

Operational Safety



1. **Always wear eye protection and heat resistant gloves.** Other personal protective equipment, such as a dust mask, chemical resistant gloves and protective clothing should be worn as necessary.



2. **Before each use,** inspect the Midi Steamer carefully for any potential damage.



3. Only use the Midi Steamer with the official accessories and spare parts offered by Picote Solutions. Accessories and spare parts should only be used in the manner intended and as described by Picote Solutions.



4. Some parts of the Midi Steamer can get very hot when steam curing.

Avoid touching these areas!

5. Never leave the Midi Steamer operating unattended.

Before Operation:

1. **Always** use clean, cold water. Dirty water can result in blockages and extensive scaling of boiler & valves.
2. **Always** make all necessary connections before turning on the Midi Steamer!
3. **Unplug** the Midi Steamer when filling or emptying the boiler.
4. **Always** wait for pressure to drop inside the boiler before opening the Safety Fill Cap or Dump Valve!
5. If steam starts to come out of bottom left hand side port, turn off Steamer and check the following:
 - Ensure there aren't any blockages between Midi Steamer steam output and steam port on the tool head assembly or the liner steam plug end exhaust port. Steam needs to flow freely, otherwise backflow will occur.
 - Ensure sufficient air pressure is coming into the Steamer. Minimum pressure is 3 Bar (45 PSI).
 - Check that the Pressure Regulator is set correctly.
 - Check if the Steam Control Valve is closed.

Safety Fill Cap:

The Midi Steamer is equipped with a Safety Fill Cap which opens automatically if overpressure occurs inside the boiler. Always tighten the Safety Cap by hand, do not use tools.

Opening the Safety Fill Cap too quickly will cause steam to escape rapidly which can cause severe burns!

- **ALWAYS** wait for the boiler pressure to drop before opening the Safety Fill Cap.
- While designed to direct escaping steam away from hands, if you sense steam = stop opening immediately!
- If the Safety Fill Cap is damaged or leaks, it should always be replaced with a new cap before using the unit. Never make any modifications, changes, or repairs to the Safety Fill Cap!
- **NOTE: Water will be hot for a long time even after the pressure drops!**

Setting Air Pressure:

Adjust the air pressure (Output Pressure Gauge) using the Pressure Regulator Knob to the necessary repair specifications.

If the air pressure is too low steam could enter the Pressure Regulator and damage it. If it is too high it could damage the repair equipment or repair.

- To **increase** pressure, turn the Pressure Regulator Knob **clockwise**.
- To **decrease** pressure, turn the Pressure Regulator Knob **counterclockwise**.



Setting Temperature:

- Temperature is measured at Steamer's outlet, not at the repair area.
- To adjust the temperature, press the SET button 
- Press  to start changing the temperature value.
- Use  and  buttons to select desired temperature.



Setting Timer:

1. To set the time, press **PROG** button once. The hour digits will begin flashing.
2. Pressing **PROG** button repeatedly to cycle through hours, minutes & seconds.
3. Use + and — to adjust the time.
4. Press the **PROG** button to exit setup
5. Press **START/STOP** button to start/stop the Timer.
 - Pressing **RESET** will set the time back to the initial curing time.
 - Pressing all three buttons at the same time will set Timer to zero.
 - Press and hold all three buttons for four seconds to perform a total reset.
 - On loss of power, countdown will stop and steam valve will close. Time remaining will be stored. When power is resumed, remaining time will be shown and timer will need to be restarted.
 - **NOTE:** If the **START/STOP** button is pressed when the time is zero will manually open the valve. A bell symbol will display and the steam valve will open. Pressing the **START/STOP** button again will close the valve.



Adjusting Steam Flow:

WARNING! The steam control valve may get hot during use!

Excess steam is directed under the Midi Steamer's left-hand side.

1. Use Steam Control Valve to fine-tune steam flow.
2. Always go from fully closed to open position.
3. Steam valve should not be opened too much or it may cause steam backflow to air pressure regulator, limiting its performance.
4. Temperature should rise steadily to target temperature and shouldn't overshoot the temperature by more than 7°C or 12°F.
5. If all parameters are set correctly and there is sufficient flow, the temperature should fluctuate between $\pm 5^{\circ}\text{C}$ or $\pm 9^{\circ}\text{F}$.



Preheating:

1. Fill the boiler to the maximum level on the level indicator gauge. **Do Not Overfill!**
2. Connect the power cord(s)
3. Set desired power level by turning on the Steamer using the main power switch.
4. Check that the Steam Control Valve is **closed**.
5. Make sure the Timer is not running.
6. The steamer is ready once the Boiler Pressure Gauge reaches 3 Bar (44 PSI).
(Ignore temperature gauge reading for now, the temperature will not display correctly until steam output is active)

Steaming:

1. Connect air compressor hose to Steamer.
 - Minimum incoming air pressure is 3 Bar (45 PSI)
 - Maximum pressure is 10 Bar (145 PSI).
2. Adjust air pressure (Output Pressure Gauge) using Pressure Regulator Knob
3. Pressure should be set based on the correct setting for the collar, patch or liner being installed and cured.
 - **If air pressure is too low steam could enter air regulator and damage it.**
 - **If too high it could damage the repair.**
4. Ensure the Steam Control Knob is closed.
5. Connect one end of steam hose to Midi Steamer and the other end to the valve connection for the Connection Collar, Point Repair, or Liner.
6. **Start the Timer** and the steam valve will open.
7. Slowly turn the Steam Control Valve knob 4 turns counterclockwise to allow the steam to flow.
7. If Output Pressure falls below 1.5 Bar (21.75 PSI) pause Timer and re-heat Steamer.
8. Adjust steam flow via Steam Control Knob if output pressure is fluctuating/unstable.
 - To **increase** flow, turn knob **counterclockwise**.
 - To **decrease** flow, turn knob **clockwise**.
9. After curing has finished, wait for the Connection Collar, Patch, or Liner to cool down before disconnecting the air supply.



Cooling Fan:

The Midi Steamer is equipped with an automatic cooling fan which should not be covered. The cooling fan will turn on when internal component temperatures reach 40°C (104°F) and will turn off when the temperatures cool down to 25°C (77°F).

Dump Valve:

Dump Valve control is located on the bottom right side of the Steamer, beneath the Dump Valve Cover. The water will drain from underneath the Steamer

ALWAYS wait for the pressure to drop inside boiler before opening the Dump Valve.

Water will be hot for a long time even after the pressure drops!

1. Move the Dump Valve cover to the side.
2. Turn the valve counterclockwise using a 10mm ($\frac{3}{8}$ ") socket to open.
3. The water will drain underneath the unit.
4. To speed up the emptying process, open the Safety Fill Cap.
5. Close the Dump Valve by turning clockwise.



Maintenance:



**This section contains important safety information.
Failure to comply could result in serious injury or death.**



Danger
Electric shock risk



RISK OF ELECTROCUTION OR SEVERE BURNS!

Do not open the panelling and attempt to fix the electronics or pressurised parts. Any repairs or adjustments to the electronics, system components or the pressurized vessel must be done by authorised personnel only!

Descaling Boiler:

The boiler should be descaled with diluted citric acid every 2 months. If the local water source has hard water, or the Midi Steamer is used extensively, perform descaling monthly. A crackling sound at Steamer startup is a good indicator that scaling has begun.

Rinsing and Descaling:

1. Before adding the citric acid solution, rinse the boiler with clean water.
2. Add 4L (1 gal) of clean water and shake the Steamer gently.
3. Open Dump Valve and drain the water.
4. Close the Dump Valve.
5. Prepare 8L (2.1 gal) citric acid solution:
 - Add 8L (2.1 gal) of water into a bucket.
 - Add approximately 0.5kg (1.1lbs) of citric acid powder in to the water.
 - Once the citric acid has dissolved, pour the solution into the boiler.
 - Be careful not to overfill!
6. Let the citric acid mixture sit in the boiler for 15 minutes.
7. Heat up the boiler and allow steam to release for 5 minutes.
8. Let the boiler cool down.
9. Once the pressure has dropped, open the Dump Valve to drain.
10. Close the Dump Valve.
11. Rinse the boiler once again with 4L (1 gal) of clean water.
12. Open the Dump Valve and drain the water, then close the Dump Valve.

Cleaning Air Filter:

Check the Cooling Fan Air Filter once a month. The filter should be cleaned when it gets clogged. Clean it by removing the protective grill by hand. After this, the filter can then be washed and dried, or vacuumed.

Do not vacuum the filter while it is still on the Midi Steamer or you could damage the fan!