# SICAT Surgical Guides

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1. SICAT Surgical Guides

SICAT Surgical Guides support you in implementing the implant plan you have created using SICAT planning software (GALILEOS Implant or SICAT Implant). SICAT Surgical Guides are custom-made for the respective patient and guide your drill to the planned positions in the patient's jaw with the aid of guide sleeves.
1.1. SICAT Surgical Guide types

Three types of surgical guides are available: CLASSICGUIDE, OPTIGUIDE, and DIGITALGUIDE.

The SICAT laboratory converts CLASSICGUIDEs directly into accurate surgical guides on the basis of radiographic templates and 3D X-ray data. CLASSICGUIDEs are available teeth and mucosa supported with optional fixation using anchor pins, fixation screws or microimplants.

OPTIGUIDEs are fabricated directly in the SICAT laboratory on the basis of optical surface scan data and 3D X-ray data. Radiographic templates do not need to be used with OPTIGUIDE. OPTIGUIDEs are available teeth supported.
1.1. SICAT Surgical Guide types

DIGITALGUIDEs are designed in the SICAT laboratory on the basis of optical surface scan data and 3D X-ray data. In the process, a digital model of a surgical guide is created. You can produce it with your own 3D printer or you can have it produced in a laboratory of your choice. Radiographic templates do not need to be used with DIGITALGUIDE. DIGITALGUIDEs are available teeth supported.

If you order the fabrication of a surgical guide yourself, please make sure that your laboratory has the desired sleeves available.
The sleeve systems available for CLASSICGUIDE and OPTIGUIDE are pilot sleeves, a generic sleeve-in-sleeve system, and master sleeves for guided surgical systems. These guided surgical systems generally offer a complete procedure, from the initial osteotomy all the way to implant insertion. Among others, the guided systems by the following manufacturers are supported by SICAT:

- Alphatech
- Anthogyr
- Astra Tech
- BEGO Implant Systems
- Bicon Dental Implants
- BioHorizons
- Biomet 3i™
- Bredent
- CAMLOG® Biotechnologies
- Dentaurum
- DENTSPLY Friadent
- Hiossen
- Implant Direct
- Kentec
- Klockner
- Leone
- Medentis Medical
1.1. SICAT Surgical Guide types

- MEISINGER
- Neoss
- Nobel Biocare™
- SIC invent
- Straumann®
- Sweden&Martina
- TRI Dental Implants
- Zimmer® Dental

Visit SICAT's website www.sicat.com to find the guided systems currently supported.

Please note that under certain circumstances, the use of OPTIGUIDE and DIGITALGUIDE is limited or that in some cases, the use of CLASSICGUIDE is recommended. Please see the following chapter: Decision-making aid: CLASSICGUIDE, OPTIGUIDE, or DIGITALGUIDE? [► Page 12].
1.2. Definition of terms

Bite plate with radiographic markers (CLASSICGUIDE)

Figure 1: The bite plate serves as a basis for the radiographic template and has radiographic markers (fiducial markers - see marking). Please use only SICAT bite plate kits. SICAT bite plate kits consist of a bite plate for fabricating a radiographic template, a CDROM for storing implant planning data and a small padded shipping package.

Radiographic template (CLASSICGUIDE)

Figure 2: The patient wears the radiographic template during the 3D scanning process. The radiopaque prosthetic proposal, which may be incorporated in the radiographic template (see marking), is visible in the 3D X-ray and serves the dentist in charge of treatment as a basis for implant planning.

Surgical guide

Figure 3: A surgical guide (CLASSICGUIDE, OPTIGUIDE) or a surgical guide based on a DIGITALGUIDE is custom-made for your specific patient. Once the surgical guide is placed on the patient's jaw, it uses sleeves to help guide your surgical instruments and, if appropriate, your implant, accurately to the position you have previously planned.

Optical impressions

Figure 4: Optical impressions are obtained by scanning a stone model with a 3D scanner or by scanning the jaw with a 3D intraoral camera.
1.2. Definition of terms

Figure 1: Bite plate with radiographic markers (CLASSICGUIDE)

Figure 2: Radiographic template (CLASSICGUIDE)

Figure 3: Surgical guide

Figure 4: Optical impressions
1.3. Decision-making aid: CLASSICGUIDE, OPTIGUIDE, or DIGITALGUIDE?

- **Partially edentulous jaw**
  - Major metal artifacts likely
    - Several missing teeth
      - CLASSICGUIDE: Conventional radiographic template
    - 1 to 2 missing teeth
      - CLASSICGUIDE: Direct radiographic template

- **Edentulous jaw**
  - Minor metal artifacts likely
    - Several missing teeth
      - CLASSICGUIDE: Conventional radiographic template
      - OPTIGUIDE or DIGITALGUIDE (good tooth support necessary)
    - 1 to 2 missing teeth
      - CLASSICGUIDE: Direct radiographic template
      - OPTIGUIDE or DIGITALGUIDE
2. SICAT CLASSICGUIDE

SICAT CLASSICGUIDE is based on a patient-specific radiographic template which can be prepared in one of three different ways depending on the indication. CLASSICGUIDEs are transformed centrally in the SICAT laboratory directly from the radiographic template. A high-quality radiographic template is therefore essential for the quality of the surgical guide.
2.1. SICAT CLASSICGUIDE workflow

INDICATION

PRODUCTION OF THE RADIOGRAPHIC TEMPLATE

CONEBEAM/CT SCAN

IMPLANT PLANNING

PRODUCTION OF THE SURGICAL GUIDE AT SICAT

SURGERY
2.2. Conventional radiographic template

Your dental laboratory will need the following materials to fabricate a radiographic template with a radio-opaque prosthetic proposal:

- stone model (type 4 plaster) of the patient's jaw
- bite plate with fiducial markers (available at www.sicat.com)
- hard-elastic, transparent thermoforming sheet which bonds to PMMA (thickness min. 1.5 mm to max. 2.0 mm)
- thermoforming device
- cold-curing acrylic (PMMA)
- radio-opaque acrylic or barium sulfate powder

A current list of recommended materials can be found at www.sicat.com.

**WARNING**

Only use current impressions/stone models. A modified anatomical situation will result in a poorly-fitting surgical guide.

**WARNING**

For the preparation of a radiographic template please use only materials recommended by SICAT. A current list of recommended materials can be found at www.sicat.com.
WARNING

Use only thermoforming sheets which bond to PMMA. Intermediate sheets must be removed after the thermoforming process. This is the only way to ensure a durable bond between bite plate, thermoformed stent and prosthetic proposal.
2.3. Fabricating a conventional radiographic template

**WARNING**

The quality and currency of the impression and stone model are essential for the precise fit of the radiographic template and the surgical guide and are therefore crucial for accurate implantation.

**WARNING**

Only areas shown in green should be altered. Fiducial markers may not be altered or covered with acrylic! The area shown in orange may not be altered or covered with acrylic as it serves as a fixing location for the fabrication of the surgical guide.
2. SICAT CLASSICGUIDE

2.3. Fabricating a conventional radiographic template

1. Produce a stone model made of super-hard plaster (type 4) with a wax-up. The height of the stone model may not exceed 4 cm, as the shipping parcel has been designed for this maximum height.

2. Prepare a thermoformed stent (thickness min. 1.5 mm to max. 2.0 mm) on the stone model with wax-up and then remove the wax-up from the thermoformed stent.

3. Block out undercuts. Isolate the stone model from the acrylic.

Figure 1

Figure 2

Figure 3
4. Pour radio-opaque acrylic into the area of the thermoformed stent where the waxup was previously located. *If you do not have ready-to-use radio-opaque acrylic, mix cold-curing acrylic with 15% barium sulfate in relation to the weight of the PMMA powder until it has a viscous consistency. Make sure that the PMMA powder is mixed smoothly and thoroughly with the barium sulfate (no lumps).*

5. The prosthetic proposal prepared in this way must sit flush on the gingiva.

6. For small jaws, the bite plate can be shortened in the *areas marked in green*. The *area shown in orange* should not be altered or covered with acrylic.
7. Mix cold-cure resin (without barium sulfate) until it has a viscous consistency. To etch the surfaces, apply cold-cure resin to the top of the thermoformed stent and the bite plate (side facing away from the fiducial markers). Pour the acrylic onto the bite plate (side without the fiducial markers). Make sure you use sufficient acrylic, as this serves both to bond the bite plate and the thermoformed stent and to stabilize the radiographic template.

8. Position the thermoformed stent in the frontal area of the bite plate on the side which does not have the fiducial markers.

9. Press the thermoformed stent located on the stone model onto the bite plate until the acrylic has cured. Check that the radiographic template fits securely and stable on the stone model.
2.4. Direct radiographic template

The direct radiographic template should only be used with one or two missing teeth when visualization of a prosthetic proposal in the X-ray is not necessary or is displayed by a virtual prosthetic proposal (e.g. CEREC AC from Sirona Dental Systems).

Utilization of bite registration material allows immediate fabrication of a radiographic template directly in the patient's mouth. There is no need to make a radiographic template based on a stone model with the aid of thermoforming for the time being.

Only bite registration materials approved by SICAT should be used (e.g. Kettenbach Futar® Scan, R-Dental Metal Bite, Heraeus Kulzer Flexitime® Bite).

See www.sicat.com for a complete list of all recommended materials.

The radiographic template is the basis for the subsequent CLASSICGUIDE. A firm and stable fit on the patient's jaw is therefore of critical importance.

**WARNING**

For reasons of quality assurance, please ensure that the corresponding stone model is sent to SICAT with every radiographic template.
2.5. Fabricating a direct radiographic template

**WARNING**

Check that the radiographic template fits securely and stable in the patient's mouth. If the fit is inadequate, repeat the process.

**WARNING**

Apply only one layer of bite registration material. The bite registration material is not used to stabilize the surgical guide, but only to reproduce an accurate position.
2.5. Fabricating a direct radiographic template

1. Drill 4 holes (Ø 4 mm) in the SICAT bite plate in the pre-specified positions.

2. Apply bite registration material over the whole inner surface area of the bite plate. The holes ensure that the registration is retained on the bite plate.

3. Take the impression in the patient's mouth.

Figure 1
Figure 2
Figure 3
2.6. Radiographic template for the edentulous jaw

A total denture of approximately the desired final result with regard to aesthetics, occlusion and physical attributes is necessary to fabricate a radiographic template for the edentulous jaw.

The basis for the radiographic template is a copy of the total denture made with acrylics of differing radio-opacity so that the teeth and gingival surface can be visualized accordingly in the X-ray.

If no denture corresponding to the final result is available, a wax-up has to be prepared beforehand.

*Original situation*  
*Radiographic template*  
*3D X-ray image*
2.7. Fabricating a radiographic template for the edentulous jaw

**WARNING**

A good form-fit of the total denture is very important, as the duplicated total denture serves as a basis for the radiographic template.

1. Check the fit of the total denture in the patient's mouth. If the denture does not have a form-fit on the gingiva, it will be necessary to mold the patient's gingival situation using reline material. To reline the denture, use it like an impression tray to prepare an impression of the current mucosal situation (like when relining). Use silicone reline material.

2. Create a stone model from the total denture (relined if necessary), which represents the current mucosal situation of the patient's jaw.
3. Remove excess material from the stone model.

4. Use a duplication form to duplicate the total denture with the model. If there is no duplication form available, you can use silicone impression material (overcast material) as an alternative to mold the denture situation.

5. Fill the section of the duplication form which represents the teeth with radio-opaque acrylic (corresponding to a barium sulfate mix of approx. 15%) to enable the teeth to be visualized subsequently in the X-ray.
2.7. Fabricating a radiographic template for the edentulous jaw

6. Now place the stone model representing the current mucosal situation in the duplication form, locating it on the radio-opaque acrylic of the dental arch which is still soft. The acrylic mix must contact the surface of the model so that the dental arch acquires the shape of the mucosal situation.

7. Allow the dental arch made of radio-opaque acrylic to cure.

8. Then reduce the barium sulfate cast to obtain a separated dental arch. Separate the teeth so that these can be visualized individually in the X-ray and are clearly visible.

9. Place the separated dental arch in the duplication form.

Figure 6
Figure 8
Figure 9
10. Place the stone model representing the current mucosal situation in the duplication form flush with the dental arch.

11. Allow the radio-opaque acrylic with a barium sulfate mix of 8% to flow into one of the holes of the duplication form. Using an 8% barium sulfate mix will help differentiate gingiva and teeth clearly in the X-ray later. If using ready-mixed material, use 50% of the material with 50% neutral PMMA.

12. Once curing is complete, a duplicate of the denture made of different mixes of radio-opaque acrylic will be obtained.

13. Mix cold-cure resin (without barium sulfate) until it has a viscous consistency. To etch the surfaces, apply cold-cure resin to the underside of the bite plate (side without fiducial markers). Pour the acrylic onto the bite plate. The area shown in orange should not be covered with acrylic or removed. Make sure you use sufficient acrylic, as this serves both to bond the bite plate and the copy of the denture and to stabilize the radiographic template.

Figure 10 and 11
Figure 12
Figure 13
14. Position the duplicated total denture made of the acrylic/barium sulfate mix on the bite plate. Press the duplicated total denture onto the bite plate until the acrylic has cured. Make sure that the radiographic template is located securely and accurately on the stone model.

For small jaws, the bite plate can be shortened in the areas marked in green.
2.8. 3D X-ray (Conebeam or CT)

General notes for the use of radiographic templates (CLASSICGUIDE)

For optimum scanning results, please observe the general instructions below:

- Check that the radiographic template is securely located and stable.
- Bite plate, thermoformed stent and any prosthetic proposal must remain firmly bonded to one another, even under mechanical load. The resin must be fully cured.
- Scan the patient wearing the radiographic template.
- The radiographic template must be located on the patient's jaw without gaps and be secure and stable.
- Jaws should be scanned individually.
- Alignment of the occlusion plane in parallel with the slice.
- Slightly pad bite (e.g. with cotton wool pads).
- Non-fixed metal parts in the opposing jaw (e.g. dentures) should be removed.
- The teeth of the opposing jaw should not touch the fiducial markers of the radiographic template.
Alignment of the occlusion plane in parallel with the slice

WARNING

Switch off any algorithms used to reduce metal artifacts, as they may also have an impact on the markers.
2.9. 3D X-ray (Sirona system)

1. Prepare the scan by selecting the appropriate bite plate holder (upper or lower jaw).

2. Let the patient try on the radiographic template. Check that the radiographic template is secure and stable.

3. Close the swivel arm and adjust the system height until the incisors and the ball of the bite plate holder are at the same level.

4. Now guide the patient carefully onto the bite plate holder. The patient should bite gently on the bite plate holder. The radiographic template should now be in a horizontal position.

5. Start the scanning process on your Conebeam system.

![Figure 4a](image1.png)  ![Figure 4b](image2.png)

**WARNING**

If your Conebeam system has several scanning modes to choose from, please select mode VO1.
2.10. Scanning parameters for CT and Conebeam systems

Scanning parameters for CT and Conebeam systems

- Gantry tilt = 0°
- Parallel slices
- Slice thickness < 0.7 mm
- DICOM 3 format

For optimum scanning results, always follow the instructions for use of your Conebeam or CT radiographic system.

**WARNING**

If the patient is being scanned elsewhere and not in your presence, practice with him/her how to fit the radiographic template correctly.

**WARNING**

The radiographic template may not be altered after the X-ray scan.

**WARNING**

All fiducial markers should be clearly visible in the scan. No gap may be visible between the radiographic template and the jaw.
Please inform your patient that the radiographic template must be located on the jaw **without gaps**, and be secure and **stable**, and not to move during the scanning process.
2.11. Preventing potential errors

Incorrect positioning of the radiographic template

Figure 1: In this example, a gap of approximately 2 mm can be seen between the radiographic template and the tooth. If it cannot be guaranteed that the template is positioned in exactly the same way during the scanning process and during actual surgery, the accuracy of the drilled holes could be significantly reduced.

Patient movement

Figure 2: If the patient inadvertently moves during the scanning process, this will cause movement artifacts. These make the fiducial markers and important anatomical structures difficult to detect. It is therefore important to tell the patient not to move during the scanning procedure. This scan shows structures in duplicate. It is not possible to create a surgical guide. A new scan is required.

Unclear fiducial markers

Figure 3: In order to be able to fabricate an accurate CLASSICGUIDE surgical guide, the fiducial markers must appear clearly and without errors. If the opposing jaw has structures which absorb X-rays to a significant extent (e.g. gold or ceramic crowns) and these structures are located close to the fiducial markers, it helps to pad the patient's bite with cotton rolls.
2. SICAT CLASSICGUIDE

2.11. Preventing potential errors

Figure 1: Incorrect fit

Figure 2: Patient movement

Figure 3: Unclear fiducial marker
3. SICAT OPTIGUIDE

SICAT OPTIGUIDE is based on the superimposition of optical impressions of a jaw and the corresponding 3D X-ray data. Together with implant planning and the desired selection of sleeves, SICAT fabricates an accurate surgical guide. Production of a radiographic template based on a bite plate is not required for OPTIGUIDE.

WARNING

If you are uncertain before taking the X-ray whether the current case is suitable for OPTIGUIDE and DIGITALGUIDE, scan the patient with a radiographic template and then decide after assessing the X-ray. If in doubt, contact our SICAT Support.
3.1. SICAT OPTIGUIDE workflow

- INDICATION
- CONEBEAM/CT SCAN
- SCAN OF OPTICAL IMPRESSIONS OR STONE MODEL
- IMPLANT PLANNING
- PRODUCTION OF THE SURGICAL GUIDE AT SICAT
- SURGERY
3.2. Preparation of an OPTIGUIDE surgical guide

To prepare an OPTIGUIDE you can either

- import optical impressions straight into the SICAT software program (GALILEOS Implant/ SICAT Implant) and superimpose the X-ray data set, or
- enclose an exact stone model with your order which can be scanned and superimposed by SICAT.

**WARNING**

For OPTIGUIDE or DIGITALGUIDE, ensure that the patient has sufficient remaining teeth to provide reliable support for the surgical guide. If this is not the case, follow the CLASSICGUIDE workflow.

**WARNING**

For OPTIGUIDE or DIGITALGUIDE ensure that the optical impressions correspond **exactly** to the current situation in the jaw. It will otherwise be impossible to fit the surgical guide accurately, and this may lead to a deviation from the planned implant position.

**WARNING**

For OPTIGUIDE or DIGITALGUIDE, check the registration between the optical impressions and the X-ray scan. Inaccurate registration will lead to deviation from the planned implant position.
3. SICAT OPTIGUIDE

3.2. Preparation of an OPTIGUIDE surgical guide

**WARNING**

Do not use alginate impressions to create accurate stone models.

For information about 3D X-ray scans and optical impressions, see: Scan notes (OPTIGUIDE and DIGITALGUIDE) [› Page 45]
4. SICAT DIGITALGUIDE

SICAT DIGITALGUIDE is based on the superimposition of optical impressions of a jaw and the corresponding 3D X-ray data. Together with implant planning and the desired selection of sleeves, SICAT designs a digital model of a surgical guide. You can produce it with your own 3D printer or you can have it produced in a laboratory of your choice. Production of a radiographic template based on a bite plate is not required for DIGITALGUIDE.

**WARNING**

If you are uncertain before taking the X-ray whether the current case is suitable for OPTIGUIDE and DIGITALGUIDE, scan the patient with a radiographic template and then decide after assessing the X-ray. If in doubt, contact our SICAT Support.
4. SICAT DIGITALGUIDE

4.1. SICAT DIGITALGUIDE workflow

- INDICATION
- CONEBEAM/CT SCAN
- SCAN OF OPTICAL IMPRESSIONS
- IMPLANT PLANNING
- DESIGN OF THE MODEL OF THE SURGICAL GUIDE AT SICAT
- FABCRICATION OF THE SURGICAL GUIDE LOCAL OR IN A PARTNER LABORATORY
- SURGERY
4.2. Preparation of a DIGITALGUIDE surgical guide

To prepare a DIGITALGUIDE you have to

- import optical impressions straight into the SICAT software program (GALILEOS Implant/SICAT Implant) and superimpose the X-ray data set.

**WARNING**

For OPTIGUIDE or DIGITALGUIDE, ensure that the patient has sufficient remaining teeth to provide reliable support for the surgical guide. If this is not the case, follow the CLASSICGUIDE workflow.

**WARNING**

For OPTIGUIDE or DIGITALGUIDE ensure that the optical impressions correspond exactly to the current situation in the jaw. It will otherwise be impossible to fit the surgical guide accurately, and this may lead to a deviation from the planned implant position.

**WARNING**

For OPTIGUIDE or DIGITALGUIDE, check the registration between the optical impressions and the X-ray scan. Inaccurate registration will lead to deviation from the planned implant position.

If you do not have the surgical guide produced in a SICAT partner laboratory, make sure that you or your laboratory have the desired sleeves available.

For information about 3D X-ray scans and optical impressions, see: Scan notes (OPTIGUIDE and DIGITALGUIDE) [▶ Page 45]
5. Scan notes (OPTIGUIDE and DIGITALGUIDE)

Below, you can find notes regarding 3D X-ray scans and scanning optical impressions that are relevant for OPTIGUIDE and DIGITALGUIDE.
5.1. Instructions about 3D X-ray scans

For optimum scanning results, please observe the general instructions below:

- Do not scan patient with the occlusion closed. Slightly pad bite (e.g. with cotton pads).
- Non-fixed metal parts in the opposing jaw (e.g. dentures) should be removed.
- If possible, scan at least 3/4 of the curve of the jaw. This increases the likelihood of being able to use sufficient artifact-free teeth for registration.
- For better representation of the gingiva, it is helpful to separate jaw and lip or cheek using cotton rolls.
5.2. Instructions about scanning optical impressions

If possible, scan at least 3/4 of the curve of the jaw in order to ensure that the surgical guide is stable and to increase the likelihood of being able to use sufficient artifact-free teeth for registration.

**WARNING**

If it is likely that a 3D X-ray will have a high number of metal artifacts (e.g. numerous gold or ceramic crowns), follow the CLASSICGUIDE workflow. OPTIGUIDE or DIGITALGUIDE cannot be fabricated if there is an abundance of metal artifacts.
5.3. Preventing potential errors

**Patient movement**

Figure 1: If the patient inadvertently changes position during the scanning process, this will cause movement artifacts which cause the image to be blurred. This makes it hard to register optical impressions with the X-ray. It is therefore important to tell the patient not to move during the scanning procedure. Precise registration is not possible with a scan of this type. It is not possible to create a surgical guide. A new scan is required.

**Metal artifacts**

Figure 2: The precise shape of a tooth restored using metal or ceramic cannot be reproduced clearly in an X-ray scan due to metal artifacts. These teeth, and in many cases also adjacent teeth impaired by these metal artifacts, can be used neither for registration nor for assessing a registration. This is why OPTIGUIDE and DIGITALGUIDE are not indicated in cases with major metal artifacts. In contrast, CLASSICGUIDE is relatively insensitive to metal artifacts.

**Optical impressions do not correspond to jaw situation**

Figure 3: The surgical guide is fabricated on the basis of the optical impressions. Faulty scan data can lead to a surgical guide not fitting the patient's jaw correctly. It is therefore essential to ensure that the optical impressions precisely corresponds to the patient's situation.
5.3. Preventing potential errors

Figure 1: Patient movement

Figure 2: Metal artifacts

Figure 3: Optical impressions do not correspond to jaw situation
6. Preventing planning errors

To prevent planning errors, please follow the important tips below when executing your implant plan:

**Unsuitable drill path**

Figure 1 shows a drill path that comes too close to a tooth. The drill sleeve and the final drill would collide with the adjacent tooth.

**Collision between drill sleeve and drill sleeve**

Figure 2 shows the collision of the drill sleeves of the two implants. The visualization of the drill sleeves renders this clearly visible. Production of the surgical guide is not possible.
6. Preventing planning errors

Collision between drill sleeve and neighboring tooth

Figure 3 shows the collision between a drill sleeve and a neighboring tooth. Avoid this scenario and leave enough space between sleeves and neighboring teeth as otherwise the surgical guide will not fit on the jaw of the patient!

Collision between drill sleeve and gingiva

Figure 4 shows the collision between a drill sleeve and the gingiva. If you fold away the gingiva during surgery, this is no problem. However, if you are planning a flapless surgery, the surgical guide will not fit on the jaw of the patient. Avoid this scenario by planning the sleeve on the gingiva.

Right-click on the implant and select "Visualize drill path" to have the drill path of the pilot or the final drill displayed. To visualize drill sleeves, select the relevant sleeve system from the implant dialog.
7. Ordering a surgical guide

Depending which surgical guide workflow option you have selected, there are various options for getting your order to SICAT.

The following pages summarize all the important shipment information for the following surgical guide ordering processes:

- SICAT CLASSICGUIDE
- SICAT OPTIGUIDE with integrated optical impressions
- SICAT OPTIGUIDE without integrated optical impressions
- SICAT DIGITALGUIDE only with integrated optical impressions

**WARNING**
A guided surgery kit from the implant manufacturer is essential for selecting a guided implant system - e.g. CAMLOG® Guide from CAMLOG, Navigator® from Biomet 3i™, etc.

**WARNING**
It is essential to follow the instructions for use for the planning program in question (GALILEOS Implant, SICAT Implant) for further helpful tips on implant planning.

**WARNING**
Please note that in the event of the patient's jaw opening being limited, it can be more difficult, if not impossible, to introduce the drill into the sleeve, especially in posterior positions.
7. Ordering a surgical guide

Using the order wizard

To order surgical guides, please only use the order wizard in the software.

1. Under **Surgery**, click on the **surgical guide wizard** icon to start.
2. Select the type of surgical guide you would like to order.
3. Follow the instructions of the order wizard until the surgical guide ordering process is complete.

![Figure 1](image1.png)  
![Figure 2](image2.png)

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*Note: The figures are placeholders for actual images.*
7.1. Ordering SICAT CLASSICGUIDE

SICAT produces the patient-specific CLASSICGUIDE for you. Please send the components below to:

SICAT
Abteilung SGL
Schwertberger Strasse 14
53177 Bonn, Germany

1. **3D planning data on CD**, generated with the order wizard in a SICAT planning program (GALILEOS Implant, SICAT Implant).

2. **Signed payment form** if you have not authorized a direct debit.

3. **Radiographic template** for production of a CLASSICGUIDE (disinfected and dry in the polyethylene bag with a silica gel pack).

4. **Stone model**.

Label the CD and the stone model with the patient ID quoted in the surgical guide order (e.g. name, date of birth).

The easiest way to send a case is to use the SICAT online pick-up service. To arrange the pick-up, please visit our SICAT Portal by opening [http://www.sicat.com](http://www.sicat.com) and clicking the link to the SICAT Portal. If you have not registered yet, you can set up an account there.
7. Ordering a surgical guide

7.1. Ordering SICAT CLASSICGUIDE

WARNING

Please ensure sufficient padding when packing to prevent the stone model or radiographic template from breaking.
7.2. Ordering SICAT OPTIGUIDE (Option 1)

With integrated optical impressions:

SICAT produces the patient-specific OPTIGUIDE for you. Please only use the order wizard in the software (SICAT Implant, GALILEOS Implant).

- You can send the order to SICAT online using the order wizard.
- Alternatively, you can also send SICAT the order on CD. In this case, label the CD with the patient ID quoted in the surgical guide order (e.g. name, date of birth) and send it to SICAT, Abt. SGL.
- If you have not authorized a direct debit, please fax the signed payment form to SICAT separately or enclose it with your package.
7.3. Ordering SICAT OPTIGUIDE (Option 2)

Without integrated optical impressions:

SICAT produces the patient-specific OPTIGUIDE for you. Please send the components below to:

![SICAT Logo]

SICAT
Abteilung SGL
Schwertberger Strasse 14
53177 Bonn, Germany

1. **3D planning data on CD**, generated with the order wizard in a SICAT planning program (GA-LILEOS Implant, SICAT Implant).

2. **Signed payment form** if you have not authorized a direct debit.

3. **Stone model**.

Label the CD and the stone model with the patient ID quoted in the surgical guide order (e.g. name, date of birth).

- The easiest way to send a case is to use the SICAT online pick-up service. To arrange the pick-up, please visit our SICAT Portal by opening [http://www.sicat.com](http://www.sicat.com) and clicking the link to the SICAT Portal. If you have not registered yet, you can set up an account there.

- **WARNING**: Please ensure sufficient padding when packing to prevent the stone model from breaking.
7.4. Ordering SICAT DIGITALGUIDE

Only with integrated optical impressions:

SICAT designs a patient-specific digital 3D model of a DIGITALGUIDE surgical guide. You can produce it with your own 3D printer or you can have it produced in a laboratory of your choice. Please only use the order wizard in the software (SICAT Implant, GALILEOS Implant).

- You can send the order to SICAT online using the order wizard.
- If you have not authorized a direct debit, please fax the signed payment form to SICAT separately.
8. SICAT documentation

You will receive the documents below from SICAT, along with your customized surgical guide (CLASSICGUIDE, OPTIGUIDE) or your surgical guide design file (DIGITALGUIDE):

Surgical guide report

The main component of the report is the implant-specific depth information. The distances between the top and bottom edges of the drill sleeve and the apical end of the implant are quoted. These distances can be compared with the scale on the drill during surgery.
8. SICAT documentation

**Distance from the upper edge of the drill sleeve to the apical end of the implant**

**Distance from the lower edge of the drill sleeve to the apical end of the implant**

**Specifications of the implant used**

**WARNING**

Please note that individual arrangements with SICAT Support are also noted on the surgical guide report.
Drill protocol

If you are using a sleeve system from an implant manufacturer which requires a drill protocol, SICAT will send the protocol generated accordingly along with your surgical guide.

Accuracy report (only for CLASSICGUIDE and OPTIGUIDE)

The accuracy report states the deviations of the positions of the actual sleeves in relation to the digital implant plan. For CLASSICGUIDE and OPTIGUIDE, SICAT guarantees manufacturing deviation accuracy of max. 0.5 mm at the apical end of the implant.
9. Handling of the surgical guide

Before using the surgical guide, we recommend that you follow the steps below:

- Please protect the surgical guide from direct sunlight and elevated temperatures to prevent it from deforming. Check the surgical guide before surgery.
- Make sure that the surgical guide can be positioned without gaps and is secure and stable on the stone model, if available. Ensure that the position of the drill sleeves is in line with your implant plan. Do not use the surgical guide if this inspection is unsuccessful.
- Ensure that the surgical guide is secure and stable on the jaw during use. Otherwise the holes are likely to be less accurate.
- Before using the surgical guide, check all drills and drill sleeves which are going to be used for damages. Use only drills and sleeves in perfect condition in order to prevent drills from tilting in a sleeve.

**WARNING**

Ensure that you have the right drills to fit the sleeves.

**WARNING**

The drill should be inserted in the sleeve of the surgical guide before rotation begins. If drills are inserted into the sleeve already rotating, this may cause the drill to tilt under certain circumstances.
9. Handling of the surgical guide

**WARNING**

Disinfect the surgical guide only with disinfectants approved for this application.

**WARNING**

Do not employ heat-based methods (e.g. autoclaves) for disinfecting or sterilizing the surgical guide. They could cause it to deform.

**WARNING**

Ensure adequate cooling during drilling.

**WARNING**

Always follow the instructions for use for your guided surgical system.

**WARNING**

Inner sleeves for the SICAT SIS system must be sterilized before use.
When using the surgical guide, ensure that it does not leave its correct position as a result of the intermittent drilling process. Fixate the surgical guide by hand, or use previously planned fixation screws through corresponding sleeves.

Ensure that excessive force is not exerted on the drill sleeve during the drilling process; this prevents the sleeve from bursting. Sleeves which are planned close to adjacent teeth, in particular, have only a limited amount of retaining material (acrylic) available to hold the sleeves.

Ensure that excessive force is not exerted on the surgical guide during use; this will prevent it from breaking.

Check the surgical guide for obvious defects on receipt - for example loose sleeves, sharp edges or transport damage. Ensure that the surgical guide supplied is the correct guide for your patient.

In the unlikely event that it should become apparent during surgery that the surgical guide cannot be used, please ensure that you can still perform surgery safely without it.
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