



**HOWMET
AEROSPACE**

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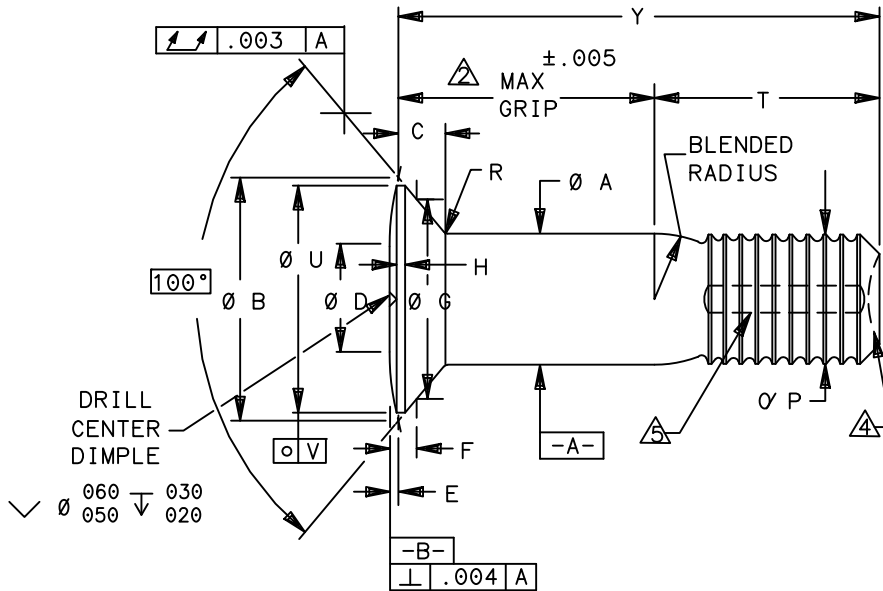
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GP™

**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.



PART NUMBER	NOM SIZE	A SHANK Ø		B Ø ±.005	C HEAD HEIGHT REF	D Ø ±.015	E REF +.005 - .000	F GAGE HEIGHT		G GAGE Ø ±.0001	H MAX	P DIA MAX	R RAD ±.005	S Δ	T REF	U Ø ±.005	V MAX
		MAX	MIN					MAX	MIN								
GPS4TCV05-() ()	.164	.1640	.1635	.253	.036	.125	.010	.0361	.0311	.2027	.012	.156	.015	.002	.254	.239	.004
GPS4TCV06-() ()	.190	.1895	.1890	.301	.045	.140	.010	.0389	.0339	.2440	.013	.184	.025	.002	.303	.287	.005
GPS4TCV08-() ()	.250	.2495	.2490	.401	.061	.188	.010	.0442	.0392	.3314	.016	.244	.025	.002	.390	.382	.006

- Δ SHANK STRAIGHTNESS: WITHIN "S" VALUES FIM PER INCH OF SHANK LENGTH.
- Δ THE GRIP LENGTH IS MEASURED FROM THE THEORETICAL INTERSECTION OF THE CROWN AND HEAD ANGLE TO THE END OF THE FULL CYLINDRICAL PORTION OF THE SHANK. (SEE SHEET 3)
- 3 INTERSECTION OF CONICAL SURFACE AND LAND MAY BE CURVED.
- Δ END MAY BE FLAT OR CUPPED. IF CUPPED, CHECK "Y" LENGTH TO FLAT AREA OF CUP.
- Δ SEALANT ESCAPE GROOVE SEE SHEET 2.
- 6 DIMENSIONS SHOWN ARE PRIOR TO ALUMINUM COATING FOR "ACH" SUFFIX FINISH.

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

HEAT TREATMENT: 95 KSI MINIMUM SHEAR STRENGTH.

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

PROCUREMENT SPECIFICATION: C2011
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DIMENSIONS IN INCHES

DRAWN BY	DH	FSCM (Cage Code) 17446 - Carson FSCM (Cage Code) F6167 - France
CHECKED BY	MM	

G2

G ₂	REVISED COMPANY LOGO & UPDATED TRADEMARK INFORMATION. (REF. ECR2779)	
ISSUED	11/06/86	STUMP, GROOVE PROPORTIONED GP™, SWAGE LOCKING, 100° FLUSH CROWN SHEAR HEAD FOR TENSION APPLICATIONS, 6AL-4V TITANIUM, (95 KSI SHEAR)
REVISED	08/11/21	
PAGE	1 OF 3	
		GPS4TCV()-() ()
		GPL125



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FINISH: SUFFIX "ACH" = ALUMINUM COAT (HI-KOTE 1) PER NAS4006 WITH ORANGE COLOR ON PIN PLUS CETYL ALCOHOL LUBE PER MIL-L-87132.

SUFFIX "EG" = LUBRICATION PER MCDONNELL DOUGLAS SPECIFICATION 23D0002, IDENTIFIED WITH ORANGE DYE OR PAINT ON END OF STUMP. ALL DIMENSIONS PRIOR TO LUBE.

HEAD MARKING: HEADS SHALL BE MARKED WITH THE MANUFACTURER'S BASIC SYMBOL, BASIC NUMBER (GP4) AND MATERIAL DESIGNATOR (V), DEPRESSED .006 MAX. ARRANGEMENT OPTIONAL. FOR STUMPS WITH A SEALANT ESCAPE GROOVE AND (H) MARK WILL BE INCLUDED.

CODING: THE FIRST SET OF LETTERS DESIGNATE THE FAMILY OF GROOVE PROPORTIONED GP STUMPS FOR AEROSPACE APPLICATIONS (GPS).

THE SECOND SET OF LETTERS & NUMBER (4TC) DESIGNATE HEAD SIZE, STYLE, AND LOAD APPLICATION.

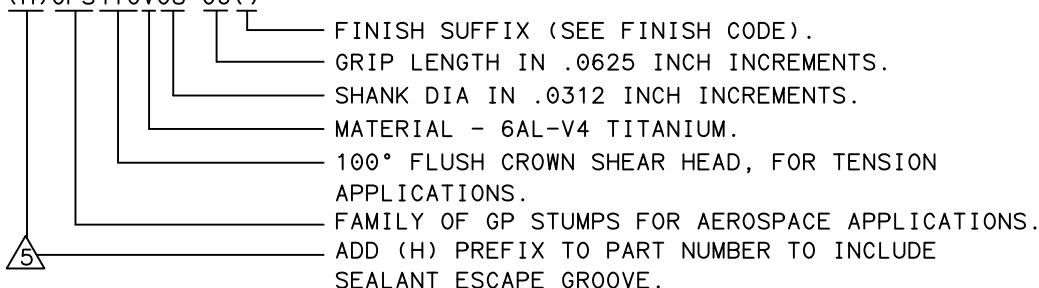
THE NEXT LETTER (V) IS THE MATERIAL DESIGNATOR FOR 6AL-4V TITANIUM ALLOY, MIN SHEAR STRENGTH: 95 KSI.

THE NUMBERS FOLLOWING THE MATERIAL DESIGNATE THE NOMINAL PIN SHANK DIAMETER IN .0312 INCH INCREMENTS.

THE FINAL NUMBER(S) DESIGNATES THE GRIP LENGTH NUMBER OR THE NOMINAL PIN SHANK LENGTH IN .0625 INCH INCREMENTS.

SEE FINISH CODE FOR SUFFIX INFORMATION.

EXAMPLE: (H)GPS4TCV08-06()



MECHANICAL PROPERTIES						
GP PART NUMBER	NOM SIZE	MINIMUM DOUBLE SHEAR POUNDS	COLLAR PART NUMBER	MIN ULTIMATE TENSILE LBS	PIN POSITION SWAGE GAGE	MAX SQUEEZE LOAD LBS
GPS4TCV05-()()	.164	4010	2TC-C05	2180	HG106-05	TBD
GPS4TCV06-()()	.190	5380	2TC-C06	2750	HG106-06	3000
GPS4TCV08-()()	.250	9300	2TC-C08	5000	HG106-08	5950

DIMENSIONS IN INCHES

G ₂	REVISED COMPANY LOGO & UPDATED TRADEMARK INFORMATION. (REF. ECR2779)		STUMP, GROOVE PROPORTIONED GP™, SWAGE LOCKING, 100° FLUSH CROWN SHEAR HEAD FOR TENSION APPLICATIONS, 6AL-4V TITANIUM, (95 KSI SHEAR)	GPS4TCV()-()()
	ISSUED	11/06/86		
	REVISD	08/11/21		
PAGE	2 OF 3	GPL125		



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GRIP NUMBER TABULATION					
△ GRIP DASH NO.	DESIGN GRIP RANGE		05	06	08
	MIN.	MAX.	Y ±.010	Y ±.010	Y ±.010
02	.063	.125	.379	.428	—
03	.126	.188	.442	.491	.578
04	.189	.250	.504	.553	.640
05	.251	.312	.566	.615	.702
06	.313	.375	.629	.678	.765
07	.376	.438	.692	.741	.828
08	.439	.500	.754	.803	.890
09	.501	.562	.816	.865	.952
10	.563	.625	.879	.928	1.015
11	.626	.688	.942	.991	1.078
12	.689	.750	1.004	1.053	1.140
13	.751	.812	1.066	1.115	1.202
14	.813	.875	1.129	1.178	1.265
15	.876	.938	1.192	1.241	1.328
16	.939	1.000	1.254	1.303	1.390
17	1.001	1.062	1.316	1.365	1.452
18	1.063	1.125	1.379	1.428	1.515
19	1.126	1.188	1.442	1.491	1.578
20	1.189	1.250	1.504	1.553	1.640
21	1.251	1.312	1.566	1.615	1.702
22	1.313	1.375	1.629	1.678	1.765
23	1.376	1.438	1.692	1.741	1.828
24	1.439	1.500	1.754	1.803	1.890
25	1.501	1.562	1.816	1.865	1.952
26	1.563	1.625	1.879	1.928	2.015
27	1.626	1.688	1.942	1.991	2.078
28	1.689	1.750	2.004	2.053	2.140
29	1.751	1.812	2.066	2.115	2.202
30	1.813	1.875	2.129	2.178	2.265
31	1.876	1.938	2.192	2.241	2.328
32	1.939	2.000	2.254	2.303	2.390

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REVISED	08/11/21		GPL125
PAGE	3 OF 3		