8.0 TORCH OPERATION

Torch Parts Selection

The application will determine which torch parts must be used. Refer to the cut charts for the proper torch parts to install for a selected application.

CAUTION

Do not interchange parts. Make sure all torch parts correspond with the plasma and shield gases in use for the application.

Pre-Setting Power Supply Controls

Set the Power Supply controls prior to operating the system as described in the power supply Operating Manual. Refer to the cutting charts for the proper cutting parameters for the application.

Recommended Cutting Speeds

Cutting speed depends on material and thickness. The following factors may affect system performance:

- Torch parts wear; gas quality and mass flow / pressure; operator experience; torch standoff height; proper work cable connection; alloy content of material; cutting table capabilities & accuracy.

NOTE

This information represents realistic expectations using recommended practices and well-maintained systems. Actual speeds may vary from those shown in the charts depending on the alloy content of the selected material. Voltage ratings may vary depending on the CNC, cutting table, or height controller.

For complete cutting speed chart data refer to the following pages.

Consumables Notes

Always assemble the consumable parts properly. Improper assembly may damage the parts or the torch head. Ensure that parts are seated together correctly.

Always check the shield gas distributor for charring when changing parts. Do not use the distributor if it is charred. Replace the shield gas distributor regularly to ensure proper performance.

Operational Notes

Always purge the torch after changing consumables or if the power supply has been shut off. The power supply's built-in purge function may not be enough to properly purge the torch. Manually flow gas with the 'Test Cut Flow' and 'Test Pre-Flow' functions to help remove any remaining coolant from the lines.

Slightly increasing the preflow pressure may increase piercing ability on thicker materials. However, increasing the preflow pressure too much may affect plasma starting reliability (misfiring).

Decreasing preflow pressure may improve piloting. Preflow pressure can be reduced without affecting cut performance as long as the pilot arc still transfers to the plate well. Decreasing preflow pressure too much will affect the ability to transfer the arc to the plate and cause damage to the tip.

Notes on Chart Measurements

Pressure measurements in the charts are in psi(g), not psi(a). 0 psi(g) = 14.7 psi(a) (1 atmosphere).

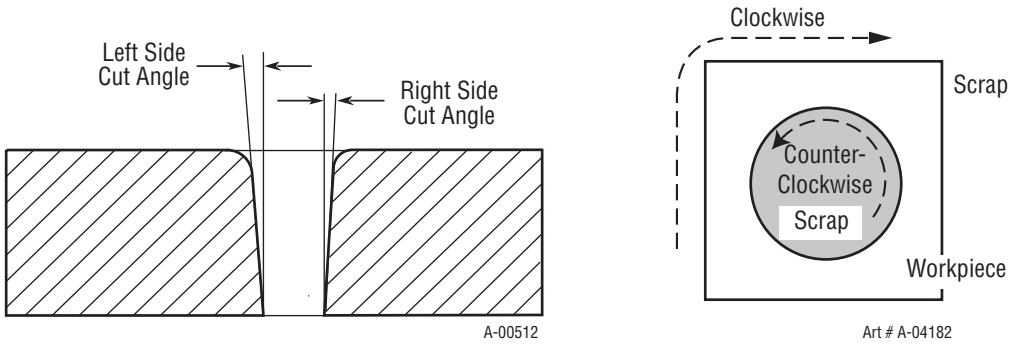
Ball settings are at the center of the gauge ball.

Ohmic Sensing

Ohmic sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Direction of Cut

The plasma gas stream swirls as it leaves the torch to maintain a stable arc column. This swirl effect results in one side of a cut being more square than the other. Viewed along the direction of travel, the right side of the cut is more square than the left.



Side Characteristics Of Cut

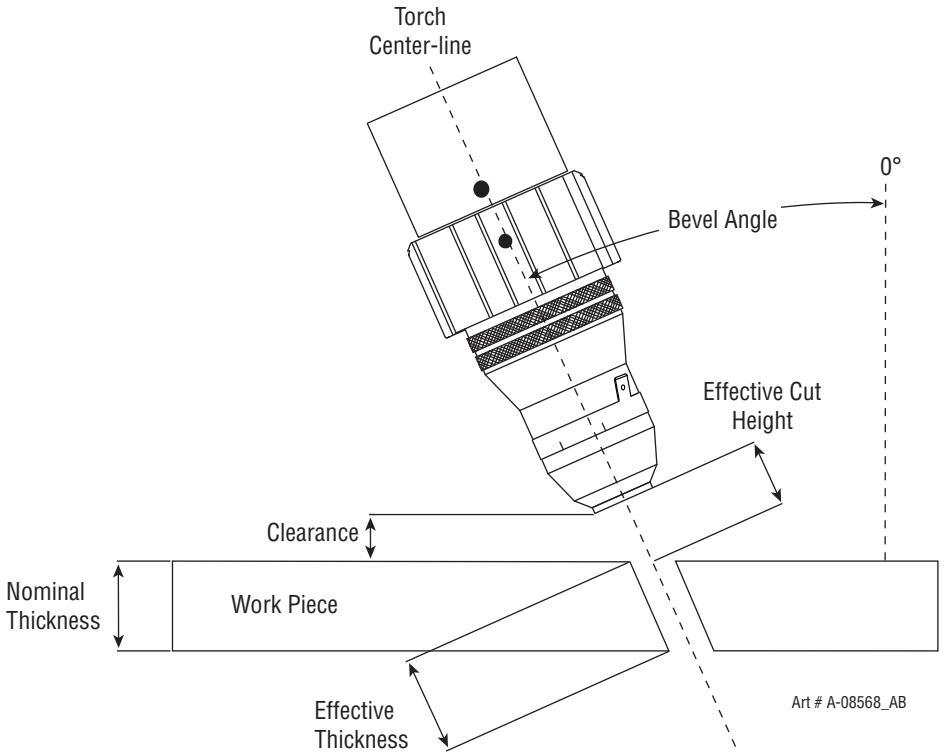
To make a square - edged cut along an inside diameter of a circle, move the torch counterclockwise around the circle. To keep the square edge along an outside diameter cut, move the torch in a clockwise direction.

Underwater Cutting

Cutting on a water table either underwater or with the water touching the plate or with a water muffler system is not recommended. If a water table is used the water level must be a minimum of 4 inches / 100 mm from the bottom of the plate. Failure to follow this recommendation could result in poor cut quality and short consumable parts life.

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.
Effective Thickness	The length of the cut edge, or the distance the arc travels through the material while cutting. Effective Thickness is equal to the nominal thickness divided by the cosine of the bevel angle. Effective Thicknesses are listed in the cut chart.
Clearance	The vertical distance from the lowest point of the torch to the surface of the workpiece.
Effective Cut Height	The linear distance from the center of the torch outlet to the workpiece surface along the torch center-line. A range of Effective Cut Height 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 2 mm (0.125 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.

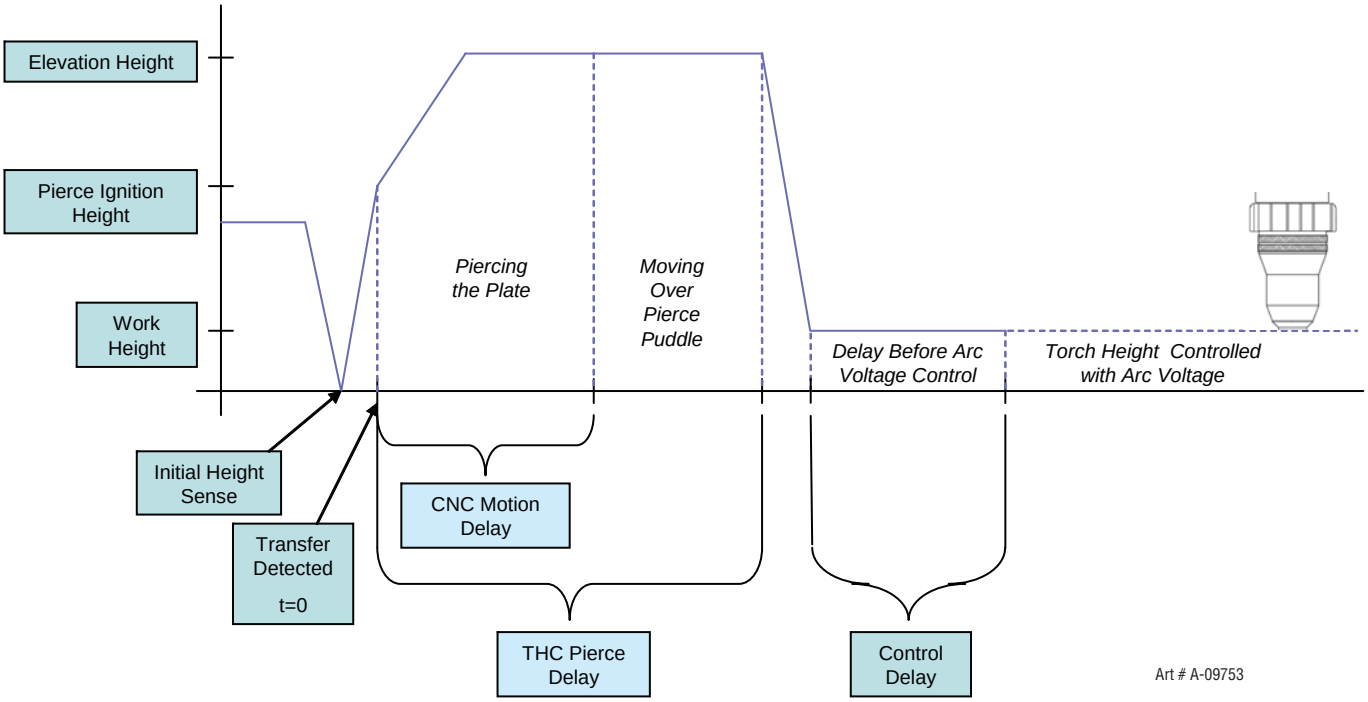

Torch
Center-line
0°
Bevel Angle
Effective Cut
Height
Clearance
Nominal
Thickness
Work Piece
Effective
Thickness
Art # A-08568_AB

General Definitions:

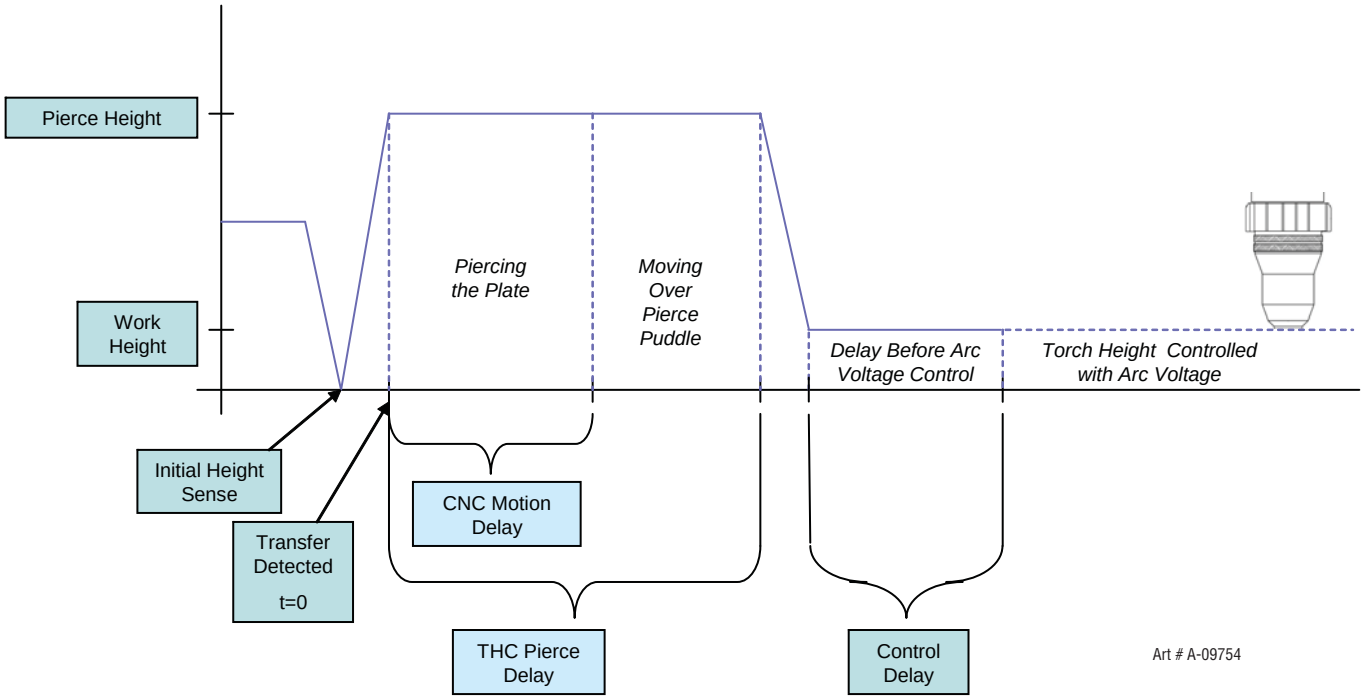
THC	Torch Height Control
Arc Voltage	Voltage measurement between the electrode and the work piece which is used to control the torch to work distance during cutting.
Cut Height	Distance between the plasma torch and the work piece during cutting.
Pierce Ignition Height	Torch to work distance during arc transfer. This setting is typically lower when using a THC with elevation height in order to increase transfer reliability.
Elevation Height	Distance from Pierce Ignition Height that the torch raises to in order to prevent torch damage during plate piercing.
THC Pierce Delay	Time following arc transfer that the torch remains at Pierce or Elevation Height. This is often longer than the CNC Motion Delay in order to allow the torch to clear the pierce puddle.
CNC Motion Delay	Time following arc transfer to allow the arc to piece through the plate before the table XY motion starts.
Control delay	Often called AVC delay, this is time starting when torch is moved to Cut Height until THC starts controlling height to the sampled arc voltage.
Cut Speed	Recommended cut speed based on the material thickness, torch parts and gas combination used.
Kerf Width	The width of material removed during the cut.

Understanding Time-line and Cutting Process of THC

Torch Height Control (THC) WITH Elevation Height



Torch Height Control (THC) WITHOUT Elevation Height



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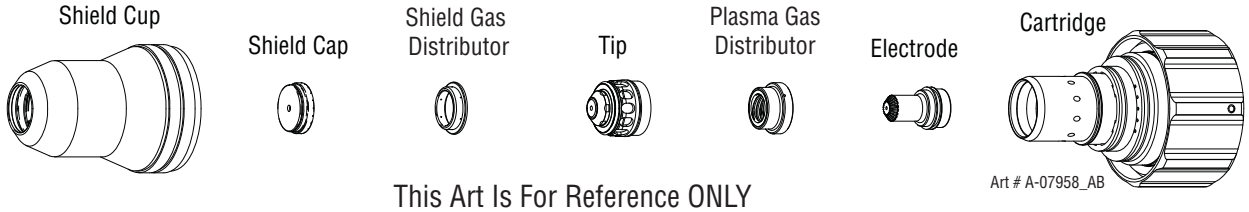
8.01 Standard Cutting Up To 100 Amp

Mild Steel
30A
O_2 Plasma / O_2 Shield

	Flow Rates SLPM/SCFH	
	O_2	Air
Preflow	4 / 8	16 / 33
Cutflow	15 / 32	0 / 0



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1098	22-1272	22-1097	22-1041	22-1069	22-1020

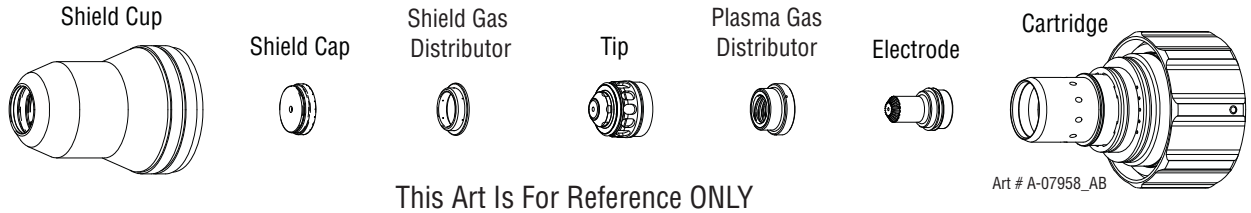
			GCM-2010					SC-3000 Torch Height Contol (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (O_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball**	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
20	-	0.036	60	40	70	N/A	25	105	0.080	0.2	0.090	0.060	0.8	0.120	130.0	0.2	0.061
16	-	0.060	60	40	70	N/A	25	111	0.080	0.3	0.090	0.060	0.7	0.120	70.0	0.3	0.074
14	-	0.075	60	40	70	N/A	25	111	0.100	0.4	0.100	0.080	0.6	0.150	65.0	0.4	0.070
12	-	0.105	60	40	70	N/A	25	111	0.110	0.4	0.100	0.080	0.6	0.150	55.0	0.4	0.073
10	-	0.135	60	40	70	N/A	25	112	0.130	0.5	0.125	0.120	0.5	0.200	50.0	0.5	0.076
-	**3/16**	**0.188**	**60**	**40**	**70**	**N/A**	**25**	**116**	**0.150**	**0.6**	**0.150**	**0.150**	**0.4**	**0.250**	**30.0**	**0.6**	**0.080**

	GCM-2010					SC-3000 Torch Height Contol (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (O_2)											
(mm)	(Bar)	Ball	(Bar)	Ball**	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
1	4.1	40	4.8	N/A	1.7	106	2.0	0.2	2.3	1.5	0.8	3.0	3090	0.2	1.6
1.5	4.1	40	4.8	N/A	1.7	111	2.0	0.3	2.3	1.5	0.7	3.0	1840	0.3	1.9
2	4.1	40	4.8	N/A	1.7	111	2.6	0.4	2.5	2.0	0.6	3.8	1620	0.4	1.8
2.5	4.1	40	4.8	N/A	1.7	111	2.7	0.4	2.5	2.0	0.6	3.8	1450	0.4	1.8
3	4.1	40	4.8	N/A	1.7	111	3.0	0.4	2.8	2.5	0.6	4.4	1340	0.4	1.9
4	4.1	40	4.8	N/A	1.7	114	3.5	0.5	3.4	3.4	0.5	5.6	1050	0.5	2.0
5	**4.1**	**40**	**4.8**	**N/A**	**1.7**	**117**	**3.9**	**0.6**	**4.0**	**4.0**	**0.4**	**6.6**	**680**	**0.6**	**2.1**

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only
** Set Shield Flow on Pressure

Stainless Steel
30A
Air Plasma / Air Shield

	Flow Rates (SLPM / SCFH)
	Air
Preflow	22 / 47
Cutflow	40 / 85



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1033	22-1274	22-1059	22-1045	22-1077	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
26	-	0.019	60	64	120	20	120	87	0.020	0.0	0.040	0.030	0.7	0.040	350	0.0	0.029
24	-	0.025	60	64	120	20	120	85	0.020	0.0	0.040	0.030	0.7	0.040	320	0.0	0.028
22	-	0.031	60	64	120	20	120	80	0.020	0.0	0.040	0.030	0.7	0.040	310	0.0	0.034
20	-	0.038	60	64	120	20	120	75	0.020	0.1	0.060	0.040	0.6	0.060	300	0.1	0.025
18	-	0.050	60	64	120	20	120	78	0.020	0.2	0.070	0.040	0.5	0.080	150	0.2	0.032
16	**-**	**0.063**	**60**	**64**	**120**	**20**	**120**	**76**	**0.020**	**0.2**	**0.070**	**0.040**	**0.5**	**0.080**	**110**	**0.2**	**0.030**

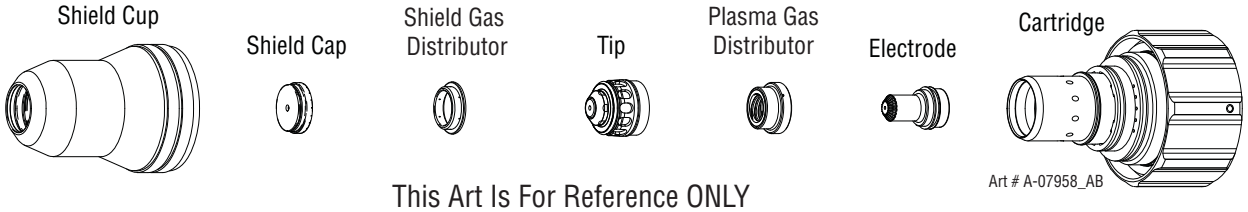
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
0.6	4.1	64	8.3	20	8.3	85	0.5	0.0	1.0	0.8	0.7	1.0	8300	0.0	0.7
0.8	4.1	64	8.3	20	8.3	80	0.5	0.0	1.1	0.8	0.7	1.1	7860	0.0	0.8
1	4.1	64	8.3	20	8.3	75	0.5	0.1	1.6	1.0	0.6	1.6	7190	0.1	0.7
1.5	4.1	64	8.3	20	8.3	77	0.5	0.2	1.8	1.0	0.5	2.0	3100	0.2	0.8
2	**4.1**	**64**	**8.3**	**20**	**8.3**	**74**	**0.5**	**0.2**	**1.8**	**1.0**	**0.5**	**2.0**	**2600**	**0.2**	**0.7**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	20	40 / 2.8	70	80 / 5.5	93	0.100 / 2.5	0.100 / 2.5	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

Stainless Steel
30A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	9 / 19	5 / 19
Cutflow	28 / 59	5 / 19



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1033	22-1274	22-1059	22-1045	22-1077	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
26	-	0.019	90	75	120	4	55	91	0.020	0.0	0.040	0.030	0.5	0.040	600	0.0	0.047
24	-	0.025	90	64	120	4	55	97	0.020	0.0	0.040	0.030	0.5	0.040	440	0.0	0.045
22	-	0.031	90	50	120	4	55	95	0.020	0.0	0.040	0.030	0.5	0.040	420	0.0	0.045
20	-	0.038	90	60	120	5	55	105	0.020	0.1	0.050	0.040	0.4	0.050	300	0.1	0.044
18	-	0.050	90	60	120	5	55	78	0.030	0.1	0.050	0.040	0.4	0.050	250	0.1	0.035
16	-	0.063	90	60	120	5	55	85	0.050	0.2	0.060	0.040	0.4	0.060	205	0.2	0.044

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
0.6	6.2	67	8.3	4	3.8	96	0.5	0.0	1.0	0.8	0.5	1.0	12110	0.0	1.2
0.8	6.2	51	8.3	4	3.8	96	0.5	0.0	1.0	0.8	0.5	1.0	10450	0.0	1.1
1	6.2	60	8.3	5	3.8	102	0.5	0.1	1.3	1.0	0.4	1.3	7480	0.1	1.1
1.5	6.2	60	8.3	5	3.8	83	1.1	0.2	1.4	1.0	0.4	1.4	5550	0.2	1.0
2	**6.2**	**60**	**8.3**	**5**	**3.8**	**93**	**1.9**	**0.3**	**1.8**	**1.0**	**0.4**	**1.8**	**3820**	**0.3**	**1.4**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	20	40 / 2.8	70	80 / 5.5	93	0.100 / 2.5	0.100 / 2.5	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

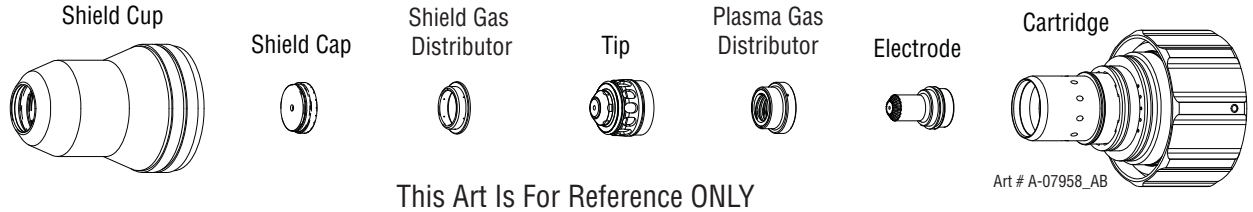
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Aluminum
30A
Air Plasma / Air Shield

	Flow Rates (SLPM / SCFH)
	Air
Preflow	19 / 40
Cutflow	40 / 85



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Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1033	22-1274	22-1059	22-1045	22-1077	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	-	0.025	60	60	120	15	120	86	0.020	0.0	0.040	0.030	0.7	0.040	500	0.0	0.029
-	-	0.037	60	60	120	15	120	86	0.020	0.1	0.060	0.040	0.6	0.060	240	0.1	0.046
-	-	0.052	60	60	120	15	120	84	0.020	0.2	0.080	0.040	0.5	0.100	230	0.2	0.034
-	**-**	**0.064**	**60**	**60**	**120**	**15**	**120**	**80**	**0.020**	**0.2**	**0.080**	**0.040**	**0.5**	**0.100**	**220**	**0.2**	**0.036**

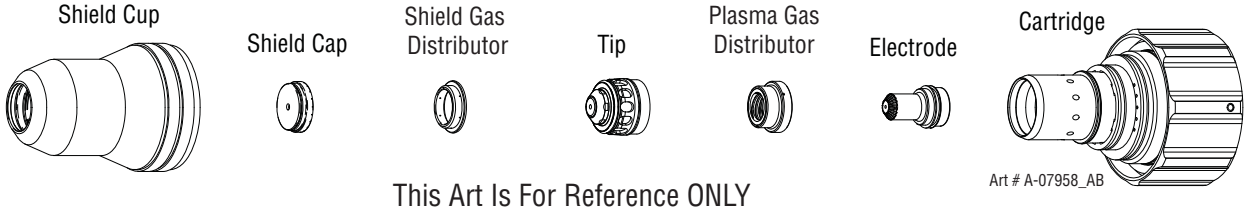
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
1	4.1	60	8.3	15	8.3	86	0.5	0.1	1.6	1.0	0.6	1.7	6060	0.1	1.1
1.5	4.1	60	8.3	15	8.3	82	0.5	0.2	2.0	1.0	0.5	2.5	5690	0.2	0.9
2	**4.1**	**60**	**8.3**	**15**	**8.3**	**75**	**0.5**	**0.2**	**2.0**	**1.0**	**0.5**	**2.5**	**5280**	**0.2**	**1.0**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	20	40 / 2.8	70	80 / 5.5	93	0.100 / 2.5	0.100 / 2.5	0	0.7	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

Stainless Steel
30A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	9 / 19	5 / 19
Cutflow	28 / 59	5 / 19



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1033	22-1274	22-1059	22-1045	22-1077	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
26	-	0.019	90	75	120	4	55	91	0.020	0.0	0.040	0.030	0.5	0.040	600	0.0	0.047
24	-	0.025	90	64	120	4	55	97	0.020	0.0	0.040	0.030	0.5	0.040	440	0.0	0.045
22	-	0.031	90	50	120	4	55	95	0.020	0.0	0.040	0.030	0.5	0.040	420	0.0	0.045
20	-	0.038	90	60	120	5	55	105	0.020	0.1	0.050	0.040	0.4	0.050	300	0.1	0.044
18	-	0.050	90	60	120	5	55	78	0.030	0.1	0.050	0.040	0.4	0.050	250	0.1	0.035
16	**-**	**0.063**	**90**	**60**	**120**	**5**	**55**	**85**	**0.050**	**0.2**	**0.060**	**0.040**	**0.4**	**0.060**	**205**	**0.2**	**0.044**

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
0.6	6.2	67	8.3	4	3.8	96	0.5	0.0	1.0	0.8	0.5	1.0	12110	0.0	1.2
0.8	6.2	51	8.3	4	3.8	96	0.5	0.0	1.0	0.8	0.5	1.0	10450	0.0	1.1
1	6.2	60	8.3	5	3.8	102	0.5	0.1	1.3	1.0	0.4	1.3	7480	0.1	1.1
1.5	6.2	60	8.3	5	3.8	83	1.1	0.2	1.4	1.0	0.4	1.4	5550	0.2	1.0
2	**6.2**	**60**	**8.3**	**5**	**3.8**	**93**	**1.9**	**0.3**	**1.8**	**1.0**	**0.4**	**1.8**	**3820**	**0.3**	**1.4**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	20	40 / 2.8	70	80 / 5.5	93	0.100 / 2.5	0.100 / 2.5	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

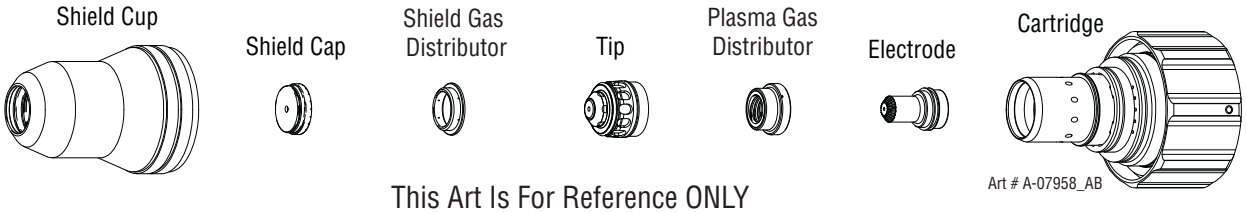
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Mild Steel
50A
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	30 / 63
Cutflow	6 / 14	12 / 26



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1025	22-1272	22-1051	22-1041	22-1069	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
14	-	0.075	70	28	120	20	120	130	0.060	0.0	0.080	0.040	0.8	0.100	280	0.0	0.040
12	-	0.105	70	28	120	20	120	130	0.060	0.0	0.080	0.040	0.8	0.100	270	0.0	0.052
10	-	0.135	70	28	120	20	120	126	0.040	0.4	0.080	0.040	0.4	0.100	160	0.4	0.044
-	3/16	0.188	70	28	120	40	120	130	0.060	0.4	0.100	0.060	0.4	0.110	100	0.4	0.054
-	**1/4**	**0.250**	**70**	**28**	**120**	**40**	**120**	**132**	**0.060**	**0.4**	**0.100**	**0.060**	**0.4**	**0.110**	**90**	**0.4**	**0.062**

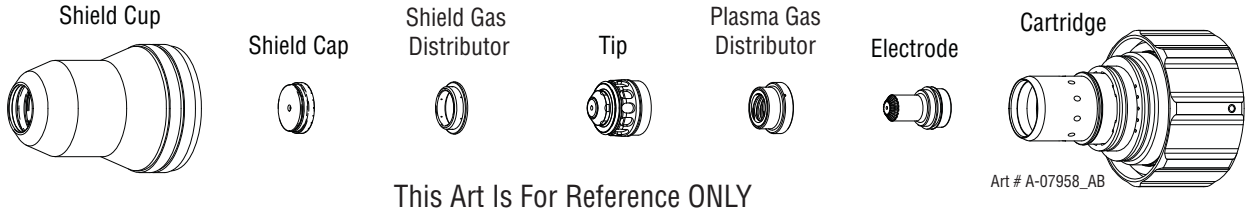
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
2	4.8	28	8.3	20	8.3	130	1.5	0.0	2.0	1.0	0.8	2.5	7080	0.0	1.1
2.5	4.8	28	8.3	20	8.3	130	1.5	0.0	2.0	1.0	0.8	2.5	6910	0.0	1.3
3	4.8	28	8.3	20	8.3	128	1.3	0.2	2.0	1.0	0.6	2.5	5640	0.2	1.2
4	4.8	28	8.3	28	8.3	128	1.2	0.4	2.2	1.2	0.4	2.6	3410	0.4	1.2
5	4.8	28	8.3	40	8.3	130	1.5	0.4	2.5	1.5	0.4	2.8	2500	0.4	1.4
6	**4.8**	**28**	**8.3**	**40**	**8.3**	**132**	**1.5**	**0.4**	**2.5**	**1.5**	**0.4**	**2.8**	**2340**	**0.4**	**1.5**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
18A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	40	40 / 2.8	75	80 / 5.5	143	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

Stainless Steel
50A
Air Plasma / Air Shield

	Flow Rates (SLPM / SCFH)
	Air
Preflow	60 / 127
Cutflow	49 / 104



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Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1034	22-1274	22-1060	22-1041	22-1078	22-1020

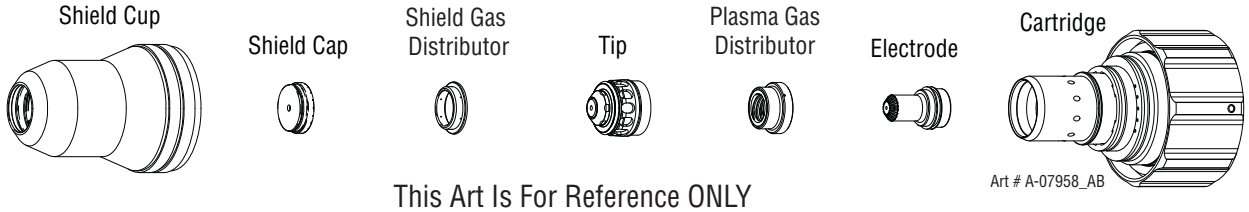
			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
14	-	0.078	100	62	120	75	120	109	0.060	0.0	0.090	0.060	0.4	0.120	180	0.0	0.044
12	-	0.109	100	62	120	75	120	114	0.060	0.0	0.100	0.080	0.4	0.150	130	0.0	0.049
10	-	0.141	100	62	120	75	120	118	0.060	0.1	0.110	0.100	0.3	0.180	120	0.1	0.050
-	3/16	0.188	100	62	120	75	120	124	0.080	0.3	0.125	0.120	0.1	0.200	70	0.3	0.059

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
1.5	6.9	62	8.3	75	8.3	106	1.5	0.0	2.1	1.2	0.4	2.6	5350	0.0	1.0
2	6.9	62	8.3	75	8.3	109	1.5	0.0	2.3	1.5	0.4	3.1	4540	0.0	1.1
2.5	6.9	62	8.3	75	8.3	112	1.5	0.0	2.5	1.9	0.4	3.6	3740	0.0	1.2
3	6.9	62	8.3	75	8.3	115	1.5	0.0	2.6	2.2	0.4	4.0	3230	0.0	1.3
4	6.9	62	8.3	75	8.3	120	1.7	0.2	2.9	2.7	0.2	4.8	2600	0.2	1.4
5	6.9	62	8.3	75	8.3	125	2.1	0.3	3.3	3.2	0.1	5.2	1520	0.3	1.5

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	40	40 / 2.8	75	80 / 5.5	120	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

Stainless Steel
50A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	17 / 37	4 / 15
Cutflow	18 / 38	4 / 15



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1034	22-1274	22-1060	22-1041	22-1078	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
14	-	0.078	60	62	120	4	55	117	0.110	0.2	0.125	0.120	0.5	0.200	170	0.2	0.043
12	-	0.109	60	62	120	4	55	119	0.110	0.2	0.125	0.120	0.5	0.200	150	0.2	0.047

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
2	4.1	62	8.3	4	3.8	117	2.8	0.2	3.2	3.0	0.5	5.1	4310	0.2	1.1
2.5	4.1	62	8.3	4	3.8	118	2.8	0.2	3.2	3.0	0.5	5.1	3980	0.2	1.2
3	**4.1**	**62**	**8.3**	**4**	**3.8**	**120**	**2.8**	**0.2**	**3.2**	**3.0**	**0.5**	**5.1**	**3660**	**0.2**	**1.2**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	40	40 / 2.8	75	80 / 5.5	120	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

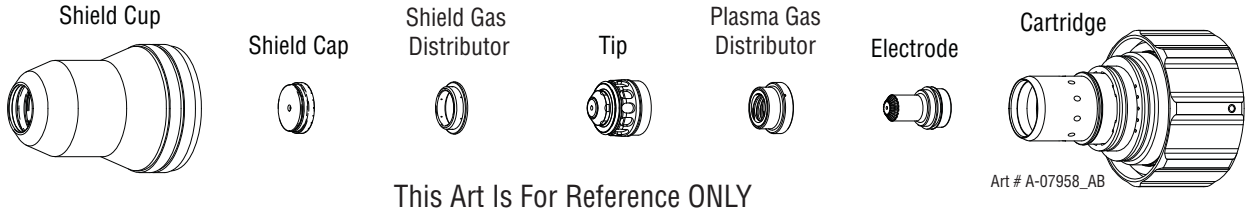
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Aluminum
50A
Air Plasma / Air Shield

	Flow Rates (SLPM / SCFH)
	Air
Preflow	60 / 128
Cutflow	50 / 106



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1034	22-1274	22-1060	22-1041	22-1078	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	-	0.064	100	60	120	75	120	124	0.100	0.0	0.125	0.120	0.4	0.200	140	0.0	0.060
-	-	0.079	100	60	120	75	120	124	0.102	0.0	0.125	0.120	0.4	0.200	117	0.0	0.063
-	-	0.097	100	60	120	75	120	125	0.105	0.0	0.125	0.120	0.4	0.200	90	0.0	0.067
-	-	0.120	100	60	120	75	120	129	0.110	0.0	0.125	0.120	0.4	0.200	60	0.0	0.068
-	**3/16**	**0.188**	**100**	**60**	**120**	**75**	**120**	**133**	**0.120**	**0.2**	**0.125**	**0.120**	**0.2**	**0.200**	**40**	**0.2**	**0.074**

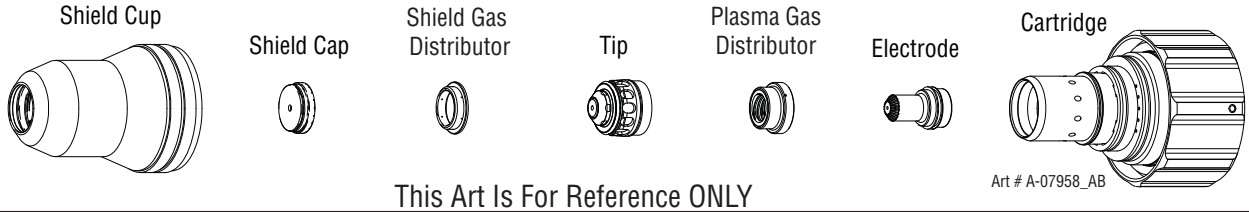
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
2	6.9	60	8.3	75	8.3	124	2.6	0.0	3.2	3.0	0.4	5.1	2990	0.0	1.6
2.5	6.9	60	8.3	75	8.3	125	2.7	0.0	3.2	3.0	0.4	5.1	2240	0.0	1.7
3	6.9	60	8.3	75	8.3	129	2.8	0.0	3.2	3.0	0.4	5.1	1590	0.0	1.7
4	6.9	60	8.3	75	8.3	131	2.9	0.1	3.2	3.0	0.3	5.1	1240	0.1	1.8
5	**6.9**	**60**	**8.3**	**75**	**8.3**	**134**	**3.1**	**0.2**	**3.2**	**3.0**	**0.2**	**5.1**	**950**	**0.2**	**1.9**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	40	40 / 2.8	75	80 / 5.5	120	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

Aluminum
50A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	26 / 56	4 / 15
Cutflow	18 / 38	4 / 15



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1034	22-1274	22-1060	22-1041	22-1078	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	-	0.064	100	60	120	4	55	120	0.110	0.2	0.125	0.120	0.5	0.200	140	0.2	0.045
-	-	0.079	100	60	120	4	55	120	0.110	0.2	0.125	0.120	0.5	0.200	117	0.2	0.045
-	-	0.097	100	60	120	4	55	120	0.110	0.2	0.125	0.120	0.5	0.200	90	0.2	0.046
-	-	0.120	100	60	120	4	55	123	0.110	0.2	0.125	0.120	0.5	0.200	60	0.2	0.050
-	**3/16**	**0.188**	**100**	**60**	**120**	**4**	**55**	**125**	**0.120**	**0.2**	**0.125**	**0.120**	**0.5**	**0.200**	**40**	**0.2**	**0.051**

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
2	6.9	60	8.3	4	3.8	120	2.8	0.2	3.2	3.0	0.5	5.1	2990	0.2	1.2
2.5	6.9	60	8.3	4	3.8	120	2.8	0.2	3.2	3.0	0.5	5.1	2240	0.2	1.2
3	6.9	60	8.3	4	3.8	123	2.8	0.2	3.2	3.0	0.5	5.1	1590	0.2	1.3
4	6.9	60	8.3	4	3.8	124	2.9	0.2	3.2	3.0	0.5	5.1	1240	0.2	1.3
5	**6.9**	**60**	**8.3**	**4**	**3.8**	**125**	**3.1**	**0.2**	**3.2**	**3.0**	**0.5**	**5.1**	**950**	**0.2**	**1.3**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	40	40 / 2.8	75	80 / 5.5	120	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

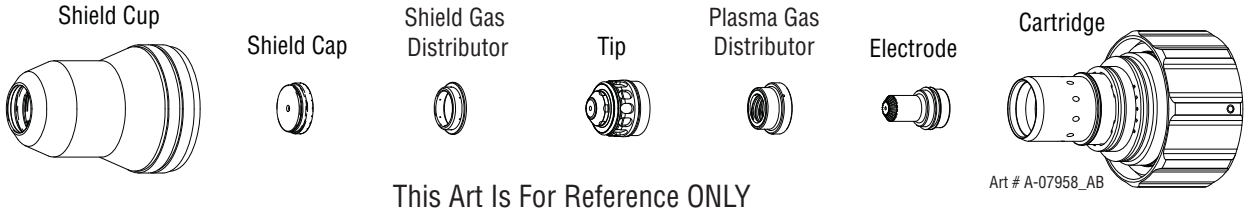
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Mild Steel
70A
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	44 / 94
Cutflow	10 / 21	25 / 52



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1026	22-1272	22-1152	22-1041	22-1170	22-1020

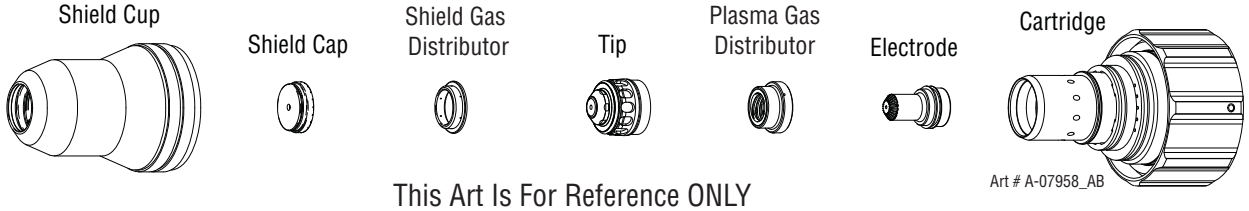
			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
16	-	0.060	46	35	120	41	120	143	0.070	0.1	0.080	0.040	1.0	0.100	300	0.1	0.073
14	-	0.075	46	35	120	41	120	145	0.100	0.1	0.090	0.060	1.0	0.120	250	0.1	0.072
12	-	0.105	46	55	120	60	120	147	0.100	0.2	0.090	0.060	0.9	0.120	225	0.2	0.078
10	-	0.135	46	55	120	60	120	148	0.100	0.2	0.100	0.080	0.9	0.150	180	0.2	0.071
-	3/16	0.188	46	55	120	60	120	149	0.115	0.4	0.125	0.120	0.7	0.200	130	0.4	0.077
-	1/4	0.250	46	55	120	60	120	151	0.120	0.5	0.125	0.120	0.6	0.200	100	0.5	0.083

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
1.5	3.2	35	8.3	41	8.3	143	1.7	0.1	2.0	1.0	1.0	2.5	7700	0.1	1.9
2	3.2	37	8.3	43	8.3	145	2.5	0.1	2.3	1.5	1.0	3.0	6270	0.1	1.8
2.5	3.2	51	8.3	56	8.3	147	2.5	0.2	2.3	1.5	0.9	3.0	5850	0.2	1.9
3	3.2	55	8.3	60	8.3	147	2.5	0.2	2.4	1.7	0.9	3.4	5220	0.2	1.9
4	3.2	55	8.3	60	8.3	148	2.7	0.3	2.8	2.5	0.8	4.4	4030	0.3	1.9
5	3.2	55	8.3	60	8.3	149	2.9	0.4	3.2	3.0	0.7	5.1	3190	0.4	2.0
6	3.2	55	8.3	60	8.3	151	3.0	0.5	3.2	3.0	0.6	5.1	2710	0.5	2.1

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	50	40 / 2.8	100	80 / 5.5	148	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

Stainless Steel
70A
Air Plasma / Air Shield

	Flow Rates (SLPM / SCFH)
	Air
Preflow	66 / 139
Cutflow	52 / 110



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Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1035	22-1274	22-1061	22-1041	22-1079	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
10	-	0.141	84	41	120	94	120	138	0.080	0.3	0.090	0.070	0.3	0.140	120	0.3	0.075
-	3/16	0.188	84	41	120	87	120	144	0.080	0.4	0.090	0.070	0.2	0.140	100	0.4	0.082
-	1/4	0.250	84	41	120	72	120	148	0.130	0.5	0.110	0.110	0.2	0.180	55	0.5	0.085
-	3/8	0.375	84	41	120	72	120	152	0.140	0.6	0.125	0.120	0.2	0.200	40	0.6	0.083
-	**1/2**	**0.500**	**84**	**53**	**120**	**60**	**120**	**160**	**0.140**	**0.8**	**0.190**	**0.150**	**0.2**	**0.280**	**25**	**0.8**	**0.080**

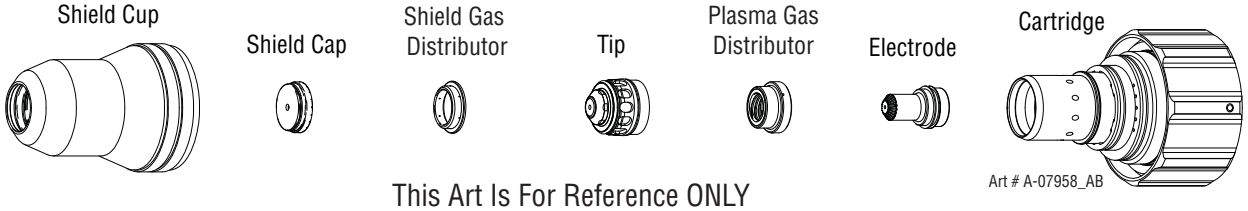
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
3	5.8	41	8.3	97	8.3	135	2.0	0.3	2.3	1.8	0.3	3.6	3300	0.3	1.8
4	5.8	41	8.3	92	8.3	140	2.0	0.3	2.3	1.8	0.3	3.6	2870	0.3	2.0
5	5.8	41	8.3	85	8.3	145	2.2	0.4	2.4	1.9	0.2	3.7	2370	0.4	2.1
6	5.8	41	8.3	75	8.3	147	3.0	0.5	2.7	2.6	0.2	4.3	1650	0.5	2.1
8	5.8	41	8.3	72	8.3	150	3.4	0.6	3.0	2.9	0.2	4.8	1200	0.6	2.1
10	5.8	43	8.3	70	8.3	153	3.6	0.6	3.4	3.2	0.2	5.4	960	0.6	2.1
12	**5.8**	**50**	**8.3**	**63**	**8.3**	**158**	**3.6**	**0.8**	**4.5**	**3.6**	**0.2**	**6.7**	**720**	**0.8**	**2.0**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	50	40 / 2.8	75	80 / 5.5	135	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

Stainless Steel
70A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	15 / 31	5 / 19
Cutflow	8 / 17	5 / 19



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Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1047	22-1274	22-1064	22-1041	22-1084	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
10	-	0.141	45	55	90	5	55	146	0.100	0.3	0.150	0.150	0.2	0.250	120	0.3	0.075
-	3/16	0.188	45	55	90	5	55	150	0.100	0.4	0.150	0.150	0.2	0.250	90	0.4	0.086
-	1/4	0.250	45	55	90	5	55	159	0.150	0.5	0.150	0.150	0.2	0.250	50	0.5	0.095
-	**3/8**	**0.375**	**45**	**55**	**90**	**5**	**55**	**168**	**0.150**	**0.7**	**0.150**	**0.150**	**0.2**	**0.250**	**35**	**0.7**	**0.103**

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
3	3.1	55	6.2	5	3.8	144	2.5	0.3	3.8	3.8	0.2	6.4	3420	0.3	1.8
4	3.1	55	6.2	5	3.8	147	2.5	0.3	3.8	3.8	0.2	6.4	2780	0.3	2.0
5	3.1	55	6.2	5	3.8	151	2.7	0.4	3.8	3.8	0.2	6.4	2130	0.4	2.2
6	3.1	55	6.2	5	3.8	157	3.5	0.5	3.8	3.8	0.2	6.4	1490	0.5	2.4
8	3.1	55	6.2	5	3.8	164	3.8	0.6	3.8	3.8	0.2	6.4	1070	0.6	2.5
10	**3.1**	**55**	**6.2**	**5**	**3.8**	**169**	**3.8**	**0.7**	**3.8**	**3.8**	**0.2**	**6.4**	**830**	**0.7**	**2.6**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
18A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	50	40 / 2.8	75	80 / 5.5	150	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

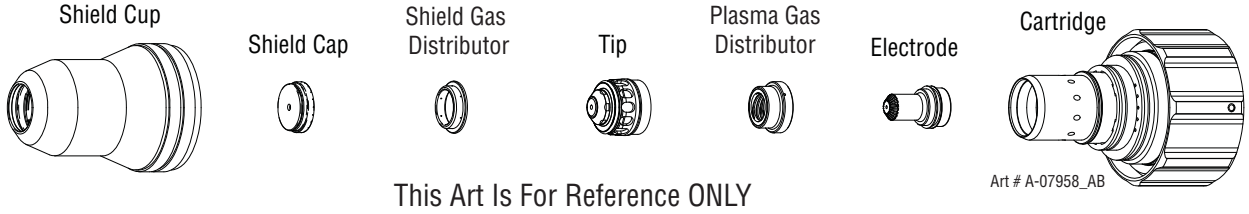
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Aluminum
70A
Air Plasma / Air Shield

	Flow Rates (SLPM / SCFH)
	Air
Preflow	66 / 139
Cutflow	52 / 110



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1035	22-1274	22-1061	22-1041	22-1079	22-1020

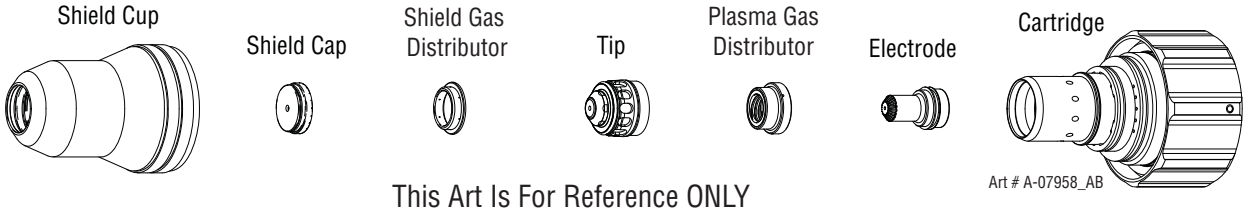
			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	-	0.079	84	42	120	70	120	153	0.060	0.0	0.090	0.070	0.4	0.140	300	0.0	0.058
-	-	0.097	84	42	120	70	120	160	0.080	0.1	0.090	0.070	0.3	0.140	200	0.1	0.062
-	-	0.120	84	42	120	70	120	161	0.090	0.1	0.090	0.070	0.3	0.140	175	0.1	0.065
-	3/16	0.188	84	42	120	70	120	162	0.120	0.1	0.090	0.070	0.3	0.140	100	0.1	0.072
-	1/4	0.250	84	42	120	70	120	166	0.140	0.2	0.120	0.110	0.2	0.180	70	0.2	0.073
-	3/8	0.375	84	42	120	70	120	168	0.140	0.3	0.120	0.110	0.2	0.180	60	0.3	0.078

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
2	5.8	42	8.3	70	8.3	153	1.5	-0.0	2.3	1.8	0.4	3.6	7660	-0.0	1.5
2.5	5.8	42	8.3	70	8.3	160	2.0	0.1	2.3	1.8	0.3	3.6	5040	0.1	1.6
3	5.8	42	8.3	70	8.3	160	2.3	0.1	2.3	1.8	0.3	3.6	4490	0.1	1.6
4	5.8	42	8.3	70	8.3	161	2.7	0.1	2.3	1.8	0.3	3.6	3380	0.1	1.7
5	5.8	42	8.3	70	8.3	163	3.1	0.1	2.4	1.9	0.3	3.7	2430	0.1	1.8
6	5.8	42	8.3	70	8.3	165	3.4	0.2	2.9	2.6	0.2	4.3	1950	0.2	1.8
8	5.8	42	8.3	70	8.3	167	3.6	0.3	3.0	2.8	0.2	4.6	1650	0.3	1.9
10	5.8	42	8.3	70	8.3	168	3.6	0.3	3.0	2.8	0.2	4.6	1490	0.3	2.0

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	50	40 / 2.8	75	80 / 5.5	135	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

Aluminum
70A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	15 / 31	5 / 19
Cutflow	8 / 17	5 / 19



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1047	22-1274	22-1064	22-1041	22-1084	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	-	0.064	45	55	90	5	55	155	0.100	0.0	0.150	0.150	0.2	0.250	300	0.0	0.057
-	-	0.079	45	55	90	5	55	148	0.100	0.0	0.150	0.150	0.2	0.250	240	0.0	0.068
-	-	0.097	45	55	90	5	55	150	0.150	0.1	0.150	0.150	0.2	0.250	200	0.1	0.095
-	-	0.120	45	55	90	5	55	150	0.150	0.2	0.150	0.150	0.2	0.250	180	0.2	0.095
-	3/16	0.188	45	55	90	5	55	150	0.150	0.3	0.150	0.150	0.2	0.250	120	0.3	0.095
-	1/4	0.250	45	55	90	5	55	158	0.150	0.3	0.150	0.150	0.2	0.250	70	0.3	0.097
-	3/8	0.375	45	55	90	5	55	162	0.150	0.5	0.150	0.150	0.2	0.250	35	0.5	0.100

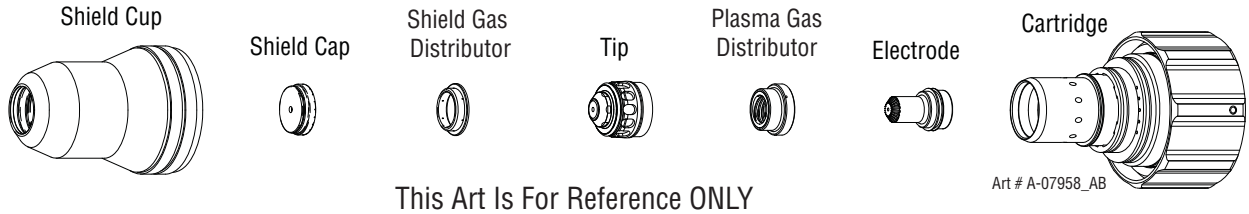
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
2	3.1	55	6.2	5	3.8	148	2.5	0.0	3.8	3.8	0.2	6.4	6120	0.0	1.7
3	3.1	55	6.2	5	3.8	150	3.8	0.1	3.8	3.8	0.2	6.4	4610	0.1	2.4
4	3.1	55	6.2	5	3.8	150	3.8	0.2	3.8	3.8	0.2	6.4	3720	0.2	2.4
5	3.1	55	6.2	5	3.8	151	3.8	0.3	3.8	3.8	0.2	6.4	2860	0.3	2.4
6	3.1	55	6.2	5	3.8	156	3.8	0.3	3.8	3.8	0.2	6.4	2060	0.3	2.5
7	3.1	55	6.2	5	3.8	159	3.8	0.3	3.8	3.8	0.2	6.4	1600	0.3	2.5
8	3.1	55	6.2	5	3.8	160	3.8	0.4	3.8	3.8	0.2	6.4	1320	0.4	2.5

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
18A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	50	40 / 2.8	75	80 / 5.5	150	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

* Pressure of the water supply line should be regulated by customer pressure regulator.
Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.
Note 2: Water source used for shield must be demineralized.

Mild Steel
100A
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	38 / 81
Cutflow	16 / 35	27 / 58



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1027	22-1272	22-1153	22-1041	22-1171	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
10	-	0.135	40	55	120	80	120	138	0.070	0.2	0.125	0.120	0.6	0.200	280	0.2	0.065
-	3/16	0.188	40	55	120	80	120	140	0.090	0.2	0.125	0.120	0.6	0.200	190	0.2	0.070
-	1/4	0.250	40	55	120	80	120	141	0.090	0.3	0.125	0.120	0.5	0.200	145	0.3	0.078
-	3/8	0.375	40	55	120	80	120	143	0.110	0.4	0.150	0.150	0.4	0.250	90	0.4	0.085
-	1/2	0.500	40	55	120	80	120	147	0.120	0.6	0.200	0.150	0.4	0.300	60	0.6	0.097
-	**5/8**	**0.625**	**40**	**55**	**120**	**80**	**120**	**148**	**0.120**	**0.8**	**0.250**	**0.200**	**0.4**	**0.350**	**50**	**0.8**	**0.100**
-	**3/4**	**0.750**	**40**	**55**	**120**	**80**	**120**	**157**	**0.150**	**3.5**	**Edge Start**		**0.4**	**Edge**	**25**	**2.0**	**0.125**

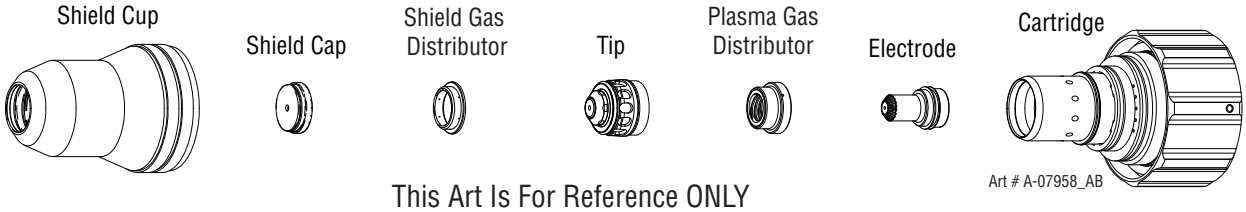
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
4	2.8	55	8.3	80	8.3	139	2.0	0.2	3.2	3.0	0.6	5.1	6140	0.2	1.7
5	2.8	55	8.3	80	8.3	140	2.3	0.2	3.2	3.0	0.6	5.1	4660	0.2	1.8
6	2.8	55	8.3	80	8.3	141	2.3	0.3	3.2	3.0	0.5	5.1	3940	0.3	1.9
8	2.8	55	8.3	80	8.3	142	2.6	0.4	3.5	3.4	0.4	5.7	2960	0.4	2.1
10	2.8	55	8.3	80	8.3	144	2.8	0.4	4.0	3.8	0.4	6.5	2170	0.4	2.2
12	2.8	55	8.3	80	8.3	146	3.0	0.6	4.8	3.8	0.4	7.3	1690	0.6	2.4
15	**2.8**	**55**	**8.3**	**80**	**8.3**	**148**	**3.0**	**0.7**	**6.0**	**4.7**	**0.4**	**8.5**	**1340**	**0.7**	**2.5**
20	**2.8**	**55**	**8.3**	**80**	**8.3**	**157**	**3.8**	**4.3**	**Edge Start**		**0.4**	**Edge**	**640**	**2.4**	**3.2**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
17A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
< 1/16" (0.063") / 1.6 mm.	20 / 1.4	50	40 / 2.8	100	80 / 5.5	144	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
100A
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	62 / 132
Cutflow	24 / 51	51 / 107



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1036	22-1274	22-1062	22-1041	22-1080	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H35)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/4	0.250	40	50	120	97	120	148	0.145	0.3	0.150	0.150	0.3	0.250	72	0.3	0.093
-	3/8	0.375	40	55	120	97	120	152	0.130	0.3	0.200	0.150	0.3	0.300	55	0.3	0.090
-	1/2	0.500	40	55	120	97	120	155	0.130	0.5	0.250	0.200	0.2	0.350	42	0.5	0.095
-	**5/8**	**0.625**	**40**	**62**	**120**	**97**	**120**	**157**	**0.130**	**0.6**	**0.350**	**0.300**	**0.2**	**0.450**	**25**	**0.6**	**0.100**

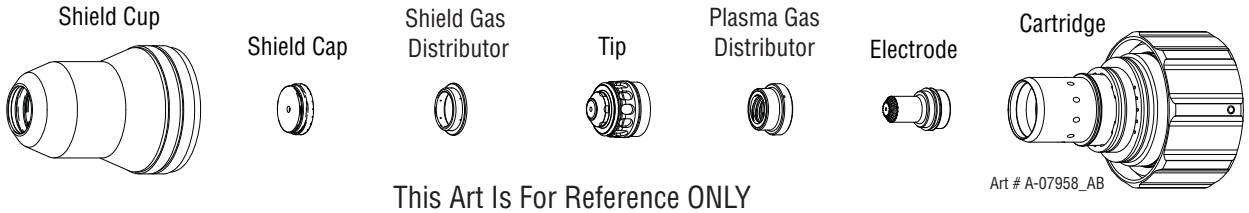
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
6	2.8	49	8.3	97	8.3	148	3.7	0.3	3.7	3.8	0.3	6.2	1880	0.3	2.4
8	2.8	53	8.3	97	8.3	150	3.5	0.3	4.5	3.8	0.3	7.0	1600	0.3	2.3
10	2.8	55	8.3	97	8.3	152	3.3	0.3	5.3	4.0	0.3	7.8	1350	0.3	2.3
12	2.8	55	8.3	97	8.3	154	3.3	0.5	6.1	4.8	0.2	8.6	1140	0.5	2.4
15	**2.8**	**60**	**8.3**	**97**	**8.3**	**156**	**3.3**	**0.6**	**8.2**	**6.9**	**0.2**	**10.7**	**750**	**0.6**	**2.5**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
18A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	50	40 / 2.8	75	80 / 5.5	125	0.120 / 3.0	0.120 / 3.0	0	0.5	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

Stainless Steel
100A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	17 / 35	7 / 26
Cutflow	14 / 29	7 / 26



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Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1036	22-1274	22-1053	22-1041	22-1089	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	3/16	0.188	45	60	90	7	55	148	0.100	0.1	0.200	0.150	0.2	0.300	140	0.1	0.091
-	1/4	0.250	45	60	90	7	55	158	0.100	0.1	0.200	0.150	0.2	0.300	95	0.1	0.091
-	3/8	0.375	45	60	90	7	55	168	0.150	0.2	0.250	0.200	0.2	0.350	65	0.2	0.100
-	1/2	0.500	45	60	90	7	55	168	0.150	0.4	0.250	0.200	0.2	0.350	50	0.4	0.102

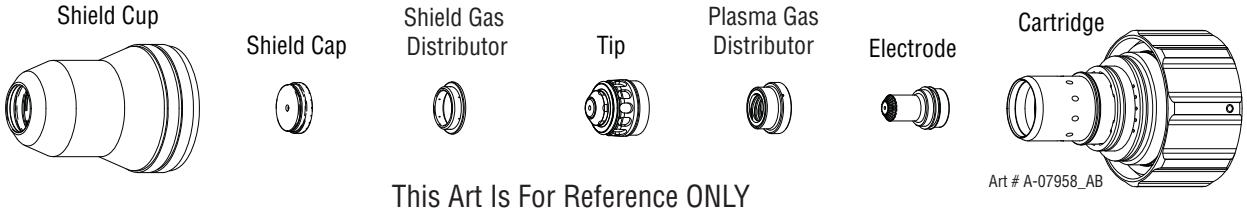
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
5	3.1	60	6.2	7	3.8	149	2.5	0.1	5.1	3.8	0.2	7.6	3390	0.1	2.3
6	3.1	60	6.2	7	3.8	156	2.5	0.1	5.1	3.8	0.2	7.6	2670	0.1	2.3
8	3.1	60	6.2	7	3.8	163	3.2	0.2	5.7	4.5	0.2	8.3	2020	0.2	2.4
10	3.1	60	6.2	7	3.8	168	3.8	0.2	6.4	5.1	0.2	8.9	1590	0.2	2.5
12	3.1	60	6.2	7	3.8	168	3.8	0.4	6.4	5.1	0.2	8.9	1350	0.4	2.6

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
18A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	50	40 / 2.8	75	80 / 5.5	150	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

* Pressure of the water supply line should be regulated by customer pressure regulator.
Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.
Note 2: Water source used for shield must be demineralized.

Aluminum
100A
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	62 / 132
Cutflow	24 / 51	51 / 107



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Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1036	22-1274	22-1062	22-1041	22-1080	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H35)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	3/8	0.375	40	67	120	62	120	152	0.154	0.2	0.250	0.200	0.4	0.350	60	0.2	0.105
-	1/2	0.500	40	67	120	62	120	158	0.150	0.2	0.250	0.200	0.4	0.350	50	0.2	0.110
-	**5/8**	**0.625**	**40**	**67**	**120**	**62**	**120**	**160**	**0.150**	**0.5**	**0.250**	**0.200**	**0.2**	**0.350**	**35**	**0.5**	**0.110**

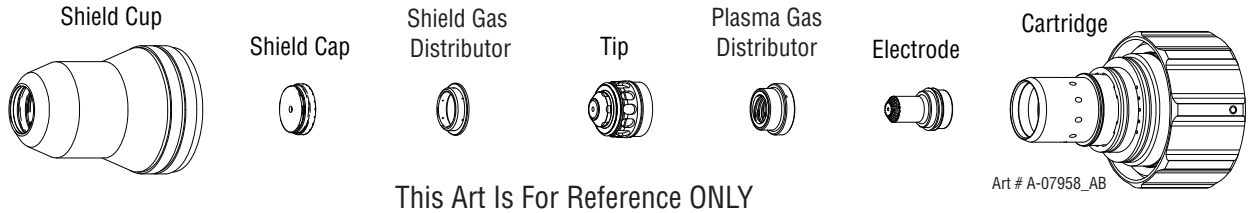
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	2.8	67	8.3	62	8.3	153	3.9	0.2	6.4	5.1	0.4	8.9	1490	0.2	2.7
12	2.8	67	8.3	62	8.3	157	3.8	0.2	6.4	5.1	0.4	8.9	1330	0.2	2.8
15	**2.8**	**67**	**8.3**	**62**	**8.3**	**159**	**3.8**	**0.4**	**6.4**	**5.1**	**0.3**	**8.9**	**990**	**0.4**	**2.8**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
18A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	50	40 / 2.8	75	80 / 5.5	125	0.120 / 3.0	0.120 / 3.0	0	0.7	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

Aluminum
100A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	17 / 35	7 / 26
Cutflow	14 / 29	7 / 26



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1036	22-1274	22-1053	22-1041	22-1089	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	3/16	0.188	45	60	90	7	55	158	0.150	0.1	0.200	0.150	0.2	0.300	130	0.1	0.095
-	1/4	0.250	45	60	90	7	55	160	0.150	0.1	0.200	0.150	0.2	0.300	90	0.1	0.100
-	3/8	0.375	45	60	90	7	55	161	0.150	0.2	0.200	0.150	0.2	0.300	70	0.2	0.100
-	1/2	0.500	45	60	90	7	55	171	0.150	0.4	0.200	0.150	0.2	0.300	40	0.4	0.100
-	**5/8**	**0.625**	**45**	**60**	**90**	**7**	**55**	**175**	**0.180**	**0.5**	**0.250**	**0.200**	**0.2**	**0.350**	**35**	**0.5**	**0.105**

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
5	3.1	60	6.2	7	3.8	158	3.8	0.1	5.1	3.8	0.2	7.6	3150	0.1	2.4
6	3.1	60	6.2	7	3.8	160	3.8	0.1	5.1	3.8	0.2	7.6	2510	0.1	2.5
8	3.1	60	6.2	7	3.8	161	3.8	0.2	5.1	3.8	0.2	7.6	2020	0.2	2.5
10	3.1	60	6.2	7	3.8	162	3.8	0.2	5.1	3.8	0.2	7.6	1660	0.2	2.5
12	3.1	60	6.2	7	3.8	169	3.8	0.4	5.1	3.8	0.2	7.6	1180	0.4	2.5
15	**3.1**	**60**	**6.2**	**7**	**3.8**	**174**	**4.4**	**0.5**	**6.0**	**4.7**	**0.2**	**8.5**	**920**	**0.5**	**2.6**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
18A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	50	40 / 2.8	75	80 / 5.5	150	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

* Pressure of the water supply line should be regulated by customer pressure regulator.

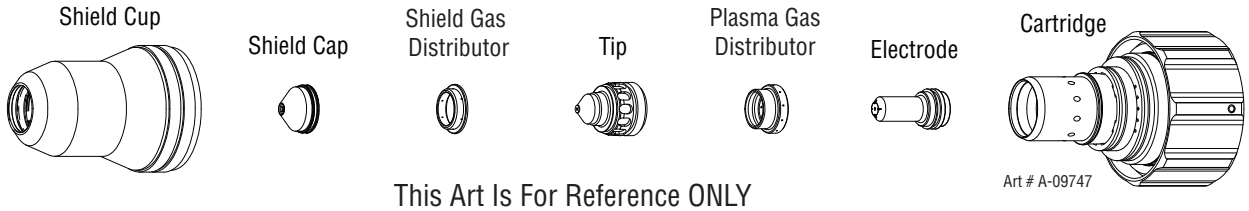
Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

8.02 Bevel and Robotic Cutting Up To 100 Amp

Mild Steel
100A Bevel Cut
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	38 / 81
Cutflow	16 / 35	27 / 58



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1127	22-1278	22-1154	22-1041	22-1172	22-1020

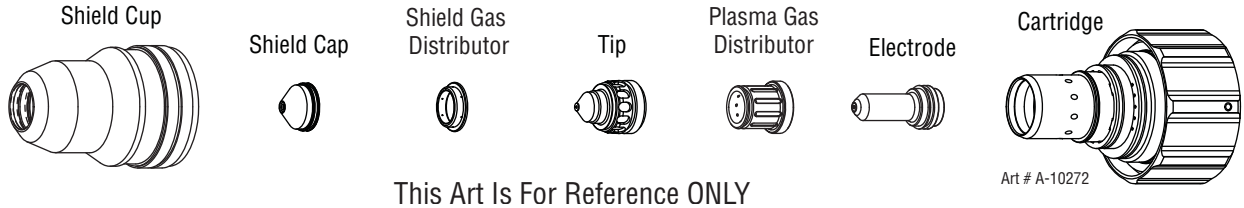
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.135	0.080	40	55	120	35	120	0.070 - 0.250	0.2	0.125	0.120	0.6	0.200	280	0.2	0.065
0.188	0.080	40	55	120	35	120	0.090 - 0.250	0.2	0.125	0.120	0.6	0.200	190	0.2	0.070
0.250	0.080	40	55	120	35	120	0.100 - 0.250	0.3	0.125	0.120	0.5	0.200	150	0.3	0.078
0.375	0.080	40	55	120	35	120	0.110 - 0.250	0.4	0.150	0.150	0.4	0.250	95	0.4	0.085
0.500	0.080	40	55	120	40	120	0.120 - 0.250	0.6	0.200	0.150	0.4	0.300	68	0.6	0.097
0.625	**0.080**	**40**	**55**	**120**	**40**	**120**	**0.120 - 0.250**	**0.8**	**0.250**	**0.200**	**0.4**	**0.350**	**55**	**0.8**	**0.100**
0.750	**0.080**	**40**	**55**	**120**	**40**	**120**	**0.150 - 0.250**	**3.5**	**Edge Start**		**0.4**	**Edge**	**25**	**2.0**	**0.125**

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
4	2.0	2.8	55	8.3	35	8.3	2.0 - 6.4	0.2	3.2	3.0	0.6	5.1	6140	0.2	1.7
5	2.0	2.8	55	8.3	35	8.3	2.3 - 6.4	0.2	3.2	3.0	0.6	5.1	4680	0.2	1.8
6	2.0	2.8	55	8.3	35	8.3	2.5 - 6.4	0.3	3.2	3.0	0.5	5.1	4040	0.3	1.9
8	2.0	2.8	55	8.3	35	8.3	2.7 - 6.4	0.4	3.5	3.4	0.4	5.7	3080	0.4	2.1
10	2.0	2.8	55	8.3	36	8.3	2.8 - 6.4	0.4	4.0	3.8	0.4	6.5	2310	0.4	2.2
12	**2.0**	**2.8**	**55**	**8.3**	**39**	**8.3**	**3.0 - 6.4**	**0.6**	**4.8**	**3.8**	**0.4**	**7.3**	**1880**	**0.6**	**2.4**
15	**2.0**	**2.8**	**55**	**8.3**	**40**	**8.3**	**3.0 - 6.4**	**0.7**	**6.0**	**4.7**	**0.4**	**8.5**	**1490**	**0.7**	**2.5**
20	**2.0**	**2.8**	**55**	**8.3**	**40**	**8.3**	**4.0 - 6.4**	**4.3**	**Edge Start**		**0.4**	**Edge**	**410**	**2.4**	**3.4**

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Mild Steel
15A ROBOTIC COMPATIBLE
O_2 Plasma / O_2 Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	5 / 10	12 / 25
Cutflow	8 / 18	0 / 0



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1405	22-1404	22-1402	22-1403	22-1400	22-1020

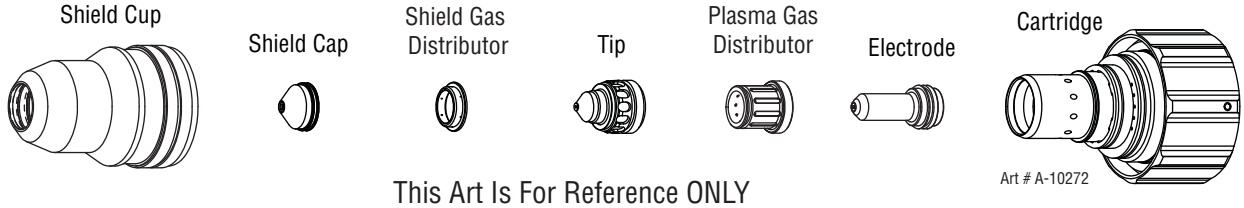
			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (O_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
26	-	0.024	70	35	100	20	40	108	0.030	0.0	0.080	0.050	1.5	0.100	185	0.0	0.042
26	-	0.024	70	35	100	20	40	117	0.030	0.0	0.080	0.050	1.5	0.100	95	0.0	0.050
20	-	0.036	70	35	100	20	40	110	0.040	0.0	0.080	0.050	1.5	0.100	150	0.0	0.043
20	-	0.036	70	35	100	20	40	120	0.040	0.0	0.080	0.050	1.5	0.100	80	0.0	0.052
18	-	0.048	70	35	100	20	40	114	0.040	0.1	0.080	0.050	1.5	0.100	110	0.1	0.049
18	-	0.048	70	35	100	20	40	125	0.040	0.1	0.080	0.050	1.5	0.100	60	0.1	0.057
16	-	0.060	70	35	100	20	40	119	0.060	0.2	0.080	0.050	1.5	0.100	75	0.2	0.056
14	-	0.075	70	35	100	20	40	126	0.080	0.2	0.080	0.050	1.5	0.100	55	0.2	0.070

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (O_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
0.5	4.8	35	6.9	20	2.8	108	0.8	0.0	2.0	1.3	1.5	2.5	5100	0.0	1.1
0.5	4.8	35	6.9	20	2.8	116	0.8	0.0	2.0	1.3	1.5	2.5	2500	0.0	1.3
1	4.8	35	6.9	20	2.8	111	1.0	0.0	2.0	1.3	1.5	2.5	3500	0.0	1.1
1	4.8	35	6.9	20	2.8	122	1.0	0.0	2.0	1.3	1.5	2.5	1900	0.0	1.3
1.5	4.8	35	6.9	20	2.8	119	1.5	0.2	2.0	1.3	1.5	2.5	1900	0.2	1.4
2	4.8	35	6.9	20	2.8	129	2.0	0.2	2.0	1.3	1.5	2.5	1200	0.2	1.9

Note 1: Recommended with DFC-3000 automated gas console to improve cut quality at the start.
Note 2: Recommended for flat plate, bevel and robotic cutting applications.

Mild Steel
20-30A ROBOTIC COMPATIBLE
O_2 Plasma / O_2 Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	5 / 10	16 / 34
Cutflow	15 / 32	0 / 0



This Art Is For Reference ONLY

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1405	22-1404	22-1401	22-1403	22-1400	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (O_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
16	-	0.060	70	35	100	20	40	114	0.080	0.0	0.100	0.050	1.5	0.150	125	1.0	0.054
14	-	0.075	70	35	100	20	40	114	0.080	0.0	0.100	0.050	1.5	0.150	100	0.0	0.058
13	-	0.090	70	35	100	20	40	108	0.060	0.1	0.100	0.050	1.4	0.150	100	0.1	0.065
12	-	0.105	70	35	100	20	40	110	0.060	0.2	0.100	0.050	1.3	0.150	80	0.2	0.066
10	-	0.135	70	35	100	20	40	118	0.090	0.2	0.125	0.075	1.3	0.200	45	0.2	0.077
-	3/16	0.188	70	35	100	20	40	125	0.120	0.4	0.150	0.100	1.1	0.250	35	0.4	0.080
-	1/4	0.250	70	35	100	20	40	128	0.150	0.5	0.150	0.100	1.0	0.250	25	0.5	0.090

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (O_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
1.5	4.8	35	6.9	20	2.8	114	2.0	0.0	2.5	1.3	1.5	3.8	3200	0.0	1.4
2	4.8	35	6.9	20	2.8	114	2.0	0.1	2.5	1.3	1.4	3.8	2300	0.1	1.5
2	4.8	35	6.9	20	2.8	107	1.5	0.0	2.5	1.3	1.5	3.8	2800	0.0	1.6
2.5	4.8	35	6.9	20	2.8	109	1.5	0.1	2.5	1.3	1.4	3.8	2200	0.1	1.7
3	4.8	35	6.9	20	2.8	114	2.0	0.2	2.5	1.3	1.3	3.8	1600	0.2	1.8
4	4.8	35	6.9	20	2.8	121	2.5	0.3	3.2	1.9	1.2	5.1	1000	0.3	2.0
5	4.8	35	6.9	20	2.8	125	3.0	0.4	3.8	2.5	1.1	6.4	860	0.4	2.1
6	4.8	35	6.9	20	2.8	127	3.8	0.5	3.8	2.5	1.0	6.4	690	0.5	2.2

Note 1: Recommended with DFC-3000 automated gas console to improve cut quality at the start.
Note 2: Recommended for flat plate, bevel and robotic cutting applications.

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Chart is for Customer Settings
Make Copies as Desired

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow		
Cutflow		

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.135	0.080														
0.188	0.080														
0.250	0.080														
0.375	0.080														
0.500	0.080														

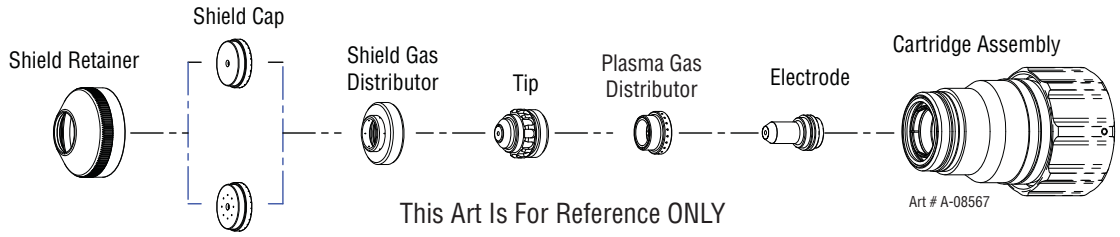
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
4	2.0														
5	2.0														
6	2.0														
8	2.0														
10	2.0														
12	**2.0**														

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

8.03 Standard Cutting 150 - 200 Amp

Mild Steel
150A
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	100 / 213
Cutflow	59 / 126	81 / 171



Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	≤ 3/4'' / 20mm 22-1028 > 3/4'' / 20mm 22-1275	22-1273	22-1054	22-1042	22-1072	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	3/8	0.375	80	62	120	45	120	147	0.120	0.4	0.200	0.150	0.5	0.300	120	0.4	0.115
-	1/2	0.500	80	62	120	45	120	150	0.120	0.9	0.200	0.150	0.5	0.300	90	0.6	0.110
-	5/8	0.625	80	62	120	45	120	155	0.130	1.0	0.250	0.200	0.5	0.350	75	0.6	0.116
-	3/4	0.750	80	62	120	45	120	162	0.140	1.3	0.250	0.200	0.5	0.350	50	0.8	0.141
-	7/8	0.875	80	62	120	62	120	165	0.140	1.8	0.250	0.200	0.5	0.350	30	0.8	0.182
-	**1**	**1.000**	**80**	**62**	**120**	**62**	**120**	**172**	**0.160**	**2.2**	**0.250**	**0.200**	**0.5**	**0.350**	**25**	**1.0**	**0.180**
-	***1 1/4***	***1.250***	***80***	***62***	***120***	***62***	***120***	***172***	***0.160***	***1.0***	***Edge Start***		***0.5***	***Edge***	***25***	***1.0***	***0.170***
-	***1 1/2***	***1.500***	***80***	***62***	***120***	***62***	***120***	***175***	***0.160***	***1.0***	***Edge Start***		***0.5***	***Edge***	***15***	***1.0***	***0.190***
-	***2***	***2.000***	***80***	***62***	***120***	***62***	***120***	***184***	***0.160***	***1.0***	***Edge Start***		***0.5***	***Edge***	***9***	***1.0***	***0.195***

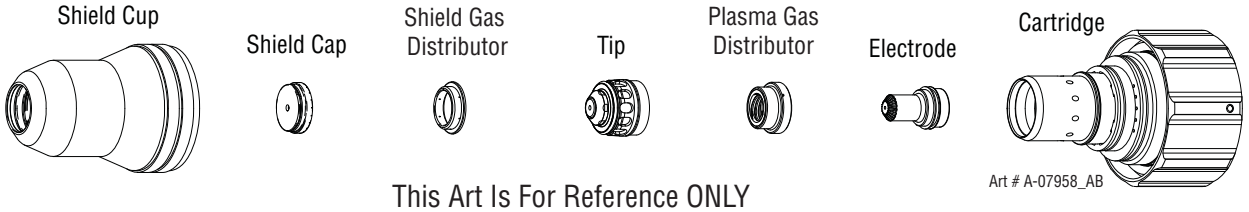
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	5.5	62	8.3	45	8.3	147	3.0	0.5	5.1	3.8	0.5	7.6	2930	0.4	2.9
12	5.5	62	8.3	45	8.3	149	3.0	0.8	5.1	3.8	0.5	7.6	2450	0.6	2.8
15	5.5	62	8.3	45	8.3	154	3.2	1.0	6.0	4.7	0.5	8.5	2010	0.6	2.9
20	5.5	62	8.3	50	8.3	163	3.6	1.4	6.4	5.1	0.5	8.9	1120	0.8	3.9
25	**5.5**	**62**	**8.3**	**62**	**8.3**	**171**	**4.0**	**2.1**	**6.4**	**5.1**	**0.5**	**8.9**	**650**	**1.0**	**4.6**
30	***5.5***	***62***	***8.3***	***62***	***8.3***	***171***	***4.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***710***	***1.0***	***4.2***
35	***5.5***	***62***	***8.3***	***62***	***8.3***	***174***	***4.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***510***	***1.0***	***4.6***
40	***5.5***	***62***	***8.3***	***62***	***8.3***	***176***	***4.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***360***	***1.0***	***4.8***
50	***5.5***	***62***	***8.3***	***62***	***8.3***	***183***	***4.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***240***	***1.0***	***4.9***

Marking **20A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	60	60 / 4.1	120	80 / 5.5	142	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
150A
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	55 / 117
Cutflow	16 / 33	37 / 78



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1037	22-1278	22-1063	22-1041	22-1081	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H35)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/2	0.500	84	57	120	85	120	153	0.300	0.5	0.250	0.200	0.4	0.350	50	0.2	0.110
-	5/8	0.625	84	57	120	85	120	155	0.200	0.9	0.250	0.200	0.2	0.350	40	0.4	0.118
-	3/4	0.750	84	57	120	85	120	157	0.225	1.4	0.300	0.250	0.2	0.400	30	0.6	0.128
-	7/8	0.875	84	57	120	85	120	161	0.238	2.4	0.325	0.250	0.2	0.425	25	1.2	0.131
-	**1**	**1.000**	**84**	**57**	**120**	**85**	**120**	**165**	**0.250**	**3.6**	**0.350**	**0.300**	**0.2**	**0.450**	**20**	**1.8**	**0.133**

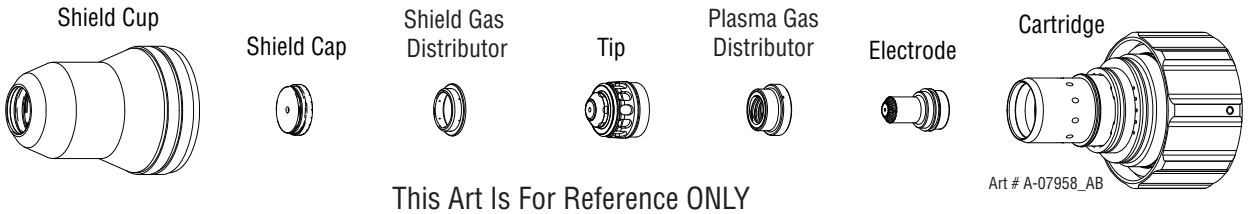
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
12	5.8	57	8.3	85	8.3	153	8.2	0.4	6.4	5.1	0.4	8.9	1330	0.2	2.7
15	5.8	57	8.3	85	8.3	154	5.8	0.8	6.4	5.1	0.3	8.9	1090	0.3	2.9
20	5.8	57	8.3	85	8.3	158	5.8	1.7	7.8	6.4	0.2	10.4	720	0.8	3.3
25	**5.8**	**57**	**8.3**	**85**	**8.3**	**164**	**6.3**	**3.4**	**8.8**	**7.5**	**0.2**	**11.4**	**520**	**1.7**	**3.4**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
19A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	60	60 / 4.1	75	80 / 5.5	130	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

Stainless Steel
150A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	24 / 50	8 / 30
Cutflow	16 / 35	8 / 30



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1048	22-1278	22-1092	22-1041	22-1081	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/4	0.250	70	60	90	8	55	135	0.100	0.3	0.150	0.150	0.2	0.250	110	0.3	0.104
-	3/8	0.375	70	60	90	8	55	139	0.100	0.3	0.250	0.150	0.2	0.350	70	0.3	0.107
-	1/2	0.500	70	60	90	8	55	149	0.150	0.8	0.250	0.150	0.2	0.350	60	0.5	0.111
-	5/8	0.625	70	60	90	8	55	159	0.180	1.0	0.250	0.150	0.2	0.350	45	0.5	0.128
-	**3/4**	**0.750**	**70**	**60**	**90**	**4**	**55**	**159**	**0.180**	**1.5**	**0.250**	**0.150**	**0.2**	**0.350**	**40**	**0.9**	**0.130**

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
8	4.8	60	6.2	8	3.8	137	2.5	0.3	5.1	3.8	0.2	7.7	2270	0.3	2.7
10	4.8	60	6.2	8	3.8	140	2.7	0.4	6.4	3.8	0.2	8.9	1740	0.3	2.7
12	4.8	60	6.2	8	3.8	147	3.5	0.7	6.4	3.8	0.2	8.9	1580	0.5	2.8
15	4.8	60	6.2	8	3.8	156	4.4	0.9	6.4	3.8	0.2	8.9	1250	0.5	3.1
20	**4.8**	**60**	**6.2**	**4**	**3.8**	**159**	**4.6**	**1.6**	**6.4**	**3.8**	**0.2**	**8.9**	**980**	**1.0**	**3.3**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
17A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	60	60 / 4.1	75	80 / 5.5	130	0.120 / 3.0	0.120 / 3.0	0	0.5	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

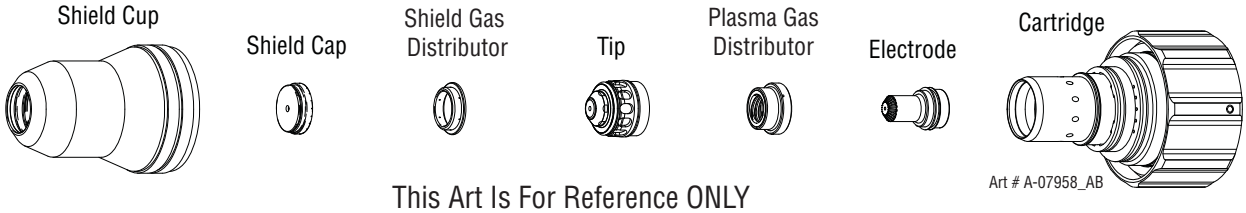
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Aluminum
150A
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	54 / 114
Cutflow	34 / 72	26 / 56



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1037	22-1278	22-1063	22-1041	22-1081	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H35)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/2	0.500	70	80	120	60	120	167	0.400	0.4	0.350	0.300	0.2	0.450	75	0.4	0.120
-	5/8	0.625	70	80	120	60	120	165	0.300	0.9	0.250	0.200	0.2	0.350	40	0.5	0.129
-	3/4	0.750	70	80	120	60	120	173	0.300	1.5	0.300	0.250	0.2	0.400	35	0.8	0.139
-	7/8	0.875	70	80	120	60	120	174	0.300	2.2	0.325	0.250	0.2	0.425	30	1.3	0.138
-	**1**	**1.000**	**70**	**80**	**120**	**60**	**120**	**175**	**0.300**	**3.0**	**0.350**	**0.300**	**0.2**	**0.450**	**25**	**1.8**	**0.137**

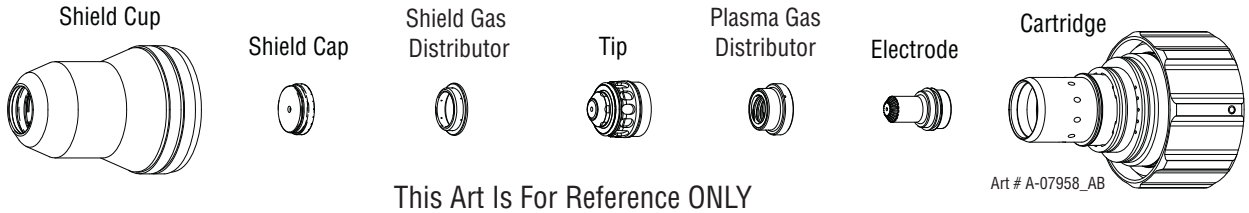
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
12	4.8	80	8.3	60	8.3	167	10.7	0.3	9.4	8.2	0.2	12.0	2100	0.4	3.0
15	4.8	80	8.3	60	8.3	166	8.3	0.8	7.0	5.8	0.2	9.6	1260	0.5	3.2
20	4.8	80	8.3	60	8.3	173	7.6	1.7	7.8	6.4	0.2	10.4	850	0.9	3.5
25	**4.8**	**80**	**8.3**	**60**	**8.3**	**175**	**7.6**	**2.9**	**8.8**	**7.5**	**0.2**	**11.4**	**650**	**1.7**	**3.5**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
19A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	60	60 / 4.1	75	80 / 5.5	130	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

Aluminum
150A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	24 / 51	8 / 30
Cutflow	16 / 35	8 / 30



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1048	22-1278	22-1092	22-1041	22-1081	22-1020

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	16/85	0.188	70	60	90	8	55	130	0.100	0.2	0.250	0.200	0.2	0.350	150	0.2	0.107
-	1/4	0.250	70	60	90	8	55	133	0.120	0.2	0.250	0.200	0.2	0.350	120	0.2	0.108
-	3/8	0.375	70	60	90	8	55	140	0.120	0.2	0.250	0.200	0.2	0.350	100	0.2	0.116
-	1/2	0.500	70	60	90	8	55	152	0.200	0.3	0.250	0.200	0.2	0.350	75	0.3	0.126
-	5/8	0.625	70	60	90	8	55	155	0.200	0.7	0.250	0.200	0.2	0.350	50	0.4	0.142
-	3/4	0.750	70	60	90	8	55	165	0.250	1.0	0.250	0.200	0.2	0.350	35	0.5	0.141
-	7/8	0.875	70	60	90	8	55	172	0.275	1.7	0.250	0.200	0.2	0.350	28	0.8	0.148
-	**1**	**1.000**	**70**	**60**	**90**	**8**	**55**	**178**	**0.300**	**2.5**	**0.250**	**0.200**	**0.2**	**0.350**	**20**	**1.0**	**0.155**

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
5	4.8	60	6.2	8	3.8	130	2.6	0.2	6.4	5.1	0.2	8.9	3700	0.2	2.7
6	4.8	60	6.2	8	3.8	132	2.9	0.2	6.4	5.1	0.2	8.9	3220	0.2	2.7
8	4.8	60	6.2	8	3.8	137	3.0	0.2	6.4	5.1	0.2	8.9	2780	0.2	2.8
10	4.8	60	6.2	8	3.8	142	3.4	0.2	6.4	5.1	0.2	8.9	2450	0.2	3.0
12	4.8	60	6.2	8	3.8	149	4.6	0.3	6.4	5.1	0.2	8.9	2050	0.3	3.1
15	4.8	60	6.2	8	3.8	154	5.1	0.6	6.4	5.1	0.2	8.9	1450	0.4	3.5
20	4.8	60	6.2	8	3.8	167	6.5	1.2	6.4	5.1	0.2	8.9	830	0.6	3.6
25	**4.8**	**60**	**6.2**	**8**	**3.8**	**177**	**7.5**	**2.4**	**6.4**	**5.1**	**0.2**	**8.9**	**530**	**1.0**	**3.9**

Marking **17A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	20 / 1.4	60	60 / 4.1	75	80 / 5.5	130	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

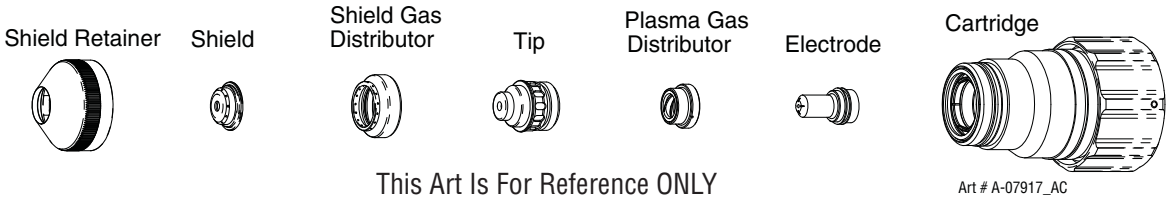
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Mild Steel
200A
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	162 / 343
Cutflow	102 / 217	133 / 281



This Art Is For Reference ONLY

Art # A-07917_AC

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1014	22-1030	22-1285	22-1055	22-1042	22-1093	22-1022

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	16/85	0.188	15	100	100	NA	100	151	0.130	0.2	0.200	0.150	0.5	0.300	250	0.2	0.142
-	1/4	0.250	15	100	100	NA	100	151	0.130	0.2	0.200	0.150	0.5	0.300	200	0.2	0.148
-	3/8	0.375	15	100	100	NA	100	154	0.150	0.3	0.250	0.200	0.5	0.350	140	0.3	0.162
-	1/2	0.500	15	100	100	NA	100	159	0.170	0.7	0.250	0.200	0.5	0.350	115	0.5	0.167
-	5/8	0.625	15	100	100	NA	100	161	0.200	0.9	0.250	0.200	0.5	0.350	80	0.6	0.186
-	3/4	0.750	15	100	100	NA	100	163	0.200	1.3	0.300	0.250	0.5	0.400	65	0.8	0.186
-	7/8	0.875	15	100	100	NA	100	166	0.200	1.6	0.300	0.250	0.5	0.400	57	1.0	0.185
-	1	1.000	15	100	100	NA	100	167	0.200	1.9	0.300	0.250	0.5	0.400	48	1.2	0.193
-	**1 1/4**	**1.250**	**15**	**100**	**100**	**NA**	**100**	**170**	**0.200**	**3.2**	**0.325**	**0.250**	**0.5**	**0.425**	**30**	**2.0**	**0.196**
-	**1 1/2**	**1.500**	**15**	**100**	**100**	**NA**	**100**	**185**	**0.200**	**5.8**	**0.350**	**0.300**	**0.5**	**0.450**	**20**	**4.0**	**0.201**
-	***1 3/4***	***1.750***	***15***	***100***	***100***	***NA***	***100***	***189***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***15***	***1.0***	***0.203***
-	***2***	***2.000***	***15***	***100***	***100***	***NA***	***100***	***192***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***10***	***1.0***	***0.204***
-	***2 1/2***	***2.500***	***15***	***100***	***100***	***NA***	***100***	***192***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***8***	***1.0***	***0.210***

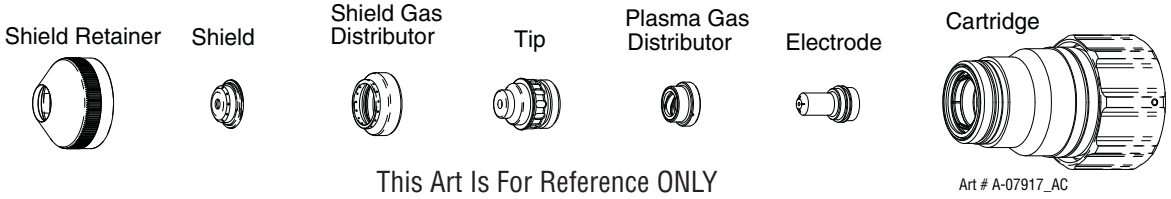
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
5	1.0	100	6.9	NA	6.9	151	3.3	0.2	5.1	3.8	0.5	7.6	6170	0.2	3.6
6	1.0	100	6.9	NA	6.9	151	3.3	0.2	5.1	3.8	0.5	7.6	5360	0.2	3.7
8	1.0	100	6.9	NA	6.9	153	3.6	0.3	5.7	4.5	0.5	8.3	4290	0.3	3.9
10	1.0	100	6.9	NA	6.9	155	3.9	0.4	6.4	5.1	0.5	8.9	3460	0.3	4.1
12	1.0	100	6.9	NA	6.9	158	4.2	0.6	6.4	5.1	0.5	8.9	3060	0.5	4.2
15	1.0	100	6.9	NA	6.9	160	4.9	0.8	6.4	5.1	0.5	8.9	2280	0.6	4.6
20	1.0	100	6.9	NA	6.9	164	5.1	1.4	7.6	6.4	0.5	10.2	1590	0.9	4.7
25	1.0	100	6.9	NA	6.9	167	5.1	1.9	7.6	6.4	0.5	10.2	1250	1.2	4.9
30	**1.0**	**100**	**6.9**	**NA**	**6.9**	**169**	**5.1**	**2.8**	**8.1**	**6.4**	**0.5**	**10.6**	**890**	**1.8**	**5.0**
35	**1.0**	**100**	**6.9**	**NA**	**6.9**	**178**	**5.1**	**4.5**	**8.6**	**7.0**	**0.5**	**11.1**	**630**	**3.0**	**5.0**
40	***1.0***	***100***	***6.9***	***NA***	***6.9***	***186***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***470***	***1.0***	***5.1***
50	***1.0***	***100***	***6.9***	***NA***	***6.9***	***192***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***270***	***1.0***	***5.2***
60	***1.0***	***100***	***6.9***	***NA***	***6.9***	***192***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***220***	***1.0***	***5.3***

Marking **25A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	80 / 5.5	168	0.120 / 3.0	0.120 / 3.0	0	0.5	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
200A
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	73 / 154
Cutflow	35 / 74	49 / 103



This Art Is For Reference ONLY

Art # A-07917_AC

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	22-1073	22-1284	22-1095	22-1042	22-1096	22-1022

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H35)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	3/8	0.375	20	120	100	NA	120	168	0.300	0.5	0.300	0.250	0.4	0.400	90	0.4	0.131
-	1/2	0.500	20	120	100	NA	120	170	0.300	0.8	0.300	0.250	0.3	0.400	65	0.5	0.135
-	5/8	0.625	20	120	100	NA	100	173	0.300	1.0	0.250	0.200	0.2	0.350	50	0.6	0.142
-	3/4	0.750	20	120	100	NA	100	175	0.300	1.4	0.300	0.250	0.2	0.400	40	0.8	0.143
-	7/8	0.875	20	120	100	NA	100	178	0.300	1.8	0.350	0.300	0.2	0.450	35	1.0	0.148
-	1	1.000	20	120	100	NA	120	184	0.350	2.0	0.350	0.300	0.2	0.450	30	1.0	0.162
-	***1 1/4***	***1.250***	***20***	***120***	***100***	***NA***	***120***	***185***	***0.350***	***0.5***	***Edge Start***		***0.3***	***Edge***	***20***	***0.5***	***0.170***
-	***1 1/2***	***1.500***	***20***	***120***	***100***	***NA***	***120***	***190***	***0.350***	***0.5***	***Edge Start***		***0.3***	***Edge***	***16***	***0.5***	***0.175***
-	***1 3/4***	***1.750***	***20***	***120***	***100***	***NA***	***120***	***192***	***0.350***	***0.5***	***Edge Start***		***0.3***	***Edge***	***14***	***0.5***	***0.179***
-	***2***	***2.000***	***20***	***120***	***100***	***NA***	***120***	***193***	***0.350***	***0.5***	***Edge Start***		***0.3***	***Edge***	***12***	***0.5***	***0.182***

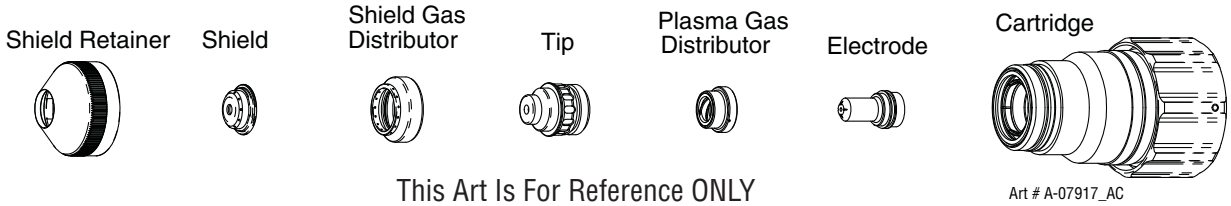
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	1.4	120	6.9	NA	8.3	168	7.6	0.5	7.6	6.4	0.4	10.2	2190	0.4	3.3
12	1.4	120	6.9	NA	8.3	170	7.6	0.7	7.6	6.4	0.3	10.2	1790	0.5	3.4
15	1.4	120	6.9	NA	7.3	172	7.6	0.9	6.7	5.4	0.2	9.2	1380	0.6	3.6
20	1.4	120	6.9	NA	6.9	176	7.6	1.5	8.0	6.7	0.2	10.5	980	0.9	3.7
25	1.4	120	6.9	NA	8.1	183	8.7	2.0	8.9	7.6	0.2	11.4	780	1.0	4.1
30	***1.4***	***120***	***6.9***	***NA***	***8.3***	***184***	***8.9***	***0.5***	***Edge Start***		***0.3***	***Edge***	***540***	***0.5***	***4.3***
35	***1.4***	***120***	***6.9***	***NA***	***8.3***	***188***	***8.9***	***0.5***	***Edge Start***		***0.3***	***Edge***	***460***	***0.5***	***4.4***
40	***1.4***	***120***	***6.9***	***NA***	***8.3***	***190***	***8.9***	***0.5***	***Edge Start***		***0.3***	***Edge***	***390***	***0.5***	***4.5***
50	***1.4***	***120***	***6.9***	***NA***	***8.3***	***193***	***8.9***	***0.5***	***Edge Start***		***0.3***	***Edge***	***310***	***0.5***	***4.6***

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
20A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	80 / 5.5	140	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
200A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	13 / 28	5 / 19
Cutflow	25 / 53	5 / 19



This Art Is For Reference ONLY

Art # A-07917_AC

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	22-1049	22-1284	22-1067	22-1043	22-1089	22-1022

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	3/8	0.375	20	80	90	5	55	155	0.160	0.1	0.200	0.150	0.4	0.300	95	0.1	0.110
-	1/2	0.500	20	80	90	5	55	156	0.160	0.4	0.200	0.150	0.2	0.300	85	0.4	0.115
-	5/8	0.625	20	80	90	5	55	158	0.180	0.8	0.200	0.150	0.2	0.300	65	0.5	0.122
-	3/4	0.750	20	80	90	5	55	163	0.200	1.2	0.200	0.150	0.2	0.300	50	0.7	0.133
-	7/8	0.875	20	80	90	5	55	177	0.250	1.7	0.300	0.250	0.2	0.400	40	0.9	0.149
-	**1**	**1.000**	**20**	**80**	**90**	**5**	**55**	**183**	**0.300**	**1.9**	**0.350**	**0.300**	**0.2**	**0.450**	**35**	**1.0**	**0.148**
-	***1 1/4***	***1.250***	***20***	***80***	***90***	***5***	***55***	***185***	***0.300***	***0.4***	***Edge Start***		***0.2***	***Edge***	***20***	***0.4***	***0.176***
-	***1 1/2***	***1.500***	***20***	***80***	***90***	***5***	***55***	***200***	***0.350***	***0.4***	***Edge Start***		***0.2***	***Edge***	***10***	***0.4***	***0.211***
-	***1 3/4***	***1.750***	***20***	***80***	***90***	***5***	***55***	***207***	***0.350***	***0.4***	***Edge Start***		***0.2***	***Edge***	***8***	***0.4***	***0.216***

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	1.4	80	6.2	5	3.8	155	4.1	0.1	5.1	3.8	0.4	7.6	2380	0.1	2.8
15	1.4	80	6.2	5	3.8	157	4.4	0.7	5.1	3.8	0.2	7.6	1790	0.5	3.0
20	1.4	80	6.2	5	3.8	167	5.5	1.3	5.8	4.6	0.2	8.4	1190	0.8	3.5
25	**1.4**	**80**	**6.2**	**5**	**3.8**	**182**	**7.5**	**1.9**	**8.7**	**7.5**	**0.2**	**11.3**	**910**	**1.0**	**3.8**
30	***1.4***	***80***	***6.2***	***5***	***3.8***	***181***	***7.3***	***0.4***	***Edge Start***		***0.2***	***Edge***	***580***	***0.4***	***4.2***
35	***1.4***	***80***	***6.2***	***5***	***3.8***	***193***	***8.3***	***0.4***	***Edge Start***		***0.2***	***Edge***	***380***	***0.4***	***4.9***
40	***1.4***	***80***	***6.2***	***5***	***3.8***	***202***	***8.9***	***0.4***	***Edge Start***		***0.2***	***Edge***	***240***	***0.4***	***5.4***

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
20A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	80 / 5.5	140	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

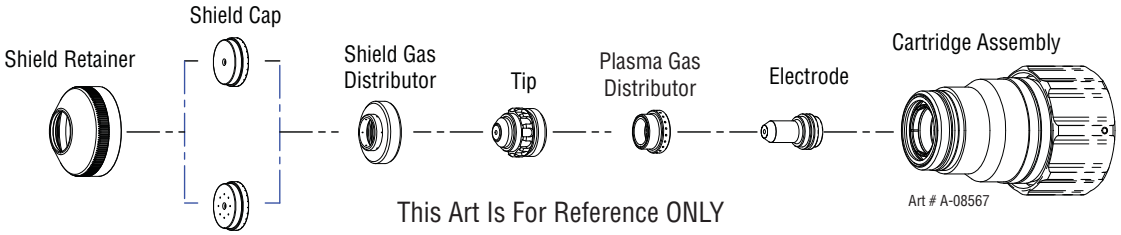
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Aluminum
200A
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	62 / 132
Cutflow	33 / 71	44 / 94



Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	< 1" / 25 mm 22-1073 ≥ 1" / 25 mm 22-1094	22-1284	22-1095	22-1042	22-1096	22-1022

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H35)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	3/8	0.375	20	100	100	NA	110	165	0.300	0.2	0.300	0.250	0.2	0.400	180	0.2	0.113
-	1/2	0.500	20	100	100	NA	110	168	0.300	0.2	0.250	0.200	0.4	0.350	150	0.2	0.119
-	5/8	0.625	20	100	100	NA	110	170	0.300	0.5	0.250	0.200	0.3	0.350	110	0.3	0.120
-	3/4	0.750	20	100	100	NA	110	172	0.300	0.7	0.300	0.250	0.2	0.400	70	0.4	0.130
-	7/8	0.875	20	100	100	NA	110	178	0.350	1.0	0.350	0.300	0.2	0.450	55	0.5	0.139
-	**1**	**1.000**	**20**	**100**	**100**	**NA**	**110**	**180**	**0.350**	**1.3**	**0.400**	**0.300**	**0.2**	**0.500**	**40**	**0.7**	**0.150**
-	***1 1/4***	***1.250***	***20***	***100***	***100***	***NA***	***110***	***185***	***0.400***	***0.4***	***Edge Start***		***0.2***	***Edge***	***32***	***0.4***	***0.161***
-	***1 1/2***	***1.500***	***20***	***100***	***100***	***NA***	***110***	***195***	***0.400***	***0.4***	***Edge Start***		***0.2***	***Edge***	***25***	***0.4***	***0.170***
-	***1 3/4***	***1.750***	***20***	***100***	***100***	***NA***	***110***	***198***	***0.400***	***0.4***	***Edge Start***		***0.2***	***Edge***	***20***	***0.4***	***0.188***
-	***2***	***2.000***	***20***	***100***	***100***	***NA***	***110***	***201***	***0.400***	***0.4***	***Edge Start***		***0.2***	***Edge***	***15***	***0.4***	***0.205***

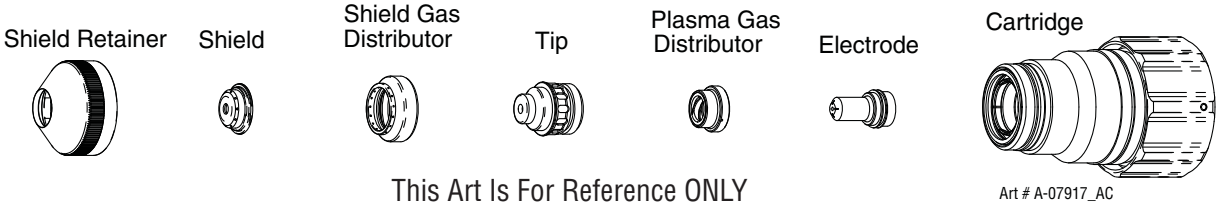
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	1.4	100	6.9	NA	7.6	165	7.6	0.2	7.4	6.2	0.2	10.0	4460	0.2	2.9
12	1.4	100	6.9	NA	7.6	167	7.6	0.2	6.6	5.4	0.4	9.2	3980	0.2	3.0
15	1.4	100	6.9	NA	7.6	169	7.6	0.4	6.4	5.1	0.3	8.9	3070	0.3	3.0
20	1.4	100	6.9	NA	7.6	174	8.0	0.8	8.0	6.7	0.2	10.5	1660	0.4	3.4
25	**1.4**	**100**	**6.9**	**NA**	**7.6**	**180**	**8.9**	**1.3**	**10.0**	**7.6**	**0.2**	**12.5**	**1060**	**0.7**	**3.8**
30	***1.4***	***100***	***6.9***	***NA***	***7.6***	***182***	***10.2***	***0.4***	***Edge Start***		***0.2***	***Edge***	***860***	***0.4***	***4.0***
35	***1.4***	***100***	***6.9***	***NA***	***7.6***	***190***	***10.2***	***0.4***	***Edge Start***		***0.2***	***Edge***	***720***	***0.4***	***4.2***
40	***1.4***	***100***	***6.9***	***NA***	***7.6***	***196***	***10.2***	***0.4***	***Edge Start***		***0.2***	***Edge***	***600***	***0.4***	***4.5***
50	***1.4***	***100***	***6.9***	***NA***	***7.6***	***201***	***10.2***	***0.4***	***Edge Start***		***0.2***	***Edge***	***400***	***0.4***	***5.2***

Marking **20A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	80 / 5.5	140	0.120 / 3.0	0.120 / 3.0	0	0.5	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Aluminum
200A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	13 / 28	5 / 19
Cutflow	28 / 59	5 / 19



This Art Is For Reference ONLY

Art # A-07917_AC

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	22-1049	22-1284	22-1067	22-1043	22-1089	22-1022

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/2	0.500	20	100	90	5	55	168	0.250	0.3	0.200	0.150	0.2	0.300	110	0.3	0.120
-	5/8	0.625	20	80	100	5	55	170	0.300	0.7	0.250	0.200	0.2	0.350	105	0.5	0.126
-	3/4	0.750	20	80	100	5	55	175	0.300	0.9	0.250	0.200	0.2	0.350	90	0.6	0.127
-	7/8	0.875	20	80	100	5	55	180	0.300	1.2	0.250	0.200	0.2	0.350	75	0.8	0.133
-	1	1.000	20	80	100	5	55	194	0.350	1.6	0.300	0.250	0.2	0.400	50	1.0	0.144
-	**1 1/4**	**1.250**	**20**	**80**	**100**	**5**	**55**	**208**	**0.400**	**3.4**	**0.350**	**0.300**	**0.2**	**0.450**	**25**	**2.0**	**0.180**
-	***1 1/2***	***1.500***	***20***	***80***	***100***	***5***	***55***	***210***	***0.400***	***0.8***	***Edge Start***		***0.2***	***Edge***	***20***	***0.8***	***0.197***
-	***1 3/4***	***1.750***	***20***	***80***	***100***	***5***	***55***	***212***	***0.400***	***0.8***	***Edge Start***		***0.2***	***Edge***	***18***	***0.8***	***0.201***
-	***2***	***2.000***	***20***	***80***	***100***	***5***	***55***	***215***	***0.400***	***0.8***	***Edge Start***		***0.2***	***Edge***	***12***	***0.8***	***0.204***

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
12	1.4	100	6.1	5	3.8	168	6.1	0.2	4.8	3.5	0.2	7.3	2820	0.3	3.0
15	1.4	85	6.7	5	3.8	169	7.3	0.6	6.0	4.7	0.2	8.5	2700	0.4	3.2
20	1.4	80	6.9	5	3.8	176	7.6	1.0	6.4	5.1	0.2	8.9	2170	0.7	3.3
25	1.4	80	6.9	5	3.8	192	8.7	1.5	7.5	6.2	0.2	10.0	1350	1.0	3.6
30	**1.4**	**80**	**6.9**	**5**	**3.8**	**204**	**9.8**	**2.9**	**8.5**	**7.3**	**0.2**	**11.1**	**810**	**1.7**	**4.3**
35	***1.4***	***80***	***6.9***	***5***	***3.8***	***209***	***10.2***	***0.8***	***Edge Start***		***0.2***	***Edge***	***530***	***0.8***	***5.0***
40	***1.4***	***80***	***6.9***	***5***	***3.8***	***211***	***10.2***	***0.8***	***Edge Start***		***0.2***	***Edge***	***490***	***0.8***	***5.0***
50	***1.4***	***80***	***6.9***	***5***	***3.8***	***215***	***10.2***	***0.8***	***Edge Start***		***0.2***	***Edge***	***320***	***0.8***	***5.2***

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
20A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	80 / 5.5	140	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

* Pressure of the water supply line should be regulated by customer pressure regulator.

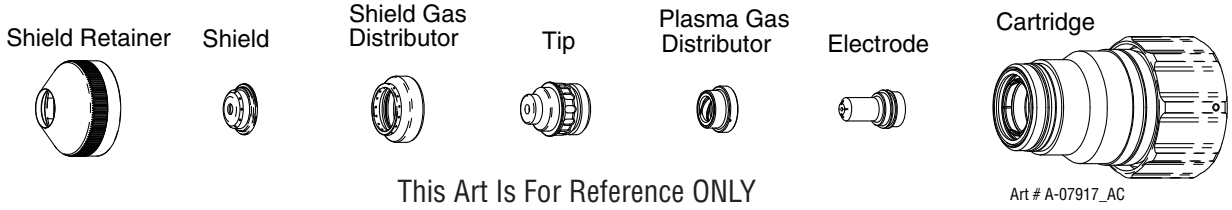
Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

8.04 Robotic and Bevel Cutting 150 - 200 Amp

Mild Steel
200A Bevel Cut
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	162 / 343
Cutflow	102 / 217	133 / 281



This Art Is For Reference ONLY

Art # A-07917_AC

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1014	22-1030	22-1285	22-1055	22-1042	22-1093	22-1022

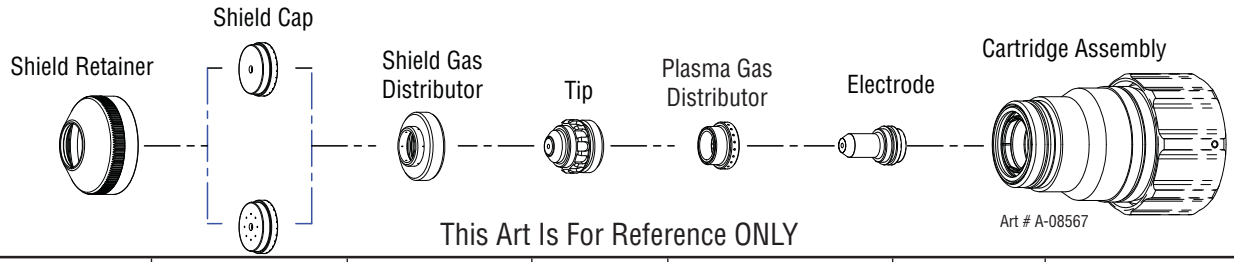
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.188	0.080	15	100	100	NA	100	0.130 - 0.550	0.2	0.200	0.150	0.5	0.300	250	0.2	0.142
0.250	0.080	15	100	100	NA	100	0.130 - 0.550	0.2	0.200	0.150	0.5	0.300	200	0.2	0.148
0.375	0.080	15	100	100	NA	100	0.150 - 0.550	0.3	0.250	0.200	0.5	0.350	140	0.3	0.162
0.500	0.080	15	100	100	NA	100	0.170 - 0.550	0.7	0.250	0.200	0.5	0.350	115	0.5	0.167
0.625	0.080	15	100	100	NA	100	0.200 - 0.550	0.9	0.250	0.200	0.5	0.350	80	0.6	0.186
0.750	0.080	15	100	100	NA	100	0.200 - 0.550	1.3	0.300	0.250	0.5	0.400	65	0.8	0.186
0.875	0.080	15	100	100	NA	100	0.200 - 0.550	1.6	0.300	0.250	0.5	0.400	57	1.0	0.185
1.000	0.080	15	100	100	NA	100	0.200 - 0.550	1.9	0.300	0.250	0.5	0.400	48	1.2	0.193
1.250	**0.080**	**15**	**100**	**100**	**NA**	**100**	**0.200 - 0.550**	**3.2**	**0.325**	**0.250**	**0.5**	**0.425**	**30**	**2.0**	**0.196**
1.500	**0.080**	**15**	**100**	**100**	**NA**	**100**	**0.200 - 0.550**	**5.8**	**0.350**	**0.300**	**0.5**	**0.450**	**20**	**4.0**	**0.201**
1.750	***0.080***	***15***	***100***	***100***	***NA***	***100***	***0.200 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***15***	***1.0***	***0.203***
2.000	***0.080***	***15***	***100***	***100***	***NA***	***100***	***0.200 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***10***	***1.0***	***0.204***
2.500	***0.080***	***15***	***100***	***100***	***NA***	***100***	***0.200 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***8***	***1.0***	***0.210***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
5	2.0	1.0	100	6.9	NA	6.9	3.3 - 14.0	0.2	5.1	3.8	0.5	7.6	6170	0.2	3.6
6	2.0	1.0	100	6.9	NA	6.9	3.3 - 14.0	0.2	5.1	3.8	0.5	7.6	5360	0.2	3.7
8	2.0	1.0	100	6.9	NA	6.9	3.6 - 14.0	0.3	5.7	4.5	0.5	8.3	4290	0.3	3.9
10	2.0	1.0	100	6.9	NA	6.9	3.9 - 14.0	0.4	6.4	5.1	0.5	8.9	3460	0.3	4.1
12	2.0	1.0	100	6.9	NA	6.9	4.2 - 14.0	0.6	6.4	5.1	0.5	8.9	3060	0.5	4.2
15	2.0	1.0	100	6.9	NA	6.9	4.9 - 14.0	0.8	6.4	5.1	0.5	8.9	2280	0.6	4.6
20	2.0	1.0	100	6.9	NA	6.9	5.1 - 14.0	1.4	7.6	6.4	0.5	10.2	1590	0.9	4.7
25	2.0	1.0	100	6.9	NA	6.9	5.1 - 14.0	1.9	7.6	6.4	0.5	10.2	1250	1.2	4.9
30	**2.0**	**1.0**	**100**	**6.9**	**NA**	**6.9**	**5.1 - 14.0**	**2.8**	**8.1**	**6.4**	**0.5**	**10.6**	**890**	**1.8**	**5.0**
35	**2.0**	**1.0**	**100**	**6.9**	**NA**	**6.9**	**5.1 - 14.0**	**4.5**	**8.6**	**7.0**	**0.5**	**11.1**	**630**	**3.0**	**5.0**
40	***2.0***	***1.0***	***100***	***6.9***	***NA***	***6.9***	***5.1 - 14.0***	***1.0***	***Edge Start***		***0.5***	***Edge***	***470***	***1.0***	***5.1***
50	***2.0***	***1.0***	***100***	***6.9***	***NA***	***6.9***	***5.1 - 14.0***	***1.0***	***Edge Start***		***0.5***	***Edge***	***270***	***1.0***	***5.2***
60	***2.0***	***1.0***	***100***	***6.9***	***NA***	***6.9***	***5.1 - 14.0***	***1.0***	***Edge Start***		***0.5***	***Edge***	***220***	***1.0***	***5.3***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
200A Bevel Cut
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	73 / 154
Cutflow	35 / 74	49 / 103



This Art Is For Reference ONLY

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	22-1073	22-1284	22-1095	22-1042	22-1096	22-1022

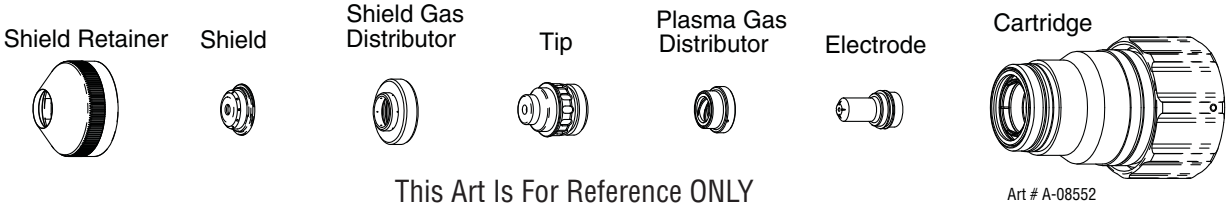
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H35)		Shield (N_2)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.375	0.080	20	120	100	NA	120	0.300 - 0.550	0.5	0.300	0.250	0.4	0.400	90	0.4	0.131
0.500	0.080	20	120	100	NA	120	0.300 - 0.550	0.8	0.300	0.250	0.3	0.400	65	0.5	0.135
0.625	0.080	20	120	100	NA	100	0.300 - 0.550	1.0	0.250	0.200	0.2	0.350	50	0.6	0.142
0.750	0.080	20	120	100	NA	100	0.300 - 0.550	1.4	0.300	0.250	0.2	0.400	40	0.8	0.143
0.875	0.080	20	120	100	NA	100	0.300 - 0.550	1.8	0.350	0.300	0.2	0.450	35	1.0	0.148
1.000	0.080	20	120	100	NA	120	0.350 - 0.550	2.0	0.350	0.300	0.2	0.450	30	1.0	0.162
1.250	***0.080***	***20***	***120***	***100***	***NA***	***120***	***0.350 - 0.550***	***0.5***	***Edge Start***		***0.3***	***Edge***	***20***	***0.5***	***0.170***
1.500	***0.080***	***20***	***120***	***100***	***NA***	***120***	***0.350 - 0.550***	***0.5***	***Edge Start***		***0.3***	***Edge***	***16***	***0.5***	***0.175***
1.750	***0.080***	***20***	***120***	***100***	***NA***	***120***	***0.350 - 0.550***	***0.5***	***Edge Start***		***0.3***	***Edge***	***14***	***0.5***	***0.179***
2.000	***0.080***	***20***	***120***	***100***	***NA***	***120***	***0.350 - 0.550***	***0.5***	***Edge Start***		***0.3***	***Edge***	***12***	***0.5***	***0.182***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H35)		Shield (N_2)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	2.0	1.4	120	6.9	NA	8.3	7.6 - 14.0	0.5	7.6	6.4	0.4	10.2	2190	0.4	3.3
12	2.0	1.4	120	6.9	NA	8.3	7.6 - 14.0	0.7	7.6	6.4	0.3	10.2	1790	0.5	3.4
15	2.0	1.4	120	6.9	NA	7.3	7.6 - 14.0	0.9	6.7	5.4	0.2	9.2	1380	0.6	3.6
20	2.0	1.4	120	6.9	NA	6.9	7.6 - 14.0	1.5	8.0	6.7	0.2	10.5	980	0.9	3.7
25	2.0	1.4	120	6.9	NA	8.1	8.7 - 14.0	2.0	8.9	7.6	0.2	11.4	780	1.0	4.1
30	***2.0***	***1.4***	***120***	***6.9***	***NA***	***8.3***	***8.9 - 14.0***	***0.5***	***Edge Start***		***0.3***	***Edge***	***540***	***0.5***	***4.3***
35	***2.0***	***1.4***	***120***	***6.9***	***NA***	***8.3***	***8.9 - 14.0***	***0.5***	***Edge Start***		***0.3***	***Edge***	***460***	***0.5***	***4.4***
40	***2.0***	***1.4***	***120***	***6.9***	***NA***	***8.3***	***8.9 - 14.0***	***0.5***	***Edge Start***		***0.3***	***Edge***	***390***	***0.5***	***4.5***
50	***2.0***	***1.4***	***120***	***6.9***	***NA***	***8.3***	***8.9 - 14.0***	***0.5***	***Edge Start***		***0.3***	***Edge***	***310***	***0.5***	***4.6***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
200A Bevel Cut
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	13 / 28	5 / 19
Cutflow	25 / 53	5 / 19



This Art Is For Reference ONLY

Art # A-08552

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	22-1049	22-1284	22-1067	22-1043	22-1089	22-1022

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)*	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.375	0.080	20	80	90	5	55	0.160 - 0.550	0.1	0.200	0.150	0.4	0.300	95	0.1	0.110
0.500	0.080	20	80	90	5	55	0.160 - 0.550	0.4	0.200	0.150	0.2	0.300	85	0.4	0.115
0.625	0.080	20	80	90	5	55	0.180 - 0.550	0.8	0.200	0.150	0.2	0.300	65	0.5	0.122
0.750	0.080	20	80	90	5	55	0.200 - 0.550	1.2	0.200	0.150	0.2	0.300	50	0.7	0.133
0.875	0.080	20	80	90	5	55	0.250 - 0.550	1.7	0.300	0.250	0.2	0.400	40	0.9	0.149
1.000	**0.080**	**20**	**80**	**90**	**5**	**55**	**0.300 - 0.550**	**1.9**	**0.350**	**0.300**	**0.2**	**0.450**	**35**	**1.0**	**0.148**
1.250	***0.080***	***20***	***80***	***90***	***5***	***55***	***0.300 - 0.550***	***0.4***	***Edge Start***		***0.2***	***Edge***	***20***	***0.4***	***0.176***
1.500	***0.080***	***20***	***80***	***90***	***5***	***55***	***0.350 - 0.450***	***0.4***	***Edge Start***		***0.2***	***Edge***	***10***	***0.4***	***0.211***
1.750	***0.080***	***20***	***80***	***90***	***5***	***55***	***0.350 - 0.450***	***0.4***	***Edge Start***		***0.2***	***Edge***	***8***	***0.4***	***0.216***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	2.0	1.4	80	6.2	5	3.8	4.1 - 14.0	0.1	5.1	3.8	0.4	7.6	2380	0.1	2.8
15	2.0	1.4	80	6.2	5	3.8	4.4 - 14.0	0.7	5.1	3.8	0.2	7.6	1790	0.5	3.0
20	2.0	1.4	80	6.2	5	3.8	5.5 - 14.0	1.3	5.8	4.6	0.2	8.4	1190	0.8	3.5
25	**2.0**	**1.4**	**80**	**6.2**	**5**	**3.8**	**7.5 - 14.0**	**1.9**	**8.7**	**7.5**	**0.2**	**11.3**	**910**	**1.0**	**3.8**
30	***2.0***	***1.4***	***80***	***6.2***	***5***	***3.8***	***7.3 - 14.0***	***0.4***	***Edge Start***		***0.2***	***Edge***	***580***	***0.4***	***4.2***
35	***2.0***	***1.4***	***80***	***6.2***	***5***	***3.8***	***8.3 - 11.4***	***0.4***	***Edge Start***		***0.2***	***Edge***	***380***	***0.4***	***4.9***
40	***2.0***	***1.4***	***80***	***6.2***	***5***	***3.8***	***8.9 - 11.4***	***0.4***	***Edge Start***		***0.2***	***Edge***	***240***	***0.4***	***5.4***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

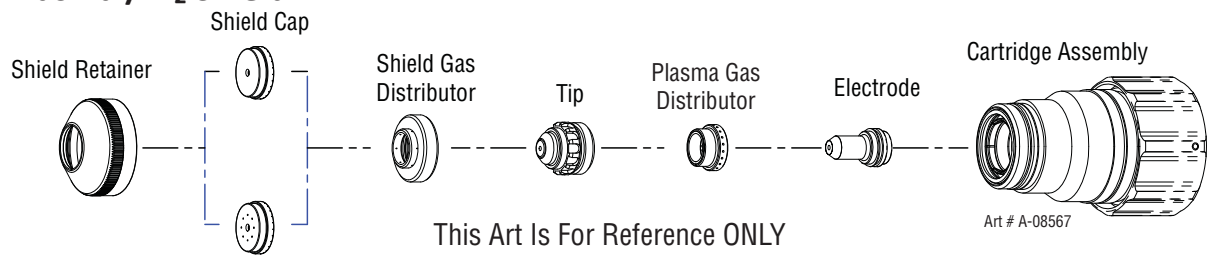
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Aluminum
200A Bevel Cut
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	62 / 132
Cutflow	33 / 71	44 / 94



Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	< 1" / 25 mm 22-1073 ≥ 1" / 25 mm 22-1094	22-1284	22-1095	22-1042	22-1096	22-1022

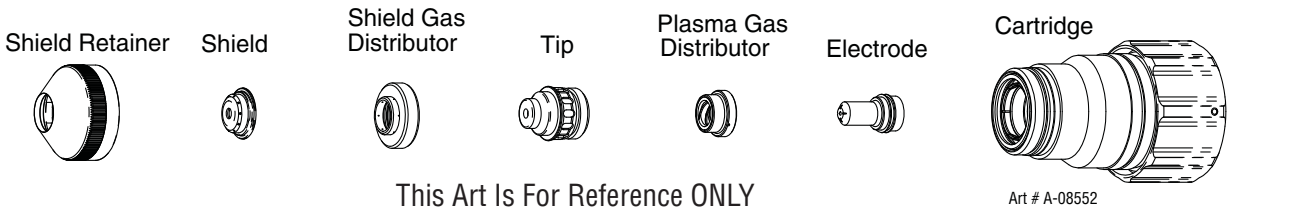
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H35)		Shield (N_2)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.375	0.080	20	100	100	NA	110	0.300 - 0.550	0.2	0.300	0.250	0.2	0.400	180	0.2	0.113
0.500	0.080	20	100	100	NA	110	0.300 - 0.550	0.2	0.250	0.200	0.4	0.350	150	0.2	0.119
0.625	0.080	20	100	100	NA	110	0.300 - 0.550	0.5	0.250	0.200	0.3	0.350	110	0.3	0.120
0.750	0.080	20	100	100	NA	110	0.300 - 0.550	0.7	0.300	0.250	0.2	0.400	70	0.4	0.130
0.875	0.080	20	100	100	NA	110	0.350 - 0.550	1.0	0.350	0.300	0.2	0.450	55	0.5	0.139
1.000	**0.080**	**20**	**100**	**100**	**NA**	**110**	**0.350 - 0.550**	**1.3**	**0.400**	**0.300**	**0.2**	**0.500**	**40**	**0.7**	**0.150**
1.250	***0.080***	***20***	***100***	***100***	***NA***	***110***	***0.400 - 0.550***	***0.4***	***Edge Start***		***0.2***	***Edge***	***32***	***0.4***	***0.161***
1.500	***0.080***	***20***	***100***	***100***	***NA***	***110***	***0.400 - 0.550***	***0.4***	***Edge Start***		***0.2***	***Edge***	***25***	***0.4***	***0.170***
1.750	***0.080***	***20***	***100***	***100***	***NA***	***110***	***0.400 - 0.550***	***0.4***	***Edge Start***		***0.2***	***Edge***	***20***	***0.4***	***0.188***
2.000	***0.080***	***20***	***100***	***100***	***NA***	***110***	***0.400 - 0.550***	***0.4***	***Edge Start***		***0.2***	***Edge***	***15***	***0.4***	***0.205***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H35)		Shield (N_2)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	2.0	1.4	100	6.9	NA	7.6	7.6 - 14.0	0.2	7.4	6.2	0.2	10.0	4460	0.2	2.9
12	2.0	1.4	100	6.9	NA	7.6	7.6 - 14.0	0.2	6.6	5.4	0.4	9.2	3980	0.2	3.0
15	2.0	1.4	100	6.9	NA	7.6	7.6 - 14.0	0.4	6.4	5.1	0.3	8.9	3070	0.3	3.0
20	2.0	1.4	100	6.9	NA	7.6	8.0 - 14.0	0.8	8.0	6.7	0.2	10.5	1660	0.4	3.4
25	**2.0**	**1.4**	**100**	**6.9**	**NA**	**7.6**	**8.9 - 14.0**	**1.3**	**10.0**	**7.6**	**0.2**	**12.5**	**1060**	**0.7**	**3.8**
30	***2.0***	***1.4***	***100***	***6.9***	***NA***	***7.6***	***10.2 - 14.0***	***0.4***	***Edge Start***		***0.2***	***Edge***	***860***	***0.4***	***4.0***
35	***2.0***	***1.4***	***100***	***6.9***	***NA***	***7.6***	***10.2 - 14.0***	***0.4***	***Edge Start***		***0.2***	***Edge***	***720***	***0.4***	***4.2***
40	***2.0***	***1.4***	***100***	***6.9***	***NA***	***7.6***	***10.2 - 14.0***	***0.4***	***Edge Start***		***0.2***	***Edge***	***600***	***0.4***	***4.5***
50	***2.0***	***1.4***	***100***	***6.9***	***NA***	***7.6***	***10.2 - 14.0***	***0.4***	***Edge Start***		***0.2***	***Edge***	***400***	***0.4***	***5.2***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Aluminum
200A Bevel Cut
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	13 / 28	5 / 19
Cutflow	28 / 59	5 / 19



This Art Is For Reference ONLY

Art # A-08552

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	22-1049	22-1284	22-1067	22-1043	22-1089	22-1022

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)*	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.500	0.080	20	100	90	5	55	0.250 - 0.550	0.3	0.200	0.150	0.2	0.300	110	0.3	0.120
0.625	0.080	20	80	100	5	55	0.300 - 0.550	0.7	0.250	0.200	0.2	0.350	105	0.5	0.126
0.750	0.080	20	80	100	5	55	0.300 - 0.550	0.9	0.250	0.200	0.2	0.350	90	0.6	0.127
0.875	0.080	20	80	100	5	55	0.300 - 0.550	1.2	0.250	0.200	0.2	0.350	75	0.8	0.133
1.000	0.080	20	80	100	5	55	0.350 - 0.550	1.6	0.300	0.250	0.2	0.400	50	1.0	0.144
1.250	**0.080**	**20**	**80**	**100**	**5**	**55**	**0.400 - 0.550**	**3.4**	**0.350**	**0.300**	**0.2**	**0.450**	**25**	**2.0**	**0.180**
1.500	***0.080***	***20***	***80***	***100***	***5***	***55***	***0.400 - 0.550***	***0.8***	***Edge Start***		***0.2***	***Edge***	***20***	***0.8***	***0.197***
1.750	***0.080***	***20***	***80***	***100***	***5***	***55***	***0.400 - 0.550***	***0.8***	***Edge Start***		***0.2***	***Edge***	***18***	***0.8***	***0.201***
2.000	***0.080***	***20***	***80***	***100***	***5***	***55***	***0.400 - 0.550***	***0.8***	***Edge Start***		***0.2***	***Edge***	***12***	***0.8***	***0.204***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
12	2.0	1.4	100	6.1	5	3.8	6.1 - 14.0	0.2	4.8	3.5	0.2	7.3	2820	0.3	3.0
15	2.0	1.4	85	6.7	5	3.8	7.3 - 14.0	0.6	6.0	4.7	0.2	8.5	2700	0.4	3.2
20	2.0	1.4	80	6.9	5	3.8	7.6 - 14.0	1.0	6.4	5.1	0.2	8.9	2170	0.7	3.3
25	2.0	1.4	80	6.9	5	3.8	8.7 - 14.0	1.5	7.5	6.2	0.2	10.0	1350	1.0	3.6
30	**2.0**	**1.4**	**80**	**6.9**	**5**	**3.8**	**9.8 - 14.0**	**2.9**	**8.5**	**7.3**	**0.2**	**11.1**	**810**	**1.7**	**4.3**
35	***2.0***	***1.4***	***80***	***6.9***	***5***	***3.8***	***10.2 - 14.0***	***0.8***	***Edge Start***		***0.2***	***Edge***	***530***	***0.8***	***5.0***
40	***2.0***	***1.4***	***80***	***6.9***	***5***	***3.8***	***10.2 - 14.0***	***0.8***	***Edge Start***		***0.2***	***Edge***	***490***	***0.8***	***5.0***
50	***2.0***	***1.4***	***80***	***6.9***	***5***	***3.8***	***10.2 - 14.0***	***0.8***	***Edge Start***		***0.2***	***Edge***	***320***	***0.8***	***5.2***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

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Chart is for Customer Settings
Make Copies as Desired

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow		
Cutflow		

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.135	0.080														
0.188	0.080														
0.250	0.080														
0.375	0.080														
0.500	0.080														

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
4	2.0														
5	2.0														
6	2.0														
8	2.0														
10	2.0														
12	2.0														

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

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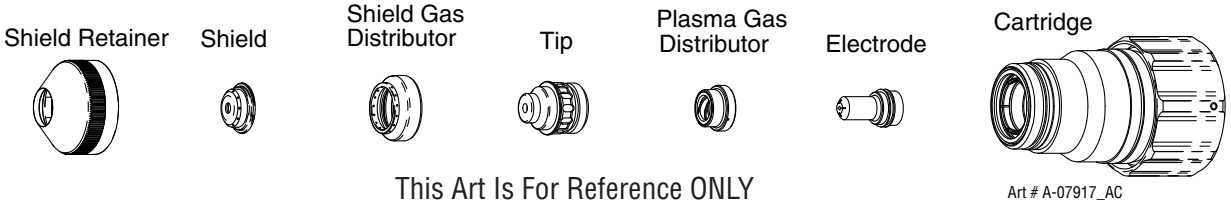
8.05 Standard Cutting 250 - 300 Amp

Mild Steel
250A
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	160 / 339
Cutflow	36 / 76	132 / 279



This Art Is For Reference ONLY

Art # A-07917_AC

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1014	22-1030	22-1285	22-1056	22-1042	22-1093	22-1022

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	5/8	0.625	15	100	100	NA	100	147	0.170	0.7	0.300	0.250	0.5	0.400	115	0.6	0.167
-	3/4	0.750	15	100	100	NA	100	152	0.180	1.0	0.350	0.300	0.5	0.450	90	0.8	0.171
-	7/8	0.875	15	100	100	NA	100	154	0.190	1.4	0.350	0.300	0.5	0.450	70	1.0	0.170
-	1	1.000	15	100	100	NA	90	157	0.200	1.9	0.400	0.300	0.5	0.500	60	1.4	0.181
-	1 1/4	1.250	15	100	100	NA	100	160	0.200	2.5	0.400	0.300	0.5	0.500	43	1.8	0.191
-	**1 1/2**	**1.500**	**15**	**100**	**100**	**NA**	**100**	**164**	**0.200**	**4.2**	**0.400**	**0.350**	**0.5**	**0.550**	**33**	**3.2**	**0.197**
-	***1 3/4***	***1.750***	***15***	***100***	***100***	***NA***	***100***	***171***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***23***	***1.0***	***0.197***
-	***2***	***2.000***	***15***	***100***	***100***	***NA***	***100***	***177***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***15***	***1.0***	***0.197***

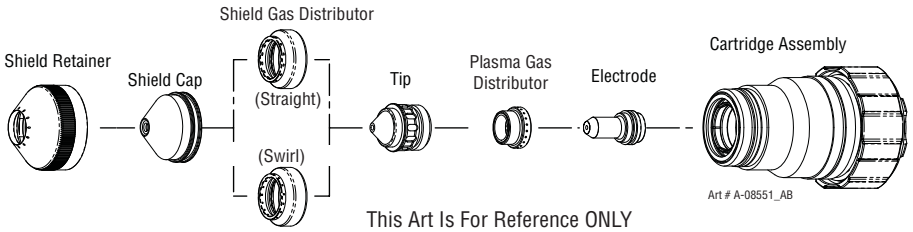
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
15	1.0	100	6.9	NA	6.9	146	4.2	0.6	7.3	6.0	0.5	9.8	3100	0.5	4.2
20	1.0	100	6.9	NA	6.9	153	4.6	1.1	8.9	7.6	0.5	11.4	2130	0.9	4.3
25	1.0	100	6.9	NA	6.3	157	5.0	1.8	10.0	7.6	0.5	12.5	1560	1.3	4.6
30	1.0	100	6.9	NA	6.7	159	5.1	2.3	10.2	7.6	0.5	12.7	1210	1.7	4.8
35	1.0	100	6.9	NA	6.9	162	5.1	3.4	10.2	8.3	0.5	13.4	960	2.5	4.9
40	***1.0***	***100***	***6.9***	***NA***	***6.9***	***167***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***710***	***1.0***	***5.0***
50	***1.0***	***100***	***6.9***	***NA***	***6.9***	***176***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***410***	***1.0***	***5.0***

Marking	Pre Flow Pressure	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
25A Arc Current	(N_2)	Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	90 / 6.2	159	0.120 / 3.0	0.120 / 3.0	0	0.5	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Mild Steel
300A
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	225 / 476
Cutflow	33 / 69	193 / 408



This Art Is For Reference ONLY

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1021	22-1029	≤ 1" / 25 mm 22-1282 > 1" / 25 mm 22-1283	22-1057	22-1042	22-1090	22-1022

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/2	0.500	15	104	90	NA	40	147	0.140	0.6	0.300	0.250	0.5	0.400	140	0.4	0.190
-	5/8	0.625	15	104	100	NA	50	152	0.160	0.7	0.300	0.250	0.5	0.400	115	0.5	0.190
-	3/4	0.750	15	104	100	NA	60	154	0.160	1.0	0.350	0.300	0.5	0.450	100	0.7	0.190
-	7/8	0.875	15	104	100	NA	60	155	0.160	1.1	0.350	0.300	0.5	0.450	85	0.8	0.190
-	1	1.000	15	104	100	NA	60	160	0.200	1.4	0.350	0.300	0.5	0.450	70	0.9	0.195
-	1 1/4	1.250	15	104	100	NA	60	169	0.250	2.0	0.350	0.300	0.5	0.450	50	1.4	0.230
-	1 1/2	1.500	15	104	100	NA	80	176	0.250	3.0	0.350	0.300	0.5	0.450	35	2.0	0.245
-	**1 3/4**	**1.750**	**15**	**104**	**100**	**NA**	**90**	**182**	**0.250**	**5.0**	**0.350**	**0.300**	**0.5**	**0.450**	**25**	**3.7**	**0.275**
-	***2***	***2.000***	***15***	***104***	***100***	***NA***	***90***	***187***	***0.250***	***1.0***	***Edge Start***		***0.5***	***Edge***	***18***	***1.0***	***0.280***
-	***2 1/2***	***2.500***	***15***	***104***	***100***	***NA***	***90***	***208***	***0.250***	***1.0***	***Edge Start***		***0.5***	***Edge***	***10***	***1.0***	***NA***
-	***3***	***3.000***	***15***	***104***	***100***	***NA***	***90***	***219***	***0.250***	***1.0***	***Edge Start***		***0.5***	***Edge***	***7***	***1.0***	***NA***

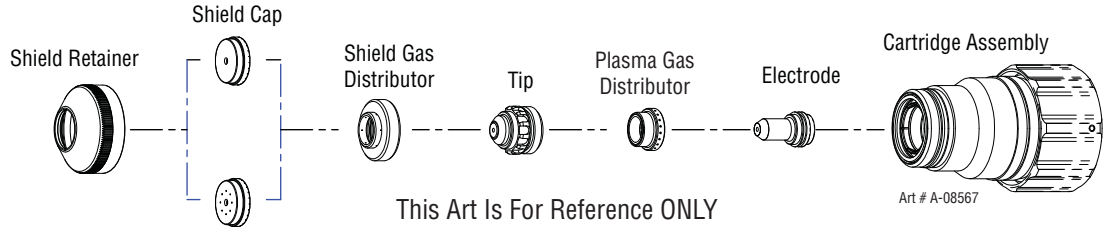
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
12	1.0	104	6.1	NA	2.6	146	3.4	0.6	7.6	6.4	0.5	10.2	3700	0.4	4.8
15	1.0	104	6.7	NA	3.3	151	3.9	0.7	7.6	6.4	0.5	10.2	3100	0.5	4.8
20	1.0	104	6.9	NA	4.1	154	4.1	1.0	8.9	7.6	0.5	11.4	2430	0.7	4.8
25	1.0	104	6.9	NA	4.1	159	5.0	1.4	8.9	7.6	0.5	11.4	1830	0.9	4.9
30	1.0	104	6.9	NA	4.1	167	6.0	1.8	8.9	7.6	0.5	11.4	1410	1.3	5.6
35	1.0	104	6.9	NA	4.8	173	6.4	2.5	8.9	7.6	0.5	11.4	1080	1.7	6.0
40	1.0	104	6.9	NA	5.7	178	6.4	3.6	8.9	7.6	0.5	11.4	810	2.5	6.5
50	***1.0***	***104***	***6.9***	***NA***	***6.2***	***186***	***6.4***	***1.0***	***Edge Start***		***0.5***	***Edge***	***470***	***1.0***	***NA***
60	***1.0***	***104***	***6.9***	***NA***	***6.2***	***202***	***6.4***	***1.0***	***Edge Start***		***0.5***	***Edge***	***310***	***1.0***	***NA***
60	***1.0***	***104***	***6.9***	***NA***	***6.2***	***205***	***6.4***	***1.0***	***Edge Start***		***0.5***	***Edge***	***280***	***1.0***	***NA***
70	***1.0***	***104***	***6.9***	***NA***	***6.2***	***214***	***6.4***	***1.0***	***Edge Start***		***0.5***	***Edge***	***220***	***1.0***	***NA***

Marking **30A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	90 / 6.2	158	0.120 / 3.0	0.120 / 3.0	0	0.5	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
300A
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	74 / 157
Cutflow	44 / 93	51 / 108



This Art Is For Reference ONLY

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	< 1" / 25 mm 22-1038 ≥ 1" / 25 mm 22-1039	22-1284	22-1065	22-1041	22-1091	22-1022

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H35)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	3/8	0.375	20	120	100	NA	120	160	0.350	0.2	0.250	0.200	0.4	0.350	85	0.2	0.175
-	1/2	0.500	20	120	100	NA	120	168	0.350	0.4	0.250	0.200	0.2	0.350	75	0.4	0.193
-	5/8	0.625	20	120	100	NA	90	163	0.350	0.7	0.275	0.250	0.2	0.375	65	0.5	0.197
-	3/4	0.750	20	120	100	NA	90	168	0.350	0.9	0.275	0.250	0.2	0.375	55	0.6	0.195
-	7/8	0.875	20	120	100	NA	90	170	0.350	1.1	0.275	0.250	0.2	0.375	45	0.7	0.210
-	1	1.000	20	120	100	NA	120	173	0.350	1.6	0.400	0.400	0.2	0.500	35	0.9	0.226
-	**1 1/4**	**1.250**	**20**	**120**	**100**	**NA**	**120**	**180**	**0.400**	**1.8**	**0.400**	**0.400**	**0.2**	**0.700**	**30**	**1.0**	**0.203**
-	***1 1/2***	***1.500***	***20***	***120***	***100***	***NA***	***120***	***180***	***0.400***	***0.5***	***Edge Start***		***0.2***	***Edge***	***25***	***0.5***	***0.220***
-	***1 3/4***	***1.750***	***20***	***120***	***100***	***NA***	***120***	***183***	***0.400***	***0.5***	***Edge Start***		***0.2***	***Edge***	***21***	***0.5***	***0.229***
-	***2***	***2.000***	***20***	***120***	***100***	***NA***	***120***	***186***	***0.400***	***0.5***	***Edge Start***		***0.2***	***Edge***	***17***	***0.5***	***0.237***

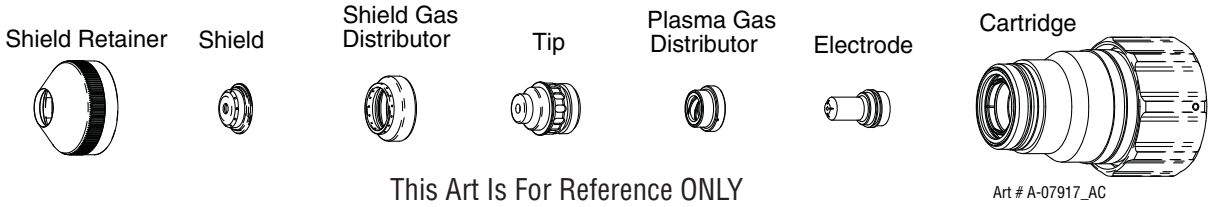
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	1.4	120	6.9	NA	8.3	161	8.9	0.2	6.4	5.1	0.4	8.9	2120	0.2	4.5
12	1.4	120	6.9	NA	8.3	166	8.9	0.4	6.4	5.1	0.2	8.9	1960	0.4	4.8
15	1.4	120	6.9	NA	6.8	164	8.9	0.6	6.8	6.0	0.2	9.3	1720	0.5	5.0
20	1.4	120	6.9	NA	6.2	169	8.9	1.0	7.0	6.4	0.2	9.5	1320	0.6	5.1
25	1.4	120	6.9	NA	8.0	173	8.9	1.5	9.8	9.7	0.2	12.3	920	0.9	5.7
30	1.4	120	6.9	NA	8.3	178	9.8	1.7	10.2	10.2	0.2	16.4	800	1.0	5.3
35	1.4	120	6.9	NA	8.3	184	10.8	1.9	10.2	10.2	0.2	20.4	700	1.1	4.9
40	***1.4***	***120***	***6.9***	***NA***	***8.3***	***181***	***10.2***	***0.5***	***Edge Start***		***0.2***	***Edge***	***600***	***0.5***	***5.7***
45	***1.4***	***120***	***6.9***	***NA***	***8.3***	***183***	***10.2***	***0.5***	***Edge Start***		***0.2***	***Edge***	***520***	***0.5***	***5.8***
50	***1.4***	***120***	***6.9***	***NA***	***8.3***	***186***	***10.2***	***0.5***	***Edge Start***		***0.2***	***Edge***	***440***	***0.5***	***6.0***

Marking **24A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	90 / 6.2	135	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
300A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	23 / 48	8 / 30
Cutflow	63 / 134	8 / 30



This Art Is For Reference ONLY

Art # A-07917_AC

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	22-1046	22-1284	22-1066	22-1043	22-1089	22-1022

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	3/8	0.375	20	120	100	8	55	150	0.150	0.3	0.250	0.200	0.2	0.350	140	0.3	0.144
-	1/2	0.500	20	120	100	8	55	159	0.150	0.5	0.250	0.200	0.2	0.350	100	0.5	0.154
-	5/8	0.625	20	120	100	8	55	158	0.150	0.8	0.250	0.200	0.2	0.350	75	0.6	0.153
-	3/4	0.750	20	120	100	8	55	166	0.200	0.9	0.400	0.300	0.2	0.500	55	0.7	0.173
-	7/8	0.875	20	120	100	8	55	180	0.300	1.8	0.400	0.300	0.2	0.500	45	1.1	0.210
-	1	1.000	20	120	100	8	55	182	0.300	2.1	0.400	0.300	0.2	0.500	40	1.3	0.210
-	**1 1/4**	**1.250**	**20**	**120**	**100**	**8**	**55**	**196**	**0.350**	**3.5**	**0.400**	**0.300**	**0.2**	**0.500**	**30**	**2.0**	**0.230**
-	***1 1/2***	***1.500***	***20***	***120***	***100***	***8***	***55***	***198***	***0.350***	***1.0***	***Edge Start***		***0.2***	***Edge***	***25***	***1.0***	***0.232***
-	***1 3/4***	***1.750***	***20***	***120***	***100***	***8***	***55***	***198***	***0.350***	***1.0***	***Edge Start***		***0.2***	***Edge***	***18***	***1.0***	***0.237***
-	***2***	***2.000***	***20***	***120***	***100***	***8***	***55***	***205***	***0.350***	***1.0***	***Edge Start***		***0.2***	***Edge***	***12***	***1.0***	***0.253***

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	1.4	120	6.9	8	3.8	151	3.8	0.3	6.4	5.1	0.2	8.9	3400	0.3	3.7
12	1.4	120	6.9	8	3.8	157	3.8	0.5	6.4	5.1	0.2	8.9	2760	0.5	3.9
15	1.4	120	6.9	8	3.8	158	3.8	0.7	6.4	5.1	0.2	8.9	2080	0.6	3.9
20	1.4	120	6.9	8	3.8	170	5.8	1.2	10.2	7.6	0.2	12.7	1320	0.8	4.7
25	1.4	120	6.9	8	3.8	182	7.6	2.1	10.2	7.6	0.2	12.7	1030	1.3	5.3
30	1.4	120	6.9	8	3.8	192	8.5	3.1	10.2	7.6	0.2	12.7	830	1.8	5.7
35	***1.4***	***120***	***6.9***	***8***	***3.8***	***198***	***8.9***	***1.0***	***Edge Start***		***0.2***	***Edge***	***720***	***1.0***	***5.8***
40	***1.4***	***120***	***6.9***	***8***	***3.8***	***198***	***8.9***	***1.0***	***Edge Start***		***0.2***	***Edge***	***580***	***1.0***	***5.9***
50	***1.4***	***120***	***6.9***	***8***	***3.8***	***204***	***8.9***	***1.0***	***Edge Start***		***0.2***	***Edge***	***320***	***1.0***	***6.4***

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
24A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	90 / 6.2	115	0.120 / 3.0	0.120 / 3.0	0	0.3	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

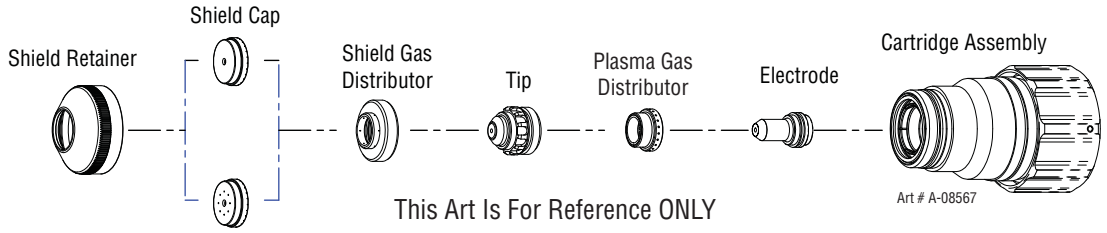
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Aluminum
300A
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	74 / 156
Cutflow	44 / 93	51 / 107



Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	< 1" / 25 mm 22-1038 ≥ 1" / 25 mm 22-1039	22-1284	22-1065	22-1041	22-1091	22-1022

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H35)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/4	0.250	20	120	100	NA	120	163	0.400	0.1	0.300	0.250	0.5	0.400	300	0.1	0.182
-	3/8	0.375	20	120	100	NA	120	163	0.400	0.2	0.300	0.250	0.4	0.400	275	0.2	0.186
-	1/2	0.500	20	120	100	NA	120	153	0.300	0.4	0.300	0.250	0.3	0.400	210	0.3	0.174
-	5/8	0.625	20	120	100	NA	90	160	0.300	0.6	0.250	0.300	0.2	0.350	140	0.4	0.169
-	3/4	0.750	20	120	100	NA	90	159	0.300	0.8	0.250	0.300	0.2	0.350	110	0.5	0.172
-	7/8	0.875	20	120	100	NA	90	162	0.300	1.0	0.300	0.250	0.2	0.400	95	0.6	0.183
-	1	1.000	20	120	100	NA	120	165	0.350	1.2	0.350	0.300	0.2	0.450	85	0.7	0.190
-	**1 1/4**	**1.250**	**20**	**120**	**100**	**NA**	**120**	**168**	**0.400**	**1.6**	**0.400**	**0.400**	**0.2**	**0.500**	**60**	**0.8**	**0.205**
-	***1 1/2***	***1.500***	***20***	***120***	***100***	***NA***	***120***	***177***	***0.400***	***1.5***	***Edge Start***		***0.2***	***Edge***	***45***	***1.0***	***0.215***
-	***1 3/4***	***1.750***	***20***	***120***	***100***	***NA***	***120***	***182***	***0.400***	***0.4***	***Edge Start***		***0.2***	***Edge***	***35***	***0.4***	***0.226***
-	***2***	***2.000***	***20***	***120***	***100***	***NA***	***120***	***188***	***0.400***	***0.4***	***Edge Start***		***0.2***	***Edge***	***25***	***0.4***	***0.215***

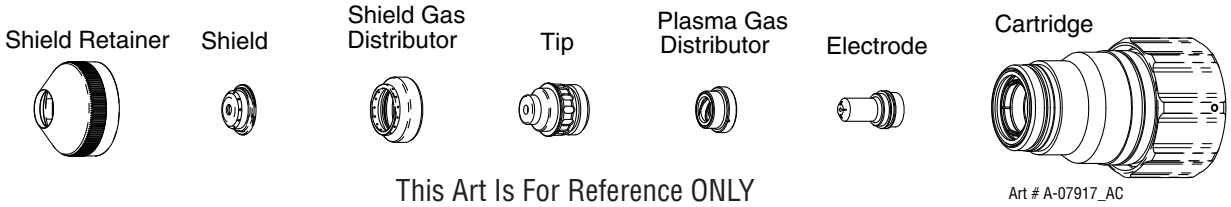
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
6	1.4	120	6.9	NA	8.3	163	10.2	0.1	7.6	6.4	0.5	10.2	7690	0.1	4.6
8	1.4	120	6.9	NA	8.3	163	10.2	0.2	7.6	6.4	0.4	10.2	7290	0.2	4.7
10	1.4	120	6.9	NA	8.3	162	9.8	0.2	7.6	6.4	0.4	10.2	6740	0.2	4.7
12	1.4	120	6.9	NA	8.3	155	8.2	0.4	7.6	6.4	0.3	10.2	5700	0.3	4.5
15	1.4	120	6.9	NA	6.8	158	7.6	0.5	6.7	7.3	0.2	9.2	4050	0.4	4.3
20	1.4	120	6.9	NA	6.2	160	7.6	0.9	6.7	7.2	0.2	9.3	2680	0.5	4.5
25	1.4	120	6.9	NA	8.0	165	8.7	1.2	8.7	7.5	0.2	11.3	2190	0.7	4.8
30	**1.4**	**120**	**6.9**	**NA**	**8.3**	**167**	**9.8**	**1.5**	**9.8**	**9.5**	**0.2**	**12.4**	**1700**	**0.8**	**5.1**
35	***1.4***	***120***	***6.9***	***NA***	***8.3***	***175***	***10.2***	***1.5***	***Edge Start***		***0.2***	***Edge***	***1270***	***1.0***	***5.3***
40	***1.4***	***120***	***6.9***	***NA***	***8.3***	***178***	***10.2***	***1.2***	***Edge Start***		***0.2***	***Edge***	***1070***	***0.8***	***5.5***
50	***1.4***	***120***	***6.9***	***NA***	***8.3***	***187***	***10.2***	***0.4***	***Edge Start***		***0.2***	***Edge***	***670***	***0.4***	***5.5***

Marking **24A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	90 / 6.2	135	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Aluminum
300A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	23 / 48	8 / 30
Cutflow	63 / 134	8 / 30



This Art Is For Reference ONLY

Art # A-07917_AC

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	22-1046	22-1284	22-1066	22-1043	22-1089	22-1022

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/2	0.500	20	120	100	8	55	160	0.200	0.4	0.250	0.150	0.2	0.300	120	0.3	0.161
-	5/8	0.625	20	120	100	8	55	164	0.200	0.5	0.250	0.150	0.2	0.300	100	0.4	0.165
-	3/4	0.750	20	120	100	8	55	170	0.250	0.9	0.400	0.300	0.2	0.500	80	0.5	0.174
-	7/8	0.875	20	120	100	8	55	173	0.250	1.0	0.400	0.300	0.2	0.500	70	0.6	0.175
-	1	1.000	20	120	100	8	55	175	0.250	1.2	0.400	0.300	0.2	0.500	60	0.7	0.190
-	**1 1/4**	**1.250**	**20**	**120**	**100**	**8**	**55**	**180**	**0.250**	**2.2**	**0.400**	**0.300**	**0.2**	**0.500**	**40**	**1.2**	**0.185**
-	***1 1/2***	***1.500***	***20***	***120***	***100***	***8***	***55***	***184***	***0.300***	***3.5***	***Edge Start***		***0.2***	***Edge***	***25***	***1.6***	***0.190***
-	***1 3/4***	***1.750***	***20***	***120***	***100***	***8***	***55***	***196***	***0.300***	***0.6***	***Edge Start***		***0.2***	***Edge***	***15***	***0.6***	***0.213***
-	***2***	***2.000***	***20***	***120***	***100***	***8***	***55***	***200***	***0.300***	***0.6***	***Edge Start***		***0.2***	***Edge***	***10***	***0.6***	***0.205***

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
15	1.4	120	6.9	8	3.8	163	5.1	0.5	6.4	3.8	0.2	7.6	2680	0.4	4.2
20	1.4	120	6.9	8	3.8	171	6.4	0.9	10.2	7.6	0.2	12.7	1960	0.5	4.4
25	1.4	120	6.9	8	3.8	175	6.4	1.2	10.2	7.6	0.2	12.7	1560	0.7	4.8
30	1.4	120	6.9	8	3.8	179	6.4	1.9	10.2	7.6	0.2	12.7	1160	1.1	4.7
35	***1.4***	***120***	***6.9***	***8***	***3.8***	***178***	***7.6***	***3.4***	***Edge Start***		***0.2***	***Edge***	***760***	***1.6***	***4.5***
40	***1.4***	***120***	***6.9***	***8***	***3.8***	***188***	***7.6***	***2.6***	***Edge Start***		***0.2***	***Edge***	***560***	***1.3***	***5.0***
50	***1.4***	***120***	***6.9***	***8***	***3.8***	***199***	***7.6***	***0.6***	***Edge Start***		***0.2***	***Edge***	***270***	***0.6***	***5.2***

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
24A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	90 / 6.2	115	0.120 / 3.0	0.120 / 3.0	0	0.3	300 / 7620	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

* Pressure of the water supply line should be regulated by customer pressure regulator.

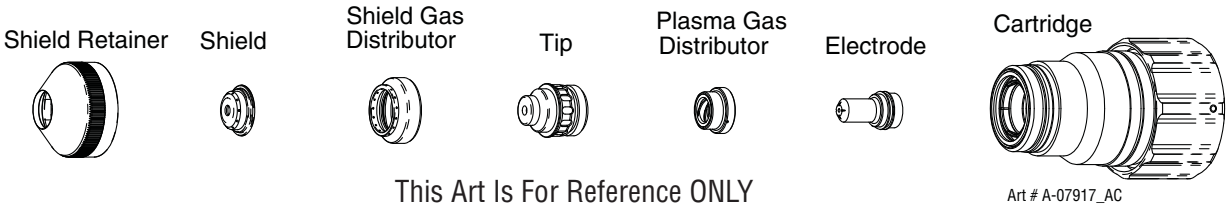
Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

8.06 Robotic and Bevel Cutting 250 - 300 Amp

Mild Steel
250A Bevel Cut
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	160 / 339
Cutflow	36 / 76	132 / 279



This Art Is For Reference ONLY

Art # A-07917_AC

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1014	22-1030	22-1285	22-1056	22-1042	22-1093	22-1022

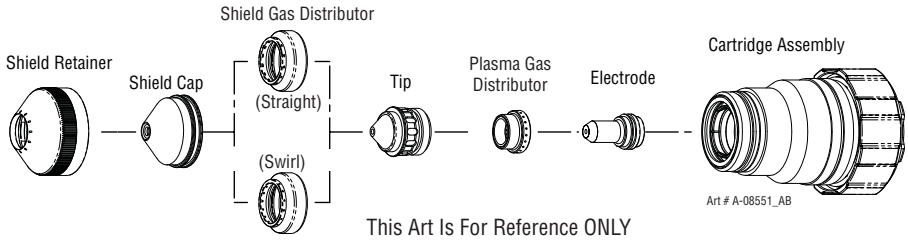
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.625	0.080	15	100	100	NA	100	0.170 - 0.360	0.7	0.300	0.250	0.5	0.400	115	0.6	0.167
0.750	0.080	15	100	100	NA	100	0.180 - 0.360	1.0	0.350	0.300	0.5	0.450	90	0.8	0.171
0.875	0.080	15	100	100	NA	100	0.190 - 0.360	1.4	0.350	0.300	0.5	0.450	70	1.0	0.170
1.000	0.080	15	100	100	NA	90	0.200 - 0.360	1.9	0.400	0.300	0.5	0.500	60	1.4	0.181
1.250	0.080	15	100	100	NA	100	0.200 - 0.360	2.5	0.400	0.300	0.5	0.500	43	1.8	0.191
1.500	**0.080**	**15**	**100**	**100**	**NA**	**100**	**0.200 - 0.360**	**4.2**	**0.400**	**0.350**	**0.5**	**0.550**	**33**	**3.2**	**0.197**
1.750	***0.080***	***15***	***100***	***100***	***NA***	***100***	***0.200 - 0.360***	***1.0***	***Edge Start***		***0.5***	***Edge***	***23***	***1.0***	***0.197***
2.000	***0.080***	***15***	***100***	***100***	***NA***	***100***	***0.200 - 0.360***	***1.0***	***Edge Start***		***0.5***	***Edge***	***15***	***1.0***	***0.197***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
15	2.0	1.0	100	6.9	NA	6.9	4.2 - 9.1	0.6	7.3	6.0	0.5	9.8	3100	0.5	4.2
20	2.0	1.0	100	6.9	NA	6.9	4.6 - 9.1	1.1	8.9	7.6	0.5	11.4	2130	0.9	4.3
25	2.0	1.0	100	6.9	NA	6.3	5 - 9.1	1.8	10.0	7.6	0.5	12.5	1560	1.3	4.6
30	2.0	1.0	100	6.9	NA	6.7	5.1 - 9.1	2.3	10.2	7.6	0.5	12.7	1210	1.7	4.8
35	**2.0**	**1.0**	**100**	**6.9**	**NA**	**6.9**	**5.1 - 9.1**	**3.4**	**10.2**	**8.3**	**0.5**	**13.4**	**960**	**2.5**	**4.9**
40	***2.0***	***1.0***	***100***	***6.9***	***NA***	***6.9***	***5.1 - 9.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***710***	***1.0***	***5.0***
50	***2.0***	***1.0***	***100***	***6.9***	***NA***	***6.9***	***5.1 - 9.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***410***	***1.0***	***5.0***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Mild Steel
300A Bevel Cut
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	225 / 476
Cutflow	33 / 69	193 / 408



This Art Is For Reference ONLY

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1021	22-1029	≤ 1" / 25 mm 22-1282 > 1" / 25 mm 22-1283	22-1057	22-1042	22-1090	22-1022

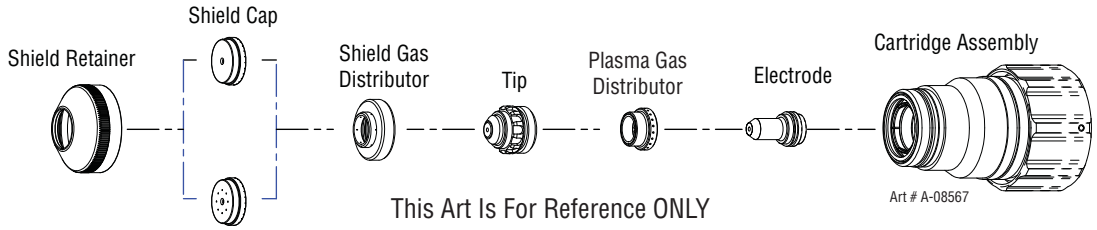
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.500	0.080	15	104	90	NA	40	0.140 - 0.550	0.6	0.300	0.250	0.5	0.400	140	0.4	0.190
0.625	0.080	15	104	100	NA	50	0.160 - 0.550	0.7	0.300	0.250	0.5	0.400	115	0.5	0.190
0.750	0.080	15	104	100	NA	60	0.160 - 0.550	1.0	0.350	0.300	0.5	0.450	100	0.7	0.190
0.875	0.080	15	104	100	NA	60	0.160 - 0.550	1.1	0.350	0.300	0.5	0.450	85	0.8	0.190
1.000	0.080	15	104	100	NA	60	0.200 - 0.550	1.4	0.350	0.300	0.5	0.450	70	0.9	0.195
1.250	0.080	15	104	100	NA	60	0.250 - 0.550	2.0	0.350	0.300	0.5	0.450	50	1.4	0.230
1.500	0.080	15	104	100	NA	80	0.250 - 0.550	3.0	0.350	0.300	0.5	0.450	35	2.0	0.245
1.750	**0.080**	**15**	**104**	**100**	**NA**	**90**	**0.250 - 0.550**	**5.0**	**0.350**	**0.300**	**0.5**	**0.450**	**25**	**3.7**	**0.275**
2.000	***0.080***	***15***	***104***	***100***	***NA***	***90***	***0.250 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***18***	***1.0***	***0.280***
2.500	***0.080***	***15***	***104***	***100***	***NA***	***90***	***0.250 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***10***	***1.0***	***NA***
3.000	***0.080***	***15***	***104***	***100***	***NA***	***90***	***0.250 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***7***	***1.0***	***NA***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
12	2.0	1.0	104	6.1	NA	2.6	3.4 - 14	0.6	7.6	6.4	0.5	10.2	3700	0.4	4.8
15	2.0	1.0	104	6.7	NA	3.3	3.9 - 14	0.7	7.6	6.4	0.5	10.2	3100	0.5	4.8
20	2.0	1.0	104	6.9	NA	4.1	4.1 - 14	1.0	8.9	7.6	0.5	11.4	2430	0.7	4.8
25	2.0	1.0	104	6.9	NA	4.1	5 - 14	1.4	8.9	7.6	0.5	11.4	1830	0.9	4.9
30	2.0	1.0	104	6.9	NA	4.1	6 - 14	1.8	8.9	7.6	0.5	11.4	1410	1.3	5.6
35	2.0	1.0	104	6.9	NA	4.8	6.4 - 14	2.5	8.9	7.6	0.5	11.4	1080	1.7	6.0
40	**2.0**	**1.0**	**104**	**6.9**	**NA**	**5.7**	**6.4 - 14**	**3.6**	**8.9**	**7.6**	**0.5**	**11.4**	**810**	**2.5**	**6.5**
50	***2.0***	***1.0***	***104***	***6.9***	***NA***	***6.2***	***6.4 - 14***	***1.0***	***Edge Start***		***0.5***	***Edge***	***470***	***1.0***	***NA***
60	***2.0***	***1.0***	***104***	***6.9***	***NA***	***6.2***	***6.4 - 14***	***1.0***	***Edge Start***		***0.5***	***Edge***	***310***	***1.0***	***NA***
60	***2.0***	***1.0***	***104***	***6.9***	***NA***	***6.2***	***6.4 - 14***	***1.0***	***Edge Start***		***0.5***	***Edge***	***280***	***1.0***	***NA***
70	***2.0***	***1.0***	***104***	***6.9***	***NA***	***6.2***	***6.4 - 14***	***1.0***	***Edge Start***		***0.5***	***Edge***	***220***	***1.0***	***NA***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
300A Bevel Cut
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	74 / 157
Cutflow	44 / 93	51 / 108



Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	< 1" / 25 mm 22-1038 ≥ 1" / 25 mm 22-1039	22-1284	22-1065	22-1041	22-1091	22-1022

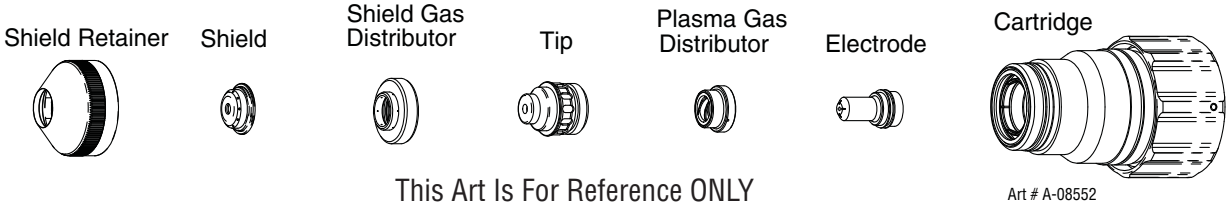
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H35)		Shield (N_2)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.375	0.080	20	120	100	NA	120	0.350 - 0.550	0.2	0.250	0.200	0.4	0.350	85	0.2	0.175
0.500	0.080	20	120	100	NA	120	0.350 - 0.550	0.4	0.250	0.200	0.2	0.350	75	0.4	0.193
0.625	0.080	20	120	100	NA	90	0.350 - 0.550	0.7	0.275	0.250	0.2	0.375	65	0.5	0.197
0.750	0.080	20	120	100	NA	90	0.350 - 0.550	0.9	0.275	0.250	0.2	0.375	55	0.6	0.195
0.875	0.080	20	120	100	NA	90	0.350 - 0.550	1.1	0.275	0.250	0.2	0.375	45	0.7	0.210
1.000	0.080	20	120	100	NA	120	0.350 - 0.550	1.6	0.400	0.400	0.2	0.500	35	0.9	0.226
1.250	**0.080**	**20**	**120**	**100**	**NA**	**120**	**0.400 - 0.550**	**1.8**	**0.400**	**0.400**	**0.2**	**0.700**	**30**	**1.0**	**0.203**
1.500	***0.080***	***20***	***120***	***100***	***NA***	***120***	***0.400 - 0.550***	***0.5***	***Edge Start***		***0.2***	***Edge***	***25***	***0.5***	***0.220***
1.750	***0.080***	***20***	***120***	***100***	***NA***	***120***	***0.400 - 0.550***	***0.5***	***Edge Start***		***0.2***	***Edge***	***21***	***0.5***	***0.229***
2.000	***0.080***	***20***	***120***	***100***	***NA***	***120***	***0.400 - 0.550***	***0.5***	***Edge Start***		***0.2***	***Edge***	***17***	***0.5***	***0.237***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H35)		Shield (N_2)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	2.0	1.4	120	6.9	NA	8.3	8.9 - 14	0.2	6.4	5.1	0.4	8.9	2120	0.2	4.5
12	2.0	1.4	120	6.9	NA	8.3	8.9 - 14	0.4	6.4	5.1	0.2	8.9	1960	0.4	4.8
15	2.0	1.4	120	6.9	NA	6.8	8.9 - 14	0.6	6.8	6.0	0.2	9.3	1720	0.5	5.0
20	2.0	1.4	120	6.9	NA	6.2	8.9 - 14	1.0	7.0	6.4	0.2	9.5	1320	0.6	5.1
25	2.0	1.4	120	6.9	NA	8.0	8.9 - 14	1.5	9.8	9.7	0.2	12.3	920	0.9	5.7
30	2.0	1.4	120	6.9	NA	8.3	9.8 - 14	1.7	10.2	10.2	0.2	16.4	800	1.0	5.3
35	**2.0**	**1.4**	**120**	**6.9**	**NA**	**8.3**	**10.8 - 14**	**1.9**	**10.2**	**10.2**	**0.2**	**20.4**	**700**	**1.1**	**4.9**
40	***2.0***	***1.4***	***120***	***6.9***	***NA***	***8.3***	***10.2 - 14***	***0.5***	***Edge Start***		***0.2***	***Edge***	***600***	***0.5***	***5.7***
45	***2.0***	***1.4***	***120***	***6.9***	***NA***	***8.3***	***10.2 - 14***	***0.5***	***Edge Start***		***0.2***	***Edge***	***520***	***0.5***	***5.8***
50	***2.0***	***1.4***	***120***	***6.9***	***NA***	***8.3***	***10.2 - 14***	***0.5***	***Edge Start***		***0.2***	***Edge***	***440***	***0.5***	***6.0***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
300A Bevel Cut
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	23 / 48	8 / 30
Cutflow	63 / 134	8 / 30



This Art Is For Reference ONLY

Art # A-08552

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	22-1046	22-1284	22-1066	22-1043	22-1089	22-1022

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)*	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.375	0.080	20	120	100	8	55	0.150 - 0.550	0.3	0.250	0.200	0.2	0.350	140	0.3	0.144
0.500	0.080	20	120	100	8	55	0.150 - 0.550	0.5	0.250	0.200	0.2	0.350	100	0.5	0.154
0.625	0.080	20	120	100	8	55	0.150 - 0.550	0.8	0.250	0.200	0.2	0.350	75	0.6	0.153
0.750	0.080	20	120	100	8	55	0.200 - 0.550	0.9	0.400	0.300	0.2	0.500	55	0.7	0.173
0.875	0.080	20	120	100	8	55	0.300 - 0.550	1.8	0.400	0.300	0.2	0.500	45	1.1	0.210
1.000	0.080	20	120	100	8	55	0.300 - 0.550	2.1	0.400	0.300	0.2	0.500	40	1.3	0.210
1.250	**0.080**	**20**	**120**	**100**	**8**	**55**	**0.350 - 0.550**	**3.5**	**0.400**	**0.300**	**0.2**	**0.500**	**30**	**2.0**	**0.230**
1.500	***0.080***	***20***	***120***	***100***	***8***	***55***	***0.350 - 0.550***	***1.0***	***Edge Start***		***0.2***	***Edge***	***25***	***1.0***	***0.232***
1.750	***0.080***	***20***	***120***	***100***	***8***	***55***	***0.350 - 0.550***	***1.0***	***Edge Start***		***0.2***	***Edge***	***18***	***1.0***	***0.237***
2.000	***0.080***	***20***	***120***	***100***	***8***	***55***	***0.350 - 0.550***	***1.0***	***Edge Start***		***0.2***	***Edge***	***12***	***1.0***	***0.253***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	2.0	1.4	120	6.9	8	3.8	3.8 - 14	0.3	6.4	5.1	0.2	8.9	3400	0.3	3.7
12	2.0	1.4	120	6.9	8	3.8	3.8 - 14	0.5	6.4	5.1	0.2	8.9	2760	0.5	3.9
15	2.0	1.4	120	6.9	8	3.8	3.8 - 14	0.7	6.4	5.1	0.2	8.9	2080	0.6	3.9
20	2.0	1.4	120	6.9	8	3.8	5.8 - 14	1.2	10.2	7.6	0.2	12.7	1320	0.8	4.7
25	2.0	1.4	120	6.9	8	3.8	7.6 - 14	2.1	10.2	7.6	0.2	12.7	1030	1.3	5.3
30	2.0	1.4	120	6.9	8	3.8	8.5 - 14	3.1	10.2	7.6	0.2	12.7	830	1.8	5.7
35	***2.0***	***1.4***	***120***	***6.9***	***8***	***3.8***	***8.9 - 14***	***1.0***	***Edge Start***		***0.2***	***Edge***	***720***	***1.0***	***5.8***
40	***2.0***	***1.4***	***120***	***6.9***	***8***	***3.8***	***8.9 - 14***	***1.0***	***Edge Start***		***0.2***	***Edge***	***580***	***1.0***	***5.9***
50	***2.0***	***1.4***	***120***	***6.9***	***8***	***3.8***	***8.9 - 14***	***1.0***	***Edge Start***		***0.2***	***Edge***	***320***	***1.0***	***6.4***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

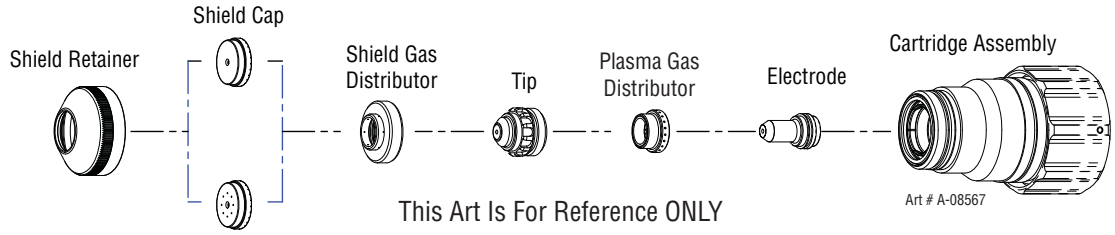
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Aluminum
300A Bevel Cut
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	74 / 156
Cutflow	44 / 93	51 / 107



Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	< 1" / 25 mm 22-1038 ≥ 1" / 25 mm 22-1039	22-1284	22-1065	22-1041	22-1091	22-1022

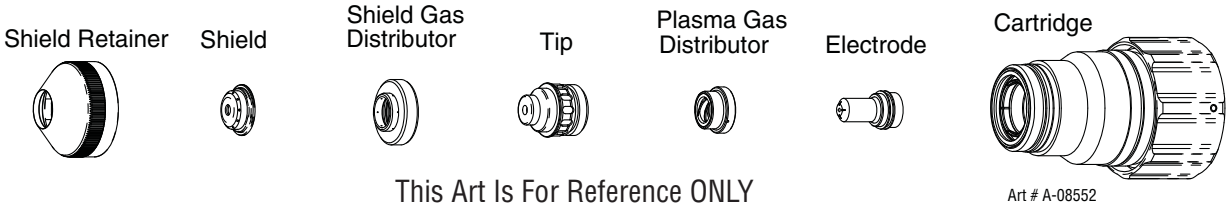
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H35)		Shield (N_2)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.250	0.080	20	120	100	NA	120	0.400 - 0.450	0.1	0.300	0.250	0.5	0.400	300	0.1	0.182
0.375	0.080	20	120	100	NA	120	0.400 - 0.450	0.2	0.300	0.250	0.4	0.400	275	0.2	0.186
0.500	0.080	20	120	100	NA	120	0.300 - 0.450	0.4	0.300	0.250	0.3	0.400	210	0.3	0.174
0.625	0.080	20	120	100	NA	90	0.300 - 0.450	0.6	0.250	0.300	0.2	0.350	140	0.4	0.169
0.750	0.080	20	120	100	NA	90	0.300 - 0.450	0.8	0.250	0.300	0.2	0.350	110	0.5	0.172
0.875	0.080	20	120	100	NA	90	0.300 - 0.450	1.0	0.300	0.250	0.2	0.400	95	0.6	0.183
1.000	0.080	20	120	100	NA	120	0.350 - 0.450	1.2	0.350	0.300	0.2	0.450	85	0.7	0.190
1.250	**0.080**	**20**	**120**	**100**	**NA**	**120**	**0.400 - 0.450**	**1.6**	**0.400**	**0.400**	**0.2**	**0.500**	**60**	**0.8**	**0.205**
1.500	***0.080***	***20***	***120***	***100***	***NA***	***120***	***0.400 - 0.450***	***1.5***	***Edge Start***		***0.2***	***Edge***	***45***	***1.0***	***0.215***
1.750	***0.080***	***20***	***120***	***100***	***NA***	***120***	***0.400 - 0.450***	***0.4***	***Edge Start***		***0.2***	***Edge***	***35***	***0.4***	***0.226***
2.000	***0.080***	***20***	***120***	***100***	***NA***	***120***	***0.400 - 0.450***	***0.4***	***Edge Start***		***0.2***	***Edge***	***25***	***0.4***	***0.215***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H35)		Shield (N_2)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
6	2.0	1.4	120	6.9	NA	8.3	10.2 - 11.4	0.1	7.6	6.4	0.5	10.2	7690	0.1	4.6
8	2.0	1.4	120	6.9	NA	8.3	10.2 - 11.4	0.2	7.6	6.4	0.4	10.2	7290	0.2	4.7
10	2.0	1.4	120	6.9	NA	8.3	9.8 - 11.4	0.2	7.6	6.4	0.4	10.2	6740	0.2	4.7
12	2.0	1.4	120	6.9	NA	8.3	8.2 - 11.4	0.4	7.6	6.4	0.3	10.2	5700	0.3	4.5
15	2.0	1.4	120	6.9	NA	6.8	7.6 - 11.4	0.5	6.7	7.3	0.2	9.2	4050	0.4	4.3
20	2.0	1.4	120	6.9	NA	6.2	7.6 - 11.4	0.9	6.7	7.2	0.2	9.3	2680	0.5	4.5
25	2.0	1.4	120	6.9	NA	8.0	8.7 - 11.4	1.2	8.7	7.5	0.2	11.3	2190	0.7	4.8
30	**2.0**	**1.4**	**120**	**6.9**	**NA**	**8.3**	**9.8 - 11.4**	**1.5**	**9.8**	**9.5**	**0.2**	**12.4**	**1700**	**0.8**	**5.1**
35	***2.0***	***1.4***	***120***	***6.9***	***NA***	***8.3***	***10.2 - 11.4***	***1.5***	***Edge Start***		***0.2***	***Edge***	***1270***	***1.0***	***5.3***
40	***2.0***	***1.4***	***120***	***6.9***	***NA***	***8.3***	***10.2 - 11.4***	***1.2***	***Edge Start***		***0.2***	***Edge***	***1070***	***0.8***	***5.5***
50	***2.0***	***1.4***	***120***	***6.9***	***NA***	***8.3***	***10.2 - 11.4***	***0.4***	***Edge Start***		***0.2***	***Edge***	***670***	***0.4***	***5.5***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Aluminum
300A Bevel Cut
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	23 / 48	8 / 30
Cutflow	63 / 134	8 / 30



This Art Is For Reference ONLY

Art # A-08552

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1015	22-1046	22-1284	22-1066	22-1043	22-1089	22-1022

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)*	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.500	0.080	20	120	100	8	55	0.200 - 0.450	0.4	0.250	0.150	0.2	0.300	120	0.3	0.161
0.625	0.080	20	120	100	8	55	0.200 - 0.450	0.5	0.250	0.150	0.2	0.300	100	0.4	0.165
0.750	0.080	20	120	100	8	55	0.250 - 0.450	0.9	0.400	0.300	0.2	0.500	80	0.5	0.174
0.875	0.080	20	120	100	8	55	0.250 - 0.450	1.0	0.400	0.300	0.2	0.500	70	0.6	0.175
1.000	0.080	20	120	100	8	55	0.250 - 0.450	1.2	0.400	0.300	0.2	0.500	60	0.7	0.190
1.250	**0.080**	**20**	**120**	**100**	**8**	**55**	**0.250 - 0.450**	**2.2**	**0.400**	**0.300**	**0.2**	**0.500**	**40**	**1.2**	**0.185**
1.500	***0.080***	***20***	***120***	***100***	***8***	***55***	***0.300 - 0.450***	***3.5***	***Edge Start***		***0.2***	***Edge***	***25***	***1.6***	***0.190***
1.750	***0.080***	***20***	***120***	***100***	***8***	***55***	***0.300 - 0.450***	***0.6***	***Edge Start***		***0.2***	***Edge***	***15***	***0.6***	***0.213***
2.000	***0.080***	***20***	***120***	***100***	***8***	***55***	***0.300 - 0.450***	***0.6***	***Edge Start***		***0.2***	***Edge***	***10***	***0.6***	***0.205***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
15	2.0	1.4	120	6.9	8	3.8	5.1 - 11.4	0.5	6.4	3.8	0.2	7.6	2680	0.4	4.2
20	2.0	1.4	120	6.9	8	3.8	6.4 - 11.4	0.9	10.2	7.6	0.2	12.7	1960	0.5	4.4
25	2.0	1.4	120	6.9	8	3.8	6.4 - 11.4	1.2	10.2	7.6	0.2	12.7	1560	0.7	4.8
30	2.0	1.4	120	6.9	8	3.8	6.4 - 11.4	1.9	10.2	7.6	0.2	12.7	1160	1.1	4.7
35	***2.0***	***1.4***	***120***	***6.9***	***8***	***3.8***	***7.6 - 11.4***	***3.4***	***Edge Start***		***0.2***	***Edge***	***760***	***1.6***	***4.5***
40	***2.0***	***1.4***	***120***	***6.9***	***8***	***3.8***	***7.6 - 11.4***	***2.6***	***Edge Start***		***0.2***	***Edge***	***560***	***1.3***	***5.0***
50	***2.0***	***1.4***	***120***	***6.9***	***8***	***3.8***	***7.6 - 11.4***	***0.6***	***Edge Start***		***0.2***	***Edge***	***270***	***0.6***	***5.2***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Chart is for Customer Settings
Make Copies as Desired

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow		
Cutflow		

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)*	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.135	0.080														
0.188	0.080														
0.250	0.080														
0.375	0.080														
0.500	0.080														

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
4	2.0														
5	2.0														
6	2.0														
8	2.0														
10	2.0														
12	**2.0**														

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

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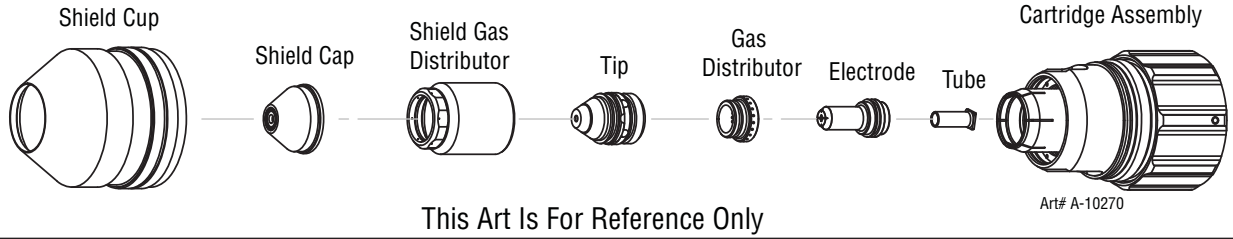
8.07 Standard Cutting 400 Amp

Mild Steel
400A
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	232 / 491
Cutflow	33 / 70	203 / 430



Art# A-10270

This Art Is For Reference Only

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode Coolant Tube EXT	Cartridge
22-1305	22-1304	22-1310	22-1309	22-1042	22-1308 9-7921	22-1300

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (Air)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/2	0.500	15	80	90	-	80	154	0.200	0.3	0.400	0.200	0.2	Not Recommended without Elevation Height	150	0.2	0.195
-	5/8	0.625	15	80	90	-	80	154	0.200	0.4	0.400	0.300	0.2		130	0.3	0.200
-	3/4	0.750	15	80	90	-	80	154	0.200	0.6	0.400	0.300	0.2		115	0.8	0.215
-	7/8	0.875	15	80	90	-	80	159	0.200	0.9	0.400	0.500	0.2		100	0.9	0.200
-	1	1.000	15	80	90	-	80	161	0.200	1.1	0.400	0.550	0.2		80	0.9	0.200
-	1 1/4	1.250	15	80	90	-	80	162	0.200	1.5	0.400	0.650	0.2		60	1.3	0.220
-	1 1/2	1.500	15	80	90	-	80	166	0.200	4.0	0.450	0.600	0.2		45	2.5	0.230
-	1 3/4	1.750	15	80	90	-	80	169	0.200	4.5	0.450	0.650	0.2		40	4.0	0.225
-	**2**	**2.000**	**15**	**80**	**90**	**-**	**80**	**170**	**0.200**	**7.0**	**0.450**	**0.750**	**0.2**		**30**	**6.0**	**0.225**
-	***2 1/4***	***2.250***	***15***	***80***	***90***	**-**	***80***	***170***	***0.200***	***3.5***	***Edge Start***		***0.2***		***25***	***3.5***	***0.235***
-	***2 1/2***	***2.500***	***15***	***80***	***90***	**-**	***80***	***181***	***0.200***	***3.0***	***Edge Start***		***0.2***		***15***	***3.0***	***0.235***
-	***3***	***3.000***	***15***	***80***	***90***	**-**	***80***	***193***	***0.200***	***3.0***	***Edge Start***		***0.2***		***10***	***3.0***	***0.300***
-	***3 1/2***	***3.500***	***15***	***80***	***90***	**-**	***80***	***217***	***0.200***	***3.0***	***Edge Start***		***0.2***		***4***	***3.0***	***0.360***

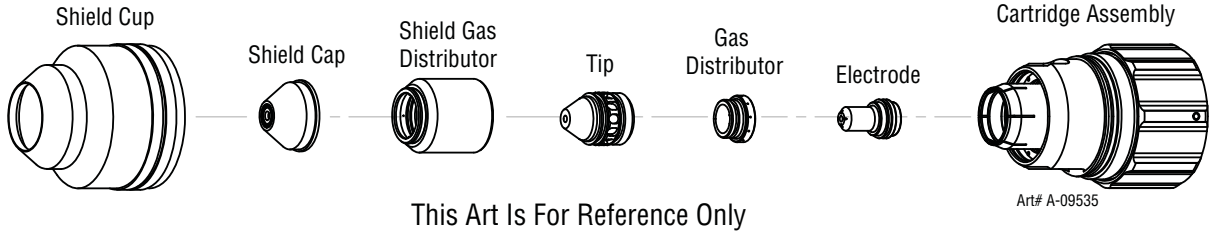
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (Air)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
12	1.0	80	6.2	-	5.5	154	5.1	0.3	10.2	4.5	0.2	Not Recommended without Elevation Height	3920	0.2	4.9
15	1.0	80	6.2	-	5.5	154	5.1	0.4	10.2	6.9	0.2		3440	0.3	5.0
20	1.0	80	6.2	-	5.5	155	5.1	0.7	10.2	9.1	0.2		2810	0.8	5.3
25	1.0	80	6.2	-	5.5	161	5.1	1.1	10.2	13.8	0.2		2100	0.9	5.1
30	1.0	80	6.2	-	5.5	162	5.1	1.4	10.2	15.8	0.2		1660	1.2	5.4
35	1.0	80	6.2	-	5.5	164	5.1	2.8	10.8	15.9	0.2		1330	1.9	5.7
40	1.0	80	6.2	-	5.5	167	5.1	4.1	11.4	15.6	0.2		1110	2.9	5.8
50	**1.0**	**80**	**6.2**	**-**	**5.5**	**170**	**5.1**	**6.7**	**11.4**	**18.7**	**0.2**		**790**	**5.7**	**5.7**
60	***1.0***	***80***	***6.2***	**-**	***5.5***	***175***	***5.1***	***3.3***	***Edge Start***		***0.2***		***520***	***3.3***	***6.0***
70	***1.0***	***80***	***6.2***	**-**	***5.5***	***187***	***5.1***	***3.0***	***Edge Start***		***0.2***		***320***	***3.0***	***6.8***
80	***1.0***	***80***	***6.2***	**-**	***5.5***	***200***	***5.1***	***3.0***	***Edge Start***		***0.2***		***210***	***3.0***	***8.1***
90	***1.0***	***80***	***6.2***	**-**	***5.5***	***219***	***5.1***	***3.0***	***Edge Start***		***0.2***		***90***	***3.0***	***9.3***

Marking	Pre Flow Pressure	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
24A Arc Current	(N_2)	Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	50	50 / 3.4	NA	15 / 1.0	110	0.120 / 3.0	0.120 / 3.0	0	0.5	200 / 5080	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.
THC Pierce Delay values shown are the minimum values. It is recommended that this value should be increased depending on the application.

Stainless Steel
400A
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	207 / 439
Cutflow	47 / 100	173 / 367



This Art Is For Reference Only

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	≤ 1" / 25 mm 22-1304 > 1" / 25 mm 22-1307	22-1303	22-1302	22-1306	22-1301	22-1300

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H35)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	5/8	0.625	30	120	100	NA	110	155	0.350	0.5	0.400	0.400	0.2	Not Recommended without Elevation Height	70	0.4	0.230
-	3/4	0.750	30	120	100	NA	110	157	0.350	0.6	0.400	0.400	0.2		60	0.5	0.230
-	1	1.000	30	120	100	NA	110	161	0.350	1.0	0.400	0.500	0.2		45	0.8	0.236
-	1 1/4	1.250	30	120	100	NA	110	163	0.350	1.5	0.400	0.500	0.2		35	1.2	0.235
-	1 1/2	1.500	30	120	100	NA	110	165	0.350	1.8	0.400	0.500	0.2		28	1.3	0.248
-	1 3/4	1.750	30	120	100	NA	110	167	0.350	5.0	0.400	0.750	0.2		20	2.5	0.257
-	**2**	**2.000**	**30**	**120**	**100**	**NA**	**110**	**171**	**0.350**	**10.0**	**0.400**	**0.750**	**0.2**		**17**	**5.5**	**0.268**
-	***2 1/4***	***2.250***	***30***	***120***	***100***	***NA***	***110***	***175***	***0.350***	***3.0***	***Edge Start***		***0.2***		***12***	***3.0***	***0.265***
-	***2 1/2***	***2.500***	***30***	***120***	***100***	***NA***	***110***	***170***	***0.350***	***3.0***	***Edge Start***		***0.2***		***14***	***3.0***	***0.260***
-	***3***	***3.000***	***30***	***120***	***100***	***NA***	***110***	***177***	***0.350***	***3.0***	***Edge Start***		***0.2***		***10***	***3.0***	***0.275***
-	***3 1/2***	***3.500***	***30***	***120***	***100***	***NA***	***110***	***195***	***0.350***	***3.0***	***Edge Start***		***0.2***		***5***	***3.0***	***0.280***
-	***4***	***4.000***	***30***	***120***	***100***	***NA***	***110***	***210***	***0.350***	***4.0***	***Edge Start***		***0.2***		***3.5***	***4.0***	***0.290***

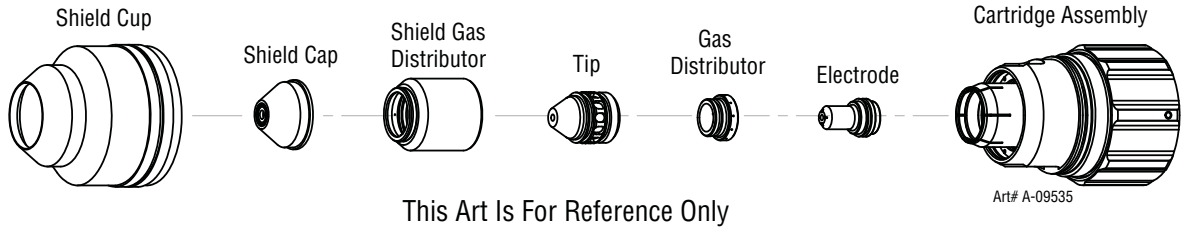
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
15	2.1	120	6.9	NA	7.6	154	8.9	0.5	10.2	10.2	0.2	Not Recommended without Elevation Height	1850	0.4	5.8
20	2.1	120	6.9	NA	7.6	158	8.9	0.7	10.2	10.5	0.2		1470	0.5	5.9
25	2.1	120	6.9	NA	7.6	161	8.9	1.0	10.2	12.5	0.2		1170	0.8	6.0
30	2.1	120	6.9	NA	7.6	162	8.9	1.4	10.2	12.7	0.2		960	1.1	6.0
35	2.1	120	6.9	NA	7.6	164	8.9	1.7	10.2	12.7	0.2		800	1.3	6.1
40	2.1	120	6.9	NA	7.6	166	8.9	2.8	10.2	14.6	0.2		650	1.7	6.4
50	**2.1**	**120**	**6.9**	**NA**	**7.6**	**170**	**8.9**	**9.4**	**10.2**	**19.1**	**0.2**		**440**	**5.1**	**6.8**
60	***2.1***	***120***	***6.9***	***NA***	***7.6***	***173***	***8.9***	***3.0***	***Edge Start***		***0.2***		***330***	***3.0***	***6.7***
70	***2.1***	***120***	***6.9***	***NA***	***7.6***	***174***	***8.9***	***3.0***	***Edge Start***		***0.2***		***300***	***3.0***	***6.8***
80	***2.1***	***120***	***6.9***	***NA***	***7.6***	***182***	***8.9***	***3.0***	***Edge Start***		***0.2***		***220***	***3.0***	***7.0***
90	***2.1***	***120***	***6.9***	***NA***	***7.6***	***196***	***8.9***	***3.1***	***Edge Start***		***0.2***		***120***	***3.1***	***7.1***
100	***2.1***	***120***	***6.9***	***NA***	***7.6***	***208***	***8.9***	***3.9***	***Edge Start***		***0.2***		***90***	***3.9***	***7.3***

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
50A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	80 / 5.5	NA	20 / 1.4	91	0.250 / 6.4	0.120 / 3.0	0	0.4	100 / 2540	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
400A
H17 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H17	N_2
Preflow	- / -	207 / 439
Cutflow	47 / 100	173 / 367



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Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	22-1304	22-1303	22-1302	22-1306	22-1301	22-1300

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H17)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/2	0.500	30	120	100	NA	100	141	0.180	0.4	0.375	0.000	0.2	Not Recommended without Elevation Height	105	0.4	0.205
-	5/8	0.625	30	120	100	NA	100	147	0.200	0.6	0.375	0.300	0.2		90	0.6	0.200
-	3/4	0.750	30	120	100	NA	100	150	0.200	1.0	0.375	0.300	0.2		70	0.7	0.210
-	1	1.000	30	120	100	NA	100	152	0.200	1.5	0.375	0.300	0.2		50	1.2	0.212
-	1 1/4	1.250	30	120	100	NA	100	164	0.300	2.0	0.375	0.400	0.2		38	1.4	0.235
-	1 1/2	1.500	30	120	100	NA	100	164	0.300	2.8	0.375	0.500	0.2		30	2.0	0.245
-	1 3/4	1.750	30	120	100	NA	100	170	0.300	5.0	0.375	0.750	0.2		21	3.0	0.255
-	**2**	**2.000**	**30**	**120**	**100**	**NA**	**100**	**179**	**0.300**	**8.0**	**0.375**	**0.750**	**0.2**		**17**	**5.5**	**0.280**

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H17)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
12	2.1	120	6.9	NA	6.9	140	4.5	0.4	9.5	0.0	0.2	Not Recommended without Elevation Height	2750	0.4	5.2
15	2.1	120	6.9	NA	6.9	145	4.9	0.5	9.5	5.5	0.2		2390	0.5	5.1
20	2.1	120	6.9	NA	6.9	150	5.1	1.1	9.5	7.6	0.2		1700	0.8	5.3
25	2.1	120	6.9	NA	6.9	152	5.1	1.5	9.5	7.6	0.2		1300	1.2	5.4
30	2.1	120	6.9	NA	6.9	161	6.9	1.9	9.5	9.5	0.2		1050	1.3	5.8
35	2.1	120	6.9	NA	6.9	164	7.6	2.4	9.5	11.5	0.2		860	1.7	6.1
40	2.1	120	6.9	NA	6.9	166	7.6	3.5	9.5	14.6	0.2		690	2.3	6.3
45	2.1	120	6.9	NA	6.9	171	7.6	5.3	9.5	19.1	0.2		520	3.2	6.5
50	**2.1**	**120**	**6.9**	**NA**	**6.9**	**178**	**7.6**	**7.6**	**9.5**	**19.1**	**0.2**		**440**	**5.2**	**7.0**

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
50A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	100 / 6.9	NA	100 / 6.9	135	0.120 / 3.0	0.120 / 3.0	0	0.4	0 / 0	

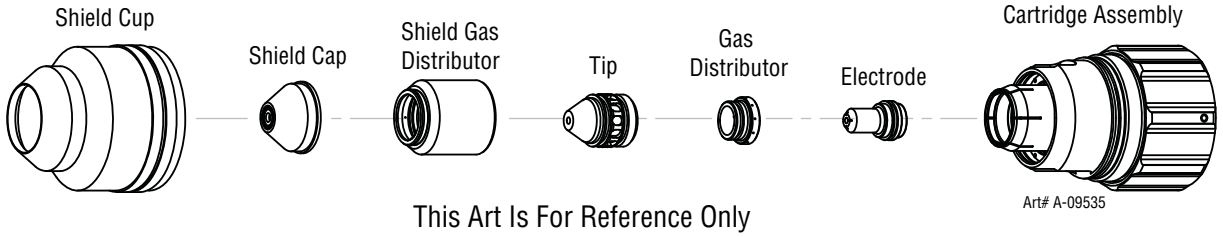
BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel

400A

N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	22 / 47	8 / 30
Cutflow	72 / 153	8 / 30



This Art Is For Reference Only

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	22-1501	22-1500	22-1302	22-1043	22-1502	22-1300

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	3/8	0.375	17	150	119	8	na	163	0.200	0.4	0.400	0.300	0.2	Not Recommended without Elevation Height	150	0.3	0.132
-	1/2	0.500	17	150	119	8	na	164	0.200	0.6	0.450	0.300	0.2		130	0.4	0.200
-	5/8	0.625	17	150	119	8	na	164	0.200	0.8	0.450	0.400	0.2		110	0.6	0.200
-	3/4	0.750	17	150	119	8	na	166	0.200	1.2	0.450	0.400	0.2		90	0.7	0.200
-	1	1.000	17	150	119	8	na	171	0.200	2.0	0.450	0.400	0.2		75	1.0	0.230
-	1 1/4	1.250	17	150	119	8	na	179	0.250	2.5	0.450	0.450	0.2		40	1.5	0.230
-	1 1/2	1.500	17	150	119	8	na	184	0.250	3.0	0.450	0.500	0.2		30	2.3	0.240
-	**1 3/4**	**1.750**	**17**	**150**	**119**	**8**	**na**	**193**	**0.300**	**3.5**	**0.450**	**0.500**	**0.2**		**25**	**2.7**	**0.245**
-	***2***	***2.000***	***17***	***150***	***119***	***8***	***na***	***201***	***0.300***	***4.0***	***Edge Start***		***0.2***		***17***	***4.0***	***0.245***

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	1.2	150	8.2	8	na	163	5.1	0.4	10.4	7.6	0.2	Not Recommended without Elevation Height	3730	0.3	3.6
12	1.2	150	8.2	8	na	164	5.1	0.6	11.2	7.6	0.2		3410	0.4	4.7
15	1.2	150	8.2	8	na	164	5.1	0.7	11.4	9.5	0.2		2930	0.5	5.1
20	1.2	150	8.2	8	na	167	5.1	1.3	11.4	10.2	0.2		2230	0.7	5.2
25	1.2	150	8.2	8	na	171	5.1	1.9	11.4	10.2	0.2		1930	1.0	5.8
30	1.2	150	8.2	8	na	177	6.0	2.4	11.4	11.1	0.2		1260	1.4	5.8
40	1.2	150	8.2	8	na	187	6.7	3.1	11.4	12.7	0.2		720	2.4	6.1
50	***1.2***	***150***	***8.2***	***8***	***na***	***200***	***7.6***	***3.9***	***Edge Start***		***0.2***		***460***	***3.8***	***6.2***

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
45A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	90 / 6.2	123	0.400 / 10.2	0.400 / 10.2	0	0	200 / 5080	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

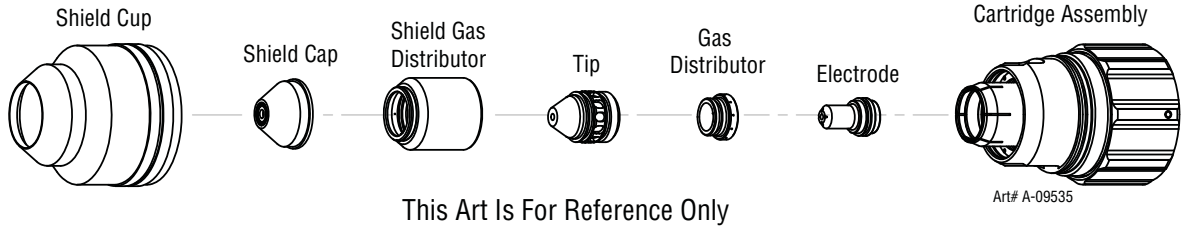
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Aluminum
400A
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	207 / 439
Cutflow	47 / 100	173 / 367



This Art Is For Reference Only

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	≤ 1" / 25 mm 22-1304 > 1" / 25 mm 22-1307	22-1303	22-1302	22-1306	22-1301	22-1300

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H35)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	3/4	0.750	30	120	100	NA	100	155	0.350	0.6	0.450	0.400	0.2	Not Recommended without Elevation Height	120	0.4	0.230
-	1	1.000	30	120	100	NA	100	157	0.350	0.7	0.450	0.500	0.2		90	0.5	0.220
-	1 1/4	1.250	30	120	100	NA	100	163	0.350	0.8	0.450	0.500	0.2		80	0.6	0.225
-	1 1/2	1.500	30	120	100	NA	100	167	0.400	1.4	0.500	0.750	0.2		60	1.2	0.235
-	1 3/4	1.750	30	120	100	NA	100	171	0.400	2.2	0.500	0.750	0.2		45	1.8	0.250
-	2	2.000	30	120	100	NA	100	175	0.400	3.8	0.500	0.750	0.2		30	3.2	0.260
-	**2 1/4**	**2.250**	**30**	**120**	**100**	**NA**	**100**	**183**	**0.400**	**6.5**	**0.500**	**0.750**	**0.2**		**20**	**4.5**	**0.275**
-	***2 1/2***	***2.500***	***30***	***120***	***100***	***NA***	***100***	***189***	***0.400***	***3.0***	***Edge Start***		***0.2***		***15***	***3.0***	***0.280***
-	***3***	***3.000***	***30***	***120***	***100***	***NA***	***100***	***198***	***0.400***	***3.0***	***Edge Start***		***0.2***		***10***	***3.0***	***0.290***
-	***3 1/2***	***3.500***	***30***	***120***	***100***	***NA***	***100***	***213***	***0.400***	***3.0***	***Edge Start***		***0.2***		***5***	***3.0***	***0.325***

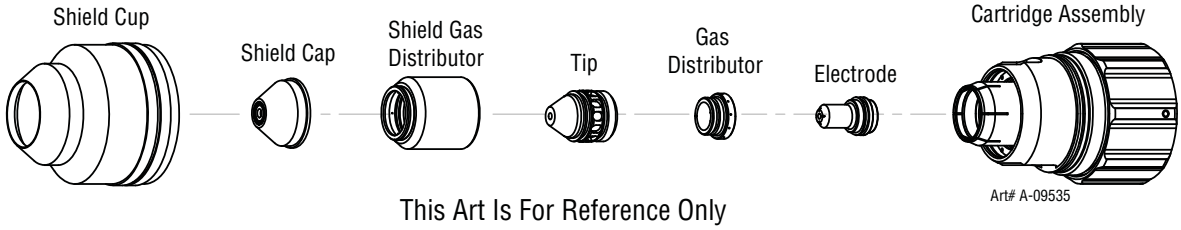
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
20	2.1	120	6.9	NA	6.9	155	8.9	0.6	11.4	10.5	0.2	Not Recommended without Elevation Height	2930	0.4	5.8
25	2.1	120	6.9	NA	6.9	157	8.9	0.7	11.4	12.5	0.2		2330	0.5	5.6
30	2.1	120	6.9	NA	6.9	161	8.9	0.8	11.4	12.7	0.2		2100	0.6	5.7
35	2.1	120	6.9	NA	6.9	165	9.5	1.1	12.1	16.0	0.2		1770	0.9	5.8
40	2.1	120	6.9	NA	6.9	168	10.2	1.6	12.7	19.1	0.2		1410	1.4	6.1
50	2.1	120	6.9	NA	6.9	174	10.2	3.6	12.7	19.1	0.2		810	3.0	6.6
60	***2.1***	***120***	***6.9***	***NA***	***6.9***	***187***	***10.2***	***3.0***	***Edge Start***		***0.2***		***420***	***3.0***	***7.0***
70	***2.1***	***120***	***6.9***	***NA***	***6.9***	***194***	***10.2***	***3.0***	***Edge Start***		***0.2***		***320***	***3.0***	***7.2***
80	***2.1***	***120***	***6.9***	***NA***	***6.9***	***202***	***10.2***	***3.0***	***Edge Start***		***0.2***		***220***	***3.0***	***7.6***
90	***2.1***	***120***	***6.9***	***NA***	***6.9***	***214***	***10.2***	***3.0***	***Edge Start***		***0.2***		***120***	***3.0***	***8.3***

Marking **50A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	80 / 5.5	NA	20 / 1.4	92	0.200 / 5.1	0.120 / 3.0	0	0.4	100 / 2540	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Aluminum
400A
H17 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H17	N_2
Preflow	- / -	207 / 439
Cutflow	47 / 100	173 / 367



This Art Is For Reference Only

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	≤ 1" / 25 mm 22-1304 > 1" / 25 mm 22-1307	22-1303	22-1302	22-1306	22-1301	22-1300

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H17)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/2	0.500	30	120	100	NA	100	148	0.200	0.3	0.350	0.250	0.4	Not Recommended without Elevation Height	200	0.4	0.195
-	5/8	0.625	30	120	100	NA	100	149	0.200	0.3	0.350	0.250	0.4		180	0.3	0.200
-	3/4	0.750	30	120	100	NA	100	149	0.200	0.6	0.350	0.250	0.4		150	0.4	0.200
-	1	1.000	30	120	100	NA	100	165	0.350	0.7	0.350	0.250	0.4		100	0.5	0.230
-	1 1/4	1.250	30	120	100	NA	100	171	0.350	0.8	0.350	0.300	0.4		80	0.6	0.230
-	1 1/2	1.500	30	120	100	NA	100	167	0.350	1.4	0.350	0.300	0.4		60	1.2	0.240
-	1 3/4	1.750	30	120	100	NA	100	177	0.400	3.0	0.350	0.500	0.4		45	2.0	0.275
-	**2**	**2.000**	**30**	**120**	**100**	**NA**	**100**	**181**	**0.400**	**5.5**	**0.350**	**0.700**	**0.4**		**35**	**4.5**	**0.285**
-	***2 1/4***	***2.250***	***30***	***120***	***100***	***NA***	***100***	***189***	***0.400***	***2.0***	***Edge Start***		***0.4***		***20***	***2.0***	***0.310***
-	***2 1/2***	***2.500***	***30***	***120***	***100***	***NA***	***100***	***208***	***0.400***	***3.0***	***Edge Start***		***0.4***		***10***	***3.0***	***0.325***

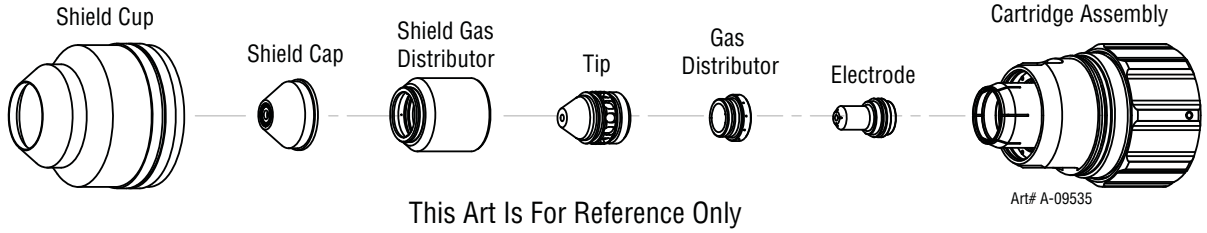
	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H17)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
15	2.1	120	6.9	NA	6.9	149	5.1	0.3	8.9	6.4	0.4	Not Recommended without Elevation Height	4710	0.3	5.0
20	2.1	120	6.9	NA	6.9	151	5.7	0.6	8.9	6.4	0.4		3620	0.4	5.2
25	2.1	120	6.9	NA	6.9	164	8.7	0.7	8.9	6.4	0.4		2620	0.5	5.8
30	2.1	120	6.9	NA	6.9	169	8.9	0.8	8.9	7.3	0.4		2170	0.6	5.8
35	2.1	120	6.9	NA	6.9	169	8.9	1.1	8.9	7.6	0.4		1770	0.9	6.0
40	2.1	120	6.9	NA	6.9	170	9.3	1.9	8.9	9.1	0.4		1410	1.4	6.4
50	**2.1**	**120**	**6.9**	**NA**	**6.9**	**180**	**10.2**	**5.2**	**8.9**	**17.1**	**0.4**		**920**	**4.2**	**7.2**
60	***2.1***	***120***	***6.9***	***NA***	***6.9***	***198***	***10.2***	***2.4***	***Edge Start***		***0.4***		***390***	***2.4***	***8.0***

Marking **50A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
< 1/16" (0.063") / 1.6 mm.	15 / 1.0	80	80 / 5.5	NA	20 / 1.4	92	0.200 / 5.1	0.120 / 3.0	0	0.4	100 / 2540	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Aluminum
400A
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	22 / 47	8 / 30
Cutflow	72 / 153	8 / 30



This Art Is For Reference Only

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	22-1501	22-1500	22-1302	22-1043	22-1502	22-1300

			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)*	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/2	0.500	17	150	119	8	NA	168	0.250	0.3	0.350	0.450	0.2	Not Recommended without Elevation Height	140	0.2	0.185
-	5/8	0.625	17	150	119	8	NA	177	0.300	0.7	0.450	0.550	0.2		110	0.5	0.195
-	3/4	0.750	17	150	119	8	NA	180	0.350	0.8	0.450	0.550	0.2		90	0.6	0.195
-	7/8	0.875	17	150	119	8	NA	180	0.350	0.9	0.450	0.550	0.2		75	0.7	0.215
-	1	1.000	17	150	119	8	NA	182	0.350	1.2	0.450	0.550	0.2		70	0.9	0.215
-	1 1/4	1.250	17	150	119	8	NA	190	0.350	1.4	0.450	0.550	0.2		65	1.0	0.215
-	1 1/2	1.500	17	150	119	8	NA	191	0.350	1.6	0.450	0.550	0.2		55	1.2	0.215
-	1 3/4	1.750	17	150	119	8	NA	200	0.420	1.8	0.500	0.600	0.2		40	1.4	0.240
-	2	2.000	17	150	119	8	NA	211	0.420	2.5	0.500	0.600	0.2		30	1.9	0.295
-	**2 1/4**	**2.250**	**17**	**150**	**119**	**8**	**NA**	**215**	**0.420**	**4.8**	**0.500**	**0.600**	**0.2**		**20**	**2.2**	**0.320**
-	***2 1/2***	***2.500***	***17***	***150***	***119***	***8***	***NA***	***222***	***0.420***	***3.0***	***Edge Start***		***0.2***		***12***	***3.0***	***0.335***

	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
12	1.2	150	8.2	8	NA	166	6.1	0.2	8.3	10.9	0.2	Not Recommended without Elevation Height	3720	0.1	4.6
15	1.2	150	8.2	8	NA	175	7.3	0.6	10.7	13.3	0.2		3000	0.4	4.9
20	1.2	150	8.2	8	NA	180	8.9	0.8	11.4	14.0	0.2		2170	0.6	5.1
25	1.2	150	8.2	8	NA	182	8.9	1.2	11.4	14.0	0.2		1790	0.9	5.5
30	1.2	150	8.2	8	NA	188	8.9	1.3	11.4	14.0	0.2		1690	1.0	5.5
35	1.2	150	8.2	8	NA	191	8.9	1.5	11.4	14.0	0.2		1520	1.1	5.5
40	1.2	150	8.2	8	NA	194	9.4	1.7	11.8	14.4	0.2		1280	1.3	5.7
50	1.2	150	8.2	8	NA	210	10.7	2.4	12.7	15.2	0.2		790	1.8	7.3
60	***1.2***	***150***	***8.2***	***8***	***NA***	***218***	***10.7***	***4.0***	***Edge Start***		***0.2***		***420***	***2.6***	***8.3***

Marking	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
45A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6mm.	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
	15 / 1.0	80	60 / 4.1	NA	90 / 6.2	105	0.180 / 4.6	0.180 / 4.6	0	0	200 / 5080	

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

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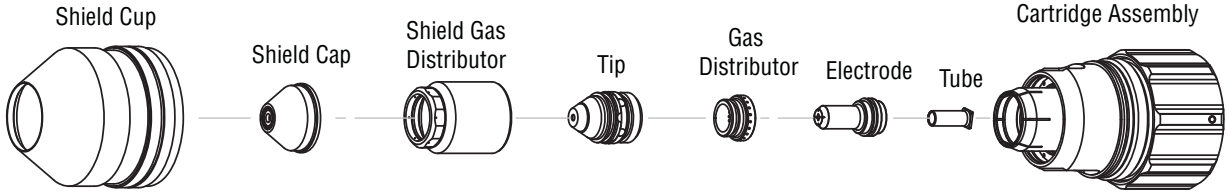
8.08 Robotic and Bevel Cutting 400 Amp

Mild Steel
400A Bevel Cut
O_2 Plasma / Air Shield

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	232 / 491
Cutflow	33 / 70	203 / 430



This Art Is For Reference Only

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode Coolant Tube EXT	Cartridge
22-1305	22-1304	22-1310	22-1309	22-1042	22-1308 9-7921	22-1300

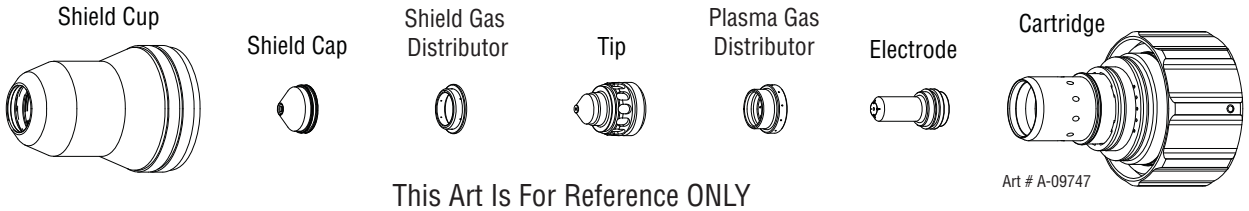
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.500	0.080	15	80	90	-	80	0.200 - 0.600	0.3	0.400	0.200	0.2	Not Recommended without Elevation Height	150	0.2	0.195
0.625	0.080	15	80	90	-	80	0.200 - 0.600	0.4	0.400	0.300	0.2		130	0.3	0.200
0.750	0.080	15	80	90	-	80	0.200 - 0.600	0.6	0.400	0.300	0.2		115	0.8	0.215
0.875	0.080	15	80	90	-	80	0.200 - 0.600	0.9	0.400	0.500	0.2		100	0.9	0.200
1.000	0.080	15	80	90	-	80	0.200 - 0.600	1.1	0.400	0.550	0.2		80	0.9	0.200
1.250	0.080	15	80	90	-	80	0.200 - 0.600	1.5	0.400	0.650	0.2		60	1.3	0.220
1.500	0.080	15	80	90	-	80	0.200 - 0.600	4.0	0.450	0.600	0.2		45	2.5	0.230
1.750	0.080	15	80	90	-	80	0.200 - 0.600	4.5	0.450	0.650	0.2		40	4.0	0.225
2.000	0.080	15	80	90	-	80	0.200 - 0.600	7.0	0.450	0.750	0.2		30	6.0	0.225
2.250	***0.080***	***15***	***80***	***90***	***-***	***80***	***0.200 - 0.600***	***3.5***	***Edge Start***		***0.2***		***25***	***3.5***	***0.235***
2.500	***0.080***	***15***	***80***	***90***	***-***	***80***	***0.200 - 0.600***	***3.0***	***Edge Start***		***0.2***		***15***	***3.0***	***0.235***
3.000	***0.080***	***15***	***80***	***90***	***-***	***80***	***0.200 - 0.600***	***3.0***	***Edge Start***		***0.2***		***10***	***3.0***	***0.300***
3.500	***0.080***	***15***	***80***	***90***	***-***	***80***	***0.200 - 0.600***	***3.0***	***Edge Start***		***0.2***		***4***	***3.0***	***0.360***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
12	2.0	1.0	80	6.2	-	5.5	5.1 - 15.2	0.3	10.2	4.5	0.2	Not Recommended without Elevation Height	3920	0.2	4.9
15	2.0	1.0	80	6.2	-	5.5	5.1 - 15.2	0.4	10.2	6.9	0.2		3440	0.3	5.0
20	2.0	1.0	80	6.2	-	5.5	5.1 - 15.2	0.7	10.2	9.1	0.2		2810	0.8	5.3
25	2.0	1.0	80	6.2	-	5.5	5.1 - 15.2	1.1	10.2	13.8	0.2		2100	0.9	5.1
30	2.0	1.0	80	6.2	-	5.5	5.1 - 15.2	1.4	10.2	15.8	0.2		1660	1.2	5.4
35	2.0	1.0	80	6.2	-	5.5	5.1 - 15.2	2.8	10.8	15.9	0.2		1330	1.9	5.7
40	2.0	1.0	80	6.2	-	5.5	5.1 - 15.2	4.1	11.4	15.6	0.2		1110	2.9	5.8
50	2.0	1.0	80	6.2	-	5.5	5.1 - 15.2	6.7	11.4	18.7	0.2		790	5.7	5.7
60	***2.0***	***1.0***	***80***	***6.2***	***-***	***5.5***	***5.1 - 15.2***	***3.3***	***Edge Start***		***0.2***		***520***	***3.3***	***6.0***
70	***2.0***	***1.0***	***80***	***6.2***	***-***	***5.5***	***5.1 - 15.2***	***3.0***	***Edge Start***		***0.2***		***320***	***3.0***	***6.8***
80	***2.0***	***1.0***	***80***	***6.2***	***-***	***5.5***	***5.1 - 15.2***	***3.0***	***Edge Start***		***0.2***		***210***	***3.0***	***8.1***
90	***2.0***	***1.0***	***80***	***6.2***	***-***	***5.5***	***5.1 - 15.2***	***3.0***	***Edge Start***		***0.2***		***90***	***3.0***	***9.3***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.
THC Pierce Delay values shown are the minimum values. It is recommended that this value should be increased depending on the application.

Stainless Steel
400A Bevel Cut
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	207 / 439
Cutflow	47 / 100	173 / 367



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	≤ 1" / 25 mm 22-1304 > 1" / 25 mm 22-1307	22-1303	22-1302	22-1306	22-1301	22-1300

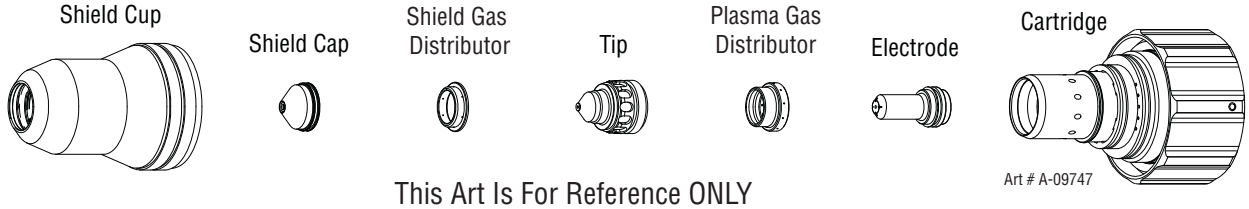
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H35)		Shield (N_2)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.625	0.080	30	120	100	NA	110	0.350 - 0.600	0.5	0.400	0.400	0.2	Not Recommended without Elevation Height	70	0.4	0.230
0.750	0.080	30	120	100	NA	110	0.350 - 0.600	0.6	0.400	0.400	0.2		60	0.5	0.230
1.000	0.080	30	120	100	NA	110	0.350 - 0.600	1.0	0.400	0.500	0.2		45	0.8	0.236
1.250	0.080	30	120	100	NA	110	0.350 - 0.600	1.5	0.400	0.500	0.2		35	1.2	0.235
1.500	0.080	30	120	100	NA	110	0.350 - 0.600	1.8	0.400	0.500	0.2		28	1.3	0.248
1.750	0.080	30	120	100	NA	110	0.350 - 0.600	5.0	0.400	0.750	0.2		20	2.5	0.257
2.000	**0.080**	**30**	**120**	**100**	**NA**	**110**	**0.350 - 0.600**	**10.0**	**0.400**	**0.750**	**0.2**		**17**	**5.5**	**0.268**
2.250	***0.080***	***30***	***120***	***100***	***NA***	***110***	***0.350 - 0.600***	***3.0***	***Edge Start***		***0.2***		***12***	***3.0***	***0.265***
2.500	***0.080***	***30***	***120***	***100***	***NA***	***110***	***0.350 - 0.600***	***3.0***	***Edge Start***		***0.2***		***14***	***3.0***	***0.260***
3.000	***0.080***	***30***	***120***	***100***	***NA***	***110***	***0.350 - 0.600***	***3.0***	***Edge Start***		***0.2***		***10***	***3.0***	***0.275***
3.500	***0.080***	***30***	***120***	***100***	***NA***	***110***	***0.350 - 0.600***	***3.0***	***Edge Start***		***0.2***		***5***	***3.0***	***0.280***
4.000	***0.080***	***30***	***120***	***100***	***NA***	***110***	***0.350 - 0.600***	***4.0***	***Edge Start***		***0.2***		***4***	***4.0***	***0.290***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H35)		Shield (N_2)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
15	2.0	2.1	120	6.9	NA	7.6	8.9 - 15.2	0.5	10.2	10.2	0.2	Not Recommended without Elevation Height	1850	0.4	5.8
20	2.0	2.1	120	6.9	NA	7.6	8.9 - 15.2	0.7	10.2	10.5	0.2		1470	0.5	5.9
25	2.0	2.1	120	6.9	NA	7.6	8.9 - 15.2	1.0	10.2	12.5	0.2		1170	0.8	6.0
30	2.0	2.1	120	6.9	NA	7.6	8.9 - 15.2	1.4	10.2	12.7	0.2		960	1.1	6.0
35	2.0	2.1	120	6.9	NA	7.6	8.9 - 15.2	1.7	10.2	12.7	0.2		800	1.3	6.1
40	2.0	2.1	120	6.9	NA	7.6	8.9 - 15.2	2.8	10.2	14.6	0.2		650	1.7	6.4
50	**2.0**	**2.1**	**120**	**6.9**	**NA**	**7.6**	**8.9 - 15.2**	**9.4**	**10.2**	**19.1**	**0.2**		**440**	**5.1**	**6.8**
60	***2.0***	***2.1***	***120***	***6.9***	***NA***	***7.6***	***8.9 - 15.2***	***3.0***	***Edge Start***		***0.2***		***330***	***3.0***	***6.7***
70	***2.0***	***2.1***	***120***	***6.9***	***NA***	***7.6***	***8.9 - 15.2***	***3.0***	***Edge Start***		***0.2***		***300***	***3.0***	***6.8***
80	***2.0***	***2.1***	***120***	***6.9***	***NA***	***7.6***	***8.9 - 15.2***	***3.0***	***Edge Start***		***0.2***		***220***	***3.0***	***7.0***
90	***2.0***	***2.1***	***120***	***6.9***	***NA***	***7.6***	***8.9 - 15.2***	***3.1***	***Edge Start***		***0.2***		***120***	***3.1***	***7.1***
100	***2.0***	***2.1***	***120***	***6.9***	***NA***	***7.6***	***8.9 - 15.2***	***3.9***	***Edge Start***		***0.2***		***90***	***3.9***	***7.3***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
400A Bevel Cut
H17 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H17	N_2
Preflow	- / -	207 / 439
Cutflow	47 / 100	173 / 367



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	22-1304	22-1303	22-1302	22-1306	22-1301	22-1300

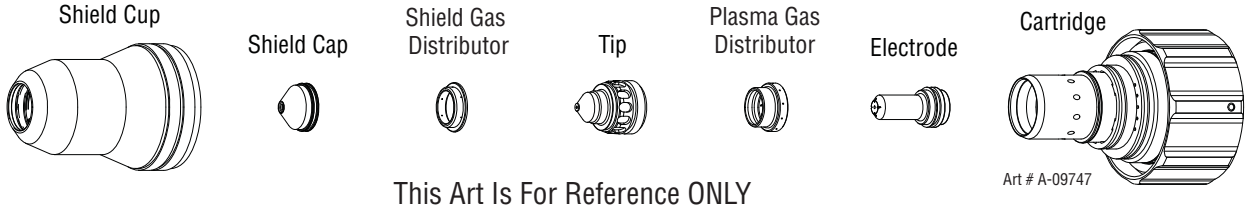
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H17)		Shield (N_2)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
1/2	0.080	30	120	100	NA	100	0.180 - 0.600	0.4	0.375	0.000	0.2	Not Recommended without Elevation Height	105	0.4	0.205
5/8	0.080	30	120	100	NA	100	0.200 - 0.600	0.6	0.375	0.300	0.2		90	0.6	0.200
3/4	0.080	30	120	100	NA	100	0.200 - 0.600	1.0	0.375	0.300	0.2		70	0.7	0.210
1	0.080	30	120	100	NA	100	0.200 - 0.600	1.5	0.375	0.300	0.2		50	1.2	0.212
1 1/4	0.080	30	120	100	NA	100	0.300 - 0.600	2.0	0.375	0.400	0.2		38	1.4	0.235
1 1/2	0.080	30	120	100	NA	100	0.300 - 0.600	2.8	0.375	0.500	0.2		30	2.0	0.245
1.750	0.080	30	120	100	NA	100	0.300 - 0.600	5.0	0.375	0.750	0.2		21	3.0	0.255
2.000	**0.080**	**30**	**120**	**100**	**NA**	**100**	**0.300 - 0.600**	**8.0**	**0.375**	**0.750**	**0.2**		**17**	**5.5**	**0.280**

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H17)		Shield (N_2)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
12	2.0	2.1	120	6.9	NA	6.9	4.5 - 15.2	0.4	9.5	0.0	0.2	Not Recommended without Elevation Height	2750	0.4	5.2
15	2.0	2.1	120	6.9	NA	6.9	4.9 - 15.2	0.5	9.5	5.5	0.2		2390	0.5	5.1
20	2.0	2.1	120	6.9	NA	6.9	5.1 - 15.2	1.1	9.5	7.6	0.2		1700	0.8	5.3
25	2.0	2.1	120	6.9	NA	6.9	5.1 - 15.2	1.5	9.5	7.6	0.2		1300	1.2	5.4
30	2.0	2.1	120	6.9	NA	6.9	6.9 - 15.2	1.9	9.5	9.5	0.2		1050	1.3	5.8
35	2.0	2.1	120	6.9	NA	6.9	7.6 - 15.2	2.4	9.5	11.5	0.2		860	1.7	6.1
40	2.0	2.1	120	6.9	NA	6.9	7.6 - 15.2	3.5	9.5	14.6	0.2		690	2.3	6.3
45	2.0	2.1	120	6.9	NA	6.9	7.6 - 15.2	5.3	9.5	19.1	0.2		520	3.2	6.5
50	**2.0**	**2.1**	**120**	**6.9**	**NA**	**6.9**	**7.6 - 15.2**	**7.6**	**9.5**	**19.1**	**0.2**		**440**	**5.2**	**7.0**

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Stainless Steel
400A Bevel Cut
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	22 / 47	8 / 30
Cutflow	72 / 153	8 / 30



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	22-1501	22-1500	22-1302	22-1043	22-1502	22-1300

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)*	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.375	0.080	17	150	119	8	na	0.200 - 0.600	0.4	0.400	0.300	0.2	Not Recommended without Elevation Height	150	0.3	0.132
0.500	0.080	17	150	119	8	na	0.200 - 0.600	0.6	0.450	0.300	0.2		130	0.4	0.200
0.625	0.080	17	150	119	8	na	0.200 - 0.600	0.8	0.450	0.400	0.2		110	0.6	0.200
0.750	0.080	17	150	119	8	na	0.200 - 0.600	1.2	0.450	0.400	0.2		90	0.7	0.200
1.000	0.080	17	150	119	8	na	0.200 - 0.600	2.0	0.450	0.400	0.2		75	1.0	0.230
1.250	0.080	17	150	119	8	na	0.250 - 0.600	2.5	0.450	0.450	0.2		40	1.5	0.230
1.500	0.080	17	150	119	8	na	0.250 - 0.600	3.0	0.450	0.500	0.2		30	2.3	0.240
1.750	0.080	17	150	119	8	na	0.300 - 0.600	3.5	0.450	0.500	0.2		25	2.7	0.245
2.000	***0.080***	***17***	***150***	***119***	***8***	***na***	***0.300 - 0.600***	***4.0***	***Edge Start***		***0.2***		***17***	***4.0***	***0.245***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	2.0	1.2	150	8.2	8	na	5.1 - 15.2	0.4	10.4	7.6	0.2	Not Recommended without Elevation Height	3730	0.3	3.6
12	2.0	1.2	150	8.2	8	na	5.1 - 15.2	0.6	11.2	7.6	0.2		3410	0.4	4.7
15	2.0	1.2	150	8.2	8	na	5.1 - 15.2	0.7	11.4	9.5	0.2		2930	0.5	5.1
20	2.0	1.2	150	8.2	8	na	5.1 - 15.2	1.3	11.4	10.2	0.2		2230	0.7	5.2
25	2.0	1.2	150	8.2	8	na	5.1 - 15.2	1.9	11.4	10.2	0.2		1930	1.0	5.8
30	2.0	1.2	150	8.2	8	na	6.0 - 15.2	2.4	11.4	11.1	0.2		1260	1.4	5.8
40	2.0	1.2	150	8.2	8	na	6.7 - 15.2	3.1	11.4	12.7	0.2		720	2.4	6.1
50	***2.0***	***1.2***	***150***	***8.2***	***8***	***na***	***7.6 - 15.2***	***3.9***	***Edge Start***		***0.2***		***460***	***3.8***	***6.2***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

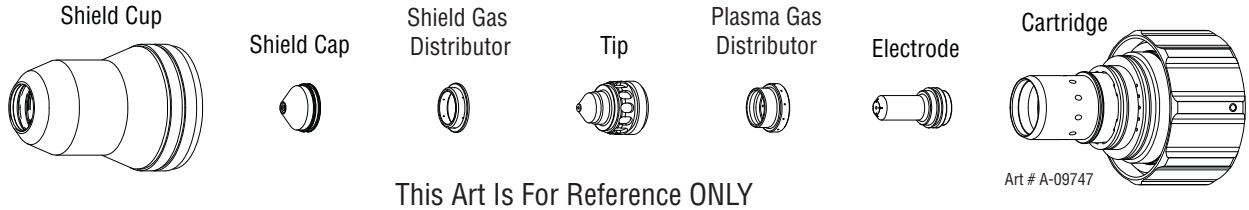
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

Aluminum
400A Bevel Cut
H35 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	207 / 439
Cutflow	47 / 100	173 / 367



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	≤ 1" / 25 mm 22-1304 > 1" / 25 mm 22-1307	22-1303	22-1302	22-1306	22-1301	22-1300

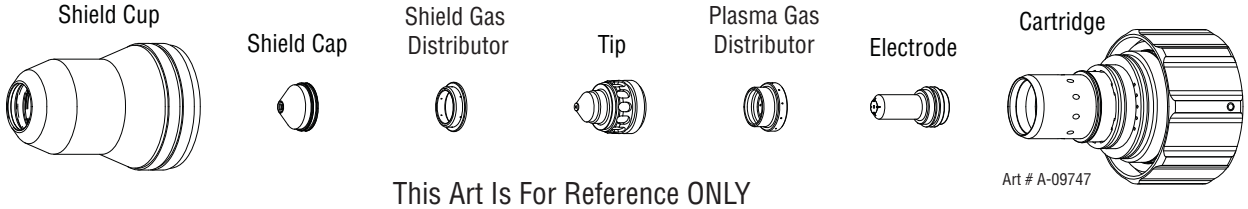
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H35)		Shield (N_2)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.750	0.080	30	120	100	NA	100	0.350 - 0.600	0.6	0.450	0.400	0.2	Not Recommended without Elevation Height	120	0.4	0.230
1.000	0.080	30	120	100	NA	100	0.350 - 0.600	0.7	0.450	0.500	0.2		90	0.5	0.220
1.250	0.080	30	120	100	NA	100	0.350 - 0.600	0.8	0.450	0.500	0.2		80	0.6	0.225
1.500	0.080	30	120	100	NA	100	0.400 - 0.600	1.4	0.500	0.750	0.2		60	1.2	0.235
1.750	0.080	30	120	100	NA	100	0.400 - 0.600	2.2	0.500	0.750	0.2		45	1.8	0.250
2.000	0.080	30	120	100	NA	100	0.400 - 0.600	3.8	0.500	0.750	0.2		30	3.2	0.260
2.250	**0.080**	**30**	**120**	**100**	**NA**	**100**	**0.400 - 0.600**	**6.5**	**0.500**	**0.750**	**0.2**		**20**	**4.5**	**0.275**
2.500	***0.080***	***30***	***120***	***100***	***NA***	***100***	***0.400 - 0.600***	***3.0***	***Edge Start***		***0.2***		***15***	***3.0***	***0.280***
3.000	***0.080***	***30***	***120***	***100***	***NA***	***100***	***0.400 - 0.600***	***3.0***	***Edge Start***		***0.2***		***10***	***3.0***	***0.290***
3.500	***0.080***	***30***	***120***	***100***	***NA***	***100***	***0.400 - 0.600***	***3.0***	***Edge Start***		***0.2***		***5***	***3.0***	***0.325***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H35)		Shield (N_2)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
20	2.0	2.1	120	6.9	NA	6.9	8.9 - 15.2	0.6	11.4	10.5	0.2	Not Recommended without Elevation Height	2930	0.4	5.8
25	2.0	2.1	120	6.9	NA	6.9	8.9 - 15.2	0.7	11.4	12.5	0.2		2330	0.5	5.6
30	2.0	2.1	120	6.9	NA	6.9	8.9 - 15.2	0.8	11.4	12.7	0.2		2100	0.6	5.7
35	2.0	2.1	120	6.9	NA	6.9	9.5 - 15.2	1.1	12.1	16.0	0.2		1770	0.9	5.8
40	2.0	2.1	120	6.9	NA	6.9	10.2 - 15.2	1.6	12.7	19.1	0.2		1410	1.4	6.1
50	2.0	2.1	120	6.9	NA	6.9	10.2 - 15.2	3.6	12.7	19.1	0.2		810	3.0	6.6
60	***2.0***	***2.1***	***120***	***6.9***	***NA***	***6.9***	***10.2 - 15.2***	***3.0***	***Edge Start***		***0.2***		***420***	***3.0***	***7.0***
70	***2.0***	***2.1***	***120***	***6.9***	***NA***	***6.9***	***10.2 - 15.2***	***3.0***	***Edge Start***		***0.2***		***320***	***3.0***	***7.2***
80	***2.0***	***2.1***	***120***	***6.9***	***NA***	***6.9***	***10.2 - 15.2***	***3.0***	***Edge Start***		***0.2***		***220***	***3.0***	***7.6***
90	***2.0***	***2.1***	***120***	***6.9***	***NA***	***6.9***	***10.2 - 15.2***	***3.0***	***Edge Start***		***0.2***		***120***	***3.0***	***8.3***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Aluminum
400A Bevel Cut
H17 Plasma / N_2 Shield

	Flow Rates (SLPM / SCFH)	
	H17	N_2
Preflow	- / -	207 / 439
Cutflow	47 / 100	173 / 367



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	≤ 1" / 25 mm 22-1304 > 1" / 25 mm 22-1307	22-1303	22-1302	22-1306	22-1301	22-1300

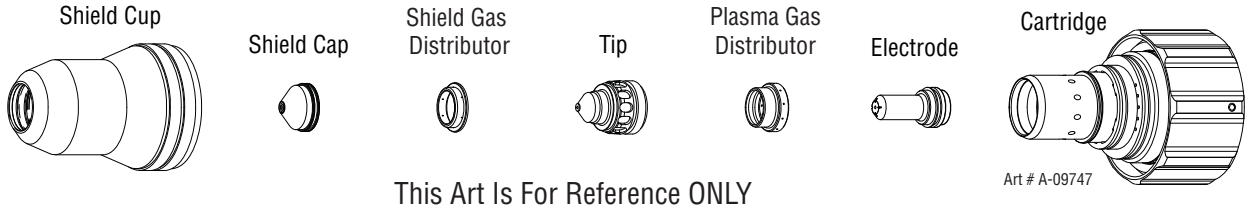
		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H17)		Shield (N_2)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.500	0.080	30	120	100	NA	100	0.200 - 0.600	0.3	0.350	0.250	0.4	Not Recommended without Elevation Height	200	0.4	0.195
0.625	0.080	30	120	100	NA	100	0.200 - 0.600	0.3	0.350	0.250	0.4		180	0.3	0.200
0.750	0.080	30	120	100	NA	100	0.200 - 0.600	0.6	0.350	0.250	0.4		150	0.4	0.200
1.000	0.080	30	120	100	NA	100	0.350 - 0.600	0.7	0.350	0.250	0.4		100	0.5	0.230
1.250	0.080	30	120	100	NA	100	0.350 - 0.600	0.8	0.350	0.300	0.4		80	0.6	0.230
1.500	0.080	30	120	100	NA	100	0.350 - 0.600	1.4	0.350	0.300	0.4		60	1.2	0.240
1.750	0.080	30	120	100	NA	100	0.400 - 0.600	3.0	0.350	0.500	0.4		45	2.0	0.275
2.000	**0.080**	**30**	**120**	**100**	**NA**	**100**	**0.400 - 0.600**	**5.5**	**0.350**	**0.700**	**0.4**		**35**	**4.5**	**0.285**
2.250	***0.080***	***30***	***120***	***100***	***NA***	***100***	***0.400 - 0.600***	***2.0***	***Edge Start***		***0.4***		***20***	***2.0***	***0.310***
2.500	***0.080***	***30***	***120***	***100***	***NA***	***100***	***0.400 - 0.600***	***3.0***	***Edge Start***		***0.4***		***10***	***3.0***	***0.325***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (H17)		Shield (N_2)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
15	2.0	2.1	120	6.9	NA	6.9	5.1 - 15.2	0.3	8.9	6.4	0.4	Not Recommended without Elevation Height	4710	0.3	5.0
20	2.0	2.1	120	6.9	NA	6.9	5.7 - 15.2	0.6	8.9	6.4	0.4		3620	0.4	5.2
25	2.0	2.1	120	6.9	NA	6.9	8.7 - 15.2	0.7	8.9	6.4	0.4		2620	0.5	5.8
30	2.0	2.1	120	6.9	NA	6.9	8.9 - 15.2	0.8	8.9	7.3	0.4		2170	0.6	5.8
35	2.0	2.1	120	6.9	NA	6.9	8.9 - 15.2	1.1	8.9	7.6	0.4		1770	0.9	6.0
40	2.0	2.1	120	6.9	NA	6.9	9.3 - 15.2	1.9	8.9	9.1	0.4		1410	1.4	6.4
50	2.0	2.1	120	6.9	NA	6.9	10.2 - 15.2	5.2	8.9	17.1	0.4		920	4.2	7.2
60	***2.0***	***2.1***	***120***	***6.9***	***NA***	***6.9***	***10.2 - 15.2***	***2.4***	***Edge Start***		***0.4***		***390***	***2.4***	***8.0***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Aluminum
400A Bevel Cut
N_2 Plasma / H_2O Shield

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	22 / 47	8 / 30
Cutflow	72 / 153	8 / 30



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	22-1501	22-1500	22-1302	22-1043	22-1502	22-1300

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)*	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.500	0.080	17	150	119	8	NA	0.250 - 0.600	0.3	0.350	0.450	0.2	Not Recommended without Elevation Height	140	0.2	0.185
0.625	0.080	17	150	119	8	NA	0.300 - 0.600	0.7	0.450	0.550	0.2		110	0.5	0.195
0.750	0.080	17	150	119	8	NA	0.350 - 0.600	0.8	0.450	0.550	0.2		90	0.6	0.195
0.875	0.080	17	150	119	8	NA	0.350 - 0.600	0.9	0.450	0.550	0.2		75	0.7	0.215
1.000	0.080	17	150	119	8	NA	0.350 - 0.600	1.2	0.450	0.550	0.2		70	0.9	0.215
1.250	0.080	17	150	119	8	NA	0.350 - 0.600	1.4	0.450	0.550	0.2		65	1.0	0.215
1.500	0.080	17	150	119	8	NA	0.350 - 0.600	1.6	0.450	0.550	0.2		55	1.2	0.215
1.750	0.080	17	150	119	8	NA	0.420 - 0.600	1.8	0.500	0.600	0.2		40	1.4	0.240
2.000	0.080	17	150	119	8	NA	0.420 - 0.600	2.5	0.500	0.600	0.2		30	1.9	0.295
2.250	**0.080**	**17**	**150**	**119**	**8**	**NA**	**0.420 - 0.600**	**4.8**	**0.500**	**0.600**	**0.2**		**20**	**2.2**	**0.320**
2.500	***0.080***	***17***	***150***	***119***	***8***	***NA***	***0.420 - 0.600***	***3.0***	***Edge Start***		***0.2***		***12***	***3.0***	***0.335***

		GCM-2010					SC-3000 Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)*	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
12	2.0	1.2	150	8.2	8	NA	6.1 - 15.2	0.2	8.3	10.9	0.2	Not Recommended without Elevation Height	3720	0.1	4.6
15	2.0	1.2	150	8.2	8	NA	7.3 - 15.2	0.6	10.7	13.3	0.2		3000	0.4	4.9
20	2.0	1.2	150	8.2	8	NA	8.9 - 15.2	0.8	11.4	14.0	0.2		2170	0.6	5.1
25	2.0	1.2	150	8.2	8	NA	8.9 - 15.2	1.2	11.4	14.0	0.2		1790	0.9	5.5
30	2.0	1.2	150	8.2	8	NA	8.9 - 15.2	1.3	11.4	14.0	0.2		1690	1.0	5.5
35	2.0	1.2	150	8.2	8	NA	8.9 - 15.2	1.5	11.4	14.0	0.2		1520	1.1	5.5
40	2.0	1.2	150	8.2	8	NA	9.4 - 15.2	1.7	11.8	14.4	0.2		1280	1.3	5.7
50	2.0	1.2	150	8.2	8	NA	10.7 - 15.2	2.4	12.7	15.2	0.2		790	1.8	7.3
60	***2.0***	***1.2***	***150***	***8.2***	***8***	***NA***	***10.7 - 15.2***	***3.0***	***Edge Start***		***0.2***		***420***	***2.6***	***8.3***

BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.

Note 2: Water source used for shield must be demineralized.

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Chart is for Customer Settings
Make Copies as Desired

	Flow Rates (SLPM / SCFH)	
	H17	N_2
Preflow		
Cutflow		

Material Thickness			GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
				Plasma (H17)		Shield (N_2)											
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) ±0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	1/2	0.500												Not Recommended without Elevation Height			
-	5/8	0.625															
-	3/4	0.750															
-	1	1.000															
-	1 1/4	1.250															
-	1 1/2	1.500															
-	1 3/4	1.750															
-	**2**	**2.000**															
-	***2 3/4***	***2.750***															
-	***2 1/2***	***2.500***															

Material Thickness	GCM-2010					SC-3000 Torch Height Control (THC)						Basic THC	CNC Control		
	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)											
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm) ±0.1	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
15												Not Recommended without Elevation Height			
20															
25															
30															
35															
40															
50															
60															

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THERMAL DYNAMICS® AUTOMATION

XT™ High Precision Plasma Torch
Ultra-Cut® 30-100 Amps

	Amps	Plasma / Shielded Gas	Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
Mild Steel	15A Robotic	O_2 Plasma / Air Shield	22-1016	22-1405	22-1404	22-1402	22-1403	22-1400	22-1020
	30A	O_2 Plasma / Air Shield	22-1016	22-1098	22-1272	22-1097	22-1041	22-1069	22-1020
	30A Robotic	O_2 Plasma / Air Shield	22-1016	22-1405	22-1404	22-1401	22-1403	22-1400	22-1020
	50A	O_2 Plasma / Air Shield	22-1016	22-1025	22-1272	22-1051	22-1041	22-1069	22-1020
	70A XTL	O_2 Plasma / Air Shield	22-1016	22-1026	22-1272	22-1152	22-1041	22-1170	22-1020
	85A	Air Plasma / Air Shield	22-1016	22-1027	22-1272	22-1153	22-1041	22-1071	22-1020
	100A XTL	O_2 Plasma / Air Shield	22-1016	22-1027	22-1272	22-1153	22-1041	22-1171	22-1020
	100A Robotic	O_2 Plasma / Air Shield	22-1016	22-1127	22-1278	22-1154	22-1041	22-1172	22-1020
Stainless Steel & Aluminum	30A	Air Plasma / Air Shield	22-1016	22-1033	22-1274	22-1059	22-1045	22-1077	22-1020
		N_2 Plasma / H_2O Shield	22-1016	22-1033	22-1274	22-1059	22-1045	22-1077	22-1020
	50A	Air Plasma / Air Shield	22-1016	22-1034	22-1274	22-1060	22-1041	22-1078	22-1020
		N_2 Plasma / H_2O Shield	22-1016	22-1034	22-1274	22-1060	22-1041	22-1078	22-1020
	70A	Air Plasma / Air Shield	22-1016	22-1035	22-1274	22-1061	22-1041	22-1079	22-1020
		N_2 Plasma / H_2O Shield	22-1016	22-1047	22-1274	22-1064	22-1041	22-1084	22-1020
	100A	H35 Plasma / N_2 Shield	22-1016	22-1036	22-1274	22-1062	22-1041	22-1080	22-1020
		N_2 Plasma / H_2O Shield	22-1016	22-1036	22-1274	22-1053	22-1041	22-1089	22-1020

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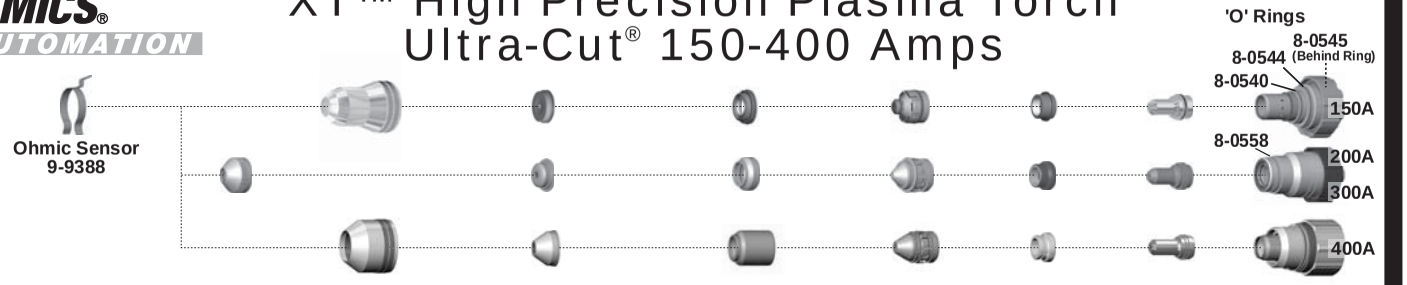
23x5200_AE

Art # A-09696_AB

THERMAL DYNAMICS® AUTOMATION

XT™ High Precision Plasma Torch
Ultra-Cut® 150-400 Amps



	Amps	Plasma / Shielded Gas	Shield Retainer	Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
Mild Steel	**150A**	O_2 Plasma / Air Shield	———	22-1016	22-1028 (≤3/4" (20 mm) 22-1275 (>3/4" (20 mm)	22-1273	22-1054	22-1042	22-1072	22-1020
	200A	O_2 Plasma / Air Shield	22-1014	22-1017	22-1030	22-1285	22-1055	22-1042	22-1093	22-1022
	250A	O_2 Plasma / Air Shield	22-1014	22-1017	22-1030	22-1285	22-1056	22-1042	22-1093	22-1022
	300A	O_2 Plasma / Air Shield	22-1021	22-1017	22-1029	22-1282 (≤5/8" (15 mm) 22-1283 (>5/8" (15 mm)	22-1057	22-1042	22-1090	22-1022
	400A	O_2 Plasma / Air Shield	———	22-1305	22-1304	22-1310	22-1309	22-1042	22-1308*	22-1300

* Use with Coolant Tube Extension 9-7921

Stainless Steel & Aluminum	**150A**	H35 Plasma / N_2 Shield	———	22-1016	22-1037	22-1278	22-1063	22-1041	22-1081	22-1020
		N_2 Plasma / H_20 Shield	———	22-1016	22-1048	22-1278	22-1092	22-1041	22-1081	22-1020
	200A	H35 Plasma / N_2 Shield	22-1015	22-1017	22-1073 (SS/AL ≤1" (25 mm) 22-1073 (SS >1" (25 mm) 22-1094 (AL >1" (25 mm)	22-1284	22-1095	22-1043	22-1096	22-1022
		N_2 Plasma / H_20 Shield	22-1015	22-1017	22-1049	22-1284	22-1067	22-1043	22-1089	22-1022
	300A	H35 Plasma / N_2 Shield	22-1015	22-1017	22-1038 (≤1" (25 mm) 22-1039 (>1" (25 mm)	22-1284	22-1065	22-1041	22-1091	22-1022
		N_2 Plasma / H_20 Shield	22-1015	22-1017	22-1046	22-1284	22-1066	22-1043	22-1089	22-1022
	400A	H35 Plasma / N_2 Shield	———	22-1305	22-1304 (≤1" (25 mm) 22-1307 (>1" (25 mm)	22-1303	22-1302	22-1306	22-1301	22-1300
		H17 Plasma / N_2 Shield								
		N_2 Plasma / H_20 Shield	———	22-1305	22-1501	22-1500	22-1302	22-1043	22-1502*	22-1300

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* Use with Coolant Tube Extension 9-9510

A-09620_AB

8.10 TORCH PARTS LIST

Returns

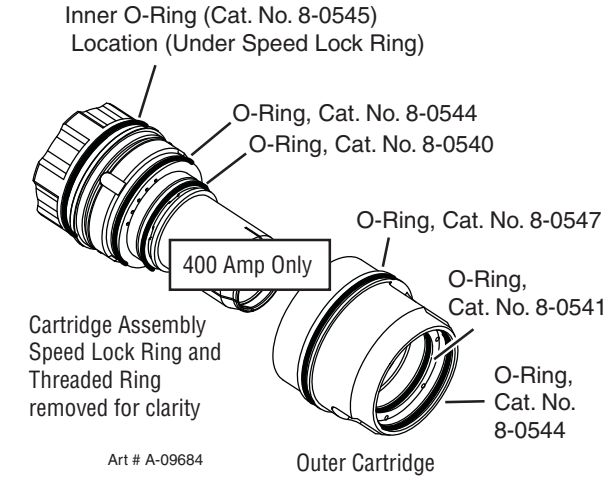
If a product must be returned for service, contact your authorized distributor. Materials returned without proper authorization will not be accepted.

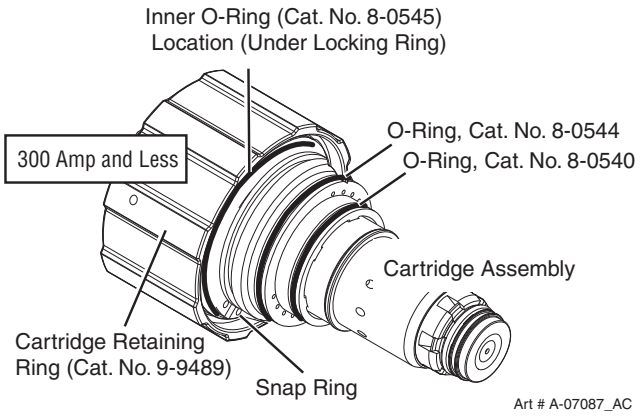
Ordering Information

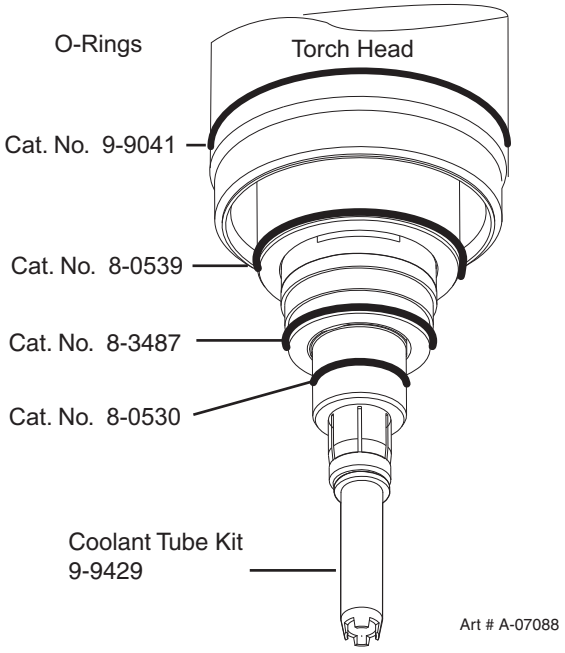
Order replacement parts by catalog number and complete description of the part or assembly. Also include the model and serial number of the machine or torch.

Refer to parts diagrams within the body of the manual for consumable parts and replacement O-Ring catalog numbers.

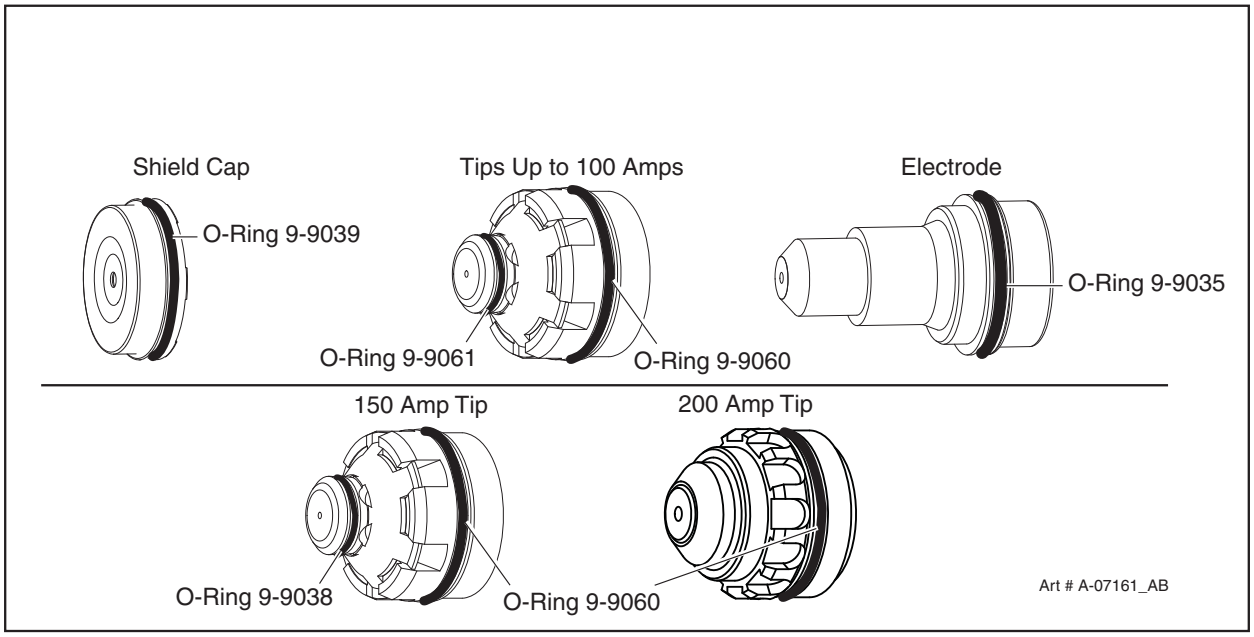
Description	Catalog Number
O-Ring Lubricant (Christo-Lube MCG-129)	9-4893
Torch Head and Cartridge O-Ring Kit	9-9488
Shield Cup (all applications except 200A & 300A)	22-1016
Shield Cup (200A & 300A only)	22-1017
Torch Cartridge (includes Cartridge Tool) (all applications except 200A & 300A)	22-1020
Torch Cartridge (includes Cartridge Tool) (200A & 300A only)	22-1022
Cartridge Tool	9-9431
Cartridge Retaining Ring	9-9489



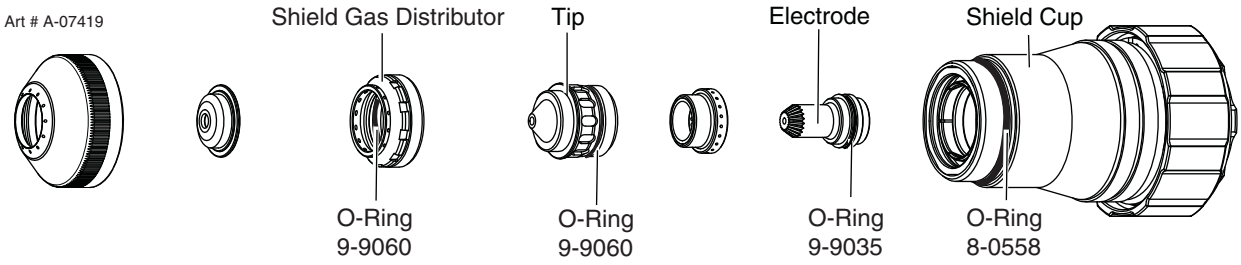




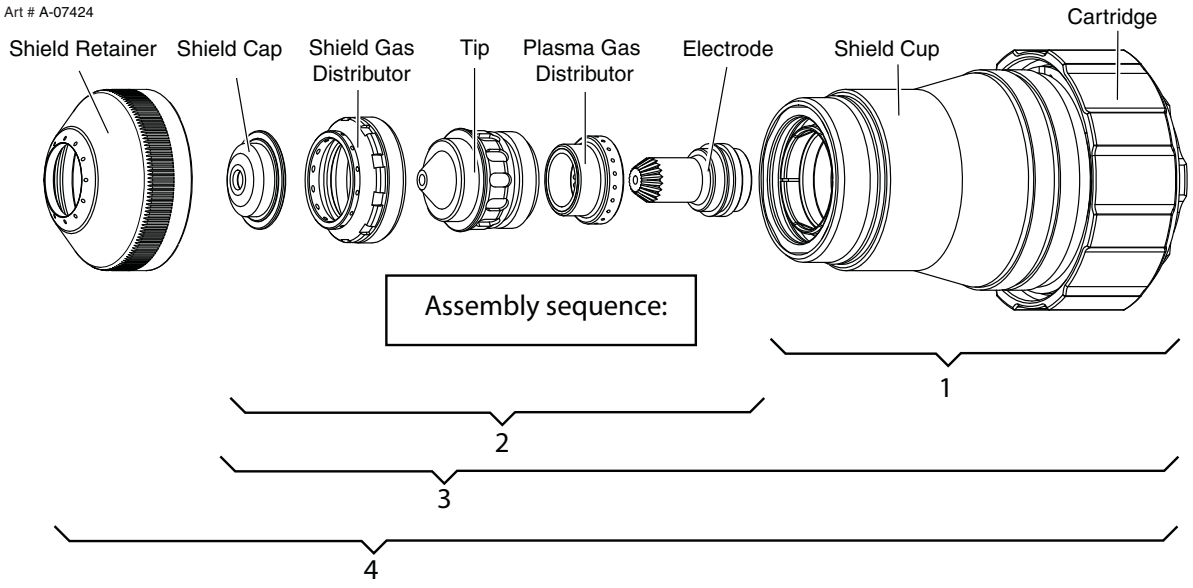
Consumables O-Rings (up to 150 Amps)



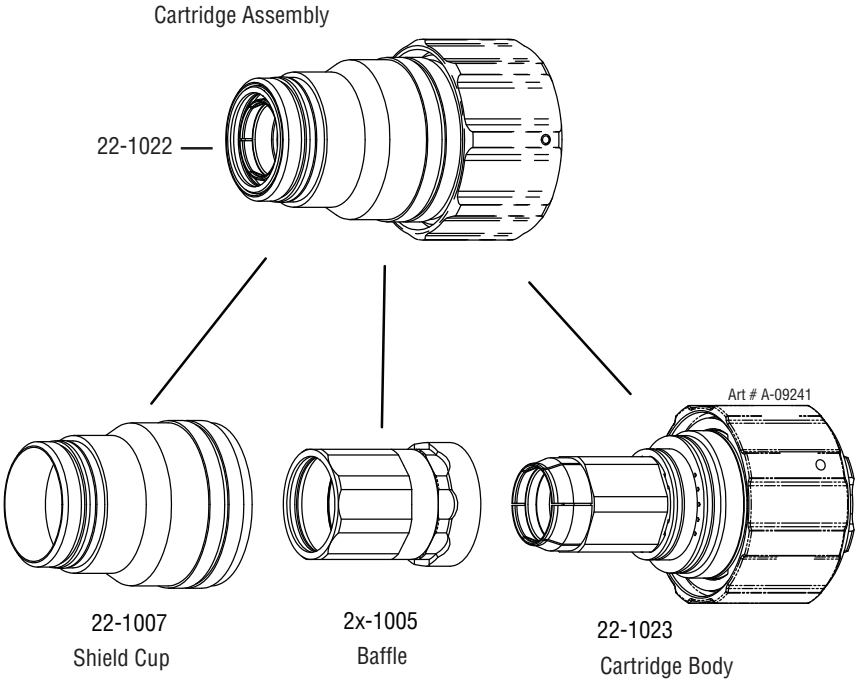
Consumables O-Rings (300 Amps)



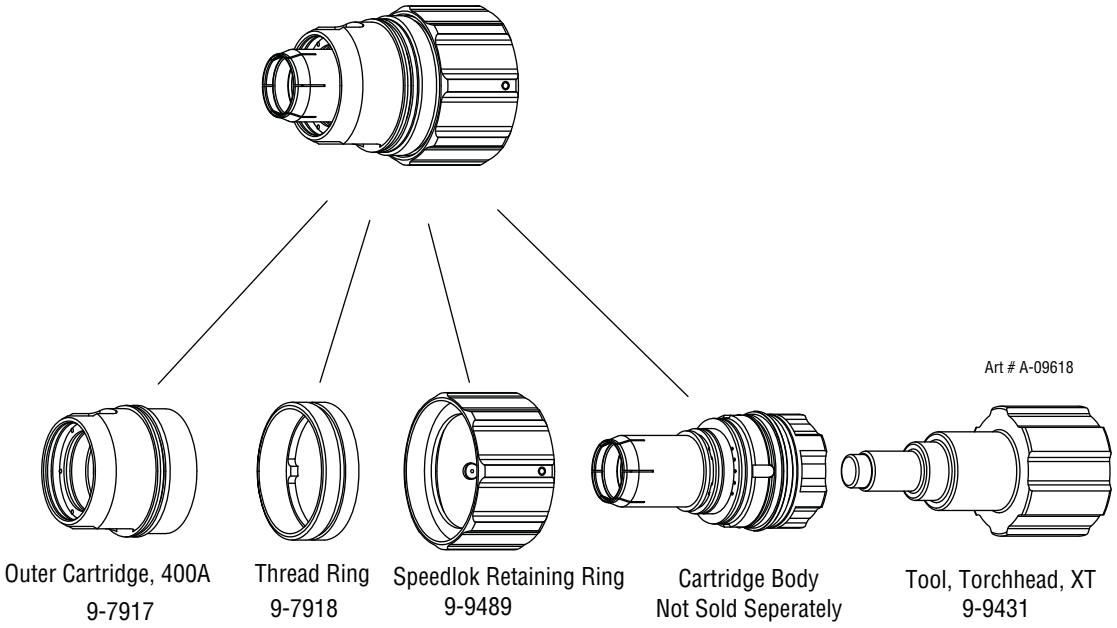
Assembly Sequence, 200/300 Amp Consumables



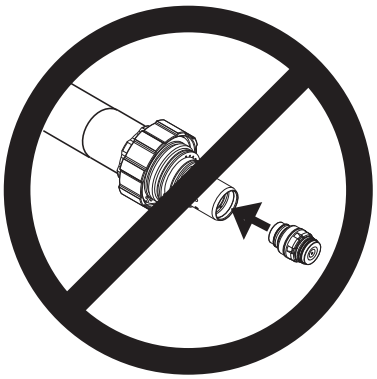
Cartridge Assembly (22-1022) Consumables



Cartridge Assembly 400 Amp (22-1300) Consumables



8.11 Torch Consumables Installation

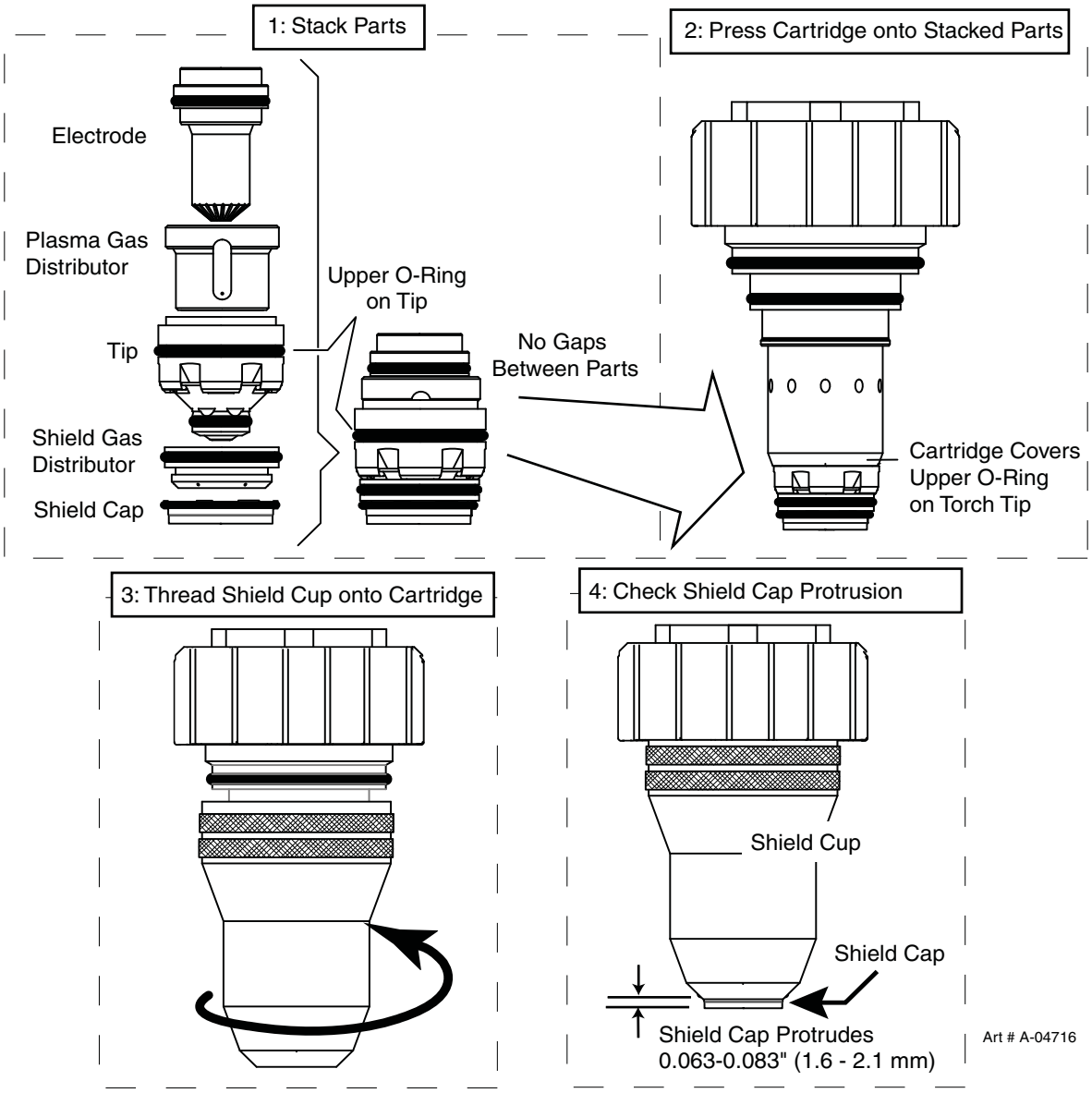


WARNINGS

Do not install consumables into the Cartridge
while the Cartridge is attached to the Torch Head.
Keep foreign materials out of the consumables and Cartridge.
Handle all parts carefully to avoid damage,
which may affect torch performance.

Art # A-03887

1. Install the consumables as follows:

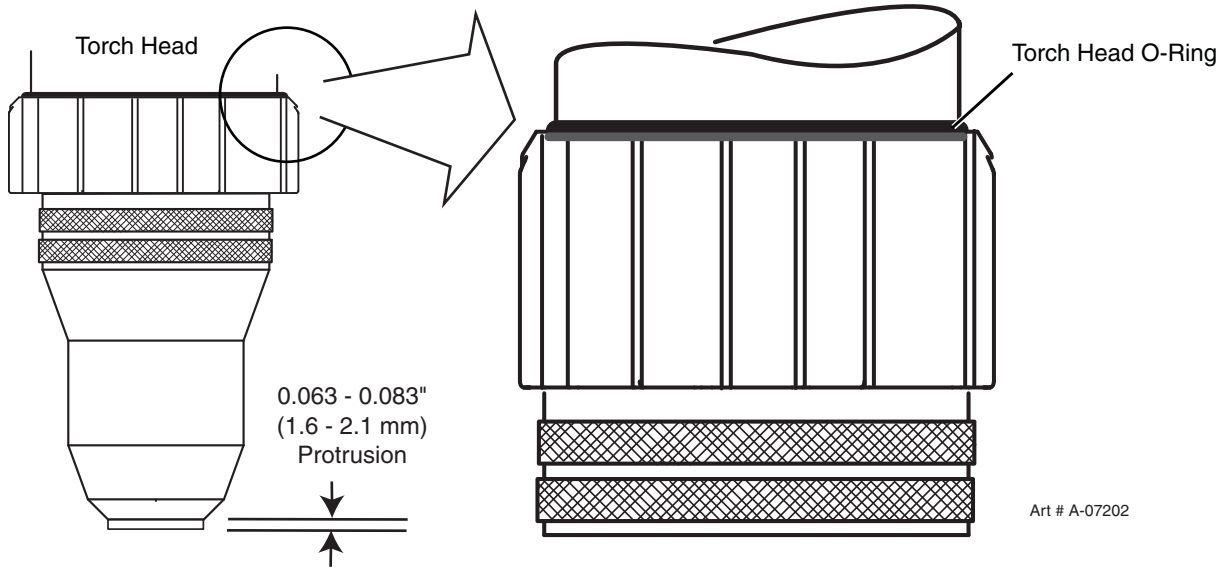


2, Remove the Removal Tool from the Cartridge and install the assembled Cartridge onto the Torch Head.

CAUTION

The cartridge assembly must cover the O-Ring on the torch head.

Do not force the cartridge if it will not tighten fully. Remove the cartridge assembly and gently clean the threads on the torch head with a wire brush. Apply oxygen-compatible lubricant (supplied with the torch) to the threads.

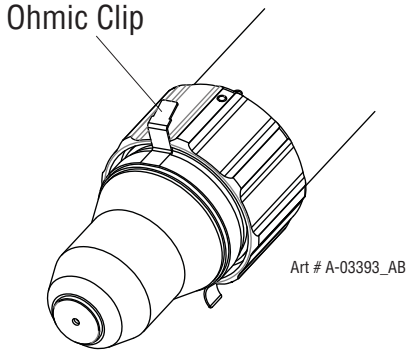


Installing Assembled Cartridge Onto Torch Head

3. Slide the ohmic clip over the shield cup if using ohmic torch height control sensing.

NOTE

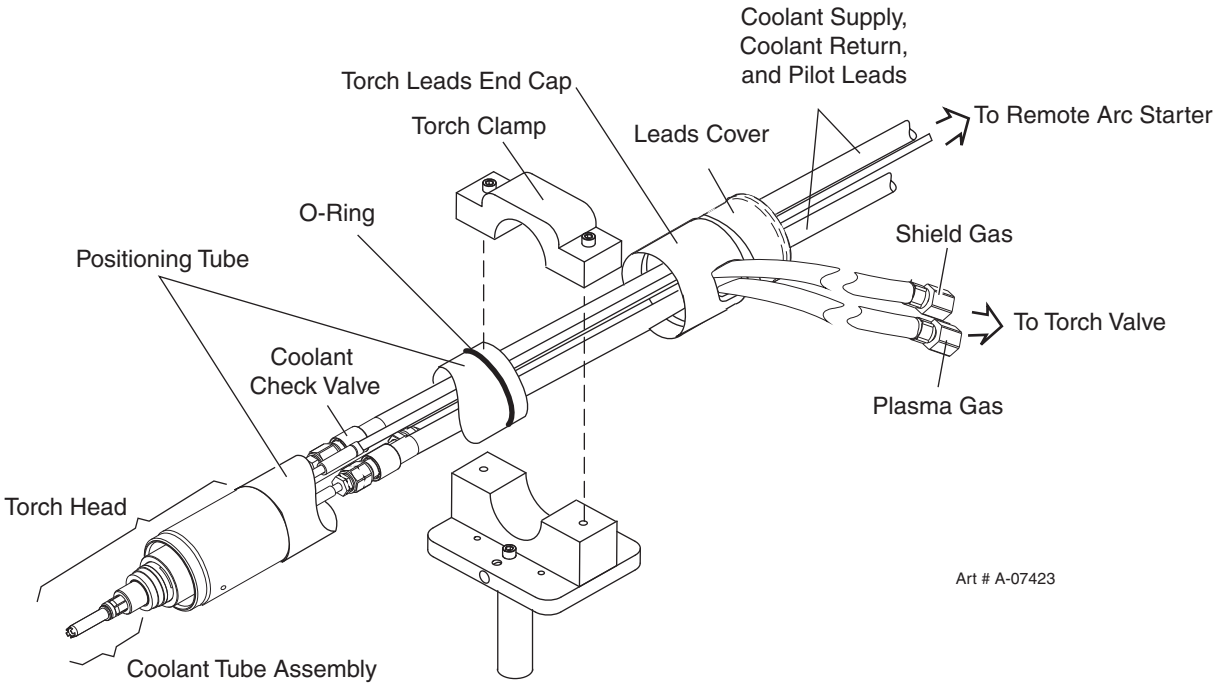
Ohmic height sensing is not recommended with water shield. Water on the plate interferes electrically with the ohmic sensing circuit.



4. Connect the wire lead from the height finder to the ohmic clip.

Torch Replacement Parts

Description	Catalog Number
Torch Head Assembly	22-1002
Coolant Check Valve Assembly	9-4846
Torch Clamp Assembly	9-9336
Torch Positioning Tube (includes hardware kit 9-4847)	9-4700
Positioning Tube Hardware Kit (O-Ring & screws)	9-4847
Plasma & Shield Leads Assembly (to Torch Valve)	4-3026
Ohmic Clip (not shown)	9-9414



8.12 PATENT INFORMATION

This product may be protected by one or more of the following U.S. Patent Nos.:

6852944; 6919526; 694616; 6989505; 6998566; 7005600; 7019254; 7071443; 7126080; 7132619; 7737383

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