

11. If you are mounting a full-length machine torch, screw the positioning sleeve into the coupler. If you are mounting a mini machine torch, screw the adapter into the coupler.
12. Screw the strain relief into the positioning sleeve (for a full-length machine torch) or the adapter (for a mini machine torch).
13. Screw the strain relief nut into the strain relief.
14. Attach the torch to the lifter per the manufacturer's instructions.
15. Reinstall the consumables in the torch.

## Choose the machine torch consumables

Systems with the Duramax Hyamp 180° full-length machine torch or Duramax Hyamp 180° mini machine torch ship with a starter consumable kit as well as a box of spare electrodes and nozzles. There are two starter mechanized consumable kits. One includes the standard retaining cap, and one includes the ohmic retaining cap. Notice that the retaining cap, electrode, and swirl ring are the same for cutting, gouging, and FineCut applications. Only the shield and nozzle are different.

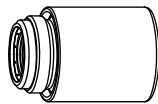
Both styles of machine torches use the same consumables. Mechanized consumables are shielded. Therefore, if the torch touches the workpiece it will not damage the nozzle.

## Machine torch consumables

### Mechanized shielded 105 A/125 A consumables



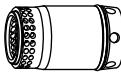
220976  
Shield



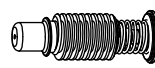
220977  
Retaining cap



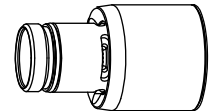
220975  
Nozzle



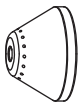
220997  
Swirl ring



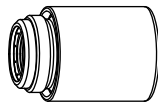
220971  
Electrode



### Mechanized shielded 45 A and 65 A consumables



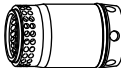
420168  
Shield



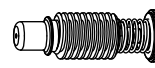
220977  
Retaining cap



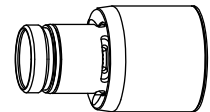
420158 (45 A)  
420169 (65 A)  
Nozzle



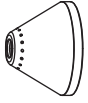
220997  
Swirl ring



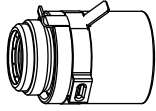
220971  
Electrode



### Mechanized shielded with ohmic 105 A/125 A consumables



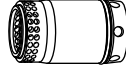
220976  
Shield



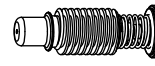
420156  
Ohmic-sensing  
retaining cap



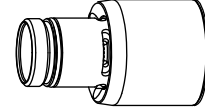
220975  
Nozzle



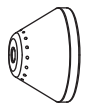
220997  
Swirl ring



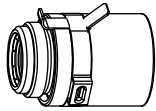
220971  
Electrode



### Mechanized shielded with ohmic 45 A and 65 A consumables



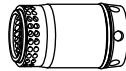
420168  
Shield



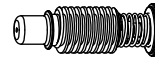
420156  
Ohmic-sensing  
retaining cap



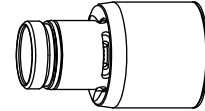
420158 (45 A)  
420169 (65 A)  
Nozzle



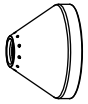
220997  
Swirl ring



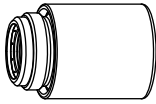
220971  
Electrode



### Gouging consumables



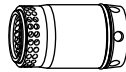
420112  
Shield



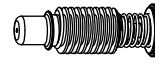
220977  
Retaining cap



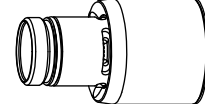
420001  
Nozzle



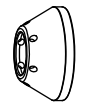
220997  
Swirl ring



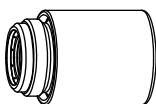
220971  
Electrode



### FineCut shielded consumables



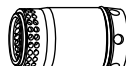
420152  
Shield



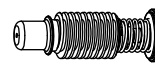
220977  
Retaining cap



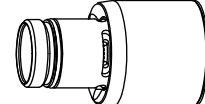
420151  
Nozzle



220997  
Swirl ring



220971  
Electrode



**FineCut shielded with ohmic consumables**



**Install the machine torch consumables**

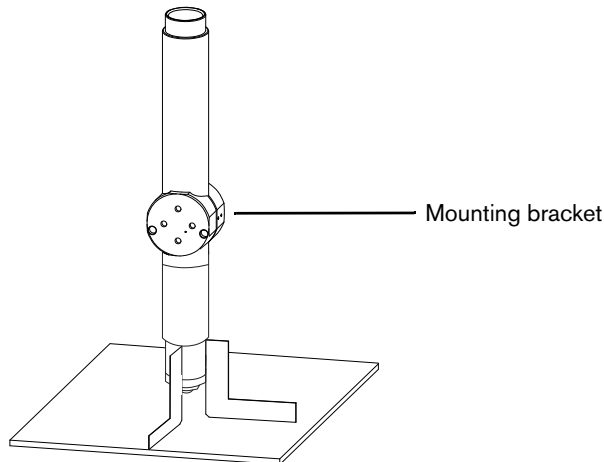
		<p><b>WARNING!</b></p> <p><b>INSTANT-ON TORCHES</b></p> <p><b>PLASMA ARC CAN CAUSE INJURY AND BURNS</b></p>
	<p><b>The plasma arc comes on immediately when the torch trigger is activated. Make sure the power is OFF before changing consumables.</b></p>	


To operate the machine torch, a complete set of consumable parts must be installed: shield, retaining cap, nozzle, electrode, and swirl ring.

With the power switch in the OFF (O) position, install the machine torch consumables in a manner similar to the hand torch consumables. See *Hand Torch Setup* on page 47.

**Aligning the torch**

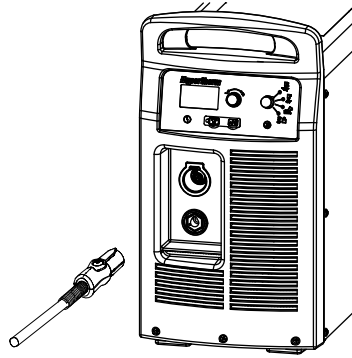
Mount the machine torch perpendicular to the workpiece in order to get a vertical cut. Use a square to align the torch at right angles to the workpiece.



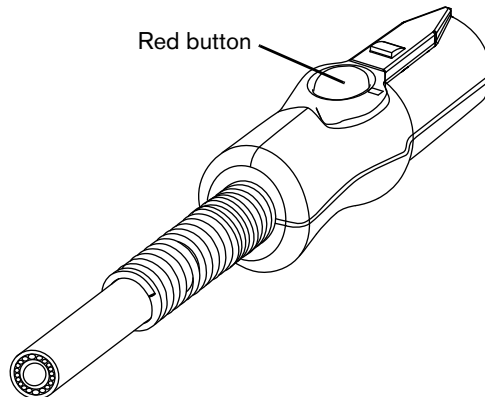
 Position the mounting bracket as low on the torch as possible to minimize vibration at the tip of the torch.

### Connecting the torch lead

This system is equipped with FastConnect, a quick-disconnect system for connecting and disconnecting handheld and machine torch leads. When connecting or disconnecting a torch, first turn OFF the system. To connect the torch, push the connector into the receptacle on the front of the power supply.



To remove the torch, press the red button on the connector and pull the connector out of the receptacle.



## Using the cut charts

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

Each cut chart contains the following information:

- **Amperage setting** – The amperage setting at the top left side of the page applies to all the settings given on that page. In FineCut charts, the amperage setting for each thickness is included in the cut chart.
- **Material Thickness** – Thickness of the workpiece (metal plate being cut).
- **Torch-to-Work Distance** – Distance between the shield and the workpiece during cutting. This may also be known as cut height.
- **Initial Pierce Height** – Distance between the shield 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) – 70% to 80% of the maximum speed ratings. These speeds result in the greatest number of cut parts, but not necessarily the best possible cut quality.



The arc voltage increases as the consumables wear, so the voltage setting may need to be increased to maintain the correct torch-to-work distance. Some CNCs monitor the arc voltage and adjust the torch lifter automatically.

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.



Hypertherm collected the cut chart data under laboratory test conditions using new consumables.

## Estimated kerf-width compensation

The widths in the following tables 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	25	30	32	35	40
<b>Mild steel</b>															
125 A shielded					2.2	2.3	2.4	2.4	2.6	2.8	3.1	3.6	3.8	3.9	4.1
105 A shielded					2	2.1	2.2	2.3	2.4	2.5	2.7	3	3.2		
65 A shielded			1.6	1.6	1.8	1.9	2.0	2.2	2.7	3.2	3.7				
45 A shielded	1.6	1.4	1.3	1.5	1.6										
FineCut	1.3	1.2	1.2	1.2											
<b>Stainless steel</b>															
125 A shielded					1.9	2.2	2.4	2.6	2.6	2.7	3.1	3	3	3.2	3.6
105 A shielded					1.6	1.9	2.2	2.3	2.4	2.5	2.9	2.9	2.9		
65 A shielded			1.4	1.5	1.8	1.8	1.9	1.9	2.1	2.3					
45 A shielded	1.4	1.2	1.2	1.5	1.7										
FineCut	1.2	1.2	1.0	1.0											
<b>Aluminum</b>															
125 A shielded					2.3	2.5	2.6	2.6	2.8	2.9	2.8	2.9	3	3.3	3.7
105 A shielded					1.9	2.0	2.2	2.2	2.1	2.1	2.5	2.5	2.5		
65 A shielded			1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.2					
45 A shielded		1.5	1.4	1.6	1.8										

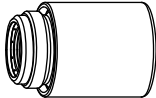
## Estimated kerf-width compensation – English (inches)

Process	Thickness (inches)													
	22 GA	18 GA	14 GA	10 GA	3/16	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/4	1-1/2
<b>Mild steel</b>														
125 A shielded						0.089	0.094	0.095	0.103	0.108	0.109	0.123	0.150	0.158
105 A shielded						0.080	0.088	0.091	0.094	0.099	0.103	0.107	0.125	
65 A shielded			0.062	0.065	0.067	0.070	0.079	0.088	0.104	0.120	0.134	0.147		
45 A shielded	0.062	0.048	0.052	0.061	0.062	0.064								
FineCut	0.049	0.047	0.048	0.048										
<b>Stainless steel</b>														
125 A shielded						0.078	0.094	0.103	0.103	0.103	0.112	0.123	0.116	0.137
105 A shielded						0.067	0.085	0.091	0.094	0.093	0.111	0.116	0.116	
65 A shielded			0.054	0.060	0.065	0.071	0.074	0.076	0.083	0.090				
45 A shielded	0.056	0.042	0.048	0.062	0.065	0.068								
FineCut	0.045	0.044	0.039	0.042										
<b>Aluminum</b>														
		1/32	1/16	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/4	1-1/2	
125 A shielded					0.091	0.103	0.104	0.110	0.119	0.101	0.112	0.116	0.140	
105 A shielded					0.075	0.086	0.085	0.083	0.083	0.087	0.101	0.100		
65 A shielded			0.074	0.074	0.075	0.077	0.079	0.082	0.085					
45 A shielded		0.060	0.052	0.062	0.070									

125 A shielded consumables



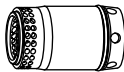
220976  
Shield



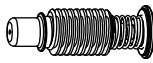
220977  
Retaining cap



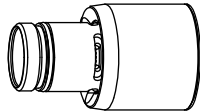
220975  
Nozzle



220997  
Swirl ring



220971  
Electrode



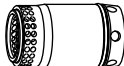
220976  
Shield



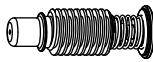
420156  
Ohmic-sensing  
retaining cap



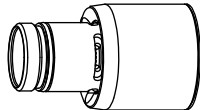
220975  
Nozzle



220997  
Swirl ring



220971  
Electrode





125 A shielded cutting – mild steel

Air flow rate – slpm/scfh	
Hot	260 / 550
Cold	345 / 730

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	
6	4.6	9.2	200	0.2	4980	158	5960	155	
8				0.3	3800	158	4570	157	
10				0.4	2750	158	3330	158	
12				0.5	2050	157	2510	157	
16		11.5	250	0.6	1260	162	1660	164	
20				2.0	980	165	1140	164	
25				3.5	610	169	780	167	
30		Edge Start*			1.0	460	169	580	167
32						400	174	500	172
35						340	177	430	175
40	240					180	310	178	

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings		
					Cut Speed	Voltage	Cut Speed	Voltage	
inches	inches	inches	%	seconds	ipm	volts	ipm	volts	
1/4	0.18	0.36	200	0.2	188	158	225	155	
3/8				0.4	114	158	138	158	
1/2				0.5	75	158	93	158	
5/8		0.45	250	0.6	50	162	66	164	
3/4				0.8	42	164	48	163	
7/8				2.0	31	168	37	166	
1				3.5	23	169	30	167	
1-1/4		Edge Start*			1.0	16	174	20	172
1-1/2						11	179	14	177

\* You can pierce thicknesses up to 32 mm (1-1/4 inch) if your CNC software and torch height control system enable you to temporarily raise the torch in order to clear the puddle of dross that can form during the pierce. In Hypertherm's Phoenix CNC software, for example, this function is referred to as the "puddle jump height." Using this piercing function may affect consumable life.

## 6 – Machine Torch Setup

### 125 A shielded cutting – stainless steel

Air flow rate – slpm/scfh	
Hot	260 / 550
Cold	345 / 730

#### 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	
6	4.6	9.2	200	0.5	5910	156	7690	157	
8					4060	157	5550	157	
10					2540	159	3700	157	
12					2170	163	2710	157	
16		11.5	250	0.7	1140	165	1460	162	
20				1.2	940	167	1030	163	
25		Edge Start		1.0	540	172	760	166	
30					430	173	640	166	
32					400	177	600	169	
35					1.2	320	180	450	173
40						180	185	210	179

#### English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings		
					Cut Speed	Voltage	Cut Speed	Voltage	
inches	inches	inches	%	seconds	ipm	volts	ipm	volts	
1/4	0.18	0.36	200	0.5	220	156	288	157	
3/8					104	158	154	157	
1/2					78	163	98	158	
5/8		0.45	250	0.7	45	165	58	162	
3/4				1.2	40	167	43	163	
7/8		Edge Start		0.8	30	168	35	164	
1					1.0	20	173	29	166
1-1/4					1.1	16	177	24	169
1-1/2					1.2	9	183	12	177

125 A shielded cutting – aluminum

Air flow rate – slpm/scfh	
Hot	260 / 550
Cold	345 / 730

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	
6	4.6	9.2	200	0.2	7660	159	8560	156	
8				0.3	5100	161	6100	157	
10				0.4	2980	163	4020	159	
12				0.5	2140	+++++++ +++++++ +++++++ +++++++1 65	3070	162	
16		11.5	250	0.6	1540	169	2090	163	
20				2.0	1260	170	1500	167	
25				3.5	850	174	1050	167	
30		Edge Start			1.0	540	175	830	167
32					1.1	430	182	750	174
35					1.2	370	183	580	176
40						270	185	300	179

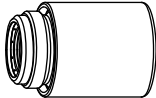
English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings		
					Cut Speed	Voltage	Cut Speed	Voltage	
inches	inches	inches	%	seconds	ipm	volts	ipm	volts	
1/4	0.18	0.36	200	0.2	284	159	320	156	
3/8				0.4	124	163	166	158	
1/2				0.5	80	166	114	162	
5/8		0.45	250	0.6	61	169	83	163	
3/4				0.8	52	170	62	167	
7/8				2.0	44	171	52	167	
1				3.5	32	175	40	167	
1-1/4		Edge Start			1.0	17	182	30	174
1-1/2						12	184	16	178

105 A shielded consumables



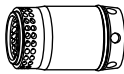
220976  
Shield



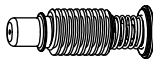
220977  
Retaining cap



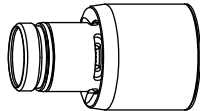
220975  
Nozzle



220997  
Swirl ring



220971  
Electrode



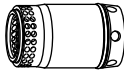
220976  
Shield



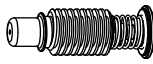
420156  
Ohmic-sensing  
retaining cap



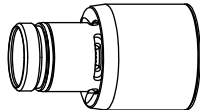
220975  
Nozzle



220997  
Swirl ring



220971  
Electrode



105 A shielded cutting – mild steel

Air flow rate – slpm/scfh	
Hot	283 / 600
Cold	345 / 730

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
6	4.6	9.2	200	0.5	4110	158	4920	146
8				0.6	3220	158	3770	150
10				0.8	2410	159	2730	153
12				0.7	1810	163	1980	156
16		11.5	250	1.0	1050	165	1230	155
20				1.3	780	168	850	157
25		Edge Start		1.0	540	174	580	162
30					420	176	440	168
32				1.2	370	177	400	170

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
inches	inches	inches	%	seconds	ipm	volts	ipm	volts
1/4	0.18	0.36	200	0.5	156	158	186	147
3/8				0.75	100	158	114	152
1/2				0.75	66	163	73	156
5/8		0.45	250	1.0	42	165	49	155
3/4				1.0	33	168	35	156
7/8				2.0	26	169	30	158
1		Edge Start		1.0	21	175	22	163
1-1/4					1.2	15	177	16

## 6 – Machine Torch Setup

### 105 A shielded cutting – stainless steel

Air flow rate – slpm/scfh	
Hot	283 / 600
Cold	345 / 730

#### 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
6	4.6	9.2	200	0.5	5320	158	5780	144
8					3650	159	3940	148
10					2230	160	2420	151
12					1490	162	1960	154
16		11.5	250	1.0	950	166	1050	156
20				2.5	660	169	730	158
25		Edge Start		1.0	440	174	520	162
30					330	176	450	167
32				1.2	290	177	420	169

#### English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
inches	inches	inches	%	seconds	ipm	volts	ipm	volts
1/4	0.18	0.36	200	0.5	198	158	215	145
3/8					94	160	100	150
1/2					55	163	71	154
5/8		0.45	250	1.0	38	166	42	156
3/4				2.5	28	168	30	157
7/8		Edge Start		1.0	22	172	26	159
1					17	174	20	163
1-1/4				1.2	12	177	17	169

105 A shielded cutting – aluminum

Air flow rate – slpm/scfh	
Hot	283 / 600
Cold	345 / 730

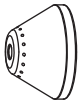
Metric

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
6	4.6	9.2	200	0.5	6340	158	6390	154
8				0.6	4330	162	4690	154
10				0.8	2660	164	3250	155
12				0.7	2020	167	2590	159
16		11.5	250	1.0	1350	169	1550	157
20				1.3	970	172	1020	161
25		Edge Start		1.0	660	176	800	167
30					460	180	580	174
32				1.2	390	182	490	176

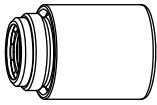
English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
inches	inches	inches	%	seconds	ipm	volts	ipm	volts
1/4	0.18	0.36	200	0.5	236	159	240	154
3/8				0.75	110	164	134	154
1/2					75	167	95	159
5/8		0.45	250	1.0	54	169	62	157
3/4					40	171	42	160
7/8				2.0	34	173	37	164
1					1.0	25	176	31
1-1/4		Edge Start		1.2	16	182	20	176

65 A shielded consumables



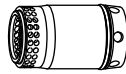
420168  
Shield



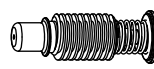
220977  
Retaining cap



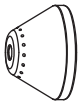
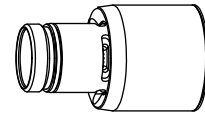
420169  
Nozzle



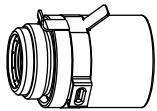
220997  
Swirl ring



220971  
Electrode



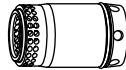
420168  
Shield



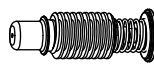
420156  
Ohmic-sensing  
retaining cap



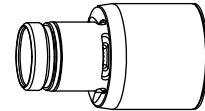
420169  
Nozzle



220997  
Swirl ring



220971  
Electrode





65 A shielded cutting – mild steel

Air flow rate – slpm/scfh	
Hot	222 / 470
Cold	250 / 530

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	5930	122	7015	123	
3				0.2	5150	123	6080	123	
4				0.5	4370	123	5145	123	
6					2815	125	3275	124	
8					1815	127	2235	126	
10		4.5	300	0.7	1085	129	1490	128	
12				1.2	845	131	1140	130	
16		6	400	2.0	565	136	740	135	
20		Edge start				355	141	450	140
25		Edge start				215	146	270	146

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings		
					Cut Speed	Voltage	Cut Speed	Voltage	
inches	inches	inches	%	seconds	ipm	volts	ipm	volts	
16 GA	0.06	0.15	250	0.1	248	122	294	122	
10 GA					190	123	224	123	
3/16				0.2	149	124	174	123	
1/4					0.5	100	125	116	124
3/8						45	129	62	128
1/2		0.18	300	1.2	30	132	40	131	
5/8		0.24	400	2.0	23	136	30	135	
3/4		Edge Start				15	140	19	139
7/8		Edge Start				12	143	15	143
1		Edge Start				8	146	10	146

## 6 – Machine Torch Setup

### 65 A shielded cutting – stainless steel

Air flow rate – slpm/scfh	
Hot	222 / 470
Cold	250 / 530

#### 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	7405	119	9970	121
3				0.2	6120	120	8240	122
4				0.5	4840	122	6110	123
6					2275	125	2840	125
8				0.7	1505	127	1860	127
10		1115	130		1245	128		
12		720	133		925	130		
16		Edge Start			465	137	505	136
20		Edge Start			320	141	345	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	
inches	inches	inches	%	seconds	ipm	volts	ipm	volts	
16 GA	0.06	0.15	250	0.1	316	118	425	120	
10 GA					220	121	296	122	
3/16				0.2	152	123	168	123	
1/4					0.5	72	125	96	125
3/8						48	130	52	128
1/2		0.18	300	1.2	23	134	32	131	
5/8					Edge Start			19	137
3/4		Edge Start			14	140	15	140	

65 A shielded cutting – aluminum

Air flow rate – slpm/scfh	
Hot	222 / 470
Cold	250 / 530

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	7805	123	10265	122
3				0.2	6565	125	8790	123
4				0.5	5320	126	7320	124
6					2845	129	4375	126
8		4.5	300	0.7	2015	133	2750	129
10					1535	136	1650	132
12					1055	139	1330	135
16		Edge Start				640	143	805
20	Edge Start				335	146	550	144

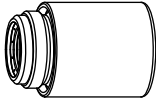
English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings		
					Cut Speed	Voltage	Cut Speed	Voltage	
inches	inches	inches	%	seconds	ipm	volts	ipm	volts	
1/16	0.06	0.15	250	0.1	328	123	428	122	
1/8					250	125	336	123	
1/4				0.5	95	130	152	126	
3/8					65	135	68	131	
1/2		0.18	300	1.2	35	140	48	136	
5/8		Edge Start				26	143	32	140
3/4		Edge Start				16	145	24	143

45 A shielded consumables



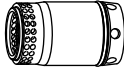
420168  
Shield



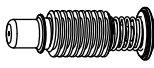
220977  
Retaining cap



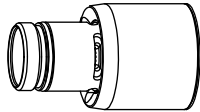
420158  
Nozzle



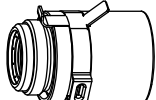
220997  
Swirl ring



220971  
Electrode



420168  
Shield



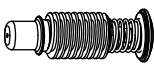
420156  
Ohmic-sensing  
retaining cap



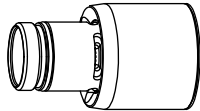
420158  
Nozzle



220997  
Swirl ring



220971  
Electrode



45 A shielded cutting – mild steel

Air flow rate – slpm/scfh	
Hot	217 / 460
Cold	241 / 510

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	0.5	2.0	400	0.0	8890	118	12510	120
1				8890	119	10760	120	
1.5				8040	123	10160	123	
2	1.5	3.8	250	0.3	6565	128	7770	125
3				0.4	3725	129	4890	128
4					2250	130	3550	130
6				0.5	1265	132	2050	130

English

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
inches	inches	inches	%	seconds	ipm	volts	ipm	volts
26 GA	0.02	0.08	400	0.0	350	118	500	120
22 GA					350	118	450	120
18 GA				0.1	350	119	400	120
16 GA	314	123	400		123			
14 GA	0.06	0.15	250	0.2	270	128	320	125
12 GA				0.4	185	129	216	127
10 GA					100	130	164	130
3/16				0.5	74	131	108	130
1/4				0.6	43	132	73	130

## 6 – Machine Torch Setup

### 45 A shielded cutting – stainless steel

Air flow rate – slpm/scfh	
Hot	217 / 460
Cold	241 / 510

#### 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	0.5	2.0	400	0.0	8890	113	12510	120	
1					8890	113	10760	120	
1.5					7825	117	10160	120	
2	1.5	3.8	250	0.3	6095	122	8615	122	
3					0.4	3585	123	4405	123
4						2185	126	2810	126
6						975	132	1140	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	
inches	inches	inches	%	seconds	ipm	volts	ipm	volts	
26 GA	0.02	0.08	400	0.0	350	113	500	120	
22 GA					350	113	450	120	
18 GA					0.1	350	113	400	120
16 GA	305	117	400	120					
14 GA	0.06	0.15	250	0.2	250	122	360	122	
12 GA					0.4	175	123	206	123
10 GA						100	124	134	124
3/16					0.5	68	128	80	128
1/4						30	133	35	133

45 A shielded cutting – aluminum

Air flow rate – slpm/scfh	
Hot	217 / 460
Cold	241 / 510

**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	9145	126	11100	124
2				0.1	7470	125	9210	124
3				0.2	4675	125	6190	125
4				0.4	3700	129	4845	127
6				0.5	1740	135	2795	132

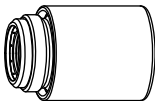
**English**

Material Thickness	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Best Quality Settings		Production Settings	
					Cut Speed	Voltage	Cut Speed	Voltage
inches	inches	inches	%	seconds	ipm	volts	ipm	volts
1/32	0.06	0.15	250	0.0	360	126	450	124
1/16				0.1	360	126	400	124
3/32				0.2	233	124	328	124
1/8				0.4	177	126	224	125
1/4				0.5	55	136	96	133

**FineCut consumables**



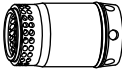
420152  
Shield



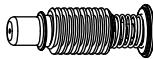
220977  
Retaining cap



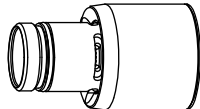
420151  
Nozzle



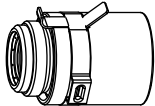
220997  
Swirl ring



220971  
Electrode



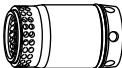
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Shield



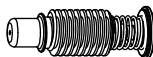
420156  
Ohmic-sensing  
retaining cap



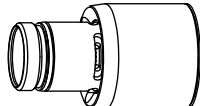
420151  
Nozzle



220997  
Swirl ring



220971  
Electrode





**FineCut – mild steel**

Air flow rate – slpm/scfh	
Hot	217 / 460
Cold	226 / 480

**Metric**

Material Thickness	Current	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended	
						Cut Speed	Voltage
mm	A	mm	mm	%	seconds	mm/min	volts
0.5	30	1.5	2.25	150	0.0	4330	83
0.6						4080	85
0.8						4065	85
1	40				0.2	4825	81
1.5						0.4	4825
2	4740						78
3	45				0.5	3445	80
4						1270	80

**English**

Material Thickness	Current	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended	
						Cut Speed	Voltage
inches	A	inches	inches	%	seconds	ipm	volts
26 GA	30	0.06	0.09	150	0.0	175	82
24 GA						160	85
22 GA						160	85
20 GA	40				0.1	160	85
18 GA						0.2	190
16 GA	0.4						190
14 GA					45	0.5	190
12 GA	165						80
10 GA	100	80					

## 6 – Machine Torch Setup

### FineCut – stainless steel

Air flow rate – slpm/scfh	
Hot	217 / 460
Cold	226 / 480

#### Metric

Material Thickness	Current	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended	
						Cut Speed	Voltage
mm	A	mm	mm	%	seconds	mm/min	volts
0.5	30	0.51	2.03	400	0.0	4825	77
0.6						4825	77
0.8						4825	73
1	40				0.2	4825	86
1.5						4825	72
2	45					0.4	4550
3					0.5		2335
4						995	72

#### English

Material Thickness	Current	Torch-to-Work Distance	Initial Pierce Height		Pierce Delay Time	Recommended	
						Cut Speed	Voltage
inches	A	inches	inches	%	seconds	ipm	volts
26 GA	30	0.02	0.08	400	0.0	190	77
24 GA						190	77
22 GA						190	74
20 GA	40				0.1	190	72
18 GA						190	80
16 GA	45					0.4	190
14 GA					190		72
12 GA					0.5	110	70
10 GA	70	71					