



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

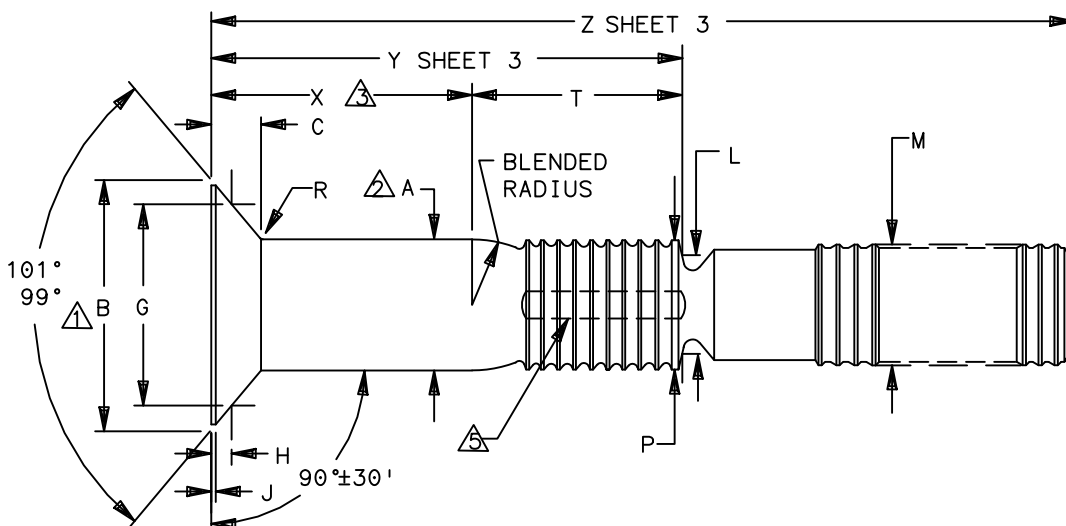
Howmet Fastening Systems
 Us Operations
 Clos D' Asseville BP 30004
 95450 Us Par Vigny France

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

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.



GP FAMILY NUMBER	NOM SIZE	A SHANK DIA COATED ±.0005	B THEO INTER DIA MAX	C HEAD HEIGHT MAX	G GAGE DIA ±.0001	H GAGE HEIGHT		J MAX	L DIA REF	M DIA MAX	P DIA MAX	R RAD ±.005	S Δ	T REF
						MAX	MIN							
GPL8TC-DT05-()	.164	.1630	.332	.073	.2831	.0202	.0175	.010	.136	.156	.156	.020	.0045	.279
GPL8TC-DT06-()	.190	.1890	.383	.084	.3271	.0230	.0200	.013	.164	.184	.184	.025	.0045	.319
GPL8TC-DT08-()	.250	.2490	.510	.110	.4319	.0322	.0288	.017	.224	.244	.244	.025	.0045	.381
GPL8TC-DT10-()	.312	.3115	.637	.137	.5450	.0378	.0342	.020	.268	.306	.306	.035	.0045	.472
GPL8TC-DT12-()	.375	.3740	.765	.165	.6581	.0439	.0401	.023	.339	.368	.370	.035	.0060	.523

- Δ CONCENTRICITY: CONICAL SURFACE OF COUNTERSUNK 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 TOP OF THE HEAD TO THE END OF THE FULL CYLINDRICAL PORTION OF THE SHANK. (SEE DIMENSION "X" SHEET 3)
- 4 DIMENSION B AND C FOR ENGINEERING REFERENCE ONLY, NOT FOR INSPECTION PURPOSES

MATERIAL: 8740 ALLOY STEEL
 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.

DIMENSIONS IN INCHES

PROCUREMENT SPECIFICATION: NAS1413
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DRAWN BY	DH	FSCM (Cage Code) 17446 - Carson FSCM (Cage Code) F6167 - France
CHECKED BY	HJ	

B ₂	REVISED COMPANY LOGO & UPDATED TRADEMARK INFORMATION.(REF. ECR2779)		
ISSUED	09/01/76	PIN, GROOVE PROPORTIONED GP™ PULL-TYPE, SWAGE LOCKING, TENSION 100° FLUSH HEAD 8740 ALLOY STEEL, (95 KSI SHEAR)	GPL8TC-DT()-()
REVISED	08/06/21		
PAGE	1 OF 3		GPL107

B₂



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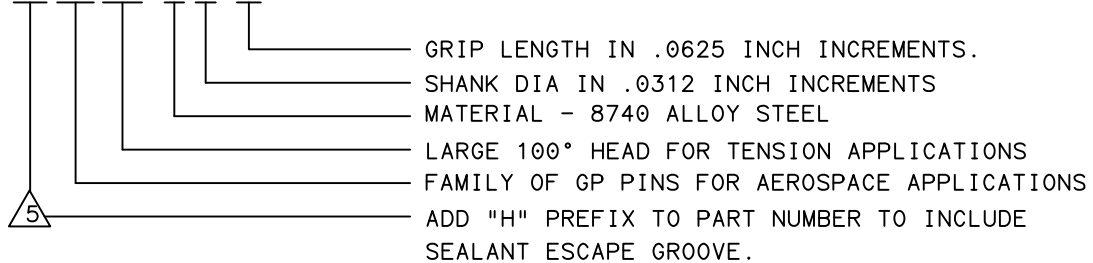
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FINISH: NO LETTER = CADMIUM PLATE PER QQ-P-416 TYPE II CLASS 2,
 PLUS CHLORINE FREE CETYL ALCOHOL

HEAD MARKING: HEADS SHALL BE MARKED WITH THE MANUFACTURER'S SYMBOL, BASIC NUMBER (GP8), DEPRESSED .010 MAX, ARRANGEMENT OPTIONAL. FOR PINS REQUIRING A SEALANT ESCAPE GROOVE, A DOT (.) MARK WILL ALSO BE INCLUDED ON THE HEAD IDENTIFICATION.

CODING: THE FIRST SET OF LETTERS DESIGNATE THE FAMILY OF GROOVE PROPORTIONED PINS FOR AEROSPACE APPLICATIONS (GPL).
 THE SECOND SET OF LETTERS & NUMBER 8TC DESIGNATE HEAD SIZE, STYLE, AND LOAD APPLICATION.
 THE NEXT LETTER "DT", IS THE MATERIAL DESIGNATOR FOR 8740 ALLOY STEEL 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.

EXAMPLE: (H)GPL8TC-DT08-06



MECHANICAL PROPERTIES					
GP PIN PART NUMBER	PIN NOM SIZE	MINIMUM DOUBLE SHEAR POUNDS	COLLAR PART NUMBER	MIN ULTIMATE TENSILE LBS. WITH LISTED COLLARS	PIN POSITION SWAGE GAGE
GPL8TC-DT05-()	.164	4010	2TCC-C05 2TC-C05	2180	HG105-05
GPL8TC-DT06-()	.190	5380	2TCC-C06 2TC-C06	2750	HG105-06
GPL8TC-DT08-()	.250	9300	2TCC-C08 2TC-C08	5000	HG105-08
GPL8TC-DT10-()	.312	14600	2TCC-C10 2TC-C10	8300	HG105-10
GPL8TC-DT12-()	.375	21000	2TCC-C12 2TC-C12	12700	HG105-12

DIMENSIONS IN INCHES

B₂

REVISED COMPANY LOGO & UPDATED TRADEMARK INFORMATION.(REF. ECR2779)

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REVISED	08/06/21
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PIN, GROOVE PROPORTIONED GP™
 PULL-TYPE, SWAGE LOCKING,
 TENSION 100° FLUSH HEAD
 8740 ALLOY STEEL, (95 KSI SHEAR)

GPL8TC-DT()-()

GPL107



**HOWMET
AEROSPACE**

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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	
		MIN.	MAX.			Y	Z	Y	Z	Y	Z	Y	Z	Y	Z
02	.047	.063	.125	.141	.125	.404	1.38	.444	1.42	.506	1.50	—	—	—	—
03	.109	.126	.188	.203	.188	.467	1.44	.507	1.48	.569	1.56	.660	1.86	—	—
04	.172	.189	.250	.266	.250	.529	1.51	.569	1.55	.631	1.62	.722	1.92	.773	2.13
05	.234	.251	.312	.328	.312	.591	1.57	.631	1.61	.693	1.68	.784	1.99	.835	2.20
06	.297	.313	.375	.391	.375	.654	1.63	.694	1.67	.756	1.75	.847	2.05	.898	2.26
07	.359	.376	.438	.453	.438	.717	1.69	.757	1.73	.819	1.81	.910	2.11	.961	2.32
08	.422	.439	.500	.516	.500	.779	1.76	.819	1.80	.881	1.87	.972	2.17	1.023	2.38
09	.484	.501	.562	.578	.562	.841	1.82	.881	1.86	.943	1.93	1.034	2.24	1.085	2.44
10	.547	.563	.625	.641	.625	.904	1.88	.944	1.92	1.006	2.00	1.097	2.30	1.148	2.51
11	.609	.626	.688	.703	.688	.967	1.95	1.007	1.99	1.069	2.06	1.160	2.36	1.211	2.57
12	.672	.689	.750	.766	.750	1.029	2.01	1.069	2.05	1.131	2.12	1.222	2.42	1.273	2.63
13	.734	.751	.812	.828	.812	1.091	2.07	1.131	2.11	1.193	2.18	1.284	2.48	1.335	2.69
14	.797	.813	.875	.891	.875	1.154	2.13	1.194	2.17	1.256	2.25	1.347	2.55	1.398	2.76
15	.859	.876	.938	.953	.938	1.217	2.20	1.257	2.24	1.319	2.31	1.410	2.61	1.461	2.82
16	.922	.939	1.000	1.016	1.000	1.279	2.26	1.319	2.30	1.381	2.37	1.472	2.67	1.523	2.88
17	.984	1.001	1.062	1.078	1.062	1.341	2.32	1.381	2.36	1.443	2.43	1.534	2.73	1.585	2.95
18	1.047	1.063	1.125	1.141	1.125	1.404	2.38	1.444	2.42	1.506	2.50	1.597	2.80	1.648	3.01
19	1.109	1.126	1.188	1.203	1.188	1.467	2.44	1.507	2.48	1.569	2.56	1.660	2.86	1.711	3.07
20	1.172	1.189	1.250	1.266	1.250	1.529	2.51	1.569	2.55	1.631	2.62	1.722	2.92	1.773	3.13
21	1.234	1.251	1.312	1.328	1.312	1.591	2.57	1.631	2.61	1.693	2.68	1.784	2.99	1.835	3.20
22	1.297	1.313	1.375	1.391	1.375	1.654	2.63	1.694	2.67	1.756	2.75	1.847	3.05	1.898	3.26
23	1.359	1.376	1.438	1.453	1.438	1.717	2.69	1.757	2.73	1.819	2.81	1.910	3.11	1.961	3.32
24	1.422	1.439	1.500	1.516	1.500	1.779	2.76	1.819	2.80	1.881	2.87	1.972	3.17	2.023	3.38
25	1.484	1.501	1.562	1.578	1.562	1.841	2.82	1.881	2.86	1.943	2.93	2.034	3.24	2.085	3.44
26	1.547	1.563	1.625	1.641	1.625	1.904	2.88	1.944	2.92	2.006	3.00	2.097	3.30	2.148	3.51
27	1.609	1.626	1.688	1.703	1.688	1.967	2.95	2.007	2.99	2.069	3.06	2.160	3.36	2.211	3.57
28	1.672	1.689	1.750	1.766	1.750	2.029	3.01	2.069	3.05	2.131	3.12	2.222	3.42	2.273	3.63
29	1.734	1.751	1.812	1.828	1.812	2.091	3.07	2.131	3.11	2.193	3.18	2.284	3.48	2.335	3.69
30	1.797	1.813	1.875	1.891	1.875	2.154	3.13	2.194	3.17	2.256	3.25	2.347	3.55	2.398	3.76
31	1.859	1.876	1.938	1.953	1.938	2.217	3.20	2.257	3.24	2.319	3.31	2.410	3.61	2.461	3.82
32	1.922	1.939	2.000	2.016	2.000	2.279	3.26	2.319	3.30	2.381	3.37	2.472	3.67	2.523	3.88

DIMENSIONS IN INCHES

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TENSION 100° FLUSH HEAD
8740 ALLOY STEEL, (95 KSI SHEAR)

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