Ultra-Cut XT®
Cutting Process Charts

15 - 400 Amp
Standard
Bevel
Underwater
Robotic

Art # A-14034

Revision: BF	Issue Date: 06/04/2020	Manual No.: 0-4829

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Read and understand this entire Manual and your employer's safety practices before installing, operating, or servicing the equipment.
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Ultra-Cut XT®
OEM Cutting Process No. 0-4829
Published by:
Thermal Dynamics Corporation.
2800 Airport Rd.
Denton, Texas 76207

www.thermal-dynamics.com

Publication Date: 6 May, 2019
Revision Date: 06 May, 2020

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NOTE!
Marking information provided is for systems using GCM2010 Gas Box only. With DPC3000 Gas Box, all gas, pressure and flow parameters are for reference only.

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.

NOTE!
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 cable size and 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..

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).

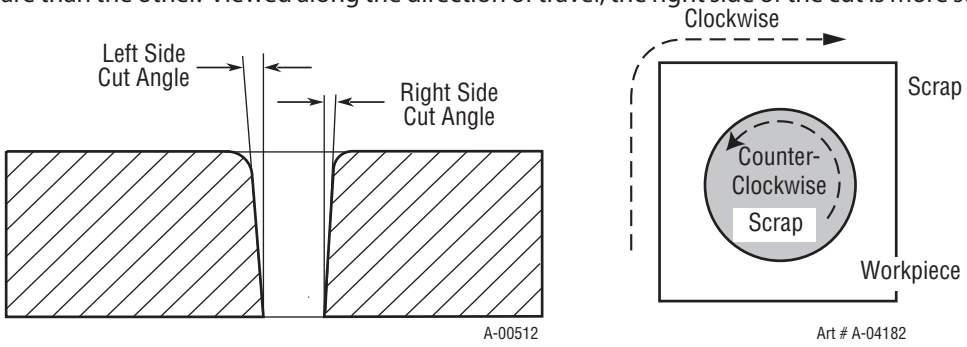
Decreasing preflow pressure may improve piloting. Preflow pressure can be reduced without affecting cut performance as long as the pilot arc still transfers to the plate well. Decreasing preflow pressure too much will affect the ability to transfer the arc to the plate and cause damage to the tip.

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.

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.

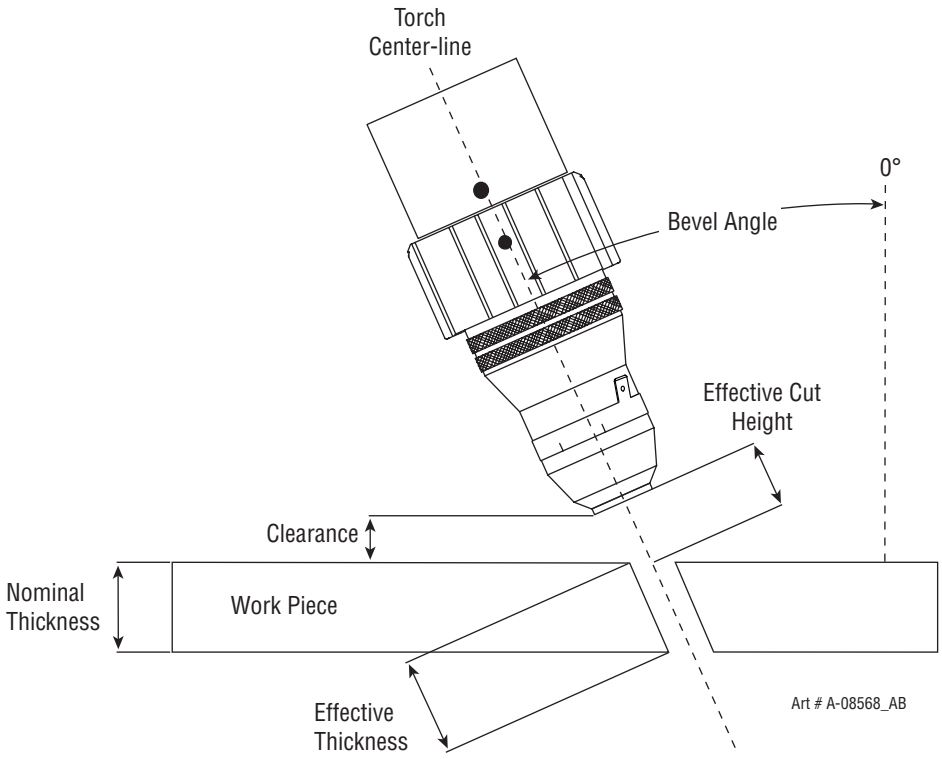
General Definitions:

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 pierce through the plate before the table XY motion starts.
Control delay	The Control Delay, also called AVC Delay, starts when the torch reaches Cut Height. At the end of the Control Delay, the THC controls the torch height using either a predefined Arc Voltage or the Arc Voltage sampled near the end of the Control Delay.
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.

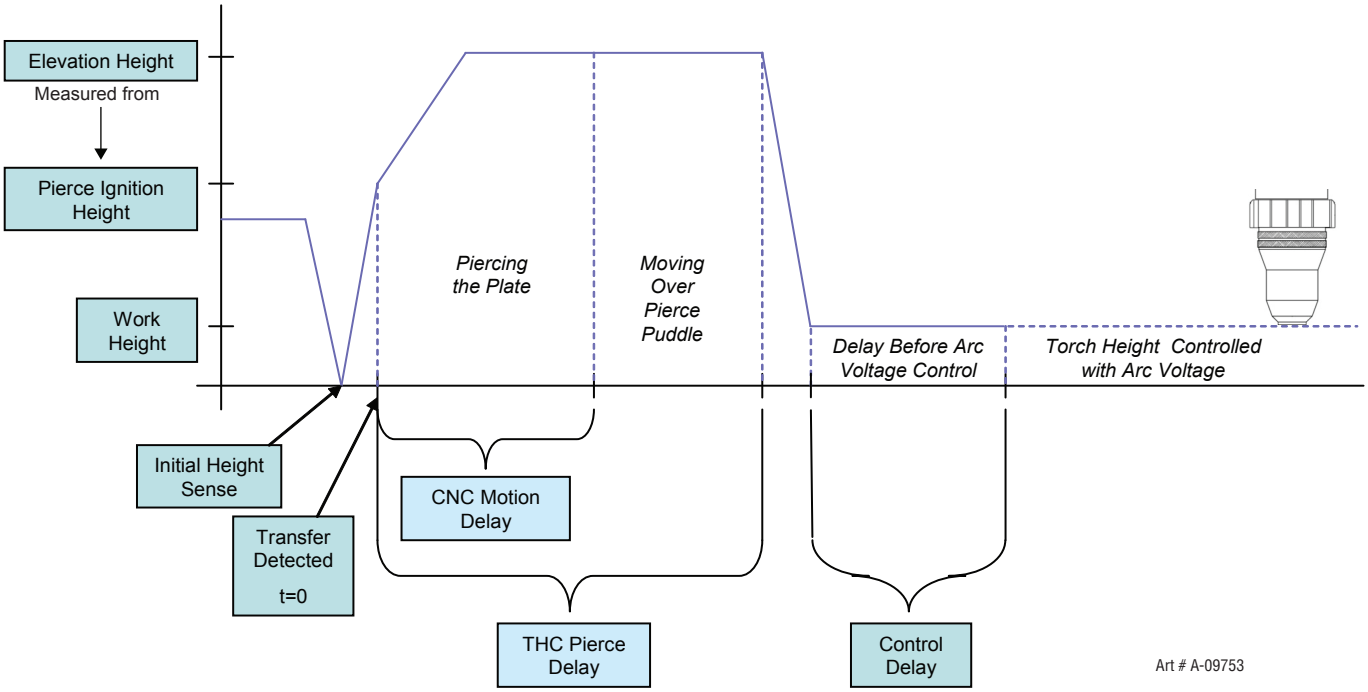
Bevel Cutting Definitions

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.

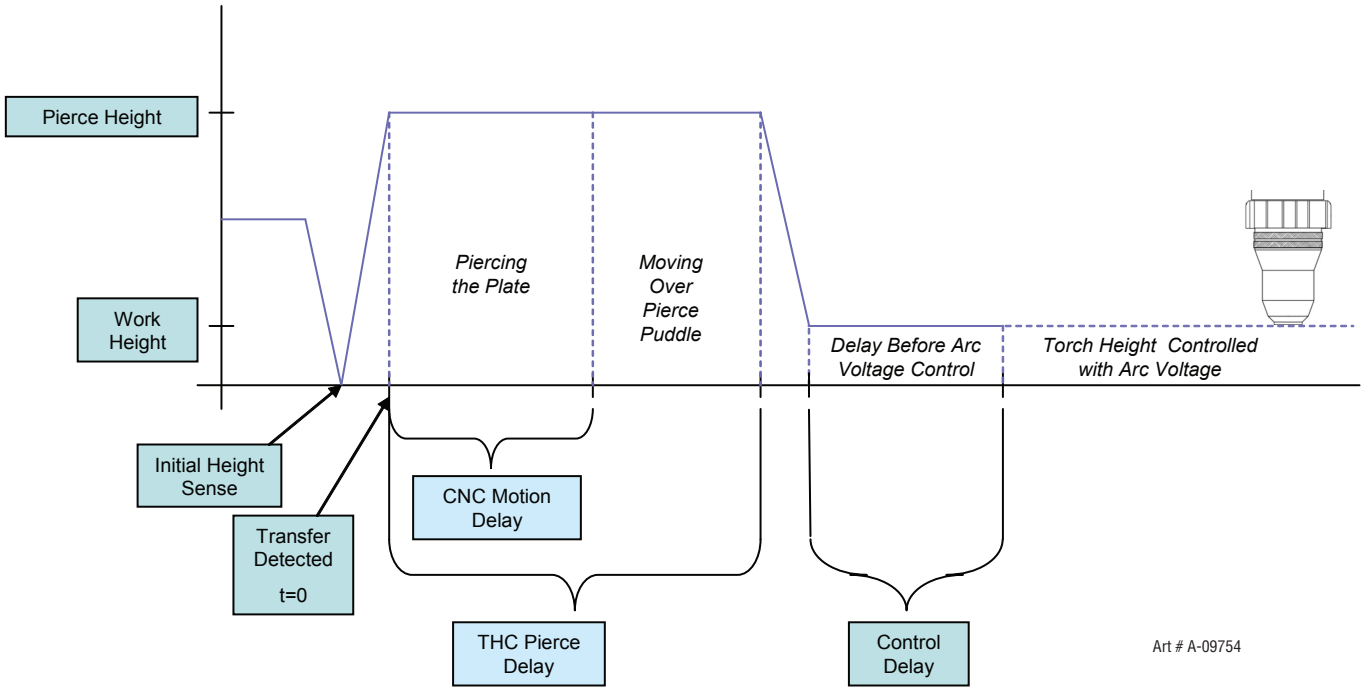
Effective Thickness	The length of the cut edge or the distance the arc travels through the material while cutting. Effective Thickness is equal to the nominal thickness divided by the cosine of the bevel angle. See Cut Chart for Effective Thickness.
Clearance	The vertical distance from the lowest point 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 Height Control (THC) WITH Elevation Height



Torch Height Control (THC) WITHOUT Elevation Height

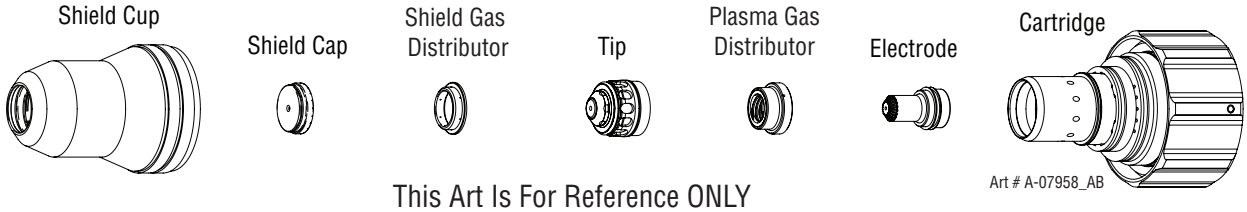


1.01 Straight Cutting Mild Steel 30-400 Amp

Mild Steel
30A
O_2 Plasma / O_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	4 / 8	16 / 33
Cutflow	15 / 32	- / -



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

Material Thickness			GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
			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	Set Shield Gas switch to "Pressure"	25	105	0.080	0.2	0.090	0.060	0.8	0.120	130	0.2	0.058
16	-	0.060	60	40	70		25	111	0.080	0.3	0.090	0.060	0.7	0.120	70	0.3	0.077
14	-	0.075	60	40	70		25	111	0.100	0.4	0.100	0.080	0.6	0.150	65	0.4	0.081
12	-	0.105	60	40	70		25	111	0.110	0.4	0.100	0.080	0.6	0.150	55	0.4	0.084
10	-	0.135	60	40	70		25	112	0.130	0.5	0.125	0.120	0.5	0.200	50	0.5	0.087
-	3/16	0.188	60	40	70		25	116	0.150	0.6	0.150	0.150	0.4	0.250	30	0.6	0.080

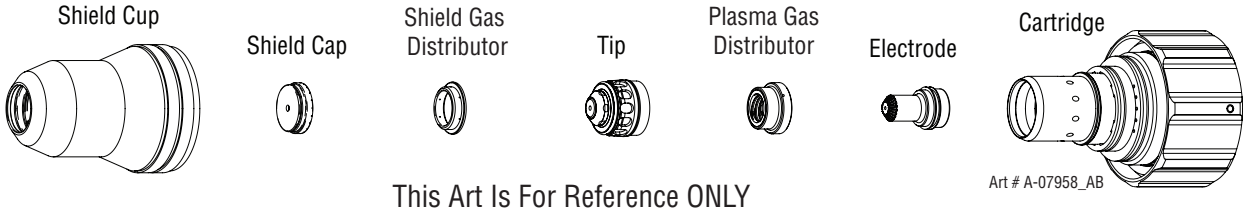
Material Thickness	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max 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	Set Shield Gas switch to "Pressure"	1.7	106	2.0	0.2	2.3	1.5	0.8	3.0	3090	0.2	1.5
1.5	4.1	40	4.8		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		1.7	112	1.25	0.2	1.25	2.0	0.6	3.8	1400	0.1	1.8
3	4.1	40	4.8		1.7	111	3.0	0.4	2.8	2.5	0.6	4.4	1340	0.4	2.2

BOLD TYPE indicates maximum piercing parameters.

Mild Steel
50A
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

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



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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					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**

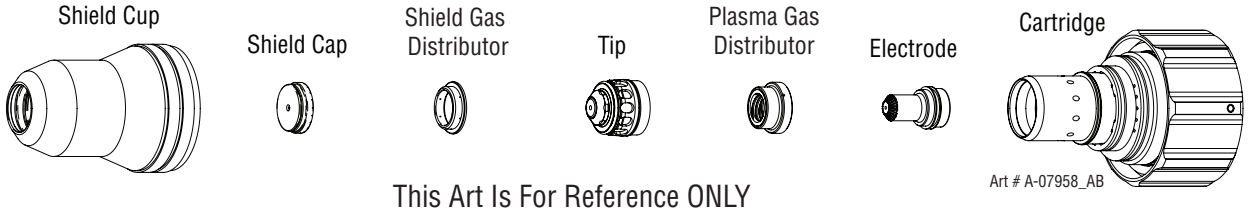
	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max 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 GCM 2010 ONLY **18A 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.	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	

Mild Steel
70A
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

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



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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					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

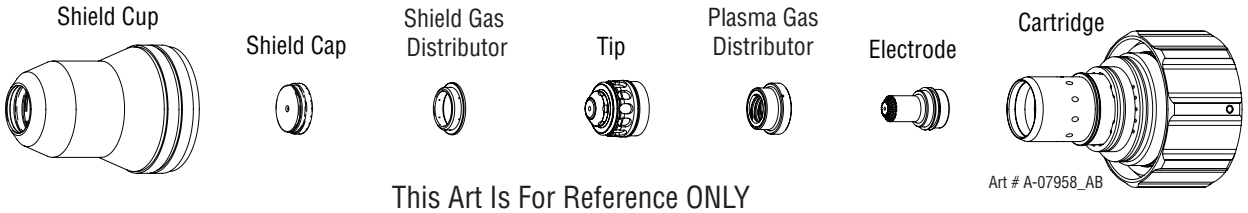
	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max 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 GCM 2010 ONLY **16A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				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	50	40 / 2.8	100	80 / 5.5	148	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

Mild Steel
100A
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

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



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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					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					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***

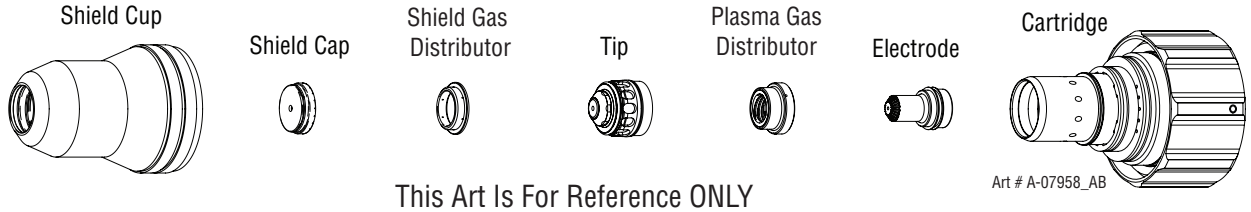
Marking GCM 2010 ONLY **17A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through 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	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.

Mild Steel
130A
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	46 / 97
Cutflow	17 /36	26 / 55



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1032	22-1287	22-1100	22-1041	22-1099	22-1020

			GCM-2010					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)
-	3/16	0.188	45	72	120	71	120	127	0.07	0.3	0.2	0.1	0.4	0.3	200	0.2	0.055
-	1/4	0.250	45	72	120	71	120	157	0.12	0.4	0.2	0.15	0.4	0.35	145	0.3	0.08
-	3/8	0.375	45	72	120	56	120	137	0.1	0.6	0.25	0.15	0.4	0.4	110	0.4	0.084
-	1/2	0.500	45	72	120	71	120	148	0.16	0.6	0.25	0.2	0.4	0.45	77	0.4	0.093
-	5/8	0.625	45	78	120	94	120	156	0.2	0.9	0.25	0.2	0.4	0.45	60	0.6	0.1
-	3/4	0.750	45	78	120	79	120	157	0.2	1	0.25	0.2	0.4	0.45	52	0.6	0.18
-	7/8	0.875	45	78	120	69	120	159	0.2	1.6	0.25	0.2	0.4	0.45	35	0.9	0.124
-	**1**	**1.000**	**45**	**78**	**120**	**95**	**120**	**179**	**0.35**	**1.9**	**0.25**	**0.2**	**0.4**	**0.375**	**25**	**1.3**	**0.175**
-	***1-1/4***	***1.250***	***45***	***78***	***120***	***79***	***120***	***186***	***0.35***	***0.5***	***Edge Start***		***0.4***	***Edge***	***15***	***0.5***	***0.18***
-	***1-1/2***	***1.500***	***45***	***78***	***120***	***79***	***120***	***190***	***0.35***	***0.5***	***Edge Start***		***0.4***	***Edge***	***10***	***0.5***	***0.2***

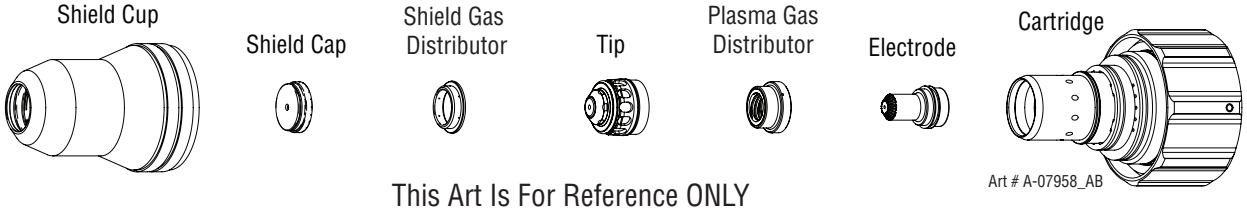
	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max 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	3.1	72	8.3	71	8.3	128	1.8	0.3	5.1	2.5	0.4	7.6	4826	0.2	1.4
6	3.1	72	8.3	71	8.3	155	3.0	0.4	5.1	3.8	0.4	8.9	4064	0.3	2.0
8	3.1	72	8.3	71	8.3	135	2.5	0.5	6.3	3.8	0.4	10.2	3251	0.3	2.1
10	3.1	72	8.3	56	8.3	138	2.5	0.6	6.3	3.8	0.4	10.2	2667	0.4	2.2
12	3.1	72	8.3	71	8.3	147	4.1	0.6	6.3	5.1	0.4	11.4	2159	0.4	2.3
15	3.1	78	8.3	94	8.3	155	5.1	0.9	6.3	5.1	0.4	11.4	1626	0.6	2.5
20	3.1	78	8.3	79	8.3	156	5.1	1.1	6.3	5.1	0.4	11.4	1321	0.7	4.6
25	**3.1**	**78**	**8.3**	**95**	**8.3**	**158**	**8.9**	**1.9**	**6.3**	**5.1**	**0.4**	**11.4**	**660**	**1.2**	**4.4**
30	***3.1***	***78***	***8.3***	***79***	***8.3***	***185***	***8.9***	***0.5***	***Edge Start***		***0.4***	***Edge***	***457***	***0.5***	***4.4***
35	***3.1***	***78***	***8.3***	***79***	***8.3***	***190***	***8.9***	***0.5***	***Edge Start***		***0.4***	***Edge***	***305***	***0.5***	***4.8***
40	***3.1***	***78***	***8.3***	***79***	***8.3***	***192***	***8.9***	***0.5***	***Edge Start***		***0.4***	***Edge***	***250***	***0.5***	***5.1***

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

Mild Steel
150A
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

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



This Art Is For Reference ONLY

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

			GCM-2010					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					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***

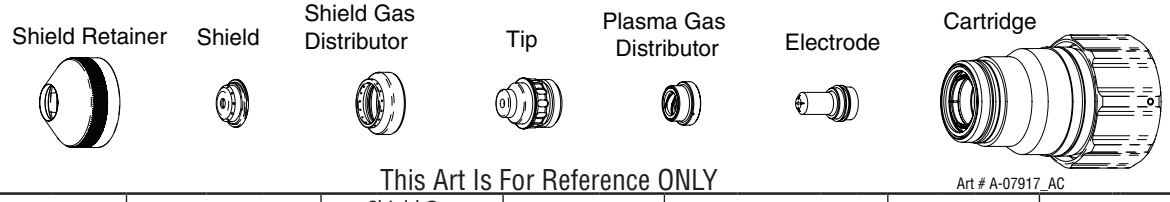
Marking GCM 2010 ONLY	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
20A Arc Current	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	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.

Mild Steel
200A
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	162 / 343
Cutflow	42 / 89	133 / 281



This Art Is For Reference ONLY

Shield Retainer	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1014	22-1030	22-1285	22-1055	22-1042	22-1075	22-1022

			GCM-2010					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)
-	3/16	0.188	15	100	100	Set Shield Gas switch to "Pressure"	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		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		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		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		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		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		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		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**		**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**		**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***		***100***	***189***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***15***	***1.0***	***0.203***
-	***2***	***2.000***	***15***	***100***	***100***		***100***	***192***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***10***	***1.0***	***0.204***
-	***2 1/2***	***2.500***	***15***	***100***	***100***		***100***	***192***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***8***	***1.0***	***0.210***

	GCM-2010					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	Set Shield Gas switch to "Pressure"	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		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		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		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		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		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		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		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**		**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**		**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***		***6.9***	***186***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***470***	***1.0***	***5.1***
50	***1.0***	***100***	***6.9***		***6.9***	***192***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***270***	***1.0***	***5.2***
60	***1.0***	***100***	***6.9***		***6.9***	***192***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***220***	***1.0***	***5.3***

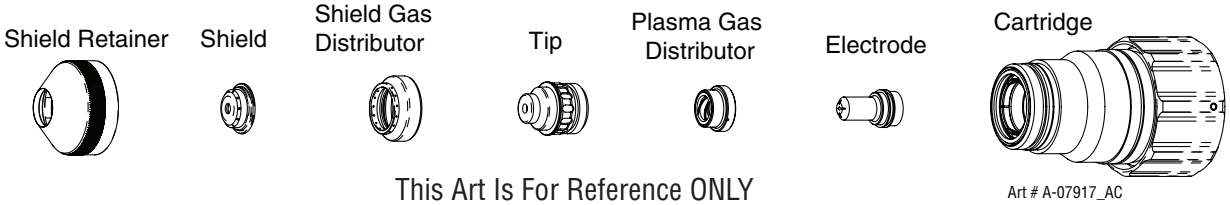
Marking GCM 2010 ONLY **25A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through 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	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.

Mild Steel
250A
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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	22-1075	22-1022

			GCM-2010					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	Set Shield Gas switch to "Pressure"	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		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		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		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		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**		**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***		***100***	***171***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***23***	***1.0***	***0.197***
-	***2***	***2.000***	***15***	***100***	***100***		***100***	***177***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***15***	***1.0***	***0.197***

	GCM-2010					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	Set Shield Gas switch to "Pressure"	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		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		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		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		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***		***6.9***	***167***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***710***	***1.0***	***5.0***
50	***1.0***	***100***	***6.9***		***6.9***	***176***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***410***	***1.0***	***5.0***

Marking GCM 2010 ONLY **25A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				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	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.

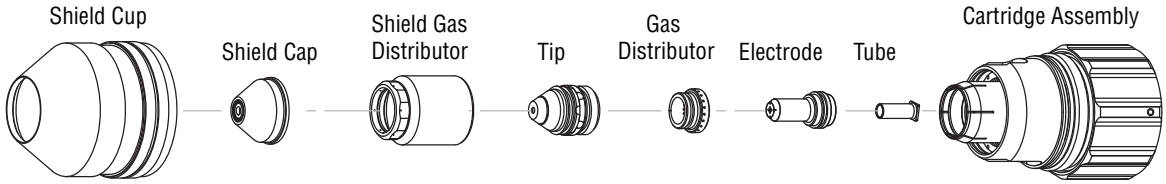
Mild Steel

300A XTL

O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	194 / 412
Cutflow	27 / 58	160 / 340



This Art Is For Reference Only

Art# A-10270_AB

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode /Tube	Cartridge
22-1305	22-1105	22-1295	22-1160	22-1042	22-1308 9-7921	22-1300

			GCM-2010					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	20	100	100	Set Shield Gas switch to "Pressure"	100	159	0.200	0.3	0.400	0.200	0.5	0.450	140	0.2	0.149
-	5/8	0.625	20	100	100		100	161	0.200	0.4	0.400	0.200	0.5	0.450	115	0.3	0.179
-	3/4	0.750	20	100	100		100	158	0.200	0.6	0.400	0.200	0.5	0.450	100	0.4	0.185
-	7/8	0.875	20	100	100		100	161	0.200	0.8	0.400	0.200	0.5	0.450	85	0.6	0.182
-	1	1.000	20	100	100		100	164	0.200	1.1	0.400	0.250	0.5	0.450	70	0.9	0.183
-	1 1/4	1.250	20	100	100		100	164	0.200	1.5	0.400	0.300	0.5	0.500	50	1.2	0.193
-	1 1/2	1.500	20	100	100		100	175	0.200	2.9	0.400	0.350	0.5	0.500	35	2.7	0.208
-	**1 3/4**	**1.750**	**20**	**100**	**100**		**100**	**179**	**0.200**	**5.3**	**0.400**	**0.400**	**0.5**	**Edge**	**25**	**5.2**	**0.250**
-	***2***	***2.000***	***20***	***100***	***100***		***100***	***182***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***18***	***1.0***	***0.245***
-	***2 1/2***	***2.500***	***20***	***100***	***100***		***100***	***201***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***10***	***1.0***	***0.416***
-	***3***	***3.000***	***20***	***100***	***100***		***100***	***215***	***0.200***	***1.0***	***Edge Start***		***0.5***	***Edge***	***7***	***1.0***	***0.500***

	GCM-2010					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	1.4	100	6.9	Set Shield Gas switch to "Pressure"	6.9	159	5.1	0.3	10.2	5.1	0.5	11.4	3700	0.2	3.6
15	1.4	100	6.9		6.9	160	5.1	0.4	10.2	5.1	0.5	11.4	3100	0.3	4.3
20	1.4	100	6.9		6.9	159	5.1	0.7	10.2	5.1	0.5	11.4	2430	0.5	4.7
25	1.4	100	6.9		6.9	164	5.1	1.1	10.2	6.2	0.5	11.4	1830	0.9	4.6
30	1.4	100	6.9		6.9	164	5.1	1.4	10.2	7.3	0.5	12.4	1410	1.1	4.8
35	1.4	100	6.9		6.9	170	5.1	2.2	10.2	8.3	0.5	12.7	1080	2.0	5.1
40	***1.4***	***100***	***6.9***		***6.9***	***176***	***5.1***	***3.6***	***10.2***	***9.3***	***0.5***	***Edge***	***810***	***3.4***	***5.6***
50	***1.4***	***100***	***6.9***		***6.9***	***181***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***470***	***1.0***	***5.9***
60	***1.4***	***100***	***6.9***		***6.9***	***196***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***310***	***1.0***	***9.4***
70	***1.4***	***100***	***6.9***		***6.9***	***208***	***5.1***	***1.0***	***Edge Start***		***0.5***	***Edge***	***220***	***1.0***	***11.7***

Marking GCM 2010 ONLY **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)								
	(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	

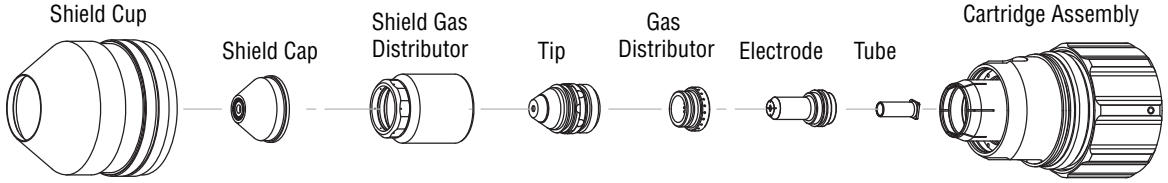
BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Use CCM 4.5.0 or later and Electronic Cut Chart 2.4.0 or later

Mild Steel
400A
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

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



This Art Is For Reference Only

Art# A-10270_AB

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

Material Thickness			GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
			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	switch to "Pressure" Set Shield Gas	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***

Material Thickness	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
	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	switch to "Pressure" Set Shield Gas	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 GCM 2010 ONLY **24A Arc Current** Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6mm.	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	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.

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

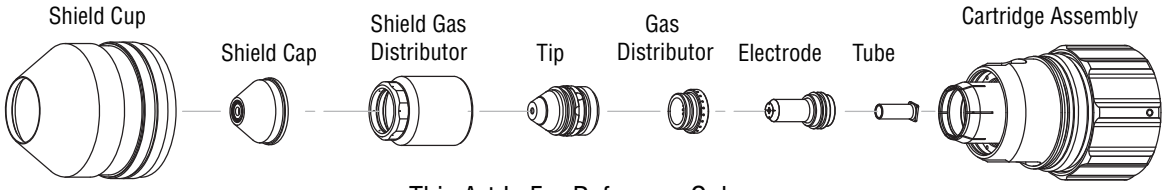
Note 1: Water source used for shield must be demineralized.

THC Pierce Delay values shown are the minimum values. It is recommended that this value should be increased depending on the application.

Mild Steel
400A Quick Pierce Parts
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000
NOTE: Using QuickPierce parts with a manual gas control will result in reduced consumable parts life

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



This Art Is For Reference Only

Art# A-10270_AB

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	22-1312	22-1313	22-1309	22-1042	22-1308 9-7921	22-1300

			GCM-2010					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 1/2	1.500	15	80	90	Set Shield Gas switch to "Pressure"	80	166	0.200	4.0	0.450	0.600	0.2	Not Recommended without Elevation Height	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					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)
30	1.0	80	6.2	Set Shield Gas switch to "Pressure"	5.5	162	5.1	1.4	10.2	15.8	0.2	Not Recommended without Elevation Height	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 GCM 2010 ONLY **24A Arc Current** Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6mm.	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	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.

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

Note 1: Water source used for shield must be demineralized.

THC Pierce Delay values shown are the minimum values. It is recommended that this value should be increased depending on the application.

Chart is for Customer Settings
Make Copies as Desired

	Flow Rates (SLPM / SCFH)	
	H17	N_2
Preflow		
Cutflow		

			GCM-2010					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)
														Not Recommended without Elevation Height			

	GCM-2010					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)
												Not Recommended without Elevation Height			

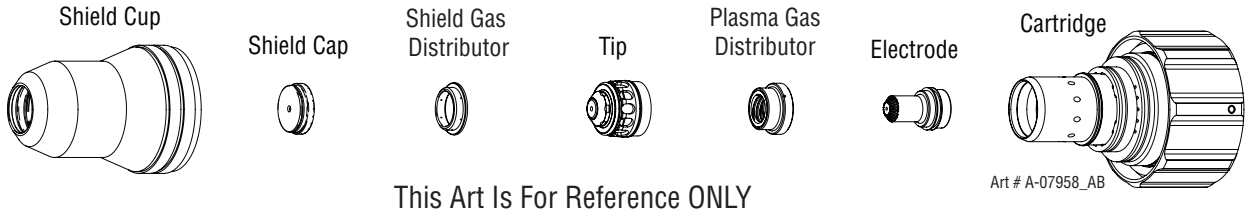
BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

1.02 Straight Cutting Stainless Steel 30-400 Amp

Stainless Steel
30A
Air Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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**

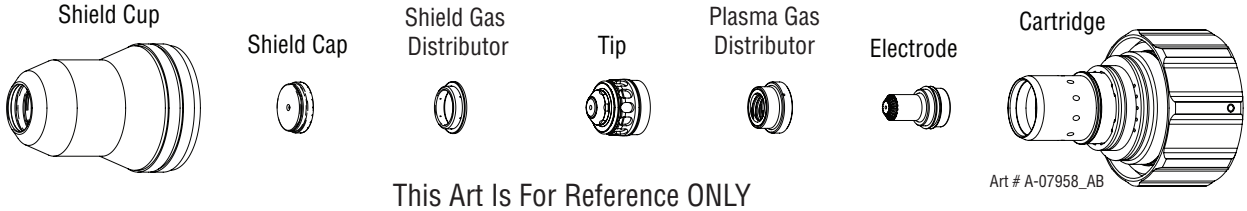
Marking GCM 2010 ONLY	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for 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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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

Marking GCM 2010 ONLY	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)								
16A Arc Current	(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)	
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	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.

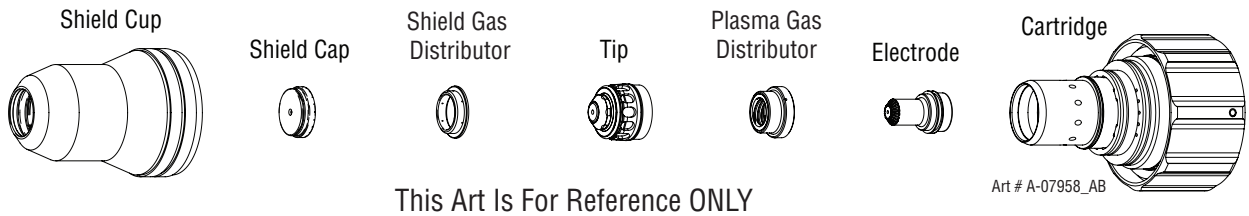
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Water source used for shield must be demineralized.

Stainless Steel
50A
Air Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

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



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					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

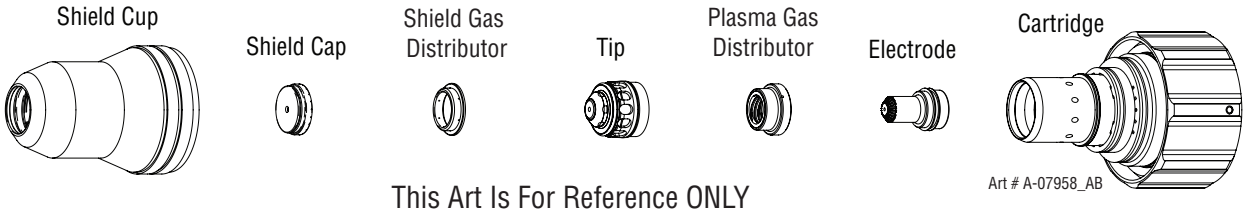
	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max 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 GCM 2010 ONLY **16A 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	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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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	22-1180	22-1041	22-1181	22-1020

			GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N2)	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	-	0.063	60	62	120	4	55	133	0.110	0.0	0.125	0.120	0.5	0.200	140	0.0	0.043
14	-	0.078	60	62	120	4	55	132	0.110	0.1	0.125	0.120	0.5	0.200	119	0.1	0.043
12	-	0.109	60	62	120	4	55	126	0.110	0.2	0.125	0.120	0.5	0.200	105	0.2	0.047
10	-	0.141	60	62	120	4	55	139	0.110	0.3	0.125	0.120	0.5	0.200	84	0.3	0.050
-	3/16	0.188	60	62	120	4	55	157	0.110	0.5	0.125	0.120	0.5	0.200	35	0.5	0.050

	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N2)	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	123	2.8	0.1	3.2	3.0	0.5	5.1	3017	0.1	1.1
2.5	4.1	62	8.3	4	3.8	128	2.8	0.1	3.2	3.0	0.5	5.1	2786	0.1	1.2
3	4.1	62	8.3	4	3.8	130	2.8	0.2	3.2	3.0	0.5	5.1	2562	0.2	1.2
4	**4.1**	**62**	**8.3**	**4**	**3.8**	**145**	**2.8**	**0.4**	**3.2**	**3.0**	**0.5**	**5.1**	**1687**	**0.4**	**1.3**

Marking GCM 2010 ONLY **16A 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") / 1.6mm.	(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)	
	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.

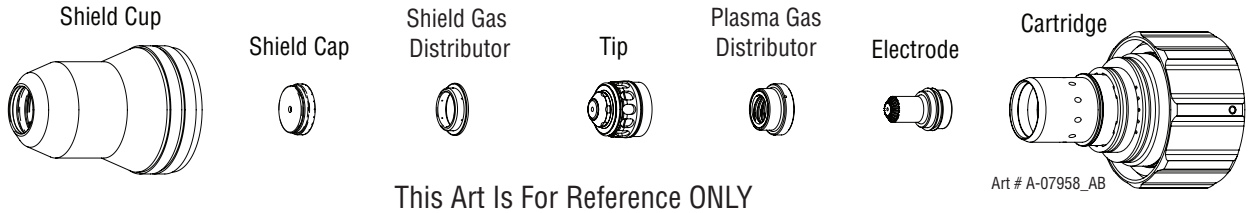
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note1: Water source used for shield must be demineralized.

Stainless Steel
70A
Air Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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**

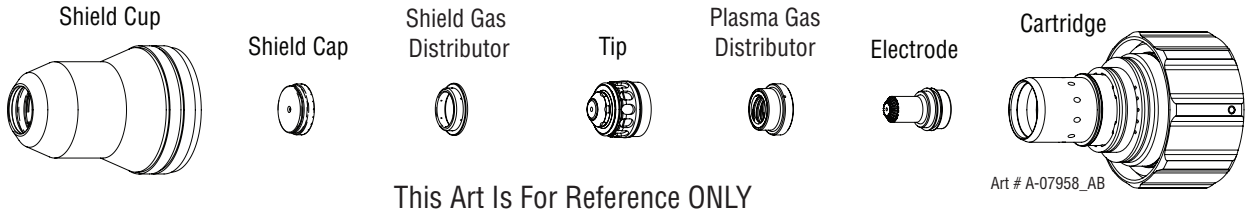
Marking GCM 2010 ONLY	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
16A Arc Current Burn-through 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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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**

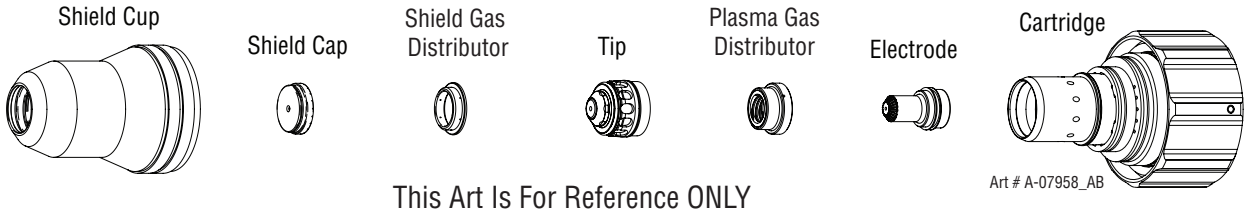
Marking GCM 2010 ONLY	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
18A Arc Current	(psi) / (Bar)	Ball	(psi) / (Bar)	Ball	(psi) / (Bar)	(Volts)	(in) ±0.005 / (mm) ±0.1	(in) ±0.005 / (mm) ±0.1	(sec)	(sec)	(ipm) / (mm/ min)	
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	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: Water source used for shield must be demineralized.

Stainless Steel
100A
H35 Plasma / N_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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**

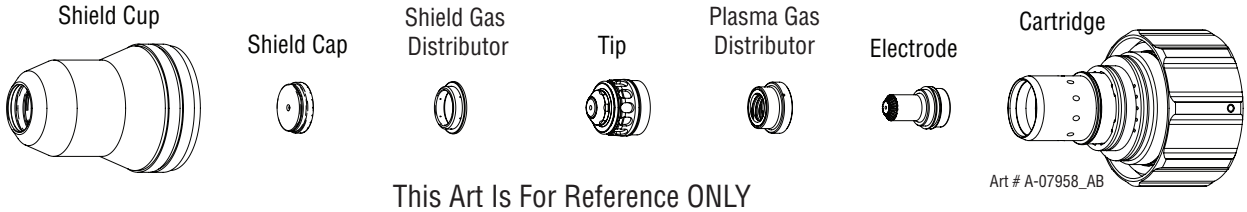
Marking GCM 2010 ONLY **18A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through 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	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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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

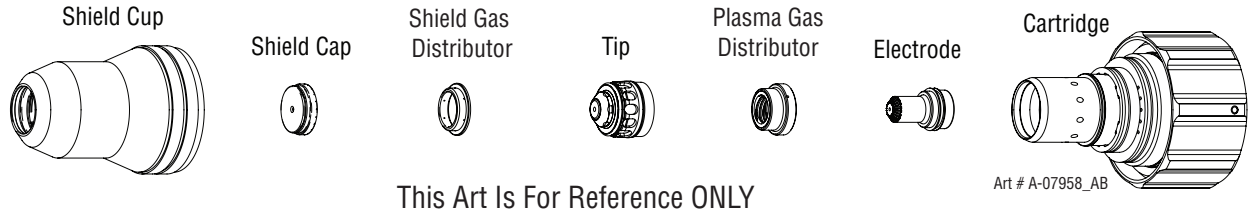
Marking GCM 2010 ONLY **18A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through 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	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: Water source used for shield must be demineralized.

Stainless Steel
130A
H35 Plasma / N_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	43 / 90
Cutflow	45 / 90	26 / 55



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1037	22-1288	22-1063	22-1041	22-1081	22-1020

			GCM-2010					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	36	78	120	72	120	165	0.31	0.8	0.25	0.2	0.4	0.45	40	0.6	0.127
-	5/8	0.625	36	78	120	72	120	163	0.3	1.3	0.25	0.2	0.4	0.45	33	0.8	0.136
-	**3/4**	**0.750**	**36**	**72**	**120**	**55**	**120**	**162**	**0.265**	**2**	**0.25**	**0.2**	**0.4**	**0.45**	**24**	**1**	**0.15**
-	***7/8***	***0.875***	***36***	***78***	***120***	***72***	***120***	***178***	***0.35***	***0.5***	***Edge Start***		***0.4***	***Edge***	***17***	***0.5***	***0.158***
-	***1***	***1.000***	***36***	***78***	***120***	***72***	***120***	***180***	***0.4***	***0.5***	***Edge Start***		***0.4***	***Edge***	***17***	***0.5***	***0.163***
-	***1-1/4***	***1.250***	***36***	***78***	***120***	***72***	***120***	***182***	***0.375***	***0.5***	***Edge Start***		***0.4***	***Edge***	***10***	***0.5***	***0.17***

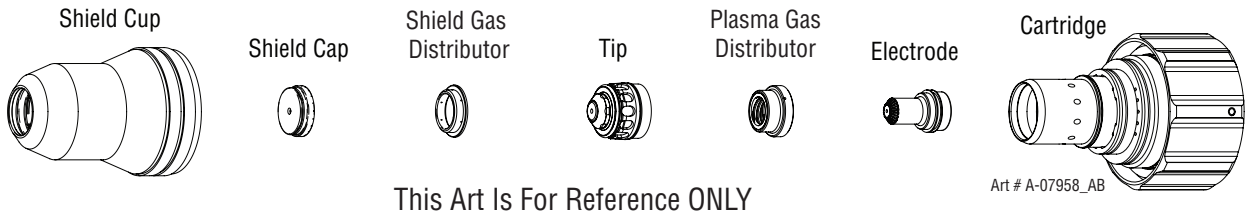
	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max 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	2.5	78	8.3	72	8.3	165	7.9	0.8	6.3	5.1	0.4	11.4	1067	0.6	3.2
15	2.5	78	8.3	72	8.3	163	7.6	1.3	6.3	5.1	0.4	11.4	889	0.75	3.4
20	**2.5**	**78**	**8.3**	**55**	**8.3**	**162**	**6.7**	**2**	**6.3**	**5.1**	**0.4**	**11.4**	**533**	**1**	**3.9**
25	***2.5***	***78***	***8.3***	***72***	***8.3***	***180***	***10.2***	***0.5***	***Edge Start***		***0.4***	***Edge***	***432***	***0.5***	***4.1***
30	***2.5***	***78***	***8.3***	***72***	***8.3***	***182***	***9.5***	***0.5***	***Edge Start***		***0.4***	***Edge***	***305***	***0.5***	***4.3***

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

Stainless Steel
130A
N_2 Plasma / H_2O Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	N_2 (SLPM/SCFH)	H_2O (GPH / LPH)
Preflow	17 / 35	7.4 / 28
Cutflow	20 / 42	7.4 / 28



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1028	22-1278	22-1092	22-1041	22-1081	22-1020

			GCM-2010					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	41	80	120	7.4	35	140	0.1	0.3	0.25	0.05	0.4	0.3	130	0.2	0.07
-	1/4	0.250	41	80	120	7.4	35	145	0.13	0.4	0.25	0.1	0.4	0.35	110	0.3	0.074
-	3/8	0.375	41	55	120	7.4	35	153	0.15	0.6	0.25	0.15	0.4	0.4	65	0.4	0.08
-	1/2	0.500	41	55	120	7.4	35	160	0.19	0.7	0.25	0.2	0.4	0.45	50	0.4	0.085
-	5/8	0.625	41	55	120	7.4	35	174	0.26	1	0.25	0.2	0.4	0.45	40	0.6	0.1
-	**3/4**	**0.750**	**41**	**55**	**120**	**7.4**	**35**	**183**	**0.3**	**2.3**	**0.25**	**0.2**	**0.4**	**0.45**	**26**	**1.2**	**1.20**
-	***7/8***	***0.875***	***41***	***80***	***120***	***7.4***	***35***	***187***	***0.3***	***0.5***	***Edge Start***		***0.4***	***Edge***	***20***	***0.5***	***0.143***
-	***1***	***1.000***	***41***	***80***	***120***	***7.4***	***35***	***190***	***0.3***	***0.5***	***Edge Start***		***0.4***	***Edge***	***15***	***0.5***	***0.159***
-	***1-1/4***	***1.250***	***41***	***80***	***120***	***7.4***	***35***	***195***	***0.3***	***0.5***	***Edge Start***		***0.4***	***Edge***	***12***	***0.5***	***0.162***
-	***1-1/2***	***1.500***	***41***	***80***	***120***	***7.4***	***35***	***199***	***0.3***	***0.5***	***Edge Start***		***0.4***	***Edge***	***10***	***0.5***	***0.165***

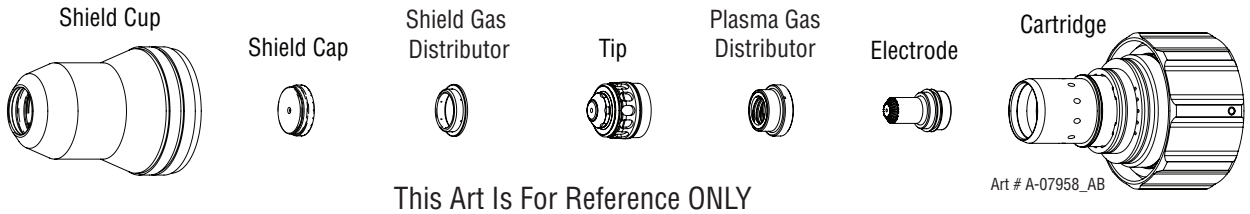
	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max 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	2.8	80	8.3	7.4	2.4	141	2.5	0.3	6.3	1.3	0.4	7.6	3226	0.2	1.8
6	2.8	80	8.3	7.4	2.4	144	3.2	0.4	6.3	2.5	0.4	8.9	2896	0.3	1.9
8	2.8	80	8.3	7.4	2.4	149	3.6	0.5	6.3	3.8	0.4	10.2	2540	0.3	2.0
10	2.8	55	8.3	7.4	2.4	154	3.8	0.6	6.3	3.8	0.4	10.2	1575	0.4	2.0
12	2.8	55	8.3	7.4	2.4	159	4.8	0.7	6.3	5.1	0.4	11.4	1346	0.4	2.2
15	2.8	55	8.3	7.4	2.4	170	6.1	1	6.3	5.1	0.4	11.4	1092	0.6	2.4
20	**2.8**	**55**	**8.3**	**7.4**	**2.4**	**183**	**7.6**	**2.5**	**6.3**	**5.1**	**0.4**	**11.4**	**635**	**1.3**	**3.1**
25	***2.8***	***80***	***8.3***	***7.4***	***2.4***	***189***	***7.6***	***0.5***	***Edge Start***		***0.4***	***Edge***	***381***	***0.5***	***4.0***
30	***2.8***	***80***	***8.3***	***7.4***	***2.4***	***193***	***7.6***	***0.5***	***Edge Start***		***0.4***	***Edge***	***305***	***0.5***	***4.1***
35	***2.8***	***80***	***8.3***	***7.4***	***2.4***	***197***	***7.6***	***0.5***	***Edge Start***		***0.4***	***Edge***	***279***	***0.5***	***4.1***

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.

Stainless Steel
150A
H35 Plasma / N_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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

Material Thickness			GCM-2010					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)											
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**

Material Thickness	GCM-2010					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)
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**

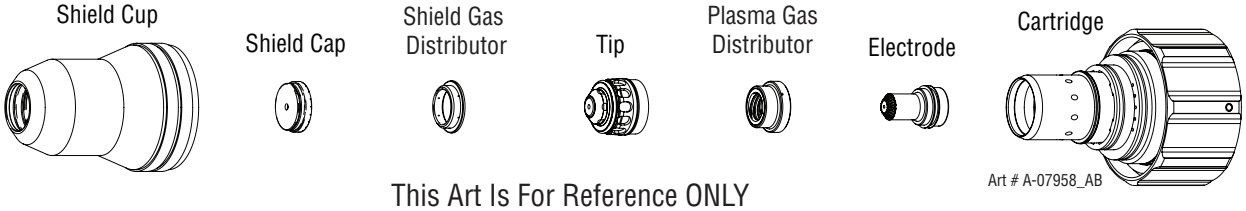
Marking GCM 2010 ONLY **19A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through 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	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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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 GCM 2010 ONLY **17A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				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	75	80 / 5.5	130	0.120 / 3.0	0.120 / 3.0	0	0.5	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

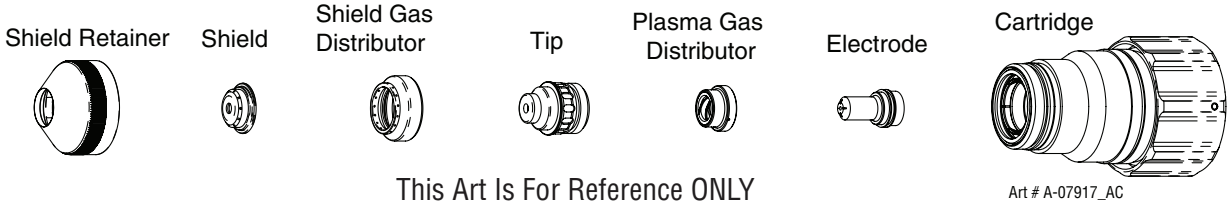
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Water source used for shield must be demineralized.

Stainless Steel
200A
H35 Plasma / N_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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	Set Shield Gas switch to "Pressure"	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		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		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		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		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		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***		***120***	***185***	***0.350***	***0.5***	***Edge Start***		***0.3***	***Edge***	***20***	***0.5***	***0.170***
-	***1 1/2***	***1.500***	***20***	***120***	***100***		***120***	***190***	***0.350***	***0.5***	***Edge Start***		***0.3***	***Edge***	***16***	***0.5***	***0.175***
-	***1 3/4***	***1.750***	***20***	***120***	***100***		***120***	***192***	***0.350***	***0.5***	***Edge Start***		***0.3***	***Edge***	***14***	***0.5***	***0.179***
-	***2***	***2.000***	***20***	***120***	***100***		***120***	***193***	***0.350***	***0.5***	***Edge Start***		***0.3***	***Edge***	***12***	***0.5***	***0.182***

	GCM-2010					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	Set Shield Gas switch to "Pressure"	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		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		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		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		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***		***8.3***	***184***	***8.9***	***0.5***	***Edge Start***		***0.3***	***Edge***	***540***	***0.5***	***4.3***
35	***1.4***	***120***	***6.9***		***8.3***	***188***	***8.9***	***0.5***	***Edge Start***		***0.3***	***Edge***	***460***	***0.5***	***4.4***
40	***1.4***	***120***	***6.9***		***8.3***	***190***	***8.9***	***0.5***	***Edge Start***		***0.3***	***Edge***	***390***	***0.5***	***4.5***
50	***1.4***	***120***	***6.9***		***8.3***	***193***	***8.9***	***0.5***	***Edge Start***		***0.3***	***Edge***	***310***	***0.5***	***4.6***

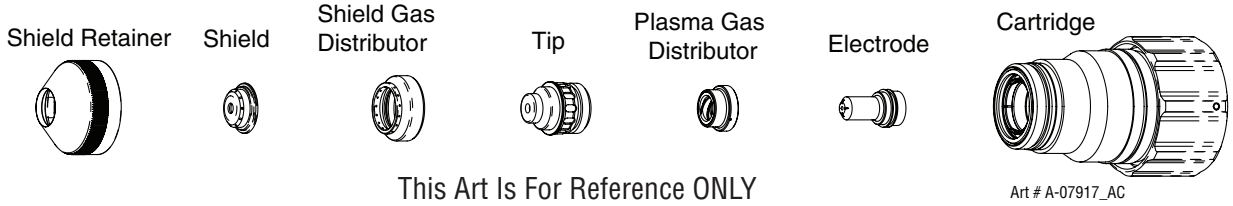
Marking GCM 2010 ONLY **20A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through 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	0.4	300 / 7620	

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

Stainless Steel
200A
N_2 Plasma / H_2O Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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 GCM 2010 ONLY **20A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLYs				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	0.4	300 / 7620	

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

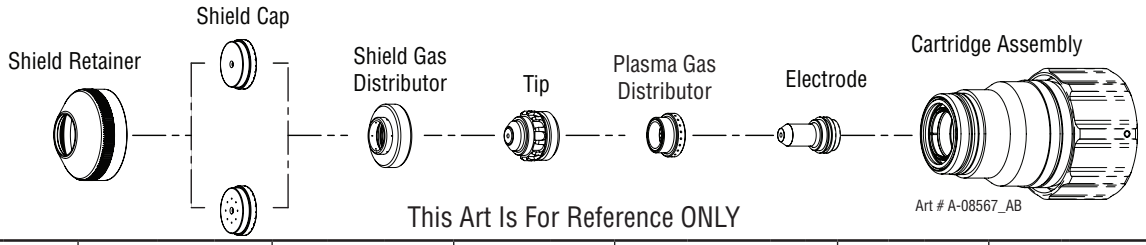
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Water source used for shield must be demineralized.

Stainless Steel
300A
H35 Plasma / N_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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	Set Shield Gas switch to "Pressure"	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		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		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		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		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		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**		**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***		***120***	***180***	***0.400***	***0.5***	***Edge Start***		***0.2***	***Edge***	***25***	***0.5***	***0.220***
-	***1 3/4***	***1.750***	***20***	***120***	***100***		***120***	***183***	***0.400***	***0.5***	***Edge Start***		***0.2***	***Edge***	***21***	***0.5***	***0.229***
-	***2***	***2.000***	***20***	***120***	***100***		***120***	***186***	***0.400***	***0.5***	***Edge Start***		***0.2***	***Edge***	***17***	***0.5***	***0.237***

	GCM-2010					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	Set Shield Gas switch to "Pressure"	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		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		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		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		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		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**		**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***		***8.3***	***181***	***10.2***	***0.5***	***Edge Start***		***0.2***	***Edge***	***600***	***0.5***	***5.7***
45	***1.4***	***120***	***6.9***		***8.3***	***183***	***10.2***	***0.5***	***Edge Start***		***0.2***	***Edge***	***520***	***0.5***	***5.8***
50	***1.4***	***120***	***6.9***		***8.3***	***186***	***10.2***	***0.5***	***Edge Start***		***0.2***	***Edge***	***440***	***0.5***	***6.0***

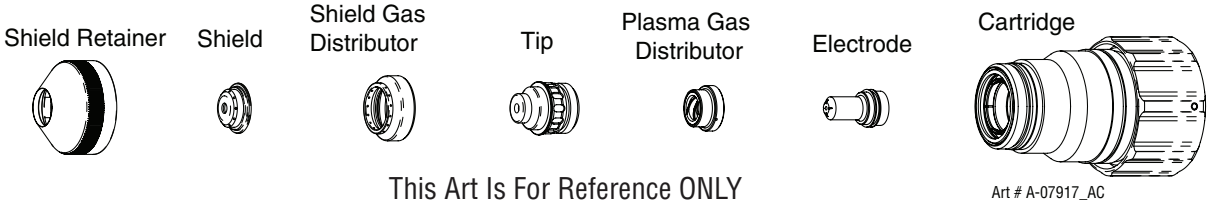
Marking GCM 2010 ONLY **24A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through may happen 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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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 GCM 2010 ONLY **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	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: Water source used for shield must be demineralized.

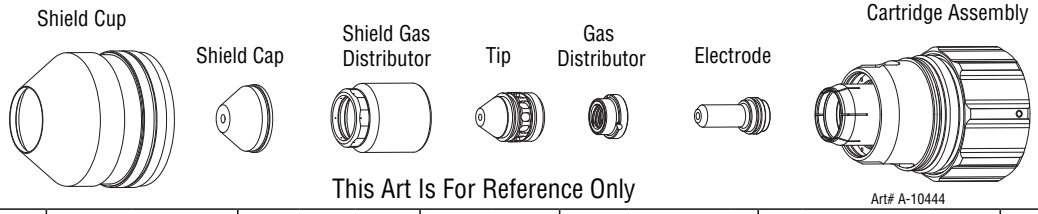
Stainless Steel

400A

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Pre-flow	- / -	207 / 439
Cut-flow	47 / 100	173 / 367

H35 Plasma / N_2 Shield



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

			GCM-2010					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	Set Shield Gas switch to "Pressure"	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		110	157	0.350	0.6	0.400	0.400	0.2		60	0.5	0.230
-	1	1.000	30	120	100		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		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		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		110	167	0.350	5.0	0.400	0.750	0.2		20	2.5	0.257
-	2	2.000	30	120	100		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***		***110***	***175***	***0.350***	***3.0***	***Edge Start***		***0.2***		***12***	***3.0***	***0.265***
-	***2 1/2***	***2.500***	***30***	***120***	***100***		***110***	***170***	***0.350***	***3.0***	***Edge Start***		***0.2***		***14***	***3.0***	***0.260***
-	***3***	***3.000***	***30***	***120***	***100***		***110***	***177***	***0.350***	***3.0***	***Edge Start***		***0.2***		***10***	***3.0***	***0.275***
-	***3 1/2***	***3.500***	***30***	***120***	***100***		***110***	***195***	***0.350***	***3.0***	***Edge Start***		***0.2***		***5***	***3.0***	***0.280***
-	***4***	***4.000***	***30***	***120***	***100***		***110***	***210***	***0.350***	***4.0***	***Edge Start***		***0.2***		***3.5***	***4.0***	***0.290***

	GCM-2010					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	Set Shield Gas switch to "Pressure"	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		7.6	158	8.9	0.7	10.2	10.5	0.2		1470	0.5	5.9
25	2.1	120	6.9		7.6	161	8.9	1.0	10.2	12.5	0.2		1170	0.8	6.0
30	2.1	120	6.9		7.6	162	8.9	1.4	10.2	12.7	0.2		960	1.1	6.0
35	2.1	120	6.9		7.6	164	8.9	1.7	10.2	12.7	0.2		800	1.3	6.1
40	2.1	120	6.9		7.6	166	8.9	2.8	10.2	14.6	0.2		650	1.7	6.4
50	2.1	120	6.9		7.6	170	8.9	9.4	10.2	19.1	0.2		440	5.1	6.8
60	***2.1***	***120***	***6.9***		***7.6***	***173***	***8.9***	***3.0***	***Edge Start***		***0.2***		***330***	***3.0***	***6.7***
70	***2.1***	***120***	***6.9***		***7.6***	***174***	***8.9***	***3.0***	***Edge Start***		***0.2***		***300***	***3.0***	***6.8***
80	***2.1***	***120***	***6.9***		***7.6***	***182***	***8.9***	***3.0***	***Edge Start***		***0.2***		***220***	***3.0***	***7.0***
90	***2.1***	***120***	***6.9***		***7.6***	***196***	***8.9***	***3.1***	***Edge Start***		***0.2***		***120***	***3.1***	***7.1***
100	***2.1***	***120***	***6.9***		***7.6***	***208***	***8.9***	***3.9***	***Edge Start***		***0.2***		***90***	***3.9***	***7.3***

Marking GCM 2010 ONLY	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)								
	(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	

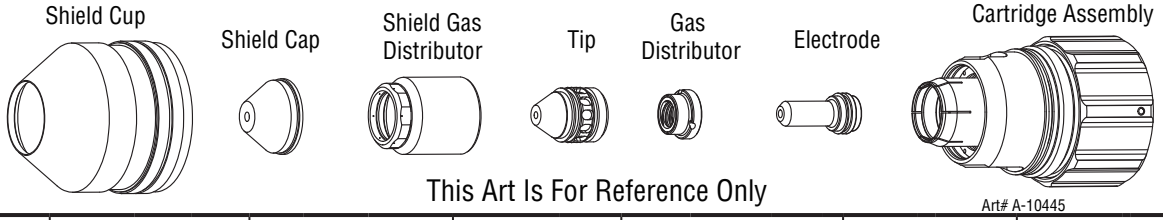
BOLD TYPE indicates maximum piercing parameters. BOLD ITALIC indicates edge starts only.

Note 1: For best results when cutting 4" or 100mm Stainless Steel, H35 can be used for both Plasma and Shield gas.

Stainless Steel
400A
N_2 Plasma / H_2O Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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

Art# A-10445

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					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N2)	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	Set Shield Gas switch to "Pressure"	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		164	0.200	0.6	0.450	0.300	0.2		130	0.4	0.200
-	5/8	0.625	17	150	119	8		164	0.200	0.8	0.450	0.400	0.2		110	0.6	0.200
-	3/4	0.750	17	150	119	8		166	0.200	1.2	0.450	0.400	0.2		90	0.7	0.200
-	1	1.000	17	150	119	8		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		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		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		193	0.300	3.5	0.450	0.500	0.2		25	2.7	0.245
-	***2***	***2.000***	***17***	***150***	***119***	***8***		***201***	***0.300***	***4.0***	***Edge Start***		***0.2***		***17***	***4.0***	***0.245***

			GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N2)	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	Set Shield Gas switch to "Pressure"	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		164	5.1	0.6	11.2	7.6	0.2		3410	0.4	4.7
15			1.2	150	8.2	8		164	5.1	0.7	11.4	9.5	0.2		2930	0.5	5.1
20			1.2	150	8.2	8		167	5.1	1.3	11.4	10.2	0.2		2230	0.7	5.2
25			1.2	150	8.2	8		171	5.1	1.9	11.4	10.2	0.2		1930	1.0	5.8
30			1.2	150	8.2	8		177	6.0	2.4	11.4	11.1	0.2		1260	1.4	5.8
40			1.2	150	8.2	8		187	6.7	3.1	11.4	12.7	0.2		720	2.4	6.1
50			***1.2***	***150***	***8.2***	***8***		***200***	***7.6***	***3.9***	***Edge Start***		***0.2***		***460***	***3.8***	***6.2***

Marking GCM 2010 ONLY **45A 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") / 1.6mm.	(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: Water source used for shield must be demineralized.

Chart is for Customer Settings
Make Copies as Desired

	Flow Rates (SLPM / SCFH)	
	H17	N_2
Preflow		
Cutflow		

			GCM-2010					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)
														Not Recommended without Elevation Height			

		GCM-2010				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)
												Not Recommended without Elevation Height			

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

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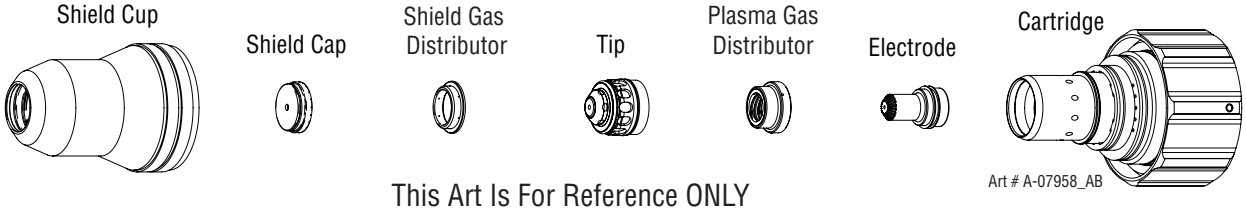
1.03 Straight Cutting Aluminum 30-400 Amp

Aluminum
30A
Air Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)
	Air
Preflow	19 / 40
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					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					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**

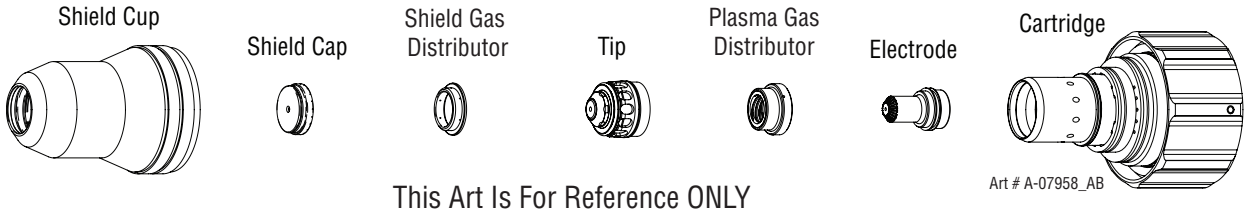
Marking GCM 2010 ONLY	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
16A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for 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.

Aluminum
30A
N_2 Plasma / H_2O Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates	
	N_2 (SLPM / SCFH)	H_2O (GPH / LPH)
Preflow	9 / 19	4 / 15
Cutflow	21 / 44	4 / 15



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					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)
-	-	0.025	96	55	120	4	55	103	0.030	0.0	0.070	0.040	0.4	0.080	230	0.0	0.034
-	-	0.037	96	55	120	4	55	103	0.030	0.1	0.070	0.040	0.4	0.080	220	0.1	0.045
-	-	0.052	96	55	120	4	55	103	0.030	0.2	0.070	0.040	0.4	0.080	150	0.2	0.031
-	**-**	**0.064**	**96**	**55**	**120**	**4**	**55**	**103**	**0.030**	**0.2**	**0.070**	**0.040**	**0.4**	**0.080**	**110**	**0.2**	**0.036**

	GCM-2010					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)
1	6.6	55	8.3	4	3.8	103	0.8	0.1	1.8	1.0	0.4	2.0	5310	0.1	1.1
1.5	6.6	55	8.3	4	3.8	103	0.8	0.2	1.8	1.0	0.4	2.0	3210	0.2	0.9

Marking GCM 2010 ONLY	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	0.6	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

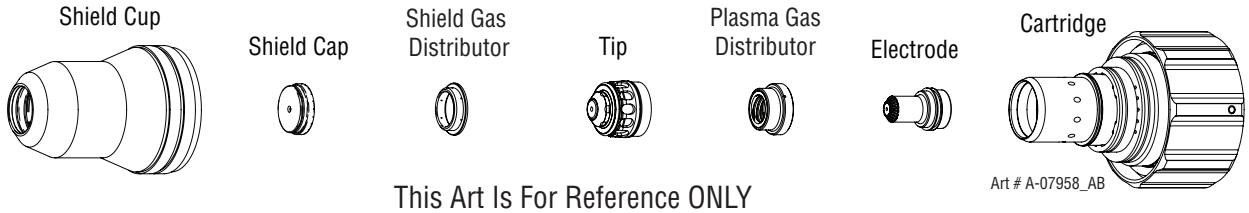
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Water source used for shield must be demineralized.

Aluminum
50A
Air Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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**

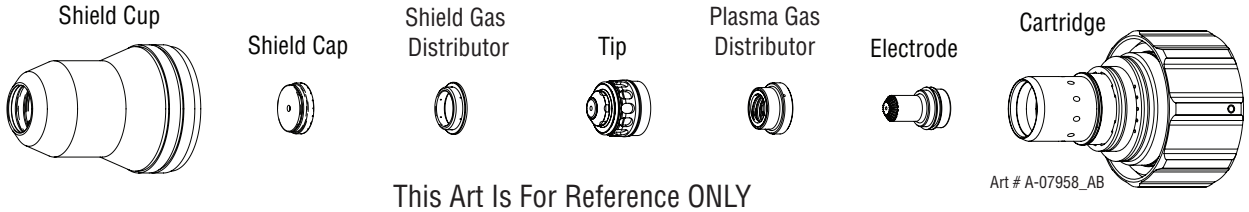
Marking GCM 2010 ONLY **16A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through may happen 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	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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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	22-1180	22-1041	22-1181	22-1020

			GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N2)	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	128	0.110	0.0	0.125	0.120	0.5	0.200	140	0.0	0.045
-	-	0.079	100	60	120	4	55	127	0.110	0.1	0.125	0.120	0.5	0.200	117	0.1	0.045
-	-	0.097	100	60	120	4	55	131	0.110	0.2	0.125	0.120	0.5	0.200	90	0.2	0.046
-	-	0.120	100	60	120	4	55	135	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**	**140**	**0.120**	**0.3**	**0.125**	**0.120**	**0.5**	**0.200**	**40**	**0.3**	**0.051**

	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N2)	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	127	2.8	0.1	3.2	3.0	0.5	5.1	2990	0.1	1.1
2.5	6.9	60	8.3	4	3.8	131	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	135	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	138	2.9	0.3	3.2	3.0	0.5	5.1	1240	0.3	1.3
5	**6.9**	**60**	**8.3**	**4**	**3.8**	**141**	**3.1**	**0.3**	**3.2**	**3.0**	**0.5**	**5.1**	**950**	**0.3**	**1.3**

Marking GCM 2010 ONLY **16A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				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") / 1.6mm.	(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)	
	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.

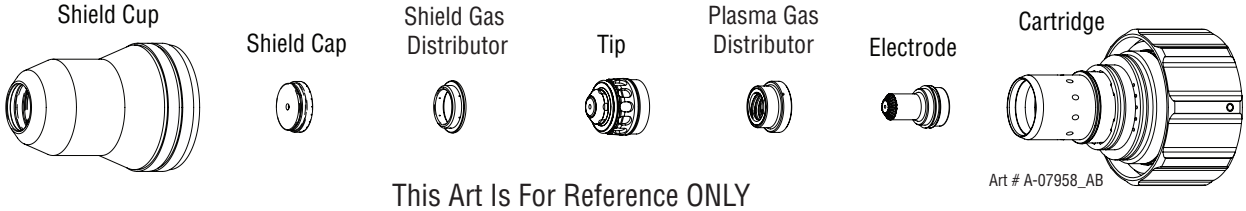
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note1: Water source used for shield must be demineralized.

Aluminum
70A
Air Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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

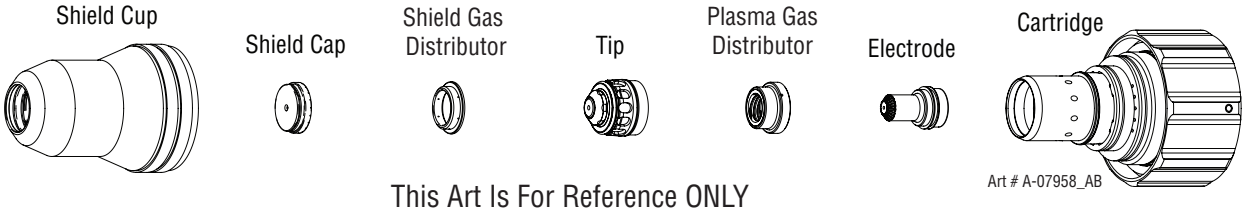
	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max 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 GCM 2010 ONLY **16A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				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	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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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

Material Thickness			GCM-2010					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 (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

Material Thickness	GCM-2010					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 (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

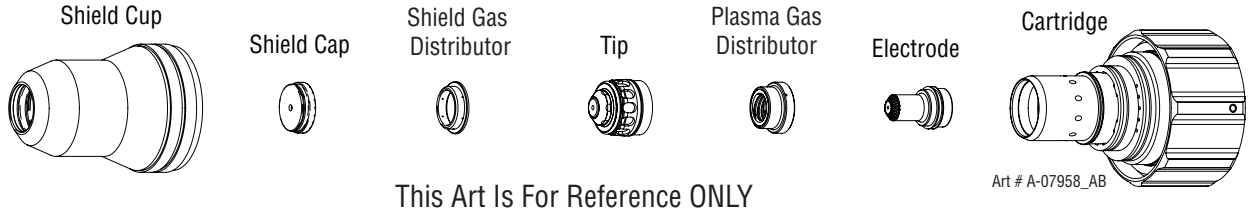
Marking GCM 2010 ONLY **18A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through 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	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: Water source used for shield must be demineralized.

Aluminum
100A
H35 Plasma / N_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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**

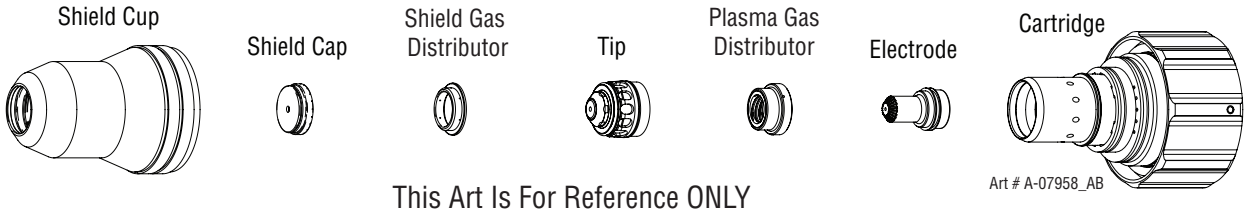
Marking GCM 2010 ONLY	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
18A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through 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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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 GCM 2010 ONLY	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				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.

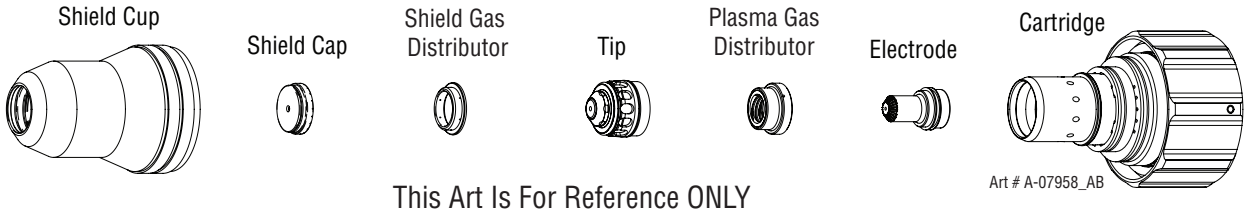
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Water source used for shield must be demineralized.

Aluminum
130A
H35 Plasma / N_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	H35	N_2
Preflow	- / -	43 / 90
Cutflow	45 / 95	26 / 55



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1016	22-1037	22-1288	22-1063	22-1041	22-1081	22-1020

			GCM-2010					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	36	78	120	72	120	156	0.325	0.6	0.25	0.2	0.4	0.45	96	0.4	0.109
-	1/2	0.500	36	72	120	55	120	148	0.325	0.8	0.25	0.2	0.4	0.45	90	0.6	0.097
-	5/8	0.625	36	78	120	72	120	158	0.35	1.1	0.25	0.2	0.4	0.45	65	0.7	0.112
-	3/4	0.750	36	78	120	72	120	166	0.3	1.6	0.25	0.2	0.4	0.45	30	0.8	0.13
-	**7/8**	**0.875**	**36**	**78**	**120**	**72**	**120**	**169**	**0.35**	**2**	**0.25**	**0.2**	**0.4**	**0.45**	**30**	**1.2**	**0.141**
-	***1***	***1.000***	***36***	***78***	***120***	***72***	***120***	***174***	***0.325***	***0.5***	***Edge Start***		***0.4***	***Edge***	***20***	***0.5***	***0.138***
-	***1-1/4***	***1.250***	***36***	***78***	***120***	***72***	***120***	***194***	***0.35***	***0.5***	***Edge Start***		***0.4***	***Edge***	***10***	***0.5***	***0.16***

	GCM-2010					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	2.5	78	8.3	72	8.3	156	8.3	0.6	6.3	5.1	0.4	11.4	2438	0.4	2.8
12	2.5	72	8.3	55	8.3	148	8.3	0.75	6.3	5.1	0.4	11.4	2286	0.6	2.5
15	2.5	78	8.3	72	8.3	155	8.3	1	6.3	5.1	0.4	11.4	1778	0.65	2.8
20	2.5	78	8.3	72	8.3	166	7.6	1.7	6.3	5.1	0.4	11.4	762	0.8	3.6
25	***2.5***	***78***	***8.3***	***72***	***8.3***	***174***	***8.3***	***0.5***	***Edge Start***		***0.4***	***Edge***	***508***	***0.5***	***3.6***
30	***2.5***	***78***	***8.3***	***72***	***8.3***	***190***	***8.9***	***0.5***	***Edge Start***		***0.4***	***Edge***	***381***	***0.5***	***3.6***

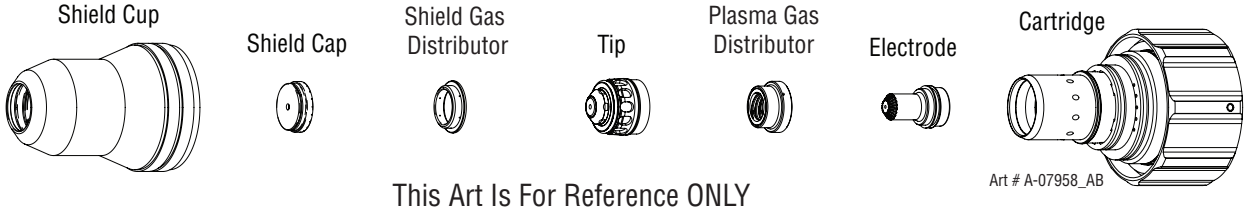
Marking GCM 2010 ONLY	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
19A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through 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	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. ***BOLD ITALIC*** indicates edge starts only.

Aluminum
130A
N_2 Plasma / H_2O Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	N_2 (SLPM/SCFH)	H_2O (GPH / LPH)
Preflow	17 / 35	7.4 / 28
Cutflow	20 / 42	7.4 / 28



This Art Is For Reference ONLY

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
21-1016	21-1028	21-1278	21-1092	21-1041	21-1081	21-1020

			GCM-2010					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	41	80	120	7.4	35	157	0.2	0.3	0.2	0.15	0.4	0.35	150	0.3	0.073
-	1/4	0.250	41	80	120	7.4	35	162	0.25	0.5	0.2	0.15	0.4	0.35	110	0.4	0.08
-	3/8	0.375	41	55	120	7.4	35	146	0.2	0.6	0.2	0.15	0.4	0.35	65	0.4	0.075
-	1/2	0.500	41	55	120	7.4	35	150	0.18	0.6	0.2	0.15	0.4	0.35	55	0.4	0.087
-	5/8	0.625	41	55	120	7.4	35	154	0.18	0.8	0.2	0.15	0.4	0.35	40	0.5	0.09
-	3/4	0.750	41	55	120	7.4	35	156	0.18	1.3	0.2	0.15	0.4	0.35	30	0.8	0.103
-	7/8	0.875	41	80	120	7.4	35	182	0.3	1.8	0.2	0.25	0.4	0.45	28	1.4	0.106
-	**1**	**1.000**	**41**	**80**	**120**	**7.4**	**35**	**185**	**0.3**	**3.2**	**0.2**	**0.25**	**0.4**	**0.45**	**20**	**2.8**	**0.116**
-	***1-1/4***	***1.250***	***41***	***80***	***120***	***7.4***	***35***	***192***	***0.35***	***0.5***	***Edge Start***		***0.4***	***Edge***	***15***	***0.5***	***0.124***
-	***1-1/2***	***1.500***	***41***	***80***	***120***	***7.4***	***35***	***197***	***0.375***	***0.5***	***Edge Start***		***0.4***	***Edge***	***10***	***0.5***	***0.147***

	GCM-2010					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	2.8	80	8.3	7.4	2.4	158	5.1	0.3	5.1	3.8	0.4	8.9	3683	0.3	1.9
6	2.8	80	8.3	7.4	2.4	161	6.3	0.5	5.1	3.8	0.4	8.9	2921	0.4	2.0
8	2.8	80	8.3	7.4	2.4	163	6.3	0.6	5.1	3.8	0.4	8.9	2540	0.4	2.0
10	2.8	55	8.3	7.4	2.4	147	5.1	0.6	5.1	3.8	0.4	8.9	1600	0.4	2.0
12	2.8	55	8.3	7.4	2.4	149	4.6	0.6	5.1	3.8	0.4	8.9	1473	0.4	2.2
15	2.8	55	8.3	7.4	2.4	153	4.6	0.8	5.1	3.8	0.4	8.9	1067	0.5	2.3
20	2.8	55	8.3	7.4	2.4	157	4.6	1.4	5.1	3.8	0.4	8.9	762	0.9	2.6
25	**2.8**	**80**	**8.3**	**7.4**	**2.4**	**185**	**7.6**	**3**	**5.1**	**6.3**	**0.4**	**11.4**	**533**	**2.6**	**2.9**
30	***2.8***	***80***	***8.3***	***7.4***	***2.4***	***190***	***8.9***	***0.5***	***Edge Start***		***0.4***	***Edge***	***432***	***0.5***	***3.1***
35	***2.8***	***80***	***8.3***	***7.4***	***2.4***	***194***	***8.9***	***0.5***	***Edge Start***		***0.4***	***Edge***	***305***	***0.5***	***3.4***

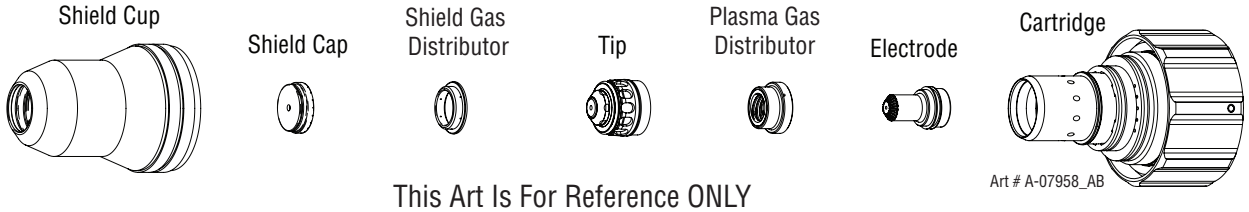
Marking GCM 2010 ONLY	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
19A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through 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	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. ***BOLD ITALIC*** indicates edge starts only.
* Pressure of the water supply line should be regulated by customer pressure regulator.

Aluminum
150A
H35 Plasma / N_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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	9.5	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	7.1	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**

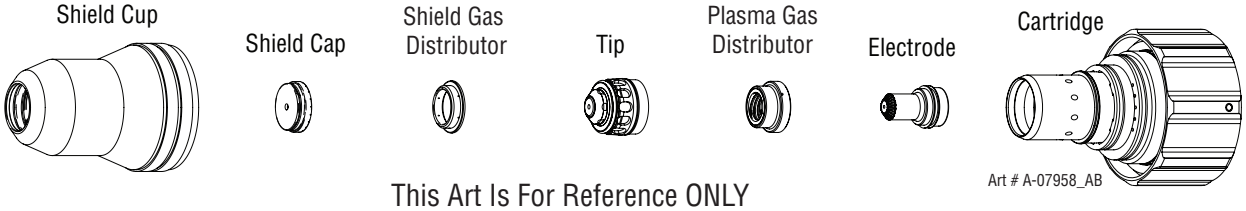
Marking GCM 2010 ONLY	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
19A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through 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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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	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					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 GCM 2010 ONLY	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				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	0.4	300 / 7620	

BOLD TYPE indicates maximum piercing parameters.

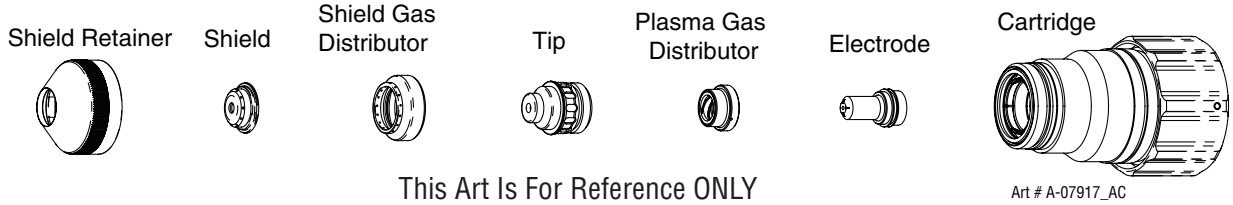
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Water source used for shield must be demineralized.

Aluminum
200A
H35 Plasma / N_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

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



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	< 1" / 25 mm 22-1073 ≥ 1" / 25 mm 22-1094	22-1284	22-1095	22-1042	22-1096	22-1022

Material Thickness			GCM-2010					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)											
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	Set Shield Gas switch to "Pressure"	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		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		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		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		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**		**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***		***110***	***185***	***0.400***	***0.4***	***Edge Start***		***0.2***	***Edge***	***32***	***0.4***	***0.161***
-	***1 1/2***	***1.500***	***20***	***100***	***100***		***110***	***195***	***0.400***	***0.4***	***Edge Start***		***0.2***	***Edge***	***25***	***0.4***	***0.170***
-	***1 3/4***	***1.750***	***20***	***100***	***100***		***110***	***198***	***0.400***	***0.4***	***Edge Start***		***0.2***	***Edge***	***20***	***0.4***	***0.188***
-	***2***	***2.000***	***20***	***100***	***100***		***110***	***201***	***0.400***	***0.4***	***Edge Start***		***0.2***	***Edge***	***15***	***0.4***	***0.205***

Material Thickness	GCM-2010					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)
10	1.4	100	6.9	Set Shield Gas switch to "Pressure"	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		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		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		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**		**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***		***7.6***	***182***	***10.2***	***0.4***	***Edge Start***		***0.2***	***Edge***	***860***	***0.4***	***4.0***
35	***1.4***	***100***	***6.9***		***7.6***	***190***	***10.2***	***0.4***	***Edge Start***		***0.2***	***Edge***	***720***	***0.4***	***4.2***
40	***1.4***	***100***	***6.9***		***7.6***	***196***	***10.2***	***0.4***	***Edge Start***		***0.2***	***Edge***	***600***	***0.4***	***4.5***
50	***1.4***	***100***	***6.9***		***7.6***	***201***	***10.2***	***0.4***	***Edge Start***		***0.2***	***Edge***	***400***	***0.4***	***5.2***

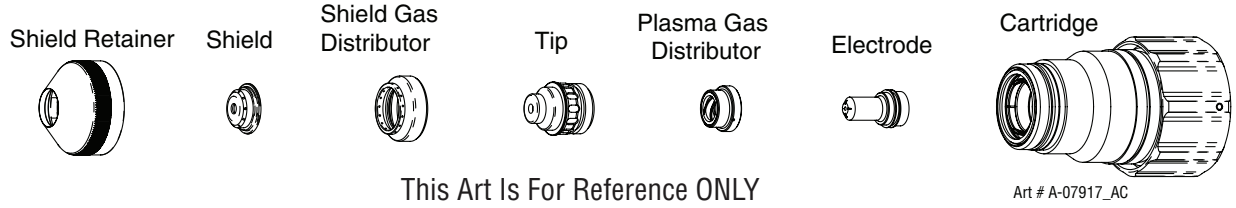
Marking GCM 2010 ONLY **20A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through 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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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 GCM 2010 ONLY **20A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				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	0.4	300 / 7620	

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

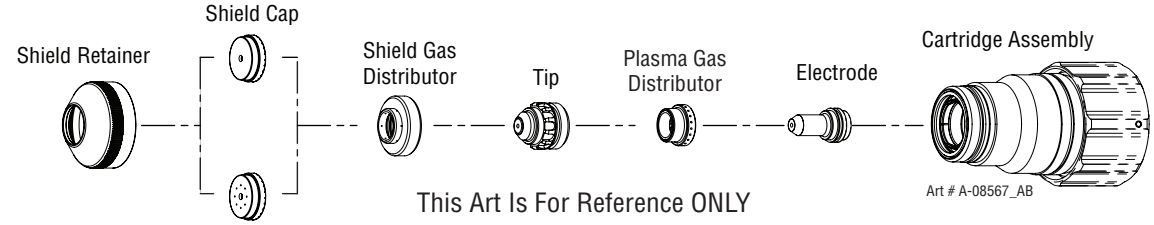
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Water source used for shield must be demineralized.

Aluminum
300A
H35 Plasma / N_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

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



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					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	Set Shield Gas switch to "Pressure"	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		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		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		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		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		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		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**		**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***		***120***	***177***	***0.400***	***1.5***	***Edge Start***		***0.2***	***Edge***	***45***	***1.0***	***0.215***
-	***1 3/4***	***1.750***	***20***	***120***	***100***		***120***	***182***	***0.400***	***0.4***	***Edge Start***		***0.2***	***Edge***	***35***	***0.4***	***0.226***
-	***2***	***2.000***	***20***	***120***	***100***		***120***	***188***	***0.400***	***0.4***	***Edge Start***		***0.2***	***Edge***	***25***	***0.4***	***0.215***

	GCM-2010					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	Set Shield Gas switch to "Pressure"	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		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		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		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		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		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		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**		**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***		***8.3***	***175***	***10.2***	***1.5***	***Edge Start***		***0.2***	***Edge***	***1270***	***1.0***	***5.3***
40	***1.4***	***120***	***6.9***		***8.3***	***178***	***10.2***	***1.2***	***Edge Start***		***0.2***	***Edge***	***1070***	***0.8***	***5.5***
50	***1.4***	***120***	***6.9***		***8.3***	***187***	***10.2***	***0.4***	***Edge Start***		***0.2***	***Edge***	***670***	***0.4***	***5.5***

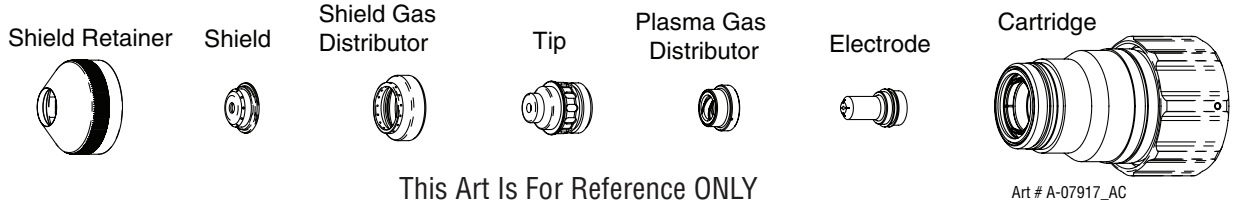
Marking GCM 2010 ONLY **24A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
Burn-through may happen 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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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					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 GCM 2010 ONLY **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	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.

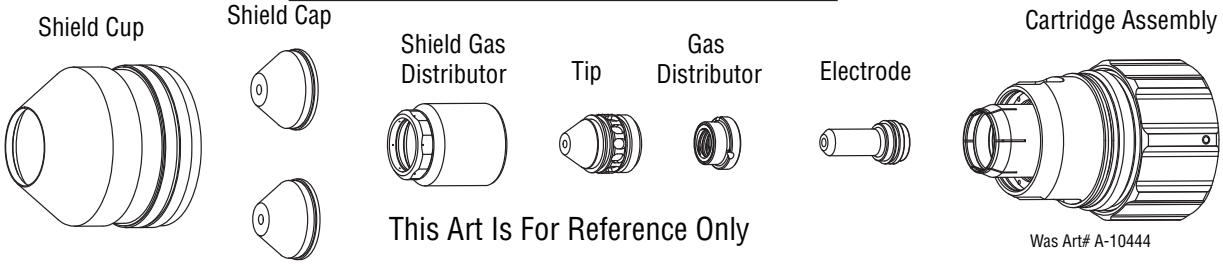
* Pressure of the water supply line should be regulated by customer pressure regulator.

Note 1: Water source used for shield must be demineralized.

Aluminum
400A
H35 Plasma / N_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

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



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					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	Set Shield Gas switch to "Pressure"	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		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		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		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		100	171	0.400	2.2	0.500	0.750	0.2		45	1.8	0.250
-	2	2.000	30	120	100		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**		**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***		***100***	***189***	***0.400***	***3.0***	***Edge Start***		***0.2***		***15***	***3.0***	***0.280***
-	***3***	***3.000***	***30***	***120***	***100***		***100***	***198***	***0.400***	***3.0***	***Edge Start***		***0.2***		***10***	***3.0***	***0.290***
-	***3 1/2***	***3.500***	***30***	***120***	***100***		***100***	***213***	***0.400***	***3.0***	***Edge Start***		***0.2***		***5***	***3.0***	***0.325***

	GCM-2010					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	Set Shield Gas switch to "Pressure"	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		6.9	157	8.9	0.7	11.4	12.5	0.2		2330	0.5	5.6
30	2.1	120	6.9		6.9	161	8.9	0.8	11.4	12.7	0.2		2100	0.6	5.7
35	2.1	120	6.9		6.9	165	9.5	1.1	12.1	16.0	0.2		1770	0.9	5.8
40	2.1	120	6.9		6.9	168	10.2	1.6	12.7	19.1	0.2		1410	1.4	6.1
50	2.1	120	6.9		6.9	174	10.2	3.6	12.7	19.1	0.2		810	3.0	6.6
60	***2.1***	***120***	***6.9***		***6.9***	***187***	***10.2***	***3.0***	***Edge Start***		***0.2***		***420***	***3.0***	***7.0***
70	***2.1***	***120***	***6.9***		***6.9***	***194***	***10.2***	***3.0***	***Edge Start***		***0.2***		***320***	***3.0***	***7.2***
80	***2.1***	***120***	***6.9***		***6.9***	***202***	***10.2***	***3.0***	***Edge Start***		***0.2***		***220***	***3.0***	***7.6***
90	***2.1***	***120***	***6.9***		***6.9***	***214***	***10.2***	***3.0***	***Edge Start***		***0.2***		***120***	***3.0***	***8.3***

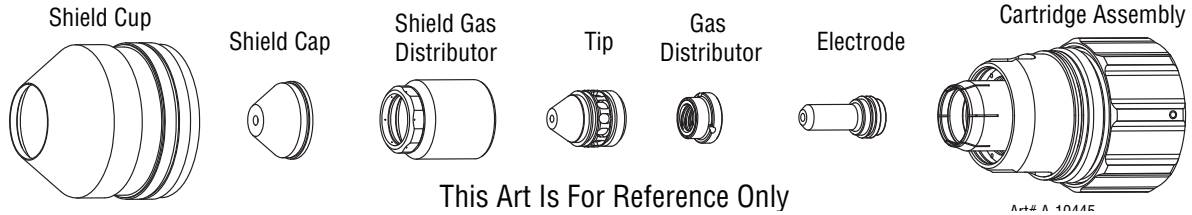
Marking GCM 2010 ONLY	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
50A Arc Current		Plasma (N_2)		Shield (N_2)								
Burn-through may happen for 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	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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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

Art# A 10445

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					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness			Pre Flow Pressure (N2)	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	Set Shield Gas switch to "Pressure"	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		177	0.300	0.7	0.450	0.550	0.2		110	0.5	0.195
-	3/4	0.750	17	150	119	8		180	0.350	0.8	0.450	0.550	0.2		90	0.6	0.195
-	7/8	0.875	17	150	119	8		180	0.350	0.9	0.450	0.550	0.2		75	0.7	0.215
-	1	1.000	17	150	119	8		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		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		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		200	0.420	1.8	0.500	0.600	0.2		40	1.4	0.240
-	2	2.000	17	150	119	8		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**		**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***		***222***	***0.420***	***3.0***	***Edge Start***		***0.2***		***12***	***3.0***	***0.335***

	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (N2)	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	Set Shield Gas switch to "Pressure"	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		175	7.3	0.6	10.7	13.3	0.2		3000	0.4	4.9
20	1.2	150	8.2	8		180	8.9	0.8	11.4	14.0	0.2		2170	0.6	5.1
25	1.2	150	8.2	8		182	8.9	1.2	11.4	14.0	0.2		1790	0.9	5.5
30	1.2	150	8.2	8		188	8.9	1.3	11.4	14.0	0.2		1690	1.0	5.5
35	1.2	150	8.2	8		191	8.9	1.5	11.4	14.0	0.2		1520	1.1	5.5
40	1.2	150	8.2	8		194	9.4	1.7	11.8	14.4	0.2		1280	1.3	5.7
50	**1.2**	**150**	**8.2**	**8**		**210**	**10.7**	**2.4**	**12.7**	**15.2**	**0.2**		**790**	**1.8**	**7.3**
60	***1.2***	***150***	***8.2***	***8***		***218***	***10.7***	***4.0***	***Edge Start***		***0.2***		***420***	***2.6***	***8.3***

Marking GCM 2010 ONLY **45A 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") / 1.6mm.	(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: 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 Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge

		GCM-2010					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)

		GCM-2010					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)

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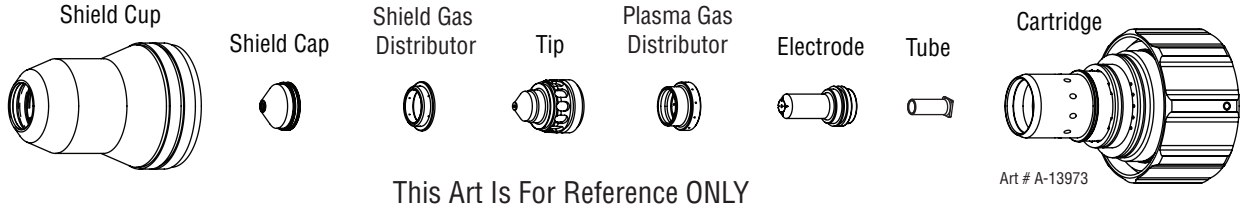
1.04 Bevel Cutting 100 - 400 Amp

Mild Steel
100A Bevel Cut
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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 Tube Extension	Cartridge
22-1016	22-1606	22-1278	22-1600	22-1041	22-1603 9-7921	22-1020

		GCM-2010					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	CNC Motion Delay	Travel Speed	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(sec)		
0.135	0.080	40	55	120	35	120	0.070 - 0.250	0.2	0.125	0.120	0.6	0.200	0.2		
0.188	0.080	40	55	120	35	120	0.090 - 0.250	0.2	0.125	0.120	0.6	0.200	0.2		
0.250	0.080	40	55	120	35	120	0.100 - 0.250	0.3	0.125	0.120	0.5	0.200	0.3		
0.375	0.080	40	55	120	35	120	0.110 - 0.250	0.4	0.150	0.150	0.4	0.250	0.4		
0.500	0.080	40	55	120	40	120	0.120 - 0.250	0.6	0.200	0.150	0.4	0.300	0.6		
0.625	**0.080**	**40**	**55**	**120**	**40**	**120**	**0.120 - 0.250**	**0.8**	**0.250**	**0.200**	**0.4**	**0.350**	**0.8**		
0.750	***0.080***	***40***	***55***	***120***	***40***	***120***	***0.150 - 0.250***	***3.5***	***Edge Start***		***0.4***	***Edge***	***2.0***		

For complete bevel parameters, please refer to manual 0-5554

		GCM-2010					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	CNC Motion Delay	Travel Speed	Max Kerf Width @ Rec. Speed
			Plasma (O_2)		Shield (Air)										
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(sec)		
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	0.2		
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	0.2		
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	0.3		
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	0.4		
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	0.4		
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**	**0.6**		
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**	**0.7**		
20	***2.0***	***2.8***	***55***	***8.3***	***40***	***8.3***	***4.0 - 6.4***	***4.3***	***Edge Start***		***0.4***	***Edge***	***2.4***		

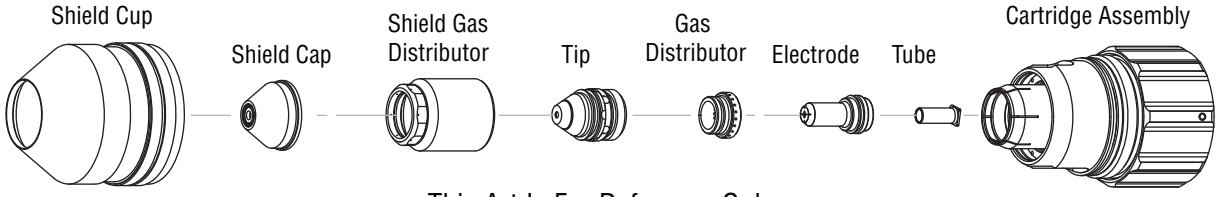
For complete bevel parameters, please refer to manual 0-5554

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

Mild Steel
150A Bevel Cut
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

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



This Art Is For Reference Only

Art# A-10270_AB

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode/Tube	Cartridge
22-1305	22-1607	22-1610	22-1601	22-1041	22-1605 9-7921	22-1300

			Manual Gas Control					Advanced Torch Height Control (THC)					Basic THC	CNC Control		
Material Thickness			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)										
ga	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
-	3/8	0.375	80	62	120	45	120	0.150 - 0.550	0.4	0.200	0.150	0.5	0.300	120	0.4	0.115
-	1/2	0.500	80	62	120	45	120	0.170 - 0.550	0.9	0.200	0.150	0.5	0.300	90	0.6	0.110
-	5/8	0.625	80	62	120	45	120	0.200 - 0.550	1.0	0.250	0.200	0.5	0.350	75	0.6	0.116
-	3/4	0.750	80	62	120	45	120	0.200 - 0.550	1.3	0.250	0.200	0.5	0.350	50	0.8	0.141
-	7/8	0.875	80	62	120	62	120	0.200 - 0.550	1.8	0.250	0.200	0.5	0.350	30	0.8	0.182
-	**1**	**1.000**	**80**	**62**	**120**	**62**	**120**	**0.200 - 0.550**	**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***	***0.200 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***25***	***1.0***	***0.170***
-	***1 1/2***	***1.500***	***80***	***62***	***120***	***62***	***120***	***0.200 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***15***	***1.0***	***0.190***
-	***2***	***2.000***	***80***	***62***	***120***	***62***	***120***	***0.200 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***9***	***1.0***	***0.195***

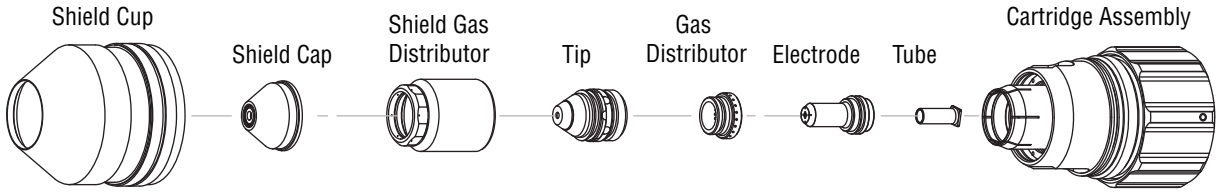
	Manual Gas Control					Advanced Torch Height Control (THC)					Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (Air)										
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
10	5.5	62	8.3	45	8.3	3.6 - 14.0	0.5	5.1	3.8	0.5	7.6	2930	0.4	2.9
12	5.5	62	8.3	45	8.3	3.9 - 14.0	0.8	5.1	3.8	0.5	7.6	2450	0.6	2.8
15	5.5	62	8.3	45	8.3	4.2 - 14.0	1.0	6.0	4.7	0.5	8.5	2010	0.6	2.9
20	5.5	62	8.3	50	8.3	4.9 - 14.0	1.4	6.4	5.1	0.5	8.9	1120	0.8	3.9
25	**5.5**	**62**	**8.3**	**62**	**8.3**	**5.1 - 14.0**	**2.1**	**6.4**	**5.1**	**0.5**	**8.9**	**650**	**1.0**	**4.6**
30	***5.5***	***62***	***8.3***	***62***	***8.3***	***5.1 - 14.0***	***1.0***	***Edge Start***		***0.5***	***Edge***	***710***	***1.0***	***4.2***
35	***5.5***	***62***	***8.3***	***62***	***8.3***	***5.1 - 14.0***	***1.0***	***Edge Start***		***0.5***	***Edge***	***510***	***1.0***	***4.6***
40	***5.5***	***62***	***8.3***	***62***	***8.3***	***5.1 - 14.0***	***1.0***	***Edge Start***		***0.5***	***Edge***	***360***	***1.0***	***4.8***
50	***5.5***	***62***	***8.3***	***62***	***8.3***	***5.1 - 14.0***	***1.0***	***Edge Start***		***0.5***	***Edge***	***240***	***1.0***	***4.9***

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

Mild Steel
200A Bevel Cut
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	162 / 343
Cutflow	42/89	133 / 281



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Art# A-10270_AB

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode Tube Extension	Cartridge
22-1305	22-1608	22-1295	22-1602	22-1042	22-1605 9-7921	22-1300

		GCM-2010					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	Set Shield Gas switch to "Pressure"	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		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		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		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		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		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		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		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**		**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**		**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***		***100***	***0.200 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***15***	***1.0***	***0.203***
2.000	***0.080***	***15***	***100***	***100***		***100***	***0.200 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***10***	***1.0***	***0.204***
2.500	***0.080***	***15***	***100***	***100***		***100***	***0.200 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***8***	***1.0***	***0.210***

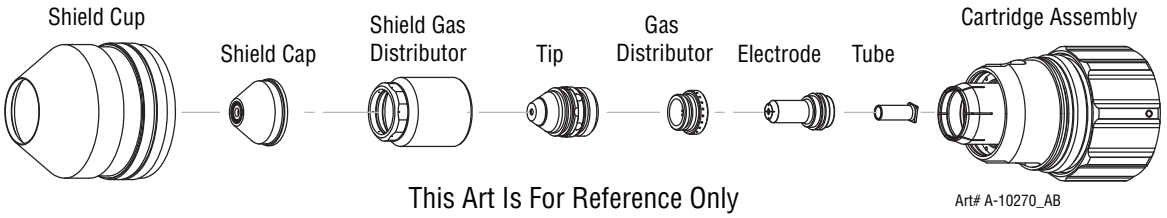
		GCM-2010					Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Effective Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	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	Set Shield Gas switch to "Pressure"	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		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		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		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		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		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		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		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**		**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**		**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***		***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***		***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***		***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.

Mild Steel
300A XTL Bevel Cut
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	194 / 412
Cutflow	27 / 58	160 / 340



This Art Is For Reference Only

Art# A-10270_AB

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	22-1105	22-1295	22-1160	22-1042	22-1308 9-7921	22-1300

		GCM-2010					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	20	100	100	Set Shield Gas switch to "Pressure"	100	0.200 - 0.550	0.3	0.400	0.200	0.5	0.450	140	0.2	0.149
0.625	0.080	20	100	100		100	0.200 - 0.550	0.4	0.400	0.200	0.5	0.450	115	0.3	0.179
0.750	0.080	20	100	100		100	0.200 - 0.550	0.6	0.400	0.200	0.5	0.450	100	0.4	0.185
0.875	0.080	20	100	100		100	0.200 - 0.550	0.8	0.400	0.200	0.5	0.450	85	0.6	0.182
1.000	0.080	20	100	100		100	0.200 - 0.550	1.1	0.400	0.250	0.5	0.450	70	0.9	0.183
1.250	0.080	20	100	100		100	0.200 - 0.550	1.5	0.400	0.300	0.5	0.500	50	1.2	0.193
1.500	0.080	20	100	100		100	0.200 - 0.550	2.9	0.400	0.350	0.5	0.500	35	2.7	0.208
1.750	0.080	20	100	100		100	0.200 - 0.550	5.3	0.400	0.400	0.5	Edge	25	5.2	0.250
2.000	***0.080***	***20***	***100***	***100***		***100***	***0.200 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***18***	***1.0***	***0.245***
2.500	***0.080***	***20***	***100***	***100***		***100***	***0.200 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***10***	***1.0***	***0.416***
3.000	***0.080***	***20***	***100***	***100***		***100***	***0.200 - 0.550***	***1.0***	***Edge Start***		***0.5***	***Edge***	***7***	***1.0***	***0.500***

		GCM-2010					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	1.4	100	6.9	Set Shield Gas switch to "Pressure"	6.9	5.1 - 14	0.3	10.2	5.1	0.5	11.4	3700	0.2	3.6
15	2.0	1.4	100	6.9		6.9	5.1 - 14	0.4	10.2	5.1	0.5	11.4	3100	0.3	4.3
20	2.0	1.4	100	6.9		6.9	5.1 - 14	0.7	10.2	5.1	0.5	11.4	2430	0.5	4.7
25	2.0	1.4	100	6.9		6.9	5.1 - 14	1.1	10.2	6.2	0.5	11.4	1830	0.9	4.6
30	2.0	1.4	100	6.9		6.9	5.1 - 14	1.4	10.2	7.3	0.5	12.4	1410	1.1	4.8
35	2.0	1.4	100	6.9		6.9	5.1 - 14	2.2	10.2	8.3	0.5	12.7	1080	2.0	5.1
40	**2.0**	**1.4**	**100**	**6.9**		**6.9**	**5.1 - 14**	**3.6**	***10.2***		**0.5**	***Edge***	**810**	**3.4**	**5.6**
50	***2.0***	***1.4***	***100***	***6.9***		***6.9***	***5.1 - 14***	***1.0***	***Edge Start***		***0.5***	***Edge***	***470***	***1.0***	***5.9***
60	***2.0***	***1.4***	***100***	***6.9***		***6.9***	***5.1 - 14***	***1.0***	***Edge Start***		***0.5***	***Edge***	***310***	***1.0***	***9.4***
70	***2.0***	***1.4***	***100***	***6.9***		***6.9***	***5.1 - 14***	***1.0***	***Edge Start***		***0.5***	***Edge***	***220***	***1.0***	***11.7***

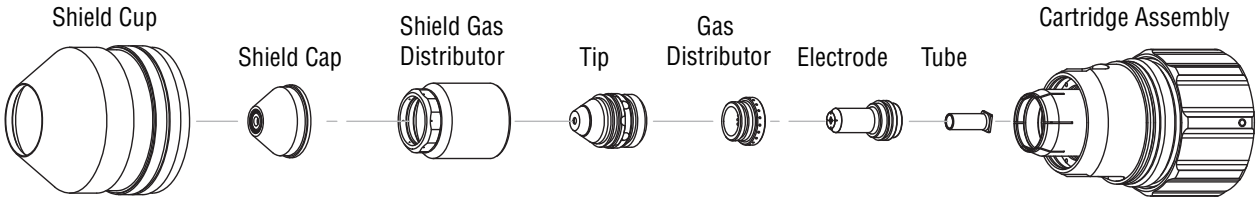
BOLD TYPE indicates maximum piercing parameters. ***BOLD ITALIC*** indicates edge starts only.

Use CCM 4.5.0 or later and Electronic Cut Chart 2.4.0 or later

Mild Steel
400A Bevel Cut
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

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



This Art Is For Reference Only

Art# A-10270_AB

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	22-1304	22-1310	22-1309	22-1042	22-1308 9-7921	22-1300
Quick Pierce Parts Not recommended with manual gas control	22-1312	22-1313				

		GCM-2010					Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures Plasma (O_2)		Shield (Air)		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
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.500	0.080	15	80	90	Set Shield Gas switch to "Pressure"	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					Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures Plasma (O_2)		Shield (Air)		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
(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	Set Shield Gas switch to "Pressure"	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.

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

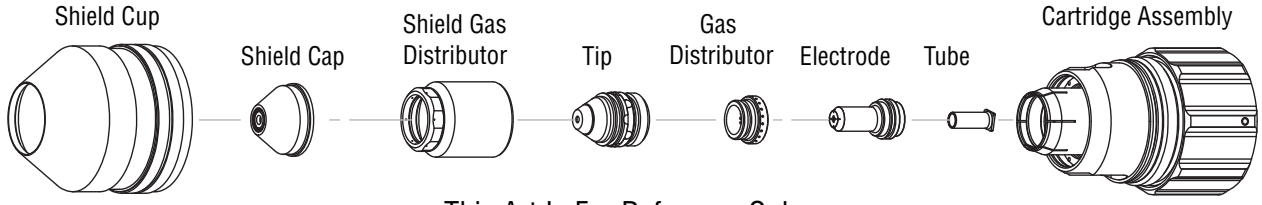
Note 1: Water source used for shield must be demineralized.

THC Pierce Delay values shown are the minimum values. It is recommended that this value should be increased depending on the application.

Mild Steel
400A Bevel Cut
Quick Pierce Parts
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000
NOTE: Using QuickPierce parts with a manual gas control will result in reduced consumable parts life

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



This Art Is For Reference Only

Art# A-10270_AB

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	22-1312	22-1313	22-1309	22-1042	22-1308 9-7921	22-1300

		GCM-2010					Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures Plasma (O_2)		Shield (Air)		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
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(in)	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
1.500	0.080	15	80	90	Set Shield Gas switch to "Pressure"	80	0.200 - 0.600	4.0	0.450	0.600	0.2	Not Recommended without Elevation Height	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					Torch Height Control (THC)					Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures Plasma (O_2)		Shield (Air)		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
(mm)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
30	2.0	1.0	80	6.2	Set Shield Gas switch to "Pressure"	5.5	5.1 - 15.2	1.4	10.2	15.8	0.2	Not Recommended without Elevation Height	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.
* Pressure of the water supply line should be regulated by customer pressure regulator.
Note 1: Water source used for shield must be demineralized.
THC Pierce Delay values shown are the minimum values. It is recommended that this value should be increased depending on the application.

Chart is for Customer Settings
Make Copies as Desired

	Flow Rates	
	O_2 (SLPM / SCFH)	Air (GPH / LPH)
Preflow		
Cutflow		

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

		GCM-2010					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)

		GCM-2010					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)

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

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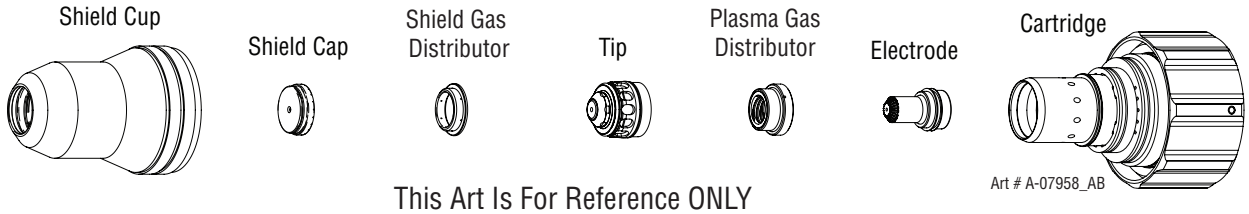
1.05 Underwater Cutting 30 - 400 Amp

Mild Steel Underwater Cutting
100A
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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)
-	1/4	0.250	40	55	120	80	120	141	0.140	0.3	0.125	0.120	0.5	0.200	127	0.3	0.078
-	3/8	0.375	40	55	120	80	120	143	0.150	1.5	0.150	0.150	0.4	0.250	77	0.4	0.085

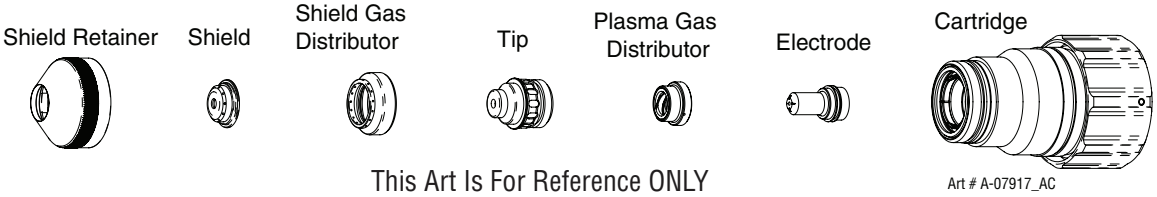
	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max 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)
6	2.8	55	8.3	80	8.3	141	3.6	0.3	3.2	3.0	0.5	5.1	3940	0.3	1.9
8	2.8	55	8.3	80	8.3	143	6.8	1.5	3.5	3.4	0.4	5.7	2960	0.4	2.1

Marking GCM 2010 ONLY **17A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				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	50	40 / 2.8	100	80 / 5.5	144	0.120 / 3.0	0.120 / 3.0	0	0.4	300 / 7620	

Mild Steel Underwater Cutting
200A
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	162 / 343
Cutflow	42 / 89	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	22-1049	22-1284	22-1055	22-1042	22-1075	22-1022

			GCM-2010					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	15	100	100	Set Shield Gas switch to "Pressure"	100	154	0.150	0.3	0.250	0.200	0.5	0.350	119	0.3	0.162
-	1/2	0.500	15	100	100		100	159	0.220	0.7	0.250	0.200	0.5	0.350	98	0.5	0.167
-	5/8	0.625	15	100	100		100	161	0.200	0.9	0.250	0.200	0.5	0.350	68	0.6	0.186
-	3/4	0.750	15	100	100		100	163	0.200	1.3	0.300	0.250	0.5	0.400	55	0.8	0.186
-	7/8	0.875	15	100	100		100	166	0.200	2.5	0.300	0.250	0.5	0.400	48	1.0	0.185

	GCM-2010					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)
8	1.0	100	6.9	Set Shield Gas switch to "Pressure"	6.9	153	3.6	0.3	5.7	4.5	0.5	8.3	3023	0.3	3.9
10	1.0	100	6.9		6.9	155	4.6	0.4	6.4	5.1	0.5	8.9	2489		4.1
12	1.0	100	6.9		6.9	158	4.2	0.6	6.4	5.1	0.5	8.9	1727	0.5	4.2
15	1.0	100	6.9		6.9	160	4.9	0.8	6.4	5.1	0.5	8.9	1397	0.6	4.6
20	1.0	100	6.9		6.9	164	5.1	1.6	7.6	6.4	0.5	10.2	1219	0.9	4.7

Marking GCM 2010 ONLY **25A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures GCM 2010 ONLY				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)	
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm.	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.

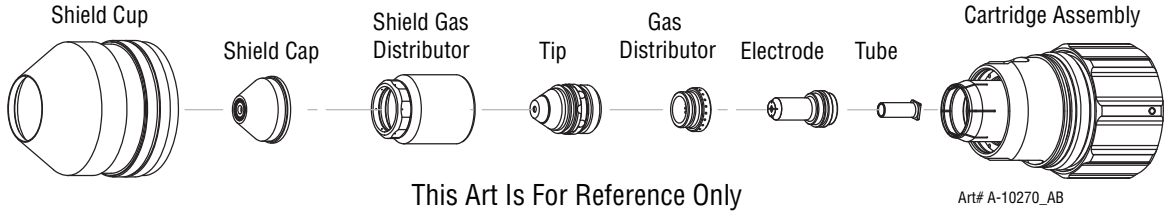
Mild Steel Underwater Cutting

300A XTL

O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	Flow Rates (SLPM / SCFH)	
	O_2	Air
Preflow	- / -	194 / 412
Cutflow	27 / 58	160 / 340



This Art Is For Reference Only

Art# A-10270_AB

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode /Tube	Cartridge
22-1305	22-1501	22-1500	22-1160	22-1042	22-1308 9-7921	22-1300

			GCM-2010					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	20	100	100	Set Shield Gas switch to "Pressure"	100	161	0.240	0.6	0.400	0.200	0.5	0.450	100	0.4	0.179
-	3/4	0.750	20	100	100		100	158	0.200	0.6	0.400	0.200	0.5	0.450	85	0.4	0.185
-	7/8	0.875	20	100	100		100	161	0.200	0.8	0.400	0.200	0.5	0.450	72	0.6	0.182
-	1	1.000	20	100	100		100	164	0.200	1.1	0.400	0.250	0.5	0.450	60	0.9	0.183
-	1 1/4	1.250	20	100	100		100	164	0.200	1.5	0.400	0.300	0.5	0.500	43	1.2	0.193

	GCM-2010					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	1.4	100	6.9	Set Shield Gas switch to "Pressure"	6.9	160	6.1	0.6	10.2	5.1	0.5	11.4	2430	0.4	4.3
20	1.4	100	6.9		6.9	159	5.1	0.7	10.2	5.1	0.5	11.4	2159	0.5	4.7
25	1.4	100	6.9		6.9	164	5.1	1.1	10.2	6.2	0.5	11.4	1829	0.9	4.6
30	1.4	100	6.9		6.9	164	5.1	1.4	10.2	7.3	0.5	12.4	1524	1.1	4.8
35	1.4	100	6.9		6.9	170	5.1	2.2	10.2	8.3	0.5	12.7	1092	2.0	5.1

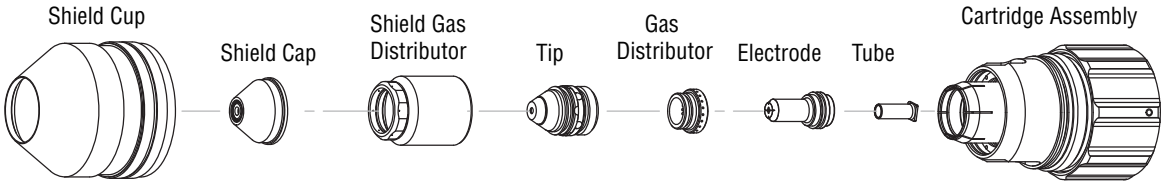
Marking GCM 2010 ONLY **30A Arc Current**	Pre Flow Pressure (N_2)	Marking Flow Rates / Pressures				Arc Voltage	Marking Height	Pierce Ignition Height	THC and CNC Delay	Control Delay	Travel Speed	Marking quality degrades as thickness decreases.
		Plasma (N_2)		Shield (N_2)								
	(psi) / (Bar)	Ball	(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	

Use CCM 4.5.0 or later and Electronic Cut Chart 2.4.0 or later

Mild Steel Underwater Cutting
400A
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

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



This Art Is For Reference Only

Art# A-10270_AB

Shield Cup	Shield Cap	Shield Gas Distributor	Tip	Plasma Gas Distributor	Electrode	Cartridge
22-1305	22-1501	22-1500	22-1309	22-1042	22-1308 9-7921	22-1300

			GCM-2010					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)
-	7/8	0.875	15	80	90	Set Shield Gas switch to "Pressure"	80	159	0.200	0.9	0.400	0.500	0.2	Not Recommended without Elevation Height	85	0.9	0.200
-	1	1.000	15	80	90		80	161	0.200	1.1	0.400	0.550	0.2		68	0.9	0.200
-	1 1/4	1.250	15	80	90		80	162	0.200	2.5	0.400	0.650	0.2		51	1.3	0.220
-	1 1/2	1.500	15	80	90		80	166	0.200	2.5	0.450	0.600	0.2		38	2.5	0.230

	GCM-2010					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)
20	1.0	80	6.2	Set Shield Gas switch to "Pressure"	5.5	155	5.1	0.7	10.2	9.1	0.2	Not Recommended without Elevation Height	2159	0.8	5.3
25	1.0	80	6.2		5.5	161	5.1	1.1	10.2	13.8	0.2		1727	0.9	5.1
30	1.0	80	6.2		5.5	162	5.1	2.5	10.2	15.8	0.2		1295	1.2	5.4
35	1.0	80	6.2		5.5	164	5.1	2.5	10.8	15.9	0.2		965	1.9	5.7

Marking GCM 2010 ONLY **24A Arc Current** Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6mm.	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	50	50 / 3.4	NA	15 / 1.0	110	0.120 / 3.0	0.120 / 3.0	0	0.5	200 / 5080	

THC Pierce Delay values shown are the minimum values. It is recommended that this value should be increased depending on the application.

Chart is for Customer Settings
Make Copies as Desired

	Flow Rates	
	O_2 (SLPM / SCFH)	Air (GPH / LPH)
Preflow		
Cutflow		

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

		GCM-2010					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)

		GCM-2010					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)

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

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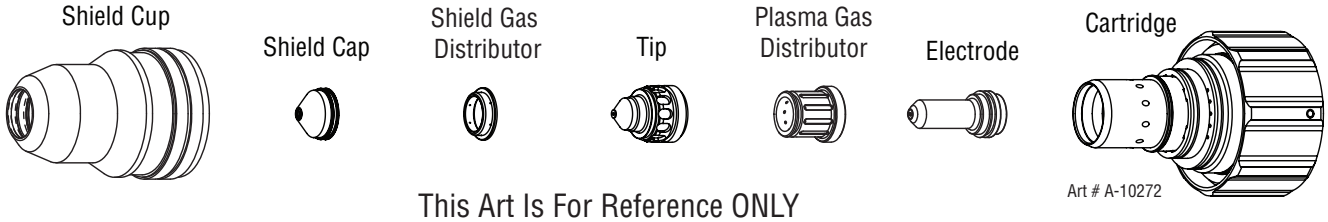
1.06 Robotic Cutting Mild Steel 15 - 100 Amp

Mild Steel
15A Robotic Compatible
O_2 Plasma / O_2 Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					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

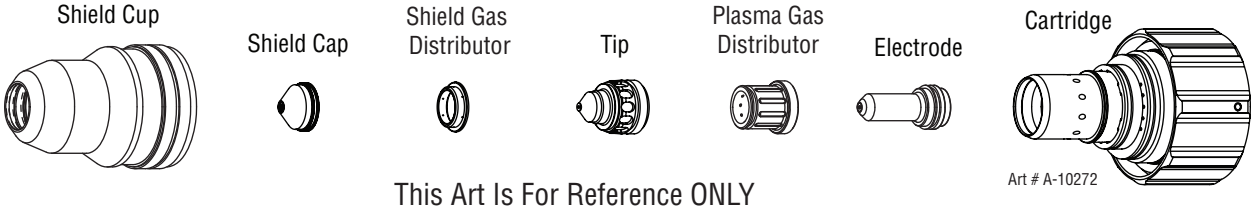
	GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion Delay	Max 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 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

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000



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	22-1401	22-1403	22-1400	22-1020

				GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Cut Current	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)
20A	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
20A	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
30A	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
30A	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
30A	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
30A	-	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
30A	-	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

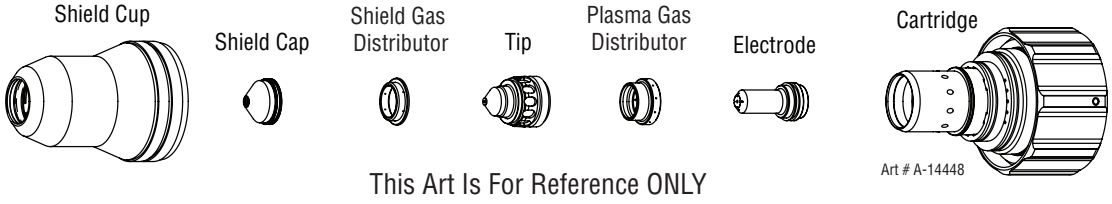
		GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Cut Current	Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Cut Height	THC Pierce Delay	Pierce Ignition Height	Elevation Height	Control Delay	Pierce Height without Elevation	Travel Speed	CNC Motion 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)
20A	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
20A	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
30A	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
30A	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
30A	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
30A	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
30A	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
30A	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 for flat plate, bevel and robotic cutting applications.

Mild Steel
100A Robotic Compatible
O_2 Plasma / Air Shield

NOTE: All gas flow settings are for Manual Gas Box Systems only. For Auto Gas Box Systems refer to the settings on the CNC or the TSC 3000

	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					Torch Height Control (THC)						Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	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)											
inch	(in)	(psi)	Ball	(psi)	Ball	(psi)	(Volts)	(in) +/- 0.005	(sec)	(in)	(in)	(sec)	(in)	(ipm)	(sec)	(in)
0.135	0.080	40	55	120	35	120	138	0.70	0.2	0.125	0.120	0.6	0.200	280	0.2	0.065
0.188	0.080	40	55	120	35	120	140	0.090	0.2	0.125	0.120	0.6	0.200	190	0.2	0.070
0.250	0.080	40	55	120	35	120	141	0.090	0.3	0.125	0.120	0.5	0.200	150	0.3	0.078
0.375	0.080	40	55	120	35	120	143	0.110	0.4	0.150	0.150	0.4	0.250	95	0.4	0.085
0.500	0.080	40	55	120	40	120	147	0.120	0.6	0.200	0.150	0.4	0.300	68	0.6	0.097
0.625	**0.080**	**40**	**55**	**120**	**40**	**120**	**148**	**0.120**	**0.8**	**0.250**	**0.200**	**0.4**	**0.350**	**55**	**0.8**	**0.100**
0.750	***0.080***	***40***	***55***	***120***	***40***	***120***	***157***	***0.150***	***3.5***	***Edge Start***		***0.4***	***Edge***	***25***	***2.0***	***0.125***

		GCM-2010					Torch Height Control (THC)						Basic THC	CNC Control		
Effective Material Thickness	Min. Clearance	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)	(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	(Volts)	(mm)	(sec)	(mm)	(mm)	(sec)	(mm)	(mm/ min)	(sec)	(mm)
4	2.0	2.8	55	8.3	35	8.3	138	1.8	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	140	2.3	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	141	2.3	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	143	2.8	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	147	3.0	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**	**148**	**3.0**	**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***	***157***	***3.8***	***0.7***	***Edge Start***		***0.4***	***8.5***	***1490***	***0.7***	***2.5***

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

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Chart is for Customer Settings
Make Copies as Desired

	Flow Rates	
	O_2 (SLPM / SCFH)	Air (GPH / LPH)
Preflow		
Cutflow		

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

		GCM-2010					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)

		GCM-2010					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)

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

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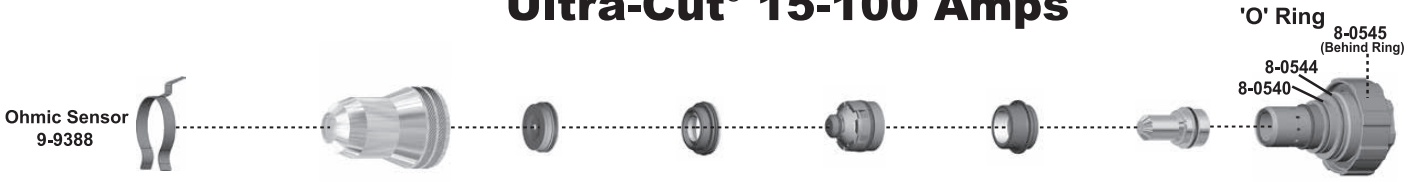
THERMAL DYNAMICS

XT™ High Precision Plasma Torch
Ultra-Cut® 15-100 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
	100A	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	22-1180	22-1041	22-1181	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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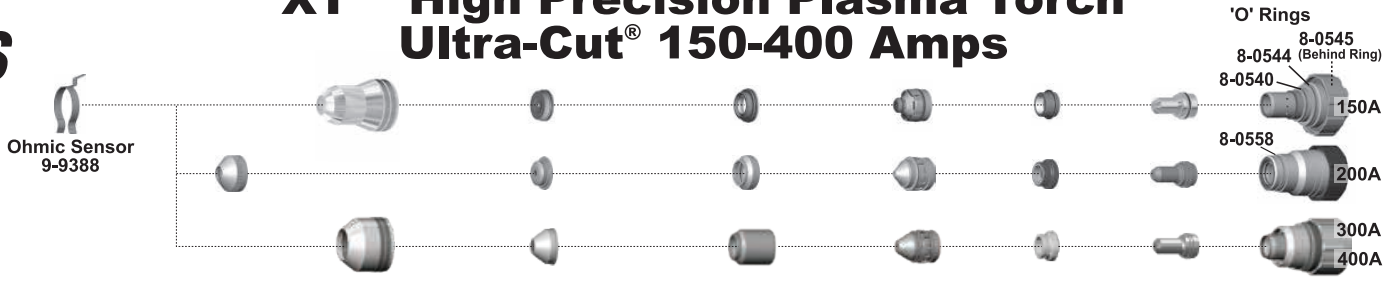
THERMAL DYNAMICS

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" (20mm) 22-1275 (>3/4" (20mm)	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	22-1075	22-1022
	250A	O_2 Plasma / Air Shield	22-1014	22-1017	22-1030	22-1285	22-1056	22-1042	22-1075	22-1022
	300A	O_2 Plasma / Air Shield	———	22-1305	22-1105	22-1295	22-1160	22-1042	22-1308*	22-1300
	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" (25mm) 22-1073 (SS >1" (25mm) 22-1094 (AL >1" (25mm)	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" (25mm) 22-1039 (>1" (25mm)	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" (25mm) 22-1307 (>1" (25mm)	22-1303	22-1302	22-1306	22-1301	22-1300
		N_2 Plasma / H_20 Shield	———	22-1305	22-1501	22-1500	22-1302	22-1043	22-1502	22-1300

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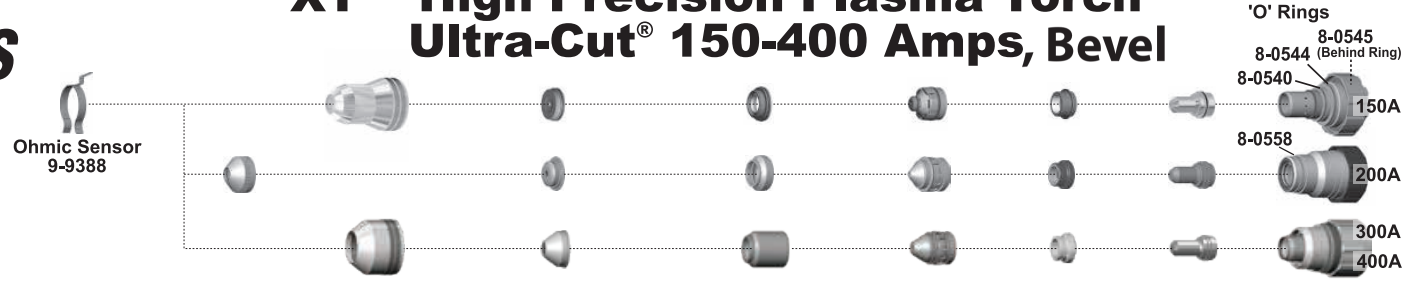
THERMAL DYNAMICS

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



	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" (20mm) 22-1275 (>3/4" (20mm)	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	22-1075	22-1022
	250A	O_2 Plasma / Air Shield	22-1014	22-1017	22-1030	22-1285	22-1056	22-1042	22-1075	22-1022
	300A	O_2 Plasma / Air Shield	———	22-1305	22-1105	22-1295	22-1160	22-1042	22-1308*	22-1300
	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

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Art # A-14051

2.02 Torch Assembly Parts List

Returns

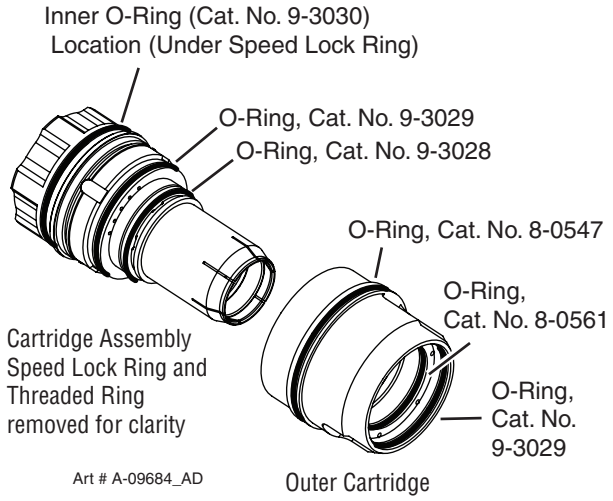
If a product must be returned for service, contact your authorized distributor. Materials returned without proper authorization will not be accepted.

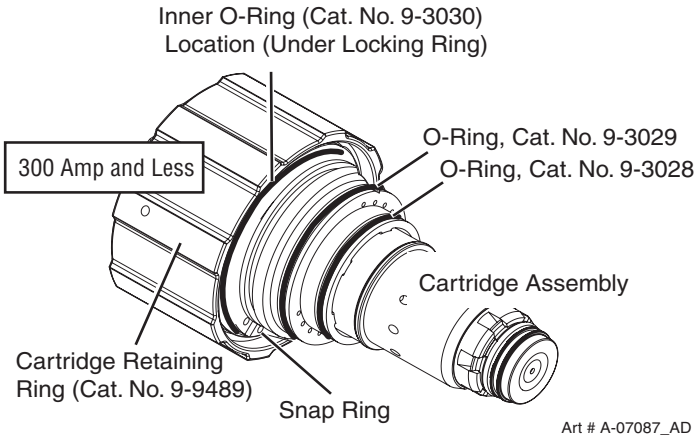
Ordering Information

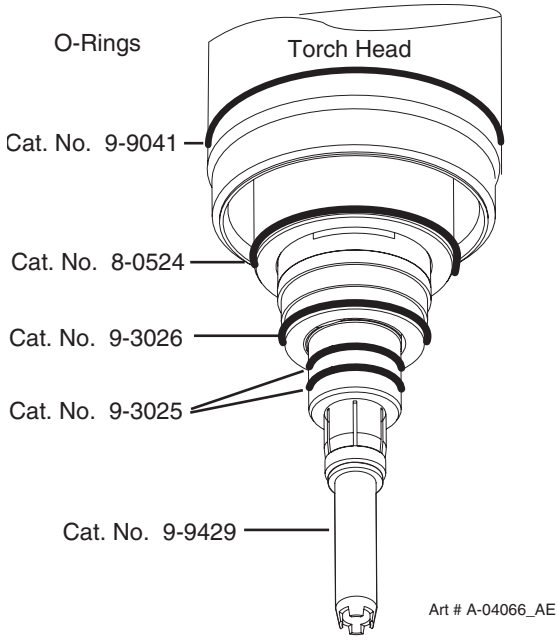
Order replacement parts by catalog number and complete description of the part or assembly. Also include the model and serial number of the machine or torch.

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

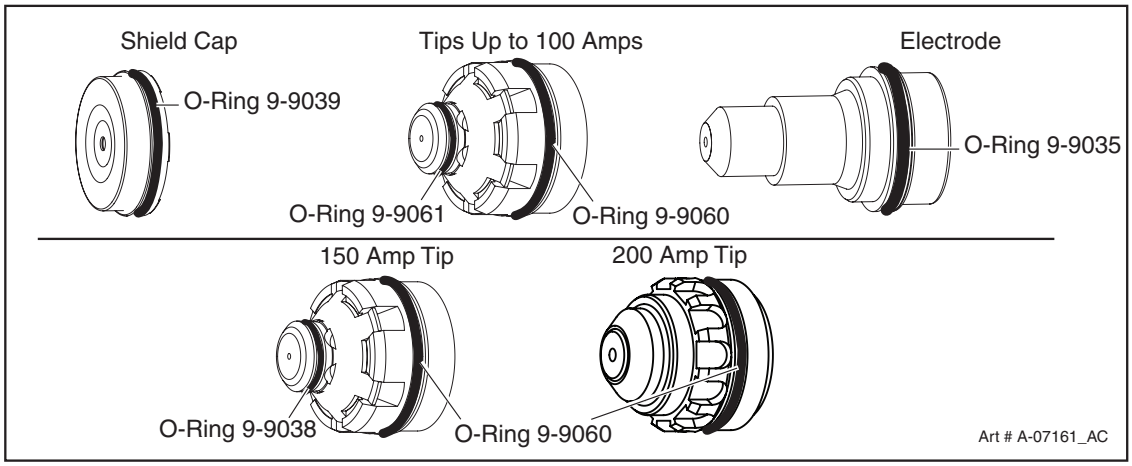
Description	Catalog Number
O-Ring Lubricant (Christo-Lube MCG-129)	9-4893
Torch Head and Cartridge O-Ring Kit	9-9488
Shield Cup (up to 150A)	22-1016
Shield Cup (200A - 300A)	22-1017
Shield Cup (400A)	22-1305
Torch Cartridge (includes Cartridge Tool) (up to 150A)	22-1020
Torch Cartridge (includes Cartridge Tool) (200A - 300A)	22-1022
Torch Cartridge (400A Only)	22-1300
Cartridge Tool	9-9431
Cartridge Retaining Ring	9-9489



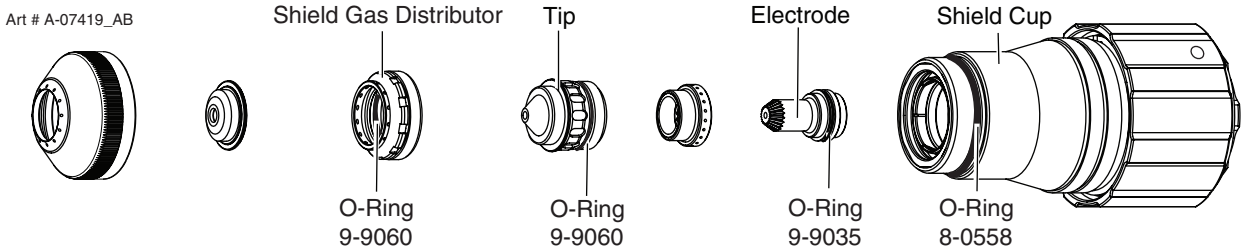




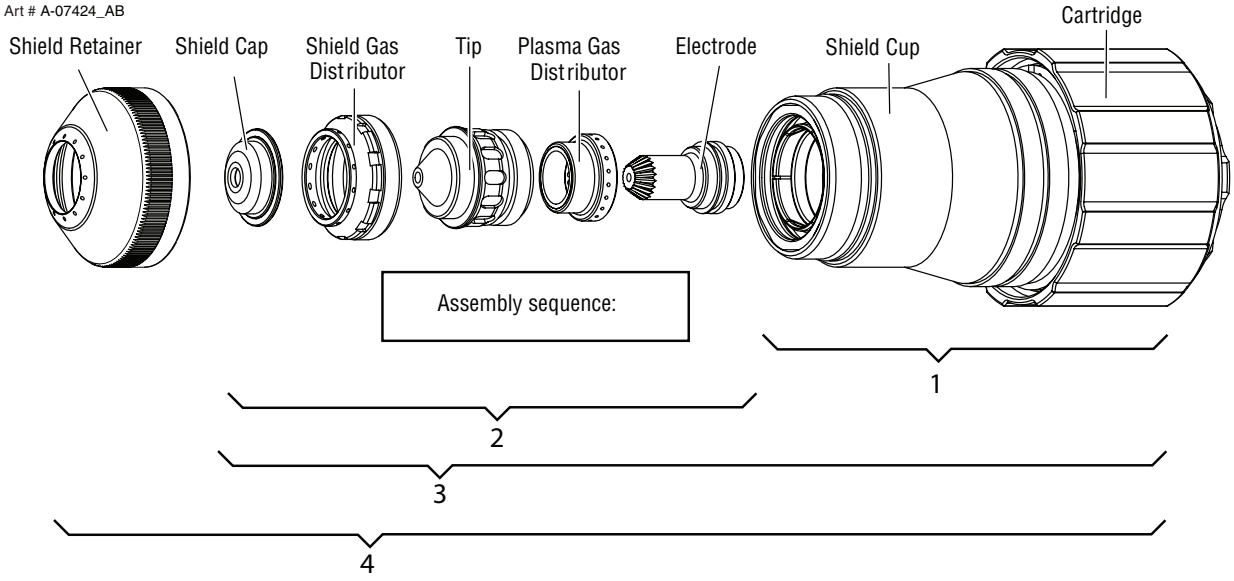
Consumables O-Rings (up to 150 Amps)



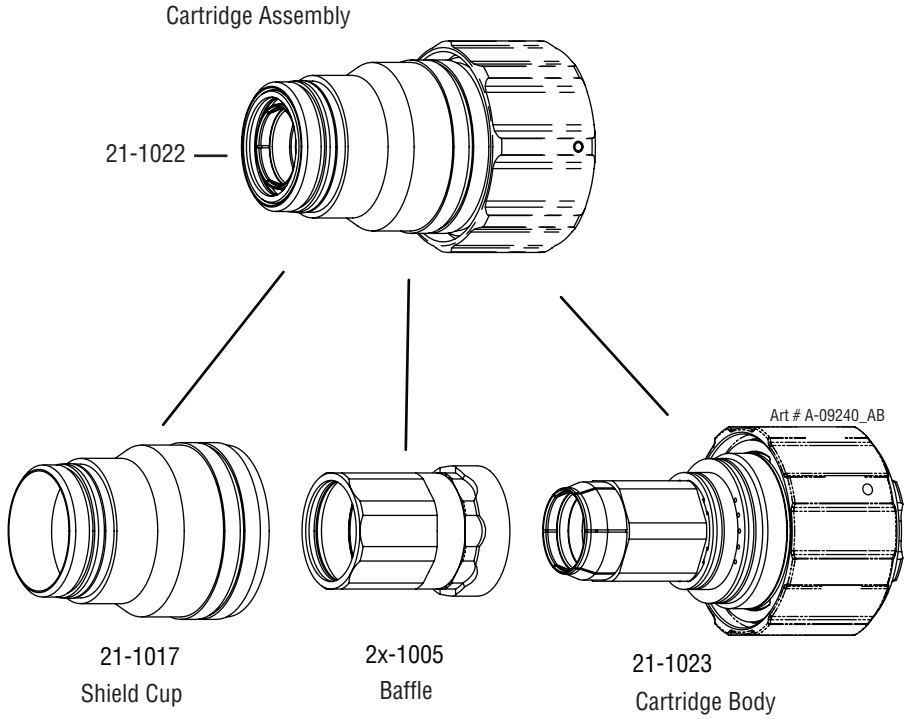
Consumables O-Rings (300 Amps)



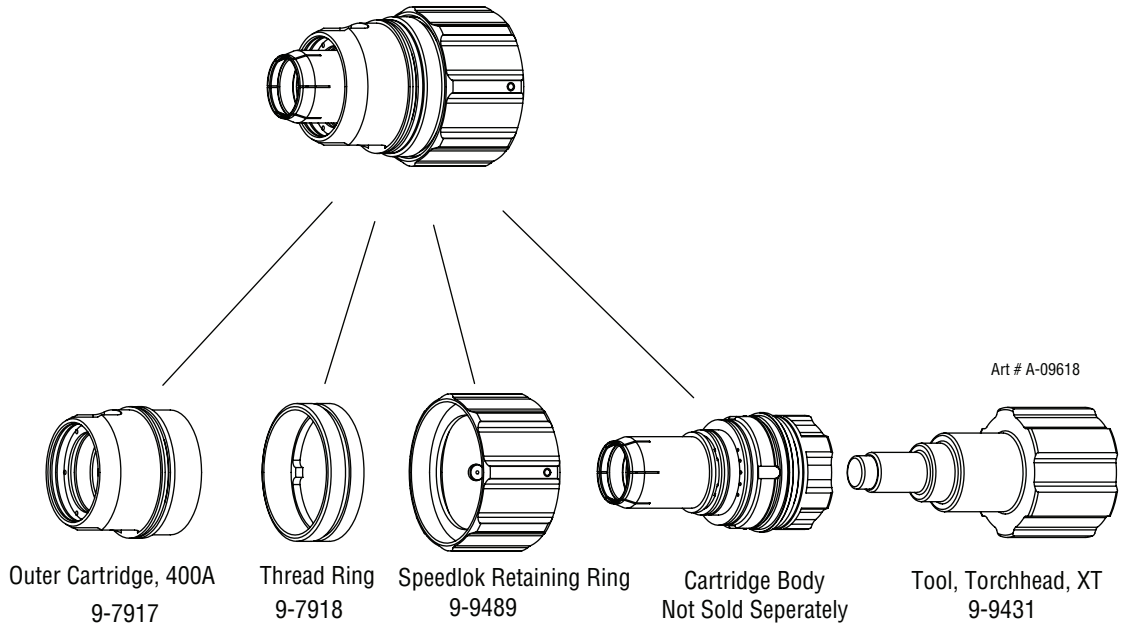
Assembly Sequence, 200/300 Amp Consumables



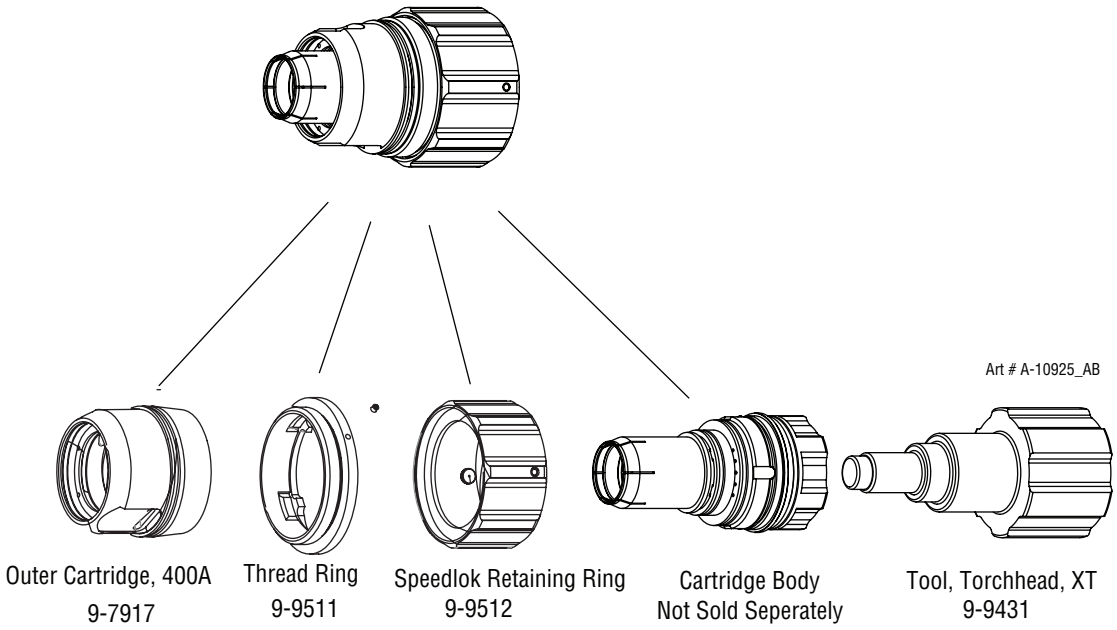
Cartridge Assembly (22-1022) Consumables



Older Cartridge Assembly 400 Amp (22-1300) Consumables



Cartridge Assembly 400 Amp (22-1300) Consumables



Assembly Procedure

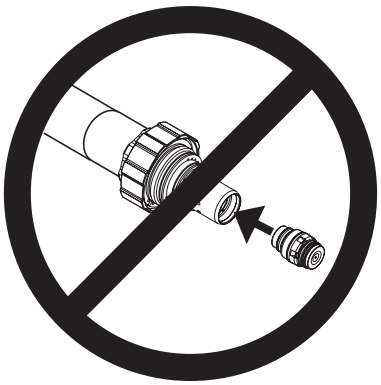
400A Cartridge is assembled in the following steps:

1. Insert the cartridge body into the speedlok retaining ring (9-9512). Note the orientation of the brass buttons/pins.
2. Insert the above two parts into the thread ring (9-9511), which includes a set screw, making sure to align the four tabs with the slots in the Cartridge Body.
3. Thread the Outer Cartridge (9-7917) onto the Cartridge Body and tighten using the Torchhead Tool (9-9431).
4. Use 1.3mm Allen Wrench/hex key to insert and secure the M2.5x3mm Cup Point set screw in a clockwise direction.

Consumable Assembly Video Links

15-150A MS, 30-300 SS and AL	https://www.youtube.com/watch?v=JLkgjJ8F5eE
200A MS	https://www.youtube.com/watch?v=kgi_qf6a9i0
300/400 A MS, 150A/200A bevel parts	https://www.youtube.com/watch?v=5Se_YOX3DGM

2.03 Torch Consumables Installation

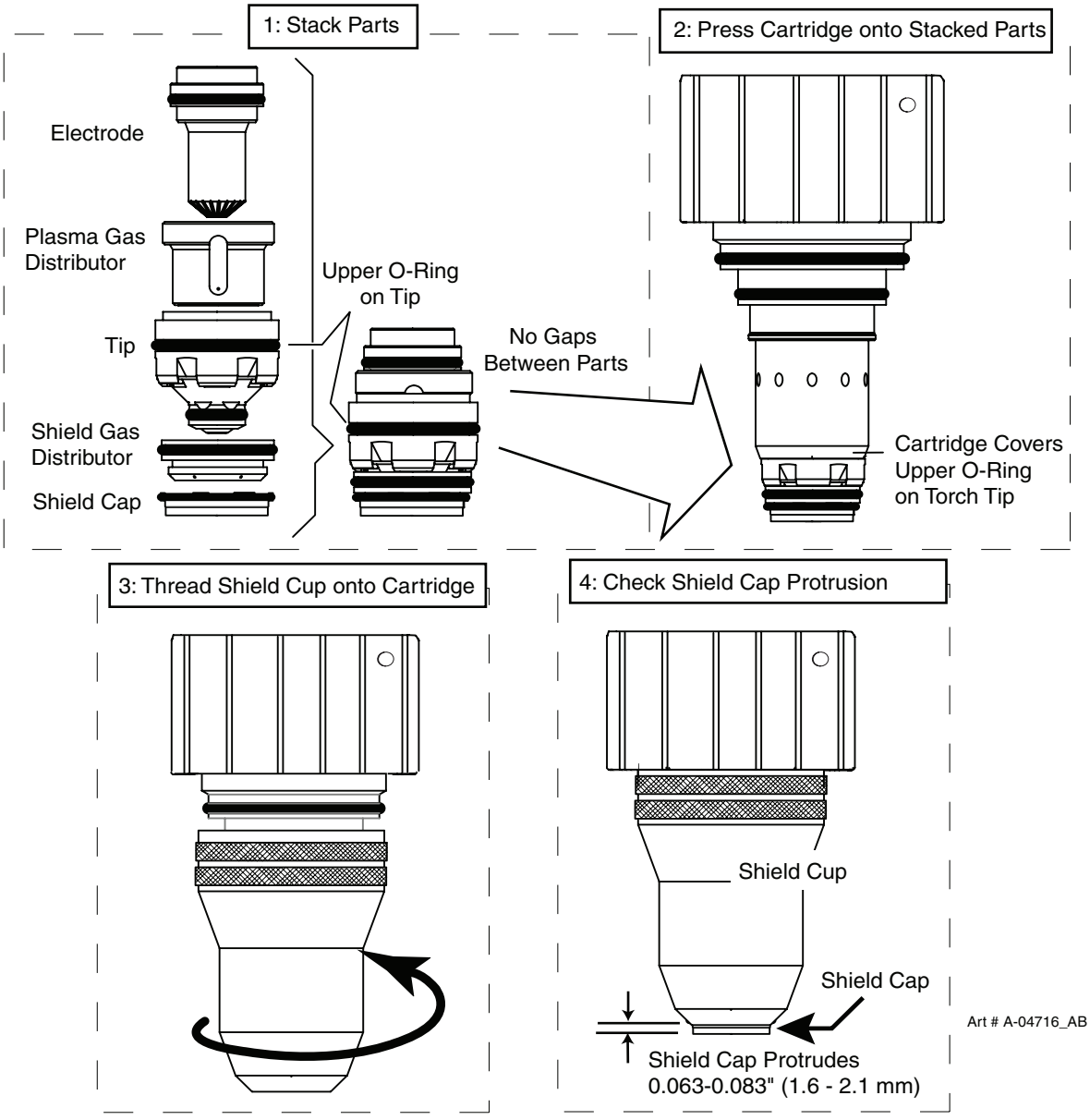


WARNINGS

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.

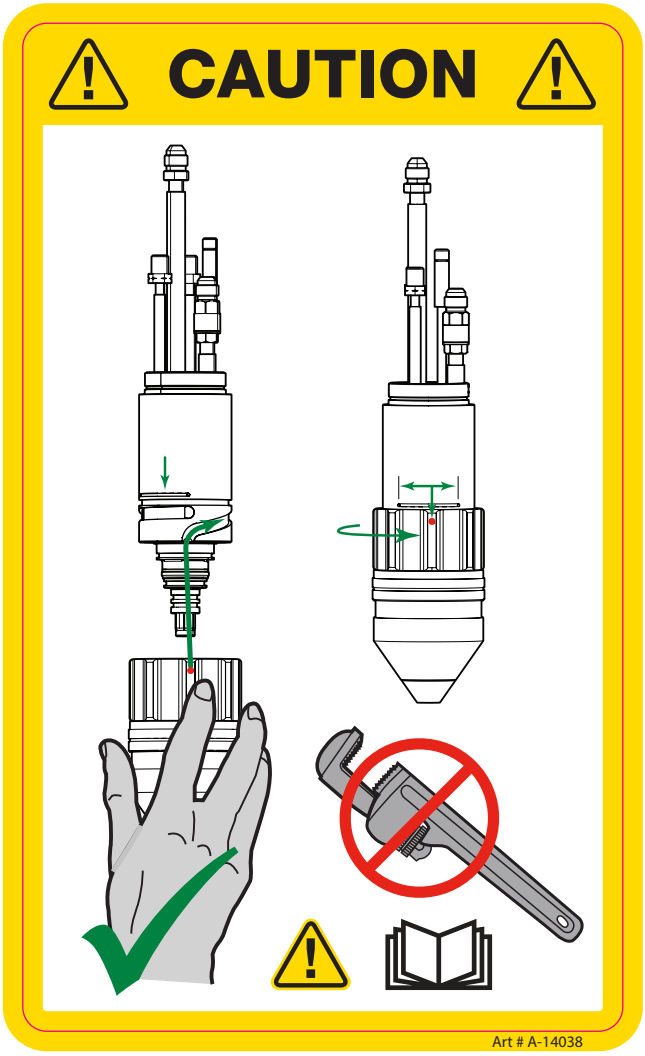
Art # A-03887

1. Install the consumables as follows:

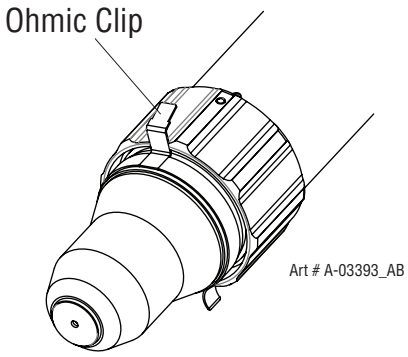


2. Remove the Removal Tool from the Cartridge and install the assembled Cartridge onto the Torch Head.

3. Align and install the torch cartridge onto the torch body. Turn the locking collar by hand only stopping anywhere within the length of that slot.



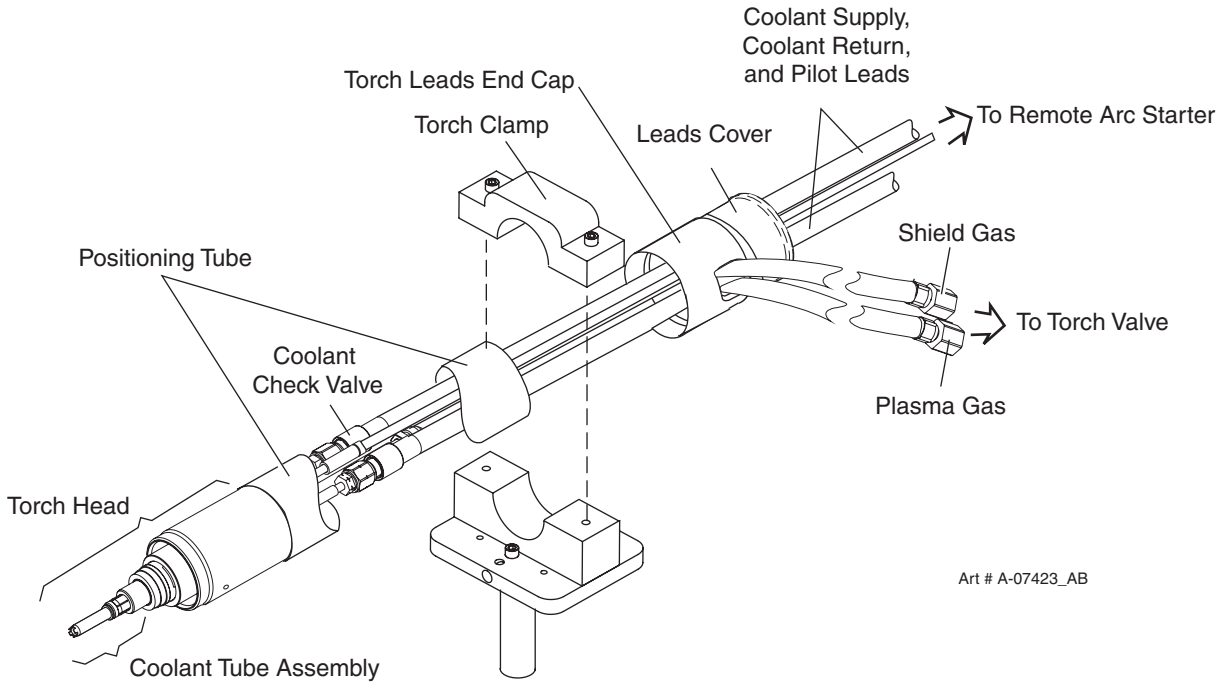
4. Slide the ohmic clip over the shield cup if using ohmic torch height control sensing.



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

Torch Replacement Parts

Description	Catalog Number
Torch Head Components	
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)	9-4847
Plasma & Shield Leads Assembly (to Torch Valve)	4-3026
Ohmic Clip (not shown)	9-9388
Coolant Tube Assembly	9-9429



3.01 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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STATEMENT OF WARRANTY

LIMITED WARRANTY: Thermal Dynamics® Corporation (hereinafter "Thermal") warrants that its products will be free of defects in workmanship or material. Should any failure to conform to this warranty appear within the time period applicable to the Thermal products as stated below, Thermal shall, upon notification thereof and substantiation that the product has been stored, installed, operated, and maintained in accordance with Thermal's specifications, instructions, recommendations and recognized standard industry practice, and not subject to misuse, repair, neglect, alteration, or accident, correct such defects by suitable repair or replacement, at Thermal's sole option, of any components or parts of the product determined by Thermal to be defective.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

LIMITATION OF LIABILITY: Thermal shall not under any circumstances be liable for special or consequential damages, such as, but not limited to, damage or loss of purchased or replacement goods, or claims of customers of distributor (hereinafter "Purchaser") for service interruption. The remedies of the Purchaser set forth herein are exclusive and the liability of Thermal with respect to any contract, or anything done in connection therewith such as the performance or breach thereof, or from the manufacture, sale, delivery, resale, or use of any goods covered by or furnished by Thermal whether arising out of contract, negligence, strict tort, or under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the goods upon which such liability is based.

THIS WARRANTY BECOMES INVALID IF REPLACEMENT PARTS OR ACCESSORIES ARE USED WHICH MAY IMPAIR THE SAFETY OR PERFORMANCE OF ANY THERMAL PRODUCT.

THIS WARRANTY IS INVALID IF THE PRODUCT IS SOLD BY NON-AUTHORIZED PERSONS.

The limited warranty periods for this product shall be: A maximum of three (3) years from date of sale to an authorized distributor and a maximum of two (2) years from date of sale by such distributor to the Purchaser, and with further limitations on such two (2) year period (see chart below).

	Parts	**Labor**
Auto-Cut XT™ and Ultra-Cut XT™ Power Supplies and Components	2 Years	1 Year
Torch And Leads		
XT™300 / XT™-301 Torch (Excluding Consumable Parts)	1 Year	1 Year
Repair/Replacement Parts	90 Days	90 Days

Warranty repairs or replacement claims under this limited warranty must be submitted by an authorized Thermal Dynamics® repair facility within thirty (30) days of the repair. No transportation costs of any kind will be paid under this warranty. Transportation charges to send products to an authorized warranty repair facility shall be the responsibility of the customer. All returned goods shall be at the customer's risk and expense. This warranty supersedes all previous Thermal warranties.

Effective October 23, 2012

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