

Watch  
application video!  
[kulzer.com/  
mouthguard-video](https://kulzer.com/mouthguard-video)



## Application Guide for dima Print Mouth Guard (Blue & White)

10.2021

Giving a hand to oral health.



**KULZER**  
MITSUI CHEMICALS GROUP

## Equipment you need



3shape  
exocad

### Design Software

CAD Design Software (3shape/Exocad)



### Print resin for 3D printing

dima Print Mouth Guard



### 3D printer

cara Print 4.0 pro or cara Print 4.0



### Wash unit

cara Print Clean pro or ultra sonic bath



### Post curing unit

cara Print LEDcure or HiLite Power 3D



### Extra equipment

Small water bowl for Mouth Guard cleaning

# dima Print Mouth Guard

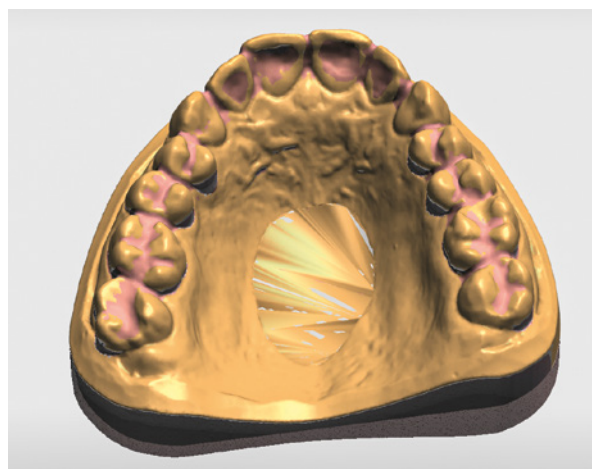
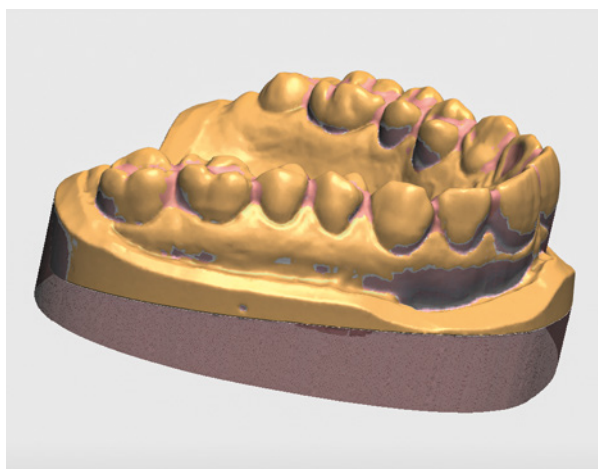
## 1. Design notes

The following recommended settings and design suggestions here only apply when used in combination with exocad.

exocad setting parameter – dima Print Mouth Guard			
Block out Undercuts			
	Offset	Angel	Allow Undercuts
Properties	0.03mm	0°	0.1 mm
Bitesplint bottom Properties			
	Smoothing	Minimum Thickness	Milling Diameter
Properties	16.70%	1.0mm	0.1 mm, click <i>apply</i>
Surface Properties			
Margin	Occlusal Thickness	Peripheral Thickness	Smoothing
	2–4 mm depending on the sports	1.0mm	5.0mm, click <i>apply</i>

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

3Shape setting parameter – dima Print Mouth Guard		
Splint Thickness	4 mm	<b>Note:</b> The minimum wall thickness should be 2.5 mm. While 4 mm is a good standard recommendation in many cases, the thickness can be individually adjusted. For example you can design the occlusal area thinner and the front thicker for specific sports.
Minimum Thickness	2.5 mm	
Offset from Teeth to Splint	0.01 mm	
Drill Diameter	0.6 mm	



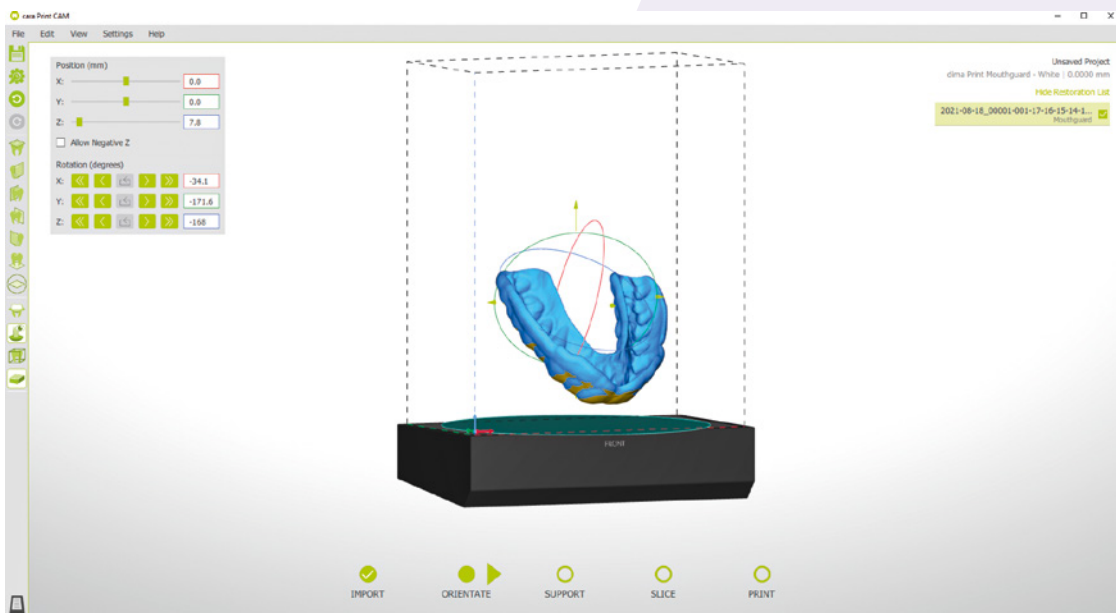
Make sure to block out the undercuts very well

## 2.a CAM design for cara Print 4.0 pro with cara CAM 2.0

Printing position (angle and orientation):

- 65–75°
- Distance from appliance to building platform 8 to 10 mm

Register and get  
your free CAM  
licence!



Printing position: angle and orientation

**Supports:**

Use the auto support function of cara CAM 2.0.

## 2.b CAM design for cara Print 4.0 with cara CAM 1.0

With CAM 2.0 most of the settings are generated automatically. The following details will help you with your design in CAM 1.0.

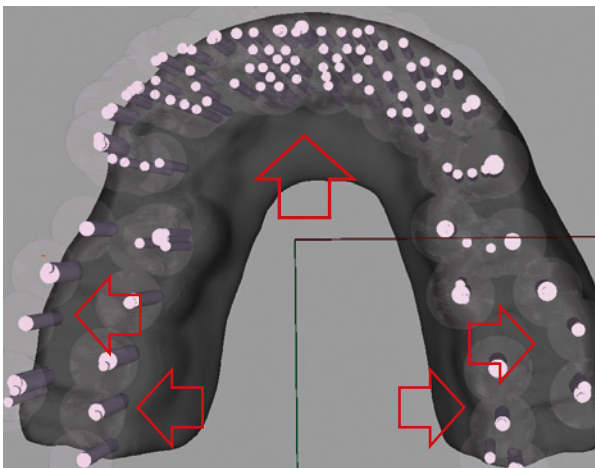
### Printing position (angle and orientation)

#### Supports:

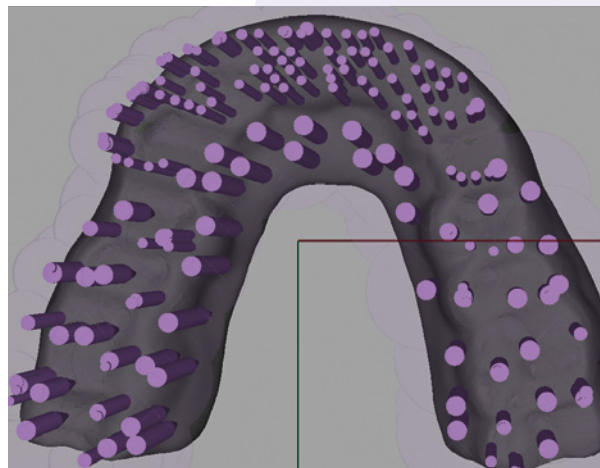
- Spacing: no less than 0.5 mm
- Density of supports: 60 %
- Center down to the grid base: type “Medium” or “Fine” (for easier removal after printing)
- Form of the tip on the printed piece: “Cone 25%”

#### Foundation:

- “Hash”
- Thickness: 1.0mm
- Distance from mouthguard to building platform: 10mm
- After using the automatic support function, check for areas left unsupported and fill them with “medium” sized supports

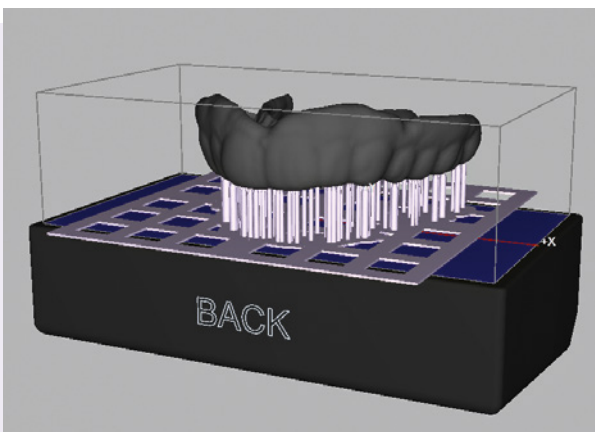


Printing position angle and orientation



### Angle (printing positioning/orientation):

- The best results are obtained when printed at flat angulation
- Exceptions can be made for larger objects, which should not be angled by more than 65°



Printing position angle and orientation

### 3. Processing

#### Mixing of photopolymer

- Time: 5 min
- Shake well before pouring the liquid into printer vat
- Liquid is quite viscous, all contained pigments need to be shaken up otherwise printing error can occur

#### Printing parameters

- Choose printing parameters for dima Print Mouth Guard in Blue or White
- Resolution: 100µm

### 4. Cleaning and Post-curing

#### Cleaning recommendations:

Please use IPA, 99% is preferable, to wash your Mouth Guards 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.



	Cleaning	Curing
Step	1.	2.
	 <p>cara Print Clean pro (or ultra sonic bath*)</p>	 <p>cara Print LEDcure</p> <p>OR</p>  <p>HiLite Power 3D</p>
	<p><b>1. Pre-cleaning:</b> 3 minutes (in isopropanol)</p> <p><b>2. Post-cleaning:</b> 2 minutes</p>	<p>Select Mouth Guard program Blue or White (no turning of object necessary)</p> <p>10 minutes (5 minutes front side + 5 minutes reverse side)</p>
	<p><b>3. Additional cleaning steps:</b></p> <p>1. Leave the object 3 min. in isopropanol</p> <p>2. Leave the object 10 min. in water</p> 	

\*When using an ultra sonic bath: Avoid letting the isopropanol get warm by regularly replacing the water in the ultrasonic cleaner with cold water. The pieces should not remain submerged within the isopropanol for longer than described above. If left in isopropanol for too long, the pieces could begin to dissolve and absorb isopropanol.



## 5. Processing after printing

### a. Separation of Supports

- Supports can be removed after postcuring using a cross linked milling tool or cutting disk for partial dentures



### b. Grinding adjustments in the articulator

We recommend: a cross linked grinding tool.

### c. Preparation for polishing & polishing

dima Print Mouth Guard is soft and it can be grinded well. Tools utilized for processing full dentures can also be used for dima Print Mouth Guard.

We recommend:

- Rough and fine sandpaper
- After using the wheel & sandpaper, the surface should have a semi-mate finish

### d. Polishing

We recommend:

- Pre-polishing: pumice and polish & brush & leather wheel
- High gloss: High gloss pastes for dentures or diamond polishing paste for composites & linen wheel or leather wheel



Watch  
application video!  
[kulzer.com/  
mouthguard-video](https://www.kulzer.com/mouthguard-video)



**cara Print 4.0 pro:**

The smooth standard of precision and efficiency.

cara Print 4.0 pro is a 3D printer developed by dental experts to be part of a comprehensive, validated workflow. It offers dental technicians a faster, more economical method of producing polymer-based dental appliances in-house.

**dima Print Digital Denture:**

Stress-free digital dentures with 3D printing

**dima Print Stone beige:**

3D print all dental model types with a traditional look & feel.

**dima Print Stone teal:**

The color for orthodontics: less eye strain and high heat resistance.



Watch application video!  
[kulzer.com/mouthguard-video](https://kulzer.com/mouthguard-video)



Register and get your free CAM licence!



Learn more about dima Print Mouth Guard  
[kulzer.com/mouthguard](https://kulzer.com/mouthguard)



Download digital application guide  
[kulzer.com/mouthguard-application](https://kulzer.com/mouthguard-application)

**Contact in Germany**

Kulzer GmbH  
Leipziger Straße 2  
63450 Hanau, Germany