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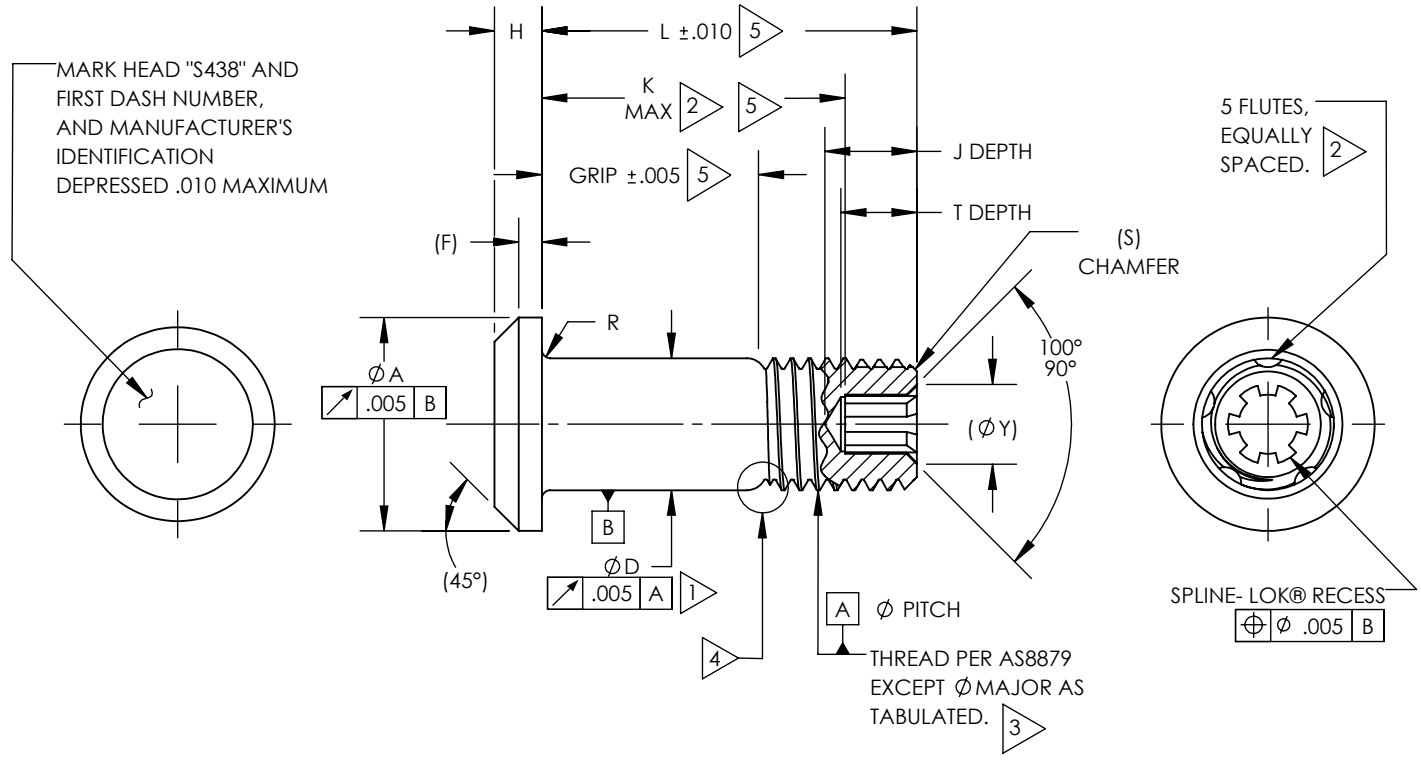


TABLE I - DIMENSIONS & MECHANICAL PROPERTIES

FIRST DASH NO.	Ø NOM.	THREAD		Ø A	Ø D				(F)	H	R	(S)
		THREAD SIZE	Ø MAJOR MOD		BEFORE FINISH	AFTER FINISH						
					IVD ALUMINUM and ALUMINUM PIGMENTED COATING	ALL	IVD ALUMINUM and ALUMINUM PIGMENTED COATING					
							MIN	MAX				
5	5/32	.1640-32 UNJC-3A	.1595 .1565	.322 .306	.1621	.1635	.1625	.1630	.030	.060 .055	.025 .015	1/32" x 45°
6	3/16	.1900-32 UNJF-3A	.1840 .1810	.377 .357	.1881	.1895	.1885	.1890	.035	.074 .064	.025 .015	1/32" x 45°
8	1/4	.2500-28 UNJF-3A	.2440 .2410	.440 .415	.2481	.2495	.2485	.2490	.045	.090 .080	.025 .015	1/32" x 45°
10	5/16	.3125-24 UNJF-3A	.3060 .3020	.505 .475	.3106	.3120	.3110	.3115	.055	.112 .102	.030 .020	3/64" x 45°
12	3/8	.3750-24 UNJF-3A	.3680 .3640	.600 .565	.3731	.3745	.3735	.3740	.075	.140 .130	.030 .020	3/64" x 45°

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, PROTRUDING TENSION HEAD, SPLINE-LOK® SOCKET RECESS,
 220 KSI MIN TENSILE, NICKEL ALLOY 718




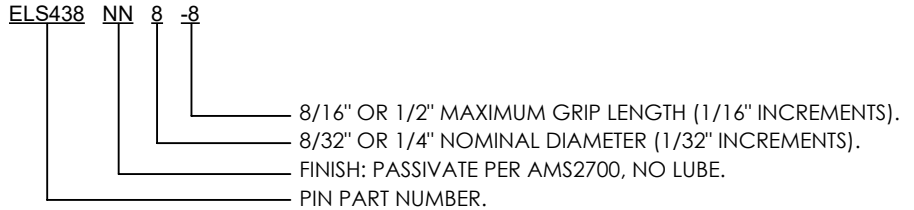
	HOWMET AEROSPACE PART STANDARD	ELS438
	HOWMET FASTENING SYSTEMS CITY OF INDUSTRY OPERATIONS 135 N. UNRUH AVE., CITY OF INDUSTRY, CA 91744	N 06/26/2023 6
DATA CLASSIFICATION: GENERAL	ECCN: EAR99	CAGE CODE: 1RC86

TABLE I - DIMENSIONS & MECHANICAL PROPERTIES (CONTINUED)






FIRST DASH NO.	Ø NOM	SPLINE-LOK®			DOUBLE SHEAR STRENGTH LBF MIN	TENSILE STRENGTH LBF MIN
		(Ø Y)	T DEPTH MIN	J DEPTH MAX		
5	5/32	.100	.060	.140	5,280	2,940
6	3/16	.120	.065	.140	7,060	4,350
8	1/4	.160	.080	.160	12,260	7,750
10	5/16	.189	.105	.210	19,160	12,300
12	3/8	.242	.100	.205	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. 
 VC = IVD ALUMINUM COATING PER MIL-DTL-83448, TYPE II, CLASS 3 ON HEAD AND SHANK ONLY, AND CETYL 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.
 NC = NO FINISH & CETYL ALCOHOL LUBE PER AS87132.

PART NUMBER EXAMPLE:



GENERAL NOTES:

-  RUNOUT OF "ØD" TO "Ø PITCH" WITHIN .005". WHEN HELD ON THE "Ø PITCH" OF THE COMPLETE THREADS NEAREST THE SHANK AND CHECKED ON THE SHANK WITHIN ONE DIAMETER OF THE THREAD RUNOUT.
-  FLUTE LOCATION ("K" DIMENSION) AND GEOMETRY ARE INSPECTED PER E106.
-  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 THREADS. THE Ø MINOR AND Ø PITCH MAY BE UP TO .004 BELOW AS8879 MINIMUM VALUES AND Ø MAJOR MAY BE UP TO .002 BELOW SHEET 1 VALUES FOR A DISTANCE EQUAL TO THE FLUTE LENGTH PLUS 1.5P MAX.
-  BLENDED RADIUS TRANSITION PERMITS USE IN INTERFERENCE FIT APPLICATION.
-  SEE TABLE III.
- 6. PINS SHALL BE PACKAGED OR REPACKAGED IN CLEAR SEALED PLASTIC BAGS. EACH BAG SHALL BE MARKED WITH PURCHASER'S & MANUFACTURER'S COMPLETE PART NUMBER, MANUFACTURER'S LOT NUMBER, MANUFACTURER'S OR DISTRIBUTOR'S NAME AND THE PACK DATE.
- 7. VARIOUS NUT MATERIALS AND CONFIGURATION AVAILABLE UPON REQUEST.
- 8. PART (-10 DIAMETER) MANUFACTURED TO PREVIOUS REVISIONS WITH "T" MINIMUM DEPTH OF .090 ARE ACCEPTABLE FOR USE AND MAY BE USED UNTIL DEPLETION OF INVENTORIES.
- 9. 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.
- 10. UNLESS OTHERWISE SPECIFIED, PART INVENTORY MANUFACTURED TO PREVIOUS REVISIONS OF THE APPLICABLE DRAWING OR SPECIFICATION MAY BE PROCURED AND USED UNTIL STOCK IS DEPLETED.

MARK HEAD "S438", AND FIRST DASH NUMBER, AND OVERSIZE INDICATOR ("X") AND MANUFACTURER'S IDENTIFICATION DEPRESSED .010 MAXIMUM.

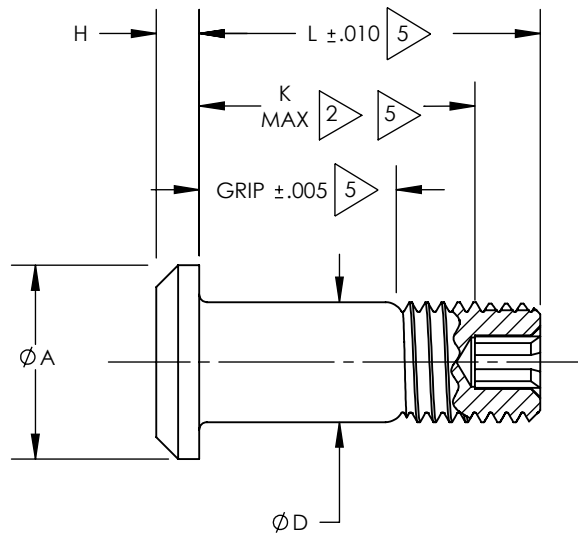
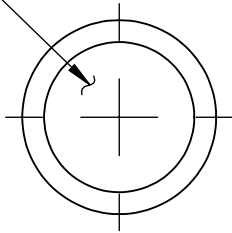


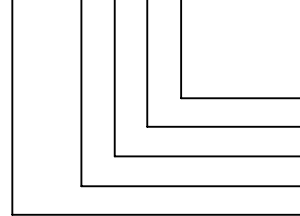
TABLE II - .0156 OVERSIZE ("X") DIMENSIONS & MECHANICAL PROPERTIES

FIRST DASH NO.	Ø D				DOUBLE SHEAR STRENGTH LFB 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	8,100
8	.2637	.2651	.2641	.2646	13,800
10	.3262	.3276	.3266	.3271	21,100
12	.3887	.3901	.3891	.3896	30,000

11. FOR DIMENSION NOT SHOWN, SEE SHEETS 1 AND 2.
12. FOR MATERIAL, FINISH AND LUBE INFORMATION, SEE SHEET 1 AND 2.

PART NUMBER EXAMPLE:

ELS438 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 AND .0156 OVERSIZE ("X") PINS

SECOND DASH NO.	STRUCTURAL THICKNESS		GRIP ± .005	Ø5		Ø6		Ø8		Ø10		Ø12	
	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	.270	.410	.295	.430	.326	.475	.419	.570	.459	.610
3	.126	.188	.188	.333	.472	.358	.492	.389	.538	.482	.632	.522	.673
4	.189	.250	.250	.395	.535	.420	.555	.451	.600	.544	.695	.584	.735
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 INCHES; LONGER LENGTHS MAY BE SPECIFIED BY USE OF WHOLE DASH NUMBER ONLY.

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MARK HEAD "S438", AND FIRST DASH NUMBER, AND OVERSIZE INDICATOR ("Y") AND MANUFACTURER'S IDENTIFICATION DEPRESSED .010 MAXIMUM

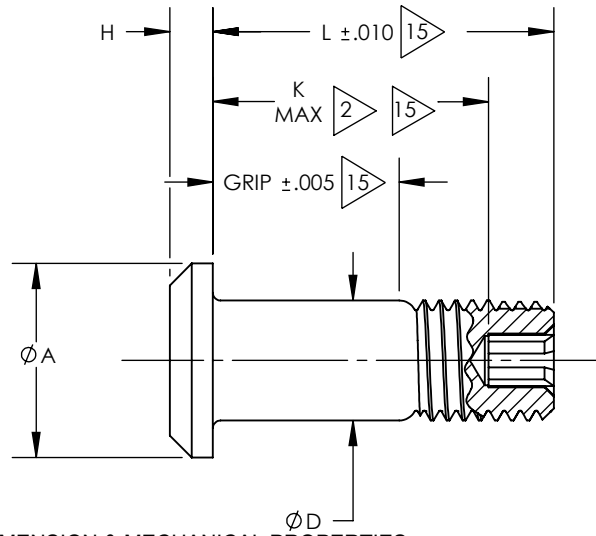
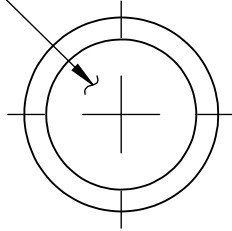


TABLE IV - .0312 OVERSIZE ("Y") DIMENSION & MECHANICAL PROPERTIES

FIRST DASH NO.	Ø D				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 ELS438NN6-()				
6	.2168	.2182	.2172	.2177	9,400
8	.2793	.2807	.2797	.2802	15,600
10	.3418	.3432	.3422	.3427	23,200
12	.4043	.4057	.4047	.4052	32,400

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

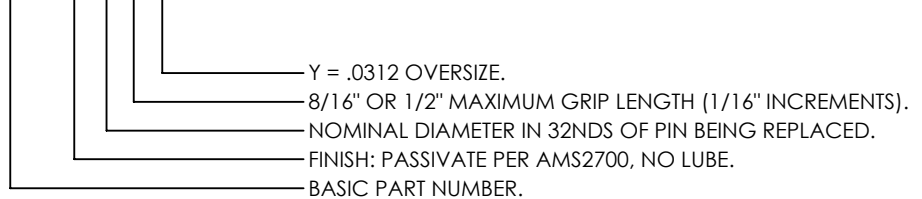
14. FOR MATERIAL AND FINISH AND LUBE INFORMATION, SEE SHEET 1 AND 2.

15 SEE TABLE V.

16 ALUMINUM COATING TO BE APPLIED TO TOP OF THE 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

PART NUMBER EXAMPLE:

ELS438 NN 8 -8 Y



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

SECOND DASH NO.	STRUCTURAL THICKNESS		GRIP ± .005	Ø 6		Ø 8		Ø 10		Ø 12	
	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	.315	.450	.361	.510	.454	.615	.504	.655
3	.126	.188	.188	.378	.512	.424	.573	.517	.677	.567	.718
4	.189	.250	.250	.440	.575	.486	.635	.579	.740	.629	.780
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	.1030
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.