Magnum® PRO

Cut Charts for LC300M Plasma Torches

Standard Torch
Quick-Disconnect Torch

Always use genuine Lincoln Electric consumables.

Authorized Service and Distributor Locator:
www.lincolnelectric.com/locator

Save for future reference

Date Purchased:

Code / Part Number: (ex: 10859)

Serial Number: (ex: U1060512345)

BK8053-000108 Rev C.7 : Issued 07/26/2024

THE LINCOLN ELECTRIC COMPANY
22801 St. Clair Avenue ● Cleveland, OH ● 44117-1199 ● U.S.A.
Phone: +1.216.481.8100 ● www.lincolnelectric.com

Revision History

Rev	Description of Change
C.3	Updated Transfer Height description. Changed AL 170A AIR/H2O cutting: cut height, pierce time. Changed AL 200A AIR/H2O cutting: plasma pressure, postflow pressure, cut height, pierce height, pierce time, nozzle, swirl ring. Changed AL 300A AIR/H2O cutting: cut height, pierce height, pierce time, swirl ring, now edge start @ 1 ¼", 30mm, 35mm.
C.5-C.6	No changes; synchronized revision of this document to FineLine UI cut charts.
C.7	Moved H2O Shield cut charts to APC Manual. Added note to cut quality table. 300A Mild Steel parameters updated for 2" and 50mm.

Trademark Notice

Table of Contents

BLANK

1.0 Safety Warnings

⚠ WARNING

1.1 General Precautions

Whereas plasma cutting has been used safely for years, it does require certain precautions to ensure the safety of the operator and other people around the equipment. The following safety information must be provided to each person who will operate, observe, perform maintenance, or work in close proximity to this piece of equipment. Always wear appropriate personal protective equipment (PPE).

Installation, operation, and repairs made to this System should only be performed by qualified personnel. The System makes use of both A.C. and D.C. circuitry for operation. Fatal shock hazard does exist. Exercise extreme caution while working on the System.

1.2 California Proposition 65

This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code § 25249.5 et seq.)

WARNING: Cancer and Reproductive Harm
www.P65warnings.ca.gov

1.3 Ultraviolet Radiation Protection

Plasma cutting produces ultraviolet radiation similar to a welding arc. This ultraviolet radiation can cause skin and eye burns. For this reason, it is essential that proper protection be worn. The eyes are best protected by using safety glasses or a welding helmet with an AWS No. 12 shade or ISO 4850 No. 13 shade, which provides protection up to 400 amperes. All exposed skin areas should be covered with flame-retardant clothing. The cutting area should also be prepared in such a way that ultraviolet light does not reflect. Walls and other surfaces should be painted with dark colors to reduce reflected light. Protective screens or curtains should be installed to protect additional workers in the area from ultraviolet radiation.

1.4 Fire Prevention

When using this System, it is necessary to exercise good judgment. While cutting, the arc produces sparks that could cause a fire if they fall on flammable materials. Make sure that all flammable materials are a suitable distance away from the cutting area. All flammable liquids should be at least 40 feet away from the cutting area, preferably stored in a metal cabinet. Plasma cutting should never be attempted on containers that contain flammable materials. Make sure that fire extinguishers are readily accessible in the cutting area.

Make sure that the cutting area is properly ventilated when using oxygen as a cutting gas.

⚠ WARNING

1.5 Noise Protection

The System generates high noise levels while cutting. Depending on the size of the cutting area, distance from the cutting torch, and arc current cutting level, acceptable noise levels may be exceeded. Proper ear protection should be used as defined by local or national codes. Refer to the Plasma System Operator's Manual for noise emission levels.

1.6 Toxic Fume Prevention

Care should be taken to ensure adequate ventilation in the cutting area. Some materials give off toxic fumes that can be harmful or fatal to people in the vicinity of the cutting area. Also, some solvents decompose and form harmful gases when exposed to ultraviolet radiation. These solvents should be removed from the area prior to cutting.

Galvanized metal can produce harmful gases during the cutting process. Ensure proper ventilation and use breathing equipment when cutting these materials.

Certain metals coated with or containing lead, cadmium, zinc, beryllium, and mercury produce harmful toxins. Do not cut these metals unless all people subjected to the fumes wear proper air breathing equipment.

1.7 Health Support Equipment

The System creates electric and magnetic fields that may interfere with certain types of health support equipment, such as pacemakers. Any person who uses a pacemaker or similar item should consult a doctor before operating, observing, maintaining, or servicing the System. Observe the following guidelines to minimize exposure to these electric and magnetic fields:

- Stay as far away from the Power Supply, torch, torch leads, and arc start console as possible.
- Route the torch leads as close as possible to the work ground cable.
- Never place your body between the torch leads and work ground cable. Keep the work ground cable and the torch leads on the same side of your body.
- Never stand in the center of a coiled up set of torch leads or work ground cable.

⚠ WARNING

1.8 Electric Shock Prevention

The System uses high open circuit voltages that can be fatal. Extreme care should be used when operating or performing maintenance on the System. Only qualified personnel should service the System. Observe the following guidelines to protect against electric shock:

- A wall-mounted disconnect switch should be installed and fused according to local and national electrical codes. The disconnect switch should be located as close as possible to the Power Supply so it can be turned off in case of an emergency.
- The primary power cord should have a 600 volt minimum rating in order to protect the operator. In addition, it should be sized according to local and national electrical codes. Inspect the primary power cord frequently. Never operate the System if the power cord is damaged in any way.
- Make sure the primary power ground wire is connected to the input power ground stud on the Power Supply. Make sure the connection is securely tightened.
- Make sure the positive output (work ground) of the Power Supply is connected to a bare metal area on the cutting table. A driven ground rod should be placed no further than five feet from this connection. Make sure this ground point on the cutting table is used as the star ground point for all other ground connections.
- Inspect the torch leads frequently. Never use the System if the leads are damaged in any way.
- Do not stand in wet, damp areas when operating or performing maintenance on the System.
- Wear insulated gloves and shoes while operating or performing maintenance on the System.
- Make sure the System is switched off at the wall disconnect before servicing the Power Supply or torch.
- Never change torch consumable parts unless the System is switched off at the wall disconnect.
- Do not attempt to remove any parts from beneath the torch when cutting. Remember that the workpiece forms the current path back to the Power Supply.
- Never bypass the safety interlock devices.
- Before removing any of the covers, switch the System off at the wall disconnect. Wait at least five (5) minutes before removing any cover. This will give the capacitors inside the unit time to discharge.
- Never operate the System without all of the covers in place.
- Preventive maintenance should be performed daily to avoid possible safety hazards.

⚠ WARNING

1.9 Explosion Prevention

The System uses compressed gases. Use proper techniques when handling compressed gas cylinders and other compressed gas equipment. Observe the following guidelines to protect against explosion:

- Never operate the System in the presence of explosive gases or other explosive materials.
- Never cut pressurized cylinders or any closed container.
- When using a water table and cutting aluminum under water or with water touching the underside of the aluminum plate, hydrogen gas is produced. This hydrogen gas may collect under the plate and explode during the cutting process. Make sure the water table is properly aerated to help prevent the accumulation of hydrogen gas.
- Handle all gas cylinders in accordance with safety standards published by the U.S. Compressed Gas Association (CGA), American Welding Society (AWS), Canadian Standards Association (CSA), or other local or national codes.
- Compressed gas cylinders should be maintained properly. Never attempt to use a cylinder that is leaking, cracked, or has other signs of physical damage.
- All gas cylinders should be secured to a wall or rack to prevent accidental knock over.
- If a compressed gas cylinder is not being used, replace the protective valve cover.
- Never attempt to repair compressed gas cylinders.
- Keep compressed gas cylinders away from intense heat, sparks, or flames.
- Clear the compressed gas cylinder connection point by opening the valve momentarily prior to installing a regulator.
- Never lubricate compressed gas cylinder valves or pressure regulators with any type of oil or grease.
- Never use a compressed gas cylinder or pressure regulator for any purpose other than which it is intended.
- Never use a pressure regulator for any gas other than which it is intended.
- Never use a pressure regulator that is leaking or has other signs of physical damage.
- Never use oxygen hoses and pressure regulators for any gas other than oxygen.
- Never use any gas hose that is leaking or has other signs of physical damage.

Refer to
www.lincolnelectric.com/safety
for additional safety information.

1.10 Safety Standards Booklet Index

For further information concerning safety practices to be exercised with plasma arc cutting equipment, please refer to the following publications:

- AWS Standard AWN, *Arc Welding and Cutting Noise*, obtainable from the American Welding Society, 550 NW LeJeune Road, Miami, FL 33126.
- AWS Standard C5.2, *Recommended Practices for Plasma Arc Cutting*, obtainable from the American Welding Society, 550 NW LeJeune Road, Miami, FL 33126.
- AWS Standard FSW, *Fire Safety in Welding and Cutting*, obtainable from the American Welding Society, 550 NW LeJeune Road, Miami, FL 33126.
- AWS Standard F4.1, Recommended *Safe Practices for Preparation for Welding and Cutting of Containers and Piping*, obtainable from the American Welding Society, 550 NW LeJeune Road, Miami, FL 33126.
- AWS Standard ULR, *Ultraviolet Reflectance of Paint*, obtainable from the American Welding Society, 550 NW LeJeune Road, Miami, FL 33126.
- AWS / ANSI Standard Z49.1, *Safety in Welding, Cutting, and Allied Processes,* obtainable from the American Welding Society, 550 NW LeJeune Road, Miami, FL 33126.
- ANSI Standard Z41.1, *Standard For Men's Safety-Toe Footwear*, obtainable from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.
- ANSI Standard Z49.2, *Fire Prevention in the Use of Cutting and Welding Processes*, obtainable from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.
- ANSI Standard Z87.1, *Safe Practices For Occupation and Educational Eye and Face Protection,* obtainable from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.
- ANSI Standard Z88.2, *Respiratory Protection*, obtainable from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.
- OSHA Standard 29CFR 1910.252, *Safety and Health Standards,* obtainable from the U.S. Government Printing Office, Washington, D.C. 20402.
- NFPA Standard 51, *Oxygen - Fuel Gas Systems for Welding, Cutting, and Allied Processes*, obtainable from the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269.
- NFPA Standard 51B, *Cutting and Welding Processes*, obtainable from the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269.
- NFPA Standard 70, *National Electrical Code*, obtainable from the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269.
- CGA booklet P-1, *Safe Handling of Compressed Gases in Containers*, obtainable from the Compressed Gas Association, 1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202.

- CGA booklet P-14, *Accident Prevention in Oxygen-Rich and Oxygen-Deficient Atmospheres*, obtainable from the Compressed Gas Association, 1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202.
- CGA booklet TB-3, *Hose Line Flashback Arrestors*, obtainable from the Compressed Gas Association, 1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202.
- CSA Standard W117.2, *Safety in Welding, Cutting, and Allied Processes*, obtainable from Canadian Standards Association, 178 Rexdale Boulevard, Toronto, Ontario M9W lR3, Canada.
- Canadian Electrical Code Part 1, *Safety Standard for Electrical Installations,* obtainable from the Canadian Standards Association, 178 Rexdale Boulevard, Toronto, Ontario M9W 1R3, Canada.

2.0 Cut Charts for LC300M Plasma Torches

2.1 Overview

Magnum® PRO LC300M Standard and Quick-Disconnect Plasma Torches use the same cut charts. These cut charts have been provided as a guide in setting up the machine. Variations in plate thickness, steel grade or composition, surface finish and application will all affect cut chart parameters.

For a given current, thicknesses at the upper end of the cut charts (thinner materials) will give faster cut speeds at the expense of increased edge bevel. Thicknesses at the lower end (thicker materials) will give lower cut speeds with increased dross. Thicknesses in the mid-range with regard to thickness will give optimal cut quality with respect to speed, edge bevel and dross. Therefore cut current should be selected based on customer's need - fastest cut speed, optimal cut quality or severance cuts.

Cut chart data can be viewed through the FineLine® User Interface or as published in this document.

The latest version of all documentation and cut charts can be downloaded from www.lincolnelectric.com.

2.2 Description of Cut Chart Values

Material Thickness

Thickness of the material to be cut. If the desired plate material thickness is not shown, choose the closest available thickness using the FineLine User Interface. Cut height, arc voltage and speed should be interpolated based on the closest adjacent thicknesses in the cut chart.

Cut Quality

Cut Quality *	Travel Speed	Bevel Angle	Dross Amount
S = Severance	Low	Minimal to Medium	Medium to High
P = Production	High	High	Minimal to Medium
Q = Quality	Medium	Medium	Minimal
O = Optimal	Medium	Minimal	None to Minimal

* NOTE: Cut Quality selections are intended to guide the operator to the best starting point. Test first. A different selection may achieve a better cut for the application.

Gas Pressure

Gas pressures are fixed and set by the FineLine User Interface to match the cut chart and are dependent upon material type, material thickness and cut current.

Arc Voltage

The published arc voltage is a good starting point, but small adjustments may improve cut quality. Any changes to cut speed, cut height or plasma gas pressure will affect arc voltage. As the electrode wears, the effective cut height increases raising the arc voltage and adjustment of the arc voltage may be necessary to maintain optimum cut quality. With long torch leads, the voltage may need to be increased to account for the voltage drop in the leads.

Travel Speed

The travel speed is determined by the amperage, material type and thickness of the material. Changes to travel speed are made through the CNC.

Cutting Height

The cutting height is the distance from the tip of the torch to the top of the plate. If using Arc Voltage Control, the arc voltage setting will override the cut height setting in order to maintain the set voltage. Arc voltage is a direct function of cut height.

Pierce Height

Pierce height is the recommended distance from the tip of the torch to the top of the plate to minimize spatter coming back on the torch during piercing. Piercing at a lower height may result in damage to the shield cap affecting cut quality.

Pierce Time

Pierce time is the amount of time it takes to pierce through the plate. Too short of a pierce time may result in consumable damage as the height control would lower the torch to cut height before piercing through the plate. Too long of a pierce time may result in loss of transferred arc as the metal under the torch has all been removed.

Kerf Width

Kerf width is the amount of material removed by the plasma cutting process. Use this value in the CNC to offset the cut path in order to produce a part that is the correct size. Kerf width is a function of cut speed and should be adjusted accordingly as speed changes from cut chart values.

Transfer Height

Transfer height is the initial height above the plate in order to establish a pilot arc and transfer the arc to the plate. If the transfer height is too high, it will result in failure of the arc to transfer to the plate. Transfer height is typically lower than pierce height. Once the arc has transferred, the motion/height control should begin retracting to pierce height within 15mS or consumable life and cut quality will be adversely affected.

2.3 Selecting Consumables

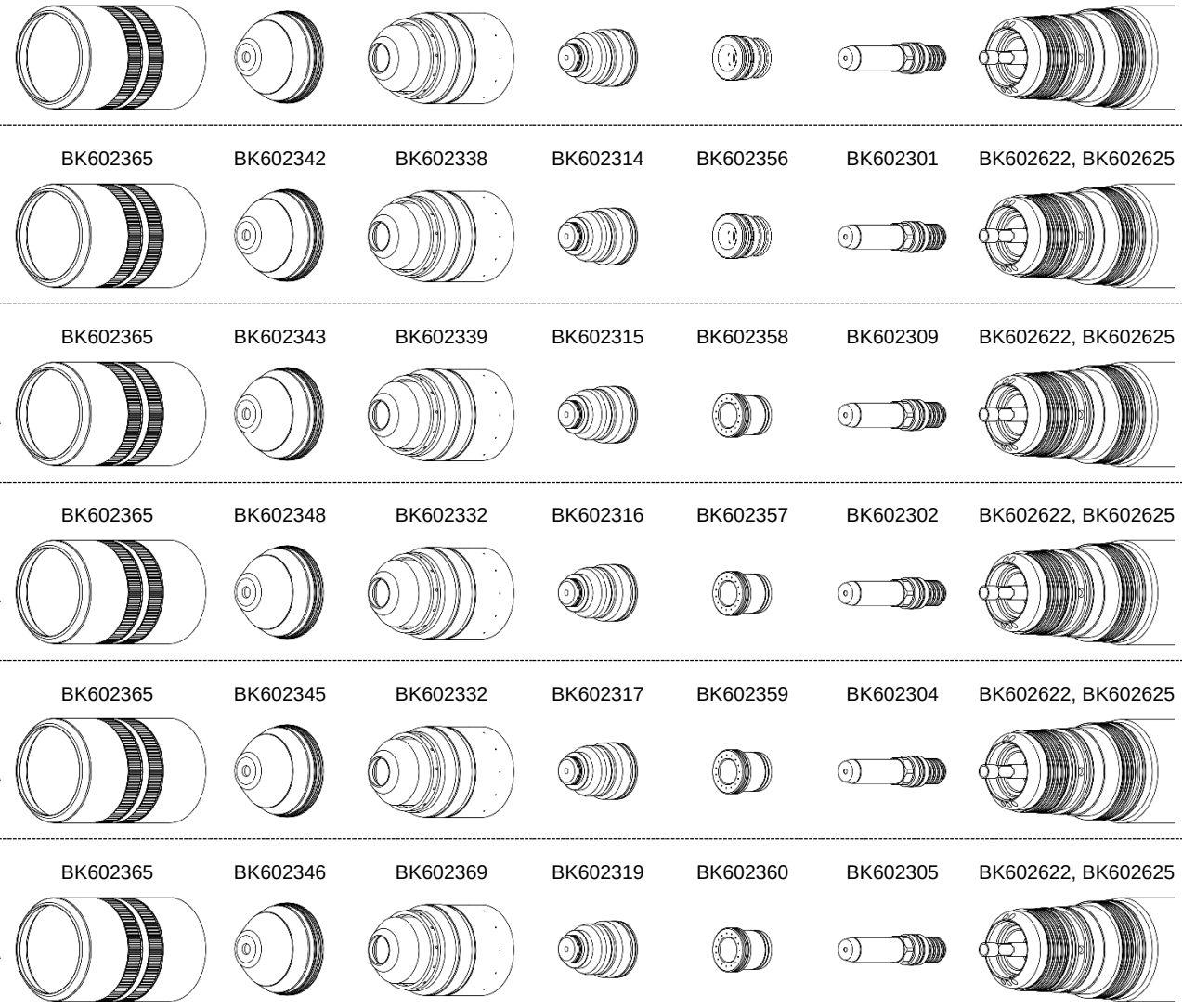
Mild Steel – Oxygen Plasma / Air Shield*

	Outer Cap	Shield Cap	Retaining Cap	Nozzle	Swirl Ring	Electrode	Torch
30A	BK602365	BK602340	BK602338	BK602312	BK602354	BK602300	BK602622, BK602625
80A	BK602365	BK602342	BK602338	BK602314	BK602356	BK602301	BK602622, BK602625
140A	BK602365	BK602343	BK602339	BK602315	BK602358	BK602309	BK602622, BK602625
170A	BK602365	BK602348	BK602332	BK602316	BK602357	BK602302	BK602622, BK602625
200A	BK602365	BK602345	BK602332	BK602317	BK602359	BK602304	BK602622, BK602625
300A	BK602365	BK602346	BK602369	BK602318	BK602360	BK602305	BK602622, BK602625

* Oxygen Shield instead of Air Shield at 30A.

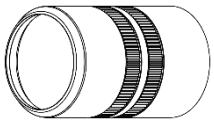
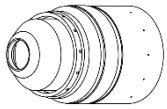
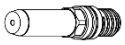
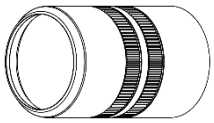
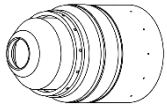
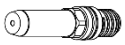
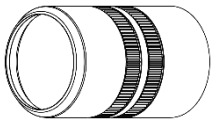
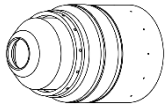
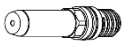
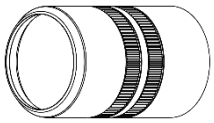
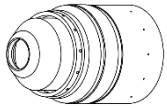
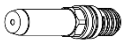
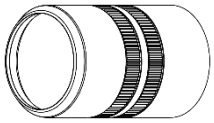
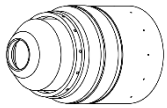
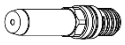
Stainless Steel – Air Plasma / Nitrogen Shield*

	Outer Cap	Shield Cap	Retaining Cap	Nozzle	Swirl Ring	Electrode	Torch
30A	BK602365	BK602341	BK602344	BK602313	BK602355	BK602303	BK602622, BK602625
80A	BK602365	BK602342	BK602338	BK602314	BK602356	BK602301	BK602622, BK602625
140A	BK602365	BK602343	BK602339	BK602315	BK602358	BK602309	BK602622, BK602625
170A	BK602365	BK602348	BK602332	BK602316	BK602357	BK602302	BK602622, BK602625
200A	BK602365	BK602345	BK602332	BK602317	BK602359	BK602304	BK602622, BK602625
300A	BK602365	BK602346	BK602369	BK602319	BK602360	BK602305	BK602622, BK602625



* Air Shield instead of Nitrogen Shield at 30A.

Stainless Steel – H17 Plasma / Nitrogen Shield

	Outer Cap	Shield Cap	Retaining Cap	Nozzle	Swirl Ring	Electrode	Torch
80A	BK602365 	BK602342 	BK602347 	BK602325 	BK602354 	BK602310 	BK602622, BK602625 
140A	BK602365 	BK602352 	BK602339 	BK602327 	BK602358 	BK602311 	BK602622, BK602625 
170A	BK602365 	BK602345 	BK602332 	BK602317 	BK602358 	BK602311 	BK602622, BK602625 
200A	BK602365 	BK602345 	BK602332 	BK602328 	BK602363 	BK602311 	BK602622, BK602625 
300A	BK602365 	BK602353 	BK602336 	BK602320 	BK602364 	BK602311 	BK602622, BK602625 

Aluminum – Air Plasma / Nitrogen Shield

	Outer Cap	Shield Cap	Retaining Cap	Nozzle	Swirl Ring	Electrode	Torch
30A	BK602365	BK602340	BK602338	BK602312	BK602354	BK602300	BK602622, BK602625
80A	BK602365	BK602342	BK602338	BK602314	BK602356	BK602301	BK602622, BK602625
140A	BK602365	BK602343	BK602339	BK602315	BK602358	BK602309	BK602622, BK602625
170A	BK602365	BK602348	BK602332	BK602316	BK602357	BK602302	BK602622, BK602625
200A	BK602365	BK602345	BK602332	BK602317	BK602359	BK602304	BK602622, BK602625
300A	BK602365	BK602346	BK602369	BK602319	BK602360	BK602305	BK602622, BK602625

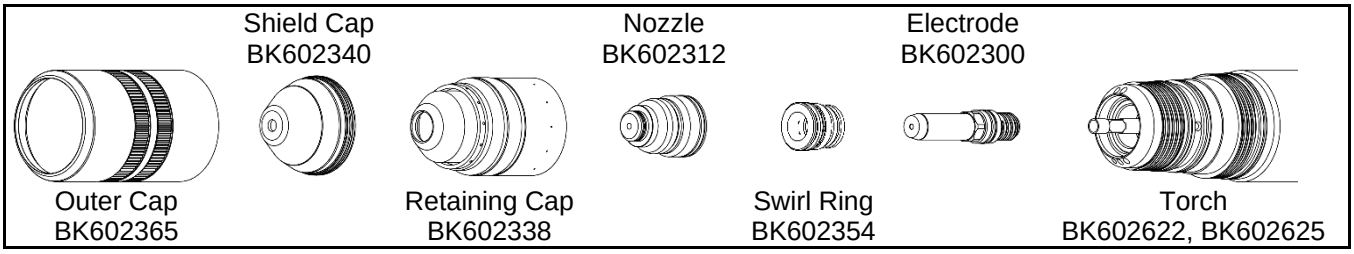
2.4 Cutting Charts

The cutting charts shown on the following pages are intended to give the operator the best starting point to use when making a cut on a particular material type and thickness. Small adjustments may have to be made to achieve the best cut.

Always use genuine Lincoln Electric consumables for optimal cut quality and consumable life.

Cutting Chart Index

Mild Steel - 30 Amps - Oxygen Plasma / Oxygen Shield



Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)
0.0239 24 Ga	P	38	82	9	82	116	150	0.090	0.100	100	0.056
0.0299 22 Ga	P					120	125	0.105	0.120		
0.0359 20 Ga	Q						105				0.058
0.0478 18 Ga	Q						100	0.125	0.130		0.062
0.0598 16 Ga	O					126	75	0.140	0.150	200	0.064
0.0747 14 Ga	O					128	65	0.145			0.066
0.1046 12 Ga	O					131	55			300	0.077
0.1345 10 Ga	O					133	40	0.160	0.160	400	0.085
0.1875 3/16	S					141	30	0.200	0.200	700	0.095

Metric*

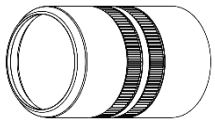
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)
0.6	P	2.62	5.65	0.62	5.65	116	3850	2.3	2.5	100	1.4
0.8	P					120	3050	2.7	3.0		
1.0	P						2625	2.8	3.1		1.5
1.2	Q						2550	3.1	3.3		1.6
1.5	Q					126	1950	3.5	3.8	190	
2.0	O					128	1625	3.7		210	1.7
2.5	O					130	1450			280	1.9
3.0	O					132	1225	3.8	3.9	340	2.0
4.0	O					136	900	4.5	4.5	530	2.3
5.0	S					142	725	5.2	5.2	750	2.5

Marking* - For All Material Thicknesses

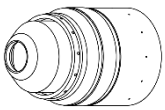
Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	25	1.72	25	1.72	25	1.72	25	1.72	126	250	6350	0.1	2.5	0
Argon	Air	38	2.62	40	2.76	25	1.72	40	2.76	68	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.100” (2.5 mm) for cutting and marking.

Mild Steel - 80 Amps - Oxygen Plasma / Air Shield


Outer Cap
BK602365


Shield Cap
BK602342


Retaining Cap
BK602338


Nozzle
BK602314


Swirl Ring
BK602356


Electrode
BK602301


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)
0.1345 10 Ga	P	21	74	20	74	105	180	0.060	0.400	150	0.078
0.1875 3/16	P						155				0.077
0.2500 1/4	Q					106	110			250	0.078
0.3125 5/16	Q					111	96	0.100		350	0.081
0.3750 3/8	O					113	75		0.450	450	0.084
0.5000 1/2	Q					116	50			700	0.090

Metric*

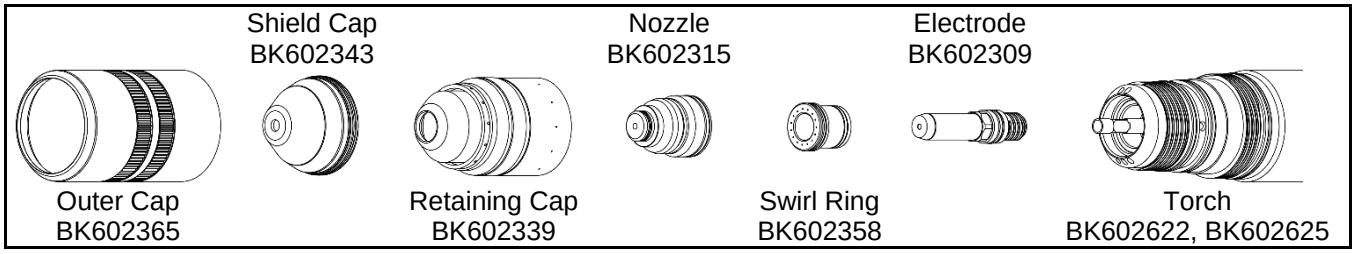
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)
4	P	1.45	5.10	1.38	5.10	105	4300	1.5	10.2	150	2.0
5	P						3775			160	
6	Q					106	3050			230	
8	Q					111	2425	2.5		350	2.1
10	O					113	1800		11.4	490	2.2
12	Q					115	1400			640	2.3

Marking* - For All Material Thicknesses

Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	21	1.45	23	1.59	23	1.59	23	1.59	130	250	6350	0.1	2.5	0
Argon	Air	21	1.45	40	2.76	23	1.59	40	2.76	64	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.200” (5.1 mm) for cutting and 0.100” (2.5 mm) for marking.

Mild Steel - 140 Amps - Oxygen Plasma / Air Shield



Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.1345 10 Ga	P	15	66	65	66	118	260	0.105	0.200	400	0.094	
0.1875 3/16	P						205			500		
0.2500 1/4	P					117	160		0.225	600		
0.3125 5/16	P					118	140		0.250	700	0.096	
0.3750 3/8	P			60			120		0.275	800	0.097	
0.5000 1/2	O			45		123	86		0.500	500	0.103	
0.6250 5/8	O					126	70	0.140		750	0.105	
0.7500 3/4	O					128	55			850	0.112	
1.0000 1	Q			35		134	35	0.160		1250	0.118	
1.2500 1 ¼	Q					146	20	0.200	0.400	1500	0.138	**
1.5000 1 ½	S			25		156	12	0.225			0.160	**

Metric*

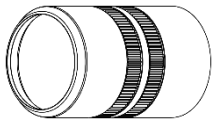
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
4	P	1.03	4.55	4.48	4.55	118	6000	2.7	5.1	440	2.4	
5	P						5050		5.2	510		
6	P					117	4325		5.6	580		
8	P			4.47		118	3550		6.4	700		
10	P			3.98		119	2925		7.8	760	2.5	
12	O			3.33		122	2375		11.4	570	2.6	
15	O			3.10		125	1900	3.3	12.7	680	2.7	
20	O			3.00		129	1325	3.6		910	2.9	
25	Q			2.46		134	925	4.0		1220	3.0	
30	Q			2.41		143	625	4.8	10.2	1500	3.4	**
35	S			2.06		151	400	5.4			3.8	**
38	S			1.73		156	300	5.7			4.1	**

Marking* - For All Material Thicknesses

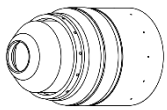
Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	15	1.03	19	1.31	19	1.31	19	1.31	153	250	6350	0.1	2.5	0
Argon	Air	15	1.03	40	2.76	19	1.31	40	2.76	70	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.200” (5.1 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Mild Steel - 170 Amps - Oxygen Plasma / Air Shield


Outer Cap
BK602365


Shield Cap
BK602348


Retaining Cap
BK602332


Nozzle
BK602316


Swirl Ring
BK602357


Electrode
BK602302


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.2500 1/4	P	15	70	48	70	120	195	0.080	0.500	250	0.103	
0.3125 5/16	P					123	165	0.100			0.107	
0.3750 3/8	P					126	135	0.115			0.110	
0.5000 1/2	O					127	105	0.125		400		
0.6250 5/8	O					130	80	0.140		550	0.118	
0.7500 3/4	Q					132	65	0.145		700	0.120	
1.0000 1	Q					137	45	0.165		1000	0.126	
1.2500 1 ¼	Q			38		147	25	0.205		1500	0.142	
1.5000 1 ½	Q					160	16	0.275	0.350		0.175	**
1.7500 1 ¾	S					168	11	0.325			0.194	**
2.0000 2	S					182	6	0.350		1800	0.240	**

Metric*

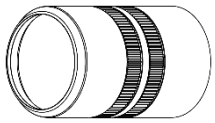
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
6	P	1.00	4.83	3.31	4.83	119	5125	1.9	12.7	250	2.6	
8	P					123	4175	2.6			2.7	
10	P					126	3325	3.0		270	2.8	
12	O					127	2825	3.1		370		
15	O					129	2200	3.5		510	2.9	
20	Q					133	1575	3.8		740	3.1	
25	Q					137	1175	4.2		980	3.2	
30	Q			2.81		144	775	4.9		1360	3.5	
35	Q			2.62		154	525	6.1	8.9	1500	4.0	**
40	Q					162	375	7.4			4.6	**
45	S					169	275	8.3		1530	5.0	**
50	S					180	175	8.8		1760	5.9	**

Marking* - For All Material Thicknesses

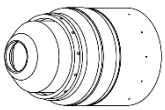
Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	15	1.03	17	1.17	17	1.17	17	1.17	135	250	6350	0.1	2.5	0
Argon	Air	15	1.03	40	2.76	17	1.17	40	2.76	73	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.250” (6.4 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Mild Steel - 200 Amps - Oxygen Plasma / Air Shield

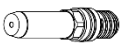

Outer Cap
BK602365


Shield Cap
BK602345


Retaining Cap
BK602332


Nozzle
BK602317


Swirl Ring
BK602359


Electrode
BK602304


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.2500 1/4	P	13	74	57	74	121	230	0.080	0.250	500	0.108	
0.3750 3/8	P					126	145	0.100		600	0.115	
0.5000 1/2	P					130	120	0.115	0.500	350	0.120	
0.6250 5/8	P			52		132	100	0.130		400		
0.7500 3/4	O					137	75	0.150		450	0.130	
1.0000 1	O					144	50	0.175		650	0.142	
1.2500 1 ¼	Q					150	30	0.200		1850	0.146	
1.5000 1 ½	Q					163	20	0.275	0.600	3600	0.180	
1.7500 1 ¾	S			43		174	14	0.325	0.350	1500	0.200	**
2.0000 2	S					186	7	0.350			0.220	**

Metric*

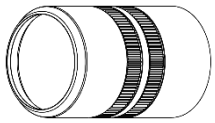
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
6	P	0.90	5.10	3.93	5.10	120	6075	2.0	6.4	490	2.7	
8	P					124	4725	2.3		550	2.8	
10	P					127	3600	2.6	7.3	560	2.9	
12	P					129	3200	2.8	11.3	410	3.0	
15	P			3.68		131	2675	3.2	12.7	390		
20	O			3.59		138	1800	3.9		480	3.3	
25	O					144	1300	4.4		640	3.6	
30	Q					148	900	4.9		1520	3.7	
35	Q					157	625	6.1	14.0	2750	4.2	
40	S			3.40		166	450	7.4	8.9	1500	4.7	**
45	S			2.96		175	350	8.3			5.1	**
50	S					184	200	8.8			5.5	**

Marking* - For All Material Thicknesses

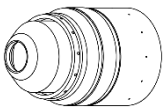
Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	13	0.90	17	1.17	17	1.17	17	1.17	139	250	6350	0.1	2.5	0
Argon	Air	13	0.90	40	2.76	17	1.17	40	2.76	76	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.250” (6.4 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Mild Steel - 300 Amps - Oxygen Plasma / Air Shield

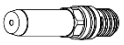

Outer Cap
BK602365


Shield Cap
BK602346


Retaining Cap
BK602369


Nozzle
BK602318


Swirl Ring
BK602360


Electrode
BK602305


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.5000 1/2	P	10	71	58	71	131	135	0.140	0.550	500	0.150	
0.6250 5/8	P		56		56	122	115			550	0.144	
0.7500 3/4	Q					126	90			680	0.148	
0.8750 7/8	O			49		127	80			800	0.153	
1.0000 1	O						70	0.200		900	0.155	
1.2500 1 ¼	O					133	50	0.175		1200	0.165	
1.5000 1 ½	O					136	37	0.200		1800	0.175	
1.7500 1 ¾	Q					143	30	0.250	0.850	3200	0.188	
2.0000 2	Q					152	21	0.275	0.450	1500	0.205	**
2.2500 2 ¼	Q			44		157	16	0.300			0.217	**
2.5000 2 ½	S			35		162	12	0.325			0.240	**
2.7500 2 ¾	S					168	8				0.245	**
3.0000 3	S					174	6				0.254	**

Metric*

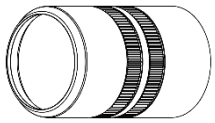
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
12	P	0.69	5.12	4.00	5.12	133	3550	3.6	14.0	490	3.8	
15	P		4.15		4.15	124	3050			540	3.7	
20	Q		3.86	3.81	3.86	126	2200			720	3.8	
25	O			3.38		127	1800	5.1		890	3.9	
30	O					131	1400	4.2		1120	4.1	
35	O					135	1100	4.8		1510	4.3	
40	O					136	950	5.1	16.3	2220	4.4	
45	Q					144	750	6.4	21.6	3200	4.8	
50	Q					151	550	6.9	11.4	1500	5.2	**
60	S			2.76		159	350	7.9			5.8	**
70	S			2.41		168	200	8.3			6.2	**
75	S					173	150				6.4	**

Marking* - For All Material Thicknesses

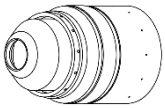
Type of Gas (Plasma)	(Shield)	Preflow (psi)	(bar)	Plasma (psi)	(bar)	Shield (psi)	(bar)	Postflow (psi)	(bar)	Arc Voltage (volts)	Travel Speed (ipm)	(mm/min)	Marking Height (in)	(mm)	Pierce Time (msec)
Nitrogen	Nitrogen	15	1.03	15	1.03	15	1.03	15	1.03	118	250	6350	0.1	2.5	0
Argon	Air	15	1.03	40	2.76	15	1.03	40	2.76	67	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.300” (7.6 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Stainless Steel - 30 Amps - Air Plasma / Air Shield

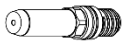

Outer Cap
BK602365


Shield Cap
BK602341


Retaining Cap
BK602344


Nozzle
BK602313


Swirl Ring
BK602355


Electrode
BK602303


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)
0.0375 20 Ga	P	33	79	28	79	73	200	0.025	0.150	100	0.038
0.0500 18 Ga	P						165				0.040
0.0625 16 Ga	Q					75	125	0.030		200	
0.0781 14 Ga	Q					77	90	0.015		300	0.035

Metric*

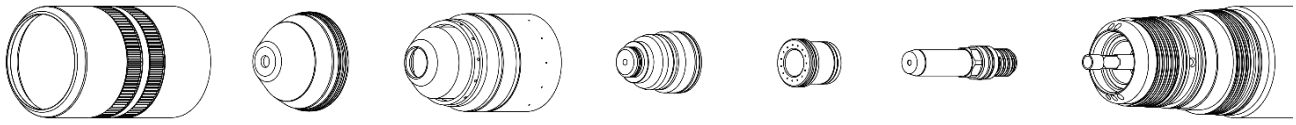
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)
1.0	P	2.28	5.45	1.93	5.45	73	4975	0.6	3.8	100	1.0
1.2	P						4400				
1.5	Q					74	3475	0.7		170	
2.0	Q					77	2250	0.4		300	0.9

Marking* - For All Material Thicknesses

Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	20	1.38	20	1.38	20	1.38	20	1.38	93	250	6350	0.1	2.5	0
Argon	Air	38	2.62	40	2.76	25	1.72	40	2.76	52	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.150” (3.8 mm) for cutting and 0.150” (3.8 mm) for marking.

Stainless Steel - 80 Amps - Air Plasma / Nitrogen Shield



Outer Cap BK602365 | Shield Cap BK602342 | Retaining Cap BK602338 | Nozzle BK602314 | Swirl Ring BK602356 | Electrode BK602301 | Torch BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)
0.1406 10 Ga	P	24	79	19	79	129	120	0.130	0.200	500	0.088
0.1875 3/16	P					130	100			600	0.090
0.2500 1/4	Q					131	86		0.225	700	0.092
0.3125 5/16	Q					135	72	0.150	0.250	900	0.093
0.3750 3/8	Q					137	57	0.160	0.275	1000	

Metric*

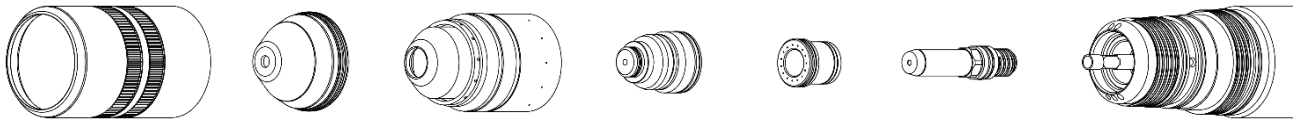
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)
3	P	1.65	5.45	1.31	5.45	129	3200	3.3	5.1	470	2.2
4	P						2825			540	2.3
5	P					130	2500		5.2	610	
6	Q					131	2275		5.6	680	
8	Q					135	1825	3.8	6.4	900	2.4

Marking* - For All Material Thicknesses

Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	24	1.65	23	1.59	23	1.59	23	1.59	129	250	6350	0.1	2.5	0
Argon	Air	24	1.65	40	2.76	23	1.59	40	2.76	64	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.200” (5.1 mm) for cutting and 0.100” (2.5 mm) for marking.

Stainless Steel - 140 Amps - Air Plasma / Nitrogen Shield



Outer Cap BK602365 | Shield Cap BK602343 | Retaining Cap BK602339 | Nozzle BK602315 | Swirl Ring BK602358 | Electrode BK602309 | Torch BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)
0.2500 1/4	P	18	76	55	76	151	140	0.170	0.250	600	0.105
0.3125 5/16	P					145	124	0.150	0.275	700	
0.3750 3/8	Q					147	100				
0.5000 1/2	O					150	80		0.300	800	0.108
0.6250 5/8	O			46		156	56	0.200	0.325	1000	0.112
0.7500 3/4	Q			41		164	42	0.240	0.400	1600	0.120

Metric*

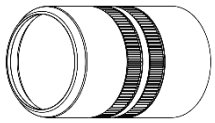
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)
6	P	1.24	5.24	3.79	5.24	152	3650	4.4	6.2	580	2.7
8	P					145	3125	3.8	7.0	700	
10	Q					147	2475		7.1	710	
12	O					149	2150		7.5	780	
15	O			3.34		154	1600	4.7	8.1	940	2.8
20	Q			2.72		166	950	6.4	10.7	1780	3.1

Marking* - For All Material Thicknesses

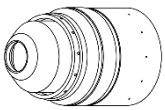
Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	18	1.24	19	1.31	19	1.31	19	1.31	153	250	6350	0.1	2.5	0
Argon	Air	18	1.24	40	2.76	19	1.31	40	2.76	70	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.200” (5.1 mm) for cutting and 0.100” (2.5 mm) for marking.

Stainless Steel - 170 Amps - Air Plasma / Nitrogen Shield


Outer Cap
BK602365


Shield Cap
BK602348


Retaining Cap
BK602332


Nozzle
BK602316


Swirl Ring
BK602357


Electrode
BK602302


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.2500 1/4	P	15	80	52	80	152	150	0.130	0.250	600	0.109	
0.3125 5/16	P					153	128	0.140	0.265	650	0.110	
0.3750 3/8	Q					154	105	0.150	0.275	700		
0.5000 1/2	O					157	85	0.165	0.300	800	0.115	
0.6250 5/8	O					163	66	0.200	0.350	1000	0.122	
0.7500 3/4	O					168	51	0.230	0.400	1200	0.125	
1.0000 1	Q					179	34	0.270	0.550	1500	0.140	
1.2500 1 ¼	Q			45		188	17	0.285	0.400		0.150	**
1.5000 1 ½	S			45		197	9	0.310			0.164	**

Metric*

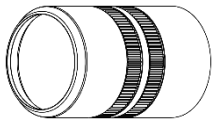
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
6	P	1.00	5.52	3.59	5.52	152	3925	3.2	6.3	590	2.8	
8	P					153	3225	3.6	6.7	650		
10	Q					154	2600	3.9	7.1	710		
12	O					156	2275	4.1	7.5	780	2.9	
15	O					161	1800	4.8	8.5	940	3.0	
20	O					170	1225	6.0	10.7	1240	3.2	
25	Q					178	900	6.8	13.7	1500	3.5	
30	Q			3.24		186	550	7.1	10.2		3.7	**
35	S			3.10		193	325	7.6			4.0	**
38	S					197	225	7.9			4.2	**

Marking* - For All Material Thicknesses

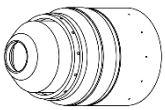
Type of Gas (Plasma)	(Shield)	Preflow (psi)	(bar)	Plasma (psi)	(bar)	Shield (psi)	(bar)	Postflow (psi)	(bar)	Arc Voltage (volts)	Travel Speed (ipm)	(mm/min)	Marking Height (in)	(mm)	Pierce Time (msec)
Nitrogen	Nitrogen	15	1.03	17	1.17	17	1.17	17	1.17	137	250	6350	0.1	2.5	0
Argon	Air	15	1.03	40	2.76	17	1.17	40	2.76	76	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.250” (6.4 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Stainless Steel - 200 Amps - Air Plasma / Nitrogen Shield


Outer Cap
BK602365


Shield Cap
BK602345


Retaining Cap
BK602332


Nozzle
BK602317


Swirl Ring
BK602359


Electrode
BK602304


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.2500 1/4	P	14	84	57	84	161	160	0.170	0.250	600	0.125	
0.3750 3/8	P						110		0.275	700		
0.5000 1/2	Q					164	90		0.300	800		
0.6250 5/8	O						75		0.350	1000	0.120	
0.7500 3/4	O					170	60	0.210	0.400	1200	0.135	
1.0000 1	Q			47		180	40	0.270	0.500	1500	0.152	
1.2500 1 ¼	S					188	20		0.400		0.155	**
1.5000 1 ½	S					200	10	0.295			0.175	**

Metric*

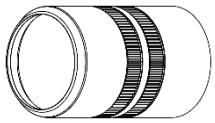
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
6	P	0.97	5.79	3.93	5.79	161	4200	4.3	6.3	590	3.2	
8	P						3400		6.7	650		
10	P						2725		7.1	710		
12	Q					163	2400		7.5	780		
15	O					164	2000		8.5	940	3.1	
20	O			3.83		171	1450	5.6	10.5	1240	3.5	
25	Q			3.28		179	1050	6.8	12.5	1480	3.8	
30	Q			3.24		186	650	6.9	10.9	1500	3.9	**
35	S					194	375	7.2	10.2		4.2	**
40	S					204	175	7.7			4.6	**

Marking* - For All Material Thicknesses

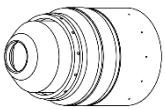
Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	14	0.97	17	1.17	17	1.17	17	1.17	137	250	6350	0.1	2.5	0
Argon	Air	14	0.97	40	2.76	17	1.17	40	2.76	76	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.250” (6.4 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Stainless Steel - 300 Amps - Air Plasma / Nitrogen Shield


Outer Cap
BK602365


Shield Cap
BK602346


Retaining Cap
BK602369


Nozzle
BK602319


Swirl Ring
BK602360


Electrode
BK602305


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.5000 1/2	P	14	71	50	71	151	120	0.180	0.350	1000	0.152	
0.6250 5/8	Q						95		0.375	1200	0.155	
0.7500 3/4	O						85		0.400	1400		
1.0000 1	O			45		171	60	0.350	0.550	1700	0.185	
1.2500 1 ¼	Q					176	38		0.700	2500	0.195	
1.5000 1 ½	Q					182	27	0.375	0.400	1500	0.210	**
1.7500 1 ¾	S					190	17				0.220	**
2.0000 2	S					198	11				0.225	**

Metric*

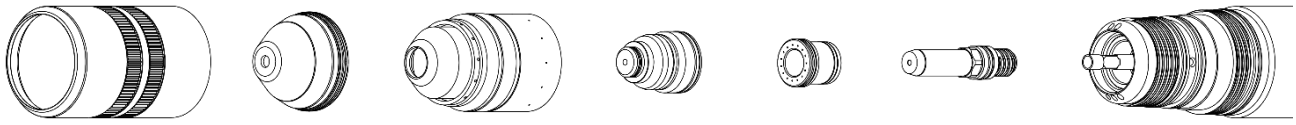
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
12	P	0.97	4.90	3.45	4.90	151	3200	4.6	8.7	960	3.8	
15	Q						2600		9.3	1140	3.9	
20	O			3.40		154	2075	5.2	10.7	1440	4.1	
25	O			3.12		170	1575	8.6	13.7	1680	4.7	
30	Q			3.10		175	1125	8.9	16.7	2280	4.9	
35	Q					179	825	9.2	13.9	1990	5.1	
40	Q					184	600	9.5	10.2	1500	5.4	**
45	S					191	425				5.6	**
50	S					197	300				5.7	**

Marking* - For All Material Thicknesses

Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	15	1.03	15	1.03	15	1.03	15	1.03	118	250	6350	0.1	2.5	0
Argon	Air	14	0.97	40	2.76	15	1.03	40	2.76	62	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.300” (7.6 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Stainless Steel - 80 Amps – H17 Plasma / Nitrogen Shield



Outer Cap BK602365 | Shield Cap BK602342 | Retaining Cap BK602347 | Nozzle BK602325 | Swirl Ring BK602354 | Electrode BK602310 | Torch BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)
0.1875 3/16	P	24	70	20	70	138	92	0.120	0.250	600	0.090
0.2500 1/4	Q						80		0.275	700	0.093
0.3750 3/8	Q					150	52	0.170	0.300	1000	0.100

Metric*

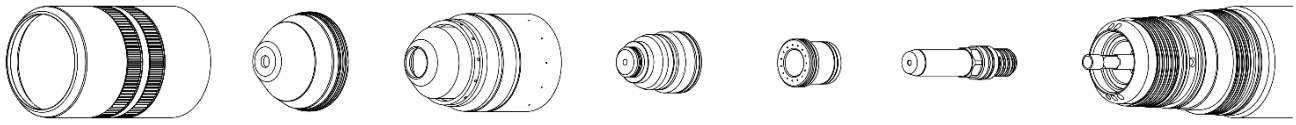
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)
5	P	1.65	4.83	1.38	4.83	138	2300	3.0	6.4	610	2.3
6	Q						2100		6.8	680	
8	Q					144	1650	3.7	7.3	860	2.5
10	Q					152	1225	4.5	7.7	1040	2.6

Marking* - For All Material Thicknesses

Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	24	1.65	23	1.59	23	1.59	23	1.59	128	250	6350	0.1	2.5	0
Argon	Air	24	1.65	40	2.76	23	1.59	40	2.76	64	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.200” (5.1 mm) for cutting and 0.100” (2.5 mm) for marking.

Stainless Steel - 140 Amps – H17 Plasma / Nitrogen Shield



Shield Cap BK602352 | Nozzle BK602327 | Electrode BK602311

Outer Cap BK602365 | Retaining Cap BK602339 | Swirl Ring BK602358 | Torch BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)
0.2500 1/4	P	20	74	50	74	159	80	0.150	0.300	700	0.115
0.3125 5/16	Q					160	73		0.325	800	
0.3750 3/8	Q						65			900	
0.5000 1/2	O					169	52	0.200	0.350	1000	0.127
0.6250 5/8	Q					176	38	0.235	0.400	1200	0.136
0.7500 3/4	Q					182	28	0.260	0.450	1600	0.140

Metric*

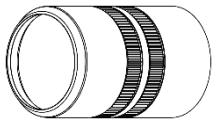
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)
6	P	1.38	5.10	3.45	5.10	159	2075	3.8	7.5	680	2.9
8	Q					160	1850		8.3	800	
10	Q					161	1600	4.0	8.4	910	3.0
12	O					167	1400	4.8	8.7	980	3.2
15	Q					174	1075	5.7	9.8	1140	3.4
20	Q					184	625	6.8	11.8	1720	3.6

Marking* - For All Material Thicknesses

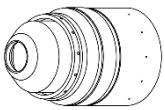
Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	20	1.38	19	1.31	19	1.31	19	1.31	147	250	6350	0.1	2.5	0
Argon	Air	20	1.38	40	2.76	19	1.31	40	2.76	78	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.200” (5.1 mm) for cutting and 0.100” (2.5 mm) for marking.

Stainless Steel - 170 Amps – H17 Plasma / Nitrogen Shield

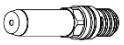

Outer Cap
BK602365


Shield Cap
BK602345


Retaining Cap
BK602332


Nozzle
BK602317


Swirl Ring
BK602358


Electrode
BK602311


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.3750 3/8	Q	25	72	48	72	158	73	0.100	0.325	800	0.120	
0.5000 1/2	Q					169	64	0.180	0.350	900	0.135	
0.6250 5/8	O					174	50	0.225	0.400	1100	0.141	
0.7500 3/4	O					181	36	0.250	0.475	1400	0.151	
1.0000 1	Q					195	25	0.340	0.400	1500	0.175	**
1.2500 1 ¼	Q					205	17	0.385		1800	0.187	**
1.5000 1 ½	S					212	12	0.400		2000	0.200	**

Metric*

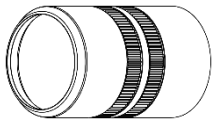
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
10	Q	1.70	4.96	3.31	4.96	160	1825	2.8	8.4	810	3.1	
12	Q					167	1675	4.1	8.7	880	3.3	
15	O					173	1375	5.4	9.8	1040	3.5	
20	O					183	875	6.7	11.8	1410	3.9	
25	Q					194	650	8.5	10.2	1490	4.4	**
30	Q					202	500	9.5		1720	4.7	**
35	S					209	375	10.0		1900	4.9	**
38	S					212	300	10.2		2000	5.1	**

Marking* - For All Material Thicknesses

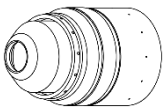
Type of Gas (Plasma)	(Shield)	Preflow (psi)	(bar)	Plasma (psi)	(bar)	Shield (psi)	(bar)	Postflow (psi)	(bar)	Arc Voltage (volts)	Travel Speed (ipm)	(mm/min)	Marking Height (in)	(mm)	Pierce Time (msec)
Nitrogen	Nitrogen	25	1.72	17	1.17	17	1.17	17	1.17	135	250	6350	0.1	2.5	0
Argon	Air	25	1.72	40	2.76	17	1.17	40	2.76	78	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.250” (6.4 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Stainless Steel - 200 Amps – H17 Plasma / Nitrogen Shield


Outer Cap
BK602365


Shield Cap
BK602345


Retaining Cap
BK602332


Nozzle
BK602328


Swirl Ring
BK602363


Electrode
BK602311


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.3750 3/8	P	28	71	49	71	162	80	0.150	0.325	700	0.131	
0.5000 1/2	Q					163	75		0.350	800	0.132	
0.6250 5/8	Q					172	60	0.225	0.400	1000	0.148	
0.7500 3/4	O					178	47	0.250	0.475	1300	0.154	
1.0000 1	Q					192	32	0.340	0.425	1500	0.178	**
1.2500 1 ¼	S					202	20	0.385		1700	0.190	**
1.5000 1 ½	S					210	14	0.400		2000	0.210	**

Metric*

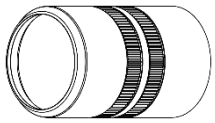
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
10	P	1.93	4.90	3.38	4.90	162	2025	3.8	8.4	710	3.3	
12	Q					163	1925		8.7	780		
15	Q					170	1625	5.2	9.8	940	3.6	
20	O					180	1125	6.7	11.9	1330	4.0	
25	Q					191	825	8.5	10.9	1490	4.5	**
30	Q					199	600	9.5	10.8	1640	4.7	**
35	S					206	425	10.0		1850	5.1	**
38	S					210	350	10.2		2000	5.3	**

Marking* - For All Material Thicknesses

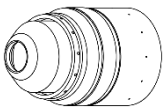
Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	28	1.93	17	1.17	17	1.17	17	1.17	125	250	6350	0.1	2.5	0
Argon	Air	28	1.93	40	2.76	17	1.17	40	2.76	75	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.250” (6.4 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Stainless Steel - 300 Amps – H17 Plasma / Nitrogen Shield


Outer Cap
BK602365


Shield Cap
BK602353


Retaining Cap
BK602336


Nozzle
BK602320


Swirl Ring
BK602364


Electrode
BK602311


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.5000 1/2	P	26	72	40	72	166	90	0.235	0.325	700	0.175	
0.6250 5/8	O					169	70		0.375	900		
0.7500 3/4	Q					175	60	0.290	0.425	1300	0.188	
1.0000 1	Q					189	38	0.390	0.500	1600	0.218	
1.2500 1 ¼	Q			32		193	30	0.410		1500	0.233	**
1.5000 1 ½	Q			24		199	22	0.425		1800	0.235	**
1.7500 1 ¾	S					205	17			2000	0.246	**
2.0000 2	S					208	14				0.250	**

Metric*

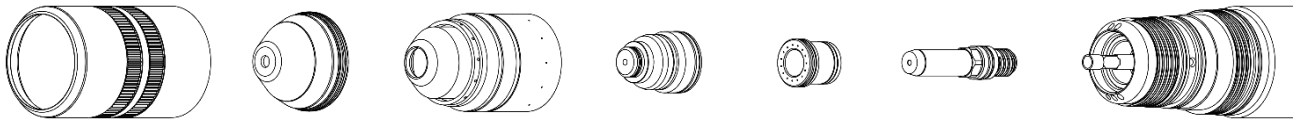
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
12	P	1.79	4.96	2.76	4.96	165	2400	6.0	8.0	660	4.4	
15	O					168	1925		9.2	840		
20	Q					177	1450	7.7	11.1	1340	4.9	
25	Q					188	1000	9.7	12.6	1580	5.5	
30	Q			2.36		192	825	10.3	12.7	1530	5.8	
35	Q			1.92		196	650	10.6		1650	5.9	**
40	Q			1.65		201	525	10.8		1860	6.1	**
45	S					205	425			2000	6.3	**
50	S					208	375					**

Marking* - For All Material Thicknesses

Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	26	1.79	15	1.03	15	1.03	15	1.03	108	250	6350	0.1	2.5	0
Argon	Air	26	1.79	40	2.76	15	1.03	40	2.76	61	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.300” (7.6 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Aluminum - 30 Amps - Air Plasma / Nitrogen Shield



Outer Cap BK602365 | Shield Cap BK602340 | Retaining Cap BK602338 | Nozzle BK602312 | Swirl Ring BK602354 | Electrode BK602300 | Torch BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)
0.0403 18 Ga	P	35	80	18	80	130	150	0.030	0.100	100	0.045
0.0508 16 Ga	P					132	120		0.150		0.046
0.0625 1/16	P					138	90	0.050		200	0.050

Metric*

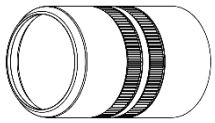
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mmpm)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)
1.0	P	2.41	5.52	1.24	5.52	130	3850	0.8	2.5	100	1.1
1.2	P					131	3250		3.5		1.2
1.5	P					136	2525	1.1	3.8	170	

Marking* - For All Material Thicknesses

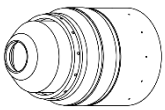
Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	25	1.72	25	1.72	25	1.72	25	1.72	147	250	6350	0.175	4.4	0
Argon	Air	38	2.62	40	2.76	25	1.72	40	2.76	72	100	2540	0.100	2.5	0

* Use an arc transfer height (ignition height) of 0.100” (2.5 mm) for cutting and 0.100” (2.5 mm) for marking.

Aluminum - 80 Amps - Air Plasma / Nitrogen Shield

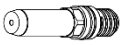

Outer Cap
BK602365


Shield Cap
BK602342


Retaining Cap
BK602338


Nozzle
BK602314


Swirl Ring
BK602356


Electrode
BK602301


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.0808 12 Ga	P	25	80	38	80	128	250	0.080	0.200	200	0.080	
0.1250 1/8	P						170	0.100		400		
0.1875 3/16	Q					133	80		0.225	500	0.075	
0.2500 1/4	Q					141	60	0.120	0.250	600	0.090	
0.3125 5/16	Q			29		143	53	0.130	0.275	800		
0.3750 3/8	Q					145	46	0.140		900	0.094	
0.5000 1/2	Q			24		153	34	0.160		1200	0.100	**

Metric*

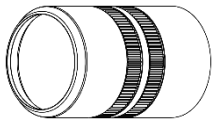
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mmpm)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
2	P	1.72	5.52	2.62	5.52	128	6400	2.0	5.1	190	2.0	
2.5	P						5525	2.2		280		
3	P						4625	2.5		370		
4	Q					131	3150		5.4	450		
5	Q					134	1950	2.6	5.8	510		
6	Q					139	1625	2.9	6.2	580	2.2	
8	Q			2.00		143	1350	3.3	7.0	800	2.3	
10	Q			1.95		146	1125	3.6		940	2.4	
12	Q			1.73		151	925	4.0		1200	2.5	**

Marking* - For All Material Thicknesses

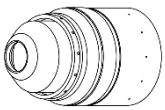
Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	25	1.72	23	1.59	23	1.59	23	1.59	131	250	6350	0.1	2.5	0
Argon	Air	25	1.72	40	2.76	23	1.59	40	2.76	72	200	5080	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.200” (5.1 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Aluminum - 140 Amps - Air Plasma / Nitrogen Shield


Outer Cap
BK602365


Shield Cap
BK602343


Retaining Cap
BK602339


Nozzle
BK602315


Swirl Ring
BK602358


Electrode
BK602309


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.2500 1/4	P	19	77	35	77	156	135	0.170	0.250	600	0.110	
0.3125 5/16	P					157	110		0.275	700		
0.3750 3/8	P					161	100	0.185		800	0.116	
0.5000 1/2	O					163	75	0.200	0.300	900	0.118	
0.6250 5/8	O					170	62	0.220	0.375	1200	0.120	
0.7500 3/4	Q					178	42	0.240	0.450	1500	0.130	
1.0000 1	Q					187	25	0.275	0.350		0.137	**

Metric*

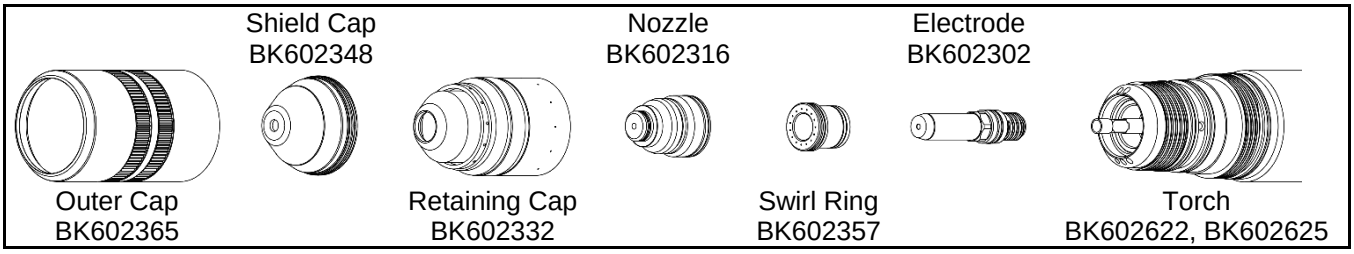
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mmpm)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
6	P	1.31	5.31	2.41	5.31	156	3575	4.3	6.2	580	2.8	
8	P					157	2775		7.0	700		
10	P					161	2450	4.8	7.1	810	3.0	
12	O					163	2050	5.0	7.5	880		
15	O					168	1675	5.4	9.0	1120		
20	Q					179	1000	6.2	11.0	1500	3.3	
25	Q					186	650	6.9	9.0		3.5	**

Marking* - For All Material Thicknesses

Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	19	1.31	19	1.31	19	1.31	19	1.31	153	250	6350	0.1	2.5	0
Argon	Air	19	1.31	40	2.76	19	1.31	40	2.76	76	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.200” (5.1 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Aluminum - 170 Amps - Air Plasma / Nitrogen Shield



Imperial*

Material Thickness (in)	Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.2500 1/4	Q	15	80	42	80	161	153	0.170	0.275	400	0.123	
0.3125 5/16	Q					162	123	0.165	0.325	600	0.112	
0.3750 3/8	O						113		0.350		0.114	
0.5000 1/2	O					166	88	0.180	0.375	700	0.120	
0.6250 5/8	O					169	76	0.200	0.400	900	0.125	
0.7500 3/4	O					174	54	0.220	0.425	1100	0.130	
1.0000 1	Q					188	30	0.225		1500	0.143	**
1.2500 1 ¼	Q					197	19	0.250			0.145	**
1.5000 1 ½	S					207	13	0.270			0.155	**

Metric*

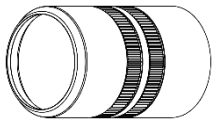
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mm/m)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
6	Q	1.03	5.52	2.90	5.52	161	4050	4.3	6.7	360	3.2	
8	Q					162	3125	4.2	8.3	600	2.8	
10	O					163	2775		9.0	610	2.9	
12	O					165	2375	4.5	9.4	680	3.0	
15	O					168	2025	4.9	10.0	840	3.1	
20	O					176	1275	5.6	10.8	1160	3.4	
25	Q					187	800	5.7		1500	3.6	**
30	Q					195	550	6.2			3.7	**
35	S					202	400	6.6			3.8	**
38	S					207	325	6.9			3.9	**

Marking* - For All Material Thicknesses

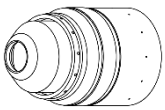
Type of Gas (Plasma)	(Shield)	Preflow (psi)	(bar)	Plasma (psi)	(bar)	Shield (psi)	(bar)	Postflow (psi)	(bar)	Arc Voltage (volts)	Travel Speed (ipm)	(mm/min)	Marking Height (in)	(mm)	Pierce Time (msec)
Nitrogen	Nitrogen	15	1.03	17	1.17	17	1.17	17	1.17	138	250	6350	0.1	2.5	0
Argon	Air	15	1.03	40	2.76	17	1.17	40	2.76	79	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.250” (6.4 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Aluminum - 200 Amps - Air Plasma / Nitrogen Shield

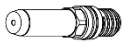

Outer Cap
BK602365


Shield Cap
BK602345


Retaining Cap
BK602332


Nozzle
BK602317


Swirl Ring
BK602359


Electrode
BK602304


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)		Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.2500	1/4	P	17	81	35	81	163	170	0.190	0.300	600	0.135	
0.3125	5/16	P					166	145		0.325	700	0.136	
0.3750	3/8	P						125		0.350	800	0.133	
0.5000	1/2	Q					167	100	0.175	0.375	900	0.129	
0.6250	5/8	Q					172	90		0.400	1000	0.133	
0.7500	3/4	O					173	65		0.425	1200	0.135	
1.0000	1	Q					183	35	0.200		1500	0.148	**
1.2500	1 ¼	Q					195	20	0.225			0.162	**
1.5000	1 ½	S					206	13	0.250			0.176	**

Metric*

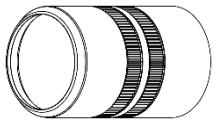
Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mmpm)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
6	P	1.17	5.58	2.41	5.58	162	4450	4.8	7.5	580	3.4	
8	P					166	3675		8.3	700	3.5	
10	P						3075		9.0	810	3.4	
12	Q					167	2675	4.5	9.4	880	3.3	
15	Q					171	2350	4.4	10.0	970	3.4	
20	O					174	1525	4.5	10.8	1240	3.5	
25	Q					182	925	5.0		1500	3.7	**
30	Q					192	625	5.5			4.0	**
35	S					201	425	6.0			4.3	**

Marking* - For All Material Thicknesses

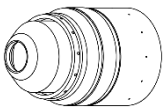
Type of Gas (Plasma)	Type of Gas (Shield)	Preflow (psi)	Preflow (bar)	Plasma (psi)	Plasma (bar)	Shield (psi)	Shield (bar)	Postflow (psi)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (ipm)	Travel Speed (mm/min)	Marking Height (in)	Marking Height (mm)	Pierce Time (msec)
Nitrogen	Nitrogen	17	1.17	17	1.17	17	1.17	17	1.17	134	250	6350	0.1	2.5	0
Argon	Air	17	1.17	40	2.76	17	1.17	40	2.76	80	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.250” (6.4 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.

Aluminum - 300 Amps - Air Plasma / Nitrogen Shield

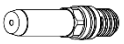

Outer Cap
BK602365


Shield Cap
BK602346


Retaining Cap
BK602369


Nozzle
BK602319


Swirl Ring
BK602360


Electrode
BK602305


Torch
BK602622, BK602625

Imperial*

Material Thickness (in)		Cut Quality	Preflow (psi)	Plasma (psi)	Shield (psi)	Postflow (psi)	Arc Voltage (volts)	Travel Speed (ipm)	Cutting Height (in)	Pierce Height (in)	Pierce Time (msec)	Kerf Width (in)	
0.3750	3/8	P	14	72	49	72	163	175	0.230	0.425	600	0.173	
0.5000	1/2	P					160	135	0.200	0.450	700	0.157	
0.6250	5/8	P					166	115	0.230	0.500	800	0.164	
0.7500	3/4	O					168	93	0.240	0.600	1000	0.165	
1.0000	1	O					177	65	0.280	0.800	1700	0.173	
1.2500	1 ¼	Q			40		182	50	0.300	0.500	1500	0.185	**
1.5000	1 ½	Q					193	27	0.320			0.194	**
1.7500	1 ¾	S					207	16	0.340		2000	0.215	**
2.0000	2	S					220	11	0.360			0.240	**

Metric*

Material Thickness (mm)	Cut Quality	Preflow (bar)	Plasma (bar)	Shield (bar)	Postflow (bar)	Arc Voltage (volts)	Travel Speed (mmpm)	Cutting Height (mm)	Pierce Height (mm)	Pierce Time (msec)	Kerf Width (mm)	
10	P	0.97	4.96	3.38	4.96	163	4300	5.7	10.9	610	4.3	
12	P					161	3650	5.2	11.3	680	4.1	
15	P					164	3050	5.6	12.4	770		
20	O					169	2250	6.2	16.0	1100	4.2	
25	O					176	1700	7.0	20.0	1660	4.4	
30	Q			2.93		181	1375	7.5	14.8	1560	4.6	
35	Q			2.76		188	975	7.9	12.7	1500	4.8	**
40	Q					197	600	8.3		1650	5.1	**
45	S					208	400	8.7		2000	5.5	**
50	S					218	300	9.1			6.0	**

Marking* - For All Material Thicknesses

Type of Gas (Plasma)	(Shield)	Preflow (psi)	(bar)	Plasma (psi)	(bar)	Shield (psi)	(bar)	Postflow (psi)	(bar)	Arc Voltage (volts)	Travel Speed (ipm)	(mm/min)	Marking Height (in)	(mm)	Pierce Time (msec)
Nitrogen	Nitrogen	14	0.97	15	1.03	15	1.03	15	1.03	118	250	6350	0.1	2.5	0
Argon	Air	14	0.97	40	2.76	15	1.03	40	2.76	65	100	2540	0.1	2.5	0

* Use an arc transfer height (ignition height) of 0.300” (7.6 mm) for cutting and 0.100” (2.5 mm) for marking.
** Edge start recommended.