Using the cut charts

The following sections provide cut charts for each set of mechanized consumables. A consumable diagram with part numbers precedes each section.

Maximum cut speeds are the fastest speeds possible to cut material without regard to cut quality. Recommended cut speeds are a good starting point for finding the best quality cut (best angle, least dross, and best cut-surface finish). Adjust the speed for your application and table to obtain the desired cut quality.

Note: Hypertherm collected the data under laboratory test conditions using new consumables.

Estimated kerf-width compensation

The widths in the tables below are for reference. Differences between installations and material composition may cause actual results to vary from those shown in the tables.

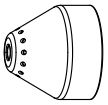
Estimated kerf-width compensation - Metric (mm)

Process	Thickness (mm)									
	0.5	1	2	3	6	8	10	12	16	20
	Mild Steel									
85A Shielded				1.7	1.8	1.9	2.0	2.2	2.4	2.6
65A Shielded			1.6	1.6	1.8	1.9	2.0	2.2	2.3	
45A Shielded	1.1	1.1	1.4	1.5	1.7					
FineCut	0.7	0.7	1.3	1.3						
85A Unshielded			1.7	1.8	1.9	2.0	2.1	2.1	2.3	
65A Unshielded			1.6	1.6	1.7	1.8	1.9	2.0		
45A Unshielded	0.5	0.9	1.3	1.3						
Stainless Steel										
85A Shielded				1.6	1.8	1.9	2.1	2.3	2.4	2.5
65A Shielded			1.4	1.5	1.8	1.9	2.0	2.2	2.4	
45A Shielded	0.9	1.1	1.5	1.6	1.8					
FineCut	0.6	0.6	1.4	1.5						
85A Unshielded			1.7	1.7	1.8	1.9	2.1	2.2	2.4	
65A Unshielded			1.6	1.6	1.8	1.8	1.9	2.0		
45A Unshielded	0.5	1.0	1.3	1.5	1.5					
Aluminum										
85A Shielded				2.0	1.9	2.0	2.1	2.2	2.4	2.6
65A Shielded			1.9	1.9	1.9	2.0	2.1	2.3	2.5	
45A Shielded		1.5	1.5	1.6	1.5					
85A Unshielded			1.9	1.9	1.9	2.0	2.0	2.1	2.2	
65A Unshielded			1.8	1.8	1.8	1.8	1.9	2.0		
45A Unshielded		1.6	1.5	1.4	1.5					

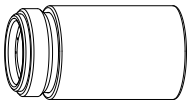
Estimated kerf-width compensation - English (inches)

Process	Thickness (inches)									
	22GA	18GA	14GA	10GA	3/16	1/4	3/8	1/2	5/8	3/4
	Mild Steel									
85A Shielded				0.068	0.071	0.073	0.078	0.090	0.095	0.100
65A Shielded			0.062	0.065	0.068	0.070	0.076	0.088	0.090	0.091
45A Shielded	0.035	0.054	0.055	0.061	0.065	0.066				
FineCut	0.024	0.043	0.049	0.051						
85A Unshielded				0.070	0.073	0.075	0.080	0.085	0.090	
65A Unshielded			0.062	0.064	0.066	0.068	0.075	0.081		
45A Unshielded	0.020	0.050	0.051	0.054	0.057	0.059				
Stainless Steel										
85A Shielded				0.068	0.071	0.073	0.078	0.090	0.095	0.100
65A Shielded			0.062	0.065	0.068	0.070	0.076	0.088	0.090	0.091
45A Shielded	0.035	0.054	0.055	0.061	0.065	0.066				
FineCut	0.024	0.043	0.049	0.051						
85A Unshielded				0.070	0.073	0.075	0.080	0.085	0.090	
65A Unshielded			0.062	0.064	0.066	0.068	0.075	0.081		
45A Unshielded	0.020	0.050	0.051	0.054	0.057	0.059				
Aluminum										
		1/32	1/16	1/8	3/16	1/4	3/8	1/2	5/8	3/4
85A Shielded				0.080	0.078	0.075	0.080	0.090	0.095	0.100
65A Shielded			0.073	0.074	0.075	0.076	0.083	0.091	0.100	
45A Shielded		0.059	0.061	0.065		0.060				
85A Unshielded				0.075	0.075	0.075	0.080	0.082	0.088	
65A Unshielded			0.070	0.070	0.070	0.070	0.072	0.079		
45A Unshielded		0.062	0.058	0.057		0.061				

85 A shielded consumables

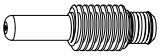


220817
Shield

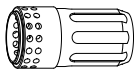


220854
Retaining cap

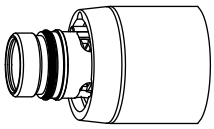
220816
Nozzle

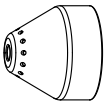


220842
Electrode

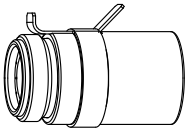


220857
Swirl ring



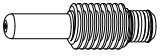


220817
Shield

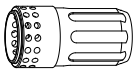


220953
Ohmic-sensing
retaining cap

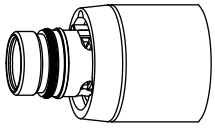
220816
Nozzle



220842
Electrode



220857
Swirl ring



85A Shielded

Mild Steel

Air flow rate - slpm/scfh	
Hot	190 / 400
Cold	235 / 500

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
3	1.5	3.8	250	0.1	6800	122	11500	115
4				0.2	5650	122	9100	119
6				0.5	3600	123	5500	126
8					2500	125	3900	129
10					1680	127	2600	129
12		4.5	300	0.7	1280	130	2000	130
16				1.0	870	134	1150	132
20				1.5	570	137	850	135
25		Edge Start			350	142	550	139
30					200	146	370	143

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
10GA	0.06	0.15	250	0.0	250	122	420	117
3/16 in				0.2	185	123	275	121
1/4 in				0.5	130	123	200	128
3/8 in					70	126	108	129
1/2 in		0.18	300		45	131	70	130
5/8 in				1.0	35	134	46	132
3/4 in				1.5	24	136	36	134
7/8 in		Edge Start			19	139	27	136
1 in					13	142	21	140
1-1/8 in					9	145	16	142
1-1/4 in					7	148	13	145

85A Shielded

Stainless Steel

Air flow rate - slpm/scfh	
Hot	190 / 400
Cold	235 / 500

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
3	1.5	3.8	250	0.1	7500	122	11500	115
4				0.2	6100	122	9400	117
6				0.5	3700	122	5700	121
8					2450	124	3800	123
10					1550	127	2400	124
12		4.5	300	0.7	1100	131	1750	125
16				1.0	700	135	950	131
20		Edge Start			480	138	700	132
25					300	143	480	135

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
10GA	0.06	0.15	250	0.2	275	122	420	116
3/16 in					200	122	300	119
1/4 in				0.5	130	122	205	122
3/8 in					65	126	100	124
1/2 in		0.18	300		36	132	60	125
5/8 in				1.0	28	135	38	131
3/4 in		Edge Start			20	137	30	132
7/8 in					16	140	24	134
1 in					11	143	18	135

85A Shielded

Aluminum

Air flow rate - slpm/scfh	
Hot	190 / 400
Cold	235 / 500

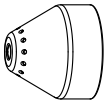
Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
3	1.5	3.8	250	0.1	8000	122	11800	117
4				0.2	6500	123	10000	118
6				0.5	3800	126	6100	121
8					2650	130	4300	123
10					1920	132	3100	125
12		4.5	300	0.7	1450	134	2400	127
16				1.0	950	139	1500	130
20		Edge Start			600	143	1100	133
25					380	146	670	140

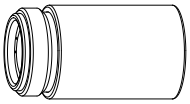
English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
1/8 in	0.06	0.15	250	0.2	300	122	450	117
1/4 in				0.5	130	127	215	122
3/8 in					80	132	130	124
1/2 in		0.18	300		50	135	85	128
5/8 in				1.0	38	139	60	130
3/4 in		Edge Start			25	142	46	132
7/8 in					20	144	36	137
1 in					14	146	25	141

65 A shielded consumables

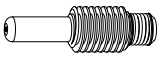


220817
Shield

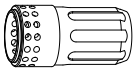


220854
Retaining cap

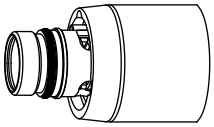
220819
Nozzle

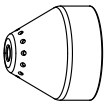


220842
Electrode

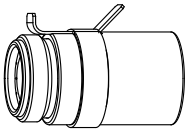


220857
Swirl ring



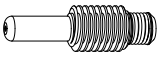


220817
Shield

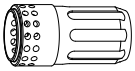


220953
Ohmic-sensing
retaining cap

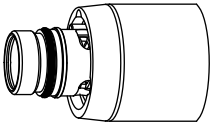
220819
Nozzle



220842
Electrode



220857
Swirl ring



65A Shielded

Mild Steel

Air flow rate - slpm/scfh	
Hot	160 / 340
Cold	220 / 470

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
2	1.5	3.8	250	0.1	6050	124	8800	120
3				0.2	5200	125	7600	122
4				0.5	4250	125	6400	123
6					2550	127	4000	129
8					1700	129	2800	130
10		4.5	300	0.7	1100	131	1900	130
12				1.2	850	134	1400	132
16				2.0	560	138	800	136
20		Edge Start			350	142	560	140
25					210	145	320	143

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
16GA	0.06	0.15	250	0.1	260	123	370	118
10GA					190	125	280	123
3/16 in				0.2	140	126	210	124
1/4 in				0.5	90	127	145	130
3/8 in		0.18	300	0.7	45	130	78	130
1/2 in				1.2	30	135	50	132
5/8 in				2.0	23	138	32	136
3/4 in		Edge Start			15	141	24	139
7/8 in					12	143	18	141
1 in					8	145	12	143

65A Shielded

Stainless Steel

Air flow rate - slpm/scfh	
Hot	160 / 340
Cold	220 / 470

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
2	1.5	3.8	250	0.1	8100	125	12500	122
3				0.2	6700	125	10500	123
4				0.5	5200	125	7700	124
6					2450	126	3600	126
8				0.7	1500	129	2300	127
10		4.5	300		960	132	1550	127
12				1.2	750	135	1150	129
16		Edge Start			500	139	650	134
20					300	143	450	136

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
16GA	0.06	0.15	250	0.1	345	124	530	121
10GA					240	125	370	123
3/16 in				0.2	155	126	210	125
1/4 in				0.5	80	126	120	126
3/8 in		0.18	300	0.7	40	131	65	127
1/2 in				1.2	26	136	40	129
5/8 in		Edge Start			20	139	25	134
3/4 in					14	142	19	136

65A Shielded

Aluminum

Air flow rate - slpm/scfh	
Hot	160 / 340
Cold	220 / 470

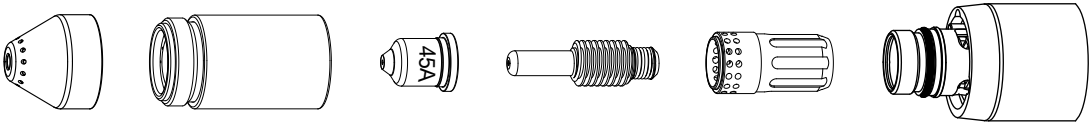
Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
2	1.5	3.8	250	0.1	8800	121	12800	122
3				0.2	7400	124	11000	123
4				0.5	6000	126	9150	124
6					3200	130	5500	127
8				0.7	1950	133	3450	129
10		4.5	300		1200	136	2050	130
12				1.2	1000	138	1650	132
16		Edge Start			650	143	1000	134
20					380	147	700	137

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
1/16 in	0.06	0.15	250	0.1	365	121	535	121
1/8 in					280	124	420	123
1/4 in				0.5	105	131	190	127
3/8 in		0.18	300	0.7	50	135	85	130
1/2 in				1.2	35	139	60	133
5/8 in		Edge Start			26	143	40	134
3/4 in					16	146	30	136

45 A shielded consumables



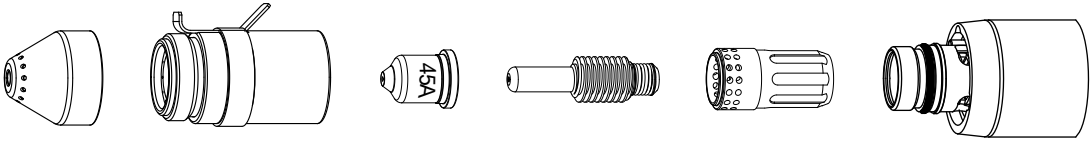
220817
Shield

220854
Retaining cap

220941
Nozzle

220842
Electrode

220857
Swirl ring



220817
Shield

220953
Ohmic-sensing
retaining cap

220941
Nozzle

220842
Electrode

220857
Swirl ring

45A Shielded

Mild Steel

Air flow rate - slpm/scfh	
Hot	147 / 310
Cold	210/ 450

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
0.5	1.5	3.8	250	0.0	9000	128	12700	128
1					9000	128	12700	128
1.5				0.1	9000	130	12700	128
2				0.3	6600	130	9750	128
3				0.4	3850	133	6150	130
4					2200	134	4450	131
6				0.5	1350	137	2550	132

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
26GA	0.06	0.15	250	0.0	350	128	500	128
22GA					350	128	500	128
18GA				0.1	350	129	500	128
16GA					350	130	500	128
14GA				0.2	270	130	400	128
12GA				0.4	190	133	270	130
10GA					100	134	205	131
3/16 in				0.5	70	135	135	132
1/4 in				0.6	48	137	91	132

45A Shielded

Stainless Steel

Air flow rate - slpm/scfh	
Hot	147 / 310
Cold	210/ 450

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
0.5	1.5	3.8	250	0.0	9000	130	12700	130
1					9000	130	12700	130
1.5				0.1	9000	130	12700	130
2				0.3	6000	132	10800	130
3				0.4	3100	132	5550	131
4					2000	134	3250	132
6				0.5	900	140	1250	138

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
26GA	0.06	0.15	250	0.0	350	130	500	130
22GA					350	130	500	130
18GA				0.1	350	130	500	130
16GA					350	130	500	130
14GA				0.2	250	132	450	130
12GA				0.4	140	132	258	130
10GA					100	133	168	135
3/16 in				0.5	52	135	73	133
1/4 in				0.6	30	141	44	140

45A Shielded

Aluminum

Air flow rate - slpm/scfh	
Hot	147 / 310
Cold	210/ 450

Metric

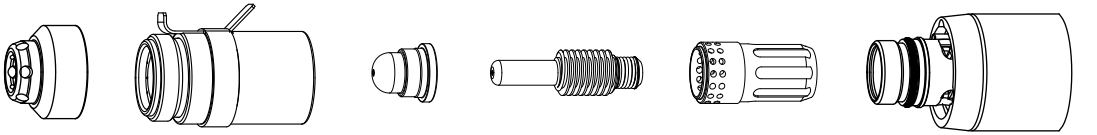
Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
1	1.5	3.8	250	0.0	8250	136	12700	136
2				0.1	6600	136	11500	133
3				0.2	3100	139	7800	133
4				0.4	2200	141	6050	134
6				0.5	1500	142	3500	136

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
1/32 in	0.06	0.15	250	0.0	325	136	500	137
1/16 in				0.1	325	136	500	135
3/32 in				0.2	200	136	410	132
1/8 in				0.4	100	140	280	133
1/4 in				0.5	54	142	120	136

FineCut® consumables

Note: The cut charts in this section apply to both shielded and unshielded consumables



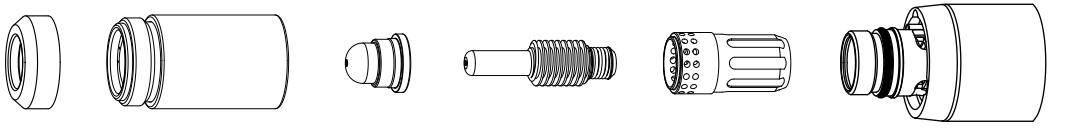
220948
Shield

220953
Retaining cap

220930
Nozzle

220842
Electrode

220857
Swirl ring



220955
Deflector

220854
Retaining cap

220930
Nozzle

220842
Electrode

220857
Swirl ring

FineCut

Mild Steel

Air flow rate - slpm/scfh	
Hot	155 / 330
Cold	215 / 460

Metric

Material Thickness	Amps	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
						Cut Speed	Voltage	Cut Speed	Voltage
mm	A	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
0.5	40	1.5	3.8	250	0	8250	78	12700	80
0.6						8250	78	12700	81
0.8					0.1	8250	78	12700	80
1	45				0.2	8250	78	12700	82
1.5					0.4	6400	78	8500	81
2						5250	82	6250	81
3					0.5	2750	83	3650	81
4					0.6	1900	84	2450	81

English

Material Thickness	Amps	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
						Cut Speed	Voltage	Cut Speed	Voltage
	A	in	in	%	seconds	ipm	Volts	ipm	Volts
26GA	40	0.06	0.15	250	0.0	325	78	500	80
24GA						325	78	500	81
22GA					0.1	325	78	500	80
20GA						325	78	500	82
18GA	45				0.2	325	78	440	81
16GA					0.4	250	78	330	81
14GA						220	82	260	81
12GA					0.5	120	83	160	81
10GA						95	84	124	81

FineCut

Stainless Steel

Air flow rate - slpm/scfh	
Hot	155 / 330
Cold	215 / 460

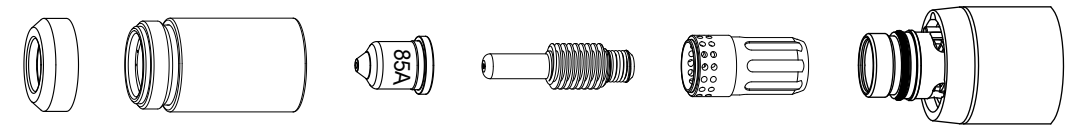
Metric

Material Thickness	Amps	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
						Cut Speed	Voltage	Cut Speed	Voltage
mm	A	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
0.5	40	0.5	2.0	400	0	8250	68	12700	63
0.6						8250	68	12700	65
0.8					0.1	8250	68	12700	64
1	45				0.15	8250	68	12700	65
1.5					0.4	6150	70	10650	64
2						4800	71	8150	64
3					0.5	2550	81	3250	68
4					0.6	1050	84	1250	72

English

Material Thickness	Amps	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
						Cut Speed	Voltage	Cut Speed	Voltage
	A	in	in	%	seconds	ipm	Volts	ipm	Volts
26GA	40	0.02	0.08	400	0.0	325	68	500	68
24GA						325	68	500	65
22GA					0.1	325	68	500	64
20GA						325	68	500	65
18GA	45				0.2	325	68	500	65
16GA					0.4	240	70	410	64
14GA						200	70	345	64
12GA					0.5	120	80	155	67
10GA					0.6	75	83	95	70

85 A unshielded consumables



220955
Deflector

220854
Retaining cap

220816
Nozzle

220842
Electrode

220857
Swirl ring

85A Unshielded

Mild Steel

Air flow rate - slpm/scfh	
Hot	190 / 400
Cold	235 / 500

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
2	2.0	5.0	250	0.0	7150	117	13000	113
3				0.1	6240	118	11200	114
4				0.2	5250	118	9000	117
6				0.5	3450	120	5500	120
8					2400	121	3900	121
10					1560	123	2600	122
12		6.0	300	0.7	1200	126	2000	124
16		Edge Start			820	132	1150	126
20					540	137	800	131
25					320	143	500	137

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
14GA	0.08	0.20	250	0.1	300	116	540	112
10GA				0.2	280	117	520	112
3/16 in					230	118	410	115
1/4 in				0.5	175	119	275	119
3/8 in					125	120	200	120
1/2 in		0.24	300	0.6	65	122	108	122
5/8 in		Edge Start			42	127	70	124
3/4 in					33	131	46	126
7/8 in					23	136	34	130
1 in					18	140	26	134

85A Unshielded

Stainless Steel

Air flow rate - slpm/scfh	
Hot	190 / 400
Cold	235 / 500

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
2	2.0	5.0	250	0.1	8550	117	14000	114
3					7000	118	12000	116
4				0.2	5600	118	9800	118
6				0.5	3400	120	5700	122
8					2250	121	3700	124
10		6.0	300	0.5	1430	123	2300	125
12				0.7	1000	129	1700	127
16		Edge Start			650	134	910	131
20					360	138	720	136

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
14GA	0.08	0.20	250	0.1	365	117	580	114
10GA				0.2	280	120	460	116
3/16 in					200	123	335	118
1/4 in				0.5	110	126	215	119
3/8 in					75	127	110	123
1/2 in		0.24	300	0.6	45	135	78	128
5/8 in		Edge Start			34	139	56	132
3/4 in					22	143	40	136

85A Unshielded

Aluminum

Air flow rate - slpm/scfh	
Hot	190 / 400
Cold	235 / 500

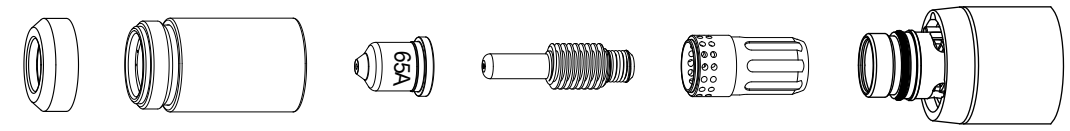
Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
2	2.0	5.0	250	0.1	8700	118	14000	115
3					7350	120	12000	116
4				0.2	6000	122	10000	117
6				0.5	3300	125	6150	119
8					2350	127	4100	121
10		6.0	300	0.5	1800	128	2650	124
12				0.7	1300	133	2160	127
16		Edge Start			840	139	1400	132
20					470	144	900	137

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
1/8 in	0.08	0.20	250	0.2	280	120	460	116
3/16 in					200	123	335	118
1/4 in				0.5	110	126	215	119
3/8 in					75	127	110	123
1/2 in		0.24	300	0.6	45	135	78	128
5/8 in		Edge Start			34	139	56	132
3/4 in					22	143	40	136

65 A unshielded consumables



220955
Deflector

220854
Retaining cap

220819
Nozzle

220842
Electrode

220857
Swirl ring

65A Unshielded

Mild Steel

Air flow rate - slpm/scfh	
Hot	160 / 340
Cold	220 / 470

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
2	2.0	5.0	250	0.1	6050	117	9200	116
3				0.2	5200	118	7900	117
4				0.5	4250	118	6550	117
6					2550	120	4100	119
8					1620	123	2800	120
10		6.0	300	0.7	970	127	1880	122
12		Edge Start			760	129	1400	124
16					500	134	800	128
20					280	138	560	132

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
16GA	0.08	0.20	250	0.1	255	116	385	115
10GA					190	118	290	117
3/16 in				0.2	135	119	215	118
1/4 in				0.5	90	120	145	119
3/8 in		0.24	300	0.7	40	126	78	121
1/2 in		Edge Start			27	130	50	125
5/8 in					20	134	32	128
3/4 in					13	137	22	131

65A Unshielded

Stainless Steel

Air flow rate - slpm/scfh	
Hot	160 / 340
Cold	220 / 470

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
2	2.0	5.0	250	0.1	7950	117	12800	119
3				0.2	6600	118	10600	119
4				0.5	5050	119	8200	119
6					2300	121	3800	120
8				0.7	1400	123	2400	121
10		6.0	300	0.7	920	126	1550	123
12		Edge Start			710	130	1150	127
16					480	135	630	132

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
16GA	0.08	0.20	250	0.1	340	116	540	118
10GA					235	118	380	119
3/16 in				0.2	150	120	240	119
1/4 in				0.5	75	121	125	120
3/8 in		0.24	300	0.7	38	125	65	122
1/2 in		Edge Start			25	132	40	128
5/8 in					19	135	25	132

65A Unshielded

Aluminum

Air flow rate - slpm/scfh	
Hot	160 / 340
Cold	220 / 470

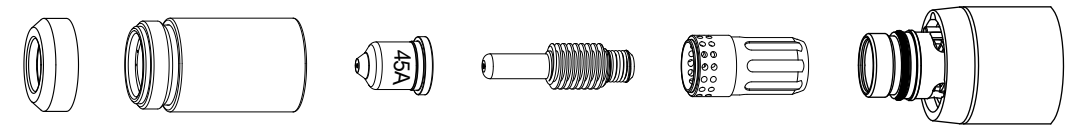
Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
2	2.0	5.0	250	0.1	7750	123	14200	123
3				0.2	6550	124	12000	123
4				0.5	5400	125	9500	123
6					3000	127	4850	124
8				0.7	1800	130	3000	126
10		6.0	300	0.7	1100	133	2050	127
12		Edge Start			900	135	1560	129
16					600	139	880	132

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
1/16 in	0.08	0.20	250	0.1	325	122	590	122
1/8 in					175	125	300	123
1/4 in				0.5	100	127	160	124
3/8 in		0.24	300	0.7	45	132	85	127
1/2 in		Edge Start			32	136	55	129
5/8 in					24	138	35	132

45 A unshielded consumables



220955
Deflector

220854
Retaining cap

220941
Nozzle

220842
Electrode

220857
Swirl ring

45A Unshielded

Mild Steel

Air flow rate - slpm/scfh	
Hot	147 / 310
Cold	210 / 450

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
0.5	1.5	3.8	250	0.0	9000	120	12700	122
1					9000	120	12700	122
1.5				0.1	7700	120	12700	122
2				0.3	6150	119	9750	120
3				0.4	3950	121	6150	122
4					2350	123	4450	124
6				0.5	1400	126	2550	123

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
26GA	0.06	0.15	250	0.0	350	120	500	122
22GA					350	120	500	122
18GA				0.1	350	119	500	122
16GA					300	121	500	122
14GA				0.2	250	119	400	120
12GA				0.4	200	120	270	122
10GA					100	123	205	123
3/16 in				0.5	85	122	135	125
1/4 in				0.6	48	127	91	122

45A Unshielded

Stainless Steel

Air flow rate - slpm/scfh	
Hot	147 / 310
Cold	210 / 450

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
0.5	1.5	3.8	250	0.0	9000	121	12700	119
1					9000	121	12700	119
1.5				0.1	9000	121	12700	119
2				0.3	6000	122	12700	119
3				0.4	3250	123	5950	119
4					1900	128	3700	119
6				0.5	700	130	1800	127

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
26GA	0.06	0.15	250	0.0	350	120	500	119
22GA					350	120	500	119
18GA				0.1	350	118	500	119
16GA					350	121	500	119
14GA				0.2	300	122	500	117
12GA				0.4	150	121	280	119
10GA					100	125	175	119
3/16 in				0.5	42	131	110	120
1/4 in				0.6	25	130	60	129

45A Unshielded

Aluminum

Air flow rate - slpm/scfh	
Hot	147 / 310
Cold	210 / 450

Metric

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
1	1.5	3.8	250	0.0	7400	126	12700	119
2				0.1	4400	127	11500	119
3				0.2	2800	129	7800	122
4				0.4	2100	132	5850	123
6				0.5	1050	135	2800	126

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended		Maximum	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
1/32 in	0.06	0.15	250	0.0	325	126	500	120
1/16 in				0.1	200	126	500	116
3/32 in				0.2	150	127	410	122
1/8 in				0.4	100	130	280	122
1/4 in				0.5	36	136	90	126