



Weld Schedule Guide

SPOT WELDING DATA

OPTIMUM CONDITIONS
SCHEDULES FOR SPOT WELDING LOW CARBON STEEL—SAE 1010

	Electro	de Diameter	s and Shape*							Diameter of Fused Zone	Minimum Weld Spacing	Minimum Contacting
	Flat Face	· F	adius Face							(Approx.)	opacing	Overlap
Thick- ness of Thinnest	30° + d -		R			Weld Time (Cycles) (60	Hold	Welding	Weld Shear Strength (For Steels Having Ultimate Tensile Strength of 90,000			
Outside Piece (Inches)	Maximum d (Inches)	Min. D (Inches)	Radius R (Inches)	Recommended Minimum Standard Electrode Size	Weld Force (Lbs.)	Cycles per Sec.)	Time (Cycles) Min.	Current (Amps.) (Approx.)	psi and below) Minimum Strength (Lbs/Weld)	Dw (Inches)	S (Inches)	L (Inches)
0.010 0.021	0.125 0.187	1/2	2 2	4RW 1MT 4RW 1MT	160 244	4	5 8	4,000 6.500	130 300	0.113 0.139	1/4 3/8	3/8 7/16
0.031	0.187	1/2	2	4RW 1MT	326	8	10	8,000	530	0.161	1/2	7/16
0.040 0.050	0.250 0.250	5/8 5/8	3 3	5RW 2MT 5RW 2MT	412 554	10 14	12 16	8,800 9,600	812 1,195	0.181 0.210	3/4 7/8	1/2 9/16
0.062 0.078	0.250 0.312	5/8 5/8	3 3	5RW 2MT 5RW 2MT	670 903		20 30	10,600 11,800	1,717 2,365	0.231 0.268	1 1-1/8	5/8 11/16
0.094 0.109	0.312 0.375	5/8 7/8	4 4	7RW 3MT 7RW 3MT	1,160 1,440	34	35 40	13,000 14,200	3,054 3,672	0.304 0.338	1-1/4 1-5/16	3/4 13/16
0.125	0.375	7/8	4	7RW 3MT	1,760		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	1-1/2
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

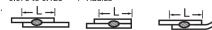
PERMISSIBLE SCHEDULE VARIATIONS FOR SPOT WELDING LOW CARBON STEEL

Low Carbon Steel Spot Welding Data Chart—Single Impulse Welding

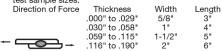
DATA COMMON TO ALL CLASSES						WELDING SET-UP FOR BEST				WELDING SET-UP FOR MEDIUM					WELDING SET-UP FOR GOOD				
OF SPOT WELDS						QUALITY—CLASS A WELDS				QUALITY—CLASS B WELDS					QUALITY—CLASS C WELDS				
Thick- ness of Each of the Two Work Pieces Inches	Diam. 8	Max. d	Min. Weld Spacing (Note 4) Inches	Min. Con- tacting Overlap (Note 6) Inches	Weld Time (Note 7) Cycles	Elec- trode Force Pounds	Weld- ing Cur- rent Amps.	Diam. of Fused Zone	Average Tensile Shear Strength ±14% Pounds	Weld Time (Note 7) Cycles	Elec- trode Force Pounds	Weld- ing Cur- rent Amps.	Diam. of Fused Zone Dw Inches	Average Tensile Shear Strength ±17% Pounds	Weld Time (Note 7) Cycles	Elec- trode Force Pounds	Weld- ing Current Amps.	Diam. of Fused Zone Dw Inches	Average Tensile Shear Strength ±20% Pounds
.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	1305	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:

- Low Carbon Steel as 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 CLASS 2
- Surface of steel is lightly oiled but free from grease, scale or dirt.
- Minimum weld spacing is that distance for which no increase in welding current is necessary to compensate for the shunted current effect in 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



- 7. Weld time is indicated in cycles of 60 cycle frequency.
- Tensile shear strength values are based on recommended test sample sizes:



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