

MANUFACTURE OF THE PROPRIETARY PARTS SHOWN HERE WITHOUT WRITTEN CONSENT OF HOWMET FASTENING SYSTEMS IS ABSOLUTELY PROHIBITED.

THIS DRAWING EMBODIES A CONFIDENTIAL, PROPRIETARY DESIGN & ALL DESIGN, MANUFACTURING PRODUCTION, USE & SALE RIGHTS REGARDING SAME ARE EXPRESSLY RESERVED.

**TABLE I DIMENSIONS**

INSERT PART NUMBER <5>	LOCKRING		A INTERNAL THREAD UNJF-3B	B EXTERNAL THREAD <2> <3>			ØC ±.005	D ±.005	E <5> ±.015	F <5> ±.015	G <5> ±.015
	PART NUMBER REF <4>	MILITARY PART NUMBER REF <4>		SIZE	PITCH DIA	MINOR DIA					
RDJ202( )4	RLRR16SA5	MS51990-102P	.1120-48	.1900-24	.1633-.1648	.1334-.1407	.113	.040	.250	.150	.100
RDJ203( )5	RLRR18SA6	MS51990-103P	.1380-40	.2160-24	.1893-.1908	.1594-.1667	.140	.040	.310	.190	.120
RDJ204( )6	RLRR21SA6	MS51990-104P	.1640-36	.2500-20	.2178-.2198	.1824-.1909	.166	.047	.380	.250	.130
RDJ205( )7	RLRR24SA7	MS51990-105P	.1900-32	.3125-18	.2769-.2789	.2373-.2468	.196	.062	.440	.290	.150
RDJ206( )8	RLRR28SA8	MS51990-106P	.2500-28	.3750-16	.3347-.3372	.2906-.3011	.257	.080	.500	.330	.170
RADJ207( )9	RLRR33SA9	MS51990-107P	.3125-24	.5000-13	.4506-.4531	.3963-.4087	.323	.095	.560	.360	.200
RDJ208( )10	RLRR38SA9	MS51990-108P	.3750-24	.5625-12	.5091-.5116	.4503-.4635	.386	.100	.620	.420	.200
RDJ209( )11	RLRR47SA10	MS51990-109P	.4375-20	.6250-11	.5668-.5693	.5028-.5168	.453	.100	.690	.460	.230
RDJ210( )12	RLRR56SA11	MS51990-110P	.5000-20	.7500-10	.6860-.6885	.6156-.6308	.516	.109	.750	.490	.260

- NOTES:**
- <1> FOR MATERIAL, HEAT TREAT AND FINISH CALLOUTS, SEE TABLE II.
  - <2> THE EXTERNAL THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO AN AS8879 CLASS 3B, FED-STD-H28/2 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE, WITH LIGHT TO MODERATE INTERFERENCE. INSERT IS DESIGNED TO BE USED IN SOFT MATERIALS (ALUMINUM AND MAGNESIUM).
  - <3> WHEN USED IN HARD BASED MATERIALS, OPTIONAL EXTERNAL THREAD CONFIGURATIONS CAN BE ORDERED (SEE TABLE III)
  - <4> MATING LOCKRING IS NOT INCLUDED WITH INSERT. IT MUST BE ORDERED SEPARATELY.
  - <5> FOR STANDARD LENGTHS AS SHOWN IN TABLE I, "E" OVERALL LENGTH AND "F" THREAD LENGTH APPLIES. FOR NON-STANDARD LENGTHS, "E" LENGTH IS IN 1/16 INCH INCREMENTS AND "G" DIMENSION APPLIES IN PLACE OF "F" DIMENSION.

APPROVED DATE 1/9/13	CURRENT DESIGN ACTIVITY: Howmet Fastening Systems (HFS) TORRANCE OPERATIONS	TITLE: INSERT - RINGLOCKED, FINE INTERNAL AND COARSE EXTERNAL THREADS, COUNTERBORED	CURRENT DESIGN ACTIVITY: CAGE CODE: 83324
REV. LETTER AND DATE D 06/01/20 <i>2</i>	<b>Rosan Products</b> 3018 W. Lomita Blvd. Torrance, California 90505-5103	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	SALES DRAWING NO.
DAF NUMBER 119448		ANGLES = ±.5° DECIMALS .XX = ±.02 .XXX = ±.010	<b>RDJ200( )(L) SERIES</b>
			SHEET 1 OF 4



HOWMET  
AEROSPACE

**TABLE II MATERIAL**

INSERT					
CODE	MATERIAL	SPECIFICATION	HEAT TREAT	FINISH WITHOUT INTERNAL THREAD LOCKING FEATURE	FINISH WITH INTERNAL THREAD LOCKING FEATURE
SA <6>	4130 STEEL	AMS-S-6758	125 KSI UTS MIN	CAD PLATE PER AMS-QQ-P-416, TYPE II, CL ASS 3	CAD PLATE PER AMS-QQ-P-416, TYPE II, CL ASS 3
SB <6>	1117 STEEL	ASTM-A-108	NONE		
SF	17-4PH CRES	AMS 5643	COND H1025	PASSIVATE PER AMS 2700	PASSIVATE PER AMS 2700 PLUS SOLID FILM LUBE
SM <6>	303 CRES	ASTM-A-582 OR AMS 5640	NONE		
SN	4340 STEEL ALTERNATE: 4140 STEEL	AMS-S-5000	160-180 KSI UTS	CAD PLATE PER AMS-QQ-P-416, TYPE II, CL ASS 3	CAD PLATE PER AMS-QQ-P-416, TYPE II, CL ASS 3
		AMS-S-5625			
SU <6>	A286 CRES	AMS 5731 OR AMS 5734	83 HRB MIN (SEE TABLE III)	PASSIVATE PER AMS 2700	PASSIVATE PER AMS 2700 PLUS SOLID FILM LUBE
TA	6Al-4V TITANIUM	AMS-T-9047 CONDITION A OR AMS 4967	130 KSI UTS MIN	NONE (SEE TABLE III)	<7>
TB	6Al-4V TITANIUM	AMS 4967	160 KSI UTS MIN	NONE (SEE TABLE III)	<7>

**TABLE III SPECIAL APPLICATION CODES**

CODE	DESCRIPTION
EO254	EXTERNAL THREAD PER MIL-S-7742, CLASS 3A
EO301	FOR TITANIUM ONLY - ANODIC TREATMENT PER AMS 2488, TYPE 2
EO302	EXTERNAL THREAD PER AS8879, CLASS 3A
EO349	A286 MATERIAL HEAT TREATED TO 130 KSI MIN.

NOTES: (CONTINUED)

<6> NOTED CODES INDICATE STANDARD MATERIALS.

<7> INTERNAL THREAD LOCKING FEATURE NOT AVAILABLE AT THIS TIME.

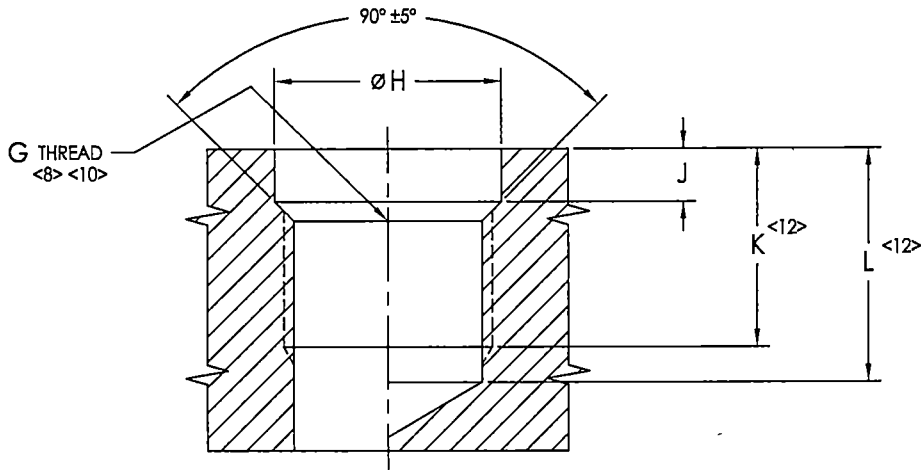
MANUFACTURE OF THE PROPRIETARY PARTS SHOWN HERE WITHOUT WRITTEN CONSENT OF HOWMET FASTENING SYSTEMS IS ABSOLUTELY PROHIBITED.

THIS DRAWING EMBODIES A CONFIDENTIAL, PROPRIETARY DESIGN & ALL DESIGN, MANUFACTURING PRODUCTION, USE & SALE RIGHTS REGARDING SAME ARE EXPRESSLY RESERVED.

APPROVED DATE 1/9/13	CURRENT DESIGN ACTIVITY: Howmet Fastening Systems (HFS)	TITLE: INSERT - RINGLOCKED, FINE INTERNAL AND COARSE EXTERNAL THREADS, COUNTERBORED	CURRENT DESIGN ACTIVITY: CAGE CODE: 83324
REV. LETTER AND DATE D 06/01/20 <i>[Signature]</i>	TORRANCE OPERATIONS		SALES DRAWING NO.
DAF NUMBER 119448	<b>Rosan Products</b> 3018 W. Lomita Blvd. Torrance, California 90505-5103	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	<b>RDJ200( ) (L) SERIES</b>
		ANGLES = ±3° DECIMALS .XX = ±.02 .XXX = ±.010	SHEET 2 OF 4



HOWMET  
AEROSPACE



**TABLE IV HOLE PREPARATION**

INSERT PART NUMBER REF	G THREAD CLASS 3B <10>	ØH +.003 -.000 <8>		J +.030 -.000	K MIN FULL THREAD DEPTH <12>	L MIN DRILL DEPTH <12>	
		AL	MAG			PLUG TAP	BOTTOM TAP
RDJ202( )4	.1900-24UNJC	.250	.258	.094	.285	.472	.389
RDJ203( )5	.2160-24UNJC	.281	.291	.109	.345	.532	.449
RDJ204( )6	.2500-20UNJC	.328	.337	.109	.415	.640	.540
RDJ205( )7	.3125-18UNJC	.375	.381	.141	.475	.725	.614
RDJ206( )8	.3750-16UNJC	.437	.448	.156	.535	.816	.691
RADJ207( )9	.5000-13UNJC	.515	.526	.172	.595	.941	.787
RDJ208( )10	.5625-12UNJC	.593	.601	.172	.655	1.030	.863
RDJ209( )11	.6250-11UNJC	.734	.747	.218	.725	1.134	.952
RDJ210( )12	.7500-10UNJC	.875	.888	.203	.785	1.235	1.035

NOTES: (CONTINUED)

- <8> "H" DIAMETER AND MINOR DIAMETER OF THREAD TO BE CONCENTRIC WITHIN .003 FIM.
9. WHEN PARENT MATERIAL SURFACE IS NOT FLAT OR NORMAL TO AXIS OF HOLE, PROVIDE A SPOTFACE FOR PROPER LOCKRING ENTRY.
- <10> THREAD AS SHOWN PER AS8879 IS PREFERRED. ALTERNATE THREAD PER FED-STD-H28/2 CLASS 3B OR NATIONAL CLASS 3 IS APPLICABLE WHEN SPECIFIED BY DESIGN ACTIVITY. IF IT IS FELT THAT TORQUE IS EXCESSIVE, A TAP WITH A HIGHER PITCH DIAMETER MAY BE USED.
11. REMOVE ALL BURRS AND SHARP EDGES.
- <12> "K" MINIMUM FULL THREAD DEPTH AND "L" MINIMUM DRILL DEPTH ARE APPLICABLE FOR STANDARD INSERT LENGTHS SHOWN ONLY. FOR NON-STANDARD LENGTHS (SEE PART NUMBER CODING) "K" AND "L" MUST CHANGE ACCORDINGLY.

MANUFACTURE OF THE PROPRIETARY PARTS SHOWN HERE WITHOUT WRITTEN CONSENT OF HOWMET FASTENING SYSTEMS IS ABSOLUTELY PROHIBITED.

THIS DRAWING EMBODIES A CONFIDENTIAL, PROPRIETARY DESIGN & ALL DESIGN, MANUFACTURING PRODUCTION, USE & SALE RIGHTS REGARDING SAME ARE EXPRESSLY RESERVED.

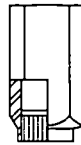
APPROVED DATE 1/9/13	CURRENT DESIGN ACTIVITY: Howmet Fastening Systems (HFS)	TITLE: INSERT - RINGLOCKED, FINE INTERNAL AND COARSE EXTERNAL THREADS, COUNTERBORED	CURRENT DESIGN ACTIVITY: CAGE CODE: 83324
REV. LETTER AND DATE D 06/01/20	TORRANCE OPERATIONS		SALES DRAWING NO.
DAF NUMBER 119448	<b>Rosan Products</b> 3018 W. Lomita Blvd. Torrance, California 90505-5103	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	<b>RDJ200( )(L) SERIES</b>
		ANGLES = ±3° DECIMALS .XX = ±.02 .XXX = ±.010	SHEET 3 OF 4



STEP DRILL



TAP



WRENCH



LOCKRING DRIVE TOOL

TABLE V INSTALLATION TOOLING

INSERT PART NUMBER  REF	STEP DRILL PART NUMBER <13>		BASIC TAP SIZE <14> REF	WRENCH PART NUMBER	LOCKRING DRIVE TOOL PART NUMBER	REMOVAL DRILL SIZE <15> REF
	ALUMINUM	MAGNESIUM				
RDJ202( )4	RCDC16-149	RCADC16-149	.1900-24UNC	R1102W	R102D	7/32
RDJ203( )5	RCDC18-177	RCADC18-177	.2160-24UNC	R1103W	R103D	1/4
RDJ204( )6	RCDC21-201	RCADC21-201	.2500-20UNC	R1104W	R104D	19/64
RDJ205( )7	RCDC24-257	RCADC24-257	.3125-18UNC	R1105W	R205D	F
RDJ206( )8	RCDC28-312	RCADC28-312	.3750-16UNC	R1106W	R206D	5/16
RADJ207( )9	RCDC33-422	RCADC33-422	.5000-13UNC	R1107XW	RA207D	V
RDJ208( )10	RCDC38-484	RCADC38-484	.5625-12UNC	R1108W	R208D	29/64
RDJ209( )11	RCDC47-535	RCADC47-535	.6250-11UNC	R1110W	R209D	9/16
RDJ210( )12	RCDC56-656	RCADC56-656	.7500-10UNC	R1111W	R210D	11/16

NOTES: (CONTINUED)

- <13> STEP DRILLS ARE DESIGNED FOR THRU HOLE DRILLING. WHEN USED TO DRILL A BLIND HOLE, IT MAY BE NECESSARY TO GRIND THE DRILL TO SUIT THE DEPTH REQUIRED.
- <14> TAPS ARE NOT SUPPLIED BY ALCOA. FOR SPECIFIC THREAD INFORMATION REFER TO HOLE PREPARATION ON PAGE 3.
- <15> REMOVAL DRILLS ARE NOT SUPPLIED BY ALCOA.

MANUFACTURE OF THE PROPRIETARY PARTS SHOWN HERE WITHOUT WRITTEN CONSENT OF HOWMET FASTENING SYSTEMS IS ABSOLUTELY PROHIBITED.

THIS DRAWING EMBODIES A CONFIDENTIAL, PROPRIETARY DESIGN & ALL DESIGN, MANUFACTURING PRODUCTION, USE & SALE RIGHTS REGARDING SAME ARE EXPRESSLY RESERVED.

APPROVED DATE 1/9/13	CURRENT DESIGN ACTIVITY: Howmet Fastening Systems (HFS)	TITLE: INSERT - RINGLOCKED, FINE INTERNAL AND COARSE EXTERNAL THREADS, COUNTERBORED	CURRENT DESIGN ACTIVITY: CAGE CODE: 83324
REV. LETTER AND DATE D 06/01/20	TORRANCE OPERATIONS		SALES DRAWING NO.
DAF NUMBER 119448	<b>Rosan Products</b> 3018 W. Lomita Blvd. Torrance, California 90505-5103	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	<b>RDJ200( )(L) SERIES</b>
		ANGLES = ±3° DECIMALS .XX = ±.02 .XXX = ±.010	SHEET 4 OF 4