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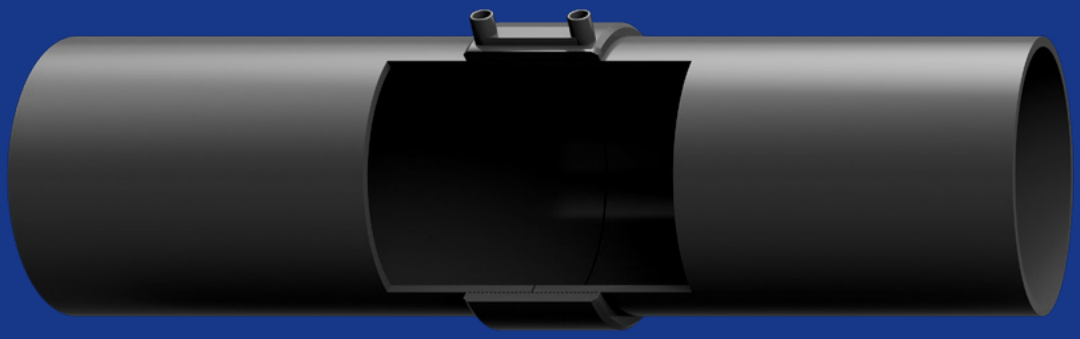
ELECTROFUSION WELDING MACHINE

SIPHON 160
SIPHON 315



ELECTROFUSION WELDING FOR SIPHONIC ROOF DRAINAGE SYSTEMS

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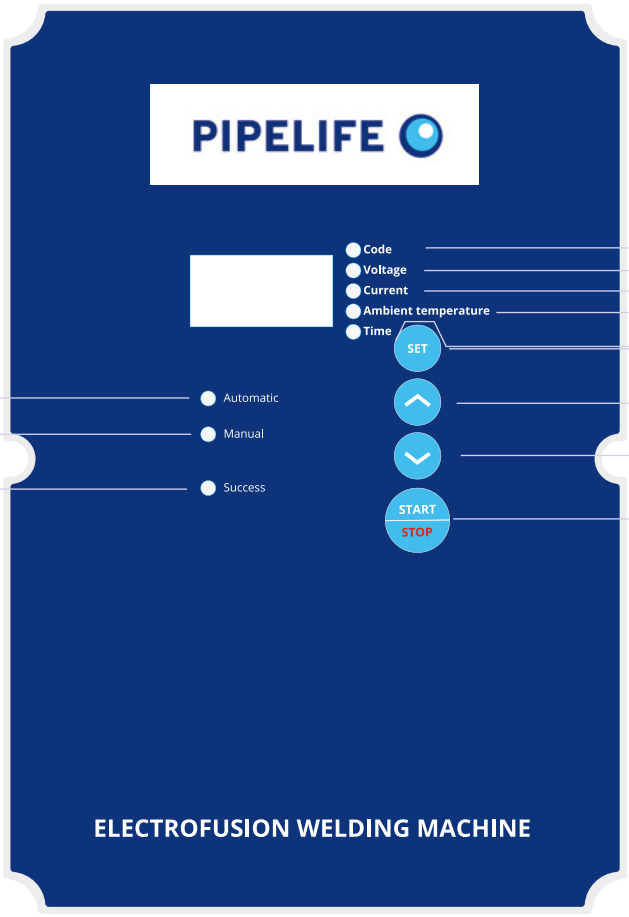
Operation Panel
Figure - 1 -



K Display

M Signal that welding has been successful

N Signal that welding mode is automatic

I Signal that welding mode is manual

A Code: Welding code

B Voltage: Welding voltage

C Current: Welding current

D Temperature: Displays ambient temperature

F Time: Displays remaining welding time

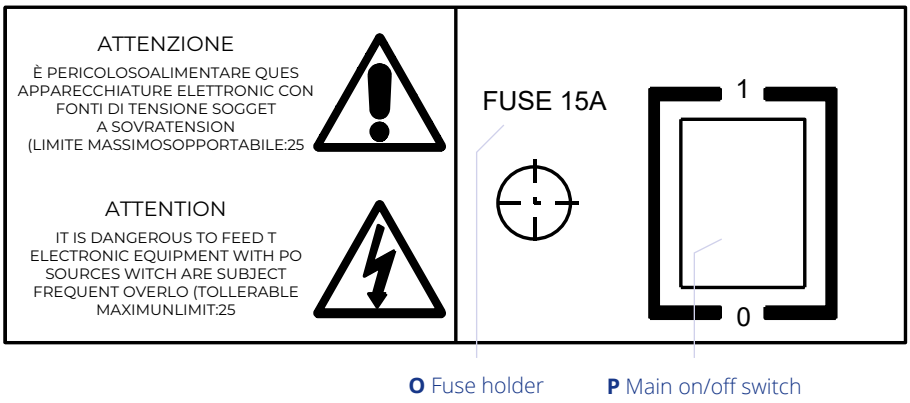
H SET button

J Page up button

L Page down button

E START/STOP button: To start/stop welding

Front Panel
Figure - 2 -



O Fuse holder

P Main on/off switch

CONTENT

The included document contains the conformity declaration, the machine's identification numbers, and a register for biannual maintenance checks.

THIS EQUIPMENT MUST BE USED EXCLUSIVELY ACCORDING TO THE INSTRUCTIONS GIVEN IN THIS HANDBOOK. ANY OTHER USES MUST BE CONSIDERED AS IMPROPER AND MAY PLACE THE OPERATOR AT RISK AND/OR DAMAGE THE MACHINE.

THE STAFF OPERATING THE WELDER MUST HAVE RECEIVED PRIOR TRAINING ON THE USE OF THIS EQUIPMENT AND MUST BE SUITABLY INFORMED OF CURRENT ACCIDENT-PREVENTION REQUIREMENTS.

THE MANUFACTURER ACCEPTS NO LIABILITY FOR ANY PERSONAL INJURY OR PROPERTY DAMAGE RESULTING FROM IMPROPER USE OF THIS EQUIPMENT.

TECHNICAL FEATURES

MODEL	SIPHON 160	SIPHON 315
WORKING RANGE	32-160 mm	32-315 mm
WEIGHT	5.5 kg	6 kg
SIZE	280x260x200 mm	280x260x200 mm
POWER SUPPLY	230V, 50-60Hz	230V, 50-60Hz
MAX. POWER ABSORBED	2470W	2470W
AMBIENT TEMPERATURE PROBE	Electronic	Electronic
WATER AND DUST PROTECTION GRADE	IP55	IP55
STANDARD ACCESSORIES	Carrier bag Welding extension cable Welding cable with plug x 2 Power cable Use and maintenance handbook	

OPERATING PRINCIPLES AND APPLICATION AREAS

Welding by electrically induced melting is based on the Joule effect: Over a specific time, a given current is made to pass through a resistor housed in a sleeve, at the end of which a potential difference is applied. The heat produced is used for welding.

Three parameters must therefore be defined for each welding job:

- Welding time
- Current intensity
- Voltage at sleeve ends

The SIPHON 160 / 315 uses electrofusion welding to join polyethylene (PE) drainpipes and/or fittings using PE couplings. It can handle four different types of welding, depending on the type of coupling involved.
The machine recognizes the coupling through the type of cable, which the operator selects from the two options available.

Suitable couplings	Range of diameters	Welding code	Cable color marking
Pipelife	Ø 32-160 mm	U00	Yellow-U00
Pipelife thermo-melting couplings	Ø 200-315 mm	U02	Blue-U02

The SIPHON 315 enables differentiated control of welding parameters (time, current, voltage) based on the type of sleeve used.

WELDING CABLE U00

Voltage at sleeve ends: Determined according to the type of sleeve used (Ohm's law).

Welding time: Set and controlled by the machine. The remaining time is shown as a countdown on the display.

Current intensity: Set to 4.9 A at 20 °C. The machine corrects this value according to external temperature by increasing/decreasing the current if ambient temperature is above/below 20 °C.

WELDING CABLE U02

Voltage at sleeve ends: Mains power supply voltage.

Welding time: Refers to the activation time of the thermal fuse installed in the sleeve. This time is independent of the welding machine. However, the machine measures and displays this time on the screen, ensuring that it meets the minimum required time and does not exceed the maximum permissible time.

Current intensity: Determined according to the type of sleeve used (Ohm's law).

This machine has been programmed to prevent welding in the event of ambient temperatures and/or power supply voltages outside the following working ranges:

Minimum ambient temperature: -5 °C	**Maximum ambient temperature: 40 °C**
Minimum voltage: 185 V	**Maximum voltage: 270 V**

Important: Connecting electronic equipment to power supply sources that are vulnerable to frequent overvoltages is dangerous. In such cases, it is advised to use a stabilizer. For example, avoid using unsterilized generator sets.

SAFETY RECOMMENDATIONS

You are strongly urged to strictly comply with legal requirements concerning job safety and accident prevention in the workplace.

The structural features and usage of the welding equipment make it essential to pay particular attention to the following recommendations:

Ambient conditions: Do not use the equipment in damp or wet environments.

Workplace: Make sure that the workplace is inaccessible to unauthorized persons.

Operator's presence during welding: Never leave the equipment unattended during welding operations.

Cramped spaces: If working in cramped spaces is necessary, someone must be on hand to help the operator in case of emergency.

Burning hazard: The electric melting process creates high temperatures in the welding area. Do not touch the coupling or connection point during the welding and cooling phases.

Electrical hazard: Protect the equipment from rain and/or dampness. Only use completely dry pipes and couplings.

Use chemically inert pipes: Never perform welding on pipes that contain (or previously contained) substances that produce dangerous gases when heated.

Personal protection: Wear insulating footwear and gloves.

Cables:

- Never disconnect the plug from the power socket by tugging on the power cable
- Never detach the pins from the coupling by tugging on their power cables
- Never move the equipment by dragging it along by its power cables

Always remember to disconnect the plug from the mains power socket when welding has been completed.

This welding equipment must not be used in areas where there is a risk of fire or explosion. Specifically designed and constructed equipment is compulsory in such conditions.

GENERAL WELDING CRITERIA

The quality of the welded connection depends on the extent to which the user complies with the following recommendations:

HANDLING PIPES AND COUPLINGS

During welding, the pipes and couplings must be at near-ambient temperature (detected by the welder's temperature probe). They must be protected from direct sunlight both before and during welding to avoid heating above ambient temperature, which would negatively affect the welding process (i.e., excessive melting of the pipe and coupling). If the pipes and couplings get too hot, move them to a cool, shady place and wait for them to return to near-ambient temperatures.

PREPARATION

Cut the ends of the pipes being prepared for welding at right angles using suitable pipe-cutting tools.

Take care to avoid any bending or ovalling of the pipe.

CLEANING

Smoothly scrape off the oxidized surface layer from the end of the pipe or fitting using suitable tools (we recommend using the pipe scraper). Make sure that you obtain an even, overall scraping action on the surfaces of the pipe ends being welded, extending over at least 1 cm for each half of the coupling.

If the welding area is not cleaned thoroughly, only a superficial bond will be achieved. The oxidized layer will prevent molecular penetration between the parts and interfere with the welding action. Do not use sandpaper, rasps or emery grinding wheels to scrap the pipe ends.

Remove the coupling from its packaging just before use. Clean the inside of the coupling according to the manufacturer's instructions.

POSITIONING

Slide the ends of the pipes into the coupling. It is essential to use an aligning device

to ensure the parts remain in a stable position and avoid any mechanical strain on the connection throughout the welding and cooling phases.

WELDING

The area where welding is carried out must be shielded from adverse conditions, such as moisture or temperatures below -5 °C or above +40 °C.

Make sure to use the appropriate cable and welding parameters for the coupling you are using.

COOLING

The cooling temperature varies depending on the diameter of the couplings and the ambient temperature. Always adhere to the timing recommendations of the manufacturers of the pipe and coupling elements used in the welding.

The aligning devices should be removed, and the welding cables should be disconnected only after the cooling phase has ended.

IDENTIFICATION OF PARTS

Operation panel: Please refer to Figure - 1 -

E	START button to start welding, push START button again to stop welding.
I	Red LED: Signal that welding has finished.
K	Display

Front panel: Please refer to Figure - 2 -

O	Fuse holder (15 A - 5 × 20 F)
P	Main on/off switch

INSTRUCTIONS FOR USE

Prepare the pipes and couplings for welding in accordance with the guidelines in the „GENERAL WELDING CRITERIA“ section and the instructions provided by the manufacturers of the pipes and couplings.

Make sure that the main on/off switch is in the 0 position.

Choose the appropriate cable for the type of coupling from the two options available (refer to the table in the “OPERATING PRINCIPLES AND APPLICATION AREAS” section). Connect the welding cable to the cable extension and secure the two pins in place with the screw connector.

Insert the extension plug into the socket located on the side of the machine.

Make the electrical connection to the welding coupling by inserting the cable terminal pins into the designated holes on the coupling itself.

Insert the power cable plug in the connection situated on the side of the machine and lock it in place with the screw connector. Connect the equipment to the mains power supply by inserting the plug in the power socket.

Turn the main on/off switch to position 1.

When the machine is turned on, pay attention to the welding size, voltage, ambient temperature, and cable number displayed on the screen. The display will continuously show the power supply voltage, ambient temperature, and cable conversion line number every 5 seconds. The welding machine‘s default mode is automatic. „U00“ is displayed when welding pipes with diameters of 32-160 mm, and „U02“ is displayed when welding pipes with diameters of 200-315 mm.

To start welding, press and release the START button (E). The display (K) will show the remaining time needed to complete the welding as a countdown. The time is calculated based on the electric fusion sleeves‘ various parameters and the ambient temperature.

After welding is completed, the display (K) will show the message „SUC“ indicating welding has been completed. Additionally, the LED labeled „Welding over“ will light up. To safely power down, switch the main on/off switch from position 1 to position 0 and unplug the power cord from the power socket. Allow the equipment to cool down naturally.

Allow the connection to cool according to the cooling times recommended by the coupling manufacturer. During this time, the connection must not be subjected to any mechanical strains, such as twisting, pulling or bending. Therefore, do not remove the aligning devices or disconnect the pins until the welding has completely cooled.

The RESET button (E) restores the waiting mode, ready to enable a new welding operation or suspend an ongoing one. When no welding is underway, the button also allows you to display the three working parameters (power supply voltage, ambient temperature, cable code) without having to wait five seconds for each parameter to be displayed in sequence.

If a welding operation has been completed properly, the machine will automatically return to the waiting mode when you disconnect the welding cable.

The display (K) provides useful indications on the progress of the welding and for troubleshooting purposes. The following table illustrates the codes that may be displayed and their respective meanings:

Code	Meaning
U00	Code for yellow-marked cable
U02	Code for blue-marked cable
SUC	Welding completed successfully
OP	Coupling is not connected properly (This will appear when you start welding)
ATP	Welding is not possible because the ambient temperature is below -5 °C or above +40 °C
HLU	Welding is not possible because the power supply voltage is below 185V or above 270V
OOO	Welding is not possible because there is a short circuit
HA	Welding is not possible because the current is too high
UP.A	Welding is not possible because the output voltage is beyond the standard range (This is most likely due to a connection error)
PTC	Welding is not possible because the ambient temperature sensor has malfunctioned
PtO	The machine has detected that the resistance of the electric melting pipe is beyond the working range

TESTING AND MAINTENANCE

Before proceeding with any welding operations or connecting the welder to the main power supply, always check the following points:

Electric protection: The power socket must be protected with a highly sensitive differential circuit breaker (IΔ =30mA).

The rated power supply voltage must be 230V.

Extension plugs and cables must be suitable for the power absorbed by the machine (see table below):

Cable conductor cross-section [mm²]	1.5	2.5	4	6
Maximum length [m]	25	40	65	100

Cables:

- Must have suitable insulation in perfect condition
- Must not be laid in trafficable areas
- Must not be chemically reactive or vulnerable to physical strain

Machine housing:

- Must be insulated and placed in a stable position

Keep the machine and connection cables clean and dry. Before proceeding with any cleaning operations, always disconnect the plug from the power socket. For cleaning, use a soft cloth dampened with water or methylated spirit. Never use any kind of solvent.

The SIPHON 315 is an electronic apparatus and must be handled with care, avoiding violent shocks or abrupt changes in temperature. To ensure the long-term reliability of the welder, the user must inspect the apparatus regularly, paying particular attention to the following:

- Connector pins
- Power supply and welding cables
- Temperature probe (measure the ambient temperature with a thermometer and check that the reading is the same as the temperature given on the display)
- Display device
- Mechanical structure (housing and frame)

If any anomalies are detected in one or more of these components, the welder must be checked by the manufacturer or an authorized customer service center.

The welder must be sent to the manufacturer or an authorized customer service center for a general maintenance check at least once every two years.

WHAT TO CHECK IN THE EVENT OF FAULTY OPERATION

- The power supply
- The condition of the 15A-5×20 F fuse (to check the fuse, remove the plug from the power socket, unscrew the fuse holder and slide it out of its housing)
- The condition of the power cables
- If you cannot identify the fault, send the equipment to the manufacturer or an authorized customer service center
- The guarantee is automatically forfeited if repairs or other actions are undertaken by unauthorized persons

SPARE PARTS LIST

To order spare parts, contact an authorized customer service center or the PIPELIFE sales or technical support departments, specifying the relevant code:

Spare part	Amount
Carrier bag	1
Yellow-U00 marked welding cable	1
Blue-U02 marked welding cable	1
Power supply cable	1
Manual scraper	1

Important note:

We reserve the right to change the machine's technical features or the information in this handbook without notice.

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