



# Shanghai Pengwang Machinery Co., Ltd.

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## PW202 Geomembrane Welder

Power	1800W
Voltage	220V
Frequency	50Hz
Welding speed	0.5-5m/min
Heating temperature	0-800℃
Material thickness	1-3mm
Welding seal thickness	17mm×2, Intermediate cavity:16mm
Seam strength	≥85% base material (tensile resistance in share direction)
Joint width	120mm
N.W.	9kg
Insulation grade	I

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## Notice

1. Please read the manual carefully, in order to use the welder correctly;
2. Please use a grounded three-core socket with a capacity of 15A or more. Do not tamper with the plug & pull the plug by the wire;
3. In order to ensure the welding quality, please let the professional worker to operate and use;
4. Do not press the steel wheels when the machine is idling;
5. Please do not use in overly humid environment, avoid water damage to the body;
6. The machine has been tested well before shipping, please do not adjust at will;
7. The circuit board in the control box is live, non-professional worker are not allowed to disassemble it without authorization;
8. Due to the high power of the machine, do not heat up and idling for a long time when there is no welding or when the welding interval is long to avoid excessive temperature of the body;
9. In normal work, the welding temperature generally does not exceed 400 degrees;
10. If the machine is not used for a long time or damp, please turn it on and warm it up for 30 minutes before turn on;

## Profile

The PW202 geomembrane welder is a new type of welding machine developed by our company. It meets the welding of geomembranes with different thicknesses and is applicable for welding all hot-melt materials such as PE, PVC, HDPE, EVA, PP and so on.

The temperature control part of this series of welders adopts automatic constant temperature PID control; the control accuracy is high and the temperature fluctuation is small. The speed control part adopts pulse width modulation (PWM) automatic voltage stabilization and speed stabilization circuit; driven by a DC servo motor, the output torque is large and the walking is stable. It can maintain a constant speed when climbing slopes. This series of welders has stable working performance and will not be affected by external temperature and voltage changes.

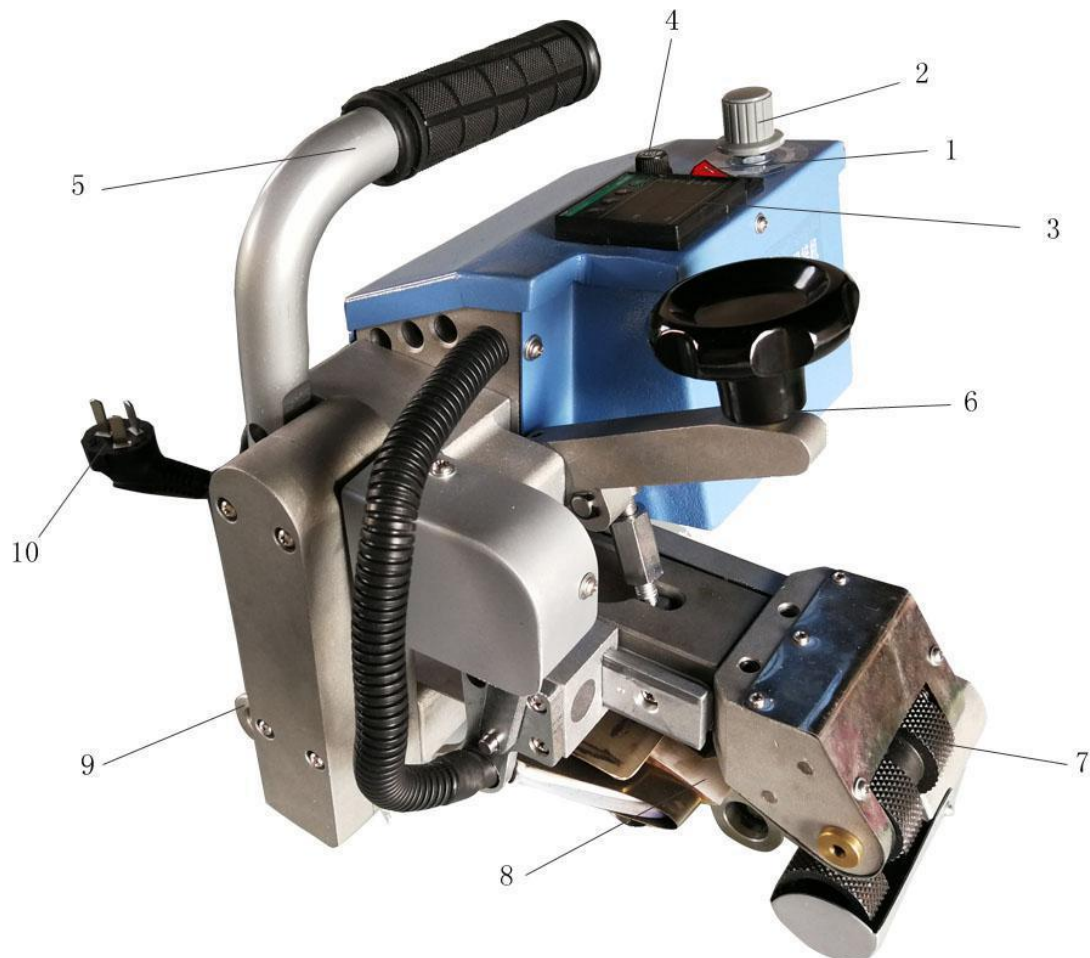
The machine has excellent performance, convenient operation, high welding speed and good welding quality. Mainly used in the welding of ultra-thick materials such as waste landfills.

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## Technical specification

1. Input voltage V: 220V      Frequency: 50Hz
2. Power: 1800W
3. Welding speed V: 0.5~5m/min
4. Heating temperature T: 0~800°C (Recommended adjust to 3-500°C when use)
5. Welding material thickness: 1.0mm~3.0mm (single layer thickness)
6. Welding seam width: 17mm×2 Inspection seam 16mm
7. Welding seam strength  $\geq 85\%$  base material (tensile resistance in shear direction)
8. Lap width: 120mm
9. Body weight: 9kg

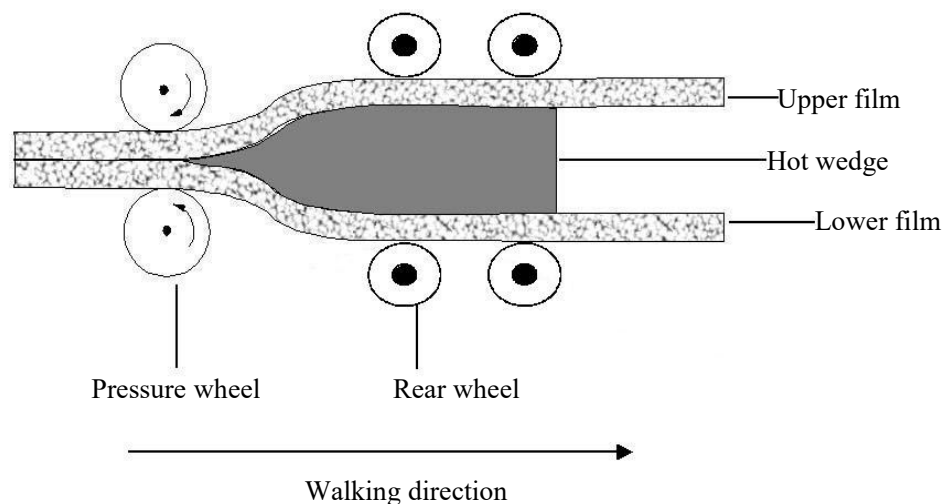
## Main spare parts



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- |                    |                      |                  |                   |
|--------------------|----------------------|------------------|-------------------|
| 1.Switch           | 2.Speed control knob | 3.Thermostats    | 4.Power insurance |
| 5.Operation handle | 6.Pressure handle    | 7.Pressure wheel | 8.Heating block   |
| 9.Crawl wheel      | 10.Power cable       |                  |                   |

## Work principle

The motor drives the upper and lower pressing roller to rotate through the reduction box and the chain. The heating bracket drives the hot wedge to be inserted between the two base materials. At the same time, the pressure frame pressurizes the pressing roller to press the upper and lower base materials together. Check the picture below.



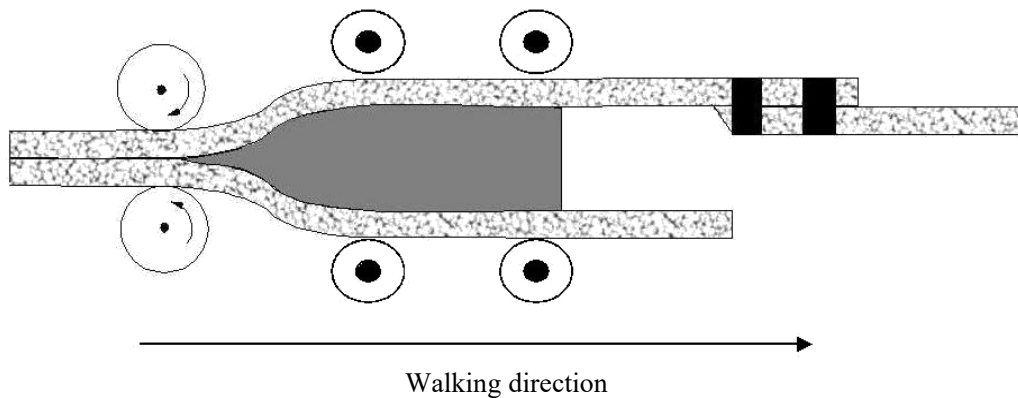
## Operating procedure

1. Note: Since the welding quality of the machine is directly related to the speed and temperature setting during work, in order to achieve high quality and efficiency, it is best to be operated by professional worker.
2. The user must choose a three-core socket with grounding protection and confirm that the external line is connected. Lift the pressure handle of the machine to separate the upper and lower drums, and then plug in the power.
3. Turn on the power switch, select the appropriate temperature (refer to Figure 1 for

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temperature adjustment) and speed, and then take a few narrow materials for trial welding to determine the best welding effect. Due to the different ambient temperature and material thickness, the welding temperature of the same material may be different. When selecting the temperature, you can first select a reference speed (around 1.5m/min), and then slowly adjust it from low temperature to high temperature (about 250°C~400°C).

4. Choose of welding temperature: For transparent PE materials, it can be directly observed. The weld mark is flat and has a transparent glass shape, indicating that the speed and temperature are appropriate; the weld mark is severely broken, indicating that the temperature is too high or the speed is too low; The weld mark is opaque and has a white appearance, indicating that the temperature is too low or the speed is too fast. For opaque materials, observe whether there are obvious welding traces, or wait for all of them to cool down for tensile testing.
5. Trim and straighten the edges of the material to be welded; face forward, overlap the lower left and upper right, and have a lap width of 120mm.
6. After confirming the temperature and speed, insert the material to be welded between the two steel rollers, make the machine body parallel to the edge of the base material, and press down the pressure handle to press the two steel roller to weld by themselves. Under normal circumstances, the operator only needs to observe whether there is any deviation between the weld mark and the edge of the base material, and correct it within a small range in time. When the material is welded to the end, lift the handle in time to separate the upper and lower steel rollers.
7. Due to thermal inertia, if the temperature is too high or too low during the welding process, the temperature can be adjusted in a small range to compensate for the temperature deviation.
8. During the welding process, if there are uneven welding marks on both sides, it can be adjusted by the two hexagon socket screws on the swing head (that is, tighten the corresponding screws on the upper side with deep weld marks or loosen the corresponding screws on the upper side with shallow weld marks).
9. The welded material forms a "T" type overlap with another material. The welding method is shown in the figure. Place the overlap on the side of the hot wedge close to the weld mark and cut the length about 12cm diagonally.



## Adjustment of pressure roller

According to the thickness of the material, the pressure can be adjusted by turning the nut. Clockwise pressure increases, counterclockwise pressure decreases.

## Common faults

Issue	Reason	Solution
Motor does not rotate	Power failure	Check whether the power is on
	Insurance burnout	Replace insurance
	Speed control circuit board burned out	Replace speed circuit board
	Motor burnt out	Replace the motor
Speed can't be adjusted	The speed control knob is loose	Tighten the speed control knob
	Power tube breakdown	Replace speed circuit board
Hot wedge is not heated	Electric heating tube burned out	Replace electric heating tube
	Temperature controller is damaged	Replace temperature controller
	Thermocouple failure	Replace thermocouple
Hot wedge is burnt red	Temperature controller is damaged	Replace temperature controller
	Thermocouple failure	Replace thermocouple

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# Maintenance

When the machine is not in use, the dirt on the hot wedge and the silt in the chain cover must be cleaned up, and the whole machine must be oiled and put in a dry place.

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