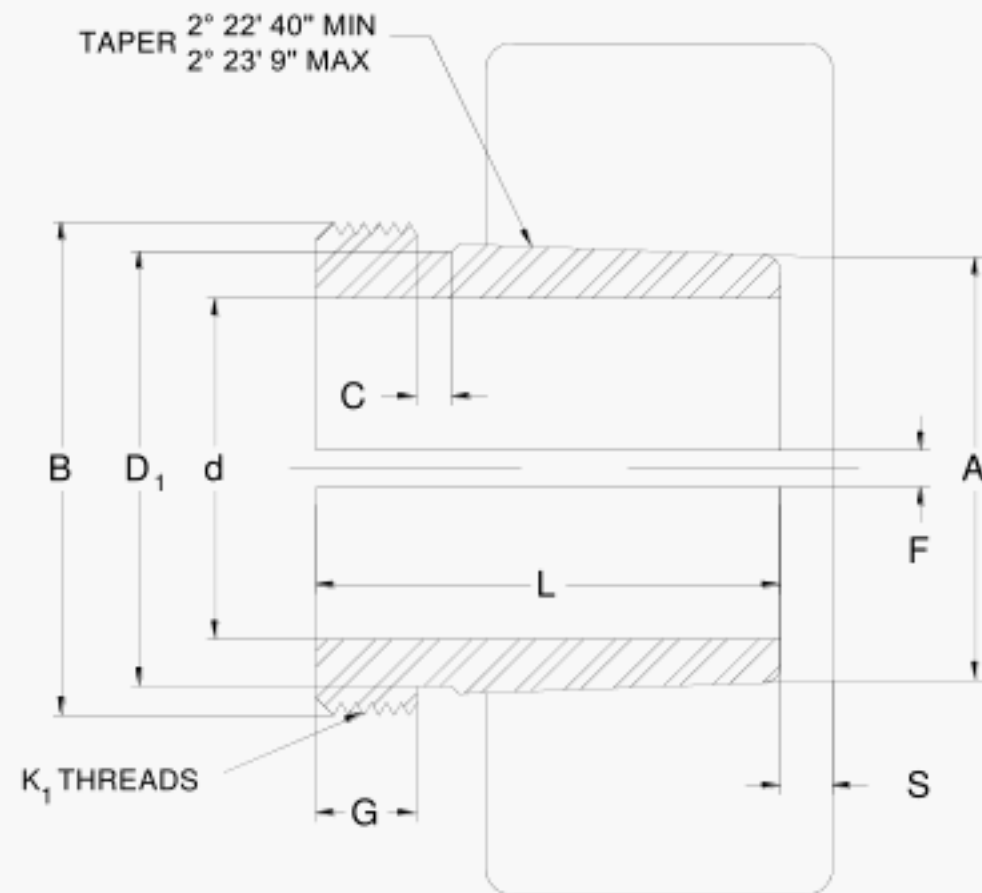
<sup>(1)</sup> SKX-64 threads “M<sub>1</sub>”.

<sup>(2)</sup> Thread diameters in inches.

\* These are new withdrawal sleeve designs which utilize standard AN locknuts to promulgate the series.

For tolerances see Table 9.5, Part 1.

**Table 6.5 - Part 2**  
**Withdrawal Sleeve Dimensions**  
**Inch Design**  
**Series SKX-00 and ASKX-00\***



Part 2

Dimensions in inches

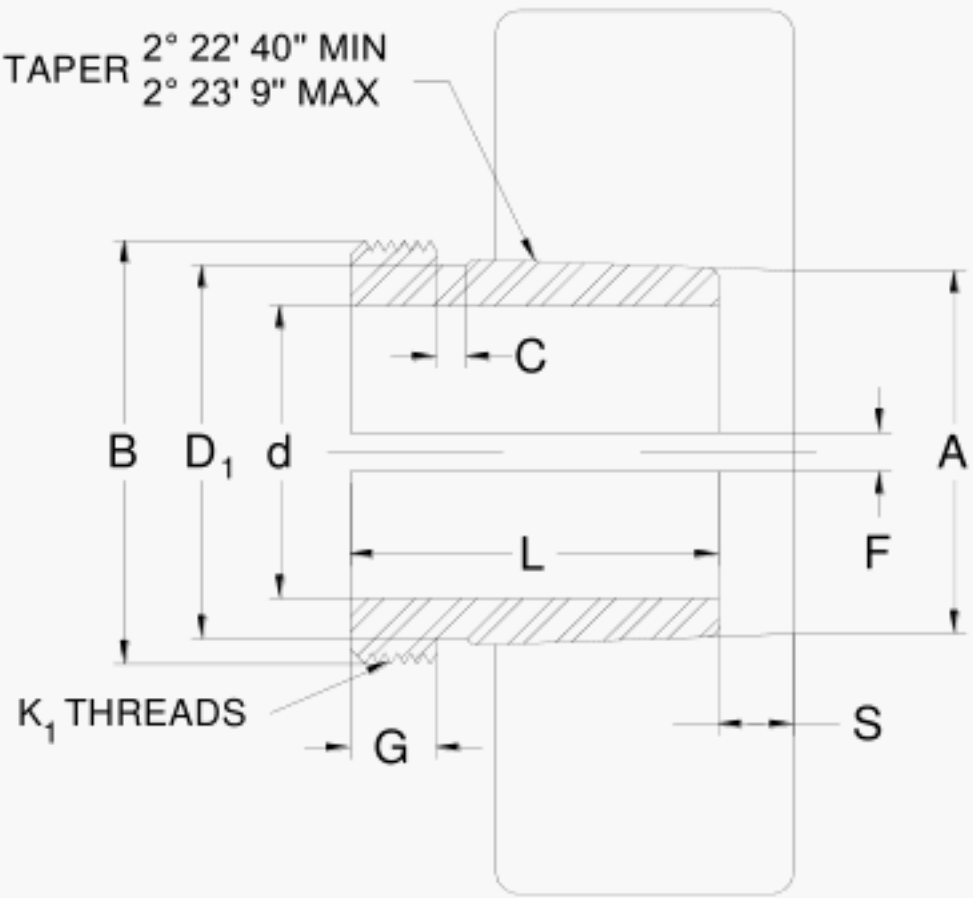
Sleeve Number	Taper Diameter A ref.	Sleeve Bore d nom.	Sleeve Length L max.	Bearing Standoff S nom.	Slot Width F min.	Thread Length G nom.	Threads per Inch K <sub>1</sub>	Thread Diameter B nom.	Undercut Diameter D <sub>1</sub> max.	Undercut Width C min.
SKX-10	1.9690	1.7717	1.3780	0.118	0.052	0.354	18	2.157	—	—
SKX-11	2.1650	1.9685	1.4570	0.118	0.052	0.315	18	2.360	—	—
SKX-12	2.3620	2.1654	1.5750	0.118	0.052	0.295	18	2.548	2.476	0.028
ASKX-22	4.3310	3.9370	2.5590	0.157	0.115	0.433	12	4.716	—	—
ASKX-24	4.7240	4.3307	2.8350	0.157	0.115	0.472	12	5.106	—	—
ASKX-26	5.1180	4.5276	3.0710	0.157	0.115	0.472	12	5.497	—	—
SKX-28	5.5120	4.9213	3.2280	0.197	0.115	0.512	8	5.888	—	—
SKX-30	5.9060	5.3150	3.4650	0.197	0.115	0.551	8	6.284	6.126	0.236
SKX-32	6.2990	5.5118	3.7800	0.197	0.178	0.551	8	6.659	6.500	0.276
SKX-34	6.6930	5.9055	4.0940	0.197	0.178	0.630	8	7.066	6.906	0.276
SKX-36	7.0870	6.2992	4.0940	0.197	0.178	0.630	8	7.472	7.311	0.276
SKX-38	7.4800	6.6929	4.4090	0.197	0.178	0.709	8	7.847	7.685	0.276
SKX-56	11.0240	10.2362	6.1020	0.315	0.302	0.787	6	11.785	—	—
SKX-60	11.8110	11.0236	6.6930	0.315	0.302	0.984	6	12.562	—	—
SKX-64	12.5980	11.8110	7.0870	0.394	0.302	0.984	5 <sup>(1)</sup>	13.339	13.079	0.591

<sup>(1)</sup> SKX-64 threads “M<sub>1</sub>”.

\* These are new withdrawal sleeve designs which utilize standard AN locknuts to promulgate the series.

For tolerances see Table 9.5, Part 2.

**Table 6.6 - Part 1**  
**Withdrawal Sleeve Dimensions**  
**Inch Design**  
**Series SKX-100 and ASKX-100\***



Part 1

Dimensions in millimeters

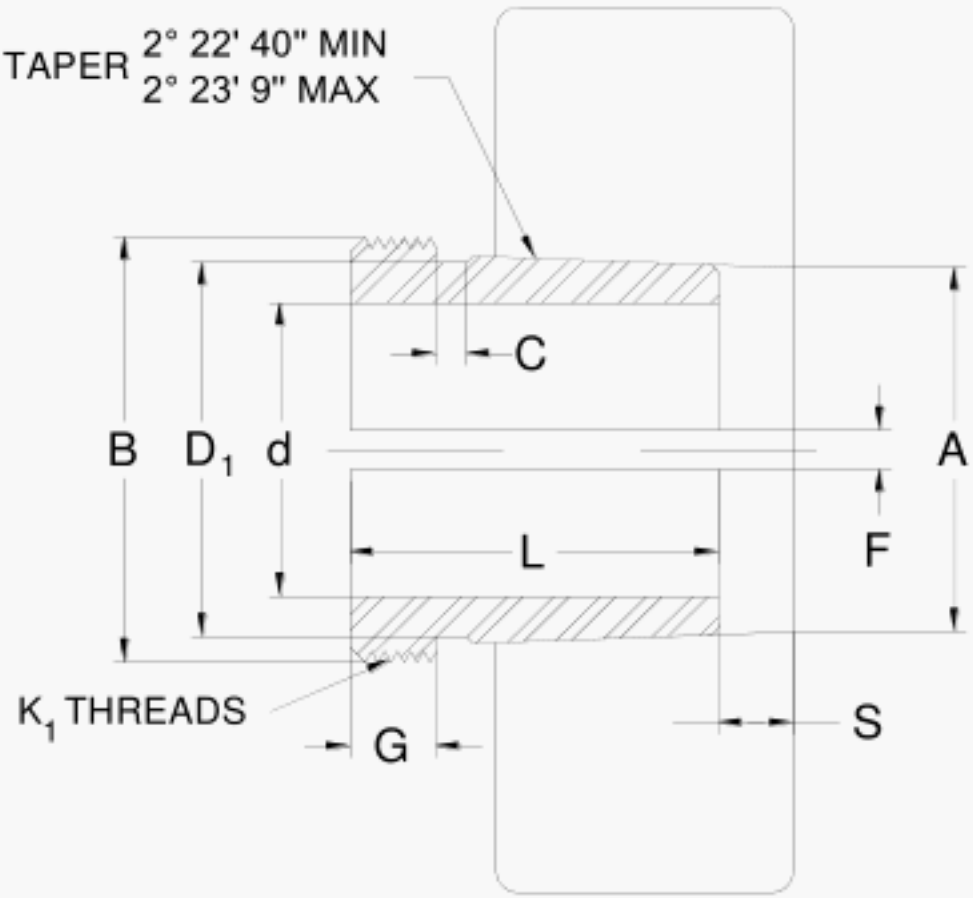
Sleeve Number	Taper Diameter A ref.	Sleeve Bore d nom.	Sleeve Length L max.	Bearing Standoff S nom.	Slot Width F min.	Thread Length G nom.	Threads per Inch K <sub>1</sub>	Thread Diameter <sup>(1)</sup> B nom.	Undercut Diameter D <sub>1</sub> max.	Undercut Width C min.
SKX-110	50.00	45.00	50.00	3.00	1.32	8.00	18	2.157	53.00	5.00
SKX-111	55.00	50.00	54.00	3.00	1.32	9.00	18	2.360	58.10	5.00
SKX-112	60.00	55.00	57.00	3.00	1.32	10.00	18	2.548	62.90	4.00
ASKX-122	110.00	100.00	98.00	4.00	2.92	16.00	12	4.716	117.10	0.80
ASKX-124	120.00	110.00	105.00	4.00	2.92	17.00	12	5.106	127.00	6.00
ASKX-126	130.00	115.00	115.00	4.00	2.92	19.00	12	5.497	136.90	7.00
SKX-128	140.00	125.00	125.00	5.00	2.92	20.00	8	5.888	146.80	8.00
SKX-130	150.00	135.00	135.00	5.00	2.92	24.00	8	6.284	155.60	8.00
SKX-132	160.00	140.00	140.00	6.00	4.52	24.00	8	6.659	165.10	8.00
SKX-134	170.00	150.00	146.00	6.00	4.52	24.00	8	7.066	175.40	8.00
SKX-136	180.00	160.00	154.00	6.00	4.52	26.00	8	7.472	185.70	8.00
SKX-138	190.00	170.00	160.00	7.00	4.52	26.00	8	7.847	195.20	9.00
SKX-156	280.00	260.00	210.00	8.00	7.67	30.00	6	11.785	293.90	13.00

<sup>(1)</sup> Thread diameters in inches.

\* These are new withdrawal sleeve designs which utilize standard AN locknuts to promulgate the series.

For tolerances see Table 9.5, Part 1.

**Table 6.6 - Part 2**  
**Withdrawal Sleeve Dimensions**  
**Inch Design**  
**Series SKX-100 and ASKX-100\***



Part 2

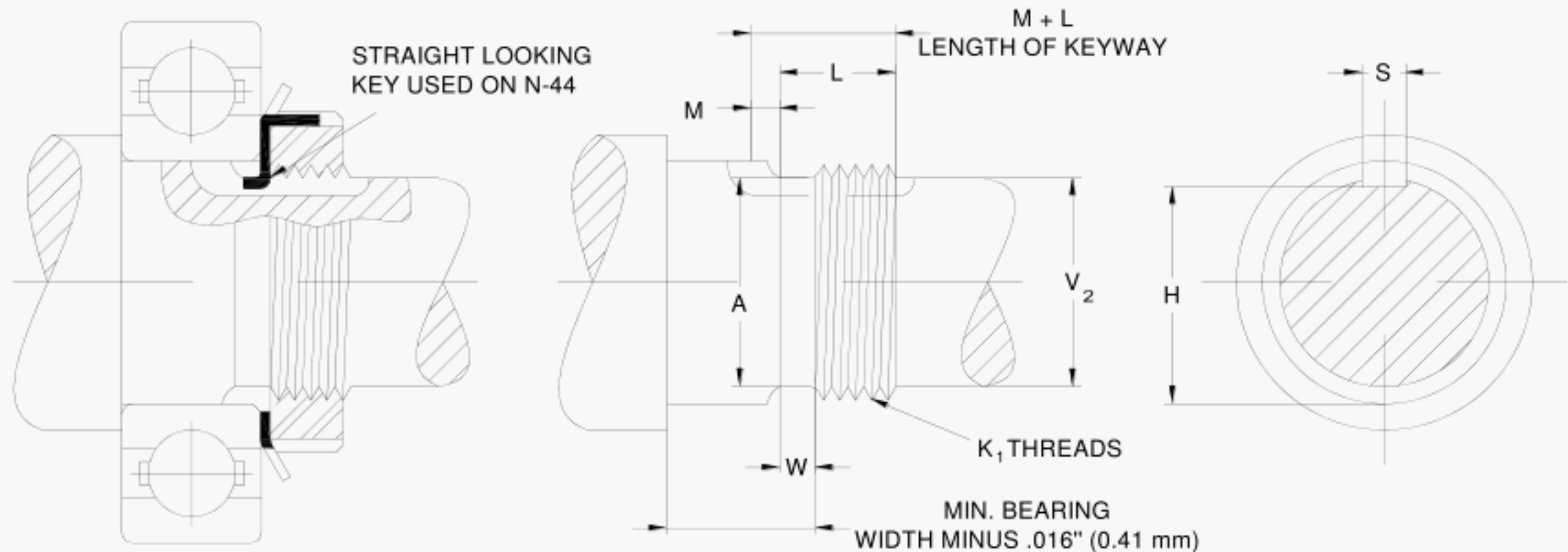
Dimensions in inches

Sleeve Number	Taper Diameter A ref.	Sleeve Bore d nom.	Sleeve Length L max.	Bearing Standoff S nom.	Slot Width F min.	Thread Length G nom.	Threads per Inch K <sub>1</sub>	Thread Diameter B nom.	Undercut Diameter D <sub>1</sub> max.	Undercut Width C min.
SKX-110	1.969	1.7717	1.969	0.118	0.052	0.315	18	2.157	2.087	0.197
SKX-111	2.165	1.9685	2.126	0.118	0.052	0.354	18	2.360	2.287	0.197
SKX-112	2.362	2.1654	2.244	0.118	0.052	0.394	18	2.548	2.476	0.157
ASKX-122	4.331	3.9370	3.858	0.157	0.115	0.630	12	4.716	4.610	0.031
ASKX-124	4.724	4.3307	4.134	0.157	0.115	0.669	12	5.106	5.000	0.236
ASKX-126	5.118	4.5276	4.528	0.157	0.115	0.748	12	5.497	5.390	0.276
SKX-128	5.512	4.9213	4.921	0.197	0.115	0.787	8	5.888	5.780	0.315
SKX-130	5.906	5.3150	5.315	0.197	0.115	0.945	8	6.284	6.126	0.315
SKX-132	6.299	5.5118	5.512	0.236	0.178	0.945	8	6.659	6.500	0.315
SKX-134	6.693	5.9055	5.748	0.236	0.178	0.945	8	7.066	6.906	0.315
SKX-136	7.087	6.2992	6.063	0.236	0.178	1.024	8	7.472	7.311	0.315
SKX-138	7.480	6.6929	6.299	0.276	0.178	1.024	8	7.847	7.685	0.354
SKX-156	11.024	10.2362	8.268	0.315	0.302	1.181	6	11.785	11.571	0.512

\* These are new withdrawal sleeve designs which utilize standard AN locknuts to promulgate the series.  
 For tolerances see Table 9.5, Part 2.



**Table 7.1- Part 1**  
**Shaft Dimensions**  
**Inch Design**  
**For Locknut Series N-00 and AN**



Part 1

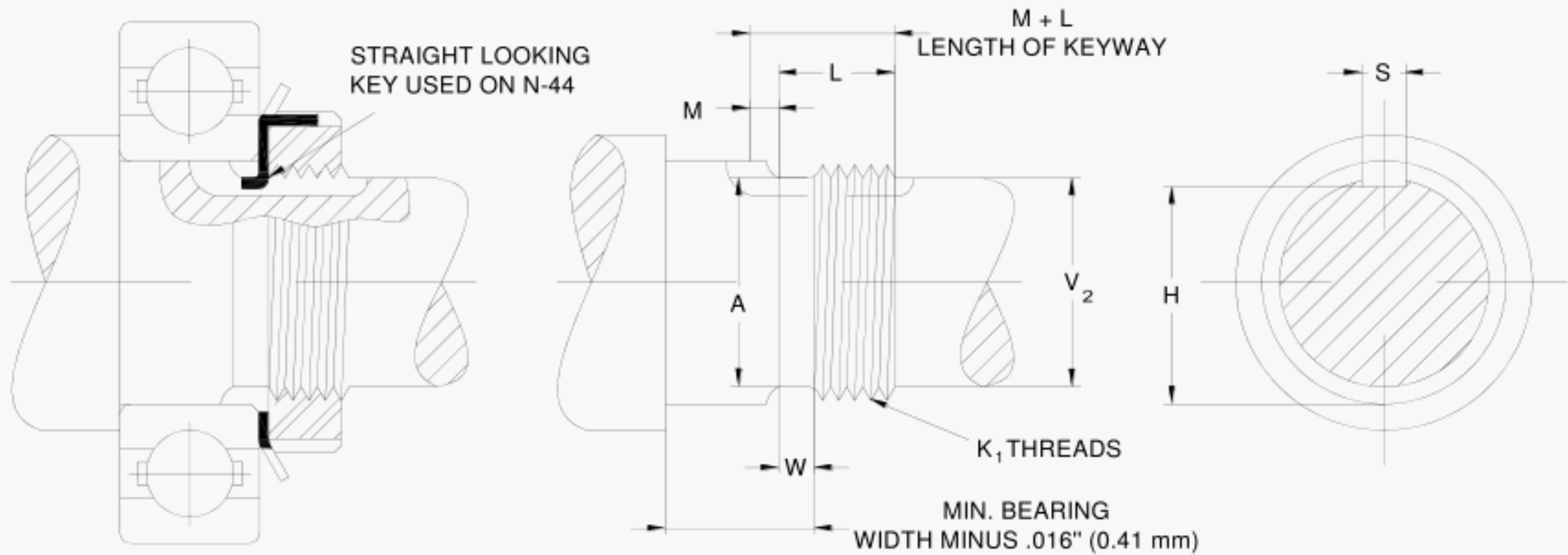
Dimensions in millimeters

Locknut Number	Bearing Bore	V <sub>2</sub> max.	Threads <sup>(1)(2)</sup>						Relief		Keyway	
			No. per Inch K <sub>1</sub>	Major Diameter nom.	Pitch Diameter max.	Minor Diameter max.	Length L max.	Diameter A max.	Width W max.	Depth H max.	Width S min.	M min.
N-00	10	7.92	32	0.391	0.3707	0.3527	7.54	8.6893	1.98	8.36	3.18	2.39
N-01	12	10.31	32	0.469	0.4487	0.4307	9.93	10.6705	1.98	10.34	3.18	2.39
N-02	15	12.70	32	0.586	0.5657	0.5477	9.93	13.6423	1.98	12.90	3.18	2.39
N-03	17	14.27	32	0.664	0.6437	0.6257	10.72	15.6235	1.98	14.88	3.18	2.39
N-04	20	18.26	32	0.781	0.7607	0.7427	11.51	18.5953	1.98	17.86	4.78	2.39
N-05	25	22.23	32	0.969	0.9487	0.9307	12.29	23.3705	1.98	22.23	4.78	3.18
N-06	30	26.97	18	1.173	1.1369	1.1048	12.29	27.7927	2.77	27.41	4.78	3.18
N-07	35	31.75	18	1.376	1.3399	1.3078	13.11	32.9489	2.77	32.56	4.78	3.18
N-08	40	37.31	18	1.563	1.5269	1.4948	13.89	37.6987	2.77	37.31	7.92	3.18
N-09	45	42.88	18	1.767	1.7309	1.6988	13.89	42.8803	3.58	42.49	7.92	3.96
N-10	50	47.63	18	1.967	1.9309	1.8988	15.47	47.9603	3.58	47.57	7.92	3.96
N-11	55	52.37	18	2.157	2.1209	2.0888	15.47	52.7863	3.58	51.61	7.92	3.96
N-12	60	57.15	18	2.360	2.3239	2.2918	16.28	57.9425	3.58	56.77	7.92	3.96
N-13	65	61.93	18	2.548	2.5119	2.4798	17.07	62.7177	3.58	61.54	7.92	3.96
N-14	70	66.68	18	2.751	2.7149	2.6828	17.07	67.8739	3.58	66.70	7.92	6.35
AN-15	75	70.64	12	2.933	2.8789	2.8308	17.86	71.3613	4.37	71.32	7.92	6.35
AN-16	80	76.20	12	3.137	3.0829	3.0348	17.86	76.5429	4.37	76.50	9.53	6.35
AN-17	85	80.98	12	3.340	3.2859	3.2378	18.64	81.6991	4.37	81.66	9.53	6.35
AN-18	90	85.73	12	3.527	3.4729	3.4248	21.03	86.4489	4.37	85.62	9.53	6.35
AN-19	95	90.47	12	3.730	3.6759	3.6278	21.82	91.6051	4.37	90.78	9.53	6.35
AN-20	100	96.04	12	3.918	3.8639	3.8158	22.63	96.3803	4.37	95.55	9.53	7.92
AN-21	105	100.03	12	4.122	4.0679	4.0198	22.63	101.5619	4.37	100.74	9.53	7.92
AN-22	110	106.38	12	4.325	4.2709	4.2228	23.42	106.7181	4.37	105.08	9.53	7.92
AN-24	120	115.87	12	4.716	4.6619	4.6138	24.21	116.6495	4.37	115.01	9.53	7.92
AN-26	130	125.43	12	5.106	5.0519	5.0038	25.81	126.5555	4.37	124.92	12.70	7.92
AN-28	140	134.92	12	5.497	5.4429	5.3948	27.38	136.4869	4.37	134.85	15.88	7.92
AN-30	150	145.26	12	5.888	5.8339	5.7858	28.98	146.4183	4.37	143.99	15.88	9.53
AN-32	160	155.58	8	6.284	6.2028	6.1306	30.56	155.1762	6.76	153.67	15.88	9.53
AN-34	170	165.10	8	6.659	6.5778	6.5056	31.34	164.7012	6.76	163.20	19.05	9.53
AN-36	180	175.41	8	7.066	6.9848	6.9126	32.16	175.0390	6.76	173.53	19.05	9.53
AN-38	190	185.72	8	7.472	7.3908	7.3186	32.94	185.3514	6.76	183.85	19.05	9.53
AN-40	200	195.28	8	7.847	7.7658	7.6936	34.52	194.8764	6.76	193.37	22.23	9.53
N-44	220	211.12	8	8.628	8.5468	8.4746	35.33	214.7138	6.76	209.63	26.97	4.78

<sup>(1)</sup> Thread diameters are in inches.

<sup>(2)</sup> This standard is applicable to steel nuts. When either the nut or the shaft is made of stainless steel, aluminum or other material having a tendency to seize, it is recommended that the maximum thread diameter of the shaft, both major and pitch, be reduced by 20% of the pitch diameter tolerance.

**Table 7.1- Part 2  
Shaft Dimensions  
Inch Design  
For Locknut Series N-00 and AN**



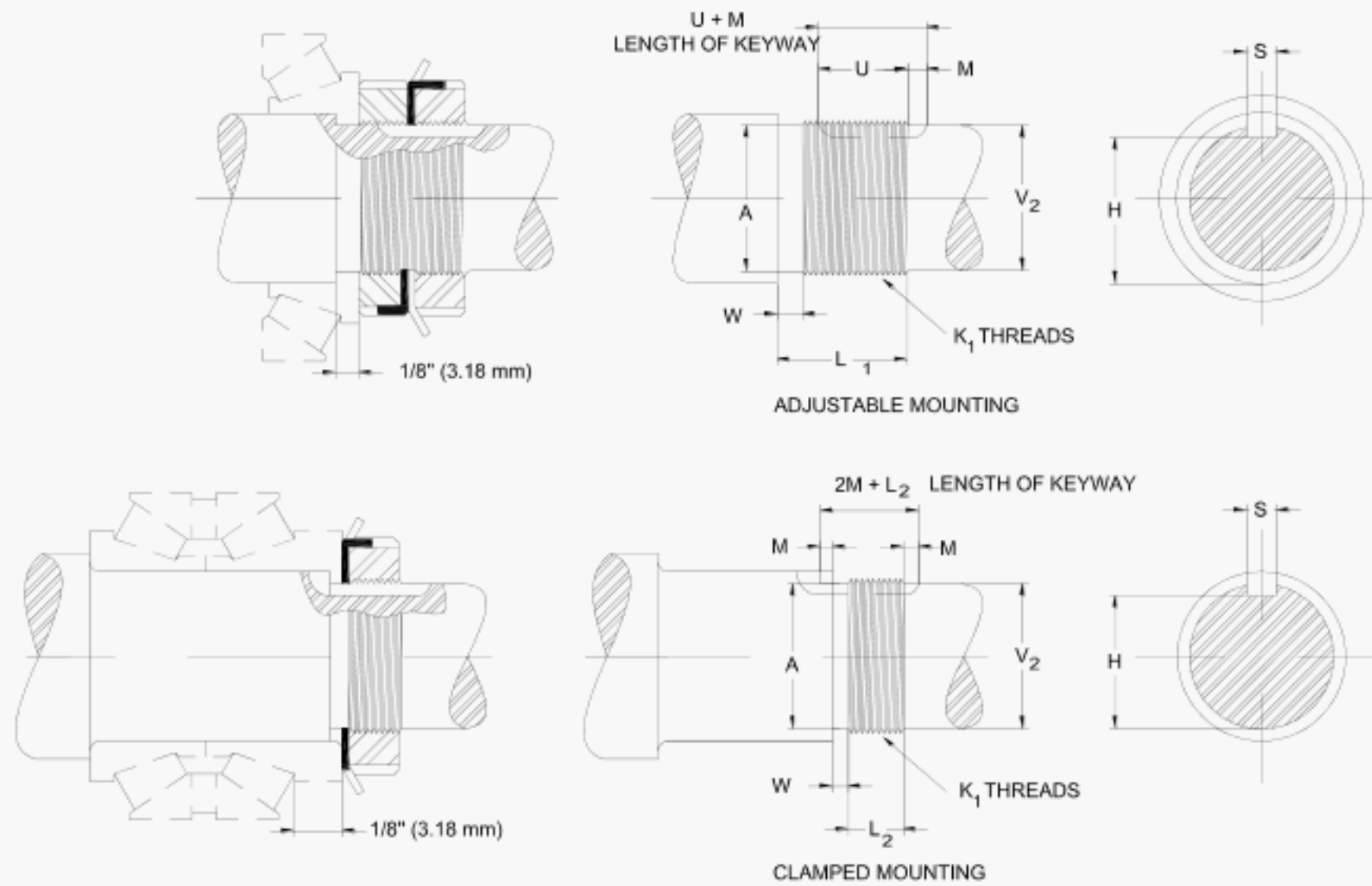
Part 2

Dimensions in inches

Locknut Number	Bearing Bore	V <sub>2</sub> max.	Threads <sup>(1)</sup>						Relief		Keyway	
			No. per Inch K <sub>1</sub>	Major Diameter nom.	Pitch Diameter max.	Minor Diameter max.	Length L max.	Diameter A max.	Width W max.	Depth H max.	Width S min.	M min.
N-00	0.3937	0.312	32	0.391	0.3707	0.3527	0.297	0.3421	0.078	0.329	0.125	0.094
N-01	0.4724	0.406	32	0.469	0.4487	0.4307	0.391	0.4201	0.078	0.407	0.125	0.094
N-02	0.5906	0.500	32	0.586	0.5657	0.5477	0.391	0.5371	0.078	0.508	0.125	0.094
N-03	0.6693	0.562	32	0.664	0.6437	0.6257	0.422	0.6151	0.078	0.586	0.125	0.094
N-04	0.7874	0.719	32	0.781	0.7607	0.7427	0.453	0.7321	0.078	0.703	0.188	0.094
N-05	0.9843	0.875	32	0.969	0.9487	0.9307	0.484	0.9201	0.078	0.875	0.188	0.125
N-06	1.1811	1.062	18	1.173	1.1369	1.1048	0.484	1.0942	0.109	1.079	0.188	0.125
N-07	1.3780	1.250	18	1.376	1.3399	1.3078	0.516	1.2972	0.109	1.282	0.188	0.125
N-08	1.5748	1.469	18	1.563	1.5269	1.4948	0.547	1.4842	0.109	1.469	0.312	0.125
N-09	1.7717	1.688	18	1.767	1.7309	1.6988	0.547	1.6882	0.141	1.673	0.312	0.156
N-10	1.9685	1.875	18	1.967	1.9309	1.8988	0.609	1.8882	0.141	1.873	0.312	0.156
N-11	2.1654	2.062	18	2.157	2.1209	2.0888	0.609	2.0782	0.141	2.032	0.312	0.156
N-12	2.3622	2.250	18	2.360	2.3239	2.2918	0.641	2.2812	0.141	2.235	0.312	0.156
N-13	2.5591	2.438	18	2.548	2.5119	2.4798	0.672	2.4692	0.141	2.423	0.312	0.156
N-14	2.7559	2.625	18	2.751	2.7149	2.6828	0.672	2.6722	0.141	2.626	0.312	0.250
AN-15	2.9528	2.781	12	2.933	2.8789	2.8308	0.703	2.8095	0.172	2.808	0.312	0.250
AN-16	3.1496	3.000	12	3.137	3.0829	3.0348	0.703	3.0135	0.172	3.012	0.375	0.250
AN-17	3.3465	3.188	12	3.340	3.2859	3.2378	0.734	3.2165	0.172	3.215	0.375	0.250
AN-18	3.5433	3.375	12	3.527	3.4729	3.4248	0.828	3.4035	0.172	3.371	0.375	0.250
AN-19	3.7402	3.562	12	3.730	3.6759	3.6278	0.859	3.6065	0.172	3.574	0.375	0.250
AN-20	3.9370	3.781	12	3.918	3.8639	3.8158	0.891	3.7945	0.172	3.762	0.375	0.312
AN-21	4.1339	3.938	12	4.122	4.0679	4.0198	0.891	3.9985	0.172	3.966	0.375	0.312
AN-22	4.3307	4.188	12	4.325	4.2709	4.2228	0.922	4.2015	0.172	4.137	0.375	0.312
AN-24	4.7244	4.562	12	4.716	4.6619	4.6138	0.953	4.5925	0.172	4.528	0.375	0.312
AN-26	5.1181	4.938	12	5.106	5.0519	5.0038	1.016	4.9825	0.172	4.918	0.500	0.312
AN-28	5.5118	5.312	12	5.497	5.4429	5.3948	1.078	5.3735	0.172	5.309	0.625	0.312
AN-30	5.9055	5.719	12	5.888	5.8339	5.7858	1.141	5.7645	0.172	5.669	0.625	0.375
AN-32	6.2992	6.125	8	6.284	6.2028	6.1306	1.203	6.1093	0.266	6.050	0.625	0.375
AN-34	6.6929	6.500	8	6.659	6.5778	6.5056	1.234	6.4843	0.266	6.425	0.750	0.375
AN-36	7.0866	6.906	8	7.066	6.9848	6.9126	1.266	6.8913	0.266	6.832	0.750	0.375
AN-38	7.4803	7.312	8	7.472	7.3908	7.3186	1.297	7.2973	0.266	7.238	0.750	0.375
AN-40	7.8740	7.688	8	7.847	7.7658	7.6936	1.359	7.6723	0.266	7.613	0.875	0.375
N-44	8.6614	8.312	8	8.628	8.5468	8.4746	1.391	8.4533	0.266	8.253	1.062	0.188

<sup>(1)</sup> This standard is applicable to steel nuts. When either the nut or the shaft is made of stainless steel, aluminum or other material having a tendency to seize, it is recommended that the maximum thread diameter of the shaft, both major and pitch, be reduced by 20% of the pitch diameter tolerance.

**Table 7.2 - Part 1**  
**Shaft Dimensions**  
**Inch Design**  
**For Locknut Series N-00, TN and TAN**  
**(Tapered Roller Bearings)**



Part 1

Dimensions in millimeters

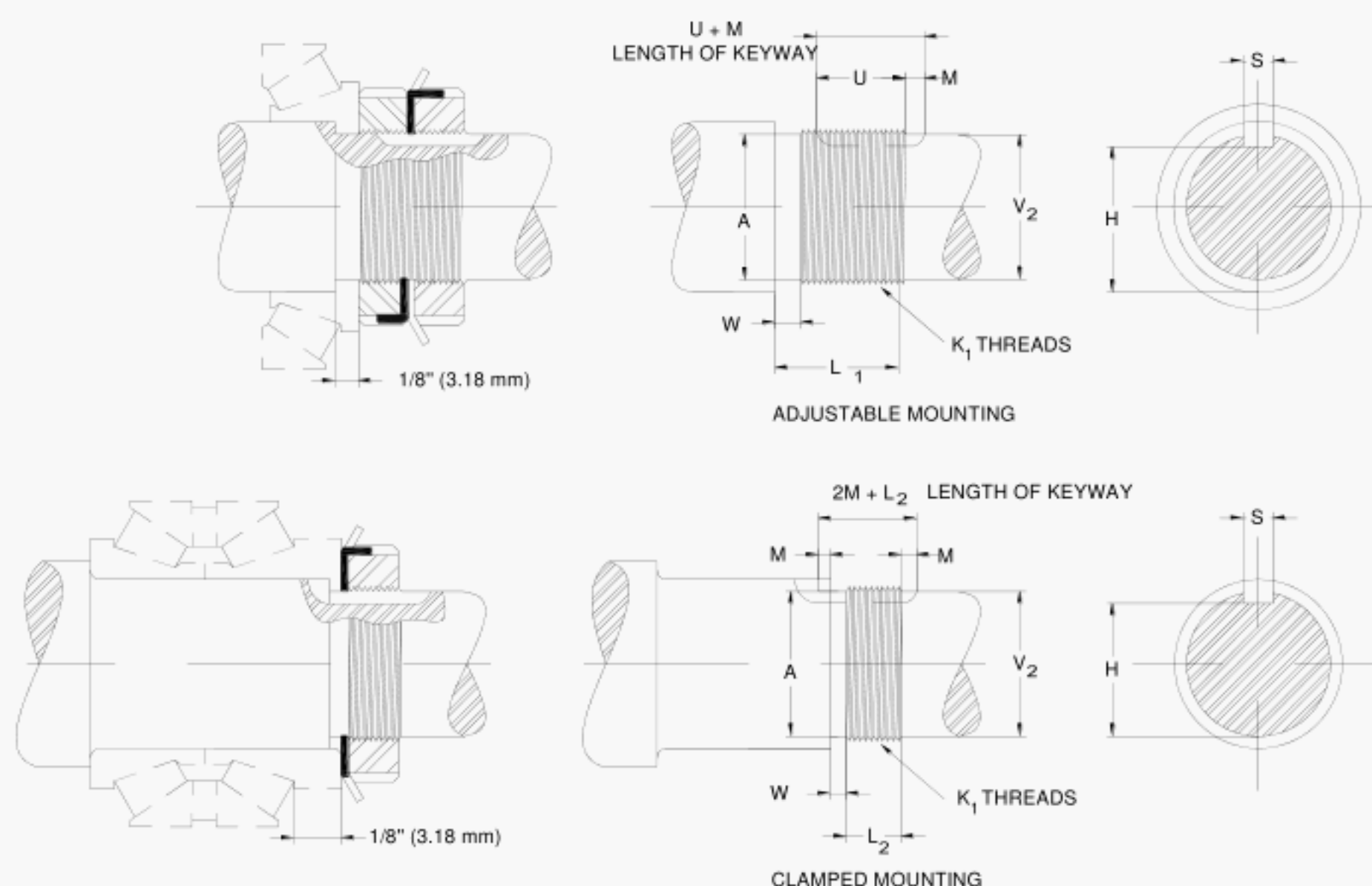
Locknut Number	Bearing Bore	V <sub>2</sub> max.	Threads <sup>(1)(2)</sup>						Relief		Keyway			
			No. per Inch K <sub>1</sub>	Major Diameter nom.	Pitch Diameter max.	Minor Diameter max.	Length		Diameter A max.	Width W max.	Depth H max.	Width S min.	M min.	U min.
							L <sub>1</sub> max.	L <sub>2</sub> max.						
N-00	10	7.92	32	0.391	0.3707	0.3527	15.47	9.93	8.69	1.98	7.29	3.18	2.39	11.91
N-01	12	10.31	32	0.469	0.4487	0.4307	20.24	12.29	10.67	1.98	9.32	3.18	2.39	14.27
N-02	15	12.70	32	0.586	0.5657	0.5477	21.03	13.11	13.64	1.98	12.32	3.18	2.39	15.09
N-03	17	14.27	32	0.664	0.6437	0.6257	22.63	13.89	15.62	1.98	14.33	3.18	2.39	15.88
N-04	20	17.86	32	0.781	0.7607	0.7427	23.42	13.89	18.60	1.98	17.17	4.78	2.39	15.88
N-05	25	22.23	32	0.969	0.9487	0.9307	25.81	15.47	23.37	1.98	21.21	4.78	3.18	18.26
N-06	30	26.97	18	1.173	1.1369	1.1048	25.81	15.47	27.79	2.77	26.42	4.78	3.18	18.26
TN-065	34	30.18	18	1.312	1.2764	1.2443	27.38	16.28	31.34	2.77	29.97	4.78	3.18	19.05
TN-07	35	31.75	18	1.376	1.3399	1.3078	27.38	16.28	32.95	2.77	31.62	4.78	3.18	19.05
TN-08	40	36.53	18	1.563	1.5269	1.4948	27.38	16.28	37.70	2.77	36.12	7.92	3.18	19.05
TN-09	45	42.06	18	1.767	1.7309	1.6988	27.38	16.28	42.88	3.58	41.35	7.92	3.96	19.84
TN-10	50	47.22	18	1.967	1.9309	1.8988	30.56	17.86	47.96	3.58	46.48	7.92	3.96	21.44
TN-11	55	51.99	18	2.157	2.1209	2.0888	30.56	17.86	52.79	3.58	51.33	7.92	3.96	21.44
TN-12	60	57.15	18	2.360	2.3239	2.2918	32.94	19.46	57.94	3.58	55.73	7.92	3.96	23.01
TN-13	65	61.52	18	2.548	2.5119	2.4798	34.52	20.24	62.72	3.58	60.50	7.92	3.96	23.83
TN-14	70	66.68	18	2.751	2.7149	2.6828	34.52	20.24	67.87	3.58	65.68	7.92	6.35	25.40
TAN-15	75	70.64	12	2.933	2.8789	2.8308	36.12	21.03	71.36	4.37	70.03	7.92	6.35	26.19
TAN-16	80	76.20	12	3.137	3.0829	3.0348	36.12	21.03	76.54	4.37	74.63	9.53	6.35	26.19
TAN-17	85	80.98	12	3.340	3.2859	3.2378	37.69	21.82	81.70	4.37	79.78	9.53	6.35	26.97
TAN-18	90	85.73	12	3.527	3.4729	3.4248	41.68	24.21	86.45	4.37	83.77	9.53	6.35	29.36
TAN-19	95	90.47	12	3.730	3.6759	3.6278	43.26	24.99	91.61	4.37	88.95	9.53	6.35	30.18
TAN-20	100	95.66	12	3.918	3.8639	3.8158	44.86	25.81	96.38	4.37	93.73	9.53	7.92	32.54
TAN-21	105	100.03	12	4.122	4.0679	4.0198	44.86	25.81	101.56	4.37	98.93	9.53	7.92	32.54
TAN-22	110	105.56	12	4.325	4.2709	4.2228	46.43	26.59	106.72	4.37	104.09	9.53	7.92	33.32
TAN-24	120	115.09	12	4.716	4.6619	4.6138	48.82	28.17	116.65	4.37	113.26	9.53	7.92	34.93
TAN-26	130	124.61	12	5.106	5.0519	5.0038	51.99	29.77	126.56	4.37	123.04	12.70	7.92	36.53
TAN-128	140	134.54	12	5.497	5.4429	5.3948	67.87	37.69	136.49	4.37	132.82	15.88	7.92	44.45
TAN-130	150	143.66	12	5.888	5.8339	5.7858	71.83	40.08	146.42	4.37	141.99	15.88	9.53	48.41
TAN-132	160	153.97	8	6.284	6.2028	6.1306	73.43	40.87	155.18	6.76	151.28	15.88	9.53	49.23
TAN-134	170	163.53	8	6.659	6.5778	6.5056	76.61	42.47	164.70	6.76	160.68	19.05	9.53	50.80
TAN-136	180	173.84	8	7.066	6.9848	6.9126	79.78	44.04	175.04	6.76	171.04	19.05	9.53	52.37
TAN-138	190	184.15	8	7.472	7.3908	7.3186	79.78	44.04	185.35	6.76	181.38	19.05	9.53	52.37
TAN-140	200	193.68	8	7.847	7.7658	7.6936	84.53	46.43	194.88	6.76	190.78	22.23	9.53	53.98

<sup>(1)</sup> Thread diameters are in inches.

<sup>(2)</sup> This standard is applicable to steel nuts. When either the nut or the shaft is made of stainless steel, aluminum or other material having a tendency to seize, it is recommended that the maximum thread diameter of the shaft, both major and pitch, be reduced by 20% of the pitch diameter tolerance.



**Table 7.2 - Part 2**  
**Shaft Dimensions**  
**Inch Design**  
**For Locknut Series N-00, TN and TAN**  
**(Tapered Roller Bearings)**



Part 2

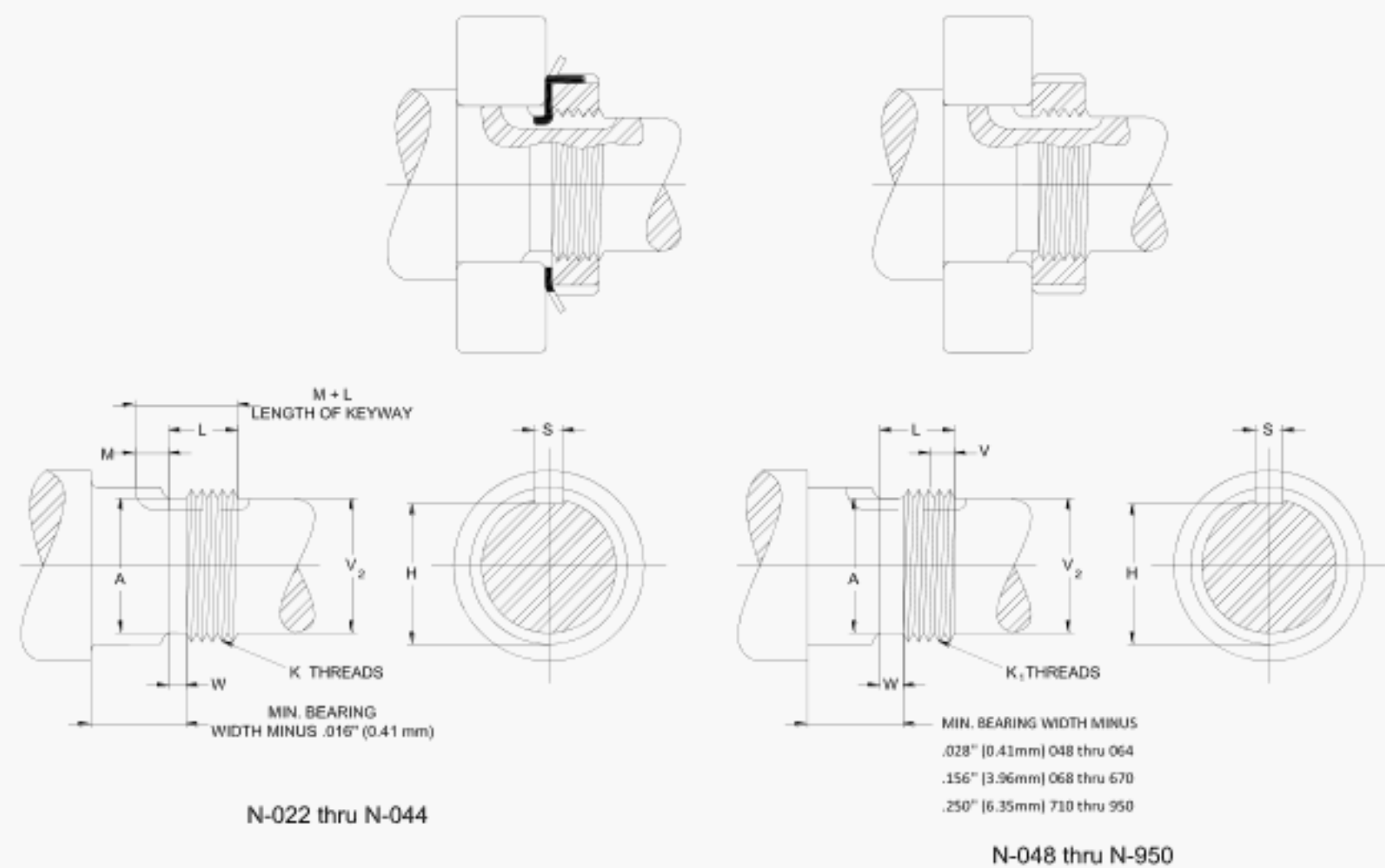
Dimensions in inches

Locknut Number	Bearing Bore	V <sub>2</sub> max.	Threads <sup>(1)</sup>						Relief		Keyway			
			No. per Inch K <sub>1</sub>	Major Diameter nom.	Pitch Diameter max.	Minor Diameter max.	Length		Diameter A max.	Width W max.	Depth H max.	Width S min.	M min.	U min.
							L <sub>1</sub> max.	L <sub>2</sub> max.						
N-00	0.3937	0.312	32	0.391	0.3707	0.3527	0.609	0.391	0.3421	0.078	0.287	0.125	0.094	0.469
N-01	0.4724	0.406	32	0.469	0.4487	0.4307	0.797	0.484	0.4201	0.078	0.367	0.125	0.094	0.562
N-02	0.5906	0.500	32	0.586	0.5657	0.5477	0.828	0.516	0.5371	0.078	0.485	0.125	0.094	0.594
N-03	0.6693	0.562	32	0.664	0.6437	0.6257	0.891	0.547	0.6151	0.078	0.564	0.125	0.094	0.625
N-04	0.7874	0.703	32	0.781	0.7607	0.7427	0.922	0.547	0.7321	0.078	0.676	0.188	0.094	0.625
N-05	0.9843	0.875	32	0.969	0.9487	0.9307	1.016	0.609	0.9201	0.078	0.835	0.188	0.125	0.719
N-06	1.1811	1.062	18	1.173	1.1369	1.1048	1.016	0.609	1.0942	0.109	1.040	0.188	0.125	0.719
TN-065	1.3750	1.188	18	1.312	1.2764	1.2443	1.078	0.641	1.2337	0.109	1.180	0.188	0.125	0.750
TN-07	1.3780	1.250	18	1.376	1.3399	1.3078	1.078	0.641	1.2972	0.109	1.245	0.188	0.125	0.750
TN-08	1.5748	1.438	18	1.563	1.5269	1.4948	1.078	0.641	1.4842	0.109	1.422	0.312	0.125	0.750
TN-09	1.7717	1.656	18	1.767	1.7309	1.6988	1.078	0.641	1.6882	0.141	1.628	0.312	0.156	0.781
TN-10	1.9685	1.859	18	1.967	1.9309	1.8988	1.203	0.703	1.8882	0.141	1.830	0.312	0.156	0.844
TN-11	2.1654	2.047	18	2.157	2.1209	2.0888	1.203	0.703	2.0782	0.141	2.021	0.312	0.156	0.844
TN-12	2.3622	2.250	18	2.360	2.3239	2.2918	1.297	0.766	2.2812	0.141	2.194	0.312	0.156	0.906
TN-13	2.5591	2.422	18	2.548	2.5119	2.4798	1.359	0.797	2.4692	0.141	2.382	0.312	0.156	0.938
TN-14	2.7559	2.625	18	2.751	2.7149	2.6828	1.359	0.797	2.6722	0.141	2.586	0.312	0.250	1.000
TAN-15	2.9528	2.781	12	2.933	2.8789	2.8308	1.422	0.828	2.8095	0.172	2.757	0.312	0.250	1.031
TAN-16	3.1496	3.000	12	3.137	3.0829	3.0348	1.422	0.828	3.0135	0.172	2.938	0.375	0.250	1.031
TAN-17	3.3465	3.188	12	3.340	3.2859	3.2378	1.484	0.859	3.2165	0.172	3.141	0.375	0.250	1.062
TAN-18	3.5433	3.375	12	3.527	3.4729	3.4248	1.641	0.953	3.4035	0.172	3.298	0.375	0.250	1.156
TAN-19	3.7402	3.562	12	3.730	3.6759	3.6278	1.703	0.984	3.6065	0.172	3.502	0.375	0.250	1.188
TAN-20	3.9370	3.766	12	3.918	3.8639	3.8158	1.766	1.016	3.7945	0.172	3.690	0.375	0.312	1.281
TAN-21	4.1339	3.938	12	4.122	4.0679	4.0198	1.766	1.016	3.9985	0.172	3.895	0.375	0.312	1.281
TAN-22	4.3307	4.156	12	4.325	4.2709	4.2228	1.828	1.047	4.2015	0.172	4.098	0.375	0.312	1.312
TAN-24	4.7244	4.531	12	4.716	4.6619	4.6138	1.922	1.109	4.5925	0.172	4.459	0.375	0.312	1.375
TAN-26	5.1181	4.906	12	5.106	5.0519	5.0038	2.047	1.172	4.9825	0.172	4.844	0.500	0.312	1.438
TAN-128	5.5118	5.297	12	5.497	5.4429	5.3948	2.672	1.484	5.3735	0.172	5.229	0.625	0.312	1.750
TAN-130	5.9055	5.656	12	5.888	5.8339	5.7858	2.828	1.578	5.7645	0.172	5.590	0.625	0.375	1.906
TAN-132	6.2992	6.062	8	6.284	6.2028	6.1306	2.891	1.609	6.1093	0.266	5.956	0.625	0.375	1.938
TAN-134	6.6929	6.438	8	6.659	6.5778	6.5056	3.016	1.672	6.4843	0.266	6.326	0.750	0.375	2.000
TAN-136	7.0866	6.844	8	7.066	6.9848	6.9126	3.141	1.734	6.8913	0.266	6.734	0.750	0.375	2.062
TAN-138	7.4803	7.250	8	7.472	7.3908	7.3186	3.141	1.734	7.2973	0.266	7.141	0.750	0.375	2.062
TAN-140	7.8740	7.625	8	7.847	7.7658	7.6936	3.328	1.828	7.6723	0.266	7.511	0.875	0.375	2.125

<sup>(1)</sup> This standard is applicable to steel nuts. When either the nut or the shaft is made of stainless steel, aluminum or other material having a tendency to seize, it is recommended that the maximum thread diameter of the shaft, both major and pitch, be reduced by 20% of the pitch diameter tolerance.



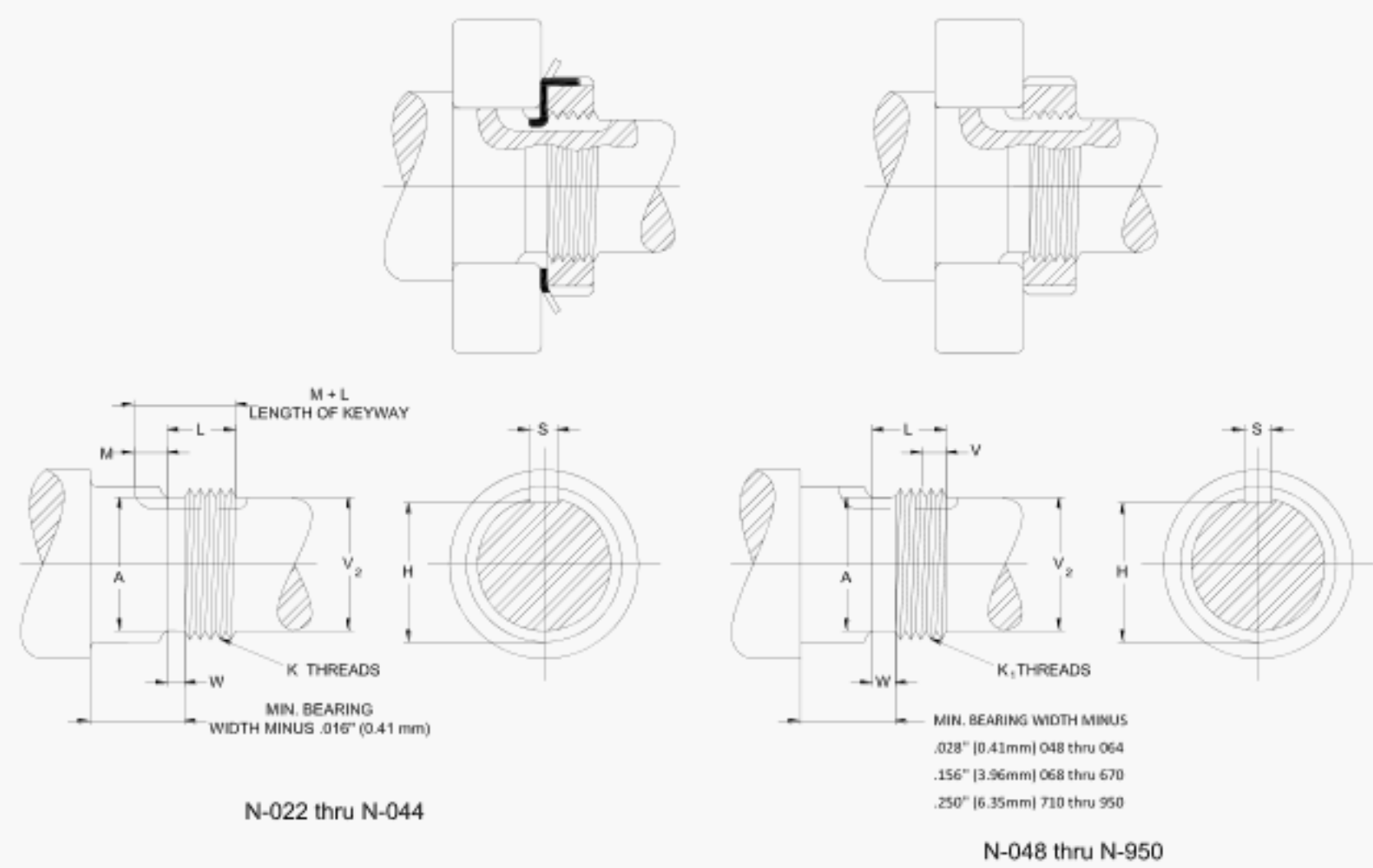
**Table 7.3 - Part 1**  
**Shaft Dimensions**  
**Inch Design**  
**For Locknut Series N-000**



Part 1			Dimensions in millimeters											
Locknut Number	Bearing Bore	V <sub>2</sub> max.	Threads <sup>(1) (2)</sup>						Relief		Keyway			
			No. per Inch		Major Diameter nom.	Pitch Diameter max.	Minor Diameter max.	Length L max.	Diameter A max.	Width W max.	Depth H max.	Width S min.	M min.	V min.
			K <sub>1</sub>	M <sub>1</sub>										
N-022	110	106.38	12		4.325	4.2709	4.2228	23.42	106.718	4.37	105.08	9.53	7.92	
N-024	120	115.87	12		4.716	4.6619	4.6138	24.21	116.650	4.37	115.01	9.53	7.92	
N-026	130	125.43	12		5.106	5.0519	5.0038	25.81	126.556	4.37	124.92	12.70	7.92	
N-028	140	134.92	12		5.497	5.4429	5.3948	27.38	136.487	4.37	134.85	15.88	7.92	
N-030	150	145.26	12		5.888	5.8339	5.7858	28.98	146.418	4.37	143.99	15.88	9.53	
N-032	160	155.58	8		6.284	6.2028	6.1306	30.56	155.176	6.76	153.67	15.88	9.53	
N-034	170	165.10	8		6.659	6.5778	6.5056	31.34	164.701	6.76	163.20	19.05	9.53	
N-036	180	175.41	8		7.066	6.9848	6.9126	32.16	175.039	6.76	173.53	19.05	9.53	
N-038	190	185.72	8		7.472	7.3908	7.3186	32.94	185.351	6.76	183.85	19.05	9.53	
N-040	200	195.28	8		7.847	7.7658	7.6936	34.52	194.876	6.76	193.37	22.23	9.53	
N-044	220	211.12	8		8.628	8.5468	8.4746	35.33	214.714	6.76	209.63	26.97	4.78	
N-048	240	233.38	6		9.442	9.3337	9.2374	44.04	233.693	6.76	228.70	28.58		12.70
N-052	260	252.43	6		10.192	10.0837	9.9874	45.64	252.743	6.76	247.75	30.18		12.70
N-056	280	273.05	6		11.004	10.8957	10.7994	48.03	273.368	6.76	268.38	31.75		12.70
N-060	300	292.10	6		11.785	11.6767	11.5804	49.61	293.205	6.76	288.21	34.93		12.70
N-064	320	312.72	6		12.562	12.4537	12.3574	51.99	312.941	6.76	307.95	36.53		12.70
N-068	340	331.77		5	13.303	13.203	13.083	55.17	331.36	6.76	326.77	38.10		12.70
N-072	360	350.82		5	14.134	14.034	13.914	55.17	352.47	6.76	346.30	38.10		12.70
N-076	380	371.48		5	14.921	14.821	14.701	58.34	372.46	6.76	366.29	38.10		12.70
N-080	400	390.53		5	15.709	15.609	15.489	62.31	392.48	6.76	386.31	41.28		12.70
N-084	420	411.18		5	16.496	16.396	16.276	62.31	412.47	6.76	406.30	41.28		12.70
N-088	440	431.80		5	17.283	17.183	17.063	70.26	432.46	6.76	426.29	46.02		12.70
N-092	460	450.85		5	18.071	17.971	17.851	70.26	452.47	6.76	446.30	46.02		12.70
N-096	480	469.90		5	18.858	18.758	18.638	70.26	472.46	6.76	466.29	46.02		12.70
N-500	500	488.95		5	19.646	19.546	19.426	79.78	492.48	6.76	486.31	46.02		12.70
N-530	530	514.35		4	20.827	20.702	20.557	79.78	520.80	6.76	508.84	46.02		12.70
N-560	560	546.10		4	22.008	21.883	21.738	86.13	550.79	6.76	546.30	46.02		12.70
N-600	600	584.20		4	23.583	23.458	23.313	86.13	590.80	6.76	586.31	46.02		12.70
N-630	630	615.95		4	24.764	24.639	24.494	86.13	620.80	6.76	616.31	50.80		12.70
N-670	670	654.05		4	26.339	26.214	26.069	90.88	660.80	6.76	656.31	50.80		12.70
N-710	710	692.15		3	27.914	27.747	27.560	104.37	698.67	9.93	693.14	50.80		12.70
N-750	750	730.25		3	29.489	29.322	29.135	105.18	738.68	9.93	733.15	50.80		12.70
N-800	800	781.05		3	31.457	31.290	31.103	105.18	788.67	9.93	783.13	50.80		12.70
N-850	850	831.85		3	33.426	33.259	33.072	105.18	838.68	9.93	833.15	50.80		12.70
N-900	900	882.65		3	35.394	35.227	35.040	114.71	888.67	9.93	883.13	50.80		12.70
N-950	950	933.45		3	37.363	37.196	37.009	114.71	938.68	9.93	929.97	50.80		12.70

<sup>(1)</sup> Thread diameters are in inches.  
<sup>(2)</sup> This standard is applicable to steel nuts. When either the nut or the shaft is made of stainless steel, aluminum or other material having a tendency to seize, it is recommended that the maximum thread diameter of the shaft, both major and pitch, be reduced by 20% of the listed diameter tolerance.

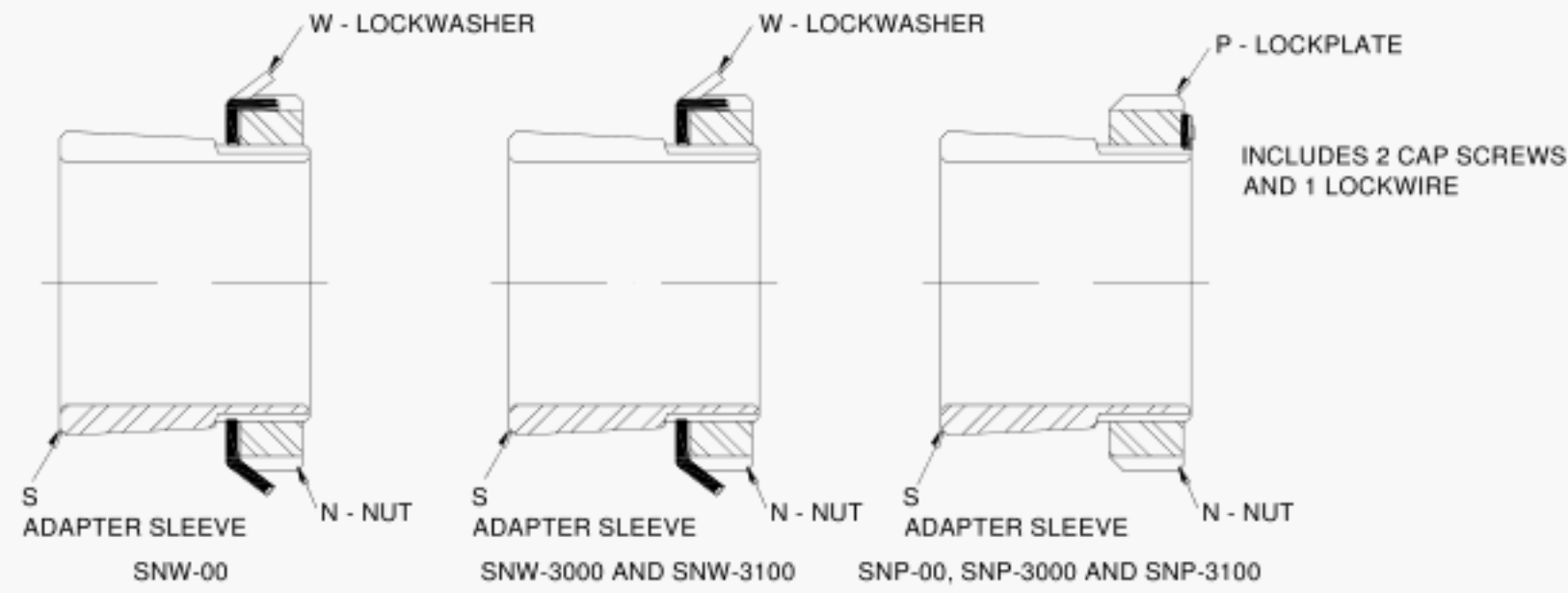
**Table 7.3 - Part 2  
Shaft Dimensions  
Inch Design  
For Locknut Series N-000**



Part 2			Dimensions in inches											
Locknut Number	Bearing Bore	V <sub>2</sub> max.	Threads <sup>(1)</sup>						Relief		Keyway			
			No. per Inch		Major Diameter nom.	Pitch Diameter max.	Minor Diameter max.	Length L max.	Diameter A max.	Width W max.	Depth H max.	Width S min.	M min.	V min.
			K <sub>1</sub>	M										
N-022	4.3307	4.188	12		4.325	4.2709	4.2228	0.922	4.2015	0.172	4.137	0.375	0.312	
N-024	4.7244	4.562	12		4.716	4.6619	4.6138	0.953	4.5925	0.172	4.528	0.375	0.312	
N-026	5.1181	4.938	12		5.106	5.0519	5.0038	1.016	4.9825	0.172	4.918	0.500	0.312	
N-028	5.5118	5.312	12		5.497	5.4429	5.3948	1.078	5.3735	0.172	5.309	0.625	0.312	
N-030	5.9055	5.719	12		5.888	5.8339	5.7858	1.141	5.7645	0.172	5.669	0.625	0.375	
N-032	6.2992	6.125	8		6.284	6.2028	6.1306	1.203	6.1093	0.266	6.050	0.625	0.375	
N-034	6.6929	6.500	8		6.659	6.5778	6.5056	1.234	6.4843	0.266	6.425	0.750	0.375	
N-036	7.0866	6.906	8		7.066	6.9848	6.9126	1.266	6.8913	0.266	6.832	0.750	0.375	
N-038	7.4803	7.312	8		7.472	7.3908	7.3186	1.297	7.2973	0.266	7.238	0.750	0.375	
N-040	7.8740	7.688	8		7.847	7.7658	7.6936	1.359	7.6723	0.266	7.613	0.875	0.375	
N-044	8.6614	8.312	8		8.628	8.5468	8.4746	1.391	8.4533	0.266	8.253	1.062	0.188	
N-048	9.4488	9.188	6		9.442	9.3337	9.2374	1.734	9.2005	0.266	9.004	1.125		0.500
N-052	10.2362	9.938	6		10.192	10.0837	9.9874	1.797	9.9505	0.266	9.754	1.188		0.500
N-056	11.0236	10.750	6		11.004	10.8957	10.7994	1.891	10.7625	0.266	10.566	1.250		0.500
N-060	11.8110	11.500	6		11.785	11.6767	11.5804	1.953	11.5435	0.266	11.347	1.375		0.500
N-064	12.5984	12.312	6		12.562	12.4537	12.3574	2.047	12.3205	0.266	12.124	1.438		0.500
N-068	13.3858	13.062		5	13.303	13.203	13.083	2.172	13.046	0.266	12.865	1.500		0.500
N-072	14.1732	13.812		5	14.134	14.034	13.914	2.172	13.877	0.266	13.634	1.500		0.500
N-076	14.9606	14.625		5	14.921	14.821	14.701	2.297	14.664	0.266	14.421	1.500		0.500
N-080	15.7480	15.375		5	15.709	15.609	15.489	2.453	15.452	0.266	15.209	1.625		0.500
N-084	16.5354	16.188		5	16.496	16.396	16.276	2.453	16.239	0.266	15.996	1.625		0.500
N-088	17.3228	17.000		5	17.283	17.183	17.063	2.766	17.026	0.266	16.783	1.812		0.500
N-092	18.1102	17.750		5	18.071	17.971	17.851	2.766	17.814	0.266	17.571	1.812		0.500
N-096	18.8976	18.500		5	18.858	18.758	18.638	2.766	18.601	0.266	18.358	1.812		0.500
N-500	19.6850	19.250		5	19.646	19.546	19.426	3.141	19.389	0.266	19.146	1.812		0.500
N-530	20.8661	20.250		4	20.827	20.702	20.557	3.141	20.504	0.266	20.033	1.812		0.500
N-560	22.0472	21.500		4	22.008	21.883	21.738	3.391	21.685	0.266	21.508	1.812		0.500
N-600	23.6220	23.000		4	23.583	23.458	23.313	3.391	23.260	0.266	23.083	1.812		0.500
N-630	24.8031	24.250		4	24.764	24.639	24.494	3.391	24.441	0.266	24.264	2.000		0.500
N-670	26.3780	25.750		4	26.339	26.214	26.069	3.578	26.016	0.266	25.839	2.000		0.500
N-710	27.9528	27.250		3	27.914	27.747	27.560	4.109	27.507	0.391	27.289	2.000		0.500
N-750	29.5276	28.750		3	29.489	29.322	29.135	4.141	29.082	0.391	28.864	2.000		0.500
N-800	31.4961	30.750		3	31.457	31.290	31.103	4.141	31.050	0.391	30.832	2.000		0.500
N-850	33.4646	32.750		3	33.426	33.259	33.072	4.141	33.019	0.391	32.801	2.000		0.500
N-900	35.4331	34.750		3	35.394	35.227	35.040	4.516	34.987	0.391	34.769	2.000		0.500
N-950	37.4016	36.750		3	37.363	37.196	37.009	4.516	36.956	0.391	36.613	2.000		0.500

<sup>(1)</sup> This standard is applicable to steel nuts. When either the nut or the shaft is made of stainless steel, aluminum or other material having a tendency to seize, it is recommended that the maximum thread diameter of the shaft, both major and pitch, be reduced by 20% of the listed diameter tolerance.

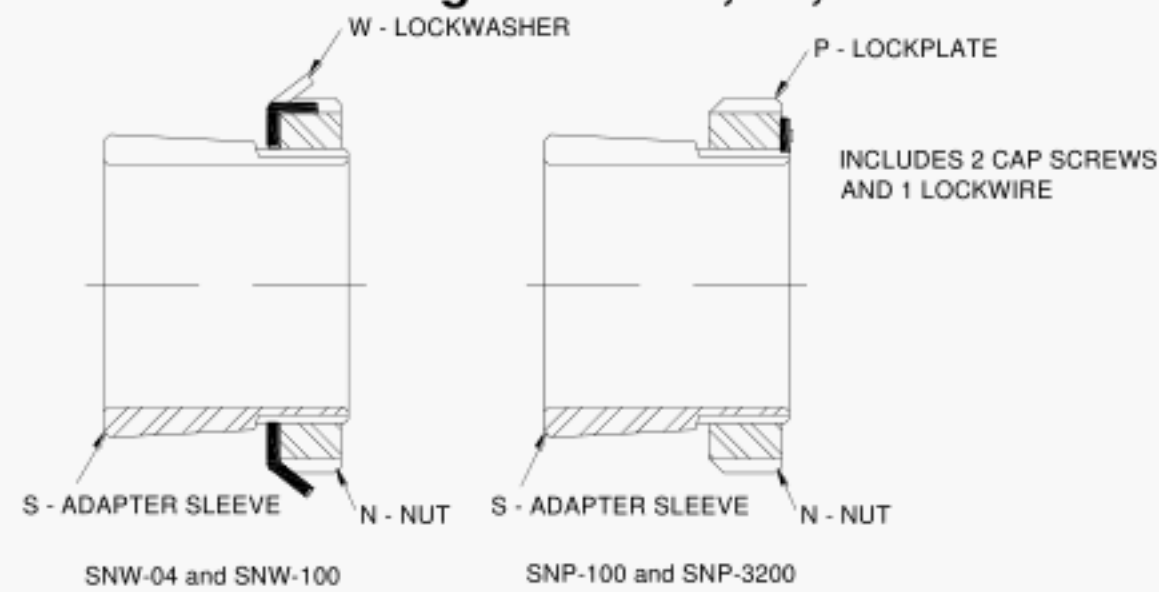
**Table 8.1**  
**Adapter Assembly Part Numbers**  
**For Bearing Series 30, 31, 02, and 22**



Bearing	Series 30		Series 31		30 and 31		Series 02		Series 22		02 and 22	
Nominal Bore (mm)	Adapter Unit Assy. Number	Sleeve Number	Adapter Unit Assy. Number	Sleeve Number	Locknut Number	Locking Device Number	Adapter Unit Assy. Number	Sleeve Number	Adapter Unit Assy. Number	Sleeve Number	Locknut Number	Locking Device Number
20							SNW-04	S-04			N-04	W-04
25							SNW-05	S-05			N-05	W-05
30							SNW-06	S-06			N-06	W-06
35							SNW-07	S-07	SNW-07	S-07	N-07	W-07
40							SNW-08	S-08	SNW-08	S-08	N-08	W-08
45							SNW-09	S-09	SNW-09	S-09	N-09	W-09
50							SNW-10	S-10	SNW-10	S-10	N-10	W-10
55							SNW-11	S-11	SNW-11	S-11	N-11	W-11
60							SNW-12	S-12	SNW-12	S-12	N-12	W-12
65							SNW-13	S-13	SNW-13	S-13	N-13	W-13
70							SNW-14	S-14	SNW-14	S-14	N-14	W-14
75							SNW-15	S-15	SNW-15	S-15	AN-15	W-15
80							SNW-16	S-16	SNW-16	S-16	AN-16	W-16
85							SNW-17	S-17	SNW-17	S-17	AN-17	W-17
90							SNW-18	S-18	SNW-18	S-18	AN-18	W-18
95									SNW-19	S-19	AN-19	W-19
100							SNW-20	S-20	SNW-20	S-20	AN-20	W-20
105												
110			SNW-3122	S-22	N-022	W-022	SNW-22	S-22	SNW-22	S-22	AN-22	W-22
120	SNW-3024	S-3024	SNW-3124	S-24	N-024	W-024			SNW-24	S-24	AN-24	W-24
130	SNW-3026	S-3026	SNW-3126	S-26	N-026	W-026			SNW-26	S-26	AN-26	W-26
140	SNW-3028	S-3028	SNW-3128	S-28	N-028	W-028			SNW-28	S-28	AN-28	W-28
150	SNW-3030	S-3030	SNW-3130	S-30	N-030	W-030			SNW-30	S-30	AN-30	W-30
160	SNW-3032	S-3032	SNW-3132	S-32	N-032	W-032			SNW-32	S-32	AN-32	W-32
170	SNW-3034	S-3034	SNW-3134	S-34	N-034	W-034			SNW-34	S-34	AN-34	W-34
180	SNW-3036	S-3036	SNW-3136	S-36	N-036	W-036			SNW-36	S-36	AN-36	W-36
190	SNW-3038	S-3038	SNW-3138	S-38	N-038	W-038			SNW-38	S-38	AN-38	W-38
200	SNW-3040	S-3040	SNW-3140	S-40	N-040	W-040			SNW-40	S-40	AN-40	W-40
220	SNW-3044	S-3044	SNW-3144	S-44	N-044	W-044			SNW-44	S-44	N-44	W-44
240	SNP-3048	S-3048	SNP-3148	S-48	N-048	P-48			SNP-48	S-48	N-048	P-48
260	SNP-3052	S-3052	SNP-3152	S-52	N-052	P-52			SNP-52	S-52	N-052	P-52
280	SNP-3056	S-3056	SNP-3156	S-3156	N-056	P-56						
300	SNP-3060	S-3060	SNP-3160	S-3160	N-060	P-60						
320	SNP-3064	S-3064	SNP-3164	S-3164	N-064	P-64						
340	SNP-3068	S-3068	SNP-3168	S-3168	N-068	P-68						
360	SNP-3072	S-3072	SNP-3172	S-3172	N-072	P-72						
380	SNP-3076	S-3076	SNP-3176	S-3176	N-076	P-76						
400	SNP-3080	S-3080	SNP-3180	S-3180	N-080	P-80						
420	SNP-3084	S-3084	SNP-3184	S-3184	N-084	P-84						
440	SNP-3088	S-3088	SNP-3188	S-3188	N-088	P-88						
460	SNP-3092	S-3092	SNP-3192	S-3192	N-092	P-92						
480	SNP-3096	S-3096	SNP-3196	S-3196	N-096	P-96						
500	SNP-30/500	S-30/500	SNP-31/500	S-31/500	N-500	P-500						
530	SNP-30/530	S-30/530	SNP-31/530	S-31/530	N-530	P-530						
560	SNP-30/560	S-30/560	SNP-31/560	S-31/560	N-560	P-560						
600	SNP-30/600	S-30/600	SNP-31/600	S-31/600	N-600	P-600						
630	SNP-30/630	S-30/630	SNP-31/630	S-31/630	N-630	P-630						
670	SNP-30/670	S-30/670	SNP-31/670	S-31/670	N-670	P-670						
710	SNP-30/710	S-30/710	SNP-31/710	S-31/710	N-710	P-710						
750	SNP-30/750	S-30/750	SNP-31/750	S-31/750	N-750	P-750						
800	SNP-30/800	S-30/800	SNP-31/800	S-31/800	N-800	P-800						
850	SNP-30/850	S-30/850	SNP-31/850	S-31/850	N-850	P-850						
900	SNP-30/900	S-30/900			N-900	P-900						
950	SNP-30/950	S-30/950			N-950	P-950						



**Table 8.2**  
**Adapter Assembly Part Numbers**  
**For Bearing Series 32, 03, and 23**



Bearing	Series 32		Series 03		Series 23		32, 03 and 23	
Nominal Bore (mm)	Adapter Unit Assy. Number	Sleeve Number	Adapter Unit Assy. Number	Sleeve Number	Adapter Unit Assy. Number	Sleeve Number	Locknut Number	Locking Device Number
20			SNW-04	S-04			N-04	W-04
25			SNW-05	S-05			N-05	W-05
30			SNW-06	S-06			N-06	W-06
35			SNW-07	S-07			N-07	W-07
40			SNW-08	S-08	SNW-108	S-108	N-08	W-08
45			SNW-09	S-09	SNW-109	S-109	N-09	W-09
50			SNW-10	S-10	SNW-110	S-110	N-10	W-10
55			SNW-11	S-11	SNW-111	S-111	N-11	W-11
60			SNW-12	S-12	SNW-112	S-112	N-12	W-12
65			SNW-13	S-13	SNW-113	S-113	N-13	W-13
70			SNW-14	S-14	SNW-114	S-114	N-14	W-14
75			SNW-15	S-15	SNW-115	S-115	AN-15	W-15
80			SNW-16	S-16	SNW-116	S-116	AN-16	W-16
85			SNW-17	S-17	SNW-117	S-117	AN-17	W-17
90			SNW-18	S-18	SNW-118	S-118	AN-18	W-18
95			SNW-19	S-19	SNW-119	S-119	AN-19	W-19
100	SNW-120	S-120	SNW-20	S-20	SNW-120	S-120	AN-20	W-20
105			SNW-21	S-21			AN-21	W-21
110	SNW-122	S-122	SNW-22	S-22	SNW-122	S-122	AN-22	W-22
120	SNW-124	S-124			SNW-124	S-124	AN-24	W-24
130	SNW-126	S-126			SNW-126	S-126	AN-26	W-26
140	SNW-128	S-128			SNW-128	S-128	AN-28	W-28
150	SNW-130	S-130			SNW-130	S-130	AN-30	W-30
160	SNW-132	S-132			SNW-132	S-132	AN-32	W-32
170	SNW-134	S-134			SNW-134	S-134	AN-34	W-34
180	SNW-136	S-136			SNW-136	S-136	AN-36	W-36
190	SNW-138	S-138			SNW-138	S-138	AN-38	W-38
200	SNW-140	S-140			SNW-140	S-140	AN-40	W-40
220	SNW-144	S-144			SNW-144	S-144	N-44	W-44
240	SNP-148	S-148			SNP-148	S-148	N-048	P-48
260	SNP-152	S-152			SNP-152	S-152	N-052	P-52
280	SNP-3256	S-3256					N-056	P-56
300	SNP-3260	S-3260					N-060	P-60
320	SNP-3264	S-3264					N-064	P-64
340	SNP-3268	S-3268					N-068	P-68
360	SNP-3272	S-3272					N-072	P-72
380	SNP-3276	S-3276					N-076	P-76
400	SNP-3280	S-3280					N-080	P-80
420	SNP-3284	S-3284					N-084	P-84
440	SNP-3288	S-3288					N-088	P-88
460	SNP-3292	S-3292					N-092	P-92
480	SNP-3296	S-3296					N-096	P-96
500	SNP-32/500	S-32/500					N-500	P-500
530	SNP-32/530	S-32/530					N-530	P-530
560	SNP-32/560	S-32/560					N-560	P-560
600	SNP-32/600	S-32/600					N-600	P-600
630	SNP-32/630	S-32/630					N-630	P-630
670	SNP-32/670	S-32/670					N-670	P-670
710	SNP-32/710	S-32/710					N-710	P-710
750	SNP-32/750	S-32/750					N-750	P-750



**Table 8.3**  
**Withdrawal Sleeve and Removal Nut Selection**  
**For Bearing Series and Bore Diameter**

Bearing Bore Diameter (mm)	Shaft Diameter (mm)	Withdrawal Sleeve Number for Bearing Series			Removal Nut Number
		22	3	23	
40	35	SK-8	SK-8	SK-108	N-09
45	40	SK-9	SK-9	SK-109	N-10
50	45	SK-10	SK-10	SK-110	RN-10
50	45	SKX-10	SKX-10	SKX-110	N-11
55	50	SK-11	SK-11	SK-111	RN-11
55	50	SKX-11	SKX-11	SKX-111	N-12
60	55	SK-12	SK-12	SK-112	RN-12
60	55	SKX-12	SKX-12	SKX-112	N-13
65	60	ASK-13	ASK-13	ASK-113	AN-15
70	60	ASK-14	ASK-14	ASK-114	AN-16
75	65	ASK-15	ASK-15	ASK-115	AN-17
80	70	ASK-16	ASK-16	ASK-116	AN-18
85	75	ASK-17	ASK-17	ASK-117	AN-19
90	80	ASK-18	ASK-18	ASK-118	AN-20
95	85	ASK-19	ASK-19	ASK-119	AN-21
100	90	ASK-20	ASK-20	ASK-120	AN-22
110	100	ASK-22	ASK-22	ASK-122	ARN-22
110	100	ASKX-22	ASKX-22	ASKX-122	AN-24
120	110	ASK-24	ASK-24	ASK-124	ARN-24
120	110	ASKX-24	ASKX-24	ASKX-124	AN-26
130	115	ASK-26	ASK-26	ASK-126	ARN-26
130	115	ASKX-26	ASKX-26	ASKX-126	AN-28
140	125	SK-28	SK-28	SK-128	RN-28
140	125	SKX-28	SKX-28	SKX-128	AN-30
150	135	SK-30	SK-30	SK-130	RN-30
150	135	SKX-30	SKX-30	SKX-130	AN-32
160	140	SK-32	SK-32	SK-132	RN-32
170	150	SK-34	SK-34	SK-134	RN-34
170	150	SKX-34	SKX-34	SKX-134	AN-36
180	160	SK-36		SK-136	RN-36
180	160	SKX-36		SKX-136	AN-38
190	170	SK-38		SK-138	RN-38
190	170	SKX-38		SKX-138	AN-40
200	180	SK-40		SK-140	N-44
220	200	SK-44		SK-144	N-048
240	220	SK-48		SK-148	N-052
260	240	SK-52		SK-152	N-056
280	260	SK-56		SK-156	RN-56
280	260	SKX-56		SKX-156	N-060
300	280	SK-60			RN-60
300	280	SKX-60			N-064
320	300	SK-64			RN-64
320	300	SKX-64			N-068

Note: Inch design withdrawal sleeves are available for bearing series 30, 31, and 32, however the metric designs are preferred. See ANSI/ABMA Std. 8.1.

**Table 9.1**  
**Tolerance Limits**  
**Locknuts and Removal Nuts**  
**Dimension Tolerances**

Basic Number		Part 1							Part 2						
		Tolerances in micrometers							Tolerances in 0.001 inches						
		Nut		Face Dia. E	Slot Width G	Counterbore		B.C. Dia. Y	Nut		Face Dia. E	Slot Width G	Counterbore		B.C. Dia. Y
		Width D	Recess D <sub>1</sub>			Depth L <sub>1</sub>	Dia. U		Width D	Recess D <sub>1</sub>			Depth L <sub>1</sub>	Dia. U	
From	Thru	(-)	(-)	(-)	(+)	(+)	(+)	(+)	(-)	(-)	(-)	(+)	(+)	(+)	(+)
N-00	N-03	510		510	250				20		20	10			
TN-00	TN-03	510		510	250				20		20	10			
N-04	N-13	510		510	510				20		20	20			
TN-04	TN-13	510		510	510				20		20	20			
N-14	—	510		760	510				20		30	20			
TN-14	—	510		760	510				20		30	20			
AN-15	AN-19	510		760	640				20		30	25			
TAN-15	TAN-19	510		760	640				20		30	25			
AN-20	AN-30	640		760	640				25		30	25			
TAN-20	TAN-130	640		760	640				25		30	25			
N-022	N-030	640		760	640				25		30	25			
AN-32	AN-40	640		1020	640				25		40	25			
TAN-132	TAN-140	640		1020	640				25		40	25			
N-032	N-040	640		1020	640				25		40	25			
N-44	—	760		1020	760				30		40	30			
N-044	—	760		1020	640				30		40	25			
N-048	N-052	760		1020	640			760	30		40	25			30
N-056	N-064	760		1020	760			760	30		40	30			30
N-068	N-096	760		1020	760	1520	790	760	30		40	30	60	31	30
N-500	N-670	1020		1270	760	1520	790	760	40		50	30	60	31	30
N-710	N-950	1020		1270	1020	1520	790	760	40		50	40	60	31	30
RN10	RN38	1570	810	3180					62	32	125				
ARN22	ARN26	1570	810	3180					62	32	125				

**Table 9.2**  
**Tolerance Limits**  
**Locknuts and Removal Nuts**  
**Chamfer Face Runout and Nut Width Variation Tolerances**

Locknut/Removal Nut Number				Part 1				Part 2			
				Dimension in millimeters				Dimension in inches			
				Chamfer Face Runout S <sub>d</sub> max.		Nut Width Variation V <sub>Ds</sub>		Chamfer Face Runout S <sub>d</sub> max.		Nut Width Variation V <sub>Ds</sub>	
				All	TN-00	N-00	TN-00	All	TN-00	N-00	TN-00
		N-00		0.05		0.05		0.002		0.002	
		N-01		0.05		0.05		0.002		0.002	
		N-02		0.05		0.05		0.002		0.002	
		N-03		0.05		0.05		0.002		0.002	
		N-04		0.05		0.05		0.002		0.002	
		N-05		0.05		0.05		0.002		0.002	
		N-06		0.05		0.05		0.002		0.002	
		—	TN-065	—	0.05	—	0.05	—	0.002	—	0.002
		N-07	TN-07	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		N-08	TN-08	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		N-09	TN-09	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		N-10	TN-10	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		N-11	TN-11	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		N-12	TN-12	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		N-13	TN-13	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		N-14	TN-14	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		AN-15	TAN-15	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		AN-16	TAN-16	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		AN-17	TAN-17	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		AN-18	TAN-18	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		AN-19	TAN-19	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		AN-20	TAN-20	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
		AN-21	TAN-21	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
N-022	ARN-22	AN-22	TAN-22	0.10	0.05	0.10	0.05	0.004	0.002	0.004	0.002
N-024	ARN-24	AN-24	TAN-24	0.15	0.05	0.15	0.05	0.006	0.002	0.006	0.002
N-026	ARN-26	AN-26	TAN-26	0.15	0.05	0.15	0.05	0.006	0.002	0.006	0.002
N-028	RN-28	AN-28	TAN-128	0.15	0.05	0.15	0.05	0.006	0.002	0.006	0.002
N-030	RN-30	AN-30	TAN-130	0.15	0.05	0.15	0.05	0.006	0.002	0.006	0.002
N-032	RN-32	AN-32	TAN-132	0.15	0.05	0.15	0.05	0.006	0.002	0.006	0.002
N-034	RN-34	AN-34	TAN-134	0.15	0.05	0.15	0.05	0.006	0.002	0.006	0.002
N-036	RN-36	AN-36	TAN-136	0.15	0.05	0.15	0.05	0.006	0.002	0.006	0.002
N-038	RN-38	AN-38	TAN-138	0.15	0.05	0.15	0.05	0.006	0.002	0.006	0.002
N-040		AN-40	TAN-140	0.15	0.05	0.15	0.05	0.006	0.002	0.006	0.002
N-044		N-44		0.15		0.15		0.006		0.006	
N-048				0.20				0.008			
N-052				0.20				0.008			
N-056	RN-56			0.20				0.008			
N-060	RN-60			0.20				0.008			
N-064	RN-64			0.20				0.008			
N-068				0.20				0.008			
N-072				0.20				0.008			
N-076				0.20				0.008			
N-080				0.20				0.008			
N-084				0.20				0.008			
N-088				0.20				0.008			
N-092				0.20				0.008			
N-096				0.25				0.010			
N-500				0.25				0.010			
N-530				0.25				0.010			
N-560				0.25				0.010			
N-600				0.25				0.010			
N-630				0.25				0.010			
N-670				0.25				0.010			
N-710				0.30				0.012			
N-750				0.30				0.012			
N-800				0.30				0.012			
N-850				0.30				0.012			
N-900				0.30				0.012			
N-950				0.30				0.012			

For tolerances see Table 9.1.

**Table 9.3**  
**Tolerance Limits**  
**Adapter Sleeve Dimension Tolerances**

Basic Number		Part 1				Part 2			
		Tolerances in micrometers				Tolerances in 0.001 inches			
		Bore Diameter <sup>(1)</sup>	Diameter to Sharp Corner	Length		Bore Diameter <sup>(1)</sup>	Diameter to Sharp Corner	Length	
				L	G			L	G
From	Thru	d	A			d	A		
		(-)	(+)	(+)	(-)	(-)	(+)	(+)	(-)
S-04	S-52	100	100	510	510	4	4	20	20
S-104	S-152	100	100	510	510	4	4	20	20
S-3024	S-3048	100	100	510	510	4	4	20	20
S-3052	S-30/950	150	150	510	510	6	6	20	20
S-3156	S-31/850	150	150	510	510	6	6	20	20
S-3256	S-32/750	150	150	510	510	6	6	20	20

<sup>(1)</sup> Allowable taper in bore not to exceed one-half bore tolerance.

**Table 9.4**  
**Tolerance Limits**  
**Adapter Sleeve Wall Thickness Variation Tolerances**

Sleeve Number		Part 1	Part 2	Sleeve Number			Part 1	Part 2
		Dimensions in mm	Dimensions in inches				Dimensions in mm	Dimensions in inches
		Wall Thickness Variation V max.	Wall Thickness Variation V max.				Wall Thickness Variation V max.	Wall Thickness Variation V max.
S-04	S-104	0.030	0.0012	S-3024			0.041	0.0016
S-05	S-105	0.030	0.0012	S-3026			0.041	0.0016
S-06	S-106	0.030	0.0012	S-3028			0.041	0.0016
S-07	S-107	0.030	0.0012	S-3030			0.041	0.0016
S-08	S-108	0.030	0.0012	S-3032			0.041	0.0016
S-09	S-109	0.030	0.0012	S-3034			0.041	0.0016
S-10	S-110	0.030	0.0012	S-3036			0.041	0.0016
S-11	S-111	0.030	0.0012	S-3038			0.041	0.0016
S-12	S-112	0.030	0.0012	S-3040			0.051	0.0020
S-13	S-113	0.030	0.0012	S-3044			0.051	0.0020
S-14	S-114	0.030	0.0012	S-3048			0.051	0.0020
S-15	S-115	0.030	0.0012	S-3052			0.051	0.0020
S-16	S-116	0.030	0.0012	S-3056	S-3156	S-3256	0.051	0.0020
S-17	S-117	0.030	0.0012	S-3060	S-3160	S-3260	0.051	0.0020
S-18	S-118	0.030	0.0012	S-3064	S-3164	S-3264	0.051	0.0020
S-19	S-119	0.030	0.0012	S-3068	S-3168	S-3268	0.051	0.0020
S-20	S-120	0.030	0.0012	S-3072	S-3172	S-3272	0.061	0.0024
S-21	S-121	0.041	0.0016	S-3076	S-3176	S-3276	0.061	0.0024
S-22	S-122	0.041	0.0016	S-3080	S-3180	S-3280	0.061	0.0024
S-24	S-124	0.041	0.0016	S-3084	S-3184	S-3284	0.061	0.0024
S-26	S-126	0.041	0.0016	S-3088	S-3188	S-3288	0.061	0.0024
S-28	S-128	0.041	0.0016	S-3092	S-3192	S-3292	0.061	0.0024
S-30	S-130	0.041	0.0016	S-3096	S-3196	S-3296	0.061	0.0024
S-32	S-132	0.041	0.0016	S-30/500	S-31/500	S-32/500	0.061	0.0024
S-34	S-134	0.041	0.0016	S-30/530	S-31/530	S-32/530	0.061	0.0024
S-36	S-136	0.041	0.0016	S-30/560	S-31/560	S-32/560	0.061	0.0024
S-38	S-138	0.041	0.0016	S-30/600	S-31/600	S-32/600	0.061	0.0024
S-40	S-140	0.051	0.0020	S-30/630	S-31/630	S-32/630	0.061	0.0024
S-44	S-144	0.051	0.0020	S-30/670	S-31/670	S-32/670	0.061	0.0024
S-48	S-148	0.051	0.0020	S-30/710	S-31/710	S-32/710	0.061	0.0024
S-52	S-152	0.051	0.0020	S-30/750	S-31/750	S-32/750	0.061	0.0024
				S-30/800	S-31/800		0.061	0.0024
				S-30/850	S-31/850		0.061	0.0024
				S-30/900			0.061	0.0024
				S-30/950			0.061	0.0024



**Table 9.5**  
**Tolerance Limits**  
**Withdrawal Sleeves, All Series**

Part 1

Dimensions in millimeters

Tolerances in micrometers

Tabulated Dimension d,L,G		Bore Diameter d <sup>(1)</sup> ISO J <sub>s</sub> 9 tolerance		Lengths				Wall Thickness Variation V	Standoff		
				L		G			Dimension S	Tolerance	
over	incl.	min.	max.	min.	max.	min.	max.	max.			min.
0	10	—	—	—	—	-290	+290	25	2.5	-400	+400
10	18	-21.5	+21.5	-270	0	-350	+350	25	3.0	-400	+400
18	30	-26	+26	-330	0	-420	+420	25	3.5	-500	+500
30	50	-31	+31	-390	0	-500	+500	25	4.0	-600	+600
50	80	-37	+37	-460	0	-600	+600	30	5.0	-700	+700
80	120	-43	+43	-540	0	-700	+700	40	6.0	-800	+800
120	180	-50	+50	-630	0	-800	+800	45	7.0	-800	+800
180	250	-57	+57	-720	0	-925	+925	60	8.0	-800	+800
250	315	-65	+65	-810	0	-1050	+1050	75	10.0	-800	+800
315	400	-70	+70	-890	0	-1150	+1150	90	11.0	-1000	+1000
400	500	-77	+77	-970	0	-1250	+1250	100			

Part 2

Dimensions in inches

Tolerances in 0.001 inches

Tabulated Dimension d,L,G		Bore Diameter d <sup>(1)</sup> ISO J <sub>s</sub> 9 tolerance		Lengths				Wall Thickness Variation V	Standoff		
				L		G			Dimension S	Tolerance	
over	incl.	min.	max.	min.	max.	min.	max.	max.			min.
0.00	0.40	—	—	—	—	-11	+11	1.0	0.098	-16	+16
0.40	0.71	-0.9	+0.9	-11	0	-14	+14	1.0	0.118	-16	+16
0.71	1.19	-1.0	+1.0	-13	0	-17	+17	1.0	0.138	-20	+20
1.19	1.97	-1.2	+1.2	-15	0	-20	+20	1.0	0.157	-24	+24
1.97	3.15	-1.5	+1.5	-18	0	-24	+24	1.2	0.197	-28	+28
3.15	4.72	-1.7	+1.7	-21		-28	+28	1.6	0.236	-31	+31
4.72	7.10	-2.0	+2.0	-25	0	-32	+32	1.8	0.276	-31	+31
7.10	9.85	-2.2	+2.2	-28	0	-36	+36	2.4	0.315	-31	+31
9.85	12.40	-2.6	+2.6	-32	0	-41	+41	3.0	0.394	-31	+31
12.40	15.75	-2.8	+2.8	-35	0	-45	+45	3.5	0.433	-39	+39
15.75	19.70	-3.0	+3.0	-38	0	-49	+49	3.9			

<sup>(1)</sup> Allowable taper in bore not to exceed one-half bore tolerance.

**APPENDIX**

This appendix is not part of ABMA Standard 8.2 “Ball and Roller Bearing Mounting Accessories, Inch Design”, but is provided for information only.

1. In some instances, extreme tolerances for lockwashers may result in interference which could cause assembly difficulty with mating parts. These tolerances have a historical significance.
2. Tables A2 and A3 are based on American National screw thread tolerances which have been superseded by the Unified Inch system. The principal differences relate to the application of allowances, variation of tolerances with size, differences in the amount of pitch diameter tolerances for external and internal threads, and differences in thread designations. In the Unified system, thread size and/or tolerances that are not derived from the Unified system are designated as Special. The Unified designation according to ANSI/ASME B1.1 is used for Tables A2 and A3 to agree with current terminology. In previous versions of this standard, the thread data was presented as American National, Form NS, Class 3 (length based on 45° chamfer) with reference to Screw Thread Standards for Federal Services, 1957, NBS Handbook H28-Part 1, Appendix 2, page 179. Except for additions and the change in the presentation format, the data have not been revised.

**Appendix  
Table A1  
Tolerance Limits  
Lockwashers**

Basic Number		Part 1					Part 2				
		Tolerances in micrometers					Tolerances in 0.001 inches				
		Face Diameter	I.D. Less Tang Projection X	Key		Tang Width	Face Diameter	I.D. Less Tang Projection X	Key		Tang Width
Width S	Projection V			Width S	Projection V						
From	Through	E	X	S	V	T	E	X	S	V	T
		(+)	(+)	(-)	(+)	(-)	(+)	(+)	(-)	(+)	(-)
W-00	W-03	380	—	250	790	250	15	—	10	31	10
WH-00	WH-03	380	—	250	790	250	15	—	10	31	10
TW-100	TW-103	380	—	250	790	250	15	—	10	31	10
W-04	W-07	380	—	510	790	510	15	—	20	31	20
WH-04	WH-07	380	—	510	790	510	15	—	20	31	20
TW-104	TW-07	380	—	510	790	510	15	—	20	31	20
W-08	W-13	760	—	1020	790	760	30	—	40	31	30
WH-08	WH-13	760	—	1020	790	760	30	—	40	31	30
TW-108	TW-113	760	—	1020	790	760	30	—	40	31	30
W-14	W-17	760	—	1020	1570	760	30	—	40	62	30
WH-14	WH-17	760	—	1020	1570	760	30	—	40	62	30
TW-114	TW-117	760	—	1020	1570	760	30	—	40	62	30
W-18	W-24	1140	—	1020	1570	760	45	—	40	62	30
WH-18	WH-22	1140	—	1020	1570	760	45	—	40	62	30
TW-118	TW-122	1140	—	1020	1570	760	45	—	40	62	30
WH-24	—	1140	—	1020	1570	760	45	—	40	62	30
TW-124	—	1140	—	1020	1570	760	45	—	40	62	30
W-022	W-024	1140	1270	790	—	760	45	50	31	—	30
W-26	—	1140	—	1520	1570	1020	45	—	60	62	40
WH-26	—	1140	—	1520	1570	1020	45	—	60	62	40
TW-126	—	1140	—	1520	1570	1020	45	—	60	62	40
W-026	—	1140	1400	790	—	760	45	55	31	—	30
W-28	—	1140	—	2290	1570	1020	45	—	90	62	40
WH-28	—	1140	—	2290	1570	1020	45	—	90	62	40
TW-128	—	1140	—	2290	1570	1020	45	—	90	62	40
W-028	—	1140	1400	790	—	760	45	55	31	—	30
W-30	W-40	1520	—	2290	1570	1020	60	—	90	62	40
WH-30	WH-40	1520	—	2290	1570	1020	60	—	90	62	40
TW-130	TW-140	1520	—	2290	1570	1020	60	—	90	62	40
W-030	W-040	1520	1400	790	—	1020	60	55	31	—	40
W-44	—	1520	1400	2290	—	1020	60	55	90	—	40
W-044	—	1520	1400	790	—	1020	60	55	31	—	40

Appendix  
Table A2  
Thread Dimensions  
K<sub>1</sub> Threads, Unified Form Special - Internal  
(See Figure A1)

Dimensions in inches

Nominal Thread Diameter	K <sub>1</sub>	Minor Diameter		Pitch Diameter		Major Diameter
		min.	max.	min.	max.	max.
0.391	32	0.3572	0.3606	0.3707	0.3733	0.391
0.469	32	0.4352	0.4386	0.4487	0.4513	0.469
0.586	32	0.5522	0.5556	0.5657	0.5687	0.586
0.664	32	0.6302	0.6336	0.6437	0.6467	0.664
0.781	32	0.7472	0.7506	0.7607	0.7641	0.781
0.969	32	0.9352	0.9386	0.9487	0.9521	0.969
1.173	18	1.1129	1.1189	1.1369	1.1409	1.173
1.312	18	1.2524	1.2584	1.2764	1.2804	1.312
1.376	18	1.3159	1.3219	1.3399	1.3439	1.376
1.563	18	1.5029	1.5089	1.5263	1.5308	1.563
1.767	18	1.7069	1.7129	1.7309	1.7354	1.767
1.967	18	1.9069	1.9129	1.9309	1.9354	1.967
2.157	18	2.0969	2.1029	2.1209	2.1260	2.157
2.204	18	2.1439	2.1499	2.1679	2.1730	2.204
2.360	18	2.2999	2.3059	2.3239	2.3290	2.360
2.407	18	2.3469	2.3529	2.3709	2.3760	2.407
2.548	18	2.4879	2.4939	2.5119	2.5170	2.548
2.626	18	2.5659	2.5719	2.5899	2.5940	2.626
2.751	18	2.6909	2.6969	2.7149	2.7200	2.751
2.933	12	2.8428	2.8518	2.8789	2.8843	2.933
3.137	12	3.0468	3.0558	3.0829	3.0888	3.137
3.340	12	3.2498	3.2588	3.2859	3.2918	3.340
3.527	12	3.4368	3.4458	3.4729	3.4803	3.527
3.730	12	3.6398	3.6488	3.6759	3.6833	3.730
3.918	12	3.8278	3.8368	3.8639	3.8713	3.918
4.122	12	4.0318	4.0408	4.0679	4.0762	4.122
4.325	12	4.2348	4.2438	4.2709	4.2792	4.325
4.716	12	4.6258	4.6348	4.6619	4.6702	4.716
4.778	12	4.6878	4.6968	4.7239	4.7322	4.778
5.106	12	5.0158	5.0248	5.0519	5.0602	5.106
5.185	12	5.0948	5.1038	5.1309	5.1392	5.185
5.497	12	5.4068	5.4158	5.4429	5.4512	5.497
5.622	12	5.5298	5.5388	5.5679	5.5762	5.622
5.888	12	5.7978	5.8068	5.8339	5.8422	5.888
6.097	8	5.9617	5.9752	6.0158	6.0249	6.097
6.284	8	6.1487	6.1622	6.2028	6.2119	6.284
6.503	8	6.3677	6.3812	6.4218	6.4309	6.503
6.659	8	6.5237	6.5372	6.5778	6.5869	6.659
6.925	8	6.7897	6.8032	6.8438	6.8529	6.925
7.066	8	6.9307	6.9442	6.9848	6.9939	7.066
7.331	8	7.1927	7.2062	7.2498	7.2589	7.331
7.472	8	7.3367	7.3502	7.3908	7.3999	7.472
7.753	8	7.6177	7.6312	7.6718	7.6809	7.753
7.847	8	7.7117	7.7252	7.7658	7.7772	7.847
8.191	8	8.0557	8.0692	8.1098	8.1219	8.191
8.628	8	8.4927	8.5062	8.5468	8.5589	8.628
9.442	6	9.2616	9.2796	9.3337	9.3461	9.442
10.192	6	10.0116	10.0296	10.0837	10.0967	10.192
11.004	6	10.8236	10.8416	10.8957	10.9087	11.004
11.785	6	11.6046	11.6226	11.6767	11.6897	11.785
11.973	6	11.7926	11.8106	11.8647	11.8777	11.973
12.562	6	12.3816	12.3996	12.4537	12.4672	12.562
12.942	6	12.7616	12.7796	12.8337	12.8472	12.942
13.723	6	13.5426	13.5606	13.6147	13.6282	13.723

Thread designation per ANSI/ASME B1.1 is as follows: (Nominal diameter) – K<sub>1</sub> Unified form special – Internal – Minor diameter (min., max.), Major diameter (min.).



**Appendix  
Table A3  
Thread Dimensions  
K<sub>1</sub> Threads, Unified Form Special - External  
(See Figure A1)**

Dimensions in inches

Nominal Thread Diameter	K <sub>1</sub>	Major Diameter		Pitch Diameter		Minor Diameter	Clearance Allowances for Sleeves
		max.	min.	max.	min.	max.	
0.391	32	0.3910	0.3856	0.3707	0.3681	0.3527	0.000
0.469	32	0.4690	0.4636	0.4487	0.4461	0.4307	0.000
0.586	32	0.5860	0.5806	0.5657	0.5627	0.5477	0.000
0.664	32	0.6640	0.6586	0.6437	0.6407	0.6257	0.000
0.781	32	0.7810	0.7756	0.7607	0.7573	0.7427	0.000
0.969	32	0.9690	0.9636	0.9487	0.9453	0.9307	0.000
1.173	18	1.1730	1.1648	1.1369	1.1329	1.1048	0.001
1.312	18	1.3120	1.3038	1.2764	1.2724	1.2438	0.001
1.376	18	1.3760	1.3678	1.3399	1.3359	1.3078	0.001
1.563	18	1.5630	1.5548	1.5269	1.5224	1.4948	0.001
1.767	18	1.7670	1.7588	1.7309	1.7264	1.6988	0.001
1.967	18	1.9670	1.9588	1.9309	1.9264	1.8988	0.001
2.157	18	2.1570	2.1488	2.1209	2.1158	2.0888	0.001
2.204	18	2.2040	2.1958	2.1679	2.1628	2.1358	0.001
2.360	18	2.3600	2.3518	2.3239	2.3188	2.2918	0.001
2.407	18	2.4070	2.3988	2.3709	2.3658	2.3388	0.001
2.548	18	2.5480	2.5398	2.5119	2.5068	2.4798	0.001
2.626	18	2.6260	2.6178	2.5899	2.5848	2.5578	0.001
2.751	18	2.7510	2.7428	2.7149	2.7098	2.6828	0.001
2.933	12	2.9330	2.9218	2.8789	2.8735	2.8308	0.001
3.137	12	3.1370	3.1258	3.0829	3.0770	3.0348	0.001
3.340	12	3.3400	3.3288	3.2859	3.2800	3.2378	0.001
3.527	12	3.5270	3.5158	3.4729	3.4655	3.4248	0.001
3.730	12	3.7300	3.7188	3.6759	3.6685	3.6278	0.001
3.918	12	3.9180	3.9068	3.8639	3.8565	3.8158	0.001
4.122	12	4.1220	4.1108	4.0679	4.0596	4.0198	0.002
4.325	12	4.3250	4.3138	4.2709	4.2626	4.2228	0.002
4.716	12	4.7160	4.7048	4.6619	4.6536	4.6138	0.002
4.778	12	4.7780	4.7668	4.7239	4.7156	4.6758	0.002
5.106	12	5.1060	5.0948	5.0519	5.0436	5.0038	0.002
5.185	12	5.1850	5.1738	5.1309	5.1226	5.0828	0.002
5.497	12	5.4970	5.4858	5.4429	5.4346	5.3948	0.002
5.622	12	5.6220	5.6108	5.5679	5.5596	5.5198	0.002
5.888	12	5.8880	5.8768	5.8339	5.8256	5.7858	0.002
6.097	8	6.0970	6.0818	6.0158	6.0067	5.9436	0.003
6.284	8	6.2840	6.2688	6.2028	6.1937	6.1306	0.003
6.503	8	6.5030	6.4878	6.4218	6.4127	6.3496	0.003
6.659	8	6.6590	6.6438	6.5778	6.5687	6.5056	0.003
6.925	8	6.9250	6.9098	6.8438	6.8347	6.7716	0.003
7.066	8	7.0660	7.0508	6.9848	6.9757	6.9126	0.003
7.331	8	7.3310	7.3158	7.2498	7.2407	7.1776	0.003
7.472	8	7.4720	7.4568	7.3908	7.3817	7.3186	0.003
7.753	8	7.7530	7.7378	7.6718	7.6627	7.5996	0.003
7.847	8	7.8470	7.8318	7.7658	7.7544	7.6936	0.003
8.191	8	8.1910	8.1758	8.1098	8.0977	8.0376	0.003
8.628	8	8.6280	8.6128	8.5468	8.5347	8.4746	0.003
9.442	6	9.4420	9.4218	9.3337	9.3213	9.2375	0.003
10.192	6	10.1920	10.1718	10.0837	10.0707	9.9875	0.003
11.004	6	11.0040	10.9838	10.8957	10.8827	10.7995	0.004
11.785	6	11.7850	11.7648	11.6767	11.6637	11.5805	0.004
11.973	6	11.9730	11.9528	11.8647	11.8517	11.7685	0.004
12.562	6	12.5620	12.5418	12.4537	12.4402	12.3575	0.004
12.942	6	12.9420	12.9218	12.8337	12.8202	12.7375	0.004
13.723	6	13.7230	13.7028	13.6147	13.6012	13.5185	0.004

Thread designation per ANSI/ASME B1.1 is as follows: (Nominal diameter) – K<sub>1</sub> Unified form special – External – Minor diameter (min., max.), Major diameter (max.).

Some manufacturers provide a clearance allowance, as shown, which is subtracted from external thread diameters (max. and min.) for sleeves.

Appendix  
Table A4  
Thread Dimensions  
M<sub>1</sub> Threads, Acme Class 3G  
General Purpose  
(See Figure in A2)

Dimensions in inches

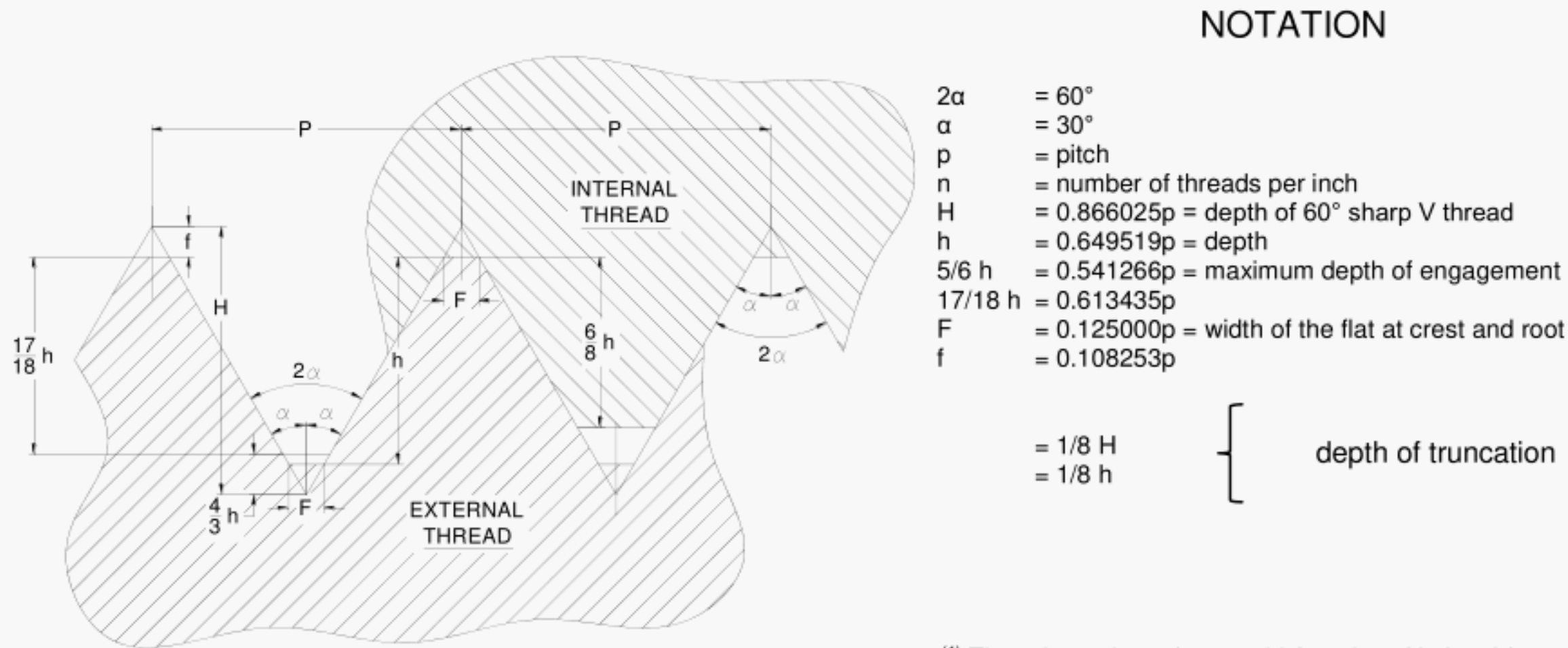
Internal Threads						
Nominal Thread Diameter	M <sub>1</sub>	Minor Diameter		Pitch Diameter		Major Diameter
		min.	max.	min.	max.	min.
13.339	5	13.119	13.135	13.219	13.235	13.339
14.170	5	13.950	13.966	14.050	14.066	14.170
14.957	5	14.737	14.753	14.837	14.853	14.957
15.745	5	15.525	15.541	15.625	15.641	15.745
16.532	5	16.312	16.328	16.412	16.428	16.532
17.319	5	17.099	17.115	17.199	17.215	17.319
18.107	5	17.887	17.903	17.987	18.003	18.107
18.894	5	18.674	18.690	18.774	18.790	18.894
19.682	5	19.462	19.478	19.562	19.578	19.682
20.867	4	20.597	20.617	20.722	20.742	20.867
22.048	4	21.778	21.798	21.903	21.923	22.048
23.623	4	23.353	23.373	23.478	23.498	23.623
24.804	4	24.534	24.554	24.659	24.679	24.804
26.379	4	26.109	26.129	26.234	26.254	26.379
27.961	3	27.607	27.634	27.774	27.801	27.961
29.536	3	29.182	29.209	29.349	29.376	29.536
31.504	3	31.150	31.177	31.317	31.344	31.504
33.473	3	33.119	33.146	33.286	33.313	33.473
35.441	3	35.087	35.114	35.254	35.281	35.441
37.410	3	37.056	37.083	37.223	37.250	37.410

Dimensions in inches

External Threads						
Nominal Thread Diameter	M <sub>1</sub>	Minor Diameter		Pitch Diameter		Minor Diameter
		max.	min.	max.	min.	max.
13.303	5	13.303	13.287	13.203	13.187	13.093
14.134	5	14.134	14.118	14.034	14.018	13.914
14.921	5	14.921	14.905	14.821	14.805	14.701
15.709	5	15.709	15.693	15.609	15.593	15.489
16.496	5	16.496	16.480	16.396	16.380	16.276
17.283	5	17.283	17.267	17.183	17.167	17.063
18.071	5	18.071	18.055	17.971	17.955	17.851
18.858	5	18.858	18.842	18.758	18.742	18.638
19.646	5	19.646	19.630	19.546	19.530	19.426
20.827	4	20.827	28.807	20.702	20.682	20.557
22.008	4	22.008	21.988	21.883	21.863	21.738
23.583	4	23.583	23.563	23.458	23.438	23.313
24.764	4	24.764	24.744	24.639	24.619	24.494
26.339	4	26.339	26.319	26.241	26.221	26.069
27.914	3	27.914	27.887	27.747	27.720	27.560
29.489	3	29.489	29.462	29.322	29.295	29.135
31.457	3	31.457	31.430	31.290	31.263	31.103
33.426	3	33.426	33.399	33.259	33.232	33.072
35.394	3	35.394	35.367	35.227	35.200	35.040
37.363	3	37.363	37.336	37.196	37.169	37.009

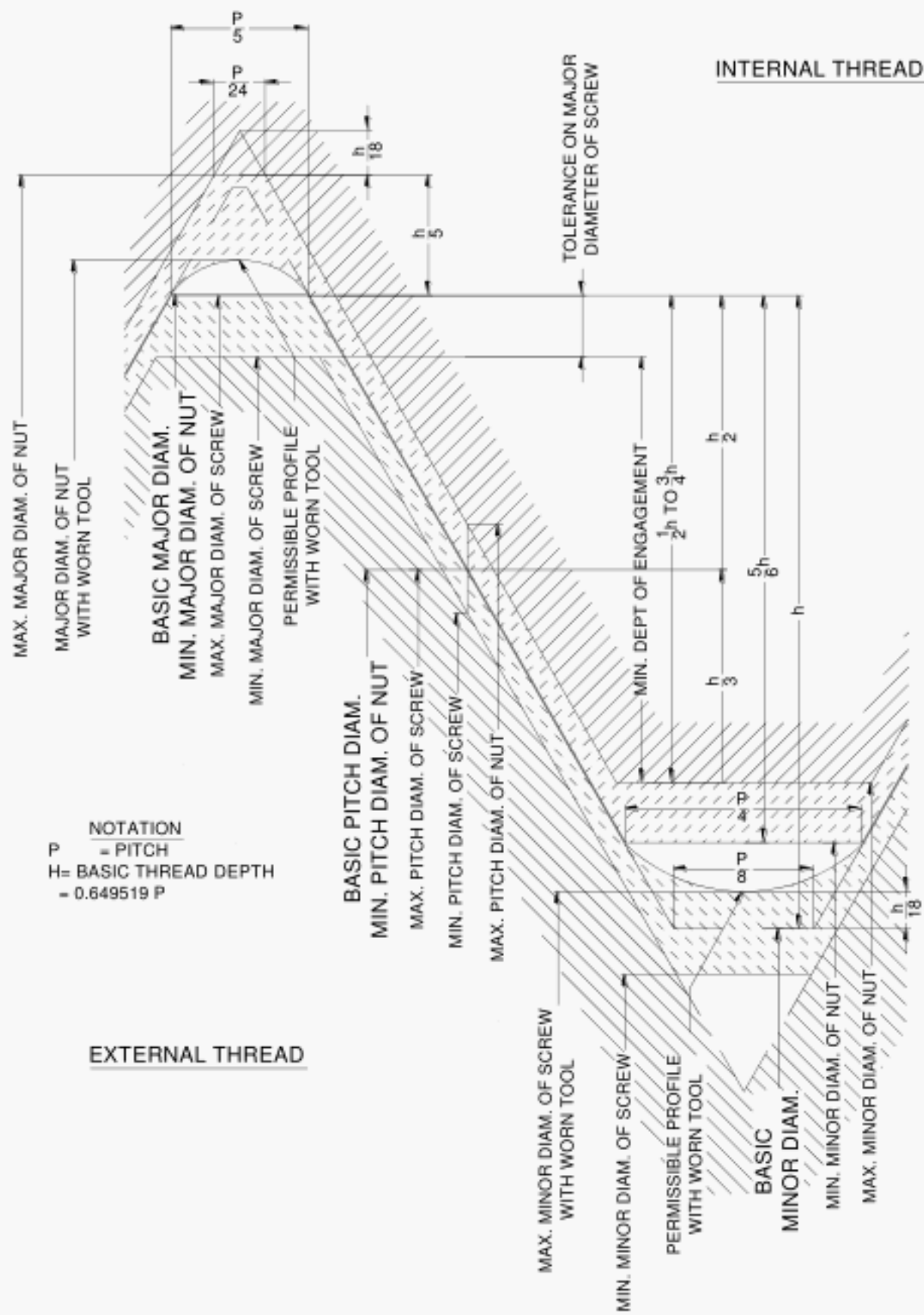
Some manufacturers provide a 0.004 inch clearance which is subtracted from external thread diameters (max. and min.) for sleeves.

Appendix  
Figure A1  
Thread Form, K<sub>1</sub> Threads  
Unified Special Form (Length Includes 45° Chamfer)<sup>(1)</sup>



NOTE: No allowance is shown. Both minimum internal thread and maximum external thread are basic.

NOTE: K<sub>1</sub> threads are substantially Unified Inch Screw Thread Form (ANSI/ASME B1.1) for the same diameters and pitch are mechanically interchangeable with UNS-3A and -3B threads.





Appendix  
Figure A2  
Thread Form  
M<sub>1</sub> Threads, Acme Class 3G, General Purpose

