



TABLE I

PART NUMBER	ϕA		$\phi A' \text{ MIN}$		(ϕD)		$\phi E \text{ MAX}$		F WRENCH FLATS		(H)		(L)		$(R \text{ RAD})$		$S \text{ MAX}$		(T HEX ACROSS FLATS)		ϕY	
	INCH	mm	INCH	mm	INCH	mm	INCH	mm	INCH	mm	INCH	mm	INCH	mm	INCH	mm	INCH	mm	INCH	mm	INCH	mm
MRL3212-6-()	.385 .378	9,78 9,60	.342	8,69	.197	5,00	.1985	5,042	.113 .108	2,87 2,74	.077	1,96	.770	19,558	.030	0,76	.010	0,25	.375	9,52	.186 .181	4,72 4,60
MRL3212-7-()	.416 .409	10,57 10,39	.373	9,47	.226	5,74	.2275	5,778	.121 .116	3,07 2,95	.077	1,96	.770	19,558	.030	0,76	.015	0,38	.375	9,52	.215 .210	5,46 5,33
MRL3212-8-()	.507 .499	12,88 12,67	.463	11,76	.258	6,55	.2595	6,591	.135 .130	3,43 3,30	.104	2,64	.770	19,558	.030	0,76	.015	0,38	.375	9,52	.241 .236	6,12 5,99
MRL3212-9-()	.538 .530	13,67 13,46	.494	12,55	.288	7,32	.2895	7,353	.152 .147	3,86 3,73	.104	2,64	.870	22,098	.030	0,76	.015	0,38	.500	12,70	.271 .266	6,88 6,76
MRL3212-10-()	.635 .626	16,13 15,90	.577	14,66	.310	7,87	.3110	7,899	.152 .147	3,86 3,73	.136	3,45	.870	22,098	.040	1,02	.015	0,38	.500	12,70	.287 .282	7,29 7,16
MRL3212-11-()	.666 .657	16,92 16,69	.608	15,44	.342	8,69	.3433	8,720	.185 .180	4,70 4,57	.136	3,45	.870	22,098	.040	1,02	.015	0,38	.500	12,70	.319 .314	8,10 7,98
MRL3212-12-()	.762 .752	19,35 19,10	.696	17,68	.373	9,47	.3740	9,500	.185 .180	4,70 4,57	.162	4,11	1,000	25,400	.040	1,02	.015	0,38	.500	12,70	.350 .345	8,89 8,76

TABLE I (CONTINUED)

PART NUMBER	Δ MIN AVAILABLE GRIP LENGTH	Δ MAX AVAILABLE GRIP LENGTH	INSTALLED DIMENSIONS								MECHANICAL PROPERTIES							
			RECOM. HOLE SIZE		$\phi D'$		$\phi J \text{ MIN}$		K MAX		BREAK-OFF LIMITS		TENSILE STRUCTURAL FAILURE MIN		DOUBLE SHEAR MIN		LOCKING TORQUE MIN	
			INCH	mm	INCH	mm	INCH	mm	INCH	mm	INCH	mm	LBS	N	LBS	N	IN-LBS	N-m
MRL3212-6-()	-200	-600	.202 .199	5,13 5,05	.205 .203	5,207 5,156	.290	7,37	.500	12,700	+1,85 -0,15	+4,70 -0,38	1600	7120	4800	21350	1.5	0,170
MRL3212-7-()	-200	-600	.231 .228	5,88 5,79	.234 .232	5,944 5,893	.330	8,38	.500	12,700	+1,85 -0,15	+4,70 -0,38	1700	7560	6000	26700	2.0	0,226
MRL3212-8-()	-200	-1000	.263 .260	6,68 6,60	.266 .264	6,756 6,706	.390	9,91	.500	12,700	+1,85 -0,15	+4,70 -0,38	2300	10230	8000	35600	2.5	0,282
MRL3212-9-()	-200	-1000	.293 .290	7,44 7,37	.296 .294	7,518 7,468	.430	10,92	.500	12,700	+1,85 -0,15	+4,70 -0,38	2400	10675	10000	44480	3.0	0,339
MRL3212-10-()	-300	-1000	.315 .312	8,00 7,92	.318 .316	8,077 8,026	.460	11,68	.550	13,970	+1,85 -0,15	+4,70 -0,38	3600	16010	12000	53400	3.5	0,400
MRL3212-11-()	-300	-1000	.347 .344	8,81 8,74	.350 .348	8,890 8,839	.490	12,45	.625	15,875	+1,85 -0,15	+4,70 -0,38	3700	16460	14000	62300	4.0	0,452
MRL3212-12-()	-300	-1000	.378 .375	9,60 9,52	.381 .379	9,677 9,627	.560	14,22	.625	15,875	+1,85 -0,15	+4,70 -0,38	5000	22240	17000	75600	4.0	0,452

MONOGRAM AEROSPACE FASTENERS
a TriMas company
3423 SOUTH GARFIELD AVENUE
COMMERCE, CALIFORNIA 90040
(323) 722-4760 FAX (323) 727-1029

TITLE:
**RADIAL-LOK™ FASTENER, BLIND
100° FLUSH TENSION HEAD
TITANIUM**

DRAWING NO:
MRL3212(-)(-)(-)
DRAWN BY:
M. DOMINGUEZ
DRAWN DATE:
08/21/13
APPROVED BY:
CHECKED DATE:

PROPRIETARY AND CONFIDENTIAL: THIS DRAWING IS PART OF THE PROPRIETARY ARTICLE HEREIN DISCLOSED, OWNED BY MONOGRAM AEROSPACE FASTENERS. ANY PARTY BY ACCEPTING THIS DOCUMENT ASSUME CUSTODY THEREOF AND AGREES:
A: THE INFORMATION SET FORTH HEREIN IS GIVEN IN CONFIDENCE AND THIS DOCUMENT WILL NOT BE COPIED OR REPRODUCED IN WHOLE OR IN PART, NOR ITS CONTENTS REVEALED IN ANY MANNER TO ANY PERSON EXCEPT TO MEET THE PURPOSE FOR WHICH IT WAS DELIVERED.
B: WITHOUT THE WRITTEN CONSENT OF MONOGRAM AEROSPACE FASTENERS, THIS DOCUMENT AND THE INFORMATION CONTAINED HEREIN UNDER NO CIRCUMSTANCES WILL BE USED IN THE MANUFACTURE OR REPRODUCTION OF THE ARTICLE DISCLOSED, AND THE DELIVERY OF THIS DOCUMENT SHALL NOT CONSTITUTE ANY RIGHT OR LICENSE TO DO SO.

MONOGRAM CAGE CODE: 98524
ECN NO: 17-0057
ECN DATE: 02/24/17
REV: AF
SHEET 1 OF 2

APPLICABLE SPECIFICATIONS:
PROCUREMENT SPECIFICATION: MRL1000
INSTALLATION AND INSPECTION SPECIFICATION: MRL1003

MATERIAL AND HEAT TREAT:

NUT: 6Al-4V TITANIUM ALLOY PER AMS-T-9047 STA OR AMS4928 OR AMS4967 HEAT TREATED PER AMS-H-81200 TO 95 KSI SHEAR STRENGTH MINIMUM. MAXIMUM HYDROGEN CONTENT 125 PPM.
SCREW: INCONEL 718 PER AMS5662. HEAT TREATED TO 125 KSI TENSILE MINIMUM.
SLEEVE: 304 STAINLESS STEEL PER AMS5639, FULLY ANNEALED.
EXPANSION SLEEVE: A286 PER AMS5731, AMS5732, AMS5737 OR AMS5525.
HEAT TREAT AS REQUIRED FOR PERFORMANCE.
INSERT: ACETAL PER ASTM D4181
DRIVE NUT: MILD STEEL

FINISH:

NUT: NONE.
SLEEVE, SCREW & EXPANSION SLEEVE: PASSIVATE PER AMS2700, KAL-GARD ANN-RO #1013 CONVERSION COATING OPTIONAL.
INSERT: NONE
DRIVE NUT: COLOR GRAY

LUBRICANT:

DRY FILM LUBE PER THE CHEMICAL REQUIREMENTS OF MIL-L-46010 TYPE I.
PARAFFIN WAX, OR CETYL ALCOHOL PER AS87132 (AS REQUIRED FOR PERFORMANCE).

TABLE II

4 2ND DASH NO. (GRIP)	GRIP RANGE			
	MIN GRIP		MAX GRIP	
	INCH	mm	INCH	mm
-100	.025	0,63	.125	3,17
-150	.075	1,90	.175	4,45
-200	.125	3,17	.225	5,71
-250	.175	4,45	.275	6,98
-300	.225	5,71	.325	8,25
-350	.275	6,98	.375	9,52
-400	.325	8,25	.425	10,80
-450	.375	9,52	.475	12,07
-500	.425	10,80	.525	13,33
-550	.475	12,07	.575	14,60
-600	.525	13,33	.625	15,88
-650	.575	14,60	.675	17,15
-700	.625	15,88	.725	18,41
-750	.675	17,15	.775	19,68
-800	.725	18,41	.825	21,00
-850	.775	19,68	.875	22,23
-900	.825	21,00	.925	23,50
-950	.875	22,23	.975	24,76
-1000	.925	23,50	1,025	26,03

GENERAL NOTES:

1. EXAMPLE OF PART NUMBER:

MRL3212 () - 06 - 100

DESIGNATES GRIP (TABLE II)
DESIGNATES BASIC DIMENSIONS (TABLE I)
DESIGNATES SPECIAL FINISH CODE (SEE MRL1001)
DESIGNATES BASIC PART NUMBER
(BASIC PART: MRL3212SA ()-06-200 USE FOR SEALANT APPLICATION)

2. LOCKING FEATURE CONSISTS OF THREE (3) INDENTATIONS LOCATED 120 ° APART ON THE PERIPHERY OF THE NUT COMPONENT. DISTORTION OF SHANK DIAMETER PERMISSIBLE IN LOCKING AREA OUT-OF-ROUNDNESS SHALL NOT EXCEED .002" OVER "Y" MAX DIAMETER.

3. SEE MRL1003 FOR INSTALLATION AND REMOVAL INFORMATION.

4. GRIP LENGTH NOT LISTED ARE AVAILABLE UPON REQUEST.

5. CONCENTRICITY OF NUT HEAD CONICAL SURFACE TO "D" DIA SHALL BE WITHIN .005" T.I.R.

6. DIMENSIONS NOTED ARE FOR ENGINEERING DESIGN AND FOR DETERMINING PRE-INSTALLATION COUNTERSINKING CRITERIA ONLY.

7. HEAD MARKINGS: MANUFACTURER'S IDENTIFICATION: MONOGRAM = "MI"
FASTENER IDENTIFICATION = "3212"

TITLE:

RADIAL-LOK™ FASTENER, BLIND
100° FLUSH TENSION HEAD
TITANIUM

DRAWING NO:

MRL3212()-()-()

DRAWN BY:

M. DOMINGUEZ

DRAWN DATE:

08/21/13

APPROVED BY:

CHECKED DATE: