

# **Proweld™ Equipment**

## **Owner & Maintenance**

### **Manual**

#### **SHOP 12 W2500**

(Widos)



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## Section I - Safety Precautions for 12 inch Shop Machines

1. Keep working area clean and tidy.
2. Keep electrical tools away from moisture. Never use in 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 300°C (570°F). 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. excessive humidity or temperature below 5°C (41°F).
2. It needs to be assured that the pipe wall temperature is adequate for welding. If necessary, the pipe has to be warmed up or an environmentally controlled welding tent needs to be erected. 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 contaminants. 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 detergent (e.g. technical cleaned spirit) before every welding or if they are dirty.

## Section III - Machine Set Up and Operation

### 1. General Tool Information

- A. Size Range: 1½” – 12” (50 mm – 315 mm)  
 Amperage: 16 Amp.  
 Voltage: 110 AC

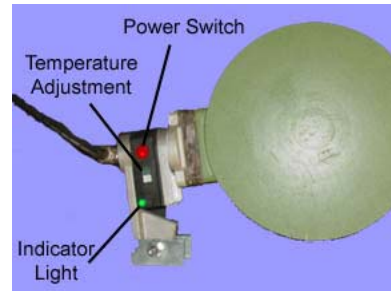
B. Additional Technical Data

Pipe/Fitting Material:	PE, PP, PVDF, ECTFE
Pipe/Fitting Sizes:	1½” – 12” (50 mm – 315 mm)
Transport box (LxBxH):	37½ x 27 x 41 inches
Weight:	Appr. 475 lbs.
Fuse:	16 Amp
Voltage Requirement:	110 V (+/- 10%)

### 2. Heating Element Temperature Setting

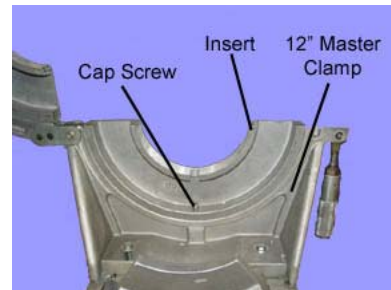
- A. Connect the plug of the heating element to a 110-volt outlet.
- B. The thermostat is located in the heating element and can be adjusted by turning the dial located above the handle. Set the thermostat to the appropriate temperature.

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



### 3. Clamping Setup

- A. For twelve-inch (250mm) pipe and fittings, use the twelve-inch master clamps.
- B. For pipe sizes smaller than twelve-inch, place the appropriate clamp insert into the twelve-inch master clamps and fasten with the cap screws.



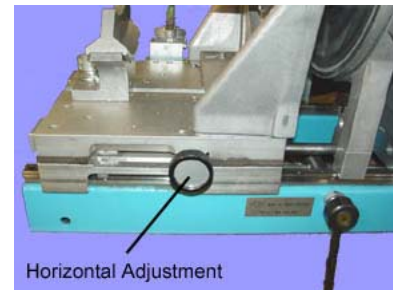
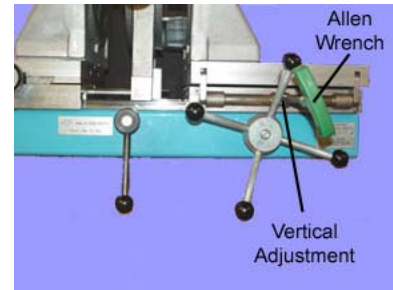
#### 4. Facing

- A. Place the planer between the two ends of the pipe. Lock the planer power switch located on the back handle of the planer to the on position.
- B. Start the planer motor by holding the black button on the front handle of the planer and bring the pipe ends in to the planer face until both ends of the pipe to be welded are smooth. (The planer will automatically lock itself in place). Bring the ends of the pipe away from the planer while the motor is still running.
- C. Turn the planer motor off, disengage the locking device and remove the planer.



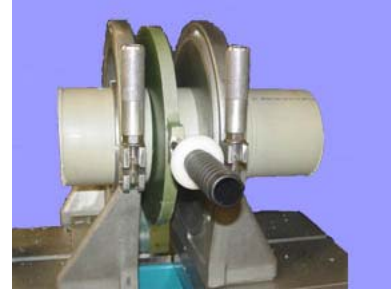
#### 5. Alignment

- A. Bring the two ends of the pipe together to check alignment, both parallel and axial.
- B. Adjust any vertical misalignment by loosening the cap screw, which holds the vertical adjustment in place using the proper allen wrench. Once the cap screw is loose, the adjustment is made by lifting and lowering the allen wrench. Once the alignment is adjusted, retighten the cap screw. The misalignment of the pipe should not exceed 10% of the wall thickness of the pipe.
- C. Adjust any horizontal misalignment by turning the horizontal adjustment knob. The misalignment of the pipe should not exceed 10% of the wall thickness of the pipe.
- D. Loosening or tightening the clamps can eliminate egg shaped pipe.



## 6. *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 control lamp goes out (thermostatically controlled) or if the lamp blinks in short intervals (electronically controlled).
- B. Place the heating plate between the two ends of the pipe to be welded. 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). Lock the clamps in place with the locking nut.
- C. Watch for a continuous bead to form around both pipe ends (see pipe manufacturer or DVS standards for size).
- D. Lower pressure until the proper melt pressure is reached (almost zero).  
⇒ **Note:** If the clamps are moved too far in this direction, the pipe may move away from the heater causing a bad weld.



## 7. *Heat Soak*

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

## 8. *Change Over Time*

- A. 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 and lock the clamps in place. These steps must be performed within the allowable change over time.

## 9. *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

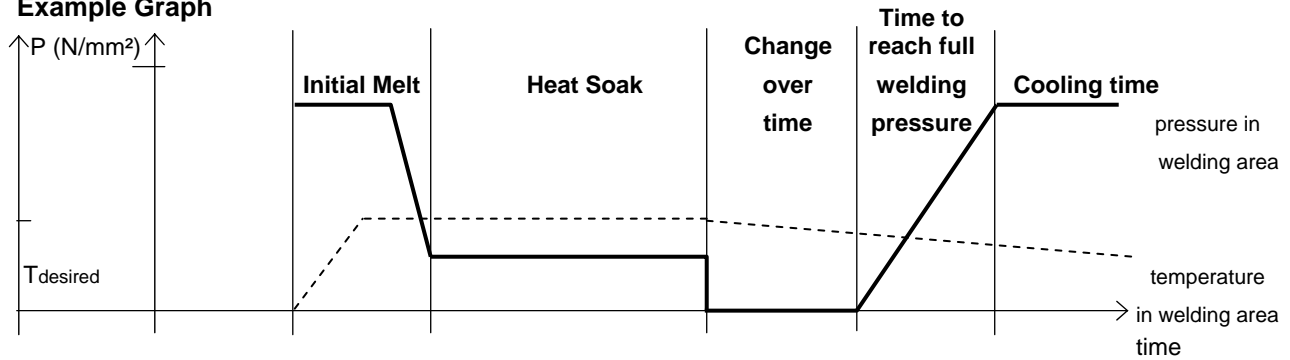
## **Section IV - Maintenance**

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

1. Keep the hardened chrome 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.

## Section V - Shop 12 W2500 Welding Parameters

**Example Graph**



### Single Wall Butt Fusion

PIPE SIZE (INCHES)	INITIAL MELT PRESSURE (LBS)	MELT PRESSURE (LBS)	HEATSOAK TIME (SEC)	CHANGE OVER TIME (SEC)	WELDING PRESSURE (LBS)	COOLING TIME (MIN)
<b>Pro 150</b>						
1 ½	14		35	4	14	6
2	23		45	5	23	7
2 ½	33	Almost	55	7	33	9
3	46		60	8	46	10
4	69		80	9	69	13
6	148	Zero	100	10	148	16
8	230		160	10	230	23
10	359		200	10	359	29
<b>Pro 45</b>						
4	26		35	5	26	5
6	54	Almost	45	5	54	5
8	82		60	8	82	8
10	132	Zero	80	8	132	10
12	209		100	8	209	12
<b>Air Pro</b>						
4 (230 psi)	70	Almost	100	9	70	13
6 (150 psi)	220	Zero	200	10	220	15

**Welding Temperatures**

HDPE	420°F-446°F	215°C-230°C
PP	393°F-410°F	200°C-210°C
PVDF	436°F-446°F	225°C-230°C
Halar	527°F-536°F	275°C-280°C

**Shop 12 W2500**  
**Single Wall Butt Fusion**

PIPE SIZE (INCHES)	INITIAL MELT PRESSURE (LBS)	MELT PRESSURE (LBS)	HEATSOAK TIME (SEC)	CHANGE OVER TIME (SEC)	WELDING PRESSURE (LBS)	COOLING TIME (MIN)
<b>PVDF</b>						
1 ½ (230 psi)	12		30	4	12	5
2 (230 psi)	16		35	4	16	5
2 ½ (230 psi)	16	Almost	40	4	16	5
3 (150 psi)	22		30	4	22	6
4 (150 psi)	34		40	4	34	7
6 (150 psi)	70	Zero	60	4	70	10
8 (150 psi)	108		80	6	108	12
10 (150 psi)	172		100	8	172	14
12 (150 psi)	272		140	10	272	20
<b>Halar</b>						
1 ½	9		14	3	9	4
2	11	Almost	15	3	11	5
3	23		25	3	23	6
4	33	Zero	40	4	33	7
6	70		50	4	70	10
<b>HDPE SDR 11 (IPS PE 80)</b>						
2	32		55	5	32	10
3	69	Almost	81	5	69	16
4	114	Zero	104	6	114	16
6	248		153	8	248	24
<b>HDPE SDR 17 (IPS PE 80)</b>						
2	21		35	3	21	5
3	46	Almost	52	5	46	7
4	77		67	5	77	10
6	166	Zero	99	6	166	16
8	295		132	8	295	17
<b>HDPE SDR 26 (IPS PE 80)</b>						
6	111	Almost	65	5	111	10
8	197		86	6	197	12
10	292	Zero	105	6	292	14
<b>HDPE SDR 32.5 (IPS PE 80)</b>						
6	89	Almost	52	5	89	6
8	159		69	5	159	10
10	235	Zero	84	6	235	13

Welding Temperatures

HDPE	420°F-446°F	215°C-230°C
PP	393°F-410°F	200°C-210°C
PVDF	436°F-446°F	225°C-230°C
Halar	527°F-536°F	275°C-280°C

**Shop 12 W2500**  
**Double Containment Butt Fusion**

PIPE SIZE (INCHES)	INITIAL MELT PRESSURE (LBS)	MELT PRESSURE (LBS)	HEATSOAK TIME (SEC)	CHANGE OVER TIME (SEC)	WELDING PRESSURE (LBS)	COOLING TIME (MIN)
<b>Pro 45 x Pro 45</b>						
4 x 8	108	Almost	60	5	108	9
6 x 10	186		80	5	186	10
8 x 12	291	Zero	100	8	291	12
<b>Pro 150 x Pro 45</b>						
2 x 4	49		60	4	49	7
3 x 6	100	Almost	80	4	100	9
4 x 8	151	Zero	100	5	151	13
6 x 10	280		130	6	280	16
<b>Pro 150 x Pro 150</b>						
2 x 4	92	Almost	100	4	92	13
3 x 6	194		130	4	194	16
4 x 8	299	Zero	180	5	299	23
<b>PVDF x PVDF</b>						
2 x 4	50		50	4	50	10
3 x 6	92	Almost	70	4	92	12
4 x 8	142	Zero	90	4	142	14
6 x 10	242		120	4	242	20
<b>Poly-Flo Polypropylene</b>						
2 x 3	30	Almost	70	7	30	9
4 x 6	95	Zero	80	8	95	10
<b>Poly-Flo PVDF</b>						
2 x 3	30	Almost Zero	72	4	30	8
<b>Poly-Flo HDPE</b>						
2 x 3	17	Almost	30	7	17	9
4 x 6	168	Zero	62	8	168	15

Welding Temperatures

PP	393°F-410°F	200°C-210°C
HDPE	420°F-446°F	215°C-230°C
PVDF	436°F-446°F	225°C-230°C
Halar	527°F-536°F	275°C-280°C

**Shop 12 W2500**  
**Double Containment Butt Fusion**

PIPE SIZE (INCHES)	INITIAL MELT PRESSURE (LBS)	MELT PRESSURE (LBS)	HEATSOAK TIME (SEC)	CHANGE OVER TIME (SEC)	WELDING PRESSURE (LBS)	COOLING TIME (MIN)
<b>HDPE SDR 11 x SDR 11</b> (IPS PE 80)						
2 x 4	146	Almost Zero	104	6	146	16
<b>HDPE SDR 11 x SDR 17</b> (IPS PE 80)						
2 x 4	108	Almost	67	3	108	10
3 x 6	235	Zero	99	5	235	16
<b>HDPE SDR 17 x SDR 17</b> (IPS PE 80)						
2 x 4	96	Almost	67	3	96	10
3 x 6	212	Zero	99	5	212	16
<b>HDPE SDR 17 x SDR 26</b> (IPS PE 80)						
2 x 4	72	Almost	44	3	72	6
3 x 6	157		65	5	157	10
4 x 8	273	Zero	86	5	273	12

Welding Temperatures

HDPE	420°F-446°F	215°C-230°C
PP	393°F-410°F	200°C-210°C
PVDF	436°F-446°F	225°C-230°C
Halar	527°F-536°F	275°C-280°C

**Notes:**

**Notes:**

# Tool Department Contacts

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