

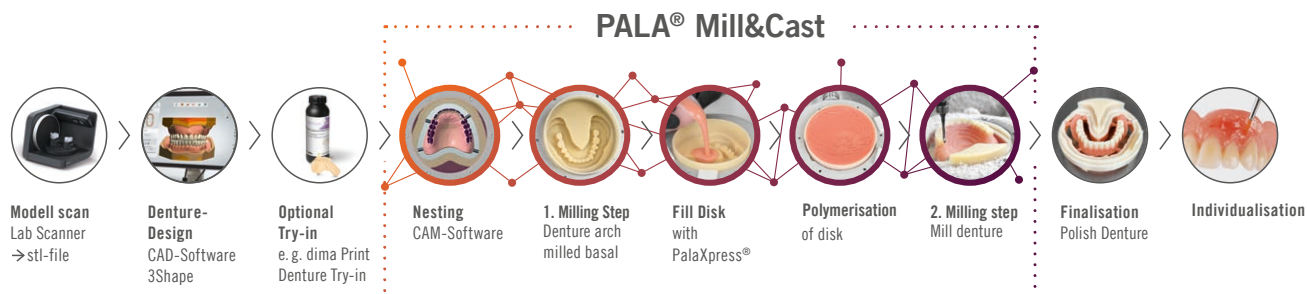


# APPLICATION GUIDE

PALA® Mill&Cast

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## COMPLETE WORKFLOW



## EQUIPMENT YOU NEED

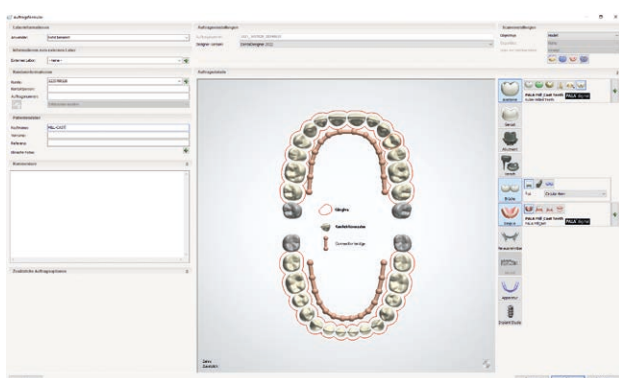
- Design software (3shape, exocad)
- Tooth libraries, e.g. Pala tooth libraries with Mondial
- CAM software (Pala Mill&Cast Add-On on imes or cara V5 min. Version 2024)
- Milling machine (type imes 350 or cara mill 3.5 with zero-point clamping system)
- Milling tools T11, T12 & T36 (6mm shaft each)
- PALA® Mill&Cast Disk
- PalaXpress®
- Mixing and dosing equipment

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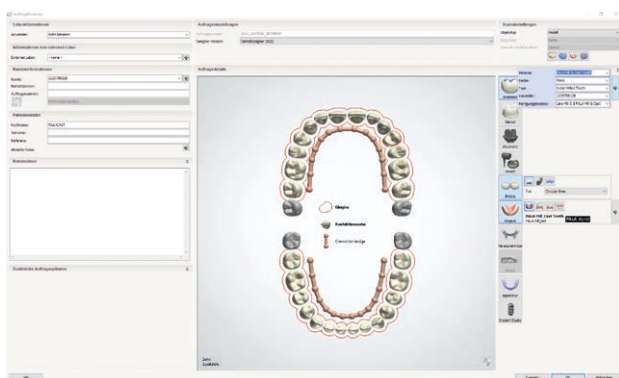
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# 1. Design of denture and creation of stl-files, using the example of a 3Shape design

To activate the Kulzer tooth library for local production, you need to activate it on your dongle. To do this, please contact your local Kulzer employee.



Order system



Create an order with **Anatomy:**

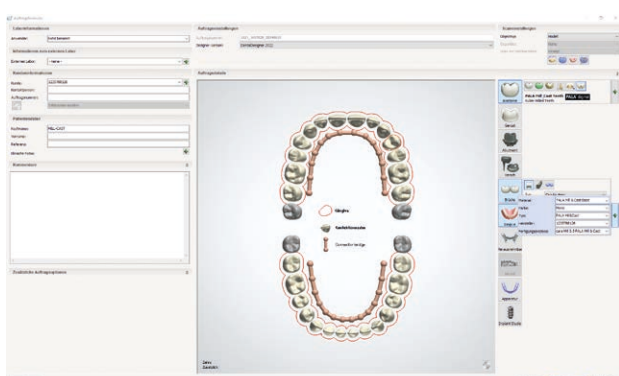
*Material:* PALA Mill&Cast Teeth

*Colour:* Mono

*Typ:* Artificial Tooth Type

*Manufacturing process:* cara Mill 3.5 PALA Mill&Cast

**Connector:** Freely selectable



**Gingiva:**

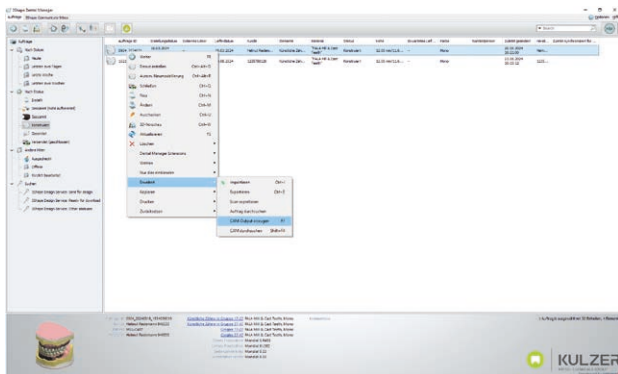
*Material:* PALA Mill&Cast Teeth

*Colour:* Mono

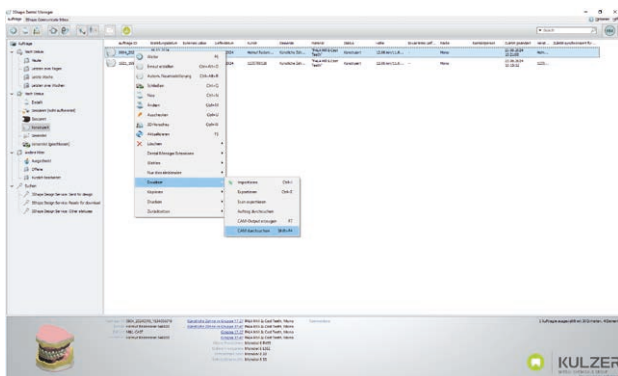
*Typ:* PALA Mill&Cast

*Manufacturing process:* cara Mill 3.5 PALA Mill&Cast

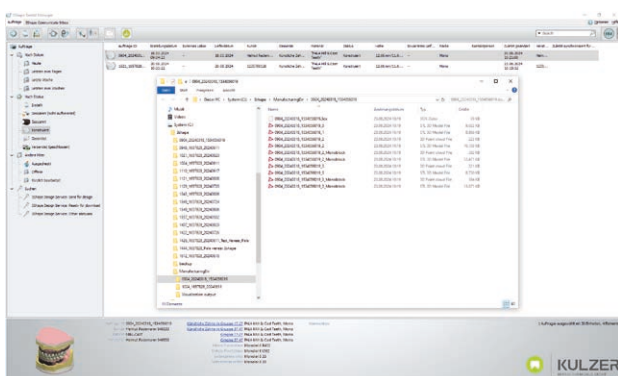
## 2. Preparation of stl-files for transfer to cara Mill CAM 5 software



Generate CAM Output STL files of the design (F7).



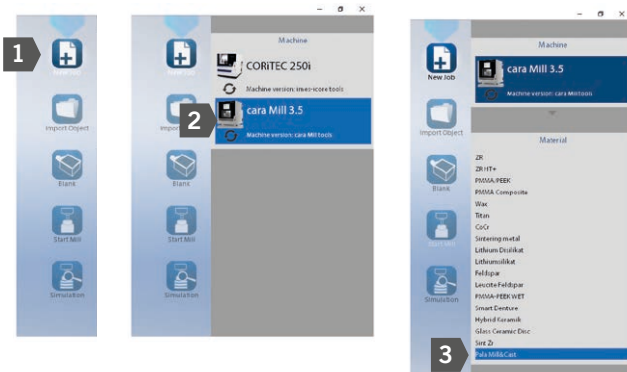
Open order.



Select your order in 3Shape Dental Manager and look for CAM Output folder.

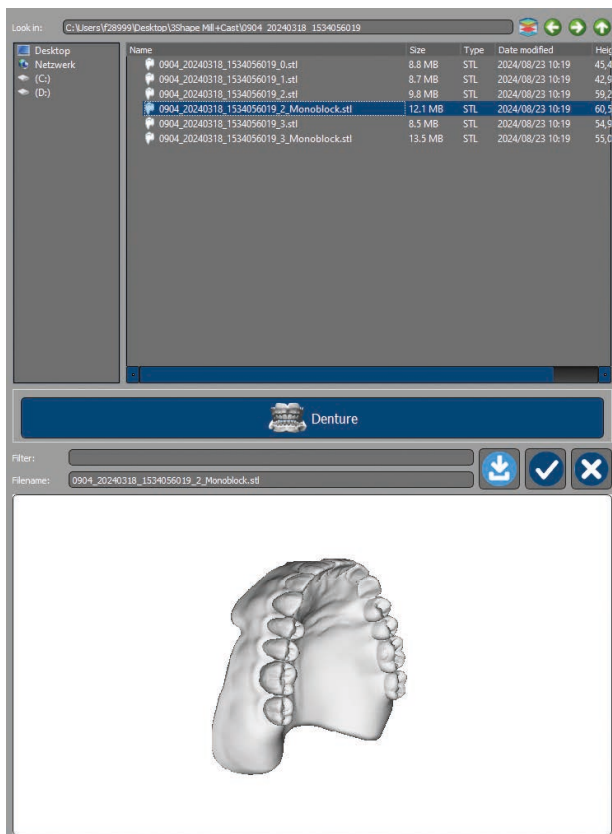
Select upper or lower Monoblock stl-file.

### 3. Transfer of stl-files to CAM 5 smart software



Open the Program caraMill CAM 5 smart.

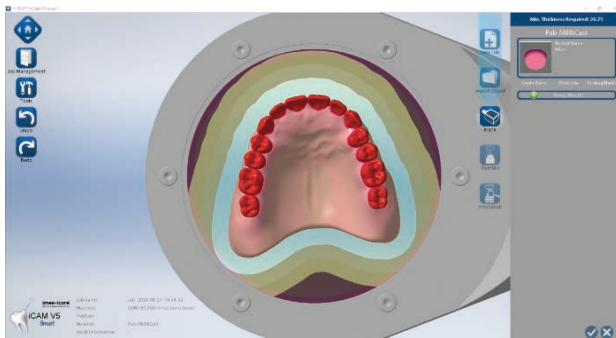
1. Create a new project.
2. Select cara Mill 3.5 machine.
3. Select the new Pala Mill&Cast module in the Material tab.



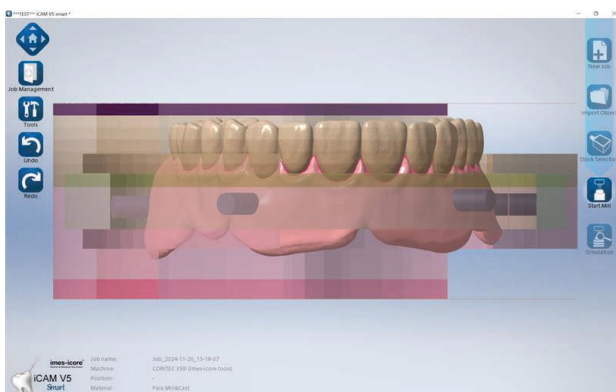
Open the datasets on the external storage location.

Open the Memory Location and select file “\_Monoblock.stl”.





Please select the 35mm Blank height.

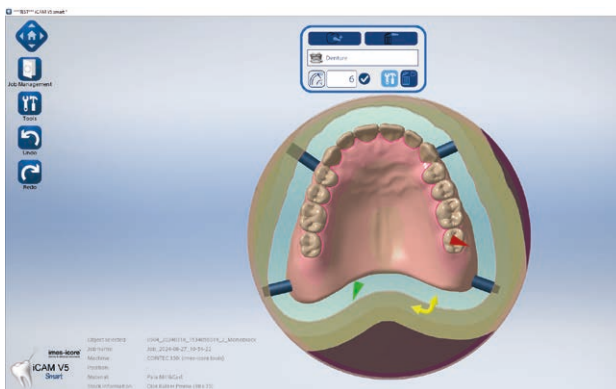


The tooth fittings must be in the tooth-coloured area.

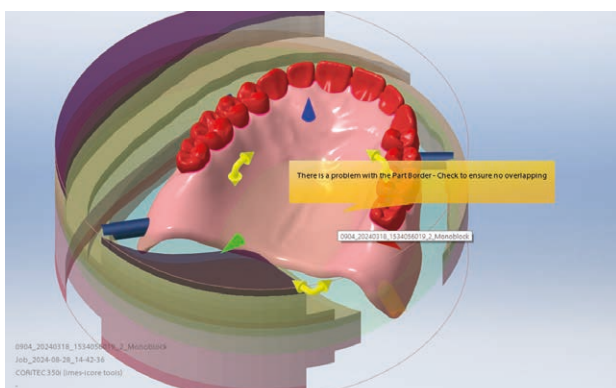
Please change the height and the position of the pins.

The optimum position of the holding supports is in the front between the 3rd and 4th tooth and in the posterior region (tuber maxillae).

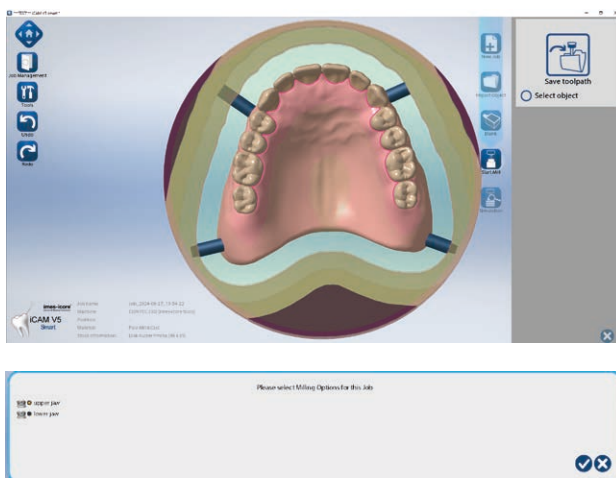
The holding supports should be placed on the denture base below the sulcus (yellow line).



Change the position of the Full-Denture to a **middle position**, the boundary of 6 mm must remain

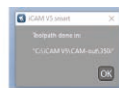


**Note:** When orientating the disk, make sure that the denture is not outside the milling area (warning message pops up).



Click on the button “Start Mill” and then “Save toolpath” on the right side.

Finally, the calculation of the denture module is started. Select upper or lower arch in the popup window.



Please be sure to use the tools provided!

**Note:** It must be ensured that the tools are available (T11, T12, T36).

Name	Änderungsdatum	Typ	Größe
Pala MillBlock_35_3904_20240318_13405019_2_Moneblock_2024-08-27-11-30-30-Part2.iso	27.08.2024 11:59	ISO-Datei	20.530 KB
Pala MillBlock_35_3904_20240318_13405019_2_Moneblock_2024-08-27-11-30-30-Part1.iso	27.08.2024 11:59	ISO-Datei	4.872 KB

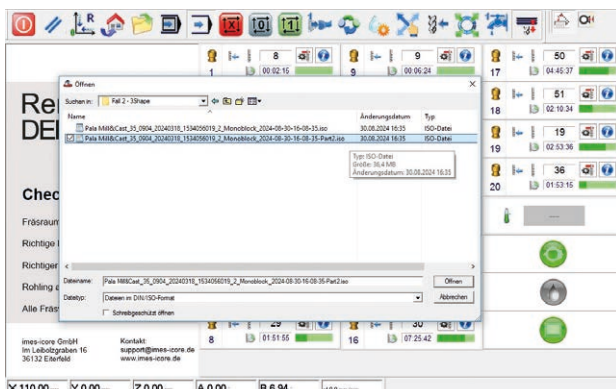
Two files are generated because of the calculation!

## 4. Milling Operation 1 „Tooth arch basal”



Please clamp the Kulzer blank into the milling machine with the reservoir **facing down**.

**Note:** Please screw sufficiently tight analog to PMMA blanks!



Transfer the data to the milling machine and set it up with the tools supplied.

Start the milling process of the Kulzer denture part one.



Remove the holder from the milling machine after a milling time of approx. 20 min.

If necessary to blow off coarse with oil-free compressed air.

**Note:** The Blank must remain in the zero-point clamping system!



## 5. Filling procedure with PalaXpress and polymerization



Preparation of pressure pot:

Pressure pot should be free of contamination and filled with fresh water: clean and refill in advance if necessary.

Distilled water is generally recommended for pressure pots.

The pressure pot should be at least half filled which ensures complete coverage of the zero point clamping system during polymerization.



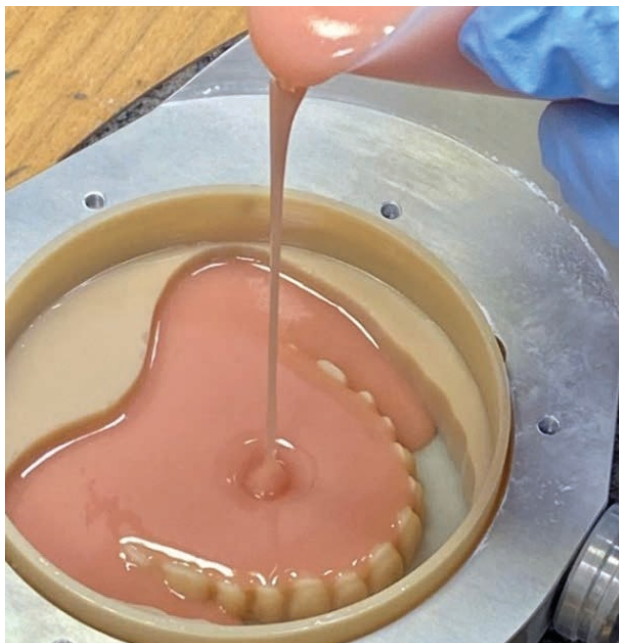
Place the zero-point clamping system from the first milling operation on the bench.

Secure the zero-point clamping system against tipping over, e.g. with silicone-based putty material.



The mixing ratio is 10 g powder : 7 ml liquid. We recommend 130 g powder : 91 ml liquid. Please ensure that the mixing cup is large enough.

Place the liquid in the mixing bowl, add the appropriate amount of powder quickly within a maximum of 10 seconds and mix for a further 20-30 seconds to form a homogeneous paste. Avoid the formation of bubbles.



Then leave the dough to rest for 90 seconds.

Then fill the reservoir of the PALA® Mill&Cast Disk completely from the middle with the dough so that the disk is completely filled and the surface is slightly convex.

PalaXpress can be poured for approx. 3 min. after mixing at a room temperature of 23° C (73° F), after 4 min. a plastic phase of approx. 7 min. duration is reached. The working time depends on the ambient temperature.



Polymerisation in the Palamat takes place in the 7th minute at the earliest. The optimum time is determined by slightly tilting the zero-point clamping device. This is reached as soon as only a slight undulation of the surface is recognisable.

**Note:** The exact timing can be determined by checking the dough flow: Slightly tilting the zero-point clamping device should create a wavy structure, but the PalaXpress dough should not flow over the edges of the disc or overflow.

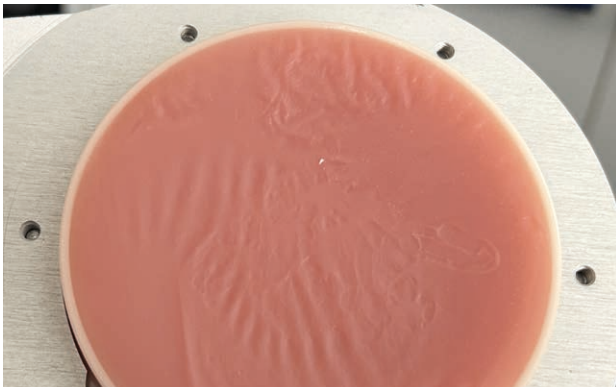
**Note:** With cooled media or low room temperatures, the waiting time will be longer, hot temperatures can accelerate swelling, resulting in lower time limits.



Carefully place the complete zero-point clamping device with the cast PALA® Mill&Cast disc and the fixing clips in the pressure vessel of the Palamat®.

The polymerisation time in the pressure vessel is 30 min, water temperature 55° C (131° F), pressure 2 bar.

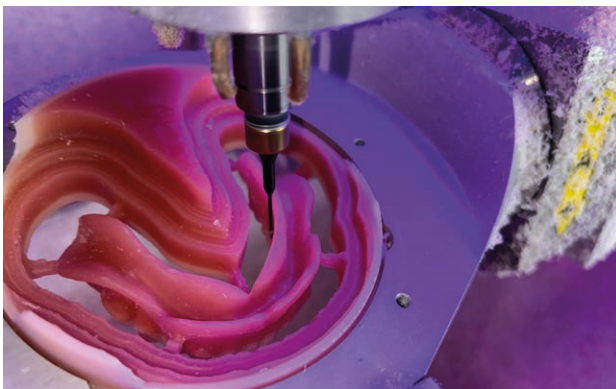
Please also refer to our instructions for use for PalaXpress.



After removal from the pressure vessel, allow the disk to cool to room temperature in the zero-point clamping system before further processing. This takes about 2 hours.

**Note:** Material should not be quenched to avoid stress.

## 6. Milling Operation 2: „Final Denture”

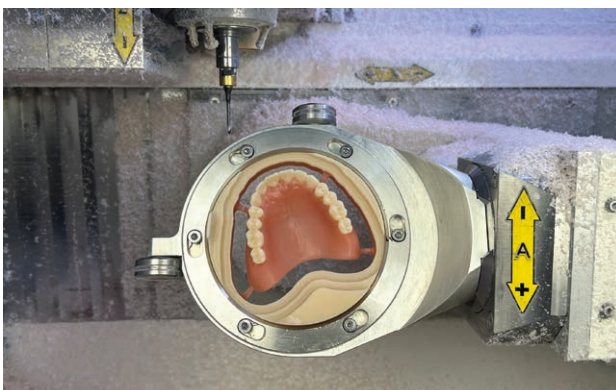


After the resting time described in the previous step, clamp the zero-point clamping device with the filled disc in the milling machine.

**Note:** Here too, make sure that the (now filled) disc is **pointing downwards** in the milling machine, just as in the first milling step.

Start the milling process of the Kulzer denture module part two (milling time approx. 2 h).

## 7. Removal and Finishing of Denture



Release the disc from the zero-point clamping device and remove it from the machine.





The connectors on the prosthesis are cut off and ground with a cross-cut milling tool.



The remaining sanding marks and transitions can be smoothed with a pre-polisher.

Pre-polishing is carried out on the polishing motor using brushes and pumice, this is followed by high-gloss polishing using a cotton buff and polishing paste.

