

**ASSEMBLY BEFORE MOUNTING**

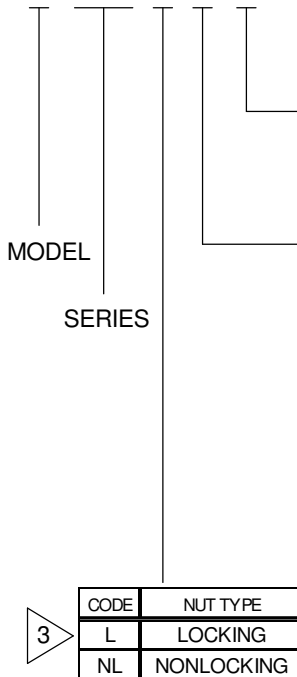
**PANEL PREPARATION**

**ASSEMBLY AFTER MOUNTING**

THREAD SIZE CODE	(L)	Ø M MAX	Ø Q		Ø R1 +.020 -.000	Ø R2 ±.005	(Ø U)	V ±.010	W	X MAX	Y ±.025	(Ø Z)
			SOFT	HARD								
2, 4 ( ), 6 ( )	.062	.217	.218	.218	.312	.307	.192	.318	.295	.435	.192	.228
8 ( ), 10 ( )	.068	.270	.272	.281	.375	.370	.245	.425	.390	.587	.228	.294
12 ( )	.089	.335	.339	.348	.515	.437	.310	.496	.450	.665	.303	.363

**PART NUMBER CALLOUT**

**FF 6010 ( )-( )-( )**



GRIP CODE	G1	G2	K ±.010
AA	N/A	.055 - .073	.073
A	.031 - .062	.074 - .106	.099
B	.063 - .094	.107 - .133	.130
C	.095 - .125	.134 - .165	.161
D	.126 - .156	.166 - .196	.192
E	.157 - .187	.197 - .227	.223
F	.188 - .218	.228 - .258	.254
G	.219 - .250	.259 - .289	.285
H	.251 - .281	.290 - .320	.316
J	.282 - .312	.321 - .351	.347
K	.313 - .343	.352 - .382	.378
L	.344 - .374	.383 - .413	.409
M	.375 - .405	.414 - .444	.440
N	.406 - .436	.445 - .475	.471
P	.437 - .467	.476 - .506	.502
R	.468 - .498	.507 - .537	.533
S	.499 - .529	.538 - .568	.564
T	.530 - .560	.569 - .599	.595
U	.561 - .591	.600 - .630	.626
V	.592 - .622	.631 - .661	.657
W	.623 - .653	.662 - .692	.688
X	.654 - .684	.693 - .723	.719
Y	.685 - .715	.724 - .754	.750

THREAD SIZE CODE	THREAD SIZE	LEAD	LB/100
2	.086-56 UNJC-3B	SINGLE	.131
4	.112-40 UNJC-3B		.131
6	.138-32 UNJC-3B		.140
8	.164-32 UNJC-3B		.365
10	.190-32 UNJF-3B		.370
12	.250-28 UNJF-3B		.682
10C	.190-24 UNJC-3B	DOUBLE	.370
12C	.250-20 UNJC-3B		.682
4F	.112-40 UNJC-3B		.131
6F	.138-32 UNJC-3B		.140
10D	.190-32 UNJF-3B		.370
12D	.250-28 UNJF-3B		.682
8F	.164-32 UNJC-3B	QUAD	.365
10F	.190-32 UNJF-3B		.370
12F	.250-28 UNJF-3B		.682

CODE	NUT TYPE
L	LOCKING
NL	NONLOCKING

ISSUED 6/21/2004 REVISED 3/31/2015 PAGE 1 OF 4	PER DCN 12954, 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
	NUT PLATE, RIVETLESS, STANDARD, FLOATING	DIMENSIONS IN INCHES	CHECKED BY SIGNATURE ON FILE
			<b>FF6010</b> <b>S-0774</b>

This drawing/documentation is controlled by either the Department of State, International Traffic in Arms Regulations or the Department of Commerce, Export Administration Regulations and may require an export license/exception prior to being transferred to a foreign national, inside or outside of the United States. EAR/ECCN EAR99. These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law prohibited.

THIS DRAWING, THE STRUCTURAL DESIGN DISCLOSED THEREIN AND THE TECHNICAL DATA AND ENGINEERING SERVICE REPRESENTED THEREBY ARE THE EXCLUSIVE PROPERTY OF HUCK INTERNATIONAL, INC.



**MATERIAL:**

SLEEVE: CRES PER AMS 5639 (304) OR AMS 551 4 (305)

NUT: 1050 CARBON STEEL PER AMS 5085, H.T. TO  
160,000 PSI MIN ULTIMATE TENSILE STRENGTH  
OR

AISI 4130 (UNS G41300) PER AMS 6348, AMS 6730  
OR EQUIVALENT.

BRACKET: 1050 CARBON STEEL PER AMS 5085, H.T. TO HRC 42-47

**FINISH CODE:**

ALL COMPONENTS: CAD PLATE PER AMS QQ-P-416, TYPE II, CLASS 2 (YELLOW)

NUT: DRI-FILM LUBRICANT PER AS5272

**NOTES:**

- 1 "AA" GRIP RECOMMENDED PANEL PREPARATION:  
SIZES 12, 12F, 12C NOT RECOMMENDED FOR LESS THAN .060 THICKNESSES  
SIZES 8, 8F, 10, 10F, 10C, 10D C'SINK - "Q" DIMENSION .276-.281, "R2" DIMENSION .343  
SIZES 2, 4, 4F, 6, 6F C'SINK - "R2" DIMENSION .275
- 2 SOFT - DIMENSION FOR SOFT ALUMINUM ALLOYS & PLASTICS  
HARD - DIMENSION FOR HARD ALUMINUM ALLOYS & STEEL  
(SEE PCD 160012 FOR MORE DETAILS)
- 3 A MINIMUM OF TWO THREADS ARE DEFORMED TO PRODUCE SELF-LOCKING  
ACTION PER NASM25027 WHEN LOCKING FEATURE IS REQUIRED.
- 4 NUT ELEMENT HAS .060 TOTAL RADIAL FLOAT FOR GRIP LENGTHS "AA"  
THRU "C" AND .046 MIN. FOR GRIP LENGTHS GREATER THAN "C".
- 5 FOR NUT ELEMENT REPLACEMENT P/N SEE DWG. S-0877.
- 6 NUT ELEMENT COLOR CODE: (PCD 160147)  
NONE - LOCKING STANDARD THREADS  
GREEN - NONLOCKING STANDARD THREADS  
YELLOW - COARSE THREADS  
ORANGE - FAST LEAD THREADS  
SKY BLUE - "MJ" METRIC THREADS.
- 7 TO OBTAIN ADDITIONAL WEIGHTS ADD INCREMENTS OF .010 PER LETTER CODE FOR 4, 4F, 6, 6F;  
.020 FOR 8, 8F, 10, 10F, 10C, 10D, 12, 12F, 12C.
- 8 MECHANICAL PROPERTIES PER NASM25027 WHEN INSTALLED PER NASM14200. APPLIES TO  
SIZES LISTED IN NASM14200 ONLY.
- 9 COMPLETE TOOL ASSEMBLY INCLUDES NOSE PIECE, PULLER, & HANDLE.
- 10 NUT ELEMENT REMOVAL TOOL AVAILABLE, P/N RB 6527.
- 11 FOR HIGH VOLUME INSTALLATION RATES, ALTERNATE POWER TOOLING IS AVAILABLE.  
PLEASE CONTACT AFSR INSTALLATION SYSTEMS FOR MORE INFORMATION.
- 12 THREAD DIMENSIONS APPLY PRIOR TO APPLICATION OF DRI-FILM LUBRICANT.  
POSSIBLE THREAD TIGHTNESS DUE TO LUBE BUILDUP WILL DIMINISH FOLLOWING ENGAGEMENT  
OF MATING PART.

HAND INSTALLATION TOOL SELECTION TABLE				
COMPLETE HAND TOOL ASSEMBLY		PULLER	NOSE PIECE	
C'BORE	C'SINK		C'BORE	C'SINK
DCBT8600(-)	DCST8600(-)	DTP86230(-)	DCBN86130(-)	DCSN86130(-)
( ) = THREAD SIZE CODE				

\* "N" DESIGNATES C'BORE  
"S" DESIGNATES C'SINK

INSTALLATION TOOLS:  
( ) REPRESENTS THREAD SIZE CODE  
ARBOR PRESS TOOL HW ( \* ) 7659-()  
ANVIL HW ( \* ) 7658-()  
FORMER HW ( \* ) 7657-()

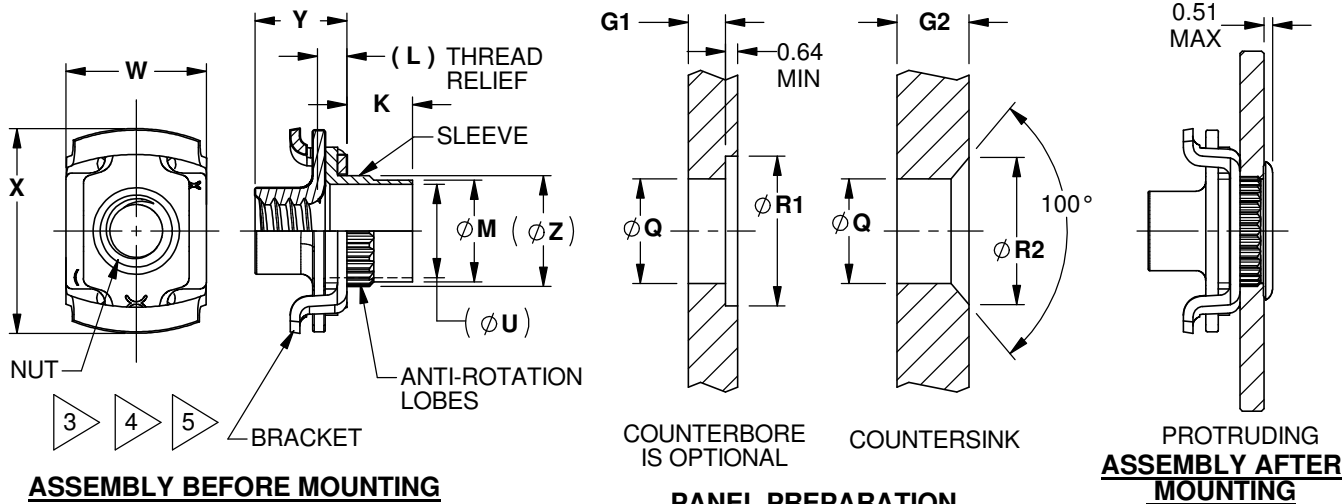
HAND INSTALLATION TOOLS:  
NOSE PIECE  
PULLER  
HANDLE ASSEMBLY TA7533



L	PER DCN 12954, 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	6/21/2004		CHECKED BY	SIGNATURE ON FILE
	REVISID	3/31/2015		<p align="center"><b>NUT PLATE, RIVETLESS, STANDARD, FLOATING</b></p> <p align="center"><b>FF6010 S-0774</b></p>	
PAGE	2 OF 4	DIMENSIONS IN INCHES			

*This drawing/documentation is controlled by either the Department of State, International Traffic in Arms Regulations or the Department of Commerce, Export Administration Regulations and may require an export license/exception prior to being transferred to a foreign national, inside or outside of the United States. EAR/ECCN EAR99. These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law prohibited.*

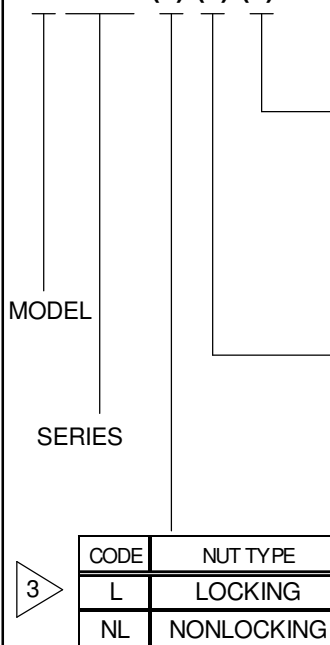
THIS DRAWING, THE STRUCTURAL DESIGN DISCLOSED THEREIN AND THE TECHNICAL DATA AND ENGINEERING SERVICE REPRESENTED THEREBY ARE THE EXCLUSIVE PROPERTY OF HUCK INTERNATIONAL, INC.



THREAD SIZE CODE	(L)	Ø M MAX	Ø Q		Ø R1 +0.51 -0.00	Ø R2 ±0.13	(Ø U)	W	X MAX	Y ±0.64	(Ø Z)
			SOFT	HARD							
M2, M2.5, M3, M3.5,	1.57	5.51	5.54	5.54	7.92	7.80	4.88	7.49	11.05	4.80	5.79
M4, M5	1.73	6.86	6.91	7.14	9.53	9.40	6.22	9.91	14.91	6.22	7.47
M6	2.26	8.51	8.61	8.84	13.08	11.10	7.87	11.43	16.89	7.62	9.22

**PART NUMBER CALLOUT**

**FF 6010 ( )-( )-( )**



THREAD SIZE CODE	THREAD SIZE	LEAD	g/100
M2	MJ2 x 0.4-4h6h	METRIC	59
M2.5	MJ2.5 x 0.45-4h6h		59
M3	MJ3 x 0.5-4h6h		59
M3.5	MJ3.5 x 0.6-4h6h		64
M4	MJ4 x 0.7-4h6h		166
M5	MJ5 x 0.8-4h6h		168
M6	MJ6 x 1.0-4h6h	304	

GRIP CODE	GRIP RANGE	GRIP RANGE	K
AA	N/A	1.40 - 1.85	1.85
A	0.79 - 1.57	1.85 - 2.69	2.51
B	1.58 - 2.39	2.70 - 3.38	3.30
C	2.40 - 3.18	3.39 - 4.19	4.09
D	3.19 - 3.96	4.20 - 4.98	4.88
E	3.97 - 4.75	4.99 - 5.77	5.66
F	4.76 - 5.54	5.78 - 6.55	6.45
G	5.55 - 6.35	6.56 - 7.34	7.24
H	6.36 - 7.14	7.35 - 8.13	8.03
J	7.15 - 7.92	8.14 - 8.92	8.81
K	7.93 - 8.71	8.93 - 9.70	9.60
L	8.72 - 9.50	9.71 - 10.49	10.39
M	9.51 - 10.29	10.50 - 11.28	11.18
N	10.30 - 11.07	11.29 - 12.07	11.96
P	11.08 - 11.86	12.08 - 12.85	12.75
R	11.87 - 12.65	12.86 - 13.64	13.54
S	12.66 - 13.44	13.65 - 14.43	14.33
T	13.45 - 14.22	14.44 - 15.21	15.11
U	14.23 - 15.01	15.22 - 16.00	15.90
V	15.02 - 15.80	16.01 - 16.79	16.69
W	15.81 - 16.59	16.80 - 17.58	17.48
X	16.60 - 17.37	17.59 - 18.36	18.26
Y	17.38 - 18.16	18.37 - 19.15	19.05

**L** PER DCN 12954, CHANGED FROM Alcoa Fastening Systems AND AFS TO Alcoa Fastening Systems & Rings AND AFSR

TOLERANCE UNLESS OTHERWISE NOTED:  
X = ±1.25  
XX = ±0.5  
XXX = ±0.4  
ANGLES ±0°30'

DRAWN BY J. SCHLOBOHM  
CHECKED BY SIGNATURE ON FILE

ISSUED 6/21/2004  
REVISED 3/31/2015  
PAGE 3 OF 4

**METRIC NUT PLATE, RIVETLESS  
STANDARD, FLOATING**

**FF6010  
S-0774**

DIMENSIONS IN MM

THIS DRAWING, THE STRUCTURAL DESIGN DISCLOSED THEREIN AND THE TECHNICAL DATA AND ENGINEERING SERVICE REPRESENTED THEREBY ARE THE EXCLUSIVE PROPERTY OF HUCK INTERNATIONAL, INC.

L

THIS DRAWING, THE STRUCTURAL DESIGN DISCLOSED THEREIN AND THE TECHNICAL DATA AND ENGINEERING SERVICE REPRESENTED THEREBY ARE THE EXCLUSIVE PROPERTY OF HUCK INTERNATIONAL, INC.

# 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

# NUTPLATE ENGINEERING STANDARD

**8 MATERIAL:**  
SLEEVE: CRES PER AMS 5639 (304) OR AMS 5514 (305)  
NUT: 1050 CARBON STEEL PER AMS 5085, H.T. TO  
160,000 PSI MIN ULTIMATE TENSILE STRENGTH  
OR  
AISI 4130 (UNS G41300) PER AMS 6348, AMS 6730  
OR EQUIVALENT.  
  
BRACKET: 1050 CARBON STEEL PER AMS 5085, H.T. TO HRC 42-47  
  
FINISH CODE:  
ALL COMPONENTS: CAD PLATE PER AMS QQ-P-416, TYPE II, CLASS 2 (YELLOW)  
NUT: DRI-FILM LUBRICANT PER AS5272

- NOTES:**
- 1** "AA" GRIP RECOMMENDED PANEL PREPARATION:  
SIZES M6 NOT RECOMMENDED FOR LESS THAN 1.52 THICKNESS  
SIZES M4, M5 - "Q" DIMENSION 7.01-7.14; "R2" DIMENSION 8.71.  
SIZES M2, M2.5, M3, M3.5 C'SINK - "R2" DIMENSION 6.99.
  - 2** SOFT - DIMENSION FOR SOFT ALUMINUM ALLOYS & PLASTICS  
HARD - DIMENSION FOR HARD ALUMINUM ALLOYS & STEEL  
(SEE PCD 160012 FOR MORE DETAILS)
  - 3** A MINIMUM OF TWO THREADS ARE DEFORMED TO PRODUCE SELF-LOCKING  
ACTION PER NASM25027 FOR SIMILAR INCH SIZE NUTPLATE WHEN LOCKING  
FEATURE IS REQUIRED.
  - 4** NUT ELEMENT HAS 1.52 TOTAL RADIAL FLOAT FOR GRIP LENGTHS "AA"  
THRU "C" AND 1.17 MIN. FOR GRIP LENGTHS GREATER THAN "C".
  - 5** FOR NUT ELEMENT REPLACEMENT P/N SEE DWG. S-0877.
  - 6** NUT ELEMENT COLOR CODE: (PCD 160147)  
SKY BLUE - "MJ" METRIC THREADS.
  - 7** TO OBTAIN ADDITIONAL WEIGHTS ADD INCREMENTS OF 5g PER  
LETTER CODE FOR M2, M2.5, M3, M3.5; 9g FOR M4, M5, M6.
  - 8** AISI 4130 PER SAE AMS 6348 MAY BE USED AS AN OPTIONAL NUT ELEMENT MATERIAL  
FOR ASSEMBLIES CERTIFIED TO ALCOA FASTENING SYSTEMS (FF6010 SERIES) PART  
NUMBERS ONLY.
  - 9** COMPLETE TOOL ASSEMBLY INCLUDES NOSE PIECE, PULLER, & HANDLE.
  - 10** NUT ELEMENT REMOVAL TOOL AVAILABLE, P/N RB 6527.
  - 11** FOR HIGH VOLUME INSTALLATION RATES, ALTERNATE POWER TOOLING IS AVAILABLE.  
PLEASE CONTACT AFSR INSTALLATION SYSTEMS FOR MORE INFORMATION.
  - 12** 'MJ' THREADS PER ISO 5855/1 AND ISO 5855/2.
  - 13** ALL DIMENSIONS ARE IN MILLIMETERS.
  - 14** THREAD DIMENSIONS APPLY PRIOR TO APPLICATION OF DRI-FILM LUBRICANT.  
FOLLOWING ENGAGEMENT OF MATING PART, POSSIBLE THREAD TIGHTNESS  
DUE TO LUBE BUILDUP WILL DIMINISH.

INSTALLATION TOOLS:  
( ) REPRESENTS THREAD SIZE CODE  
ARBOR PRESS TOOL HW ( \* ) 7659-( )  
ANVIL HW ( \* ) 7658-( )  
FORMER HW ( \* ) 7657-( )  
HAND INSTALLATION TOOLS:  
  
NOSE PIECE  
PULLER  
HANDLE ASSEMBLY TA7533

HAND INSTALLATION TOOL SELECTION TABLE				
COMPLETE HAND TOOL ASSEMBLY		PULLER	NOSE PIECE	
C'BORE	C'SINK		C'BORE	C'SINK
DCBT8600-( )	DCST8600-( )	DTP86230-( )	DCBN86130-( )	DCSN86130-( )
( ) = THREAD SIZE CODE				



<b>L</b>	PER DCN 12954, CHANGED FROM Alcoa Fastening Systems AND AFS TO Alcoa Fastening Systems & Rings AND AFSR		TOLERANCE UNLESS OTHERWISE NOTED: .X = ±1.25 .XX = ±0.5 .XXX = ±0.4 ANGLES ±0°30'	DRAWN BY	J. SCHLOBOHM
	ISSUED	6/21/2004		CHECKED BY	SIGNATURE ON FILE
REVISED	3/31/2015	<b>METRIC NUT PLATE, RIVETLESS STANDARD, FLOATING</b>		<b>FF6010</b>	
PAGE	4 OF 4			<b>S-0774</b>	
			DIMENSIONS IN MM		

This drawing/documentation is controlled by either the Department of State, International Traffic in Arms Regulations or the Department of Commerce, Export Administration Regulations and may require an export license/exception prior to being transferred to a foreign national, inside or outside of the United States. EAR/ECCN EAR99. These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law prohibited.