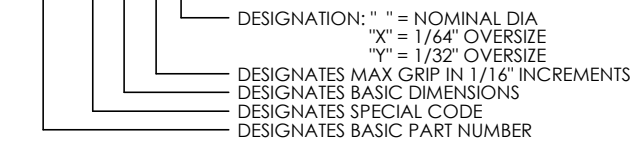


PART NUMBER	NOM DIA	B HEX	C REF	D DIA	E DIA MAX	F FLATS	H HEAD HTS	J DIA MIN	K MAX	L REF	N MIN	R MAX			
BG2031 ( )-06- ( )	3/16		5/16	.1895 .1885	.1875	.112 .109	.080 .073	.290	.750	.850	.340	.030			
BG2031 ( )-06- ( )X	13/64	.312 .305		.2026 .2016	.1995			.2182 .2172		.2495 .2485			.300	.900	
BG2031 ( )-06- ( )Y	7/32			.2651 .2641	.2620								.135 .131	.090 .083	.380
BG2031 ( )-08- ( )	1/4	.375 .367		.2807 .2797	.2775	.152 .149	.112 .105	.400	1.040	.409					
BG2031 ( )-08- ( )X	17/64			.3120 .3110	.3090			.3276 .3266	.3432 .3422				.475	.950	1.100
BG2031 ( )-08- ( )Y	9/32				.3745 .3735										.3715
BG2031 ( )-10- ( )	5/16	.437 .429	3/8	.3901 .3891	.3870	.580	1.100	1.300	.548						
BG2031 ( )-10- ( )X	21/64			.4057 .4047	.4025			.600		1.320					
BG2031 ( )-10- ( )Y	11/32														
BG2031 ( )-12- ( )	3/8	.500 .491	7/16												
BG2031 ( )-12- ( )X	25/64														
BG2031 ( )-12- ( )Y	13/32														

PART NUMBER	MIN AVAILABLE GRIP DASH NO.	RECOMMENDED HOLE SIZE FOR:		PREVAILING TORQUE (IN-LBS) MIN	DOUBLE SHEAR (LBS) MIN	TENSILE STRENGTH (LBS) MIN	BREAK-OFF LIMITS MAX
		CLEARANCE INSTALLATION	INTERFERENCE INSTALLATION				
BG2031 ( )-06- ( )	-02	.192 .190	.1890 .1875	4	5360	1600	.015
BG2031 ( )-06- ( )X		.205 .203	.2015 .1997				
BG2031 ( )-06- ( )Y		.2205 .2185	.2171 .2152				
BG2031 ( )-08- ( )		.252 .250	.2489 .2472	6	9300	3000	
BG2031 ( )-08- ( )X		.268 .266	.2640 .2622				
BG2031 ( )-08- ( )Y		.2835 .2815	.2796 .2777				
BG2031 ( )-10- ( )	-03	.315 .313	.3110 .3092	8	14600	5000	.020
BG2031 ( )-10- ( )X		.3305 .3285	.3265 .3247				
BG2031 ( )-10- ( )Y		.346 .344	.3421 .3402				
BG2031 ( )-12- ( )		.377 .375	.3735 .3717	10	21000	7000	
BG2031 ( )-12- ( )X		.393 .391	.3891 .3872				
BG2031 ( )-12- ( )Y		.409 .407	.4047 .4027				

EXAMPLE OF PART NUMBER:

BG2031 ( )-08-09 ( )



U.S. PATENT NO.: 5,498,110; 5,634,751 AND FOREIGN PATENTS PENDING

<p>MONOGRAM AEROSPACE FASTENERS a TriMas company 3423 SOUTH GARFIELD AVENUE COMMERCE, CALIFORNIA 90040 (323) 722-4760 FAX (323) 727-1029</p>	TITLE:	<p>OSI BOLT™ PROTRUDING HEX HEAD CLOSURE TOLERANCE SHANK A286, 95 KSI SHEAR 1/16" GRIP VARIATION</p>		DRAWING NO:	<p>BG2031 ( )- ( )- ( ) ( )</p>		
				DRAWN BY:	M. DOMINGUEZ	DRAWN DATE:	8/22/13
				APPROVED BY:		CHECKED DATE:	
	<p><b>PROPRIETARY AND CONFIDENTIAL:</b> NOTICE: 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.</p>				<p>MONOGRAM CAGE CODE: 98524</p>	<p>ECN NO: 15-0240 ECN DATE: 6/22/15</p>	<p>REV: D SHEET 1 OF 2</p>

PART NUMBER	COMPONENTS							
	BODY		SLEEVE		NUT		COREBOLT	
	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH
BG2031(-)-((-))	A286 CRES PER AMS5732 OR AMS5737 HEAT TREATED AS REQ'D FOR PERFORMANCE	PASSIVATE PER AMS2700 OR BAC5758 ALUMINUM COAT PER BMS-10-85 TYPE I, CL A	304 SS PER AMS5639 FULLY ANNEALED	CAD PLATE PER AMS-QQ-P-416 TYPE II, CL 1	A286 CRES  PER AMS5732 OR AMS5737 HEAT TREATED TO 160 KSI MIN TENSILE  <b>EXCEPT FOR -08 NOMINAL SIZE ONLY:</b>  INCO 718 PER AMS5662 HEAT TREATED TO 125 KSI FSU MINIMUM	CAD PLATE PER AMS-QQ-P-416 TYPE II, CL 1	INCO 718 PER AMS5662 HEAT TREATED TO 125 KSI FSU MINIMUM	PASSIVATE PER AMS2700 OR BAC5758
BG2031A(-)-((-))	A286 CRES PER AMS5732 OR AMS5737 HEAT TREATED AS REQ'D FOR PERFORMANCE	PASSIVATE PER AMS2700 OR BAC5758 ALUMINUM COAT PER BMS-10-85 TYPE I, CL A	304 SS PER AMS5639 FULLY ANNEALED	CAD PLATE PER AMS-QQ-P-416 TYPE II, CL 1		PASSIVATE PER AMS2700 OR BAC5758	INCO 718 PER AMS5662 HEAT TREATED TO 125 KSI FSU MINIMUM	PASSIVATE PER AMS2700 OR BAC5758
BG2031B(-)-((-))	A286 CRES PER AMS5732 OR AMS5737 HEAT TREATED AS REQ'D FOR PERFORMANCE	PASSIVATE PER AMS2700 OR BAC5758 ALUMINUM COAT PER BMS-10-85 TYPE I, CL A	304 SS PER AMS5639 FULLY ANNEALED	PASSIVATE PER AMS2700 OR BAC5758		PASSIVATE PER AMS2700 OR BAC5758	INCO 718 PER AMS5662 HEAT TREATED TO 125 KSI FSU MINIMUM	PASSIVATE PER AMS2700 OR BAC5758
BG2031C(-)-((-))	A286 CRES PER AMS5732 OR AMS5737 HEAT TREATED AS REQ'D FOR PERFORMANCE	PASSIVATE PER AMS2700 OR BAC5758	304 SS PER AMS5639 FULLY ANNEALED	PASSIVATE PER AMS2700 OR BAC5758		PASSIVATE PER AMS2700 OR BAC5758	INCO 718 PER AMS5662 HEAT TREATED TO 125 KSI FSU MINIMUM	PASSIVATE PER AMS2700 OR BAC5758
BG2031G(-)-((-))	A286 CRES PER AMS5732 OR AMS5737 HEAT TREATED AS REQ'D FOR PERFORMANCE	HI-KOTE I™	304 SS PER AMS5639 FULLY ANNEALED	HI-KOTE I™		PASSIVATE PER AMS2700 OR BAC5758	INCO 718 PER AMS5662 HEAT TREATED TO 125 KSI FSU MINIMUM	PASSIVATE PER AMS2700 OR BAC5758

INSTALLATION SPECIFICATION: BG2003  
PROCUREMENT SPECIFICATION: BG2000

GENERAL NOTES:

- LUBRICANT: DRY FILM LUBRICANT PER THE CHEMICAL REQUIREMENTS OF MIL-L-PRF-46010, TYPE I AND/OR PARAFFIN WAX OR CETYL ALCOHOL AS REQUIRED FOR PERFORMANCE.
- LOCKING FEATURE CONSISTS OF THREE (3) INDENTATIONS LOCATED 120° APART ON THE PERIPHERY OF THE NUT COMPONENT.
- SEE BG2003 FOR INSTALLATION AND REMOVAL INFORMATION.
- GRIP LENGTHS NOT LISTED MAY BE AVAILABLE UPON REQUEST.
- INSTALLATION HOLE SHALL BE RADIUS TO CLEAR HEAD TO SHANK RADIUS.
- ALL DIMENSIONS TO BE MET AFTER FINISH AND BEFORE LUBRICATION.
- BEARING SURFACE OF HEAD SHALL BE PERPENDICULAR TO SHANK DIAMETER WITHIN .002 T.I.R.
- INSERT FABRICATED FROM ACETAL PLASTIC PER ASTM-D4181.

4 2ND DASH NO.	GRIP RANGE (INCHES)		4 2ND DASH NO.	GRIP RANGE (INCHES)	
	MIN GRIP	MAX GRIP		MIN GRIP	MAX GRIP
-02	.063	.125	-18	1.063	1.125
-03	.126	.187	-19	1.126	1.187
-04	.188	.250	-20	1.188	1.250
-05	.251	.312	-21	1.251	1.312
-06	.313	.375	-22	1.313	1.375
-07	.376	.437	-23	1.376	1.437
-08	.438	.500	-24	1.438	1.500
-09	.501	.562	-25	1.501	1.562
-10	.563	.625	-26	1.563	1.625
-11	.626	.687	-27	1.626	1.687
-12	.688	.750	-28	1.688	1.750
-13	.751	.812	-29	1.751	1.812
-14	.813	.875	-30	1.813	1.875
-15	.876	.937	-31	1.876	1.937
-16	.938	1.000	-32	1.938	2.000
-17	1.001	1.062			

U.S. PATENT NO.: 5,498,110; 5,634,751 AND FOREIGN PATENTS PENDING



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COMMERCE, CALIFORNIA 90040  
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TITLE:

OSI BOLT™  
PROTRUDING HEX HEAD  
CLOSE TOLERANCE SHANK  
A286, 95 KSI SHEAR  
1/16" GRIP VARIATION

DRAWING NO:

BG2031(-)-((-)-((-))

DRAWN BY:

M. DOMINGUEZ

DRAWN DATE:

8/22/13

APPROVED BY:

CHECKED DATE:

PROPRIETARY AND CONFIDENTIAL:  
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6/22/15

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SHEET 2 OF 2