

# ZENIT

**POWERTOOLS**

## **PLASTIC PIPE WELDING MACHINE PPW-2000**



## **INSTRUCTION MANUAL**



## GENERAL SAFETY PRECAUTIONS



**WARNING!** When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury, including the following.

Read all these instructions before operating this product and save these instructions.

For safe operations:

1. Keep work area clean. Cluttered areas and benches invite injuries.
2. Consider work area environment. Do not expose power tools to rain. Do not use power tools in damp or wet locations. Keep work area well lit. Do not use power tools where there is risk to cause fire or explosion.
3. Guard against electric shock. Avoid body contact with earthed or grounded surfaces. (e.g. pipes, radiators, ranges, refrigerators).
4. Keep children and infirm persons away. Do not let visitors touch the tool or extension cord. All visitors should be kept away from work area.
5. Store idle tools. When not in use, tools should be stored in a dry, high or locked up place, out of reach of children and infirm persons.
6. Do not force the tool. It will do the job better and safer at the rate for which it was intended.
7. Use the right tool. Do not force small tools or attachments to do the job of a heavy duty tool. Do not use tools for purposes not intended.
8. Dress properly. Do not wear loose clothing or jewelry; they can be caught in moving parts. Rubber gloves and non-skid

footwear are recommended when working outdoors. Wear protecting hair covering to contain long hair.

9. Use eye protection. Also use face or dust mask if the cutting operation is dusty.

10. Connect dust extraction equipment. If devices are provided for the connection of dust extraction and collection facilities ensure these are connected and properly used.

11. Do not abuse the cord. Never carry the tool by the cord or yank it to disconnect it from the receptacle. Keep the cord away from heat, oil and sharp edges.

12. Secure work. Use clamps or a vise to hold the work. It is safer than using your hand and it frees both hands to operate tool.

13. Do not overreach. Keep proper footing and balance at all times.

14. Maintain tools with care. Keep cutting tools sharp and clean for better and safer performance. Follow instructions for lubrication and changing accessories. Inspect tool cords periodically and if damaged, have it repaired by authorized service center. Inspect extension cords periodically and replace, if damaged. Keep handles dry, clean, and free from oil and grease.

15. Disconnect tools. When not in use, before servicing, and when changing accessories such as blades, bits and cutters.

16. Remove adjusting keys and wrenches. Form the habit of checking to see that keys and adjusting wrenches are removed from the tool before turning it on.

17. Avoid unintentional starting. Do not carry a plugged in tool with a finger on the switch. Ensure switch is off when plugging in.

18. Use outdoor extension leads. When tool is used outdoors, use only extension cords intended for outdoor use.

19. Stay alert. Watch what you are doing. Use common sense. Do not operate tool when you are tired.

20. Check damaged parts. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, free running of moving parts, breakage of parts, mounting and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated in this instruction manual. Have defective switches replaced by an authorized service center. Do not use the tool if the switch does not turn it on and off.

21. Warning Use only accessories or attachments recommended in this instruction manual or in the catalogue of ZENIT TM.

22. Have your tool repaired by a qualified person. This electric tool is in accordance with the relevant safety requirements. Repairs should only be carried out by qualified persons using original ZENIT TM spare parts. Otherwise this may result in considerable danger to the user.

when installed on a stand. Put warmed up machine only on metal surfaces.

Operate only in a well-ventilated area. Do not operate the tool if any of the following malfunctions occur:

ATTENTION! The tool must be disconnected from the power source:

When changing heating sockets; When sustained interruption in operation.

Operating temperatures of the heating element reach 300°C. Never touch the heating element after switching the machine on.

When welding and after operation do not touch weld joint.

After disconnecting the machine from the mains let it cool for a while.

Never speed up the cooling process by immersing into liquid.

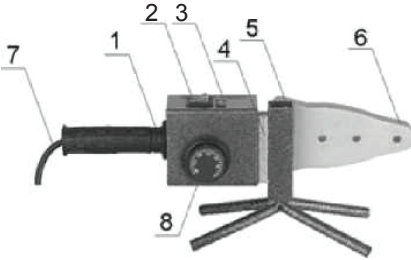
When putting hot machine after operation do not allow contact with inflammable material. Put the machine only on special surfaces (stands, holders or firesafe surfaces). Change fittings and bushings of the heating elements only in cooled state.

## **SAFETY PRECAUTIONS ON USING PLASTIC PIPE WELDING MA- CHINE**

Plastic pipe welding machine can be used indoors as well as outdoors when being protected from atmospheric fallout and at positive air temperature. Before switching on make sure the power cord, plug and receptacle are in order. Make sure the power tool has no mechanical damage. Pipe welding machine can be switched on only

## DESCRIPTION

Warm-up time 10 min



1. Handle
2. «On / Off» switch for 1000 W and +1000 W
3. Indicator
4. Insulating jacket
5. Stand
6. Heating element
7. Power cord
8. Temperature control

## TECHNICAL SPECIFICATIONS

| Model                       | PPW-2000   |
|-----------------------------|--|
| Rated voltage               | 220-240 V  |
| Rated frequency             | 50-60 Hz   |
| Rated power                 | 2000 W   |
| Heating element temperature | 30-300° C  |
| Heating sockets             | 20 mm/<br>25 mm/<br>32 mm/<br>40 mm<br>50 mm/<br>63 mm |

## APPLICATIONS

Plastic pipe welding machine is an electric heating device which complies with the requirements documents GOST IEC 60335-2-45-99, GOST R 51318.14.1-99, GOST R 513 18.14.2-99, GOST R 51317.3.2.-99 and GOST R 51317.3.3-99.

## STANDARD ACCESSORIES

|                        |        |
|------------------------|--------|
| Welding machine holder | 1      |
| Allen wrench           | 1      |
| Gauge tape             | 1      |
| Heating sockets        | 6      |
| Pipe shears            | 1      |
| Screwdriver            | 1      |
| Gloves                 | 1 pair |
| Case                   | 1      |

Plastic pipe welding machine is intended for welding pipes made of polymer materials through muff joint.

Pipe welding machine has built-in temperature control, which allows maintaining set temperature.

## WELDING TABLE

(detailed information must be provided by plastic pipe manufacturer)

| Pipe diameter, mm | Melting depth, mm | Heatingtime, s | Melting time, s | Cooling time, s |
|-------------------|-------------------|----------------|-----------------|-----------------|
| 20                | 14                | 5              | 4               | 3               |
| 25                | 16                | 7              | 4               | 3               |
| 32                | 20                | 8              | 4               | 4               |
| 40                | 21                | 12             | 6               | 4               |
| 50                | 22,5              | 18             | 6               | 5               |
| 63                | 24                | 24             | 6               | 6               |

## 1. PRIOR TO OPERATION

### 1.1. Power source.

Ensure that the power source to be utilized conforms to the power requirements specified on the product nameplate.

### 1.2. «On\Off» switch.

Ensure that the power switch is in the OFF position. If the plug is connected to a receptacle while the power switch is in the ON position, the power tool will start operating immediately, inviting serious accident.

### 1.3. Extension cord.

When the work area is removed from the power source use an extension cord of sufficient thickness and rated capacity. The extension cord should be kept as short as practicable.

## 2. HOW TO USE\

### 2.1. Connecting to mains

Pipe welding machine must be connected to the earthed receptacle with a protective conductor.

### 2.2. Choice of heating sockets

The choice of heating sockets for heating element is made based on size of pipes to be welded.

They are installed on heating element by

allen wrench from standard set.

Depending on requirements and machine model several heating sockets can be installed on heating element.

### 2.3. Operating temperature control

To provide operating temperature stability, heating element of the machine is equipped with stepped temperature control. Operating temperature is fixed to  $260 \pm 10^{\circ}\text{C}$ .

Follow pipes, fittings manufactures' instructions!

Before operation check temperature on working surfaces of heating sockets installed on the heating element.

### 2.4. Warm-up

Manufacturer sets operating temperature of pipe welding machines to  $260^{\circ}\text{C}$ . Depending on pipe material, necessity to change this value may occur. Before operation familiarize yourself with information from pipes and formed parts manufacturer!

It is recommended to control temperature of heating sockets of the heating element (heating fittings), for example with the help of surface thermometer. If necessary, temperature can be adjusted by turning the temperature control. When adjusting temperature remember that heating element is ready for operation only after 10 minutes after reaching the set temperature.

### 3. WELDING PLASTIC PIPES

#### 3.1. Technology description

When performing sleeve welding with the help of heating sockets on the heating element, pipe joint and profiled part are lapped. Pipe end and sleeve of the profiled part are heated with the help of heating spigots and sockets, installed on the heating element, and then joined. There are two methods of sleeve welding with different sizes of the spigot and sockets. Method A does not include mechanical tooling of pipes, method B includes mechanical tooling – centreless grinding. Heating spigots and sockets ZENIT are intended for method A welding only.

Sleeve welding with the help of heating sockets can be performed on pipes with diameter up to 63 mm.

When working with pipes of bigger diameter it is recommended to use an appropriate welding machine.

#### 3.2. Prior to welding

Follow recommendations of the pipe manufacturer and profiled part manufacturer! End of the pipe must be cut square and evenly. These parameters are achieved by using pipe shears. Besides, end of the pipe must be beveled for easy joint. Right before welding pipe end and internal surface of the sleeve of the profiled part and heating spigot and socket, if necessary, are cleaned with a piece of paper, leaving no paper dust or a napkin leaving no filaments, moistened with gasoline or commercial alcohol. Make sure plastic remainders don't stick to the surface of the heating socket. When cleaning heating sockets make sure not to damage special teflon coating. Do not touch surfaces treated in this way before welding.

#### 3.3. Welding technology

##### 3.3.1. Heating of pipes and profiled parts

To heat the pipe and profiled part quickly insert them on heating spigots, fixed on the heating element of the machine, to the end position or to the marking, and keep for time required (see welding table).

It is recommended to follow instructions of the pipe manufacturer.

When heating, the heat gets inside the surfaces to be welded and Во время разогрева тепло проникает в подлежащие спаиванию поверхности соединений, доводя их до нужной температуры.

##### 3.3.2. Welding and fixing

After heating remove the pipe and profiled part from the spigots of the heating element and push them inside one another without turning. Fix (hold) them for a period of time, recommended by the plastic pipe manufacturer (see welding table). Time between removing from the heating element and welding must not exceed time, recommended by the pipe manufacturer (see welding table). Otherwise welding surfaces will not be heated enough for quality welding.

##### 3.3.3. Cooling

Load on joints must be applied only after estimated cooling time (indicated by the plastic pipe manufacturer), (see welding table).

### 4. MAINTENANCE

ATTENTION! Before maintenance and repair disconnect the tool from the power source and let it cool! These operations must be performed by qualified specialists only.

Before every welding clean the teflon coating of the heating element spigots with a

piece of paper, leaving no paper dust or a napkin leaving no filaments, moistened with gasoline or commercial alcohol.

Make sure plastic remainders don't stick to the surface of the heating socket. When cleaning heating sockets make sure not to damage special teflon coating.

NEVER! Clean the heating spigots with metal tools, sand paper and abrasive pastes. After operation switch off the tool, disconnect the plug from the receptacle and let the welding machine cool. After cooling take the machine from the stand and put into the case.

## 5. TROUBLESHOOTING

5.1. Welding machine does not heat:

Reason:

- machine is not connected to the mains
- power cord is damaged
- receptacle is defective
- machine is defective

5.2. Plastic particles cannot be removed from the surface of the spigots of the heating element

Reason:

- heating element is dirty (see clause 4)
- teflon coating is damaged

## 6. WARRANTY TERMS

Warranty does not cover damage to the teflon cover of the spigots of the heating element caused by unqualified operation.

Warranty does not cover defects, caused by natural wear, unqualified operation or noncompliance with instruction manual, overload, перегрузки, unintended use, personal interference or interference of unauthorized persons, as well as other

causes beyond the control of the manufacturer TM ZENIT.

### CAUTION

When using the tool follow these rules:

- do not allow mechanic damage (strikes, falls etc.);
- protect the tool from external sources of heat and chemically active substances, as well as liquid and objects penetration;
- before disconnecting the tool from the power source turn off the On/Off switch;

Inobservance of these rules will make warranty void!

### WARNING

Repair, modification and check of ZENIT power tools should be performed only in authorized service centers ZENIT. While use or maintenance of power tools follow all safety rules and standards.

### NOTE

Zenit Power Tools are constantly being improved and modified to incorporate the latest technological advancements.

Accordingly, some parts may be changed without prior notice.







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