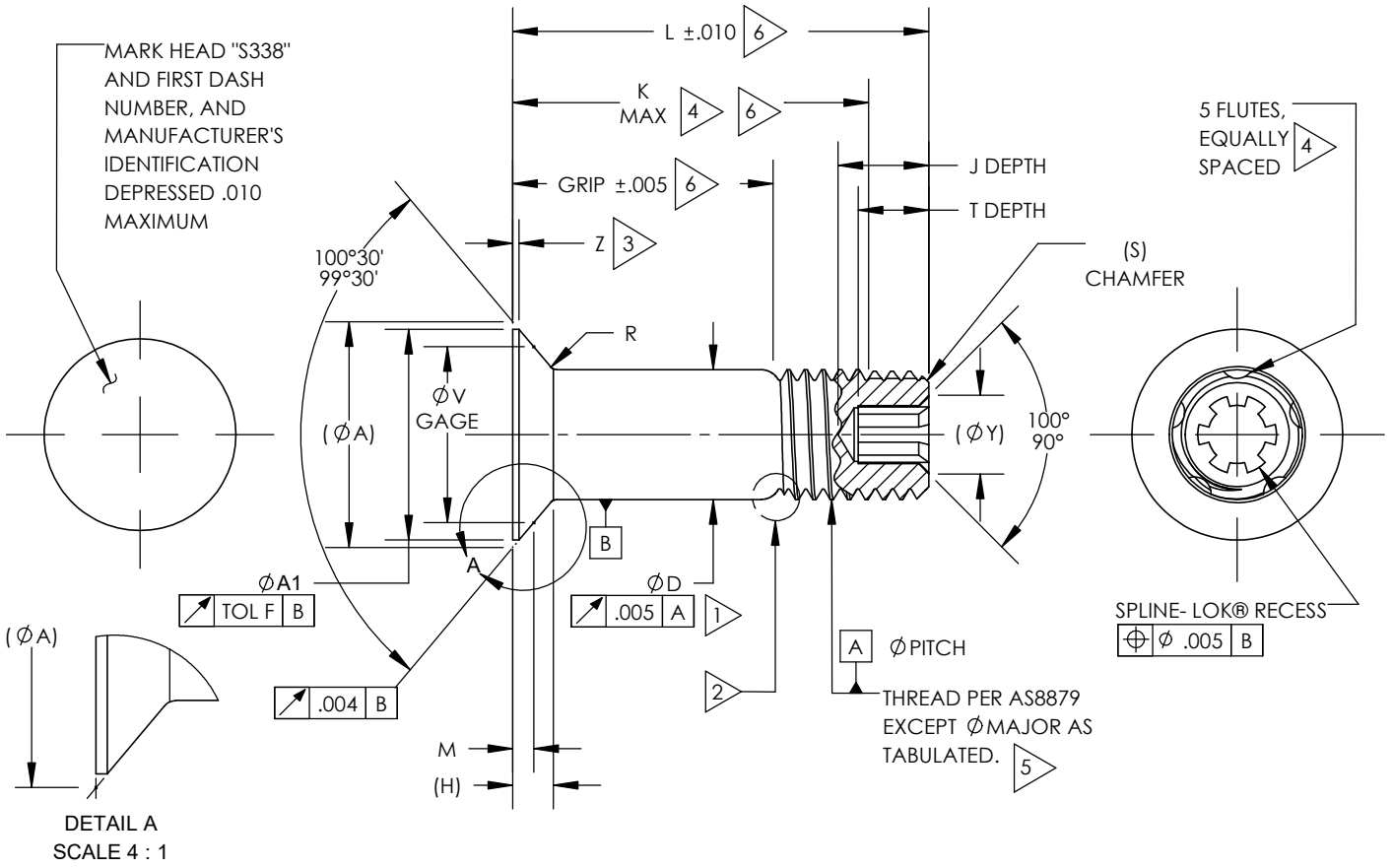

TABLE I - DIMENSIONS & MECHANICAL PROPERTIES

FIRST DASH NO.	ØNOM	THREADS (MODIFIED)		(ØA) THEO	ØA1 MIN	ØD				F	(H)	M GAGE PROT	R	(S)	ØV GAGE
						BEFORE FINISH	AFTER FINISH								
		THREAD SIZE	ØMAJOR MOD			IVD ALUMINUM and ALUMINUM PIGMENTED COATING	ALL	IVD ALUMINUM and ALUMINUM PIGMENTED COATING	NONE						
						MIN	MAX	MIN	MIN						
5	5/32	.1640-32 UNJC-3A	.1595 .1565	.3304	.311	.1621	.1635	.1625	.1630	.004	.070	.0269 .0251	.025 .015	1/32" x 45°	.2671 .2669
6	3/16	.1900-32 UNJF-3A	.1840 .1810	.3813	.350	.1881	.1895	.1885	.1890	.005	.080	.0284 .0264	.030 .020	1/32" x 45°	.3145 .3143
8	1/4	.2500-28 UNJF-3A	.2440 .2410	.5066	.475	.2481	.2495	.2485	.2490	.006	.108	.0349 .0328	.030 .020	1/32" x 45°	.4243 .4241
10	5/16	.3125-24 UNJF-3A	.3060 .3020	.6335	.602	.3106	.3120	.3110	.3115	.007	.135	.0402 .0381	.040 .030	3/64" x 45°	.5387 .5385
12	3/8	.3750-24 UNJF-3A	.3680 .3640	.7604	.729	.3731	.3745	.3735	.3740	.008	.162	.0468 .0447	.040 .030	3/64" x 45°	.6500 .6498

DIMENSIONS AND TOLERANCE PER ASME Y14.5-2018.
DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.
DIMENSIONS APPLY AFTER FINISH AND BEFORE LUBRICATION UNLESS OTHERWISE SPECIFIED.
SURFACE TEXTURE PER ASME B46.1. HEAD TO SHANK FILLET, THREAD FLANKS, THREAD ROOT, SHANK ("D" DIAMETER) AND BEARING SURFACE OF HEAD, 32 MICROINCHES RA. OTHER SURFACES, 125 MICROINCHES RA.

PIN, EDDIE-BOLT® 2, 100° FLUSH TENSION HEAD, SPLINE-LOK® SOCKET RECESS, 125 KSI MIN SHEAR, NICKEL ALLOY 718

HOWMET AEROSPACE

HOWMET AEROSPACE PART STANDARD

ELS338

HOWMET FASTENING SYSTEMS
CITY OF INDUSTRY OPERATIONS
135 N. UNRUH AVE., CITY OF INDUSTRY, CA 91744

REV: **L**
REV DATE: 05/13/2024

DATA CLASSIFICATION: GENERAL | ECCN: EAR99 | CAGE CODE: **1RC86**

TABLE I - DIMENSIONS & MECHANICAL PROPERTIES (CONTINUED)

FIRST DASH NO.	∅ NOM	SPLINE-LOK®			Z MAX ③	DOUBLE SHEAR STRENGTH LBF MIN	TENSILE STRENGTH LBF MIN
		(∅Y)	T DEPTH MIN	J DEPTH MAX			
5	5/32	.100	.060	.140	.010	5,280	2,940
6	3/16	.120	.065	.140	.015	7,060	4,350
8	1/4	.160	.080	.160	.015	12,260	7,750
10	5/16	.189	.105	.210	.015	19,160	12,300
12	3/8	.242	.100	.205	.015	27,600	19,100

PROCUREMENT SPECIFICATION: EBS2202.

MATERIAL: NICKEL ALLOY 718 PER AMS5662.

HEAT TREAT: 125,000 PSI SHEAR MINIMUM.

FINISH & LUBE:

JC = ALUMINUM PIGMENTED COATING PER PS103 ON HEAD AND SHANK ONLY. CETYL ALCOHOL LUBE PER AS87132. ⑰

VC = IVD ALUMINUM COATING PER MIL-DTL-83448, TYPE II, CLASS 3 ON HEAD AND SHANK ONLY, AND CETYL LUBE PER AS87132 ⑰

NC = NO FINISH & CETYL ALCOHOL LUBE PER AS87132.

NF = DRY FILM LUBE PER AS5272, TYPE I (HEAD & SHANK ONLY, OVERSPRAY PERMITTED) & CETYL ALCOHOL LUBE PER AS87132.

NN = PASSIVATE PER AMS2700, NO LUBE.

PART NUMBER EXAMPLE:

ELS338 NN 8 -8

- -8: 8/16" OR 1/2" MAXIMUM GRIP LENGTH (1/16" INCREMENTS).
- 8: 8/32" OR 1/4" NOMINAL DIAMETER (1/32" INCREMENTS).
- NN: FINISH: PASSIVATE PER AMS2700, NO LUBE.
- ELS338: PIN PART NUMBER.

GENERAL NOTES:

① RUNOUT OF "∅D" TO "∅PITCH" WITHIN .005". WHEN HELD ON THE "∅PITCH" OF THE COMPLETE THREADS NEAREST THE SHANK & CHECKED ON THE SHANK WITHIN ONE DIAMETER OF THE THREAD RUNOUT.

② BLENDED RADIUS TRANSITION PERMITS USE IN INTERFERENCE FIT APPLICATION.

③ CURVED OR FLAT EDGE MANUFACTURER'S OPTION.

④ FLUTE LOCATION ("K" DIMENSION) & GEOMETRY ARE INSPECTED PER E106.

⑤ THREADS MUST ACCEPT AN AS8879 "GO" RING GAGE TO ASSURE FREE RUNNING NUT CAPABILITY. AS8879 LIMITS DO NOT APPLY TO THREADS IN THE FLUTED PORTION OF THE THREAD. THE ∅MINOR AND ∅PITCH MAY BE UP TO .004 BELOW AS8879 MINIMUM VALUES AND ∅MAJOR MAY BE UP TO .002 BELOW SHEET 1 VALUES FOR A DISTANCE EQUAL TO THE FLUTE LENGTH PLUS 1.5P MAX.

⑥ SEE TABLE III.

7. PINS SHALL BE PACKAGED OR REPACKAGED IN CLEAR SEALED BAGS. EACH BAG SHALL BE MARKED WITH PURCHASER'S & MANUFACTURER'S COMPLETE PART NUMBER, MANUFACTURER'S LOT NUMBER, MANUFACTURER'S OR DISTRIBUTOR'S NAME & THE PACK DATE.

8. VARIOUS NUT MATERIALS & CONFIGURATION AVAILABLE UPON REQUEST.

9. PART (-10 DIAMETER) MANUFACTURED TO PREVIOUS REVISIONS WITH "T" MINIMUM DEPTH OF .090 ARE ACCEPTABLE FOR USE & MAY BE USED UNTIL DEPLETION OF INVENTORIES.

10. PARTS WITH A MANUFACTURE DATE ON OR AFTER APRIL 7, 2011; SHALL HAVE THE SPLINE-LOK® RECESS PETALS REMOVED IN ACCORDANCE WITH EBS2202. THE REQUIREMENTS OF EBS2202 ARE NOT APPLICABLE TO PARTS WITH A MANUFACTURE DATE PRIOR TO APRIL 7, 2011; THESE PARTS ARE ACCEPTABLE FOR USE UNTIL INVENTORIES ARE DEPLETED.

11. UNLESS OTHERWISE SPECIFIED, PART INVENTORY MANUFACTURED TO PREVIOUS REVISIONS OF THE APPLICABLE DRAWING OR SPECIFICATION MAY BE PROCURED AND USED UNTIL STOCK IS DEPLETED.

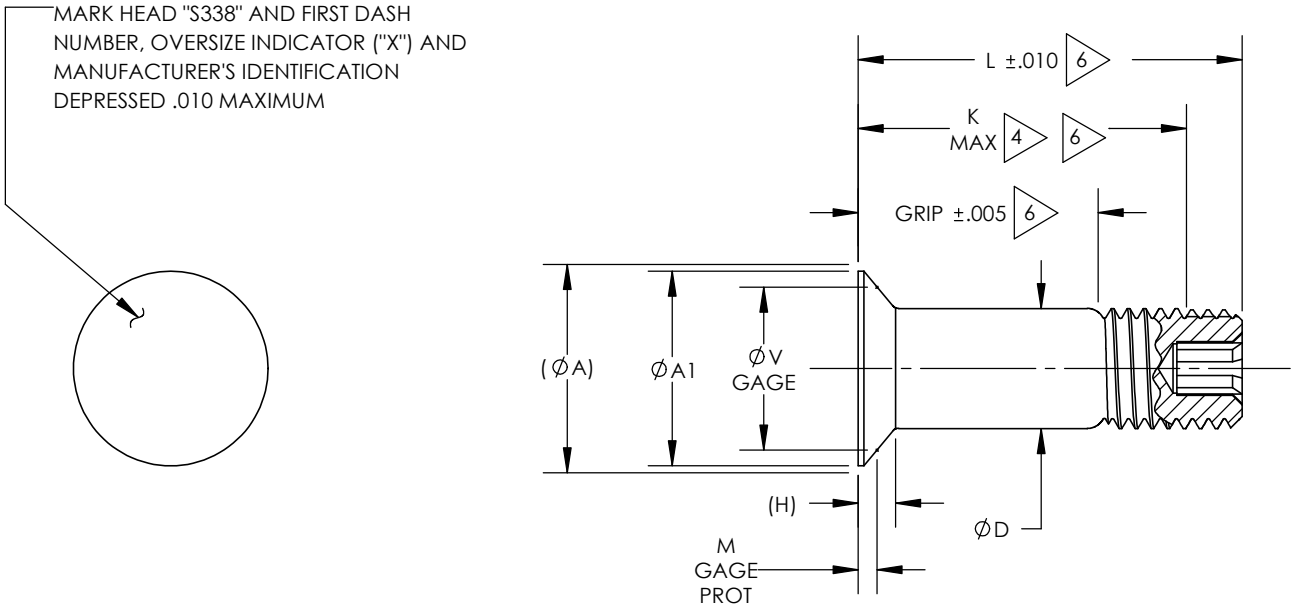

TABLE II - .0156 OVERSIZE ("X") DIMENSIONS & MECHANICAL PROPERTIES

FIRST DASH NO.	ØD				(H)	DOUBLE SHEAR STRENGTH LBF MIN
	BEFORE FINISH	AFTER FINISH				
	IVD ALUMINUM and ALUMINUM PIGMENTED COATING	ALL	IVD ALUMINUM and ALUMINUM PIGMENTED COATING	NONE		
	MIN	MAX	MIN	MIN		
5	NO .0156 OVERSIZE AVAILABLE					
6	.2012	.2026	.2016	.2021	.075	8,100
8	.2637	.2651	.2641	.2646	.102	13,800
10	.3262	.3276	.3266	.3271	.129	21,100
12	.3887	.3901	.3891	.3896	.156	30,000

12. FOR DIMENSION NOT SHOWN, SEE SHEETS 1 AND 2.

13. FOR MATERIAL, FINISH AND LUBE INFORMATION, SEE SHEET 1 AND 2.

HOW TO ORDER EXAMPLE: ELS338 NN 8 -8 X

- X = .0156 OVERSIZE.
- 8/16" OR 1/2" MAXIMUM GRIP LENGTH (1/16" INCREMENTS).
- NOMINAL DIAMETER IN 32NDS OF PIN BEING REPLACED.
- FINISH: PASSIVATE PER AMS2700, NO LUBE.
- BASIC PART NUMBER.

TABLE III - FOR STANDARD & 1/64" (.0156) OVERSIZE PINS

SECOND DASH NO.	STRUCTURAL THICKNESS		GRIP ± .005	∅5		∅6		∅8		∅10		∅12	
	MIN	MAX		K MAX	L ± .010	K MAX	L ± .010	K MAX	L ± .010	K MAX	L ± .010	K MAX	L ± .010
1	.000	.062	.062	----	----	----	----	----	----	----	----	----	----
2	.063	.125	.125	----	----	----	----	----	----	----	----	----	----
3	.126	.188	.188	.333	.472	.358	.492	.389	.538	----	----	----	----
4	.189	.250	.250	.395	.535	.420	.555	.451	.600	.544	.695	----	----
5	.251	.312	.312	.457	.598	.482	.618	.513	.662	.606	.758	.646	.797
6	.313	.375	.375	.520	.660	.545	.680	.576	.725	.669	.820	.709	.860
7	.376	.438	.438	.583	.722	.608	.742	.639	.788	.732	.882	.772	.923
8	.439	.500	.500	.645	.785	.670	.805	.701	.850	.794	.945	.834	.985
9	.501	.562	.562	.707	.848	.732	.868	.763	.912	.856	1.008	.896	1.047
10	.563	.625	.625	.770	.910	.795	.930	.826	.975	.919	1.070	.959	1.110
11	.626	.688	.688	.833	.972	.858	.992	.889	1.038	.982	1.132	1.022	1.173
12	.689	.750	.750	.895	1.035	.920	1.055	.951	1.100	1.044	1.195	1.084	1.235
13	.751	.812	.812	.957	1.098	.982	1.118	1.013	1.162	1.106	1.258	1.146	1.297
14	.813	.875	.875	1.020	1.160	1.045	1.180	1.076	1.225	1.169	1.320	1.209	1.360
15	.876	.938	.938	1.083	1.222	1.108	1.242	1.139	1.288	1.232	1.382	1.272	1.423
16	.939	1.000	1.000	1.145	1.285	1.170	1.305	1.201	1.350	1.294	1.445	1.334	1.485
17	1.001	1.062	1.062	1.207	1.348	1.232	1.368	1.263	1.412	1.356	1.508	1.396	1.547
18	1.063	1.125	1.125	1.270	1.410	1.295	1.430	1.326	1.475	1.419	1.570	1.459	1.610
19	1.126	1.188	1.188	1.333	1.472	1.358	1.492	1.389	1.538	1.482	1.632	1.522	1.673
20	1.189	1.250	1.250	1.395	1.535	1.420	1.555	1.451	1.600	1.544	1.695	1.584	1.735
21	1.251	1.312	1.312	1.457	1.598	1.482	1.618	1.513	1.662	1.606	1.758	1.646	1.797
22	1.313	1.375	1.375	1.520	1.660	1.545	1.680	1.576	1.725	1.669	1.820	1.709	1.860
23	1.376	1.438	1.438	1.583	1.722	1.608	1.742	1.639	1.788	1.732	1.882	1.772	1.923
24	1.439	1.500	1.500	1.645	1.785	1.670	1.805	1.701	1.850	1.794	1.945	1.834	1.985
25	1.501	1.562	1.562	1.707	1.848	1.732	1.868	1.763	1.912	1.856	2.008	1.896	2.047
26	1.563	1.625	1.625	1.770	1.910	1.795	1.930	1.826	1.975	1.919	2.070	1.959	2.110
27	1.626	1.688	1.688	1.833	1.972	1.858	1.992	1.889	2.038	1.982	2.132	2.022	2.173
28	1.689	1.750	1.750	1.895	2.035	1.920	2.055	1.951	2.100	2.044	2.195	2.084	2.235
29	1.751	1.812	1.812	1.957	2.098	1.982	2.118	2.013	2.162	2.106	2.258	2.146	2.297
30	1.813	1.875	1.875	2.020	2.160	2.045	2.180	2.076	2.225	2.169	2.320	2.209	2.360
31	1.876	1.938	1.938	2.083	2.222	2.108	2.242	2.139	2.288	2.232	2.382	2.272	2.423
32	1.939	2.000	2.000	2.145	2.285	2.170	2.305	2.201	2.350	2.294	2.445	2.334	2.485

DASH NUMBER INDICATES MAX GRIP LENGTH IN .0625 INCREMENTS; LONGER LENGTHS MAY BE SPECIFIED BY USE OF WHOLE DASH NUMBERS ONLY.

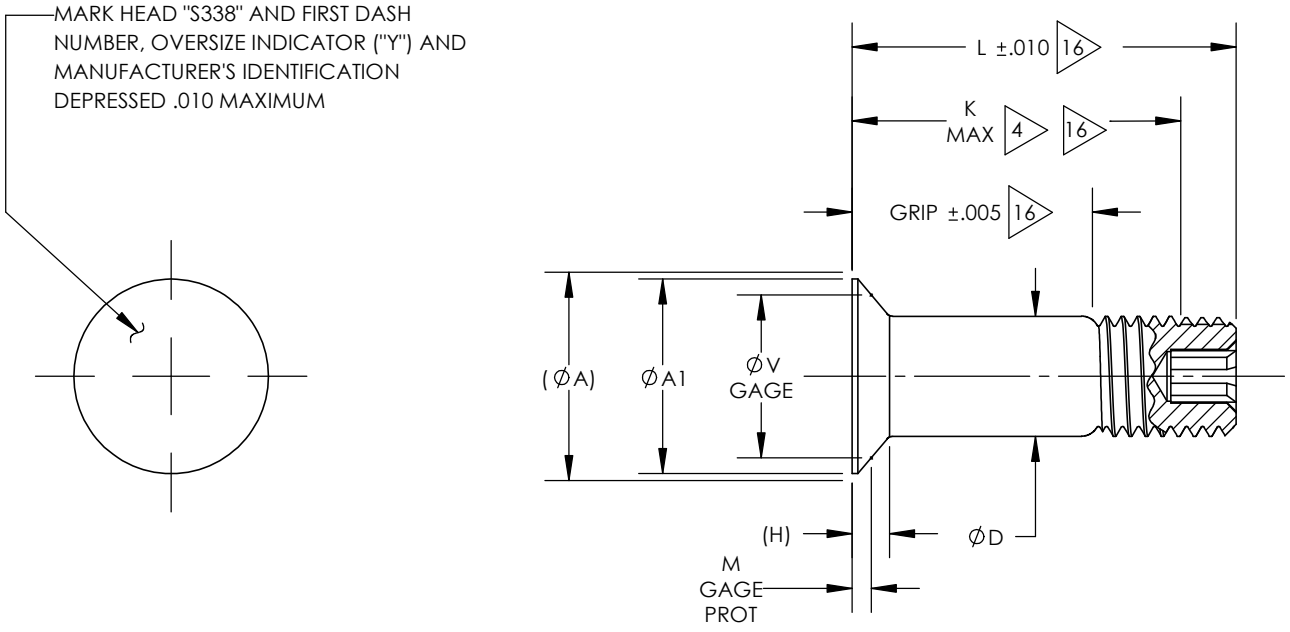

TABLE IV - .0312 OVERSIZE ("Y") DIMENSIONS & MECHANICAL PROPERTIES

FIRST DASH NO.	ØD				(H)	DOUBLE SHEAR STRENGTH LBF MIN.
	BEFORE FINISH	AFTER FINISH				
	IVD ALUMINUM and ALUMINUM PIGMENTED COATING	ALL	IVD ALUMINUM and ALUMINUM PIGMENTED COATING	NONE		
	MIN	MAX	MIN	MAX		
5	USE STANDARD DIAMETER ELS338NN6-( )					
6	.2168	.2182	.2172	.2177	.069	9,400
8	.2793	.2807	.2797	.2802	.095	15,600
10	.3418	.3432	.3422	.3427	.122	23,200
12	.4043	.4057	.4047	.4052	.149	32,400

14. FOR DIMENSIONS NOT SHOWN, SEE SHEET 1 AND 2.

15. FOR MATERIAL AND FINISH AND LUBE INFORMATION, SEE SHEET 1 AND 2.

16 SEE TABLE V.

17 ALUMINUM COATING / IVD ALUMINUM COATING TO BE APPLIED ON HEAD AND SHANK ONLY. PARTIAL COATING IS ALLOWED IN THE THREAD RUNOUT AREA FOR A MAXIMUM DISTANCE OF 0.030" FROM THE END OF THE GRIP

HOW TO ORDER EXAMPLE:

ELS338 NN 8 -8 Y

- Y = .0312 OVERSIZE.
- 8/16" OR 1/2" MAXIMUM GRIP LENGTH (1/16" INCREMENTS).
- NOMINAL DIAMETER IN 32NDS OF PIN BEING REPLACED.
- FINISH: PASSIVATE PER AMS2700, NO LUBE.
- BASIC PART NUMBER.

TABLE V - FOR .0312 ("Y") OVERSIZE PINS ONLY

SECOND DASH NO.	STRUCTURAL THICKNESS		GRIP ± .005	Ø6		Ø8		Ø10		Ø12	
	MIN	MAX		K MAX	L ± .010	K MAX	L ± .010	K MAX	L ± .010	K MAX	L ± .010
1	.000	.062	.062	----	----	----	----	----	----	----	----
2	.063	.125	.125	----	----	----	----	----	----	----	----
3	.126	.188	.188	.378	.512	----	----	----	----	----	----
4	.189	.250	.250	.440	.575	.486	.635	.579	.740	----	----
5	.251	.312	.312	.502	.638	.548	.697	.641	.803	.691	.842
6	.313	.375	.375	.565	.700	.611	.760	.704	.865	.754	.905
7	.376	.438	.438	.628	.762	.674	.823	.767	.927	.817	.968
8	.439	.500	.500	.690	.825	.736	.885	.829	.990	.879	1.030
9	.501	.562	.562	.752	.888	.798	.947	.891	1.053	.941	1.092
10	.563	.625	.625	.815	.950	.861	1.010	.954	1.115	1.004	1.155
11	.626	.688	.688	.878	1.012	.924	1.073	1.017	1.177	1.067	1.218
12	.689	.750	.750	.940	1.075	.986	1.135	1.079	1.240	1.129	1.280
13	.751	.812	.812	1.002	1.138	1.048	1.197	1.141	1.303	1.191	1.342
14	.813	.875	.875	1.065	1.200	1.111	1.260	1.204	1.365	1.254	1.405
15	.876	.938	.938	1.128	1.262	1.174	1.323	1.267	1.427	1.317	1.468
16	.939	1.000	1.000	1.190	1.325	1.236	1.385	1.329	1.490	1.379	1.530
17	1.001	1.062	1.062	1.252	1.388	1.298	1.447	1.391	1.553	1.441	1.592
18	1.063	1.125	1.125	1.315	1.450	1.361	1.510	1.454	1.615	1.504	1.655
19	1.126	1.188	1.188	1.378	1.512	1.424	1.573	1.517	1.677	1.567	1.718
20	1.189	1.250	1.250	1.440	1.575	1.486	1.635	1.579	1.740	1.629	1.780
21	1.251	1.312	1.312	1.502	1.638	1.548	1.697	1.641	1.803	1.691	1.842
22	1.313	1.375	1.375	1.565	1.700	1.611	1.760	1.704	1.865	1.754	1.905
23	1.376	1.438	1.438	1.628	1.762	1.674	1.823	1.767	1.927	1.817	1.968
24	1.439	1.500	1.500	1.690	1.825	1.736	1.885	1.829	1.990	1.879	2.030
25	1.501	1.562	1.562	1.752	1.888	1.798	1.947	1.891	2.053	1.941	2.092
26	1.563	1.625	1.625	1.815	1.950	1.861	2.010	1.954	2.115	2.004	2.155
27	1.626	1.688	1.688	1.878	2.012	1.924	2.073	2.017	2.177	2.067	2.218
28	1.689	1.750	1.750	1.940	2.075	1.986	2.135	2.079	2.240	2.129	2.280
29	1.751	1.812	1.812	2.002	2.138	2.048	2.197	2.141	2.303	2.191	2.342
30	1.813	1.875	1.875	2.065	2.200	2.111	2.260	2.204	2.365	2.254	2.405
31	1.876	1.938	1.938	2.128	2.262	2.174	2.323	2.267	2.427	2.317	2.468
32	1.939	2.000	2.000	2.190	2.325	2.236	2.385	2.329	2.490	2.379	2.530

DASH NUMBER INDICATES MAX GRIP LENGTH IN .0625 INCREMENTS; LONGER LENGTHS MAY BE SPECIFIED BY USE OF WHOLE DASH NUMBERS ONLY.