

### Cut charts

The following *Cut charts* show the consumable parts, cutting speeds and the gas and torch settings required for each process.

The numbers shown in the *Cut charts* are recommended to provide high-quality cuts with minimal dross. Because of differences between installations and material composition, adjustments may be required to obtain desired results.

### Bevel cut charts

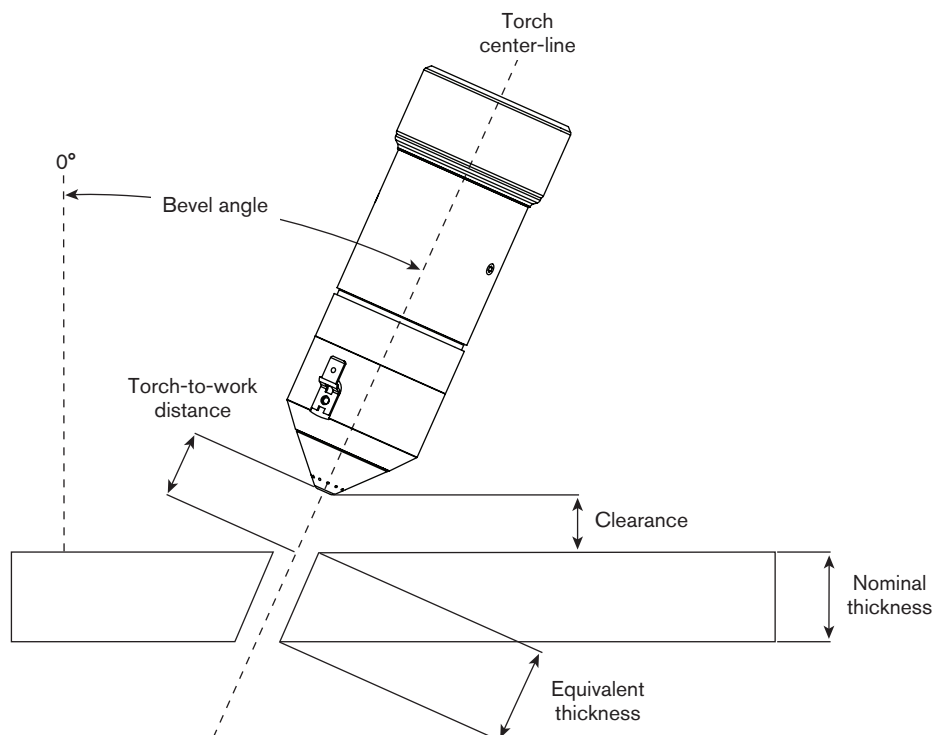
The bevel cut charts are slightly different from the standard cut charts. The torch-to-work distance is a range rather than a single value, material thickness is given as an equivalent value, a column for minimum clearance has been added, and there is no column for arc voltage.

Equivalent thicknesses and the arc voltages will vary depending on the angle of the cut. The angle for bevel cutting can range from 0° to 45°.

See Bevel cutting definitions on the next page for more detailed information.

## Bevel cutting definitions

Bevel angle	The angle between the center line of the torch and a line that is perpendicular to the workpiece. If the torch is perpendicular to the workpiece, the bevel angle is zero. The maximum bevel angle is 45°.
Nominal thickness	The vertical thickness of the workpiece.
Equivalent thickness	The length of the cut edge, or the distance the arc travels through the material while cutting. Equivalent thickness is equal to the nominal thickness divided by the cosine of the bevel angle. Equivalent thicknesses are listed in the cut chart.
Clearance	The vertical distance from the lowest point of the torch to the surface of the workpiece.
Torch-to-work distance	The linear distance from the center of the torch outlet to the workpiece surface along the torch center-line. A range of torch-to-work distances are listed in the cut chart. The smallest number is for a straight cut (bevel angle = 0°). The largest number is for a 45° bevel cut with a clearance of 3 mm (0.120 in).
Arc voltage	The arc voltage setting is dependent on the bevel angle and the setup of the cutting system. The arc voltage setting on one system may be different from a second system even if the workpiece is the same thickness. The arc voltages for bevel cutting are not supplied in the bevel cut charts.



## OPERATION

### Estimated kerf-width compensation

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

Note: N/A = not available

#### Metric

Process	Thickness (mm)											
	1.5	3	5	6	8	10	12	15	20	25	32	38
<b>Mild steel</b>												
130A O <sub>2</sub> / Air	N/A	1.64	1.77	1.81	1.92	2.04	2.11	2.22	2.65	3.43	4.26	4.59
80A O <sub>2</sub> / Air	N/A	1.37	1.53	1.73	1.79	1.91	2.00	2.11	2.72	N/A	N/A	N/A
50A O <sub>2</sub> / O <sub>2</sub>	1.52	1.74	1.86	1.86	2.09	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30A O <sub>2</sub> / O <sub>2</sub>	1.35	1.45	1.54	1.56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Stainless steel</b>												
130A H35 / N <sub>2</sub>	N/A	N/A	N/A	N/A	2.69	2.72	2.77	3.03	2.90	3.25	N/A	N/A
130A N <sub>2</sub> / N <sub>2</sub>	N/A	N/A	N/A	1.83	1.89	1.88	2.42	2.51	3.00	N/A	N/A	N/A
130A H35 and N <sub>2</sub> / N <sub>2</sub>	N/A	N/A	N/A	1.78	2.25	2.73	2.76	3.03	2.90	N/A	N/A	N/A
80A F5 / N <sub>2</sub>	N/A	N/A	1.02	1.20	1.05	0.96	N/A	N/A	N/A	N/A	N/A	N/A
45A F5 / N <sub>2</sub>	0.59	0.38	0.52	0.54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
45A N <sub>2</sub> / N <sub>2</sub>	0.49	0.23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Aluminum</b>												
130A H35 / N <sub>2</sub>	N/A	N/A	N/A	N/A	2.70	2.72	2.77	2.36	2.90	1.72	N/A	N/A
130A Air / Air	N/A	N/A	N/A	2.09	2.09	2.10	2.19	1.91	1.87	2.23	N/A	N/A
130A H35 and N <sub>2</sub> / N <sub>2</sub>	N/A	N/A	N/A	2.06	2.39	2.73	2.76	2.00	2.90	N/A	N/A	N/A
45A Air / Air	1.07	1.10	1.25	1.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

## Estimated kerf-width compensation – continued

## English

Process	Thickness (in)										
	0.060	0.135	1/4	5/16	3/8	1/2	5/8	3/4	1	1-1/4	1-1/2
<b>Mild steel</b>											
130A O <sub>2</sub> / Air	N/A	0.066	0.071	0.076	0.080	0.083	0.089	0.104	0.135	0.167	0.181
80A O <sub>2</sub> / Air	N/A	0.054	0.068	0.070	0.075	0.080	0.084	0.102	N/A	N/A	N/A
50A O <sub>2</sub> / O <sub>2</sub>	0.060	0.063	0.073	0.082	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30A O <sub>2</sub> / O <sub>2</sub>	0.053	0.057	0.067	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Stainless steel</b>											
130A H35 / N <sub>2</sub>	N/A	N/A	N/A	0.115	0.121	0.123	0.124	0.125	0.129	N/A	N/A
130A N <sub>2</sub> / N <sub>2</sub>	N/A	N/A	0.072	0.074	0.083	0.095	0.100	0.118	N/A	N/A	N/A
130A H35 and N <sub>2</sub> / N <sub>2</sub>	N/A	N/A	0.070	0.089	0.107	0.109	0.123	0.114	N/A	N/A	N/A
80A F5 / N <sub>2</sub>	N/A	0.032	0.047	0.050	0.052	N/A	N/A	N/A	N/A	N/A	N/A
45A F5 / N <sub>2</sub>	0.023	0.015	0.021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
45A N <sub>2</sub> / N <sub>2</sub>	0.019	0.009	0.006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Aluminum</b>											
130A H35 / N <sub>2</sub>	N/A	N/A	N/A	0.106	0.107	0.109	0.112	0.114	0.120	N/A	N/A
130A Air / Air	N/A	N/A	0.082	0.082	0.082	0.086	0.071	0.071	0.089	N/A	N/A
130A H35 and N <sub>2</sub> / N <sub>2</sub>	N/A	N/A	0.081	0.094	0.107	0.109	0.067	0.114	N/A	N/A	N/A
45A Air / Air	0.042	0.043	0.049	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

# OPERATION

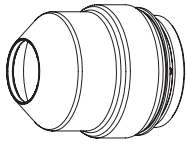
## Mild steel

O<sub>2</sub> Plasma / O<sub>2</sub> Shield

30 A

Flow rates – lpm/scfh		
	O <sub>2</sub>	Air
Preflow	0 / 0	43 / 90
Cutflow	25 / 52	0 / 0

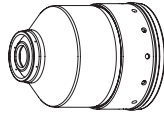
Note: Air must be connected to use this process. It is used as the preflow gas.



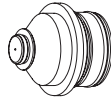
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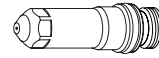
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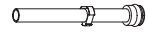
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220192



220340

### Metric

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	mm	Volts	mm	mm/m	mm	Factor %	Seconds
O <sub>2</sub>	O <sub>2</sub>	78	17	94	17	0.5	114	1.3	5355	2.3	180	0.1
						0.8	115		4225			0.2
						1	116		3615			0.3
						1.2	117		2865			
						1.5	119		2210			
						35	7		2			120
			2.5		122			1325				
			3*		123			1160	0.5			
			4*		125			905	0.7			
			75		6*			128	665	1.0		

### English

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time	
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	in	Volts	in	ipm	in	Factor %	Seconds	
O <sub>2</sub>	O <sub>2</sub>	78	17	94	17	0.018	114	0.05	215	0.09	180	0.1	
						0.024			200			0.2	
						0.030			115			170	0.3
						0.036			116			155	
						0.048			117			110	
						35			7			0.060	119
			0.075		120		60						
			0.105		122		50						
			0.135*		123		40	0.5					
			75		3/16*		128	30		0.7			
					1/4*			25		1.0			

### Marking

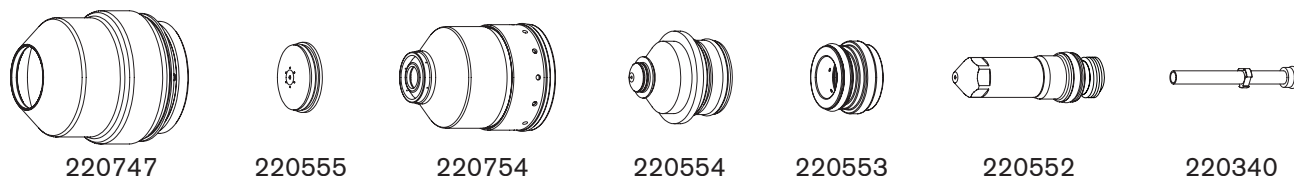
Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
						Amps	mm	in	mm/m	ipm	Volts
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	15	2.5	0.10	6350	250	105
Ar	Air	90	10	90	10	9	2.5	0.10	2540	100	80

\* Pierce complete is recommended for these thicknesses.

**Mild steel**  
O<sub>2</sub> Plasma / O<sub>2</sub> Shield  
50 A

Flow rates – lpm/scfh		
	O <sub>2</sub>	Air
Preflow	0 / 0	43 / 90
Cutflow	25 / 52	0 / 0

Note: Air must be connected to use this process. It is used as the preflow gas.



**Metric**

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					mm	Volts	
O <sub>2</sub>	O <sub>2</sub>	70	30	81	14	0.8	110	1.0	6500	2.0	200	0.0
						1	111		5000			
						1.2	112		4150			
						1.5	114	1.3	3200	2.6		
						2	115		2700			
						2.5	117	1.5	2200	3.0		
						3	119		1800			
						4	121		1400			
						5	122	2.0	1200	4.0		
						6	126		950			
7	128	780										
8	130	630	0.5									

**English**

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					in	Volts	
O <sub>2</sub>	O <sub>2</sub>	70	30	81	14	0.030	110	0.04	270	0.08	200	0.0
						0.036			210			
						0.048			160			
						0.060	114	0.05	125	0.10		
						0.075	115		110			
						0.105	118	0.06	80	0.12		
						0.135	120		60			
						3/16	121		50			
						1/4	125	0.08	35	0.16		
						5/16	130		25			

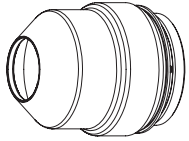
**Marking**

Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas		Amps	mm	in	mm/m	
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	15	2.5	0.10	6350	250	118
Ar	Air	90	10	90	10	9	2.5	0.10	2540	100	77

# OPERATION

## Mild steel O<sub>2</sub> Plasma / Air Shield 80 A

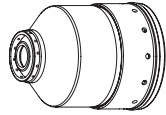
Flow rates – lpm/scfh		
	O <sub>2</sub>	Air
Preflow	0 / 0	76 / 161
Cutflow	23 / 48	41 / 87



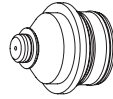
220747



220189



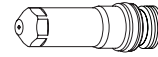
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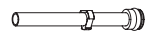
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220179



220187



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### Metric

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time																
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					mm	Volts		mm	mm/m	mm	factor %	seconds											
O <sub>2</sub>	Air	48	23	78	23	2	112	2.5	9810	3.8	150	0.1																
						2.5	115						2.0	4300	200	0.2												
						3	117										2.0	3670	200	0.3								
						4	120														2.0	3045	200	0.4				
						5	121																		2.0	2430	200	0.5
						6	123																					
					8	125	2.0	1410	250	0.8																		
					10	127					2.5	545	6.3	0.9														
					12	130																						
					15	133																						
					20	135																						

### English

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time																
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					in	Volts		in	ipm	in	factor %	seconds											
O <sub>2</sub>	Air	48	23	78	23	0.075	112	0.10	400	0.15	150	0.1																
						0.105	115						0.08	155	200	0.2												
						0.135	117										0.08	110	200	0.3								
						3/16	120														0.08	96	200	0.4				
						1/4	123																		0.08	75	200	0.5
						5/16	125																					
					3/8	127	0.10	25	0.25	0.8																		
					1/2	130																						
					5/8	133																						
					3/4	135																						

### Marking

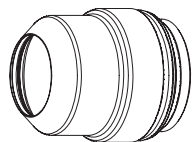
Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
							mm	in	mm/m	ipm	
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	15	2.5	0.10	6350	250	130
Ar	Air	50	10	50	10	15	3.0	0.12	2540	100	78

**Mild steel bevel cutting**

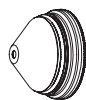
O<sub>2</sub> Plasma / Air Shield

80 A

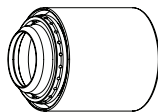
Flow rates – lpm/scfh		
	O <sub>2</sub>	Air
Preflow	0 / 0	47 / 100
Cutflow	23 / 48	47 / 100



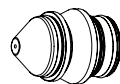
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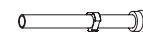
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220802



220700

**Metric**

Select Gases		Set Preflow		Set Cutflow		Minimum Clearance	Equivalent Material Thickness	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	mm	mm	Range (mm)	mm/m	mm	factor %	seconds
O <sub>2</sub>	Air	48	39	78	39	2.0	2	2.5 – 8.6	9810	3.8	150	0.1
							2.5		7980			
							3		6145			
							4	2.0 – 8.6	4300	4.0	200	0.2
							5		3670			
							6		3045			
					8		2430					
					10		1810					
					12		1410					
					15		1030	5.0	250	0.7		
					20		545	6.3			0.8	
										17		

**English**

Select Gases		Set Preflow		Set Cutflow		Minimum Clearance	Equivalent Material Thickness	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time						
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	in	in	Range (in)	ipm	in	factor %	seconds						
O <sub>2</sub>	Air	48	39	78	39	0.08	0.075	0.1 – 0.34	400	0.15	150	0.1						
							0.105		290									
							0.135		180									
							3/16	0.08 – 0.34	155	0.16	200	0.2						
							1/4		110									
							5/16		96									
					3/8		75											
					1/2		50											
					5/8		37		0.20				250	0.7				
					3/4		25	0.25	0.8									
										17								0.9

**Marking**

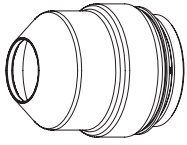
Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
						Amps	mm	in	mm/m	ipm	Volts
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	15	2.5	0.10	6350	250	130
Ar	Air	50	10	50	10	15	3.0	0.12	2540	100	78



# OPERATION

## Mild steel O<sub>2</sub> Plasma / Air Shield 130 A

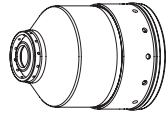
Flow rates – lpm/scfh		
	O <sub>2</sub>	Air
Preflow	0 / 0	102 / 215
Cutflow	33 / 70	45 / 96



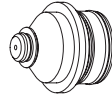
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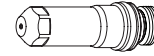
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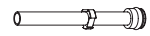
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220179



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220340

### Metric

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					mm	Volts	
O <sub>2</sub>	Air	32	32	84	28	3	124	2.5	6505	5.0	200	0.1
						4	126	2.8	5550	0.2		
						5			4795			
					6	127	3.0	4035	6.0	0.3		
					8	129		3360				
					10	130		2680				
			12	132	3.3	2200	6.6	0.5				
			15	135	3.8	1665	7.6	0.7				
			20	138		1050		1.0				
			25	141	4.0	550	190	1.8				
			32	160	4.5	375		Edge start				
			38	167		255						

### English

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					in	Volts	
O <sub>2</sub>	Air	32	32	84	28	0.135	124	0.10	240	0.20	200	0.1
						3/16	126	0.11	190	0.22		0.2
						1/4			150			
					5/16	129	0.12	132	0.24	0.3		
					3/8	130		110				
					1/2	132		80		0.26		
			5/8	135	0.15	60	0.30	0.5				
			3/4	138		45		0.7				
			1	141	0.16	20	190	1.0				
			1-1/4	160	0.18	15		Edge start				
			1-1/2	167		10						

### Marking

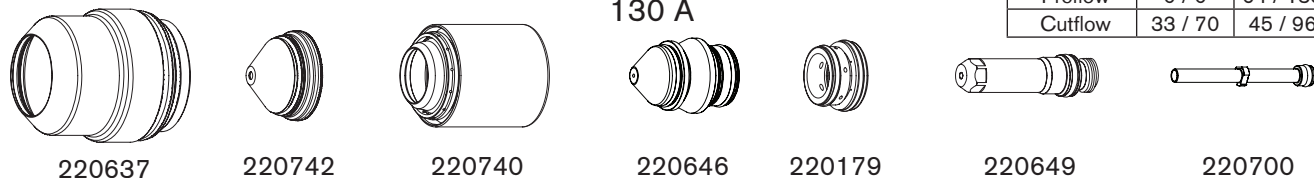
Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
							mm	in	mm/m	ipm	
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	15	2.5	0.10	6350	250	130
Ar	Air	50	10	50	10	15	3.0	0.12	2540	100	75

**Mild steel bevel cutting**

O<sub>2</sub> Plasma / Air Shield

130 A

Flow rates – lpm/scfh		
	O <sub>2</sub>	Air
Preflow	0 / 0	64 / 135
Cutflow	33 / 70	45 / 96



Note: Bevel angle range is 0° to 45°.

**Metric**

Select Gases		Set Preflow		Set Cutflow		Minimum Clearance	Equivalent Material Thickness	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	mm	mm	Range (mm)	mm/m	mm	factor %	seconds
O <sub>2</sub>	Air	15	23	84	21	2.0	3	2.5 – 8.6	6505	5.0	200	0.1
							4	2.8 – 8.6	5550			
							5		3.0 – 8.6	4795		
							6	4035				
							8	3.3 – 8.6	3360	6.0		
							10		2680			
			12		3.8 – 8.6		2200	7.6	0.5			
			15				1665					
			20		4.0 – 8.6		1050	190	1.0			
			25				550					
			32*		4.5 – 8.6		375	10.2	220	1.8		
			38				255					4.0
											Edge start	

**English**

Select Gases		Set Preflow		Set Cutflow		Minimum Clearance	Equivalent Material Thickness	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time	
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	in	in	Range (in)	ipm	in	factor %	seconds	
O <sub>2</sub>	Air	15	23	84	21	0.08	0.135	0.10 – 0.34	240	0.20	200	0.1	
							3/16	0.11 – 0.34	190				0.22
							1/4		0.12 – 0.34	150			
							5/16	0.13 – 0.34		132			0.26
							3/8		0.15 – 0.34	110			
							1/2	0.16 – 0.34		80			190
			5/8		0.18 – 0.34		60		220				
			3/4				0.18 – 0.34	45		0.40		4.0	
			1		0.18 – 0.34			20	10				Edge start
			1-1/4*				0.18 – 0.34	15		10			
			1-1/2		10								

**Marking**

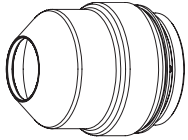
Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
						Amps	mm	in	mm/m	ipm	Volts
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	15	2.5	0.10	6350	250	130
Ar	Air	50	10	50	10	15	3.0	0.12	2540	100	75

\* Suggestions for piercing 32 mm (1-1/4 in) mild steel: 1. Turn preflow on during IHS, 2. Use ohmic contact during IHS, 3. Use pierce complete when piercing.

## OPERATION

### Stainless steel N<sub>2</sub> Plasma / N<sub>2</sub> Shield 45 A

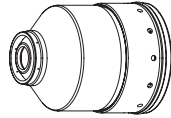
Flow rates – lpm/scfh	
N <sub>2</sub>	
Preflow	24 / 51
Cutflow	75 / 159



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220202



220755



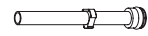
220201



220180



220308



220340

### Metric

Select Gases		Set Preflow		Set Cutflow		Material Thickness mm	Arc Voltage Volts	Torch-to-Work Distance mm	Cutting Speed mm/m	Initial Pierce Height		Pierce Delay Time Seconds
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					mm	Factor %	
N <sub>2</sub>	N <sub>2</sub>	35	5	62	49	0.8	94	2.5	6380	3.8	150	0.0
						1			5880			0.1
						1.2			5380			0.2
						1.5	4630					
						2	3935					
						2.5	3270					
						3	2550					
						4	1580		0.3			

### English

Select Gases		Set Preflow		Set Cutflow		Material Thickness in	Arc Voltage Volts	Torch-to-Work Distance in	Cutting Speed ipm	Initial Pierce Height		Pierce Delay Time Seconds
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					in	Factor %	
N <sub>2</sub>	N <sub>2</sub>	35	5	62	49	0.036	94	0.10	240	0.15	150	0.0
						0.048			210			0.1
						0.060	95		180			0.2
						0.075	97		160			
						0.105	101		120			
						0.135	103		75			

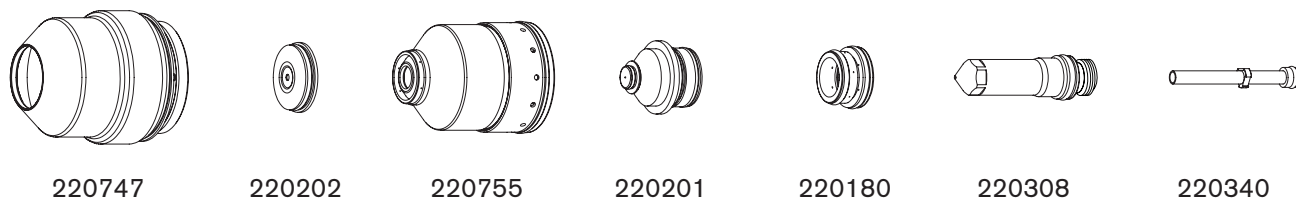
### Marking

Select Gases		Set Preflow		Set Cutflow		Amperage Amps	Torch-to-Work Distance		Marking Speed		Arc Voltage Volts
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas		mm	in	mm/m	ipm	
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	15	2.5	0.10	6350	250	85
Ar	N <sub>2</sub>	90	10	90	10	12	2.5	0.10	2540	100	65

Note: This process produces a darker cut edge than the 45 A, F5/N<sub>2</sub> stainless steel process.

**Stainless steel**  
F5 Plasma / N<sub>2</sub> Shield  
45 A

Flow rates – lpm/scfh		
	F5	N <sub>2</sub>
Preflow	0 / 0	43 / 91
Cutflow	8 / 17	65 / 138



**Metric**

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					mm	Volts	
F5	N <sub>2</sub>	35	18	62	49	0.8	99	2.5	6570	3.8	150	0.2
						1			5740			
						1.2			4905			
						1.5			3890			
						2			3175			
						2.5			2510			
						3			2010			
					4	1435						
					11	6	110	2.0	845		190	0.5

**English**

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					in	Volts	
F5	N <sub>2</sub>	35	18	62	49	0.036	99	0.10	240	0.15	150	0.2
						0.048			190			
						0.060			150			
						0.075			130			
						0.105			90			
						0.135			65			
						3/16			45			
					1/4	30						
					11	108	0.08	45		190	0.4	
						110		30			0.5	

**Marking**

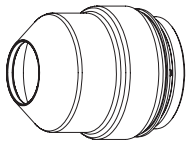
Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
							mm	in	mm/m	ipm	
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	15	2.5	0.10	6350	250	85
Ar	N <sub>2</sub>	90	10	90	10	12	2.5	0.10	2540	100	65

Note: This process produces a shinier cut edge than the 45 A, N<sub>2</sub>/N<sub>2</sub> stainless steel process.

# OPERATION

## Stainless steel F5 Plasma / N<sub>2</sub> Shield 80 A

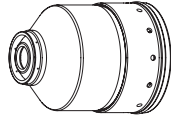
Flow rates – lpm/scfh		
	F5	N <sub>2</sub>
Preflow	0 / 0	67 / 142
Cutflow	31 / 65	87 / 185



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### Metric

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					mm	Volts	
F5	N <sub>2</sub>	33	23	65	60	4	108	3.0	2180	4.5	150	0.2
						5	110	2.7	1700	4.1		0.3
						6	112	2.5	1225	3.8		0.4
						8	116	3.0	895	4.5		0.5
						10	120		560			

### English

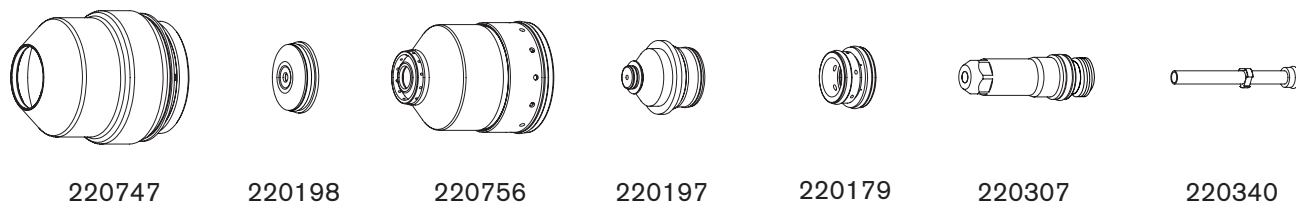
Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					in	Volts	
F5	N <sub>2</sub>	33	23	65	60	0.135	108	0.12	105	0.18	150	0.2
						3/16	110	0.11	60	0.17		0.3
						1/4	112	0.10	45	0.15		0.4
						5/16	116	0.12	35	0.18		0.5
						3/8	120		25			

### Marking

Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas		mm	in	mm/m	ipm	
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	15	2.5	0.10	6350	250	95
Ar	N <sub>2</sub>	50	10	50	10	12	3.0	0.12	2540	100	60

**Stainless steel**  
N<sub>2</sub> Plasma / N<sub>2</sub> Shield  
130 A

Flow rates – lpm/scfh	
N <sub>2</sub>	
Preflow	97 / 205
Cutflow	79 / 168



**Metric**

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					mm	Volts	
N <sub>2</sub>	N <sub>2</sub>	19	51	75	23	6	153	3.0	1960	6.0	200	0.3
						8	155		1630			0.4
						10	156		1300			0.5
						12	162	3.5	900	7.0	0.8	
						15	167	3.8	670	Edge start		
						20	176	4.3	305			

**English**

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					in	Volts	
N <sub>2</sub>	N <sub>2</sub>	19	51	75	23	1/4	153	0.12	75	0.24	200	0.3
						5/16	155		64			0.4
						3/8	156		55			0.5
						1/2	162	0.14	30	0.28	0.8	
						5/8	167	0.15	25	Edge start		
						3/4	176	0.17	15			

**Marking**

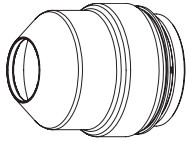
Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas		mm	in	mm/m	ipm	
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	18	2.5	0.10	6350	250	140
Ar	N <sub>2</sub>	50	10	50	10	15	3.0	0.12	2540	100	75

Note: This process produces a rougher, darker cut edge with more dross, and the cut edges are closer to perpendicular than the 130 A, H35/N<sub>2</sub> process.

## OPERATION

### Stainless steel H35 Plasma / N<sub>2</sub> Shield 130 A

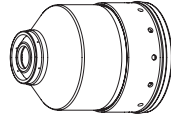
Flow rates – lpm/scfh		
	H35	N <sub>2</sub>
Preflow	0 / 0	76 / 160
Cutflow	26 / 54	68 / 144



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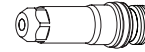
220755



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220340

### Metric

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time	
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield					mm	Volts		mm
H35	N <sub>2</sub>	19	32	75	49	8	150	4.5	1140	7.7	170	0.3	
						10	154		980				
					37	12	158		820				0.5
					24	15	162		580				
						20	165		360				
					16	25	172		260			Edge start	1.3

### English

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time	
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					in	Volts		in
H35	N <sub>2</sub>	19	32	75	49	5/16	150	0.18	45	0.31	170	0.3	
						3/8	154		40				
					37	1/2	158		30				0.5
					24	5/8	162		20				
						3/4	165		15				
					16	1	172		10			Edge start	1.3

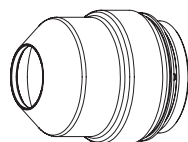
### Marking

Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
							mm	in	mm/m	ipm	
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	18	2.5	0.10	6350	250	130
Ar	N <sub>2</sub>	50	10	50	10	15	3.0	0.12	2540	100	75

Note: This process produces a smoother, shinier cut edge with less dross, and the cut edges are less perpendicular than the 130 A, N<sub>2</sub>/N<sub>2</sub> process.

**Stainless steel**  
H35 and N<sub>2</sub> Plasma / N<sub>2</sub> Shield  
130 A

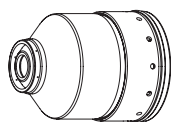
Flow rates – lpm/scfh		
	H35	N <sub>2</sub>
Preflow	0 / 0	97 / 205
Cutflow	13 / 28	71 / 150



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220755



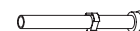
220197



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**Metric**

Select Gases		Set Preflow		Set Cutflow				Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	Mix Gas 1	Mix Gas 2	mm	Volts	mm	mm/m	mm	Factor %	Seconds
H35	N <sub>2</sub>	19	51	75	38	32	18	6	150	3.0	1835	6.0	200	0.3
								8	152		1515			
					10			153	1195					
					12			160	3.5	875	7.0	0.5		
					15			168	3.8	670	7.6	0.8		
20	176	4.3	305	7.7	180	1.3								

**English**

Select Gases		Set Preflow		Set Cutflow				Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	Mix Gas 1	Mix Gas 2	in	Volts	in	ipm	in	Factor %	Seconds
H35	N <sub>2</sub>	19	51	75	38	32	18	1/4	150	0.12	70	0.24	200	0.3
								5/16	152		60			
					3/8			153	50					
					1/2			160	0.14	30	0.28	0.5		
					5/8			168	0.15	25	0.30	0.8		
3/4	176	0.17	15	0.31	180	1.3								

**Marking**

Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
						Amps	mm	in	mm/m	ipm	Volts
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	18	2.5	0.10	6350	250	130
Ar	N <sub>2</sub>	50	10	50	10	15	3.0	0.12	2540	100	75

Note: This process produces a smoother, shinier cut edge with less dross, and the cut edges are less perpendicular than the 130 A, N<sub>2</sub>/N<sub>2</sub> process. Edge color is more silver than the H35/N<sub>2</sub> process.



# OPERATION

## Stainless steel bevel cutting

N<sub>2</sub> Plasma / N<sub>2</sub> Shield

130 A

Flow rates – lpm/scfh	
N <sub>2</sub>	
Preflow	97 / 205
Cutflow	125 / 260



Note: Bevel angle range is 0° to 45°.

### Metric

Select Gases		Set Preflow		Set Cutflow		Minimum Clearance	Equivalent Material Thickness	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time						
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	mm	mm	Range (mm)	mm/m	mm	factor %	seconds						
N <sub>2</sub>	N <sub>2</sub>	19	51	75	63	2.0	6	3.0 – 10.0	1960	6.0	200	0.3						
							8		1630			0.4						
							10		1300			0.5						
														12	3.5 – 10.0	900	7.0	0.8
														15	3.8 – 10.0	670	Edge start	
														20	4.3 – 10.0	305	Edge start	

### English

Select Gases		Set Preflow		Set Cutflow		Minimum Clearance	Equivalent Material Thickness	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time						
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	in	in	Range (in)	ipm	in	factor %	seconds						
N <sub>2</sub>	N <sub>2</sub>	19	51	75	63	0.08	1/4	0.12 – 0.40	75	0.24	200	0.3						
							5/16		64			0.4						
							3/8		55			0.5						
														1/2	0.14 – 0.40	30	0.28	0.8
														5/8	0.15 – 0.40	25	Edge start	
														3/4	0.17 – 0.40	15	Edge start	

### Marking

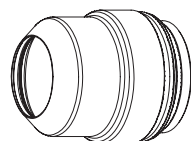
Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
						Amps	mm	in	mm/m	ipm	Volts
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	18	2.5	0.10	6350	250	140
Ar	N <sub>2</sub>	50	10	50	10	15	3.0	0.12	2540	100	75

## Stainless steel bevel cutting

H35 Plasma / N<sub>2</sub> Shield

130 A

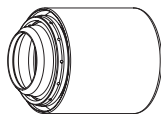
Flow rates – lpm/scfh		
	H35	N <sub>2</sub>
Preflow	0 / 0	90 / 190
Cutflow	26 / 54	114 / 240



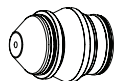
220637



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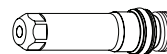
220739



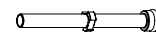
220656



220179



220606



220571

Note: Bevel angle range is 0° to 45°.

### Metric

Select Gases		Set Preflow		Set Cutflow		Minimum Clearance	Equivalent Material Thickness	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	mm	mm	Range (mm)	mm/m	mm	factor %	seconds
H35	N <sub>2</sub>	19	32	75	63	2.0	8	4.5 – 10.0	1140	7.7	170	0.3
							10		980			
							12		820			
							15		580			
							20		360			
							25		260			Edge start

### English

Select Gases		Set Preflow		Set Cutflow		Minimum Clearance	Equivalent Material Thickness	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	in	in	Range (in)	ipm	in	factor %	seconds
H35	N <sub>2</sub>	19	32	75	63	0.08	5/16	0.18 – 0.40	45	0.31	170	0.3
							3/8		40			
							1/2		30			
							5/8		20			
							3/4		15			
							1		10			Edge start

### Marking

Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
						Amps	mm	in	mm/m	ipm	Volts
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	18	2.5	0.10	6350	250	130
Ar	N <sub>2</sub>	50	10	50	10	15	3.0	0.12	2540	100	75

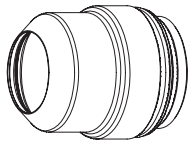
# OPERATION

## Stainless steel bevel cutting

H35 and N<sub>2</sub> Plasma / N<sub>2</sub> Shield

130 A

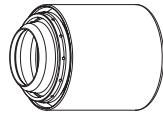
Flow rates – lpm/scfh		
	H35	N <sub>2</sub>
Preflow	0 / 0	97 / 205
Cutflow	13 / 28	120 / 250



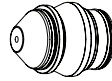
220637



220738



220739



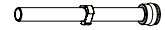
220656



220179



220606



220571

Note: Bevel angle range is 0° to 45°.

### Metric

Select Gases		Set Preflow		Set Cutflow				Minimum Clearance	Equivalent Material Thickness	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time								
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	Mix Gas 1	Mix Gas 2	mm	mm	Range (mm)	mm/m	mm	Factor %	Seconds								
H35	N <sub>2</sub>	19	51	75	80	32	18	2.0	6	3.0 – 10.0	1835	6.0	200	0.3								
									8		1515											
									10		1195											
																		12	3.5 – 10.0	875	7.0	0.5
																		15	3.8 – 10.0	670	7.6	0.8
																		20	3.0 – 10.0	305	7.7	180

### English

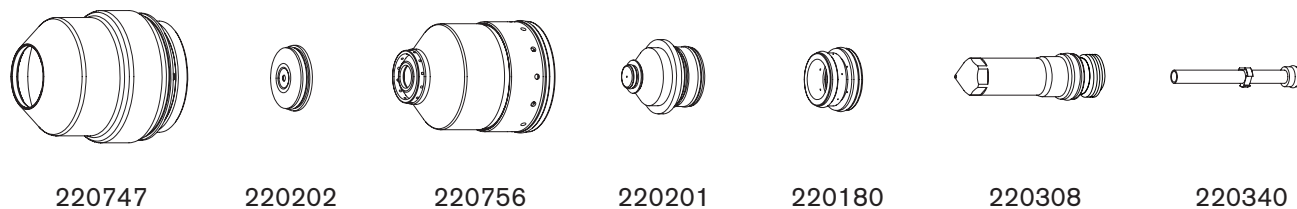
Select Gases		Set Preflow		Set Cutflow				Minimum Clearance	Equivalent Material Thickness	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time								
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	Mix Gas 1	Mix Gas 2	in	in	Range (in)	ipm	in	Factor %	Seconds								
H35	N <sub>2</sub>	19	51	75	80	32	18	0.080	1/4	0.12 – 0.40	70	0.24	200	0.3								
									5/16		60											
									3/8		50											
																		1/2	0.14 – 0.40	30	0.28	0.5
																		5/8	0.15 – 0.40	25	0.30	0.8
																		3/4	0.17 – 0.40	15	0.31	180

### Marking

Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
						Amps	mm	in	mm/m	ipm	Volts
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	18	2.5	0.10	6350	250	130
Ar	N <sub>2</sub>	50	10	50	10	15	3.0	0.12	2540	100	75

**Aluminum**  
Air Plasma / Air Shield  
45 A

Flow rates – lpm/scfh	
Air	
Preflow	45 / 95
Cutflow	78 / 165



**Metric**

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time			
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					mm	Volts		mm	mm	Factor %
Air	Air	35	19	62	49	1.2	130	2.5	4750	3.8	150	0.2			
						1.5	115		4160						
						2	113		3865						
						2.5	110		3675						
						3	107		2850						
					33	4	102	1.8	2660				2.7	0.3	
						6	117	3.0	1695				4.5		0.6

**English**

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time			
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					in	Volts		in	ipm	in
Air	Air	35	19	62	49	0.040	130	0.10	220	150	150	0.2			
						0.051	115		170						
						0.064	113		160						
						0.102	110		140						
						0.125	102		0.07				110	0.11	0.3
					33	3/16	114	0.12	90				0.18	0.4	
						1/4	117		60						

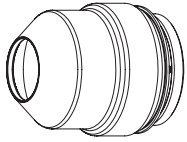
**Marking**

Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
							mm	in	mm/m	ipm	
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	15	2.5	0.10	6350	250	85
Ar	Air	90	10	90	10	12	2.5	0.10	2540	100	75

## OPERATION

### Aluminum Air Plasma / Air Shield 130 A

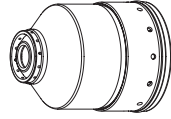
Flow rates – lpm/scfh	
Air	
Preflow	73 / 154
Cutflow	78 / 165



220747



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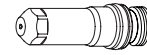
220756



220197



220179



220181



220340

### Metric

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					mm	Volts	
Air	Air	19	31	75	23	6	153	2.8	2370	5.6	200	0.2
						8	154		1920			0.3
						10		3.0	1465	0.5		
						12	1225		0.8			
						15	1050		6.6	1.3		
						20	162	3.5	725	7.0		
						25	172	4.0	525			Edge start

### English

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					in	Volts	
Air	Air	19	31	75	23	1/4	153	0.11	90	0.22	200	0.2
						5/16	154		76			0.3
						3/8		0.12	60	0.5		
						1/2	156		45	0.8		
						5/8	158		0.13	40		0.26
						3/4	162	0.14	30	0.28		
						1	172	0.16	20			Edge start

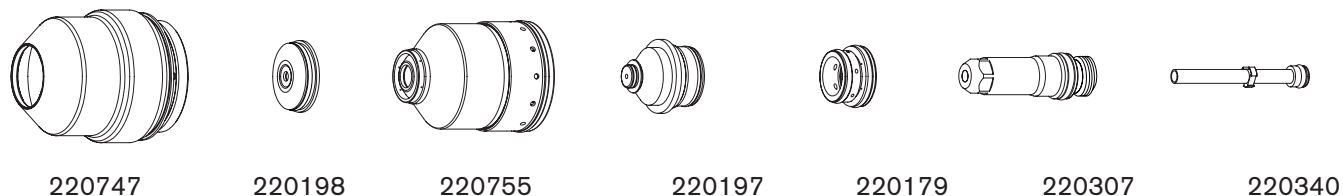
### Marking

Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
							mm	in	mm/m	ipm	
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	18	2.5	0.10	6350	250	120
Ar	Air	50	10	50	10	15	3.0	0.12	2540	100	82

Note: This process produces a rougher cut edge that is less perpendicular than the 130 A, H35/N<sub>2</sub> process.

**Aluminum**  
H35 Plasma / N<sub>2</sub> Shield  
130 A

Flow rates – lpm/scfh		
	H35	N <sub>2</sub>
Preflow	0 / 0	76 / 160
Cutflow	26 / 54	68 / 144



**Metric**

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					mm	Volts	
H35	N <sub>2</sub>	19	32	75	49	8	158	5.0	1775	6.5	130	0.3
						10			1615			
					37	12	156	4.5	1455	7.7	170	0.5
					24	15			1305			0.8
					16	20			940			1.3
	25	176	540	Edge start								

**English**

Select Gases		Set Preflow		Set Cutflow		Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas					in	Volts	
H35	N <sub>2</sub>	19	32	75	49	5/16	158	0.20	70	0.26	130	0.3
						3/8			65			
					37	1/2	156	0.18	55	0.31	170	0.5
					24	5/8			50			0.8
					16	3/4			40			1.3
	1	176	20	Edge start								

**Marking**

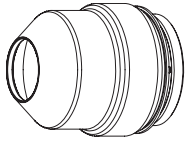
Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
							mm	in	mm/m	ipm	
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	18	2.5	0.10	6350	250	130
Ar	N <sub>2</sub>	50	10	50	10	15	3.0	0.12	2540	100	75

# OPERATION

## Aluminum

H35 and N<sub>2</sub> Plasma / N<sub>2</sub> Shield  
130 A

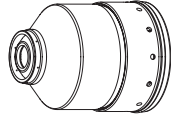
Flow rates – lpm/scfh		
	H35	N <sub>2</sub>
Preflow	0 / 0	97 / 205
Cutflow	13 / 28	71 / 150



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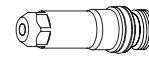
220755



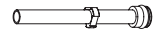
220197



220179



220307



220340

### Metric

Select Gases		Set Preflow		Set Cutflow				Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time	
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	Mix Gas 1	Mix Gas 2	mm	Volts	mm	mm/m	mm	Factor %	Seconds	
H35	N <sub>2</sub>	19	51	75	27	32	18	6	156	3.5	2215	7.0	200	0.3	
								8	157		1915				
								10	158		1615				
								12	159	3.0	1455	6.0			0.5
								15	160		1215				0.8
								20	163		815				1.3

### English

Select Gases		Set Preflow		Set Cutflow				Material Thickness	Arc Voltage	Torch-to-Work Distance	Cutting Speed	Initial Pierce Height		Pierce Delay Time	
Plasma gas	Shield gas	Plasma gas	Shield gas	Plasma gas	Shield gas	Mix Gas 1	Mix Gas 2	in	Volts	in	ipm	in	Factor %	Seconds	
H35	N <sub>2</sub>	19	51	75	27	32	18	1/4	156	0.14	85	0.28	200	0.3	
								5/16	157		75				
								3/8	158		65				
								1/2	159	0.12	55	0.24			0.5
								5/8	160		45				0.8
								3/4	163		35				1.3

### Marking

Select Gases		Set Preflow		Set Cutflow		Amperage	Torch-to-Work Distance		Marking Speed		Arc Voltage
						Amps	mm	in	mm/m	ipm	Volts
N <sub>2</sub>	N <sub>2</sub>	10	10	10	10	18	2.5	0.10	6350	250	130
Ar	N <sub>2</sub>	50	10	50	10	15	3.0	0.12	2540	100	75