AMANNGIRRBACH

artex® print&click

Instructions for Use Artex Print&Click

The innovative click-mounting system enables quick and easy insertion of printed models into Artex articulators with Splitex calibration. All components of the Artex Print&Click system are reusable.

What Makes Artex Print&Click Special

With Artex Print&Click, 3D models are created with specific functional geometries on the underside of the model to ensure precise positioning on the corresponding model base plate.

Challenges in 3D Printing

Undersides of printed 3D models are inaccurate

- Depending on the printer manufacturer, support pins may be required during printing, or the model is placed directly on the build platform.
- In both cases, a sufficiently strong connection between the model and the printer platform or support pins is crucial to prevent the model from detaching during the printing process.

Placement with support pins

- After removing the support pins from the underside of the model, the resulting surface is undefined and contains remnants of the support pins.

Placement directly on the build platform

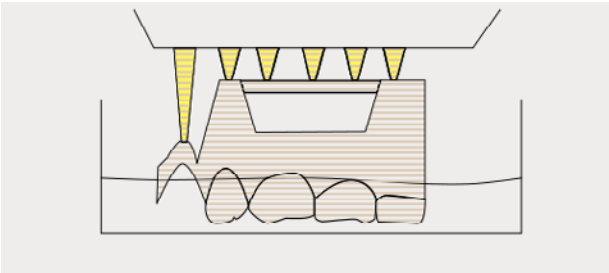
- The initial layers are exposed longer than the subsequent layers.
- This overexposure leads to undefined deviations in the geometry of the model's underside.

How Does Print&Click Solve the 3D Printing Issue?

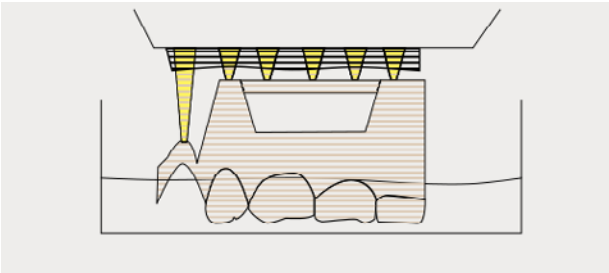
- The functional contact surfaces are spaced from the underside of the model to be outside the influence zone of overexposed layers, which can be up to 250 µm thick.

- Additionally, the functional areas are protected with a thin layer to prevent support pins from being generated on the functional surfaces.

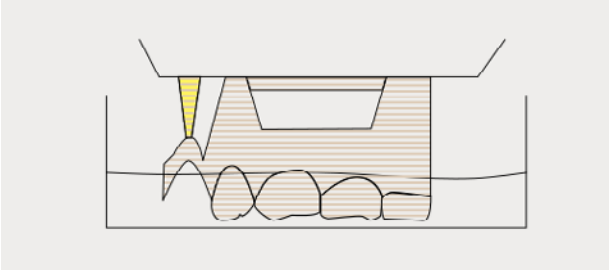
As a result, the contact surfaces on the underside of the model are printed with precision, ensuring accurate positioning on the model base plate.



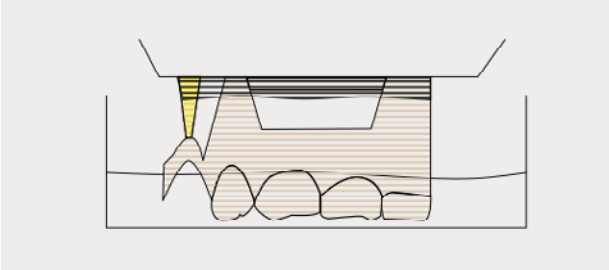
Model Placement Using Support Pins



Model Placement Using Support Pins Including the Burn-in Layer/Overexposure Layer



Model Placement Directly on the Printer Platform



Model Placement Directly on the Printer Platform Including the Burn-in Layer/Overexposure Layer

Artex Print&Click Is Designed for Hollow Models With Additional Printed Dies:

- Removable dies are difficult to reproduce accurately in printing. Their friction also changes over time with use.
- To still allow for individual dies to be used for fit-checking, they are additionally exported and printed as STL files.

Application in Just 3 Steps:

Step 1: Designing the Models

- The Ceramill M-Build software module in combination with the CAD library M-Build Artex Print&Click is used to design the models. (see Fig. 1)

ℹ The M-Build module must be activated on the dongle.

Fig. 1: Ceramill M-Build in combination with CAD library Artex Print&Click

- Select the model type in the model alignment step.

  Here you can choose between the model type

  a) "**Artex Print&Click - Detailed Mode**" to customize the model parameters as the design progresse.

  b) "**Artex Print&Click - Easy Mode**" for a quick, seamless design.

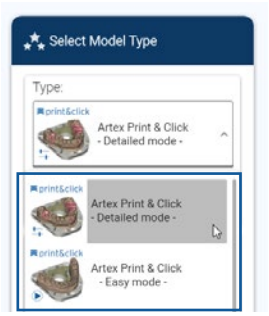


Fig. 2: Selection of model type

- Choice of model package height (40 mm / 60 mm)

  A height of 40 mm is preselected as standard for the model package (upper jaw + lower jaw) with the models in average position. (see Fig. 3)

  A model package with a height of 60 mm can also be selected - for example for implant models. (see Fig. 4)

  Based on the selection made, the number of distance plates for simple mounting in the Artex articulator is calculated automatically.
  The required number of distance plates under the respective model is indicated on the side of the model as a number with a direction arrow.

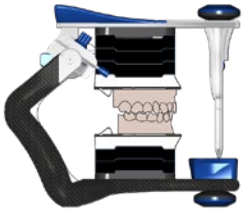


Fig. 3: Standard model package

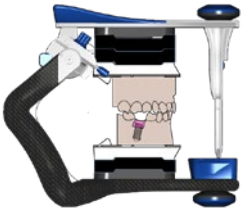


Fig. 4: Example of implant models

- The position and height of the model area can be adjusted in the same design step if required.

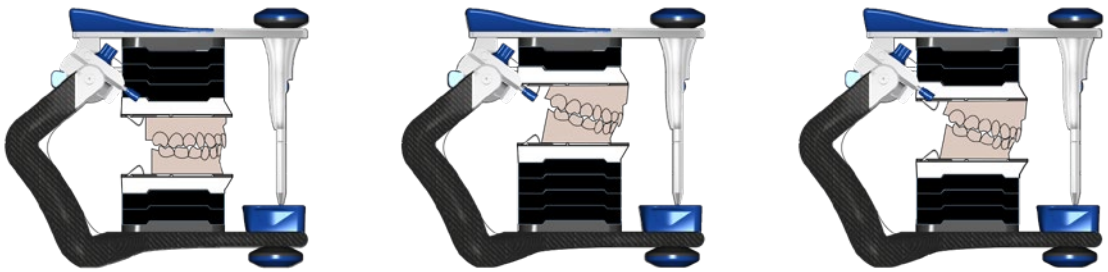


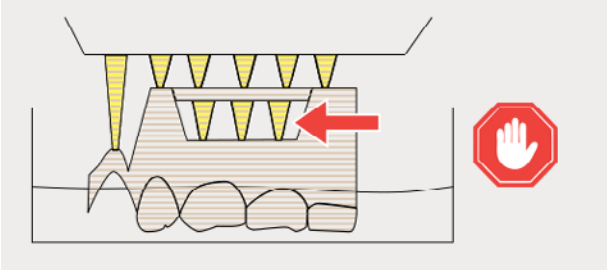
Fig. 5: Standard model package

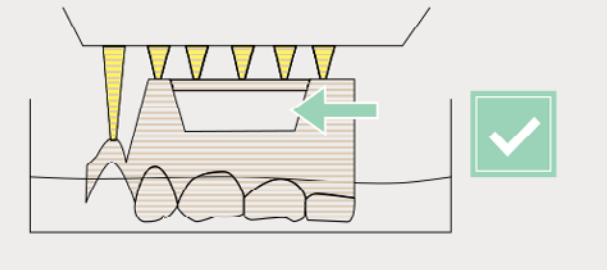
ℹ The CAD library M-Build Artex Print&Click is available via the Ceramill Software Manager.

Step 2: Printing the Models

A. Positioning the Model with Support Pins

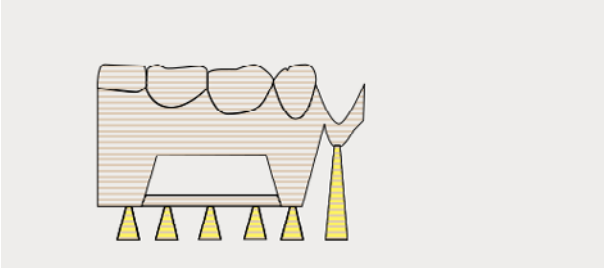
Attach support pins as usual.
Avoid placing support structures within the protected functional areas!
In the slicer software, deactivate the option „generate support pins in gaps“ or similar.

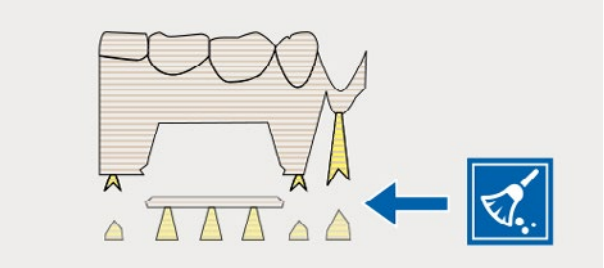


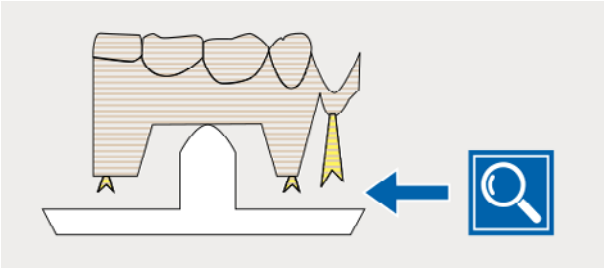


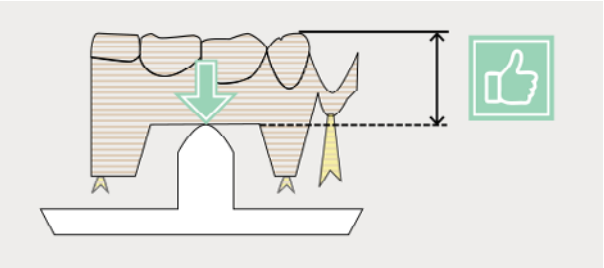
Post-Processing After 3D Printing with Support Structures

Separate the model from the support structures. Residual support pins must not come into contact with the white model base plate.

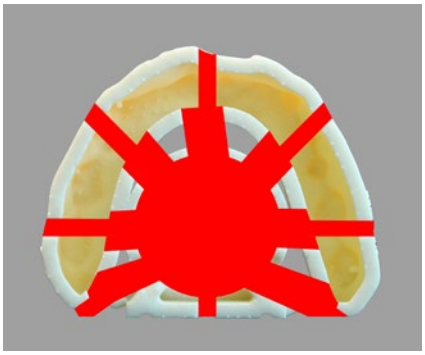


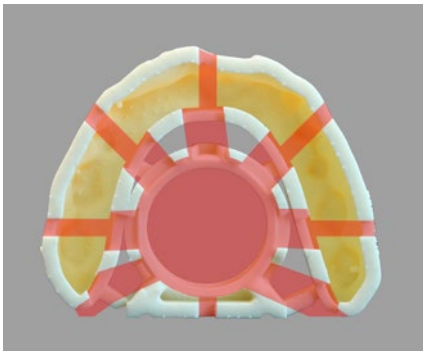


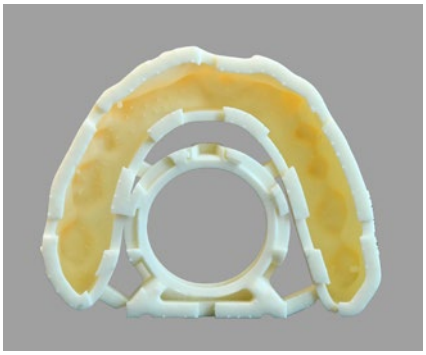




Make sure that all remnants of the protective layer (marked in red) are fully removed to expose the contact areas and ensure a precise fit.





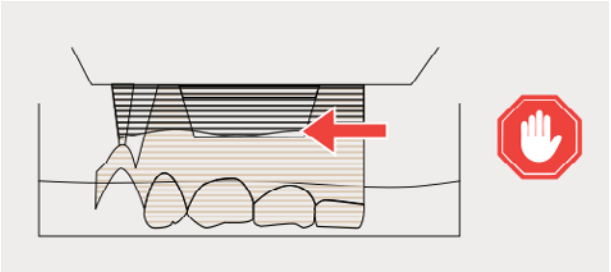


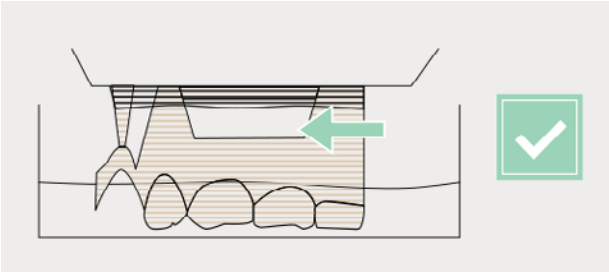
B. Positioning the Model Directly on the Build Platform

Pay attention to the thickness of the burn-in layer!

Ensure that the initial, overexposed and less defined layers (burn-in or bottom layers) do not extend into the contact area of the model's underside.

The total thickness of the burn-in layer must not exceed 250 µm. Otherwise, the functional surfaces may not be visible or the layer may not be removable properly.



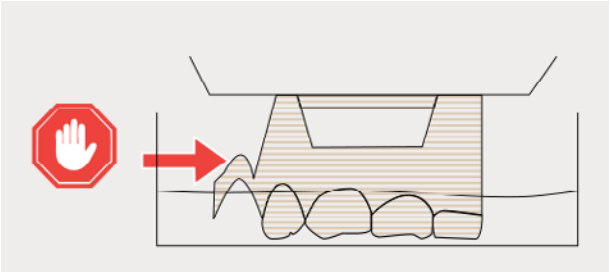


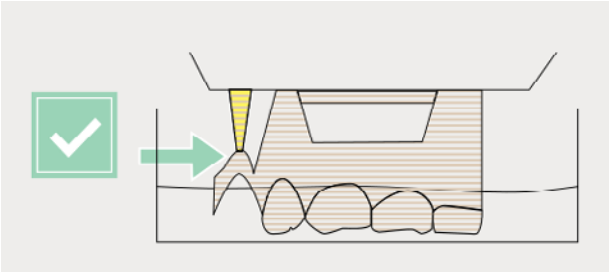
WARNING: In general, printing the model directly on the build platform can lead to a thickening of the protective layer, which may make it more difficult to remove.

TIP: If the required burn-in layer thickness cannot be maintained, it is recommended to coordinate with the respective manufacturer of the 3D printer and/or 3D printing material to determine the optimal printing parameters for the specific combination used.

Consider Support Structures for Other Model Areas

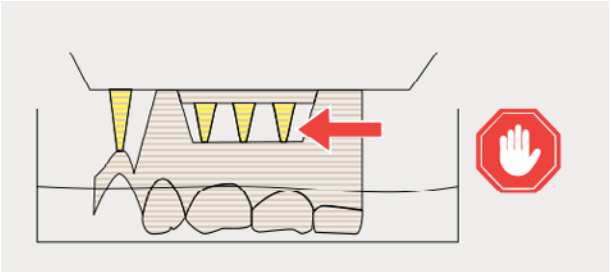
When the model is positioned directly on the printer platform, completely omitting support pins for „free-floating" parts of the model (e.g., in the palate area) can lead to a failed print, as there is no connection to the build platform. Therefore, make sure to additionally support all free-floating model areas with support pins.

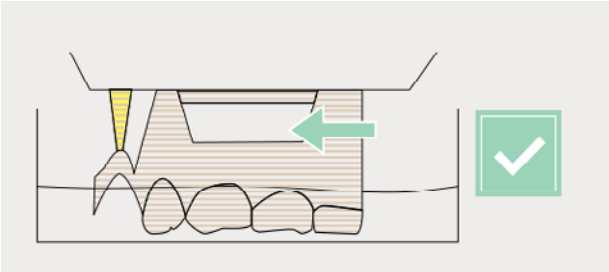




Avoid Support Structures Within Protected Areas

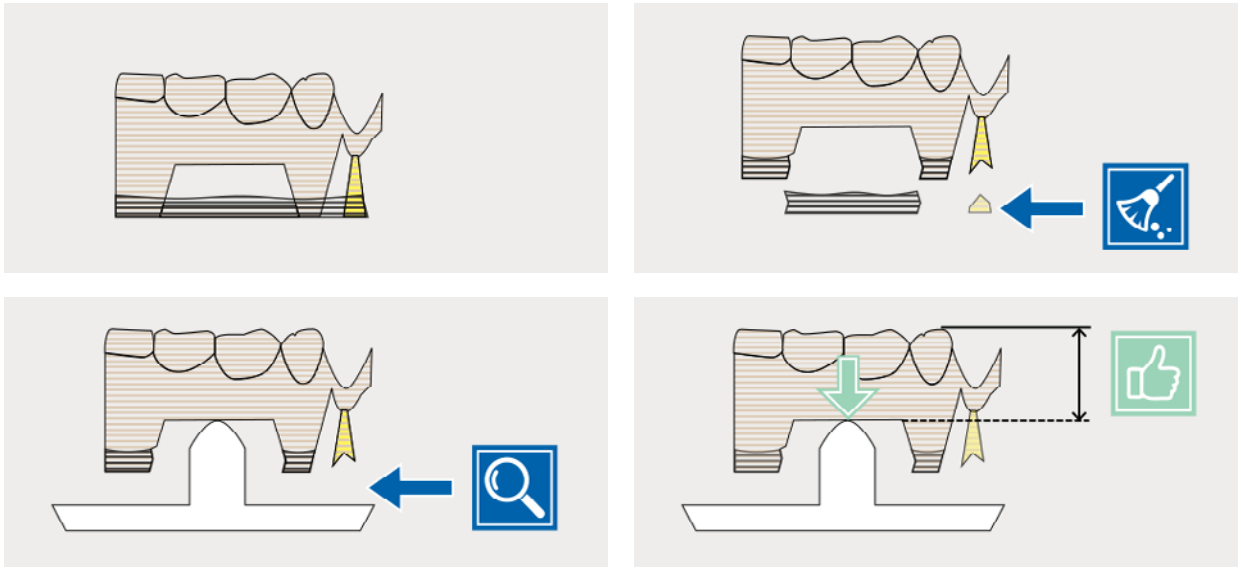
In the slicer software, deactivate the option "generate support pins in gaps" or similar to prevent support structures from being placed within the protected functional areas.



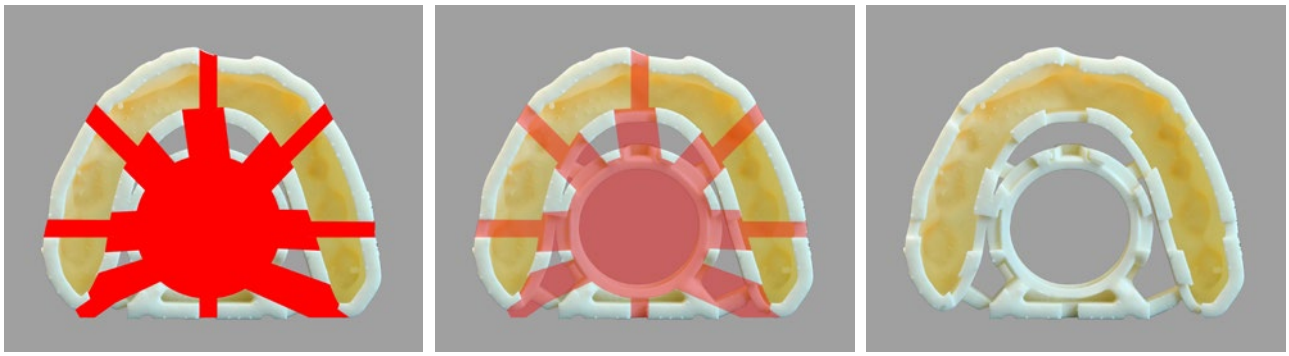


Post-Processing After 3D Printing!

Detach the model from the build platform. Residual support pins must not come into contact with the white model base plate.



Make sure that all remnants of the protective layer (marked in red) are fully removed to expose the contact areas and ensure a precise fit.



What Else Is Important for a Precise Print Result:

- Residual resin on functional surfaces can negatively affect the precision and fit of the models – a thorough cleaning process is essential.

Step 3: Inserting the Printed Models Into the Artex Articulator

- Insert the retention disc from the dorsal side into the notch provided in the printed model.

Fig. 8: Inserting the retention disc

- Place the model on the model base plate.
  Position the model on the threading aids and tilt the model down.

Fig. 9: Placing the model on the model base plate

- Place the model base plate on the distance plates.
  The required number of distance plates per jaw is shown on the model.

Fig. 10: Placing the model base plate on the distance plates

Fig. 11: Number of distance plates

- Inserting the distance plates into the Artex articulator.
- Inserting the model base plate with model into the Artex articulator.

ℹ If you can feel a magnetic repulsion when placing the distance plate on the splitex plate, remove the magnet from the splitex plate using the magnet lifter, turn it over and place it back again. The polarity of the magnet is now correctly aligned.

Fig. 12: Inserting the model base plate with the model into the Artex articulator

Printer Tolerances:

Height Compensation of the Printer Tolerance:

The accuracy of fit of the Artex Print&Click system has been tested with various printer material combinations to deliver precise results.

However, system tolerances of the printerd models can lead to a deviation of the anterior guidance pin = caused by a model package height that is too high or too low. To compensate for this, the height of the printed model package (upper jaw + lower jaw model) can be adjusted in the software in the model alignment design step.

- To do this, make one or more test prints of a test model pair with different correction values and check the model pair with Artex Print&Click in the Artex articulator.

- Enter the height correction value determined for each model design.

If the height of the model package cannot be set precisely enough, please contact the printer manufacturer to calibrate the combination of printer and print material.

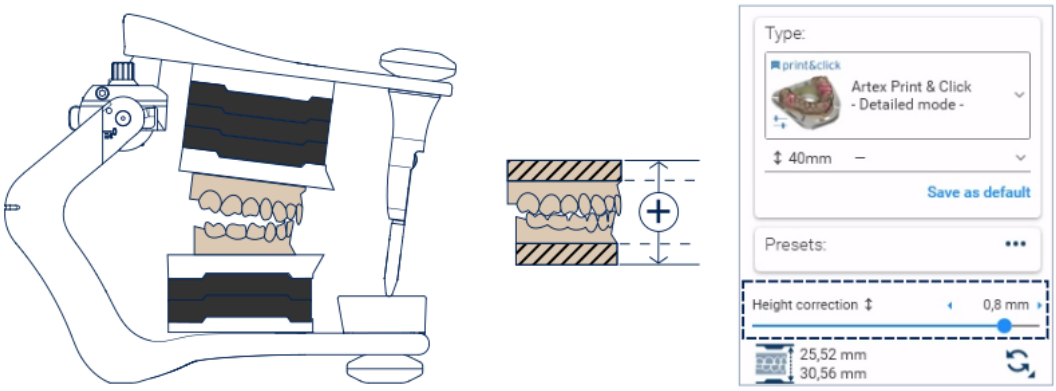


Fig. 13: **Error pattern** - bite countersinking/lowered guidance pin; **solution:** Height correction of the models in positive direction

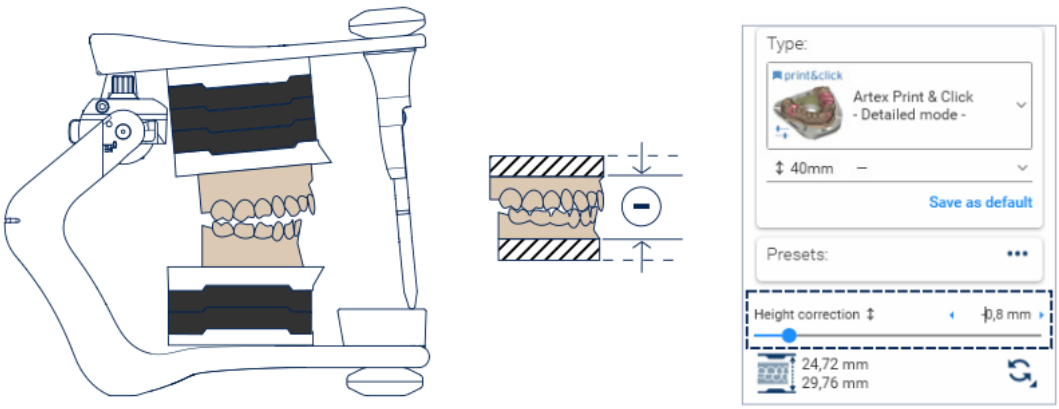


Fig. 14: **Error pattern** - bite block/raised guidance pin; **solution:** Height correction of the models in negative direction

Tips & Tricks

Handling:

For better handling, it is always advisable to remove the combination of model and model base plate from the articulator in one step.

Fig. 15: Model on model base plate is inserted

To lift the printed model from the model base plate, tilt the model backwards against the threading aids.

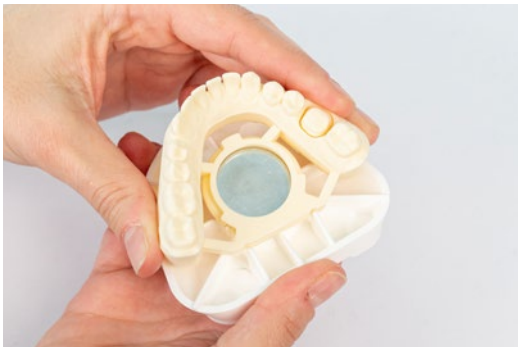


Fig. 16: Detaching the model from the model base plate

Reassembly of a Jaw:

If a jaw side has to be remounted due to a new bite relation, a jaw side can be mounted with plaster using a standard magnetic pot and a Splitex counter plate.

i Do not use the black Artex Print&Click distance plates for plastering. Removing the plaster would destroy the precision of the distance plates.

Fig. 17: Standard magnetic pot with Splitex counter plate

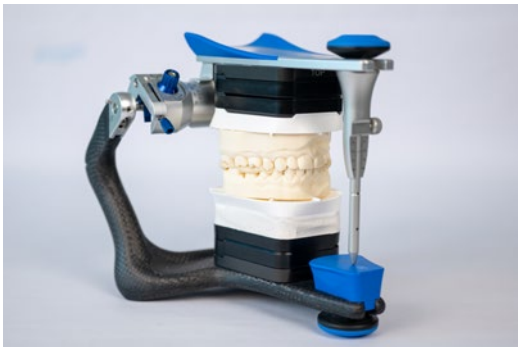


Fig. 18: Model assembly with plaster

Use of Distance Plates When Articulating Plaster Models (Independent of Print&Click):

Use distance plates to reduce the amount of articulating plaster and thus reduce plaster expansion.
To do this, place the distance plate on the Splitex plate and continue working on the distance plate with Splitex counter plates and plaster the models.

Further Information:

Scope of Delivery:

ITEM NUMBER	Description	Contents
216400	Artex Print&Click Set	2 Model Base Plates, 5 Distance Plates, 10 Retention Discs

Parts and Accessories

ITEM NUMBER	Description	Contents
216400	Artex Print&Click Set	2 Model Base Plates, 5 Distance Plates, 10 Retention Discs
216410	Artex Print&Click Model Plates	10 pieces
216420	Artex Print&Click Distance Plates	10 pieces
215250	Retention Discs	100 pieces
512511 + 512512	Magnets and Sleeves - for Re-Articulating a Model	

AMANNGIRRBACH

2025-05-23

Art. No. 216400

Manufacturer | Hersteller

Amann Girrbach AG
6841 Maeder | Austria
Tel. +43 59 301 2100
amanngirrbach.com

Distribution | Vertrieb D/A

Amann Girrbach GmbH
75177 Pforzheim | Germany
Tel. +49 7231 957-100
amanngirrbach.com