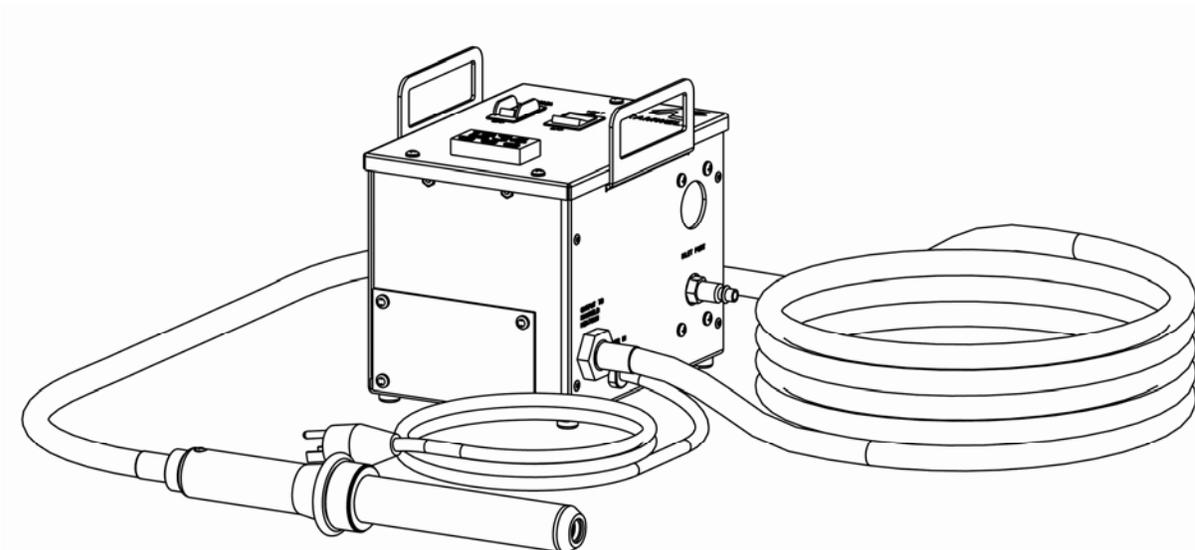




Kamweld Industries, Inc.

Est. 1958 P.O. box 610183 Newton, Ma 02461

**INSTRUCTION MANUAL FOR KAMWELD
FUSION SERIES WELDERS
(MODELS FW-5A, FW-5B, FW-5C & FW-5D)**





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WARRANTY

Kamweld Industries, Inc. (the “manufacturer” or “Kamweld”) warrants its products and repair services to be free from defects in materials and workmanship under limitations of normal operation by the purchaser, as prescribed in the instructions furnished to the purchaser, for a period of 90 days from the date of purchase. Except as set forth herein, Kamweld makes no warranty respecting the merchantability of its products or their suitability or fitness for a particular purpose or use.

Kamweld shall not be held liable for any damage to person or property resulting from any breach of this warranty, nor be responsible for any work done or repairs made by others, unless authorized in writing by the manufacturer. In no event shall Kamweld be held liable for incidental, special, or consequential damages. This warranty is limited to the replacement of the product for the period set forth above.

This warrant shall become void if the purchaser modifies the product, uses the product in a manner that in the manufacturer’s judgment exceeds its design capability, or if evidence of negligent or abusive operation is present.



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SPECIFICATIONS

	Welder Model Number			
	FW-5A	FW-5B	FW-5C	FW-5D
Category	Fusion Welder	Fusion Welder	Fusion Welder	Fusion Welder
Description	Plastic Welder with Digital Display Process Controller; Runs on Shop Air or Inert Gas	Plastic Welder with Dial Process Controller; Runs on Shop Air or Inert Gas	Plastic Welder with Digital Display Process Controller and Internal Air Compressor; Self-contained Model	Plastic Welder with Dial Process Controller and Internal Air Compressor; Self-contained Model
Length	7.75"	7.75"	7.75"	7.75"
Width	5.75"	5.75"	5.75"	5.75"
Height	6.25"	6.25"	6.25"	6.25"
Hose Length	16"	16"	16"	16"
Handle and Barrel Length	11.5"	11.5"	11.5"	11.5"
Weight	8.67 lbs	8.70 lbs	10.10 lbs	10.13 lbs
Material	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Compressor (Y/N)	No	No	Yes	Yes
Max. Temperature	950°F	950°F	950°F	950°F
Airflow (Min. operating pressure)	2 - 6 psi	2 - 6 psi	2 - 6 psi i	2 - 6 psi
Element	Inline Air Heater	Inline Air Heater	Inline Air Heater	Inline Air Heater



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OPERATION

1) Inspect the equipment and verify that all components are complete and that there is no damage to the unit.

2) Select the appropriate welding tip and screw it into the threaded end of the heat gun barrel, using caution not to damage the thermocouple located at the end of the heat gun heater element. If the thermocouple in the heater element (visible through the end of the heat gun when the FUSION welder is turned off and the air supply disconnected) is damaged or dislodged, the air temperature of the FUSION welder will be adversely affected. **Do not**, under any circumstances, **look into the end of the heat gun with naked eye** if the FUSION welder is in operation, or if air is flowing through the FUSION welder.

3) For Model's **FW-5A** and **FW-5B**, connect a compressed air source to the air supply inlet on the control box.

Verify that air (unheated) is flowing through the system and exiting the heat gun at the welding tip. These welders are equipped with an air pressure switch in the control box so if there is no compressed air source attached to the Control Box, or if an inadequate air supply source is connected to the control box, the heater element is disabled even if the "HEAT" switch is in the "ON" position. Model's **FW-5C** and **FW-5D** have integral air compressors inside the control box and do not need an external air supply.

4) For Model's **FW-5B** and **FW-5D**, it is recommended practice to turn the heat gun temperature control knob fully counter clockwise to the "LOW" position (lowest heat setting). For Model's **FW-5A** and **FW-5C**, the digital process controller will go through a "self test" sequence during which time all LED lights and digital display elements will light up. Once complete it will display the air temperature reading at the threaded end of the heat gun barrel. This is the normal operating mode and its selection may be verified by pushing the leftmost button on the digital process controller once and releasing it, The display will show "PROC" for a couple of seconds and return to the air temperature reading. **If the red LED is flashing, an alarm mode is being indicated and the welder should not be used.**

5) Verify the heat gun location and that it is pointed in a safe direction and that there are no kinks in the air hose between the control box and the heat gun.

6) Plug the power cord into an AC power source.

7). Turn on the FUSION welder by switching on the rocker switch labeled "MAIN POWER" (note this switch is also a circuit breaker to provide over current protection). Moving the "MAIN POWER" switch to the "ON" position energizes the FUSION welder control box and the temperature process controller (which controls the air temperature from the heat gun barrel. The heat gun heater element is not powered at this time.

For Model's **FW-5C** and **FW-5D**, switching on the "MAIN POWER" will also start the internal air compressor. Verify that air (unheated) is flowing through the system and exiting the heat gun at the welding tip.

8) Switch the "HEAT" switch to the "ON" position. This action energizes the heat gun heater element. Air exiting the heat gun should feel warm (or hot depending upon the heat gun temperature setting).



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9) For Model's **FW-5B** and **FW-5D**, turn the heat gun temperature control knob clockwise to increase the air temperature. Each division on the rotary dial increases the air temperature by approximately 90 degrees Fahrenheit (**note:** The air temperature increase from "LOW" to position "1" is greater than the increase in air temperature from position "9" to "HIGH". The air temperature at "LOW" is approximately 200 degrees Fahrenheit and at "HIGH" is approximately 950 degrees Fahrenheit. The FUSION welder heat gun tip which is selected for plastics fabrication will affect these temperatures. It will take approximately 3 minutes for the FUSION welder to stabilize at the new temperature setting.

10) Model's **FW-5A** and **FW-5C** set the desired air temperature using the digital process controller. Press and release the leftmost button on the digital process controller twice. The display will momentarily show "SP", indicating it is in the set point mode and then display a number, which is the set point currently programmed into the device. If this is the desired welding temperature, return the digital process controller to normal operating mode by pressing and releasing the leftmost button on the digital process controller twice.

Note that the displayed temperature is the air temperature at the threaded end of the heat gun barrel. The controller set point temperature may need to be set higher or lower (at the controller) to get the desired air temperature at the weld "puddle" ----- which varies due to environmental conditions (winter/summer/wind velocity, etc.), the specific welding tip being used and what type of plastic (PVC, Polypropylene, High Density Polyethylene, etc.) is being welded.

To set the FUSION welder air temperature to a new value, press and release the leftmost button on the digital process controller twice to put the digital process controller into the set point mode. Set the desired temperature using the "down key" (the middle button on the digital process controller) and the "up key" (the rightmost button on the digital process controller). When the desired temperature setting is displayed, return the digital process controller to normal operating mode by pressing and releasing the leftmost button on the digital process controller twice. It will take approximately 3 minutes for the FUSION welder to stabilize at the new temperature setting.

The "HEAT" switch may be on or off during this procedure.

Note that the digital process controller's indicated air temperature will fluctuate slightly as the controller varies the heater on/off interval (based on feedback to the digital process controller temperature sensing circuit). The midpoint between the high and low points of the fluctuation approximates the programmed set point temperature.

11) The FUSION welder is now ready for welding. Adjust the temperature as needed by repeating steps "10)" and "11)". If the FUSION welder heat gun tip needs to be replaced, let the heat gun cool, per step "14)", before changing the tip.

The heat gun barrel will get very hot during operation. Do not let it contact heat sensitive material.

12) When done welding, place the heat gun in a safe position away from heat sensitive materials. When using Model's **FW-5B** and **FW-5D**, it is recommended to turn the heat gun temperature control knob fully counterclockwise to "LOW".

13) Turn the "HEAT" switch to the "OFF" position. Leave the air flowing through the FUSION welder for a minimum of 3 minutes while the equipment cools (this action is taken to avoid unnecessary thermal shocking of the heat gun heater element if the air supply is turned off suddenly).



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- 14) After the cool down interval, turn off the control box at the "MAIN POWER" switch.
- 15) If at a work bench station, unplug the FUSION welder from the AC outlet.
- 16) If in a field environment, unplug and pack the FUSION welder in its storage toolbox (purchased separately) or storage position (after verifying that the heat gun is cooled off and will pose no hazard due to hot surfaces contacting temperature sensitive materials).

