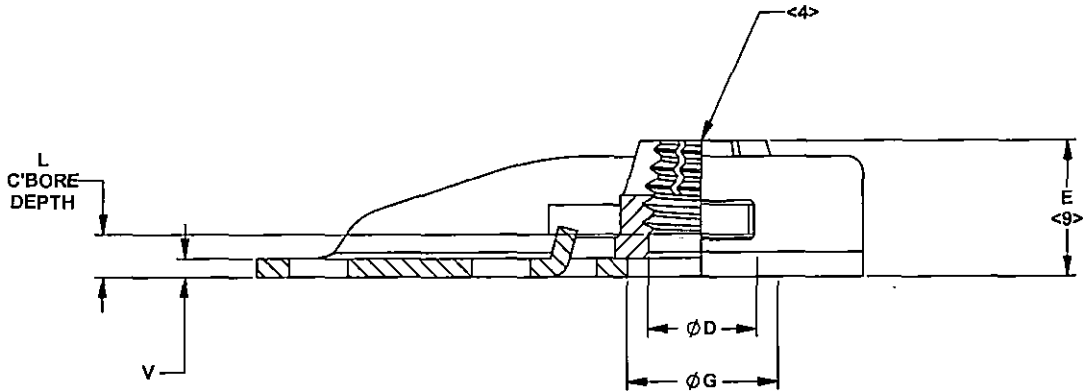
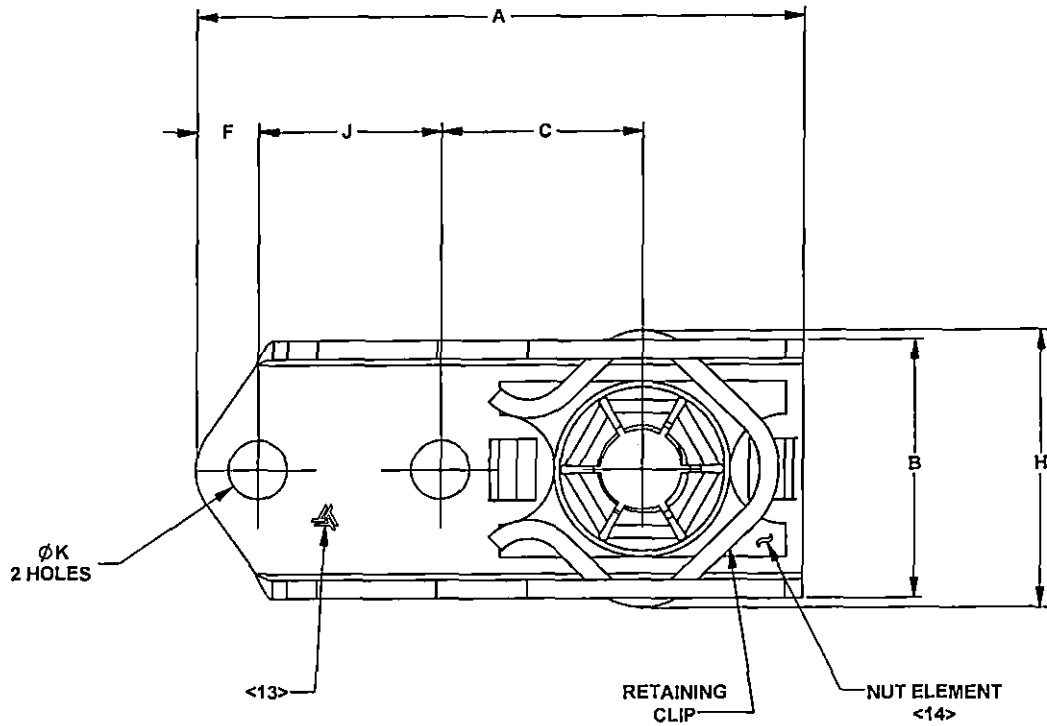




MANUFACTURE OF THE PROPRIETARY PARTS SHOWN HERE WITHOUT WRITTEN CONSENT OF HOWMET FASTENING SYSTEMS IS ABSOLUTELY PROHIBITED.

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



PROJECT NUMBER: 89-167

ORIGINAL DESIGN ACTIVITY: CAGE CODE 29372, TRIDAIR PRODUCTS

APPROVED DATE 17 JUL 89	CURRENT DESIGN ACTIVITY: Howmet Fastening Systems (HFS)	TITLE: NUT PLATE FLAT BEAM LOCK, CLIP-IN, 250 CYCLE, ALLOY STEEL NUT, CRES CAGE, ONE LUG	CURRENT DESIGN ACTIVITY: CAGE CODE: 29372
REV. LETTER DATE B 15 NOV 22	TORRANCE OPERATIONS		SALES DRAWING NO.
DAF NUMBER 121919	TRIDAIR PRODUCTS 3000 W. LOMITA BLVD. TORRANCE, CA. 90505	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES: ANGLES DECIMALS .XX = ±.02 .XXX = ±.010	FBL10074-()-() SHEET 1 OF 3

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TABLE 1

DASH NUMBER	THREAD <S>	A MAX	B MAX	C ±.005	D Ø REF	E MAX REF <10>	F MIN	G Ø MIN REF
-3-1	.1900-32 UNJF-3B	1.051	.454	.344	.194	.250	.100	.250
-3-2						.312		
-3-3						.375		
-3-4						.438		
-3-5						.500		
-3-6						.562		
-4-1	.2500-28 UNJF-3B	1.306	.554	.500	.254	.295	.100	.310
-4-2						.357		
-4-3						.419		
-4-4						.481		
-4-5						.543		
-4-6						.605		
-5-1	.3125-24 UNJF-3B	1.396	.650	.500	.317	.344	.125	.373
-5-2						.400		
-5-3						.461		
-5-4						.524		
-5-5						.586		
-5-6						.649		

TABLE 1 CON'T

DASH NUMBER	THREAD <S>	H MAX	J ±.002	K C'BORE +.005 -.000	L C'BORE MIN REF	V ±.005	MAX WEIGHT LBS/100
-3-1	.1900-32 UNJF-3B	.484	.312	.098	.070	.032	.80
-3-2					.125		.87
-3-3					.188		.92
-3-4					.250		.97
-3-5					.313		1.02
-3-6					.375		1.07
-4-1	.2500-28 UNJF-3B	.584	.312	.098	.070	.032	1.33
-4-2					.125		1.43
-4-3					.188		1.52
-4-4					.250		1.60
-4-5					.313		1.70
-4-6					.375		1.78
-5-1	.3125-24 UNJF-3B	.720	.312	.130	.070	.040	2.18
-5-2					.125		2.24
-5-3					.188		2.35
-5-4					.250		2.47
-5-5					.313		2.58
-5-6					.375		2.69

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APPROVED DATE

17 JUL 89

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Howmet Fastening
Systems (HFS)

TORRANCE OPERATIONS

TITLE:

NUT PLATE
FLAT BEAM LOCK, CLIP-IN,
250 CYCLE, ALLOY STEEL NUT,
CRES CAGE, ONE LUG

CURRENT DESIGN ACTIVITY:

CAGE CODE: 29372

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TRIDAIR PRODUCTS
 3000 W. LOMITA BLVD.
 TORRANCE, CA. 90505

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES &
 ASME Y14.5M TOLERANCES:

ANGLES
 DECIMALS

±.3°
 ±.02
 .XXX ±.010

FBL10074-()-()

SHEET 2 OF 3



TABLE 2

PART NUMBER	SEATING TORQUE (MAX)	INSTALLATION OR REMOVAL TORQUE (MAXIMUM)	BREAKAWAY TORQUE (MINIMUM)	AXIAL TENSILE STRENGTH (LBS. MIN)	PUSHOUT STRENGTH (LBS. MIN)	TORQUE-OUT STRENGTH (IN/LBS MIN)
FBL10074-3-()	36.0 IN/LBS	18.0 IN/LBS	2.0 IN/LBS	2,825	100	60
FBL10074-4-()	60.0 IN/LBS	30.0 IN/LBS	3.5 IN/LBS	5,060	125	100
FBL10074-5-()	120.0 IN/LBS	60.0 IN/LBS	6.5 IN/LBS	7,000	125	160

NOTES; UNLESS OTHERWISE SPECIFIED:

1. MATERIAL:
 - 1.1 NUT: 4140 OR 8740 ALLOY STEEL PER AMS6382 OR AMS6322.
 - 1.2 CAGE: STEEL PER AMS5085 OR STEEL GRADES SAE 1040 THRU 1095 (INCLUSIVE) CHEMISTRY PER SAE 1403.
 - 1.3 CLIP: 302 CRES STEEL PER AMS5688 OR 18-2MN CRES, OR XM-28 PER CHEMISTRY OF ASTM A313.
2. HEAT TREAT:
 - 2.1 NUT: 180 KSI MINIMUM ULTIMATE TENSILE STRENGTH PER AMS2759.
 - 2.2 CAGE: 160 KSI MINIMUM ULTIMATE TENSILE STRENGTH PER AMS2759.
3. FINISH:
 - 3.1 NUT: CADMIUM PLATE PER AMS-QQ-P-416, TYPE I, CLASS 2, WITH 23 HOURS BAKE TO RELIEVE HYDROGEN EMBRITTLEMENT, AND DRY FILM LUBE PER AS5272.
 - 3.2 CAGE: CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 2.
 - 3.3 CLIP: PASSIVATE PER AMS2700.
- <4> THREADS PER AS8879 EXCEPT LOCKING AREA PRIOR TO LUBRICATION.
5. ANTI-SEIZE COMPOUND PER MIL-PRF-907 APPLIED TO INTERNAL THREADS.
6. FLOAT OF NUT PORTION OF ASSEMBLY SHALL BE .030 MINIMUM RADIALLY FROM CENTERED POSITION. NUT BODY SHALL BE CAPABLE OF ENGAGEMENT WITH A BOLT IN THE MAXIMUM MISALIGNED POSITION.
7. PUSHOUT, TORQUE-OUT, AND AXIAL TENSILE STRENGTH OF NUT PLATE SHALL BE AS SPECIFIED IN TABLE 2.
8. LOCKING TORQUE:
 - 8.1 THE SELF LOCKING FEATURE SHALL BE A FLAT BEAM TYPE CAPABLE OF 250 SEATED USABLE CYCLES WHEN TESTED WITH A 160 KSI MINIMUM ULTIMATE TENSILE STRENGTH, CADMIUM PLATED ALLOY STEEL BOLT. LOCKING TORQUE LIMITS SHALL BE AS SPECIFIED IN TABLE 2.
- <9> MINIMUM "E" NOT SPECIFIED, LIMIT ONLY BY STRENGTH REQUIREMENTS.
10. THE ASSEMBLY SHALL PROVIDE A BEARING SURFACE FOR THE NUT WITHIN THE CAGE.
11. SHAPE WITHIN ENVELOPE SHOWN OPTIONAL AND AT MANUFACTURERES OPTION.
12. NUT PLATES ARE SIMILAR TO THE DIMENSIONAL ENVELOPE SPECIFIED IN NAS1792.
- <13> CAGE SHALL BE IDENTIFIED WITH MANUFACTURER'S IDENTIFICATION. RAISED OR DEPRESSED .010 MAXIMUM. LOCATION OPTIONAL EXCEPT SHALL BE VISIBLE AFTER ASSEMBLY.
- <14> TOP OF NUT FLANGE SHALL BE IDENTIFIED WITH MANUFACTURERS IDENTIFICATION AND SECOND DASH NUMBER OF ASSEMBLY TO INDICATE "L" COUNTERBORE DEPTH. MARKING SHALL BE RAISED OR DEPRESSED .010 MAXIMUM. LOCATION OPTIONAL.
15. NUT ELEMENT IS REMOVABLE AND REPLACEABLE, SEE BELOW FOR PART NUMBERS:

15.1 ASSEMBLY PART NUMBER	NUT ELEMENT PART NUMBER	RETAINING CLIP PART NUMBER
FBL10074-3-()	FBL10041-3-()	FBL10059-3R
FBL10074-4-()	FBL10041-4-()	FBL10059-4R
FBL10074-5-()	FBL10041-5-()	FBL10059-5R
16. PART CALLOUT EXAMPLE:

16.1 FBL10074 - 4 - 2	SECOND DASH NUMBER INDICATES "L" COUNTERBORE DEPTH (.125 SHOWN)
	FIRST DASH NUMBER INDICATES BASIC SIZE IN SIXTEENTHS OF AN INCH (.2500-28UNJF SHOWN)
	BASIC PART NUMBER

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SHEET 3 OF 3