



 **CPV-CHEMFLO**

Process Pressure Pipe Systems

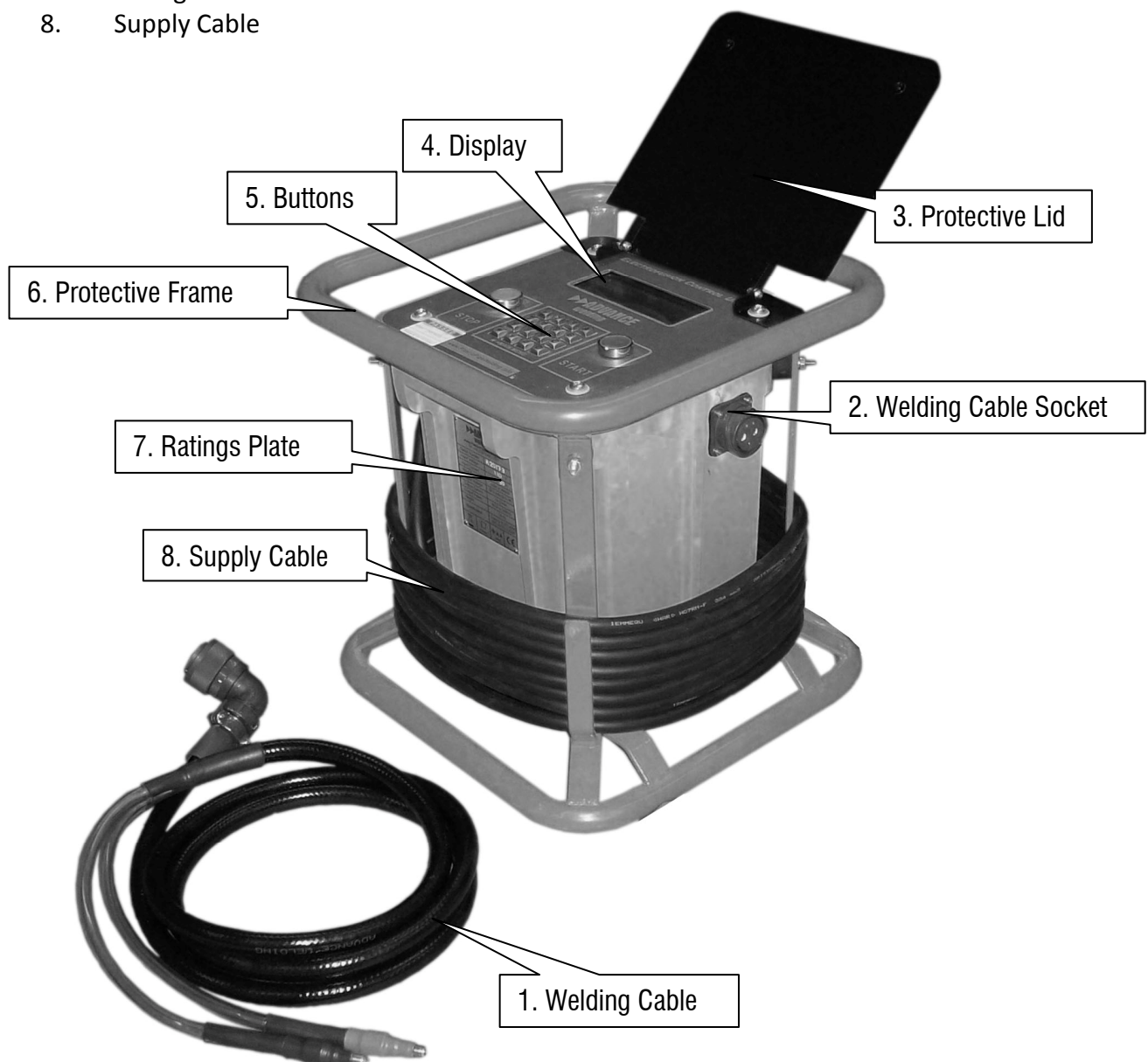
For further information please visit www.cpv.co.uk

Index

Operating Controls	3
Safety Notes	4
Product Specification	5
Intended Use	6
Introduction	6
Delivered Items	6
Electrical Safety	7
Using the Equipment.....	8
Manual Welding	9
Extreme Low Temperature Operation	10
Set Up Options	11
Information	12
Fault Finding.....	13
Maintenance	16
Disposal	17
Calibration and Warranty.....	17
Declaration of Conformity.....	20
Service and Repair.....	21
Quick Start Guide	22
Jointing Guide.....	23

Operating Controls

1. Welding Cable (can be provided with optional right angle plug)
2. Welding Cable Socket
3. Protective Lid
4. Display
5. Buttons
6. Protective Frame
7. Ratings Plate
8. Supply Cable





Safety Notes

- **RISK OF EXPLOSION!** This welding unit must not be used in a gaseous atmosphere.
- **RISK OF ELECTRIC SHOCK!** Do not open. No user serviceable parts inside.
- Before using, always visually inspect the unit to see that the cables and connectors are not worn or damaged. Replace the damaged part before welding.
- Switch off and remove the plug from the mains before adjusting, cleaning, or if the cables are entangled and before leaving the equipment unattended for any period.
- To avoid damaging the unit, do not interrupt the supply voltage or disconnect the welding cable, while the unit is welding a fitting.
- Do not lift or pull the equipment by its cables.
- Do not disconnect the welding cables by pulling on them, always pull off the connectors from the fitting.
- Do not start a weld without the pipe correctly inserted into the fitting.
- Do not touch the fitting while welding.
- Do not weld in the rain or leave the equipment outdoors whilst it is raining.
- Weld only in daylight or in good artificial light.
- The operator is responsible for accidents or hazards occurring to other people or their property while using this equipment. Keep the work area safe!
- Keep bystanders a safe distance away from the machine while welding.
- Never allow people unfamiliar with these instructions to use the welding unit.

Product Specification

Operating Type:	Controlled voltage.
Operating Modes:	Manual
Operating Languages:	English, French, Dutch, Polish, Russian. (others on request)
Operating Temperature:	-10°C to +40°C ^{#1}
Welding Voltage:	8 to 48 V ac (39,5 V)
Welding Current:	1 to 65 A ac (true rms) (100 A short term)
Welding Power:	8 VA to 3120 VA
Welding Time:	1 to 3600 seconds
Apparent Power Factor:	0.15 to 0.92
Supply Voltage: ^{#2}	110 V ac (+/- 20%) 40 to 60 Hz
Supply Current: ^{#2}	1 to 30 A ac (true rms)
Supply Power: ^{#2}	3,500 W (peak at 0.15 APF)
Supply Voltage: ^{#3}	230 V ac (+/- 20%) 40 to 60 Hz
Supply Current: ^{#3}	1 to 15 A ac (true rms)
Supply Power: ^{#3}	3,500 W (peak at 0.15 APF)
Supply Protection:	Class 1 – Earthed
Data log memory:	Not available
Data download/upload:	Not available
Weight:	28 kg
Size:	38 cm x 38 cm x 39 cm
Protection Level:	IP65

^{#1} An extended temperature unit is available with limits -40°C to +50°C.

^{#2} ^{#3} The unit is available in either 110v or 230v operation.

Advance Welding has a policy of continuously improving product design, and as such reserve the right to change specification of its products without prior notice and with impunity.

Intended Use

This equipment is intended to weld constant voltage electrofusion fittings suitable for low, medium and high pressure pipe work systems.

This welding unit has been approved in the UK by Transco to the standard T/SP/ECE/1 2005 'Specification for Electrofusion Control Boxes', and is approved for use on all UK gas distribution networks.

This welding unit complies with the UK Water Industry Specification WIS 04-32-08 'Specifications for the fusion jointing of polyethylene pressure pipeline systems using PE80 and PE100 materials', and is suitable for use on all UK water distribution networks.

This welding unit has been designed to comply with the International Organization for Standardization standard ISO12176-2:2000 "Plastic pipes and fittings, equipment for fusion jointing polyethylene systems , part 2, electrofusion".

Introduction

This manual gives instructions on the correct assembly and safe use of your welding unit. It is important that you read these instructions carefully, and keep these instructions for the life of the unit.

This manual does not detail the specific welding procedure for the fittings: scraping, clamping and assembly of joints. For this information you must contact the manufacturer of the fittings.

Delivered Items

Carefully remove the welding unit from its packaging and check that you have the following items:

- Welding unit.
- Welding cable.

When parts are missing or damaged, please contact your dealer.



Electrical Safety

WARNING! Switch off and remove the plug from the mains before adjusting, cleaning or if the cable is cut, damaged or entangled.

This welding unit is Class 1 and requires an earthed (grounded) connection. An earth spike must be used with generators.

This unit is supplied in either 110 volt or 230 volt operation. Check the rating plate on the side of the unit for the correct supply voltage.

The power source must be capable of providing 3500 Watts.

Extension cables should only be used if they comply with the H07RNF harmonized standard. They must be fitted with connectors to the BS EN 60309-2 standard. All cables must be unwound from the reel to stop inductive heating effects. The cable dimensions should be as follows:

110 Volt operation

Up to 63mm diameter

2.5mm² cable = 30m

Up to 180mm diameter

2.5mm² cable = 20m

Over 180mm diameter

4.0mm² cable = 10m

230 Volt operation

Up to 63mm diameter

1.5mm² cable = 40m

Up to 180mm diameter

1.5mm² cable = 25m

Over 180mm diameter

2.5mm² cable = 20m

It is recommended for increased electrical safety to use a Residual Current Device (RCD) with a tripping current of not more than 30 mA. Always check your RCD every time you use it. The supply cable must be inspected for signs of damage before each use and the equipment may only be used if in perfect condition. Damaged cables must be replaced by an approved service agent. This equipment is classified as "Portable for use on industrial applications", and must undergo a formal electrical safety check (Portable Appliance Test) as per local regulations.

Using the equipment

Prepare and clamp the pipe and fittings inline with the manufacturers recommendations.

Connect the welding cable to the unit and the fitting to be welded. Connect the supply cable to the correct supply voltage and switch the unit on.

The screen will show a welcome message along with the software version and date. The owner details are then shown

The main menu is now shown on the display. During operation, except while welding, pressing the star key on the keypad will jump back to this menu.

Notes:

The operation of the unit can be customised by turning welding modes on and off, along with some features like the cooling time. This manual details all available modes and features. For information on how to customise the welding unit see the "Set Up" section later on in this manual.

The welding unit is fitted with an alpha-numeric keypad, which is used by the operator to input data. Down the right hand side there are four Quick-Keys, A B C D. These act as quick shortcut keys, their function being prompted on the screen.

When entering data, letters and numbers can be selected by repeatedly pressing the same key, e.g. A B C 2 A B C 2 . After a short pause the cursor will move to the next position. Special characters and spaces can be selected by pressing the 1 or 0 keys. (This is the same method used for text with mobile cell phones.) Pressing the B Quick-Key will step Back one position. Pressing the C Quick-Key will Clear the input field.

Manual Welding

This mode of operation is designed to weld all fittings in manual mode.

From the main menu:

Press the A Quick-Key to select manual welding, then:

The display will ask for the welding cable to be connected to the fitting.

The display will now prompt for the welding time and voltage to be entered. Press the C Quick-key to select the welding time. Enter this from the numbered keypad, e.g. 100. This can be between 1 second and 3600 seconds. Press the A Quick-key to accept the new time.

(Optional voltage select) Press the D Quick-key to select the welding voltage. Enter this from the numbered keypad, e.g. 26. This can be between 8 volts and 48 volts. A default option of 39,5 is available. Press the A Quick-key to accept the new voltage.

When the correct time and voltage have been selected, press the A Quick-key to accept them. The display will now ask for the START button to be pressed. Press Start to begin welding.

During the weld, the display will show the set welding time, the remaining welding time, the set welding voltage and the welding power generated in the fitting. The unit will also monitor the welding to make sure it does not go out of limits. Any faults that are detected will terminate the welding and cause an error message to be displayed. These are listed later on in this manual.

(Optional cooling time) At the end of the weld the cooling time will be shown. This counts upwards from zero and will continue until stopped by the operator. This is shown as an aid to the operator to allow them to know how long it was since the weld finished. Press any key to continue.

The display will ask for the welding cable to be disconnected from the fitting. Doing this will reset the unit back to the welding menu.

Extreme Low Temperature Operation (Optional)

The welding unit has an extended temperature range option, which allows it to work down to -40°C. This unit has special supply and welding cables that remain flexible at extremely low temperatures. It also has an internal case heater to warm the electronics to an acceptable working temperature.

When the temperature inside the unit is below -15°C, the following operation will apply:

Plug the welding unit into the correct supply voltage and switch it on.

The internal case heater will switch on and an indicator light will show on the lid next to the display.

When the internal temperature warms to the correct level, the case heater will switch off, the indicator light will switch off and the electronics will switch on.

The operation of the unit is now as previously described.

Extended temperature range facility is a factory-fitted option and must be requested when ordering the product from you supplier.

Set Up Options

From the main menu: Press the D Quick-Key to select options.

From here the time can be set by the operator. Other changes can be made, however, these are password protected and must be carried out by an approved service agent.

The following options are available:

Date.

The date can be set.

Display Language.

Available languages can be selected and set.

Modes of Operation.

Manual: On/Off, Cooling time On/Off, Variable voltage On/Off.

Calibration Period.

The calibration period can be set between 1 month and 99 months (or turned off). For 28 days prior to the calibration expiry date, the unit will prompt that the calibration is due and will count down the remaining days. When the calibration has expired, it can be set to warn the operator or lock the unit.

Owner Details.

The owner details, shown when the unit is first switched on, can be entered or changed.

Download Format.

The format of the data log download can be changed from protected PFD to plain text XLS.

Purchase Date.

The date the unit was sold to the customer can be set and viewed. This allows more accurate record keeping.

Warranty Period.

The date the unit was first used can be viewed. This allows accurate control of the warranty period.

Information

Information about the welding unit can be viewed from the options menu. Select more options and then enter the password A I N F followed by the A Quick-Key.

The serial number and part number of the unit are shown. The calibration date and calibration period are also shown. Press the A Quick-Key and the following weld counters are shown: Total weld count, weld count at last calibration, welds done since last calibration.



Fault Finding

During operation, the welding unit monitors all aspects of its operation. If a fault occurs then an error message will be shown.

0: Weld OK

No Fault, weld completed OK.

1: Stuck button on start up

This fault shows when the power is first switched on. Either the Stop, Start, or a keypad button is stuck in. Free the button to clear the fault.

2: Output fault before weld start

This fault shows when the power is first switched on. The unit will check the output terminals to make sure no voltage is present when first switched on. If this fault happens then the internal power relays have stuck in the closed position. The unit will need to be returned for service.

3: Toroid thermal switch tripped

This fault happens when the toroidal transformer becomes too hot. This will happen if the unit is used for a long period of time on large fittings. Let the unit cool down and the fault will clear. If this happens when the unit is cold, then there could be a bad connection on one of the internal plugs. In this case, the unit will need to be returned for repair.

4: No calibration

This fault happens when the unit has no calibration. This will normally not show, and if the unit has been calibrated, would be caused by a fault with the internal memory. Return the unit for service.

5: Case temperature sensor fault (if fitted)

Some units have a case temperature sensor fitted to switch the unit off if the electronics become too hot. This fault will show if the sensor is faulty. Return the unit for service.

6: Case temperature out of limits (if fitted)

Some units have a case temperature sensor fitted to switch the unit off if the electronics become too hot. This fault will show if the temperature is too hot. Let the unit cool down.

7: Ambient temperature less than -40°C.

The unit has detected that the ambient temperature is very cold or the sensor has broken. If the temperature is not below -40°C then the unit will need to be returned to a service agent for repair.

8: Ambient temperature more than +600°C.

The unit has detected that the ambient temperature sensor has broken or a wire has gone open circuit. The unit must be returned to a service agent for repair.

10: Low supply frequency <40Hz

The unit has detected that the supply frequency is below 40 Hz. This will normally be caused by a poor quality generator. If this fault happens then check the supply or change the generator.

11: High supply frequency >70Hz

The unit has detected that the supply frequency is above 70 Hz. This will normally be caused by a poor quality generator. If this fault happens then check the supply or change the generator.

12: High supply voltage >140v (or 280v with a 220v supply)

The unit has detected that the supply voltage is more than 140 volts (280 volts with a nominal 220v supply). Check the supply voltage and if necessary use a different generator.

13: Low supply voltage <95v (or 190v with a 220v supply)

This fault can be caused by a few problems. It could be that the generator is running slowly and so the supply voltage is low. Try speeding the generator up or use a different generator.

It could also be caused by a generator that is too small. If a large fitting is welded, then a large amount of power will be needed from the generator. If it can not supply this power then it will stall and the voltage will drop away. Check that the generator is the correct size, if needs be try another generator.

It could be caused by the use of long extension leads. If a large fitting is welded then a high current will be taken from the supply. If extension leads are used, there will be a volts drop down the lead making the unit sense a low supply voltage. Try not to use extension leads with the unit. If you have to then use just 10 meters of 4.0mm² cable, the same size fitted to the unit.

14: Relay failed to latch on weld start

This fault could happen when the start button is pressed. If the main power relays do not operate correctly then this fault will be shown. The unit needs to be returned for service.

20: Low output volts (-1.25%)

This fault will happen if the output voltage is 1.25% lower than the set point for more than 3 seconds. This can be caused by a generator that is not big enough to supply the required power to the fitting. Check the size of the generator and if needs be try another generator. It can also be caused by using long extension leads with the unit. It is recommended that only 10 meters of extension are used, and the cable should be the same thickness as the input lead on the unit (4.0mm²).

21: High output volts (+1.25%)

This fault will happen if the output voltage is 1.25% higher than the set point for more than 3 seconds. It will normally be caused by a poor quality generator with the supply voltage fluctuating. Try a different generator.

22: Excess output volts (+6.25%)

This fault will happen if the welding voltage is 6.25% more than the set point for more than 2 seconds. This fault is normally caused by a fault within the unit, a short circuit triac. The unit must be returned for service.

23: Low output current (<2.5A)

This fault will happen if the welding current is below 2.5 amps for more than 3 seconds. It can be caused by a faulty fitting. Try another fitting. If this doesn't clear the fault then there is a problem inside the unit and it must be returned for repair.

24: Shorted turn detected in fitting.

While welding, the unit has detected a sharp increase in welding current. This is normally caused by a shorted turn happening in the fitting. (An increase OF 10%). If this happens then it is most likely a faulty fitting. This must be replaced. If the fault persists then it could be a fault within the unit.

25: User stop button pressed

The operator has pressed the stop button.

26: Relay unlatched

During welding, if the main power relay disconnects then this fault will be shown. It could be caused by the unit being knocked or a temporary dip in the power supply. If the fault persists then the unit should be returned for repair.

27: Fitting open circuit

This fault is shown if the output lead disconnects from the fitting while welding. Follow the guidelines from the fitting manufacturer, reconnect the lead and try welding again.

127: Power off failure.

If the power is turned off while the unit is welding, this fault will be recorded to the datalog.

Maintenance

Regularly check for obvious defects such as loose or damaged cables and connectors. Look for worn components and broken covers or housings.

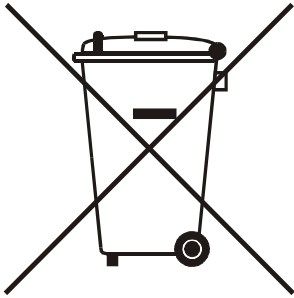
There are no user serviceable parts inside the unit. It should be returned to an approved service agent for repair and calibration.

It is recommended that the unit is calibrated every twelve months.

After use, clean the outside of the unit with a soft brush or cloth. Carefully wind up and store the cables around the frame in the location provided.

Disposal

The equipment and packaging should be sorted for environmentally friendly recycling.



DO NOT DISPOSE OF THIS EQUIPMENT INTO HOUSEHOLD WASTE !

According to the European Directive 2002/96/EC Waste Electrical and Electronic Equipment (WEEE), when no longer suitable for use, this equipment must be separately collected and sent for recycling.

According to the European Directive 2005/95/EC Restriction of Hazardous Substances (RoHS), this equipment does not contain more than the agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

RoHS Compliant
Directive 2005/ 95/ EC



Calibration and Warranty

This welding unit has been manufactured, inspected and tested in accordance with the quality control systems in place at Advance Welding.

This welding unit has been calibrated using equipment that is traceable to national and international standards, through a NAMAS accredited laboratory. NAMAS (National Accreditation of Measurement and Sampling) is a service of UKAS (United Kingdom Accreditation Service).

This welding unit has a TWELVE month calibration and warranty period, active from the first use of the unit by the end user customer.

Conditions of Warranty:

This warranty covers only those defects to the product which arise from normal use of the product, and will become invalid if any of the following apply:

- Failure to follow the operating instructions.
- Improper or inadequate maintenance.
- Unauthorised modification.
- Misuse or any use not in accordance with the operating manual or good industry practice.
- Physical abuse of the product.
- Operation outside the products specifications.
- Improper site preparation or site maintenance.
- Faulty pipe or fitting.

Extent of Warranty:

Subject to the conditions and limitations of warranty; Advance Welding warrants that its electrical products will be free from defects in materials and workmanship for a period of twelve months, and its mechanical products for six months, from the date of purchase by the end-user customer. If during this period, notice of a defect which is covered by this warranty is received, then Advance Welding will either repair or replace the product at its option. Any replacement product will have functionality at least equal to that of the product being replaced, and will in our opinion, perform consistently with its age and usage.

Unless otherwise agreed, all warranty work will be carried out by Advance Welding or an authorised and approved service facility.

Customers will prepay all shipping charges for products returned under warranty, and Advance Welding will charge for return of the products back to the customer.

This warranty statement gives the customer specific legal rights. The customer may also have other rights which vary from country to country in the world.

Limitations of Warranty:

Advance Welding does not warrant the operation of any product to be uninterrupted or error free. Advance Welding specifically disclaims the implied warranties of satisfactory quality and fitness for a particular purpose.

Advance Welding makes no other warranty of any kind, whether express or implied, with respect to its products.

To the extent that this warranty statement is inconsistent with the law of the locality where the customer uses the product, this warranty statement shall be deemed modified by the minimum necessary to be consistent with such local law.

To the extent allowed by local law, the remedies provided in this warranty statement are the customer's sole and exclusive remedies.

This equipment has been designed for use with the range of fittings and pipe available at the time of its design and development. Advance Welding can accept NO liability for the equipments ability or otherwise to be used with new or different fittings or pipe that subsequently appear in the market place.

This equipment is not intrinsically safe and must not be used in a gaseous or explosive atmosphere. Advance Welding can accept NO liability if the equipment is used in these circumstances.

Declaration of Conformity



This welding unit has been designed to comply with the harmonised standards under the "New Approach" directives, and has been CE marked accordingly.

The applicable standards are:

89/336/EEC	Electromagnetic compatibility
73/23/EEC	Low voltage equipment
98/37/EC	Machinery safety

More detailed information is available on our web site at www.ElectrofusionWelding.com

On behalf of
Advance Welding:

K.M.Wilkinson

Service and Repair

Manufactured in the UK by:

ADVANCE WELDING

Unit B Orchard Works

Spenn Vale Street

Heckmondwike

West Yorkshire

WF16 0NQ

United Kingdom

Tel: 0870 609 3257

Fax: 0870 752 6139

Email: sales@advancewelding.co.uk

Web: www.ElectrofusionWelding.com

For sales, service and repair:

CPV LTD

Woodington Mill

East Wellow

Romsey

Hampshire

SO51 6DQ

+ 44 (0) 1794 322884

+ 44 (0) 1794 322885

sales@cpv.co.uk

www.cpv.co.uk

Quick Start Guide

- Prepare the pipe and fitting according to the manufacturer's specification.
- Unwind all cables from the welding unit.
- Connect the welding cable to the fitting.
- Connect the supply cable to the correct voltage and switch it on.
- The unit will power up and go to the main menu.
- Press the A Quick-key to select Manual welding.
- Enter the required welding time.
- Press the Start button.
- The time will count down to zero as the fitting is being welded. Any faults will be indicated on the display.
- At the end of the weld, disconnect the welding cable to reset the unit.

Press the Star key to return to the main menu if required.

JOINTING GUIDE

In this method of fusion jointing, an electrofusion fitting which contains a coil of electrically conductive coated wire, is heated by having an electrical current passed through it. This heat melts the polypropylene plastic in a controlled manner, and allows it to be fused to a section of pipe which has previously been inserted into it.

Electrical current is provided by an electrofusion welding machine & typical example of which is shown and which can be hired from CPV Ltd.

It is vitally important that the correct procedures are followed when making an electrofusion joint, and the following steps are mandatory for this process:

Step 1 - Cleanliness

Cleanliness and correct preparation are vital to a good installation. The welding surfaces of the peeled pipe and electrofusion fitting must be kept clean, dry and grease free. After cleaning never touch these surfaces with bare hands.

Step 2 – Pipe preparation

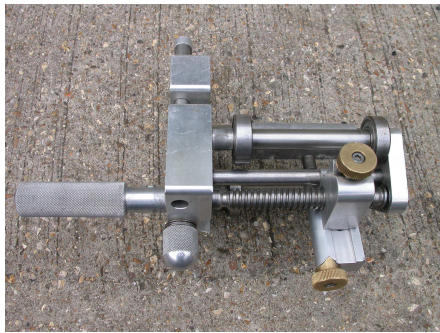
Prepare the pipe for cutting to the correct length and ensure that the end cuts are perpendicular to the centre line. Use a rotary pipe cutter rather than a hand saw as this ensures a perpendicular cut. Remove burrs, both inside and out.



Marking Pipe Ends

Use the following table to mark the pipe ends to the correct depth (mm). Do not use wax crayons for marking.

Size	Depth	Size	Depth	Size	Depth	Size	Depth
20	35	63	59	140	92	250	130
25	39	75	64	160	93	315	148
32	40	90	72	180	105		
40	45	110	80	200	105		
50	51	125	85	225	106		



Peeling Tool -

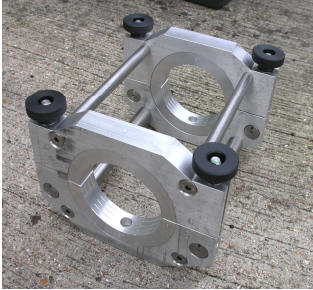
Scrape (using hand scraper) or peel (using a rotary peeling tool) the pipe ends to the marked insertion depth. It is vitally important that the pipe surface oxidised layer is removed otherwise good welding will not be achieved. **Also enough pipe material must be removed to allow the pipe to fit into the electrofusion coupler without having to use excessive force.**



Typical rotary peeling tool available for hire from CPV Ltd

Step 3 – Electrofusion Couplers

Remove the electrofusion fitting from its PE bag. Do not touch or contaminate the internal welding surfaces. The fusion and cooling times are printed on the electrofusion coupler label. Terminal pins are normally 4mm in diameter, and this is stated on the label. Older fittings may have 4.7mm pins, if so the label will not state the size.



Typical pipe clamp
set available for hire



Step 4 - Assembly of Pipes and Fittings

Insert both ends of the pipe into the electrofusion coupler to the correct marked depth. If necessary, use wipes to clean the welding surfaces. It should be just possible to rotate the pipe or fitting, indicating a good sliding fit.

Pipe Clamps: Attach the pipe clamps to prevent misalignment and linear movement during welding. Failure to clamp the joint correctly is one of the major reasons for joint failure

Step 5 – Welding Cycle

An adequate power supply is required, at least 3.5 kVA via a 110v transformer, and a proprietary electrofusion welding machine, capable of supplying the correct power and voltage (39.5v) such as that hired out by CPV Ltd.

Switch the machine on, and the screen will show a welcome message along with the software version and date. Subsequent instructions are detailed in the Manual Welding Instructions on Page 7.

Adjust fusion times as follows:

If ambient temperature is 30°C, deduct 5%

If ambient temperature is 20°C, use fitting time

If ambient temperature is 10°C, add 5%

If ambient temperature is 0°C, add 10%

If ambient temperature is -10°C, add 15%



UK electrofusion welding machine terminals are normally fitted with 4.7 mm female sockets. Adapters are supplied with CPV hire machines to allow these to fit the 4mm male pins on the electrofusion couplers.

Typical 4mm to 4.7mm adaptors 4.7mm to 4.7mm upstands are also available in the event that other supplier welding machine connection sockets do not fit over the electrofusion fitting terminal.

Step 6 – Post Welding Cycle Operations

After the cool down time has been completed, remove the pipe clamps, ideally removing the cable terminals first. Take care when removing the cable terminals from the fitting connectors as the material in the joint may still be semi-molten and the connectors could be damaged if excessive force is used. Test pressure should not be applied until the joint has been allowed to cool naturally to ambient temperature. Artificial cooling using water or air is not recommended and will lead to a poor joint.

Step 7 – Cleanliness and Health & Safety

Cleanliness: It is evident that by definition pipelines may be laid in trenches which can become very muddy, and atmospheric conditions can also be very inclement. Nevertheless the secret of successful electrofusion welding is to keep the welding surfaces of the pipe and electrofusion couplers spotlessly clean. They must also be properly clamped and aligned to eliminate stress on the pre-welded joint. The appropriate use of tarpaulins and shelters must therefore be considered before starting the job, and used whenever conditions dictate.

Health and Safety: See the Health and Safety COSHH guidelines for polypropylene (HS/P/ 003)

Key safety check points include:

- o Take care when lifting pipe without assistance or mechanical aids.
- o Do not touch the coupler during the welding cycle
- o Wear appropriate protective clothing such as gloves, safety glasses and safety boots
- o Molten polypropylene can burn when in contact with the skin. If this does occur, immediately flush the affected area and seek medical advice.
- o **Do not attempt to pull the material from the skin.**

Note that molten material will not normally be encountered during normal, correctly set up welding cycles.

It is particularly likely to occur, however, if misalignment is induced, or undue stress is put on the pre-welded joints.



Engineering Pipework Solutions

CPV Ltd
Woodington Mill, East Wellow
Romsey, Hampshire, SO51 6DQ, UK
Tel: +44 (0)1794 322884
Web: www.cpv.co.uk