To ensure safe and reliable operation of the 2K8P-P ELECTROFUSION WELDER, it is necessary that all operating personnel read this manual before beginning.
Basic requirements, notes and warnings when working with the welder

1. The welder cannot be used where there is condensation of dust, vapors or gases, or in areas with the risk of explosion, such as natural gas explosion.

2. The welder should be operated only by trained and authorized personnel.

3. Before starting the work with the welder operator should read in detail the contents of this manual.

4. The personnel using the welder should always:
   - be informed of the risks that may occur during the welding operation,
   - be trained in the field of using the welder,
   - install the electro-fusion closure sleeves in accordance with Perma-Pipe’s ELECTRO-GARD™ Installation Manual,
   - comply with all safety guidelines, including fire protection safety,

5. Personnel using the welder should be equipped with protective clothing and personal protective equipment.

6. In cases of emergency, press the "0" button on the welder, which disables power supply of the welder.
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1. Overview

2K8P-P electro-fusion welders are designed for welding polyethylene electro-fusion closure sleeves to HDPE jacketed pre-insulated piping systems. Proper instruction for the preparation, installation and testing of the closure sleeves is found in the Perma-Pipe ELECTRO-GARD™ Installation Manual.

Perma-Pipe 2K8P-P electro-fusion welders have an internal memory, which allows storing the parameters of up to 1000 of the latest completed welds. A printout of the parameters can be done by utilizing the RS232 serial port. These parameters can also be downloaded to a computer with the Windows operating system. See Perma-Pipe for additional information and requirements.

Electro-fusion welders require a single-phase 230 volt power source. The power source (generator) will need to be sized for a minimum of 25 amps. The power from ELECTROFUSION WELDER to the electro-fusion closure sleeves will not exceed 3700 watts.

![BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.]

2. Technical Data

- Supply voltage: 230V (+6%, -10%)
- Supply frequency: 50 Hz
- Type of insulation: Class I
- Type of job: PJ – 50
- Degree of protection: IP - 32
- Range of welded diameters:
  - Single step weld: 5” through 20” jacket OD
  - Two step weld: 21” through 43” jacket OD (heater in the plate is made with a tap)
- The maximum power consumption: 3700 watts
- Power consumption from the power grid: Less than 19 amps
- Required power of a generator: 6 kVA
- Power output of a generator: 25 amps
- Operating current (automatic mode): 70 amps
- Range of welding temperatures: 14°F to 113°F
- Range of storage temperatures: -4°F to 155°F
- Internal memory: 1000 welds
- Transmission to a PC and a printout of stored welding parameters from the internal memory of the welder adapter RS232-USB + programming
- Length of operation cables: 10 feet
- Length of the net cable: 10 feet
- Weight of the welder: 66 lbs.

Power generators used to supply power to the welders must have a power protection rating of IP54.
3. Safety

a. Personal Safety

The design of the electro-fusion welder is to allow the operator comfortable and safe operation, but due to the nature of the work unforeseen risks can always occur. Personnel operating the machine should be familiar with the applicable safety regulations and polyethylene welding technology.

When operating the welder, special attention should be paid to:
- Wiring providing power supply to the welder (electric shock),
- Temperature of the polyethylene being heated (burns),
- Weight of the welded components and the weight of the welder (crushing).

b. Protective Features

- Power switch-off button "0",
- Overload fuse in the power circuit,
- Delayed fuses for auxiliary circuits.

c. Emergency Stop of the Installation Operation

In the event of an emergency stop of the electro-fusion welder, press "0" button on the device panel. This action will immediately turn off the power supply. Reconnecting the welder to work can take place only after the removal of the causes of an emergency stop.

d. Protection Against Electrical Hazards

Protection against electrical hazards consists in the use of:
- Cables and wires in double insulation,
- Insulated external housing,
- Safety switch to "0" in the main circuit power supply.

e. Caution

- Use the electro-fusion welder only in accordance with this manual,
- Use only with Perma-Pipe ELECTRO-GARD Joint Closure System,
- The electro-fusion welder is only to be operated by authorized and properly trained personnel,
- Do not attempt to use a broken welder. A damaged or improperly repaired welder may cause serious personal injury,
- Do not use the welder near flammable materials including high dust, vapors or gases,
- Do not use the welder in areas of high moisture,
- Use the welder only in properly ventilated areas,
- Do not make repairs or changes to the welder. Contact Perma-Pipe for authorized service.
- Replace fuses only with the correct and identical OEM rating,
- Do not move the welder by pulling with the power or welding cables,
- Do not disconnect the power cord by pulling on the wire,
- Do not disconnect the power cord when the welder in on,
- Use only extension cords that are properly sized for the electrical load,
- Do not leave the welder unattended while operating.

ELECTRIC SHOCK can kill.
4. Care, Maintenance and Storage

The Perma-Pipe electro-fusion welder has been manufactured to provide reliable and trouble-free operation.

- Store the welder in a cool, dry place when it's not in use. Protect it from dust and dirt.
- Keep it where it cannot be accidentally damaged from construction activities, moving vehicles and other hazards.
- Keep the welder housing clean from dirt and other contaminants. Wipe clean with dry cloth.
- Keep vents clean and free from obstructions. Blow clean with compressed air.
- Keep all cables clean and dry.
- Protect the welder from direct exposure to weather conditions (rain, snow, sun, etc.)
- Protect the welder against mechanical impact (direct impact or excessive vibrations).

Inspect the condition of the welder by checking:

- The condition of the mechanical sub-assemblies.
- The condition of the power cables.
- The condition of the installation cables.
- The condition of the installation cable end contacts.

5. Electrical Parts

<table>
<thead>
<tr>
<th>2K8P-P ELECTROFUSION WELDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power plug</td>
</tr>
<tr>
<td>Power supply cord</td>
</tr>
<tr>
<td>Contactor</td>
</tr>
<tr>
<td>Fuse</td>
</tr>
<tr>
<td>Blow fuse</td>
</tr>
<tr>
<td>Insulation disconnector with fuse</td>
</tr>
<tr>
<td>Blow fuse</td>
</tr>
<tr>
<td>Network transformer</td>
</tr>
<tr>
<td>Operation cables</td>
</tr>
</tbody>
</table>

Failure to observe the instructions given in this manual or careless handling of the device may lead to injury or death of the operator or bystanders present in the work area.
6. Description of the Welder and its Functions

The description of functions operated from the front panel

- Button "I" - is used for switching on the power of the welder.
- Button "0" - is used for switching off the welder.
- LCD display - is used for communication of the device with the operator.
- The - and + buttons are used:
  - to choose alphanumeric characters when typing the name of the construction site, operator and contractor
  - to enter the value of the resistance equalization
  - to enter the numbers of technical documentation and the number of welds
  - to choose the diameter of the welded joint,
  - to set the date and time
- Button →| - is used to move the cursor on the display screen.
- Button ACC - is used to accept the selected value or phase of the process.

Switching on the power supply – gently press the "I" button. When the power is on, it is indicated by a green LED next to the "I" button. At the same time the LCD screen is backlit.

Switching the power off – gently press the "0" button. When the power is off, it is indicated by a red LED next to the "0" button, and by switching off the backlight of the LCD screen.

Switching off the power supply from the welder – DO NOT unplug the welder until first switching off the welder, by pressing the "0" button.
7. Error Messages and Troubleshooting

a. The Recommended Technical Inspection of the Welder

If after the start of the device the display shows the message as shown in Screen E1, it means that the device must be inspected by Perma-Pipe. This message is a reminder of the expiring calibration validity period of the welder, but does not prevent the operation of the welder. After a few seconds, the device will automatically switch to the next phase of the program, i.e. to display the next screen.

b. Short Circuit of the Installation Cable Ends

If the installation cables are short circuited while trying to start the device, the following message is displayed as shown in Screen E2, which after about 1 minute changes to Screen E3. As long as the operator does not remove the short circuit and does not press the "AKC" button, the welder remains inactive.

c. No Joint is Connected

If the installation cables are not connected to the closure sleeve wires (with a suitable resistance) the message is displayed as shown in Screen E4, which after a minute will switch to Screen E3. Until the proper connection of the joint and until pressing the "AKC" button, the welder remains inactive.

d. Improper Connection of the Joint

In the case of incorrect connection of the installation cables to terminals providing power supply to the joint (the lack of a closed circuit) the display shows the message as in Screen E5. This message can also indicate damage to the heater during the installation of the joint. If, after checking the proper connections the device does not allow to start the work, remove the joint and check if there has been no damage to the heating element of the joint and install the connection again.
e. **Stopping the Process by the Operator**

Pressing the button "AKC" during welding will terminate the process, as indicated by the message displayed on the Screen E6. After pressing the "AKC" button, the device will return to the phase of the program described by the message as shown in the Screen 1.

<table>
<thead>
<tr>
<th>Screen E6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Welding stopped by operator</strong></td>
</tr>
<tr>
<td><strong>ERROR 18</strong></td>
</tr>
<tr>
<td>Press AKC</td>
</tr>
</tbody>
</table>

f. **Open Circuit**

If, during the welding, the process is interrupted by the welder because of the inability to maintain the parameters or in the event of an open circuit of the heater power supply, the message is displayed as shown in Screen E7. After pressing the "AKC" button, the operational algorithm of the welder will cause the return to the state described on Screen No. 1. If the message shown in Screen E7 appears again, it is necessary to contact Perma-Pipe.

<table>
<thead>
<tr>
<th>Screen E7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Break in circuit</strong></td>
</tr>
<tr>
<td><strong>REPEAT! SERVICE</strong></td>
</tr>
<tr>
<td><strong>ERROR 2</strong></td>
</tr>
<tr>
<td>Press AKC</td>
</tr>
</tbody>
</table>

g. **Printing Error of Welds**

If during the selection a weld or a range of welds to be printed, the operator selects the welds out of the range stored in the memory (for example, when the memory holds information about 100 welds, and the operator requests a printout of a weld No. 120), the device will display a message as shown in Screen E8. If within 4 seconds the operator does not press another button, the device will return to the screen with a choice of a weld number to be printed. When the operator presses the "AKC" button, the device will display the message as in the Screen 8.

<table>
<thead>
<tr>
<th>Screen E8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No such weld in memory</strong></td>
</tr>
<tr>
<td>Press AKC</td>
</tr>
</tbody>
</table>
### Troubleshooting Error Messages

When the display shows "Error" and one of the digits (0 to 20) - it is a signal of one of the emergency states of the welder:

<table>
<thead>
<tr>
<th>Error no</th>
<th>Description</th>
<th>First step</th>
<th>Next step</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error 1</td>
<td>Short circuit in connection wiring or in the heater</td>
<td>Check the operating cable connections and the location of the heater</td>
<td></td>
</tr>
<tr>
<td>Error 2</td>
<td>Break in the welding circuit</td>
<td>Replace the heater</td>
<td>call for service</td>
</tr>
<tr>
<td>Error 3</td>
<td>Too low voltage in the supply power of the welder - it is not possible for the welder to reach the appropriate welding current</td>
<td>Check the power supply voltage or the extension cord</td>
<td>call for service</td>
</tr>
<tr>
<td>Error 4</td>
<td>Exceeded power of the load, at the working side</td>
<td>Check the power supply voltage or the extension cord</td>
<td>call for service</td>
</tr>
<tr>
<td>Error 5</td>
<td>Exceeded total welding time limit (27 minutes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error 6</td>
<td>Damage in the power supply circuit</td>
<td>Turn the machine off and turn it on again</td>
<td>call for service</td>
</tr>
<tr>
<td>Error 8</td>
<td>Exceeded temperature inside the welder</td>
<td>Leave the system with an active screen Error 8. After cooling the welder will &quot;reset&quot; and will allow further welding.</td>
<td></td>
</tr>
<tr>
<td>Error 9</td>
<td>Exceeded power required for welding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error 10</td>
<td>The outside temperature is too low (&lt;14°F)</td>
<td>Use a shielding tent.</td>
<td></td>
</tr>
<tr>
<td>Error 12</td>
<td>The outside temperature is too high (&gt;113 °F)</td>
<td>Set the welder in a place not exposed to direct sunlight</td>
<td></td>
</tr>
<tr>
<td>Error 14</td>
<td>The change of the fitting after completing the identification process</td>
<td>Press &quot;STOP&quot; and repeat the procedure</td>
<td></td>
</tr>
<tr>
<td>Error 16</td>
<td>Too high supply voltage &gt;258 V)</td>
<td>Adjust the generator</td>
<td></td>
</tr>
<tr>
<td>Error 18</td>
<td>The process interrupted by the operator</td>
<td>Restart the device</td>
<td></td>
</tr>
<tr>
<td>Error 19</td>
<td>A power outage during the last weld</td>
<td>Press the &quot;ACC&quot;</td>
<td></td>
</tr>
<tr>
<td>Error 20</td>
<td>Calibration of the welder required</td>
<td>Turn the machine off and turn it on again</td>
<td>call for service</td>
</tr>
</tbody>
</table>

In the event of a message "ERROR 8", leave the device turned on with the message concerning the error - the acoustic signal will be automatically turned off after about 10 seconds. After cooling the welder to a safe temperature, the device will return to the same state as the one confirmed by the Screen 1.
8. Operation of the Welder

a. Starting the Welder

Set the welder where the weld will be performed - it should stand firmly with the entire surface of the base on a dry, flat surface. In adverse weather conditions, it is essential to make a protective tent over the place of welding (including the welder). Avoid contact of the welder with water, snow or mud.

Insert the power plug of the power cord into a power outlet and then run the welder according to the description on page 7. The display of the welder will show a message as shown in Screen 1, on which the device will "introduce itself", giving its type and serial number. After a few seconds a message will appear as shown in Screen 2, on which the device will display the ambient temperature, date and time, and the amount of free memory allocated to store the parameters of the performed welds.

The fourth line in all the screens displayed is a line with hints - the welder tells the operator which buttons at the moment are active or what steps should be performed at a given time.

After about 4 seconds, a message will appear as shown in Screen 3, which allows the operator to select one of the four options for action. The option possible to choose is pulsating. The operator can move between options with the "→|" button. The choice made should be accepted with the "ACC" button.

If the operator does not make any choice within 4 seconds, the program of the welder will automatically switch to "simple mode".

If, however, within this time the operator accepts the option "WORK" and presses the "ACC" button, the operational algorithm of the welder will follow to the option "Full mode".

b. Welding in "Simple Mode" Option

Working in a simplified automatic mode is enabled by default if the operator does not make a choice within ~ 4 seconds during displaying Screen 3.

In this option, the operator does not have the possibility to change the contents during the display of the screens "OPERATOR", "PLACE" and can not change the diameter of the welded joints - these parameters will be repeated from the last performed weld.

If the heater of the joint is properly connected to the installation cables and has an appropriate value of resistance, a message will appear as shown of the Screen 4. The operator is informed about the number of the next weld and about the measurement of the resistance of the heater of the joint currently performed by the welder.

After the completion of the measurement, Screen 7 appears, enabling the operator to enter an 18-character name (number) under which the data of the next weld will be saved in the documentation of the pipeline built. The active keys are:

- the "→|" button - the field of the character is selected for editing,
- the "+" or "-" button - an appropriate letter or number is entered in the edited number field of the documentation (the same procedure applies to subsequent fields of the number of documentation),
- with the "ACC" button the entered content (the name) is approved.
After accepting the entry, Screen 12 will be displayed during which the operator, by pressing the "+" and "−" buttons, must enter the correction of the actual resistance (measured by the welder) in relation to the resistance of the heater of the joint determined at the temperature +20 °C (specified on the joint label). This correction should be performed properly by guiding the cursor "→|" onto the adequate field "R 20°C" and the "+" and "−" buttons reach the values from the joint label.

If the entered value of the resistance "R 20°C" is grossly incorrect, the message will be displayed as on the Screen 13; after pressing the "ACC" button, the device will again show Screen No. 12.

Pressing the "ACC" button will take the operator to Screen 14, the welder starts the process of the preheating of the closure sleeve, the so-called "preheating process", and the operator is kept informed about the parameters of the welding phase.

If during the process the operator presses the "ACC" button, it will stop the process and the operational algorithm will display Screen No. 5, and then display Screen No. 1.

After reaching the established technological parameters, this phase will be completed, a screen will be displayed with the information about the ongoing process of temperature stabilization of the connection (Screen No. 17) - at that time the operator can adjust the mechanical assembly of the joint performed.

If during the process the operator presses the "ACC" button, it will stop the process and the operational algorithm will display Screen No. 5, and then display Screen No. 1.

After the stabilization of the conditions, Screen No. 18 will be displayed for a short time and then Screen No. 19, accompanied by the display the current values of the current and voltage of the welding, as well as the elapsed time and the number of the welding phase.
If the process is correctly completed, Screen No. 20 will be displayed for a short time and then Screen No. 21.

After pressing the "ACC" button, the device will return to Screen 1 (the beginning of the operational algorithm).

c. **Welding in the "FULL MODE"**

If during displaying Screen No. 3 the possible active option is "WORK" and within 4 seconds the operator presses the "ACC" button, the operational algorithm of the welder will start the welding process in "FULL MODE". At this time the operator can enter to the controller of the welder the data about the construction site, the operator and the dimension of the welded joint.

If the heater of the joint is properly connected and at the same time has appropriate value of resistance, the Screen No. 4 will be displayed. The operator is informed of the subsequent weld number and the measurement of the resistance of the heater currently performed by the welder.

After a few seconds, when the measurement is properly made, Screen 22 "OPERATOR" will be displayed, during which the operator can make changes to the operator's name. At this point, the 18-character identifier can be entered of the person responsible for the weld being performed (name, surname, worker I.D. number or other distinctive description).

Both letters and numbers can be used.

In order to change the contents (entry) displayed, the operator should make sure at what place the blinking indicator (cursor) is located - by default it is set to the first character of the name.

- by pressing the "→|" button, the operator chooses the character field to edit in the name of the operator,
- by pressing the "+" or "-" buttons, the operator can choose appropriate character of the name, which is repeated in each subsequent field until a correct name entry is reached,
- with the "ACC" button, the entered content (the name) is approved.

If there is no need to change any of the fields of the name: "OPERATOR", press the "ACC" button.
After accepting the name "OPERATOR", Screen 23 "PLACE" is displayed. The procedure of entering is the same as entering the name of the operator. After the completion of entering and accepting the entry with the "ACC" button, Screen 7 is displayed (see page 11).

After the approval of its content with the "ACC" button, Screen 24 will be displayed, and the operator can choose the type of the joint having the choice of the heaters PE-L STANDARD, PE-L SUMMER, PE-L WINTER or PE-L REPAIR.

The selection is made using the "+" and "-" buttons and the selected type should be accepted with the "ACC" button following to Screen 25 using "+" and "-" buttons in making the choice of the diameter of the welded joint.

The selected diameter of the joint should be accepted by pressing the "ACC" button, which takes the operator to the screen of correcting the resistance of the joint heater - Screen 12 (page 12).

Then the process is the same, the order of the screens appearing is the same as when welding in simple mode - see pages 11 and 12.

d. Setting the Date, Time and Language of the Welder Operation Mode

If while displaying Screen 3 the operator presses the "→|" button, selects the option "SETTING" and then presses the "ACC" button, Screen No. U1 will be displayed.

Pressing the "ACC" button will then display Screen U2. By pressing "→|" operator can choose if he wants to delete memory. Set the correct option.

Please note that erasing the memory is permanent, preventing access to data contained therein. Deletion includes the entire contents of memory, and not the individual welds. If necessary, print a report and only then delete the memory.

Pressing the "ACC" button will result in reaching Screen U3. By pressing the "+" and "-" button, the operator can choose from among three languages to read the welder instructions: Polish (PL), English (GB) or Russian (RU). By pressing the "ACC" button the operator will return to Screen No. 1.
e. **Printout of the Stored Parameters**

To make printouts of the stored parameters of the welds, turn the power to the welder. While displaying Screen D3, guide the cursor pointer of the "→|" button to the option "PRINT". Press the "ACC" button. Screen D1 will be displayed.

To easily and quickly print only the welding parameters that you are interested in, one can print them selectively according to the following criteria: Investor of the construction, the Contractor of the given welds or when we know the numbers of welds we are interested in according to these numbers.

Entering the name of the investor is done through the introduction of various characters of the name in the field "INVESTOR" according to the following method:
- by pressing the "→|" button the operator can choose the field of the character selected for editing,
- by pressing the "+" or "-" button, select the desired alphanumeric character, (the same procedure is to be followed in the case of subsequent fields of the name until correct content is reached)
- completion of the edition is approved with the "ACC" button.

The acceptance of the selection will result in the display of Screen D2.

Entering the name of the Contractor is done in the same as entering the name of the Investor, but the acceptance of the entry made results in the display in Screen D3.

The operator is now able to choose the type of a printout by the following criteria:
- "One weld" - a printout of the parameters of one selected weld
- "From – to" - the printout of the parameters of welds with the numbers in the range from – to
- "All" - the printout of the parameters of all the stored welds.

Moving between different types of printed protocols is done using the "→|" button, and the acceptance of the selection with the "ACC" button.

**e.1. One Weld**

If while displaying Screen D3 the operator selected "One weld", Screen D4 will be displayed.

Selecting the weld number is done by entering specific digits of the number denoting the number of the weld to be printed:
- by pressing the "→|" button, the operator can choose the field of the character selected for editing
- by pressing the "+" or "-" button, the operator should select the correct digit
- if necessary, select each successive fields of the name until obtaining the appropriate value
- the completion of editing is confirmed by pressing the "ACC" button
After accepting the selected weld number (and not outside the range of the stored weld numbers in the device memory) Screen D5 is displayed, which indicates that the process of printing is in progress.

At the end of the printing process, Screen D6 is displayed, which indicates that the printing process has been completed successfully. Pressing the “ACC” button will take the operator to Screen 3.

e.2. From - To

While displaying Screen D3, operator can select “From - to”. The display will show Screen D7.

Entering the range of the weld numbers is performed by entering the individual digits for the beginning weld number to the ending weld number to be printed:

- by pressing the "→|" button one can choose the field of the character selected for editing
- by pressing the "+" or "-" button, the operator should select the correct digit
- if necessary, select each successive fields of the name until obtaining the appropriate value
- completion of editing is confirmed by pressing the "ACC" button.

After accepting the selected range of welds, if it is not beyond the range of welds stored in the device memory, Screen D8 is displayed, which indicates that the process of printing is in progress. At the end of the printing process, Screen D9 is displayed, which indicates that the printing process has been successfully completed. Pressing the "ACC" button will take the operator to Screen 3.

e.3. All

If during displaying Screen D3 the operator selected the option "All", Screen D10 is displayed.

After accepting, the Screen D11 is displayed, which indicates that the process of printing is in progress.

At the end of the printing process, Screen D12 is displayed, which indicates that the printing process has been successfully completed. Pressing the “ACC” button will take the operator to Screen 3.
f. **Transferring Data from the Welder to a PC**

Backup of data stored in the operational memory of the welder during welding is possible only on computers running Windows 95/98 / ME / XP / Vista / 7 / 8, and with the installed program “MASZYNA”. Additionally, the computer must have a USB connector and the welder should be equipped with the RS232 – USB converter.

The program “MASZYNA” is attached to the welder on the CD during the purchase. The user can install it on his own on his computer.

**a) Installation of the driver on the PC**

- Insert the installation CD into the CD-ROM drive.
- Go to the folder Drivers.
- Go to the folder with the corresponding version of Windows installed on the computer.
- Run the file. Driver installer window will open.
- Press the “Next” button.

After installation is complete, click “Finish”.

- Connect the adapter to the computer to an available USB port.
- Start the "Device Manager"

```
Making any changes in the computer device manager may damage the operational system of the computer. Persons without proper knowledge should not open the system alerts and the more make any changes in them!
```

- Expand the “Ports (COM & LTP)” and find the entry “Prolific USB-to-Serial Comm Port”
- Right-click on the “Properties”
- Open the “Port Settings” and then “Advanced”

When using the adapter (converter) RS232 - USB it is necessary to install an adequate driver in Windows from the CD included in the set. In the case when the user does not know the Windows system, it is recommended to seek help from a specialist or in the shop where the computer was purchased - the software installation may require a change in the advanced settings of the COM ports in the computer. Improper installation and configuration of drivers can lead to computer breakdown. After configuration, the computer may require a reboot (restart).
Operation of the MASZYNA Software

After starting the software MASZYNA a window will open where the following options are available:

- **Load from machine** – reading data from the connected welder (in the welder when viewing the Screen No. D3 one should select the type of protocol and confirm it with the AKC button).
- **Save to disc** – saving the data on one’s hard drive (or other media) for archiving.
- **Load from disc** – reading of the previously saved protocol.
- **Fonts** – font formatting (such as style, size, color) that will be used for printing.
- **Print** – the printout of the currently open protocol on a printer connected to a computer and properly configured in Windows.
- **Options** – the configuration of the connection with the welder.
- **Exit** – switching the software off.
- **PL ENG RUS** – selection of the language in which the program communicates with the operator.

The bitrate of COM is to be set to 9600.

In order to read the data from the welder one should enter in the device the option of printing the protocol from the welds made and choose an option (see chapter 8.e, page 15), and in the program MASZYNA, press the button Load, located in the lower left corner of the window.

Final steps in the operation of the welder

- After the completion of welding, turn off the power by pressing “0” button and disconnect the power plug from the socket.
- Clean the device and cables from mud, dirt or other contaminants.
- Wind up the operating cables and power supply cables, so as not to cause undue stress.
- Protect the device for transportation to the place of storage.