



TYPICAL OPERATING PROCEDURES FOR GROOVE WELDING OF ALUMINUM

Metal Thickness (In.)	Weld Position ⁽¹⁾	Edge Preparation ⁽²⁾	Joint Spacing (In.)	Weld Passes	Electrode Diameter (In.)	DC+ Current ⁽³⁾ (Amps)	Arc Voltage ⁽³⁾ (Volts)	Argon Gas Flow (cfh)	Arc Travel Speed (ipm/pass)	Approx. Electrode Consump. (lb/100 ft.)
1/16	F	A	None	1	.030	70-110	15-20	25	25-45	1.5
	F	G	3/32	1	.030	70-110	15-20	25	25-45	2
3/32	F	A	None	1	.030-3/64	90-150	18-22	30	25-45	1.8
	F, V, H, O	G	1/8	1	.030	110-130	18-23	30	25-30	2
1/8	F, V, H	A	0-3/32	1	.030-3/64	120-150	20-24	30	24-30	2
	F, V, H, O	G	3/16	1	.030-3/64	110-135	19-23	30	18-28	3
3/16	F, V, H	B	0-1/16	1F, 1R	.030-3/64	130-175	22-26	35	24-30	4
	F, V, H	F	0-1/16	1	3/64	140-180	23-27	35	24-30	5
	O	F	0-1/16	2F	3/64	140-175	23-27	60	24-30	5
	F, V	H	3/32-3/16	2	3/64-1/16	140-185	23-27	35	24-30	8
	H, O	H	3/16	3	3/64	130-175	23-27	60	25-35	10
1/4	F	B	0-3/32	1F, 1R	3/64-1/16	175-200	24-28	40	24-30	6
	F	F	0-3/32	2	3/64-1/16	185-225	24-29	40	24-30	8
	V, H	F	0-3/32	3F, 1R	3/64	165-190	25-29	45	25-35	10
	O	F	0-3/32	3F, 1R	3/64-1/16	180-200	25-29	60	25-35	10
	F, V	H	1/8-1/4	2-3	3/64-1/16	175-225	25-29	40	24-30	12
	O, H	H	1/4	4-6	3/64-1/16	170-200	25-29	60	25-40	12
3/8	F	C-90°	0-3/32	1F, 1R	1/16	225-290	26-29	50	20-30	16
	F	F	0-3/32	2F, 1R	1/16	210-275	26-29	50	24-35	18
	V, H	F	0-3/32	3F, 1R	1/16	190-220	26-29	55	24-30	20
	O	F	0-3/32	5F, 1R	1/16	200-250	26-29	80	25-40	20
	F, V	H	1/4-3/8	4	1/16	210-290	26-29	50	24-30	35
	O, H	H	3/8	8-10	1/16	190-260	26-29	80	25-40	50
3/4	V, H, O	F	0-1/16	8F, 1R	1/16	240-300	26-30	80	24-30	75
	F	E	0-1/16	3F, 3R	1/16	270-330	26-30	60	16-24	70
	V, H, O	E	0-1/16	6F, 6R	1/16	230-280	26-30	80	16-24	75

TYPICAL OPERATING PROCEDURES FOR FILLET AND LAP WELDING OF ALUMINUM

Metal Thickness ⁽⁴⁾ (In.)	Weld Position ⁽¹⁾	Weld Passes ⁽⁵⁾	Electrode Diameter (In.)	DC+ Current ⁽³⁾ (Amps)	Arc Voltage ⁽³⁾ (Volts)	Argon Gas Flow (cfh)	Arc Travel Speed (ipm/pass)	Approx. Electrode Consump. ⁽⁵⁾ (lb/100 ft.)
3/32	F, V, H, O	1	.030	100-130	18-22	30	24-30	1.8
1/8	F	1	.030-3/64	125-150	20-24	30	24-30	2
	V, H	1	.030	110-130	19-23	30	24-30	2
	O	1	.030-3/64	115-140	20-24	40	24-30	2
3/16	F	1	3/64	180-210	22-26	30	24-30	4.5
	V, H	1	.030-3/64	130-175	21-25	35	24-30	4.5
	O	1	.030-3/64	130-190	22-26	45	24-30	4.5
1/4	F	1	3/64-1/16	170-240	24-28	40	24-30	7
	V, H	1	3/64	170-210	23-27	45	24-30	7
	O	1	3/64-1/16	190-220	24-28	60	24-30	7
3/8	F	1	1/16	240-300	26-29	50	18-25	17
	H, V	3	1/16	190-240	24-27	60	24-30	17
	O	3	1/16	200-240	25-28	85	24-30	17
3/4	H, V	4-6	1/16	260-310	25-29	70	24-30	66
	O	10	1/16	275-310	25-29	85	24-30	66

- 1) F=Flat, V=Vertical, H=Horizontal, O=Overhead.
- 2) See Joint design on page 2
- 3) For 5xxx series wires, use a welding current that is on the high side of the range and an arc voltage that is in the lower portion of the range. For the 1xxx, and the 4xxx series wires, use the lower currents and the higher arc voltages.
- 4) Metal thickness of 3/4" or greater for fillet welds sometimes employs a double vee bevel of 50° or greater included vee with 3/32" to 1/8" land thickness on the abutting member.
- 5) Number of weld passes and electrode consumption given for weld on one side only.



TYPICAL JOINT DESIGN FOR ALUMINUM MIG WELDING

