



RhinoBond[®]

INDUCTION FASTENING SYSTEM

WITH **OptiWeld[®]**

**Non-penetrating fastening system
for commercial roofing**



**Now with advanced OptiWeld Technology for
optimum plate bonding and performance!**

OWNER'S MANUAL



153 BOWLES ROAD, AGAWAM, MA 01001 USA
800-633-3800 413-789-0252 RHINOBOND.COM

IMPORTANT!
Save this manual
and read it in full
before use.

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INTRODUCING THE RHINO BOND® SYSTEM

Congratulations! The RhinoBond System is one of the industry's most advanced fastening systems for installing thermoplastic membrane roofing and, in Europe only, "approved" clean EPDM membrane*. RhinoBond is a portable, easy-to-use, system that secures membrane to roofing substrates using microprocessor-controlled induction welding.

Roofing installed this way has **several benefits:**

- **Fewer Fasteners** -- RhinoBond requires 25-50% fewer fasteners vs. mechanical attachment to meet FM 1-90 and Eurocode National wind uplift requirements.
- **Zero Penetrations** – The fasteners and plates used are all installed under the membrane, so with RhinoBond there are no membrane penetrations or potential points of entry for moisture.
- **Less Seaming** – RhinoBond does not require any half-sheets, just full width membrane everywhere. This can eliminate up to 30% of the seams when compared to a traditional mechanically attached system.
- **Superior Wind Performance** – The RhinoBond System has higher wind uplift resistance with fewer fasteners and fewer seams when compared to mechanically attached roofs.

The RhinoBond system uses powerful induction technology to create a strong bond between the roofing membrane and fastening plates. The technology that makes this possible, SINCH® Technology, is a compact microprocessor-controlled electromagnetic induction bonding process. Today, this rugged technology is being used to revolutionize industrial and consumer applications.

While RhinoBond is a safe, tested tool, we caution you to be sure that every member of your crew has a thorough understanding of the RhinoBond System before attempting to use it. Read, understand and follow all instructions.

Congratulations on your new purchase. We look forward to your feedback. Please send us your comments and suggestions at any time.

RhinoBond Team

OMG Roofing Products | info@omginc.com
800-633-3800 | 413-789-0252 | www.rhinobond.com

*Clean EPDM Membrane -- currently there are a limited number of clean EPDM options available only in Europe and approved for use with RhinoBond. Always verify membrane suitability and approvals with membrane supplier. RhinoBond is not suitable for use with other EPDM membrane.

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RhinoBond® and SINCH Technology® are registered trademarks, OptiWeld™ is a trademark of OMG, Inc., a leading provider of innovative fastening solutions and products for the construction industry.

PATENT NOTICE: U.S. Patent Nos. 6,710,314; 6,849,837; 7,399,949; 8,492,683; 8,933,379. Canadian Patent Nos. 2,458,353; 2,602,753. U.S. Patent Pending.

Contact OMG Roofing Products or your roofing membrane manufacturer for the most current list of approvals.



THE RHINO BOND SYSTEM WARRANTY

Guaranteed for 200,000 cycles of operation, or three years from date of purchase, whichever comes first. During this period OMG, Inc., at its option, will repair or replace any tool for the roofing contractor who originally purchased the tool. This will be done free of charge, provided the tool is determined defective in materials or workmanship upon examination by an Authorized RhinoBond System Service Technician.

This Warranty will be honored only if:

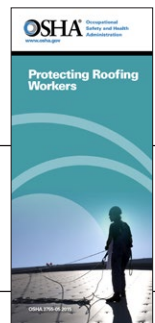
- A. No evidence of abuse, misuse or failure to follow safety or operating instructions, or improper modification of the tool, is present. (Read this Owner's Manual for safe use and proper operating instructions.)
- B. When replacement is necessary, the first end-user returns the tool with transportation prepaid, to the nearest Authorized RhinoBond System Service Technician with purchase receipt or other positive proof of purchase.
- C. Only genuine RhinoBond tool, fasteners, and plates are used in the application.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES. ALL OTHER WARRANTIES, WHETHER ORAL, WRITTEN, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE SHALL NOT APPLY. THESE OTHER EXPRESS OR IMPLIED WARRANTIES ARE SPECIFICALLY EXCLUDED. BUYER'S OR USER'S REMEDIES ARE SOLELY AND EXCLUSIVELY AS STATED HEREIN. OMG, INC. SHALL IN NO EVENT BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT OR SPECIAL DAMAGES RESULTING FROM FAILURE OF THIS WARRANTY. IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE) OR OTHERWISE, SHALL OMG, INC.'S LIABILITY TO THE BUYER OR USER OF THE TOOL OR ANY LOSS OR DAMAGE ARISING OUT OF THE BREACH OF WARRANTY, CONTRACT OR TORT, EXCEED THE PURCHASE PRICE HEREIN. ANY CLAIM OR LIABILITY SHALL IN ANY EVENT TERMINATE UPON THE EXPIRATION OF THE WARRANTY PERIOD SPECIFIED ABOVE.

For RhinoBond Tool Service: 800-633-3800

ROOFTOP SAFETY

In addition to the safety instructions in this manual, OMG Roofing Products recommends that all roof top workers follow the safety guidelines outlined in the OSHA booklet called "Protecting Roofing Workers" available at www.osha.gov/Publications/OSHA3755.pdf and or EU-OSHA "Directive 92/57/EEC - Temporary or mobile construction sites," as applicable.



SAFETY

Read and Understand all Instructions. Keep this manual for later reference.

INTENDED USE

The RhinoBond System is intended for installing thermoplastic (i.e. TPO and PVC) and "Clean EPDM" roofing membranes on commercial, industrial, institutional and appropriate residential roofs. Its sole purpose is to bond, by induction means, the bottom side of the roofing membrane to a washer or plate installed to hold insulation and other roofing components in place, and serve as an attachment point for the induction welding process. Only fasteners, washers and tubes provided by OMG Roofing Products are approved for use with the RhinoBond System.

The RhinoBond System produces heat that can seriously injure people and damage metal objects. Please be sure that you and all crew members read and understand the instructions in this manual before attempting to use the RhinoBond System. Failure to follow all instructions could result in **property damage, serious personal injury, electric shock or death.**

This appliance is not intended for use by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Keep this tool out of the reach of children.

THE RHINO BOND SYSTEM

Heat Sinks
(6 included with a carrying case)

RhinoBond with OptiWeld Tool
with carrying case



	READ & UNDERSTAND all operating instructions before using this tool.
	DO NOT USE THIS TOOL if you have (or anyone near you has) a pacemaker, surgical implant, prosthesis or other medical device. The RhinoBond tool may interfere with proper medical device operation.
	DO NOT activate tool over metal objects in/on the floor.
	DO NOT use the cord to carry the tool.
	UNPLUG THE CORD before attempting to inspect or clean the tool, or you risk electric shock.
	DO NOT activate tool over the power cord.
	KEEP CORD AWAY FROM heat, liquids, sharp edges and moving parts.
	STAY ALERT. Do not use this tool when tired or under the influence of drugs, alcohol or medication that can alter your awareness.
	DO NOT allow any object containing metal, such as keys, jewelry, watches etc., within 3 inches (75mm) of the bottom of the tool during use.
	IF CORD IS DAMAGED, immediately discontinue using the tool and contact OMG Roofing Products at 800.633.3800 for repair.
	DO NOT operate the RhinoBond tool during periods of rain or in wet conditions. Keep the tool dry at all times.
	ALWAYS ENSURE that the tool is properly grounded (CFCI Circuits are best) and that power is from a safe and reliable source.
	ALWAYS WEAR proper personal protective equipment when working on a roof.

FORSEEABLE MISUSE

- Attempting to operate the tool without reading and understanding the instructions.
- Operating the tool while in close proximity to someone with a pacemaker or other medical device.
- Operating the tool in the rain or in wet environments.
- Opening the tool or modifying the electrical or electronic components or circuitry.
- Activating the tool over metal objects not intended to be heated by induction (i.e. safety shoes, jewelry, keys, power cords, etc.)
- Operating the tool on vertical or high sloped (> 10%) surfaces.
- Operating the tool in conjunction with plates or components not authorized by OMG Roofing Products.
- Operating the tool from an unstable power source.

POWER REQUIREMENTS CHART

The RhinoBond Tool is designed to operate on both 110 and 220 Volt sources. See the power requirements chart below for your region.

REGION	USA / CANADA	UK / IRELAND	NETHERLANDS AND REST OF EUROPE	CHINA
POWER REQUIREMENTS	110-120V / 20A / 50-60 Hz	110-220V / 16 A / 50-60 Hz	220-230V / 10 A / 50-60 Hz	220V, 50Hz
EXTENSION CORD	12 gauge (min.), 100-ft. (max.)	110V, 2.5mm X 30m	16A (230V 3x15), 30m	10A, 30m
PORTABLE GENERATOR POWER SOURCE	5,000W min. with (2) 20A GFCI Circuits	2.5 KVA min. with 16Amp (110V) protected circuit	2.5 KVA min. with 10Amp (230V) protected circuit	Honda EU20i 1.6 KVA w/ 8 Amp (230V) protected circuit
# RhinoBond tools per GENERATOR *	2	1	1	1

Generators should be 5,000 watt (minimum) in good working order. "Auto throttle" and/or "auto idle" switches MUST be in OFF position.

RhinoBond tools are designed to run on 105–220V. Use a true RMS multimeter to verify voltage at both the generator, and at end of extension cord.

12 gauge (minimum), 100-foot (maximum) extension cord per RhinoBond Tool. Inspect power cords regularly for signs of damage; replace as necessary.

Safely operate a maximum of two RhinoBond tools per 5,000 watt generator, with each tool plugged into a **separate 20A, GFCI circuit**.

Dedicated power source: No other equipment should be plugged into RhinoBond generator during operation!




DO NOT plug the tools into a pigtail.



DO NOT plug RhinoBond tools into a 15A GFCI adaptor.

SAFE START UP & SHUT DOWN

Unstable generator power during start-up increases the risk of damage to RhinoBond Tools.

WARNING  Failure to follow these instructions may cause damage to your RhinoBond tool.

NEVER start generator with tool plugged in. **ALWAYS** start generator first, then plug in tool. **WHEN NOT IN USE**, unplug the tool.

Start portable generator and allow to warm up for 2 minutes. **Auto-Throttle, Auto-Idle and/or Eco-Idle switches must be in OFF position.**

Simply unplug the RhinoBond tool to shut down. When resuming work, confirm that generator is running at full speed and delivering stable power before plugging in the RhinoBond tool.

INSULATION COMPATIBILITY

RhinoBond is compatible with polyisocyanurate, mineral wool and hard cover boards as well as any insulation that will not melt by the induction welding process. When using RhinoBond over XPS, EPS, use a minimum 1/4-in. (6 mm) thick cover board or 4-in. (102 mm) diameter cardboard discs under each plate to protect the insulation from melting. On foil faced insulation, the recommended minimum cover board is 1/2-in. (38 mm).

Metal Deck

A minimum of 1/2-inches (38 mm) of insulation over a metal deck is required for proper tool operation.

PROPER FASTENER INSTALLATION

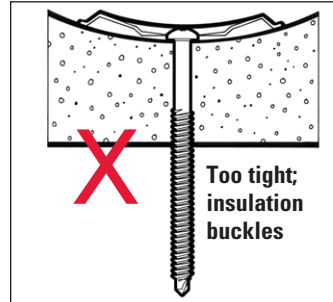
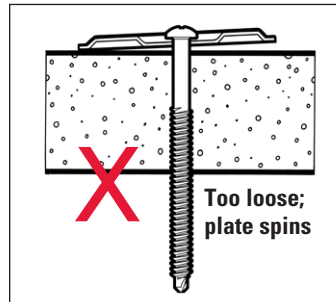
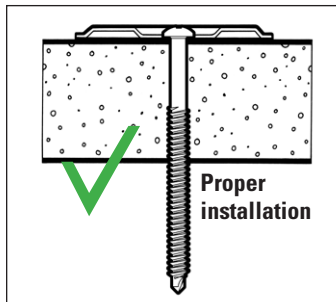
Always follow the roof system manufacturer's fastening patterns for field, perimeter, and corner areas needed to achieve desired wind ratings (i.e.: FM 1-90, FM 1-120, etc.).

Fasteners installed in a straight row in a least one direction with even spacing makes locating fasteners under the membrane easier and speeds installation.



Snap chalk lines to lay-out fastener grid pattern for field, perimeters, and corners.

Fasteners must not be overdriven. Plates should be tight enough that you cannot turn them with your hand. Overdriven fasteners are harder to find and may result in a poor or partial bond.



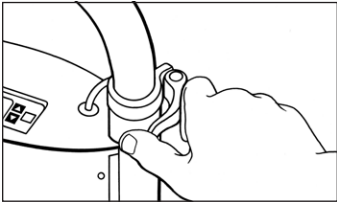
UV EXPOSURE

RhinoBond Plates must be protected from prolonged UV (ultra violet) sun exposure. Installed RhinoBond plates must be covered with membrane by the end of each workday. Keep RhinoBond buckets covered when not retrieving plates.

TOOL OPERATION

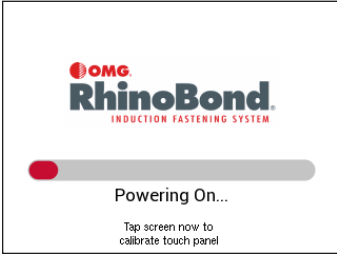
GET COMFORTABLE!

You are likely going to be using the RhinoBond Tool for several hours at a time. Make sure that the tool is set for your height and comfort level.



Adjust the handle height of the RhinoBond tool by loosening the clamps on both sides of the handle. Gently adjust the handle position up or down for maximum comfort. Lock the clamps into position and tighten. You're ready to go!

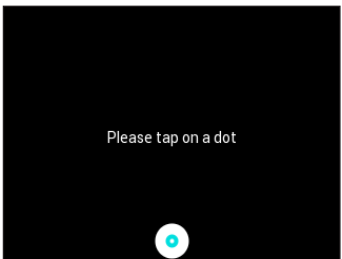
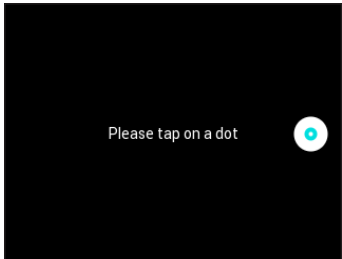
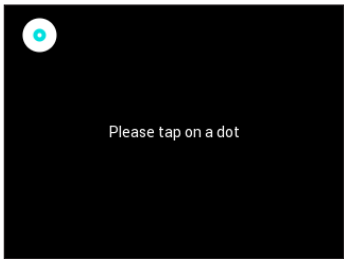
WARNING
Pulling too hard on the handle may damage activation button wires.



When first powering up the RhinoBond tool, the main screen will show a status bar indicating tool startup progress. If necessary, you can calibrate the touch screen at this time. To do so, touch this screen once to begin the calibration process (see below). Once startup is complete, the screen will display the "Language" selection screen.

TOUCH SCREEN CALIBRATION

Follow the on-screen instructions. Tap the dot when prompted. Three points of calibration are required to complete the process.



When complete, the tool will return to the "Start-Up" screen and when start-up is complete, display the "Language" selection screen.

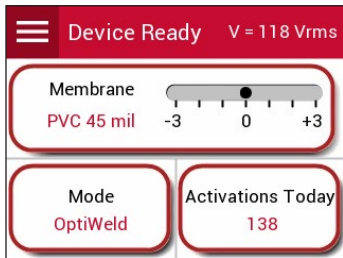
SELECT LANGUAGE



Press the appropriate language button to select the desired language. Once selected, the tool will display the "Ready Screen" in the chosen language.

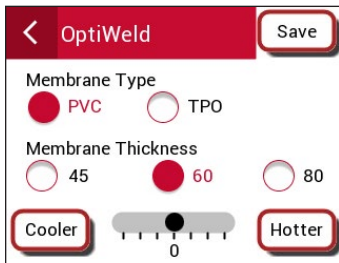
AUTOMATIC CALIBRATION

The new RhinoBond Tool features “OptiWeld” automatic calibration for optimum welding.



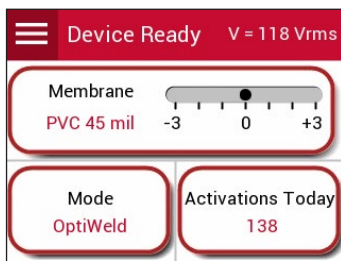
When set in OptiWeld mode, the “Mode” button displays OptiWeld. Membrane type and thickness and fine adjust settings are also displayed. Pressing the “Mode” button allows users to toggle between “OptiWeld” and “Manual” operating mode.

Pressing the “Membrane” button allows users to adjust the “OptiWeld” settings.



From the “Device Ready” screen, press the “Membrane” button and select the type (TPO or PVC) and thickness (45, 60, 80 mil) of the membrane you are installing.

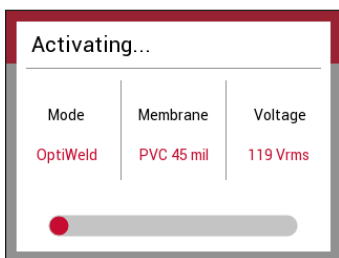
Press “Save” to return to the “Device Ready” screen.



Activations Log: The “Activation Today” button displays the number of weld cycles performed on that calendar day. Pressing this button will open the tool log, where a history of weld cycles can be reviewed.

Power Display: The Power Display shows the line voltage the tool is receiving from the power source. The tool requires a minimum of 100 volts to operate effectively.

Menu: Pressing this button will open the menu screen.

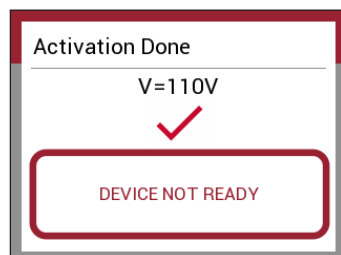


Once the tool settings are complete and accurate for the membrane type and thickness being installed, the tool is ready to weld.

To activate the tool, place the tool over the plate by aligning the target area on the base of the tool directly over the plate to be welded. The tool should be centered over the RhinoBond plate for an optimum weld.

When the tool is aligned over the plate, press the activation button, also called the trigger, located on the handle of the tool.

The display will indicate the tool is in activation mode and show a progress bar.

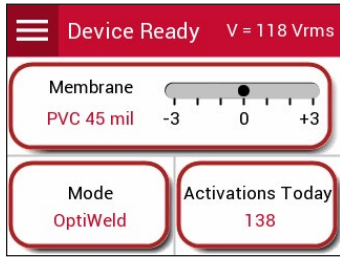


When the weld is complete, the RhinoBond tool will emit a beep, provided that the sound is turned on (see Page 11), and display the “Activation Done” screen.

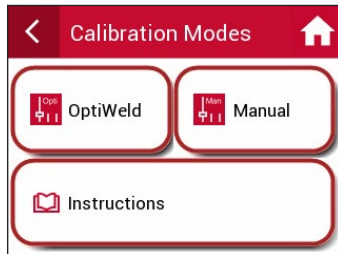
The screen will automatically return to the “Device Ready” screen for the next weld.

MANUAL CALIBRATION

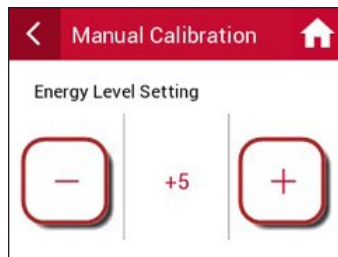
We recommend using the tool in OptiWeld mode, but recognize that you will want to adjust the weld settings from time to time, so we've made it easy to do that. Here's how:



From the "Device Ready" screen, press the "Mode" button, and select the "Manual" option.



Select the "Manual" option.

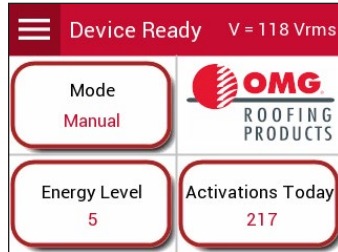


The "Energy Level" button displays the current energy setting that will be delivered to the RhinoBond plate.

To adjust the "Energy Level" setting, push the plus (+) or minus (-) buttons.

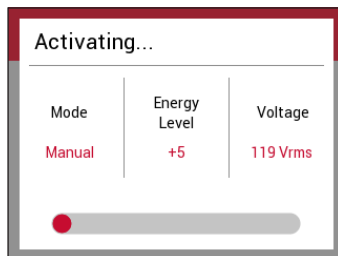
Push the "Home" button once the energy setting is set.

The screen will automatically return to the "Device Ready" screen.

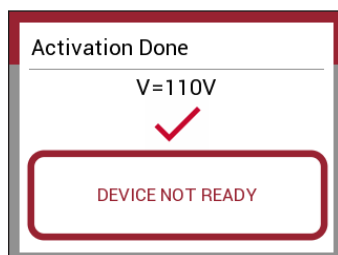


The "Device Ready" screen will display the current energy setting (i.e. +5).

In addition, you'll see that the tool is in "Manual" mode, and can see the current power/voltage display and the day's activations.



Press the trigger on the handle to activate the weld cycle.

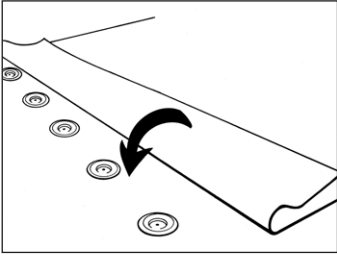


Once the weld is complete, the RhinoBond tool will emit a beep, provided that the sound is turned on (see pg 11) and display the "Activation Done" screen.

The tool will automatically return to the "Device Ready" screen for the next weld.

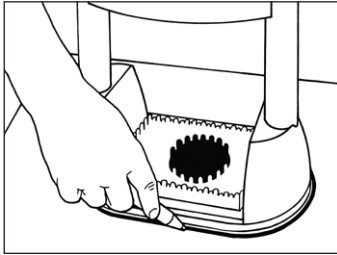
MANUAL CALIBRATION TEST WELDS

When calibrating the RhinoBond Tool manually, it's important to set -- and test -- the tool at several Energy Levels to determine which setting provides the best weld.



To calibrate the tool, place at least five (5) plates on insulation about 10-inches (25 cm) apart, and cover the plates with a piece of membrane from the project.

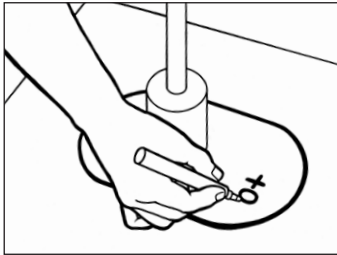
Calibration videos available on line at OMGRoofing.com.



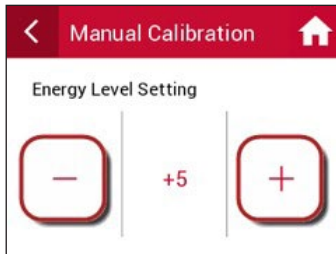
Set the energy setting to the lowest setting that you think will provide a complete bond (e.g. level #0) and weld the first plate.

Productivity Tip:

Tracing the base of the tool with a grease pencil will help you judge your accuracy in centering the coil over the plate.

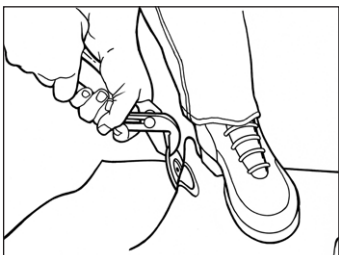


At the end of the weld cycle, place a magnetic cooling clamp on the plate, and mark the energy setting on the membrane for reference.

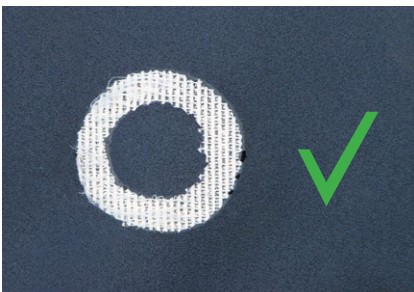


Adjust the "Energy Level" to the next higher setting, and repeat the test weld process until all five plates are welded with increasingly higher energy levels.

Allow the plates to cool to the touch - at least 5 minutes - before removing the magnetic heat sinks.



Use pliers to peel each plate off to review the quality of the welds.



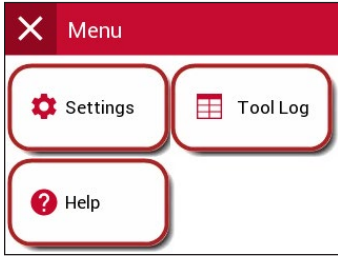
100% BOND

Look for total, even, and consistent 360° adhesion of membrane. The welded plate should make a visible impression on the top of membrane, and the membrane should delaminate to the scrim in a fairly complete circle/donut.

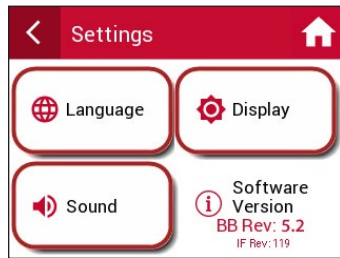
Look at the reference "Energy Levels" you marked for each test weld and determine which setting provided a 100% bond. Re-set the tool to that setting.

Remember if you are working in "Manual" Mode you'll need to adjust the calibration whenever the temperature on the roof changes by 15°F or more (8°C or more).

MENU SETTINGS & HELP



The main "Menu" provides access to "Settings," the "Tool Log," and "Help" buttons.



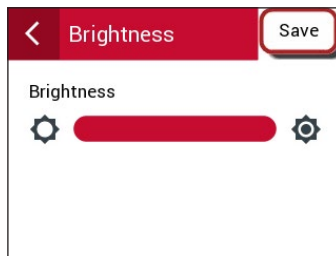
Press the "Settings" button to change the "Language," "Display," and/or "Sound," settings.



Press the "Language" button to change the screen language.

Select desired language for the tool.

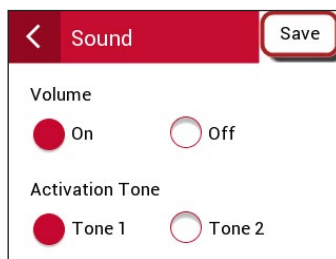
Once selected, the screen will return to the "Device Ready" screen.



Select the "Display" button to adjust the screen brightness. Press the sun icons on either side of the bar to increase or decrease the screen brightness.

Once selected, press the "Save" button to return to the "Device Ready" screen.

Push the back arrow (<) to return to the previous screen.

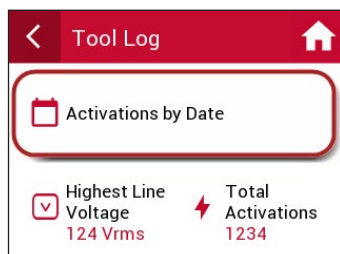


Press the "Sound" button to change the "Activation Complete" tone. The sound can be enabled by pressing the "On" button and disabled by pressing the "Off" button.

You have a choice of two different tones. Press the "Tone 1" or "Tone 2" button to make your selection.

Once the sound has been set, press the "Save" button to return to the Device Ready screen.

Push the back arrow (<) to return the previous screen.



From the main "Menu" screen press the "Tool Log" button to review weld cycle information.

Press the "Activations by Date" button to review the number of weld cycle activations by date.

Once the log has been reviewed, press the back arrow (<) to return to the previous screen.

The "Highest Line Voltage" indicates the highest line voltage seen by the tool since the last factory reset.

Date	Complete	Incomplete	PWR
08/29/2019	89	3	+10
08/29/2019	90	4	+9
08/29/2019	203	11	+8
08/29/2019	220	20	+7

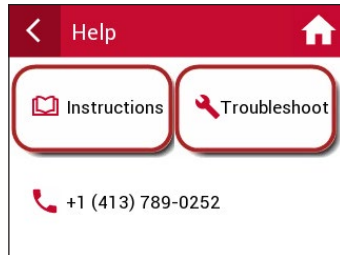
The table will show the date, welds completed (check mark) and welds with an error message.

Each line of the table indicates a tool setting; any change to tool settings will create a new line in the tool log for that calendar date.

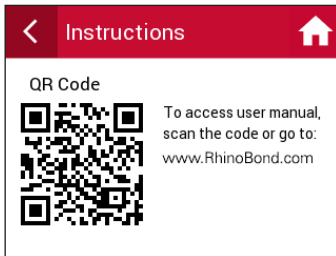
The "Activations by Date" value shows the cumulative number of weld cycles the tool has complete since the last factory reset.

Press the "Home" button to return to the "Device Ready" screen.

Press the back arrow (<) to return to the previous screen.



From the main "Menu," press the "Help" button to access OMG Roofing Products contact information, troubleshooting tips, and a description of error messages.



Press the "Instructions" button to access a link to a digital version of the RhinoBond user manual.

Use a smartphone to read the QR code which will open an online RhinoBond manual.

Press the "Home" button to return to the "Device Ready" screen.

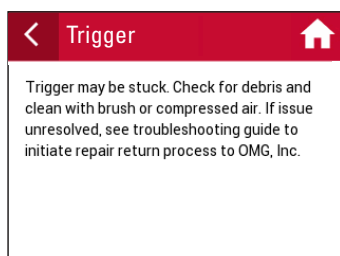
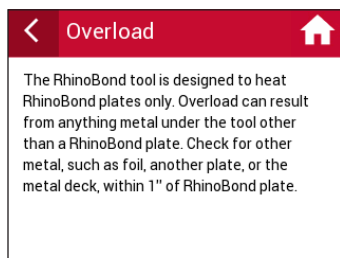
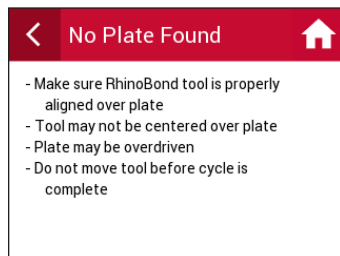
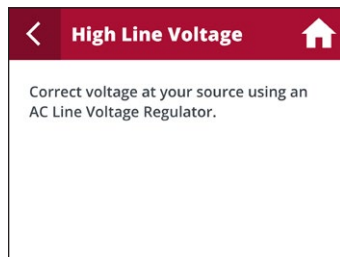
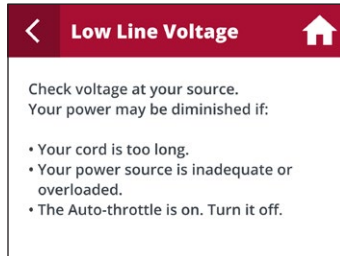
Press the back arrow (<) to return to the previous screen.



From the main "Menu," press the "Help" button to review the "Troubleshooting" tips, and error message descriptions.

Press any of the error message buttons to get more information and recommendations.

Press the back arrow (<) to return to the previous screen.



EC DECLARATION OF CONFORMITY

This is the Manufacturer's Declaration of Conformity which declares that the RhinoBond Induction Welding Tool, model number(s) listed below, complies with the essential health and safety requirements of the European Community Directives, including the latest amendments, as provided below.

Machine Description: RhinoBond® Induction Welding Tool
Model #: RB7
Item #: RBT007
Manufactured by: OMG Roofing Products, Inc.
Directive(s): Low Voltage Directive (LVD) 2006/95/EC

The following harmonized standards were applied:

- **LVD** EN60335-1:2012 +A11 (2014)
EN60335-2-45:2002 +A2 (2012)

RhinoBond® Induction Welding Tools wielding the CE Mark comply with these harmonized standards.
Date of first use: January, 2015.

Signed: _____ Date: _____
Name: Chris Mader Position: Codes Engineer, OMG Roofing Products

Authorized responsible person to compile the technical file, established in Europe:

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