



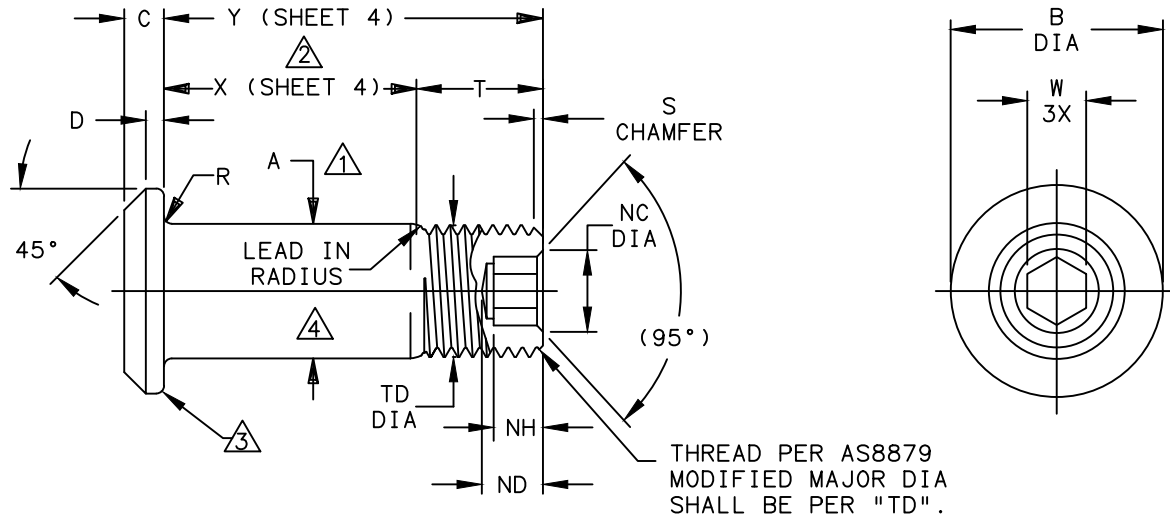
Howmet Fastening Systems  
 Carson Operations  
 900 E. Watson Center Road  
 Carson, California 90745 U.S.A.

**HOWMET  
 AEROSPACE**

Phone (310) 830-8200  
 HFS\_Carson\_Engineering@howmet.com

**AERO-LITE®  
 ENGINEERING  
 STANDARD**

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AL PIN FAMILY NUMBER	NOM SIZE	THREAD (MODIFIED)	A SHANK DIA BARE +.0005 -.0000	A SHANK DIA COATED ±.0005	B HEAD DIA	C HEAD HEIGHT	D REF	NC CHAMFER DIA	ND DRILL DEPTH MAX	NH HEX DEPTH	R RAD ±.005	S CHAMFER	T REF	TD DIA	W HEX 3X	DOUBLE SHEAR LBS MIN	TENSION LBS MIN
AL622()-5-()	.1640	.1640-32 UNJC-3A	.1630	.1630	.322 .306	.065 .055	.030	.104 .094	.135	.100 .080	.020	1/32"	.280	.1595 .1570	.0806 .0791	4010	1940
AL622()-6-()	.1900	.1900-32 UNJF-3A	.1890	.1890	.377 .357	.074 .064	.035	.119 .104	.135	.100 .080	.020	1/32"	.290	.1840 .1810	.0806 .0791	5380	2590
AL622()-8-()	.2500	.2500-28 UNJF-3A	.2490	.2490	.440 .415	.090 .080	.045	.142 .122	.160	.110 .090	.020	1/32"	.320	.2440 .2410	.0967 .0947	9300	4760
AL622()-10-()	.3125	.3125-24 UNJF-3A	.3115	.3115	.505 .475	.112 .102	.055	.180 .160	.200	.130 .110	.025	3/64"	.380	.3060 .3020	.1295 .1270	14600	7100
AL622()-12-()	.3750	.3750-24 UNJF-3A	.3740	.3740	.600 .565	.140 .130	.075	.217 .197	.235	.160 .140	.025	3/64"	.420	.3680 .3640	.1617 .1582	21000	10600

- ① CONCENTRICITY: "B" HEAD DIAMETER TO "A" SHANK DIAMETER TO BE WITHIN .010 TIR.
- ② GRIP LENGTH IS MEASURED FROM THE UNDERSIDE OF THE HEAD TO THE MAXIMUM GRIP PLANE. TRANSITION AREA AND THREAD FORM WILL ALLOW MATING COLLAR TO ACHIEVE MINIMUM GRIP CONDITION WITHOUT INTERFERENCE. (SEE DESIGN GRIP RANGE AND DIMENSION "X" SHEET 4).
- ③ PERMISSIBLE NATURAL FLOW OF MATERIAL. MUST BE FREE FROM SHARP CORNERS.
- ④ MAXIMUM "A" DIAMETER MAY BE INCREASED BY .0002 TO ALLOW FOR DRY FILM LUBE (SUFFIX "RS" AND "UV" FINISH ONLY).

MATERIAL: 6AL-4V TITANIUM ALLOY PER AMS4967 OR AMS4928.  
 MINIMUM SHEAR STRENGTH: 95 KSI.  
 SURFACE TEXTURE: Ra MAX PER ANSI-B46.1 BEFORE COATING. BEARING SURFACE OF HEAD, HEAD TO SHANK FILLET RADIUS, SHANK AND LEAD-IN RADIUS, -32, OTHER SURFACES -125.

PROCUREMENT SPECIFICATION: C380  
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 AERO-LITE IS A TRADEMARK OF HOWMET AEROSPACE INC. AND ITS SUBSIDIARIES.

DIMENSIONS IN INCHES AFTER FINISH

DRAWN BY	TH	FSCM (Cage Code) 17446 - Carson
CHECKED BY	MM	

A <sub>2</sub>	REMOVE HI-KOTE I AND KAL-GARD 2242 FROM PAGE 2. (REF. ECR 2906)	
ISSUED	08/04/08	PIN, AERO-LITE® LIGHTWEIGHT PROTRUDING TENSION HEAD, 6AL-4V TITANIUM. (95 KSI SHEAR)
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		AL622()-()-()
		AL117



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- FINISH: SUFFIX "AG" = ALUMINUM COATING PER NAS4006 WITH ORANGE COLOR ON THREAD END PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.
- SUFFIX "AP" = ALUMINUM COATING PER NAS4006 PLUS CETYL ALCOHOL LUBE PER MIL-L-87132 "B"
- SUFFIX "AT" = ALUMINUM COATING PER NAS4006.
- SUFFIX "BJ" = ION VAPOR DEPOSITED ALUMINUM COATING PER MIL-C-83488, TYPE II, CLASS 3 PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.
- SUFFIX "BL" = ION VAPOR DEPOSITED ALUMINUM COATING PER MIL-C-83488 TYPE II, CLASS 3 WITH BLACK COLOR ON THREAD END PLUS CETYL ALCOHOL LUBE PER MIL-L-87132 "B".
- SUFFIX "CF" = ION VAPOR DEPOSITED ALUMINUM COATING PER MIL-C-83488, TYPE II, CLASS 3 WITH BLACK COLOR ON THREAD END.
- SUFFIX "KM" = ALUMINUM COATING PER NAS4006 WITH WHITE COLOR ON THREAD END PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.
- SUFFIX "KN" = ALUMINUM COATING PER NAS4006 WITH WHITE COLOR ON THREAD END.
- SUFFIX "RP" = PHOSPHATE FLUORIDE TREAT PER AMS2486 WITH ORANGE COLOR ON THREAD END PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.
- SUFFIX "RS" = PHOSPHATE FLUORIDE TREAT PER AMS2486 AND DRY FILM LUBE PER AS5272 WITH ORANGE COLOR ON THREAD END.
- SUFFIX "SU" = ALUMINUM COATING PER NAS4006 WITH LIGHT BLUE COLOR ON THREAD END PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.
- SUFFIX "UV" = SULFURIC ACID ANODIZE (BLUE) PER ISO 8080 AND DRY FILM LUBE PER AS5272 PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.
- SUFFIX "VF" = SULFURIC ACID ANODIZE (BLUE) PER ISO 8080 PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.
- SUFFIX "WF" = SULFURIC ACID ANODIZE (BLUE) PER ISO 8080 WITH BLACK COLOR ON THREAD END PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.
- NO LETTER = UNCOATED PIN PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.

DIMENSIONS IN INCHES  
AFTER FINISH

A <sub>2</sub>		REMOVE HI-KOTE I AND KAL-GARD 2242 FROM PAGE 2. (REF. ECR 2906)		
ISSUED	08/04/08	PIN, AERO-LITE® LIGHTWEIGHT PROTRUDING TENSION HEAD, 6AL-4V TITANIUM.(95 KSI SHEAR)	AL622()-(-)-()	
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HEAD MARKING: HEADS SHALL BE MARKED WITH THE MANUFACTURER'S SYMBOL, THE BASIC NUMBER (AL622) AND DASH NUMBER DESIGNATING DIAMETER, DEPRESSED .006 MAX DEPTH ARRANGEMENT OPTIONAL.

CODING: THE FIRST SET OF LETTERS DESIGNATE THE FAMILY OF LIGHTWEIGHT AERO-LITE® PINS FOR AEROSPACE APPLICATIONS (AL).  
 THE NEXT SET OF NUMBERS DESIGNATE HEAD SIZE, STYLE, MATERIAL AND LOAD APPLICATION (622).  
 THE NEXT SET OF LETTERS DESIGNATE FINISH (SEE FINISH CODE FOR SUFFIX INFORMATION).  
 THE FOLLOWING NUMBERS DESIGNATE THE NOMINAL PIN SHANK DIAMETER IN .03125 INCH INCREMENTS.  
 THE FINAL NUMBERS DESIGNATE THE GRIP LENGTH NUMBER OR THE NOMINAL PIN SHANK LENGTH IN .0625 INCH INCREMENTS.

EXAMPLE: AL622()-10-6

- \_\_\_\_\_ GRIP LENGTH IN .0625 INCH INCREMENTS.
- \_\_\_\_\_ SHANK DIA IN .03125 INCH INCREMENTS.
- \_\_\_\_\_ FINISH SUFFIX (SEE FINISH CODE).
- \_\_\_\_\_ TITANIUM PROTRUDING HEAD FOR TENSION APPLICATIONS.
- \_\_\_\_\_ AL FAMILY OF AERO-LITE® LIGHTWEIGHT PINS FOR AEROSPACE APPLICATIONS.

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GRIP NUMBER TABULATION													
GRIP DASH NO.	DESIGN GRIP RANGE		X ±.005	05	06	07	08	10	12	14	16	18	20
	MIN.	MAX.		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
				±.010	±.010	±.010	±.010	±.010	±.010	±.010	±.010	±.010	±.010
2	.063	.125	.125	.405	.415	—	—	—	—	—	—	—	—
3	.126	.188	.188	.468	.478	.493	.508	.568	—	—	—	—	—
4	.189	.250	.250	.530	.540	.555	.570	.630	.670	.750	—	—	—
5	.251	.312	.312	.592	.602	.617	.632	.692	.732	.812	.912	1.012	—
6	.313	.375	.375	.655	.665	.680	.695	.755	.795	.875	.975	1.075	1.155
7	.376	.438	.438	.718	.728	.743	.758	.818	.858	.938	1.038	1.138	1.218
8	.439	.500	.500	.780	.790	.805	.820	.880	.920	1.000	1.100	1.200	1.280
9	.501	.562	.562	.842	.852	.867	.882	.942	.982	1.062	1.162	1.262	1.342
10	.563	.625	.625	.905	.915	.930	.945	1.005	1.045	1.125	1.225	1.325	1.405
11	.626	.688	.688	.968	.978	.993	1.008	1.068	1.108	1.188	1.288	1.388	1.468
12	.689	.750	.750	1.030	1.040	1.055	1.070	1.130	1.170	1.250	1.350	1.450	1.530
13	.751	.812	.812	1.092	1.102	1.117	1.132	1.192	1.232	1.312	1.412	1.512	1.592
14	.813	.875	.875	1.155	1.165	1.180	1.195	1.255	1.295	1.375	1.475	1.575	1.655
15	.876	.938	.938	1.218	1.228	1.243	1.258	1.318	1.358	1.438	1.538	1.638	1.718
16	.939	1.000	1.000	1.280	1.290	1.305	1.320	1.380	1.420	1.500	1.600	1.700	1.780
17	1.001	1.062	1.062	1.342	1.352	1.367	1.382	1.442	1.482	1.562	1.662	1.762	1.842
18	1.063	1.125	1.125	1.405	1.415	1.430	1.445	1.505	1.545	1.625	1.725	1.825	1.905
19	1.126	1.188	1.188	1.468	1.478	1.493	1.508	1.568	1.608	1.688	1.788	1.888	1.968
20	1.189	1.250	1.250	1.530	1.540	1.555	1.570	1.630	1.670	1.750	1.850	1.950	2.030
21	1.251	1.312	1.312	1.592	1.602	1.617	1.632	1.692	1.732	1.812	1.912	2.012	2.092
22	1.313	1.375	1.375	1.655	1.665	1.680	1.695	1.755	1.795	1.875	1.975	2.075	2.155
23	1.376	1.438	1.438	1.718	1.728	1.743	1.758	1.818	1.858	1.938	2.038	2.138	2.218
24	1.439	1.500	1.500	1.780	1.790	1.805	1.820	1.880	1.920	2.000	2.100	2.200	2.280
25	1.501	1.562	1.562	1.842	1.852	1.867	1.882	1.942	1.982	2.062	2.162	2.262	2.342
26	1.563	1.625	1.625	1.905	1.915	1.930	1.945	2.005	2.045	2.125	2.225	2.325	2.405
27	1.626	1.688	1.688	1.968	1.978	1.993	2.008	2.068	2.108	2.188	2.288	2.388	2.468
28	1.689	1.750	1.750	2.030	2.040	2.055	2.070	2.130	2.170	2.250	2.350	2.450	2.530
29	1.751	1.812	1.812	2.092	2.102	2.117	2.132	2.192	2.232	2.312	2.412	2.512	2.592
30	1.813	1.875	1.875	2.155	2.165	2.180	2.195	2.255	2.295	2.375	2.475	2.575	2.655
31	1.876	1.938	1.938	2.218	2.228	2.243	2.258	2.318	2.358	2.438	2.538	2.638	2.718
32	1.939	2.000	2.000	2.280	2.290	2.305	2.320	2.380	2.420	2.500	2.600	2.700	2.780

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A<sub>2</sub>

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PIN, AERO-LITE® LIGHTWEIGHT  
 PROTRUDING TENSION HEAD,  
 6AL-4V TITANIUM.(95 KSI SHEAR)

AL622(-)(-)(-)

AL117