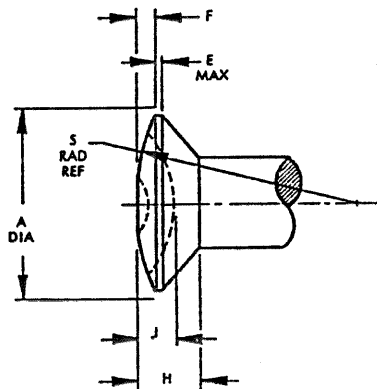
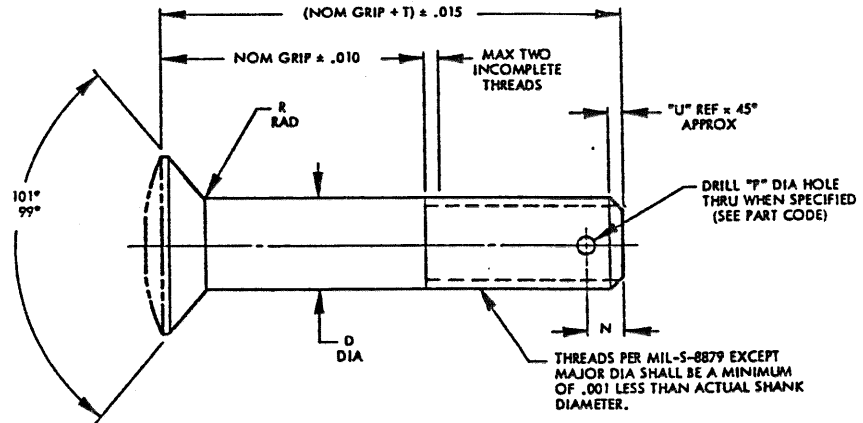
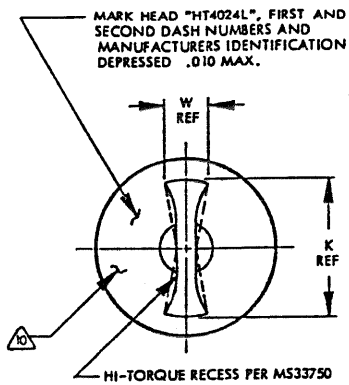


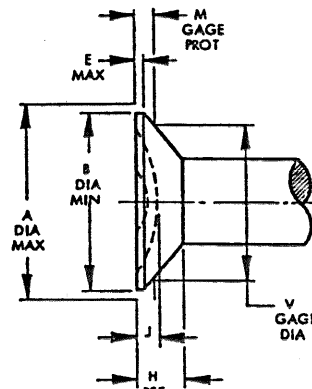
**ENGINEERING STANDARDS COMMITTEE
FOR HI-TORQUE PRODUCTS**

P.O. BOX 512, CULVER CITY, CA. 90230. PH. 213-838-2131

HI-SHEAR CORP. (73197)
VOL-SHAN (92215)
SPS TECHNOLOGIES (80539)
OMARK IND. P.F.S. (85495)
LITTON FASTENING SYSTEMS (97928)



HT4024L-3 AND HT4024L-5-(1)-1 CONFIGURATION



HT4024L-6T THRU HT4024L-10 CONFIGURATION

FIRST DASH NO.	THREAD	A DIA	B DIA MIN	D DIA	E MAX	F ±.002	H	M GAGE PROT	N	P DIA	R RAD	S RAD REF	T	U REF	V GAGE DIA	HI-TORQUE RECESS				TORQUE IN/LB MIN
																RECESS NO.	J	K REF	W REF	
-3	.1900-32 UNJF-3A	.3016 .2966	-	.1895 .1890	.013	.012	.060 .056	-	.121 .111	.075 .070	.030 .020	.80	.406	.039	-	2	.052 .049	.235	.100	65
-4	.2500-28 UNJF-3A	.3948 .3898	-	.2495 .2490	.015	.012	.074 .070	-	.121 .111	.081 .076	.030 .020	1.40	.469	.045	-	3	.058 .055	.315	.110	150
-5	.3125-24 UNJF-3A	.477	.429	.3120 .3115	.016	-	.071 REF	.0297 .0263	.124 .114	.081 .076	.040 .030	-	.531	.052	.4047 .4045	4	.049 .046	.394	.134	165
-6	.3750-24 UNJF-3A	.564	.510	.3745 .3740	.018	-	.081 REF	.0324 .0286	.125 .115	.111 .106	.040 .030	-	.641	.052	.4854 .4852	5	.064 .061	.484	.160	260
-7	.4375-20 UNJF-3A	.672	.612	.4370 .4365	.020	-	.101 REF	.0421 .0379	.128 .118	.111 .106	.050 .040	-	.656	.062	.5698 .5696	6	.070 .066	.571	.198	400
-8	.5000-20 UNJF-3A	.755	.688	.4995 .4990	.022	-	.109 REF	.0431 .0385	.128 .118	.111 .106	.050 .040	-	.781	.062	.6500 .6498	7	.086 .082	.660	.224	730
-9	.5625-18 UNJF-3A	.838	.766	.5615 .5610	.024	-	.119 REF	.0488 .0438	.129 .119	.146 .141	.050 .040	-	.906	.068	.7200 .7198	8	.098 .094	.731	.256	1,220
-10	.6250-18 UNJF-3A	.925	.848	.6240 .6235	.026	-	.129 REF	.0427 .0373	.129 .119	.146 .141	.050 .040	-	.953	.068	.8214 .8212	9	.104 .100	.819	.300	1,620
-5-(1)-1	.3125-24 UNJF-3A	.4739 .4689	-	.3120 .3115	.016	.015	.088 .080	-	.124 .114	.081 .076	.040 .030	1.56	.531	.052	-	8	.066 .062	.805	.134	165

PROCUREMENT SPEC: MCDONNELL DOUGLAS SPEC. 23M112, TYPE (d)

MATERIAL: PH13-8Mo PER AMS 5629
HEAT TREAT: 125,000 PSI MINIMUM SHEAR
FINISH CODE: PASSIVATE PER QQ-P-35
LUBRICATION: DRY FILM OVERCOAT MIL-L-8937

PART CODE & EXAMPLE: HT4024L-3 D 8 M
DESIGNATES DRY FILM OVERCOAT.
DESIGNATES NOMINAL GRIP LENGTH IN 16THS.
DESIGNATES DRILLED THREADS, NO LETTER DESIGNATES UNDRILLED THREADS.
DESIGNATES NOMINAL DIAMETER AS TABULATED.
BASIC PART NUMBER.

U.S. PATENT NUMBERS: 2,745,120; 2,808,087; 2,864,418; 2,949,949; 2,954,719; 2,994,354; 3,060,565; 3,103,675; 3,388,411; OTHER U.S. AND FOREIGN PATENTS PENDING

DRAWN 25 JANUARY 1973 REV. LETTER AND DATE 5-18-88	HI-TORQUE® BOLT, 100° REDUCED HEAD HI-TORQUE RECESS, PH13-8Mo CLOSE TOLERANCE, LONG THREAD 125 KSI MIN SHEAR	DRAWING NUMBER HT 4024 L SHEET 1 OF 2
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- GENERAL NOTES:
1. CONCENTRICITY: CONICAL SURFACE OF HEAD TO "D" DIA WITHIN .003 TIR.
"D" DIA TO THREAD PITCH DIAMETER WITHIN .005 TIR.
RECESS TO "D" DIAMETER WITHIN .010 TIR FOR -3, WITHIN .012 TIR FOR
-4 THRU -6, WITHIN .015 TIR FOR -7 THRU -10.
 2. SHANK SHALL BE STRAIGHT WITHIN .003 TIR PER INCH OF BOLT LENGTH.
 3. HEAD TO SHANK FILLET RADIUS TO BE ROLLED AFTER HEAT TREAT.
 4. COTTER PIN HOLE CENTERLINE WITHIN .010 AND NORMAL WITHIN 2° OF BOLT CENTERLINE.
 5. SURFACE ROUGHNESS PER ANSI B46.1. BEARING SURFACE OF HEAD, HEAD TO SHANK FILLET,
SHANK AND ALL THREAD ELEMENTS 32 MAX RHR; ALL OTHER SURFACES 125 MAX RHR.
 6. FLUORESCENT PENETRANT INSPECT PER MIL-I-6866.
 - △ RECESS SHALL WITHSTAND THE RECESS INSPECTION TORQUE VALUES TABULATED, WITH AN AXIAL END
PRESSURE NOT EXCEEDING 15 POUNDS, WITHOUT FAILURE OF RECESS OR APPLICABLE HI-TORQUE DRIVER.
 8. DIMENSIONS IN INCHES AND TO BE MET PRIOR TO LUBRICATION (WHEN APPLICABLE).
 - △ ALTERNATE DRY FILM APPLICATION SUBJECT TO MCAIR APPROVAL. DRY FILM SHALL BE APPLIED TO SHANK
AND THREADS ONLY WITH 100% COVERAGE OF THREADS AND 80% TO 100% COVERAGE OF SHANK LENGTH.
 - △ ALL SCREWS SHALL BE SUPPLIED WITH A MINIMUM OF 40% OF THE NON-BEARING HEAD SURFACE COATED
WITH WHITE PAINT COLOR NO. 37875 PER FED-STD-595. PAINT SHALL BE REMOVABLE WITH A MEK WIPE.
 - △ EFFECTIVE 12 JANUARY 1988 THE FLAT OR NON-DOMED .3125 NOMINAL DIAMETER BOLT IS INACTIVE FOR
PRODUCTION. ONLY THE 5-(1)-DOMED HEAD CONFIGURATION WILL BE MANUFACTURED. HOWEVER, FLAT OR
NON-DOMED FINISHED INVENTORIES MAY BE SUPPLIED UNTIL DECEMBER 3, 1990.

U.S. PATENT NUMBERS: 2,745,120; 2,808,087; 2,864,418; 2,949,949; 2,954,719; 2,994,354; 3,060,565; 3,103,675; 3,388,411; OTHER U.S. AND FOREIGN PATENTS PENDING

DRAWN 25 JANUARY 1973	HI-TORQUE® BOLT, 100° REDUCED HEAD HI-TORQUE RECESS, PH13-8Mo CLOSE TOLERANCE, LONG THREAD 125 KSI MIN SHEAR	DRAWING NUMBER
REV. LETTER AND DATE Ⓢ 5-18-88		HT 4024L SHEET 2 OF 2.