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WELD SCHEDULE DATA
APPLICATION DATA SHEET
Spot Welding Data

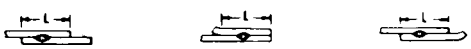
Optimum Conditions Schedules For Spot Welding
Low Carbon Steel — SAE 1010

Thickness of Thinnest Outside Piece	Electrode Diameters and Shape* Flat Face Maximum d (inches)	Min. D (inches)	Radius Face Radius R (inches)	Recommended Minimum Standard Electrode Size	Weld Force (Lbs.)	Weld Time (Cycles) (60 Cycles per Sec.)	Hold Time (Cycles)	Welding Current (Amps.)	Weld Shear Strength (For Steels Having Ultimate Tensile psi and below) Minimum Strength (Lbs./Weld)	Diameter of Fused Zone (Approx.) Pinches)	Minimum Weld Spacing Pinches)	Minimum Contacting Overlap (inches)
0.010	0.125	1/2	2	Morse Taper No. 1	160	4	5	4,000	130	0.113	1/4	3/8
0.021	0.187	1/2	2	Morse Taper No. 1	244	6	8	6,500	300	0.139	3/8	7/16
0.031	0.187	1/2	2	Morse Taper No. 1	326	8	10	8,000	530	0.161	1/2	7/16
0.040	0.250	5/8	3	Morse Taper No. 2	412	10	12	8,800	812	0.181	3/4	1/2
0.050	0.250	5/8	3	Morse Taper No. 2	554	14	16	9,600	1,195	0.210	7/8	9/16
0.062	0.250	5/8	3	Morse Taper No. 2	670	18	20	10,600	1,717	0.231	1	5/8
0.078	0.312	5/8	3	Morse Taper No. 2	903	25	30	11,800	2,365	0.268	1-1/8	11/16
0.094	0.312	5/8	4	Morse Taper No. 3	1,160	34	35	13,000	3,054	0.304	1-1/4	3/4
0.109	0.375	7/8	4	Morse Taper No. 3	1,440	45	40	14,200	3,672	0.338	1-5/16	13/16
0.125	0.375	7/8	4	Morse Taper No. 3	1,760	60	45	15,600	4,300	0.375	1-1/2	7/8
0.156	0.500	7/8	6	Male or Female Threaded	2,500	93	50	18,000	6,500	0.446	1-3/4	1
0.187	0.625	1	6	Male or Female Threaded	3,340	130	55	20,500	9,000	0.516	2	1-1/4
0.250	0.750	1-1/4	6	Male or Female Threaded	5,560	230	60	26,000	18,000	0.660	4	1-1/2

Permissible Schedule Variations For Spot Welding Low Carbon Steel
(Low Carbon Steel Spot Welding Data Chart — Single Impulse Welding)

DATA COMMON TO ALL CLASSES OF SPOT WELDS					WELDING SET-UP FOR BEST QUALITY—CLASS A WELDS					WELDING SET-UP FOR MEDIUM QUALITY—CLASS B WELDS					WELDING SET-UP FOR GOOD QUALITY—CLASS C WELDS				
Thickness of Each of the Two Work Pieces Inches	Min. D Inches	Max. d Inches	Min. Weld Spacing (Note 4) Inches	Min Con-Overlap (Note 6) Inches	Weld Time (Note 7) Cycles	Electrode Force Pounds	Welding Current Amps.	Diam. of Fused Zone Inches	Average Tensile Shear Strength ±14% Pounds	Weld Time (Note 7) Cycles	Electrode Force Pounds	Welding Current Amps.	Diam. of Fused Zone Inches	Average Tensile Shear Strength ±17% Pounds	Weld Time (Note 7) Cycles	Electrode Force Pounds	Welding Current Amps.	Diam. of Fused Zone Inches	Average Tensile Shear Strength ±20
.010	1/2	1/8	1/4	3/8	4	200	4000	.13	235	5	130	3700	.12	200	15	65	3000	.11	160
.021	1/2	3/16	3/8	7/16	6	300	6100	.17	530	10	200	5100	.16	460	22	100	3800	.14	390
.031	1/2	3/16	1/2	7/16	8	400	8000	.21	980	15	275	6300	.20	850	29	135	4700	.18	790
.040	5/8	1/4	3/4	1/2	10	500	9200	.23	1350	21	360	7500	.22	1230	38	180	5600	.21	1180
.050	5/8	1/4	7/8	9/16	12	650	10300	.25	1820	24	410	8000	.23	1700	42	205	6100	.22	1600
.062	5/8	1/4	1	5/8	14	800	11600	.27	2350	29	500	9000	.26	2150	48	250	6800	.25	2050
.078	5/8	5/16	1-1/8	11/16	21	1100	13300	.31	3225	36	650	10400	.30	3025	58	325	7900	.28	2900
.094	5/8	5/16	1-1/4	3/4	25	1300	14700	.34	4100	44	790	11400	.33	3900	66	390	8800	.31	3750
.109	7/8	3/8	1-5/16	13/16	29	1600	16100	.37	5300	50	960	12200	.36	5050	72	480	9500	.35	4850
.125	7/8	3/8	1-1/2	7/8	30	1800	17500	.40	6900	60	1140	12900	.39	6500	78	570	10000	.37	6150

NOTES:

1. Low Carbon Steel is hot rolled, pickled, and slightly oiled with an ultimate strength of 42,000 to 45,000 PSI. Similar to SAE 1005—SAE 1010.
2. Electrode Material is Tipaloy #130.
3. Surface of steel is lightly oiled but free from grease, scale or dirt.
4. Minimum weld spacing is that distance for which no increase in welding current is necessary to compensate for the shunted current effect of adjacent welds.
5. Radius Face electrodes may be used:
   0.010 to 0.031 — 2" Radius
   0.031 to 0.078 — 3" Radius
   0.078 to 0.125 — 4" Radius
6. 
7. Weld time is indicated in cycles of 60 cycle frequency.
8. Tensile shear strength values are based on recommended test sample sizes.

	Thickness	Width	Length
Direction of Force	.000" to .029"	5/8"	3"
	.030" to .058"	1"	4"
	.059" to .115"	1-1/2"	5"
	.116" to .190"	2	6"

9. Tolerance for machining of electrode diameter "d" is ± .015" of specified dimension.
10. Electrode force does not provide for force to press ill-fitting parts together.