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BEGO SCAN AND DESIGN CENTRE

Guidelines

Partners in Progress





CAD/CAM production without costly investments – is that even possible?

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Contents

| | |
|-------------------------------------------|-------------|
| Introduction | 3 |
| Chapter 1 – General information | 4–8 |
| Order options | 5 |
| Job creation | 6 |
| Job transmission | 7 |
| Design approval and shipment | 8 |
| Chapter 2 – Additional information | 9–10 |
| Model preparation/production | 10 |
| Design options | 11–18 |
| General information on the design options | 11 |
| Emergence profile design | 12–15 |
| Rotation design | 16 |
| Preparation height and design | 17 |
| Parallel alignment of abutments | 18 |
| Customised bars | 18 |
| Further useful documents | 19 |

INTRODUCTION

BEGO Medical offers you holistic solutions in the field of CAD/CAM prosthetics. Regardless of whether you wish to offer your patients crowns and bridges or customised implant prosthetics in the form of abutments and occlusally screw-retained restorations, we will provide you with all the support you need.

Customised CAD/CAM implant prosthetics from BEGO can be produced from a wide range of materials for all common implant systems from various manufacturers.

BEGO Medical guarantees CAD/CAM prosthetics which meet the most stringent demands in terms of aesthetics and functionality.

For more information on the range of BEGO products, materials and techniques, go to

www.bego.com/en/products/cad-cam/cad-cam-solutions/

With our scan and design service you can make optimal use of BEGO CAD/CAM technologies in your laboratory and easily purchase customised CAD/CAM prostheses without having to invest in the necessary hard- and/or software (scanner, design software etc.)

Read on to find out more about how this service works. The following pages provide general information on the BEGO Scan and Design Centre as well as detailed information on the design options which we can offer you.

Should you have further questions or if you require assistance with your order, please contact your sales rep or the BEGO Medical User Support Team.

The BEGO Medical User Support Team is pleased to be of assistance!



The BEGO User Support and the Scan and Design Centre Team

Chapter 1

General information

| | |
|------------------------------|---|
| Order options | 5 |
| Job creation | 6 |
| Job transmission | 7 |
| Design approval and shipment | 8 |

ORDER OPTIONS

Your order options for CAD/CAM restorations from the BEGO Scan and Design Centre

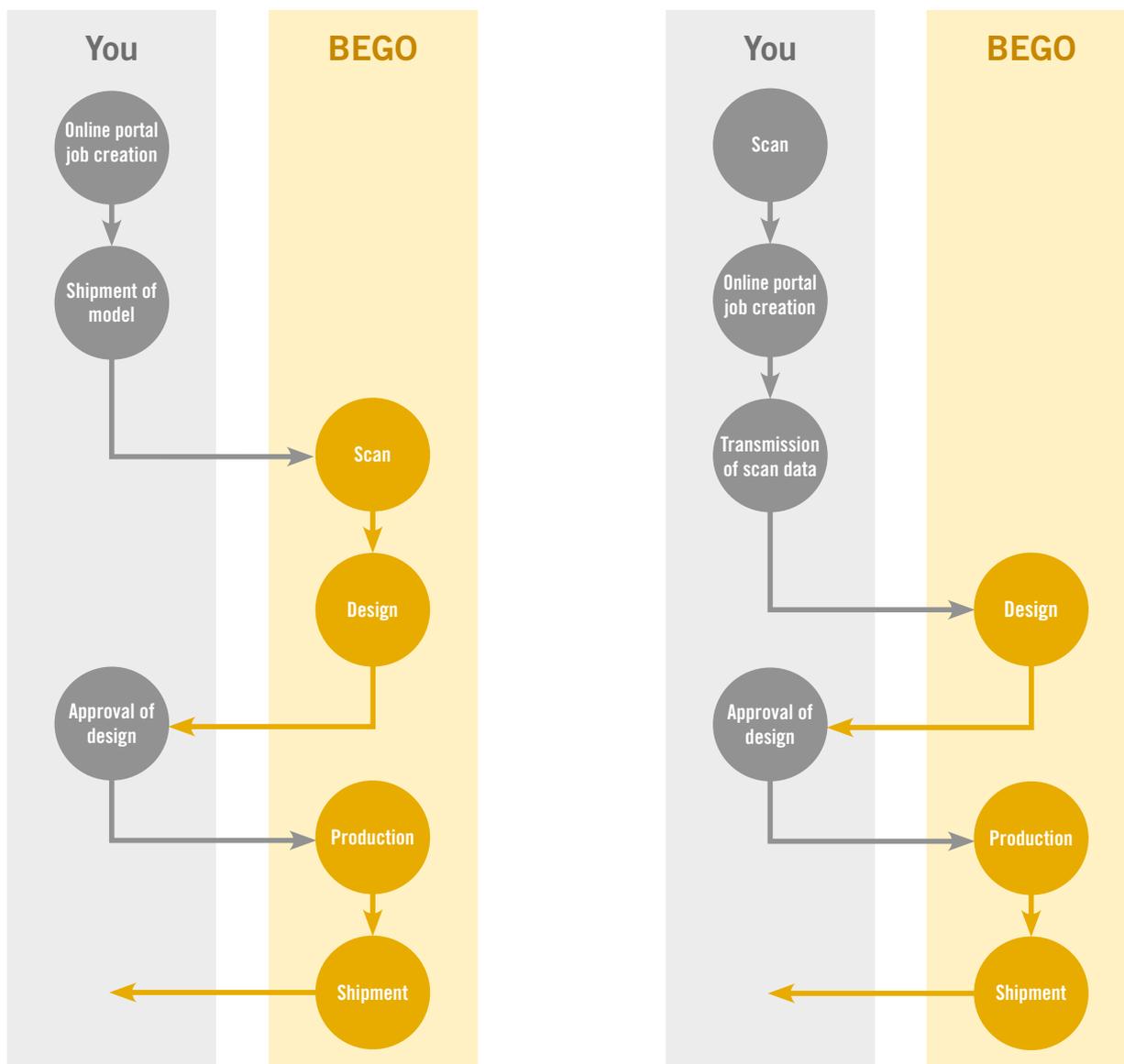
Take advantage of CAD/CAM technologies for your laboratory in cooperation with the BEGO Scan and Design Centre and purchase customised CAD/CAM prostheses from BEGO the easy way – for a minimal scan and design fee instead of large investments*. There are two ways to submit your jobs to the BEGO Scan and Design Centre in Bremen:

Option 1: Shipment of models

After creating the job in the BEGO Scan and Design Centre's on-line portal, simply pack up your model and have it collected from your laboratory**. Once your model arrives in Bremen it will be scanned by us. We then model your work based on your specifications and, prior to production, allow you to check and approve the design.

Option 2: Transmission of model scan data***

After you have set up your scanner accordingly and logged into the online portal of the BEGO Scan and Design Centre, you can then transmit the model scan data to us. On receipt of this data, we model your restorations and, prior to production, allow you to check and approve the design.



* Design service: € 7.00 / unit; scan and design service € 10.00 / unit

** Detailed information on collection orders (incl. shipping charges) can be found on page 7.

*** For implant prosthetics only

Job creation in the online portal of the BEGO Scan and Design Centre

We offer you the opportunity to create your jobs online and then transfer the data relating to your job via an online portal.

To access the BEGO Scan and Design Centre online portal go to: www.bego-medical.com/scancenter

As a new customer it takes just a few steps to register for the BEGO Scan and Design Centre and you are then provided with your access details. Use these details to log on and create a new job. Then select the restoration type and use the selection fields to specify your design wishes.

The screenshot shows the 'Create a new case' interface in the BEGO CAD/CAM online portal. At the top, there's a header with 'Cases Logout' and the logo 'BEGO CAD/CAM Digitale Zahntechnik'. Below the header, there's a 'Create a new case' section with a 'Back to case overview' link. The main area is divided into tabs: 'Order data', 'Types of restoration', 'Details', 'Conclusion', and 'Summary'. The 'Details' tab is selected, showing a form for defining implant systems. The form includes a table for 'Implant system' with columns for 'Position System', 'Line', 'Type', 'Diameter', and 'Material'. Below this, there are fields for 'Cone angle', 'Width of the emergence profile', 'Preparation depth', 'Vestibular', 'Distal', 'Mesial', and 'Oral'. A 'Parallellism' section allows selecting abutments from a grid of 38 icons. A 'Legend' section lists materials like BeCe CAD Zirkon+ and BeCe CAD Zirkon XH. At the bottom, there are 'Back', 'Instructions for use', and 'Continue' buttons.

Screen shot of the online portal in the BEGO Scan and Design Centre

Job transmission (depending on the order option)

Option 1: Shipment of your models

Once the job has been created in the BEGO Scan and Design Centre's online portal on the BEGO homepage, print out the order and place this together with the models in a BEGO Medical shipment box. You can either send this yourself to the BEGO Scan and Design Centre or have it collected.

Independent shipment

Please note that if you send the job to the BEGO Scan and Design Centre yourself, this may result in longer delivery times. Delivery time is dependent on your chosen shipping method (e.g., express delivery will reach us on the next working day whilst standard delivery may take up to 3 working days).

JOB TRANSMISSION

Collection orders

As an alternative to sending the job yourself, we also offer a collection service via the online portal. All you have to do is place a collection order online and your package will be collected by our forwarder from your laboratory and delivered to Bremen the next working day.

- **Processing of standard collection orders**

All collection orders which are placed by 12 noon will be collected on the same day on workdays or, otherwise, on the next working day. Packages are always collected by 6 p.m. Please ensure that your laboratory is staffed during this time.

If you select the “collection order” option, you will be taken to our DHL partner page. Simply enter a few details here to place your collection order and print out an address sticker. Please print out the address sticker and adhere this to the package.

- **Processing of variable collection orders**

Here you can specify a desired time window for collection. Please note that this service depends on the country-specific terms and conditions and can be selected when placing a collection order.

There must be at least 90 minutes between the start and end time.

The date for collection can range from the same day to one of the following four days, providing these are not a Saturday or Sunday. Make sure that you do not select a national holiday.

Should DHL detect a problem with your order, you will be sent an error message.

- **Shipping costs for collection orders**

On placement of a collection order, a **surcharge of € 7 is charged by our service provider, DHL**. This sum is invoiced together with the ordered product. Please note that the total weight of the package must not exceed 2 kg, greater weights may result in an additional charge.

Note: Shipment of several models

Pack each job in its own separate packaging, containing all the documents and the model for the job as well as the restoration order, then place all the jobs together in a single package. Adhere the address sticker to this package.

Option 2: Transmission of the model scan data

In order to enable correct assignment of your model scan data to the information you entered in the online portal of the Scan and Design Centre, when creating a job in the 3Shape Dental Designer* also enter the job number in the online portal.

To send the scan data, press the button “Send for manufacturing” after scanning.

Design approval

During job creation in the online portal you can select whether you wish to check the design before the restoration is produced by BEGO. If you have selected this option, on completion of the design you will be sent an e-mail asking you to check it and, if necessary, state any changes to be made.

To check the design click on the link given in the e-mail or log in directly to the online portal of the BEGO Scan and Design Centre. Here you can assess the design and also notify us of any necessary changes. The restoration will not be forwarded for production until you have given us your approval. Please note that any delays in approving the design will result in a delay in delivery.

The functionality of crowns and bridges is checked by BEGO Medical. The designed and completed jobs are not fitted.

*This symbol is a commercial designation/registered trademark of a company which is not part of the BEGO company group.

DESIGN APPROVAL AND SHIPMENT

Shipment of finished work to your laboratory

The completed restoration is subjected to a quality control and then sent to your laboratory. Should you choose option 1 (shipment of the model), we will deliver the restoration and your model as well as any relevant accessories in a BEGO Medical shipment box. **Our standard delivery times + 2 days for processing (scan and design) apply for all orders placed via the BEGO Scan and Design Centre.** We will pass all completed work onto our forwarder by 7 p.m. who, as a rule, delivers the packages by the following day. We are unable to assume any liability for punctual delivery by the forwarder. Should you experience any difficulties or if your package is delivered late, please call us on + 49 421 2028-200.

Scope of delivery

Customised implant prostheses are always delivered to you with the correct screw in the original geometry. If desired, you can also order the matching technician screws. When creating your job in the online portal, it is possible to order the technician screws in addition to the prosthesis screws.

All the restorations supplied have stickers detailing the patient and order information adhered to their packaging. This ensures simple allocation in your laboratory.

BEGO Scan and Design Centre delivery times

| Delivery times of the BEGO Scan and Design Centre in workdays (weekends/national holidays are not included)* | | | | | |
|--------------------------------------------------------------------------------------------------------------|------------------------|------|---------------------|---------------------|--------------------|
| | Screw-retained bridges | Bars | One-piece abutments | Two-piece abutments | Crowns and bridges |
| BEGO Zirkon HT | | | | | 4 |
| BEGO Zirkon LT | | | | 4 | 4 |
| KATANA Zirconia UTML | | | | | 4 |
| BeCe® CAD Zirkon XH | | | 4** | | |
| IPS e.max® CAD | | | | 4*** | 4 |
| BEGO PMMA Multicolor | | | | 4 | 4 |
| Wirobond® C+ | | | | 4 | 4 |
| Wirobond® M+ | 6 | 6 | 4*** | | 4 |
| BEGO Titan Grade 4 | | | | | 4 |
| BEGO Titan Grade 5 | 6 | 6 | 4–6 | | |
| CAD/Cast®-Legierungen | | | | 4 | 4 |

* The workdays stated include the production time if the order is received by 2 p.m., as well as 2 days for the scan and modelling service and design approval.

The production time itself comprises the manufacture of the restorations and quality controls as well as one day for delivery of the completed work by our service provider DHL.

** For BEGO Semados® implants, ASTRA TECH OsseoSpeed and NobelActive (ASTRA TECH OsseoSpeed are products/registered trademarks of Dentsply IH GmbH, which is not part of the BEGO company group, Nobel Active are products/registered trademarks of Nobel Biocare AB, which is not part of the BEGO company group).

*** For BEGO Semados® implants

BEGO CAD/CAM Tracking App

You can follow the current production status of your orders at BEGO Medical in real time, whether crown/bridge frameworks or implant prosthetics. The app operates as a virtual window into the high-tech production center of BEGO Medical and can easily be downloaded for free from the Google Play Store or from the App Store by Apple onto the mobile terminal device.

After registering with the BEGO customer number and password, you are able to check whether your orders have been received at BEGO, are in data preparation or production, have been produced or already sent to the customer. Additionally, the app provides the opportunity to track the delivery status of the courier service provider.

Chapter 2

Additional information

| | |
|-------------------------------------------|-------|
| Model preparation/production | 10 |
| Design options | 11–18 |
| General information on the design options | 11 |
| Emergence profile design | 12–15 |
| Rotation design | 16 |
| Preparation height and design | 17 |
| Parallel alignment of abutments | 18 |
| Customised bars | 18 |
| <hr/> | |
| Further useful documents | 19 |

Details on model preparation/production

- An occlusal registration is all-important for ensuring the correct vertical dimension. This should be trimmed and easy to position between the models.
- It must be possible to remove the models from all bases.
- The preparation margin must be exposed and easily recognisable. The margin can be clearly defined by slight chamfering.
- Only use conventional moulding plasters. Plastic-reinforced plasters as well as red and black plasters can result in measurement errors with photo-optical scanning techniques.
- The supplied models should not be more than 35 mm in height.
- Please remove all plaster bubbles on the occlusal surface.
- Before shipping, check that the bite position is correct in the articulator in order to ensure precise jaw relationships.
- It must be possible to take out the dies and adjacent model segments individually. In addition, it must not be possible to rotate or move these.
- Do not use a margin liner to draw the preparation margins.
- Neither varnish nor spacer varnish may be applied to the dies.
- Only grey occlusal wax or BEGO scan wax may be used to block out the dies. Plastic and conventional modelling waxes may not be used.
- A gingiva mask is required for implant-retained work. The mask must be large enough to surround the model analog with a 1 mm border.
- The gingiva mask must be produced from a scannable material, it must also be able to be removed and be clearly repositioned.
- Only new (undamaged) model analogs are to be used.

Note:

Segmentation should be avoided with implant models.



1 Tangential preparation

2 Chamfer preparation

3 Step preparation



Saw-cut model with individual dies and segments

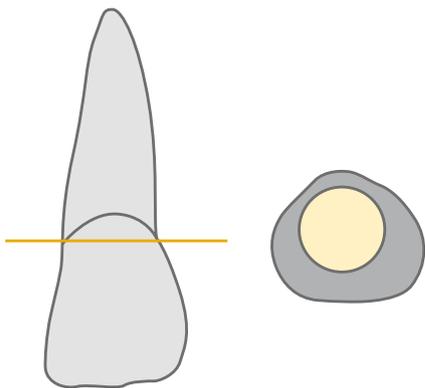


Implant model with model analogs and a removable gingiva mask

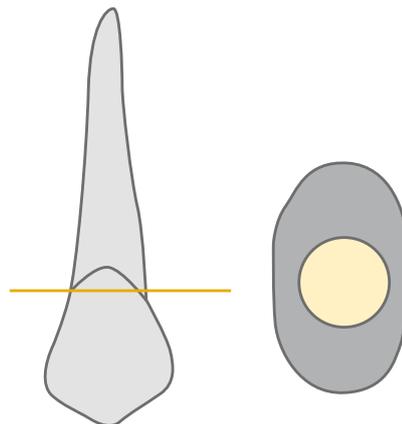
General information on the design options

A good knowledge of the morphology of natural teeth forms the basis of dental work. It is thus vital that this know-how is also taken into account when producing customised implant prosthetics.

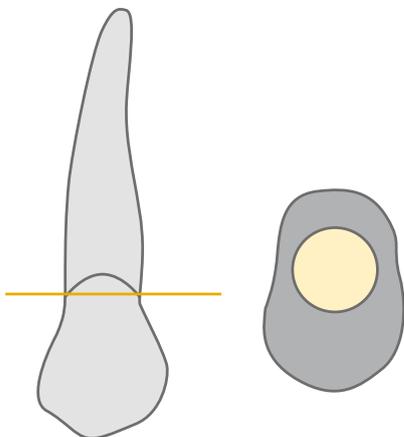
Tooth morphology varies greatly. In order to illustrate this, below you will find a number of images of various tooth shapes.



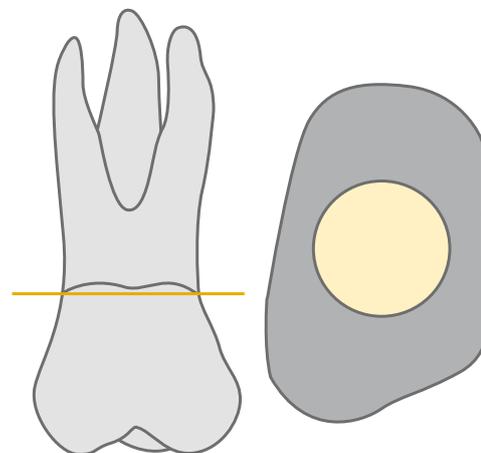
Natural emergence profile of an upper central incisor



Natural emergence profile of an upper premolar



Natural emergence profile of an upper canine



Natural emergence profile of an upper molar

Emergence profile design

The natural aesthetics of customised implant abutments depends on a number of different factors including the shape and size of the implant, the implant depth, the mucosal thickness and the design of the emergence profile.

Depending on the demands made of the dental restoration, the emergence profile can be customised in order to ensure optimal mucosal support for the final restoration.

Unlike the round healing post used, every tooth has an anatomical emergence profile (see page 9 et seq.)

The emergence profile can vary according to the healing abutment used. It is therefore important to specify the desired design of the emergence profile for each specific job.

The emergence profile is directly related to the circumference of the abutment.

- A slender emergence profile results in an abutment with a small circumference.
- A wide emergence profile results in an abutment with a larger circumference.

There may be significant differences as regards the emergence profile between the individual options for the abutment design. The soft tissue contour design of the customised BEGO Medical abutments is available in the options described below. It is based on the natural cross-section of the relevant tooth.

• Design 1:

Fully anatomical soft tissue contour

The anatomical abutment circumference provides for a favourable emergence profile. A relief incision may be necessary when placing the abutment.

Design 1 is to be chosen if the implant was not placed in the anatomically/prosthetically correct position. An attempt is then made to relocate the abutment into the prosthetically correct position. The mucosa may be subjected to various pressures when fitting.

• Design 2:

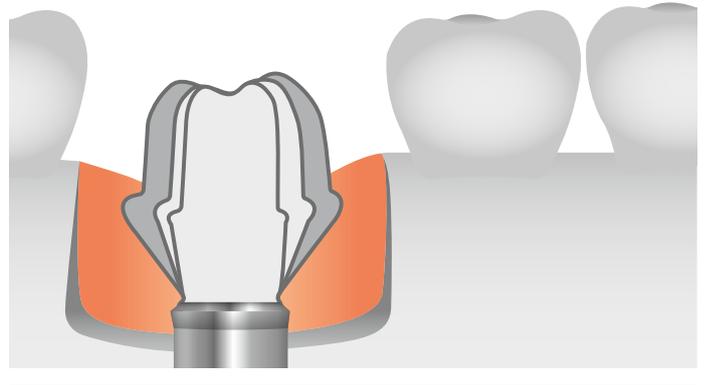
Reduced soft tissue contour (BEGO standard)

The soft tissue contour is up to 1 mm larger than the gingival margin which can be seen on the model. This results in a reduced anatomical abutment profile.

• Design 3:

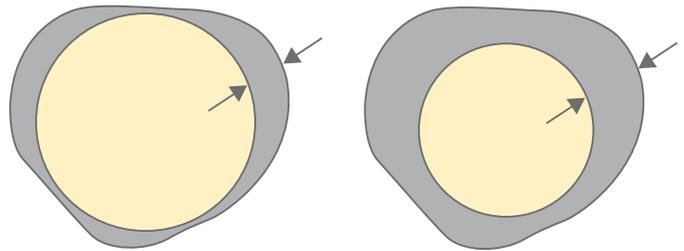
Customer-made emergence profile

The abutment is adapted to the emergence profile shown on the model. The abutment touches the mucosa.

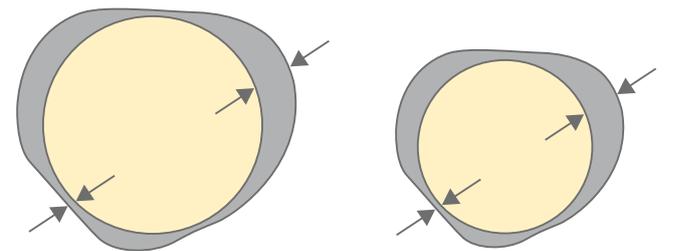


Dark grey: fully anatomical soft tissue contour

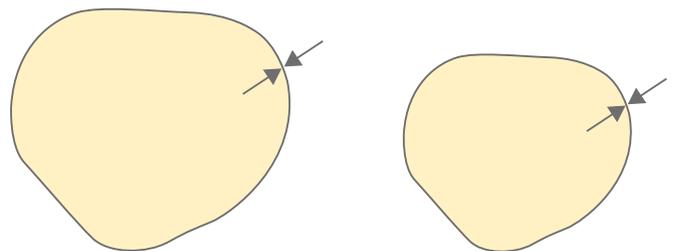
Light grey: reduced soft tissue contour depending on the emergence profile as per the model situation



Design 1: fully anatomical soft tissue contour (beige: emergence profile as per the model situation; grey: soft tissue contour)



Design 2: reduced soft tissue contour (beige: emergence profile as per the model situation; grey: soft tissue contour)



Design 3: customer-made emergence profile (beige: emergence profile as per the model situation; grey: soft tissue contour)

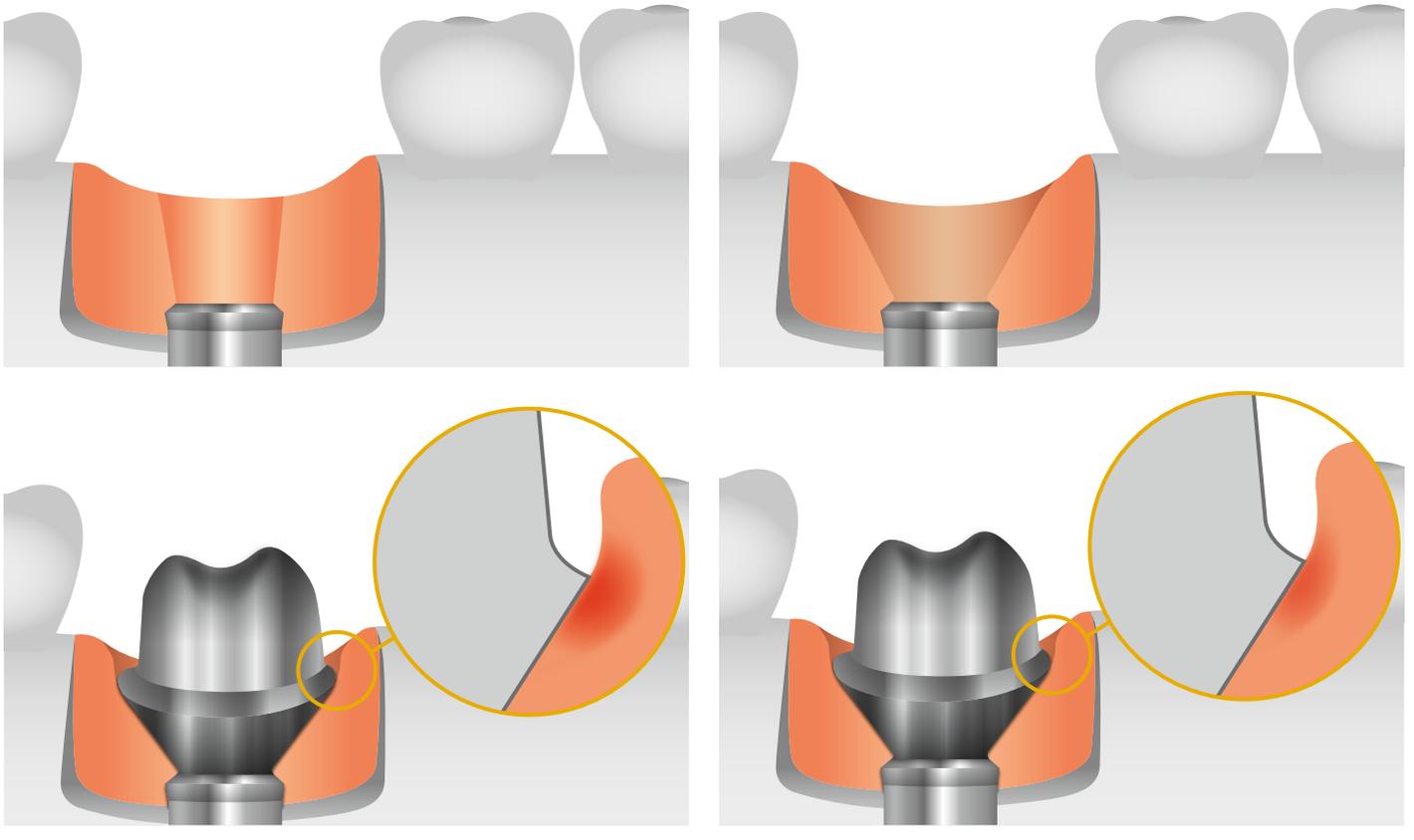
DESIGN OPTIONS

Design 1: Fully anatomical soft tissue contour

The fully anatomical soft tissue contour provides for an anatomically favourable emergence profile. A relief incision may be necessary during placement.

The size of the abutment is determined by the optimal anatomical emergence profile; the emergence profile shown on the model is not taken into account here.

The abutment design is based on the fully anatomical abutment circumference without consideration of the soft tissue situation which, if the emergence profile is slender, can cause high pressure on the soft tissue. A relief incision may be necessary during placement.



Fully anatomical soft tissue contour with a slender emergence profile

Fully anatomical soft tissue contour with a wide emergence profile

DESIGN OPTIONS

Design 2:

Reduced soft tissue contour (BEGO standard)

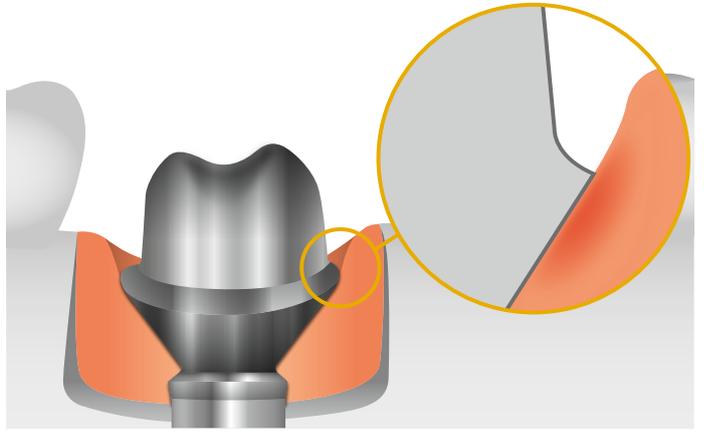
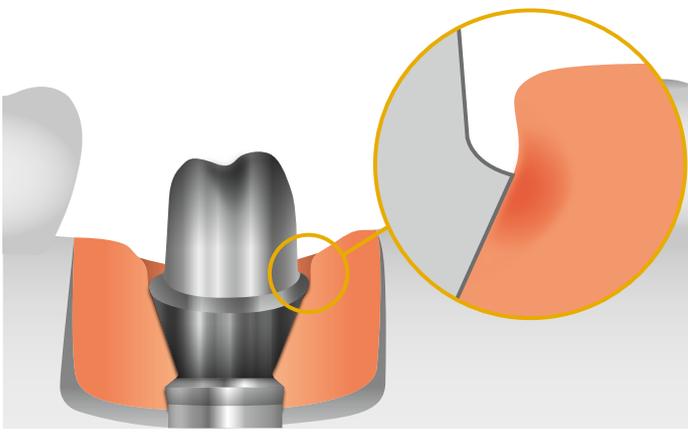
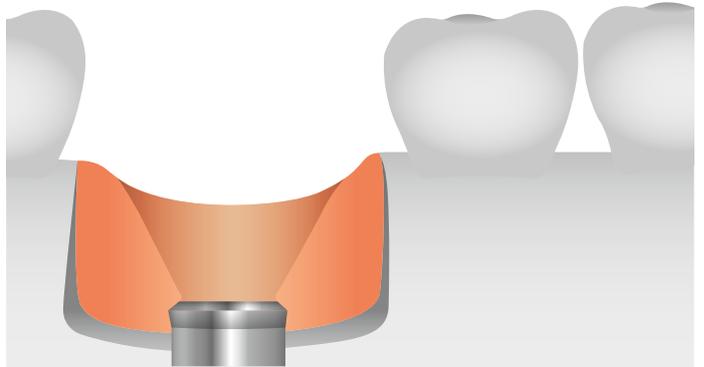
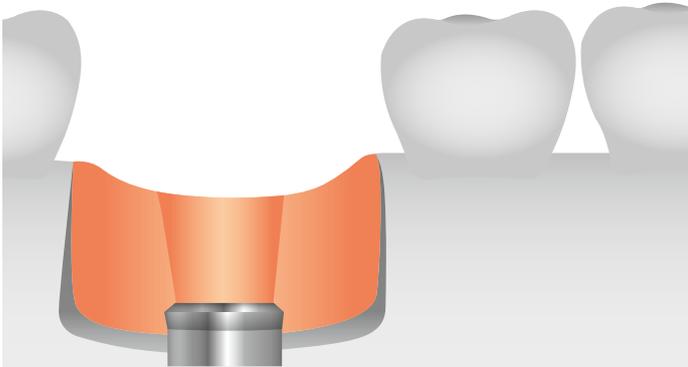
Reduced anatomical abutment profile. The diameter is up to 1 mm larger than the gingival margin which can be seen on the model. The size of the abutment is determined by the emergence profile on the model. If the emergence profile was shaped by a healing or provisional abutment, the mucosa may be temporarily anaemic when the abutment is fitted in the patient's mouth.

- **Slender emergence profile**

The abutment design has a moderate compressive effect on the mucosa (max. 1.0 mm). A slender emergence profile results in an abutment with a smaller circumference.

- **Wide emergence profile**

The abutment design has a moderate compressive effect on the mucosa (max. 1.0 mm). A wide emergence profile results in an abutment with larger dimensions.



Reduced soft tissue contour with a slender emergence width

Reduced soft tissue contour with a wide emergence width

Note:

If you do not select any options with your order, your abutment will be produced with a standard "reduced soft tissue contour".

DESIGN OPTIONS

Design 3: Customer-made emergence profile

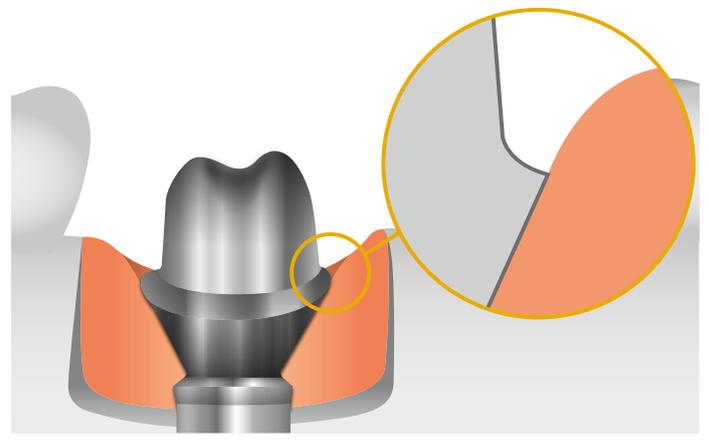
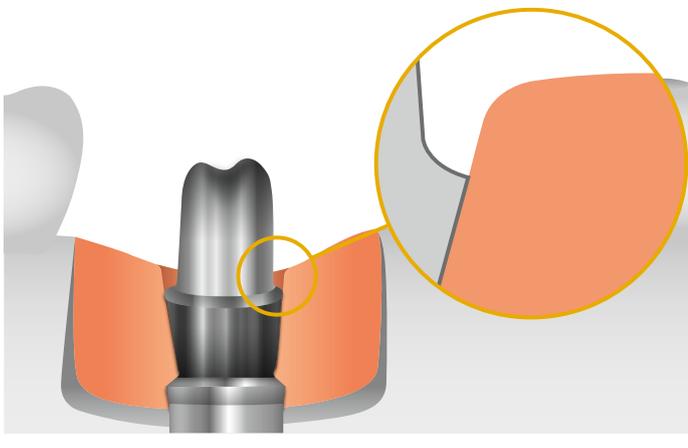
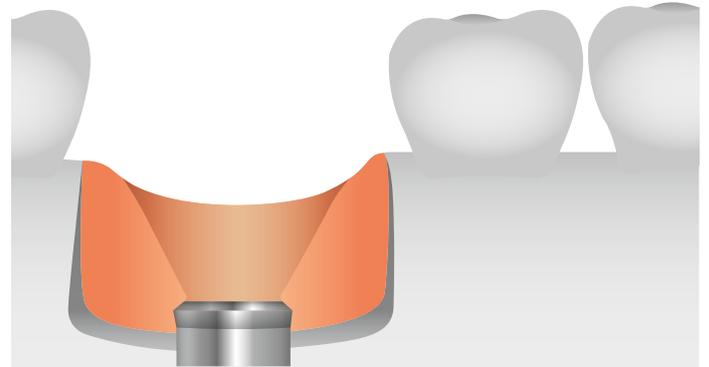
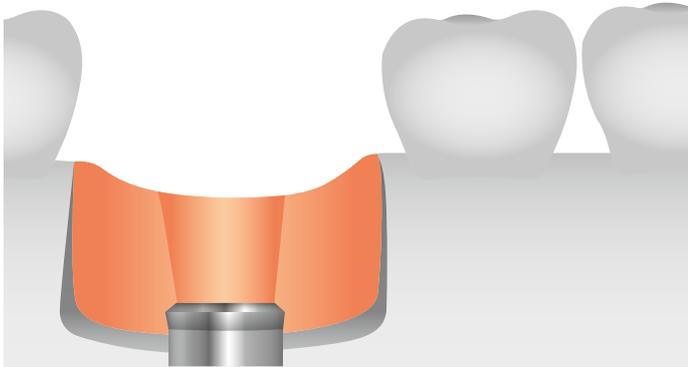
The size of the abutment is determined by the emergence profile which is created by the shape and size of the healing or provisional abutment.

- **Slender emergence profile**

The abutment design lies on the mucosa. A slender emergence profile results in an abutment with a small circumference.

- **Wide emergence profile**

The abutment design lies on the mucosa. A wide emergence profile results in an abutment with a larger circumference.



Customer-made emergence profile with a slender emergence width

Customer-made emergence profile with a wide emergence width

Note:

The abutment emergence profile corresponds to the gingival contour as per the master model. The abutment is in contact with the model without applying any pressure.

Rotation design (rotation protection)

With the customised abutments from BEGO Medical you can also order additional rotation protection for explicit crown positioning. This can take the form of either a chamfer on the vestibular abutment cusp or a groove which, depending on the course of the screw channel, can be positioned mesially or vestibularly.

- Rotation design 1: No rotation protection
- Rotation design 2: Mesial groove
- Rotation design 3: Vestibular groove
- Rotation design 4: Vestibular abutment cusp chamfer



BEGO Medical CAD/CAM abutment with a mesial groove as rotation protection

Anatomically reduced form

Depending on the space available, we plan uniform ceramic layer thicknesses by reducing the anatomical crown form. We take a coping thickness of 0.5 mm as the basis. You can choose one of the following options.

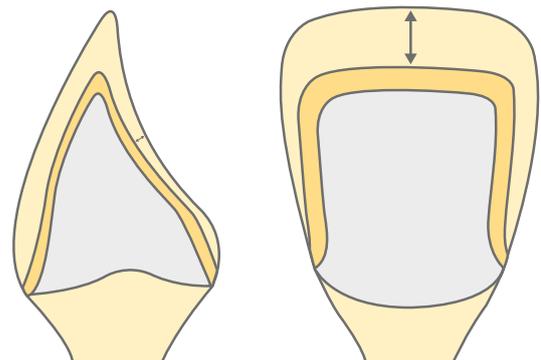
Thickness of the ceramic veneering

- 1.0 mm
- 1.5 mm
- 2.0 mm

Die angle of the abutment

You can choose between various die angles in order to have abutments produced as telescopic or cone primary parts:

- 0° or 1° for double crowns
- 2°
- 4°



Anatomically reduced form for ceramic veneering

Note:

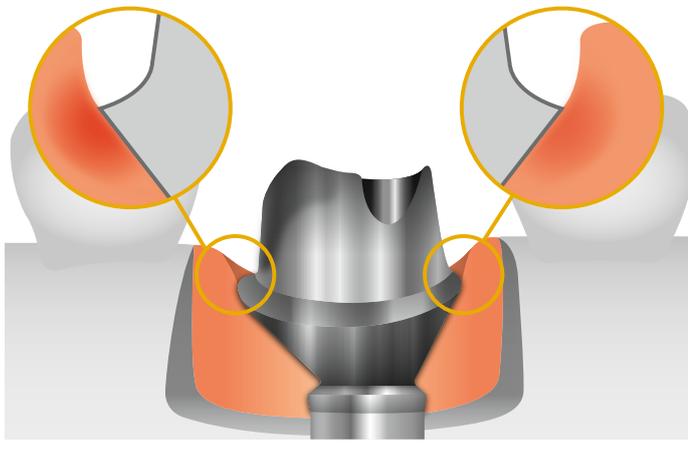
If several abutments are ordered, they are all produced as 2° versions as standard. If the final restorations are to be splinted, the abutments must be parallelised for a uniform path of insertion. When ordering several customised abutments, make sure to state which abutments are to be parallel with each other.

Emergence profile design

- **Design 1 – fully anatomical abutment circumference**
(regardless of the soft tissue situation prescribed by the model, the abutment has the greatest possible anatomical circumference)
- **Design 2 – reduced soft tissue contour**
- **Design 3 – slight mucosal support**
(depending on the soft tissue situation prescribed by the model and the abutment option which you selected, significant deviations in terms of the size of the emergence profile are possible)

Decentralised insertion of the implant

If an implant has been inserted in an anatomically and/or prosthetically unfavourable position, it is recommended that Design 1 “fully anatomical soft tissue contour” be selected. An attempt is then made to move the abutment into the most favourable anatomical/prosthetic position.



Abutment with an anatomically/prosthetically relocated position with decentrally inserted implants

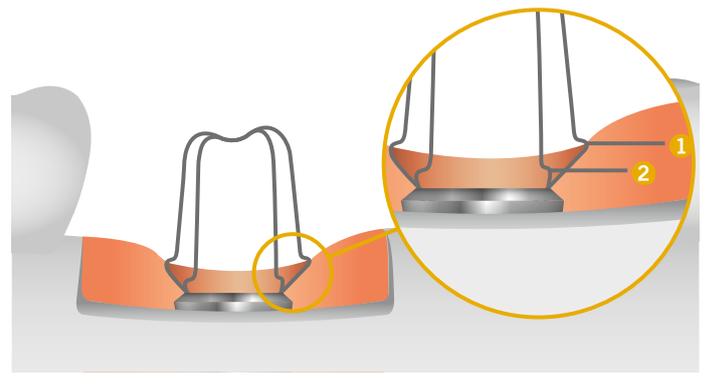
Preparation margin options

1 Along the gingival margin

In order, on the one hand, to optimally satisfy the aesthetic requirements and, on the other hand, to guarantee that all cement residue is removed, the course of the preparation margin is based on the gingival margin. According to your data, the preparation margin takes either a slightly sub- or equigingival course.

2 As close as possible to the implant/abutment interface

With particularly thin mucosa, the option of positioning the preparation margin as close as possible to the implant/abutment interface is recommended. The preparation margin then runs parallel to the implant/abutment interface.



Preparation margin along the gingival margin (1) or as close as possible to the implant/abutment interface (2)

Additional information

It is increasingly attempted to place the desired step below the mucosa which, however, is not always possible. If only minimal gingival height is available and a subgingival preparation margin has been selected, the overall width of the abutment is limited.

Note:

If “largest anatomical abutment circumference” or “soft tissue contour” is elected, a wider abutment is designed. Particularly if the mucosa is thin this can result in visible abutment margins or dirt-collecting recesses, even if the option of a supragingival preparation margin is selected.

Parallel alignment of abutments

If the abutments are to be aligned in parallel for a uniform path of insertion, you can specify the abutment groups for which a bridge is required. You can create several abutment groups according to the bridges. The abutments connected by a bridge are assigned the same number in the dental chart (see figure).

Create a new group with the same path of insertion

| Group | Positions | |
|-------|--------------|-----------------------------------------------|
| 1 | 13 - 14 - 16 | select Delete |
| 2 | 24 - 26 | select Delete |

Abutments in a group with parallel alignment/same path of insertion are designated with the same number

Customised bars

Today, implant-retained removable restorations are a well-established treatment concept. From a casting perspective, bar constructions on implants present particular challenges for laboratories. As an alternative, BEGO CAD/CAM offers finished bars in a variety of designs made out of BEGO grade 5 titanium or Wirobond® MI+ which can also be ordered via the Scan and Design Centre.

Bar joint with round or oval cross-section on 2 implants

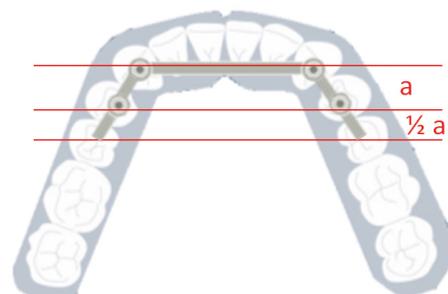
- Round bar 
- Dolder® bar joint 
- Horix® bar 



Bar joint on two implants

Bar attachment with parallel-walled/conical outer surfaces on at least 4 implants

- Dolder® bar attachment 
- Customised bar (bar attachment) 



Bar attachment with extensions on at least 4 implants

FURTHER USEFUL DOCUMENTS

Comprehensive information

In order to give you a more comprehensive overview of the entire BEGO CAD/CAM service range as well as special materials, we are happy to provide you with further information.

- BEGO CAD/CAM Product Catalogue
REF 800160
- BEGO interface overview
(as a PDF only in our download area)
REF 800164



Useful documents

The very latest information on innovations can be found on the BEGO homepage at www.bego.com. In the download area here you will also find material data sheets and procedural instructions.

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and stay up-to-date:
www.bego.com/newsletter



www.bego.com

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