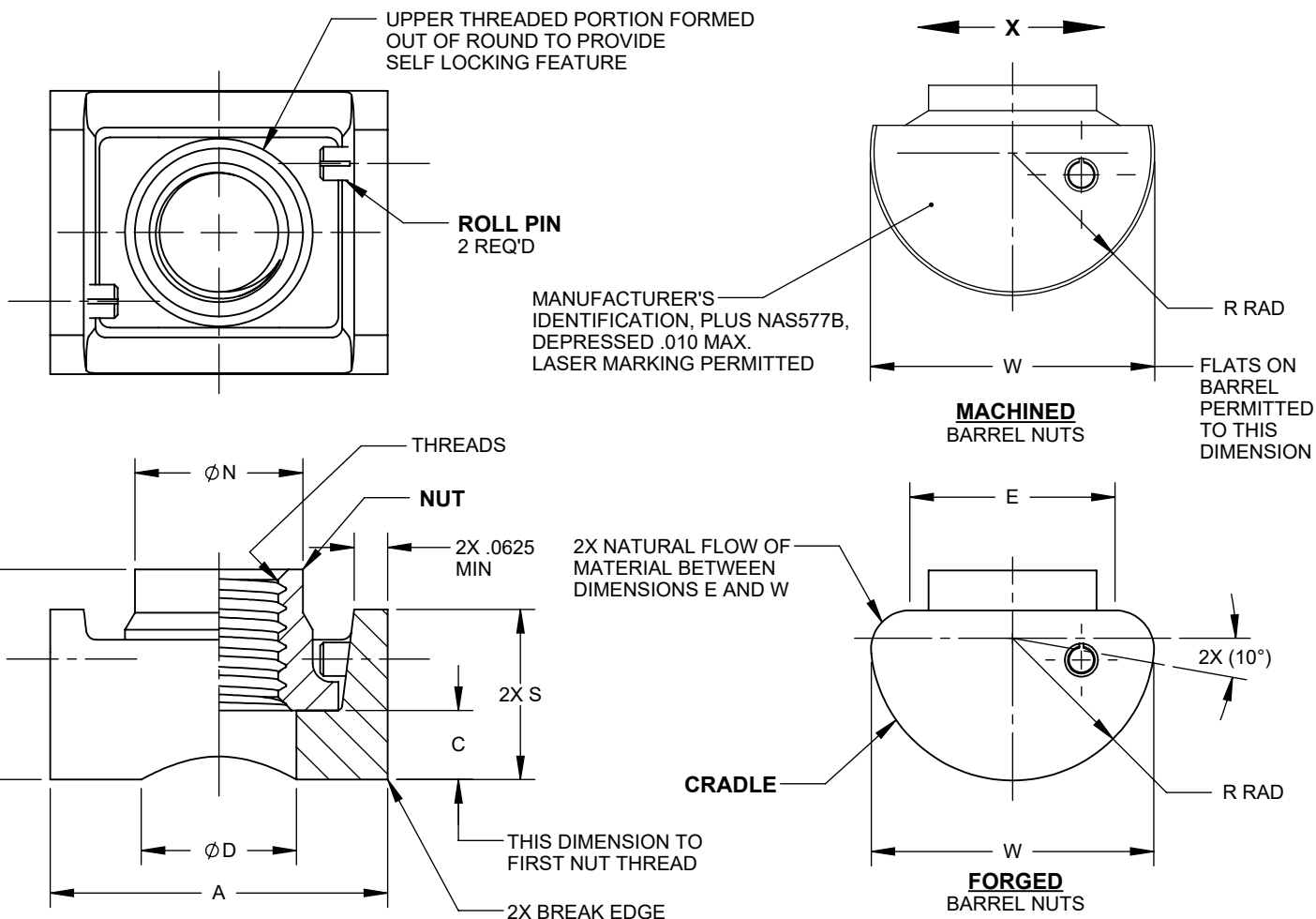


MANUFACTURE OF THE PROPRIETARY PARTS SHOWN HERE WITHOUT WRITTEN
CONSENT OF HOWMET FASTENING SYSTEMS IS ABSOLUTELY PROHIBITED.THIS DRAWING EMBODIES HOWMET FASTENING SYSTEMS CONFIDENTIAL, PROPRIETARY DESIGN & ALL DESIGN,
MANUFACTURING PRODUCTION, USE & SALE RIGHTS REGARDING SAME ARE EXPRESSLY RESERVED.

HFS PART NO.		THREADS PER AS8879	A	C	ØD	E MIN	H MAX	ØN MAX	R	S	W MIN	RECOMMENDED INSTALLATION Ø HOLE	APPROX WEIGHT lbs/100
F1800-	4	.2500-28UNJF-3B	.635 .615	.130	.291 .281	.380	.406	.375	.2640 .2625	.320 .310	.513	.535 .531	1.50
	5	.3125-24UNJF-3B	.698 .678	.120	.354 .344	.434	.468	.406	.2950 .2935	.360 .350	.575	.599 .594	2.00
	6	.3750-24UNJF-3B	.760 .740	.161 .151	.416 .406	.438	.531	.500	.3420 .3405	.420 .410	.669	.693 .688	3.00
	7	.4375-20UNJF-3B	.885 .865	.193 .183	.479 .469	.500	.625	.563	.3890 .3875	.470 .460	.763	.788 .781	5.10
	8	.5000-20UNJF-3B	1.010 .990	.224 .214	.541 .531	.580	.703	.625	.4360 .4345	.540 .530	.857	.882 .875	8.20
	9	.5625-18UNJF-3B	1.104 1.084	.255 .245	.604 .594	.625	.765	.688	.4825 .4810	.590 .580	.950	.976 .969	14.00
	10	.6250-18UNJF-3B	1.135 1.115	.286 .276	.666 .656	.670	.844	.750	.5300 .5285	.650 .640	1.045	1.072 1.062	18.00
	12	.7500-16UNJF-3B	1.510 1.490	.349 .339	.791 .781	.825	1.062	.875	.6390 .6375	.750 .740	1.263	1.291 1.281	23.00
	14	.8750-14UNJF-3B	1.541 1.521	.380	.916 .906	1.000	1.156	1.000	.7165 .7150	.850 .840	1.403	1.448 1.438	31.00
	1612	1.0000-12UNJF-3B	1.738 1.718	.370	1.042 1.032	1.090	1.281	1.125	.7795 .7780	.880 .870	1.544	1.572 1.562	44.00
	18	1.1250-12UNJF-3B	2.073 2.053	.443 .433	1.166 1.156	1.310	1.562	1.250	.9360 .9345	1.230 1.220	1.857	1.885 1.875	78.00
	20	1.2500-12UNJF-3B	2.362 2.342	.505 .495	1.291 1.281	1.500	1.813	1.375	1.0610 1.0595	1.320 1.310	2.107	2.135 1.125	120.00
	22	1.3750-12UNJF-3B	2.656 2.636	.567 .557	1.416 1.406		2.000	1.500	1.1860 1.1845	1.460 1.450	2.357	2.385 2.375	165.00
	24	1.5000-12UNJF-3B	3.010 2.990	.630 .620	1.541 1.531		2.187	1.625	1.3110 1.3095	1.520 1.510	2.607	2.635 2.625	215.00

THIRD ANGLE
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APPROVED DATE

02APR1984

CURRENT DESIGN ACTIVITY:

TITLE:

REV. LETTER AND DATE:

C 06APR2020

CUSTOMER:

Howmet Fastening Systems
800 S State College Boulevard
Fullerton, California, 92831<http://www.hfs.howmet.com>NUT - BARREL
FLOATING, SELF LOCKING
180 KSI, ASSEMBLYUNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE
IN INCHES & TO ASME Y14.5-2018 TOLERANCES:
DECIMALS = ±.015; ANGLES = ±2°

CAGE CODE: 15653

SALES DRAWING No.

F1800-(*)

SHEET 1 OF 2

FILED AS:
s_F1800-()

HFS PART NO.		AXIAL TENSILE STRENGTH lbf MIN	TENSILE LOADING RATE lbf/MINUTE ± 10%	HARDNESS RANGE	
				NUT	CRADLE
F1800-	4	7,200	5,000	Rc 41 MAX	Rc 36-43
	5	11,400	7,700	Rc 43 MAX	Rc 41-46
	6	17,000	11,000	Rc 46 MAX	
	7	23,000	15,000	Rc 43 MAX	
	8	30,700	19,600		
	9	38,900	24,800		
	10	48,700	30,600		
	12	70,800	44,000	Rc 41 MAX	Rc 36-43
	14	96,600	60,000		
	1612	125,900	78,000	Rc 46 MAX	
	18	161,000	100,000		
	20	201,000	122,000		
	22	246,000	148,000		
	24	295,000	176,000		

MATERIAL: NUT & CRADLE -- 8740 ALLOY STEEL PER AMS6322 (UNS G87400), OR
4340 ALLOY STEEL PER AMS6414 (UNS G43400).
ROLL PIN -- CORROSION RESISTANT STEEL.

HEAT TREAT: HARDNESS OF NUT AND CRADLE AS TABULATED. HEAT TREAT IN
ACCORDANCE WITH AMS2759. TEMPERING SHALL NOT BE LESS THAN:
A) 725°F FOR 8740 ALLOY STEEL.
B) 775°F FOR 4340 ALLOY STEEL.

4 FINISH:

F1800-(*):

NUT -- CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 2, PLUS SOLID FILM
LUBE PER AS5272, TYPE I.

CRADLE -- CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 2

ROLL PIN -- PASSIVATE PER AMS2700.

F1800-(*):CW:

NUT & CRADLE -- CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 2 PLUS WAX.

ROLL PIN -- PASSIVATE PER AMS2700, OPTIONAL WAX.

F1800-(*):F:

NUT & CRADLE -- CADMIUM FLUOROBORATE PLATE PER NAS672 OR VACUUM DEPOSITED
CADMIUM PER AMS-C-8837, TYPE II, CLASS 3.

ROLL PIN -- PASSIVATE PER AMS2700.

F1800-(*):FK:

NUT -- CADMIUM FLUOROBORATE PLATE PER NAS672 OR VACUUM DEPOSITED CADMIUM PER
AMS-C-8837, TYPE II, CLASS 3, PLUS SOLID FILM LUBE PER AS5272, TYPE I.

CRADLE -- CADMIUM FLUOROBORATE PLATE PER NAS672 OR VACUUM DEPOSITED CADMIUM
PER AMS-C-8837, TYPE II, CLASS 3.

ROLL PIN -- PASSIVATE PER AMS2700.

F1800X(*):

NUT & CRADLE -- CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 2.

ROLL PIN -- PASSIVATE PER AMS2700.

PERFORMANCE:

NASM25027, EXCEPT AS FOLLOWS:

- AXIAL TENSILE STRENGTH AS TABULATED, WHEN TESTED PER NASM1312-32.
- TENSILE LOADING RATE AS TABULATED.
- HEAT TREAT REQUIREMENTS OF NUT AND CRADLE AS TABULATED.

NOTES:

- FLOATABILITY: X AXIS = .028 MINIMUM
VERTICAL = .016 MAXIMUM
LONGITUDINAL = PERMISSIBLE
- 100% MAGNETIC PARTICLE INSPECT OF NUT AND CRADLE PER ASTM E1444. COLOR
IDENTIFICATION NOT REQUIRED.
- SURFACE TEXTURE 125 MICROINCHES MAX PER ASME B46.1.
4. POST PLATE BAKING FOR A MINIMUM OF 23 HOURS AT 375°F ±25°F M WITHIN 2 HOURS
AFTER PLATING. PLATING AND BAKING IS REQUIRED PRIOR TO ASSEMBLY.
- THREAD DIMENSIONS APPLY PRIOR TO SELF LOCKING FEATURE BUT BEFORE LUBRICANT.
NUT DIMENSIONS APPLY AFTER SELF LOCKING FEATURE BUT BEFORE LUBRICANT. NUT
SHALL ALLOW THE GO GAGE TO ENTER NOT LESS THAN HALF A TURN. WHEN LUBRICANT
PREVENTS THE USE OF STANDARD GAGES, THE NUT SHALL PERMIT A MINIMUM FREE
ROTATION OF 3/4 OF A 270° TURN ON THE TEST BOLT, HAVING CLASS 3 THREADS.
- TENSILE LOAD RATE IS BASED ON APPLICATION OF TENSILE LOAD AT A RATE OF 100,000 PSI
PER MINUTE IN THE NOMINAL STANK AREA OF MATING BOLTS.

THIRD ANGLE
PROJECTION

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APPROVED DATE

02APR1984

REV. LETTER AND DATE:

C 06APR2020

CUSTOMER:

CURRENT DESIGN ACTIVITY:



Howmet Fastening Systems
800 S State College Boulevard
Fullerton, California, 92831

<http://www.hfs.howmet.com>

TITLE:

NUT - BARREL
FLOATING, SELF LOCKING
180 KSI, ASSEMBLY

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE
IN INCHES & TO ASME Y14.5-2018 TOLERANCES:
DECIMALS = ±.015; ANGLES = ±2°

CAGE CODE: 15653

SALES DRAWING No.

F1800-(*)

SHEET 2 OF 2

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FILED AS:

s_ F1800- ()