



**HOWMET
AEROSPACE**

Howmet Fastening Systems
Carson Operations
900 E. Watson Center Road
Carson, California 90745 U.S.A.

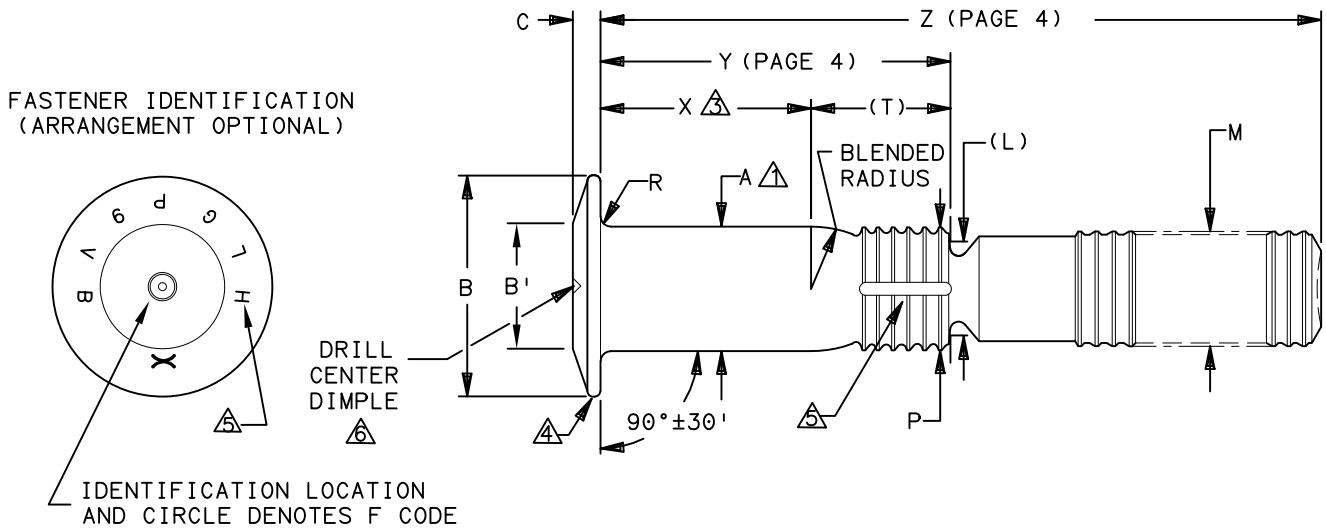
Phone (310) 830-8200
HFS_Carson_Engineering@howmet.com

Howmet Fastening Systems
Us Operations
Clos D' Asseville BP 30004
95450 Us Par Vigny France

Phone +33-1-30.27.95.00
Fax +33-1-34.66.06.00

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LGP PIN FAMILY NUMBER	NOM SIZE	A SHANK DIA +.0005 -.0000	A SHANK DIA COATED ±.0005	B HEAD DIA ±.010	B' FLAT DIA ±.010	C GAGE HEIGHT		(L) REF	M MAX	P DIA MAX	R RAD ±.005	S Δ	(T) REF
						MAX	MIN						
(H)LGPL9SPFV05B() ()	.1640	.1630	.1630	.334	.214	.048	.038	.126	.156	.156	.020	.0045	.175
(H)LGPL9SPFV06B() ()	.1900	.1890	.1890	.377	.242	.062	.047	.150	.184	.184	.020	.0045	.176
(H)LGPL9SPFV08B() ()	.2500	.2490	.2490	.477	.303	.076	.061	.187	.244	.244	.020	.0045	.244
(H)LGPL9SPFV10B() ()	.3125	.3115	.3115	.599	.381	.086	.071	.244	.306	.306	.025	.0045	.313
(H)LGPL9SPFV12B() ()	.3750	.3740	.3740	.715	.452	.101	.086	.298	.370	.370	.025	.0060	.374

- Δ CONCENTRICITY: CONICAL SURFACE OF PROTRUDING HEAD TO "A" DIAMETER TO BE WITHIN .005 TIR.
- Δ SHANK STRAIGHTNESS: WITHIN "S" VALUES TIR PER INCH OF SHANK LENGTH.
- Δ GRIP LENGTH IS MEASURED FROM THE UNDERSIDE OF THE HEAD TO THE END OF THE FULL CYLINDRICAL PORTION OF THE SHANK. (SEE DIMENSION X ON PAGE 3).
- 4. PERMISSIBLE NATURAL FLOW OF MATERIAL. MUST BE FREE FROM SHARP CORNERS.
- Δ SEALANT ESCAPE GROOVE (SEE PAGE 3).
- Δ DRILL CENTER DIMPLE IN TOP OF HEAD .035 MAX DIA, .010 MAX DEPTH AND CONCENTRIC TO "A" WITHIN .008.

MATERIAL: 6AL-4V TITANIUM ALLOY PER AMS4967.

MINIMUM SHEAR STRENGTH: 95 KSI.

SURFACE TEXTURE: Ra MAX PER ANSI/ASME B46.1 BEFORE COATING. CONICAL SURFACE OF HEAD, HEAD TO SHANK FILLET RADIUS, SHANK AND TRANSITION RADIUS, -32, OTHER SURFACES -125.

DIMENSIONS IN INCHES

PROCUREMENT SPECIFICATION: C2022

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DRAWN BY	DH	FSCM (Cage Code) 17446 - Carson FSCM (Cage Code) F6167 - France REFER TO BOEING DRAWING BACB30VY
CHECKED BY	MM	

E₂ REVISED COMPANY LOGO & UPDATED TRADEMARK INFORMATION. (REF. ECR2872)

ISSUED	10/21/87	PIN, COMPOSITE APPLICATIONS, LIGHTWEIGHT HUCKCOMP LGP, SHEAR TYPE, MACHINED HEAD, PROTRUDING HEAD, SWAGE LOCKING, 6AL-4V TITANIUM. (95 KSI SHEAR)	(H)LGPL9SPFV()B() ()
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FINISH: SUFFIX "AC" = ALUMINUM COAT (KALGARD 2242 OR HI-KOTE I) PER NAS4006, OPTIONAL ON PINTAIL END, PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.

SUFFIX "EPR" = PHOSPHATE FLUORIDE PER BAC5861 WITH RED IDENTIFICATION DYE ON PINTAIL END, PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.

NO SUFFIX = UNCOATED PIN PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.

HEAD MARKING: HEAD SHALL BE MARKED WITH THE MANUFACTURER'S SYMBOL, THE BASIC NUMBER (LGP9) AND VB DEPRESSED .006 MAX DEPTH ARRANGEMENT OPTIONAL. LETTER "F" IN PART NUMBER SHALL BE MARKED WITH A DEPRESSED CIRCLE WITH .005 MAX DEPTH ON HEAD & CONCENTRIC TO SHANK DIA WITHIN .010 FIM. FOR PINS 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 PINS FOR SHEAR APPLICATIONS (LGPL) (SEE PART NUMBER EXAMPLE PAGE 3).

THE SECOND SET OF LETTERS & NUMBER 9SP DESIGNATE HEAD SIZE, STYLE, AND LOAD APPLICATION (SEE PART NUMBER EXAMPLE PAGE 3).

THE LETTER "F" REPRESENTS MACHINED SURFACE HEAD. (SEE PART NUMBER EXAMPLE PAGE 3).

THE NEXT LETTER "V", IS THE MATERIAL DESIGNATOR FOR 6AL-4V TITANIUM ALLOY, MIN SHEAR STRENGTH: 95 KSI (SEE PART NUMBER EXAMPLE PAGE 3).

THE NUMBERS FOLLOWING THE MATERIAL DESIGNATE THE NOMINAL PIN SHANK DIAMETER IN .03125 INCH INCREMENTS (SEE PART NUMBER EXAMPLE PAGE 3).

THE LETTER "B" REPRESENTS COMPOSITE INSTALLATION LOAD (SEE PART NUMBER EXAMPLE PAGE 3).

THE FINAL NUMBERS DESIGNATE THE GRIP LENGTH NUMBER OR THE NOMINAL PIN SHANK LENGTH IN .0625 INCH INCREMENTS (SEE PART NUMBER EXAMPLE PAGE 3)

SEE FINISH CODE FOR SUFFIX INFORMATION (SEE PART NUMBER EXAMPLE PAGE 3).

DIMENSIONS IN INCHES

E ₂ REVISED COMPANY LOGO & UPDATED TRADEMARK INFORMATION. (REF. ECR2872)			
ISSUED	10/21/87	PIN, COMPOSITE APPLICATIONS, LIGHTWEIGHT HUCKCOMP LGP, SHEAR TYPE, MACHINED HEAD, PROTRUDING HEAD, SWAGE LOCKING, 6AL-4V TITANIUM. (95 KSI SHEAR)	
REVISED	11/29/21		(H)LGPL9SPFV()B()()
PAGE	2 OF 4		SK12472



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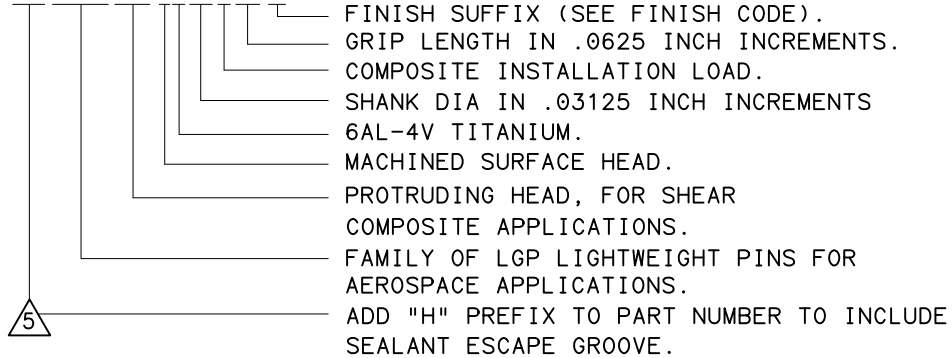
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MECHANICAL PROPERTIES					
LGP PIN PART NUMBER	PIN NOM SIZE	MINIMUM DOUBLE SHEAR POUNDS	COLLAR PART NUMBER	MIN ULTIMATE TENSILE LBS WITH LISTED COLLAR	PIN POSITION SWAGE GAGE
(H)LGPL9SPFV05B() ()	.1640	4010	SLFC-MV05	1500	HG118-05
(H)LGPL9SPFV06B() ()	.1900	5380	SLFC-MV06	1900	HG118-06
(H)LGPL9SPFV08B() ()	.2500	9300	SLFC-MV08	3450	HG118-08
(H)LGPL9SPFV10B() ()	.3125	14600	SLFC-MV10	6000	HG118-10
(H)LGPL9SPFV12B() ()	.3750	21000	SLFC-MV12	8000	HG118-12

PART NUMBER
EXAMPLE:

(H)LGPL9SPFV08B06()



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PAGE	3 OF 4		(H)LGPL9SPFV() B() () SK12472



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GRIP NUMBER TABULATION

GRIP DASH NO.	PERMIS- SIBLE MINIMUM GRIP OVERLAP	DESIGN GRIP RANGE		PERMIS- SIBLE MAXIMUM GRIP OVERLAP	X ±.005	05		06		08		10		12	
		MIN	MAX			Y ±.010	Z +.060 -.000	Y ±.010	Z +.060 -.000	Y ±.010	Z +.060 -.000	Y ±.010	Z +.060 -.000	Y ±.010	Z +.060 -.000
02	.047	.063	.125	.141	.125	.300	.827	.301	.899	—	—	—	—	—	—
03	.109	.126	.188	.203	.188	.363	.890	.364	.962	.432	1.085	.501	1.199	—	—
04	.172	.189	.250	.266	.250	.425	.952	.426	1.024	.494	1.147	.563	1.261	.624	1.391
05	.234	.251	.312	.328	.312	.487	1.014	.488	1.086	.556	1.209	.625	1.323	.686	1.453
06	.297	.313	.375	.391	.375	.550	1.077	.551	1.149	.619	1.272	.688	1.386	.749	1.516
07	.359	.376	.438	.453	.438	.613	1.140	.614	1.212	.682	1.335	.751	1.449	.812	1.579
08	.422	.439	.500	.516	.500	.675	1.202	.676	1.274	.744	1.397	.813	1.511	.874	1.641
09	.484	.501	.562	.578	.562	.737	1.264	.738	1.336	.806	1.459	.875	1.573	.936	1.703
10	.547	.563	.625	.641	.625	.800	1.327	.801	1.399	.869	1.522	.938	1.636	.999	1.766
11	.609	.626	.688	.703	.688	.863	1.390	.864	1.462	.932	1.585	1.001	1.699	1.062	1.829
12	.672	.689	.750	.766	.750	.925	1.452	.926	1.524	.994	1.647	1.063	1.761	1.124	1.891
13	.734	.751	.812	.828	.812	.987	1.514	.988	1.586	1.056	1.709	1.125	1.823	1.186	1.953
14	.797	.813	.875	.891	.875	1.050	1.577	1.051	1.649	1.119	1.772	1.188	1.886	1.249	2.016
15	.859	.876	.938	.953	.938	1.113	1.640	1.114	1.712	1.182	1.835	1.251	1.949	1.312	2.079
16	.922	.939	1.000	1.016	1.000	1.175	1.702	1.176	1.774	1.244	1.897	1.313	2.011	1.374	2.141
17	.984	1.001	1.062	1.078	1.062	1.237	1.764	1.238	1.836	1.306	1.959	1.375	2.073	1.436	2.203
18	1.047	1.063	1.125	1.141	1.125	1.300	1.827	1.301	1.899	1.369	2.022	1.438	2.136	1.499	2.266
19	1.109	1.126	1.188	1.203	1.188	1.363	1.890	1.364	1.962	1.432	2.085	1.501	2.199	1.562	2.329
20	1.172	1.189	1.250	1.266	1.250	1.425	1.952	1.426	2.024	1.494	2.147	1.563	2.261	1.624	2.391
21	1.234	1.251	1.312	1.328	1.312	1.487	2.014	1.488	2.086	1.556	2.209	1.625	2.323	1.686	2.453
22	1.297	1.313	1.375	1.391	1.375	1.550	2.077	1.551	2.149	1.619	2.272	1.688	2.386	1.749	2.516
23	1.359	1.376	1.438	1.453	1.438	1.613	2.140	1.614	2.212	1.682	2.335	1.751	2.449	1.812	2.579
24	1.422	1.439	1.500	1.516	1.500	1.675	2.202	1.676	2.274	1.744	2.397	1.813	2.511	1.874	2.641
25	1.484	1.501	1.562	1.578	1.562	1.737	2.264	1.738	2.336	1.806	2.459	1.875	2.573	1.936	2.703
26	1.547	1.563	1.625	1.641	1.625	1.800	2.327	1.801	2.399	1.869	2.522	1.938	2.636	1.999	2.766
27	1.609	1.626	1.688	1.703	1.688	1.863	2.390	1.864	2.462	1.932	2.585	2.001	2.699	2.062	2.829
28	1.672	1.689	1.750	1.766	1.750	1.925	2.452	1.926	2.524	1.994	2.647	2.063	2.761	2.124	2.891
29	1.734	1.751	1.812	1.828	1.812	1.987	2.514	1.988	2.586	2.056	2.709	2.125	2.823	2.186	2.953
30	1.797	1.813	1.875	1.891	1.875	2.050	2.577	2.051	2.649	2.119	2.772	2.188	2.886	2.249	3.016
31	1.859	1.876	1.938	1.953	1.938	2.113	2.640	2.114	2.712	2.182	2.835	2.251	2.949	2.312	3.079
32	1.922	1.939	2.000	2.016	2.000	2.175	2.702	2.176	2.774	2.244	2.897	2.313	3.011	2.374	3.141

DIMENSIONS IN INCHES

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ISSUED	10/21/87
REVISED	11/29/21
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PIN, COMPOSITE APPLICATIONS, LIGHTWEIGHT
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PROTRUDING HEAD, SWAGE LOCKING,
6AL-4V TITANIUM. (95 KSI SHEAR)

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