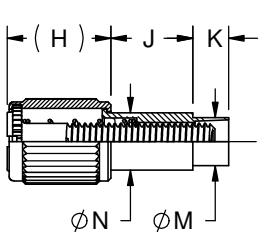
**Alcoa Fastening Systems & Rings**

CURRENT DESIGN ACTIVITY
CAGE CODE 0HDW7
AFSR TUCSON OPERATIONS
3724 EAST COLUMBIA STREET
TUCSON, ARIZONA 85714
PHONE (520) 519-7400
FAX (520) 519-7454

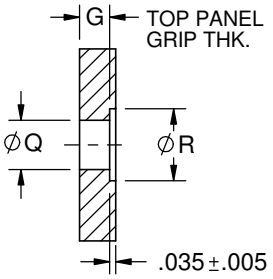
# TURN-LOC®

## *ENGINEERING STANDARD*

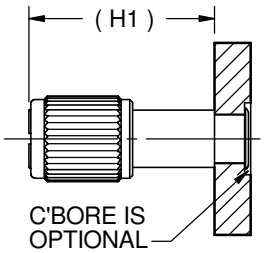
K

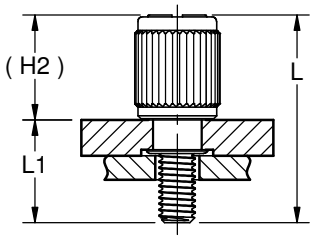



SCREW ASSEMBLY BEFORE MOUNTING

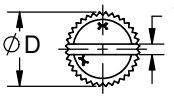



PANEL PREPARATION




SCREW ASSEMBLY AFTER MOUNTING




SL 2 | P 6 | TS | HS 3 | TW | PZ 6 | NR

| THREAD SIZE CODE | Ø D | (H) | | (H1) | | (H2) | | J | Ø M ±.005 | Ø N ±.005 | Ø Q +.004 -.001 | Ø R | W | RECESS SIZE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | HS | P, PZ, SL, TS, TW, NR | HS | P, PZ, SL, TS, TW, NR | HS | P, PZ, SL, TS, TW, NR | | | | | | | P, PZ | TW | TS | HS |
| 4, 4F, M3 | .325 | .444 | .374 | .721 | .651 | .456 | .386 | .265 | .177 | .206 | .187 | .281 | .040 | 4 | 2 | 2 | 3/32 |
| 6, 6F, M3.5 | .356 | .449 | .379 | .739 | .669 | .469 | .399 | .280 | .202 | .241 | .209 | .312 | .044 | 4 | 3 | 4 | 7/64 |
| 8, 8F, M4 | .420 | .559 | .489 | .961 | .891 | .581 | .511 | .385 | .215 | .258 | .223 | .343 | .049 | 6 | 4 | 6 | 9/64 |
| 10, 10C, 10F, M5 | .451 | .599 | .529 | 1.036 | .966 | .616 | .546 | .427 | .250 | .297 | .257 | .375 | .055 | 8 | 5 | 8 | 5/32 |
| 12, 12C, 12F, M6 | .531 | .604 | .534 | 1.041 | .971 | .616 | .546 | .428 | .313 | .371 | .323 | .437 | .062 | 10 | 6 | 10 | 3/16 |

PART NUMBER CALLOUT

DRS ( ) 7500 ( )-( )-( )-( ) 1

MODEL

SERIES

| LENGTH CODE | 4, 4F, M3 | | 6, 6F, M3.5 | | 8, 8F, M4 | | 10, 10C, 10F, M5 | | 12, 12C, 12F, M6 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | L +.025 -.015 | $L_1$ | L +.025 -.015 | $L_1$ | L +.025 -.015 | $L_1$ | L +.025 -.015 | $L_1$ | L +.025 -.015 | $L_1$ |
| 1 | .639 | .253 | .650 | .251 | .685 | .174 | .832 | .286 | .745 | .199 |
| 2 | .764 | .378 | .775 | .376 | .810 | .299 | .957 | .411 | .870 | .324 |
| 3 | .889 | .503 | .900 | .501 | .935 | .424 | 1.082 | .536 | .995 | .449 |
| 4 | 1.014 | .628 | 1.025 | .626 | 1.060 | .549 | 1.207 | .661 | 1.120 | .574 |
| 5 | 1.139 | .753 | 1.150 | .751 | 1.185 | .674 | 1.332 | .786 | 1.245 | .699 |
| 6 | 1.264 | .878 | 1.275 | .876 | 1.310 | .799 | 1.457 | .911 | 1.370 | .824 |
| 7 | 1.389 | 1.003 | 1.400 | 1.001 | 1.435 | .924 | 1.582 | 1.036 | 1.495 | .949 |

3 | 4

| THREAD SIZE CODE | THREAD SIZE 5 | LEAD | THREAD SIZE CODE | THREAD SIZE 5 | LEAD |
|---|---|---|---|---|---|
| 4 | .112-40 UNC-3A | SINGLE | 8F | .164-32 UNC-3A | QUAD |
| 6 | .138-32 UNC-3A | | 10F | .190-32 UNF-3A | |
| 8 | .164-32 UNC-3A | | 12F | .250-28 UNF-3A | |
| 10 | .190-32 UNF-3A | | M3 | M3 x 0.5-4h6h | METRIC |
| 12 | .250-28 UNF-3A | | M3.5 | M3.5 x 0.6-4h6h | |
| 10C | .190-24 UNC-3A | SINGLE (COARSE) | M4 | M4 x 0.7-4h6h | |
| 12C | .250-20 UNC-3A | | M5 | M5 x 0.8-4h6h | |
| 4F | .112-40 UNC-3A | DOUBLE | M6 | M6 x 1.0-4h6h | |
| 6F | .138-32 UNC-3A | | | | |

8

| GRIP CODE | G (TOP PANEL GRIP THICKNESS) | K ±.005 |
|---|---|---|
| AA | .030-.055 | .100 |
| A | .031-.062 | .125 |
| B | .063-.125 | .187 |
| C | .125-.187 | .250 |
| D | .188-.250 | .312 |
| E | .251-.312 | .375 |
| F | .313-.375 | .437 |

| CODE | FINISH |
|---|---|
| NONE | CLEAR |
| B | BLACK |

7

| RECESS CODE | DRIVING RECESS AND SPECIFICATION | RECESS CODE | DRIVING RECESS AND SPECIFICATION |
|---|---|---|---|
| | SLOT RECESS PER ANSI B18.6.3 | PZ | RECESS PER TYPE 1A ANSI B18.6.3 |
| HS | HEX SOCKET RECESS PER ANSI B18.3 | TS | RECESS PER NASM 33781 |
| NR | NO RECESS | TW | RECESS PER NAS 4000 |
| P | CROSS RECESS PER NASM 9006 | | |

2 | 6 | 6

KEY

| | | | |
|---|---|---|---|
| K | PER DCN 12953, CHANGED FROM Alcoa Fastening Systems AND AFS TO Alcoa Fastening Systems & Rings AND AFSR | TOLERANCE UNLESS OTHERWISE NOTED: .X = ±.05 .XX = ±.02 .XXX = ±.015 ANGLES ±0.5° | DRAWN BY: J. SCHLOBOHM |
| ISSUED: 10/20/2005 | | | CHECKED BY: SIGNATURE ON FILE |
| REVISED: 3/31/2015 | TURN-LOC®, HIGH PROFILE, OPTIONAL RECESS,OPTIONAL SIZE, ALL CRES | DIMENSIONS IN INCHES | DRS( )7500 |
| PAGE: 1 OF 2 | | | S-2082 |

**Alcoa Fastening Systems & Rings**

ALCOA

CURRENT DESIGN ACTIVITY
CAGE CODE 0HDW7
AFSR TUCSON OPERATIONS
3724 EAST COLUMBIA STREET
TUCSON, ARIZONA 85714
PHONE (520) 519-7400
FAX (520) 519-7454

# TURN-LOC®

## *ENGINEERING STANDARD*



AVAILABILITY TABLE

| GRIP CODE | 4, 4F, M3 | | | | | | | 6, 6F, M3.5 | | | | | | | 8, 8F, M4 | | | | | | | 10, 10C, 10F, M5 | | | | | | | 12, 12C, 12F, M6 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| AA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | | | | | | | | | | | | | | | O | | | | | | | | | | | | | | O | | | | | | |
| B | | | | | | | | | | | | | | | O | | | | | | | | | | | | | | O | | | | | | |
| C | O | | | | | | | O | | | | | | | O | O | | | | | | O | | | | | | | O | O | | | | | |
| D | O | | | | | | | O | | | | | | | O | O | | | | | | O | | | | | | | O | O | | | | | |
| E | O | O | | | | | | O | O | | | | | | O | O | O | | | | | O | O | | | | | | O | O | O | | | | |
| F | O | O | O | | | | | O | O | | | | | | O | O | O | | | | | O | O | | | | | | O | O | O | | | | |

O ASSEMBLIES NOT AVAILABLE

FULLY RETRACTABLE ASSEMBLIES

ASSEMBLIES NOT FULLY RETRACTABLE (STUD WILL PROTRUDE BELOW MINIMUM TOP PANEL THICKNESS)

MATERIAL

STUD: HS, NR, P, PZ, & SLOT RECESSES
ALL SIZES - 302 CRES PER ASTM-A-493 OR AMS 5636

STUD: TS AND TW RECESSES
ALL SIZES - A-286 CRES PER AMS 5737, HEAT TREAT
TO 160 KSI MIN. ULTIMATE TENSILE STRENGTH

KNOB : 303Se CRES PER AMS QQ-S-764 OR AMS 5641

SLEEVE: 304 CRES PER AMS QQ-S-763 OR AMS 5639

SPRING: 302 CRES PER ASTM-A-313 OR AMS 5688

FINISH

NONE: ALL COMPONENTS: PASSIVATE PER AMS2700

B: STUD & KNOB:
BLACK OXIDE PER MIL-DTL-13924, CLASS 4 (300 SERIES)
BLACK OXIDE PER MIL-DTL-13924, CLASS 3 (A-286)

NOTES:

1. LETTERS AT THE END OF PART NUMBER DESIGNATE SPECIAL ASSEMBLIES:
DL - ASSEMBLIES WITH DRI LUBE THREADS PER AS5272
PL - ASSEMBLIES WITH PATCH LOCK PER MIL-DTL-18240

2. NO CODE REQUIRED FOR SLOTTED HEADS

3. WHEN USING THE HEX SOCKET CONFIGURATION, ADD .070 TO "L" LENGTH.

4. FOR LONGER LENGTHS, ADD .125 INCREMENTS PER LENGTH CODE

5. -3A THREADS PER ASME B1.1. "M" THREADS PER ANSI/ASME B1.13M.

6. RECESS IS ONE SIZE SMALLER THAN NOMINAL SIZE REQUIRED FOR 100° FLAT HEAD.

7. COMPONENTS ARE FINISHED PRIOR TO THE ASSEMBLY PROCESS. DISCOLORATION OF THE BLACK OXIDE MAY OCCUR ON THE CRIMPED PORTION OF THE KNOB DURING ASSEMBLY. A HIGH-ADHESION BLACK PAINT IS PERMITTED FOR TOUCH-UP AFTER ASSEMBLY.

8. MAY BE USED WITH .020 DEEP C'BORE.

INSTALLATION TOOLS: ( ) INDICATES THREAD SIZE CODE
ARBOR PRESS TOOL HW7600-( ), REMOVAL ADAPTER TOOL FNR7505-( ), NOSE PIECE HN7513-( ),
PULLER HP7523-( ), HANDLE ASSEMBLY TA7533;
COMPLETE HAND TOOL ASS'Y: H8603-( ) (INCLUDES NOSE PIECE, PULLER & HANDLE)

| | | | |
|---|---|---|---|
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| REVISED 3/31/2015 | TURN-LOC®, HIGH PROFILE, OPTIONAL RECESS,OPTIONAL SIZE, ALL CRES | | **DRS( )7500** |
| PAGE 2 OF 2 | | DIMENSIONS IN INCHES | **S-2082** |