

## Using the cut charts

The following sections provide cut charts for each set of mechanized consumables. A consumable diagram with part numbers precedes each set of charts. For each consumable type, there are Metric and English charts for mild steel, stainless steel, and aluminum.

Each chart contains the following information:

- Material Thickness — Thickness of the workpiece (metal plate being cut).
- Torch-to-Work Distance — For shielded consumables, the distance between the tip of the shield and the workpiece during cutting. For unshielded consumables, the distance between the tip of the nozzle and the workpiece during cutting.
- Initial Pierce Height — Distance between the tip of the shield (shielded) or the nozzle (unshielded) and the workpiece when the torch is triggered, prior to descending to the cut height.
- Pierce Delay Time — Length of time the triggered torch remains stationary at the pierce height before the torch starts the cutting motion.
- Best Quality Settings (cut speed and voltage) — Settings that provide the starting point for finding the best cut quality (best angle, least dross, best cut-surface finish). Adjust the speed for your application and table to obtain the desired result.
- Production Settings (cut speed and voltage) — 80% of the maximum speed ratings. These speeds result in the greatest number of cut parts, but not necessarily the best possible cut quality.

Note: The arc voltage increases as the consumables wear and the voltage setting should be increased to maintain the correct Torch-to-Work Distance.

Each cut chart lists hot and cold air flow rates.

- Hot air flow rate — Plasma is on, the system is operating at running current, and the system is in a steady state at the default system pressure (automatic mode).
- Cold air flow rate — Plasma is off and the system is in a steady state with air flowing through the torch at the default system pressure.

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

## TORCH SETUP

### Estimated kerf-width compensation

The widths in the tables below are for reference. The data are obtained with the “Best Quality” settings. 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					

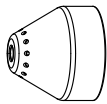
**Estimated kerf-width compensation - English (inches)**

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				

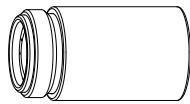
# TORCH SETUP

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## 85 A shielded consumables



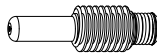
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Shield



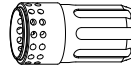
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Retaining cap



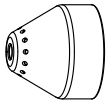
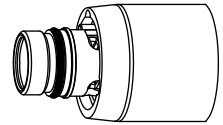
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Nozzle



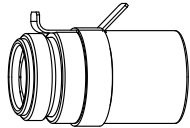
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Electrode



220857  
Swirl ring



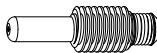
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Shield



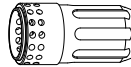
220953  
Ohmic-sensing  
retaining cap



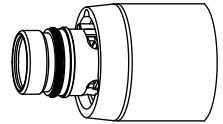
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Nozzle



220842  
Electrode



220857  
Swirl ring



# TORCH SETUP

**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	Best Quality Settings		Production Settings		
					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	9200	120	
4				0.2	5650	122	7300	122	
6				0.5	3600	123	4400	125	
8					2500	125	3100	127	
10					1680	127	2070	128	
12		4.5	300	0.7	1280	130	1600	130	
16				1.0	870	134	930	133	
20		6.0	400	1.5	570	137	680	136	
25		Edge Start				350	142	450	141
30						200	146	300	144

**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings		
					Cut Speed	Voltage	Cut Speed	Voltage	
	in	in	%	seconds	ipm	Volts	ipm	Volts	
10GA	0.06	0.15	250	0.0	250	122	336	121	
3/16 in				0.2	185	123	220	123	
1/4 in				0.5	130	123	160	126	
3/8 in					70	126	86	127	
1/2 in					45	131	56	131	
5/8 in		0.18	300	1.0	35	134	37	133	
3/4 in				0.24	400	1.5	24	136	29
7/8 in		Edge Start				19	139	22	138
1 in						13	142	17	141
1-1/8 in						9	145	13	143
1-1/4 in					7	148	10	146	

# TORCH SETUP

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	Best Quality Settings		Production Settings	
					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	9200	120
4				0.2	6100	122	7500	120
6				0.5	3700	122	4600	122
8					2450	124	3050	124
10		4.5	300	1550	127	1900	126	
12				0.7	1100	131	1400	130
16				1.0	700	135	760	134
20				Edge Start		480	138	570
25		Edge Start		300	143	370	141	

## English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings		
					Cut Speed	Voltage	Cut Speed	Voltage	
	in	in	%	seconds	ipm	Volts	ipm	Volts	
10GA	0.06	0.15	250	0.2	275	122	336	120	
3/16 in					200	122	240	121	
1/4 in				0.5	130	122	164	122	
3/8 in					65	126	80	125	
1/2 in		0.18	300	1.0	36	132	48	131	
5/8 in					28	135	30	134	
3/4 in				Edge Start		20	137	24	136
7/8 in				Edge Start		16	140	19	139
1 in		Edge Start		11	143	14	141		

# TORCH SETUP

**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	Best Quality Settings		Production Settings	
					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	9400	121
4				0.2	6500	123	8000	123
6				0.5	3800	126	4900	126
8					2650	130	3470	129
10		4.5	300	1920	132	2500	131	
12				0.7	1450	134	1930	133
16				1.0	950	139	1200	137
20		Edge Start			600	143	880	141
25					380	146	540	144

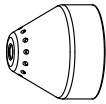
**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					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	360	121
1/4 in				0.5	130	127	172	127
3/8 in					80	132	104	131
1/2 in				0.18	300	50	135	68
5/8 in		1.0	38			139	48	137
3/4 in		Edge Start				25	142	37
7/8 in					20	144	29	142
1 in					14	146	20	144

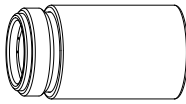
# TORCH SETUP

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## 65 A shielded consumables



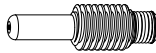
220817  
Shield



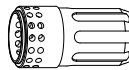
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Retaining cap



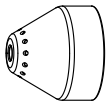
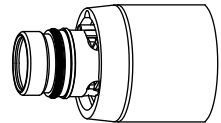
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Nozzle



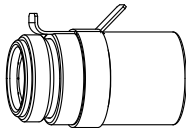
220842  
Electrode



220857  
Swirl ring



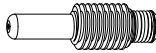
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Shield



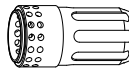
220953  
Ohmic-sensing  
retaining cap



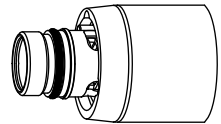
220819  
Nozzle



220842  
Electrode



220857  
Swirl ring





# TORCH SETUP

**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	Best Quality Settings		Production Settings	
					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	7000	121
3				0.2	5200	125	6100	123
4				0.5	4250	125	5100	124
6					2550	127	3240	127
8				1700	129	2230	128	
10		4.5	300	0.7	1100	131	1500	129
12				1.2	850	134	1140	131
16		6.0	400	2.0	560	138	650	136
20		Edge Start			350	142	450	142
25		Edge Start			210	145	270	145

**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
16GA	0.06	0.15	250	0.1	260	123	294	121
10GA					190	125	224	123
3/16 in				0.2	140	126	168	125
1/4 in				0.5	90	127	116	127
3/8 in					45	130	62	129
1/2 in		0.18	300	1.2	30	135	40	132
5/8 in		0.24	400	2.0	23	138	26	136
3/4 in		Edge Start			15	141	19	141
7/8 in		Edge Start			12	143	14	143
1 in		Edge Start			8	145	10	145

# TORCH SETUP

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	Best Quality Settings		Production Settings	
					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	10000	121
3				0.2	6700	125	8260	123
4				0.5	5200	125	6150	124
6					2450	126	2850	126
8				0.7	1500	129	1860	129
10		4.5	300		960	132	1250	132
12					750	135	920	134
16		Edge Start			500	139	500	139
20		Edge Start			300	143	370	143

## English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings		
					Cut Speed	Voltage	Cut Speed	Voltage	
	in	in	%	seconds	ipm	Volts	ipm	Volts	
16GA	0.06	0.15	250	0.1	345	124	426	121	
10GA					240	125	296	123	
3/16 in				0.2	155	126	168	125	
1/4 in					0.5	80	126	96	126
3/8 in						40	131	52	131
1/2 in		0.18	300	1.2	26	136	32	135	
5/8 in					Edge Start			20	139
3/4 in		Edge Start			14	142	15	142	

**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	Best Quality Settings		Production Settings		
					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	10300	122	
3				0.2	7400	124	8800	124	
4				0.5	6000	126	7350	125	
6					3200	130	4400	128	
8		4.5	300		0.7	1950	133	2750	130
10						1200	136	1650	132
12					1000	138	1330	136	
16					Edge Start		650	143	800
20	380	147	560	145					

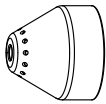
**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					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	428	121
1/8 in					280	124	336	124
1/4 in				0.5	105	131	152	128
3/8 in					50	135	68	131
1/2 in		0.18	300	1.2	35	139	48	138
5/8 in		Edge Start		26	143	32	141	
3/4 in				16	146	24	144	

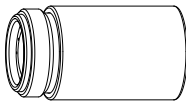
# TORCH SETUP

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## 45 A shielded consumables



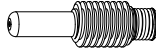
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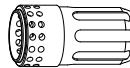
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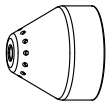
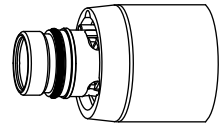
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Nozzle



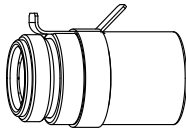
220842  
Electrode



220857  
Swirl ring



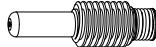
220817  
Shield



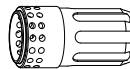
220953  
Ohmic-sensing  
retaining cap



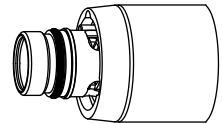
220941  
Nozzle



220842  
Electrode



220857  
Swirl ring



# TORCH SETUP

**45A Shielded  
Mild Steel**

Air flow rate - slpm/scfh	
Hot	150 / 310
Cold	210 / 450

**Metric**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					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	12500	126
1					9000	128	10800	128
1.5				0.1	9000	130	10200	129
2					6600	130	7800	129
3				0.4	3850	133	4900	131
4					2200	134	3560	131
6				0.5	1350	137	2050	132

**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
26GA	0.02	0.08	400	0.0	350	128	500	128
22GA					350	128	450	128
18GA				0.1	350	129	400	128
16GA					350	130	400	129
14GA	0.06	0.15	250	0.2	270	130	320	129
12GA				0.4	190	133	216	131
10GA					100	134	164	131
3/16 in				0.5	70	135	108	132
1/4 in				0.6	48	137	73	132

# TORCH SETUP

**45A Shielded  
Stainless Steel**

Air flow rate - slpm/scfh	
Hot	150 / 310
Cold	210/ 450

**Metric**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					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	12500	129
1					9000	130	10800	130
1.5				9000	130	10200	130	
2				6000	132	8660	131	
3				0.4	3100	132	4400	132
4					2000	134	2600	134
6				0.5	900	140	1020	139

**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
26GA	0.02	0.08	400	0.0	350	130	500	129
22GA					350	130	450	129
18GA				0.1	350	130	400	130
16GA					350	130	400	130
14GA	0.06	0.15	250	0.2	250	132	360	131
12GA				0.4	140	132	206	131
10GA					100	133	134	134
3/16 in				0.5	52	135	58	135
1/4 in				0.6	30	141	35	140

**45A Shielded  
Aluminum**

Air flow rate - slpm/scfh	
Hot	150 / 310
Cold	210/ 450

**Metric**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					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	11000	136
2				0.1	6600	136	9200	135
3				0.2	3100	139	6250	134
4				0.4	2200	141	4850	135
6				0.5	1500	142	2800	137

**English**

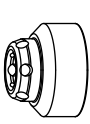
Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
1/32 in	0.06	0.15	250	0.0	325	136	450	136
1/16 in				0.1	325	136	400	136
3/32 in				0.2	200	136	328	134
1/8 in				0.4	100	140	224	134
1/4 in				0.5	54	142	96	137

# TORCH SETUP

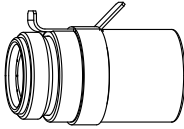
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## FineCut® consumables

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



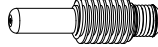
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Shield



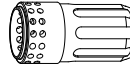
220953  
Retaining cap



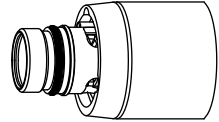
220930  
Nozzle



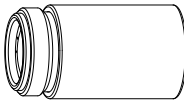
220842  
Electrode



220857  
Swirl ring



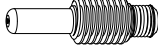
220955  
Deflector



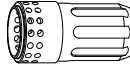
220854  
Retaining cap



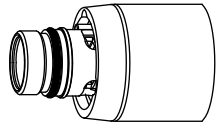
220930  
Nozzle



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	Best Quality Settings		
			mm	%		Cut Speed	Voltage	
mm	A	mm	mm	%	seconds	(mm/min)	Volts	
0.5	40	1.5	3.8	250	0.0	8250	78	
0.6						8250	78	
0.8						8250	78	
1	45				0.1	8250	78	
1.5						0.2	6400	78
2							5250	82
3						0.5	2750	83
4							1900	84

**English**

Material Thickness	Amps	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		
			in	%		Cut Speed	Voltage	
	A	in	in	%	seconds	ipm	Volts	
26GA	40	0.06	0.15	250	0.0	325	78	
24GA						325	78	
22GA						325	78	
20GA	45				0.1	325	78	
18GA						0.2	325	78
16GA							0.4	250
14GA						220		82
12GA						0.5		120
10GA	95	84						

# TORCH SETUP

**FineCut  
Stainless Steel**

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

**Metric**

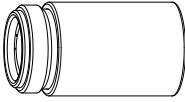
Material Thickness	Amps	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings	
						Cut Speed	Voltage
mm	A	mm	mm	%	seconds	(mm/min)	Volts
0.5	40	0.5	2.0	400	0.0	8250	68
0.6						8250	68
0.8						8250	68
1	45				0.4	8250	68
1.5						6150	70
2						4800	71
3						2550	81
4						1050	84

**English**

Material Thickness	Amps	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings			
						Cut Speed	Voltage		
	A	in	in	%	seconds	ipm	Volts		
26GA	40	0.02	0.08	400	0.0	325	68		
24GA						325	68		
22GA					0.1	325	68		
20GA						325	68		
18GA	45				0.2	0.4	325	68	
16GA							0.4	240	70
14GA								200	70
12GA							0.5	120	80
10GA		75	83						

**85 A unshielded consumables**

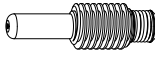
220955  
Deflector



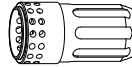
220854  
Retaining cap



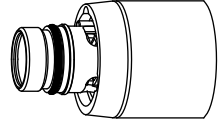
220816  
Nozzle



220842  
Electrode



220857  
Swirl ring



# TORCH SETUP

**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	Best Quality Settings		Production Settings	
					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	10400	116
3				0.1	6240	118	9000	117
4				0.2	5250	118	7200	117
6				0.5	3450	120	4400	119
8					2400	121	3100	121
10		1560	123	2070	122			
12		6.0	300	0.7	1200	126	1600	124
16		Edge Start			820	132	930	128
20					540	137	640	132
25					320	143	400	137

**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
14GA	0.08	0.20	250	0.1	280	117	416	116
10GA				0.2	230	118	328	117
3/16 in					175	119	220	118
1/4 in				0.5	125	120	160	119
3/8 in					65	122	86	122
1/2 in		0.24	300	0.6	42	127	56	125
5/8 in		Edge Start			33	131	37	128
3/4 in					23	136	27	131
7/8 in					18	140	21	134
1 in					12	144	15	138

# TORCH SETUP

**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	Best Quality Settings		Production Settings	
					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	11300	116
3					7000	118	9660	117
4				0.2	5600	118	7800	118
6				0.5	3400	120	4570	121
8					2250	121	2970	122
10				6.0	300	0.5	1430	123
12		0.7	1000			129	1340	128
16		Edge Start			650	134	730	133
20					360	138	570	137

**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
14GA	0.08	0.20	250	0.1	340	117	452	116
10GA					250	118	352	118
3/16 in				0.2	180	119	249	119
1/4 in				0.5	120	120	160	121
3/8 in					60	122	77	123
1/2 in				0.24	300	0.6	35	131
5/8 in		Edge Start			26	134	29	133
3/4 in					17	137	24	136

# TORCH SETUP

**85A Unshielded  
Aluminum**

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

**Metric**

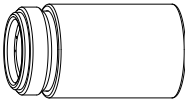
Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings		
					Cut Speed	Voltage	Cut Speed	Voltage	
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts	
2	2.0	5.0	250	0.1	8700	118	11200	118	
3					7350	120	9600	119	
4				6000	122	8100	120		
6				3300	125	4930	122		
8		6.0	300	0.5	2350	127	3250	124	
10					1800	128	2140	127	
12		Edge Start				1300	133	1720	130
16						840	139	1130	134
20	470					144	700	138	

**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings		
					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	368	119	
3/16 in					200	123	271	120	
1/4 in				110	126	172	122		
3/8 in				75	127	88	126		
1/2 in		0.24	300	0.6	45	135	62	131	
5/8 in		Edge Start				34	139	45	134
3/4 in						22	143	32	137

**65 A unshielded consumables**

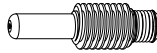
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Deflector



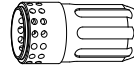
220854  
Retaining cap



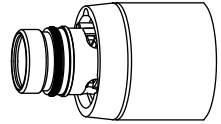
220819  
Nozzle



220842  
Electrode



220857  
Swirl ring



# TORCH SETUP

**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	Best Quality Settings		Production Settings	
					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	7340	117
3				0.2	5200	118	6330	118
4				0.5	4250	118	5250	118
6					2550	120	3560	120
8					1620	123	2230	121
10		6.0	300	0.7	970	127	1500	122
12		Edge Start			760	129	1140	124
16					500	134	650	129
20					280	138	400	133

**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
16GA	0.08	0.20	250	0.1	255	116	308	117
10GA					190	118	232	118
3/16 in					135	119	172	119
1/4 in				0.5	90	120	116	120
3/8 in					40	126	62	122
1/2 in		Edge Start			27	130	40	125
5/8 in					20	134	26	129
3/4 in					13	137	18	132



# TORCH SETUP

**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	Best Quality Settings		Production Settings		
					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	10300	116	
3				0.2	6600	118	8500	117	
4				0.5	5050	119	6500	119	
6					2300	121	3070	121	
8		6.0	300	0.7	1400	123	1900	122	
10				0.7	920	126	1250	123	
12				Edge Start		710	130	925	127
16						430	135	500	133

## English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
16GA	0.08	0.20	250	0.1	340	116	437	115
10GA					235	118	304	118
3/16 in				0.2	150	120	194	120
1/4 in					75	121	100	121
3/8 in		0.24	300	0.7	38	125	52	122
1/2 in		Edge Start		25	132	32	129	
5/8 in				17	135	20	133	

# TORCH SETUP

**65A Unshielded  
Aluminum**

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

## Metric

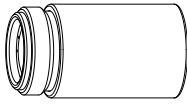
Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
mm	mm	mm	%	seconds	(mm/min)	Volts	(mm/min)	Volts
2	2.0	5.0	250	0.1	7750	123	11300	122
3				0.2	6550	124	9500	123
4				0.5	5400	125	7640	124
6					3000	127	3900	126
8				0.7	1800	130	2460	127
10		6.0	300	0.7	1100	133	1640	129
12		Edge Start			900	135	1250	133
16		Edge Start			600	139	700	136

## English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					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	476	122
1/8 in					250	124	360	123
3/16 in					175	125	245	124
1/4 in				100	127	128	126	
3/8 in		0.24	300	0.7	45	132	68	128
1/2 in		Edge Start			32	136	44	134
5/8 in		Edge Start			24	138	28	136

**45 A unshielded consumables**

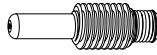
220955  
Deflector



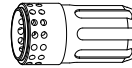
220854  
Retaining cap



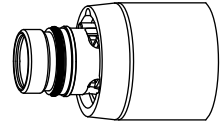
220941  
Nozzle



220842  
Electrode



220857  
Swirl ring



# TORCH SETUP

**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	Best Quality Settings		Production Settings	
					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	12500	120
1					9000	120	10800	121
1.5				0.1	7700	120	10200	121
2					6150	119	7800	122
3				0.4	3950	121	4900	123
4					2350	123	3560	124
6				0.5	1400	126	2050	124

**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
26GA	0.06	0.15	250	0.0	350	120	500	120
22GA					350	120	450	120
18GA				0.1	350	119	400	121
16GA					300	121	400	121
14GA				0.2	250	119	320	122
12GA					0.4	200	120	216
10GA				100		123	164	124
3/16 in				0.5	85	122	108	124
1/4 in					0.6	48	127	73

**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	Best Quality Settings		Production Settings	
					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	12500	119
1					9000	121	10800	119
1.5				0.1	9000	121	10200	120
2					0.3	6000	122	9600
3				0.4	3250	123	4750	120
4					1900	128	3000	122
6				0.5	700	130	1450	124

**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
	in	in	%	seconds	ipm	Volts	ipm	Volts
26GA	0.02	0.08	400	0.0	350	120	500	119
22GA					350	120	450	119
18GA				0.1	350	118	400	119
16GA					350	121	400	120
14GA	0.06	0.15	250	0.2	300	122	400	120
12GA				0.4	150	121	224	120
10GA					100	125	140	121
3/16 in				0.5	42	131	88	123
1/4 in				0.6	25	130	48	124

# TORCH SETUP

**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	Best Quality Settings		Production Settings	
					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	11000	121
2				0.1	4400	127	9200	123
3				0.2	2800	129	6250	125
4				0.4	2100	132	4700	126
6				0.5	1050	135	2250	127

## English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					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	450	121
1/16 in				0.1	200	126	400	122
3/32 in				0.2	150	127	328	124
1/8 in				0.4	100	130	224	125
1/4 in				0.5	36	136	72	127