CIGWELD

AN ESAB BRAND

100+ YEARS OF WELDING INNOVATION

BLUE VENOM

XF210 AC/DC

STICK

WITH STICK PULSE

TIG

AC/DC WITH PULSE

OPERATING MANUAL

XF210 AC/DC, P/N: W1300210

210A	TIG/STICK	AUTOSET	15A (230V)	3 YEAR*
POWER	SYNERGIC	PLATE THICKNESS CONTROL	PLUG 'N WELD	WARRANTY

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 If you are ever in doubt about what you see or read in this manual with the product you received, then check for a newer version of the manual on our website or contact our customer support for assistance.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 BLUEVENOM XF210 AC/DC OPERATING MANUAL NUMBER 742030 FOR: PART NUMBER W1300210

Published by:

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

CIGWELD.COM.AU

For Printing Material Specification refer to document 47x1915.

Publication Date: 11-02-2026

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.

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

CIGWELD
AN ESAB BRAND

DECLARATION OF CONFORMITY

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

TYPE OF EQUIPMENT

Arc welding power source

TYPE DESIGNATION

BlueVenom XF210 AC/DC with serial number from: WC544YYWW####

BRAND NAME OR TRADEMARK

CIGWELD

MANUFACTURER OR HIS AUTHORISED REPRESENTATIVE 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

THE FOLLOWING HAS BEEN USED IN THE DESIGN:

AS 1674.2:2025	Safety in welding and allied processes, Part 2: Electrical
AS 60974.1:2020	Arc Welding Equipment, Part 1: Welding Power Sources
AS/NZS 3760:2022	In-service safety inspection and testing of electrical equipment and RCDs
EN IEC 60974-10:2021	Arc Welding Equipment, Part 10: EMC requirements

ADDITIONAL INFORMATION:

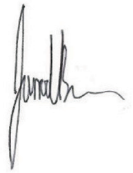
Restrictive use, Class A equipment, intended for use in location other than residential. This equipment is also in compliance with the essential requirements of EU Directives 2014/30/EU and 2014/35/EU.

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

PLACE/DATE

Preston
11-02-2026

SIGNATURE



Jarrod Brennan
General Manager

TABLE OF CONTENTS

SECTION 1: ARC WELDING SAFETY INSTRUCTIONS AND WARNINGS

WARNING

PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS KEEP AWAY UNTIL CONSULTING YOUR DOCTOR. DO NOT LOSE THESE INSTRUCTIONS. READ OPERATING/INSTRUCTION MANUAL BEFORE INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT.

Welding products and welding processes can cause serious injury or death, or damage to other equipment or property, if the operator does not strictly observe all safety rules and take precautionary actions.

Safe practices have developed from past experience in the use of welding and cutting machinery/equipment. These practices must be learned through study and training before using this equipment. Some of these practices apply to equipment connected to power lines; other practices apply to engine driven equipment. Anyone not having extensive training in welding and cutting practices should not attempt to weld.

Safe practices are outlined in the Australian Standard AS1674.2:2025 entitled: Safety in welding and allied processes Part 2: Electrical. This publication and other guides as to what you should learn before operating this equipment, are listed at the end of these safety precautions.

HAVE ALL INSTALLATION, OPERATION, MAINTENANCE, AND REPAIR WORK PERFORMED ONLY BY QUALIFIED PEOPLE.

1.01 ARC WELDING HAZARDS

WARNING

ARC RAYS can burn eyes and skin;
NOISE can damage hearing.

Arc rays from the welding process produce intense heat and strong ultraviolet rays that can burn eyes and skin. Noise from some processes can damage hearing.

ARC RAYS AND NOISE

1. Use a Welding Helmet or Welding Faceshield fitted with a proper shade of filter (see ANSI Z49.1 and AS 1674 listed in Safety Standards) to protect your face and eyes when welding or watching the welding operation.
2. Wear approved safety glasses. Side shields recommended.
3. Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
4. Wear protective clothing made from durable, flame-resistant material (wool and leather) and foot protection.
5. Use approved ear plugs or ear muffs if noise level is high.
6. Never wear contact lenses while welding.

WARNING

ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on.

In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

ELECTRIC SHOCK

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.

RECOMMENDED PROTECTIVE FILTERS FOR ELECTRIC WELDING

DESCRIPTION OF PROCESS	APPROXIMATE RANGE OF WELDING CURRENT IN AMPS	MINIMUM SHADE NUMBER OF FILTER(S)
Manual Metal Arc Welding - covered electrodes (MMAW)	Less than or equal to 100	8
	100 to 200	10
	200 to 300	11
	300 to 400	12
	Greater than 400	13
Gas Metal Arc Welding (GWAW) (MIG) other than Aluminium and Stainless Steel	Less than or equal to 150	10
	150 to 250	11
	250 to 300	12
	300 to 400	13
	Greater than 400	14
Gas Metal Arc Welding (GMAW) (MIG) Aluminium and Stainless Steel	Less than or equal to 250	12
	250 to 350	13
Gas Tungsten Arc Welding (GTAW) (TIG)	Less than or equal to 100	10
	100 to 200	11
	200 to 250	12
	250 to 350	13
	Greater than 350	14
Flux-cored Arc Welding (FCAW) - with or without shielding gas	Less than or equal to 300	11
	300 to 400	12
	400 to 500	13
	Greater than 500	14
Air - Arc Gouging	Less than or equal to 400	12
Plasma - Arc Cutting	50 to 100	10
	100 to 400	12
	400 to 800	14
Plasma - Arc Spraying	—	15
Plasma - Arc Welding	Less than or equal to 20	8
	20 to 100	10
	100 to 400	12
	400 to 800	14
Submerged - Arc Welding	—	2(5)
Resistance Welding	—	Safety Spectacles or eye shield

Refer to standard AS/NZS 1338.1:2012 for comprehensive information regarding the above table.

FUMES AND GASES

WARNING

FUMES & GASES CAN BE HAZARDOUS TO YOUR HEALTH.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

1. Keep your head out of the fumes. Do not breathe the fumes.
2. If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
3. If ventilation is poor, use an approved air-supplied respirator.
4. Read the Material Safety Data Sheets (MSDSs) and the manufacturer's instruction for metals, consumables, coatings, and cleaners.
5. Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Shielding gases used for welding can displace air causing injury or death. Be sure the breathing air is safe.
6. Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapours to form highly toxic and irritating gases.
7. Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and if necessary, while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

WELDING

WARNING

WELDING CAN CAUSE FIRE OR EXPLOSION.

Sparks and spatter fly off from the welding arc. The flying sparks and hot metal, weld spatter, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode or welding wire to metal objects can cause sparks, overheating, or fire.

1. Protect yourself and others from flying sparks and hot metal.
2. Do not weld where flying sparks can strike flammable material.
3. Remove all flammables within 35ft (10.7m) of the welding arc. If this is not possible, tightly cover them with approved covers.
4. Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
5. Watch for fire, and keep a fire extinguisher nearby.
6. Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
7. Do not weld on closed containers such as tanks or drums.
8. Connect work cable to the work as close to the welding area as practical to prevent welding current from travelling long, possibly unknown paths and causing electric shock and fire hazards.
9. Do not use welder to thaw frozen pipes.
10. Remove stick electrode from holder or cut off welding wire at contact tip when not in use.

FLYING SPARKS AND HOT METAL

WARNING

FLYING SPARKS & HOT METAL CAN CAUSE INJURY.

Sparks and spatter fly off from the welding arc. The flying sparks and hot metal, weld spatter, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode or welding wire to metal objects can cause sparks, overheating, or fire.

1. Wear approved face shield or safety goggles. Side shields recommended.
2. Wear proper body protection to protect skin.

CYLINDERS

WARNING

CYLINDERS CAN EXPLODE IF DAMAGED.

Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

1. Protect compressed gas cylinders from excessive heat, mechanical shocks, and arcs.
2. Install and secure cylinders in an upright position by chaining them to a stationary support or equipment cylinder rack to prevent falling or tipping.
3. Keep cylinders away from any welding or other electrical circuits.
4. Never allow a welding electrode to touch any cylinder.
5. Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
6. Turn face away from valve outlet when opening cylinder valve.
7. Keep protective cap in place over valve except when cylinder is in use or connected for use.
8. Read and follow instructions on compressed gas cylinders, associated equipment, and CGA publication P-1 listed in Safety Standards.

MOVING PARTS

WARNING

Moving parts can cause injury.

Moving parts, such as fans, rotors, and belts can cut fingers and hands and catch loose clothing.

1. Keep all doors, panels, covers, and guards closed and securely in place.
2. Stop engine before installing or connecting unit.
3. Have only qualified people remove guards or covers for maintenance and troubleshooting as necessary.
4. To prevent accidental starting during servicing, disconnect negative (-) battery cable from battery.
5. Keep hands, hair, loose clothing, and tools away from moving parts.
6. Reinstall panels or guards and close doors when servicing is finished and before starting engine.

WARNING

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 Sec. 25249.5 et seq.)

NOTE

Considerations About Welding And The Effects of Low Frequency Electric and Magnetic Fields.

WARNING

The procedures below are among those also normally recommended for pacemaker wearers. Consult your doctor for complete information.

The following is a quotation from the General Conclusions Section of the U.S. Congress, Office of Technology Assessment, Biological Effects of Power Frequency Electric & Magnetic Fields - Background Paper, OTA-BP-E-63 (Washington, DC: U.S. Government Printing Office, May 1989): "...there is now a very large volume of scientific findings based on experiments at the cellular level and from studies with animals and people which clearly establish that low frequency magnetic fields and interact with, and produce changes in, biological systems. While most of this work is of very high quality, the results are complex. Current scientific understanding does not yet allow us to interpret the evidence in a single coherent framework. Even more frustrating, it does not yet allow us to draw definite conclusions about questions of possible risk or to offer clear sciencebased advice on strategies to minimize or avoid potential risks."

To reduce magnetic fields in the workplace, use the following procedures:

1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cable around the body.
4. Keep welding power source and cables as far away from body as practical.

1.02 PRINCIPAL SAFETY STANDARDS

Safety in welding and allied processes Part 1: Fire Precautions, AS 1674.1:2025 from SAI Global Limited, www. saiglobal.com.

Safety in welding and allied processes Part 2: Electrical, AS 1674.2:2025 from SAI Global Limited, www. saiglobal.com.

Filters for eye protectors - Filters for protection against radiation generated in welding and allied operations AS/NZS 1338.1:2012 from SAI Global Limited, www.saiglobal.com.

Welding Processes, Code of Practice, JULY 2020 - Safe Work Australia. This document provides "Practical guidance on how to manage health and safety risks associated with welding". The latest version is available free of charge at: https://www.safeworkaustralia.gov.au/doc/model-code-practice-welding-processes.

Other International Standards and Codes of Practice

Safety in Welding and Cutting, ANSI Standard Z49.1, from American Welding Society, 550 N.W. LeJeune Rd., Miami, FL 33126.

Safety and Health Standards, OSHA 29 CFR 1910, from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Recommended Safe Practices for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances, American Welding Society Standard AWS F4.1, from American Welding Society, 550 N.W. LeJeune Rd., Miami, FL 33126.

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 1235 Jefferson Davis Highway, Suite 501, Arlington, VA 22202.

Code for Safety in Welding and Cutting, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3.

Safe Practices for Occupation and Educational Eye and Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 1430 Broadway, New York, NY 10018.

Cutting and Welding Processes, NFPA Standard 51B, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

SECTION 2: INTRODUCTION

2.01 HOW TO USE THIS MANUAL

This Owner's Manual only applies to the Part Numbers listed on page 3.

To ensure safe operation, read the entire manual, including the chapter on safety instructions and warnings.

Throughout this manual, the words WARNING, CAUTION, and NOTE may appear. Pay particular attention to the information provided under these headings. These special annotations are easily recognized 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.

CAUTION

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

ELECTRICAL WARNING

Gives information regarding possible electrical shock injury. Warnings will be enclosed in a box such as this.

DANGER

Means immediate hazards which, if not avoided, will result in immediate, serious personal injury or loss of life.

Additional copies of this manual may be purchased by contacting CIGWELD at the address and phone number for your location listed in the inside back cover of this manual. Include the Operating Manual number and equipment identification numbers.

Electronic copies of this manual can also be downloaded at no charge in Acrobat PDF format by going to the CIGWELD web site listed below and clicking on the Literature Library link: **cigweld.com.au**

2.02 EQUIPMENT IDENTIFICATION

The units identification number (specification or part number), model, and serial number are located on the Data Plate which is fixed to the bottom of the welding machine. In some cases, the Data Plate may be attached to the rear panel. Equipment which does not have a control panel such as cable assemblies are identified only by the specification or part number printed on the shipping container. Record these numbers on the bottom of page 3 for future reference.

2.03 RECEIPT OF EQUIPMENT

When you receive the equipment, check it against the invoice to confirm it is complete and inspect the equipment for possible damage due to shipping. If there is any damage, notify the carrier immediately to file a claim. Furnish complete information concerning damage claims or shipping errors to the location listed on back cover of this manual. Include all equipment identification numbers as described above, along with a full description of the parts in error.

Move the equipment to the installation site before unboxing the unit. Use care to avoid damaging the equipment when using knives, breaker bars, hammers, etc, to unbox the machine and its accessories.

2.04 SYMBOL CHART

Note that only some of these symbols will appear on your model.

	ON
	OFF
	DANGEROUS VOLTAGE
	INCREASE/DECREASE
	CIRCUIT BREAKER
	AC AUXILIARY POWER
	FUSE
A	AMPERAGE
V	VOLTAGE
Hz	HERTZ (CYCLES/SEC)
f	FREQUENCY
—	NEGATIVE
+	POSITIVE
	DIRECT CURRENT (DC)
	PROTECTIVE EARTH (GROUND)
	LINE
	LINE CONNECTION
	AUXILIARY POWER
115V 15A	RECEPTACLE RATING- AUXILIARY POWER
1	SINGLE PHASE
3	THREE PHASE
	THREE PHASE STATIC FREQUENCY CONVERTER-TRANSFORMER-RECTIFIER
	REMOTE
X	DUTY CYCLE
%	PERCENTAGE
	SHIELDED METAL ARC WELDING (SMAW)
	GAS METAL ARC WELDING (GMAW)
	GAS TUNGSTEN ARC WELDING (GTAW)
	AIR CARBON ARC CUTTING (CAC-A)
	CONSTANT CURRENT
	CONSTANT VOLTAGE OR CONSTANT POTENTIAL
	HIGH TEMPERATURE
	FAULT INDICATION
	ARC FORCE
	TOUCH START (GTAW)
	VARIABLE INDUCTANCE
V	VOLTAGE INPUT
	WIRE FEED FUNCTION
	WIRE FEED TOWARDS WORKPIECE WITH OUTPUT VOLTAGE OFF
	WELDING GUN
	PURGING OF GAS
	CONTINUOUS WELD MODE
	SPOT WELD MODE
t	SPOT TIME
t1	PREFLOW TIME
t2	POSTFLOW TIME
PLATE THICKNESS CONTROL	AUTOSET PLATE THICKNESS PRE-SETS
200A DC	OUTPUT CURRENT
3 YEARS*	3-YEAR WARRANTY
t	BURNBACK TIME
	DISTURBANCE IN GROUND SYSTEM
IPM	INCHES PER MINUTE
MPM	METRES PER MINUTE
	SPOOL GUN
AUTO SET MIG	AUTOSET FOR MIG
	SINGLE PULSE
	DOUBLE PULSE
	PULSE FREQ. (PULSE SPEED)
A	PULSE BASE CURRENT
W	PULSE WIDTH

2.05 DESCRIPTION

Get your adrenalin pumping with the new XF210 AC/DC - a compact, robust mean machine with a class leading 40% duty cycle and Autoset Plate Thickness functionality. Not sure what amperage you should have for the material you're welding, well let the machine do it for you with the Autoset feature.

This predator packs impressive features and welding performance made easy to suit the serious welding enthusiast to the welding pro, with multiple different waveforms in AC mode, 60 Memories for your favourite settings.

Don't want to weld Aluminium? Is Steel more your thing? Don't stress- the XF210 AC/DC can do it all.

Want to tack thin gauge plates, the Cold Weld function is perfect. Cold Weld performs split second, high current bursts to allow you to tack thin plate, without blowing holes.

Release your inner Welditude™ with pre-installed Synergic Autoset programs for both TIG and STICK functions! Simply choose your Material Type, Tungsten/Electrode Diameter, Joint Type and dial up the Plate Thickness you're welding and you're ready to go!

Navigate with ease through the intuitive 5" full colour display to custom set values to get the most out of your welds - from multiple Waveforms, AC Balance, Pulse, the XF210 AC/DC doesn't hold back!

Weighing at less than 17kg, this portable beast will have you welding in any material you like with ease! To make things even better, it's TIG foot control compatible!

So the question is… are you ready to Harness the Power!

2.06 USER RESPONSIBILITY

This equipment will perform safely and reliably when installed, operated and maintained in accordance with the instructions herewith. Periodic checks are recommended as defective or poorly maintained equipment should not be used. Broken, missing, severely worn, distorted or contaminated parts should be replaced immediately.

Should a repair or replacement become necessary, it is recommended that the Authorised Distributor from whom the equipment was purchased, be contacted for service advice. The owner or user of this equipment shall have the responsibility for any malfunction which results from improper use, damage, faulty maintenance or repair/alteration by other than CIGWELD or an accredited service provider.

NOTE

Refer to the complete Warranty Schedule at the back of the manual.

2.07 WHAT'S IN THE BOX

XF210 AC/DC Inverter (Part No. W1300210)

- BlueVenom XF210 AC/DC Inverter Power Source.
- TIG Torch 26F Flex Head, 4m with Current Control.
- Twist Lock Electrode Holder with 4m Lead.
- Work Clamp with 4m Lead.
- Gas Regulator / Flowmeter
- Quick Connect Shielding Gas Hose 3m.
- TIG Starter Kit: includes, 1.6mm, 2.4mm 3.2mm Rare Earth Tungstens, Collets, and Collet Bodies and No 4, 5 & 6 Nozzles.

2.08 TRANSPORTING METHODS

This unit is equipped with a handle for carrying purposes.

WARNING

FALLING EQUIPMENT can cause serious personal injury and equipment damage.

- Lift unit with handle on top of case.
- Use handcart or similar device of adequate capacity.
- If using a forklift vehicle, place and secure unit on a proper skid before transporting.

2.09 DUTY CYCLE

The rated duty cycle of a Welding Power Source, is a statement of the time it may be operated at its rated welding current output without exceeding the temperature limits of the insulation of the component parts. To explain the 10 minute duty cycle period the following example is used. Suppose a Welding Power Source is designed to operate at a 15% duty cycle, 90 amperes at 23.6 volts. This means that it has been designed and built to provide the rated amperage (90A) for 1.5 minutes, i.e. arc welding time, out of every 10 minute period (15% of 10 minutes is 1.5 minutes). During the other 8.5 minutes of the 10 minute period the Welding Power Source must idle and allowed to cool.

2.10 SPECIFICATIONS

Description	BlueVenom XF210 AC/DC
Packaged Part Number	W1300210
Power Source Dimensions	(L) 560mm x (W) 215mm x (H) 375mm
Power Source Weight	16.9kg
Cooling	Fan Cooled
Welder Type	Multi Process Inverter Power Source
Australian Standards	AS 60974.1:2020 EN IEC 60974-10:2021
Number of Phases	Single Phase
Nominal Supply Voltage	230 VAC ± 10%
Nominal Supply Frequency	50/60Hz
Welding Current Range (DC STICK Mode)	40-185A
Welding Current Range (DC TIG Mode)	10-210A
Effective Input Current (I1eff) (Note 2)	14.5A

Description	BlueVenom XF210 AC/DC
Maximum Input Current (I1max)	27.7A
Minimum Single Phase Generator Recommendation (Note 3)	8kVA @ 0.8PF
TIG (GTAW)	
Welding Output, 40ºC, 10 min.	210A @ 40%, 18.4V 171A @ 60%, 16.9V 133A @ 100%, 15.3V
Open Circuit Voltage	78V
STICK (MMAW)	
Welding Output, 40ºC, 10 min	185A @ 25%, 27.4V 119A @ 60%, 24.8V 93A @ 100%, 23.7V
Open Circuit Voltage (VRD On)	<35V
Open Circuit Voltage (VRD Off)	78V
Protection Class	IP23S

NOTE 1: Due to variations that can occur in manufactured products, claimed performance, voltages, ratings, all capacities, measurements, dimensions and weights quoted are approximate only. Achievable capacities and ratings in use and operation will depend upon correct installation, use, applications, maintenance and service.

NOTE 2: The Effective Input Current should be used for the determination of cable size & supply requirements.

NOTE 3: Motor start fuses or thermal circuit breakers are recommended for this application. Check local requirements for your situation in this regard.

NOTE 4: Minimum Generator Recommendation at the Maximum Output Duty Cycle. Due to large variations in performance and specifications of different brands and types of generators, CIGWELD cannot guarantee full welding output power or duty cycle on every brand or type of generator. Some small generators incorporate low cost circuit breakers on their outputs. These circuit breakers usually will have a small reset button, and will trip much faster than a switchboard type circuit breaker. This may result in not being able to achieve full output or duty cycle from the power source / generator combination. For this reason we recommend a generator that incorporates switchboard type circuit breakers. CIGWELD recommends that when selecting a generator, that the particular power source / generator combination be adequately trialled to ensure the combination performs to the users expectations.

NOTE 5: CIGWELD reserves the right to change product performance and specifications without notice.

NOTE 6: If an extension lead is required to be used it is recommended to use a minimum size of 2.5mm^2 Heavy Duty Extension Lead. Longer extension leads may impact welding performance and operation.

2.11 OPTIONAL ACCESSORIES

We recommend genuine CIGWELD products.

The biggest range and best quality guaranteed performance.

PART NUMBER	DESCRIPTION
W4022013	TIG TORCH 26 with Remote, 4m
W4022014	TIG TORCH 26 with Remote, 8m
W4022015	TIG TORCH 26F Flex Head With Remote, 4m
W4022016	TIG TORCH 26F, Flex Head With Remote, 8m
CT1726K1	TIG Starter Kit 1 17/18/26 TIG Torches
W4015825	TIG Foot Control with 7m Lead
W7004913	Shielding Gas Hose Assembly
210254	BlueJet Argon Regulator/Flowmeter, 55LPM, 2 Gauge
201031	BlueJet Preset Argon Regulator/Flowmeter Side Inlet
W4011504	Arc Trolley L
WS42550	Welding Leadset 4m, 25mm2 cable, 50mm2 DINSE, 250A Twistlock Electrode Holder
WS53550	Welding Leadset 5m, 35mm2 cable, 50mm2 DINSE, 400A Twistlock Electrode Holder

TIG TORCH CONSUMABLES

PART NUMBER	DESCRIPTION
CW10N23	TIG Collet 1.6mm 17/18/26 Series Pk 2
CW10N24	TIG Collet 2.4mm 17/18/26 Series Pk 2
CW10N25	TIG Collet 3.2mm 17/18/26 Series Pk 2
CW10N31	TIG Collet Body 1.6mm 17/18/26 Series Pk 2
CW10N32	TIG Collet Body 2.4mm 17/18/26 Series Pk 2
CW10N28	TIG Collet Body 3.2mm 17/18/26 Series Pk 2
CW10N50	TIG Ceramic Cup 6mm #4 17/18/26 Series Pk 2
CW10N49	TIG Ceramic Cup 8mm #5 17/18/26 Series Pk 2
CW10N48	TIG Ceramic Cup 10mm #6 17/18/26 Series Pk 2
CW10N47	TIG Ceramic Cup 11mm #7 17/18/26 Series Pk 2
CW10N46	TIG Ceramic Cup 13mm #8 17/18/26 Series Pk 1
CW41V24	TIG Back Cap Long 17/18/26 Series Pk 2
CW41V35	TIG Back Cap Medium 17/18/26 Series Pk 2
CW41V33	TIG Back Cap Short 17/18/26 Series Pk 2

TIG TUNGSTENS

PART NUMBER	DESCRIPTION
TUN16THR	TIG Tungsten 1.6mm Thoriated Red (DC Only) Pk 10
TUN24THR	TIG Tungsten 2.4mm Thoriated Red (DC Only) Pk 10
TUN24THR	TIG Tungsten 3.2mm Thoriated Red (DC Only) Pk 10
TUN16ZIR	TIG Tungsten 1.6mm Zirconiated White (AC Only) Pk 10
TUN24ZIR	TIG Tungsten 2.4mm Zirconiated White (AC Only) Pk 10
TUN32ZIR	TIG Tungsten 3.2mm Zirconiated White (AC Only) Pk 10
TUN16RE3	TIG Tungsten 1.6mm Rare Earth Purple (AC/DC) Pk 10
TUN24RE3	TIG Tungsten 2.4mm Rare Earth Purple (AC/DC) Pk 10
TUN32RE3	TIG Tungsten 3.2mm Rare Earth Purple (AC/DC) Pk 10

2.12 RELATED PRODUCTS

PART NUMBER	DESCRIPTION
646754	CIGWELD TIG welding Gloves - L
646769	CIGWELD TIG welding Gloves - XL
646766	WeldSkill Heavy Duty Welding Gloves - M
646755	WeldSkill Heavy Duty Welding Gloves - L
646767	WeldSkill Heavy Duty Welding Gloves - XL
646771	WeldSkill Welding Jacket - M
646772	WeldSkill Welding Jacket - L
646773	WeldSkill Welding Jacket - XL
646774	WeldSkill Welding Jacket - XXL
457766	ARCUP Voyager Backpack
WHAMXC090F	Arcmaster XC90F Var. Shade Auto Welding Helmet - Blax
WHAMXC170	Arcmaster XC70 Var. Shade Auto Welding Helmet - Mayhem
WHAMXC180	Arcmaster XC80 Var. Shade Auto Welding Helmet - Fallout
WHAMXC260	Arcmaster XC60 Var. Shade Auto Welding Helmet - Medusa
646782	WeldaToolz Multi-Angle Magnet 55kg
646785	WeldaToolz Switchable Arrow Magnet 42kg
646770	ARCUP Welding Curtain - Dark Green, 1.8m x 1.8m
646777	ARCUP Welding Curtain - Red, 1.8m x 1.8m
646776	Welding Curtain Frame, 1.8m x 1.8m
646801	Arc Up BTX 1800 Premium Welding Blanket, 1.8m x 1.8m
646802	Arc Up BTX 2000 Premium Welding Blanket, 2m x 2m
646803	Arc Up BTX 3000 Premium Welding Blanket, 3m x 3m

SECTION 3: INSTALLATION

3.01 ENVIRONMENT

These units are designed for use in environments with increased hazard of electric shock.

A. Examples of environments with increased hazard of electric shock are:

1. In locations in which freedom of movement is restricted, so that the operator is forced to perform the work in a cramped (kneeling, sitting or lying) position with physical contact with conductive parts.
2. In locations which are fully or partially limited by conductive elements, and in which there is a high risk of unavoidable or accidental contact by the operator.

B. Environments with increased hazard of electric shock do not include places where electrically conductive parts in the near vicinity of the operator, which can cause increased hazard, have been insulated.

3.02 LOCATION

Be sure to locate the welder according to the following guidelines:

A. In areas, free from moisture and dust.

B. Ambient temperature between -10°C to 40°C.

C. In areas, free from oil, steam and corrosive gases.

D. In areas, not subjected to abnormal vibration or shock.

E. In areas, not exposed to direct sunlight or rain.

F. Place at a distance of 300mm or more from walls or similar that could restrict natural air flow for cooling.

3.03 VENTILATION

Since the inhalation of welding fumes can be harmful, ensure that the welding area is effectively ventilated.

3.04 MAINS SUPPLY VOLTAGE REQUIREMENTS

The Mains Supply Voltage should be within ± 15% of the rated Mains Supply Voltage. If actual Mains Supply Voltage is outside this range Welding Current may not be available and may cause internal components to fail.

Refer to Specifications on page 17 for Supply Voltage information.

The Welding Power Source must be:

- Correctly installed, if necessary, by a qualified electrician.
- Correctly earthed (electrically) in accordance with local regulations.

Connected to the correct size power point and fuse as per the Specifications on page 17.

IMPORTANT NOTE!

This product has been fitted with a supply plug as indicated in Section 2.10. Note that the welding output range applicable with the fitted supply plug is detailed in Section 2.10.

WARNING
Any electrical work must be carried out by a qualified Electrical Tradesperson.

3.05 GENERATORS

Refer to Note 4 on page 17 for recommendations when using with a Generator.

3.06 EXTENSION LEADS

If an extension lead is required to be used it is recommended to use a minimum size of 2.5mm² Heavy Duty Extension Lead. Longer extension leads may impact welding performance and operation.

3.07 ELECTROMAGNETIC COMPATIBILITY

WARNING
Extra precautions for Electromagnetic Compatibility may be required when this Welding Power Source is used in a domestic situation.

A. INSTALLATION AND USE - USERS RESPONSIBILITY

The user is responsible for installing and using the welding equipment according to the manufacturer's instructions. If electromagnetic disturbances are detected then it shall be the responsibility of the user of the welding equipment to resolve the situation with the technical assistance of the manufacturer. In some cases this remedial action may be as simple as earthing the welding circuit. In other cases it could involve constructing an electromagnetic screen enclosing the Welding Power Source and the work, complete with associated input filters. In all cases, electromagnetic disturbances shall be reduced to the point where they are no longer troublesome.

B. ASSESSMENT OF AREA

Before installing welding equipment, the user shall make an assessment of potential electromagnetic problems in the surrounding area. The following shall be taken into account

1. Other supply cables, control cables, signalling and telephone cables; above, below and adjacent to the welding equipment.
2. Radio and television transmitters and receivers.
3. Computer and other control equipment.
4. Safety critical equipment, e.g. guarding of industrial equipment.
5. The health of people around, e.g. the use of pacemakers and hearing aids.
6. Equipment used for calibration and measurement.
7. The time of day that welding or other activities are to be carried out.
8. The immunity of other equipment in the environment: the user shall ensure that other equipment being used in the environment is compatible: this may require additional protection measures.

   The size of the surrounding area to be considered will depend on the structure of the building and other activities that are taking place. The surrounding area may extend beyond the boundaries of the premises.

C. METHODS OF REDUCING ELECTROMAGNETIC EMISSIONS

1. **Mains Supply**
   Welding equipment should be connected to the mains supply according to the manufacturer's recommendations. If interference occurs, it may be necessary to take additional precautions such as filtering of the mains supply. Consideration should be given to shielding the supply cable of permanently installed welding equipment in metallic conduit or equivalent. Shielding should be electrically continuous throughout it's length. The shielding should be connected to the Welding Power Source so that good electrical contact is maintained between the conduit and the Welding Power Source enclosure.

2. **Maintenance of Welding Equipment**
   The welding equipment should be routinely maintained according to the manufacturer's recommendations.
   All access and service doors and covers should be closed and properly fastened when the welding equipment is in operation. The welding equipment should not be modified in any way except for those changes and adjustments covered in the manufacturer's instructions. In particular, the spark gaps of arc striking and stabilising devices should be adjusted and maintained according to the manufacturer's recommendations.

3. **Welding Cables**
   The welding cables should be kept as short as possible and should be positioned close together, running at or close to the floor level.

4. **Equipotential Bonding**
   Bonding of all metallic components in the welding installation and adjacent to it should be considered. However Metallic components bonded to the work piece will increase the risk that the operator could receive a shock by touching the metallic components and the electrode at the same time. The operator should be insulated from all such bonded metallic components.

5. **Earthing of the Workpiece**
   Where the workpiece is not bonded to earth for electrical safety, nor connected to earth because of it's size and position, e.g. ship's hull or building steelwork, a connection bonding the workpiece to earth may reduce emissions in some, but not all instances. Care should be taken to prevent the earthing of the workpiece increasing the risk of injury to users, or damage to other electrical equipment. Where necessary, the connection of the workpiece to earth should be made by direct connection to the workpiece, but in some countries where direct connection is not permitted, the bonding should be achieved by suitable capacitance, selected according to national regulations.

6. **Screening and Shielding**
   Selective screening and shielding of other cables and equipment in the surrounding area may alleviate problems of interference. Screening the entire welding installation may be considered for special applications.

3.08 HIGH FREQUENCY ARC INITIATION OR STABILISATION (WHERE FITTED)

The importance of correct installation of high frequency welding equipment cannot be over emphasized. Interference due to high frequency initiated or stabilised arc is almost invariably traced to improper installation. The following information is intended as a guide for personnel installing high frequency welding machines

WARNING
The high frequency section of this machine has an output similar to a radio transmitter. The machine should NOT be used in the vicinity of blasting operations due to the danger of premature firing.

WARNING
It is also possible that operation close to computer installations may cause computer malfunction.

1. **Direct Radiation:** Radiation from the machine can occur if the case is metal and is not properly grounded. It can occur through apertures such as open access panels. The shielding of the high frequency unit in the Power Source will prevent direct radiation if the equipment is properly grounded. Arrange cables to one side and away from the operator.
2. **Transmission via the Supply Lead:** Without adequate shielding and filtering, high frequency energy may be fed to the wiring within the installation (mains) by direct coupling. The energy is then transmitted by both radiation and conduction. Adequate shielding and filtering is provided in the Power Source.
3. **Radiation from Welding Leads:** Radiated interference from welding leads, although pronounced in the vicinity of the leads, diminishes rapidly with distance. Keeping leads as short as possible will minimise this type of interference. Looping and suspending of leads should be avoided wherever possible from body as practical.
4. **Re-Radiation from Unearthed Metallic Objects:** A major factor contributing to interference is reradiation from unearthed metallic objects close to the welding leads. Effective grounding of such objects will prevent re-radiation in most cases.

SECTION 4: OPERATION

4.01 OVERVIEW

Conventional operating procedures apply when using the Welding Power Source, i.e. connect work lead directly to workpiece and electrode lead is used to hold electrode (Consult the electrode manufacturers information for the correct polarity). The welding current range values should be used as a guide only. Current delivered to the arc is dependent on the welding arc voltage, and as welding arc voltage varies between different classes of electrode, welding current at any one setting would vary according to the type of electrode in use. The operator should use the welding current range values as a guide, then finally adjust the current setting to suit the application.

4.02 POWER SOURCE CONTROLS, INDICATORS AND FEATURES

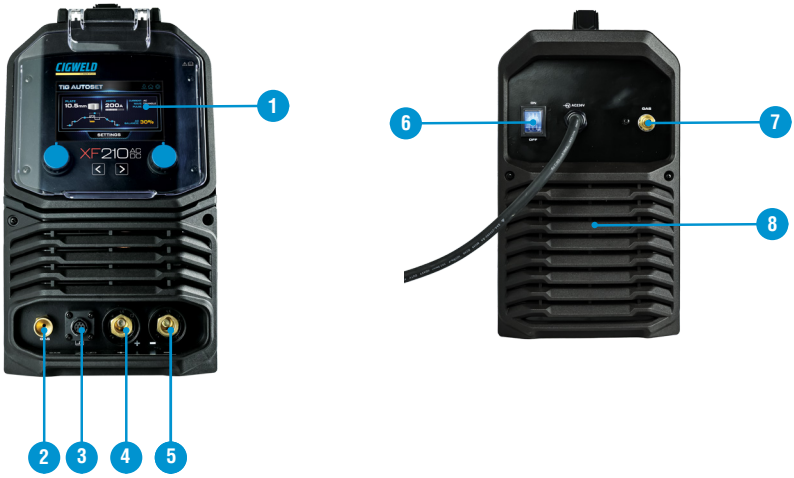


Figure 4-1: Controls, Indicators and Features

1 CONTROL PANEL

The BlueVenom XF210[6] is equipped with a 5" full colour screen enabling you to toggle through the many features and advanced settings with ease! A minimalist control panel with an intuitive user interface.

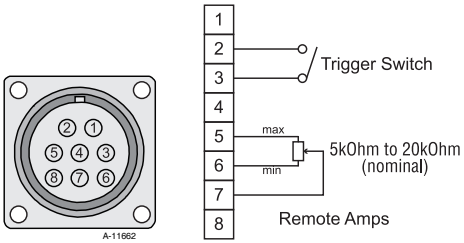
2 SHIELDING GAS OUTLET

The Shielding Gas Outlet located on the front panel is a 5/8-18 UNF female gas fitting and is utilised for the connection of a suitable TIG Torch.

3 REMOTE CONTROL SOCKET 8 PIN

The 8 pin receptacle is used to connect a trigger switch or remote control to the welding Power Source circuitry:

To make connections, align keyway, insert plug, and rotate threaded collar fully clockwise. The socket information is included in the event the supplied cable is not suitable, and it is necessary to wire a plug or cable to interface with the 8 pin receptacle.



SOCKET PIN	DESCRIPTION
1	Not used
2	Trigger Switch Input
3	Trigger Switch Input
4	Not used
5	Remote Control Potentiometer Maximum
6	Remote Control Potentiometer Minimum
7	Remote Control Potentiometer Wiper
8	Not connected

Figure 4-2: Remote Control Socket 8 Pin

4 POSITIVE OUTPUT WELDING TERMINAL

The positive welding terminal is used to connect the welding output of the power source to the appropriate welding accessory such as the Electrode Holder lead or Work Lead. Positive welding current flows from the power source via this twist & lock terminal, known as a DINSE Connector. It is essential, that the male plug is inserted and turned securely to achieve a sound electrical connection.

CAUTION

Loose welding terminal connections can cause overheating and result in the male plug being fused in the Dinse terminal.

5 NEGATIVE WELDING TERMINAL

The negative welding terminal is used to connect the welding output of the power source to the appropriate welding accessory such as the TIG Torch or Work Lead. Most General Purpose electrodes are connected with work lead (Earth Clamp) to negative. Consult the electrode manufacturer's information for the correct polarity. Welding current flows from the workpiece via this twist & lock terminal, known as a DINSE Connector to the power source. It is essential, that the male DINSE type plug is inserted and turned securely to achieve a sound electrical connection.

CAUTION

Loose welding terminal connections can cause overheating and result in the male plug being fused in the Dinse terminal.

6 ON / OFF SWITCH

This Switch is located on the rear of the Power Source and turns mains power OFF and ON.

WARNING

When the front digital displays are lit, the machine is connected to the Mains supply voltage and the internal electrical components are at Mains voltage.

NOTE

If the Power Source is repeatedly switched ON then OFF rapidly or the supply to the power source is turned ON and OFF rapidly it may not turn ON due to in-built protective devices acting. If this occurs the Power Source will not turn ON and the Power ON indicator on the front panel will flash indicating that this protective device has been activated. Turn the Power Source ON/OFF switch to the OFF position for several minutes to allow for the protective devices to reset.

7 SHIELDING GAS INLET

The Gas Inlet connection is used to supply the appropriate TIG welding gas to the unit. Refer to Section 6.01 for TIG setup details. Ensure that the shielding gas hose connection is sufficiently tight at the regulator connection and the quick connect fitting "locks" into place correctly on the rear of the power source.

8 FAN ON DEMAND

The BlueVenom XF210 AC/DC is fitted with a fan on demand feature. Fan on demand automatically switches the cooling fan off when it is not required. This has two main advantages; (1) to minimize power consumption, and (2) to minimise the amount of contaminants such as dust that are drawn into the power source. Note that the fan will only operate when required for cooling purposes and will automatically switch off when not required.

9 HOT START FEATURE (NOT SHOWN)

This feature operates in Stick (MMAW) mode. The Hot Start feature improves the arc start characteristics by momentarily increasing the welding current to a level above the preset amperage (Welding Current).

10 ANTI STICK FEATURE (NOT SHOWN)

This feature operates in Stick (MMAW) mode. The anti stick feature senses when the electrode sticks and automatically reduces the current to prevent the Stick Electrode from sticking to the work piece. This is a preset feature and is not adjustable.

SECTION 5:
FUNCTION AND CONTROL

5.01 NAVIGATION BASICS

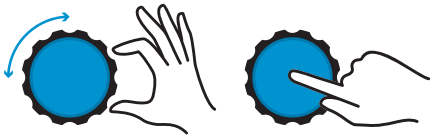
Figure 5-1: Front Panel

CONTROL KNOB

A. Left Control Knob

The Left Control Knob is used to perform several different types of Functions.

In the Home Screen is it used to rotate through each of the Welding Processes, Memory and System Settings. When highlighted Yellow and depressed, it will select the desired process or function.



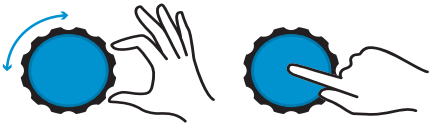
In the Autoset Wizard screens it is used to scroll through the Parameters such as Autoset or Manual, Material Type, Electrode Diameter, Joint Type and Plate Thickness. If depressed it will take you to the welding screen.

In the Settings Screens it is used to scroll through the Parameters such as Joint Type, Trigger Mode, Control Mode, Strike Method, Spot Weld Time, AC Wave, AC Balance, AC Frequency, Pre Flow, Start Current, Up Slope, Peak Current, Base Current, Pulse Width, Frequency, Down Slope, End Current, Post Flow, Hot Start, Hot Start Time, Arc Force and Pulse.

In manual mode it is used to adjust Amperage.
Turn to make selection and press to confirm.

B. Right Control Knob

The Right Control Knob is used to perform several different types of Functions.



In the Home Screen it is not used.

In the Autoset Wizard screens it is used to adjust and set the Parameters for Material Type, Electrode Diameter, Joint Type and Plate Thickness.

In the Settings Screens it is used to adjust and set the parameters for Joint Type, Trigger Mode, Control Mode, Strike Method, Spot Weld Time, AC Wave, AC Balance, AC Frequency, Pre Flow, Start Current, Up Slope, Peak Current, Base Current, Pulse Width, Frequency, Down Slope, End Current, Post Flow, Hot Start, Hot Start Time, Arc Force and Pulse.

In manual mode it is used to adjust amperage in Stick mode.

Turn to make adjustment and press to confirm.

C. Back Button:

The Back Button is used to go backwards through each pages for each of the processes.

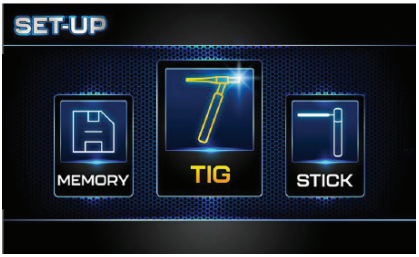
A long Press of the Back Button will return you to the Process Selection screen (Home).

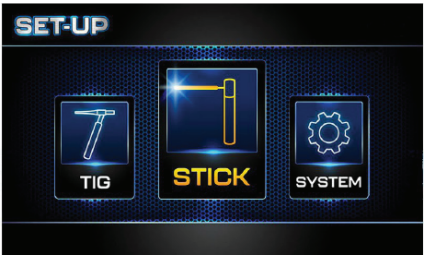
D. Forward Button:

The Forward Button is used to go forward to the next page for each of the processes.

A long Press of the Forward Button will take you to the Memory Page.

5.02 MENU SELECTIONS





Within the main menu, you can navigate to:

- **TIG Welding**
- **STICK Welding**
- **SYSTEM Settings**
- **Saved Jobs** in the machine **MEMORY**

Navigation:

- To select a section, press the **Left Control Knob.**
- To go back, press the **Back Button.**
- To return to the **Main Machine Menu**, long-press the **Left Control Knob** for 3 seconds.

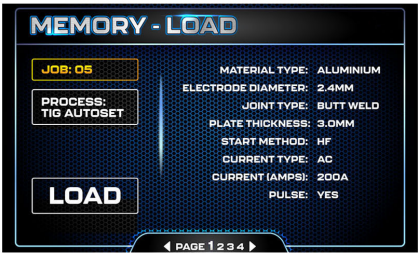
5.03 MEMORY AND JOB NUMBERS

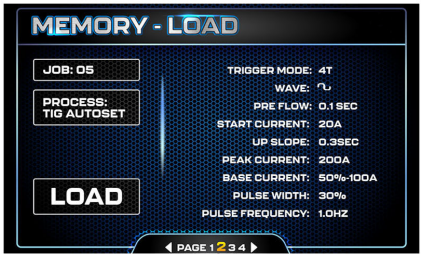
To quickly access Memory while on a welding page:

- **Save a Job Number:** Long-press the **Forward Button.**
- **Return to Parameter Page:** Press the **Back Button.**

Loading a Job Number:

1. When in the HOME screen, Long-press the Forward Button to go to Memory Load.
2. Using the Left Control Knob, rotate until JOB is highlighted Yellow.
3. Once highlighted, rotate the **Right Control Knob** until the display shows the Job Number you would like to load.
4. Rotate the **Left Control Knob** to highlight **"Load"**, then press the Left Control Knob to confirm.



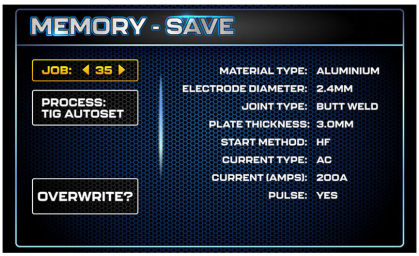


Assign a New Job Number:

1. Using the Left Control Knob, rotate until JOB is highlighted Yellow.
2. Once highlighted, rotate the Right Control Knob until the display shows "No Data".
3. Rotate the Left Control Knob to highlight "Save", then press the Left Control Knob to confirm.

Overwrite an Existing Job Number:

1. Navigate to the job number you wish to overwrite.
2. Scroll to the "Overwrite" section and click the Left Knob.
3. A prompt will appear: press YES to overwrite or NO to cancel.



SECTION 6:
TIG (GTAW) WELDING

6.01 TIG WELDING BASICS

Gas Tungsten Arc Welding (GTAW) or TIG (Tungsten Inert Gas) as it is commonly referred to, is a welding process in which fusion is produced by an electric arc that is established between a single tungsten (non-consumable) electrode and the work piece. Shielding is obtained from a welding grade shielding gas or welding grade shielding gas mixture which is generally Argon based. A filler metal may also be added manually in some circumstances depending on the welding application.

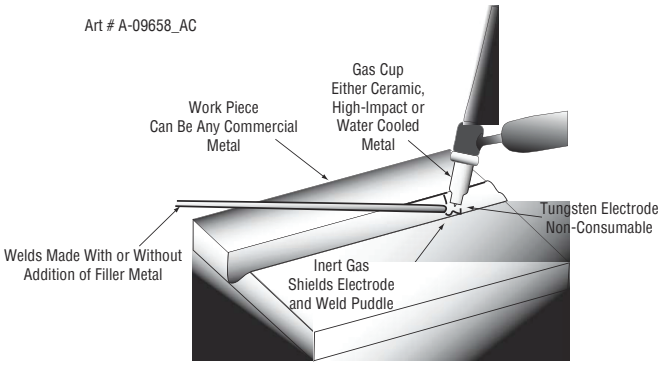


Figure 6-1: TIG Welding Application Shot

TYPES OF WELDING JOINTS

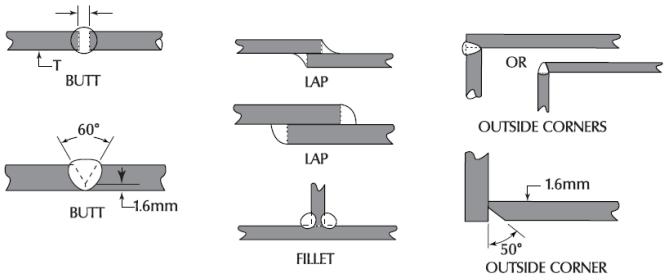


Figure 6-2: Welding Joints

GENERAL GUIDE FOR TIG WELDING

METAL THICKNESS	JOINT TYPE	TUNGSTEN ELECTRODE DIAMETER	FILLER ROD DIAMETER (IF REQUIRED)	AMPERAGE	ARGON GAS FLOW RATE AMPERAGE (L/MIN*)
1.0mm	Butt / Corner Lap / Fillet	1.0mm	1.6mm	30 - 45 35 - 50	5 - 7
1.2mm	Butt / Corner Lap / Fillet	1.0mm	1.6mm	40 - 60 45 - 70	5 - 7
1.6mm	Butt / Corner Lap / Fillet	1.6mm	1.6mm	60 - 85 70 - 95	7
3.2mm	Butt / Corner Lap / Fillet	2.4mm 3.2mm	2.4mm	125 - 150 130 - 160	10
5.0mm	Butt / Corner Lap / Fillet	3.2mm 4.0mm	3.2mm	180 - 225 190 - 240	10
6.0mm	Butt / Corner Lap / Fillet	4.0mm 4.8mm	4.8mm	240 - 280 250 - 320	13

*Flow rates are for welding grade argon only, see manufacturers' recommendations for mixtures. Size and shape of gas nozzle has an effect on the flow required for effective gas cover.

Table 6-1: TIG Welding Guide

BLUEVENOM XF210 AC/DC TIG WELDING FILLER RODS SELECTION CHART

DESCRIPTION	CLASS. AUS/ NZ STD (NEW)	CLASS. AWS STD	DIA.	PACK	PART NO	APPLICATION
COMWELD SUPER STEEL	R2	ER70S-2	1.6mm 2.4mm	5kg Pack 5kg Pack	321370 321373	Comweld Super Steel is a copper coated 'triple deoxidised' steel welding rod recommended for the high quality Gas Tungsten Arc (TIG) welding of carbon and carbon-Manganese steels. Comweld Super Steel is deoxidised with Titanium, Aluminium and Zirconium in addition to Manganese and Silicon for improved weld deposit quality. It is the ideal choice for TIG welding rusty or mill scaled plates and pipes and the root pass welding of pipes, tanks and heavy walled root toughness and radiographic soundness are achieved under high dilution.
COMWELD LW1-6	R6	ER70S-6	1.6mm 2.4mm	5kg Pack 5kg Pack	321417 321418	Comweld LW1-6 is a copper coated, low carbon steel filler rod suitable for Gas Tungsten Arc (TIG) welding of a wide range of mild and medium strength steels. Comweld LW1-6 is recommended for the TIG welding of steel pipes, plates and castings with a tensile strength in the 500 MPa class. It is tolerant to surface rust and mill scale and is ideal for root pass welding applications where tough and ductile welds are produced. Please Note: A suitable shielding gas is required
COMWELD CRMO1	RB2	ER80S-B2	2.4mm	5kg Pack	321379	Comweld CrMo1 is a copper coated steel TIG welding rod alloyed with nominally 1.25% Chromium (Cr) and 0.50% Molybdenum (Mo). It is recommended for the TIG welding of 1/2Cr-1/2Mo, 1Cr1/2Mo and 1 1/4Cr-1/2Mo steel pipes, plates and castings used at elevated service temperatures (up to 550°C) in the power and petrochemical industries etc. Comweld CrMo1 is also suitable for the dissimilar TIG welding of Cr-Mo steel to carbon steel and for the welding of case hardenable steels or steels which can be subsequently heat treated.
COMWELD CRMO2	RB3	ER90S-B3	2.4mm	5kg Pack	321383	Comweld CrMo2 is a copper coated steel TIG welding rod alloyed with nominally 2.5% Chromium (Cr) and 1.0% Molybdenum (Mo).It is recommended for the TIG welding of 2 1/4Cr - 1 Mo and CrMo-V steel pipes, plates and castings used at elevated service temperatures (up to 600°C) in the power and petrochemical industries etc. Comweld CrMo2 is also suitable for the dissimilar TIG welding of selected Cr-Mo steels to carbon steel and for the TIG welding of heat treatable steels and case hardenable steels with up to 3% Chromium content.

BLUEVENOM XF210 AC/DC TIG WELDING FILLER RODS SELECTION CHART						
DESCRIPTION	**CLASS. AUS/ NZ STD (NEW)**	**CLASS. AWS STD**	**DIA.**	**PACK**	**PART NO**	**APPLICATION**
COMWELD 308L	R308L	ER308L	1.6mm 2.4mm	5kg Pack 5kg Pack	321406 321407	Comweld 308L stainless steel is a high quality low carbon rod for the Gas or Gas Tungsten Arc (TIG) welding of a wide range of low carbon and stabilised 300 series stainless steels. It is recommended for the critical welding of 304 and 304L stainless steels in corrosion resistant and cryogenic applications.
COMWELD 309L	R309L	ER309L	1.6mm 2.4mm	5kg Pack 5kg Pack	321403 321404	Comweld 309L stainless steel is a high quality low carbon rod for the Gas or Gas Tungsten Arc (TIG) welding of highly alloyed 309 or 309L type stainless steels. Comweld 309L is also suitable for the dissimilar joining of other 300 series austenitic stainless steels to ferritic steels.
COMWELD 316L	R316L	ER316L	1.6mm 1.6mm 2.4mm	5kg Pack 25 Rod Handypack 5kg Pack	321400 322054 321401	Comweld 316L stainless steel is a high quality low carbon rodfor the Gas or Gas Tungsten Arc (TIG) welding of Molybdenum bearing stainless steels; in particular matching 316 and 316L alloys. Comweld 316L is also suitable for the general welding of other 300 series stainless steels including 302 and 304; as well as ferritic stainless steels grades such as 409, 444 and 3Cr12.
COMWELD AL5356	R5356	ER5356	1.6mm 1.6mm 2.4mm 2.4mm 3.2mm	2.5kg Pack 1Kg Pack 2.5kg Pack 1Kg Pack 2.5kg Pack	321640 WTA016 321641 WTA024 321642	Comweld AL5356 is a high quality, Aluminium - nominal 5% Magnesium alloy rod suitable for the Gas or Gas Tungsten Arc (TIG) welding of a wide range of cast and wrought Aluminium alloys.It produces intermediate deposit strength and good ductility and corrosion resistance for the Gas or Gas Tungsten Arc Welding (GTAW / TIG) of a wide rangeof 3XXX, 5XXX, 6XXX and 5XX Aluminium alloys. See CIGWELD Aluminium Alloy Selection Chart for detailed welding consumable selection criteria for a wide range of Aluminium alloy parent metals.

Table 6-2: Welding Filler Rods Selection Chart

TIG Welding is generally regarded as a specialised process that requires operator competency. While many of the principles outlined in the previous Arc Welding section are applicable a comprehensive outline of the TIG Welding process is outside the scope of this Operating Manual. For further information please refer to **cigweld.com.au** or contact **Cigweld.**

6.02 TIG REGULATOR/FLOWMETER

SHIELDING GAS CONNECTION

WARNING

This equipment is designed for use with welding grade (Inert) shielding gases only.

This regulator/flowmeter is designed to reduce and control high pressure gas from a cylinder or pipeline to the working pressure required for the equipment using it.

If the equipment is improperly used, hazardous conditions are created that may cause accidents. It is the users responsibility to prevent such conditions. Before handing or using the equipment, understand and comply at all times with the safe practices prescribed in this instruction.

SPECIFIC PROCEDURES for the use of regulators/flowmeters are listed below.

1. **NEVER** subject the Regulator/Flowmeter to an inlet pressure greater than its rated inlet pressure.
2. **NEVER** pressurize a Regulator/Flowmeter that has loose or damaged parts or is in a questionable condition. NEVER loosen a connection or attempt to remove any part of a Regulator/Flowmeter until the gas pressure has been relieved. Under pressure, gas can dangerously propel a loose part.
3. **DO NOT** remove the Regulator/Flowmeter from a cylinder without first closing the cylinder valve and releasing gas in the Regulator/Flowmeter high and low pressure chambers.
4. **TURN OFF** When equipment is not in use for extended periods of time, shut off the gas at the cylinder valve and release the gas from the equipment.
5. **OPEN** the cylinder valve SLOWLY. Close after use.

CAUTION

Match regulator/flowmeter to cylinder. NEVER CONNECT a regulator/flowmeter designed for a particular gas or gases to a cylinder containing any other gas.

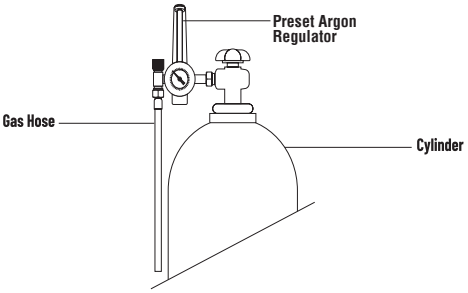


Figure 6-2: Fit Regulator/flowmeter to Cylinder

INSTALLATION

1. Remove cylinder valve plastic dust seal. Clean the cylinder valve outlet of impurities that may clog orifices and damage seats before connecting the Regulator/Flowmeter. Crack the valve (open then close) momentarily, pointing the outlet away from people and sources of ignition. Wipe with a clean lint free cloth.
2. Match Regulator/Flowmeter to cylinder. Before connecting, check that the Regulator/Flowmeter label and cylinder marking agree and that the Regulator/Flowmeter inlet and cylinder outlet match. NEVER CONNECT a Regulator/Flowmeter designed for a particular gas or gases to a cylinder containing any other gas.
3. Connect the Regulator/Flowmeter inlet connection to cylinder or pipeline and tighten it firmly but not excessively, with a suitable spanner.
4. Connect and tighten the outlet hose firmly and attach the hose to the welding machine with the Quick Connect fitting. Ensure no gas leakage. The flowmeter must be in the vertical position to read accurately.
5. The regulator/flowmeter has a self-reseating relief valve – not designed to protect downstream equipment. To protect sensitive downstream equipment a separate safety device may be necessary.

OPERATION

With the Regulator/Flowmeter connected to cylinder or pipeline:

1. Stand to one side of Regulator/Flowmeter and slowly open the cylinder valve. If opened quickly, a sudden pressure surge may damage internal Regulator/Flowmeter parts.
2. Since the regulator is a preset type, no adjustments to the regulator are necessary. Before opening the cylinder valve, be sure that the flow adjusting valve is in a finger-tight "OFF" position (clockwise).
3. Slowly and carefully, open the cylinder valve until the maximum pressure registers on the high pressure gauge.

CAUTION

DO NOT purge oxidising or flammable gases in the presence of flame, lit cigarettes, or other sources of ignition or in a confined space.

Close equipment valve(s) after purging, and test all connections for leaks with a suitable leak detection solution or soapy water. Never use a flame when testing for leaks.

ADJUSTING FLOW RATE

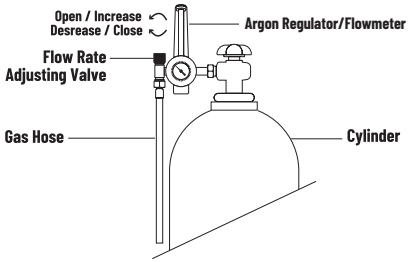


Figure 6-3: Adjust Flow Rate

With the Regulator/Flowmeter ready for operation, adjust working flow rate as follows:

1. Slowly turn adjusting valve in anti-clockwise direction to open and increase until the bobbin in the flow tube indicates the required flow rate.

NOTE

It may be necessary to re-check the shielding Gas Regulator/Flowmeter flow rate following the first weld sequence due to back pressure present within shielding gas hose assembly.

2. To reduce flow rate, allow the welding grade shielding gas to discharge from regulator by opening the downstream valve. Bleed welding grade shielding gas into a well ventilated area and away from any ignition source. Turn adjusting screw clockwise, until the required flow rate is indicated on the gauge. Close downstream valve.

SHUTDOWN

Close cylinder valve whenever the Regulator/Flowmeter is not in use. To shut down for extended periods (more than 30 minutes).

1. Close cylinder valve tightly.
2. Remove the gas from the machine and hose by pressing the Gas Purge button on the front of the machine, or by pressing the trigger on the MIG Gun. Bleed gas into a well ventilated area.
3. After gas is drained completely turn off the machine.
4. Before transporting cylinders that are not secured on a cart designed for such purposes, remove regulators/flowmeters.

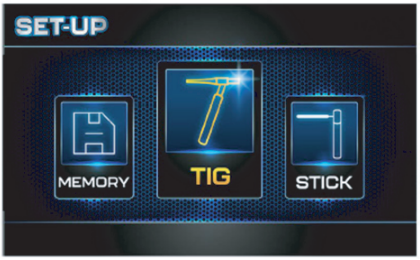
6.03 TIG MODE NAVIGATION

From the **Main Menu**, navigate to the **TIG** section and press the **Left Knob** to access it.

You will then be prompted to choose between:

- **TIG AUTOSET**
- **TIG MANUAL**

Select the desired option and press the **Left Knob** to enter that mode.

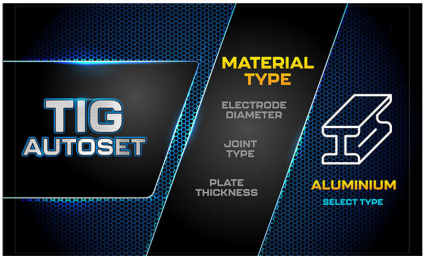


TIG AUTOSET

After entering the TIG AUTOSET section, you can adjust the following parameters:

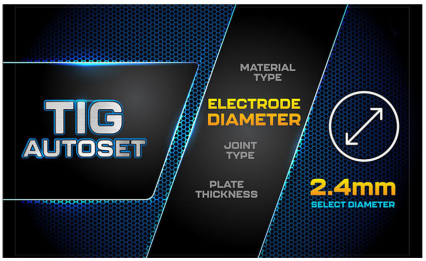
MATERIAL TYPE

This Setting allows the user to select the material they are welding. Available options are: Aluminium, Steel and Stainless Steel.



ELECTRODE DIAMETER

This Setting allows the user to select the Tungsten Electrode Diameter they are using. The available options are 1.6mm, 2.4mm and 3.2mm.



JOINT TYPE

This Setting allows the user to select the Joint Type they are welding. Different Joint Types require different parameters, so selecting the correct Joint type helps achieve optimal results.

Joint Types available are: Fillet Weld, Butt Weld, Lap Joint and Corner Weld.

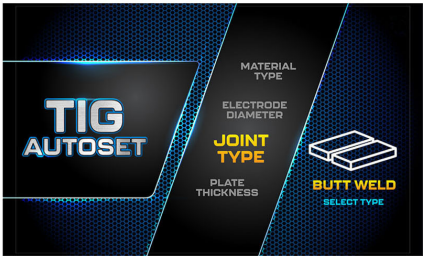
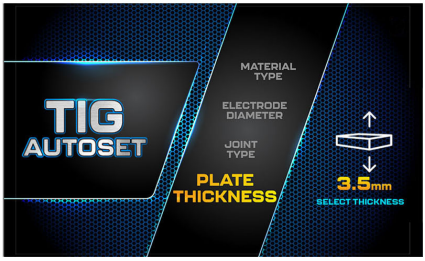


PLATE THICKNESS

The Plate thickness setting allows the user to choose the thickness of the material they are welding to achieve the optimal amperage setting.

They can be adjusted in this screen, and/or in the welding screen.

NOTE: Plate thickness ranges are dependent on Material Type, Tungsten sizes, Joint Type and in Aluminium waveform. For example, if 1.6mm tungsten is chosen for aluminium, the plate thickness range is 1.0mm to 4.0mm. This is due to the limitations of the tungsten.



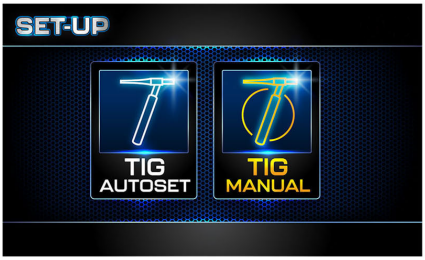
If you wish to modify parameters after selecting an AUTOSET option:

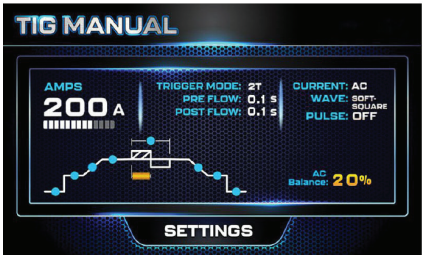
1. Short-press the **Forward Arrow** until the screen changes, displaying a detailed view of the parameters.
2. Adjust each value as needed according to your preference.

To save a quick job number:

- Long-press the Forward Arrow again to access the Memory screen and save the job.

TIG MANUAL





After entering the TIG MANUAL section, you can adjust the following parameters:

You may make selections to the below parameters:

A – AMPS

B – Trigger Mode

C – Pre Flow

D – Post Flow

E – Current

F – Wave (available only in AC and AC+DC modes; options include: Square, Sine, Triangle, Square-Sine, Square-Triangle, Sine-Square, Sine-Triangle, Triangle-Square, Triangle-Sine, Trapezoidal, Soft Square).

G – Pulse (On/Off)

NOTES:

- Each parameter may have specific limitations and rules.
- The available range for some settings may change depending on the Material Type.

Adjusting Parameters:

1. To quickly adjust AMPS, rotate the Left Control Knob.
2. To access the synergic line and make changes:
3. Once adjustments are complete, click either the Right or Left Control Knob to exit the synergic line settings.

- Click either the Right or Left Control Knob.
- Rotate the Left Control Knob to move between selections.
- Use the Right Control Knob to change the value of the highlighted parameter.

Adjustable sections within the synergic line include:

- **Trigger Mode (2T, 4T, 8T)**
- **Pre Flow**
- **Start Current**
- **Up Slope**
- **Peak Current**
- **AC Frequency**
- **AC Balance**
- **Down Slope**
- **End Current**
- **Post Flow**
- **Mix Frequency (AC+DC Setting)**
- **DC% (AC+DC Setting)**
- **Pulse Width**
- **Frequency (Need to have AC selected)**

Trigger Mode Control

The **Trigger Mode** allows you to switch the torch trigger functionality between **2T (Normal), 4T (Latch Mode), and Spot Mode**.

2T – Normal Mode

In this mode, the torch trigger must remain pressed for the welding output to be active.

- Press and hold the trigger to start welding.
- Release the trigger to stop welding.

4T – Latch Mode

This mode is ideal for long welds to reduce operator fatigue.

- Press and release the torch trigger once to start welding.
- The output remains active without holding the trigger.
- Press and release the trigger again to stop welding. allowing continuous welding without holding the trigger.

NOTE: When operating in **GTAW (HF TIG) mode,** the power source will remain active until the selected Down Slope time has elapsed.

8T - Mode

The **8T mode** provides advanced control over the welding process, allowing the operator to activate and adjust welding current in multiple stages without continuously holding the trigger.

Operation Overview

In **8T mode**, the torch trigger functions as follows:

1. **First Press** – The arc starts, and the welding current rises to the preset level.
2. **First Release** – The current holds at the peak level, allowing continuous welding without holding the trigger.
3. **Second Press** – The current transitions to a lower (background) current, enabling heat control or crater filling.
4. **Second Release** – The arc is terminated, completing the welding cycle.

Advantages

- Reduces operator fatigue by eliminating the need to hold the trigger during long welds.
- Allows smooth transitions between welding and crater-fill stages.
- Ideal for applications requiring controlled heat input and consistent end-crater finishing.

NOTES

- Ensure 8T mode is selected on the machine before operation.
- Adjust the background current and ramp times (if applicable) to match your welding procedure.
- Familiarize yourself with the trigger sequence before production use.

6.04 TIG MODE PARAMETERS

CAUTION

HF is present in all TIG modes. This may cause damage to measuring equipment connected to the output of this power source.

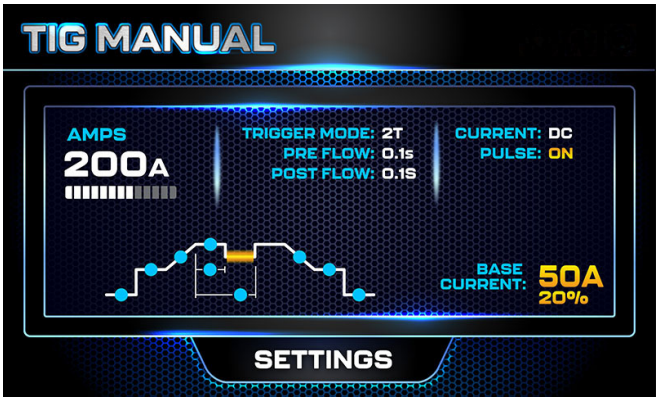


Figure 6-4: TIG Programming Mode

Pre-Flow

This parameter operates in TIG modes only and is used to provide gas to the weld zone prior to striking the arc, once the torch trigger switch has been pressed. This control is used to dramatically reduce weld porosity at the start of a weld.
This parameter has a range of 0.1s to 3.0s.

Start Current

This parameter operates in TIG modes only and is the starting current that the arc will initially commence at prior to ramping up to Peak current.
This parameter has a range of 35A to 210A.

Up Slope

This parameter operates in TIG modes only and is used to set the time for the weld current to ramp up, after the torch trigger switch has been depressed then released, from Start Current to Peak Current.
This parameter has a range of 0.0s to 20.0s.

Peak Current

This parameter sets the Peak weld current when in TIG mode. In Autoset mode the maximum Peak current is determined by Material Type, Tungsten Size, Joint Type and Waveform in Aluminium. For example, if 1.6mm tungsten is chosen for aluminium, the plate thickness range is 1.0mm to 4.0mm. This is due to the limitations of the tungsten. In manual mode, Peak Current is determined by Waveform in Aluminium.

Pulse Width (Pulse Mode only)

This parameter sets the percentage of time the weld current will remain in Peak Current when in AC or DC Pulse TIG mode. The higher the percentage, the more time spent in Peak Current, and less time in Base Current.
This parameter has a range of 10% to 90%.

Base Current (Pulse Mode only)

This parameter sets the base current in AC or DC TIG Pulse mode as a percentage of Peak Current. It is set as a percentage and if the Peak Current is changed, the base current will also change.
This parameter has a range of 5% to 75%.

Frequency (Pulse Mode only)

The amount of pulse cycles in a time period. The higher the frequency, the more pulse cycles per time period. When the pulse frequency is set low, the weld pool will have time to partially solidify between each pulse. If the frequency is set high, a more focused arc can be obtained.
This parameter has a range of 0.5Hz to 500HZ.

AC Balance

This parameter operates in AC TIG modes and is used to set the penetration to cleaning action ratio for the AC weld current. Used to adjust the balance (%) in AC TIG mode, it is the ratio between Electrode Positive (EP) and Electrode Negative (EN) in a waveform. Balance lets you control the arc width, heat, and cleaning action etc.
Benefits of increasing the balance (i.e., increasing the EN portion of the AC TIG waveform):

- Achieve greater penetration.
- Helps in increasing travel speeds.
- Helps in narrowing the weld bead.
- Helps in increasing the tungsten electrode life and reduces balling action.
- Reduces the size of etched zone for improved cosmetics.

Benefits of decreasing the balance (i.e., increasing the EP portion of the AC TIG waveform):

- Better cleaning action to remove heavier oxidation on the work plate.
- Minimizes penetration which help prevent burn-through on thin materials.
- Widens the bead profile and helps in catching both sides of the joint.
- This parameter has a range of 10% to 65%.

AC Frequency

This parameter operates in AC TIG mode or AC Pulse TIG mode and is used to set the frequency for the AC weld current. This parameter has a range of 10Hz to 250Hz.

Down Slope

This parameter operates in TIG modes only and is used to set the time for the weld current to ramp down, after the torch trigger switch has been released, from Peak Current to End Current.
This parameter has a range of 0.0s to 25.0s

End Current

This parameter operates in TIG modes only and is used to set the finish current for TIG. The End Current remains ON until the torch trigger switch is released and is used to cool the weld slowly to avoid craters, cracks and pin holes at the end of a weld.
This parameter has a range of 35A to 210A.

Post Flow

This parameter operates in TIG modes only and is used to adjust the post gas flow time once the arc has extinguished. This parameter is used to dramatically reduce oxidation of the tungsten electrode, reduce the likelihood of the weld being contaminated, and to help cool the TIG Torch.
This parameter has a range of 0.0s to 30.0s.

Table 6-3: Programming Parameter

AC Balance is used for aluminium welding in AC TIG mode
It is used to set the ratio of penetration to cleaning action for the AC TIG welding arc.
Maximum weld penetration is achieved when the AC Balance is set to 10%. Maximum cleaning of heavily oxidized aluminium or magnesium alloys is achieved when the AC Balance is set to 65%.

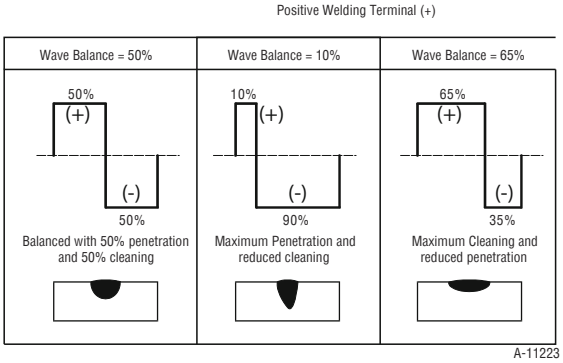


Figure 6-5 : AC TIG Wave Balance

6.05 TIG WELDING

A. Select a TIG mode with the process selection control (refer to Section 6.03 for further information).

B. Connect the TIG Torch to the negative welding terminal (-). Refer to Note below for Optional TIG Torch information. Welding current flows from the power source via Dinse type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

C. Connect the TIG torch trigger switch and remote current control if applicable via the 8 pin socket located on the front of the Power Source. The TIG torch will require a trigger switch to weld in TIG Mode.

D. Connect the work lead to the positive welding terminal (+). Welding current flows from the Power Source via Dinse type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

E. Connect the Argon Regulator/Flowmeter to the Welding Grade Argon Shielding Gas Cylinder then connect the TIG Torch gas hose to regulator. Before turning on shielding gas check that all fittings are tight and the gas valve on the TIG torch is turned off. Before commencing to TIG weld open TIG torch gas valve to allow sufficient shielding gas flow when welding. Refer to Section 5.02 for recommended Shielding Gas flow rates and other TIG Welding information.

WARNING

Secure the welding grade shielding gas cylinder in an upright position by chaining it to a suitable stationary support to prevent falling or tipping.

Open Gas Cylinder Valve carefully.

WARNING

Before connecting the work clamp to the work piece and inserting the electrode in the TIG torch make sure the Mains power supply is switched OFF.

CAUTION

Remove any packaging material prior to use. Do not block the air vents at the front or rear of the Welding Power Source.

NOTE

If the TIG torch has a trigger switch or a remote TIG torch current control fitted then it will require to be connected to the 8 pin socket. (Refer to section 4.02.3 Remote Control Socket for further information).

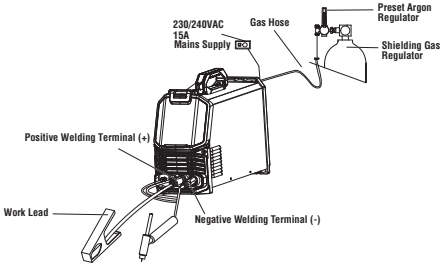


Figure 6-6: Setup For TIG (GTAW) Welding

6.06 TIG WELDING ISSUES - CAUSE & REMEDY

FAULT	CAUSE	REMEDY
Excessive bead build up or poor penetration or poor fusion at edges of weld.	Welding current is too low.	Increase weld current and/or faulty joint preparation.
Weld bead too wide and flat or undercut at edges of weld or excessive burn through.	Welding current is too high.	Decrease weld current.
Weld bead too small or insufficient penetration or ripples in bead are widely spaced apart.	Travel speed too fast.	Increase travel speed.
Weld bead too wide or excessive bead build up or excessive penetration in butt joint.	Travel speed too slow.	Increase travel speed.
Uneven leg length in fillet joint.	Wrong placement of filler rod.	Re-position filler rod.
Electrode melts or oxidises when an arc is struck.	A. Torch lead connected to positive welding terminal.	A. Connect torch lead to negative welding terminal.
	B. No shielding gas flowing to welding region.	B. Check the shielding gas lines for kinks or breaks and shielding gas cylinder contents.
	C. Torch is clogged with dust or dirt.	C. Clean torch.
	D. Shielding gas hose is damaged.	D. Replace shielding gas hose.
	E. Shielding gas regulator turned off.	E. Turn On Shielding Gas and adjust Shielding Gas flow rate for the welding job.
	F. The electrode is too small for the welding current.	F. Increase electrode diameter or reduce the welding current.
Dirty weld pool	A. Electrode contaminated by contact with work piece or filler rod material.	A. Clean the electrode by grinding off the contaminates.
	B. Work piece surface has foreign material on it.	B. Clean surface.
	C. Shielding gas contaminated with air.	C. Check shielding gas lines for cuts and loose fitting or change shielding gas cylinder.
Poor weld finish	Inadequate shielding gas.	A. Increase shielding gas flow or check shielding gas line for shielding gas flow problems.

Arc start is not smooth.	A. Tungsten electrode is too large for the welding current.	A. Select the right size tungsten electrode. Refer to Table 6-1 Cigweld Tungsten Electrode Selection Chart.
	B. The wrong electrode is being used for the welding job.	B. Select the right size tungsten electrode type. Refer to Table 6-1 Cigweld Tungsten Electrode Selection Chart.
	C. Shielding gas flow rate is too high.	C. Select the right shielding gas flow rate for the welding job.
	D. Incorrect shielding gas is being used.	D. Select the correct shielding gas.
	E. Poor work clamp connection to work piece.	E. Improve connection to work piece.
Arc flutters during TIG welding.	A. Tungsten electrode is too large for the welding current.	A. Select the right size tungsten electrode. Refer to Table 6-1 Cigweld Tungsten Electrode Selection Chart.

Table 6-4: TIG (GTAW) Welding Problems

SECTION 7:
STICK (MMAW) WELDING

7.01 STICK WELDING BASICS

Metal arc welding electrodes consist of a core wire surrounded by a flux coating. This flux coating, applied to the core wire by an extrusion process, serves the following key functions:

A. To provide a gaseous shield for the weld metal, preserving it from contamination by the atmosphere whilst in a molten state.

B. To steady the arc by providing an arc stabilising bridge for the flow of the welding current.

C. To provide deoxidisers for the removal of oxygen from the weld metal and weld pool.

D. To provide a cleansing action on the work piece and a protective slag cover over the weld metal to prevent the formation of oxides while the metal is solidifying. The slag also helps to produce a bead of the desired contour.

E. To introduce alloys into the weld deposits in special type electrodes.

Stick Electrode Types

Arc Welding electrodes are classified into a number of groups depending on their applications. There are a great number of electrodes used for specialised industrial purposes which are not of particular interest for everyday general work. These include some low hydrogen types for high tensile steel, cellulose types for welding large diameter pipes, etc. The range of electrodes dealt with in this publication will cover the vast majority of applications likely to be encountered; are all easy to use and all will work on even the most basic of welding machines.

CIGWELD ELECTRODE SELECTION CHART

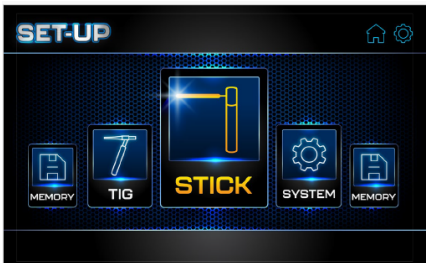
DESCRIPTION	CLASS. AUS/NZ STD (NEW)	CLASS. AWS STD	DIA.	PACK	PART NO	APPLICATION
SATINCRAFT 13	B E4313 A	E6013	2.5mm	1kg Pack	322135	A high performance General Purpose (GP) welding electrode suitable for all positional welding, except vertical-down, for use on, mild and galvanised steel pipes, plates, angle iron, RHS, tubes and grid mesh.
			2.5mm	2.5kg Pack	612182	
			3.2mm	1kg Pack	322136	
			3.2mm	2.5kg Pack	612183	
			4mm	5kg Pack	611184	
WELDSKILL GP GENERAL PURPOSE WELDING	B E4313 A	E6013	2.0mm	25 Rod Handypack	WEG0220	A user-friendly General Purpose (GP) electrode offering a quiet, smooth arc action with a 6013 classification (min. strength rating of 60,000PSi). Ideal for welding thin section mild, galvanised and rusty steels and weld joints with poor fit-up. Great for use on vertical down fillet welding applications. Weldskill GP produces smooth professional mitre fillet welds in all positions with very low spatter levels, it features positive re-strike (hot or cold) and a self-releasing slag.
			2.0mm	1.0kg Pack	WEG1020	
			2.0mm	2.5kg Pack	WEG2520	
			2.5mm	20 Rod Handypack	WEG0225	
			2.5mm	1.0kg Pack	WEG1025	
			2.5mm	2.5kg Pack	WEG2525	
			2.5mm	5.0kg Pack	WEG5025	
			3.2mm	15 Rod Handypack	WEG0232	
			3.2mm	1.0kg Pack	WEG1032	
			3.2mm	2.5kg Pack	WEG2532	
			3.2mm	5.0kg Pack	WEG5032	
WELDSKILL HS HIGHER STRENGTH	B E4916 U A H10	E7016 H8	2.5mm	10 Rod Handypack	WEL0225	Higher Strength (HS) Hydrogen Controlled welding electrodes with a 7016 classification (min. strength rating of 70,000 PSi), well suited to welding steels under stress or with higher load bearing. The full covering slag is easy to control and remove.
			2.5mm	1.0kg Pack	WEL1025	
			3.2mm	10 Rod Handypack	WEL0232	
			3.2mm	1.0kg Pack	WEL1032	
WELDSKILL WELDIT ALL DISSIMILAR STEEL WELDING	B ES312-17	E312-17	2.5mm	10 Rod Handypack	WEW0225	WELDiT ALL is a highly alloyed stainless steel electrode that is extremely resistant to cracking (min. strength of 110,000PSi) it provides smooth, stable running in all positions (except vertical down) especially on low current settings. WELDit ALL is recommended for the repair and maintenance of all steels, particularly those of unknown composition. It is suitable for; Joining dissimilar steels, such as stainless steel to carbon steel, Repairing die or tool steels, as a protective overlay against corrosion and as an intermediate or buffer layer prior to hard surfacing. Not Recommended for Welding Cast Irons
			2.5mm	1.0kg Pack	WEW1025	
			3.2mm	10 Rod Handypack	WEW0232	
			3.2mm	1.0kg Pack	WEW1032	

CIGWELD ELECTRODE SELECTION CHART

DESCRIPTION	CLASS. AUS/NZ STD (NEW)	CLASS. AWS STD	DIA.	PACK	PART NO	APPLICATION
WELDSKILL 316L STAINLESS STEEL WELDING	E316L-16	E316L-16	2.0mm	10 Rods	WES316020	WELDSKILL 316L stainless steel electrode has been formulated for the all positional (except vertical-down) fillet and butt welding of stainless steels. 316L produces low spatter levels with a smooth-running bead. Weldskill 316L is suitable for a wide range of Molybdenum bearing stainless steels, suitable for the general-purpose welding of other Austenitic stainless steels including 301, 302, 303 and 304/304L, 305, 3CR12 types. WeldSkill 316L is also suitable for the general welding of 400 series stainless steels including 410 and 430.
			2.0mm	1.0kg	WES316120	
			2.5mm	10 Rods	WES316025	
			2.5mm	1.0kg	WES316125	
			3.2mm	10 Rods	WES316032	
			3.2mm	1.0kg	WES316132	
WELDSKILL HARDA HARDFACING	1855-A4	--	3.2mm	10 Rod Handypack	WEH0232	HARDA is designed for hard surfacing of steel components subjected to wet or dry hard particle abrasion and low to moderate impact loading. The air hardening (~55RHc), low alloy steel deposit of WELDSKILL HARDA remains crack free on most steels and is therefore recommended for hard surfacing components subject to flexing during service. Typical applications include the surfacing of agricultural points, shears and tynes, grader and dozer blades, conveyor screws and post hole augers etc
			3.2mm	1.0kg Pack	WEH1032	
WELDSKILL CAST2STEEL CAST IRONS & CAST TO STEEL	--	ENiFe-CI	2.5mm	10 Rod Handypack	WEC0225	CAST2STEEL is a Nickel-Iron electrode designed for higher strength repair and maintenance welding of SG, Austenitic, Meehanites and Grey cast irons. It produces a soft stable arc with minimal penetration and spatter. The ductile Nickel-Iron weld deposit is machinable with the higher strength required for welding S.G. irons. Cast2Steel is also used to weld Cast Iron to Mild and Low Alloy Steels.
			2.5mm	1.0kg Pack	WEC1025	
			3.2mm	10 Rod Handypack	WEC0232	
			3.2mm	1.0kg Pack	WEC1032	

7.02 STICK MODE NAVIGATION

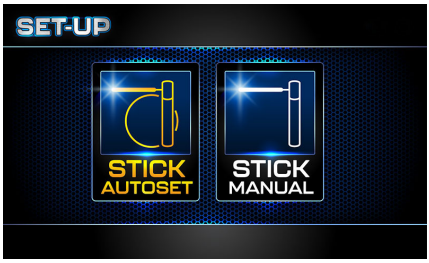
From the Main Menu, navigate to the STICK section and click the Left Control Knob to access it.



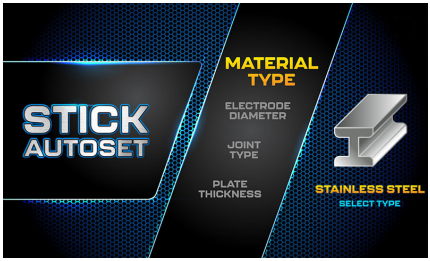
You will then be prompted to choose between:

- **STICK AUTOSET**
- **STICK MANUAL**

Select the desired option and click the **Left Control Knob** to enter that mode.



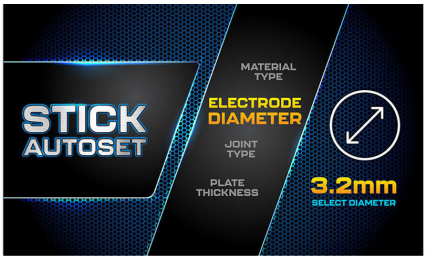
STICK AUTOSET



MATERIAL TYPE

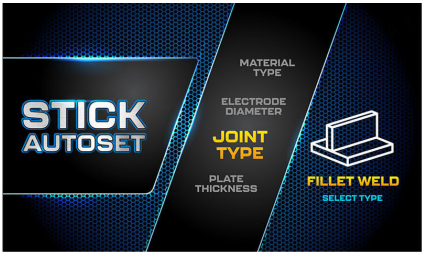
This Setting allows the user to select the material/electrode type they are welding/using.

Available options are: Mild Steel Cellulosic, Low Hydrogen, Stainless Steel, Hardfacing and E312.



ELECTRODE DIAMETER

User able to set 2.0mm, 2.5mm, 3.2mm or 4.0mm.



JOINT TYPE

Joint Types available are Fillet Weld, Butt Weld, Lap Joint and Corner Weld. Setting the correct joint typ helps achieve optimal results.

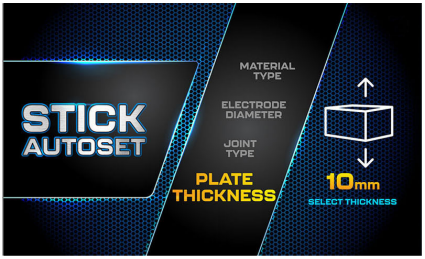
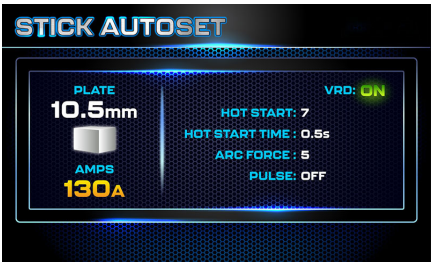


PLATE THICKNESS

This setting allows the user to choose the thickness of the material being welded and achieve optimal amperage setting. This can be adjusted in this screen, and/or in the welding screen.

NOTE: Plate thickness range is dependent on Material Type, Electrode sizes/type and Joint Type. For example, if a 2.5mm electrode is chosen for Low Hydrogen, the plate thickness range is 2.5mm to 4.0mm. A cellulose electrode ranges from 2.5mm to 5.0mm.



To modify parameters after selecting an AUTOSET option:

1. Press the Left Hand Control Knob and rotate until the setting you want to adjust highlights Yellow.
2. Using the Right Hand Control Knob rotate to adjust each value according to your preference.

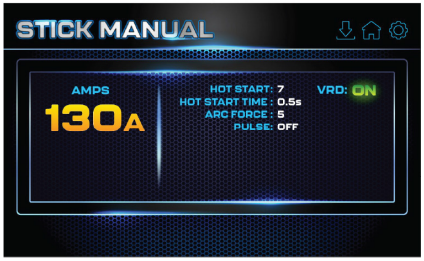
To store modified sub-parameters as a job:

- Long-press the **Forward button** again to access the **Memory** screen and save the job.

Returning to Previous Screen or Main Menu:

- Long-press the Back button to go back or return to the Main Menu.

STICK MANUAL



In STICK MANUAL mode, parameters able to adjust are:

- AMPS
- Hot Start
- Hot Start Time
- Arc Force
- Pulse

NOTES on VRD:

- **VRD** is a safety function and not able to be disabled.
- After welding starts, VRD automatically switches off to allow full output.

Adjusting Parameters:

1. To quickly adjust AMPS, rotate the Left Control Knob.
2. To access and adjust other parameters:

- Click either the Right or Left Control Knob.
- Rotate the **Left Control Knob** to move between selections.
- Use the **Right Control Knob** to change parameter value.

Saving Settings as a Job number

- Long-press the Right Arrow button for 3 seconds and follow the steps in Section 5.03 – Memory and Job Numbers.

Returning to Main Menu:

- Long-press the Back Button for 3 seconds.

7.03 STICK MODE PARAMETERS

While welding, the RIGHT and LEFT CONTROL KNOBS adjust the BASE CURRENT.

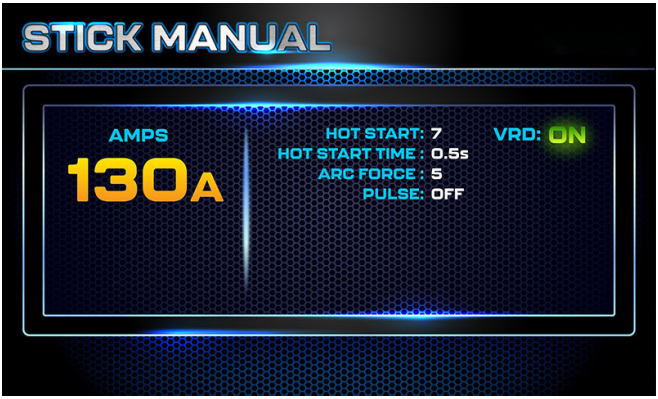


Figure 7-1: Stick Programming Mode

Hot Start

This feature operates in Stick (MMAW) mode. The Hot Start feature improves the arc start characteristics by momentarily increasing the welding current to a level above the preset amperage (Welding Current).

This parameter has an adjustment range of 0A to 100A.

e.g. If AMPS is set to 100A and HOT START set to 30A, the initial AMPS will be 130A.

Hot Start Time

Hot Start Time is the time in seconds that the Hot Start setting will run for.

This parameter has a range of 0.0s to 1.0s

Pulse ON/OFF

Utilizing the pulse function welders can achieve improved weld quality, better control over the process, and enhanced productivity, especially when working with challenging materials or in demanding welding applications.

Press the Left Control Knob to cycle through the settings until reaching Pulse (It will highlight). Use the Right Control Knob to turn Pulse Function ON or OFF. By

NOTE: If no adjustment is made after 5 seconds it will return to the primary adjustment screen.

Pulse Frequency (Pulse Freq or Pulse Speed)

It is the amount of times per second that a pulse (also known as cycle) will take place. The unit of measurement is Hertz (Hz). A Pulse cycles between a Pulse Base current (bottom of the pulse) and the Peak Current (top of the pulse). This allows you to control the overall heat input, maintain arc stability and have a better looking weld by improving control over the weld pool. Higher frequencies result in more rapid cycling between the two current levels. As an example, if the Pulse Frequency is set for 2 Hz, you will observe 2 pulses per second (10 pulses every 5 seconds).

Press the Left Control Knob to cycle through the settings until reaching Pulse Freq (Pulse Speed) (It will highlight). Use the Right Control Knob to adjust to the desired level. Pulse Frequency Range is 0.3 - 5Hz.

NOTE: If no adjustment is made after 5 seconds it will return to the primary adjustment screen.

Pulse Base Current (A)

It's the percentage of current that your Pulse will have at the Bottom (base). This percentage is calculated from your peak current, which you set as a combination of the Wire Feed Speed and Voltage. It is the low-current pulse that follows the peak current. It helps maintain the arc stability and keeps the weld pool in a controlled state while minimizing heat input. The background current is usually set at a lower value compared to the peak current. For example, if a Pulse Base Current of 60% is set, the variation will be 40% between Peak and Base. This will make the weld much hotter when the pulse is at the Top compared to the Bottom

Press the Left Control Knob to cycle through the settings until reaching Pulse Base Current (It will highlight). Use the Right Control Knob to adjust to the desired level. Pulse Base Current Range is 60 - 80%.

NOTE: If no adjustment is made after 5 seconds it will return to the primary adjustment screen.

Base Current

This parameter sets the current in DC or AC TIG mode, and the lowest current in DC or AC Pulse TIG mode. This parameter also sets the welding current in STICK mode.

Arc Force

Arc Force is effective when in Stick Mode only. Arc Force control provides and adjustable amount of Arc Force (or "dig") control. This feature can be particularly beneficial in providing the operator the ability to compensate for variability in joint fit-up in certain situations with particular electrodes. This parameter has a range of 0A to 100A.

Refer to Section 8.01 on Page 60 for Factory Reset Procedure.

Table 7-1: Programming Parameters

7.04 STICK WELDING

A. Select Stick mode with the process selection control.

B. Connect the Electrode Holder lead to the positive welding terminal (+). If in doubt, consult the electrode manufacturer. Welding current flows from the Power Source via Dinse type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

C. Connect the work lead to the negative welding terminal (-). If in doubt, consult the electrode manufacturer. Welding current flows from the power source via Dinse type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

WARNING

Before connecting the work clamp to the work and inserting the electrode in the electrode holder make sure the Mains power supply is switched off.

CAUTION

Remove any packaging material prior to use. Do not block the air vents at the front or rear of the Welding Power Source.

NOTE

Consult the electrode manufacturer's information for the correct polarity.

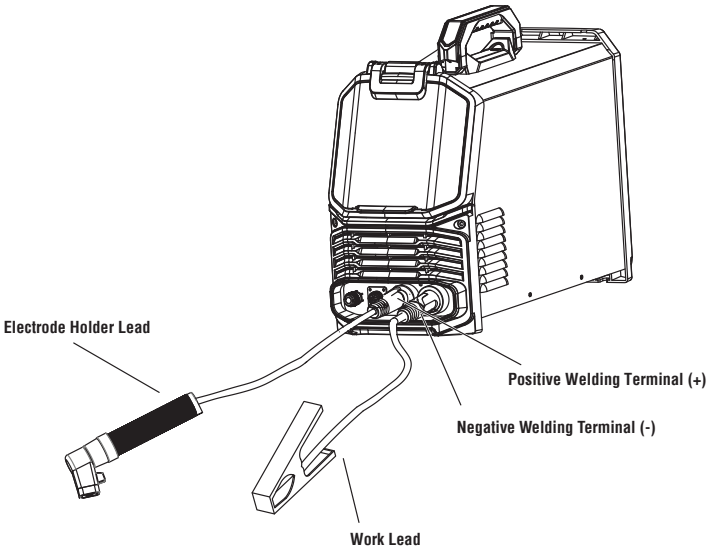


Figure 7-2: Setup For STICK (MMAW) Welding

Storage of Stick Electrodes

Always store electrodes in a dry place and in their original containers.

Stick Electrode Size

The electrode size is determined by the thickness of metals being joined and can also be governed by the type of welding machine available. Small welding machines will only provide sufficient current (amperage) to run the smaller size electrodes.

For most work, a 2.5mm electrode will be quite sufficient. A 2.5mm electrode will give just as strong a joint but may require a few more weld runs to be put down to fill the joint.

For thin sections, it is necessary to use smaller electrodes otherwise the arc may burn holes through the job. A little practice will soon establish the most suitable electrode for a given application.

Electrode Polarity

Electrodes are connected to the Electrode Holder, and the Work Lead is connected to the work piece.

Consult the Electrode manufacturer's information for the correct polarity.

STICK Welding Practice

Techniques used for arc welding are almost identical regardless of what types of metals are being joined. Naturally enough,

different types of electrodes would be used for different metals as described in the next section.

STICK Welding Different Metals

A. High tensile and alloy steels

The two most prominent effects of welding these steels are the formation of a hardened zone in the weld area, and, if suitable precautions are not taken, the occurrence in this zone of under-bead cracks may result. Hardened zone and under-bead cracks in the weld area may be reduced by using the correct electrodes, preheating, using higher current settings, using larger electrodes sizes, short runs for larger electrode deposits or tempering in a furnace.

B. Austenitic manganese steels

The effect on manganese steel of slow cooling from high temperatures is to embrittle it. For this reason it is absolutely essential to keep manganese steel cool during welding by quenching after each weld or skip welding to distribute the heat.

C. Cast Iron

Most types of cast iron, except white iron, are weldable. White iron, because of its extreme brittleness, generally cracks when attempts are made to weld it. Trouble may also be experienced when welding white-heart malleable, due to the porosity caused by gas held in this type of iron.

D. Copper and alloys

The most important factor is the high rate of heat conductivity of copper, making preheating of heavy sections necessary to give proper fusion of weld and base metal.

Welding Position

The electrodes dealt with in this publication can be used in most positions, i.e. they are suitable for welding in flat, horizontal, vertical and overhead positions. Numerous applications call for welds to be made in positions intermediate between these. Some of the common types of welds are shown in Figures 7-3 through 7-10.

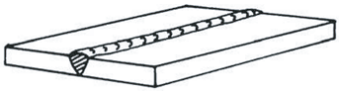


Figure 7-3: Flat position, down hand butt weld

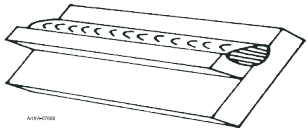


Figure 7-4: Flat position, gravity fillet weld

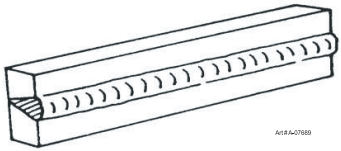


Figure 7-5: Horizontal position, butt weld

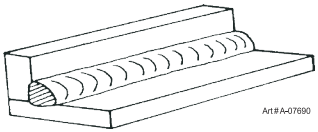


Figure 7-6: Flat position, down hand fillet weld

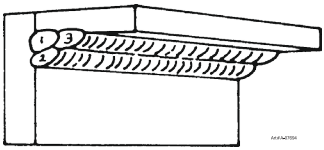


Figure 7-7: Overhead position fillet, weld

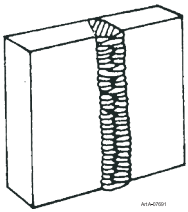


Figure 7-8: Vertical position, butt weld

Figure 7-9: Overhead position, butt weld

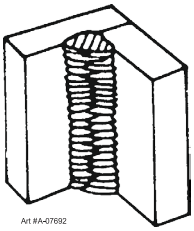


Figure 7-10: Vertical position, fillet weld

7.05 STICK WELDING ISSUES - CAUSE & REMEDY

	DESCRIPTION	POSSIBLE CAUSE	REMEDY
1.	Gas pockets or voids in weld metal (Porosity).	A. Electrodes are damp.	A. Dry electrodes before use.
		B. Welding current is too high.	B. Reduce welding current.
		C. Surface impurities such as oil, grease, paint, etc.	C. Clean joint before welding.
2.	Crack occurring in weld metal soon after solidification commences.	A. Rigidity of joint.	A. Redesign to relieve weld joint of severe stresses or use crack resistance electrodes.
		B. Insufficient throat thickness.	B. Travel slightly slower to alloy greater build-up in throat.
		C. Cooling rate is too high.	C. Preheat plate and cool slowly.
3.	A gap is left by failure of the weld metal to fill the root of the weld.	A. Welding current is too low.	A. Increase welding current.
		B. Electrode too large for joint.	B. Use smaller diameter electrode.
		C. Insufficient gap.	C. Allow wider gap.
		D. Incorrect sequence.	D. Use correct build-up sequence.

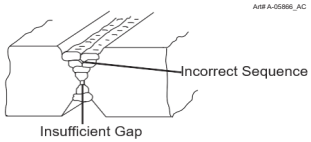


Figure 7-11: Example of Insufficient Gap or Incorrect Sequence

4.	Portions of the weld run do not fuse to the surface of the metal or edge of the joint.	A. Small electrodes used on heavy cold plate.	A. Use larger electrodes and preheat the plate.
		B. Welding current is too low.	B. Increase welding current.
		C. Wrong electrode angle.	C. Adjust angle so the welding arc is directed more into the base metal.
		D. Travel speed of electrode is too high.	D. Reduce travel speed of electrode.
		E. Scale or dirt on joint surface.	E. Clean surface before welding.

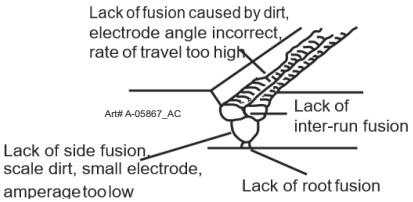


Figure 7-12: Example of Lack of Fusion

	DESCRIPTION	POSSIBLE CAUSE	REMEDY
5.	A groove has been formed in the base metal adjacent to the toe of a weld and has not been filled by the weld metal (undercut).	A. Welding current is too high.	A. Reduce welding current.
		B. Welding current is too low.	B. Reduce the length of the welding arc.
		C. Angle of the electrode is incorrect.	C. Electrode should not be inclined less than 45° to the vertical face.
		D. Joint preparation does not allow correct electrode angle.	D. Allow more room in joint for manipulation of the electrode.
		E. Electrode too large for joint.	E. Use smaller gauge electrode.
		F. Insufficient deposit time at edge of weave.	F. Pause for a moment atedge of weave to allow weld metal build-up.

Figure 7-13: Examples of undercut

DESCRIPTION	POSSIBLE CAUSE	REMEDY
Non-metallic particles are trapped in the weld metal (slag inclusion.)	A. Non-metallic particles may be trapped in undercut from previous run.	A. If bad undercut is present, clean slag out and cover with a run from a smaller diameter electrode.
	B. Joint preparation too restricted.	B. Allow for adequate penetration and room for cleaning out the slag.
	C. Irregular deposits allow slag to be trapped.	C. If very bad, chip or grind out irregularities.
	D. Lack of penetration with slag trapped beneath weld bead.	D. Use smaller electrode with sufficient current to give adequate penetration. Use suitable tools to remove all slag from corners.
	E. Rust or mill scale is preventing full fusion.	E. Clean joint before welding.
	F. Wrong electrode for position in which welding is done.	F. Use electrodes designed for position in which welding is done, otherwise proper control of slag is difficult.

Table 7-2: Welding Problems

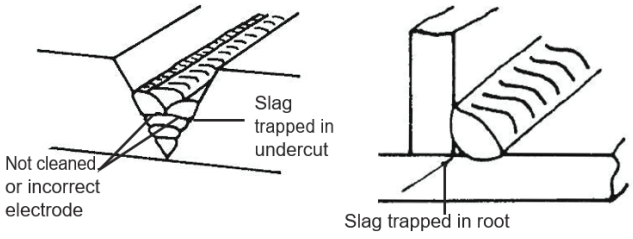
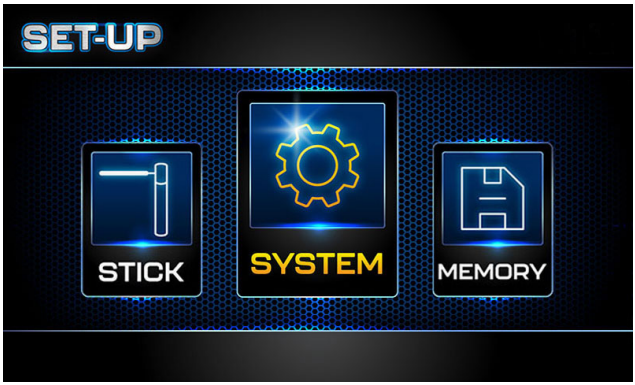


Figure 7-14: Examples of Slag Inclusion

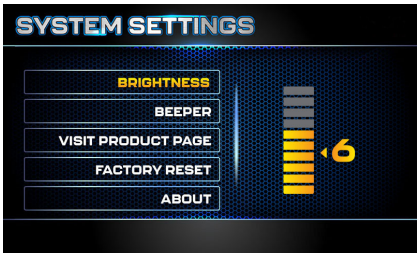
SECTION 8: ROUTINE SERVICE REQUIREMENTS AND POWER SOURCE PROBLEMS

8.01 SYSTEM SETTINGS



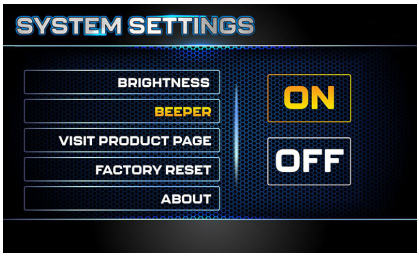
BRIGHTNESS

This function adjusts the brightness of the display screen.



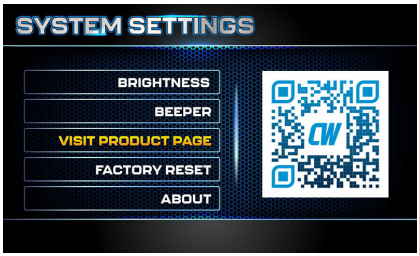
BEEPER

This function turns On or OFF the Beeper when pressing buttons or rotating the control knobs.

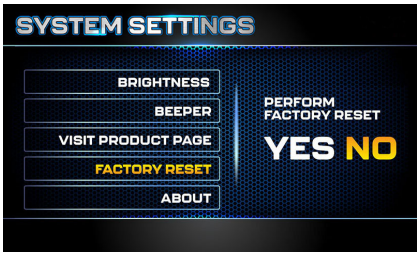


VISIT PRODUCT PAGE

This function shows the QR code to download the operating manual and spare parts.



FACTORY RESET



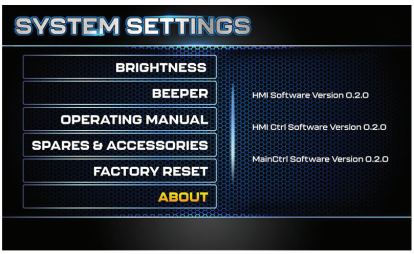
The BlueVenom XF210 AC/DC can have Factory Default Settings restored.

To reset to factory settings, while in the Home Screen, rotate the Right Hand Control Knob until reaching the System Icon, then depress the control knob to select.

Once in System Settings, rotate the Left Hand Control Knob to the Factory Reset Icon. Using the Right Hand Control Knob, rotate until YES is highlighted yellow.

Long press the Right Hand Control Knob to perform the Factory Reset. Once reset, the screen will change to the DC MIG Autoset weld screen.

ABOUT



This function shows the the software version of the welder.

8.02 A ROUTINE MAINTENANCE & INSPECTION

ELECTRICAL WARNING

There are extremely dangerous voltage and power levels present inside this product. Do not attempt to open or repair unless you are a qualified electrical tradesperson. Disconnect the Welding Power Source from the Mains Supply Voltage before disassembling.

This function shows the the software version of the welder.

Welding equipment should be regularly checked by a qualified electrical tradesperson to ensure that:

- The main earth wire of the electrical installation is intact.
- Power point for the Welding Power Source is effectively earthed and of adequate current rating.
- Plugs and cord extension sockets are correctly wired.
- Flexible cord is of the 3-core tough rubber or plastic sheathed type of adequate rating, correctly connected and in good condition.
- Welding terminals are shrouded to prevent inadvertent contact or short circuit.
- The frame of the Welding Power Source is effectively earthed.
- Welding leads and electrode holder are in good condition.
- The Welding Power Source is clean internally, especially from metal filing, slag, and loose material. If any parts are damaged for any reason, replacement is recommended.

8.03 CLEANING THE WELDING POWER SOURCE

To clean the Welding Power Source, open the enclosure and use a vacuum cleaner to remove any accumulated dirt, metal filings, slag and loose material. Keep surfaces clean as accumulated foreign material may reduce the welders output welding current.

CAUTION

Do not use compressed air to clean the Welding Power Source. Compressed air can force metal particles to lodge between live electrical parts and earthed metal parts within the Welding Power Source. This may result in arcing between this parts and their eventual failure.

8.04 BASIC TROUBLESHOOTING

ELECTRICAL WARNING

There are extremely dangerous voltage and power levels present inside this product. Do not attempt to open or repair unless you are a qualified electrical tradesperson and you have had training in power measurements and troubleshooting techniques.

If major complex subassemblies are faulty, then the Welding Power Source must be returned to an Accredited CIGWELD Service Provider for repair.

The basic level of troubleshooting is that which can be performed without special equipment or knowledge.

8.05 WELDING POWER SOURCE PROBLEMS

	FAULT	CAUSE	REMEDY
1.	Mains Supply Voltage is On, the On/Off switch on the rear panel is in the On position and the Power indicator on the front panel is illuminated however the power source will not TIG weld.	A. Power source is not in the correct mode of operation.	A. Set the power source to the correct mode of operation with the process selection switch.
		B. TIG Torch 8 Pin Control Plug not connected correctly or loose/faulty connection in plug.	B. Connect 8 Pin TIG Torch control plug securely and correctly to the 8 Pin control socket of the front of the Power Source.
		C. Work Lead is not connected to the Work Piece.	C. Ensure that the Work Lead is connected to the work piece and has a good connection to the work piece. Refer to Set Up for TIG Section 5.02.
		D. Faulty TIG torch trigger.	D. Repair or replace torch trigger switch/ lead.
2.	Weld bead too wide and flat or undercut at edges of weld or excessive burn through.	A. Power source is not in the correct mode of operation.	A. Set the power source to STICK mode. Refer to Section 5.02.
		B. Work Lead is not connected to the work piece.	B. Ensure that the Work Lead is connected to the work piece and has a good connection to the work piece.
3.	Fault Indicator is illuminated and unit will not commence welding when the torch trigger switch is depressed.	Duty cycle of power source has been exceeded.	Leave the power source switched ON and allow it to cool. Note that fault indicator must be extinguished prior tocommencement of welding.
4.	Weld bead too wide or excessive bead build up or excessive penetration in butt joint.	A. Trigger mode selection is in 4T (LATCH) mode.	A. Change to 2T (NORMAL) mode.
		B. TIG torch trigger leads shorted.	B. Repair or replace TIG torch / trigger lead.
5.	Mains Supply Voltage is On, the On/Off switch in the rear panel is in the On position but the Power On indicator on the front panel is flashing and the digital display and other indicators on the front panel are not illuminated and the power source will not weld.	This may occur due to the activation of an in-built protective device if the Power Source is repeatedly switched On then Off rapidly or the supply to the Power Source is switched On then Off rapidly.	If this occurs leave the Power Source On/ Off switch in the Off position for several minutes to allow the protective device to reset.
6.	TIG electrode melts whenarc is struck.	TIG torch is connected to the (+) ve terminal.	Connect the TIG torch to the (-)ve terminal.
7.	Arc flutters during TIG welding.	Tungsten electrode is too large for the welding current.	Select the correct size of tungsten electrode.
8.	No HF output.	HF Circuit faulty.	Have an Accredited CIGWELD Service Provider check HF circuit.

Table 8-1: Welding Power Source Problems

WARNING SCREEN	CAUSE	REMEDY
OVER TEMPERATURE  Figure 8-1: Over Temperature	Over Temperature	**A** Duty cycle of the Power Source has been exceeded. Leave the power source switched ON with the fan running and allow it to cool. **B** Check front and rear Panel Air Louvres are clean and not blocked by any dirt or obstacles. If damaged they should be replaced by an Accredited CIGWELD Service Provider. **C** Check that the fan is running normally during welding. If the fan is not running during welding it may be faulty and need replacing. Contact an Accredited CIGWELD Service Provider. Note this unit has Fan on Demand fitted. Refer to Section 4 for further details.
LOW VOLTAGE  Figure 8-2: Low Voltage	Low Voltage	**A** Input Power Supply is outside the parameters of the Machine. Contact Qualified Electrician to Check Input supply.

CIGWELD
AN ESAB BRAND

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 recognized 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: 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

WARRANTY	WARRANTY PERIOD (PARTS AND LABOUR)
BlueVenom XF210 AC/DC Power Source	3 Years

ACCESSORIES	WARRANTY PERIOD
TIG torch, electrode holder lead and work lead	3 Months
TIG torch consumable items	NIL
Gas Regulator/Flowmeter (excluding seat assembly, pressure gauges, elastomer seals and “O” rings	1 Year
Regulator seat assemblies and pressure gauges	6 Months
Elastomer seals and “O” rings used in the equipment	3 Months

CIGWELD LIMITED WARRANTY DOES NOT APPLY TO:

- Obsolete goods sold at auction, second-hand goods and prototype goods.
- Consumable Parts for TIG, 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.

SECTION 10: NOTES

CIGWELD

AN **ESAB** BRAND

Version: 02 Issue Date: 09-04-2026 Manual No: 742030

CIGWELD Pty Ltd 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

CIGWELD.COM.AU