David Jackson, CDT, is the owner of Mid-South Dental Lab in Franklin, TN.

# EFFICIENT TECHNOLOGY FUELS RAPID GROWTH

## Third-generation laboratory owner uses Kulzer's cara Print 4.0

**DAVID JACKSON, CDT, DID NOT** set out to grow his father's dental laboratory from a two-person operation to one with 14 technicians. He simply wanted to utilize digital technology to improve the laboratory's efficiency, and to expand his client list in preparation for the retirement of many dentists who had worked with his father for years. The dramatic growth that resulted was purely organic.

"I have always been determined to work smarter instead of harder," Jackson says.

Jackson's father, Roger, and great uncles Gene and Ansel, had worked hard in the dental laboratory business. Gene and Ansel pioneered "dentures in a day," making more than 100 dentures daily. Roger opened what would become Mid-South Dental Lab in 2006 and insisted that David attend the Tennessee College for Applied Technology for a degree in dental ceramics.

"I am a third-generation technician, but he was adamant that I become the first certified technician in the family," Jackson says. "I gained an appreciation and found my passion for dental laboratories. I never wanted to be stressed about producing 100 arches per day in a high-pressure environment."

Taking over the two-person laboratory in his early 20s when his father became ill and eventually passed away was challenging. Jackson says it took some time to get comfortable, but once that happened, he aggressively implemented cutting-edge CAD/CAM processes along with a heavy emphasis on education. He describes his laboratory as somewhere between boutique and production, with much of their work being complex implant cases.

"I believe in quality products at a fair price," he says.

Jackson decided to implement 3D printing in his laboratory approximately 2 years ago. He researched various types of printers, from the most affordable to the most powerful, before settling in the middle with Kulzer's cara Print 4.0.

"I considered the popular cheaper printer, but every other dental professional I talked to about it

Photography by Heather Durham Photography

told me how long and difficult the printing process was," Jackson says. "I also determined that one larger, more expensive printer would not be as versatile as two cara Prints."

The cara Print 4.0 uses digital light projection (DLP) technology to produce an X-Y resolution of 53.6 µm and a variable layer thickness of 30 to 100 µm, with an average build speed of 50 mm/hour (full range 15 to 120 mm/hour). Most print cycles last less than 1 hour. The build area is 103 by 58 by 130 mm.

"Speed is the biggest selling point," Jackson says. "I can print a surgical guide in 18 minutes. I print oral radiation stents for Vanderbilt University's oncology program, which are always needed in less than 72 hours. But that is not a problem with the cara Print 4.0; I can print one stent in 40 minutes and have it delivered in less than 48 hours."

Of course, his family's core business was always dentures, and Jackson uses the printers to manufacture custom trays, bases, and teeth. Custom trays can be printed in only 35 minutes. Two full arches can then be printed in less than an hour, with the bases in one printer and the teeth in the other. The only post-processing necessary is cutting off the sprues, adding some resin, light curing, and curing in a bowl of glycerin to keep it from drying and becoming brittle.

"That whole process takes 10 minutes and then the denture can be packaged and sent out to the client," Jackson says. "The traditional denture process takes 4 to 5 hours from investing to finishing."

Feedback from dentists has been positive. The resin exhibits a slight degree of translucency, which dentists have told Jackson they like, as the natural gingival tissue shows through.

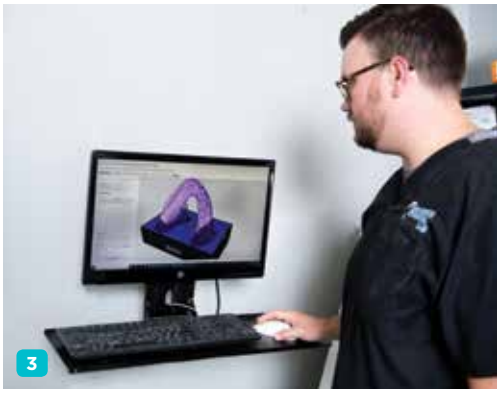
Dentists and patients also appreciate the ability to have dentures remade easily in the event that one is damaged or misplaced.

"Being able to just reprint them really simplifies things," he says.

The cara Print 4.0 even plays a part in Jackson's marketing, as he uses a Kulzer-provided STL file to print tooth-shaped golf tees to be used as handouts at events.

"The efficiency of that printer and the expert support that Kulzer provides with it have helped my laboratory grow in so many ways," he says.

**Fig 1.** Removing a print from the build table.
**Fig 2.** Prepping the printed denture base for finalization.
**Fig 3.** Nesting with cara Print CAM.
**Fig 4.** Printed denture finishing with gingiva characterization using Pala cre-active.



## Cara Print 4.0

**Using DLP technology, the Cara Print 4.0 can print most dental appliances in less than an hour. It can also create dentures in less than 2 hours with Kulzer's dima Print denture materials.**

**For more information, contact:**

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