



Howmet Fastening Systems
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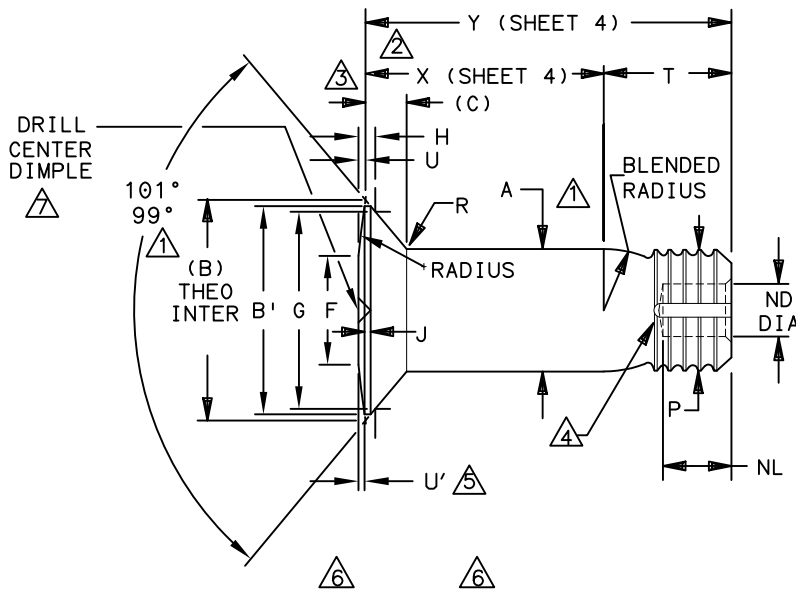
Howmet Fastening Systems
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LGP®

ENGINEERING
 STANDARD

THIS DRAWING, THE STRUCTURAL DESIGN DISCLOSED THEREIN AND THE TECHNICAL DATA AND ENGINEERING SERVICE REPRESENTED THEREBY ARE THE EXCLUSIVE PROPERTY OF HUCK INTERNATIONAL INCORPORATED.



LGP STUMP FAMILY NUMBER	NOM SIZE	A SHANK DIA + .0005 - .0000	A SHANK DIA COATED ± .0005	(B) THEO INTER NOM	B' THEO INTER ± .0025	(C) HEAD HEIGHT NOM	F FLAT DIA ± .005	G GAGE DIA ± .0001	H GAGE HEIGHT	J	ND DIA REF	NL DEPTH MAX	P DIA MAX	R RAD ± .005	T REF	U ± .0010	U' REF
(H)LGPS18SCV05-() ()	.1640	.1630	.1630	.2569	.2435	.0394	.125	.2027	.0286 .0256	.010 MAX	.065	.110	.156	.020	.162	.0043	.0035
(H)LGPS18SCV06-() ()	.1900	.1890	.1890	.2974	.2840	.0455	.156	.2440	.0282 .0252		.086	.118	.184	.025	.171	.0043	.0035
(H)LGPS18SCV08-() ()	.2500	.2490	.2490	.3908	.3770	.0595	.190	.3314	.0316 .0286		.109	.162	.244	.025	.231	.0052	.0045
(H)LGPS18SCV10-() ()	.3125	.3115	.3115	.4695	.4525	.0663	.250	.4046	.0346 .0316	.012 MAX	.141	.216	.306	.035	.296	.0059	.0050
(H)LGPS18SCV12-() ()	.3750	.3740	.3740	.5556	.5390	.0762	.312	.4853	.0385 .0355		.171	.243	.370	.035	.345	.0075	.0065
(H)LGPS18SCV14-() ()	.4375	.4365	.4365	.6616	.6390	.0944	.375	.5697	.0495 .0465	.015 MAX	.199	.260	.431	.045	.392	.0094	.0080
(H)LGPS18SCV16-() ()	.5000	.4990	.4990	.7474	.7245	.1042	.438	.6499	.0529 .0499		.230	.275	.492	.045	.376	.0105	.0090

- ① CONCENTRICITY: CONICAL SURFACE OF COUNTERSUNK HEAD TO "A" SHANK DIAMETER TO BE WITHIN .003 TIR.
- ② GRIP LENGTH IS MEASURED FROM THE THEORETICAL INTERSECTION OF THE CROWN RADIUS AND HEAD ANGLE TO THE END OF THE FULL CYLINDRICAL PORTION OF THE SHANK.
- ③ DIMENSIONS (B), (C), U & Y ARE MEASURED FROM THE THEORETICAL INTERSECTION OF THE CROWN RADIUS AND HEAD ANGLE.
- ④ SEALANT ESCAPE GROOVE (SEE SHEET 2).
- ⑤ DIMENSION U' IS MEASURED AT TOP OF "J" LAND.
- ⑥ DIMENSIONS (B), (C) AND U' ARE FOR ENGINEERING REFERENCE ONLY AND ARE NOT TO BE USED FOR INSPECTION PURPOSES.
- ⑦ DRILL CENTER DIMPLE IN TOP OF HEAD .035 MAX DIA, .010 MAX DEPTH AND CONCENTRIC TO "A" WITHIN .008.

DIMENSIONS IN INCHES

PROCUREMENT SPECIFICATION: C2010
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C13 REVISED COMPANY LOGO & UPDATED TRADEMARK INFORMATION.
 CHANGED "KALGARD" TO "KAL-GARD" ON PAGE 2. (REF. ECR2779)

ISSUED	10/06/92	STUMP, LIGHTWEIGHT GROOVE PROPORTIONED 100° CLOSE TOLERANCE CROWN COUNTERSUNK HEAD, SWAGE LOCKING 6AL-4V TITANIUM. (95 KSI SHEAR)	(H)LGPS18SCV()-() ()
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MATERIAL: 6AL-4V TITANIUM ALLOY PER AMS4967.
 MINIMUM SHEAR STRENGTH: 95 KSI.
 SURFACE TEXTURE: Ra MAX PER ANSI-B46.1 BEFORE COATING. CONICAL SURFACE OF HEAD,
 HEAD TO SHANK FILLET RADIUS, SHANK AND TRANSITION RADIUS, -32,
 OTHER SURFACES -125.

FINISH: NO LETTER = UNCOATED PIN PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.
 SUFFIX "ACY" = ALUMINUM COAT (KAL-GARD 2242 OR HI-KOT I) PER NAS4006
 IDENTIFIED BY YELLOW COLOR ON PINTAIL END PLUS CETYL
 ALCOHOL LUBE PER MIL-L-87132.
 SUFFIX "APY" = ALUMINUM COAT (KAL-GARD 2242 OR HI-KOT I) PER BMS 10-85
 IDENTIFIED BY YELLOW COLOR ON PINTAIL END PLUS APPLY
 CETYL ALCOHOL LUBE PER MIL-L-87132.
 SUFFIX "AS" = SULPHURIC ACID ANODIZE PLUS CETYL ALCOHOL LUBE
 PER MIL-L-87132 AND IS EQUIVALENT TO ISO 8080.
 SUFFIX "B" = UNCOATED PIN AND NO LUBRICATION.
 SUFFIX "D" = ION VAPOR DEPOSITED ALUMINUM COATING PER MIL-C-83488 TYPE II CLASS 3,
 OPTIONAL TO COLOR PINTAIL END BLACK, PLUS CETYL ALCOHOL LUBE PER
 MIL-L-87132.
 SUFFIX "EPR" = PHOSPHATE FLUORIDE PER BAC5861, IDENTIFIED BY RED COLOR ON
 STUMP END PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.
 SUFFIX "PB" = POWDERED BLAST TOP SURFACE OF HEAD PLUS CETYL ALCOHOL
 LUBE PER MIL-L-87132 (Ra 50/80 SURFACE ROUGHNESS).

HEAD MARKING: HEADS SHALL BE MARKED WITH THE MANUFACTURER'S SYMBOL, THE BASIC
 NUMBER (LGP18), AND (V) DEPRESSED .006 MAX DEPTH ARRANGEMENT
 OPTIONAL. FOR STUMPS REQUIRING A SEALANT ESCAPE GROOVE, AN "H"
 WILL BE INCLUDED ON THE HEAD IDENTIFICATION CALLOUT.

CODING: THE FIRST SET OF LETTERS DESIGNATE THE FAMILY OF LIGHTWEIGHT LGP STUMPS
 FOR SHEAR APPLICATION (LGPS).
 THE SECOND SET OF LETTERS & NUMBER (18SC) DESIGNATE HEAD SIZE, STYLE,
 AND LOAD APPLICATION.
 THE NEXT LETTER (V), IS THE MATERIAL DESIGNATOR FOR 6AL-4V TITANIUM
 ALLOY, MIN SHEAR STRENGTH: 95 KSI.
 THE NUMBERS FOLLOWING THE MATERIAL DESIGNATE THE NOMINAL PIN SHANK
 DIAMETER IN .03125 INCH INCREMENTS.
 THE FINAL NUMBERS DESIGNATE THE GRIP LENGTH NUMBER OR THE NOMINAL
 PIN SHANK LENGTH IN .0625 INCH INCREMENTS.
 SEE FINISH CODE FOR SUFFIX INFORMATION.

DIMENSIONS IN INCHES

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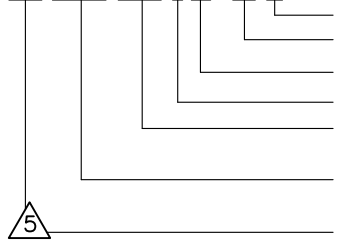
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EXAMPLE: (H)LGPS18SCV08-06()



FINISH SUFFIX (SEE FINISH CODE).
 GRIP LENGTH IN .0625 INCH INCREMENTS.
 SHANK DIA IN .03125 INCH INCREMENTS
 6AL-4V TITANIUM.
 LOW PROFILE 100° CLOSE TOLERANCE CROWN
 COUNTERSUNK HEAD FOR SHEAR APPLICATIONS.
 FAMILY OF LGP LIGHTWEIGHT STUMPS FOR
 AEROSPACE APPLICATIONS.
 ADD "H" PREFIX TO PART NUMBER TO
 INCLUDE SEALANT ESCAPE GROOVE.

MECHANICAL PROPERTIES

LGP STUMP PART NUMBER	STUMP NOM SIZE	MINIMUM DOUBLE SHEAR POUNDS	COLLAR PART NUMBER	MIN ULTIMATE TENSILE LBS WITH LISTED COLLAR	MAXIMUM SQUEEZE LOAD	PIN POSITION SWAGE GAGE
(H)LGPS18SCV05-()()	.1640	4010	3SLC-C05	1290	2500	HG113-05
			SLC-MV05			TBD
			SLC-M05			
			SLC-EU05			
(H)LGPS18SCV06-()()	.1900	5380	3SLC-C06	1600	3000	HG113-06
			SLC-MV06			TBD
			SLC-M06			2000
			SLC-EU06			2200
(H)LGPS18SCV08-()()	.2500	9300	3SLC-C08	3000	5500	HG113-08
			SLC-MV08			TBD
			SLC-M08			3600
			SLC-EU08			3850
(H)LGPS18SCV10-()()	.3125	14600	3SLC-C10	5000	9300	HG113-10
			SLC-MV10			TBD
			SLC-M10			
			SLC-EU10			5550
(H)LGPS18SCV12-()()	.3750	21000	3SLC-C12	7000	10600	HG113-12
			SLC-MV12			TBD
			SLC-M12			
			SLC-EU12			8340
(H)LGPS18SCV14-()()	.4375	28600	3SLC-C14	9500	11000	HG113-14
(H)LGPS18SCV16-()()	.5000	37300	3SLC-C16	12500	11900	HG113-16

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STUMP, LIGHTWEIGHT GROOVE PROPORTIONED
 100° CLOSE TOLERANCE CROWN COUNTERSUNK HEAD,
 SWAGE LOCKING
 6AL-4V TITANIUM, (95 KSI SHEAR)

(H)LGPS18SCV()-()()
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GRIP NUMBER TABULATION												
GRIP DASH NO.	MINIMUM PERMISSIBLE GRIP OVERLAP	DESIGN GRIP RANGE		MAXIMUM PERMISSIBLE GRIP OVERLAP	X ±.005	05	06	08	10	12	14	16
		MIN	MAX			Y	Y	Y	Y	Y	Y	
						±.010	±.010	±.010	±.010	±.010	±.010	±.010
02	.047	.063	.125	.141	.125	.287	.296	—	—	—	—	—
03	.109	.126	.188	.203	.188	.350	.359	.419	.484	—	—	—
04	.172	.189	.250	.266	.250	.412	.421	.481	.546	.595	.642	.694
05	.234	.251	.312	.328	.312	.474	.483	.543	.608	.657	.704	.756
06	.297	.313	.375	.391	.375	.537	.546	.606	.671	.720	.767	.819
07	.359	.376	.438	.453	.438	.600	.609	.669	.734	.783	.830	.882
08	.422	.439	.500	.516	.500	.662	.671	.731	.796	.845	.892	.944
09	.484	.501	.562	.578	.562	.724	.733	.793	.858	.907	.954	1.006
10	.547	.563	.625	.641	.625	.787	.796	.856	.921	.970	1.017	1.069
11	.609	.626	.688	.703	.688	.850	.859	.919	.984	1.033	1.080	1.132
12	.672	.689	.750	.766	.750	.912	.921	.981	1.046	1.095	1.142	1.194
13	.734	.751	.812	.828	.812	.974	.983	1.043	1.108	1.157	1.204	1.256
14	.797	.813	.875	.891	.875	1.037	1.046	1.106	1.171	1.220	1.267	1.319
15	.859	.876	.938	.953	.938	1.100	1.109	1.169	1.234	1.283	1.330	1.382
16	.922	.939	1.000	1.016	1.000	1.162	1.171	1.231	1.296	1.345	1.392	1.444
17	.984	1.001	1.062	1.078	1.062	1.224	1.233	1.293	1.358	1.407	1.454	1.506
18	1.047	1.063	1.125	1.141	1.125	1.287	1.296	1.356	1.421	1.470	1.517	1.569
19	1.109	1.126	1.188	1.203	1.188	1.350	1.359	1.419	1.484	1.533	1.580	1.632
20	1.172	1.189	1.250	1.266	1.250	1.412	1.421	1.481	1.546	1.595	1.642	1.694
21	1.234	1.251	1.312	1.328	1.312	1.474	1.483	1.543	1.608	1.657	1.704	1.756
22	1.297	1.313	1.375	1.391	1.375	1.537	1.546	1.606	1.671	1.720	1.767	1.819
23	1.359	1.376	1.438	1.453	1.438	1.600	1.609	1.669	1.734	1.783	1.830	1.882
24	1.422	1.439	1.500	1.516	1.500	1.662	1.671	1.731	1.796	1.845	1.892	1.944
25	1.484	1.501	1.562	1.578	1.562	1.724	1.733	1.793	1.858	1.907	1.954	2.006
26	1.547	1.563	1.625	1.641	1.625	1.787	1.796	1.856	1.921	1.970	2.017	2.069
27	1.609	1.626	1.688	1.703	1.688	1.850	1.859	1.919	1.984	2.033	2.080	2.132
28	1.672	1.689	1.750	1.766	1.750	1.912	1.921	1.981	2.046	2.095	2.142	2.194
29	1.734	1.751	1.812	1.828	1.812	1.974	1.983	2.043	2.108	2.157	2.204	2.256
30	1.797	1.813	1.875	1.891	1.875	2.037	2.046	2.106	2.171	2.220	2.267	2.319
31	1.859	1.876	1.938	1.953	1.938	2.100	2.109	2.169	2.234	2.283	2.330	2.382
32	1.922	1.939	2.000	2.016	2.000	2.162	2.171	2.231	2.296	2.345	2.392	2.444

DIMENSIONS IN INCHES

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STUMP, LIGHTWEIGHT GROOVE PROPORTIONED
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