BriskHeat

ACR® 4 HOT BONDER

Instruction Manual

	Read and understand this manual before operating or servicing this temperature control system. Failure to understand how to safely operate this controller could result in an accident causing serious injury or death. Only qualified personnel should operate or service this controller.

SAFETY ALERT SYMBOL

The Symbol above is used to call your attention to instructions concerning your personal safety. It points out important safety precautions. It means **"ATTENTION! Become Alert! Your personal Safety is Involved!"** Read the message that follows and be alert to the possibility of personal injury or death.

⚠ DANGER

Immediate hazards which **WILL** result in severe personal injury or death.

⚠ WARNING

Hazards or unsafe practices that COULD result in severe personal injury or death.

⚠ CAUTION

Hazards or unsafe practices that COULD result in minor personal injury or property damage.

SAVE THESE INSTRUCTIONS!

Additional copies of this manual are available upon request.

English – REV 18 – 09/10/2025

Table of Contents

IMPORTANT SAFETY INSTRUCTIONS

⚠ DANGER

A person who has not read and understood all operating instructions is not qualified to operate this product.

⚠ DANGER

- Do not immerse or spray hot bonder with liquid.
- Keep Volatile or Combustible material away from hot bonder when in use.
- Use hot bonder only in approved locations.
- Keep sharp metal objects away from hot bonder.
- The operator is not to open the enclosure. Only a trained service person may open the enclosure.
- Disconnect power before opening the enclosure. Turning off the power circuit breaker switch leaves dangerous voltage levels accessible to the service person.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment can be impaired.
- The unit must be connected to a protective earth grounding.

Failure to observe these warnings may result in electric shock, risk of fire, personal injury, or death.

⚠ CAUTION

- Inspect hot bonder before use.
- Do not use hot bonder if damaged.
- Do not repair damaged or faulty hot bonders.
- Do not position the equipment so that it is difficult to operate the disconnect device. The power cord is a disconnect device.
- Unplug hot bonder when not in use.
- Only use power cords provided by BriskHeat®

Failure to observe these cautions may result in personal injury or damage to the hot bonder.

⚠ WARNING

End-User Must Comply to the Following:

- Only qualified personnel are allowed to connect electrical wiring.
- All electrical wiring must follow local electrical codes and it is highly recommend following NEC Article 427.
- The end-user is responsible for providing a suitable disconnecting device.
- The end-user is responsible for providing suitable electrical protection device. It is highly recommended that a ground fault circuit breaker be used.
- If a protective earth conductor must be removed during service, it must be replaced.

Failure to observe these warnings may result in personal injury or damage to the heater.

INTRODUCTION

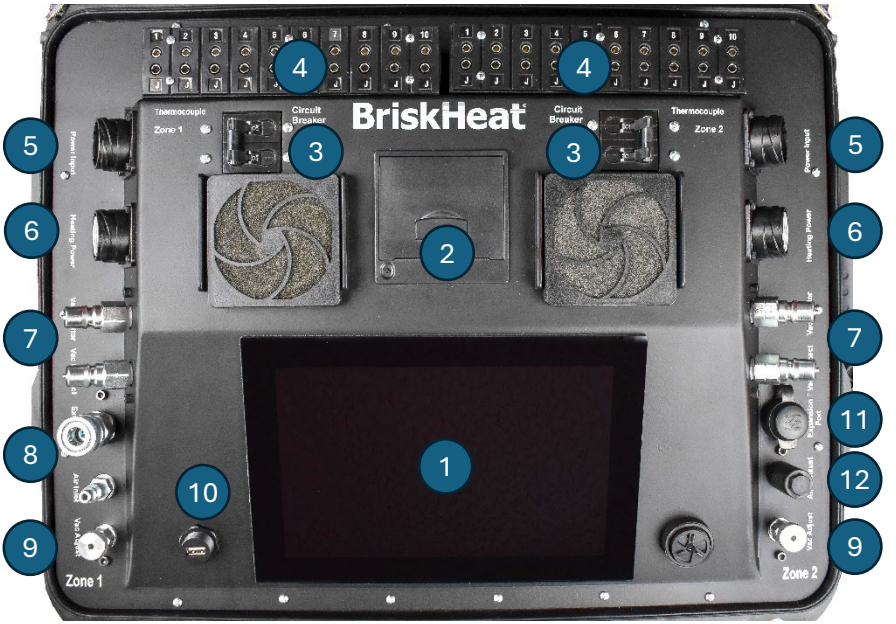
The BriskHeat® ACR®4 Hot Bonder is the world's most complete, all-in-one system to debulk and cure composite resins, prepregs, adhesives, fibers, and more. The ACR®4 controls the heat and vacuum for on-the-spot composite and metal bond repairs / cures. The ACR®4 systems are portable and self-contained. For successful operation of the ACR®4 system, read and understand these instructions prior to use.

PACKAGE CONTENTS

- ACR®4 Hot Bonder unit.
- An accessory storage case containing:
  - Two 10ft (3m) input power cords.
  - Two 5ft (1.5m) heater output power cords.
  - Twenty 6ft (1.8m) Type-J thermocouples with standard plugs.
  - Four 10ft (3m) vacuum hoses.
  - Four vacuum bag feed-through connectors.
  - Two spare rolls of printer paper.
  - One instruction manual.
- Optional heating blanket kit includes:
  - Two 10 X 10in (254mm x 254mm) heat blankets.
  - Two 12 X 12in (304.8mm x 304.8mm) heat blankets.
  - Two 16 X 16in (406.4mm x 406.4mm) heat blankets.

For assistance, please call your local distributor or BriskHeat® at
1-800-848-7673 (toll free, U.S. and Canada)
or 1-614-294-3376 (Worldwide).

MAIN PANEL LAYOUT

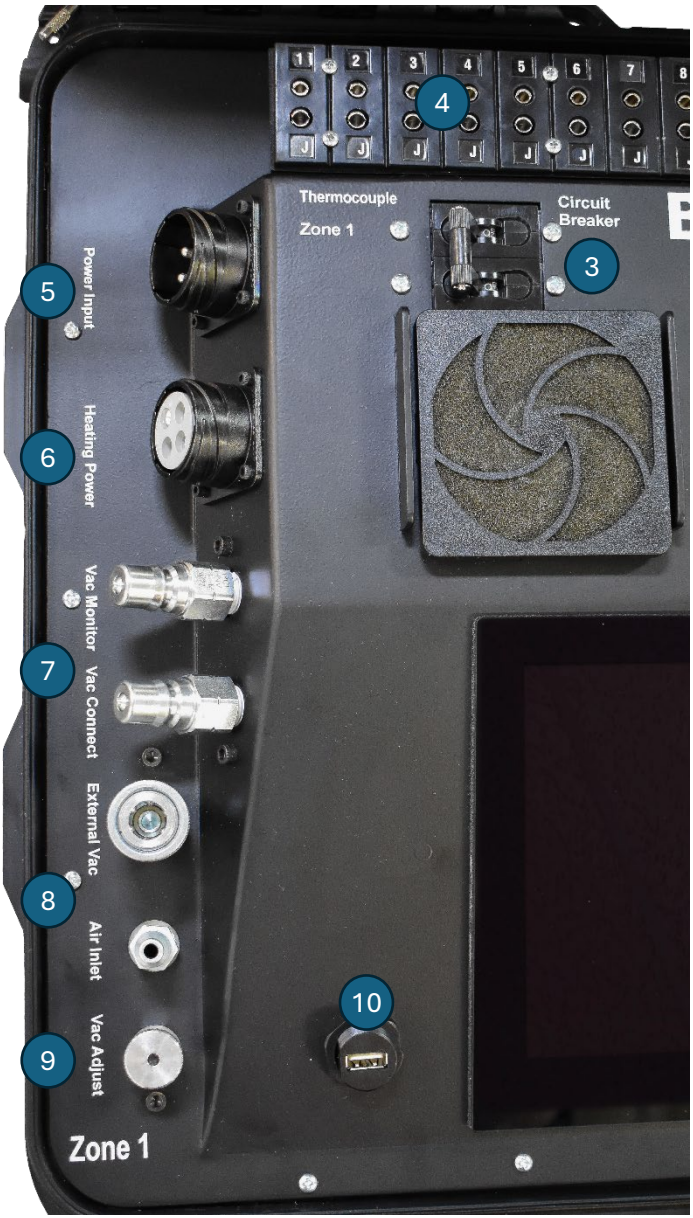


1. Full Color Touchscreen Interface
2. Printer
3. Circuit Breaker Switches
4. Type-J Thermocouple Inputs
5. Power Input Receptacle
6. Heater Output Receptacles
7. Vacuum and Vacuum Monitor Connections
8. External Air and Vacuum Connections
9. Vacuum Adjust
10. USB Data Port
11. Future Expansion Port
12. Venturi Exhaust Port

If wanted, it is possible to remove the ACR®4 lid.

- Open the lid fully.
- Using pliers or a similar tool, remove both lid pins.
- Remove the lid.
  - Store the lid pins in a safe location.

ZONE 1 DETAIL VIEW



SPECIFICATIONS

General

- Dual Zone.
- 10.1 inch (256mm) touch screen.
- USB data transfer port.
- Audible and visual alarms for temperature and vacuum deviation.

Power

- Input Voltage: 100-130VAC, 200-240VAC.
- MAINS supply voltage fluctuations up to 10% of the nominal voltage.
- Transient over voltages typically found on a Category II power source: i.e. a lighting circuit.
- Frequency: 50/60Hz.
- 30 amps max per zone.
- Maximum output rating: 240VAC Single Phase.

Environment

- Intended for use in dry environments. Do not expose to spray.
- Altitude up to 6562ft (2000m).
- Storage temperature range 1°F to 140°F (-20°C to 60°C).
- Operating temperature range 41°F to 104°F (5°C to 40°C).
- Maximum relative humidity: 80% for temperatures up to 88°F (31°C) decreasing internally to 50% relative at 104°F (40°C).
- Pollution Degree 2 (Normally only non-conductive pollution occurs, however a temporary conductivity caused by condensation must be expected).

Vacuum

- Pressure: 27-28inHg (13.26-13.75PSI).
- Flow: 3.2 scfm (Vacuum Venturi), 0.26 scfm (electric vacuum pump).
- Ability to manually adjust vacuum pressure for each zone.
- Accuracy: ±1.0 inHg.

Temperature Control

- Temperature range of up to 1400°F (760°C).
- 10 thermocouple sensor inputs per zone.
- Accepts standard Type-J thermocouple connectors.
- Accuracy: ±1.7°C / ±3.0°F.

⚠ WARNING

Read and understand this entire manual before operating the ACR®4 Hot Bonder.

VOLTAGE:
100-130, 200-240VAC

EQUIPMENT SETUP AND START-UP

Power Input

1. The ACR®4 can operate with power applied to either or both zones.
2. Align the power cord connector with the surface mount POWER INPUT connector and insert. The power connectors are keyed to prevent improper connections.
3. Turn the locking ring clockwise ½ turn to lock the cord into place. The power cord must be fully inserted and locked for proper operation.
4. Connect the power input cord to a properly rated power supply.
   - When using both zones, each zone must be connected to a separate dedicated 30A branch circuit.

Starting Up

Flip the zone circuit breaker(s) to the on position. The system will go through a boot-up cycle.

Follow System Shut Down procedure on page 47 to properly power down.

Heater Output Cord Attachment

1. Align the heater power cord connector with the surface mount HEATER POWER connector and insert. The power connectors are keyed to prevent improper connections.
2. Turn the locking ring clockwise ½ turn to lock the cord into place. The power cord must be fully inserted and locked for proper operation.

Temperature Sensor Attachment

The ACR®4 uses up to 10 standard Type-J thermocouple temperature sensors per zone.

The recipe will determine the minimum number of control thermocouples required for each cure.

Removable Thermocouple Box

The ACR®4 offers a unique remote locatable Removable Thermocouple Box feature. The thermocouple input box can be moved closer to the repair while the ACR®4 Hot Bonder remains on a stable working surface. An RJ45 cable connects the removable thermocouple input box to the ACR®4 Hot Bonder.

To connect and disconnect the RJ45 cable from the ACR®4, reach with the outside hand and pinch the cable with the thumb on top and the index finger on the bottom.

⚠ CAUTION

Do not connect the TC boxes or ACR®4 to any Ethernet or Power Over Ethernet device, equipment damage may result.

Vacuum Hose Connect

The ACR®4 requires 2 vacuum hoses per zone for proper vacuum operation. The first hose is for the vacuum source. The second hose is for vacuum monitoring. To ensure proper vacuum levels, the two hoses must be attached to the vacuum bag / repair area as far apart as possible.

The vacuum bag feed-through connectors are self-sealing and designed for quick disconnect allowing one hand operation. The feed-through should be installed over breather cloth such that the cloth acts as a filter.

1. Attach the female end of the vacuum source hose to the port marked Vac Connect and the male end to one of the vacuum feed-through on the repair.
2. Attach the female end of the vacuum monitor hose to the port marked Vac Monitor and the male end to the second vacuum feed-through on the repair.
3. The vacuum level can be adjusted independently for each zone. Turn the Vac Adjust valve counterclockwise to decrease that vacuum level and clockwise to increase the vacuum level.

Electric Pump

The ACR®4 has one dual output internal electric vacuum pump that provides vacuum to both zones. Both vacuum outputs can be diverted to a single zone for faster draw down when only one zone is used.

To access the vacuum controls, touch the Vacuum Pump button on the Home Screen or the Active Cure screen. To run the internal vacuum pump, touch the vacuum enable button.

Vacuum Venturi

The internal vacuum venturi converts an external compressed air supply to vacuum. The external compressed air supply must be clean and dry. It is recommended to utilize an in-line filter system for the external compressed air supply.

The external compressed air supply should not exceed 100PSI (689.5kPa).

To use the internal vacuum venturi system, connect a minimum 80PSI (551.5kPa) clean dry air source to the Air Inlet port.

External Vacuum

The ACR®4 has the option of using an external vacuum source. To use, connect an external vacuum source to the External Vacuum port.

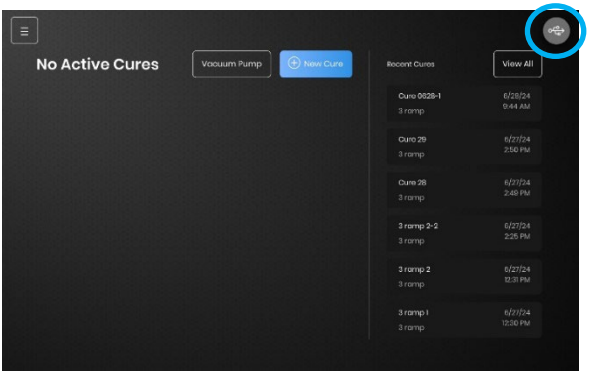
USB

When a USB drive is inserted into the port, a symbol is displayed in the upper right-hand corner of the Home screen. The USB port can be used for several purposes:

- Exporting historical cure data in CSV format.
- Importing and exporting recipes.
- Importing and exporting heat sources.
- Software updates.
- Exporting data logs.
- External USB keyboard.

****** Be sure to properly eject the USB drive prior to removing it. ******
****** See the screen below. ******

Navigate to the Home screen and touch the USB symbol.

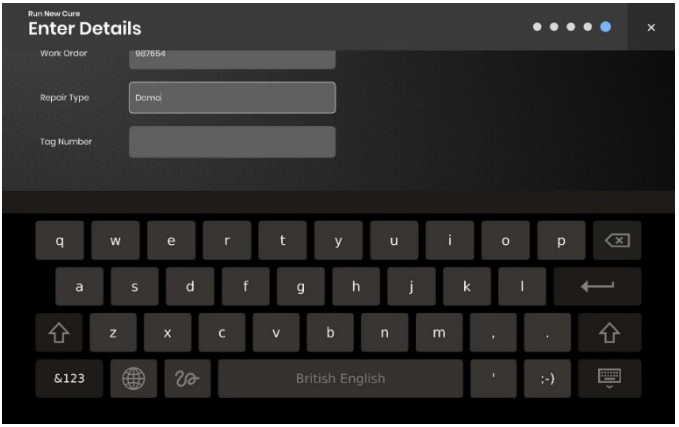


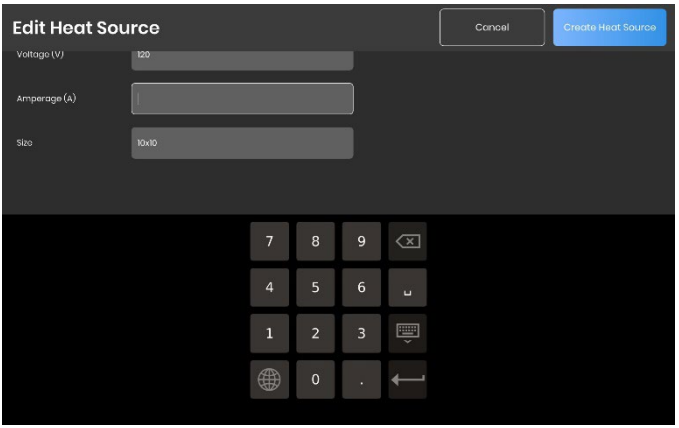
Select “Eject Now” to eject the USB device or “Okay” to leave the USB device installed.

Failure to properly eject the USB device before removal may result in corrupt data files.

Data Entry

Touching inside any data field will display either an alpha numeric keyboard or a number pad depending on the field type.





Upper Case / Caps Lock

Use the keyboard shift arrow to switch between uppercase and lowercase letters.

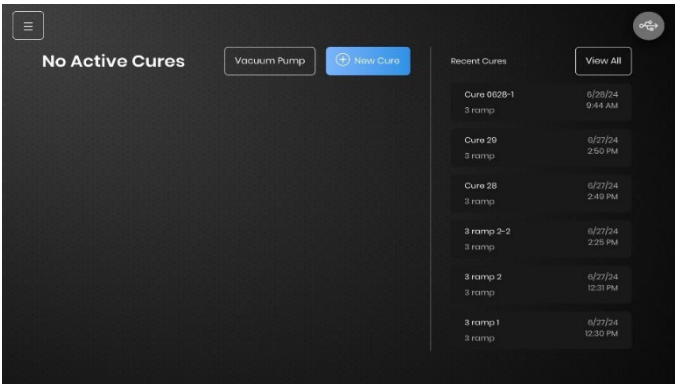
NOTE: While in lowercase, double tapping the arrow will set the caps lock on.

OPERATING INSTRUCTIONS

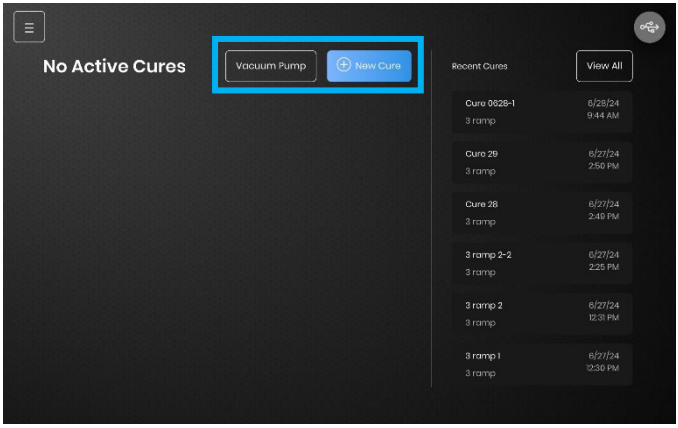
All commands for the touchscreen interface can be made by touching the screen with your finger or a touchscreen-safe stylus.

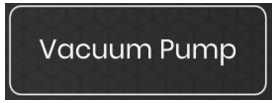
> **⚠ CAUTION**
>
> Do not touch the screen with sharp objects or marking objects such as pens, pencils, markers, etc. Sharp objects cause irreversible damage to the touchscreen.

The Home screen is divided into 2 sections: Active Cures and Historical Cures. Active Cures are cures that are currently running. Historical Cures displays a record of past cures.



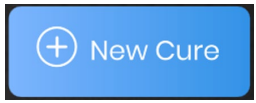
Two controls are available from the Home screen:





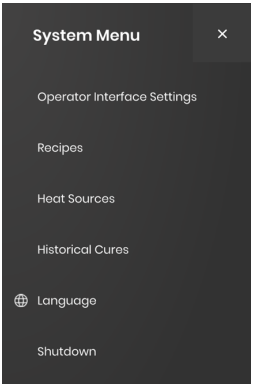
The Vacuum Pump Control button allows the user to enable or disable the internal electric vacuum pump as well as select which zones are connected to the vacuum source.

NOTE: See Vacuum on page 17 for more details.



The ⊕ New Cure button starts the process of setting up and running a new cure.

The menu icon in the upper-left corner of the Home screen opens the System Menu.



System Menu

- Operator Interface Settings: Language and regional settings.
  - Language:
    - English
    - French
    - German
    - Italian
    - Spanish
    - Chinese
    - Japanese
  - Date & Time: Date, Time, & Region settings.
  - Units: Temperature F or C, Vacuum inHg, mmHg kPa, & mbar.
  - Software Updates.
  - Factory Reset.
  - About.
  - System Password.
- Recipes: Accesses the Saved Recipes screen. Allows the user to create, edit, and delete recipes.
- Heat Sources: Accesses the Saved Heat Sources screen. Allows the user to create, edit, and delete Heat Sources.
- Historical Cures: Accesses the Historical Cures screen. Allows the user to view, export, and print historical cures.
- Language:
  - English
  - French
  - German
  - Italian
  - Spanish
  - Chinese
  - Japanese
- Shutdown: Accesses the safe shutdown screen to shut down the Operator Interface prior to powering down the ACR®4.
- Maintenance: Allows the export of system and data logs.

OPERATIONS

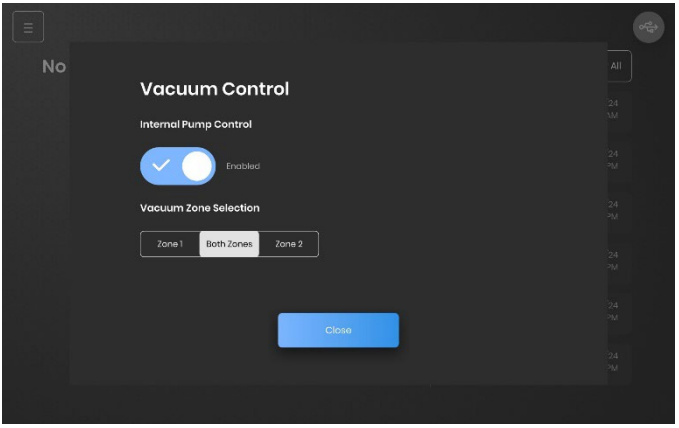
Initial Start Up

If this is the first time your hot bonder has been powered up, you will be required to follow the on-screen prompts to configure your system defaults for:

- Language.
- System password.
- Date, Time, & Time Zone.
- Temperature & Pressure units.

Vacuum

- Vacuum control screen can be accessed from either the Home screen or the Active Cure screen.
- Vacuum control screen allows the user to Enable (turn on) or Disable (turn off) the internal electric vacuum pump.
- Vacuum control screen allows the user to switch the vacuum between Zone 1 and Zone 2 or provide vacuum to both zones.

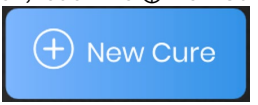


Run a Cure

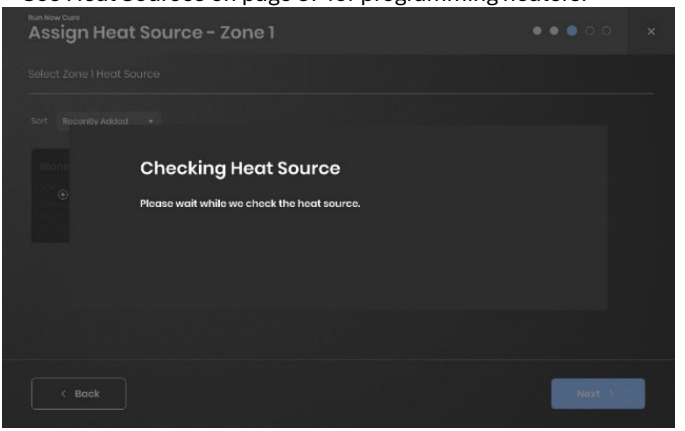
Running a cure uses a recipe to control the heat output of a zone. Recipes must be programmed prior to starting a new cure. See Recipe Management on page 29.

Before attempting to start a cure the heat source, thermocouple(s), and vacuum hoses (if debulking) must be connected to the ACR®4 Hot Bonder.

- On the Home Screen, touch the ⊕ New Cure button.

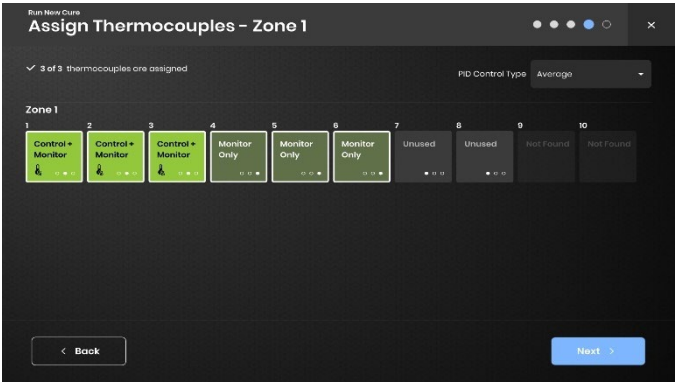


- Select the recipe to be used and press Next.
- Select which Zone is to be used and press Next.
- Select which heat source is to be used then press Next to run the heat source test or Skip to bypass the heat source test.
- See Heat Sources on page 37 for programming heaters.

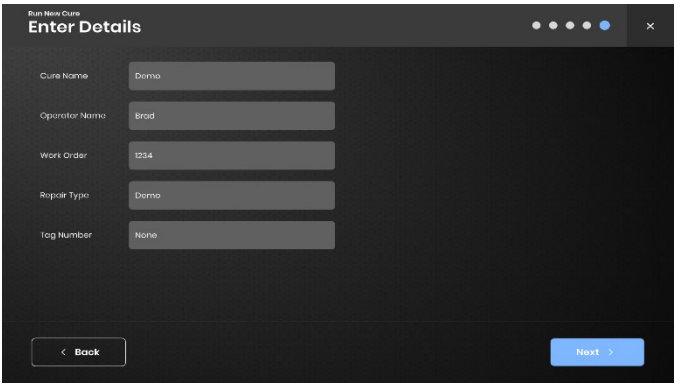


- When selecting a heat source and pressing Next, wait five (5) seconds for the heat source test to be completed.
- The heat source test is used to confirm that the heat source resistance is within ±20% tolerance of the expected resistance.
    - Expected Resistance = Measured Voltage / Expected Heat Source Amperage.
- If the heat source test fails, the calculated resistance will be displayed. The operator can go back and make corrections or continue forward.

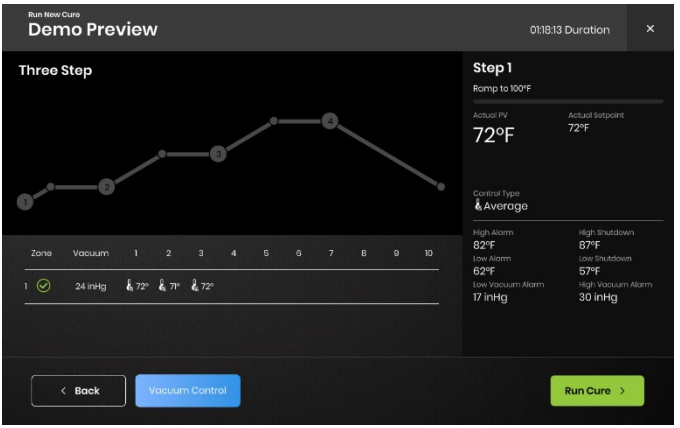
- Select which thermocouples are to be used and set each thermocouple for either Control & Monitor, Monitor Only, or Unused. The minimum number of Control & Monitor thermocouples is designated by the Recipe. The thermocouple status will be one of the following:
  - **Control & Monitor:** Thermocouple will be monitored and recorded and used in control type calculations.
  - **Monitor Only:** Thermocouple will be monitored and recorded but not used in control type calculations.
  - **Unused:** Thermocouple will not be monitored or recorded and will not be used in control type calculations.
  - **Not Found:** If a thermocouple is not connected in the specified location, that location will be displayed as Not Found and cannot be used.
- Select PID control option
  - **Average:** The temperature used for control will be the average of the Control & Monitor thermocouples.
  - **Lowest:** The temperature used for control will be the lowest of the Control & Monitor thermocouples.
  - **Highest:** The temperature used for control will be the highest of the Control & Monitor thermocouples.



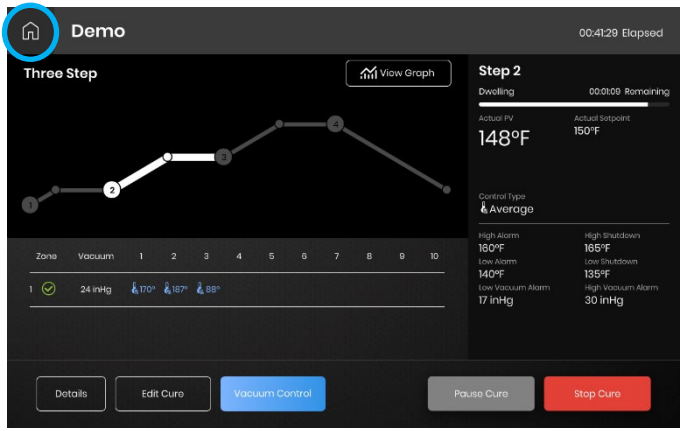
- Enter cure details as desired and press Next.
  - Cure Name.
  - Operator Name.
  - Work Order.
  - Repair Type.
  - Tag Number.



- A cure preview screen will appear, showing the recipe, setpoint, alarms, and live PV (current temperature), thermocouple status, and vacuum.
- Check the vacuum level and thermocouples before starting a cure.



- Select Run Cure.
- The cure will start and run the selected recipe.
- To edit an Active Cure, see page 30.
- To return to the Home screen, press the Home button on the top left of the screen. This will not affect the cure.



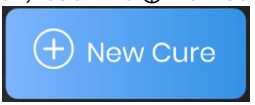
Run a Dual Zone Cure

A dual zone cure uses both the Zone 1 and Zone 2 outputs and thermocouples. Dual zone cures run the same recipe on both zones simultaneously.

Before attempting to start a cure, the heat source and the thermocouple(s) must be connected to the ACR®4 Hot Bonder.

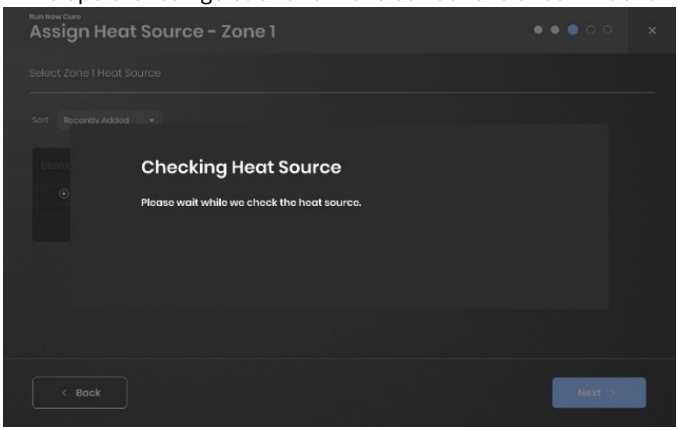
To start a dual zone cure:

- On the Home Screen, touch the ⊕ New Cure button.

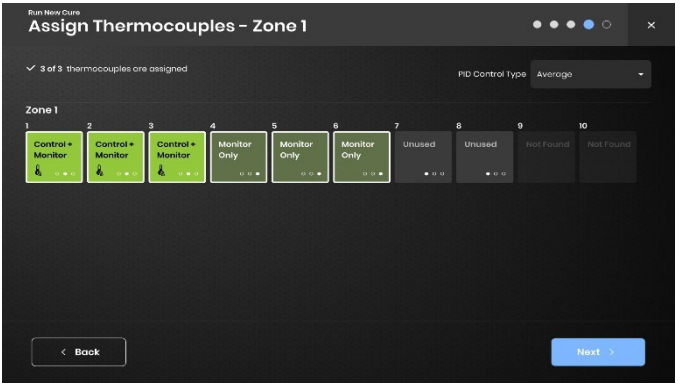


- Select the recipe to be used and press Next.
- Select both Zones and press Next.

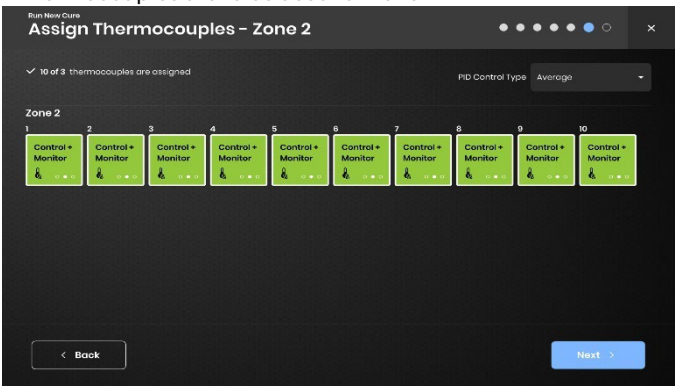
- Select which heat source is to be used for Zone 1 and press Next to run the heat source test or Skip to bypass the heat source test.
- If selecting Next, wait five (5) seconds for the heat source test to be completed.
- The heat source test is used to confirm that the heat source resistance is within ±20% tolerance of the expected resistance.
    - Expected Resistance = Measured Voltage / Expected Heat Source Amperage.
- If the heat source test fails, the calculated resistance will be displayed. The operator can go back and make corrections or continue forward.



- Select which thermocouples are to be used for Zone 1 and set each thermocouple for either Control & Monitor, Monitor Only, or Unused.
    - **Control & Monitor:** Thermocouple will be monitored and recorded and used in control type calculations.
    - **Monitor Only:** Thermocouple will be monitored and recorded but not used in control type calculations.
    - **Unused:** Thermocouple input will not be monitored or recorded and will not be used in control type calculations.
    - **Not Found:** If a thermocouple is not connected that thermocouple will be displayed as Not Found and cannot be used.
- Select PID control option
    - **Average:** The temperature used for control will be the average of the Control & Monitor thermocouples.
    - **Lowest:** The temperature used for control will be the lowest of the Control & Monitor thermocouples.
    - **Highest:** The temperature used for control will be the highest of the Control & Monitor thermocouples.

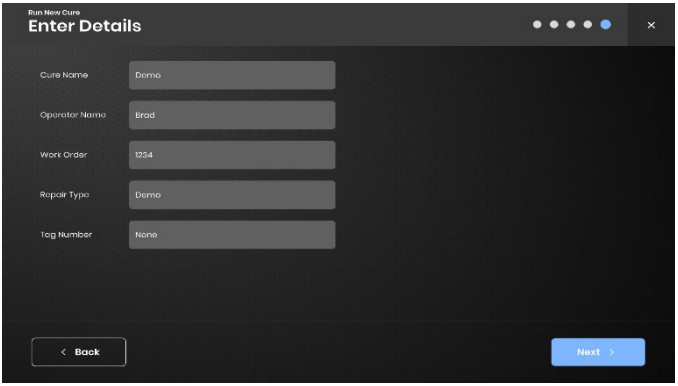


- Repeat the above steps to select which heat source and thermocouples are to be used for Zone 2.

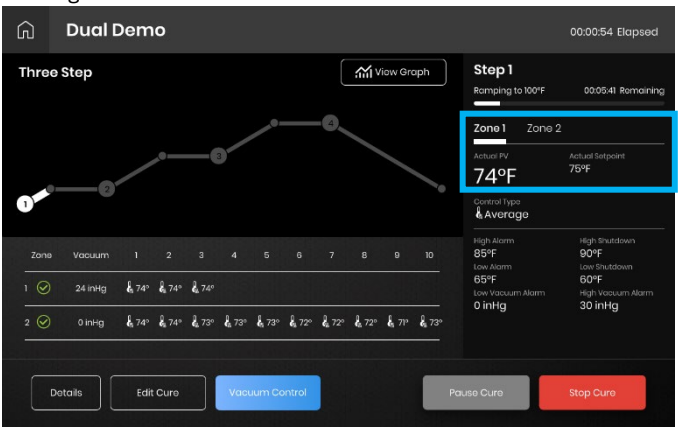


- Enter cure details as desired and press Next.
  - Cure Name.
  - Operator Name.
  - Work Order.
  - Repair Type.
  - Tag Number.

NOTE: Non-Latin characters may not be rendered properly on receipt printouts, but can be cross-referenced against CSV outputs.

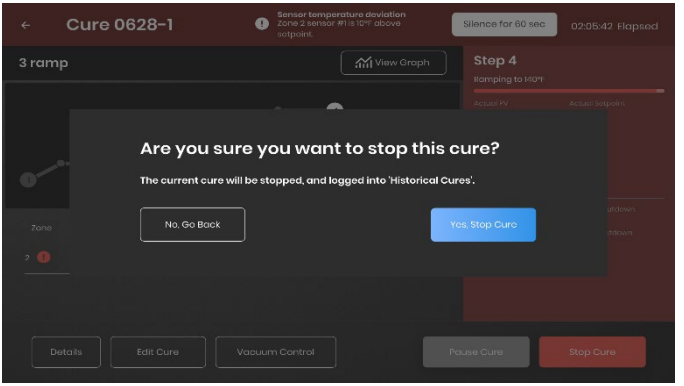


- Select Run Cure. On the Active Cure screen, you can change between viewing Zone 1 and Zone 2's values.

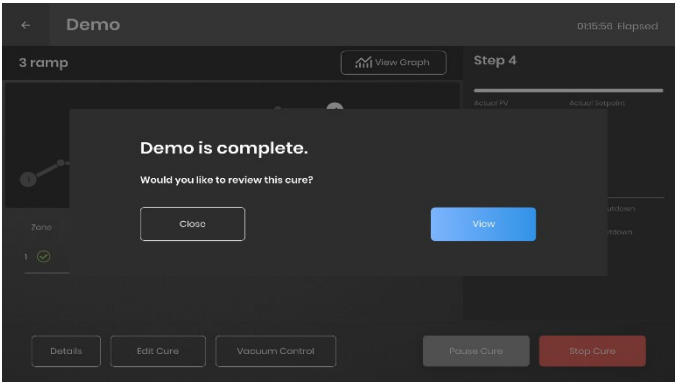


Cure End

At any point during the cure process, the operator can stop the cure by pressing the Stop Cure button. Once the Stop Cure button is pressed, a confirmation window will pop up.

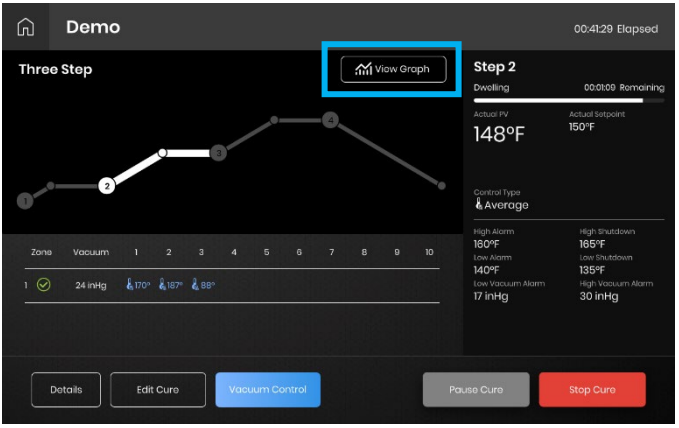


When a cure is stopped, shut down, or completed, a popup window is displayed to allow the operator to view the historical cure or return to the Home screen.

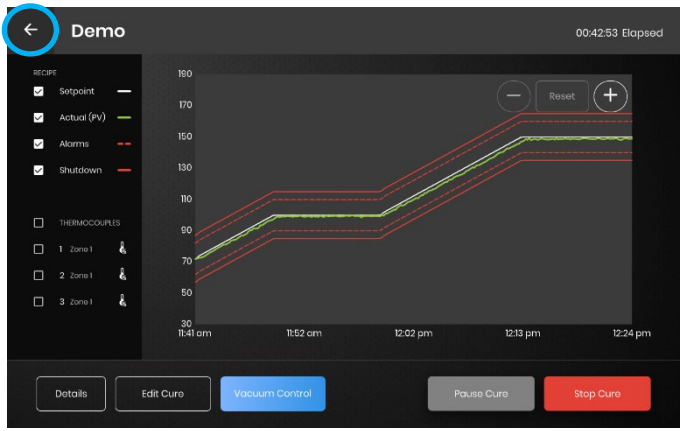


View Graph

- To view a detailed graph of the running cure, press the View Graph button.



- To return to the cure screen, touch the back arrow on the top left of the screen.
- To change which lines are graphed, select, or deselect the check boxes for Setpoint, Actual (PV), Alarms, Shutdowns, and Thermocouples.
- Use the – and + buttons to zoom in or out on the graph display.
- While zoomed in, use a finger to drag the graph or two fingers to zoom in and out.
- Press the reset button to return the graph to normal display.



Factory Reset

The factory reset function returns the ACR®4 to the original setting as delivered from the BriskHeat factory.

NOTE: Factory Reset will delete all saved recipes, all heat sources, & all historical cure data.

- On the Home screen, touch the System Menu button.
- Select the Operator Interface Settings option from the System menu.
- Select Factory Reset.
- Enter the system password if required.
- Confirm the factory reset on the popup screen.

After The Factory Reset

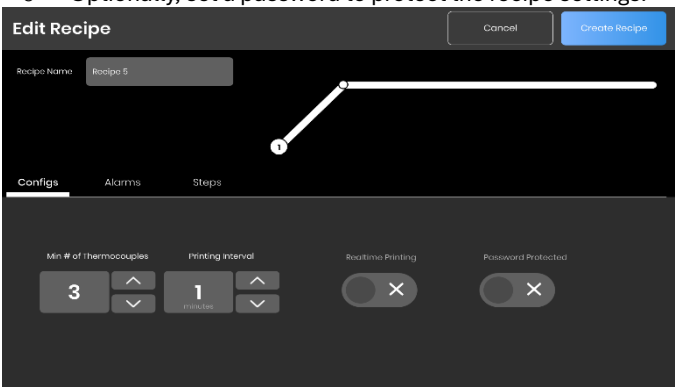
- Restart the Operator Interface or cycle power.
- Allow the Operator Interface to restart.
- Follow the walkthrough steps to configure the ACR®4.
  - Language.
  - System password.
  - Date, Time, & Time Zone.
  - Temperature & Pressure units.

RECIPE MANAGEMENT

A recipe is a set of temperature set points, ramp rates, dwell times, and alarm instructions required for a hot bonder cure cycle.

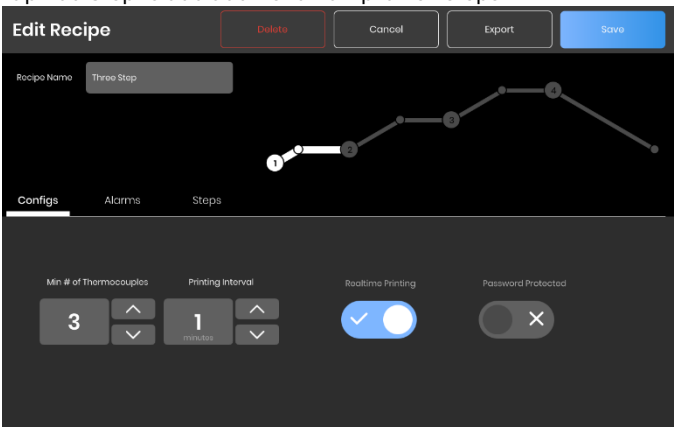
Create a New Recipe

- On the Home screen, touch the System Menu button.
- Select the Recipes option from the System menu.
- Touch the Create Recipe button.
- Touch the name field and enter the desired recipe name.
- In the Config Tab, set:
  - Minimum number of Control thermocouples to be used.
  - Printer logging interval (electronic logging is fixed at 10 seconds).
  - Set the printer On or Off.
  - Optionally, set a password to protect the recipe settings.



- In the Alarm tab, set:
  - Temperature deviation alarm (degrees over and under setpoint that will cause an alarm).
  - Temperature shutdown alarm (degrees over and under setpoint that will cause the bonder to stop the cure).
  - Low Vacuum alarm (minimum vacuum pressure allowed).
  - High Vacuum alarm (maximum vacuum pressure allowed).

- In the Steps tab, set:
  - Ramp Rate.
    NOTE: Selecting the max ramp rate check box will cause the cure to heat as fast as the heater power allows, or cool down with no heater power.
  - Target Temperature (Setpoint).
  - Dwell Time.
    NOTE: Dwell Time can be set to zero (0) to immediately advance to the next step.
  - Tap Add Step to add additional ramp-dwell steps.



- Add additional steps, as necessary. For Dual Zone cures, it is recommended to use the first step to synchronize the zones.
- When complete, touch Create Recipe.
- Touch the Cancel button in the upper right-hand corner to return to the Home Screen.

Edit a Saved Recipe

- On the Home screen, touch the System Menu button.
- Select the Recipes option from the System Menu or touch the pencil icon next to a recipe after pressing New Cure
- Select the recipe to be changed.
- Make all necessary changes.
- Touch the Save or Cancel button.

Delete a Recipe

- On the Home screen, touch the System Menu button.
- Select the Recipes option from the System Menu.
- Select the recipe to be deleted.
- In the recipe edit screen touch the delete button.
- Confirm or cancel the recipe deletion in the popup screen.

Edit an Active Cure / Recipe

The operator may make changes to a recipe while the recipe is running. Any changes made to the running recipe do not affect the saved recipe. Likewise, any changes made to the saved recipe do not affect the running recipe / cure. Once a ramp-dwell step has started running, it cannot be edited, but future steps can be added.

Making a change to an active cure recipe requires the cure to be paused. Pausing a cure causes the heat output control to hold the heat at the paused temperature. While paused, all step timers are paused, however the accumulated time continues to count.

There are two levels of editing an active cure / recipe.
Level 1: Edits can be made to the cure configuration only.

- Thermocouple Selection.
- PV Calculation Type.
- Cure Name.
- Operator Name.
- Work Order.
- Repair Type.
- Tag Number.

Level 2: Edits can be made to the running recipe.

- Min # of Thermocouples.
- Printing Interval.
- Realtime Printing.

- Password Protection.
- Temperature Alarms.
- Vacuum Alarm.
- Step Settings.

Edit a running cure

- Touch the Edit Cure button.
- Make any required changes.
- Touch the Save button.

Edit a running recipe

- Touch the Pause Cure button.
- Touch the Edit Cure button.
- In the Recipe tab, touch the Edit button.
- Make any required changes.
- Touch the Update Recipe button.

The cure will automatically resume when the Save button is pressed.

Export / Import Recipes

Export Single Recipe

- Insert a USB drive into the USB port.
- Press the System Menu button.
- Press the Recipe option.
- Select the desired recipe.
- Press the Export button.
- Confirm the recipe export.
- Press the eject USB button.
- Remove the USB drive.

Exported file is a recipe database file in the format of:
dateTtime-recipe-name.recipe.db.

Example file export name:
2025-06-03T121655_recipe_MRO_Multistep.recipe.db

Export All Recipes

- Insert a USB drive into the USB port.
- Press the System Menu button.
- Press the Recipe option.
- Press the Export button.

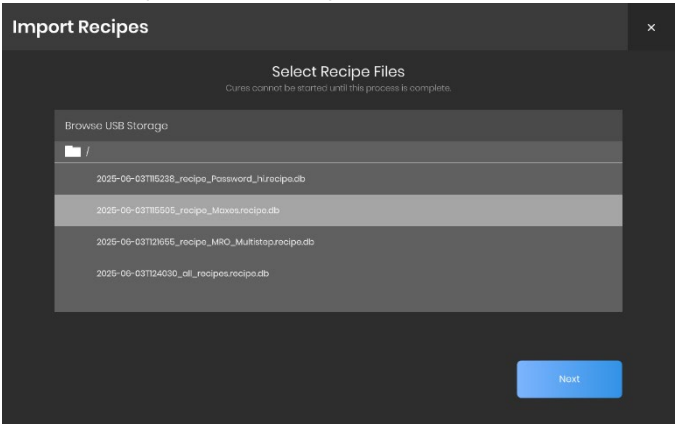
- Confirm all recipe export.
- Press the eject USB button.
- Remove the USB drive.

Exported file is a recipe database file in the format of:
dateTtime_all_recipes.recipe.db.

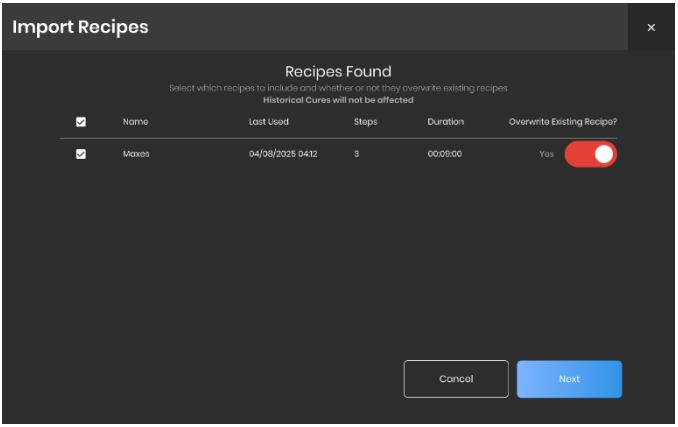
Example file export name:
2025-06-03T124030_all_recipes.recipe.db

Import Single Recipe

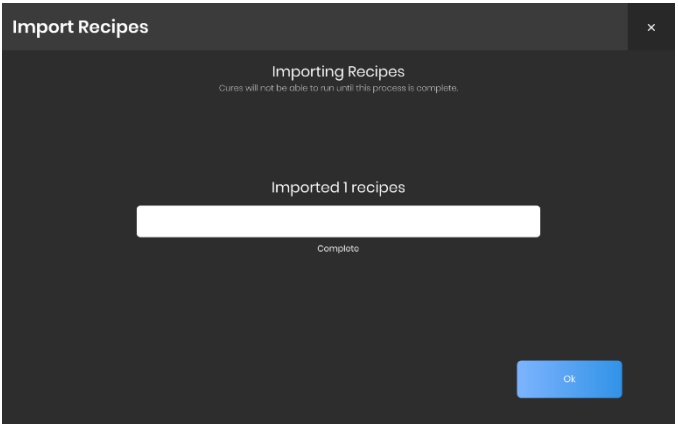
- Insert the USB drive that contains the recipe to be imported.
- Press the System Menu button.
- Press the Recipe option.
- Press the Import button.
- Select the recipe that is to be imported.



- Select the check box next to the recipe.
- Choose to overwrite the existing recipe.



- Press the next button.

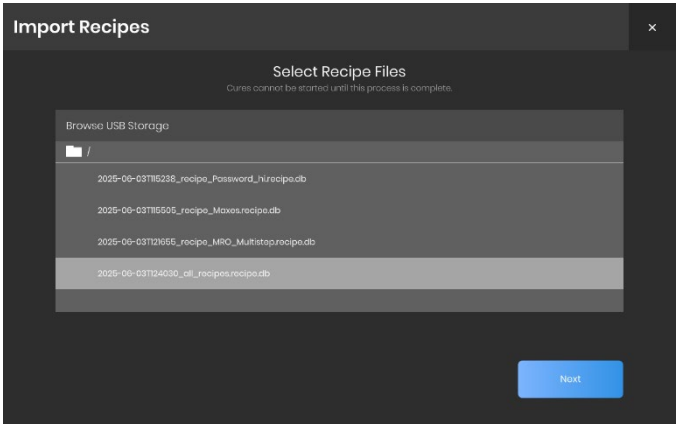


- Press the OK button to confirm the imported recipe file.
- Press the eject USB button.
- Remove the USB drive.

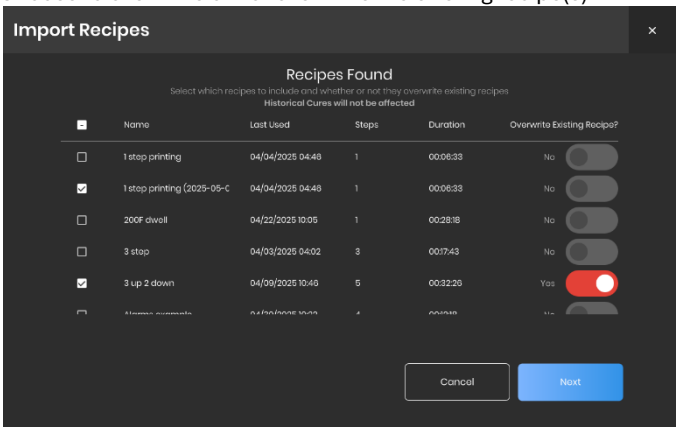
Import Multiple Recipes

NOTE: to import multiple recipes the USB drive must contain an “all_recipies” recipe database file.

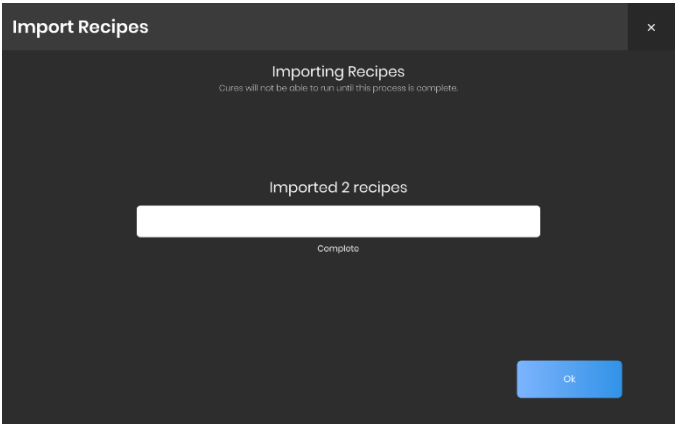
- Insert the USB drive that contains the recipe to be imported.
- Press the System Menu button.
- Press the Recipe option.
- Press the Import button.
- Select the all_recipes file that is to be imported.



- Select the check box at the top to select all recipes or the check box next to the recipe or recipes to be imported.
- Choose to overwrite or not overwrite the existing recipe(s).



- Press the next button.



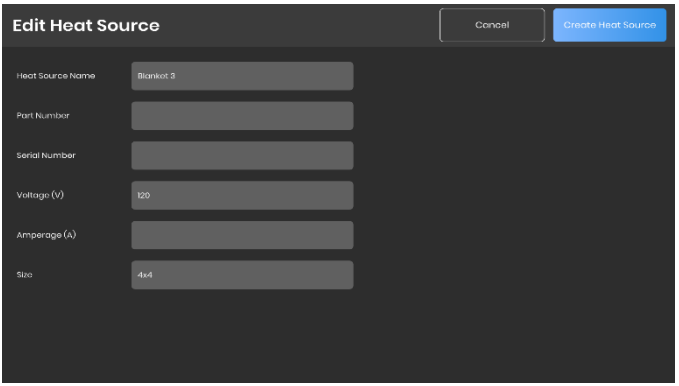
- Press the OK button to confirm the imported recipe file.
- Press the eject USB button.
- Remove the USB drive.

HEAT SOURCES

A heat source is used to heat the composite parts. Heat sources include but are not limited to heating blankets, heat lamps, or heat guns.

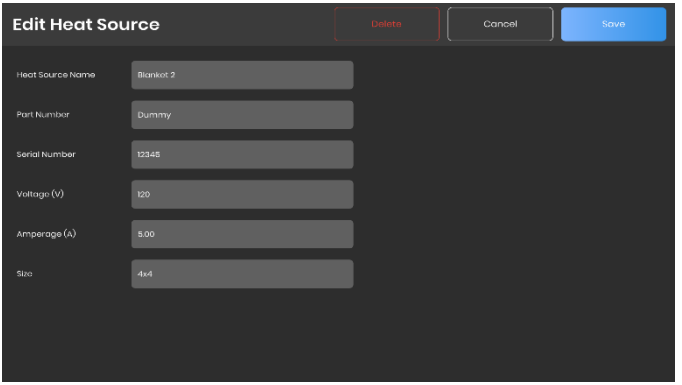
Create a New Heat Source

- On the Home screen, touch the System Menu button.
- Select the Heat Sources option from the System Menu.
- Touch Create New.
- Enter the heat source data.
  - Heat Source Name.
  - Part Number.
  - Serial Number.
  - Voltage.
  - Amperage.
  - Size.
- To finish, touch the Create Heat Source button.
- Touch the Cancel button in the upper right to return to the Home Screen.



Edit A Heat Source

- On the Home screen, touch the System Menu button.
- Select the Heat Source option from the System Menu.
- Select the heat source to be changed.
- Make all necessary changes.
- Touch the Save or Cancel button.



Delete A Heat Source

- On the Home screen, touch the System Menu button.
- Select the Heat Sources option from the System Menu.
- Select the Heat Source to be deleted.
- In the Heat Source edit screen, touch the delete button.
- Confirm or cancel the recipe deletion in the popup screen.

Export / Import Heat Sources

Export Single Heat Source

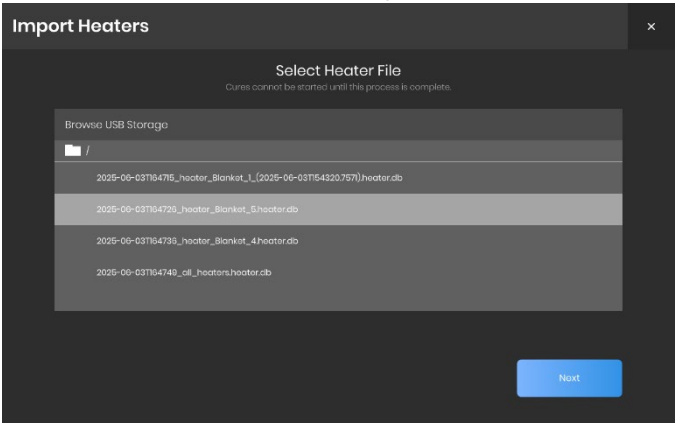
- Insert a USB drive into the USB port.
- Press the System Menu button.
- Press the Heat Source option.
- Select the desired heat source.
- Press the Export button.
- Confirm the heat source export.
- Press the eject USB button.
- Remove the USB drive.

Export All Heat Sources

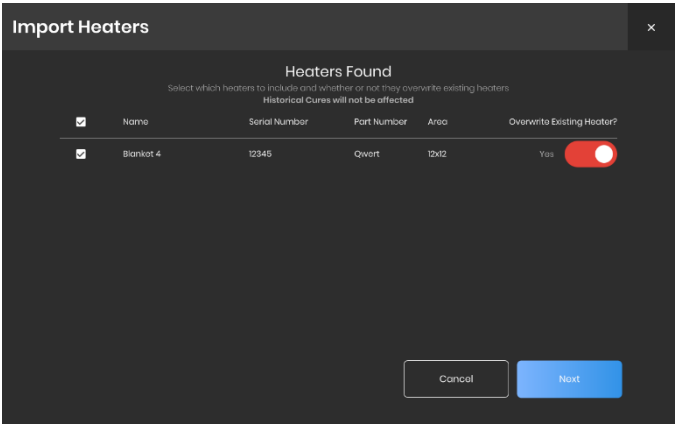
- Insert a USB drive into the USB port.
- Press the System Menu button.
- Press the Heat Source option.
- Press the Export button.
- Confirm all heat source export.
- Press the eject USB button.
- Remove the USB drive.

Import Single Heat Source

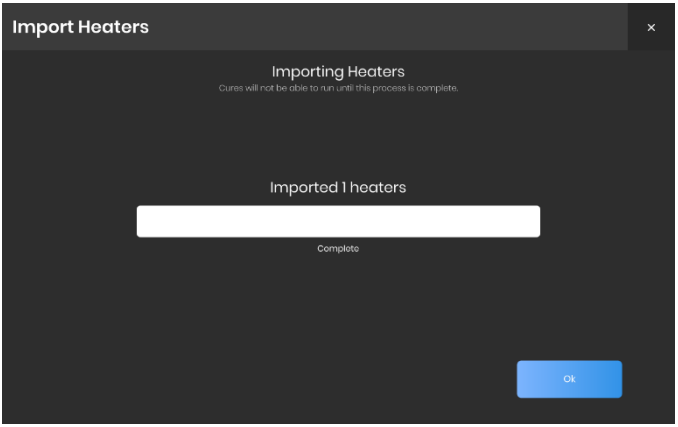
- Insert the USB drive that contains the heat source to be imported.
- Press the System Menu button.
- Press the heat source option.
- Press the Import button.
- Select the heat source that is to be imported.



- Select the check box next to the heat source.
- Choose to overwrite the existing heat source.



- Press the next button.

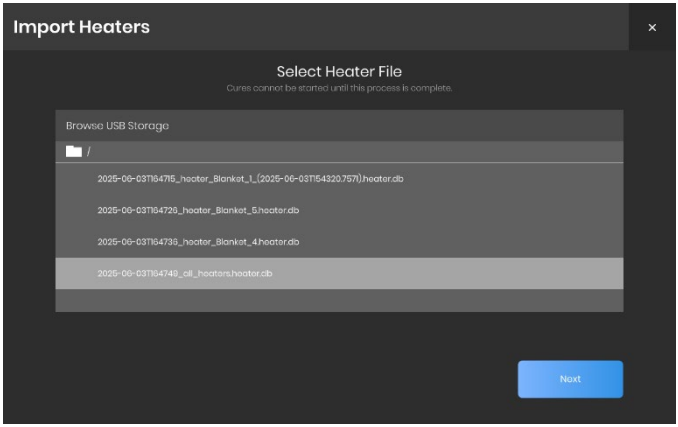


- Press the OK button to confirm the imported heat source file.
- Press the eject USB button.
- Remove the USB drive.

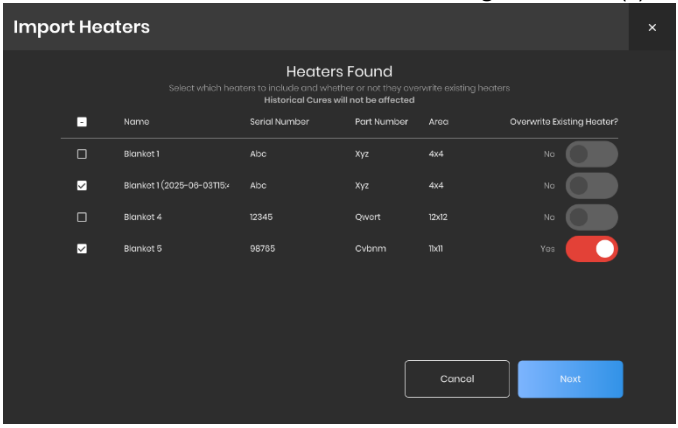
Import Multiple Heat Sources

NOTE: to import multiple heat sources the USB drive must contain an "all_heaters" heater database file.

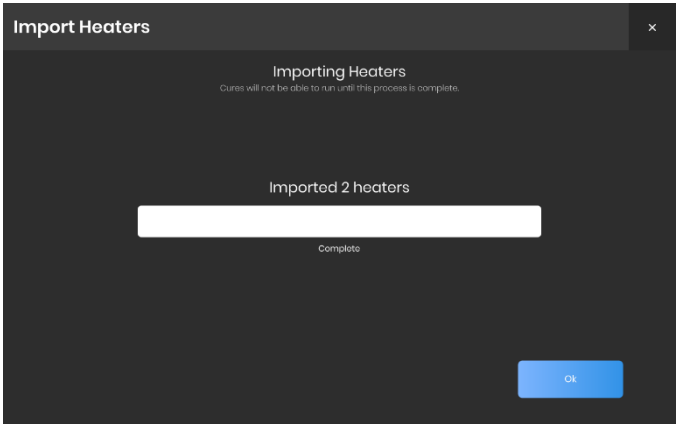
- Insert the USB drive that contains the heat source to be imported.
- Press the System Menu button.
- Press the Heat Source option.
- Press the Import button.
- Select the all_heaters file that is to be imported.



- Select the check box at the top to select all heat sources or the check box next to the heat source or heat sources to be imported.
- Choose to overwrite or not overwrite the existing heat source(s).



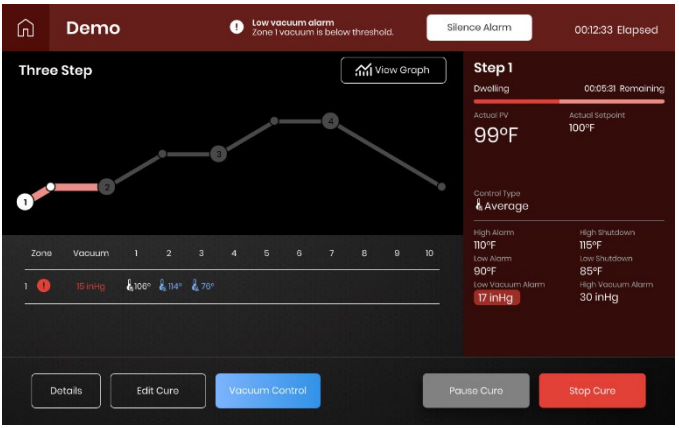
- Press the next button.

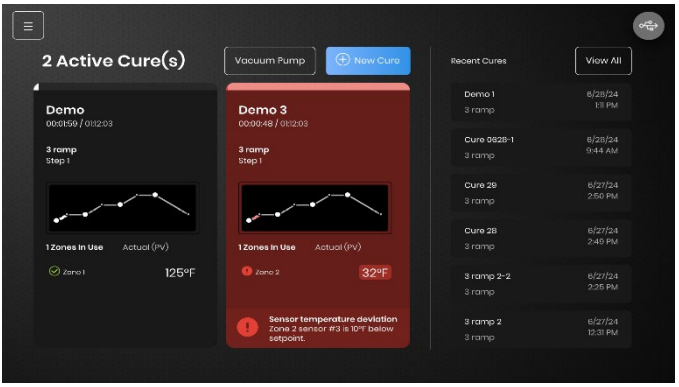


- Press the OK button to confirm the imported heat source file.
- Press the eject USB button.
- Remove the USB drive.

ALARMS

While running a cure, if any condition or variable exceeds a programmed limit, the display value of the variable changes color and the buzzer sounds. Touching the Silence Alarm button silences the audible alarm. The alarm display remains until the alarm condition is corrected.



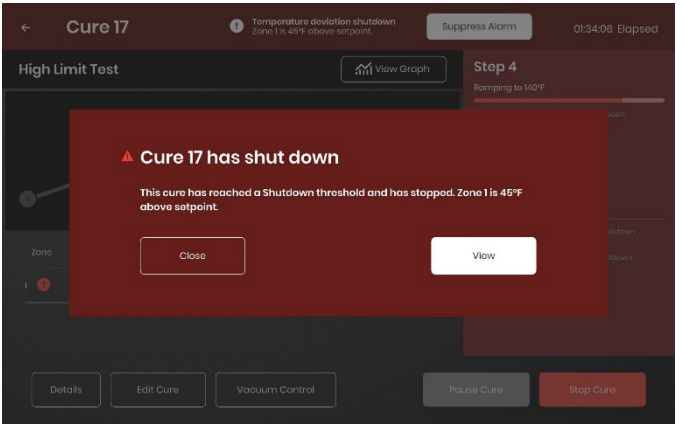


Silence Alarm

Silence Alarm is active while the alarm is active. The Silence Alarm button is Zone-specific. If, while viewing Zone 1, an alarm occurs on Zone 2, the operator must switch to viewing Zone 2 to silence the Zone 2 alarm.

Shutdown Alarm

If the PV (current temperature) is above or below the SP (set point) value by the shutdown deviation amount, or all control thermocouples are disconnected, the cure will be Shut Down, and the audible alarm will be activated.



NOTE: Shutdown conditions have 5 seconds to recover before shutting down the cure.

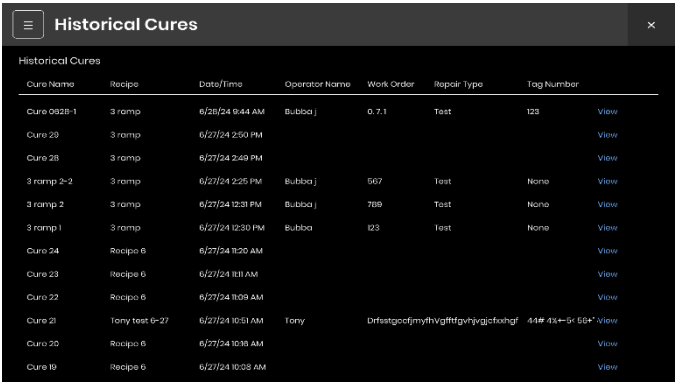
NOTE: Disconnected sensors will be logged as 11828°F / 6553°C for the duration that they are disconnected. They will appear as a yellow “Err” on the OI.

HISTORICAL CURES

The ACR®4 will maintain a record of up to 60 past or Historical Cures.

View Historical Cure

- On the Home screen, touch the System Menu button.
- Select the Historical Cures option from the System Menu.
- Select the desired cure from the list and touch View.



Reprint Historical Cure

While viewing a historical cure, touch the Print button to print a copy of the cure receipt.

```
XXXXXXXXXXXXXXXXXXXXXXXX
#5: ZONE 1   |#10:N/A
#4: ZONE 1   |#9: N/A
#3: ZONE 1   |#8: N/A
#2: ZONE 1   |#7: N/A
#1: ZONE 1   |#6: Zone 1
   ZONE 1    |   ZONE 1

    PV CALC: AVERAGE
   LOG RATE: 5min
HIGH VACUUM: 30inHg
 LOW VACUUM: 17inHg
  DEV SHTDN: +/-10C
  DEV ALARM: +/-5C
     ZONE 1: Blanket XXX
DWELL 2: 30min
  RAMP 2: 150C 3/min
DWELL 1: 10min
  RAMP 1: 100C 5/min
     RECIPE: XXXXXX
               12:00
       DATE: 01/01/2023
TAG NUMBER: XXXXXXX
REPAIR TYPE: XXXXXXX
   OPERATOR: John Smith
WORK ORDER: 123456
  CURE NAME: XXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXX
```

```
ZONE: 1       SENS: #2
SETPOINT: 100C
  ACTUAL: 111C
    TRIP: 110C
12:08 DEV ALARM

BEG DWELL 1
END RAMP 1
12:07

Z1#10: 22      |
  #5:  22      |#10: 22
  #4:  25      |#9:  25
  #3:  24      |#8:  21
  #2:  22      |#7:  22
  #1:  21      |#6:  21
VAC: 16inHg     PV: 29C
12:05              SP: 30C

Z1#10: 22      |
  #5:  22      |  #10: 22
  #4:  25      |  #9:  25
  #3:  24      |  #8:  21
  #2:  22      |  #7:  22
  #1:  21      |  #6:  21
VAC: 16inHg       PV: 23C
12:00             SP: 25C
```

Example receipt

Export Historical Cure

- Insert a USB drive formatted in FAT32 into the USB port.
- From the Historical Cures screen, select the cure to be exported.
- In the View Historical Cure screen, press the export button.
- Wait for the data to export to the USB drive.
- When complete, eject the USB drive by touching the USB icon on the Home screen.

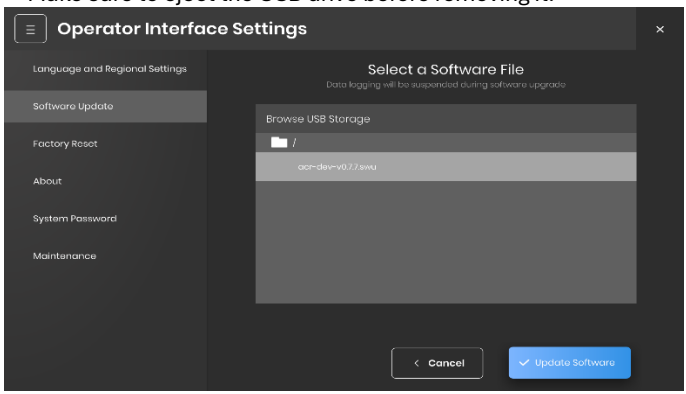
SOFTWARE UPDATES

The ACR 4 software can be updated via the USB drive for new features or improvements.

- Download the software update file(s) from an official BriskHeat source. Do not download or install software update files not provided by BriskHeat.
- Save the software update files onto a USB drive in the top-level folder. If the files are in a sub-folder, they will not be detected.
- Insert the USB drive into the ACR 4 USB port.
- On the Home screen, touch the System Menu button.
- Select Operator Interface Settings from the System Menu.
- Select the Software Update option.

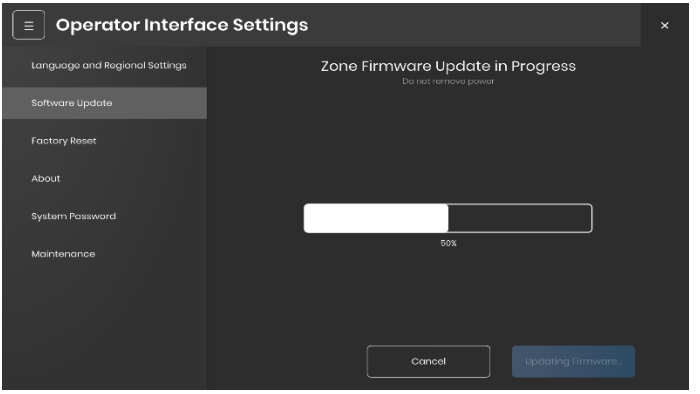
Operator Interface Updates

- Press Next to update the Operator Interface.
- Select a file with the ".swu" extension and press Update Software.
- The update process will take approximately 2 minutes.
- Make sure to eject the USB drive before removing it.



Zone Firmware Updates

- Select the Zone Firmware tab to the right of OI Software.
- Press Next to update the Zone firmware.
- Select a file with the ".toml" extension and press Update Firmware.
- The update process will take approximately two (2) minutes.
    - The progress will appear as 0%, 50%, 100%.
- Make sure to eject the USB drive before removing it.



SYSTEM SHUTDOWN

- On the Home screen, touch the System Menu button.
- Select the Shutdown option from the System Menu.
- Select Cancel or Shutdown on the popup screen.
- Once the Operator Interface has shut down, the power can be turned off, or the system can be restarted by touching the Restart button.

NOTE: All physical connections such as hoses, cords, & thermocouples must be disconnected and removed prior to closing the ACR®4 Hot Bonder.

PRINTER

To change the paper roll

1. Pull the printer lid locking lever towards the operator to unlock the lid.
2. Open the lid by lifting it up and away from the operator.
3. Remove the spent paper roll.
4. Lay the new paper roll into the printer so that the paper feeds up bottom of the roll.
5. Close the printer lid, pinching the paper between the printer and the lid roller.
6. Push the printer lid latch down locking the printer lid in place

DEFINITION OF TERMS

Cooldown: A controlled temperature decrease from one temperature to another at a specific rate of degrees per minute.

Dwell: Also known as Soak. The time the PV (process variable) is held at a specific temperature (setpoint).

PV: Process Variable. The measured or calculated Current Temperature Value.

Ramp: A controlled temperature increase from one temperature to another at a specific rate of degrees per minute (ramp rate).

Recipe: A series of steps and parameters with which to execute the cure.

Step: A single ramp rate, setpoint, and dwell time as part of a recipe.

SP: Setpoint Value. The value for a process variable that is desired to be maintained.

Temperature Deviation Alarm: if the PV is above or below the SP valve by the deviation amount, the temperature alarm will become active.

Temperature Deviation Shutdown: if the PV is above or below the SP valve by the shutdown amount, the cure will be aborted, and the alarm will become active.

Thermocouple Sensor Alarm: if any Control thermocouple is disconnected/ reading open or not available, the thermocouple sensor alarm will become active.

Thermocouple Sensor Shutdown: if at any point there are no Control thermocouples available or the thermocouple box is disconnected, the cure will be aborted, and the alarm will become active.

Vacuum Alarm: if any vacuum pressure value is below the Low Vacuum Alarm threshold, the Vacuum Alarm will become active.

CLEANING

Clean only with a damp cloth and mild detergent, exterior only. No water should penetrate the enclosure. Do not spray cleaner onto the hot bonder. Spray the cleaner onto the cloth then wipe the hot bonder.

⚠ WARNING

Do not clean when energized.

EQUIPMENT MAINTENANCE

Return to the BriskHeat factory for repair, annual calibration, or maintenance. Contact the BriskHeat factory at:

4800 Hilton Corporate Drive Columbus, OH 43232 USA
Toll Free: 1-800-848-7673
Phone: 1-614-294-3376
Fax: 1-614-294-3807
Email: info@briskheat.com

DISPOSAL

This product does not contain any hazardous substances and may be discarded with domestic waste.

EMERGENCY PROCEDURES

Electric Shock:

- Do not touch the injured person while they are still in contact with the electrical current.
- Call your local emergency service if the injured person experiences: severe burns, confusion, difficulty breathing, heart rhythm problems, cardiac arrest, muscle pain and contractions, seizures or a loss of consciousness.

Minor Burns:

- Hold the burned area under cool running water for 10-15 minutes.
- Remove rings or other tight items from burned area.

Major Burns:

- Call your local emergency service.
- Protect the person from further harm.
- Remove rings or other tight items from burned area.
- Monitor breathing and perform CPR if necessary.

Fire:

- Call your local emergency service.
- If it is safe to do so, use a fire extinguisher to fight the fire, otherwise evacuate to a safe distance and wait for help to arrive.

SPARE PARTS

- Input power cord:
  - 100-130 VAC, 20937-124 (L5-30 plug).
  - 200-240VAC, 20937-244 (L6-30 plug).
  - 200-240VAC, 20937-224 (3P+E+N plug).
- Heater output cord, 20936-40.
- Printer paper, 41247-149.
- Thermocouples, 11512-02 (Five (5) per pack).
- Vacuum feed-through, 20931-01.
- Vacuum hose, 20938.

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WARRANTY INFORMATION

BriskHeat warrants to the original purchaser of this product for the period of thirty-six (36) months. BriskHeat's obligation and the exclusive remedy under this warranty shall be limited to the repair or replacement, at BriskHeat's option. Of any parts of the product which may prove defective under prescribed use and service following BriskHeat's examination, is determined by BriskHeat to be defective. The complete details of the warranty can be found online at www.briskheat.com or by contacting us at 1-800-848-7673 (toll free, U.S. and Canada) or 1-614-294-3376 (Worldwide).

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Manual Part Number: 41039-06, REV 16