



Howmet Fastening Systems
 Carson Operations
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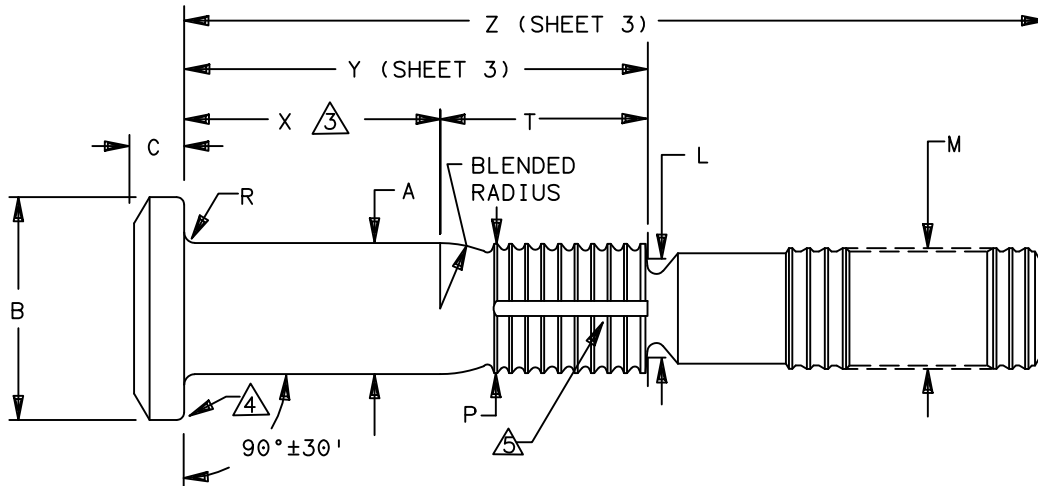
Howmet Fastening Systems
 Us Operations
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GP™

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.



GP FAMILY NUMBER	NOM SIZE	A SHANK DIA COATED ±.0005	B HEAD DIA		C HEAD HEIGHT ±.005	L DIA REF	M DIA MAX	P DIA MAX	R RAD ±.005	S Δ	T REF
			MAX	MIN							
GPL8TP-DT05-()	.164	.1630	.322	.306	.060	.136	.156	.156	.020	.0045	.279
GPL8TP-DT06-()	.190	.1890	.377	.357	.069	.164	.184	.184	.020	.0045	.319
GPL8TP-DT08-()	.250	.2490	.440	.415	.085	.224	.244	.244	.020	.0045	.381
GPL8TP-DT10-()	.312	.3115	.505	.475	.107	.268	.306	.306	.025	.0045	.472
GPL8TP-DT12-()	.375	.3740	.600	.565	.135	.339	.368	.370	.025	.0060	.523

- Δ CONCENTRICITY: CONICAL SURFACE OF PROTRUDING HEAD TO "A" DIAMETER TO BE WITHIN 5% OF "A" DIAMETER 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" SHEET 3)
- Δ PERMISSIBLE NATURAL FLOW OF MATERIAL, MUST BE FREE FROM SHARP CORNERS.

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.

PROCUREMENT SPECIFICATION: NAS1413
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DIMENSIONS IN INCHES

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

B ₄	REVISED COMPANY LOGO & UPDATED TRADEMARK INFORMATION. (REF. ECR2779)		
ISSUED	09/01/78	PIN, GROOVE PROPORTIONED GP™ PULL-TYPE, SWAGE LOCKING, TENSION PROTRUDING HEAD 8740 ALLOY STEEL (95 KSI SHEAR)	GPL8TP-DT()-()
REVISED	08/06/21		
PAGE	1 OF 3		GPL108

B₄



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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 8TP DESIGNATE HEAD SIZE, STYLE, AND LOAD APPLICATION.

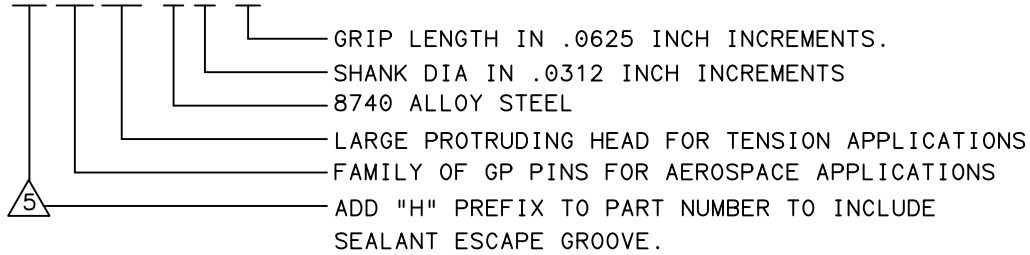
THE NEXT LETTER "DT", IS THE MATERIAL DESIGNATOR FOR 8740 ALLOY STEEL
 MIN SHEAR STRENGTH: 95 KSI.

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.

PART NUMBER

EXAMPLE: (H)GPL8TP-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
GPL8TP-DT05-()	.164	4010	2TCC-C05 2TC-C05	2180	HG105-05
GPL8TP-DT06-()	.190	5380	2TCC-C06 2TC-C06	2750	HG105-06
GPL8TP-DT08-()	.250	9300	2TCC-C08 2TC-C08	5000	HG105-08
GPL8TP-DT10-()	.312	14600	2TCC-C10 2TC-C10	8300	HG105-10
GPL8TP-DT12-()	.375	21000	2TCC-C12 2TC-C12	12700	HG105-12

DIMENSIONS IN INCHES

B₄

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

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PIN, GROOVE PROPORTIONED GP™
 PULL-TYPE, SWAGE LOCKING,
 TENSION PROTRUDING HEAD
 8740 ALLOY STEEL (95 KSI SHEAR)

GPL8TP-DT()-()
 GPL108



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GRIP NUMBER TABULATION															
GRIP DASH NO.	MINIMUM PERMIS- SIBLE GRIP OVERLAP	DESIGN GRIP RANGE		MAXIMUM PERMIS- SIBLE 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	.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	1.874	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

B₄

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

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REVISED	08/06/21
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