APPLICATION NOTE

LuxaPrint Ortho Flex

Validated workflow with DMG DentaMile

DMG

LuxaPrint Ortho Flex

Light-curing 3D printer resin for the additive fabrication of flexible soft splints in a digital workflow. Classified as a Class I medical device.

- Versatile
- Optimal elasticity
- Highly tear-resistant and unbreakable
- Near-natural transparency
- Easy to clean

Flexible new possibilities

LuxaPrint Ortho Flex has optimal elasticity. The flexible material is dimensionally stable, highly tear-resistant and unbreakable, and therefore opens a multitude of interesting new application options for 3D printing, for example:

- Custom bleaching trays
- Transfer trays for the indirect bonding of brackets

Perfectly elastic, highly stable

Would you like to manufacture flexible dental trays easily and quickly as a 3D print? LuxaPrint Ortho Flex is your ideal partner – elastic and still reliable and stable. The excellent resilience of the material also makes the difference with bleaching trays. This ensures that the bleaching agent reliably remains where it is supposed to work. And not on the gums. The extreme tear-resistance and fracture resistance ensures maximum stability and longevity.

Quality gives rise to acceptance

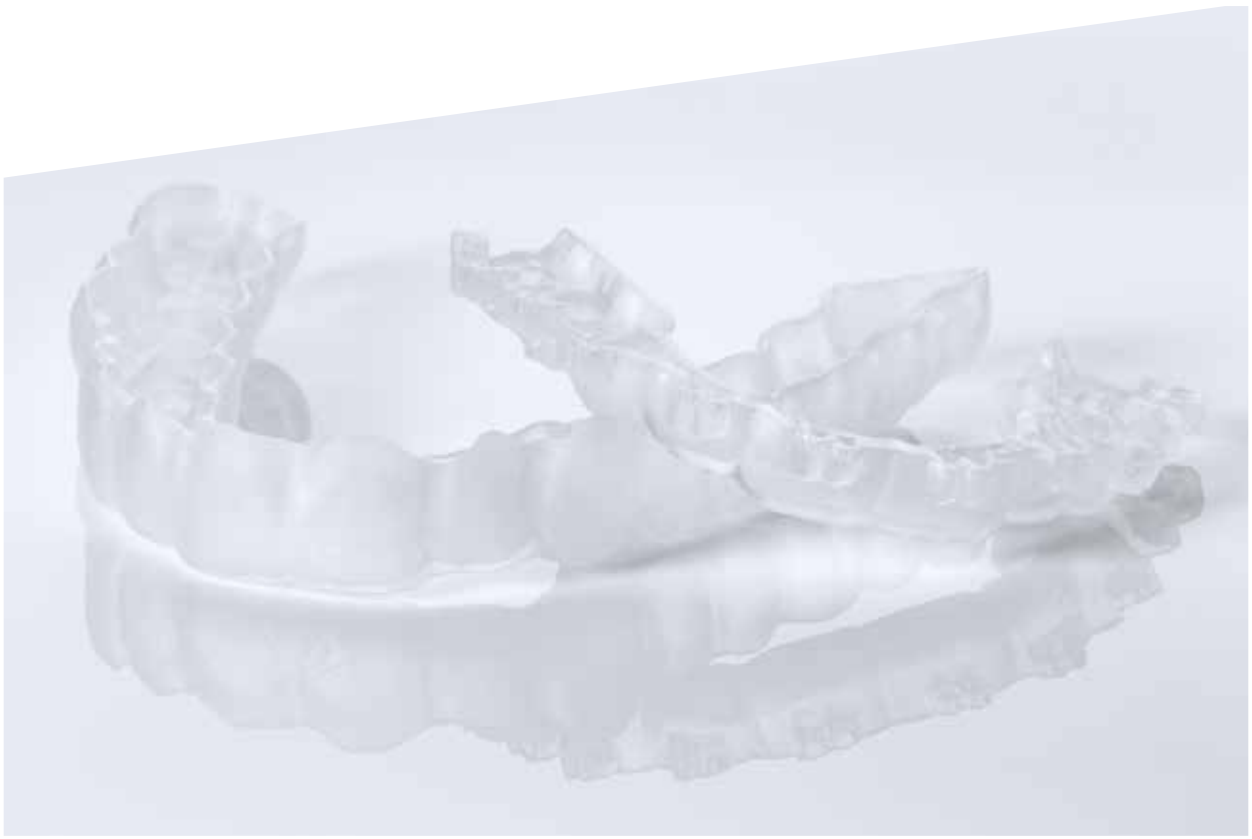
LuxaPrint Ortho Flex is impressively less susceptible to discoloration, easy to clean and also tasteless and odorless.

Validated workflow with DMG DentaMile

In this application guide, we present our validated DentaMile workflow, which you can use to easily and reliably achieve a result that meets the high requirements of dental professionals in terms of biocompatibility, stability, look and precision.

The DentaMile workflow was developed at DMG according to strict criteria, and carefully tested in our digital application centre. Please follow the below process exactly. That way, you can rest assured that you always deliver work of the highest quality.

Content



Required equipment and resources

- **Scan**
  Digital scanner or optical desktop scanner
- **Design**
  CAD software for designing bleaching or indirect bonding trays (e.g. DMG DentaMile connect)
- **Print**
  Validated printing systems

Printer	Cleaning unit	Post-curing
DMG 3Demax DMG 3Delite DMG DentaMile Lab 5 (Pro)	DMG 3Dewash Ultrasonic bath	DMG 3Decure Otoflash G171
DMG DentaMile Desk MC-5	DMG DentaMile Wash MC DMG 3Dewash	DMG DentaMile Cure MC
RapidShape D10+ RapidShape D20+ RapidShape D50+ Straumann P10+ Straumann P20+ Straumann P50+	RS Wash Straumann P Wash Ultrasonic bath	RS cure Straumann P Cure Otoflash G171
Asiga MAX UV Asiga Max 2 Asiga Ultra Asiga PRO 4K	Ultrasonic bath	Otoflash G171

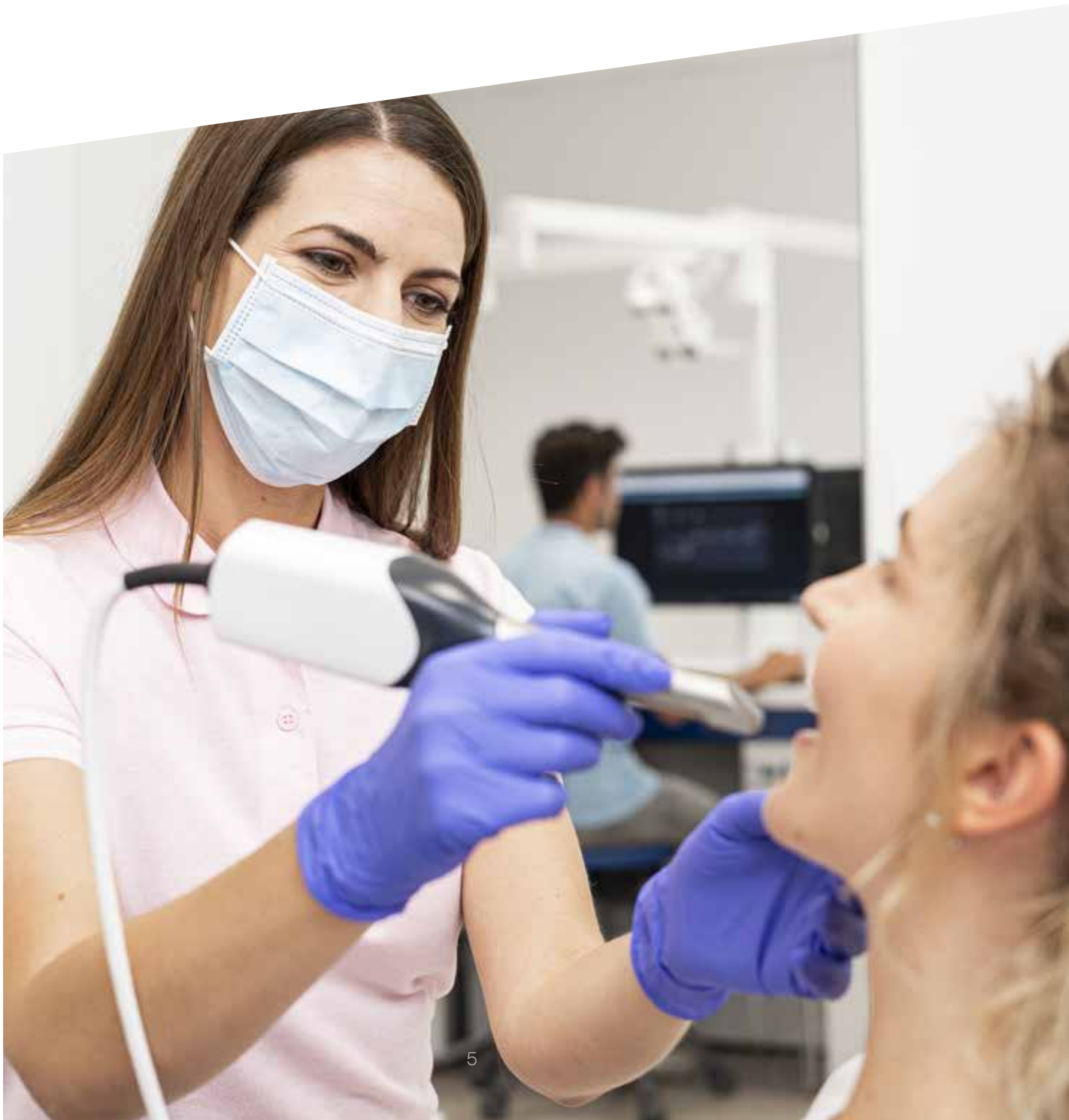
Practical tip:

Please always use the appropriate slicing software for your printing system with validated printing parameters (e.g. Autodesk Netfabb for DMG DentaMile Lab5 (Pro), DMG 3Demax and DMG 3Delite or DMG DentaMile CAM MC for DMG DentaMile Desk MC-5).

1. Scan

The digital creation of trays requires digital patient data to be generated first. This can be done at the dental clinic with a digital scanner or in the dental laboratory with a laboratory scanner.

The laboratory scanner can be used to scan impressions of the patient's dentition or plaster models directly, depending on its design. The digital patient data is then ready to be exported to the design software.



2. Design

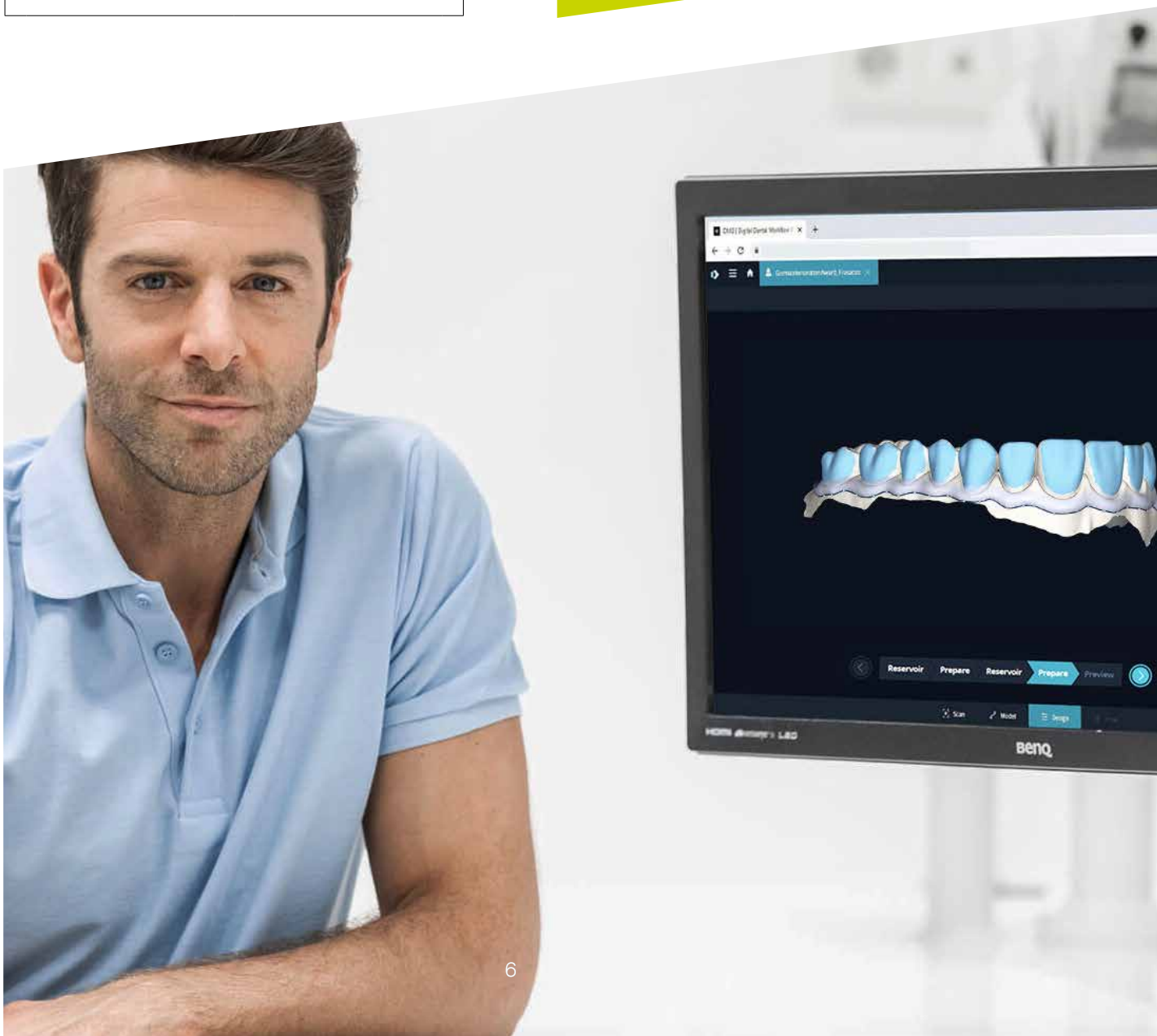
Based on the digital data of the patient's teeth, a splint can now be constructed using appropriate software. Regardless of the program you use, the following material-specific specifications should be followed:

Minimum material thickness	Maximum material thickness
Bleaching trays: 1 mm	
Indirect bonding trays: 0.8 mm	7 mm

Practical tip:

Indirect bonding trays (IBT):
Since brackets come in many different forms it may be necessary to vary certain parameters in the design software to ensure an optimal fit of the brackets in the indirect bonding tray.

Please check the fit of the brackets and their usability before clinical use!

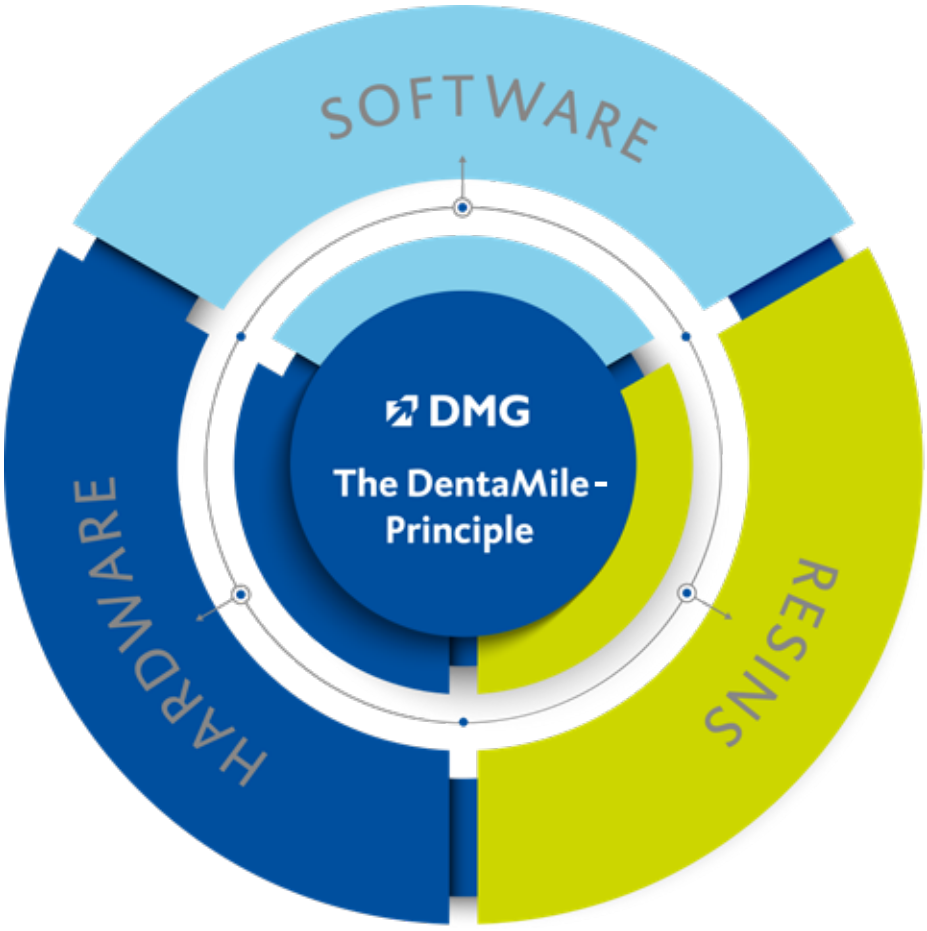


2.1 DentaMile connect (for bleaching trays)

Our award-winning, cloud-based DMG DentaMile connect software not only allows you to enter our validated process flow at the design stage, but also provides you with additional options for digitally storing your patient data, which greatly simplifies your quality management.

The program intelligently guides you through the workflow so that you can fully concentrate on your work. Thanks to the intuitive interface, no entries are forgotten - and the result is impressive.

Visit **www.DentaMile.com** for more information



2.2 Dental CAD software from third parties (e.g. exocad or 3Shape)

Next, import the patient's scanned data in the design program. The program will guide you through the design process of the digital splint in several process steps. Make sure you follow the software developer's specifications.

Good splint design is critical to comfort, patient fit, and clinical effectiveness of the end product. Our 3D printers and materials are set up so that the digital data can be reproduced with great precision. The splint should therefore be designed carefully and accurately.

For detailed instructions on how to design dental splints, please contact your software developer.

2.2.1 Transfer trays for the indirect bonding of brackets

There are several different ways of constructing indirect bonding trays, depending on the software used and its settings.
Three frequently used construction forms are:

- The sleeve type (offset-type)
- The bar type
- The positioning template

Different settings in the design software can lead to an optimal result here, depending on the design form used. For indirect bonding, we recommend using a sleeve type that has a material thickness of 0.8–1.0 mm. Given the lower wall thickness, cutting out the splint is easier when the brackets have a sufficiently stable fit

2.2.1.1 The sleeve type (offset type) construction form

The offset type is similar to a bite splint or bleaching tray in terms of its design. It encloses the relevant area of the dentition with a predetermined wall thickness. It is characterised by greater flexibility compared to the bar type, so it may be advantageous for certain bracket types to be fully encased by the splint (does not apply to brackets with hooks). For simple bracket shapes, we recommend encasing the lower 75% of the brackets with a wall thickness of 0.8 mm. This makes it easier to cut out the splint and ensures that when inserted into the patient's mouth, the fit of the brackets is sufficiently stable.

After completion of the splint construction, the final design is checked again and exported as an STL file (or another supported file format) for the printing software.

2.2.1.2 Bar type construction form

Due to its solid construction, the bar type offers a better grip and less flexibility.
The splint can also be printed directly on the build platform without any further support structures. When designing, ensure that the wall thickness in areas of the brackets is sufficiently low so that the splint material is flexible when removed and the brackets do not remain in the splint. It may also be helpful if the bracket pockets are not completely encased in the splint material.

The finished tray constructions do not have a flat underside in some design programs. Excess material on the antagonist side of the splint must be subsequently removed by a plane cut in order to allow pressure on the build platform (without additional support structures). This step can also be carried out in the slicing programs during print preparation.

2.2.1.3 Positioning template for direct bonding

The positioning template for direct bonding may be regarded as a combination of classic direct bonding and indirect bonding using an indirect bonding tray. Typically, it corresponds in large part to an indirect bonding tray, although areas of the brackets are omitted. After inserting the splint into the patient's mouth, the brackets are bonded directly to the teeth in the recesses provided in the splint. This ensures highly accurate positioning and less effort compared to indirect bonding.

3. Print preparation

The digitally designed splint must now be imported in the printer software in order to prepare it for printing.

In this step, the digital splints are oriented, arranged and then provided with support structures in the build area of the 3D printer.

3.1 DMG DentaMile connect

DentaMile connect from DMG takes over all the necessary work in the printer software for you. The arrangement and orientation of the splint to be printed, the addition of support structures and the selection of materials and parameters are fully automated on your DMG 3Demax, DMG 3Delite or DentaMile Desk MC-5 3D printer, without having to start the program manually.

As the owner of a DentaMile Lab5 or DentaMile Lab5 Pro, you can download your STL files from DentaMile connect, position them in Autodesk Netfabb and then control the printer from Netfabb.

Practical tip:

Please always ensure that the correct machine and material parameters are used. Incorrect settings can lead to misprints and splints with a bad fit, as well as inadequate mechanical properties and a lack of biocompatibility.

3.2 Autodesk Netfabb for DMG DentaMile Lab5 (Pro), DMG 3Demax and DMG 3Delite (and RapidShape D series)

3.2.1 Selecting the material and machine

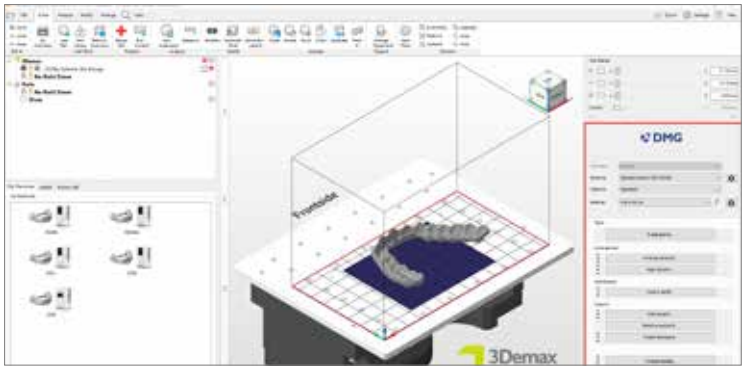
Open Netfabb and select your machine environment (e.g. DMG 3Demax). The DMG workflow area appears on the right-hand side of the screen (marked by the blue DMG logo). Here, you will be guided through all the relevant steps of the software from start to finish.

First select your printer and the material »DMG LuxaPrint Ortho Flex« as well as the desired layer thickness. If you have never worked with the material, you may have to use the setting wheel next to the material line to create it (see DMG 3Demax/ DMG 3Delite operating instructions, point 6.7).

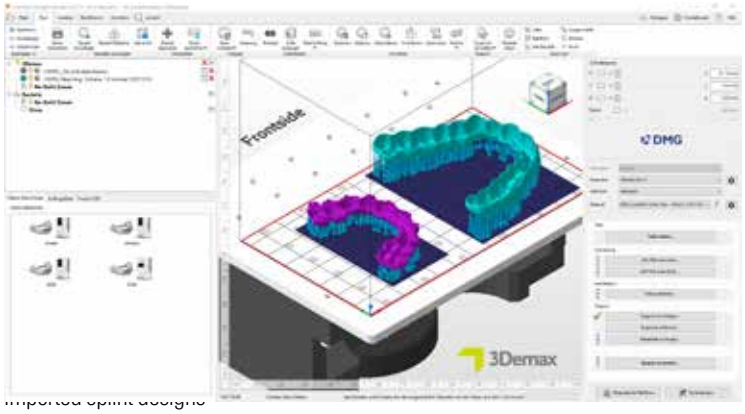
All available layer thicknesses have been checked in our digital application centre and deliver an exact and reliable printed object. A lower layer thickness leads to a finer surface structure, higher accuracy and longer printing time. Please note that a finer surface can lead to time savings when finalising. Choose the correct layer thickness depending on your specifications regarding available time and desired surface quality.

3.2.2 Importing the splints

Import the previously created splint design in Netfabb. To do this, simply drag your file into the program's 3D view or select the item »Load Pieces...« in the DMG workflow area and navigate to your design.



User interface Autodesk Netfabb



Imported splint design

3.2.3 Alignment of the splints

Align the splints so that the inside of the splint, relevant to the fit, faces away from the build platform. This achieves the highest level of accuracy and ensures that no support structures are generated on these surfaces.

The best results are achieved with a horizontal alignment of the splints (between 0° and 20°). Steeper angles can affect the fit and precision of the pieces.

Background information

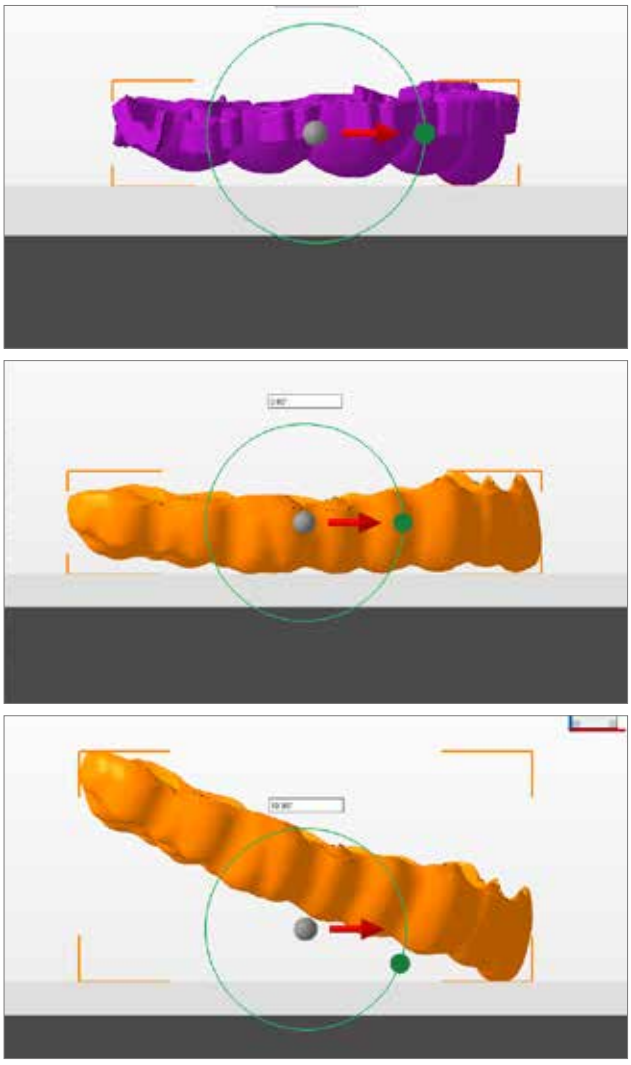
One reason for the poorer fit with greater installation angles is overcuring in the Z direction, which is necessary to connect the individual layers to one another. Overcuring only occurs in the case of undercuts and holes or cavities in the object; namely whenever no object structure prevents hardening in the resin in the Z direction (beam path of the light rays from bottom to top or from the tub towards the build platform). With an alignment of 0° to 20°, the fitting surface of the splint (inside) is typically in the direction of the material tray (in contrast to a 90° oriented splint) so that overcuring does not take place there but only on the antagonist side, which will have to be treated in any case due to the existing support structures.

Exact reproduction of the digital data is therefore no longer guaranteed at angles greater than 20° (e.g. 60°, 90°).

Practical tip:

For indirect bonding trays, we recommend printing in horizontal (0°) orientation.

In this way, the bracket pockets are also reproduced with the highest accuracy.



Positioning and aligning the splints in Netfabb

3.2.4 Adding support structures

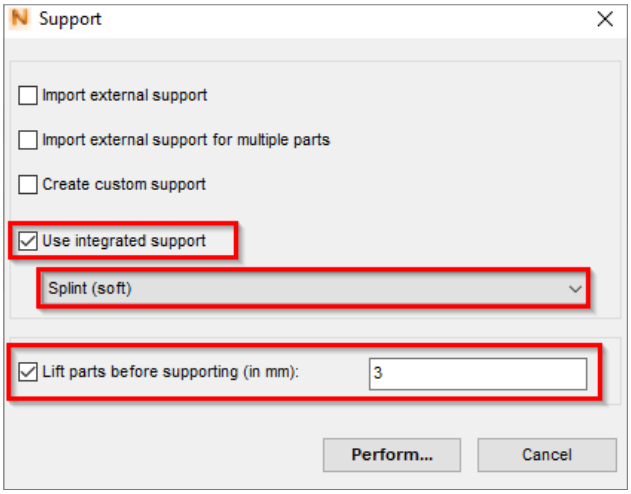
Support structures are required for the correct construction of the flexible objects for most construction forms of indirect bonding trays as well as for all bleaching trays. In the DMG Workflow area, select »Add support...« and in the next dialogue box, select »Use integrated support«.
We recommend the 'Splint (Soft)' setting, which is optimised for use with flexible materials. The menu item »Lift components before support (in mm)« should also be selected to automatically lift your component a few millimetres from the building plate. A value of 2-4 mm is ideal.

The program automatically calculates the optimal position of the supports and inserts it between the build platform and the splint.

Please examine the object for incorrectly placed support structures. No support structures should be found on the inner surfaces relevant for the fit. If necessary, remove individual supports.

Practical tip:

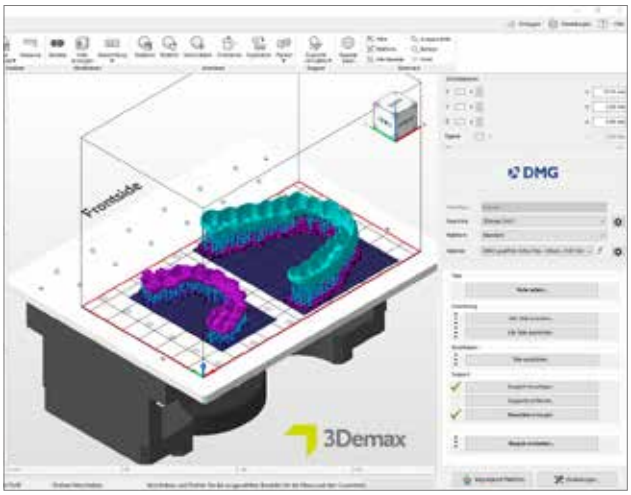
Some design forms of indirect bonding trays (»bar-type« with flat underside) can also be printed without support structures if designed correctly. To do this, activate the »magnetic platform« function and align the splint so that the underside rests level on the building plate.



»Support« window

Practical tip:

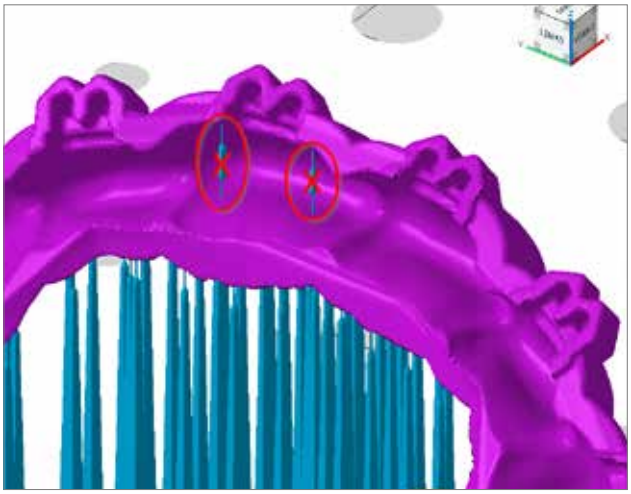
You can also use these external supports if you are using a different program to generate support structures. To do this, select the item »Import external support« or »Import external support for several components«.



Supported splints on building plate in Netfabb

Practical tip:

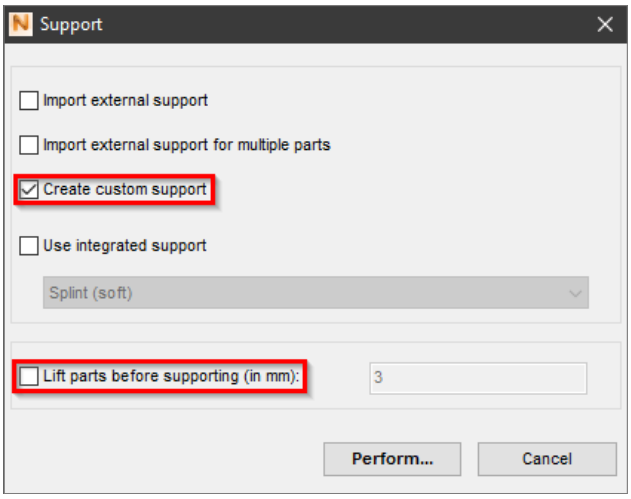
If properly oriented, the automatic and integrated support script works perfectly in many cases. Because all printed objects are unique, it is possible that structures are placed incorrectly and have to be removed manually. It is also necessary to add individual supports manually in some cases.



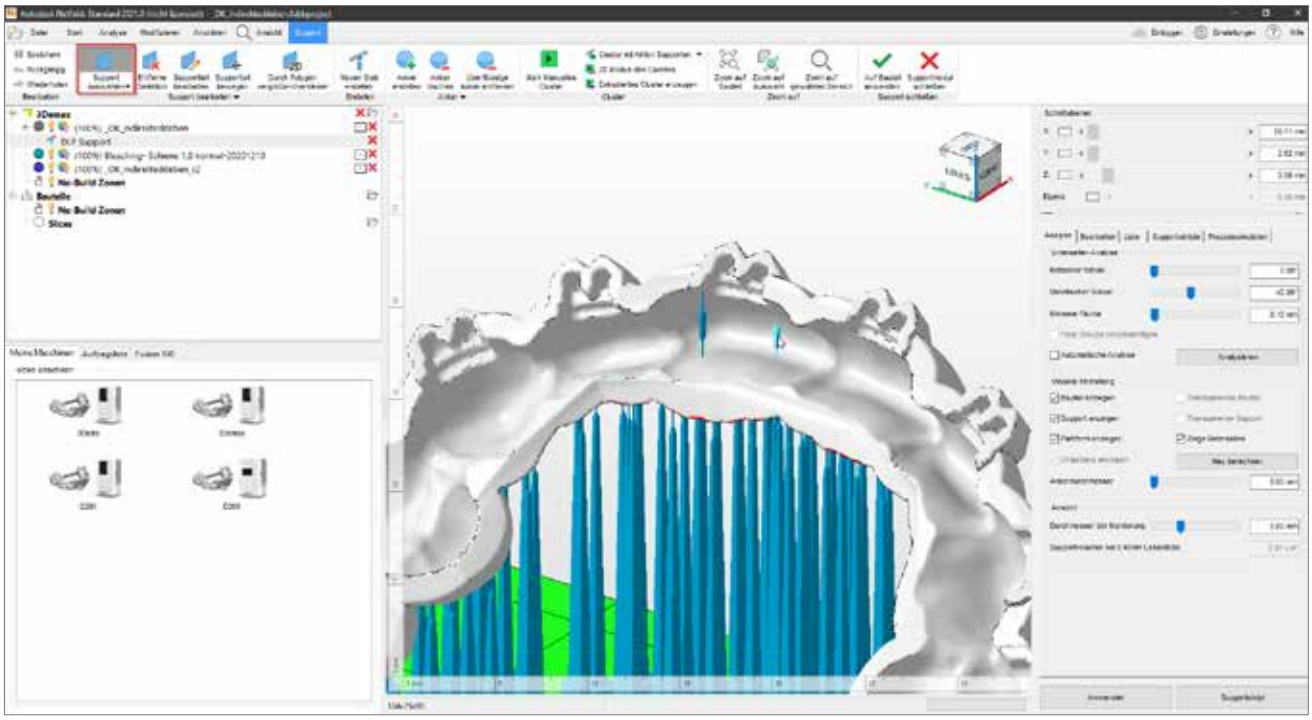
Incorrectly placed supports on the inside of the splint

3.2.4.1 Removing and adding individual support bars

To remove or add individual support bars, first select the object in question and then »Add support...«. In the subsequent dialogue, activate the box »Create individual support«. Also ensure that the box »Lift components before support (in mm)« is not activated. You will then be taken to a reduced view of your object and the associated support bars, where you can remove or add individual support bars as you wish. With the function »Select support« you can mark and remove individual bars (right click: »Remove selection«).



»Support« window

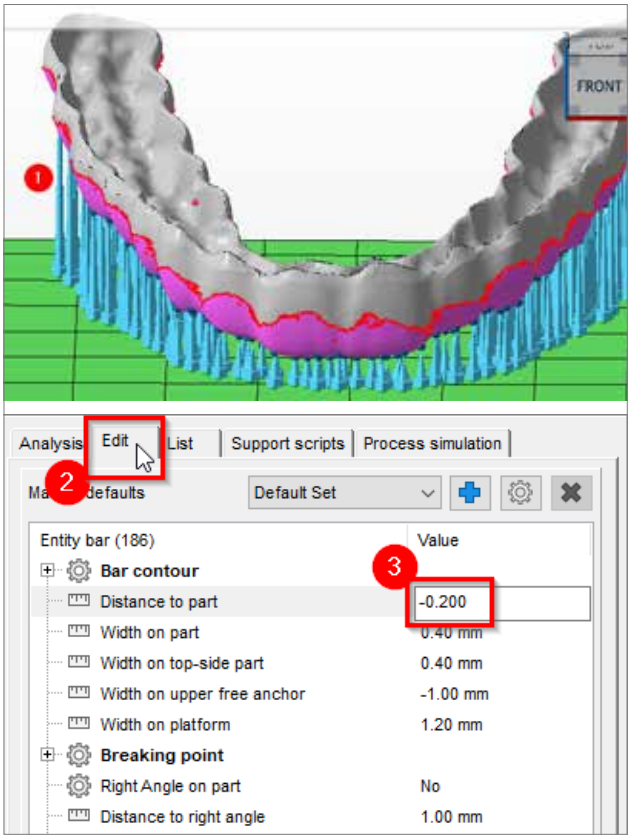


Incorrectly placed supports on the inside of the splint

3.2.4.2 Optimised support for printing with 50 µm layer thickness

When a 50 µm layer thickness is used for printing, the connections between the support structures and the component may be sub-optimal at certain points because of the component shape. This results in some of the supports not being firmly anchored to the components after printing, and instead being suspended with their thin end in the air and moving freely. On the component itself, this can lead to minor errors, especially on the outside of the splint, but sometimes also on the fitting surface.
In a few steps, you can optimise the connections between the supports and the component and avoid printing errors. We recommend using this procedure whenever you are printing at 50 µm.

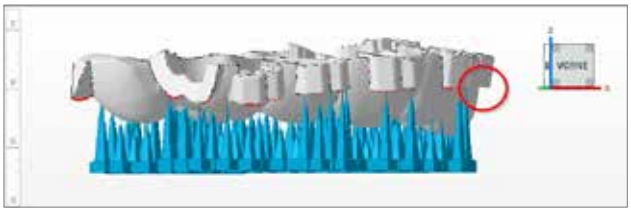
Once you have completed the automatic support generation, go to the custom support generation. Component raising should be deactivated (see 3.2.4.1). Select all supports by clicking Ctrl+A or with the mouse.
All supports should now be highlighted in colour.
In the Edit tab, change the value for distance from component from 0.1 to -0.2 mm, and press Enter to confirm. This gives the supports a better connection to the splint and allows them to provide optimal support.



Optimising support connections in Netfabb

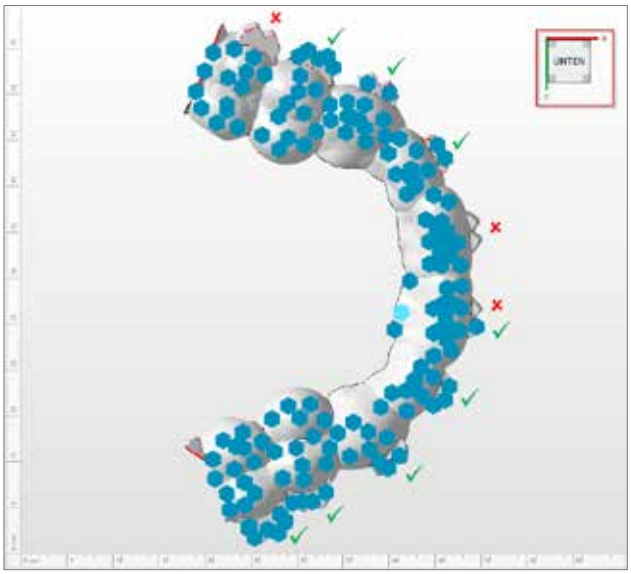
3.2.4.3 Support for indirect bonding trays

In some types of construction (sleeve/offset type), the bracket pockets are attached to the splints at right angles and must therefore be provided with supports. As the pockets can be quite small, they are not always recognised by the automatic support function and must be supported individually.



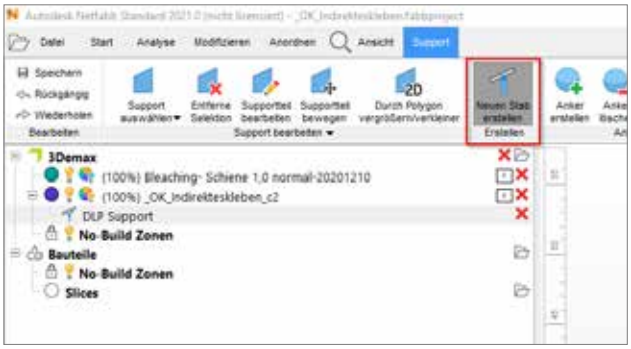
Missing supports (red circle) in the area of the bracket pockets on a bracket transfer splint

To do this, switch to the view for removing and adding individual support bars (see 3.2.4.1) and rotate the 3D view so that you are looking at the splint from below. This allows you to quickly identify areas that need further support bars.



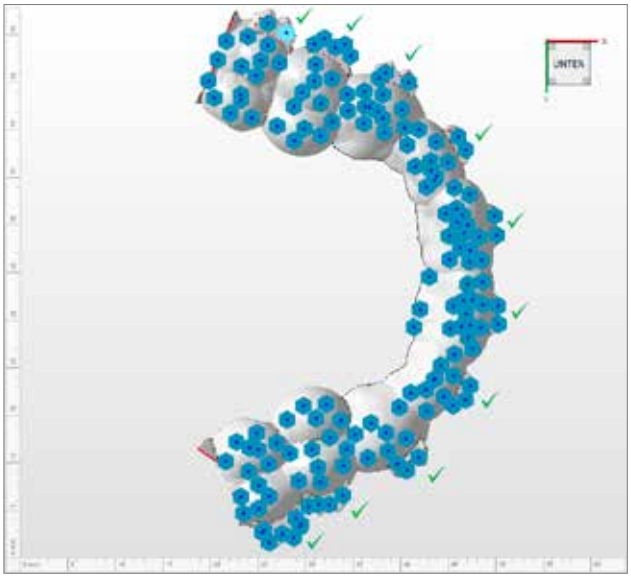
Missing supports (red crosses) and correct supports (green ticks)
in the area of the bracket pockets on a bracket transfer splint

To set new bars, select the function »Create new bar« in the upper menu toolbar.
Double-click on the point on the splint to be supported to create a new support bar (alternatively: left-click to set an anchor point, right-click on the anchor point and click on »Create bar«).



Adding new support bars in Autodesk Netfabb using »create new bar« (red marking)

After completing the manual support set-up, check the splint again for correct positioning of the bars and make sure that all bracket pockets are supported. Click on »Apply« to apply the current supports and return to the build platform view.



Correct supports (green ticks) in the area of the bracket pockets on a bracket transfer splint

3.2.5 Base plate

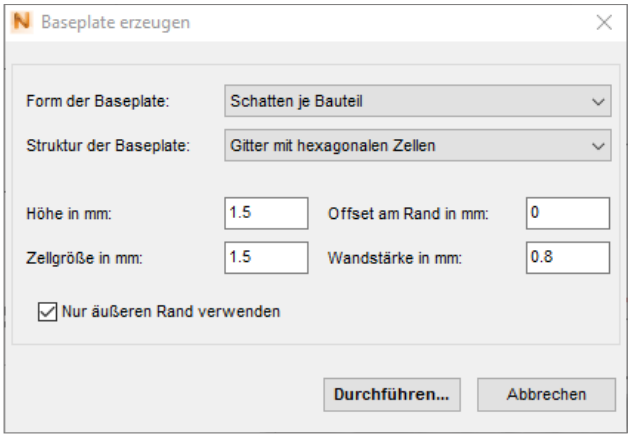
A baseplate ensures better adhesion to the build platform and thus minimises misprints. You should always use a baseplate when printing with LuxaPrint Ortho Flex. The basic settings suggested by Netfabb lead to good results in most cases (grid with hexagonal cells, height: 0.8 mm, cell size: 1.5 mm, offset from edge: 1.5 mm, wall thickness: 0.8 mm).

3.2. 6 Creating a build job (slicing) and transferring it to the printer

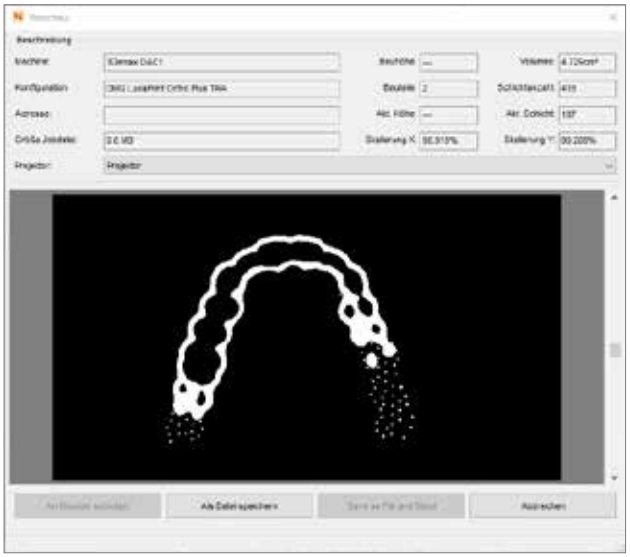
As soon as you are satisfied with the arrangement of the pieces on the build platform, the support structures, and the baseplates, check the material and machine settings again and create a printer-readable file via »Create build job«.

After the calculation of the individual print layers, also known as slicing, a preview window appears. This allows you to scroll through the layers of the print job and review your work.

Now, transfer the finished print job to your 3D printer via a network connection or USB stick.



»Create baseplate« window

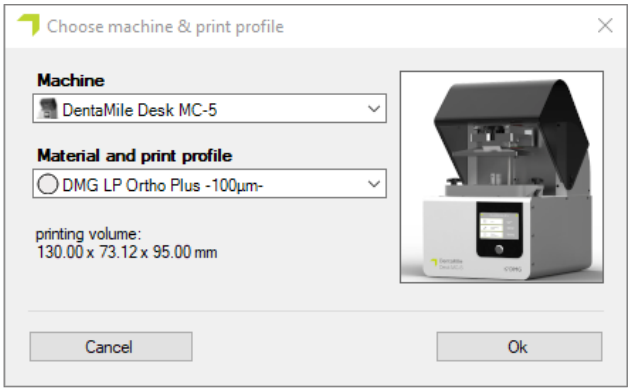


Preview of calculated print job
The entire build area is shown in black; the areas to be exposed are shown in white. As an example, at layer 187 in the illustration, support structures are still partially being created, but Actual result the splint contour is already largely recognisable.

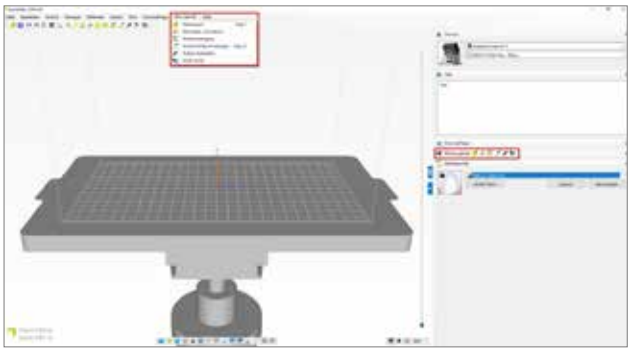
3.3 DentaMile CAM MC for DentaMile Desk MC-5

3.3.1 Selecting your printer and material

Open DentaMile CAM MC and select your printer (DentaMile Desk MC-5) along with the material and print profile for LuxaPrint Ortho Plus.

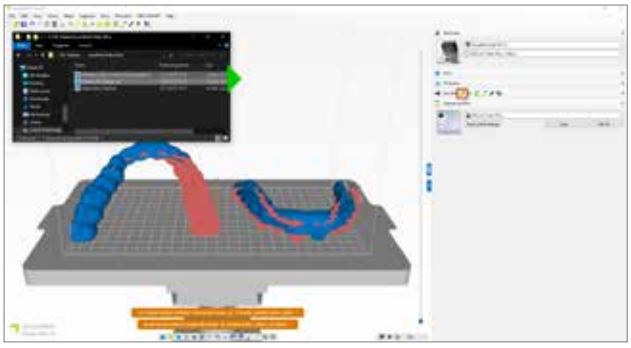


The DentaMile CAM workflow area can be accessed via the DM CAM WF tab at the top and from the menu on the right side of the screen. Here, you will be guided through the most important steps of the software.



3.3.2 Importing the print objects

Simply import the print object from the corresponding folder using drag-and-drop, or select the ‘Import file’ function and find your splint designs. Both options allow you to select multiple objects.

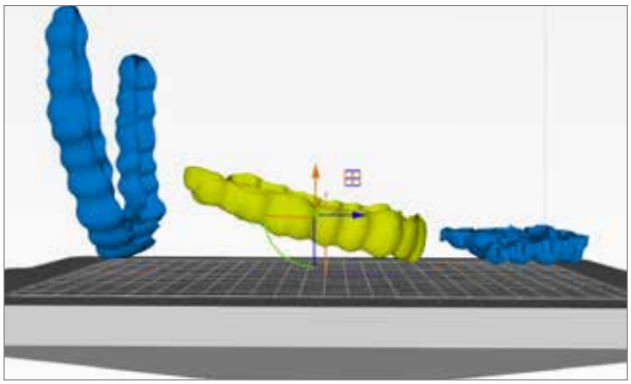


3.3.3 Alignment in the build area

On the DentaMile Desk MC-5 system, splints can fundamentally be printed with perfect fit in **any orientation**. For horizontal or angled orientations, the inside of the splint, which is relevant for the fit, should be turned away from the build platform (see figure 'Optimal alignment') to prevent support structures from being generated on these surfaces.

For maximum precision and fastest printing times for individual trays, we recommend using a horizontal orientation (0–20°). For printing multiple splints and for ease of removing support fragments, a vertical orientation is the best choice (roughly 90°).

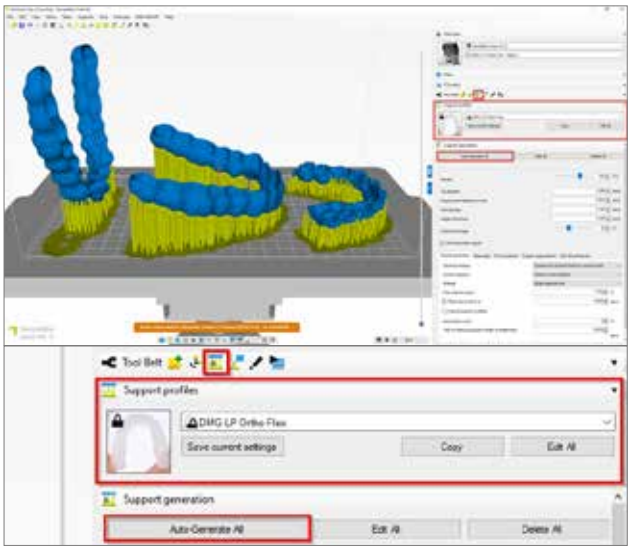
Indirect bonding trays should ideally have a horizontal orientation to allow the bracket pockets to be printed with maximum precision, thereby ensuring a perfect fit for the brackets.



Optimal alignment of bleaching trays and indirect bonding trays

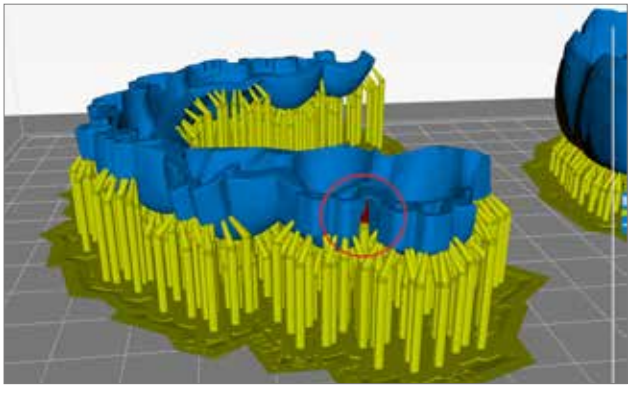
3.3.4 Adding support structures

The splints require support structures to keep the build process running smoothly and without errors. Select 'Support generation' (1) in the tool bar. The support profile 'DMG LP Ortho Plus' (2) has been specifically developed for the material and delivers optimal results. Click 'Auto-generate all' (3) to generate the supports for all objects on the build platform. All parts will then automatically be positioned a few millimetres above the build platform and given a base plate.



Print-ready build job in DentaMile CAM MC with support structures and baseplate

Please check your splints for any supports that have not been put in place optimally. Supports that collide with the component are shown in red and should be removed. For indirect bonding trays, all bracket pockets should have adequate support. In certain cases, the individual bracket pockets may have no supports or only inadequate support because of how they are shaped. In the automatic support generation, supports can easily be removed or added in the same style by using 'Edit all'.



Supports collide with the component and are therefore shown in red

4. Printing

4.1 Scanning RFID tags

Scan the material's RFID code for greater process reliability. The 3D printer can detect possible incorrect material information in the software and will warn you if necessary (supported by DMG DentaMile Lab5/ Lab5 Pro/DMG 3Demax/DMG 3Delite (DMG), D30/ D20+/D20+ cartridge/D10+ (Rapidshape), P20+/ P10+ capsule (Straumann)).

4.2 Adding material

Put LuxaPrint Ortho Flex in the resin reservoir of your 3D printer. Make sure that the tray is filled far enough, so that the resin can continue to flow even if the build platform is fully occupied. Please never fill the resin reservoir to the brim, as the resin may overflow and contaminate your printer. Use separate material trays for every biocompatible printing material to avoid cross-contaminations.

4.3 Starting a 3D printing job

Start the print job on your 3D printer.

5. Post-processing

Intelligent connectivity
As a user of a DMG 3D printing system consisting of DMG 3Demax, DMG 3Dewash and DMG 3Decure, you can benefit from the intelligent linking of the devices.
As soon as the print job is finished on the printer, all relevant information is transferred to the post-processing units, where you only have to select the appropriate print job to start the individual post-processing.

5.1 Dripping off

After completing the printing process, let your splints hang in the printer for about 10 minutes, so that any liquid resin can drip off. This saves material and cleaning.

5.2 Detaching parts from the build platform

Carefully detach the printed objects from the build platform. Use a spatula or the cutter that came with the printer (or similar cutting tool).

In the case of highly adhesive objects, carefully hit the handle of the spatula with a hammer to detach the baseplate of the printed object from the building platforms. Always be careful not to damage the splints.

If you are using a DMG 3Delite (DMG), D10 + (RapidShape) or P10 + (Straumann), leave the objects on the build plate and hang the entire plate in the provided cleaning device (DMG 3Dewash, RS wash or P wash).

Use a spatula or cutting tool to carefully detach the printed objects from the build platform

5.3 Cleaning

Once printed, the splints have to be thoroughly cleaned to remove the residues of liquid resin from the component surface. Please use the cleaning options (see Introduction) that have been designed and validated for your printing system.

Practical tip:

Prolonged contact with cleaning fluids can affect the accuracy of the objects as well as their mechanical properties. Please keep to the times stated here.

5.3.1 DMG 3Dewash (or RS wash / P wash)

Place your printed objects in the cleaning chamber of the DMG 3Dewash and select the program for DMG LuxaPrint Ortho Flex or the appropriate print job. For best cleaning results, place the splint in the cleaning chamber with the mating surface facing downwards. The cleaning should be carried out using isopropyl alcohol (approx. 99 %).

5.3.2 DMG DentaMile Wash MC

Place the printed splints into the cleaning tray of the DentaMile Wash MC with their inner side facing down. Ensure that the isopropyl alcohol is sufficiently clean and change it as needed.

Select the cleaning programme “Low“ and set the timer to five minutes for thorough cleaning of the printed objects.

5.3.3 Ultrasound

If you do not have any of the above cleaning devices, you can also clean your model in an ultrasonic bath with isopropyl alcohol (99%). To do so, we recommend using two separate cleaning containers. The first for a prewash (max. three minutes) for removing most of the resin from the parts. This container will quickly become contaminated with resin, but can be continued to be used for prewashing other parts. The second container should contain fresh isopropyl alcohol and be used for fully removing all of the remaining resin residues (max. two minutes).

Splints in the DMG 3Dewash cleaning unit

Practical tip:

To extend the life of your cleaning fluid in the DMG 3Dewash, you have the option of pre-cleaning the pieces briefly (< 1 min) in a cleaning bath or with a spray bottle with isopropyl alcohol (approx. 99 %) to roughly rinse off the liquid resin residues. Cleaning in the DMG 3Dewash should be carried out immediately afterwards.

Step 1 (Prewash)	Step 2 (Main wash)	Drying
Ultrasound	Ultrasound	Compressed air/air
Isopropyl alcohol	Isopropyl alcohol (fresh)	
3 min	2 min	10–60 s / 30 min

5.3.4 Drying and final inspection

Ensure the splints have completely dried before you proceed with post-curing. Use compressed air for this or let the pieces air dry for about 30 minutes.

Inspect the splints thoroughly after drying and ensure that:

- The splints are clean and completely dry
- No cleaning fluid or resin residues remain on the surface (indicated by a shiny object surface),
- No imperfections or solid resin particles can be found on the mating surface.

If there are still liquid resin residues on the objects, they can be removed e.g. with a spray bottle containing isopropyl alcohol or a cloth soaked in isopropyl alcohol. Then dry your trays completely as described above.

Practical tip:

Post-curing that is too short, too long or too intensive can lead to a loss of accuracy due to distortions in the part and discolouration of the pieces.

5.4 Post-curing

Correct post-curing of the pieces is important to obtain a biocompatible result with optimal mechanical properties and a perfect fit. Therefore, always pay attention to the correct post-curing and adhere exactly to the given specifications. Never place splints on top of each other in the exposure chamber and make sure that the pieces receive light from all sides.

5.4.1 DMG 3Decure

Simply place your printed object in the cleaning chamber and select the program for DMG LuxaPrint Ortho Flex or the appropriate print job (requires Intelligent Connectivity).

5.4.2 DMG DentaMile Cure MC

Place your printed objects inside the light-curing chamber of the DentaMile Cure MC and select the programme for LuxaPrint Ortho Flex. Make sure that the objects are not stacked on top of each other and that they receive sufficient light from all sides.

5.4.3 Otoflash / Heraflash / HiLitePower3D

Place your printed objects in the chamber of the exposure device and cure using the settings given below.

Light-curing unit	Light-curing time	Tips
Otoflash G171 (N360 bath)	2x 2000 flashes	After the first 2,000 flashes, let the printed object cool down and turn it over
Heraeus Heraflash / Kulzer HiLite power 3D	2x 180 seconds	After the first 180 seconds, let the printed object cool down and turn it over

5.5 Removing the support structures

Carefully detach the support structures. It is best to use a hand tool with a cutting disc, a plaster knife or a small pair of forceps or scissors. The remains of the support structures can then be carefully removed with a milling machine or a polisher.

Practical tip:

Although cutting off the supports by hand is quicker than using a tool, it can tear out small areas from the splints and thus damage the splints or even make them unusable. We therefore recommend using a tool.

5.6 Finish and polish

LuxaPrint Ortho Flex offers fast and easy grinding and polishing for a smooth and slightly matt surface. To avoid defects on the splint surface, ensure low rotational speeds when milling and polishing. The dental splints should be prepared under active suction due to the resulting dust exposure.

- A **tungsten carbide bur** can be used to remove supports and their residues.
- The splint can be pre-polished with a **(fine) buffing wheel** (sufficient for indirect bonding trays).
- Where a smooth surface is required, it can be polished manually with a **goat hair brush and (light) polishing paste** followed by a **high-lustre buffing wheel**.
- To remove polishing residues, splints are carefully steamed off using an **evaporator** or cleaned for 5-10 minutes at 30°C in an **ultrasonic bath** with a standard mixture of water and detergent. To avoid deformation of the splint, final cleaning of the splint using an evaporator should be directed over a wide area rather than selectively.

To prevent adhesion between brackets and splints, indirect bonding trays must be insulated in the patient's mouth before use.

Completed splints

Practical tip:

Please inspect your finished objects after completion for any damage or cracks. Damaged splints should never be used in patients.

6. Validated fit accuracy

All of our materials and printing processes are examined and evaluated in terms of achieved accuracy.

The mating surfaces of the bracket transfer tray produced in the validated workflow using LuxaPrint Ortho Flex Resins, DMG 3Demax printer, DMG 3Dewash cleaning unit and DMG 3Decure post-curing unit show mean deviations of 43 µm. This means that 99.5 % of the mating surface is within 150 micrometres of the digital source data. 93.5% of the object surface deviates less than 100 micrometres from the digital output data.

Surface comparison of the mating surface of a bracket transfer splint produced with validated DMG DentaMile Workflow as compared to the digital output data. 99.5 % of data points lie within a tolerance of 150 µm. The average deviation is 43 µm.