



CASTING CONNECTION

Dental Investment Cracking

TECH TIPS



Dental investment cracking is typically caused by liquid inside the invested ring evaporating too quickly. Build-up of these liquids, in the form of gasses, can remain in the oven and impede the evaporation process.

To avoid this issue, R&R recommends implementing these two important steps:

1. Adjust Ramp Rate

- The more rings in the oven, the longer the ramp rate should be. This will allow proper time for liquid, in the form of gas, to leave the ring.

2. Correct Oven Venting

- Prior to running actual cases with a new investment, it is recommended to complete a few test cycles using test rings first.
- Changing the normal number of rings loaded in the oven (i.e., two to three more or less than usual) typically should not cause issues. However, if loading more than two or three rings, proper venting is recommended as too many rings can cause cracking due to increased moisture.
- Do not stack rings directly on top of each other in the oven. Do not cover any more than half of each bottom ring to support top rings. Rings should be stacked in an oven as bricks are stacked to build a wall.

continued on page 5...



Inside this issue

Dental Investment Cracking	1
Welcome, Eddie!.....	2
Vulcan® Power Cords	2
Vulcan® 3-Stage Firmware Update.....	3
Managing Freezable Shipments	4
R&R 2021 Holiday Schedule	5
Have You Heard the News?	6
Vicenzaoro T. Gold 2022	6





Welcome, Eddie!

R&R is pleased to announce Eddie Roberts' appointment as Customer Service Representative.

In this position, Eddie will be responsible for providing service to North America and US export customers, ensuring customer service excellence from order-taking through delivery.

Eddie joins the R&R team with over 26 years of experience in operations, warehouse management, and customer service.

In his spare time, Eddie enjoys spending time with his wife and children, seeing live music, and participating in outdoor activities such as camping, surfing, and skiing.

Eddie can be reached at:
eroberts@ransom-randolph.com
419-794-1222

Please join us in welcoming Eddie to the R&R team!



If you have any questions or concerns, contact the R&R technical department at:
technical@ransom-randolph.com

Or contact a local electrician to ensure the outlet matches the machine voltage.

Vulcan® Power Cords

Did You Know?

Power cords are used to transfer direct current or alternating current. They are made of copper wire, enclosed in an insulating material, covered with protective, non-conductive material. Every power cord has a set, which includes a plug, socket, and cord. Power cords are rated by voltage or kilovolts, which determines the amount of power it can transfer.

Vulcan burnout furnaces offer three power cord options:

- Vulcan 120 Volt Power Cord FP-02842
- Vulcan 240 Volt Power Cord FP-02839
- Vulcan 240 Volt Power Cord Euro FP-02841

Safety First!

Power cords are an integral part of any device. Be sure to understand their differences and always use the correct power cord for your machine and outlet.

A 20 amp outlet/plug has the horizontal (or T-shaped) set up. The Vulcan 120V cord has a 20 amp plug and will not plug into a 15 amp outlet. Typically both the outlet and the breaker for the circuit the outlet is on need to be changed over to 20 amp. For example, most homes in the United States are wired with 120V, alternating current circuits that use both 15 and 20 amps. The vast majority of outlets, however, use 15 amp receptacles. 20 amp circuits are for high-power appliances, like the fridge/freezer, dishwasher, or your Vulcan oven.



Vulcan® 3-Stage Firmware Update

Firmware updates for Vulcan three-stage burnout furnaces are available for download and installation.

Downloading Updates

Replace the files on the flash drive that came with the furnace using the drop box files below:

www.dropbox.com/sh/nhkwxh0vk3gm6jt/AAAgNavBS-Btmc_fAREml6rAa?dl=0
www.dropbox.com/sh/s60hp97a5nhvhuv/AAAB4OcvV9blmVn6tsKF8LpSa?dl=0

Go to This PC > Downloads and double click on 3-Stage-Flash-Drive.zip to open the file

Click “Extract All” and save to the flash drive that came with the oven OR to a file on your PC of your choosing.

Preparing the Oven for Firmware Transfer

Open the bottom drawer of the oven by removing the two set screws on the bottom of the oven. Sit the unit upright and gently slide the bottom drawer out to expose the motherboard.

Attach the cord USB end to your PC and tab end to the motherboard. If you did not receive this cord, contact R&R at:
800-800-7496 (extension 55210) and request a cord.

Plug the oven in. Wait to turn it on.

Transferring the Firmware Updates

Click on CDM21228_Setup.exe and follow the installation instructions.

- Do you want this app to make changes to your device? YES
- FTDI CDM Drivers Screen, click EXTRACT
- Welcome to the Device Driver Installation Wizard, click NEXT
- License Agreement, click “I accept this agreement” and NEXT
- Click FINISH

TURN THE OVEN ON.

Click on “flash.exe”


In the pop up window, under Manual Port Selection, choose the COM port that is NOT PORT 3, and click SELECT PORT.
The status box will update with PORT FOUND!.

Click FLASH MODE ENABLE button. When all lights on the control panel are lit, the control unit is ready to update.

Click XMODEM FLASH to update controller firmware. The status box will indicate the unit is about to reset.

Unit will reset and display updated firmware version on the screen.

Turn the oven’s power off. Disconnect the cord from the computer, slide the drawer back into the oven and replace the set screws. The oven is ready to use.



TECH TIPS

R&R Tech Tips

Read the full tech tip at:
[Vulcan three-stage firmware update tech tip](#)

Need More Assistance?
For more assistance, contact the R&R technical experts at:
technical@ransom-randolph.com

Tech Tips
For more R&R Technical Tips, visit us online at:
www.ransom-randolph.com/technical-tips

3

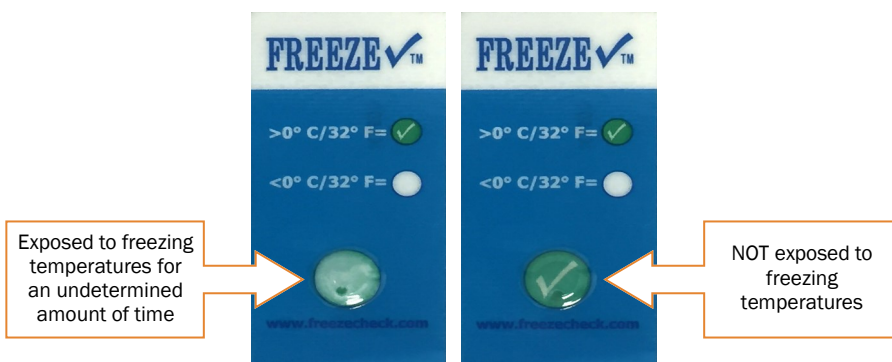


Managing Freezable Shipments

During winter months, freezable materials, like colloidal silica based binders, should be shipped as early as possible in the week to ensure that they are continuously moving to their destination. While this does not guarantee product will not freeze, it reduces the risk associated with shipping over a weekend where product may sit at a freight facility unprotected from freezing temperatures.

To help you ensure that the product you receive has not been damaged, R&R applies a freeze check indicator, which features a check mark in a green circle. Temperature-sensitive liquid is encased in a clear bubble over the check mark. The fluid will turn opaque and the check mark is no longer visible once it has been exposed to subfreezing temperatures.

Note: This does NOT mean that the material in the package has been frozen; it only means the package has been exposed to freezing temperature.



	Specific Gravity Acceptable Limits
Core-Hardener 2000™ binder	1.390-1.410
Customcote® binder	1.145-1.155
EHT binder	1.322-1.328
Fascote® binder	1.146-1.152
Keycote® binder	1.197-1.214
Kwik-Core™ binder	1.108-1.112
Levasil® colloidal silica	1.200-1.230
Matrixsol® 30 colloidal silica	1.200-1.230
Plasticast® PT binder	1.385-1.407
Primcote® binder	1.177-1.183
Primcote® PLUS binder	1.173-1.179

If this occurs, immediately:

1. Make a notation on your carrier delivery receipt prior to the carrier leaving your facility:

“POSSIBLE CONCEALED DAMAGE – PRODUCT HAS BEEN EXPOSED TO FREEZING TEMPERATURES”

Always accept a damaged shipment unless the damage has made the goods worthless.

In cases of partial damage or loss, accept the entire shipment, document the loss/damage on the carrier receipt and follow the instructions on [How to Handle Lost or Damaged Shipments](#).

2. If able, test the specific gravity of the material as soon as possible. Material may be used if it falls within the limits noted to the left.

If you are unable to test specific gravity, contact R&R customer service to have a freeze test kit sent to you:

customerservice@ransom-randolph.com | 800-800-7496

R&R 2021 Holiday Schedule

Please consider these closing dates when planning for your material needs.

CLOSED for the Holidays

- Friday, December 24

OPEN to take orders & ship materials

Hours of operation: Customer Service & Shipping from OH: 10AM-3PM EST

- Monday, December 27
- Tuesday, December 28

CLOSED for the Holidays

- Wednesday, December 29
- Thursday, December 30
- Friday, December 31
- Monday, January 3

REOPEN for the 2022 New Year

- Tuesday, January 4 at 8AM EST

Contact R&R at 800.800.7496 if you have any questions regarding this schedule.



Dental Investment Cracking

...continued from page 1

- Keep $\frac{3}{4}$ " around each ring for proper air flow.
- Most ovens have top vents, but not all have door vents. If your oven does not have a door vent, it is acceptable to leave the door open with a $\frac{1}{4}$ " to $\frac{3}{8}$ " gap to ensure excess moisture and gasses can escape.

NOTE: Be sure to close the door after the oven reaches 800 °F. At this point all expansion has occurred and all gases should be completely released.

- Never open the door during initial burnout. There is no reason to ever open the door unless you are removing the crucible prior to casting. Avoid the temptation to check for exploded rings. Once a ring

explodes, it is no longer salvageable.

There are no concrete solutions to prevent all cracking issues. These recommendations will take minor adjustments on your part to achieve successful results. It should be noted that geographic location can also play a part in successful results.

Need More Assistance?

For more assistance, contact the R&R technical experts at:

technical@ransom-randolph.com

Tech Tips

For more R&R Technical Tips, visit us online at:

www.ransom-randolph.com/technical-tips





Vicenzaoro T. Gold 2022

T. Gold, the international show for machinery and the most innovative technologies applied to jewelry and precious metal processing will once again be staged at the same time as VICENZAORO January. The Show, specifically for sector operators, offers the chance to place your business in the running, underlining the inseparable link that binds creative skills with technologies, whose innovations now involve every level of the manufacturing process.

**ITALIAN
EXHIBITION
GROUP**
Providing the future

When: January 21-26, 2022
Where: Vicenza, Italy
Learn More: www.vicenzaoro.com/en/t-gold
Look for R&R at the show!



Have You Heard the News?

R&R is celebrating its 150th anniversary in 2022!

Follow us on LinkedIn to join the celebration and learn more about our rich history! Plus, look for your chance to play games and win prizes throughout the year!

SCAN ME!

*Follow R&R on
LinkedIn today!*



Investing with Innovation™ since 1872

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Ransom & Randolph



At R&R, *Investing with Innovation™* is more than just a slogan, it's a way of life. Dedicated to advancing the investment casting industry, we take pride in providing foundries with extensive process knowledge, exceptional technical expertise and innovative product technology. By coupling our revolutionary product developments with our experienced staff, manufacturing and warehousing facilities, we successfully help you become a casting industry leader.

R&R's core businesses are comprised of ceramic shell, industrial mold, jewelry and dental investment casting.

R&R takes great pride in providing customers with a pleasant procurement experience. R&R's Maumee, Ohio based customer service team services North America and US export customers. Our UK-based agent, HTM Tradeco, Ltd., provides service for the European Union. From initial order placement through delivery, R&R's customer service team takes responsibility for accurate and efficient processing of your material needs. As a result, R&R's customer service team is unmatched in the industry.

Investing with Innovation™