



APPLICATION DATA SHEET

Schedule for Spot Welding Stainless Steel

Spotwelding Stainless Steel Schedule

Thickness "T" of Thinnest Outside Piece P(See Notes 1, 2, 3, and 4 Below)	Electrode Diameter And Shape (See Note 5)		Electrode Force LB	Weld Time Cycles (60°)	Welding Current (Approx.) Amps		Minimum Contacting Overlap In.	Minimum Weld Spacing (See Note 6 Below) ¢ to ¢ In.	Diameter Of Fused Zone In. Approx.	Minimum Shear Strength Lb.			
	Inches	D, In., Min.			d, In., Max.	Tensile Strength Below 150000 Psi				Tensile Strength 150000 Psi and Higher	Ultimate Tensile Strength of Metal		
											70000 Up To 90000 Psi	90000 Up To 150000 Psi	150000 Psi and Higher
0.006	3/16	3/32	180	2	2000	2000	3/16	3/16	0.045	60	70	85	
0.008	3/16	3/32	200	3	2000	2000	3/16	3/16	0.055	100	130	145	
0.010	3/16	1/8	230	3	2000	2000	3/16	3/16	0.065	150	170	210	
0.012	1/4	1/8	260	3	2100	2000	1/4	1/4	0.076	185	210	250	
0.014	1/4	1/8	300	4	2500	2200	1/4	1/4	0.082	240	250	320	
0.016	1/4	1/8	330	4	3000	2500	1/4	5/16	0.088	280	300	380	
0.018	1/4	1/8	380	4	3500	2800	1/4	5/16	0.093	320	360	470	
0.021	1/4	5/32	400	4	4000	3200	5/16	5/16	0.100	370	470	500	
0.025	3/8	5/32	520	5	5000	4100	3/8	7/16	0.120	500	600	680	
0.031	3/8	3/16	650	5	6000	4800	3/8	1/2	0.130	680	800	930	
0.034	3/8	3/16	750	6	7000	5500	7/16	9/16	0.150	800	920	1100	
0.040	3/8	3/16	900	6	7800	6300	7/16	5/8	0.160	1000	1270	1400	
0.044	3/8	3/16	1000	8	8700	7000	7/16	11/16	0.180	1200	1450	1700	
0.050	1/2	1/4	1200	8	9500	7500	1/2	3/4	0.190	1450	1700	2000	
0.056	1/2	1/4	1350	10	10300	8300	9/16	7/8	0.210	1700	2000	2450	
0.062	1/2	1/4	1500	10	11000	9000	5/8	1	0.220	1950	2400	2900	
0.070	5/8	1/4	1700	12	12300	10000	5/8	1-1/8	0.250	2400	2800	3550	
0.078	5/8	5/16	1900	14	14000	11000	11/16	1-1/4	0.275	2700	3400	4000	
0.094	5/8	5/16	2400	16	15700	12700	3/4	1-3/8	0.285	3550	4200	5300	
0.109	3/4	3/8	2800	18	27700	14000	13/16	1-1/2	0.290	4200	5000	6400	
0.125	3/4	3/8	3300	20	18000	15500	7/8	2	0.300	5000	6000	7600	

NOTES:

- Type of Steel — 301, 302, 303, 304, 308, 309, 310, 316, 317, 321, 347 and 349
- Material should be free from scale oxides, paint, grease and oil
- Welding conditions determined by thickness of thinnest outside piece "T"

- Data for total thickness of pile-up not exceeding 4 "T". Maximum ratio between two thicknesses 3 to 1
- Electrode Material, Class 2, Class 3, or Tipalloy T-10-W
- Minimum weld spacing is that spacing for two pieces for which no special precautions need be taken to compensate for shunted current effect of adjacent welds. For three pieces increase spacing 30 per cent.

Design And Welding Data For Projection Welding Low Carbon Steels

Thickness of Thinnest Outside Piece Inches	PROJECTION DESIGN 		ELECTRODE DIAMETERS (d = 2 x Projection Diameter) 		Electrode Force Pounds	Weld Time (Cycles) 60 Cycles per Sec.	Hold Time (Cycles) Minimum	Welding Current Amperes (Approx.)	Diameter of Fused Zone Dw Inches 	Minimum Shear Strength (Single Projection Only) (For Steels Having Strength of 100,000 psi and below) Pounds	Minimum Contacting Overlap L Inches
	Base Diameter of Projection Dp	Height of Projection H Inches	Minimum d Inches	Minimum D Inches							
0.010	0.055	0.015	0.125	1/2	50	3	3	2,800	0.112	150	1/8
0.012	0.055	0.015	0.125	1/2	80	3	3	3,100	0.112	200	1/8
0.014	0.055	0.015	0.125	1/2	100	3	3	3,400	0.112	250	1/8
0.016	0.067	0.017	0.187	1/2	115	4	4	3,600	0.112	285	5/32
0.021	0.067	0.017	0.187	1/2	150	6	6	4,000	0.140	380	5/22
0.025	0.081	0.020	0.187	1/2	200	6	8	4,500	0.140	525	3/16
0.031	0.094	0.022	0.187	1/2	300	8	8	5,100	0.169	740	7/22
0.034	0.094	0.022	0.187	1/2	300	8	10	5,400	0.169	900	7/32
0.044	0.119	0.028	0.250	5/8	480	13	14	6,500	0.169	1,080	9/32
0.062	0.156	0.035	0.312	7/8	750	21	20	8,400	0.225	2,100	3/8
0.070	0.156	0.035	0.312	7/8	900	24	9,200	0.281	2,550	2,550	3/8
0.078	0.187	0.041	0.375	7/8	1,050	26	30	10,500	0.281	2,950	7/16
0.094	0.218	0.048	0.500	7/8	1,300	32	30	11,800	0.281	3,700	1/2
0.109	0.250	0.054	0.500	7/8	1,650	38	36	13,300	0.338	4,500	5/8
0.125	0.281	0.060	0.500	7/8	1,900	45	40	15,000	0.338	5,200	11/16
0.140	0.312	0.066	0.625	1	2,300	60	45	15,700	0.437	6,000	3/4
0.156	0.343	0.072	0.625	1	2,800	80	50	17,250	0.500	7,500	13/16
0.171	0.375	0.078	0.750	1	3,300	105	50	18,600	0.562	8,500	7/8
0.187	0.406	0.085	0.750	1	3,900	125	50	20,000	0.562	10,000	15/16
0.203	0.437	0.091	0.875	1-1/4	4,500	145	55	21,500	0.625	12,000	1
0.250	0.531	0.110	1.000	1-1/4	6,600	230	60	26,000	0.687	15,000	1-1/4

NOTES:

- Type of Steel — Low Carbon SAE 1010 — 0.15% Carbon Maximum.
- Material free of scale, oxide, paint, dirt, etc.
- Size of projection determined by thickness of thinnest piece and projection should be on thickest piece.
- Data is based on thickness of thinnest sheet for two thicknesses only. Maximum ratio between two thicknesses 3 to 1.
- See TABLE BELOW for design of punch and die for making projections.
- Contacting overlap does not include any radii from forming.

- Projection should be located in center of overlap.
- Tolerance for Projection Dimensions:

	Thickness	Thickness
	Up to 0.050"	Over 0.050"
Diameter "D"	± 0.003"	± 0.007"
Height "H"	± 0.002"	± 0.005"

- Electrode Material:
Class 3 TC-10 T-10W

WELD SCHEDULE DATA