Extreme Seam MACHINES

iMPULSE Extreme

Operator Manual

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1.0: Machine Overview

1.1: Intended Use

The Impulse Extreme is a Thermal Impulse machine intended to heat-seal weldable thermal plastics such as:

- Vinyl (PVC) laminated and coated fabrics
- Vinyl (PVC) and Polyurethane (PU) films
- Polyurethane (PU) and Polypropylene (PP) coated fabric
- Polyethylene (PE)
- Thermoplastic rubber (TPR) film and fabrics
- Non-woven Polyester and Polypropylene
- Various Fusing Tapes
- Weldable Webbing
- Rigid Extruded Products

The manufacturer does not approve of:

- Any other uses for these machines.
- The removal of any safety guards while in operation.
- Unauthorized modification of the machines.
- Using replacement parts that are not manufacturer-approved.

Only a properly-trained technician may operate and/or perform any routine maintenance or repairs to the machines.

NOTE: The manufacturer will not be held liable for any damage or injuries occurring from any inappropriate use of this machine.

1.2: Explanation of Warnings

There are several different warning symbols placed on the Miller Weldmaster Impulse Extreme. These symbols are to alert the operator of potentially hazardous areas on the machine. Familiarize yourself with the their placement.

(fig.01) Caution: Laser Radiation

Caution: Laser Radiation. Do not stare into beam or view directly with optical instruments. (fig.01)

The "Caution: Laser Radiation" symbol is placed just below all the lasers on the Impulse Extreme. Do not look directly into the laser source. They are for fabric alignment only. Use caution when calibrating the lasers.

1.2: Explanation of Warnings (continued)

(fig.02) Caution: Hot

Caution: Hot. (fig.02)
The "Caution: Hot" symbol is placed on a guard near the heated areas

(fig.03) Danger: Pinch Points

Danger: Pinch Points. (fig.03)
The "Danger: Pinch Points" symbol is placed near any potential pinch points. Do not place any body parts near these sections of the machine while the machine is running.

(fig.04) Caution: Unplug Machine

Caution: Unplug Machine. (fig.04)
The "Caution: Unplug Machine" sticker is placed near the opening of the cabinet and all access panels. To prevent electrocution, the machine should always have the power disconnected before the cabinet door is open.

1.2: Explanation of Warnings (continued)

(fig.05) Caution: Electricity

Caution: Electricity. (fig.05)
The "Caution: Electricity" sticker is placed near any electrical components

1.3: Electrical and Air Requirements

Warning! Only a qualified electrician may connect the electrical power.

1.3.1: Electrical Supply

Due to the number of different style outlets available, the cord will not include a plug. It is recommended that your electrician install a plug that is comparable to your style power outlet. You may choose to have your power cord hard-wired into your Power Supply. It is recommended that your electrician use a Junction Box with an ON/OFF switch. The Miller Weldmaster Impulse Extreme has the following electrical requirements:

- **40 Amperes - Single phase - 230 Volts**

1.3: Electrical and Air Requirements (continued)

1.3.2 Shop Air Supply

The Miller Weldmaster Impulse Extreme includes an In-Shop Air Supply Valve that allows quick connects and disconnects to your shop air supply. Due to the number of different style airline connectors, a male quick-connect is not included. You will want to select a male quick-connect with a ¼ inch NPT (National Pipe Thread) to match your female quick-connect. The Miller Weldmaster Impulse Extreme requires the following shop air requirements:

- **Minimum of 5cfm at 120 psi**
- **140 liters/min at 8.2 Bar**

1.4: Principles of Heat Sealing

- **Heat:** The heat required for the welding operation is created electrically by two heating elements located on each sealing bar.
- **Time:** The amount of time the heat and pressure is applied to the fabric or film. This time allows the heat to penetrate into the fabric or film and then cool
- **Pressure:** The pressure is applied to the fabric or film through the sealing bars. The sealing bars apply the pressure through pneumatic air cylinders connected to the upper sealing bar.

Summary

The correct combination of heat, pressure, and time will allow you to achieve a properly welded seam

1.5: Controls: Purposes and Functions

(fig.01) Digital Touch Pad

1.5.1: Digital Touch Pad

1. **I/O:** turns on the digital touch pad and allows the machine to operate.

2. **SET:** sets the selected heating/cooling time as adjusted by the operator. See operator instructions below.

3. **UP ARROW:** increases the heating/cooling time as adjusted by the operator

4. **DOWN ARROW:** decrease the heating/cooling time as adjusted by the operator

5. **P**: calls up the pre-set recipes. Each time pressed it will advance to the next recipe. To exit press the SET button.


(fig.02) Heat Switch

1.5: Controls: Purposes and Functions (cont.)

1.5.2: Heat Switch

1. High: selects the high temperature setting.
2. Low: selects the low temperature setting.

1.5.3: Operation Instruction

1. Once the power disconnect switch is in the on position turn the digital touch pad on by pressing the I/O button

2. By depressing the set button the indicator light above the up arrow will light. This indicates the heating time of the weld cycle. Use the up/down arrow to adjust to desired heating time. Depressing the set button a second time will light the indicator light above the P button. This indicates the heating time of the cooling cycle. Use the up/down arrow to adjust to desired cooling time. Depressing the set button a third time will enter the adjustment and set the machine to run mode.

1.5.4: Recipes

The machine has 9 recipes. Pressing the P button will select the next preset recipe.

1.5.5: Alarm

When an alarm is active the digital touch pad display will flash a code. See below descriptions of the code. To clear an alarm, the cause of the alarm must be resolved, power must be turned off at the power disconnect switch for 5 seconds, then switch on again.

E1 = Low air pressure alarm, check the air supply to the machine. Air pressure may be too low.

E2 = Safety light alarm, an obstruction in the sealing area is present. Check for obstruction on the front side of the machine in the path of the safety light.

E3 = Low water limit alarm, check the water level in the tank. Water may need to be added.

E4 = Lower sealing bar limit alarm, an obstruction is under the sealing bars not allowing the sealing bars to close.

E5 = Water flow alarm, water is not flowing through the cooling lines, check for a bent water hose or for an obstruction in the water lines.

E6 = Upper sealing bar limit alarm, an obstruction is in the path of the sealing bars not allowing the sealing bars to open.

LASER
LA LUZ DEBE ESTAR EN COLOR VERDE

2.0: Safety Precautions

NOTE: For the safe and correct use of the machine, it is necessary to read through these precautions carefully before use.

1. All the users who operate this machine should have this user's manual in hand, and should keep it in an accessible location after reading for future reference.
2. The warning instructions provided in this manual and on the machine are meant to prevent personal injury. Equipment damages will be caused if relevant requirements are not observed and corresponding measures are not taken.
3. The persons operating this machine are required to be familiar with the steps and requirements for installation, adjustment and operation of this machine. They must also be familiar with the corresponding measures to be taken for any emergencies that could possibly happen by meeting the following conditions:
    - Having received training.
    - Able to switch the machine ON/OFF.
    - Able to safely connect the machine to the power supply which is appropriate for local electrical regulation and code.
    - Able to conduct the proper maintenance, operation and protection of the machine.
4. There is dangerous voltage on this machine. During operation after power up, do not open the electric cabinet door and the electrical control box to avoid possible electric shocks. This machine is provided with grounding and its input power must be connected to permanent-fixed power lines.
5. All the adjustment devices of the machine are adjusted to their working state before delivery. Any non-professional persons are not allowed to change the adjustment. If any adjustments are necessary; such adjustments should be made by authorized persons.
6. Children and other persons except operators should be prevented from touching or accessing the machine. Before installation and use of the machine, please read these safety rules, warnings and warning labels fixed on the machine.
7. Ensure that warning labels are located at appropriate positions, and replace any damaged or lost labels.

Tips: Putting the machine into service safely and successfully

- Get familiar with all the safety instructions; as well as installation, operation and maintenance instructions provided in this manual.
- Understand the correct handling, loading/unloading and maintenance procedures for the machine.

2.1: Safety Precautions Before Use

Safety Precautions before use:

1. Before starting up the machine, please check it carefully and guarantee that there are no foreign matters under the sealing area. If any unusual conditions are found during operation, immediately press the Emergency Stop Switch and then check for abnormal conditions.
2. When the Sealing Cylinder rises, the fabric is not completely cooled. Hence, it should be raised slowly from one side to the other side. Never pull it down suddenly. This will cause damage to the sealing and affect the sealing quality.
3. If the machine is not in use, please turn off the air supply and power supply to avoid any dangers.
4. Avoid heating without fabric placed in position.
5. Do not use high temperature without prior testing in order to prevent damages caused to the Teflon cloth. If plastics are melted and adhered to the cloth due to incorrect operation, do not remove it by using a hard tool. Please remove it by using a soft cloth or other soft tools. Otherwise, the Teflon cloth will be damaged and there will be direct adverse effects on the sealing quality.

3.0: General Description

The Impulse Extreme sealing machines are pneumatic instantaneously-heating double-sided sealing machines that are applicable to the heat sealing of fabrics and films in a variety of industries. They are horizontal sealing machines with a cylinder acting as the closing force source. This provides consistent sealing pressure, improved sealing quality and improved working efficiency. It has one upper heating wire and one lower heating wire for the heating of the sealing area that provides high power, short heating time for sealing. The Impulse Extreme machine offers unique capabilities which produce quality products that traditional heat sealing machines do not.

The accurate heating and cooling time control of this machine provide for reliable heat sealing of products. The Impulse Extreme machine can seal a wide variety of fabrics and films of many different thicknesses.

This machine has a sealing area that is 118in. (3000mm) long. Its sealing width (namely the width of the electric heating wire) ranges include 15mm, 20mm, and 25mm.

4.0: Type, Dimensions and Functions of the Machine

4.1: Type Designation

Impulse Extreme Sealing Machine

4.2: Technical Specification

Impulse Extreme Sealing Machine

- Type: Impulse Extreme sealing machine
- Rated Voltage: 220v, 50/60hz
- Rated Power: 8000 W
- General Air Pressure: 120psi (8.3bar)
- Max. sealing length: 118in (3000mm)
- External Dimensions: 140in X 48in X 70in (3500mm X 1200mm X 1800mm)
- Electrical Document Number: IE-0109-1200 (The documentation number is the serial number of the machine. This number is located on the serial tag on the machine.)

5.0: Installation, Storage and Transportation

5.1: Installation

1. After unloading and unpacking the machine, inspect the entire machine to insure all parts and components are in good condition.
2. The machine should be installed in an area with suitable space to perform sealing operations. The area should be clean and in a well lit area allowing safe operation of the system.

5.2: Storage

The manufacturer recommends that any time the machine is not in use, it must be protected from excess dust and moisture. The operator should familiarize themselves with the warning symbols on the machines to be alert to the potentially hazardous areas on the machine.

5.3: Transportation

Transporting Within a Production Facility

Due to the weight of the Miller Weldmaster machines, the manufacturer requires a forklift or tow motor to be used. The forks are to be inserted below the bottom frame along the center of gravity. Lift slowly to insure proper placement of forks.

Transporting Outside Production Facility

Secure the machine to the pallet and protect the various controls and features by crating the machine. The manufacturer requires the Miller Weldmaster machines to be secured to a pallet and loaded onto a truck using a forklift or tow motor. The forks are to be inserted below the bottom frame along the center of gravity.

6.0: Maintenance

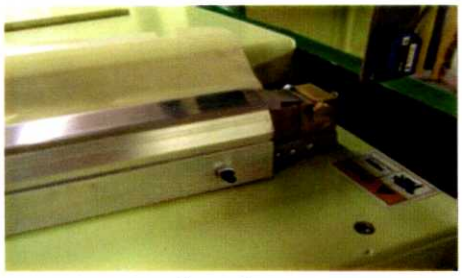
1. Before using the machine the Teflon tape of the seaming area must be inspected. The sealing surface of the Teflon must be free of debris. The Teflon should not be cut, warn through, or have holes which may expose the heating element.
2. If debris is present on any sealing surface of the Teflon it must be cleaned before using the machine. To remove debris from the Teflon a clean dry towel should be used with light pressure. A hard scraping devise must never be used. If the debris can not be removed the Teflon should then be replaced.

7.0: Replacement of Heating Element and Teflon Tape

7.1: Replacement of Electric Heating Element

1. Remove the front Teflon holding plates on the front side of each sealing bar and fold back the Teflon allowing access to the heating element.
2. Remove the old heating element from each end of the sealing bars by loosening the mounting bolts and removing the element.
3. Measure the length of the new heating element from the length of the old heating element and cut to size.
4. With the old heating element removed, insert the new heating element through the split bolt and reinstall into the mounting block on each end of the sealing bar.
5. Retighten the split bolt on the left end then hand tighten the bolt on the right end by turning the split bolt, tension the heating element so that the element lays flat and is under tension then tighten the split bolt.
6. After the upper heating element is in place and tightened, the lower heating element should be installed insuring both the upper and lower heating elements are aligned side to side.
7. Once the heating element is replaced ensure the silicone strip between the heat element and sealing bar is flat from end to end of the sealing bars.

(fig.03)



(fig.04)

(fig.05)

(fig.06)

7.2: Replacement of Teflon Tape

1. Remove the front Teflon holding plates on the front side of each sealing bar and fold back the Teflon allowing access to the heating element.
2. Unwind 1 to 2 inches of Teflon from the rear mount spool. If there is not enough Teflon remaining on the rear spool replace the entire spool of Teflon.
3. Re-install the Teflon holding plate on the front side of the sealing bars. Be sure the Teflon is flat and tight across the sealing bar surface.

(fig.07)

(fig.08)

8.0: Operation

1. The power supplying the machine must comply with local electrical codes.
2. Connect the air supply to the regulator/filter water separator. The regulator should be adjusted to 100 to 120 psi (6.9 to 8.3 bar)
3. A water tank is located at the rear of the machine. The water tank is used to hold the water circulated through the sealing bars for cooling. Water must be added to the tank. Fill the tank until the water level float is covered with approximately 25mm of water. When the water level is too low an E3 alarm will appear on the digital touch pad.
4. The foot pedal cord must be plugged into the foot pedal socket located near the power on/off switch on the back side of the machine.
5. Connect 220 V single-phase power supply, turn ON the Power Switch and check if the Power Indicator Lamp is lit up (see Power Supply Circuit Diagram).
6. The power selector switch should be set to High or Low, depending on the thickness of the fabric/film being seamed. Select High for thicker fabrics and films and Low for thinner.
7. Using the digital touch pad, the heating and cooling time should be adjusted for the fabric or film being seamed. See the digital touch pad instructions for operation procedure. The heating time is generally set between 5 and 20 seconds. The cooling time is generally set between 10 and 40 seconds.
8. Insert test fabric or film into the sealing area. Once the test fabric or film is in place depress the foot pedal once. This will lower the upper sealing bar to its first stage. Stage one will lower the sealing bar to just touching the lower bar. This allows the operator to make sure the fabric or film is positioned properly. Once the fabric or film is located, depress the foot pedal a second time. This initiates the welding cycle, heating time and cooling time according to the set points of the digital touch pad.

9. Once the sealing cycle is complete the test fabric or film should be removed from the sealing area. Before peeling the seam area wait until the fabric or film has cooled (some fabrics require an extended cooling time to allow the bond to cure). Once the fabric or film is cool, peel the seam area to test the bond.
10. If the bond is weak the heating time should be increased.
11. If the seam area appears over heated decrease the heating time. If the seam area appears to have shrunk, increase the cooling time.

(fig.09)

9.0: Safety Warnings for Operation

- Unauthorized personnel must not operate the machine. Only properly trained persons should operate the Impulse Extreme.
- All safety warnings and safety devises must be in place before the machine is to be operated.