cara®
Product Information

cara Print 4.0

The new 3D printer from Kulzer.
Quick, precise, economical: The perfect fit.

Giving a hand to oral health.

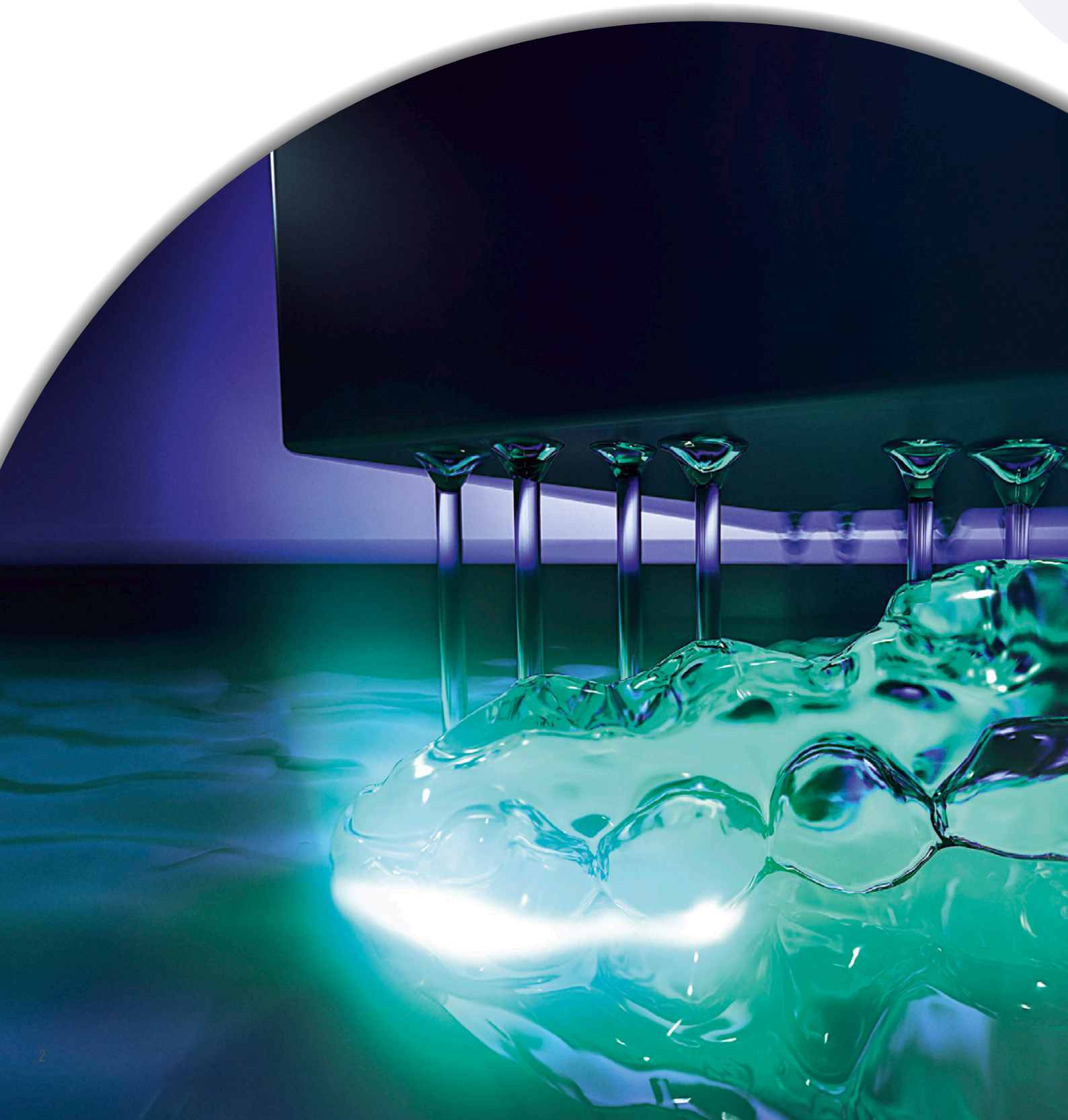
KULZER
MITSUI CHEMICALS GROUP

cara Print 4.0

Accelerated precision for perfect polymer restorations

Finally, a fast 3D printer that meets all the accuracy requirements for polymer-based dental appliances. cara Print 4.0 is a new 3D printer built specifically for dental technicians – by your dental experts at Kulzer. But what exactly sets cara Print 4.0 apart from all the other 3D printers on the market?

cara Print 4.0 is a 3D printer that produces monochrome dental appliances, layer by layer, using a high-quality photopolymer. The printer delivers precise restorations both faster and more economically than other printers on the market.



**cara cares.
cara helps dental technicians find what they need for sustainable success in digital dentistry. Contact us to find out if 3D printing is right for you.**

Quick & Easy

Thanks to a user-friendly interface, both beginners and those experienced in CAD/CAM can benefit from the high average production speed of cara Print 4.0.

- One hour or less to print most restorations
- Simultaneous printing of multiple restorations with no time increase
- Digital Light Projection (DLP) generates each layer in a single flash

Precise & accurate

cara Print 4.0 results in smoother, more homogeneous surfaces than competing 3D printers. The exceptional precision in the z-axis and the finely tuned parameters for each material mean that dental technicians can position restorations in almost any direction – and always achieve the perfect fit.

Economical

The in-house manufacturing process with cara Print 4.0 reduces costs and production time for many applications when compared to analogue methods, milling and other 3D printers.

- Additive process means minimal waste compared to milling
- Long-lasting resin tray, rather than disposable
- Refill system rather than cartridges that require care in cleaning

Universal solution for all polymer restorations

Due to the size of the material tray and exceptional 3D accuracy, cara Print 4.0 can be used for the production of all polymer-based dental appliances.

cara Print 4.0

A comprehensive, yet open digital workflow with cara Print 4.0

The cara system for 3D printing is open, working with open STL files commonly used by CAD programs, such as 3Shape DentalDesigner. cara Print CAM software is included with the purchase of cara Print 4.0, with no hidden licensing fees. Technicians are encouraged to use cara Print 4.0 together with Kulzer's own dima Print materials, followed by post-curing in the HiLite® Power 3D. Doing so ensures the highest quality results and guaranteed clinical performance.

Materials: dima Print

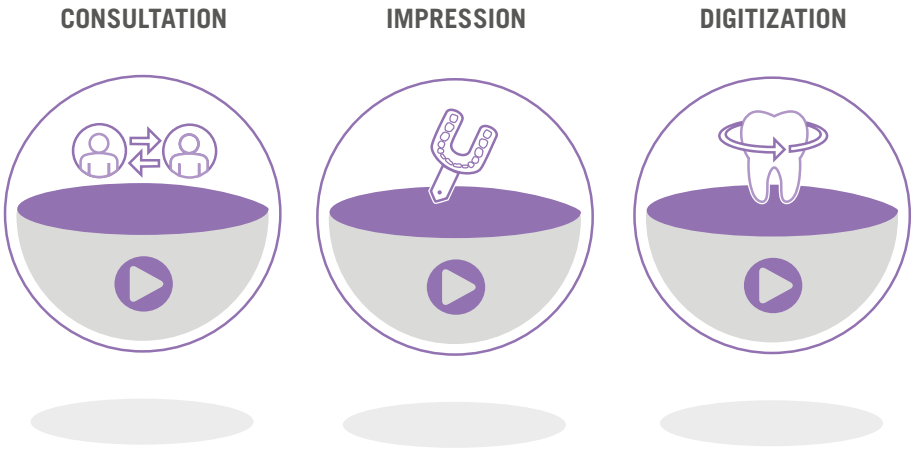
cara Print 4.0 will work with the resins of your choice. However, Kulzer combined its longstanding materials expertise with deep knowledge of 3D printing to develop dima Print materials, so that you can rely on perfect results, time after time.

Post-curing: HiLite® Power 3D

After printing, restorations must be post-cured, using our top-of-the-line HiLite Power 3D, available separately. The high-performance light-polymerization unit can be used with all light-curing dental materials. If you already have a HiLite® Power device, you will be eligible for an upgrade when you purchase cara Print 4.0.

cara Service

Our experts are there to ensure a quick learning curve and long-term support – digital dental manufacturing is easy with a lifetime dental partner like Kulzer.

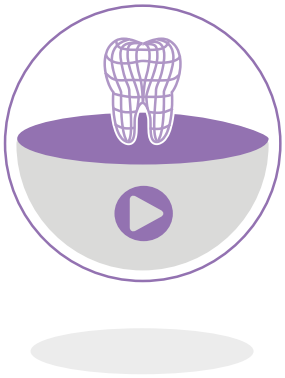


3D PRINTING IN CARA PRINT 4.0
(USUALLY <1 HOUR)

SELECT THE APPROPRIATE
DIMA PRINT MATERIAL

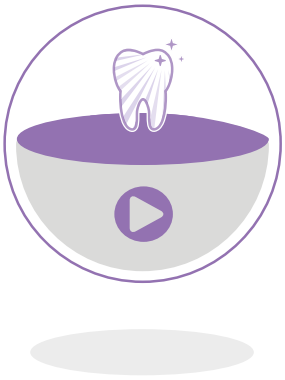
PRODUCTION

DESIGN



FINISHING

FITTING



More Information and movies under www.kulzer.com/cara-Print

cara Print 4.0

dima Print materials: fine-tuned 3D printing resins

Kulzer combined its longstanding materials expertise with deep knowledge of 3D printing to create dima Print materials. The materials and 3D printing process are perfectly matched to ensure the best results.
Kulzer has one of the best reputations in the industry for high-quality materials. Technicians and dentists know: if it says Kulzer, it's going to work. All Kulzer materials are based on decades of research – including those specifically designed for the modern digital workflow.
dima Print materials are light-curing monomeric liquids specially optimized for 3D printing and the requirements of dental applications. When used together with cara Print 4.0 and the HiLite Power 3D post-curing unit, technicians benefit from a comprehensive 3D-printing system designed for speed, reliability and value for money.

Overview of applications:

A night guard, made with dima Print Ortho

An individual impression tray, made with dima Print Impression

A surgical drill guide, made with dima Print Guide

A dental model, made with dima Print Model

A CAD-to-cast structure, made with dima Print Cast

dima Print materials will be available soon for further indications, including:
- Temporary prosthetic restorations
- Permanent prosthetic restorations (e.g. crowns & bridges)
- Denture bases

What happens after printing?

The following is an example of what needs to be done to complete the manufacturing process.

1. Remove restoration

2. Clean in isopropanol

3. Remove supports

4. Post cure on gypsym model first and then from backside

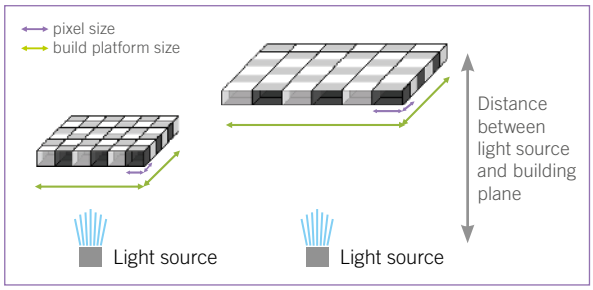
5. Grind off residual support marks

6. Polish (splints & drill guides only)

cara Print 4.0
Technical information

Accelerate your production, maintain quality

cara Print 4.0 allows you to accelerate the production of high-quality polymer-based dental applications. With an X-Y resolution of 53.6 µm and a variable layer thickness (i.e. Z-axis resolution) of 30 – 150 µm, you can quickly achieve the accuracy requirements for all polymer-based restorations at building speeds averaging more than 50 mm an hour (at 50 µm slice thickness).



X-Y-Resolution: Kulzer uses the optimal settings to ensure accuracy and universal use. We chose the right distance from the light source to allow an universal use and good accuracy.

Digital Light Projection (DLP) vs. Laser

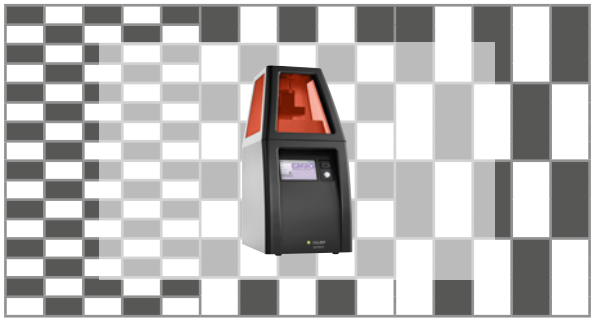
Digital Light Projection makes cara Print 4.0 quicker, more economical and more accurate than laser-based systems. Laser-based resin 3D printers have to 'trace' each layer, point for point, line for line. With its DLP technology, however, cara Print 4.0 can project an entire layer in a single flash and achieve a finer level of detail than with laser.

cara Print 4.0 vs. other 3D-DLP printers

cara Print 4.0 is even faster than most other resin DLP systems. The intelligent calculation of the illumination sequence and the fine mechanical movement of the z-axis, combined with the unique properties of the non-clouding, long-lasting resin tray speed up the production process significantly.

Optimize speed vs. accuracy by indication

By increasing the layer thickness on the z-axis, it is possible to speed up cara Print 4.0 even further for appliances that require a low to moderate degree of accuracy, such as for impression trays (low) or splints and drilling guides (moderate). With a variable Z-resolution of 30 – 100 µm, the printer is also fully capable of meeting the accuracy requirements of any chosen indication, such as dental models, cast structures, denture bases, or temporary and permanent prosthetic restorations.



Z-axis: Flexible resolution settings enable the perfect balance of speed and accuracy.

Technical details at a glance:

Polymerization technology	Digital Light Projection (HD DLP @ 405 nm)
Building area	103 x 58 x 130 mm
Resolution (X & Y-axes)	53.6 µm
Layer thickness (Z-axis resolution):	30 – 150 µm (varies by indication & speed vs. resolution needs)
Average build speed	50 mm/hour (@ 50 µm)
Min./Max. build speed	15 – 120 mm/hour
Average duration of 1 print cycle	< 1 hour
Connectivity	WiFi, Ethernet or USB
Input format	open STL
CAD software compatibility	All CAD programs using open STL
CAM software	cara Print CAM, included with purchase
Printer dimensions	267 x 420 x 593 mm
Printer weight	21 kg
Non-clouding resin trays	2 included with purchase

cara Production Centre:

Dental manufacturing on demand.

cara Production Centre has you covered anytime you need additional production capacities for milling, Selective Laser Melting, Stereolithography, as well as a range of solutions for implant supported restorations or crown and bridge prosthetics.

Heravest M print+ investment material

For rapid prototyping with metal alloys

Heravest M print+ is the perfect investment material for 3D printed cast structures. Heravest M print+, along with dima Print cast and cara Print 4.0, is the perfect solution for precise and reliable alloy casting results. Structures made with dima Print cast in cara Print 4.0 are embedded into Heravest M print+ and can be casted as usual afterwards. Digitizing the process saves you both time and costs when compared to traditional wax casting.

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