

Prototypes to production runs

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Company Punch & Die Tooling list

Round Tools



Size	Sta.		Size	Sta.		Size	Sta.		Size	Sta.
0.041	B		0.199	B		0.443	B		0.984	B
0.043	B		0.201	B		0.453	B		1.000	B
0.047	B		0.203	B		0.460	B		1.015	C
0.063	B		0.206	B		0.469	B		1.031	C
0.064	B		0.209	B		0.484	B		1.062	C
0.067	B		0.213	B		0.490	B		1.078	C
0.070	B		0.218	B		0.500	B		1.093	C
0.076	B		0.221	B		0.504	B		1.109	C
0.079	B		0.228	B		0.516	B		1.125	C
0.081	B		0.234	B		0.531	B		1.140	C
0.086	B		0.238	B		0.547	B		1.156	C
0.090	B		0.242	B		0.551	B		1.172	C
0.093	B		0.246	B		0.562	B		1.187	C
0.098	B		0.250	B		0.578	B		1.203	C
0.100	B		0.253	B		0.594	B		1.218	C
0.104	B		0.257	B		0.598	B		1.250	C
0.106	B		0.265	B		0.609	B		1.265	C
0.110	B		0.272	B		0.625	B		1.281	C
0.113	B		0.277	B		0.633	B		1.312	C
0.116	B		0.281	B		0.641	B		1.344	C
0.120	B		0.290	B		0.656	B		1.375	C
0.122	B		0.295	B		0.672	B		1.381	C
0.125	B		0.297	B		0.687	B		1.406	C
0.128	B		0.302	B		0.703	B		1.421	C
0.131	B		0.308	B		0.719	B		1.437	C
0.133	B		0.312	B		0.734	B		1.468	C
0.138	B		0.316	B		0.750	B		1.484	C
0.144	B		0.323	B		0.766	B		1.500	C
0.150	B		0.328	B		0.775	B		1.540	D
0.152	B		0.332	B		0.781	B		1.575	D
0.154	B		0.339	B		0.787	B		1.625	D
0.159	B		0.344	B		0.797	B		1.650	D
0.160	B		0.348	B		0.805	B		1.750	D
0.161	B		0.358	B		0.812	B		1.888	D
0.166	B		0.368	B		0.828	B		1.969	D
0.172	B		0.375	B		0.843	B		2.000	D
0.177	B		0.380	B		0.859	B		2.062	E
0.180	B		0.386	B		0.875	B		3.000	F
0.185	B		0.390	B		0.891	B		3.031	F
0.187	B		0.397	B		0.906	B			
0.189	B		0.406	B		0.922	B			
0.191	B		0.413	B		0.938	B			
0.194	B		0.422	B		0.953	B			
0.196	B		0.438	B		0.969	B			

Oval Tools



Oval Size	Station		Oval Size	Station		Oval Size	Station
.030 x .250	B		.125 x .625	B		.169 x .250	B
.032 x .250	B		.125 x .750	B		.169 x .331	B
.050 x .230	B		.125 x .875	B		.170 x .800	B
.054 x .750	B		.125 x .875	D		.171 x .375	B
.060 x .180	B		.125 x 1.000	B		.171 x .500	B
.062 x .250	B		.125 x 1.312	C		.172 x .203	B
.062 x .562	B		.125 x 1.500	C		.172 x .250	B
.062 x .750	B		.126 x .189	B		.172 x .343	B
.063 x .125	B		.128 x .189	B		.172 x .406	B
.068 x .125	B		.128 x .203	B		.172 x .437	B
.075 x .348	B		.128 x .218	B		.172 x .625	B
.075 x .425	B		.130 x .250	B		.177 x .281	B
.075 x 1.250	C		.131 x .500	B		.177 x .625	B
.080 x .190	B		.136 x .160	B		.177 x .750	B
.080 x .375	B		.136 x .281	B		.178 x .226	B
.093 x .187	B		.136 x .375	B		.178 x .296	B
.093 x .625	B		.140 x .187	B		.180 x .204	B
.093 x .700	B		.140 x .204	B		.180 x .315	B
.093 x 1.000	B		.140 x .220	B		.180 x .406	B
.093 x 1.000	C		.140 x .250	B		.182 x .250	B
.096 x .125	B		.140 x .450	B		.187 x .234	B
.096 x .196	B		.140 x .650	B		.187 x .250	B
.098 x .500	B		.147 x .177	B		.187 x .312	B
.100 x .200	B		.148 x .200	B		.187 x .375	B
.100 x .250	B		.150 x .275	B		.187 x .437	B
.100 x .380	B		.156 x .187	B		.187 x .500	B
.109 x .380	B		.156 x .203	B		.187 x .562	B
.110 x .185	B		.156 x .250	B		.187 x .625	B
.113 x .125	B		.156 x .281	B		.187 x .750	B
.114 x .163	B		.156 x .310	B		.187 x .875	B
.120 x .170	B		.156 x .312	B		.187 x 1.000	B
.120 x .218	B		.156 x .375	B		.187 x 1.688	D
.121 x .135	B		.156 x .406	B		.188 x .218	B
.125 x .156	B		.156 x .437	B		.193 x .320	B
.125 x .187	B		.156 x .500	B		.196 x .250	B
.125 x .203	B		.156 x .625	B		.196 x .380	B
.125 x .250	B		.156 x .750	B		.196 x .500	B
.125 x .281	B		.161 x .466	B		.196 x .625	B
.125 x .312	B		.161 x .600	B		.202 x .937	B
.125 x .375	B		.163 x .185	B		.203 x .263	B
.125 x .437	B		.166 x .196	B		.203 x .312	B
.125 x .480	B		.166 x .366	B		.203 x .350	B
.125 x .500	B		.169 x .234	B		.203 x .380	B

Oval Tools



Oval Size	Station		Oval Size	Station		Oval Size	Station
.205 x .400	B		.250 X 1.125	C		.406 X .656	B
.209 x .437	B		.250 X 1.250	C		.422 X .940	C
.210 x .500	B		.250 X 1.250	D		.437 x .500	B
.213 x .375	B		.250 X 1.500	D		.437 X .625	B
.218 x .278	B		.250 X 3.000	F		.437 X .656	B
.218 x .300	B		.257 X .500	B		.437 X 2.000	E
.218 x .312	B		.265 X .406	B		.460 X 2.125	E
.218 x .325	B		.266 X .360	B		.465 X .562	B
.218 x .343	B		.270 X .840	B		.468 X .500	B
.218 x .375	B		.276 X .394	B		.476 X .630	B
.218 x .406	B		.281 X .375	B		.500 X .875	B
.218 x .418	B		.281 X .390	B		.500 X 1.000	B
.218 x .437	B		.281 X .406	B		.500 X 1.130	C
.218 x .472	B		.281 X .500	B		.500 X 1.312	C
.218 x .500	B		.281 X .531	B		.500 X 1.500	C
.218 x .687	B		.281 X .562	B		.504 x .700	B
.218 x .750	B		.281 X .656	B		.505 x .552	B
.218 x 1.000	B		.281 X .750	B		.512 x .708	B
.218 x 1.000	C		.281 X 1.000	B		.512 x 2.125	E
.218 x 1.500	C		.290 x 1.790	D		.520 X 1.000	C
.218 x 2.000	C		.296 X .437	B		.562 X 1.080	C
.228 x .406	B		.297 X .500	B		.562 X 1.250	C
.230 x .312	B		.312 X .375	B		.570 X .625	B
.231 x .375	B		.312 X .500	B		.625 X .860	B
.234 x .343	B		.312 X .625	B		.625 X 2.000	E
.234 x .437	B		.312 X .750	B		.688 X .938	B
.234 x .750	B		.312 X 1.000	C		.700 X .950	B
.236 x .787	B		.312 X 1.250	C		1.260 x 1.386	F
.241 x .437	B		.325 X .415	B			
.244 x .285	B		.340 X 1.500	C			
.246 X .343	B		.343 X .500	B			
.250 x .312	B		.354 X .750	B			
.250 x .375	B		.360 X .575	B			
.250 x .406	B		.365 X 1.302	C			
.250 x .437	B		.375 X .500	B			
.250 x .450	B		.375 X .625	B			
.250 x .500	B		.375 X .750	B			
.250 x .625	b		.375 X .850	B			
.250 x .750	B		.375 X 1.500	C			
.250 x .812	B		.375 X 2.000	E			
.250 x 1.000	B		.376 X .437	B			
.250 x 1.070	B		.387 X .500	B			
.250 X 1.100	C		.406 X .531	B			

Rect Tools



Rect Size	Station		Rect Size	Station		Rect Size	Station
.031 x .380	B		.095 x .275	B		.169 x .250	B
.032 x .125	B		.100 x .100	B		.175 x .175	B
.040 x .160	B		.100 x .276	B		.187 x .187	B
.040 x .180	B		.100 x .295	B		.187 x .485	B
.040 x .240	B		.100 x .437	B		.187 x .985	B
.043 x .500	B		.102 x .250	B		.187 x 1.000	B
.043 x 1.000	B		.106 x .136	B		.187 x 1.000	C
.050 x .375	B		.107 x .312	B		.187 x 1.250	C
.050 x .500	B		.109 x .600	B		.187 x 1.500	C
.058 x .129	B		.125 x .125	B		.187 x 1.500	D
.060 x .375	B		.125 x .150	B		.187 x 1.750	D
.060 x .500	D		.125 x .250	B		.187 x 2.500	F
.060 x 1.625	D		.125 x .312	B		.187 x 3.500	H
.062 x .062	B		.125 x .375	B		.189 x .520	B
.062 x .125	B		.125 x .500	B		.190 x .310	B
.062 x .156	B		.125 x .500	D		.190 x .330	B
.062 x .218	B		.125 x .560	B		.200 x .200	B
.062 x .500	B		.125 x .625	B		.200 x .270	B
.062 x .625	B		.125 x .750	B		.200 x .580	B
.062 x .750	B		.125 x .875	B		.203 x 1.062	C
.062 x .906	B		.125 x 1.000	C		.215 x .215	B
.062 x 1.000	B		.125 x 1.000	D		.218 x .218	B
.062 x 1.000	C		.125 x 1.500	D		.218 x .330	B
.062 x 1.000	D		.125 x 2.000	E		.218 x .750	B
.063 x .500	B		.125 x 2.750	F		.218 x 1.085	C
.065 x .375	B		.130 x .330	B		.220 x 2.688	F
.065 x .385	B		.130 x .385	B		.222 x .512	B
.066 x .600	B		.132 x .507	B		.224 x .494	B
.070 x .260	B		.140 x .390	B		.228 x .585	B
.070 x .295	B		.140 x .812	B		.230 x .230	B
.075 x .330	B		.141 x .141	B		.230 x .540	B
.075 x .519	B		.141 x .342	B		.236 x .606	B
.077 x .750	B		.142 x .239	B		.240 x .410	B
.080 x .359	B		.150 x .150	B		.245 x .616	B
.080 x .375	B		.150 x .260	B		.250 x .250	B
.085 x .210	B		.150 x .806	B		.250 x .372	B
.090 x .150	B		.150 x 1.375	C		.250 x .500	B
.090 x .375	B		.152 x .437	B		.250 x .540	B
.090 x .560	B		.156 x .281	B		.250 x .625	B
.090 x .910	B		.156 x .750	B		.250 x .630	B
.093 x .750	B		.156 x 1.000	C		.250 x .680	B
.093 x 1.200	C		.160 x .340	B		.250 x 1.000	C
.093 x 1.200	D		.160 x .810	B		.250 x 1.000	D

Rect Tools



Rect Size	Station		Rect Size	Station		Rect Size	Station
.250 x 1.500	D		.375 x .500	B		.562 x .562	B
.250 x 1.750	D		.375 x .563	B		.562 x .687	B
.250 x 2.000	E		.375 x .625	B		.562 x .718	B
.250 x 2.500	F		.375 x .875	B		.562 x .925	C
.253 x .253	B		.380 x .961	C		.562 x 1.000	C
.255 x .430	B		.382 x .768	B		.585 x .715	B
.264 x .299	B		.390 x .615	B		.590 x .590	B
.270 x .295	B		.400 x .600	B		.593 x 1.020	C
.270 x .616	B		.400 x .707	B		.607 x .615	B
.275 x .300	B		.406 x .406	B		.608 x .608	B
.275 x .650	B		.406 x .812	B		.615 x .750	B
.281 x .281	B		.410 x .600	B		.625 x .625	B
.281 x .531	B		.418 x .707	B		.625 x .750	B
.281 x .625	B		.423 x .614	B		.625 x 1.100	C
.292 x .340	B		.437 x .437	B		.648 x 1.095	C
.299 x .646	B		.437 x .875	B		.650 x .900	C
.300 x .470	B		.437 x .875	C		.655 x .812	C
.300 x .525	B		.440 x .500	B		.687 x .750	C
.300 x .600	B		.440 x .740	B		.689 x 1.750	D
.300 x .815	B		.448 x .625	B		.705 x .705	C
.312 x .312	B		.449 x .806	B		.709 x .787	C
.312 x .474	B		.450 x .850	B		.709 x 1.687	D
.312 x .500	B		.468 x .875	B		.720 x .780	C
.312 x .625	B		.470 x .590	B		.725 x .830	C
.312 x .656	B		.480 x 1.075	C		.750 x .750	C
.312 x .705	B		.500 x .500	B		.750 x 1.062	C
.312 x 1.250	C		.500 x .500	D		.750 x 1.062	D
.320 x .990	C		.500 x .600	B		.770 x .770	C
.325 x .325	B		.500 x .750	C		.827 x .827	C
.330 x .548	B		.500 x .850	C		.843 x .890	C
.335 x .335	B		.500 x 1.715	D		.846 x 1.750	D
.335 x .656	B		.500 x 2.500	F		.861 x 1.018	C
.340 x .460	B		.505 x .552	B		.866 x 1.190	C
.330 x .812 BL	B		.520 x .750	B		.875 x .875	C
.344 x .875	B		.531 x .531	B		.890 x 1.000	C
.345 x .345	C		.531 x .625	B		.895 x .895	C
.350 x .730	B		.531 x .660	B		.953 x .953	C
.353 x .353	B		.531 x .750	B		.968 x .968	C
.355 x .500	B		.531 x .937	C		.970 x .970	C
.360 x .600	B		.540 x .560	B		1.000 x 1.000	C
.360 x 1.000	C		.540 x 1.000	C		1.000 x 1.000	D
.366 x 1.440	C		.550 x 1.000	C		1.250 x 1.500	D
.375 x .375	B		.552 x .650	B		2.000 x 2.000	E
.375 x .406	B		.560 x .680	B			

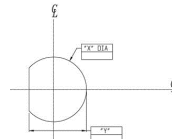
Radius Corner Rect.



	Rect Size	Cnr Rad	Station		Rect Size	Cnr Rad	Station	
	.120 x .280	0.039	B		.600 x .750	0.125	C	
	.180 x .400	0.06	B		.615 x 1.156	0.062	C	
	.225 x .375	0.020	B		.660 x .660	0.062	C	
	.230 x .280	0.030	B		.690 x 1.000	0.062	C	
	.315 x .315	0.078	B		.700 x .926	0.030	C	
	.350 x .470	0.032	B		.710 x 1.741	0.011	D	Blanking
	.390 x .760	0.060	B		.800 x 1.100	0.140	C	
	.400 x .760	0.080	B		.860 x 1.100	0.062	C	
	.406 x .750	0.062	B		.875 x 1.125	0.125	C	
	.440 x .485	0.062	B		.900 x 1.200	0.234	C	
	.450 x .750	0.060	B		.900 x 1.250	0.060	C	
	.450 x .750	0.120	B		.906 x 1.218	0.187	C	
	.500 x .500	0.062	B					
	.500 x .625	0.030	B					
	.500 x .844	0.062	C					
	.526 x .526	0.050	B					
	.531 x 1.125	0.100	C					
	.561 x 1.241	0.060	C					
	.562 x 1.032	0.093	C					
	.570 x 1.250	0.060	C	Blanking				
	.580 x .660	0.060	B					
	.593 x .937	0.062	C					

Single D Tools

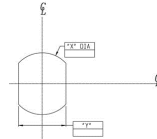
X = Dia. Y = Width



X-Dims.	Y-Dims.	Station	X-Dims.	Y-Dims.	Station	X-Dims.	Y-Dims.	Station
0.144	0.129	B	0.455	0.432	B	0.780	0.700	B
0.195	0.175	B	0.475	0.448	B	0.820	0.760	B
0.250	0.220	B	0.503	0.475	B	0.871	0.841	B
0.252	0.234	B	0.505	0.437	B	0.887	0.827	B
0.252	0.242	B	0.505	0.478	B	1.010	0.969	C
0.254	0.238	B	0.516	0.488	B	1.012	0.950	C
0.264	0.234	B	0.545	0.490	B	1.031	0.968	C
0.265	0.234	B	0.568	0.536	B	1.130	1.081	C
0.283	0.266	B	0.580	0.555	B	1.150	1.100	C
0.316	0.294	B	0.585	0.564	B	1.255	1.206	C
0.325	0.298	B	0.625	0.390	B	1.260	1.225	C
0.344	0.281	B	0.625	0.588	B	1.282	1.203	C
0.375	0.343	B	0.630	0.572	B	1.390	1.330	C
0.377	0.270	B	0.635	0.595	B			
0.377	0.359	B	0.656	0.546	B			
0.378	0.346	B	0.656	0.609	B			
0.380	0.352	B	0.682	0.559	B			
0.382	0.348	B	0.700	0.667	B			
0.390	0.335	B	0.713	0.682	B			
0.390	0.355	B	0.757	0.732	B			
0.437	0.421	B	0.760	0.700	B			
0.443	0.410	B	0.762	0.724	B			

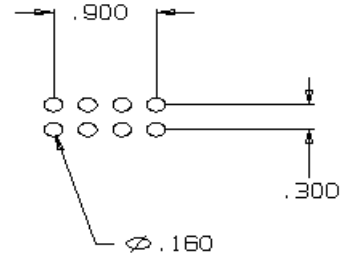
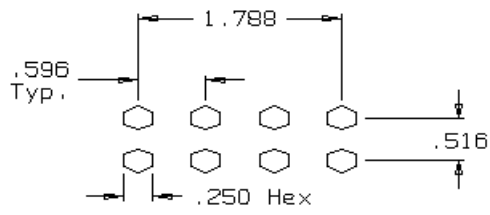
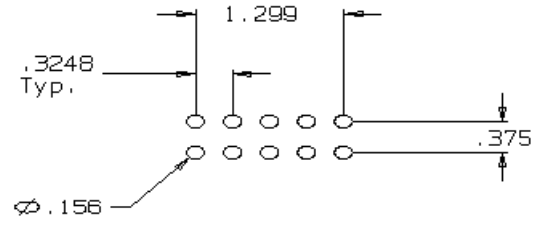
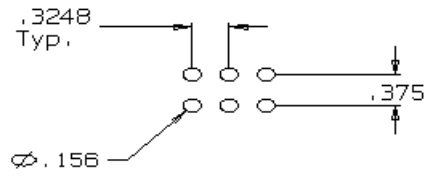
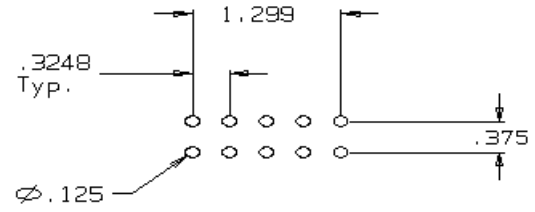
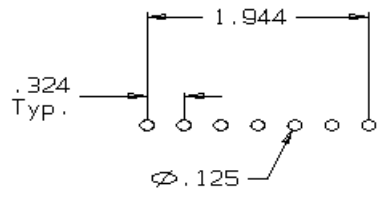
Double D Tools

X = Dia. Y = Width

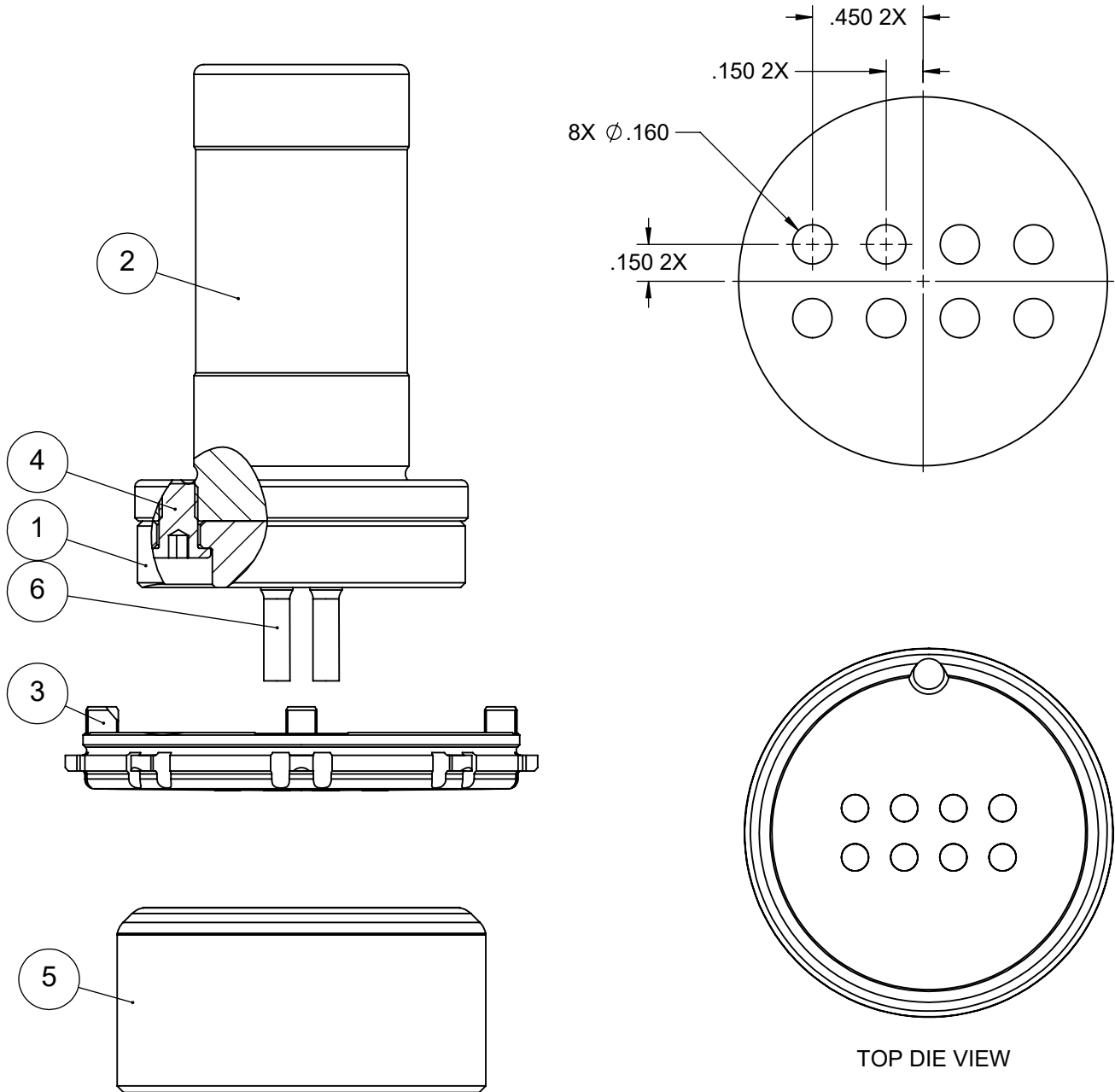


X-Dims.	Y-Dims.	Station	X-Dims.	Y-Dims.	Station	X-Dims.	Y-Dims.	Station
0.180	0.120	B	0.500	0.468	B	0.875	0.770	B
0.230	0.130	B	0.515	0.450	B	0.875	0.797	B
0.265	0.219	B	0.564	0.502	B	0.875	0.812	B
0.312	0.250	B	0.597	0.535	B	0.880	0.755	B
0.323	0.250	B	0.625	0.540	B	1.000	0.875	B
0.328	0.265	B	0.625	0.580	B	1.093	1.030	C
0.340	0.270	B	0.631	0.571	B	1.125	1.000	C
0.344	0.250	B	0.638	0.600	B	1.130	1.058	C
0.350	0.316	B	0.640	0.540	B	1.140	1.090	C
0.360	0.330	B	0.642	0.552	B	1.187	1.030	C
0.375	0.203	B	0.687	0.625	B	1.250	1.150	C
0.378	0.335	B	0.689	0.572	B	1.320	1.120	C
0.380	0.300	B	0.716	0.657	B	1.357	1.156	C
0.386	0.315	B	0.750	0.672	B	1.370	1.173	C
0.394	0.325	B	0.755	0.635	B	1.375	1.156	C
0.401	0.351	B	0.765	0.640	B	1.380	1.200	C
0.406	0.312	B	0.781	0.640	B			
0.437	0.375	B	0.781	0.687	B			
0.442	0.400	B	0.815	0.700	B			
0.453	0.385	B	0.850	0.670	B			
0.476	0.423	B	0.866	0.758	B			
0.500	0.375	B	0.845	0.840	B			

Cluster Tools



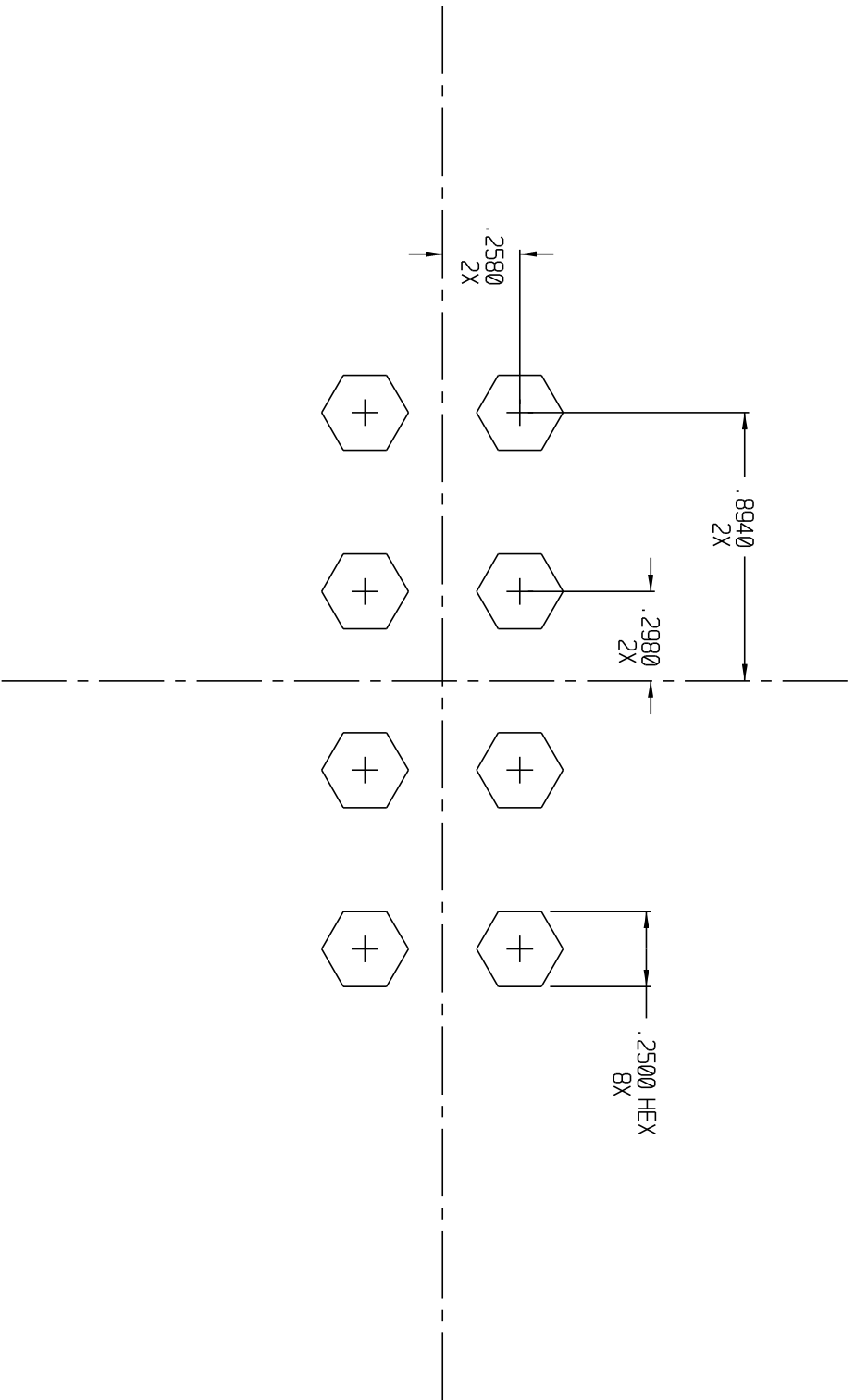
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	XWMCD0CB14	UPPER RETAINER	1
2	XWMCD0CB13	PUNCH SHANK	1
3	XWMCD0CB12	UPPER STRIPPER	1
4	SHC00015	SOCKET HEAD CAP SCREW SPECIAL LOW HEAD STYLE M6x1 X 10 WITH 10MM DIAMETER X 1.5MM THICK HEAD CLASS 10.9	2
5	XWMCD0CB02	DIE	1
6	XWMCD0CB16	UPPER INSERT	8



CUSTOMER	ELECTRONIC SHEET METAL CRAFTS
ACCOUNT #	232004
MACHINE	MURATA MOTORUM
MATERIAL	ALUMINUM .040
USE w/ ETCH	
DATE	05/05/2020 TEW

TOOL ETCH #	05202002
XWMCD0CB00	
MARATHON C STATION CLUSTER (INSERT STYLE) FULLY GUIDED ROUND SET ASSEMBLY (INCLUDES; UPPER + LOWER)	

MATERIAL TYPE = COLD ROLLED
MATERIAL THICKNESS = 0.1050
TONNAGE = 18.19



CENTERLINE LAYOUT :



COMPANY: ELECTRONIC SHEET METAL CRAFTS #232004
STYLE: MAR2 STATION: E DIMENSIONS: PUNCH VIEW: DIE TOTAL CLEARANCE: 0.020
DATE DRAWN: 06/22/2006 BY: JRS SCALE: 2.000 PIERCING SAVE SLUG
ETCH NO: 06069098
MATE REF: 1710104

CUSTOMER: ELECTRONIC SHEET
 ORDER#: 3480117

DRAWN BY: BPB DATE: 12-15-98 SCALE: NONE

TOOL# 12980916



MATE PUNCH AND DIE CO.

SPRING LOADED
 CLUSTER ASSEMBLY

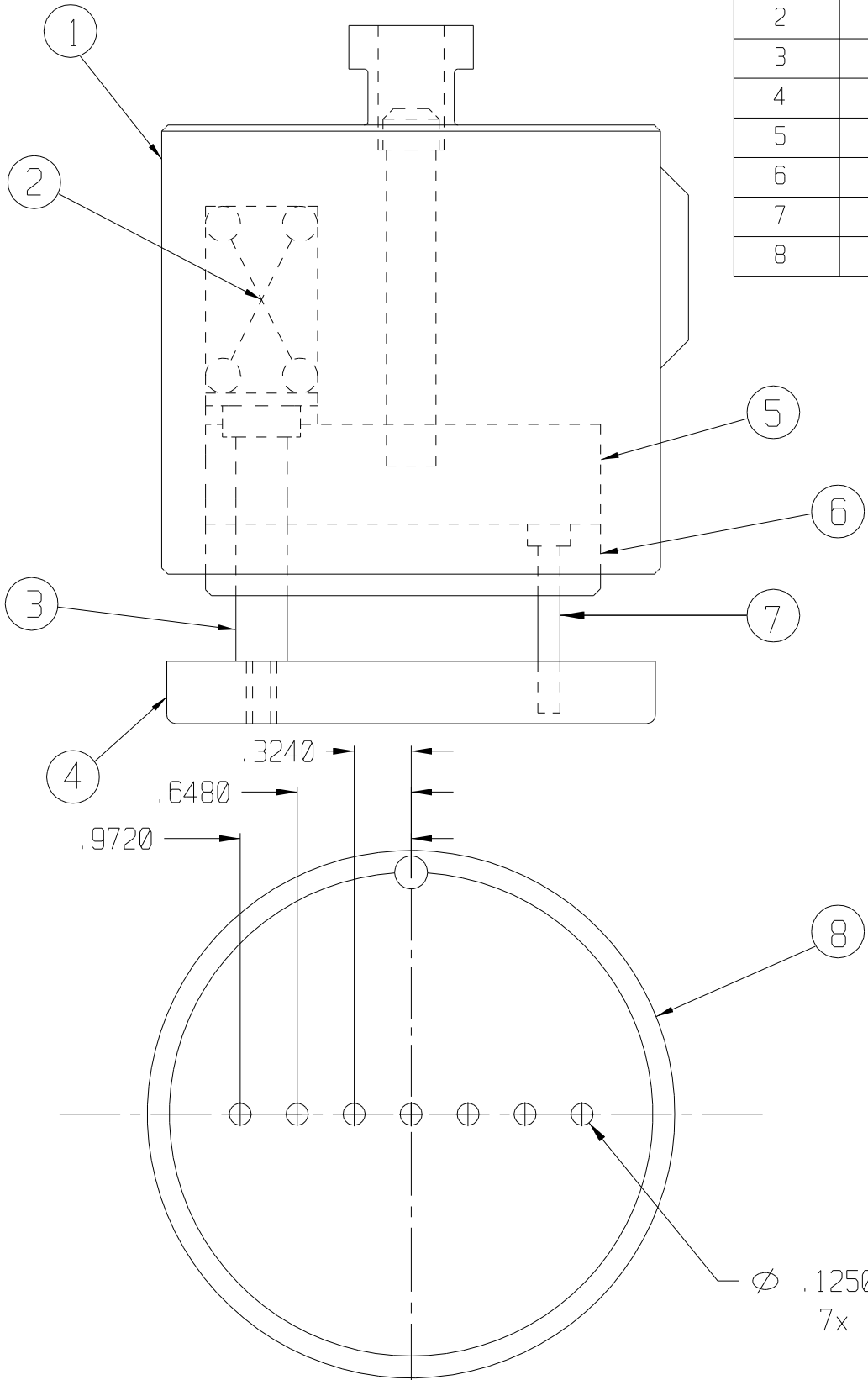
SUI00100

84

PRESS MODEL : C-2000
 STY/STA: 112/F

ITEM	QTY.	DESCRIPTION
1	1	PUNCH HOLDER
2	4	1.0 x 2.0 RED SPRINGS
3	4	M12 x 50 STR. BOLTS
4	1	STRIPPER PLATE
5	1	SHANK
6	1	RETAINER
7	7	INSERTS
8	1	DIE

CAD GENERATED
 CADKEY VERSION 3.53-DRD

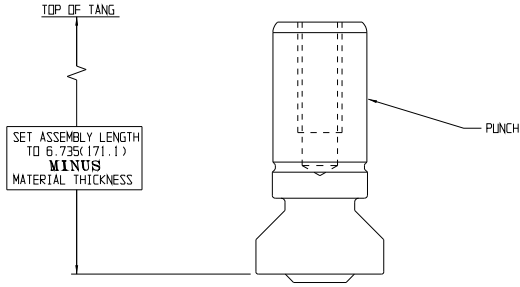


TOP DIE VIEW

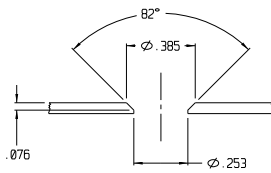
Countersink Tools

CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS		B/C B5-29
ACCOUNT #: 232004			MACHINE MODEL: MOT2	STATION: 112 B	
ETCH #: 01100113			MATERIAL TYPE: MILD STEEL		THICKNESS: .089
DATE: 01/14/10	SCALE: NONE				

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.

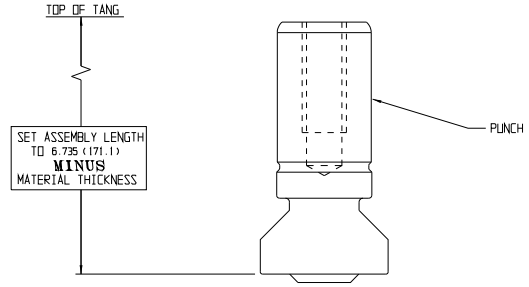


APPROXIMATE PRE-PIERCE = \varnothing .309

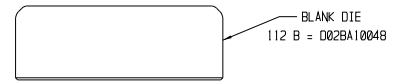
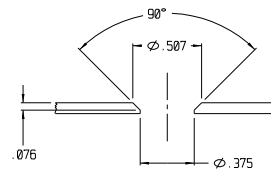


CUSTOMER: ELECTRONIC SHEET METAL CRAFTS		 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS		B/C B5-29
ACCOUNT #: 232004			MACHINE MODEL: MOT2	STATION: 112 B	
ETCH #: 01100114			MATERIAL TYPE: MS		THICKNESS: .089
DATE: 1/14/10	SCALE: NONE				

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.

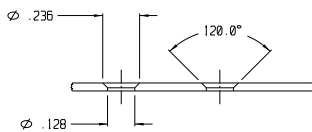
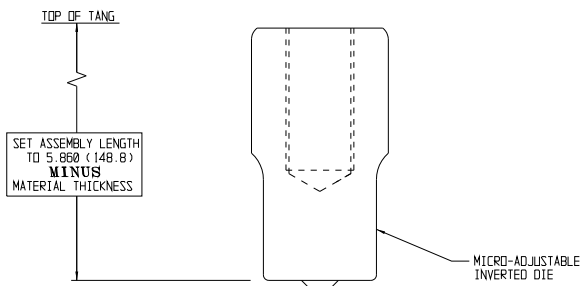


APPROXIMATE PRE-PIERCE = \varnothing .429



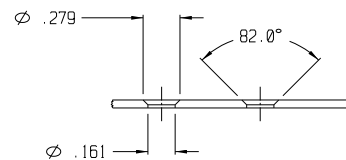
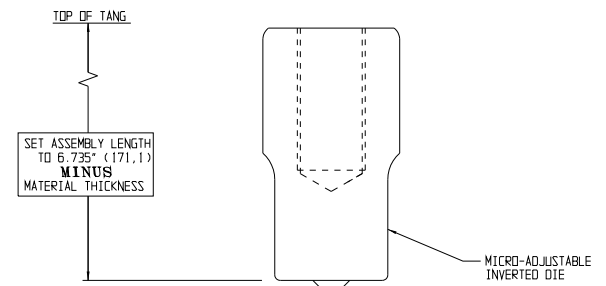
CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS		B329-01
ACCOUNT #: 232004			MACHINE MODEL: C-20	STATION: B	
ETCH #: 02081140			MATERIAL TYPE: MILD STEEL		THICKNESS: .189
DATE: 2/22/08	SCALE: NONE				

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.




CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS		B329-01
ACCOUNT #: 232004			MACHINE MODEL: MOT2	STATION: B	
ETCH #: 03140113			MATERIAL TYPE: ALUMINUM		THICKNESS: .080
DATE: 3/20/14	SCALE: NONE				

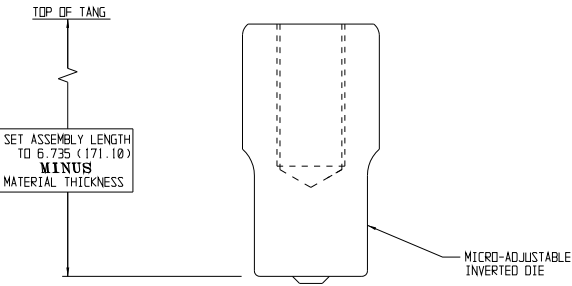
1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.



Countersink Tools

CUSTOMER: ELECTRONIC SHEET METAL	 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS	B329-01
ORDER #: 116-01-01		MACHINE MODEL: MD12	STATION: B
ETCH #: 04050141		MATERIAL TYPE: ALUM.	THICKNESS: .063
DATE: 4/26/05		DESIGNED BY: LMW	SCALE: NONE


1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.



TOP OF TANG

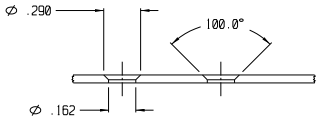
SET ASSEMBLY LENGTH TO 6.735 (171.10) MINUS MATERIAL THICKNESS


MICRO-ADJUSTABLE INVERTED DIE




BLANK DIE

APPROXIMATE PRE-PIERCE = .203 DIA.

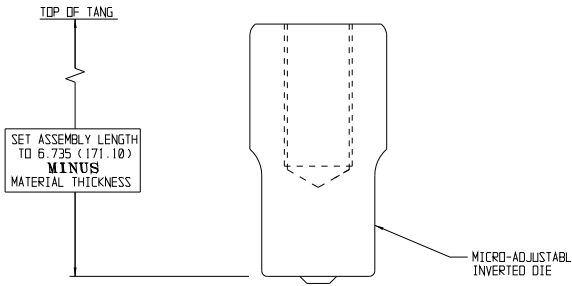




BLANK DIE

CUSTOMER: ELECTRONIC SHEET METAL	 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS	B329-01
ORDER #: 116-01-01		MACHINE MODEL: MD12	STATION: B
ETCH #: 04050142		MATERIAL TYPE: ALUMINUM	THICKNESS: .063
DATE: 04-26-05		DESIGNED BY: JES	SCALE: NONE


1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.



TOP OF TANG

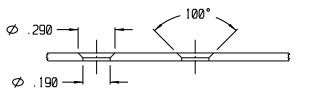
SET ASSEMBLY LENGTH TO 6.735 (171.10) MINUS MATERIAL THICKNESS


MICRO-ADJUSTABLE INVERTED DIE




BLANK DIE

APPROXIMATE PRE-PIERCE IS .208 DIA.

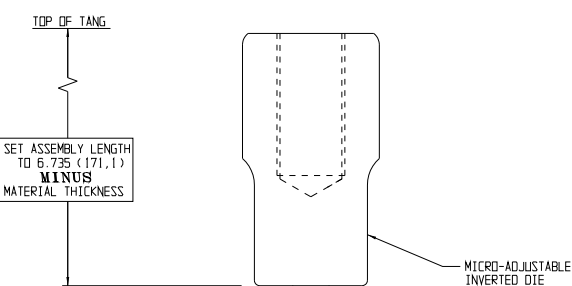




BLANK DIE

CUSTOMER: ELECTRONIC SHEET METAL	 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS	B329-01
ACCOUNT #: 232004		MACHINE MODEL: MOTORUM	STATION: B
ETCH #: 05152000		MATERIAL TYPE: ALUMINUM	THICKNESS: .050
DATE: 5/4/15		DESIGNED BY: LMW	SCALE: NONE


1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.



TOP OF TANG

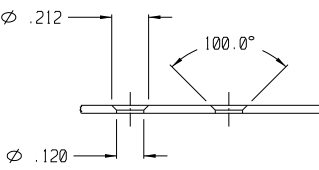
SET ASSEMBLY LENGTH TO 6.735 (171.1) MINUS MATERIAL THICKNESS


MICRO-ADJUSTABLE INVERTED DIE




BLANK DIE

APPROXIMATE PRE-PIERCE = .156 DIA.

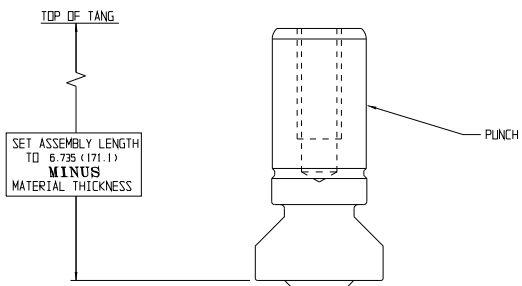




BLANK DIE

CUSTOMER: ELECTRONIC SHEET METAL	 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS	B/C B5-29
MACHINE MODEL: MD12		STATION: 112/B	
MATERIAL TYPE: AL		THICKNESS: .080	
DESIGNED BY: JES		SCALE: NONE	

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.




TOP OF TANG

SET ASSEMBLY LENGTH TO 6.735 (171.1) MINUS MATERIAL THICKNESS

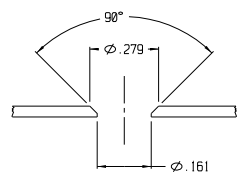
PUNCH


MICRO-ADJUSTABLE INVERTED DIE



BLANK DIE
112 B = D02BA10048

APPROXIMATE PRE-PIERCE = Ø.211



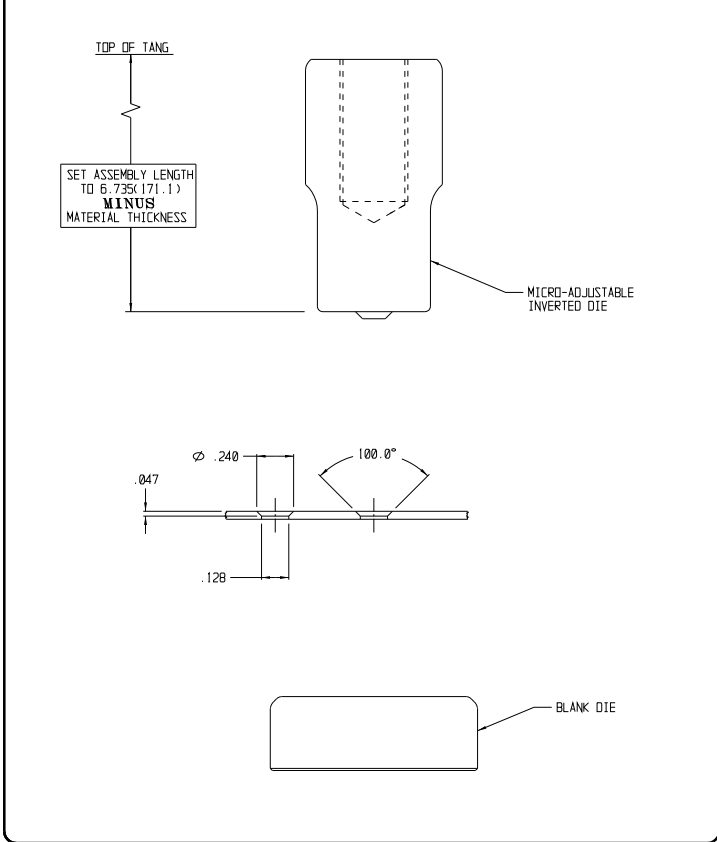


BLANK DIE
112 B = D02BA10048

Countersink Tools

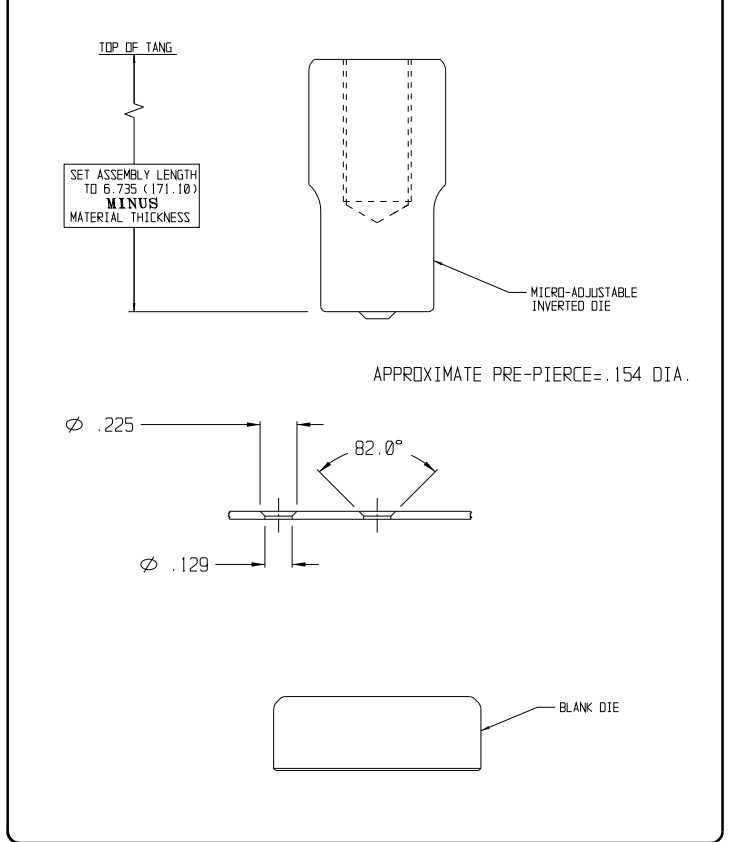
CUSTOMER: ELECTRONIC SM		 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS	B329-01
ACCOUNT #: 232004			MACHINE MODEL: MD12	STATION: 112B
ETCH #: 07071004			MATERIAL TYPE: ALUMINUM	THICKNESS: .063
DESIGNED BY: JRS	SCALE: NONE			

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.

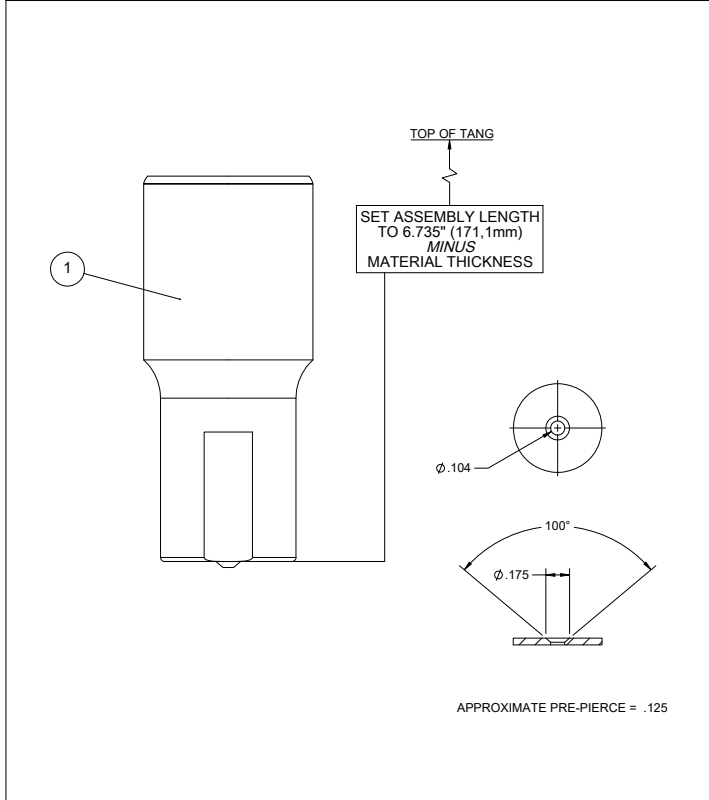


CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS	B329-01
ACCOUNT #: 232004			MACHINE MODEL: MD12	STATION: B
ETCH #: 0607010B			MATERIAL TYPE: ALUM.	THICKNESS: .050
DESIGNED BY: LMW	SCALE: NONE			

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.

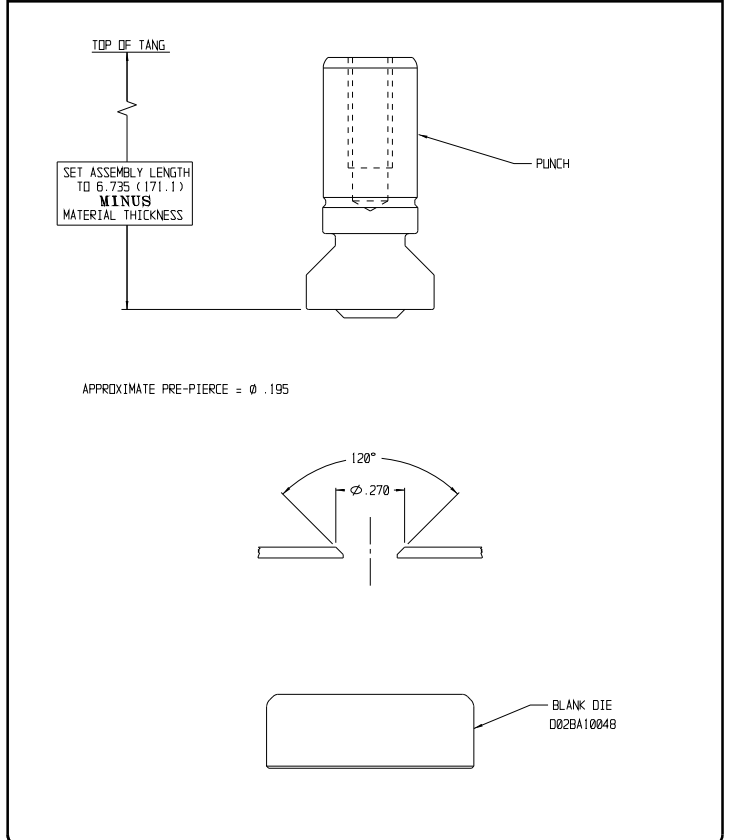



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	XW4BD0B316	UPPER INSERT	1



CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS	B/C B5-29
ACCOUNT #: 232004			MACHINE MODEL: MD12	STATION: B
ETCH #: 09090811			MATERIAL TYPE: GALVANIZED	THICK: .047-.059
DESIGNED BY: COS	SCALE: NONE			

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.

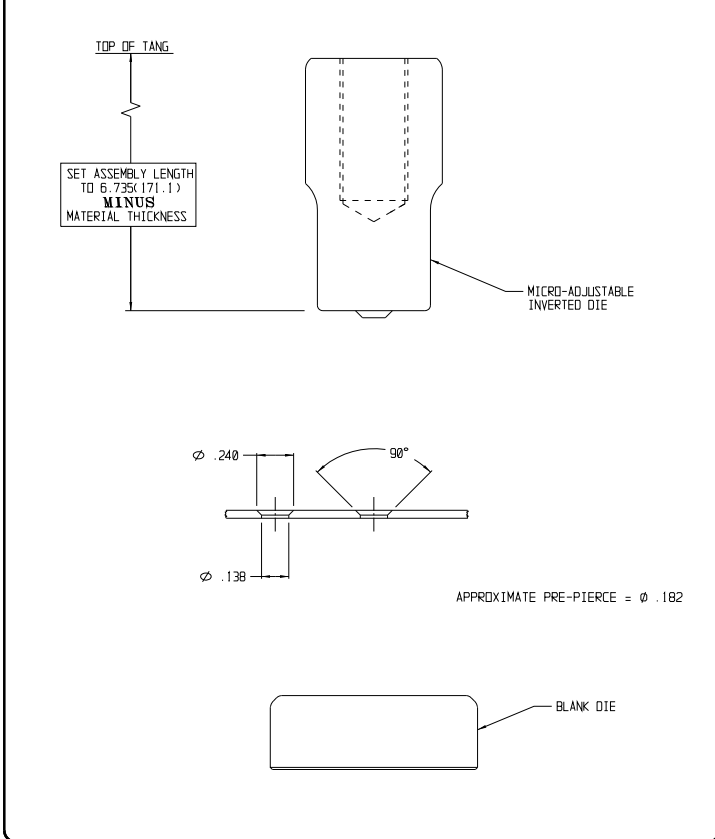


 mate.com	CUSTOMER: ELECTRONIC SHEET METAL CRAFTS	TOOL ETCH # 08194028
	ACCOUNT #: 232004	XW4BD0B301
	MACHINE: MURATA	114 B STATION COUNTERSINK DEDICATED ROUND DOWN (INSERT TYPE) UPPER ASSEMBLY
	MATERIAL: ALUMINUM .050	
USE w/ ETCH	DATE: 08/23/2019 JRS	

Countersink Tools

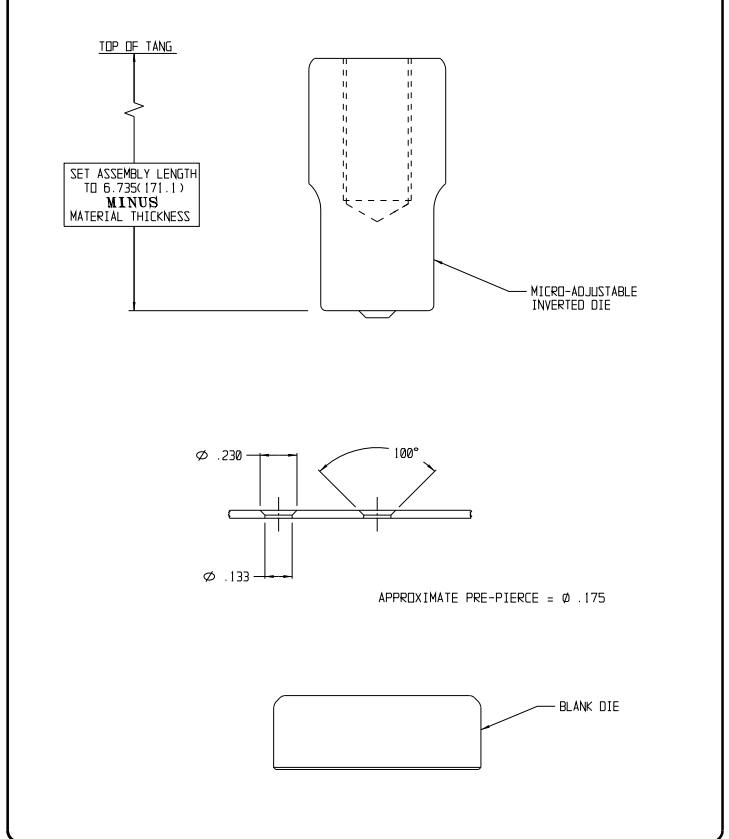
CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS		B329-01
ACCOUNT #: 232004			MACHINE MODEL: MD2	STATION: 112B	
ETCH #: 09120B41			MATERIAL TYPE: M.S.		THICKNESS: .060
DATE: 9/18/12			DESIGNED BY: JRS		SCALE: NONE

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.



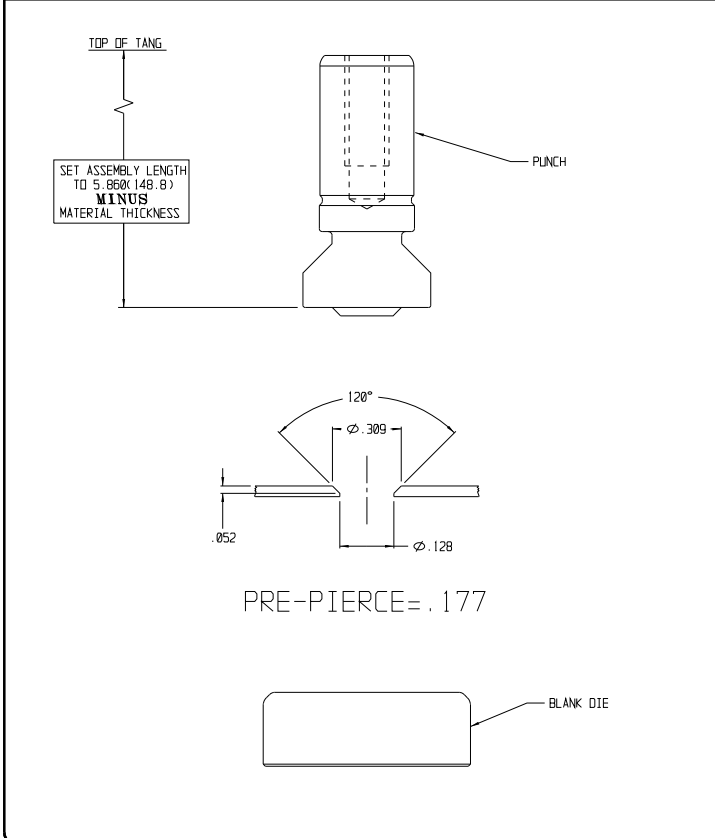
CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS		B329-01
ACCOUNT #: 232004			MACHINE MODEL: MD2	STATION: 112B	
ETCH #: 09130107			MATERIAL TYPE: M.S.		THICKNESS: .048
DATE: 9/11/13			DESIGNED BY: JRS		SCALE: NONE

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.

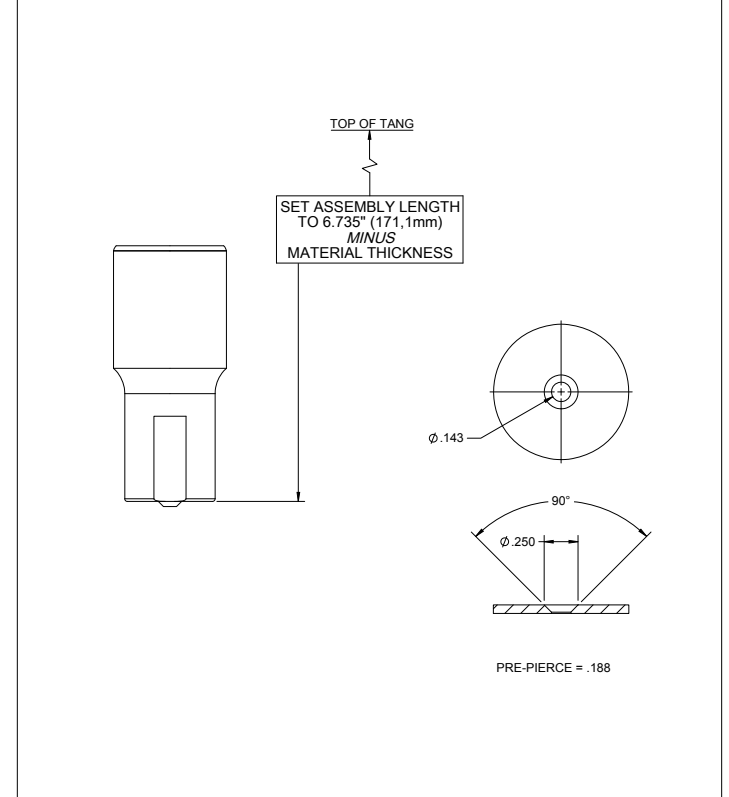



CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS		B/C B5-29
ORDER #: 2860140			MACHINE MODEL: C-20	STATION: 112B	
ETCH #: 10044012			MATERIAL TYPE: M.S.		THICKNESS: .069
DATE: 10/14/04			DESIGNED BY: JRS		SCALE: NONE

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	XW2BD0B316	UPPER INSERT	1

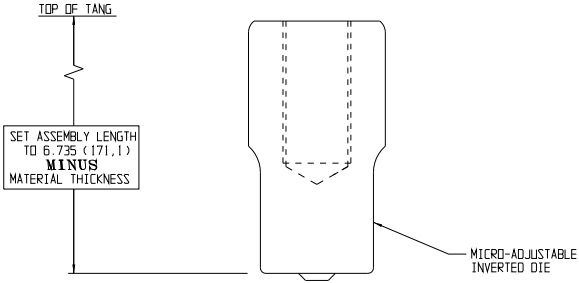


 mate.com	CUSTOMER	ELECTRONIC SHEET METAL CRAFTS	TOOL ETCH # 11160106
	ACCOUNT #	232004	XW2BD0B301
	MACHINE	MURATA MOTORUM	112 B STATION COUNTERSINK
	MATERIAL	ALUMINUM .063	DEDICATED ROUND DOWN (INSERT TYPE) UPPER ASSEMBLY
USE w/ ETCH	DATE	11/11/2016 JRS	

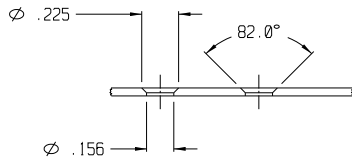
Countersink Tools

CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	DEDICATED ROUND DOWN COUNTERSINK SET-UP INSTRUCTIONS		B329-01
ACCOUNT #: 232004			MACHINE MODEL: M02	STATION: B	
ETCH #: 12120119			MATERIAL TYPE: MILD STEEL		THICKNESS: .060
DATE: 12/12/12	DESIGNED BY: LMW		SCALE: NONE		

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. FORMING SHOULD BE THE LAST OPERATION PERFORMED.



APPROXIMATE PRE-PIERCE=.178 DIA.

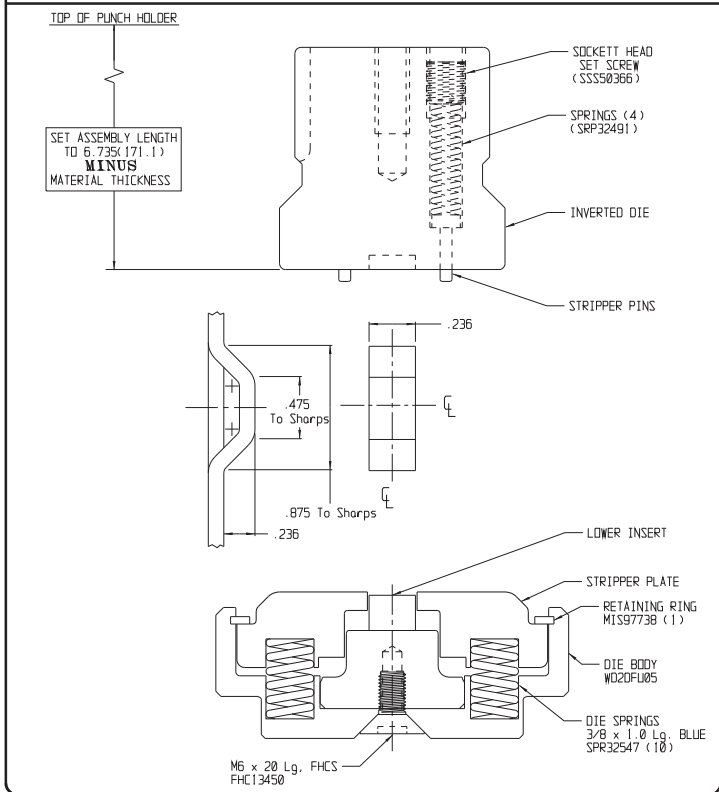


Bridge Form Tools

CUSTOMER: ELECTRONIC SHEET METAL		LANCE & FORM FORM-UP SET-UP INSTRUCTIONS		112DF429-01
ACCOUNT #: 232004		MACHINE MODEL: M02		STATION: D
ETCH #: 03140109		MATERIAL TYPE: M.S.		THICKNESS: .090
DATE: 3/11/14		SCALE: NONE		
DESIGNED BY: JRS		MATE PRECISION TOOLING		



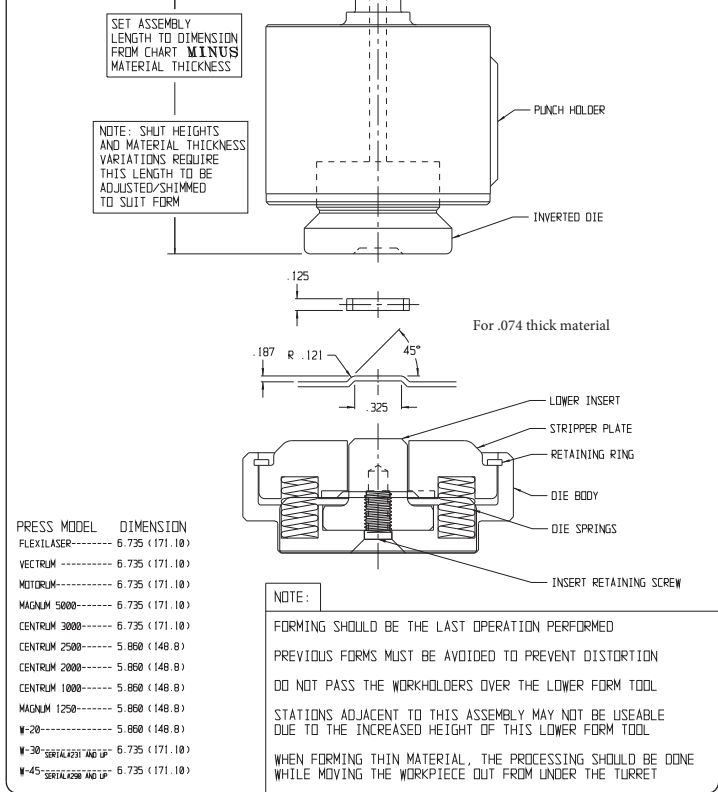
1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. WHEN FORMING THIN MATERIAL, THE PROCESSING SHOULD BE DONE WHILE MOVING THE WORKPIECE OUT FROM UNDER THE TURRET.
3. STATIONS ADJACENT TO THIS ASSEMBLY MAY NOT BE USEABLE DUE TO THE INCREASED HEIGHT OF THIS LOWER FORM TOOL.
4. DO NOT PASS THE WORKHOLDERS OVER THE LOWER FORM TOOL.
5. PREVIOUS FORMS MUST BE AVOIDED TO PREVENT DISTORTION.
6. FORMING SHOULD BE THE LAST OPERATION PERFORMED.



CUSTOMER: ELECTRONIC SHEET METAL		LANCE AND FORM FORM-UP SET-UP INSTRUCTIONS		4FF429-02
ORDER #: 051-01-29		MACHINE MODEL: C-2000		STATION: D
ETCH #: 02022938		MATERIAL TYPE: C.R.S.		THICKNESS: .074
DRAWN BY: JES		DATE: 02-21-02		SCALE: NONE
		MATE PRECISION TOOLING		



1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
2. WHEN FORMING THIN MATERIAL, THE PROCESSING SHOULD BE DONE WHILE MOVING THE WORKPIECE OUT FROM UNDER THE TURRET.
3. STATIONS ADJACENT TO THIS ASSEMBLY MAY NOT BE USEABLE DUE TO THE INCREASED HEIGHT OF THIS LOWER FORM TOOL.
4. DO NOT PASS THE WORKHOLDERS OVER THE LOWER FORM TOOL.
5. PREVIOUS FORMS MUST BE AVOIDED TO PREVENT DISTORTION.
6. FORMING SHOULD BE THE LAST OPERATION PERFORMED.



Emboss Tools

CUSTOMER: ELECTRONIC SHEET METAL ORDER #: 041-01-01 ETCH #: 02030184 DATE: 2/11/03		MATE MATE PRECISION TOOLING		ROUND EMBOSS FORM-UP SET-UP INSTRUCTIONS 4FE129-01	
DRAWN BY: JRS	DATE: 05/13/02	SCALE: NONE	MACHINE MODEL: C-2000	STATION: D	THICKNESS: .050

NOTE: SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE THIS LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM

FORMING SHOULD BE THE LAST OPERATION PERFORMED
PREVIOUS FORMS MUST BE AVOIDED TO PREVENT DISTORTION
DO NOT PASS THE WORKHOLDERS OVER THE LOWER FORM TOOL
STATIONS ADJACENT TO THIS ASSEMBLY MAY NOT BE USEABLE DUE TO THE INCREASED HEIGHT OF THIS LOWER FORM TOOL
WHEN FORMING THIN MATERIAL, THE PROCESSING SHOULD BE DONE WHILE MOVING THE WORKPIECE OUT FROM UNDER THE TURRET

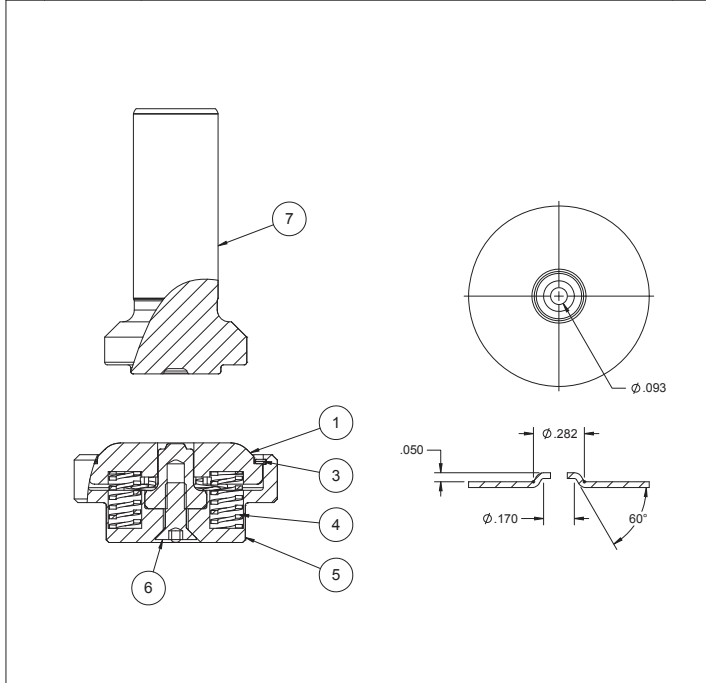
PRESS MODEL	DIMENSION
FLEXILASER	6.735 (171.10)
VECTRUM	6.735 (171.10)
MOTORUM	6.735 (171.10)
MAGNUM 5000	6.735 (171.10)
CENTRUM 3000	6.735 (171.10)
CENTRUM 2500	5.860 (148.8)
CENTRUM 2000	5.860 (148.8)
CENTRUM 1800	5.860 (148.8)
MAGNUM 1250	5.860 (148.8)
W-20	5.860 (148.8)
W-30	6.735 (171.10)
W-45	6.735 (171.10)

CUSTOMER: ELECTRONIC SHEET METAL ACCOUNT #: 232004 ETCH #: 021348B1 DATE: 2/26/2013		MATE MATE PRECISION TOOLING		ROUND EMBOSS FORM-UP SET-UP INSTRUCTIONS 112EE129-01	
DESIGNED BY: DLH	SCALE: NONE	MACHINE MODEL: MT2	STATION: E	MATERIAL TYPE: MILD STEEL	THICKNESS: 0.060"

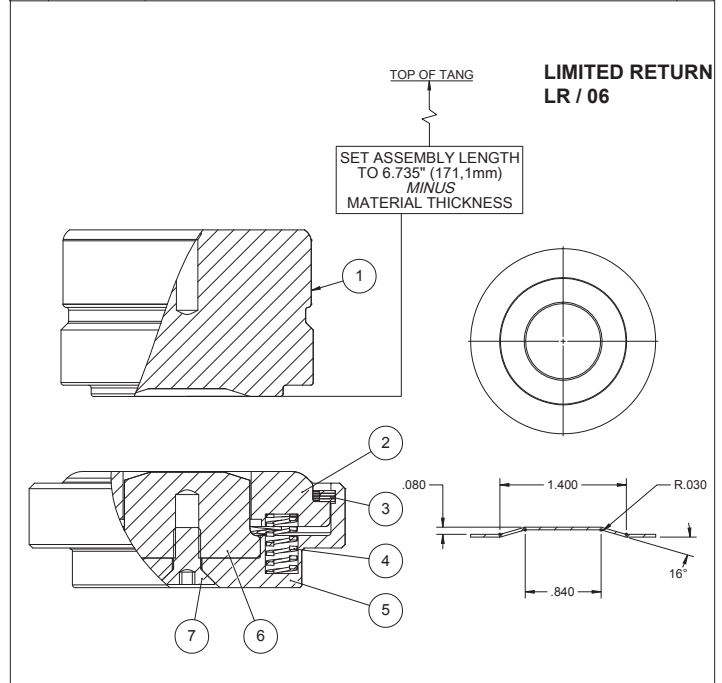
- SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
- WHEN FORMING THIN MATERIAL, THE PROCESSING SHOULD BE DONE WHILE MOVING THE WORKPIECE OUT FROM UNDER THE TURRET.
- STATIONS ADJACENT TO THIS ASSEMBLY MAY NOT BE USEABLE DUE TO THE INCREASED HEIGHT OF THIS LOWER FORM TOOL.
- DO NOT PASS THE WORKHOLDERS OVER THE LOWER FORM TOOL.
- PREVIOUS FORMS MUST BE AVOIDED TO PREVENT DISTORTION.
- FORMING SHOULD BE THE LAST OPERATION PERFORMED.

FORMING SHOULD BE THE LAST OPERATION PERFORMED
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DO NOT PASS THE WORKHOLDERS OVER THE LOWER FORM TOOL
STATIONS ADJACENT TO THIS ASSEMBLY MAY NOT BE USEABLE DUE TO THE INCREASED HEIGHT OF THIS LOWER FORM TOOL
WHEN FORMING THIN MATERIAL, THE PROCESSING SHOULD BE DONE WHILE MOVING THE WORKPIECE OUT FROM UNDER THE TURRET

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	XW2CD0E103	LOWER STRIPPER	1
2	XW2CD0E104	LOWER INSERT	1
3	MIS97711	RETAINING RING INTERNAL SPIRAL TYPE 2.025 OD X 0.118 WALL X 0.049 THICK SMALLY WH-193	1
4	SPR32547	COIL SPRING MEDIUM PRESSURE 3/8 X 1 BLUE 60LB/IN+/-15%	8
5	WD2CFU04	112 RING LOCK DESIGN FORMING UNIT C STATION DIE BODY SHAPE ASSEMBLY	1
6	FHC13538	SOCKET FLAT HEAD CAP SCREW M8x1 X 16 DIN 7991-10.9	1
7	XW2CD0E116	UPPER INSERT	1




ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	XW2ED0E116	UPPER INSERT	1
2	XW2ED0E103	LOWER STRIPPER	1
3	MIS97757	RETAINING RING INTERNAL SPIRAL TYPE 3.311 OD X 0.178 WALL X 0.061 THICK SMALLY WH-318	2
4	SPR32547	COIL SPRING MEDIUM PRESSURE 3/8 X 1 BLUE 60LB/IN+/-15%	10
5	WD2EFU01	112 RING LOCK DESIGN FORMING UNIT E STATION DIE BODY SHAPE ASSEMBLY	1
6	XW2ED0E104	LOWER INSERT	1
7	FHC13493	SOCKET FLAT HEAD CAP SCREW M8x1.25 X 16 DIN 7991-10.9	1



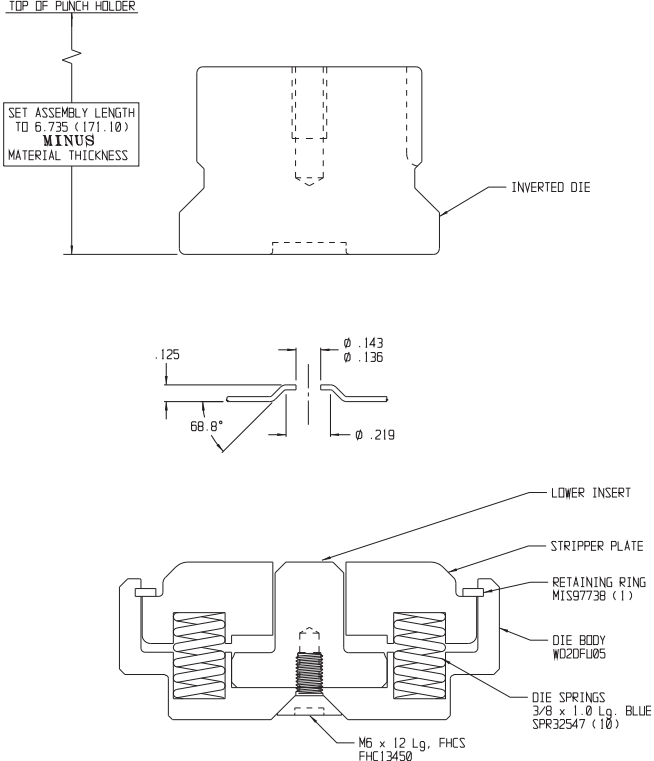
MATE PRECISION TOOLING mate.com	CUSTOMER: ELECTRONIC SHEET METAL CRAFTS	TOOL ETCH #: 02165016
	ACCOUNT #: 232004	XW2CD0E100
	MACHINE: MURATA	112 C STATION EMBOSS FLAT TOP ROUND UP SPRING LOADED SET ASSEMBLY (INCLUDES: UPPER + LOWER)
	MATERIAL: MILD STEEL .032	
	DATE: 02/15/2016 JRS	

MATE PRECISION TOOLING mate.com	CUSTOMER: ELECTRONIC SHEET METAL CRAFTS	TOOL ETCH #: 02181510 /LR06
	ACCOUNT #: 232004	XW2ED0E100
	MACHINE: MURATA MOTORUM	112 E STATION EMBOSS FLAT TOP ROUND UP SPRING LOADED SET ASSEMBLY (INCLUDES: UPPER + LOWER)
	MATERIAL: MILD STEEL 22GA	
	DATE: 02/06/2018 DLH	

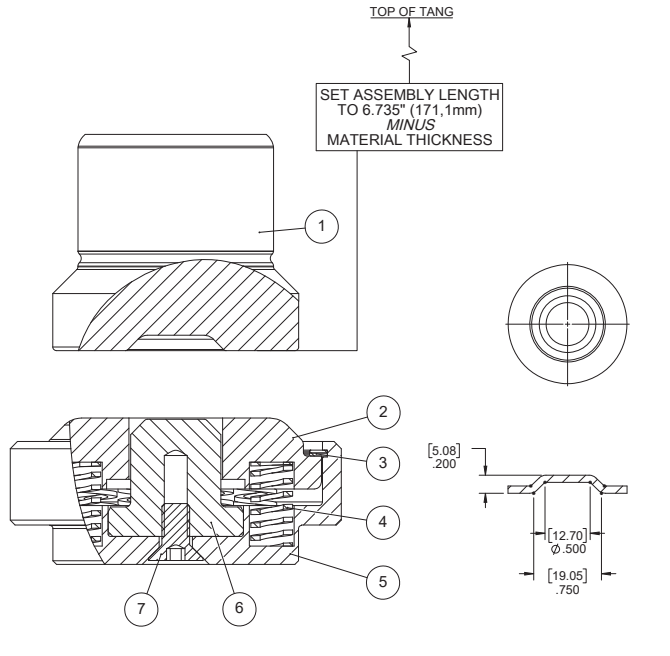
Emboss Tools


CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	ROUND EMBOSS FORM-UP SET-UP INSTRUCTIONS	112DE129-01
ACCOUNT #: 232004			MACHINE MODEL: MT2	STATION: 0
ETCH #: 03077076/CN06			MATERIAL TYPE: ALUMINUM	THICKNESS: .030
DATE: 03-27-07				
DESIGNED BY: JES	SCALE: NONE			

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
 2. WHEN FORMING THIN MATERIAL, THE PROCESSING SHOULD BE DONE WHILE MOVING THE WORKPIECE OUT FROM UNDER THE TURRET.
 3. STATIONS ADJACENT TO THIS ASSEMBLY MAY NOT BE USEABLE DUE TO THE INCREASED HEIGHT OF THIS LOWER FORM TOOL.
 4. DO NOT PASS THE WORKHOLDERS OVER THE LOWER FORM TOOL.
 5. PREVIOUS FORMS MUST BE AVOIDED TO PREVENT DISTORTION.
 6. FORMING SHOULD BE THE LAST OPERATION PERFORMED.




ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	XW2DD0E116	UPPER INSERT	1
2	XW2DD0E103	LOWER STRIPPER	1
3	MIS97738	RETAINING RING INTERNAL SPIRAL TYPE 2.543 OD X 0.148 WALL X 0.049 THICK SMALLLEY WH-243	1
4	SPR32547	COIL SPRING MEDIUM PRESSURE 3/8 X 1 BLUE 60LBI/IN +/-15%	10
5	WD2DFU05	112 RING LOCK DESIGN FORMING UNIT D STATION DIE BODY SHAPE FINISHED COMPONENT	1
6	XW2DD0E104	LOWER INSERT	1
7	FHC13450	SOCKET FLAT HEAD CAP SCREW M6x1 X 12 DIN 7991-10.9	1

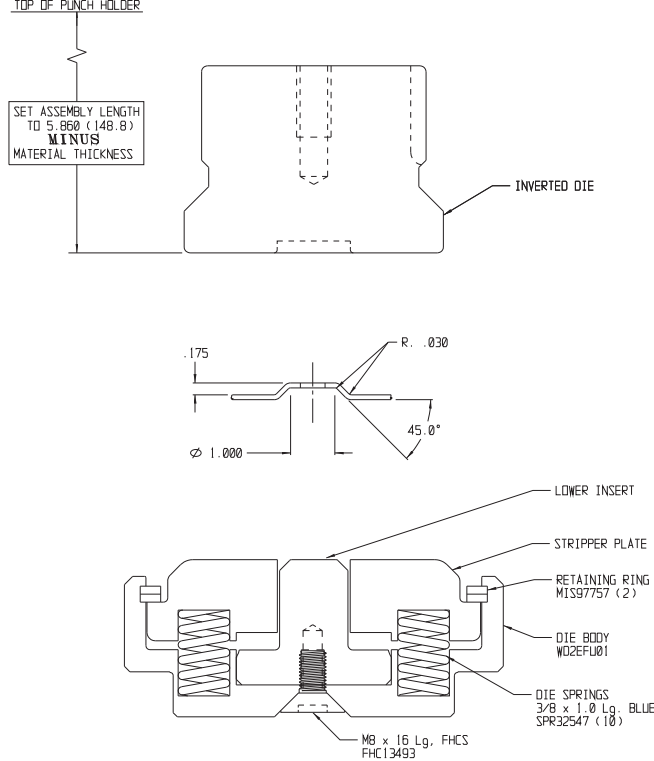



 mate.com	CUSTOMER: ELECTRONIC SHEET METAL CRAFTS	TOOL ETCH # 03201111
	ACCOUNT #: 232004	XW2DD0E100
MACHINE: MURATA	112 D STATION EMBOSS FLAT TOP ROUND UP SPRING LOADED SET ASSEMBLY (INCLUDES: UPPER + LOWER)	
MATERIAL: ALUMINUM .080		
DATE: 03/09/2020	JRS	

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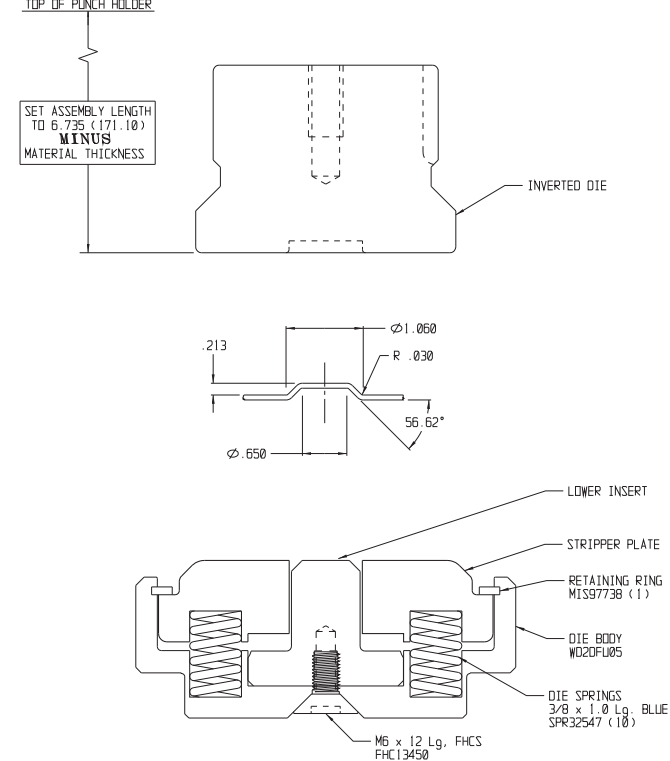
CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	ROUND EMBOSS FORM-UP SET-UP INSTRUCTIONS	112EE129-01
ORDER #: 113-01-29			MACHINE MODEL: C-20	STATION: E
ETCH #: 04042957			MATERIAL TYPE: ALUM.	THICKNESS: .030
DATE: 4/23/04				
DESIGNED BY: LMW	SCALE: NONE			

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
 2. WHEN FORMING THIN MATERIAL, THE PROCESSING SHOULD BE DONE WHILE MOVING THE WORKPIECE OUT FROM UNDER THE TURRET.
 3. STATIONS ADJACENT TO THIS ASSEMBLY MAY NOT BE USEABLE DUE TO THE INCREASED HEIGHT OF THIS LOWER FORM TOOL.
 4. DO NOT PASS THE WORKHOLDERS OVER THE LOWER FORM TOOL.
 5. PREVIOUS FORMS MUST BE AVOIDED TO PREVENT DISTORTION.
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CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	ROUND EMBOSS FORM-UP SET-UP INSTRUCTIONS	112DE129-01
ACCOUNT #: 232004			MACHINE MODEL: MT2	STATION: 0
ETCH #: 09058118/CN06			MATERIAL TYPE: MILD STEEL	THICKNESS: .060
DATE: 09-22-05				
DESIGNED BY: JES	SCALE: NONE			

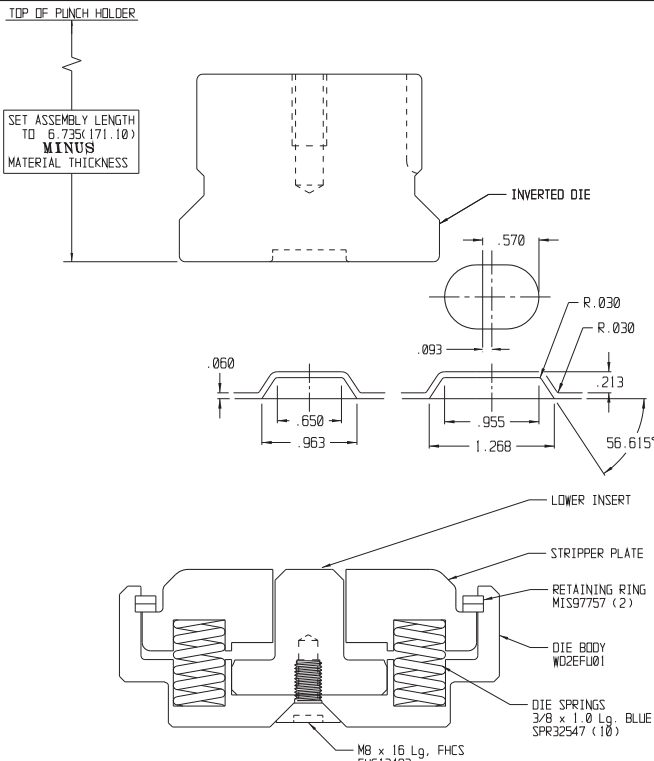
1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
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Emboss Tools

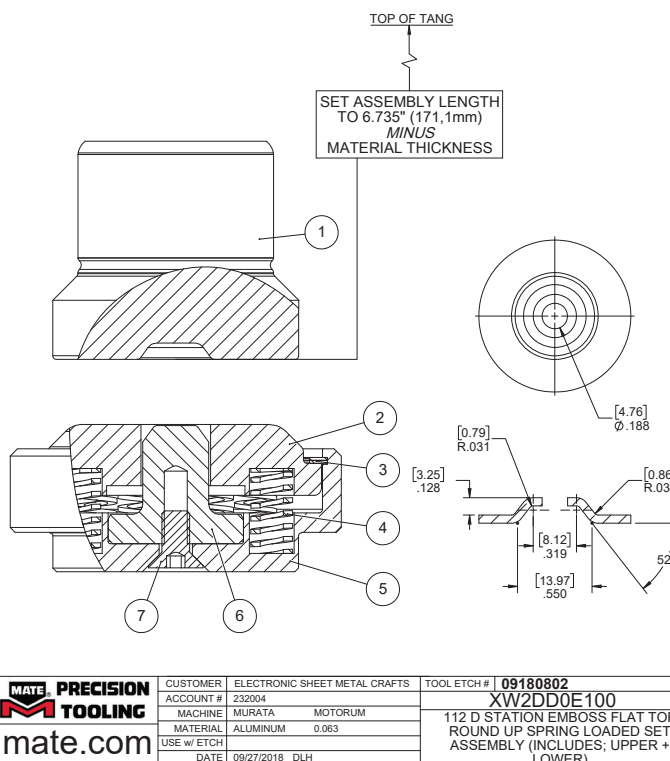
CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	SHAPED EMBOSS FORM-UP SET-UP INSTRUCTIONS	112EE329-01
ACCOUNT #: 232004			MACHINE MODEL: M012	STATION: E
ETCH #: 0905B119/CN06			MATERIAL TYPE: MILD STEEL	THICKNESS: .060
DATE: 09/22/05				
DESIGNED BY: TEW	SCALE: NONE			

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
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 6. FORMING SHOULD BE THE LAST OPERATION PERFORMED.




Labels in diagram: TOP OF PUNCH HOLDER, SET ASSEMBLY LENGTH TO 6.735(171.10) MINUS MATERIAL THICKNESS, INVERTED DIE, LOWER INSERT, STRIPPER PLATE, RETAINING RING MIS97757 (2), DIE BODY W02FU01, DIE SPRINGS 3/8 x 1.0 Lg. BLUE SPR32547 (10), M8 x 16 Lg. FHCS FHC13493.


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	XW2DD0E116	UPPER INSERT	1
2	XW2DD0E103	LOWER STRIPPER	1
3	MIS97738	RETAINING RING INTERNAL SPIRAL TYPE 2.543 OD X 0.148 WALL X 0.049 THICK SMALLY WH-243	1
4	SPR32547	COIL SPRING MEDIUM PRESSURE 3/8 X 1 BLUE 60LBN +/-15%	10
5	WD2DFU05	112 RING LOCK DESIGN FORMING UNIT D STATION DIE BODY SHAPE FINISHED COMPONENT	1
6	XW2DD0E104	LOWER INSERT	1
7	FHC13450	SOCKET FLAT HEAD CAP SCREW M6x1 X 12 DIN 7991-10.9	1



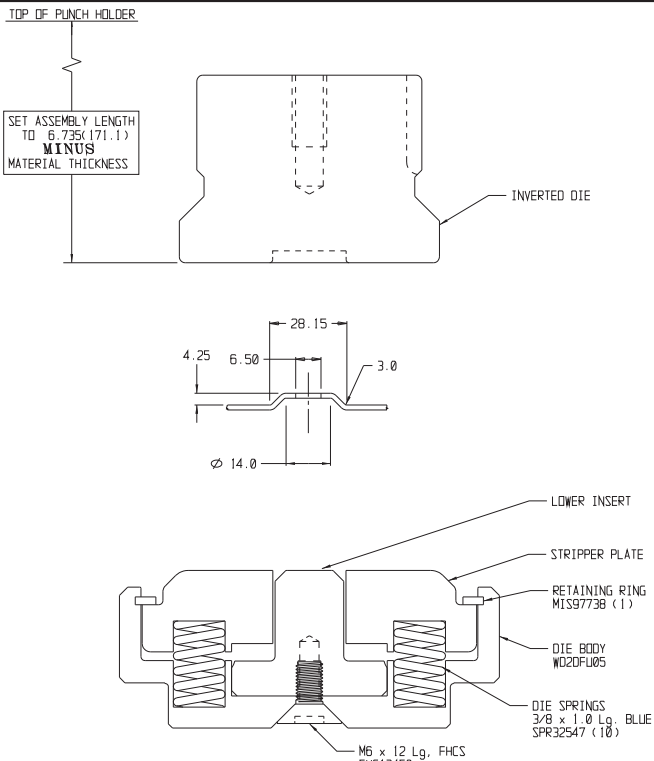
Labels in diagram: TOP OF TANG, SET ASSEMBLY LENGTH TO 6.735" (171.1mm) MINUS MATERIAL THICKNESS, INVERTED DIE, LOWER INSERT, STRIPPER PLATE, RETAINING RING MIS97757 (2), DIE BODY W02FU01, DIE SPRINGS 3/8 x 1.0 Lg. BLUE SPR32547 (10), M8 x 16 Lg. FHCS FHC13493.

 MATE PRECISION TOOLING	CUSTOMER: ELECTRONIC SHEET METAL CRAFTS	TOOL ETCH # 09180802
	ACCOUNT #: 232004	XW2DD0E100
	MACHINE: MURATA MOTORUM	112 D STATION EMBOSS FLAT TOP ROUND UP SPRING LOADED SET ASSEMBLY (INCLUDES: UPPER + LOWER)
	MATERIAL: ALUMINUM 0.063	
USE w/ ETCH	DATE: 09/27/2018 DLH	


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CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	ROUND EMBOSS FORM-UP SET-UP INSTRUCTIONS	112DE129-01
ACCOUNT #: 232004			MACHINE MODEL: M012	STATION: D
ETCH #: 10120107			MATERIAL TYPE: ALUMINUM	THICKNESS: 2.00
DATE: 10/5/12				
DESIGNED BY: JRS	SCALE: NONE			

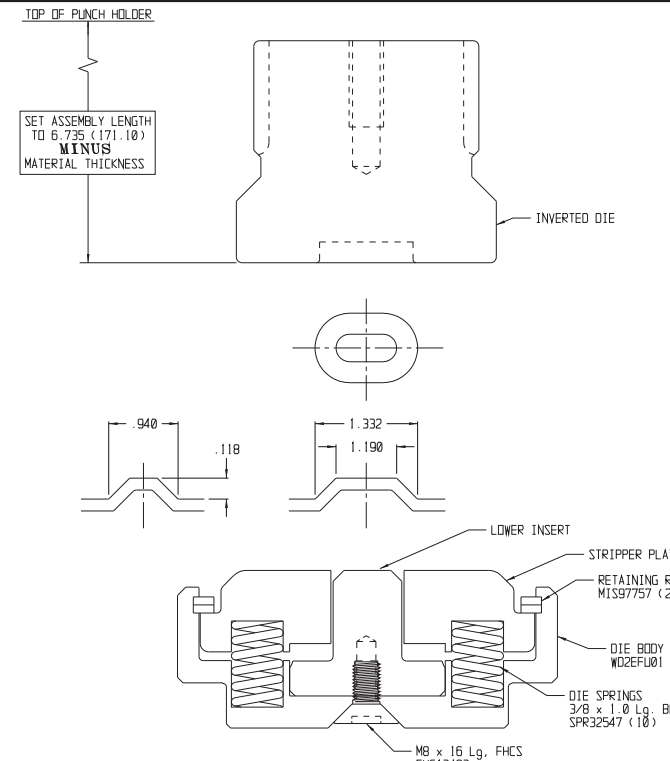
1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
 2. WHEN FORMING THIN MATERIAL, THE PROCESSING SHOULD BE DONE WHILE MOVING THE WORKPIECE OUT FROM UNDER THE TURRET.
 3. STATIONS ADJACENT TO THIS ASSEMBLY MAY NOT BE USEABLE DUE TO THE INCREASED HEIGHT OF THIS LOWER FORM TOOL.
 4. DO NOT PASS THE WORKHOLDERS OVER THE LOWER FORM TOOL.
 5. PREVIOUS FORMS MUST BE AVOIDED TO PREVENT DISTORTION.
 6. FORMING SHOULD BE THE LAST OPERATION PERFORMED.



Labels in diagram: TOP OF PUNCH HOLDER, SET ASSEMBLY LENGTH TO 6.735(171.1) MINUS MATERIAL THICKNESS, INVERTED DIE, LOWER INSERT, STRIPPER PLATE, RETAINING RING MIS97738 (1), DIE BODY W02FU05, DIE SPRINGS 3/8 x 1.0 Lg. BLUE SPR32547 (10), M6 x 12 Lg. FHCS FHC13450.

CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	SHAPED EMBOSS FORM-UP SET-UP INSTRUCTIONS	112EE329-02
ACCOUNT #: 232004			MACHINE MODEL: MOTORUM	STATION: E
ETCH #: 11070106			MATERIAL TYPE: ALUMINUM	THICKNESS: .125
DATE: 11-08-07				
DESIGNED BY: JES	SCALE: NONE			


1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
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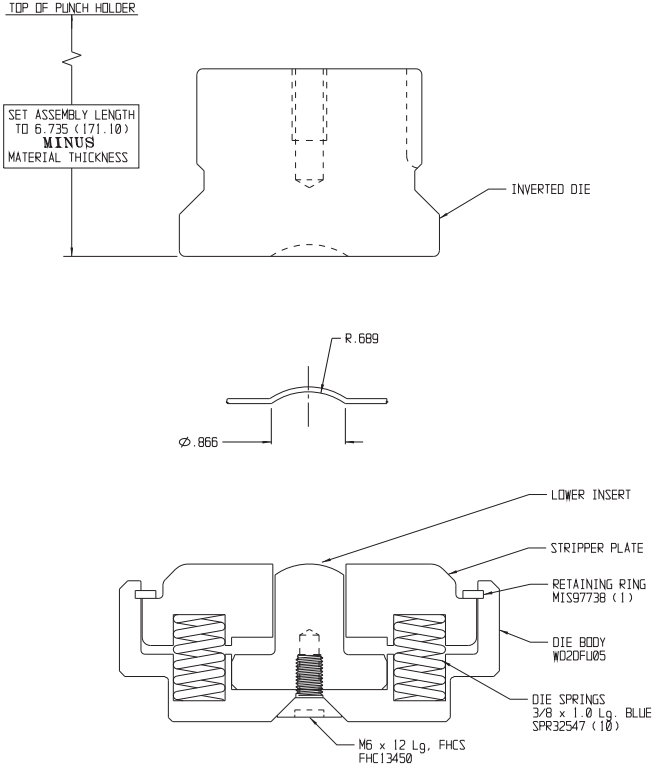
Labels in diagram: TOP OF PUNCH HOLDER, SET ASSEMBLY LENGTH TO 6.735 (171.10) MINUS MATERIAL THICKNESS, INVERTED DIE, LOWER INSERT, STRIPPER PLATE, RETAINING RING MIS97757 (2), DIE BODY W02FU01, DIE SPRINGS 3/8 x 1.0 Lg. BLUE SPR32547 (10), M8 x 16 Lg. FHCS FHC13493.


 MATE PRECISION TOOLING	CUSTOMER: ELECTRONIC SHEET METAL	TOOL ETCH # 09180802
	ACCOUNT #: 232004	XW2DD0E100
	MACHINE: MURATA MOTORUM	112 D STATION EMBOSS FLAT TOP ROUND UP SPRING LOADED SET ASSEMBLY (INCLUDES: UPPER + LOWER)
	MATERIAL: ALUMINUM 0.063	
USE w/ ETCH	DATE: 09/27/2018 DLH	

Emboss Tools

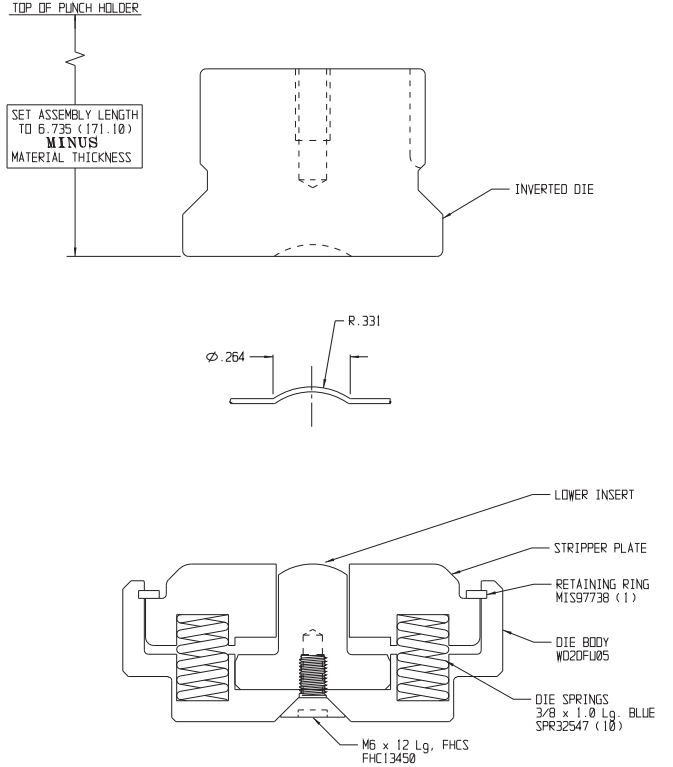
CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	ROUND EMBOSS	112DE129-01
ACCOUNT #: 232004			FORM-UP	
ETCH #: 11070107			SET-UP INSTRUCTIONS	
DATE: 11-08-07			MACHINE MODEL: MOTORUM	
DESIGNED BY: JES	SCALE: NONE		MATERIAL TYPE: ALUMINUM	STATION: 0
			THICKNESS: .125	

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
 2. WHEN FORMING THIN MATERIAL, THE PROCESSING SHOULD BE DONE WHILE MOVING THE WORKPIECE OUT FROM UNDER THE TURRET.
 3. STATIONS ADJACENT TO THIS ASSEMBLY MAY NOT BE USEABLE DUE TO THE INCREASED HEIGHT OF THIS LOWER FORM TOOL.
 4. DO NOT PASS THE WORKHOLDERS OVER THE LOWER FORM TOOL.
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 6. FORMING SHOULD BE THE LAST OPERATION PERFORMED.




CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	ROUND EMBOSS	112DE129-01
ACCOUNT #: 232004			FORM-UP	
ETCH #: 11070108			SET-UP INSTRUCTIONS	
DATE: 11-07-07			MACHINE MODEL: MOTORUM	
DESIGNED BY: JES	SCALE: NONE		MATERIAL TYPE: ALUMINUM	STATION: 0
			THICKNESS: .063	

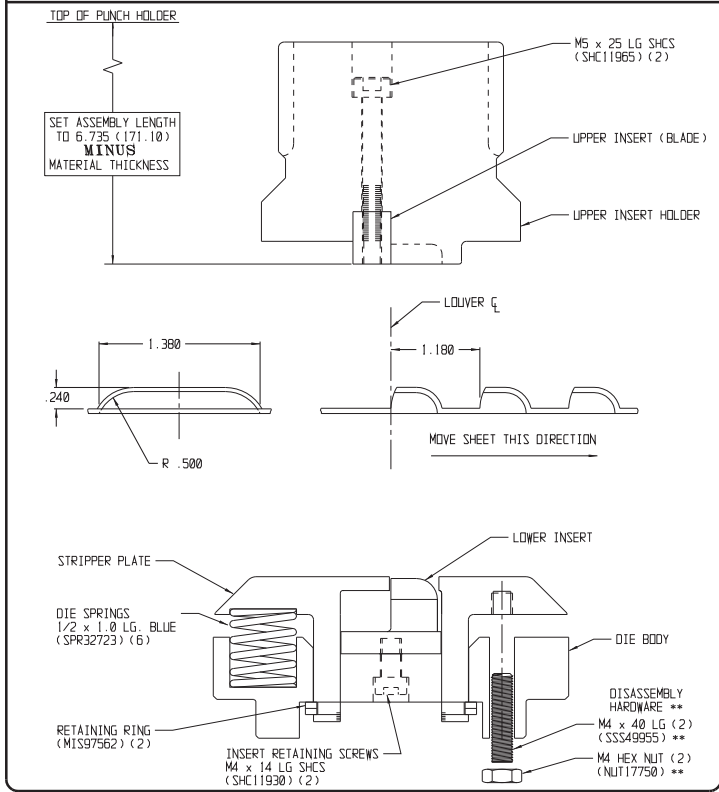
1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
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Louver Tools

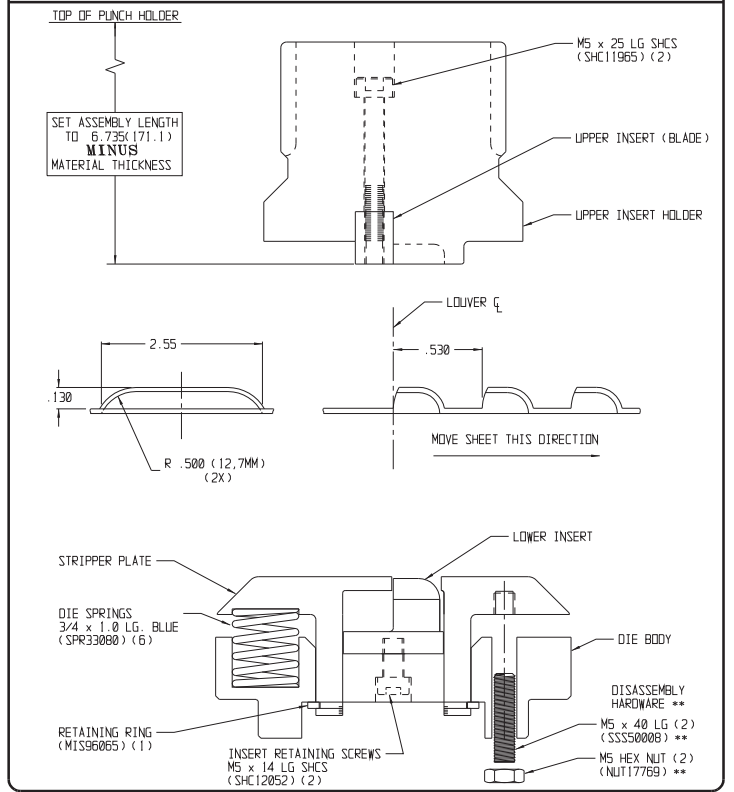
CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	CLOSED END LOUVER CURVED BACK SET-UP INSTRUCTIONS	112DLC29-02
ACCOUNT #: 232004			MACHINE MODEL: M072	STATION: 0
ETCH #: 03071831			MATERIAL TYPE: ALUMINUM	THICKNESS: .062
DATE: 03-23-07			DESIGNED BY: JES	
SCALE: NONE				


1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
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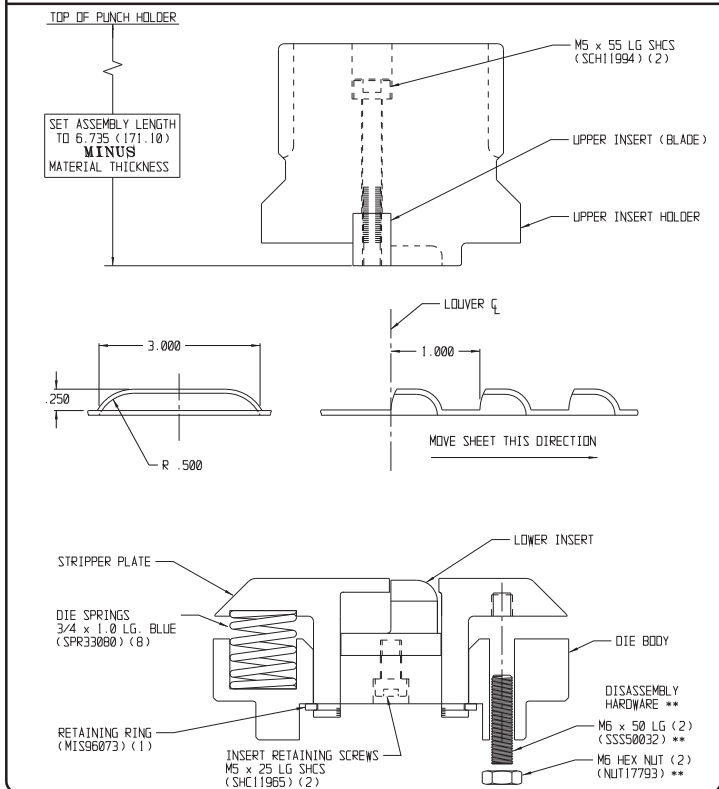
CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	CLOSED END LOUVER CURVED BACK SET-UP INSTRUCTIONS	112FLC29-02
ACCOUNT #: 232004			MACHINE MODEL: M072	STATION: F
ETCH #: 05092114			MATERIAL TYPE: M.S.	THICKNESS: .060
DATE: 5/14/09			DESIGNED BY: JRS	
SCALE: NONE				


1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
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CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	CLOSED END LOUVER CURVED BACK SET-UP INSTRUCTIONS	114GLC29-02
ACCOUNT #: 232004			MACHINE MODEL: M072	STATION: G
ETCH #: 08050115			MATERIAL TYPE: MILD STEEL	THICKNESS: .060
DATE: 08-30-05			DESIGNED BY: JES	
SCALE: NONE				

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
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CUSTOMER: ELECTRONIC SHEET METAL		 MATE PRECISION TOOLING	OPEN END LOUVER FORMED UP SET-UP INSTRUCTIONS	114JLD29-02
ORDER #: 263-02-02			MACHINE MODEL: M072	STATION: 114 J
ETCH #: 0905B117			MATERIAL TYPE: MS	THICKNESS: .060
DATE: 9/22/05			DESIGNED BY: LMW	
SCALE: NONE				

1. SHUT HEIGHTS AND MATERIAL THICKNESS VARIATIONS REQUIRE OVERALL LENGTH TO BE ADJUSTED/SHIMMED TO SUIT FORM.
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