

# Lava™

Scan ST Design System



# The New World of Integration

# A Journey That Starts with a Precise Scanner



## Full contour CAD/ CAM restoration

Lava™ Zirconia restoration,  
porcelain work created with  
the Lava™ Digital Veneering  
System.<sup>2</sup>

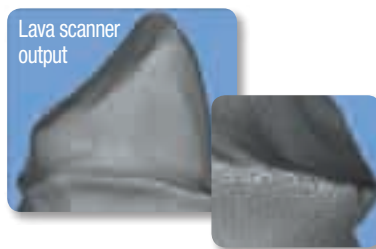
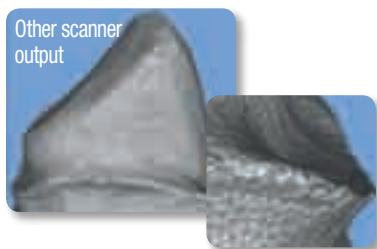
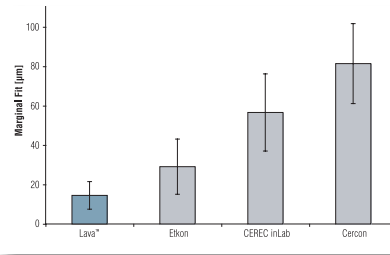
**For quality and productivity, this is the complete package.**

The first Lava™ Scanner was developed to be a digital design aid for milling centers. Today, our second-generation scanner is something far greater: a gateway to complete zirconia and metal restoration production.

Starting with a precise, high-quality scanner, the Lava™ System now allows you to take any of several routes to your destination. You can choose many materials. Create implant abutments and full contour designs.<sup>1</sup> And selectively communicate with other systems, as needed, along the way. Any route you take leads you to more productivity.

## Better marginal fit versus competitive systems.

Marginal gap of 3-unit bridges scanned and milled with different systems. The Lava™ System and zirconia materials show a good marginal fit in comparison to competitors. F. Beuer et al., University of Munich.<sup>2</sup>

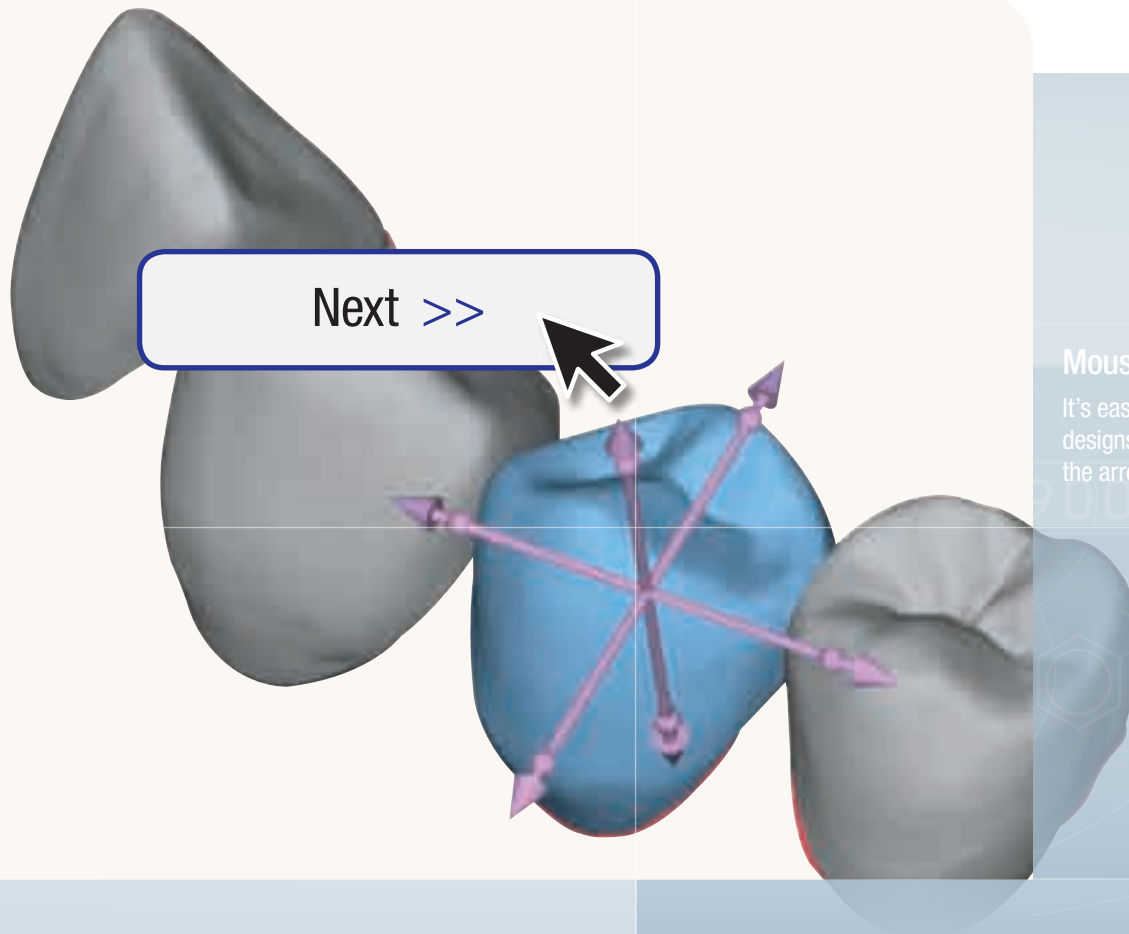


## Scanner accuracy: a function of data density.

Microphotography reveals another accuracy advantage in the Lava Scan ST scanner: data density. We are able to achieve this level of quality without sacrificing scan time. Our fast scanner also enables nested scanning so you can scan multiple cases with just one scan.

1. This feature will be made possible with the V. 5.0 upgrade to Lava™ Design Software scheduled for release in early 2009.
2. F. Beuer, T. Fischer, K.-J. Erdelt, H.-U. Aggstaller, K. Spiegl, W. Gernet; (2005) IADR#1336 and *In vitro* Study Marginal fit of Lava restorations; F. Beuer, T. Fischer, K.-J. Erdelt, H.-U. Aggstaller, K. Spiegl, W. Gernet, industrial report (2006).
3. The Lava™ CNC 500 Milling Machine, a wax block and the Lava™ Digital Veneering System are scheduled for release in 2009.

# Software that Guides You, Step by Step



## Mouse-based design.

It's easy to modify your designs by simply moving the arrows you like.

## Designed by dental technicians for dental technicians.

We understand you have work to do. That's why our software development is guided by dental technicians instead of software architects. Our goal is to continually make our system easy and efficient to use. Even our first version of Lava™ Design Software was designed to take dental technicians through the process step by step. This philosophy continues to be appreciated by new and experienced users alike. Every year, we have added more user-friendly features and updates. These are not just bells and whistles, but features that deliver real productivity. Our latest version<sup>1</sup> adds full contour design, integrated libraries for implant abutments and more tools designed to increase your productivity, step by step.



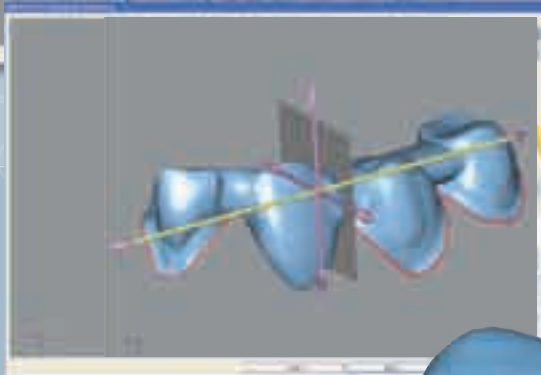
### Support traditional processes.

If you prefer to design a wax-up, you can simply scan in your wax-up for milling.



### Automatically place cement gap.<sup>2</sup>

When desired, it is easy to reposition the cement gap to ensure proper fit.

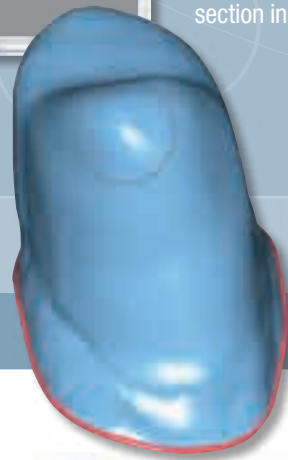


### Fine tune connectors.<sup>2</sup>

You can use the virtual wax knife tool to fine tune your connectors for more esthetic outcomes. To assure proper design, you can measure the connector cross section in every position.

### Virtual wax knife tool.

It's easy to fine tune your design with our wax knife tool. You can easily add or remove the exact amount of wax that you need.



### Offer a wide range of indications.

The Lava™ CAD/CAM system is approved for many indications, from crowns to custom abutments. With the introduction of our "Multi XL" size of Lava™ Frame Zirconia, you will also be able to create 8-unit bridges. (See back page for complete list and details.)

1. This upgrade is scheduled for release in early 2009.

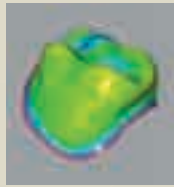
2. This feature will be made possible with the V. 5.0 upgrade to Lava™ Design Software scheduled for release in early 2009.

# Where Do You Want to Go?

Design a Lava™ Zirconia coping and glass ceramic final contour for production with the Lava™ CNC 500 milling machine!



Design full contour.

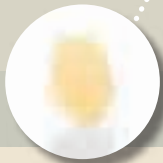


Reduce automatically to coping.



Substructure

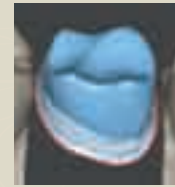
Final Contour!



Design a wax pattern coping and final contour for production with the Lava CNC 500 milling machine!



Design full contour.



Reduce automatically to coping.



Substructure

Final Contour!



Selectively open architecture can take you there.

The Lava™ Scan ST Design System now does more than create Lava™ Zirconia restorations. You can also use an optional software module to transfer designs for metal restorations and wax/resin patterns to selective third party equipment. This equipment can be located at your own lab or another 3M ESPE authorized lab or rapid manufacturing center. You simply send your design work via our secure Lava Connect Portal. Because 3M ESPE has tested the process, it's easy to expand your digital world.

## Design wax/resin patterns for production with selective wax/resin printers.



Design full contour.



Reduce automatically to coping.

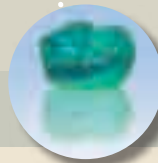


Data is sent through the Lava Connect Portal to a compatible printer.<sup>2</sup>

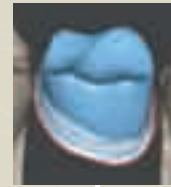
Substructure<sup>3</sup>



Final Contour<sup>3</sup>



## Design metal substructures with selective laser-sintering printers.



Reduce automatically to coping.



Data is sent through the Lava Connect Portal to a compatible printer.<sup>1</sup>

Substructure<sup>3</sup>



**“We have found that due to the high quality of the scan input from the Lava Scan ST, the precision of the wax patterns are much higher than what we got previously with our other scanner.”**

Dick Pilsner, President, D&S Dental Lab  
Waunakee, Wisconsin

1. The Lava™ Digital Veneering System is scheduled for release in 2009. The Lava™ CNC 500 Milling Machine is coming soon. A software upgrade scheduled for 2009 will make it possible to mill wax patterns for pressable ceramics using the Lava™ Wax block and Lava™ Form and Lava™ CNC 500 Milling Machines.
2. The systems shown represent compatible, third-party machines. Approved wax/resin printers currently include 3D System's InVision® DP 3-D Modeler, ProJet™ DP 3000 Production System and the envisionTEC DDP™. Approved laser-sintering devices currently include the EOSINT® M 270 and Phenix® Systems PM100 Dental and PM 100T Dental. For an up-to-date listing of compatible systems, please ask your local 3M ESPE sales representative or refer to our web site at [3MESPE.com/lava](http://3MESPE.com/lava).
3. Offered by 3M ESPE partner labs or Rapid Manufacturing Centers with approved third-party systems.



## Design abutment and coping with just one scan.

Since both are made from Lava™ Zirconia, your implant abutment and your coping can be the same shade. To create the abutment, Lava zirconia is cemented to a titanium interface. This enables compatibility with a wide variety of implant systems.

## Customize easily.

Abutment shapes are easy to customize. And when your design is produced on the new Lava™ CNC 500 Milling Machine,<sup>1</sup> the screw hole is automatically milled into the abutment.

## Options and flexibility.

You can design your own custom-shaded abutment with Lava zirconia or you can scan your model and order a titanium, gold-shaded titanium or zirconia Atlantis™ patient-specific abutment provided by Astra Tech through the Atlantis™ WebOrder system.



Atlantis™ patient-specific abutments

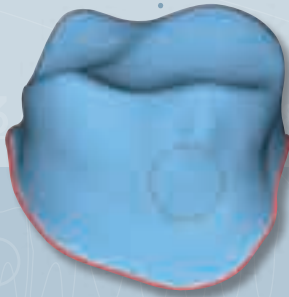
# Implant Abutments

## Abutment design that elevates your productivity.

With the Lava™ Design Software 5.0;<sup>2</sup> you can design the abutment and coping all from one scan. This saves time and ensures accuracy for a precise fit. In addition, you can now digitally design Lava™ Zirconia for implant abutments by choosing an abutment shape from the integrated library. You can also digitally select a compatible interface design. If desired, you can also scan a wax-up and abutment interface.

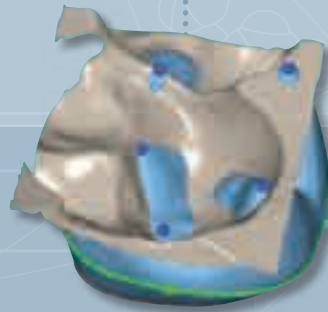
### Optimal porcelain support.

The full contour design is cut back to create an anatomically designed coping. This provides optimal support for your veneering.



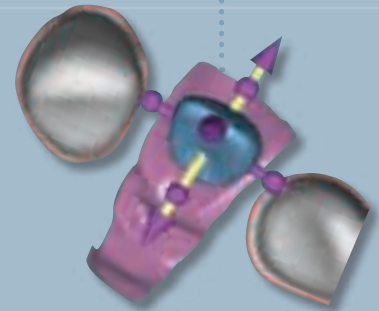
### Occlusion can be adapted.

Just use the bite registration to reposition the cusps. The cusps can then be digitally "trimmed" to fit the bite with just one click.



### Adapt to adjacent teeth.

It's easy to adapt the full contour of the design to the size and contour of the adjacent teeth.



# Full Contour Design

## A standard point of origin. Flexibility at every turn.

Lava™ Design Software 5.0<sup>1</sup> allows you to digitally create a full contour design by customizing the tooth shape provided. The standard tooth library automatically places the correct tooth number on the die. Then you can modify the design to fit opposing and adjacent teeth. You can also control the emergence profile, cusp position and anatomy. Frameworks and copings are created by reducing the full contour design. This ensures that they will optimally support the veneering. Occlusion can be properly adapted, too, utilizing the bite registration to reposition the cusps. The cusps can then be digitally "trimmed" to fit the bite with just one click, enabling fast, precise designing.

1. The Lava™ CNC 500 Milling Machine is scheduled for release in 2009.

2. Lava™ Design Software 5.0 is scheduled for release in early 2009.

Design full contour.



# Full Contour Production

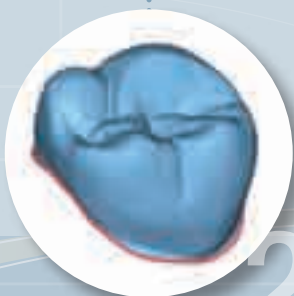


Lava™ Digital Veneering System.<sup>1</sup> A faster path to beauty.

Today, it's not enough to offer high esthetics and strong clinical performance. You also need a system that is flexible, easy to use and improves productivity. In other words, a system that supports your business needs and clinical outcomes. The Lava™ Digital Veneering System has been designed to do both. Supported by full contour Lava™ Design Software and the Lava™ CNC 500 milling machine, this system will enable you to produce esthetically pleasing, digitally precise porcelain work that is designed for Lava™ Zirconia copings. Along the way, it can help you grow your business.

## Adjust the contour.

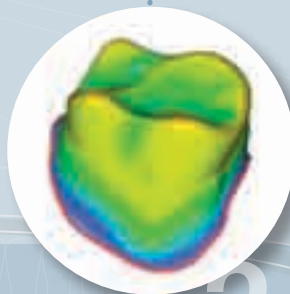
The software allows you to individually adapt to opposing and adjacent teeth. Additional features allow control of emergence profile, cusp position and anatomy.



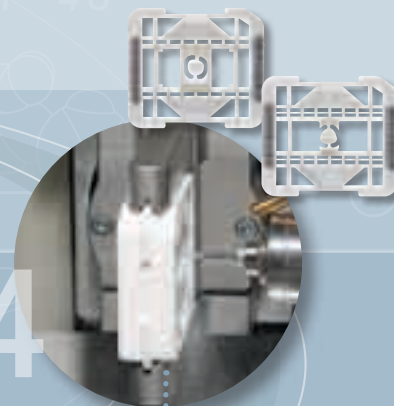
2

## Reduce automatically to coping.

Anatomically designed coping provides optimal support for porcelain work.



3



4



6

## Create final restoration.

It's easy to characterize the crown with shades, stains and glaze.

5



## Fuse both parts.

This step can be done by the milling center or by their dental lab customers. It's easy to do with Lava DVS Fusion Porcelain. This cross section shows all three layers — the zirconia coping, the fusion porcelain and the glass ceramic final contour.

## Mill both materials.

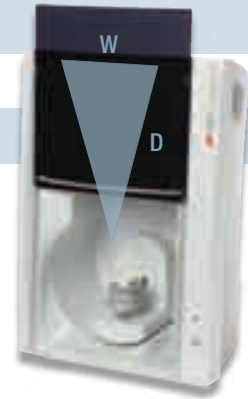
Mill the coping from Lava zirconia. Mill the porcelain work from Lava DVS materials on the Lava CNC 500 Milling Machine.<sup>2</sup>

1. The Lava™ Digital Veneering System is scheduled for release in 2009.

2. The Lava™ CNC 500 Milling Machine is scheduled for release in 2009.

## Technical Data

<b>Scan Volume</b>	62*46*46mm <sup>3</sup>
<b>Scan Time</b>	Average scan time is 1.40 minutes for a single crown
<b>Scan Type</b>	Non-contact, optical scanner with fringe projection triangulation for high accuracy
<b>Scan Handling</b>	Ergonomic design and convenient handling with one hand height adjustment
<b>Scanner Size</b>	Width: 545mm; Height: 800mm; Depth: 465mm; Weight: 45kg
<b>Electrical</b>	Line Voltage: 100 – 240 Volts; Frequency: 50 Hz – 60 Hz; Power: 250 Watt



### Scanner accuracy: A function of scanner size.

As illustrated at right, the greater the “W” and “D” dimensions are, the better the accuracy of your scans. We designed our tall scanner for optimal accuracy. The sleek design also has a small footprint to save workspace.

### Nested scanning. Helping you do more in the same amount of time.

To save time, you can nest multiple cases in a single scan. Within nested scanning the maximum scan length is 51mm.



(1) Live image shown during the scan process. (2) Each die shown in the nested scan can be designed in a separate case.

(3) It is easy to see the detail you need for each case. (4) Once you've completed a case, it changes color so it's easy to track your progress.

### Indications for Use

- Single crowns
- Primary crowns
- 3-unit bridges
- 4-unit bridges
- 5- and 6-unit bridges
- Curved and long-span bridges up to 48mm length (with the release of the “Multi XL” size of Lava™ Frame Zirconia)
- Cantilever bridges (excluded for patients with bruxism)
- Inlay/onlay bridges (excluded for patients with bruxism)
- Anterior adhesive bridges (excluded for patients with bruxism)
- Implant abutments cemented to a titanium base

Please refer to the Lava Frame Instructions for Use for details on framework design rules. The guidelines set forth by the relevant national health care oversight agencies must also be observed for the respective indications.

**3M ESPE Customer Care Center at 1-800-634-2249 3MESPE.com/lava**

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