CIGWELD

AN ESAB BRAND

100+ YEARS OF WELDING INNOVATION

BLUE VENOM

PCX35
PCX45

PCX CUT TECHNOLOGY

OPERATING MANUAL

CIGWELD
AN ESAB BRAND

WE APPRECIATE YOUR BUSINESS!

Congratulations on your new CIGWELD product. We are proud to have you as our customer and will strive to provide you with the best service and reliability in the industry. This product is backed by our extensive warranty and world-wide service network.

This Operating Manual has been designed to instruct you on the correct use and operation of your CIGWELD product. Your satisfaction with this product and its safe operation is our ultimate concern. Therefore please take the time to read the entire manual, especially the Safety Precautions. They will help you to avoid potential hazards that may exist when working with this product.

We have made every effort to provide you with accurate instructions, drawings, and photographs of the product(s) while writing this manual. However errors do occur and we apologise if there are any contained in this manual.

Due to our constant effort to bring you the best products, we may make an improvement that does not get reflected in the manual. If you are ever in doubt about what you see or read in this manual with the product you received, then check for a newer version of the manual on our website or contact our customer support for assistance.

YOU ARE IN GOOD COMPANY!

The Brand of Choice for Contractors and Fabricators Worldwide.

CIGWELD is a Market Leading Brand of Arc Welding Products for ESAB. We are a mainline supplier to major welding industry sectors in the Asia Pacific and emerging global markets including; Manufacturing, Construction, Mining, Automotive, Engineering, Rural and DIY.

We distinguish ourselves from our competition through market-leading, dependable products that have stood the test of time. We pride ourselves on technical innovation, competitive prices, excellent delivery, superior customer service and technical support, together with excellence in sales and marketing expertise.

Above all, we are committed to develop technologically advanced products to achieve a safer working environment for industry operators.

100+ YEARS OF WELDING INNOVATION

WARNING

Read and understand this entire Manual and your employer's safety practices before installing, operating, or servicing the equipment. While the information contained in this Manual represents the Manufacturer's best judgement, the Manufacturer assumes no liability for its use. Disclaimer: The images and values depicted in this manual are for illustration purposes only and may vary to actual values.

CIGWELD PCX35/45 PLASMA OPERATING MANUAL NUMBER:663005

FOR:

P/N 661600

P/N 661602

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CIGWELD Pty Ltd
CIGWELD An ESAB Brand
71 Gower Street, Preston VIC 3072 Australia

Customer Care:
Tel: 1300 654 674 | Intl Tel: +61 3 9474 7400
Email: support@cigweld.com.au
CIGWELD.COM.AU

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Publication Date: 21-05-2026

Revision Date:

RECORD THE FOLLOWING INFORMATION FOR WARRANTY PURPOSES:

Where Purchased:

Purchase Date:

Equipment Serial #:

BE SURE THIS INFORMATION REACHES THE OPERATOR. YOU CAN GET EXTRA COPIES FOR FREE BY DOWNLOADING FROM THE CIGWELD WEBSITE.

CAUTION

These INSTRUCTIONS are for experienced operators. If you are not fully familiar with the principles of operation and safe practices for arc welding and cutting equipment, we urge you to read our booklet, “Precautions and Safe Practices for Arc Welding, Cutting, and Gouging,” Booklet 0-5407. Do NOT permit untrained persons to install, operate, or maintain this equipment. Do NOT attempt to install or operate this equipment until you have read and fully understand these instructions. If you do not fully understand these instructions, contact your supplier for further information. Be sure to read the Safety Precautions before installing or operating this equipment.

USER RESPONSIBILITY

This equipment will perform in conformity with the description thereof contained in this manual and accompanying labels and/or inserts when installed, operated, maintained and repaired in accordance with the instructions provided. This equipment must be checked periodically. Malfunctioning or poorly maintained equipment should not be used. Parts that are broken, missing, worn, distorted or contaminated should be replaced immediately. Should such repair or replacement become necessary, the manufacturer recommends that a telephone or written request for service advice be made to the Authorised Distributor from whom it was purchased.

This equipment or any of its parts should not be altered without the prior written approval of the manufacturer. The user of this equipment shall have the sole responsibility for any malfunction which results from improper use, faulty maintenance, damage, improper repair or alteration by anyone other than the manufacturer or a service facility designated by the manufacturer.

READ AND UNDERSTAND THE OPERATING MANUAL BEFORE INSTALLING OR OPERATING. PROTECT YOURSELF AND OTHERS!

CIGWELD
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DECLARATION OF CONFORMITY

According to AS/NZS 3820:2020, Essential Safety Requirements for Electrical Equipment Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2017

TYPE OF EQUIPMENT

Plasma Cutting Power Supply

TYPE DESIGNATION

Serial number sequence for Plasma Cutting Power Supply

Power Source:

1.PCX35-WC54125WW####

2. PCX45-WC54225WW####

BRAND NAME OR TRADEMARK

CIGWELD

THE FOLLOWING HAS BEEN USED IN THE DESIGN:

IEC 60974-1	Arc Welding Equipment, Part 1: Welding Power Sources
EN 60974	Arc Welding Equipment, Part 1: Welding Power Sources
CAN/CSA-E60974	Arc Welding Equipment, Part 1: Welding Power Sources
AS 60974	Arc Welding Equipment, Part 1: Welding Power Sources
GB/T 15579.1	Arc Welding Equipment, Part 1: Welding Power Sources
AS 60974.10	Arc Welding Equipment, Part 10: Electromagnetic compatibility(EMC) requirements

ADDITIONAL INFORMATION:

Restrictive use, Class A equipment, intended for use in location other than residential. This equipment is also in compliance with the essential requirements of EU Directives 2014/30/EU and 2014/35/EU.

MANUFACTURER OR HIS AUTHORISED REPRESENTATATIVE ESTABLISHED WITHIN THE EEA NAME ADDRESS AND TELEPHONE NO:

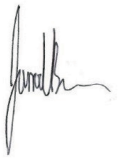
CIGWELD Pty Ltd 71 Gower Street Preston, Victoria, Australia, 3072, Phone: +61 3 9474 7400; www.cigweld.com.au

BY SIGNING THIS DOCUMENT, THE UNDERSIGNED DECLARES AS MANUFACTURER,OR THE MANUFACTURER'S AUTHORISED REPRESENTATIVE, THAT THE EQUIPMENT IN QUESTION COMPLIES WITH THE SAFETY REQUIREMENTS STATED ABOVE.

PLACE/DATE

Preston
21-05-2026

SIGNATURE



Jarrod Brennan
Managing Director

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SECTION 1: SAFETY NOTICE

WARNING

Cutting can be dangerous to the operator, people in or near the work area, and the surrounding environment if the machine is not operated properly. Therefore, cutting must be strictly and fully in compliance with all relevant safety regulations. Read and understand this manual carefully before operation.

1.01 INSTALLATION PRECAUTIONS

Electrical Shock Hazard

- Ensure proper grounding according to applicable standards and regulations.
- Never touch live electrical parts with bare skin, wet gloves, or wet clothing. Always maintain proper insulation between yourself, the ground, and the workpiece.
- Do not operate the machine unless all covers and panels are securely in place.
- Confirm that the workstation is in a safe operating condition before powering on.

Fire and Explosion

- Operate the cutting machine in a dry indoor location.
- Maintain a clearance of at least 30cm between the machine and any walls or nearby objects.
- Keep all flammable materials away from the cutting area.
- A fire extinguisher must be available nearby. Ensure personnel are trained in its proper use.
- Do NOT install or operate the machine in areas containing flammable gases or dust/material.

CAUTION

Moving the Cutting Machine

1. Always turn off and isolate power from the main power before moving the machine.
2. If using lifting equipment:
   - Ensure all items are firmly fastened.
   - Ensure that the machine enclosure is in place.

CAUTION

Replacing Parts

1. Only qualified personnel should replace machine components.
2. During parts replacement, ensure no foreign objects (e.g. screws, washers, wires, metal fragments) fall into the machine.
3. When replacing circuit boards:
   - Confirm all wiring is correctly connected.
   - Test the machine to ensure normal operation before resuming cutting.
   - Incorrect wiring can cause equipment damage or present safety risks.

1.02 GENERAL INFORMATION

NOTES, CAUTIONS AND WARNINGS

Throughout this manual, notes, cautions, and warnings are used to highlight important information. These highlights are categorised as follows:

NOTE

An operation, procedure, or background information which requires additional emphasis or is helpful in efficient operation of the system.

WARNING

A procedure which, if not properly followed, may cause damage to the equipment.

WARNING

A procedure which, if not properly followed, may cause injury to the operator or others in the operating area.

IMPORTANT SAFETY PRECAUTIONS

WARNING

OPERATION AND MAINTENANCE OF PLASMA ARC EQUIPMENT CAN BE DANGEROUS AND HAZARDOUS TO YOUR HEALTH.

Plasma arc cutting produces intense electric and magnetic emissions that may interfere with the proper function of cardiac emakers, hearing aids, or other electronic health equipment. Persons who work near plasma arc cutting applications should consult their medical health professional and the manufacturer of the health equipment to determine whether a hazard exists.

To prevent possible injury, read, understand and follow all warnings, safety precautions and instructions before using the equipment. Contact your local distributor if you have any questions.

GASES AND FUMES

Gases and fumes produced during the plasma cutting process can be dangerous and hazardous to your health.

- Keep all fumes and gases away from the breathing area. Keep your head out of the welding fume plume.
- Use an air-supplied respirator if ventilation is not adequate to remove all fumes and gases.

- The kinds of fumes and gases from the plasma arc depend on the kind of metal being used, coatings on the metal, and the different processes. You must be very careful when cutting or welding any metals which may contain one or more of the following:

Antimony	Chromium	Mercury
Arsenic	Cobalt	Nickel
Barium	Copper	Selenium
Beryllium	Lead	Silver
Cadmium	Manganese	Vanadium

- Always read the Material Safety Data Sheets (MSDS) that should be supplied with the material you are using. These MSDSs will give you the information regarding the kind and amount of fumes and gases that may be dangerous to your health.
- Use special equipment, such as water or down draft cutting tables, to capture fumes and gases.
- Do not use the plasma torch in an area where combustible or explosive gases or materials are located.
- Phosgene, a toxic gas, is generated from the vapours of chlorinated solvents and cleansers. Remove all sources of these vapour.

ELECTRIC SHOCK

Electric Shock can injure or kill. The plasma arc process uses and produces high voltage electrical energy. This electric energy can cause severe or fatal shock to the operator or others in the workplace.

1. Do not touch live electrical parts.
2. Wear dry, hole-free insulating gloves and body protection.
3. Insulate yourself from work and ground using dry insulating mats or covers.
4. Disconnect input power or stop engine before installing or servicing this equipment. Lock input power disconnect switch open, or remove line fuses so power cannot be turned on accidentally.
5. Properly install and ground this equipment according to its Operating Manual and national, state, and local codes.
6. Turn off all equipment when not in use. Disconnect power to equipment if it will be left unattended or out of service.
7. Use fully insulated electrode holders. Never dip holder in water to cool it or lay it down on the ground or the work surface. Do not touch holders connected to two welding machines at the same time or touch other people with the holder or electrode.
8. Do not use worn, damaged, undersized, or poorly spliced cables.
9. Do not wrap cables around your body.
10. Ground the workpiece to a good electrical (earth) ground.
11. Do not touch electrode while in contact with the work (ground) circuit.
12. Use only well-maintained equipment. Repair or replace damaged parts at once.
13. In confined spaces or damp locations, do not use a welder with AC output unless it is equipped with a voltage reducer. Use equipment with DC output.
14. Wear a safety harness to prevent falling if working above floor level.
15. Keep all panels and covers securely in place.

FIRE AND EXPLOSION

Fire and explosion can be caused by hot slag, sparks, or the plasma arc.

- Be sure there is no combustible or flammable material in the workplace. Any material that cannot be removed must be protected.
- Ventilate all flammable or explosive vapors from the workplace.
- Do not cut or weld on containers that may have held combustibles.
- Provide a fire watch when working in an area where fire hazards may exist.
- Hydrogen gas may be formed and trapped under aluminium workpieces when they are cut underwater or while using a water table. DO NOT cut aluminum alloys underwater or on a water table unless the hydrogen gas can be eliminated or dissipated.
- Trapped hydrogen gas that is ignited will cause an explosion.

NOISE

Noise can cause permanent hearing loss. Plasma arc processes can cause noise levels to exceed safe limits. You must protect your ears from loud noise to prevent permanent loss of hearing.

- To protect your hearing from loud noise, wear protective ear plugs and/or ear muffs. Protect others in the workplace.
- Noise levels should be measured to be sure the decibels (sound) do not exceed safe levels.
- For information on how to test for noise, see item 1, Publications, in this manual.

PLASMA ARC RAYS

Plasma Arc Rays can injure your eyes and burn your skin. The plasma arc process produces very bright ultra violet and infra red light. These arc rays will damage your eyes and burn your skin if you are not properly protected.

- To protect your eyes, always wear a welding helmet or shield. Also always wear safety glasses with side shields, goggles or other protective eye wear.
- Wear welding gloves and suitable clothing to protect your skin from the arc rays and sparks.
- Keep helmet and safety glasses in good condition. Replace lenses when cracked, chipped or dirty.
- Protect others in the work area from the arc rays. Use protective booths, screens or shields.
- Use the shade lens for Arc Cutting as suggested:

Arc Current	Suggested Shade No.
50 - 100	10
100 - 400	12
400 - 800	14

These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workpiece.

LEAD WARNING

Plasma products contain chemicals, including lead, or otherwise produces chemicals known to the State of California to cause cancer, birth defects and other reproductive harm. Wash hands after handling.

1.03 SCRAP DISPOSAL

CAUTION

Be cautious when disposing of parts from the Plasma machine:

- The electrolytic caitors on the main circuit or circuit boards may still hold a dangerous charge and can burst if handled improperly.
- Waste parts from the Plasma machine are classified as industrial waste and must be disposed of according to local regulations for electronic and industrial components.

SECTION 2:
PRODUCT OVERVIEW

2.01 PRODUCT FEATURES

The PCX35/45 first adopts PFC (Power Factor Correction) technology. PFC (Power Factor Correction) is a technology to improve power utilisation efficiency. By controlling the input current waveform to synchronised with the input voltage waveform, the harmonic content is reduced. The main purposes of PFC are to reduce power loss, improve power quality, and reduce electromagnetic interference (EMI) and electromagnetic compatibility (EMC) issues.

The PCX35/45 cutting machine is a rectifier adopting top-notch frequency conversion technology, which can be applied to plasma cutting systems using compressed air.

The PCX35/45 cutting machine converts the working voltage of 50/60Hz frequency into high-frequency voltage (50KHz) through high-power devices Insulated Gate Bipolar Transistor (IGBT), then steps down the voltage and regulates the current, and obtains high-power cutting current through PWM technology.

The plasma cutting machine series can generate a stronger, more concentrated, and stable arc. Due to the rapid flow of air, the arc is severely compressed, and the temperature can reach 10,000-15,000 degrees Celsius, forming an electrolyte region, thereby releasing a strong plasma arc.

This machine has functions of ordinary cutting, gouging and grid cutting, as well as auxiliary functions such as pre-gas time selection, post-gas time selection, gas detection, 2T/4T, etc.

Compared with other cutting machine products, this series of machines adopts advanced electronic circuits, which can supply power and control operations quickly, and has smooth cutting operation and extremely high transmission efficiency performance.

This series of cutting machines can easily set different cutting powers, the output current is constant and adjustable, and the operation performance is excellent. Usually, the transmission efficiency can reach more than 83%.

This machine has a wide range of uses and can be applied to the cutting process of stainless steel, carbon steel, copper and other non-ferrous metals.

Thank you for purchasing our products and looking forward to receiving your valuable comments. Our company is committed to providing the best quality products and services.

2.02 BLOCK DIAGRAM OF THE MACHINE STRUCTURE

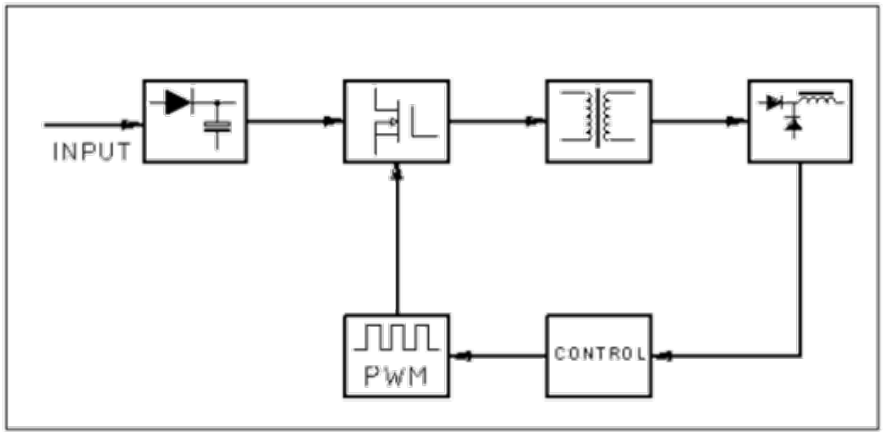


Figure 2-1: Overall structure of the machine

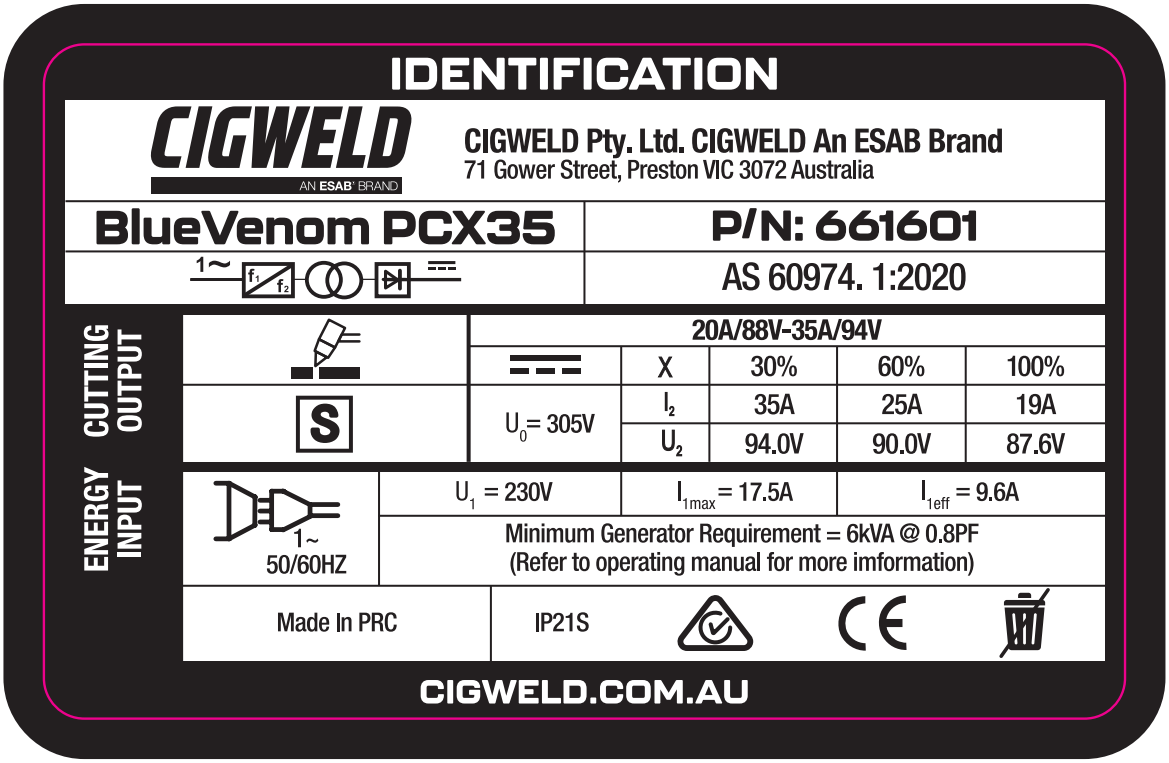
SECTION 3: TECHNICAL PARAMETER

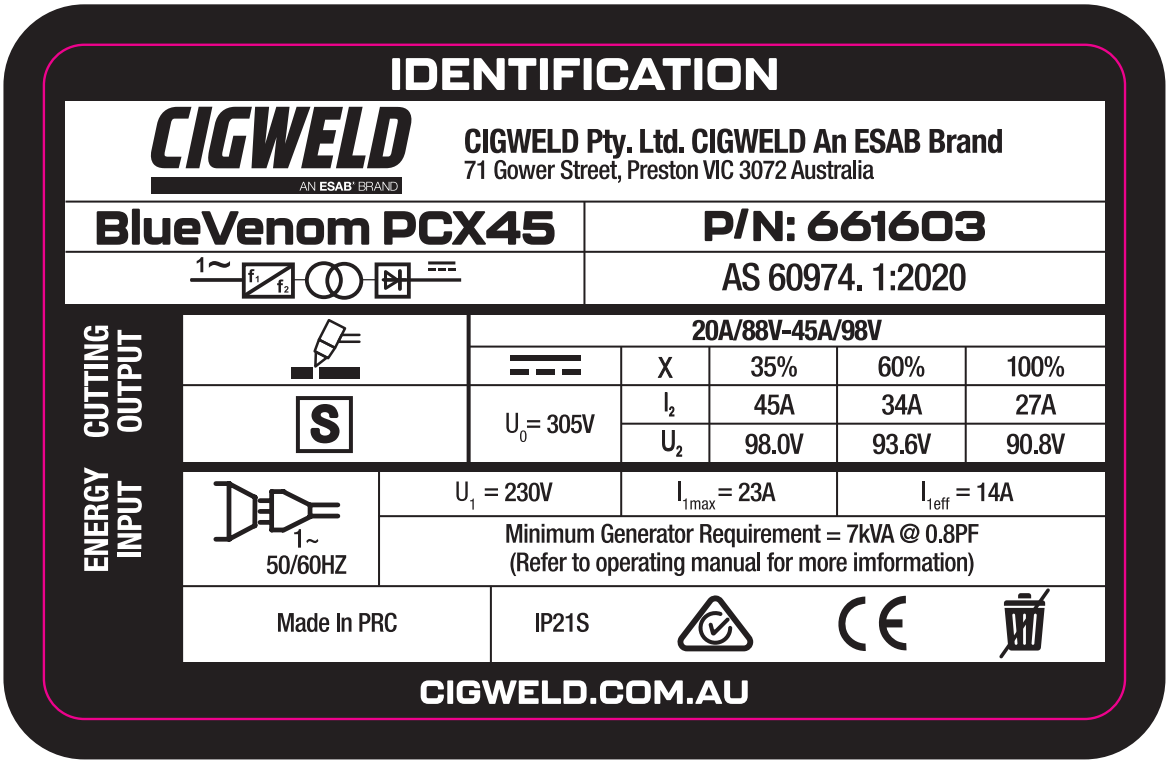
3.01 TECHNICAL SPECIFICATIONS - PCX35/ PCX45

MODEL / PARAMETER	BLUEVENOM PCX35	BLUEVENOM PCX45
Mild Steel Clean Cut	12mm	16mm
Mild Steel Severance	16mm	25mm
Stainless Clean Cut	10mm	12mm
Aluminium Clean Cut	10mm	12mm
Aluminium Gouge	6mm	8mm
Power Supply (Voltage)	Single Phase 10A Plug 230V ± 15%	Single Phase 15A Plug 230V ± 15%
Australian Standard	AS 60974.1:2020	AS 60974.1:2020
Nominal Supply Frequency	50/60Hz	50/60Hz
Supply Lead & Plug	10 Amp	15 Amp
Amperage Range	20A – 35A	20A – 45A
Duty Cycle @ 40°	35A @ 35%, 94.0V	45A @ 35%, 98.0V
Input Air Required	0.38 – 0.75 MPa (5.5 – 7.5 bar)	0.38 – 0.75 MPa (5.5 – 7.5 bar)
Minimum Generator Required	6 kVA (0.8 Power Factor at Max Amps)	7 kVA (0.8 Power Factor at Max Amps)
Weight	8.8kg	9.1kg
Dimensions	483(L) x 147(W) x 292(H) mm	483(L) x 147(W) x 292(H) mm

3.02 RATING PLATE AND SPECIFICATIONS

PLASMA MACHINE RATING PLATES





SECTION 4:
SYSTEM INSTALLATION

4.01 OPERATION REQUIREMENTS

ENVIRONMENT REQUIREMENTS FOR OPERATION AND INSTALLATION

Please read the following notes when selecting the operation environment:

Consider the following when choosing where to operate the machine: Avoid using the machine in areas with dust, metal particles, or corrosive chemical gases.

1. Do not operate the machine in environments with explosive or flammable gases.
2. Ambient temperature should be between -10°C and +40°C. If used in environments above +40°C, take extra steps such as forced cooling or reduce usage time.
3. Humidity should be below 90% with no condensation.
4. Avoid direct wind blowing onto the cutting area. Use a wind shield, if necessary, as wind can affect cut quality.

OPERATION REQUIREMENTS

Leave at least 30 cm of space between the cutting machine and any walls or surrounding equipment. This ensures proper airflow and safe operation.

4.02 POWER SOURCE CONTROLS,INDICATORS AND FEATURES

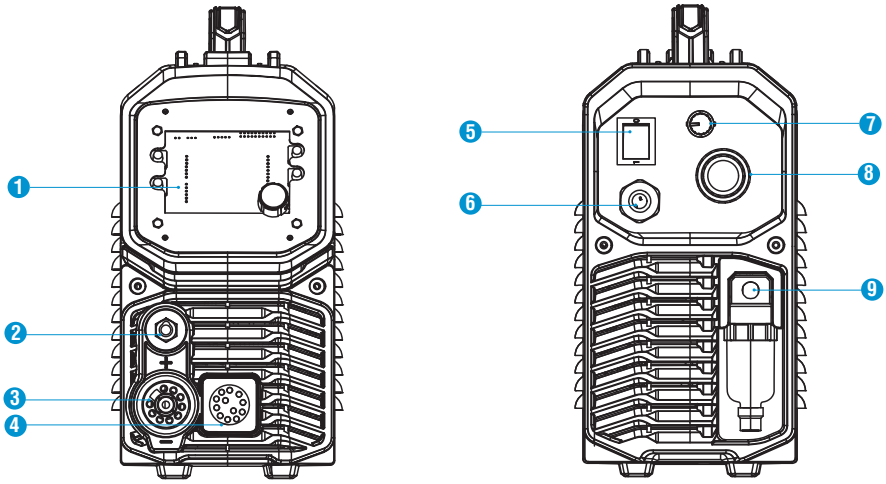


Figure 4-1: Power Source Controls, Indicators and Features

1. LED Display.
2. Euro Connector (+).
3. Central Connector.
4. CNC Connector.
5. Power Switch.
6. Power Cable.
7. CNC Voltage Divider Switch.
8. Pressure Adjustment Knob.
9. Air Inlet Port.

4.03 ELECTRICAL CONNECTION

1. Qualified, trained professionals must do all electrical work.
2. Turn off the power at the distribution box before doing any wiring.
3. Use only high-quality, standard-compliant cables.
4. Never operate electrical components with wet hands.
5. Do not place heavy objects on power cables.
6. Do not use water pipes or steel reinforcement (rebar) as grounding, they are not reliable.

POWER CABLE CONNECTION

WARNING

Risk of Electric Shock can be fatal! High voltage may remain inside the machine even after switching off the power. Do not touch any internal components.

WARNING

Qualified Electrician Only! All power connections must be made by a professional electrician.

WARNING

Do Not Miswire! Never connect the live wire (e.g., red or blue) to ground.

WARNING

Disconnect input power from the power supply and input cable before attempting this procedure.

WARNING

Overvoltage Can Damage the Machine!

HOW TO CONNECT THE POWER CABLE

1. Make sure the main power is switched OFF before connecting.
2. Connect the machine's input power cable securely to the output terminals of the main power.
3. Ensure all connections are tight and reliable.

4.04 SYSTEM INSTALLATION

WARNING

Risk of Electric Shock!

All electrical connections must be made with the power turned off.

UNPACKING

1. Use the packing lists to identify and account for each item. Quantity 1 of each:
   - Power Source
   - BlueVenom 60A Torch
   - Work Cable and Clamp
   - Wrench for Air Filter
   - Operating Manual
   - Cutting Tip 60amp
   - Stand-off Guide
2. Inspect each item for possible shipping damage. If damage is evident, contact your distributor and / or shipping company before proceeding with the installation.
3. Record Power Supply and Torch model and serial numbers, purchase date and vendor name, in the information block at the front of this manual.

LIFTING OPTIONS

The Power Supply includes a handle for hand lifting only. Be sure unit is lifted and transported safely and securely.

WARNING

Do not touch live electrical parts.

Disconnect input power cord before moving unit.

FALLING EQUIPMENT can cause serious personal injury and can damage equipment.

HANDLE is not for mechanical lifting.

- Only persons of adequate physical strength should lift the unit.
- Lift unit by the handles, using two hands. Do not use straps for lifting.
- Use optional cart or similar device of adequate caity to move unit.
- Place unit on a proper skid and secure in place before transporting with a fork lift or other vehicle.

PRIMARY INPUT POWER CONNECTIONS

CAUTION

Check your power source for correct voltage before plugging in or connecting the unit. The primary power source, fuse, and any extension cords used must conform to local electrical code and the recommended circuit protection and wiring requirements as specified in Section 2.

PRESSURED AIR CONNECTION

Connecting Pressured Air supply to Unit

The connection is same for compressed air or high pressure cylinders. Refer to the following two subsections if an optional air line filter is to be installed.

1. Connection the air line to the inlet port. The illustration shows typical fittings as an example.

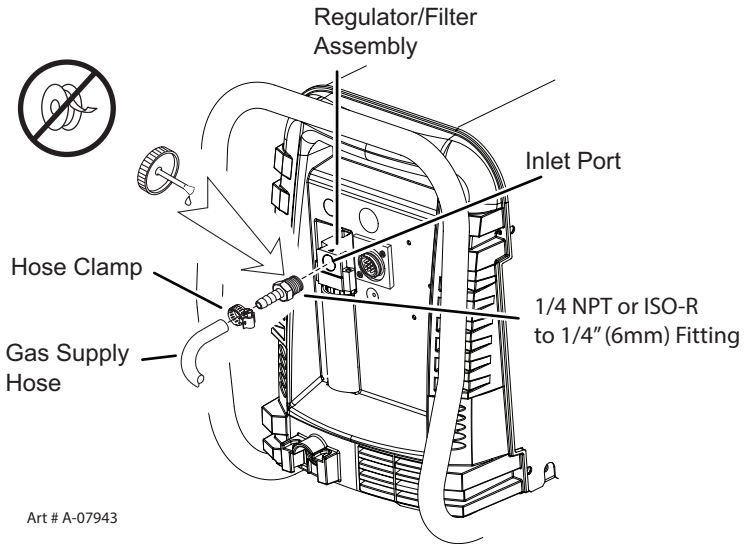


Figure 4-2: Air Connection to Inlet Port

Figure 4-3: PCX35/45 Air Inlet Port

NOTE: Image for reference purpose only.

NOTE

For a secure seal, apply thread sealant to the fitting threads, according to manufacturer's instructions. Do not use Teflon tape as a thread sealer, as small particles of the tape may break off and block the small air passages in the torch.

Installing Optional Singe-Stage Air Filter

An optional filter kit is recommended for improved filtering with compressed air, to keep moisture and debris out of the torch.

1. Attach the Single - Stage Filter Hose to the Inlet Port.
2. Attach the Filter Assembly to the filter hose.
3. Connect the air line to the Filter.The illustration shows typical fittings as an example.

NOTE

For a secure seal, apply thread sealant to the fitting threads, according to the maker's instructions. Do Not use Teflon tape as a thread sealer, as small particles of the tape may break off and block the small air passages in the torch. Connect as follows:

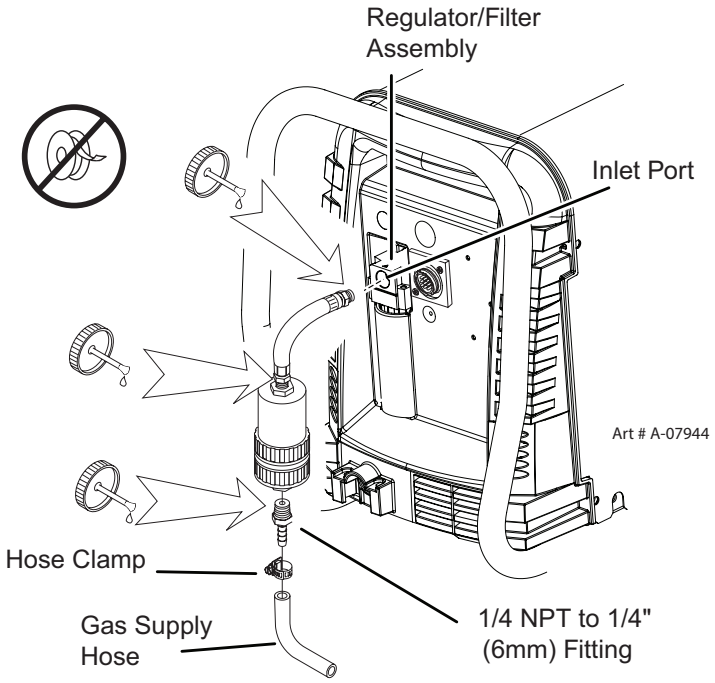


Figure 4-4: Optional Single-Stage Filter Installation.

NOTE: Image for reference purpose only.

Using High Pressure Air Cylinders

When using high pressure air cylinders as the air supply:

1. Refer to the manufacturer's specifications for installation and maintenance procedures for high pressure regulators.
2. Examine the cylinder valves to be sure they are clean and free of oil, grease or any foreign material. Briefly open each cylinder valve to blow out any dust which may be present.
3. The cylinder must be equipped with an adjustable high - pressure regulator capable of outlet pressures up to 100 psi (6.9 bar) maximum and flows of at least 300 scfh (141.5 lpm).
4. Connect supply hose to the cylinder.

NOTE

Pressure should be set at 100 psi (6.9 bar) at the high pressure cylinder regulator.

Supply hose must be at least 1/4 inch (6 mm) I.D.

For a secure seal, apply thread sealant to the fitting threads, according to manufacturer's instructions. Do Not use Teflon tape as a thread sealer, as small particles of the tape may break off and block the small air passages in the torch.

4.05 TORCH INSTALLATION

TORCH CONNECTIONS

Connect only the BlueVenom 60A Plasma Torch to this power supply.

1. Align the male Euro Connector (on the torch lead) with the female receptacle. Push the male connector into the female receptacle. The connectors should push together with a small amount of pressure.
2. Secure the connection by turning the locking nut clockwise until it clicks. DO NOT use the locking nut to pull the connection together. Do not use tools to secure the connection.
3. The system is ready for operation.

WARNING

Disconnect primary power at the source before connecting the torch.

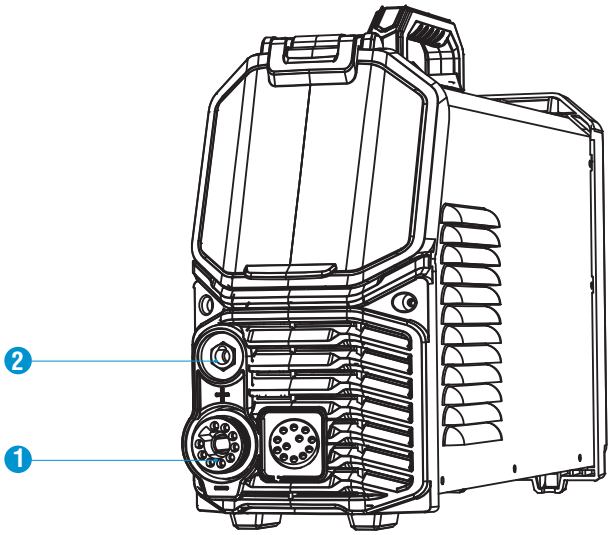


Figure 4-5: Torch Connection

1. Connect the cutting torch to the front panel torch socket and tighten clockwise.
2. Connect the working clamp to the quick socket and tighten clockwise.

Check Air Quality

To test the quality of air:

1. Put the ON / OFF switch (back of machine) in the ON (up) position.
2. Click "CUT" on the front panel of the machine.
3. Place a welding filter lens in front of the torch and turn on the air by clicking the purge button for few seconds. **Do not start an arc!**

Any oil or moisture in the air will be visible on the lens.

NOTE

An adapter is required to be installed in the power supply if converting a hand torch system to operate a machine torch.

WARNING

Disconnect primary power at the source before connecting the torch.

The mechanical torch includes a positioning tube with rack and pinch block assembly.

1. Mount the torch assembly on the cutting table.
2. To obtain a clean vertical cut, use a square to align the torch perpendicular to the surface of the workpiece.
3. The proper torch parts (shield cup, tip, start cartridge, and electrode) must be installed for the type of operation.

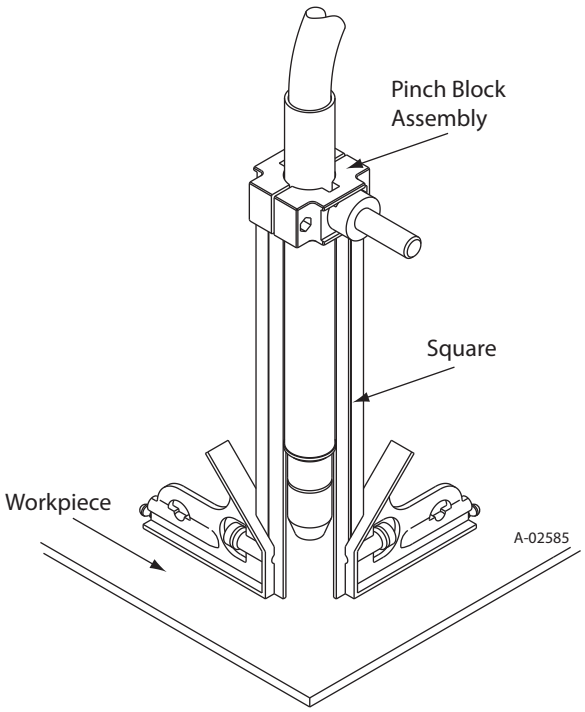


Figure 4-6: Mechanical Torch Set-Up

SECTION 5:
TORCH OPERATION

5.01 PACKING LIST

Use the packing list to identify and account for each item.

DESCRIPTION	QUANTITY
BlueVenom 60A Plamsa Torch	1
Cutting Tip 0.8mm (fitted)	1
Cutting Tip 0.9mm	1
Wrench for Cutting Tip	1
Operating Manual	1

5.02 MODEL SPECIFICATION

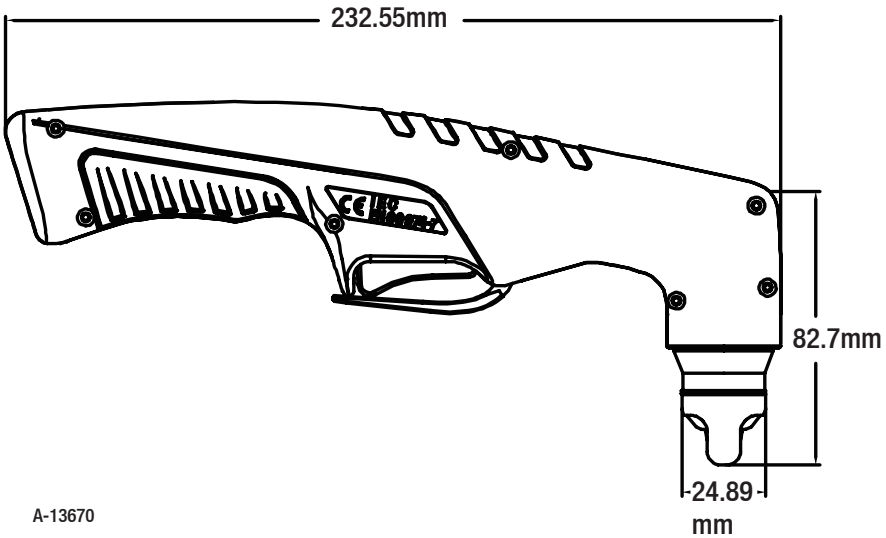


Figure 5-1: BlueVenom 60A Plasma Torch

DESCRIPTION	RATINGS
Fitted Cutting Tip	0.8mm (suited to BlueVenom Plasma 35A)
Spare Cutting Tip	0.9mm (suited to BlueVenom Plasma 45A)
Parts in Place	Built - in switch in torch head Circuit Rating 12 VDC
Type Cooling	Combination of ambient air and gas stream through torch
Ambient Temperature	40 °C
Rated Current	60 Amps
Duty Cycle	60%
Rated Voltage	500V
Operating Pressure	400 - 600kPA
Gas Flow	110 - 150LPM
Cable Length	5 metres
Connection	Euro connection with 8 pin plug

5.03 INTRODUCTION TO PLASMA

A. PLASMA GAS FLOW

Plasma is a gas which has been heated to an extremely high temperature and ionized so that it becomes electrically conductive. The plasma arc cutting process uses this plasma to transfer an electrical arc to the workpiece. The metal to be cut or removed is melted by the heat of the arc and then blown away.

In a Plasma Cutting Torch a cool gas enters Zone B, where an arc between the electrode and the torch tip heats and ionizes the gas. The main cutting arc then transfers to the workpiece through the column of plasma gas in Zone C.

By forcing the plasma gas and electric arc through a small orifice, the torch delivers a high concentration of heat to a small area. The stiff, constricted plasma arc is shown in Zone C. Direct current (DC) straight polarity is used for plasma cutting, as shown in the illustration.

Zone A channels a secondary gas that cools the torch. This gas also assists the high velocity plasma gas in blowing the molten metal out of the cut allowing for a fast, slag - free cut.

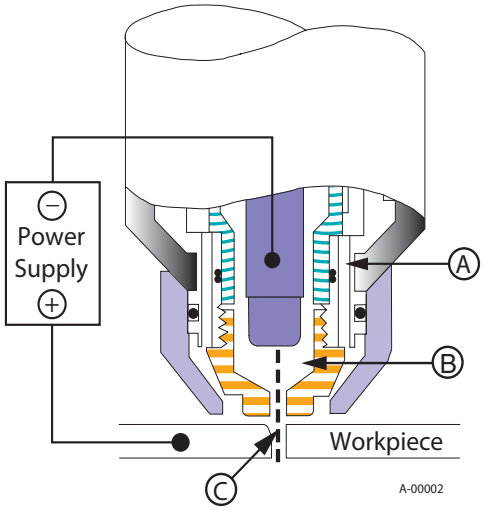


Figure 5-2: BlueVenom 60A Plasma Torch

B. GAS DISTRIBUTION

The single gas used is internally split into plasma and secondary gases.

The plasma gas flows into the torch through the negative lead, through the starter cartridge, around the electrode, and out through the tip orifice.

The secondary gas flows down around the outside of the torch starter cartridge, and out between the tip and shield cup around the plasma arc.

C. MAIN CUTTING ARC

DC power is also used for the main cutting arc. The negative output is connected to the torch electrode through the torch lead. The positive output is connected to the workpiece via the work cable.

5.04 SEQUENCE OF OPERATION

The following is a typical sequence of operation for this power supply.

1. Plug the input power cord into an active circuit.
2. Switch the ON / OFF switch on the rear panel of the power source to ON position. Ensure the LED Display illuminates.
3. Select trigger mode between 2T and 4T.
4. Select mode between cutting, gouge or grid.
5. Check air pressure. The gas flows and the screen displays air pressure.
6. Adjust output current value via control knob on the front control panel.
7. Wear protective clothing, including welding gloves and appropriate eye protection.
8. Hold the torch perpendicular to the workpiece with the front of the tip on the edge of the workpiece at the point where the cut is to start. Pull the trigger. Arc is initiated and cutting process starts. Recommend always start the cutting from the edge of the work piece. Starting from the middle of work piece may damage the shield cup or standoff guide, and reduce life of the tip. The torch can be comfortably held in one hand or steadied with two hands. Position the hand to press the Trigger on the torch handle. With the hand torch, the hand may be positioned close to the torch head for maximum control or near the back end for maximum heat protection. Choose the holding technique that feels most comfortable and allows good control and movement.
9. Complete cutting operation. Release the torch trigger and main arc stops.
10. Set the power supply ON / OFF switch to OFF (down position). Unplug input power cord.

NOTE

For best performance and parts life, always use the correct parts for the type of operation. Please avoid piercing and drag cutting without the use of the standoff guide.

NOTE

The tip should never come in contact with the workpiece.

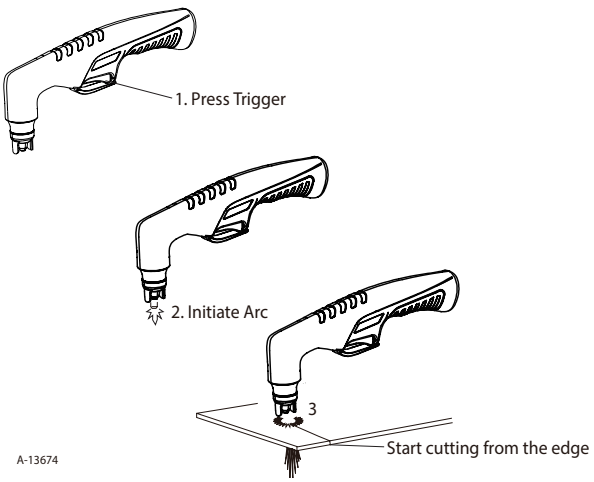


Figure 5-3: BlueVenom 60A Plasma Torch

5.05 CUT QUALITY

NOTE

Cut quality depends heavily on setup and parameters such as torch standoff, alignment with the workpiece, cutting speed, gas pressures, and operator ability.

Cut quality requirements differ depending on application. For instance, nitride build - up and bevel angle may be major factors when the surface will be welded after cutting. Dross - free cutting is important when finish cut quality is desired to avoid a secondary cleaning operation. The following cut quality characteristics are illustrated in the following figure:

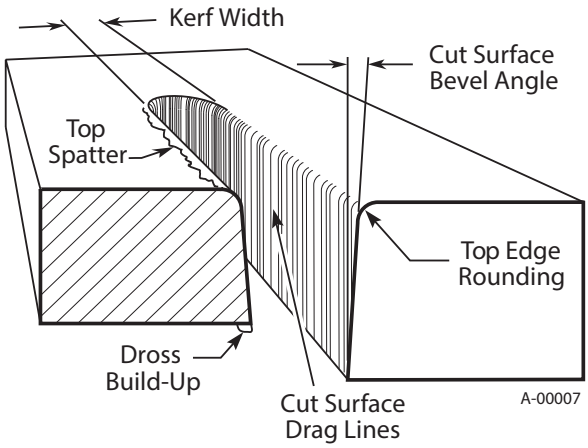


Figure 5-4: BlueVenom 60A Plasma Torch

Cut Surface

The desired or specified condition (smooth or rough) of the face of the cut.

Nitride Build - Up

Nitride deposits can be left on the surface of the cut when nitrogen is present in the plasma gas stream. These buildups may create difficulties if the material is to be welded after the cutting process.

Bevel Angle

The angle between the surface of the cut edge and a plane perpendicular to the surface of the plate. A perfectly perpendicular cut would result in a 0°bevel angle.

Top - Edge Rounding

Rounding on the top edge of a cut due to wearing from the initial contact of the plasma arc on the workpiece.

Bottom Dross Buildup

Molten material which is not blown out of the cut area and resolidifies on the plate. Excessive dross may require secondary cleanup operations after cutting.

Kerf Width

The width of the cut (or the width of material removed during the cut).

Top Spatter (Dross)

Top spatter or dross on the top of the cut caused by slow travel speed, excess cutting height, or cutting tip whose orifice has become elongated.

5.06 GENERAL CUTTING INFORMATION

WARNING

Disconnect primary power at the source before disassembling the torch or torch leads. Disconnect primary power at the source before disassembling the power supply, torch, or torch leads.

Frequently review the Important Safety Precautions at the front of this manual. Be sure the operator is equipped with proper gloves,clothing, eye and ear protection. Make sure no part of the operator's body comes into contact with the workpiece while the torch is activated.

WARNING

Sparks from the cutting process can cause damage to coated, painted, and other surfaces such as glass, plastic and metal.

NOTE

Handle torch leads with care and protect them from damage.

Cut Surface

Improper standoff (the distance between the torch tip and workpiece) can adversely affect tip life as well as shield cup life. Standoff may also significantly affect the bevel angle. Reducing standoff will generally result in a more square cut. Always use the standoff guide on the torch to keep the distance between torch tip and work piece.

Edge Starting

For edge starts, hold the torch perpendicular to the workpiece with the front of the tip near (not touching) the edge of the workpiece at the point where the cut is to start. When starting at the edge of the plate, do not pause at the edge and force the arc to "reach" for the edge of the metal. Establish the cutting arc as quickly as possible.

Dross

When dross is present on carbon steel, it is commonly referred to as either “high speed, slow speed, or topdross”. Dross present on top of the plate is normally caused by too great a torch to plate distance. "Topdross" is normally very easy to remove and can often be wiped off with a welding glove. "Slow speed dross" is normally present on the bottom edge of the plate. It can vary from a light to heavy bead, but does not adhere tightly to the cut edge, and can be easily scraped off. "High speed dross" usually forms a narrow bead along the bottom of the cut edge and is very difficult to remove. When cutting a troublesome steel, it is sometimes useful to reduce the cutting speed to produce "slow speed dross". Any resultant cleanup can be accomplished by scraping, not grinding.

Direction of Cut

In the torches, the plasma gas stream swirls as it leaves the torch to maintain a smooth column ofgas. 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.

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

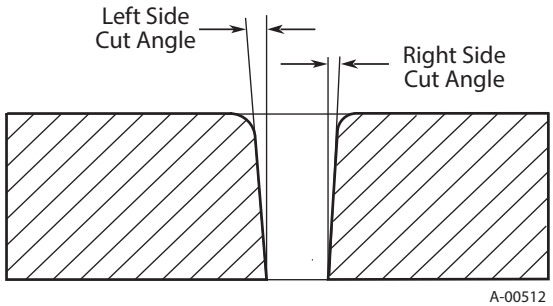


Figure 5-5: BlueVenom 60A Plasma Torch

5.07 COMMON CUTTING FAULTS

PROBLEM - SYMPTOM	COMMON CAUSE
Insufficient Penetration	1. Cutting speed too fast 2. Torch tilted too much 3. Metal too thick 4. Worn torch parts 5. Cutting current too low 6. Non - Genuine Cigweld parts used 7. Incorrect gas pressure
Main Arc Extinguishes	1. Cutting speed too slow 2. Torch standoff too high from workpiece 3. Cutting current too high 4. Work cable disconnected 5. Worn torch parts 6. Non - Genuine Cigweld parts used
Excessive Dross Formation	1. Cutting speed too slow 2. Torch standoff too high from workpiece 3. Worn torch parts 4. Improper cutting current 5. Non - Genuine Cigweld parts used 6. Incorrect gas pressure
Short Torch Parts Life	1. Oil or moisture in air source 2. Exceeding system capability (material too thick) 3. Excessive pilot arc time 4. Gas pressure too low
Difficult Starting	1. Worn torch parts 2. Non - Genuine Cigweld parts used 3. Incorrect gas pressure

SECTION 6: TORCH SERVICE

6.01 GENERAL MAINTENANCE

CLEANING TORCH

Even if precautions are taken to use only clean air with a torch, eventually the inside of the torch becomes coated with residue.

This buildup can affect the arc initiation and the overall cut quality of the torch.

WARNING

Disconnect primary power to the system before disassembling the torch or torch leads.

DO NOT touch any internal torch parts while the AC indicator light of the Power Supply is ON.

The inside of the torch should be cleaned with electrical contact cleaner using a cotton swab or soft we trag. In severe cases, the torch can be removed from the leads and cleaned more thoroughly by pouring electrical contact cleaner into the torch and blowing it through with compressed air.

CAUTION

Dry the torch thoroughly before reinstalling.

6.02 INSPECTION AND REPLACEMENT OF CONSUMBLE TORCH PARTS

WARNING

Disconnect primary power to the system before disassembling the torch or torch leads.

DO NOT touch any internal torch parts while the AC indicator light of the Power Supply is ON.

Remove the consumable torch parts as follows:

NOTE

An operation, procedure, or background information which requires additional emphasis or is helpful in efficient operation of the system.

NOTE

Slag built up on the shield cup that cannot be removed may effect the performance of the system.

1. Unscrew and remove the shield cup from the torch.
2. Inspect the cup for damage. Wipe it clean or replace if damaged.

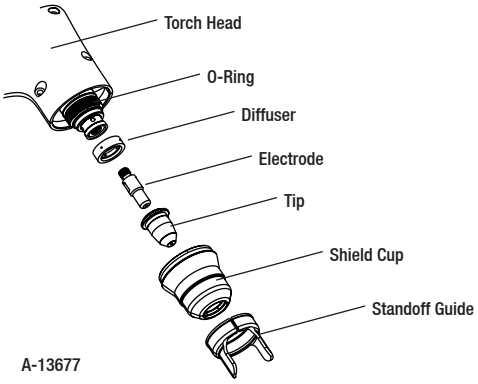


Figure 6-1: Consumable Parts

3. Remove the tip. Check for excessive wear (indicated by an elongated or oversized orifice). Clean or replace the tip if necessary.

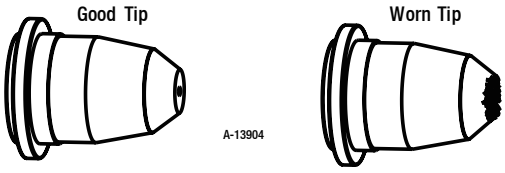


Figure 6-2: Tip Wear

4. Check the start cartridge for free motion. Push the electrode upward it the cartridge lower end can move upward for about 2mm. Replace if necessary.

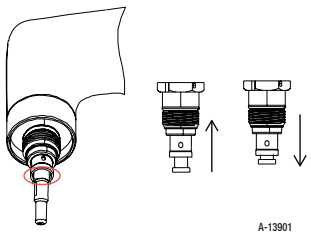


Figure 6-3: Check Start Cartridge

5. Pull the electrode out of the torch head with the wrench supplied in torch package. Check the face of the electrode for excessive wear. Refer to the following figure.

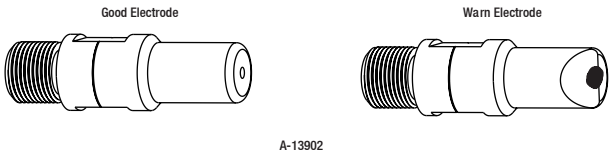


Figure 6-4: Electrode Wear

6. Reinstall the electrode into torch head with the wrench supplied in torch package.
7. Reinstall the desired starter cartridge and tip into the torch head.
8. Hand tighten the shield cup until it is seated on the torch head. If resistance is felt when installing the cup, check the threads before proceeding.

SECTION 7: OPERATION

7.01 OPERATION SETTINGS OF PCX35/45 PLASMA CUTTER

NOTE

The following instructions use AC 230V as an example.

Always connect the input power based on the voltage and parameters listed on the machine's nameplate and model specifications.

1. Visually inspect the machine and that the enclosure is intact and the power cable has no defects. Ensure the machine's power plug is plugged into the correctly rated wall power outlet.
2. Power ON.
   - Turn the main switch to ON (located on the back panel of the machine).
3. Set Parameters.
   - Open the air pressure valve.
   - Adjust the air pressure and flow rate to match the required range. Refer to Section 3.01 Technical Specifications.
   - Set current required.
   - Set Pre & Post gas (or use default values).
4. Connect Torch and work clamp.
   - Connect the BlueVenom 60A plasma torch and the ground clamp to the front panel of the machine.

WARNING

The plasma arc is very hot and under high pressure. Never point the torch at yourself, others, or flammable materials. Serious burns or fire may occur if mishandled.

5. Start Cutting.
   - Press the torch trigger to begin cutting.
   - An arc will ignite from the torch nozzle.

6. Adjust Cutting Current.
   - Set the cutting current based on the thickness of the workpiece and the cutting process requirements.
   - Use lower current for thin materials and higher current for thicker materials, within the machine's rated range.

7.02 MACHINE INSTALLATION AND OPERATION INSTRUCTIONS

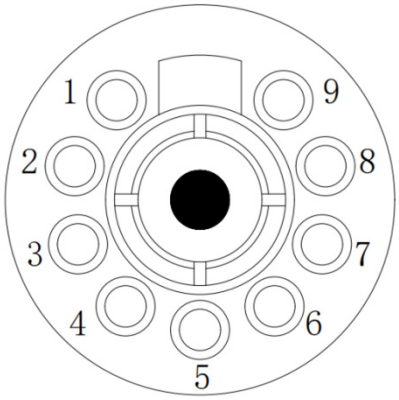


Figure 7-1:Torch Connector Socket 9 pin

1. Pin 1 & 2, Torch switch
2. Pin 5 & 6 Pilot-arc switch
3. Pin 8 & 9 PIP switch
4. 3 Pin 3/4/7 Unused

7.03 CNC CONNECTION & OPERATION INSTRUCTIONS

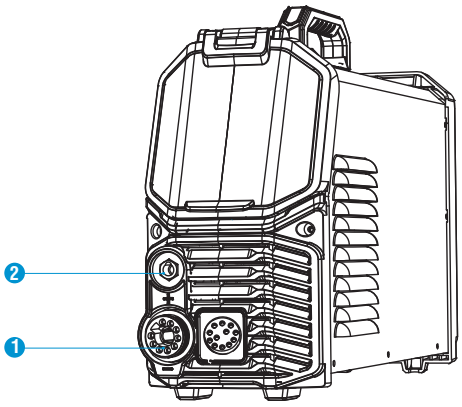


Figure 7-2: CNC Connection

1. Connect the cutting torch to the front panel torch socket and tighten clockwise.
2. Connect the working clamp to the quick socket and tighten clockwise.

CNC Cutting Connections:

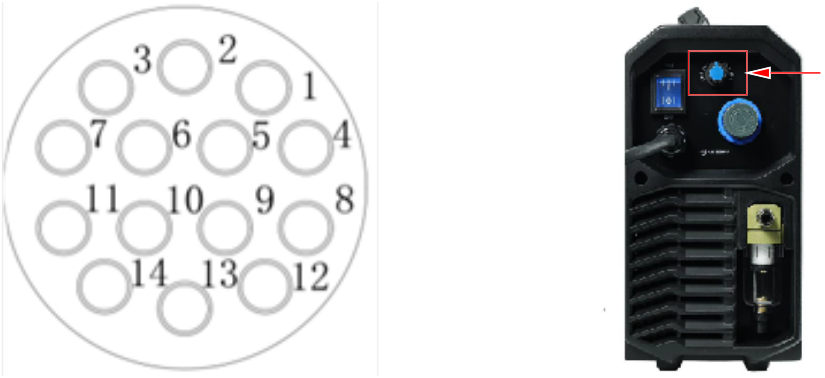


Figure 7-3: CNC connector socket 14 pin

The PCX35/45 is equipped with a 14-pin connector to interface with CNC systems. Below is a breakdown of the pin functions and configuration guidance:

1. 14-Pin Connector Functions.
   - Pins 3 & 4 – Torch Trigger Signal.
   - Function: Starts and stops the torch.
   - Operation: Closed circuit starts the arc; open circuit stops it.
2. Pins 5 & 6 – Pilot Arc Voltage Output.
   - Voltage Output:
     - Pin 5: Negative (-)
     - Pin 6: Negative (+)
3. Arc Voltage Divider Ratio Settings:
   - Default (0): 16:6:1
   - Gear 1: 20:1
   - Gear 2: 30:1
   - Gear 3: 40:1
   - Gear 4: 50:1
   - Gear 5: 80:1
4. The voltage divider knob is located on the rear panel near the power switch.

Important:

Always turn off the power and unplug the machine before adjusting the voltage divider gear.

Set the arc voltage ratio according to the specifications of your CNC Torch Height Controller.

5. Pins 12 & 14 – OK-to-Move Signal Output
   - Function: Sends a signal to the CNC when the system is ready to move.
   - Type: Normally open contact.
   - When closed, the CNC cutting table is permitted to begin movement.

SECTION 8:
FUNCTION AND CONTROL

8.01 FRONT PANEL INSTRUCTION

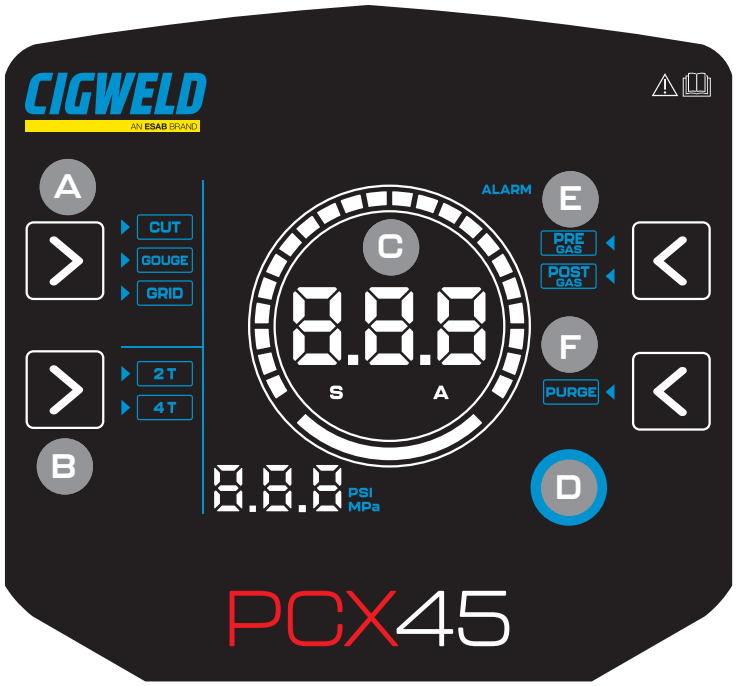


Figure 8-1: Control Panel

A FUNCTION SELECTION

A. Cut Mode

This is the standard cutting mode used for most plate cutting applications.

Purpose: Designed for clean, precise cuts through solid metal plates.

Operation: Produces a stable, narrow plasma arc for maximum cut quality and minimal dross.

Typical Use: Cutting mild steel, stainless steel, or aluminium sheet and plate materials.

Recommended For: Continuous, high-quality cuts on flat material.

B. Gouge Mode

This mode modifies the plasma arc to remove or “gouge out” metal rather than cutting completely through it.

Purpose: Used to remove welds, prepare joints, or clean up defective weld areas.

Operation: The arc is wider and less constricted, producing a softer, broader plasma stream that melts and blows away surface metal.

Typical Use: Removing old welds, creating bevels, repairing cracks, or preparing edges for re-welding.

Recommended For: Weld removal, surface preparation, or controlled metal removal without full penetration.

C. Grid Mode

Grid mode is optimised for cutting materials that have open areas or gaps, such as expanded mesh or grating.

Purpose: Prevents the plasma arc from extinguishing when passing over gaps or holes.

Operation: The machine maintains a pilot arc continuously, so cutting can resume instantly when the torch recontacts the metal.

Typical Use: Cutting perforated sheet, mesh, fencing, or metal grids.

Recommended For: Applications requiring continuous cutting across discontinuous material surfaces.

B  2T/4T TIGGER MODE

2T(2-Touch/ 2-step) mode

- Press and hold the trigger → arc starts.
- Release the trigger → arc stops.
- Torch is active only while the trigger is being held.
- Best for short cuts or spot cutting.

4T(4-Touch/ 4-step) mode

- Press and release the trigger once → arc starts and stays on.
- Torch keeps running without holding the trigger.
- Press and release again → arc stops.
- Best for long cuts where holding the trigger would be tiring.

C  LED DISPLAY

- LED Display shows current(A), pressure (MPa) or (PSI) and function selected.
- Display will also show Error codes.

D  CONTROL KNOB

- Cutting current adjustment: 20~45A (Click and turn for 10A jumps).
- Gouging current adjustment: 20~45A(Click and turn for 10A jumps).
- Grid cutting current adjustment: 20~35A (Click and turn for 10A jumps).
- Setting Pre-Gas 1.0~5.0s.

E  POST& PRE GAS TIME ADJUSTMENT

- Post Gas settings 5.0 →15.0s.
- Pre-Gas settings 1.0 → 5.0s.

A. Pre-Gas Setting (1.0 → 5.0s).

The Pre-Gas time determines how long the shielding/cutting gas flows before the arc starts.

Purpose

- Clears the torch of any debris or moisture before ignition.
- Stabilises gas flow and pressure to ensure a clean start.
- Helps prevent electrode contamination during arc initiation.
- Adjustment Range: 1.0s - 5.0s.
- Typical Setting: 1.5s – 2.5s for standard operation.
- When to Increase: When cutting thicker materials (to ensure stable ignition). In high humidity or dusty environments.
- When to Decrease: For thin material cutting or frequent on/off operation to save gas.

B. Post-Gas Setting (5.0 → 15.0s)

The Post-Gas time determines how long gas continues to flow after the cutting arc stops.

Purpose

- Cools the torch, electrode, and nozzle after each cut.
- Prevents oxidation and extends consumable life.
- Helps dissipate residual heat from the torch body.
- Adjustment Range: 5.0s - 15.0s.
- Typical Setting: 8s – 10s for normal use.
- When to Increase: When performing long cuts or operating at high current levels. To enhance consumable life and prevent heat damage.
- When to Decrease: For short, low-current cuts to reduce gas consumption.

F PURGE

The Purge function allows the machine to run air/gas flow without initiating an arc. When activated, the system opens the internal solenoid valves and lets the compressed air or plasma gas flow through the torch for setup and maintenance purposes.

Purpose

- Check air pressure and flow before cutting.
- Adjust the regulator to the correct operating pressure.
- Purge moisture or contaminants from the air line.
- Verify gas supply after changing cylinders or filters.
- Assist in leak detection within the air/gas system.

Important Notes:

- No arc is generated during Purge.
- Purge should only be used when the torch is pointed safely away from people and equipment.
- Recommended before first cutting each day or after changing consumables, filters, or air supply connections.

SECTION 9: PRECAUTIONS

9.01 PRECAUTIONS

WARNING

Risk of Falling and Injury!

Dropping the machine can damage it and cause injuries.

Use a trolley, weighing cart, or similar tool to move the machine, never carry it by hand if it's weight is too heavy.

Make sure the path is clear of obstacles before moving the unit.

Place the machine on a stable, level surface to avoid tipping.

Input Cable Specification

- Use a 3×2.5mm² cable to connect the mains power to the cutting machine.
- The mains power must have a circuit breaker or fuse of at least 32 A.

Protective Grounding

- Always connect the yellow-green wire in the input cable to a proper protective earth (ground) point at the cutting site.
- Never operate without a secure ground connection.

Cooling Method

- This machine uses air cooling mechanisms.
- Keep the air inlet and outlet clear—do not block airflow.

Protection Rating

- The machine has a protection class of IP21S (protected against solid objects >12 mm and vertically falling water drops).

Duty Cycle and Protection Codes

- Duty cycle: Refer to Section 3.02 Rating Plate and Specifications.
- The machine has an overheat protection function:

  - If overheating occurs, the machine will stop output automatically.
  - Once cooled to the recovery point, protection is released automatically.
- Protection Codes: (Refer to Section 9.04 for full list)
  - E2 – Overheat protection active.
  - E9 – No air or air pressure below 0.2 MPa.
  - E8 – Torch switch protection.
  - E4 – No current output when torch switch is pressed.

Environmental Operating Conditions

- Operating temperature: -10 °C to +40 °C.
- Transport/storage temperature: -25 °C to +55 °C.
- Humidity: Max. 50% at 40 °C, max. 90% at 20 °C.
- Air must be free from excessive dust, acids, and corrosive gases, except those created by cutting.

Prohibited Uses

- Do not use the cutting power supply for thawing frozen pipes.

Safety Around Moving Parts

Do not use the cutting power supply for thawing frozen pipes.

Preventing Water Damage

- Avoid water or steam entering the machine.
- If it happens:
  - Dry the machine.
  - Test insulation with a megohmmeter before using it again.
  - Resume operation only if insulation is normal.

Load Capacity

- Do not exceed the rated load duty cycle of the machine or torch.

Cutting Cable Selection

- Use cables of correct thickness. Thin cables cause low current, poor arc stability, reduced power, and possible cable damage.

Correct Polarity

- Connect output terminals correctly—do not reverse positive and negative.

Torch Care

- Rough handing of the Torch may cause wire breaks, leaks, or nozzle damage.

Cooling and Ventilation

- The internal fan must have unobstructed airflow.
- Keep at least 30cm clearance around the machine.
- Work in a well-ventilated area to extend machine life.

Reliable Connections

- The internal fan must have unobstructed airflow.
- Keep at least 30cm clearance around the machine.

Workpiece Connection

- Use proper insulated work cables.
- Do not substitute steel plate or rebar—they have high resistance, cause unstable current, and can create fire hazards.

Voltage Limits

- Check the main technical parameters, shown at the bottom of the machine, for the correct voltage.
- The machine's automatic voltage compensation keeps cutting current stable, but excess voltage can damage parts take preventive measures.

CAUTION

This machine has an overheat protection circuit. If the internal temperature exceeds the safe limit, it will automatically shut down to prevent damage. If the input power supply voltage is too high, it can damage the machine. Always ensure the input voltage matches the specifications on the nameplate.

9.02 DAILY MAINTENANCE

WARNING

All operations must be performed after the power supply of the cutting machine is completely disconnected. Before opening the cover, please check and confirm that the input cable of the cutting machine has been disconnected from the grid.

1. Regular Cleaning
   - Use clean, dry compressed air to remove dust from the machine.
   - Clean the machine at least once a month in environments with heavy smoke or dust.
   - If grease is present, wipe it away with a clean, dry cloth.
2. Check Cable Insulation
   - Inspect all cables for cracks, cuts, or wear.
   - Repair damaged cables with insulation tape or replace them immediately.
3. Test Insulation Resistance
   - Regularly measure insulation resistance between:
     - Power input and output terminals.
     - Power input and the machine's outer shell
   - The resistance should be greater than 10 MΩ.
4. Long-Term Storage

- If the cutting machine will not be used for an extended period, store it in its original packaging.
- Keep it in a dry, dust-free environment.

9.03 DAILY INSPECTION

Regular daily inspections are essential for keeping the cutting machine in good working condition and extending its lifespan.

1. Inspection Order
   - Start by checking the cutting torch for wear, damage, or dirt.
   - Check the air pipes for leaks, blockages, or cracks.
2. Cleaning and Replacement
   - Remove any dust using clean, dry compressed air.
   - Replace worn or damaged parts as needed.

Always use original manufacturer parts to ensure performance and safety.

3. Maintenance Restrictions
   - If the cutting machine develops an internal fault, only qualified technicians should carry out repairs or detailed inspections.

POWER SUPPLY INSPECTION

PART	CHECK UP	REMARKS
1 Control panel	**A** Switch operation, replacement and installation. **B** Turn on the power supply and check if the LED screen on the panel lights up.	
2 Fan	**A** Check whether the fan is working properly and whether the sound is normal.	If the fan does not work or sounds abnormal, perform an internal check.
3 Source	**A** Connect the power supply and check whether there is abnormal vibration, heat, colour change or buzzing sound on the shell of the equipment.	
4 Other parts	**A** Check that the gas connection is available and that the chassis and other connections are in good condition.	

NOTE

Any electrical service work requires a qualified electrician.

CUTTING TORCH INSPECTION

PART	CHECK UP	REMARKS
1 Nozzle	**A** Check whether the nozzle is firmly fixed and whether there is deformation. **B** Check for spatter on the nozzle.	**A** If the nozzle is not fixed, which may cause gas leakage. **B** Spatter may cause damage to the cutting torch. Use a cutting metal protectant to eliminate spatter.
2 Tip	**A** Check whether the tip is firmly fixed. **B** Check whether the tip is complete.	**A** If the fan does not work or sounds abnormal, perform an internal check. **B** Incomplete tip may lead to unstable arc and automatic termination of arc.

CABLE INSPECTION

PART	CHECK UP	REMARKS
1 Cutting torch cable	**A** Check whether the cutting torch cable is twisted. **B** Check whether the coupling plug connection is loose.	The twisted cutting torch cable causes the wire delivery to be unstable and produces an arc.
2 Output cable	**A** Check that the cable is intact. **B** Check for insulation damage or loose connections. **C** Check whether the cutting equipment is well grounded.	Corresponding measures should be taken to stabilise the cutting and prevent possible electric shock.
3 Input cable	**A** Check that the cable is intact. **B** Check for insulation damage or loose connections.	
4 Ground cable	**A** Check that the grounding cable is well fixed and not short circuit. **B** Check whether the cutting equipment is well grounded.	Relevant measures should be taken to prevent possible electric shock.

9.04 FAULT HANDLING

WARNING

The following procedures must only be carried out by personnel with sufficient electrical knowledge and comprehensive safety training. The operator must hold valid qualification certificates to confirm their skills and knowledge. Always disconnect the cutting machine's input cable from the power supply before opening the cover. Confirm that there is no residual power inside the machine before starting any inspection or repair.

Error Codes and Troubleshooting

WARNING

If the cutting machine is damaged during use, it must be repaired promptly. Repairs should only be performed by qualified professionals. Attempting repairs without proper knowledge can worsen the damage and may lead to costly failure of major components.

ERROR CASE	CAUSE	USER MEASURES
1 The panel is not displayed when machine turned on	**A** The power supply is not connected properly **B** Cutting machine fault	Please connect the power supply.
2 Panel shows -E2	**A** Overheat protection	The cutting machine will automatically recover after cooling.
3 Panel shows-E4 protection	**A** MCU fails to detect current.	Restart the machine.
4 Panel shows-E8 protection	**A** Torch connection protection.	Check if the torch circuit is open. Tighten the central plug of the torch.
5 Panel shows-E9 protection	**A** Gas shortage or low pressure.	Check if the gas circuit is properly connected or adjust the pressure valve to increase gas pressure.

Cutting Machine Probelms and Troubleshooting

ERROR CASE	CAUSE	USER MEASURES
1 The panel displays E1	**A** Transformer tap switching protection	Restart the machine with the main switch.
2 The screen opens and the fan runs, but it does not work when the torch trigger is pressed	**A** The torch is partially broken. **B** The control switch may be damaged..	**A** Check whether the torch section is broken. **B** Check whether the torch control switch is damaged.
3 The fan is running, the screen is bright, and the solenoid valve is running, but no arc is generated	**A** Check and replace consumables. **B** There is a problem with the control circuit **C** Rectifier damaged	Please contact your local dealer or supplier for replacement parts

NOTE

The error cases listed here may be related to the accessories, gases, environmental factors and power supply conditions you use. Please try to improve the environment to avoid such situations.

WARNING

Inexperienced or careless maintenance can cause serious machine damage, making repairs more difficult and costly. When the cutting machine is powered on, high dangerous voltages are present in exposed areas. Any direct or indirect contact can cause life threatening electric shock.

9.05 AFTER-SALES SERVICE

Maintenance

Before repairing the machine, check tables 9.03 and 9.04 for general problems and troubleshooting.

If a repair or replacement is required, contact machine supplier **CIGWELD.COM.AU.** We recommend using **CIGWELD** parts and consumables.

The warranty period starts from the sale date listed on the sales contract.

Any damage caused by improper or unreasonable use is not covered by the warranty.

SECTION 10:
KEY SPARE PARTS

10.01 BLUEVENOM 60A PLASMA TORCH (P/N 661612) REPLACEMENT PARTS

ITEM	P/N	DESCRIPTION
1	CSP337001 CSP337002	Cutting Tip 35A, 0.8mm Cutting Tip 45A, 0.9mm
2	CSP337003	Electrode
3	CSP337004	Standoff Guide
4	CSP337005	Shield Cap
5	CSP337006	O-ring
6	CSP337007	Diffuser
7	CSP337008	Torch Handle
8	CSP337009	Trigger Guard
9	CSP337010	Torch Trigger

ITEM	P/N	DESCRIPTION
10	CSP337141	Torch Head
11	CSP337142	Torch Joint
12	CSP337143	Cable Assembly
13	CSP337144	Torch Adaptor
14	CSP337145	Plasma Torch Spanner

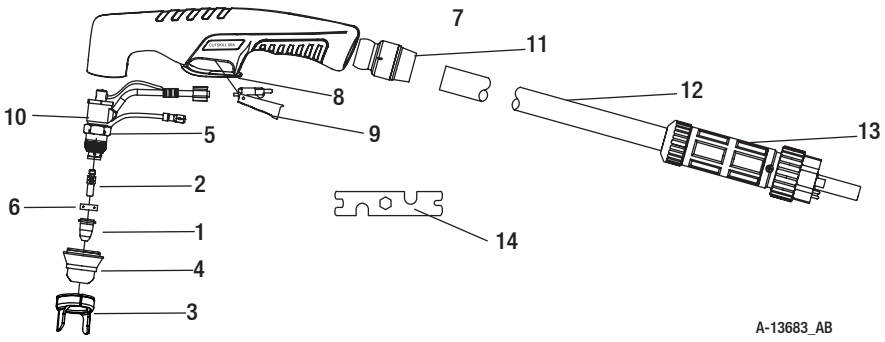


Figure 10-3: BlueVenom 60A Plasma Torch Replacement Parts

NOTES:

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LIMITED WARRANTY TERMS

LIMITED WARRANTY: CIGWELD Pty Ltd, An ESAB Brand, hereafter, "CIGWELD" warrants to customers of its authorised distributors hereafter "Purchaser" 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 CIGWELD products as stated below, CIGWELD shall, upon notification thereof and substantiation that the product has been stored, installed, operated, and maintained in accordance with CIGWELD's specifications, instructions, recommendations and recognised standard industry practice, and not subject to misuse, repair, neglect, alteration, or accident, correct such defects by suitable repair or replacement, at CIGWELD's sole option, of any components or parts of the product determined by CIGWELD to be defective.

CIGWELD MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHERS, INCLUDING, BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

LIMITATION OF LIABILITY: CIGWELD SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, SUCH AS, BUT NOT LIMITED TO, LOST PROFITS AND BUSINESS INTERRUPTION.

The remedies of the Purchaser set forth herein are exclusive and the liability of CIGWELD 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 CIGWELD 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. No employee, agent, or representative of CIGWELD is authorised to change this warranty in any way or grant any other warranty.

PURCHASER'S RIGHTS UNDER THIS WARRANTY ARE VOID IF REPLACEMENT PARTS OR ACCESSORIES ARE USED WHICH IN CIGWELD'S SOLE JUDGEMENT MAY IMPAIR THE SAFETY OR PERFORMANCE OF ANY CIGWELD PRODUCT. PURCHASER'S RIGHTS UNDER THIS WARRANTY ARE VOID IF THE PRODUCT IS SOLD TO PURCHASER BY NON-AUTHORISED PERSONS. The warranty is effective for the time stated below beginning on the date that the authorised distributor delivers the products to the Purchaser. Not with standing the foregoing, in no event shall the warranty period extend more than the time stated plus one year from the date CIGWELD delivered the product to the authorised distributor.

Any claim under this warranty must be made within the warranty period which commences on the date of purchase of the product. To make a claim under the warranty, take the product (with proof of purchase from a CIGWELD Accredited Seller) to the store where you purchased the product or contact CIGWELD Customer Care 1300 654 674 for advice on your nearest Service Provider. CIGWELD reserves the right to request documented evidence of date of purchase. CIGWELD or our Accredited Distributor must be notified in writing of its claim within seven (7) days of becoming aware of the basis thereof, and at its own expense returning the goods which are the subject of the claim to CIGWELD or nominated Accredited Distributor/Accredited Service Provider

This warranty is given.
CIGWELD Pty Ltd A.B.N. 56007226815
71 Gower Street, Preston Victoria, Australia, 3072
Phone: 1300 654 674
Email: support@cigweld.com
Website: www.cigweld.com.au

This warranty is provided in addition to other rights and remedies you have under law: Our goods come with guarantees which cannot be excluded under the Australian Consumer Law. You are entitled to replacement or refund for a major failure and to compensation for other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Please note that the information detailed in this statement supersedes any prior published data produced by CIGWELD.

* WARRANTY SCHEDULE – PCX35/45 PLASMA

WARRANTY	WARRANTY PERIOD (PARTS AND LABOUR)
PCX35/45 Plasma Power Source	5 Years
BlueVenom 60A Plasma Torch	3 Months

CIGWELD LIMITED WARRANTY DOES NOT APPLY TO;

Obsolete goods sold at auction, second-hand goods and prototype goods.

- Consumable Parts for MIG, Plasma welding, Plasma cutting and Oxy fuel torches, O-rings, fuses, filters or other parts that fail due to normal wear.

Notes:

* No employee, agent, or representative of CIGWELD is authorised to change this warranty in any way or grant any other warranty, and CIGWELD shall not be bound by any such attempt. Correction of non-conformities, in the manner and time provided herein, constitutes fulfilment of CIGWELD's obligations to purchaser with respect to the product.

* This warranty is void, and seller bears no liability hereunder, if purchaser used replacement parts or accessories which, in CIGWELD's sole judgment, impaired the safety or performance of any CIGWELD product and if the unit is altered or serviced by an unauthorised CIGWELD Service Provider. Purchaser's rights under this warranty are void if the product is sold to purchaser by unauthorised persons.

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