



Please dispose of packaging for the product in a responsible manner. It is suitable for recycling. Help to protect the environment, take the packaging to the local amenity tip and place into the appropriate recycling bin.



Never dispose of electrical equipment or batteries in with your domestic waste. If your supplier offers a disposal facility please use it or alternatively use a recognised re-cycling agent. This will allow the recycling of raw materials and help protect the environment.



SIP INDUSTRIAL

machinery specialists since 1968

Weldmate HG2001DV

Inverter Arc Welder

With PFC



05717

FOR HELP OR ADVICE ON THIS PRODUCT PLEASE CONTACT YOUR DISTRIBUTOR,
OR SIP DIRECTLY ON:

TEL: 01509500400

EMAIL: sales@sip-group.com or technical@sip-group.com

www.sip-group.com

Please read and fully understand the instructions in this manual before operation. Keep this manual safe for future reference.

UK - DECLARATION OF CONFORMITY

Declaration of Conformity

We

SIP (Industrial Products) Ltd
Gelders Hall Road
Shepshed
Loughborough
Leicestershire
LE12 9NH
England


As the manufacturer within the UK, England, Scotland & Wales, declare that
SIP HG1600DV Inverter Arc Welder with PFC (110V/230V) - SIP Part No. 05717

Conforms to the requirements of the following directive(s), as indicated.

Electromagnetic Compatibility Regulations 2016
Electrical Equipment (Safety) Regulations 2016
The Restriction of the Use of Certain Hazardous Substances in Electrical and
Electronic Equipment Regulations 2012

And the relevant harmonized standard(s), including:

BS EN 60974-10:2014+A1:2015
BS EN IEC 60974-1:2018+A1:2019

Signed: 

Mr P. Ippaso - Director - SIP (Industrial Products) Ltd
Date: 04/06/2021



DECLARATION OF CONFORMITY

Declaration of Conformity

We

SIP (Machinery Europe) Ltd
ASM Chartered Accountants
First Floor Block One
Quayside Business Park
Dundalk
County Louth
Republic of Ireland

As the manufacturer's authorised representative within the EC
declare that the


SIP HG1600DV Inverter Arc Welder with PFC (110V/230V) - SIP Part No. 05717

Conforms to the requirements of the following directive(s), as indicated.

2014/35/EU	Low Voltage Directive
2014/30/EU	EMC Directive
2011/65/EC & EU 2015/863	RoHS Directive

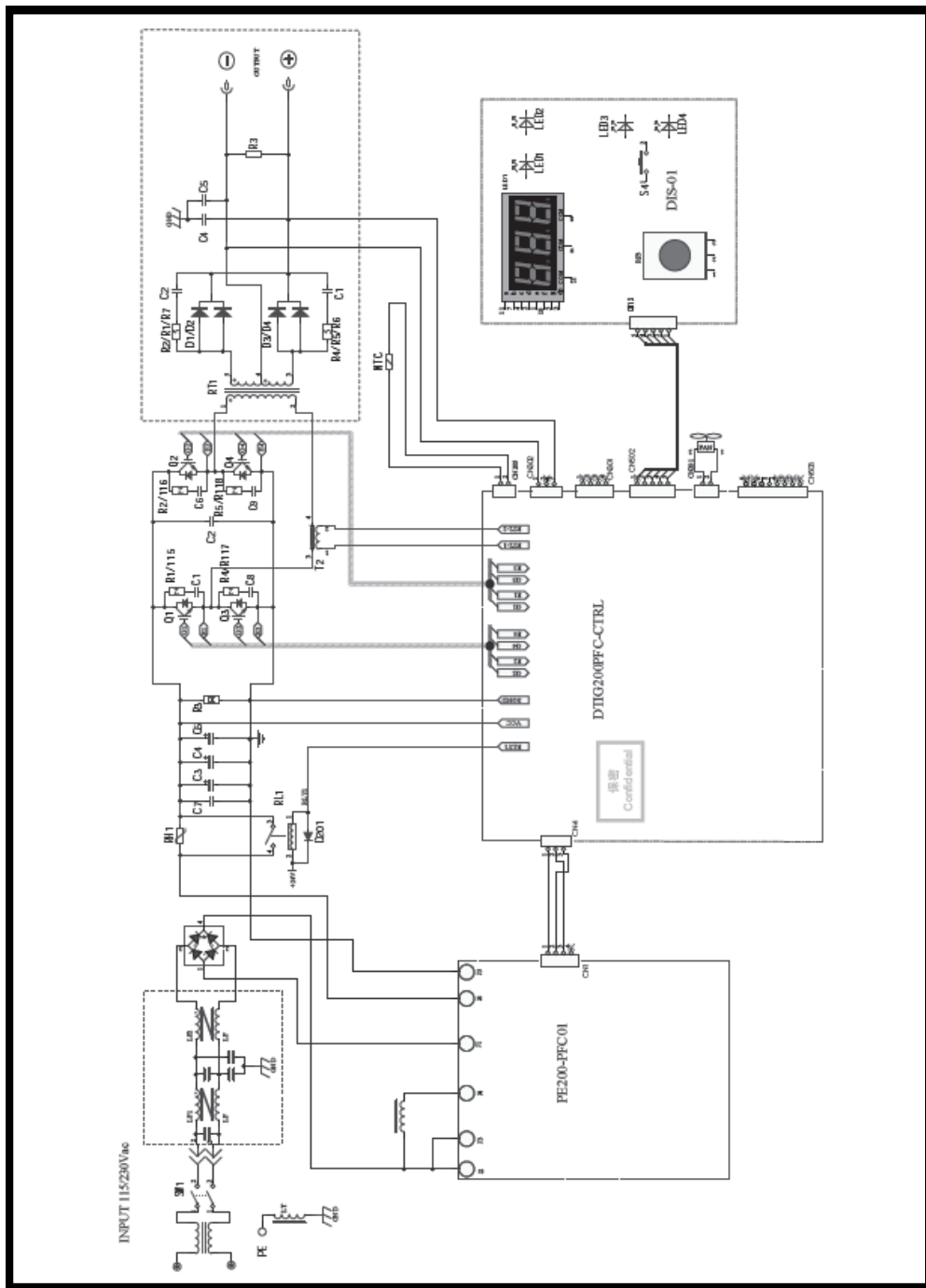
And the relevant harmonised standard(s), including

EN 60974-10:2014+A1:2015
EN IEC 60974-1:2018+A1:2019

Signed: 

Mr P. Ippaso - Director - SIP (Industrial Products) Ltd
Date: 04/06/2021.





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For Spare Parts Lists go to:-
www.sip-group.com/techzone

Alternately call SIP After Sales on 01509 500400
 or
 email: technical@sip-group.com for a pdf version.

SAFETY SYMBOLS USED THROUGHOUT THIS MANUAL



Danger / Caution: Indicates risk of personal injury and/or the possibility of damage.



Warning: Risk of electrical injury or damage!



Note: Supplementary information.

SAFETY INSTRUCTIONS



Important: Please read the following instructions carefully, *failure to do so could lead to serious personal injury and / or damage to the inverter welder.*

When using your inverter welder, basic safety precautions should always be followed to reduce the risk of personal injury and / or damage to the inverter welder.

Read all of these instructions before operating the inverter welder and save this user manual for future reference.

The inverter welder should **not** be modified or used for any application other than that for which it was designed.

This inverter welder was designed to supply electric current for ARC welding.

If you are unsure of its relative applications do not hesitate to contact us and we will be more than happy to advise you.

Before each use of the inverter welder always check no parts are broken and that no parts are missing.

Always operate the inverter welder safely and correctly.

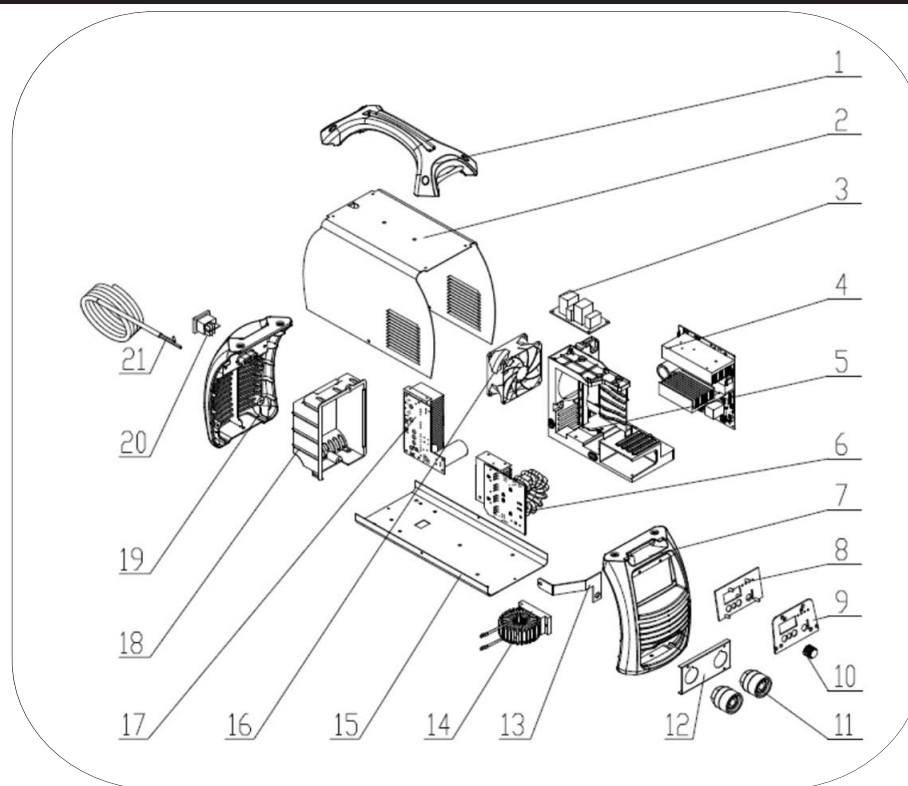
KNOW YOUR INVERTER WELDER: Read and understand the owner's manual and labels affixed to the inverter welder. Learn its applications and limitations, as well as the potential hazards specific to it.

KEEP WORK AREA CLEAN AND WELL LIT: Cluttered work benches and dark areas invite accidents. Floors must not be slippery due to oil, water or sawdust etc.

DO NOT USE THE INVERTER WELDER IN DANGEROUS ENVIRONMENTS: Do not use the inverter welder in damp or wet locations, or expose it to rain. Provide adequate space surrounding the work area. Do not use in environments with a potentially explosive atmosphere.

KEEP CHILDREN AND UNTRAINED PERSONNEL AWAY FROM THE WORK AREA: All visitors should be kept at a safe distance from the work area.

EXPLODED VIEW



NO.	Description	NO.	Description
1	Handle	12	Output fixed plate
2	Metal cover	13	Negative busbar
3	EMC filter board	14	PFC inductance
4	IGBT inverter board	15	Bottom plate
5	Internal bracket	16	Fan
6	Rectifier board	17	PFC board
7	Front plastic panel	18	Air Duct
8	Front panel PCB board	19	Back plastic panel
9	Front panel fixed plate	20	Power switch
10	Potentiometer knob	21	Power cable
11	Euro quick connector		

TROUBLESHOOTING

ARC		
Symptom	Possible Cause	Solution
Alarm light on.	<ul style="list-style-type: none"> Overheated. 	<ul style="list-style-type: none"> Allow the to cool .
Difficult to strike an arc.	<ul style="list-style-type: none"> Damp electrode. Incorrect electrode. 	<ul style="list-style-type: none"> Warm the electrode or re-place. Select the correct size electrode to match the amperage set on the machine.
Burns through thin metal.	<ul style="list-style-type: none"> Material too thin for arc welding. 	<ul style="list-style-type: none"> Use the TIG function.

TIG		
Symptom	Possible Cause	Solution
Quality of weld is poor.	<ul style="list-style-type: none"> No gas flow. Incorrect ceramic nozzle. Check condition of tungsten. 	<ul style="list-style-type: none"> Check gas flow and adjust as required. Select correct ceramic nozzle to match tungsten. Regrind to shape or re-place.
Overheating.	<ul style="list-style-type: none"> Fan problem. Rear casing blocked, obstructing air flow. Poor connection on earth clamp/ electrode holder. Tungsten does not match collet/collet body. 	<ul style="list-style-type: none"> Check fan connections, replace fan. Check and clean. Check and clean all connections. Change collet/collet body to match tungsten.
Difficult to strike an arc.	<ul style="list-style-type: none"> Tungsten in poor condition 	<ul style="list-style-type: none"> Regrind to shape or re-place.
Alarm light on.	<ul style="list-style-type: none"> Overheated. 	<ul style="list-style-type: none"> Allow the welder to cool.



Note: If none of the above solutions work then contact your local distributor for repair, or contact SIP technical for more advise.

SAFETY INSTRUCTIONS....cont

STORE THE INVERTER WELDER SAFELY WHEN NOT IN USE: The inverter welder should be stored in a dry location and disconnected from the mains supply, and out of the reach of children.

USE SAFETY CLOTHING / EQUIPMENT: Use a CE approved welding mask at all times with the correct shade of filter lens. A fume extractor should be used particularly where there is little or no ventilation.

PROTECT YOURSELF FROM ELECTRIC SHOCK: When working with the inverter welder, avoid contact with any earthed items (e.g. pipes, radiators, hobs and refrigerators, etc.). It is advisable wherever possible to use an RCD (residual current device) at the mains socket.

STAY ALERT: Always watch what you are doing and use common sense. Do not operate the inverter welder when you are tired or under the influence of alcohol or drugs.

DISCONNECT THE INVERTER WELDER FROM THE MAINS SUPPLY: When not in use and before servicing.

AVOID UNINTENTIONAL STRIKING: Make sure the main switch is in the **Off** position before connecting the inverter welder to the mains supply.

NEVER LEAVE THE INVERTER WELDER CONNECTED WHILST UNATTENDED: Turn the inverter welder off and disconnect it from the mains supply between jobs. Do not leave the inverter welder connected to the mains supply if no more welding is to be done.

DO NOT ABUSE THE MAINS LEAD: Never attempt to move the inverter welder by the mains lead or pull it to remove the plug from the mains socket. Keep the mains lead away from heat, oil and sharp edges. If the mains lead is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid unwanted hazards. **All** extension cables must be checked at regular intervals and replaced if damaged.

CHECK FOR DAMAGED PARTS: Before every use of the inverter welder, any damage found should be carefully checked to determine that it will operate correctly, safely and perform its intended function. Any damaged, split or missing parts that may affect its operation should be correctly repaired or replaced by an authorised service centre unless otherwise indicated in this instruction manual.

KEEP ALL COVERS / PANELS IN PLACE: Never operate the inverter welder with any covers / panels removed, this is extremely dangerous.

MAINTAIN THE INVERTER WELDER WITH CARE: Keep the earth clamp and electrode holder clean for the best and safest performance.

USE ONLY RECOMMENDED ACCESSORIES: Consult this user manual, your distributor or SIP directly for recommended accessories. Follow the instructions that accompany the accessories. The use of improper accessories may cause hazards and will invalidate any warranty you may have.

SECURE THE WORKPIECE: Always use welding clamps to secure the work-piece. This frees up both hands to operate the inverter welder correctly.

DO NOT OVERREACH: Keep proper footing and balance at all times.

USE THE RIGHT TOOL: Do not use the inverter welder to do a job for which it was not designed.

DO NOT OPERATE THE INVERTER WELDER IN EXPLOSIVE ATMOSPHERES: Do not use the

SAFETY INSTRUCTIONS....cont

inverter welder in the presence of flammable liquids, gases, dust or other combustible sources. Inverter welding will create sparks which can ignite the dust or fumes.

DO NOT EXPOSE THE INVERTER WELDER TO RAIN OR USE IT IN WET CONDITIONS: Water entering the inverter welder will greatly increase the risk of electric shock and equipment damage.

HAVE YOUR INVERTER WELDER REPAIRED BY A QUALIFIED PERSON: The inverter welder is in accordance with the relevant safety requirements. Repairs should only be carried out by qualified persons using original spare parts, otherwise this may result in considerable danger to the user.

- Stop operation immediately if you notice anything abnormal.
- Always disconnect the plug from the mains supply before cleaning or servicing etc.
- Be alert at all times, especially during repetitive, monotonous operations; Don't be lulled into a false sense of security.
- Use of improper accessories may cause damage to the inverter welder and surrounding area as well as increasing the risk of injury.
- **Do not** modify the inverter welder to do tasks other than those intended.
- To avoid injury, the workpiece should never be held with bare hands; The workpiece will become hot during normal welding operations, and stay hot for a period after the weld is complete.
- Appropriate personal protective equipment **must** be worn and **must** be designed to protect against all hazards created. Severe permanent injury can result from using inappropriate or insufficient protective equipment - Eyes in particular are at risk.
- The work should be clamped firmly whilst welding, If its loose it could result in personal injury or damage to the machine or item that is being welded.
- **Do not** attempt any repairs to the welder unless you are a competent electrician or engineer.
- Ensure that the machine is connected to the correct supply voltage and protected by a fuse or circuit breaker of the recommend rating.
- **Never** allow the earth clamp and electrode holder to come into contact with each other.
- Understand the operating environment; Before each use the operator should assess, understand and where possible reduce the specific risks and dangers associated with the operating environment. Bystanders should also be made aware of any risks associated with the operating environment.
- Electromagnetic fields can interfere with various electrical and electronic devices such as pacemakers; Consult your doctor before using any electric arc welder or cutting device.
- Keep people with pacemakers away from your welding area when welding.
- Do not wrap cable around your body while welding.
- If the welder is to be used on business premises - ensure that all local and national regulations are followed concerning the use of portable electrical appliances at work.

MAINTENANCE

- Clear dust from the machine at regular intervals, if used in a dirty environment the machine should be cleaned once a month.
- Check all connections are clean and tight, if there is any oxidization clean the connection with a mild abrasive or wire brush.
- Check all cables for damage or degradation to the insulation, replace if any is found.
- Check electrode holder and earth clamps condition; Ensure they clamp tightly, replace if damaged or loose.
- If the machine is not to be used for a long time, store it in the original packing and in a dry place.

OPERATING INSTRUCTIONS....cont

PREPARATION FOR WELDING

- Clean the area to be welded, and the earthing point of all rust, paint and contaminants etc.
- Connect the earth clamp dinse plug into the positive dinse socket on the welder.
- Place the earth clamp onto a cleaned area of the workpiece.
- Fit the grounded tungsten into the TIG torch head.
- Connect the TIG torch (not supplied) power connector to the negative dinse socket on the welder.
- Connect the regulator (not supplied) onto the gas bottle.
- Connect the TIG torch gas pipe onto the regulator.
- Check the TIG torch gas valve is closed.
- Turn the regulator on.
- Connect the welder to the electrical supply but do not switch on.

WELDING



Caution: Ensure all protective equipment is worn and bystanders are not in the vicinity.

Switch the welder on.

- Set the welding parameters as previously explained.
- Open the TIG torch gas valve.
- Place a face mask over your face (not supplied).
- Touch the tungsten on the workpiece; slowly lift the tungsten off the workpiece and the arc will initiate.
- When the arc is created proceed steadily in one direction, maintaining a constant distance between the tip of the tungsten and the workpiece.
- Use a compatible filler rod as required.
- Once all work has been done, switch the machine off and turn the gas off.



Note: This is a DC welder and therefore cannot be used for welding Aluminium.

SAFETY INSTRUCTIONS....cont

ELECTRIC SHOCK

Electric arc welders have the potential to cause a shock that could lead to injury or death. Touching electrically 'hot' parts can cause fatal shocks and severe burns; While welding, all metal components connected to the welder are electrically 'hot'.

- Keep your body and clothing dry. Never work in a damp area without adequate insulation against electrical shock, stay on a dry duck board, or rubber mat when dampness or sweat can not be avoided. Sweat, sea water or moisture between the body and an electrically 'hot' part or grounded metal reduces the body surfaces electrical resistance enabling dangerous and possibly lethal currents to flow through the body.
- **Never** allow live metal parts to touch bare skin or any wet clothing, be sure welding gloves are dry.
- Before welding, check for continuity; Be sure the earth clamp is connected to the work-piece as close to the welding areas as possible. Grounds connected to building frame work or other remote locations from the welding area reduce efficiency and increase the potential electric shock hazard. Avoid the possibility of the welding current passing through lifting chains, crane cables or other electric paths.
- Frequently inspect leads for wear, splits, cracks and any other damage. **Immediately** replace those with worn or damaged insulation to avoid a possibly lethal shock from bare leads.

FIRE

During normal operation, the heat and sparks created during the welding process have the potential to ignite flammable liquids, gases or other combustible material.

- All inflammable materials must be removed from the area.
- Have a suitable fire extinguisher available close by.
- Causes of fire and explosion include; combustibles reached by the arc, flame, flying sparks, hot slag or heated material, misuse of compressed gases and cylinders and short circuits.
- Flying sparks or falling slag can pass through cracks along pipes, through windows or doors and through walls or floor openings and out of sight of the operator; Sparks and slag can fly up-to 10 metres.
- Keep equipment clean and operable; Free of oil, grease and of metallic particles (in electrical parts) that can cause short circuits.
- If combustibles are in the area. **Do not** weld, move the work if practical to an area free of combustibles, avoid paint spray rooms, dip tanks, storage areas and ventilators. If the work can not be moved, then move the combustibles at least 10 metres away and out of the reach of sparks and heat or protect

SAFETY INSTRUCTIONS....cont

- against ignition with suitable and snug fitting, fire resistant covers or shields.
- Walls touching combustibles on opposite sides should not be welded on, walls, ceilings and the floor near the work area should be protected by heat resistant covers or shields.
- Openings (concealed or visible) in floors or walls within 10 metres may expose combustibles to sparks.
- Combustibles adjacent to walls, ceilings, roofs or metal partitions can be ignited by radiant or conducted heat.
- After the work is done, check that the area is free of sparks, glowing embers and flames.
- An empty container that has held combustibles, or that can produce flammable or toxic vapours when heated, must never be welded, unless the container has first been cleaned. Consult HSE INDG214, HSG250 and CS15. HSE document CS15 includes information on cleaning by thorough steam or solvent/caustic cleaning followed by purging and inserting with nitrogen, carbon dioxide or water filling just below working level.
- A container with unknown contents should be treated as if it contained combustibles (see previous paragraph), **Do not** depend on sense of smell or sight to determine if it is safe to weld.
- Hollow items must be vented before welding as they can explode.
- Explosive atmosphere; Never weld when the air may contain flammable dust, gas or liquid vapours (such as petrol).

GLARE AND BURNS

The welding arc produces ultraviolet (UV) and infrared (IR) rays as well as extreme temperatures that can cause injury to your eyes and skin. Do not look at the welding arc without proper eye protection.

- The electric welding arc must not be observed with the naked eye. Always use a welding mask; Ensure the welding mask is fitted with the correct shade of filter lens for the welding current level, and covers the entire face from neck to the top of the head.
- Welding gauntlet gloves should be worn to protect the hands from burns, non-synthetic overalls with buttons at the neck and wrist, or similar clothing should be worn. Greasy overalls should not be worn. Wear suitable protective footwear.
- Always wear correctly rated protective clothing which covers all areas of the body; The operator should not weld with any bare skin showing to reduce the chance of burns etc.
- Avoid oily or greasy clothing, a spark may ignite them.
- Hot metal such as electrode stubs and workpieces should never be handled without gloves.

OPERATING INSTRUCTIONS....cont

The required tungsten diameter is determined by the thickness of the material to be welded, for each tungsten size there are strict current limits which should be adhered to. Too great a current causes excessive tungsten consumption and weld pool contamination, whilst too small a current causes arc instability.

The table below gives a guide as to which tungsten is most suitable according to the material thickness. This table is only a guide, and values given are a indication only.

These welding current values are for thoriated 2% (red) tungsten electrodes.

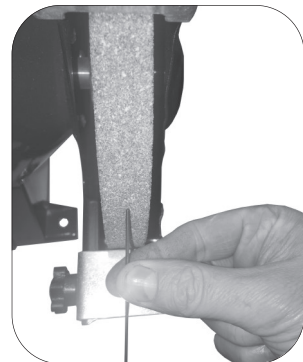
Welding Thickness mm	Tungsten Diameter mm	Welding Current Steel	Welding Current Stainless Steel
0.5	1.0	30-60	15-30
1.0	1.6	50-70	50-70
1.5	1.6	90-110	60-90
2.0	1.6	100-130	80-100
3.0	2.4	120-140	100-130
4.0	2.4	150-190	130-170



Note: The above is a guide only; always try a short weld test at the setting selected. It is normal to make minor adjustments to achieve the required weld.

PREPARING THE TUNGSTEN

It is important to choose a tungsten with the correct diameter for the current to be used. The tungsten will normally protrude from the ceramic nozzle by 2 or 3mm, in order to gain access to areas such as internal corners the tungsten can be made to protrude by up to 8mm. The tungsten should be sharpened facing the grinding wheel (see right picture). The tip should be perfectly concentric in order to avoid arc deviations. It is best to regularly inspect the tungsten to maintain peak condition.



OPERATING INSTRUCTIONS....cont

WELDING



Caution: Ensure all protective equipment is worn and bystanders are not in the vicinity.

- Fit the required electrode securely into the electrode holder.
- Switch the welder on.



Note: Be aware that the electrode is now live, simply touching any part of the workpiece will create a spark.

- Set the welding parameters as previously explained.
- Place a face mask over your face (not supplied).
- Bring the electrode into contact with the workpiece using a light tapping action and withdrawing to create a gap of 1.5 mm – 3.0 mm.
- When the arc is created, proceed steadily in one direction keeping the gap between the electrode and the workpiece constant.
- When the weld is complete simply remove the electrode from the workpiece.
- Remove any excess weld / slag with a wire brush / hammer (not supplied).

Important information: This welder can be set to deliver different output currents at a duty cycle that is written as a percentage on page 14. This percentage represents the welding time in a 10 minute cycle, e.g. 60% means that the welding time is 6 minutes and the rest time is 4 minutes. If a unit is used beyond its duty cycle the temperatures of some components might become too high due to over use; The internal thermal protector will then prevent the unit from operating. Its Intervention is Indicated by the alarm light on the front panel, If this happens leave the machine switched on with the fan running and allow it to cool down. The thermal protector will reset automatically after a short period of time when the components have cooled you will be able to restart welding.

TIG WELDING

You will need to purchase the following items in order to TIG weld (not supplied):

- TIG torch (with gas valve) - SIP Part No. 05035.
- Regulator.
- Tungsten electrode.
- Bottle of argon gas.
- Filler rod.

SAFETY INSTRUCTIONS....cont

- First aid facilities and a qualified first aid person should be available for each shift unless medical facilities are close by for immediate treatment of flash burns to the eyes and skin.
- Flammable hair products should not be used by persons intending to weld.
- Warn bystanders not to watch the arc and not to expose themselves to the welding arc rays or to hot metal.
- Keep children away whilst welding, they may not be aware that looking at an arc can cause serious eye damage.
- Protect other nearby personnel from arc rays and hot sparks with a suitable non-flammable partition.

VENTILATION

- Ventilation must be adequate to remove the smoke and fumes during welding (see the relevant safety standard for acceptable levels).
- Toxic gases may be given off when welding, especially if zinc or cadmium coated materials are involved, welding should be carried out in a well ventilated area and the operator should always be alert to fume build-up.
- Areas with little or no ventilation should always use a fume extractor.
- Vapours of chlorinated solvents can form the toxic gas phosgene when exposed to U.V radiation from an electric arc. All solvents, degreasers and potential sources of these vapours must be removed from the arc area.
- Severe discomfort, illness or death can result from fumes, vapours, heat, oxygen enrichment or depletion that welding may produce. This will be prevented by adequate ventilation or using a fume extractor. **Never** ventilate with oxygen.
- Lead, cadmium, zinc, mercury, beryllium bearing and similar materials when welded may produce harmful concentrations of toxic fumes. Adequate ventilation must be provided for every person in the area. The operator should also wear an air supplied respirator, for beryllium both must be used.
- Metals coated with or containing materials that emit toxic fumes should not be heated unless coating is removed from the work surface. The area should be well ventilated or the operator should wear an air supplied respirator.
- Work in a confined space only while it is being ventilated and if necessary whilst wearing an air supplied respirator.
- Gas leaks in a confined space should be avoided, leaking gas in large quantities can change oxygen concentration dangerously. **Do not** bring gas cylinders into a confined space.
- Leaving a confined space you must shut off the gas supply at the source to prevent possible accumulation of gases in the space if down stream valves are left open. Check to be sure that the space is safe before re entering it.

SAFETY INSTRUCTIONS....cont

- Vapours from chlorinated solvents can be decomposed by the heat of the arc (or flame) to form phosgene a highly toxic gas and other lung and eye-irritating products. The ultra violet (radiant) energy of the arc can also decompose trichloroethylene and perchlorethylene vapours to form phosgene. **Do not weld** where solvent vapours can be drawn into the welding atmosphere, or where the radiant energy can penetrate to atmospheres containing even minute amounts of trichloroethylene or perchlorethylene.



When using the Inverter welder always ensure the operator as well as those in the area use a welding mask with the correct shade filter lens.



Some metals and metal composites have the potential to be highly toxic; always wear a face mask and ensure adequate ventilation.



Caution: The warnings and cautions mentioned in this user manual can not cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be applied.

OPERATING INSTRUCTIONS....cont

ARC WELDING

There are no hard and fast rules by which a particular gauge of electrode is selected, usually this is determined by the type of welding required and the thickness of the workpiece e.g. a butt weld in 1.5mm (1/16") sheet metal can be done by a 1.6mm or 2.0mm electrode, the difference being that the 2.0mm electrode will do the job more quickly.

The table below gives a guide as to which electrode is most suitable according to the material thickness. This table is only a guide, and values given are a indication only.

These welding current values are for the E6013 electrodes, for other types of electrode consult their data sheet.

Electrode Size mm	Material Thickness mm	Welding Current (A)
1.6	1 - 1.6	25 - 40
2.0	1.6 - 2.6	40 - 70
2.5	2.6 - 4.0	60 - 100
3.25	3.0 - 5.0	80 - 130
4.0	5.0 - 7.0	130 - 170



Note: The above is a guide only; always try a short weld test at the setting selected. It is normal to make minor adjustments to achieve the required weld.

AMPERAGE CONTROL

The welder should be set to a specific amperage to match the electrode size (see above table).

The amperage control is operated by rotating the knob on the front of the welder; Rotate the knob clockwise to increase the amperage and anticlockwise to reduce the amperage. Once the amperage control is set do a short weld and check for correct fusion.

PREPARATION FOR WELDING

- Clean the area to be welded, and the earthing point of all rust, paint and contaminants etc.
- Place the earth clamp on to a cleaned area of the workpiece.
- Connect the welder to the electrical supply but do not switch on.

OPERATING INSTRUCTIONS....cont

OUTPUT SETTING

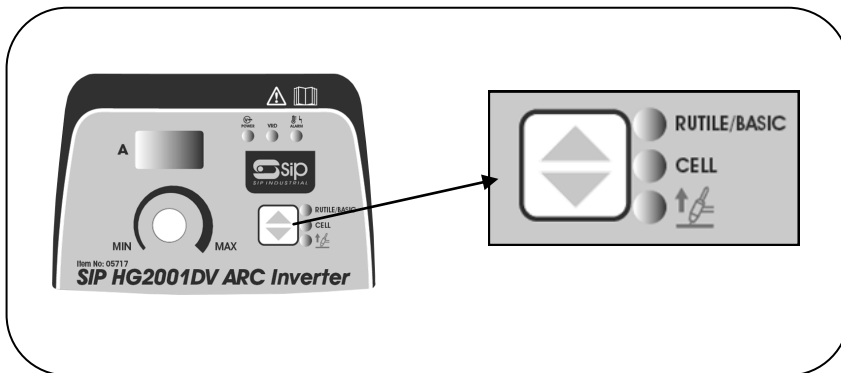
- Connect the welder to the mains supply and use the main On/Off switch (5) to turn the welder on.
- Set the VRD, the Hot-Start and Arc Force as needed (see previous instruction).
- Turn the amperage control (3) until the required output amps are shown on the digital display (14).

WELDING MODE SELECTION

- Follow the previous instructions to set the Welding Current Output level, VRD, Hot-Start and Arc-Force as required.
- Press the welding mode selector (13) until the welder is set to MMA (Arc) or TIG mode as required; The welding mode indicator (12) will illuminate to show which mode is set.

WELDING ELECTRODE SELECTION

- When you have set up all the other parameters, VRD, Hot Start & Arc Force, the welder has an additional option to select which electrode type you are using.
- With the welder switched on and ready to weld, press the "UP" arrow to select Rutile / Basic electrodes: i.e. E6013, E7018
Or press the "DOWN" arrow to select Cellulosic: i.e. E6010
The LED will highlight your selection.



ELECTRICAL CONNECTION

WARNING! It is the responsibility of the owner and the operator to read, understand and comply with the following:

You must check all electrical products, before use, to ensure that they are safe. You must inspect power cables, plugs, sockets and any other connectors for wear or damage.

You must ensure that the risk of electric shock is minimised by the installation of appropriate safety devices; A residual current circuit Breaker (RCCB) should be incorporated in the main distribution board. We also recommend that a residual current device (RCD) is used. It is particularly important to use an RCD with portable products that are plugged into a supply which is not protected by an RCCB. If in any doubt consult a qualified electrician.

Connecting to the power supply:

The HG2001DV welder is supplied without a plug fitted, They must not be connected to a standard 13A supply; Consult the technical specification table (page 14) for the required rating, if in doubt contact a qualified electrician. Before using the welder, inspect all the leads and plugs to ensure that none are damaged. If any damage is visible have the welder inspected / repaired by a suitably qualified person.

The wires for the plug are coloured in the following way:

Yellow / green	Earth
Blue	Neutral
Brown	Live

As the colours of the wires may not correspond with the markings in your plug, proceed as follows:

The wire which is coloured brown, must be connected to the terminal, which is marked L or coloured red (or brown).

The wire which is coloured blue, must be connected to the terminal marked with N or coloured black (or blue).

The wire which is coloured yellow / green should be connected to the terminal which is coloured the same or marked with this symbol

Always secure the wires in the plug terminal carefully and tightly. Secure the cable in the cord grip carefully.

ELECTRICAL CONNECTION....cont



Warning: Never connect live or neutral wires to the earth terminal of the plug. Only fit an approved plug with the correct rated fuse. If in doubt consult a qualified electrician.



Note: Always make sure the mains supply is of the correct voltage and the correct fuse protection is used.



Note: Due to the input current required to run the inverter welder, it is advisable not to use an extension lead.



Note: If an extension lead is necessary in order to reach the mains supply; The cross section should be checked so that it is of sufficient size so as to reduce the chances of voltage drops. Always fully unwind the lead during use.

OPERATING INSTRUCTIONS....cont

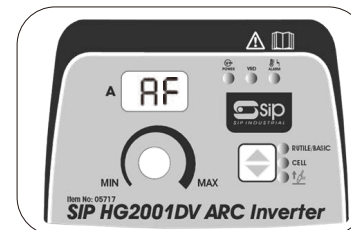


- Turn the amperage control (3) Until the display (14) shows the desired setting.
- Once the desired setting has been selected, press the welding mode selector once more and the **Arc Force (AF)** function will be displayed (see below).
- If **Arc Force** is not required press the mode selector switch again and the welder returns to the output (Amps) (setting and display) (see page 19).

ARC FORCE

Arc Force: This allows the operator to weld with a very short arc, even touching the workpiece; Ideal for positional welding and special electrodes.

- Connect the welder to the mains supply and use the main On/Off switch (5) to turn the welder on; The power indicator (9) will illuminate.
- Press the welding mode selector (13) until the welder is set to MMA (Arc) mode; The welding mode indicator (12) will illuminate to show which mode is set.
- Press and hold the welding mode selector (12) for around 3 seconds; 'VRD' is shown on the digital display (13).
- Press the button again and **Hot-Start 'H5'** is shown on the digital display (13).
- Press the button for a third time and **Arc Force 'AF'** is shown on the digital display.



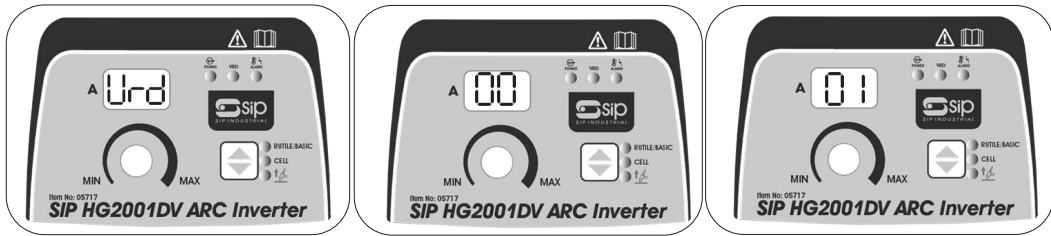
- Turn the amperage control (3) Until the display shows the desired setting.
- Once the desired setting has been selected, press the welding mode selector once more and the welder returns to the output (Amps) (setting and display) (see page 19).

OPERATING INSTRUCTIONS

VRD (VOLTAGE REDUCTION DEVICE)

VRD (Voltage Reduction Device): Reduces the open circuit voltage across the output terminals for added safety.

- Connect the welder to the mains supply and use the main On/Off switch (5) to turn the welder on; The power indicator (9) will illuminate.
- Press the welding mode selector (13) until the welder is set to MMA (Arc) mode; The welding mode indicator (12) will illuminate to show which mode is set.
- Press and hold the welding mode selector (13) for around 3-5 seconds; 'Vrd' is shown on the digital display (14).



- Turn the amperage control (3) Until the display (14) shows the desired setting:
 - ⇒ '00' means that the VRD function is turned off (and the VRD indicator (10) will **not** be illuminated).
 - ⇒ '01' means that the function is turned on (and the VRD indicator (10) **will be** illuminated).
- Once the desired setting has been selected, press the welding mode selector once more and the **Hot-Start (H5)** function will be displayed (see below).
- If **Hot-Start** is not required press the welding mode selector switch (13) once more and the welder moves to **Arc Force** setting (see page 18); If **Arc Force** is not required press the mode selector switch again and the welder returns to the output (Amps) (setting and display) (see page 19).

HOT-START

This is the temporary increase of the welding current at the start of the weld; This helps ignite the arc quickly and reliably.

- Connect the welder to the mains supply and use the main On/Off switch (5) to turn the welder on.
- Press and hold the welding mode selector (12) for around 3-5 seconds; 'VRD' is shown on the digital display (13).
- Press the button again and **Hot-Start 'H5'** is shown on the digital display (13).

GUARANTEE

These SIP Inverter welders are covered by a 24 month parts and labour warranty covering failure due to manufacturers defects. This does not cover failure due to misuse or operating the inverter welder outside the scope of this manual - any claims deemed to be outside the scope of the warranty may be subject to charges including, but not limited to parts, labour and carriage costs, failure to regularly clean your inverter welder will shorten its working life and reduce performance.

The warranty does not cover consumable items such as electrode holders & clamps, etc.



Note: Proof of purchase will be required before any warranty can be honoured.

CONTENTS AND ACCESSORIES

Inverter Welder	Welding Cable with Electrode Holder
Instruction Manual	Earth Cable with Earth Clamp



Note: If any of the above are missing or damaged, contact your distributor immediately.

TECHNICAL SPECIFICATION

Part Number		05717
Model		SIP HG2001DV Inverter Arc with PFC
Input Voltage		230V - 110V / 120V ~ 50/60Hz
Input Current		30A (230V) 33A (110V)
OCV		78V
Output Current Range - (230V)		25A - 200A
Output Current Range - (110V)		25A - 120A
Electrode Size		1.6-5.0mm (230V) 1.6-3.2mm (110V)
Welding Voltage - MMA / ARC	230V	21V - 28V
	120V	21V - 24.8V
Welding Voltage - Lift TIG	230V	11V - 18V
	120V	11V - 14.8V
Duty Cycle @ 20°C	230V	200 amps @ 40%
		163 amps @ 60%
		126 amps @ 100%
	120V	120 amps @ 40%
		98 amps @ 60%
		76 amps @ 100%
Duty Cycle @ 40°C	230V	200 amps @ 20%
		115 amps @ 60%
		89 amps @ 100%
	120V	120 amps @ 20%
		69 amps @ 60%
		54 amps @ 100%
Power Factor		0.99
Efficiency		85%
Insulation Class		F
Protection		IP21S
Net Weight		6.6Kg



Note: Operation of the HG2001DV from a standard 13A supply could invalidate the warranty, and will affect the performance.

GETTING TO KNOW YOUR INVERTER WELDER



Ref. No.	Description	Ref. No.	Description
1.	Negative Dinse Socket	8.	Welding Cable (c/w electrode holder)
2.	Positive Dinse Socket	9.	Power Indicator
3.	Amperage control	10.	VRD Indicator
4.	Carry handle	11.	Overload Indicator
5.	On/Off Switch	12.	Welding Mode Indicator
6.	Dinse Plug	13.	Welding Mode Selector
7.	Earth Cable (c/w earth clamp)	14.	Digital Display