APPLICATION GUIDE

FOR DIMA PRINT GUIDE & TRAY

Version 02.2023

MORE INFO
KULZER.COM/
GUIDETRAY

KULZER
MITSUI CHEMICALS GROUP

Content

Equipment you need

Design Software
CAD Design Software (3shape)

Print resin for 3D Printing
dima Print Guide & Tray

3D printer
cara Print 4.0

Wash unit
cara Print Clean *pro* 4.0 or ultra sonic bath

Post-curing unit
cara Print LEDcure or HiLite power 3D

APPLICATION GUIDE

FOR SURGICAL GUIDES

1. Design notes

The recommended settings and design suggestions here only apply when used in combination with 3Shape.

3Shape setting parameter (Implant Studio) – dima Print Guide & Tray

	Minimum Value	Maximum Value	Recommended Default Value
Thickness	1.5 mm	5.0 mm	3.0 mm
Offset from teeth	0.000 mm	0.030 mm	0.010 mm
Retention amount	0.000 mm	0.030 mm	0.010 mm
Offset from sleeve	0.010 mm	0.050 mm	0.030 mm

2. Nesting & preparing

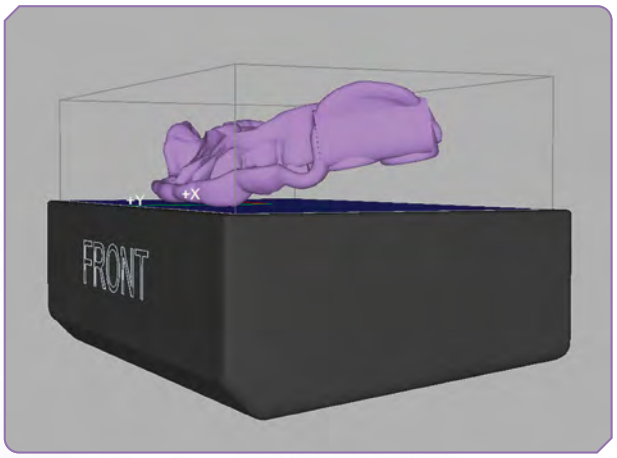
2.a Workflow for cara CAM 2.0 & cara Print 4.0 pro

Coming soon

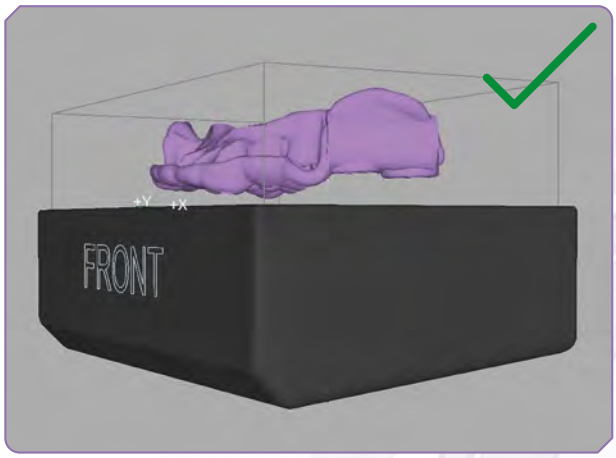
2.b Workflow for cara CAM & cara Print 4.0

Print position (angle and orientation):

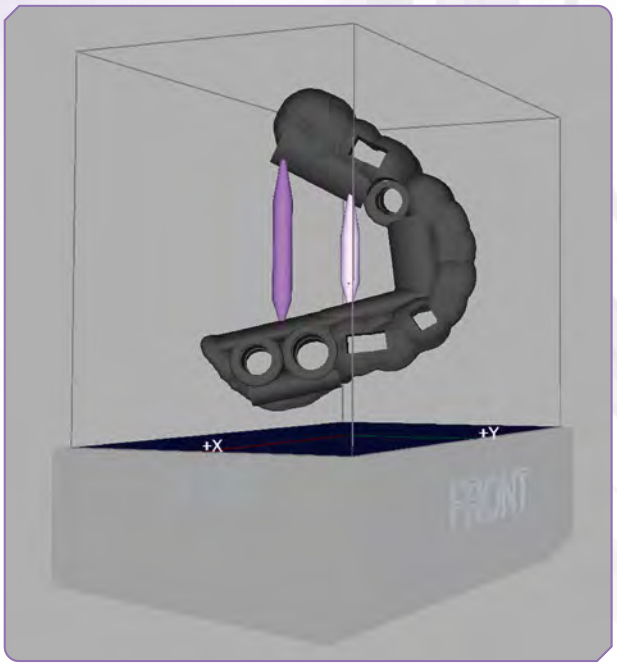
- The best results are obtained when printed flat (0° or not angled, respectively). Especially the holes in which the drilling sleeves will be located later should be aligned plane-parallel to the building platform. This ensures an optimal fit of the sleeve before polymerizing.



Before correction in z axis



After correction in z axis



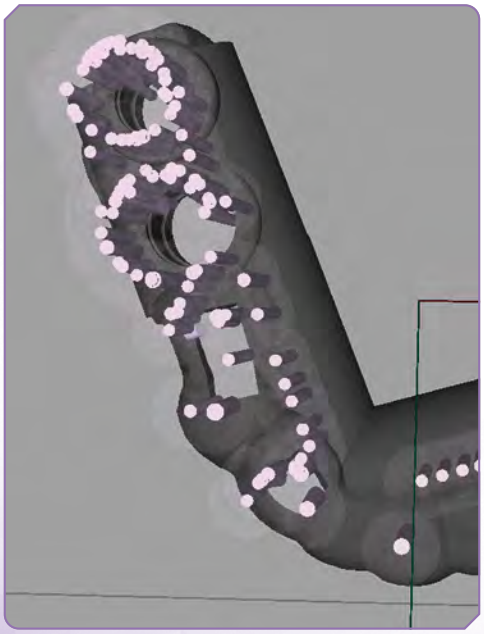
Adding stabilization bars: min. 2 up to 3 are required

Support parameters & bottom	
Shape	Cone 25 %
Radius (mm)	2
Length (mm)	4
Penetration	0.07
Angle Factor	100

Supports:

- Structures Spacing: not less than 0.5 mm
- Density of supports: 70 %
- Center down to the grid base: type “medium” or “fine”
- Form of the tip on the printed piece: “Cone 25 %” (for easier removal after printing)

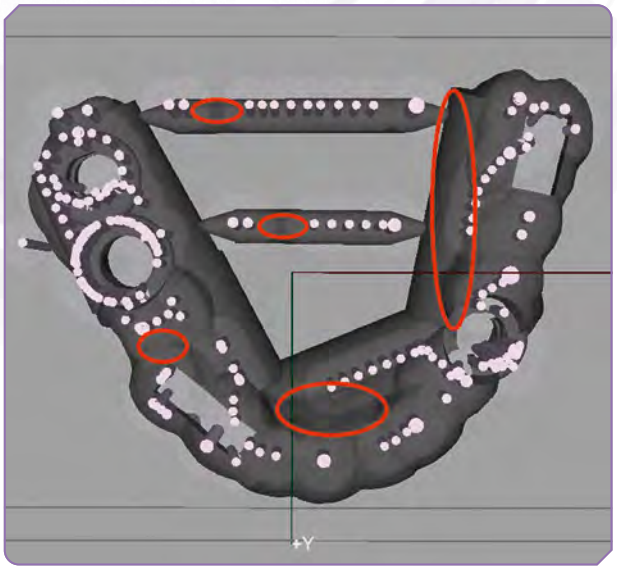
- After using the automatic support function, the result could show supports placed inside the sleeve holes. The support structures must be removed and set again manually for the area of the metalsleeves. Otherwise the metal sleeves may not fit properly inside the holes.



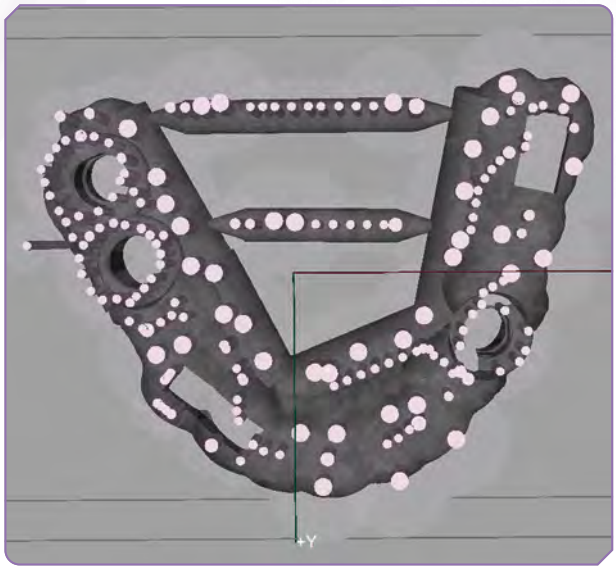
Result after using automatic support function

Result after manual correction

! NOTE:
AFTER USING AUTOMATIC SUPPORT FUNCTION FILL THE UNSUPPORTED AREAS WITH MEDIUM SIZE SUPPORTS.



Result before filling unsupported areas



Result after filling unsupported areas

Foundation

- "Hash"
- Thickness: 1.0 mm
- Distance of Guide to building platform: 7 mm

3. Processing

Mixing of photopolymer

- Time: 5 min
- Shake well before pouring the liquid into printer vat

Printing parameters for cara Print 4.0

- Choose printing parameter for dima Print Guide & Tray
- Resolution: Guide = 100 µm

Printing performance overview

Example	Build height [mm]	Time [min] for 100 µm resolution	Time [min] for 150 µm resolution	Material consumption [g]
Medium size drilling guide	20	15	–	7.5

4. Cleaning and post-curing

Cleaning

- Use IPA (pure) to wash your Guides in a cleaning unit or an ultra sonic bath.
- We generally recommend using cara Print Clean pro to wash printed objects. For more information, see the instructions of the cleaning unit on our website: **kulzer.com/cleanpro**.

Preparation of surgical guides

- Remove support structures if necessary and insert drill sleeves into the drilling holes. Check proper fitting of inserted sleeves before and after post-curing.

	Cleaning	Curing	
Step	1.	2.	
	 cara Print Clean pro (or ultra sonic bath)	 cara Print LEDcure	OR  HiLite Power 3D
	1. Pre-cleaning: 3 min. 2. Post-cleaning: 2 min. (fresh rinse)	Select Guide & Tray program (no turning of object necessary)	10 minutes (5 minutes front side + 5 minutes reverse side)

5. Processing after

5.a Separation of supports

- Carefully separate the supports with standard separating discs.
- The stabilization bars must remain on the object during post-curing, please remove the bars and polish before autoclaving procedure.

5.b Preparation for polishing

- High gloss: The finishing is done with cross-toothed cutters and, if necessary, silicone and rubber polishers or with the polishing motor. Polishing of the outside is mandatory for surgical guides.

! NOTE:
ALWAYS POLISH THE SURGICAL GUIDE BEFORE AUTOCLAVING!

6. Cleaning and sterilization

NOTE:
RESTRICTION OF REPROCESSING: THE PRINTED SURGICAL GUIDES ARE INTENDED FOR SINGLE PROCESSING AND SINGLE USE. PLEASE ENSURE THAT THE INFORMATION ON CLEANING & STERILIZATION IS PASSED ON TO THE DENTAL PRACTITIONER.

FOR DETAILS ON THE STERILIZATIONS AND CLEANING PROCESS PLEASE REFER TO THE IFU OF THE PHOTOPOLYMER AS WELL AS THE IFUS OF THE STERILIZATION POUCHES AND STERILIZATION EQUIPMENT USED.

Cleaning and disinfection:

For detailed instructions on manual cleaning and disinfection please refer to the IFU of the photopolymer.

Sterilization:

Pre-vacuum process, 132 °C and sterilization time at least 3 min (longer holding times are possible) (132 °C, 90 seconds was validated).

1) Place the packaged medical device in the sterilizer chamber.
2) Start the sterilization program.
3) At the end of the sterilization program remove the device and let it cool down.
4) Check the packages for damages or moisture penetration. Rejected packaging must be considered non-sterile.

Make sure no mechanical forces are applied to the guide during sterilization and cool down to room temperature and avoid any handling of the packaged devices prior to cooling and drying.

During sterilization a slight color change will happen. The color will turn from orange to nearly transparent.

Appearance before post-curing	Appearance after post-curing and polishing (before sterilization)	Final surgical guide (after sterilization)
		

APPLICATION GUIDE
FOR INDIVIDUAL IMPRESSION TRAYS

1. Design notes

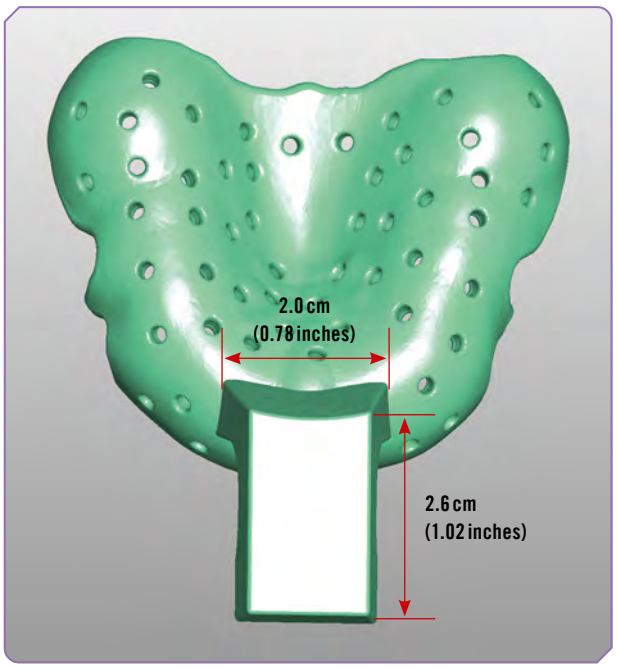
The recommended settings and design suggestions here only apply when used in combination with 3Shape.

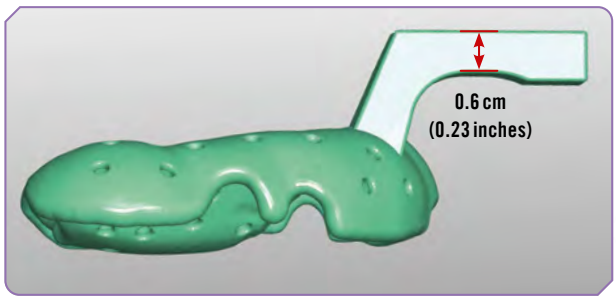
Recommended values for sufficient tray designs:

Minimum wall thickness	Distance for holes	Diameter for holes
2.0 mm	8.0 mm	3.0–3.5 mm

Recommended values for sufficient handle geometrys are:

Minimum wall thickness	Width	Length
0.6 cm	2.0 cm	2.6 cm





2. Nesting & preparing

2.a Workflow for cara CAM 2.0 & cara Print 4.0 pro

Coming soon

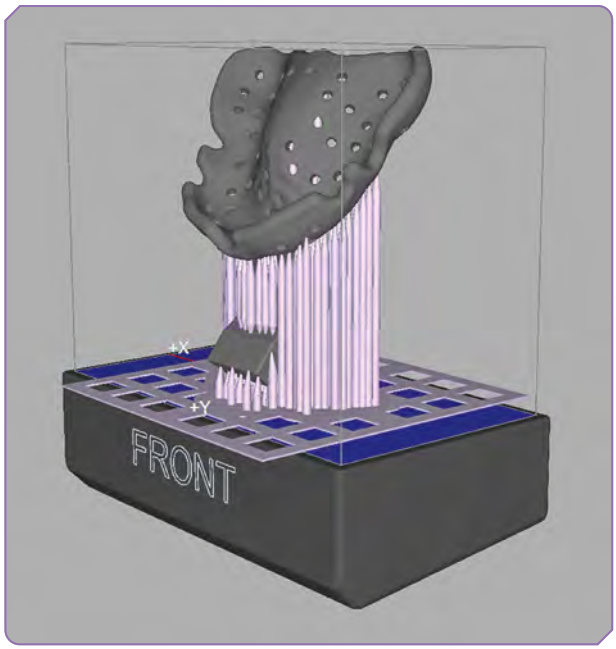
2.b Workflow for cara CAM & cara Print 4.0

Print position (angle and orientation):

- 75°–80° maximum
- After your orientation is set, highlight the appliance and hit the “Snap to Floor” button at the top of your CAM screen. This will snap the appliance to the floor of the build table.

Supports

- Spacing: not less than 0.5 mm
- Density of supports: 30 %
- Center down to the grid base: type “Medium”
- Form of the tip on the printed piece: “Cone 25 %”



Foundation:

- “Hash”
- Thickness: 1.0 mm
- Distance from tray to building platform: 5.0 mm

3. Processing

Mixing of photopolymer

- Time: 5 min
- Shake vigorously before pouring the liquid into printer vat

Printing parameters

- Choose printing parameter for dima Print Guide & Tray

Resolution

- Tray = 100 µm and 150 µm

Printing performance overview

Example	Build height [mm]	Time [min] for 100 µm resolution	Time [min] for 150 µm resolution	Material consumption [g]
Impression tray (upper jaw)	67	42	32	37.6

4. Cleaning and post-curing

Cleaning

Use IPA (pure) to wash your Trays in the cleaning unit or an ultra sonic bath.

We generally recommend using cara Print Clean pro to wash printed objects.
For more information, see the instructions of the cleaning unit on our website:
kulzer.com/cleanpro

Step	Cleaning 1.	Curing 2.	
	 cara Print Clean pro (or ultra sonic bath)	 cara Print LEDcure	OR  HiLite Power 3D
	1. Pre-cleaning: 3 min. 2. Post-cleaning: 2 min. (fresh rinse)	Select Guide & Tray program (no turning of object necessary)	10 minutes (5 minutes front side + 5 minutes reverse side)

5. Processing after

Separation of Supports

- Remove supports after postcuring with a cutting disc
- Use a cross linked milling tool to smooth the surface

dima®

PERFECT MATCH:

INDIVIDUAL 3D-PRINTED IMPRESSION TRAYS & FLEXITIME

TESTED BY DENTAL EXPERTS

BROAD VARIETY OF INDICATIONS

IDEAL PROPERTIES FOR EACH INDICATION VISIT WWW.KULZER.COM/DIMA FOR A COMPLETE OVERVIEW.

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