

Proweld™ Equipment **Operations & Maintenance** **Manual**

Maxiplast® Tool



Tel: 781-321-5409 • Fax: 800-787-6861 • Toll Free: 800-343-3618
www.asahi-america.com • asahi@asahi-america.com
Direct Sales: East 800-232-7244 / Central 800-442-7244 / West: 800-282-7244

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Section I - Safety Precautions

1. Keep working area clean and tidy.
2. Keep electrical tools away from moisture. Never use in a wet environment or humid conditions. Working area should be well illuminated. Keep tools away from chemicals and other corrosive materials.
3. Keep visitors at a safe distance.
4. Electrical tools not in use should be stored away safely.
5. Do not wear loose clothing or jewelry. They can inadvertently get stuck in the moving parts of the machine, causing injury.
6. Never carry tools by the electric cable. Never unplug by pulling the cable. Keep cables away from oil, heat and sharp edges.
7. Always check that the pipe and fittings are clamped down tightly.
8. The heating element can reach temperatures in excess of 570° F (300° C). Do not touch the surface, and keep non-operating personnel at a safe distance.
9. Keep tools clean and sharpened. They produce better and safer results. Missing and worn-out parts should be replaced immediately. Always assure that the accessories are properly mounted on the machine. Only use factory parts.
10. Always use correct extension cable.
11. Do not use tools and machines when housing or handles, specifically plastic ones, are bent or cracked. Dirt and humidity in any fracture can lead to electrical shock should the insulation in the machine be damaged.

Section II - Welding Conditions

1. The welding environment needs to be protected against unfavorable conditions, e.g. rain, wind, dust, excessive humidity or temperature below 41° F (5° C).
2. It's necessary to have adequate pipe wall temperature for welding. If necessary, the pipe has to be warmed up or an environmentally-controlled welding tent needs to be set up. If these conditions are met, the welding can be performed at virtually any environmental temperature. It is advisable to verify the weld quality by making some test welds at the given conditions.
3. Should the pipe be irregularly heated by intense sunshine, it may be necessary to cover the pipe ends to be welded so that a balanced temperature is obtained.
4. The pipe ends to be welded must be checked for damage and be free from oil, grease, dirt and other contaminates. Cleaning the pipe ends must be done just prior to welding.
5. The weld must be kept free from external stresses during the weld process until the material has sufficiently cooled.
6. The weld process has to be observed continuously. It is recommended to keep a record of each weld.
7. A stop watch is to be available in order to register the actual times for heating up and cooling down.
8. A heat stick or pyrometer is to be available in order to verify the correct heating element temperature.
9. A table is to be available from which you can read the parameters that are prescribed by the welding regulation for the pipe dimension to be welded.
10. The heating element surfaces are to be clean and, above all, free from grease. Therefore, they are to be cleaned with lint-free paper and isopropyl alcohol before welding (or if they are dirty).

Section III - Machine Set Up and Operation

1. General Tool Information

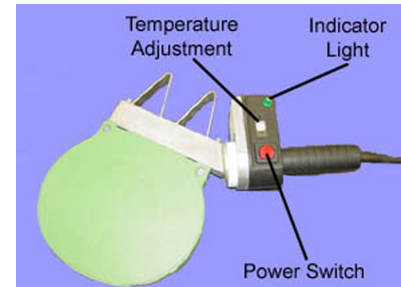
- A. The Maxiplast® is use for butt welding of pipes and fittings made out of PE, PP, PVDF and ECTFE with a diameter range of 1 ½" - 6" (50 mm - 160 mm).
- B. Voltage: 110 AC (two required)
Amperage: 15 Amps
- C. Additional Technical Data

Pipe/Fitting Material:	PE, PP, PVDF, ECTFE
Pipe/Fitting Sizes:	1½" - 6" (50mm - 160mm)
Transport box (L x B x H):	35" x 24½" x 28"
Weight:	Approx. 250 lbs.
Breaker:	15 Amp
Heating Element Voltage:	110V (+/- 10%)
Planer Voltage:	110V (+/- 10%)

2. Heating Element Temperature Setting

- A. Connect the plug of the heating element to a 110-volt outlet.
- B. The thermostat is located in the heating element and can be adjusted by turning the dial located above the handle. Set the thermostat to the appropriate temperature.

- I. HDPE 420° F - 446° F (215° C - 230° C)
- II. PP 393° F - 410° F (200° C - 210° C)
- III. PVDF 436° F - 456° F (225° C - 235° C)
- IV. Halar 527° F - 536° F (275° C - 280° C)

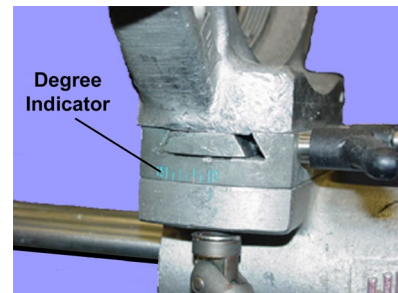
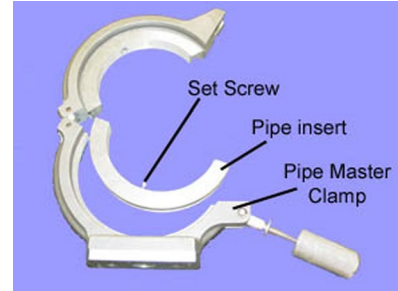


3. Welding Machine Setup

- A. The machine can be mounted on a bench by bolting the base to the bench with the enclosed screws or it can be placed in a vice.

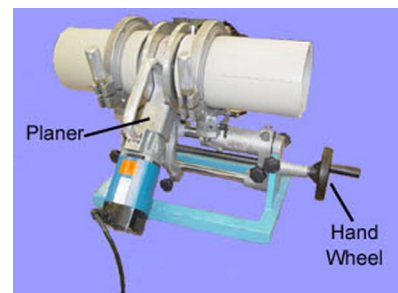
4. Clamping Setup

- A. For pipe to pipe joints with pipes smaller than 160mm diameter, appropriate pipe clamp inserts must be placed into the master pipe clamps and fixed with the appropriate screws. For 160mm pipe to pipe joints, the master pipe clamps should be used. The pipe should be placed in the clamps with ½" - 1½" extended out of the clamps.
- B. For pipe to fitting joints, the master pipe clamp, which is fixed to the movable part of the machine, must be replaced with the master fitting clamp. For fittings 160mm, the master clamp is used. For fittings smaller than 160mm, use the appropriate fitting inserts and fix them with the appropriate screws.
- C. For fitting to fitting joints, the second master pipe clamp should be replaced with the other master fitting clamp with the appropriately sized inserts.
- D. To weld a flange to pipe or fitting, the flange adapter should be placed in the pipe master clamp and the flange centered on the flange adapter.
- E. It is possible to manufacture segmented elbow pieces. The master pipe clamps can be swiveled from 0-15 degrees on either side. The upper part of the planer is radial adjustable in order to adjust the cutters axial to the end of the pipe. It is possible to produce equally segmented elbow pieces provided the limit stops are set exactly.



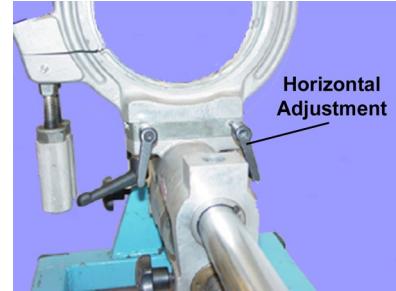
5. Facing

- A. The planer has to be placed onto the two shafts and locked using the rotary button.
- B. Use the hand wheel to gently press the ends of the pipe against the rotating cutters of the planer. The planing step is complete when the shavings on both pipes are continuous. Release the pressure using the hand wheel while the cutters of the planer are rotating.
- C. After loosening the rotary button, remove the planer and store in an appropriate place.



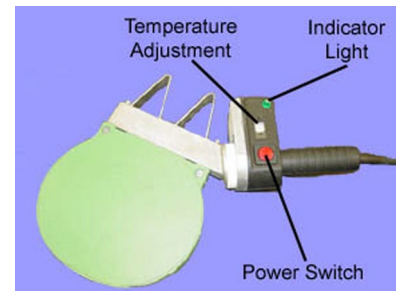
6. Alignment

- A. Using the hand wheel, bring the two ends of the pipe together to check alignment both parallel and axial.
- B. Adjustments can be made using the horizontal adjustment. Loosening or tightening the clamps will adjust the vertical alignment. The misalignment of the pipe should not exceed 10% of the wall thickness of the pipe.
- C. Loosening or tightening the clamps can eliminate egg-shaped pipe, as can be seen when too much clamping pressure is applied.



7. Initial Heating

- A. Check whether the heating plate has reached the working temperature (see Heating Element Temperature Setting or the welding charts at the end of this manual). The working temperature is reached when the lamp blinks in short intervals. A heat stick or pyrometer should be used to verify temperature.



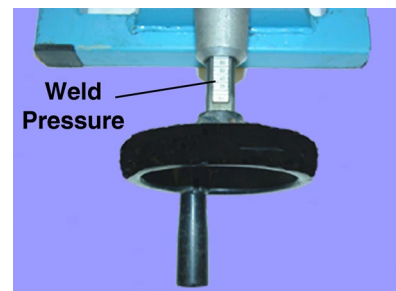
- B. Place the heating element on the shaft of the welding machine with the brackets on either side of the shaft. Using the hand wheel, bring the pipe ends against the heater, applying the proper initial melt pressure (see charts at the end of this manual for proper welding pressures).



- C. Watch for a continuous bead to form 360 degrees around both pipe ends (see pipe manufacturer or AWS/DVS standards for size).

- D. Lower pressure using the hand wheel until the proper melt pressure is reached (almost zero). Be sure the mirror does not break contact with the pipe or fitting.

⇒ **Note:** If the hand wheel is moved too far in this direction, the pipe may move away from the heater causing a bad weld.



8. Heat Soak

- A. With the pressure almost at zero, begin to time the heat soak time (see welding parameters). It is important to assure that the pipe ends remain in full contact with the heating element.

9. Change Over Time

- A. With the hand wheel, move the pipe ends apart. Remove the heating element and then bring the pipe end back together.
- B. Bring the pressure back to the original weld pressure. Do not over pressurize, as this will cause a bad weld. These steps must be performed within the allowable change over time (see parameters at the end of the manual for proper time).

10. Cooling Time

- A. Keep the machine under pressure until the cooling time has expired.
- B. For PP and HDPE, cooling time can be reduced by 50% under the following conditions:
 - I. Prefabrication under workshop conditions
 - II. Low additional pressure when unclamping
 - III. No additional pressure during further cool down
 - IV. System will not see pressure until cool down is complete

Section IV – Welding Parameters

Weld parameters are located on a separate document. All rented or purchased tools will include a physical copy of the latest weld parameters.

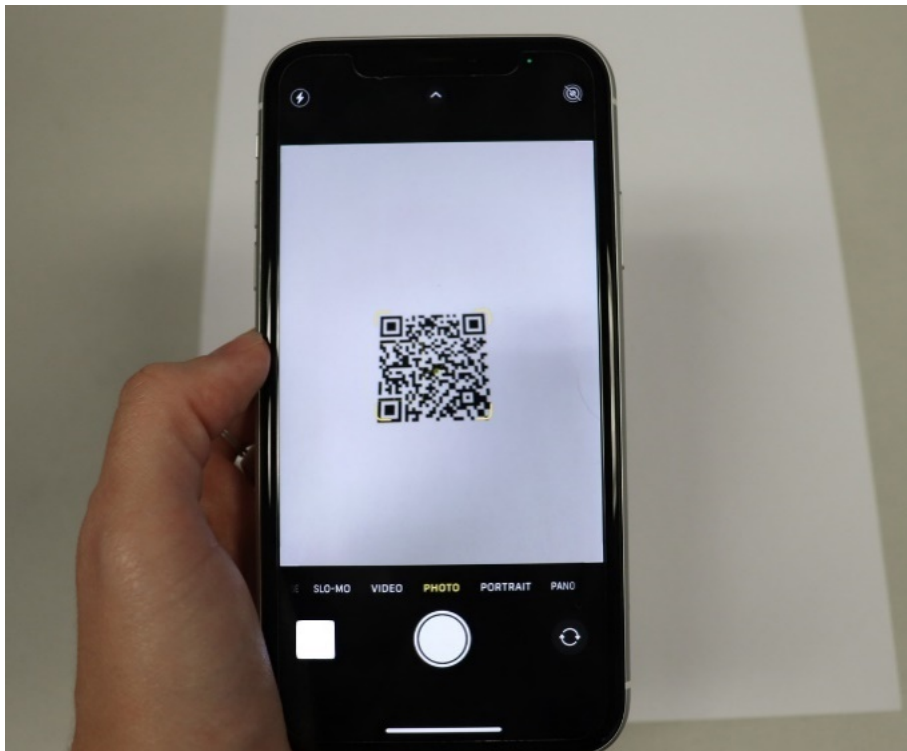
Parameters can also be accessed in the following ways:

- A. Located on our website at www.asahi-america.com under the resources tab of each product page.
- B. Through Asahi/America’s welding web app at <https://myasahi.asahi-america.com/welding> or scan the QR code on the right.

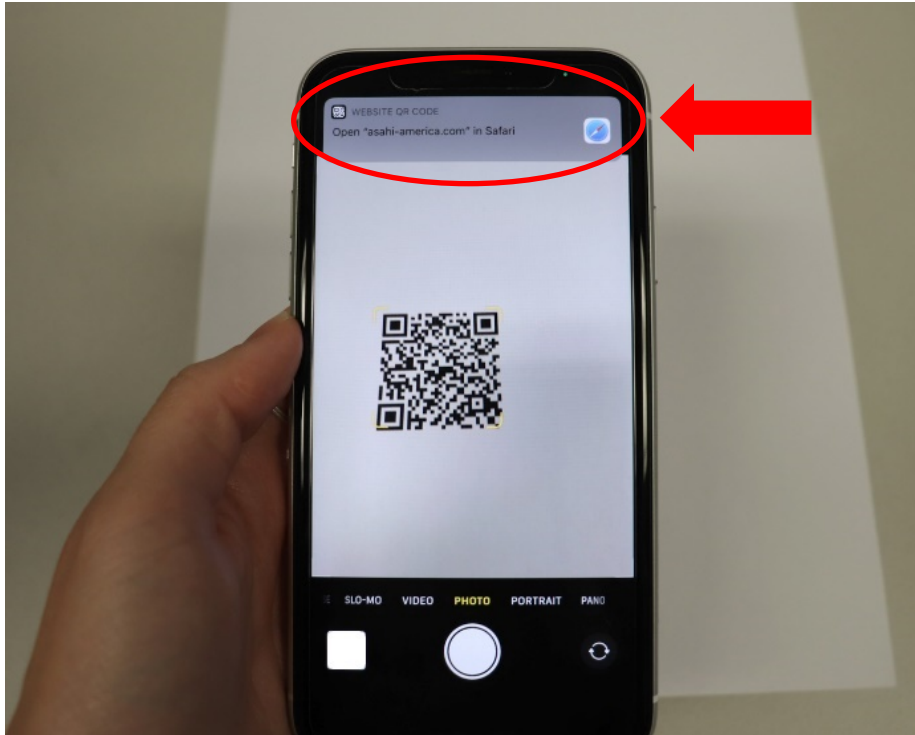


How to scan the QR code:

1. Most phones now have the native capability to scan QR codes using the camera on the phone, with no additional QR app required. If you’re having trouble with this, there are multiple free QR reader apps available wherever you download your apps.
2. Open up the camera app on your phone or tablet.
3. Hover the camera over the QR code (without taking a photo); focus the camera if needed.

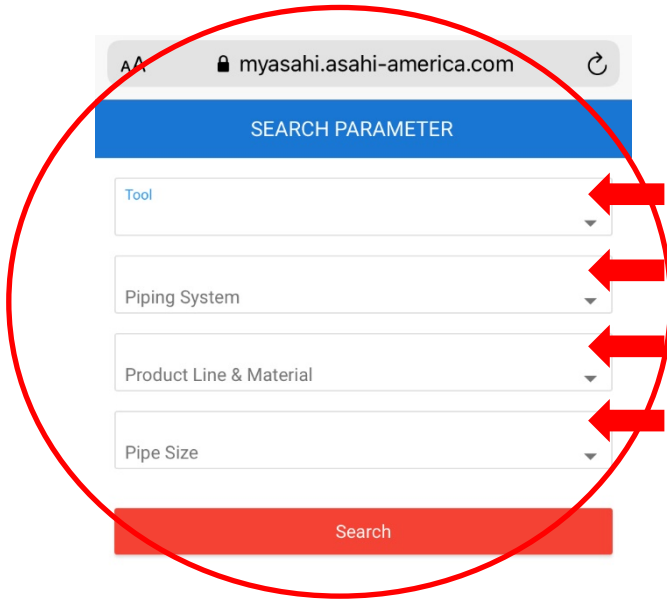


4. Wait for a web address pop-up to appear. Click on the pop-up to take you the weld parameter app.

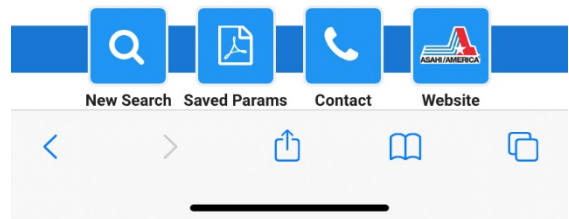
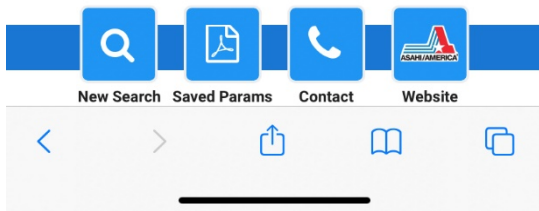
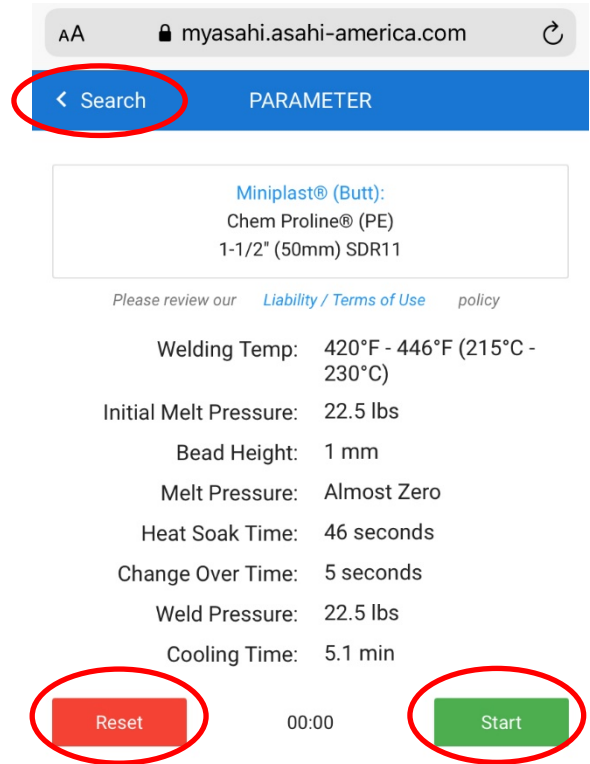


How to use the weld web app:

1. To search for a parameter, fill out all four fields: tool, piping system, product line & material, and pipe size from the drop-down options. Then, click 'search'.



2. The appropriate parameters will appear. Click the 'start' and 'reset' buttons to use the timer. To search for a different parameter, click 'search' in the upper left corner.



Section V - Maintenance

To keep the machine in good working condition, the following should be observed:

1. Keep the guide shafts free of dirt.
2. Assure that the machine is always connected to proper power supply.
3. Keep heating element clean. Whenever necessary, wipe residue off with clean, lint free cloth while the element is at operating temperature.
4. Assure that blades are sharp at all times. The blade design allows for reversal to use both sides. If necessary, replace blades.
5. For a long-service life, clean and grease regularly the threaded spindles and the joint parts, which are used for clamping the pipe.
6. Asahi/America recommends maintenance work after one year for contractor-owned tools.

TOOL DEPARTMENT CONTACTS

Equipment Rental

Rental Equipment Manager

781-388-4618

toolmanager@asahi-america.com

Rental Administration, Billing & Returns

781-388-4623

toolrental@asahi-america.com

Field Technician/Onsite Training

Field Training

617-480-7071

info@asahi-america.com

Technical Service

High Purity, Double Wall or Industrial Piping

781-321-5409

pipe@asahi-america.com

Asahi/America Corporate Headquarters

Asahi/America, Inc.

655 Andover St.

Lawrence, MA 01843

800-343-3618

asahi@asahi-america.com

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