



Create **fully printed dentures** with **dima®**  
Denture Base and  
Denture Teeth  
print materials!

## **carao® Print 4.0**

The 3D DLP 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 restorations

Finally, a fast 3D printer that meets all the accuracy requirements for polymer-based dental appliances.

**cara Print 4.0** is a 3D printer developed for dental professionals – 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.

#### Quick & easy

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

- One hour or less to print most restorations
- Simultaneous printing of multiple restorations
- 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 professionals can position appliances in almost any direction – and always achieve the perfect fit.

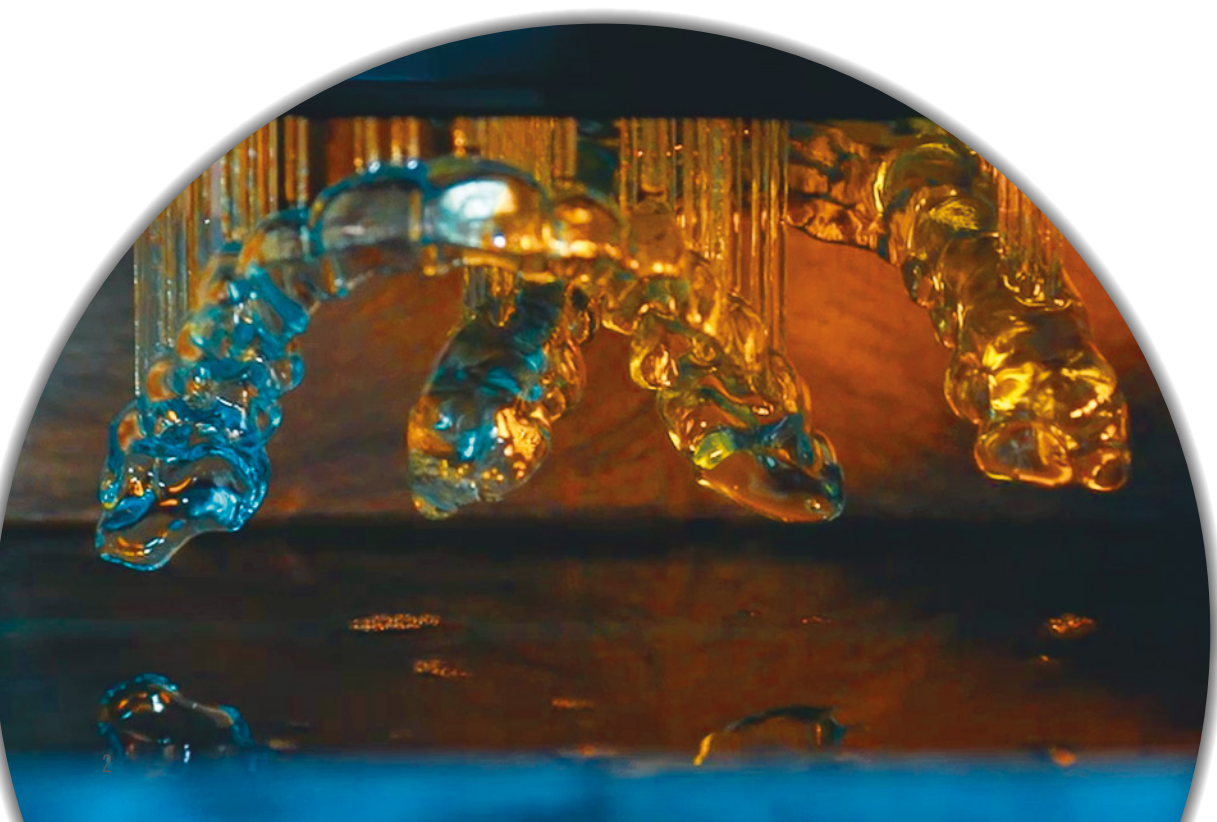
#### Economical

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

- Additive process means minimal waste compared to milling
- Long-lasting resin trays, 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.



# caro Print 4.0

A comprehensive, yet open digital workflow for 3D printing

The caro system for 3D printing is open, working with open STL files commonly used by CAD programs, such as 3Shape DentalDesigner. caro Print CAM software is included with the purchase of **caro Print 4.0**, with no hidden licensing fees. Use **caro 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.



# cara Print 4.0

## dima Print materials: fine-tuned 3D printing photopolymers

Kulzer combined its long-standing materials expertise with deep knowledge of 3D printing to create **dima Print** materials. 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, you'll see the benefits of a comprehensive 3D-printing system designed for speed, reliability and value.



### Overview of applications:

Dima Print Materials								
Material	Indication	MDD class	Color(s)	Flexural Strength [MPa]	Flexural Modulus [MPa]	Printing time per part	Material consumption (incl. supports) / Costs	
<b>dima Print Ortho</b>	Splints/nightguards	I	Transparent light blue	75	1800	15 min (70µm in z, 3 parts)	6 – 10g / \$1.80 - \$3.00	
<b>dima Print Splint Clear</b>	Splints/nightguards	I	Transparent clear	110.9	2461	34 min (50µm in z, 2 parts)	6 – 10g / \$1.81- \$3.05	
<b>dima Print Impression</b>	Impression trays	I	Opaque blue, Opaque pink	80	2000	45 min (100µm in z, 2 parts)	15 – 20g / \$4.37-\$5.83	
<b>dima Print Guide</b>	Surgical drilling guides	I	Transparent light orange	80	2000	13 min (70µm in z, 4 parts)	5 – 15g / \$1.46 - \$4.38 + metal sleeves	
<b>dima Print Model</b>	Models	Not needed	Opaque beige	40	1000	40 min (50µm in z, 2 parts)	30 – 50g / \$4.90 - \$8.17	
<b>dima Print Stone</b>	Models	I	Gypsum beige	95	3,000	38 min (70 m in z, 1 upper jaw and 8 teeth)	25 – 40g / \$7.04 - \$11.21	
<b>dima Print Cast</b>	For casting	Not needed	Purple	75	1800	24 min (70µm in z, 3 parts)	3 – 10g / \$0.75 - \$2.50	
<b>dima Print Denture Base Try-in</b>	Denture base try-in	II	White	85.2	2152.2	45 - 60 min (50µm)	25 – 33g / \$9.75 - \$12.87	
<b>dima Print Denture Base Try-in</b>	Denture base try-in	II	Pink	90.8	2147	45 - 60 min (50µm)	25 – 33g / \$9.75 - \$12.87	
<b>dima Print Denture Base</b>	Denture Base	II	Light reddish pink, light pink, original pink, dark pink	76.0 - 82.7	2328 - 2533	50 - 56 min (100µm)	22 – 24g / \$8.26 - \$9.30	
<b>dima Print Denture Teeth</b>	Denture Teeth	II	Shades A1, A2, A3, A3.5, B1, B2	>50 mPa	n/a	22 - 28 min (50µm)	8 – 12g / \$4.89 - \$5.50	

**Now available!**  
Use cara Print 4.0 to create fully printed dentures with dima Denture Base and Denture Teeth resins!



Denture base, made with dima Denture Base (light reddish pink)



Denture teeth, made with dima Denture Teeth (shade A3)



A fully printed denture in **less than 2 hours!**

# cara Print 4.0

## Printing performance overview

	Type	Material	Build height	Time [min]					Volume to print	Avg. Material cost	Avg. Material cost per part
				mm	30µm	50µm	70µm	100µm			
	one upper jaw and 8 teeth	dima Print Stone	26.8	-	58	38	25	-	31	9.12	9.12
	two splints 0°	dima Print Splint Clear	16.65	-	34	24	17	-	9.36	4.86	2.43
	three splints 45°	dima Print Splint Clear	44.70	-	80	56	41	-	15.93	7.29	2.43
	one partial framework	dima Print Cast	25.91	-	28	24	15	-	2.82	1.62	1.62
	three partial frameworks	dima Print Cast	45.77	-	50	37	27	-	11.5	4.86	1.62
	one full arch model	dima Print Model	26.23	190	93	62	43	-	14.85	9.12	9.12
	dual arch	dima Print Denture Base	74.52	-	--	--	56	-	45	17.56	8.78
	one full arch and 2 quadrant models	dima Print Model	20.68	155	73	50	34	-	35.77	11.60	3.87
	five surgical guides	dima Print Guide	20.43	-	26	19	15	-	20.93	7.41	1.48
	two splints	dima Print Ortho	19.02	-	19	15	10	-	13.05	4.80	2.40
	four splints	dima Print Ortho	47.04	-	58	42	30	-	20.04	9.60	2.40
	two impression trays	dima Print Impression	76.77	-	--	--	45	38	23.55	10.20	5.10
	four arches of teeth	dima Print Denture Teeth	15.32	-	28	--	-	-	44	20.78	5.19

### Nesting made easy with cara Print CAM

cara Print CAM software is currently included with the purchase of **cara Print 4.0**. Use cara CAM to easily import, orient, support, slice and review your nested CPJ file prior to printing.



Watch our How-To videos for nesting tips and tricks on the [Kulzer North America YouTube](#) channel



Download and demo cara CAM by visiting [caraPrint.com](http://caraPrint.com)

## 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



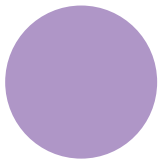
5. Remove support marks



6. Pumice and polish (splints, surgical guides, and printed dentures only)

## 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.



# caraprint 4.0

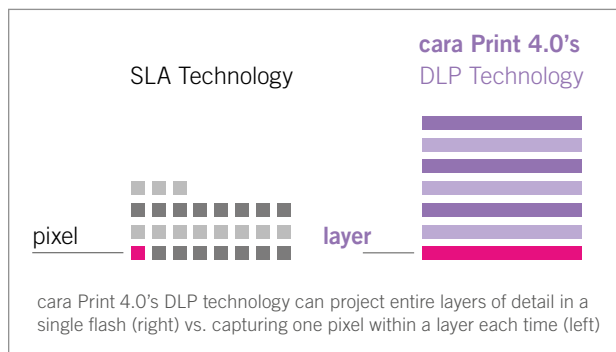
## Technical information

### Accelerate your production, maintain quality

**caraprint 4.0** allows you to accelerate the production of high-quality polymer-based dental applications. With an x-y resolution of 53.6µm 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 50mm an hour (at 50µm slice thickness).

### Digital Light Projection (DLP) vs. Laser (SLA)

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

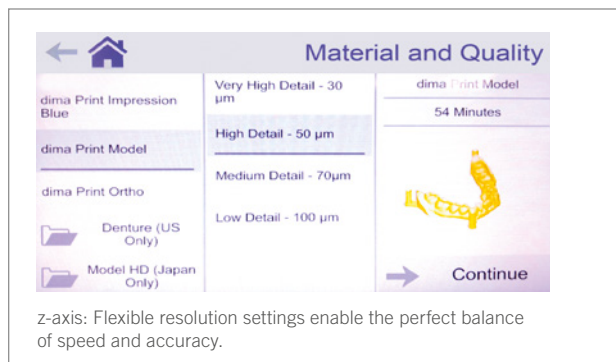


### caraprint 4.0 vs. other 3D-DLP printers

**caraprint 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 **caraprint 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 30–150µm, 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.



#### Technical details at a glance:

Polymerization technology	Digital Light Projection (HD DLP @ 405 nm)
Building area	103x58x130mm
Resolution (X & Y-axes)	53.6µm
Layer thickness (Z-axis resolution):	30–150µm (varies by indication & speed vs. resolution needs)
Average build speed	50mm/hour (@50µm)
Min./Max. build speed	15–120mm/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	caraprint CAM, included with purchase
Printer dimensions	267x420x593 mm
Printer weight	21 kg
Non-clouding resin trays	2 included with purchase

For the latest  
cara resources and  
product info, visit:

**kulzerUS.com/  
caraPrint**

**cara Print 4.0**  
Product Numbers

Printer and Accessories			
<b>66069095</b>	cara Print 4.0 3D DLP printer	<b>66069956</b>	cara Print 4.0 build table
<b>66069514</b>	Signum HiLite power 3D post-curing unit	<b>66078518</b>	cara Print Clean automatic parts cleaner
<b>66076160</b>	cara Print 4.0 accessory kit	<b>66078520</b>	cara Print Clean wash containers
<b>66069858</b>	cara Print 4.0 print tray	<b>66059751</b>	Signum HiLite Pre 2 pre-polymerization unit
dima Print Materials (1000 gm bottles)			
<b>66069101</b>	dima Print Cast	<b>66069100</b>	dima Print Model
<b>66077913</b>	dima Print Stone (beige) <i>Coming Soon!</i>	<b>66069099</b>	dima Print Guide
<b>66069098</b>	dima Print Impression (blue)	<b>66077916</b>	dima Print Splint Clear
<b>66069096</b>	dima Print Ortho	<b>66075558</b>	dima Print Denture Base Try-in – white
<b>66075560</b>	dima Print Denture Base Try-in – pink	<b>66077050</b>	dima Print Denture Base – light reddish pink
<b>66077051</b>	dima Print Denture Base – light pink	<b>66077052</b>	dima Print Denture Base – original pink
<b>66077053</b>	dima Print Denture Base – dark pink	<b>66077054</b>	dima Print Denture Teeth – A1
<b>66077055</b>	dima Print Denture Teeth – A2	<b>66077056</b>	dima Print Denture Teeth – A3
<b>66077057</b>	dima Print Denture Teeth – A3.5	<b>66077058</b>	dima Print Denture Teeth – B1
<b>66077059</b>	dima Print Denture Teeth – B2		



Have a question? Our customer service team of dental professionals are ready to help you. Contact them at **CustomerService.NA@kulzer-dental.com**



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