Immediate Smile® Bridge
CAD/CAM restorations for immediate loading

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For SIMPLANT DENTSPLY Implants NV, Research Campus 10, B-3500 Hasselt, Belgium
Immediate Smile® bridge gives patients and dentists something to smile about

Immediate Smile bridge – the name speaks for itself. This latest technology is helping implantologists bring the most advanced dental procedures to their practices that promise to put smiles on patients’ faces the moment they walk out of the door.

Today, SIMPLANT’s 3D Digital Dentistry is allowing dentists to provide faster dental care during same-day surgeries, i.e. remove teeth, place implants and fit bridges. This technology translates to a high patient comfort, with fewer visits. Dental professionals are also smiling because the immediate loading procedure is quicker and easier.

By combining SIMPLANT and SIMPLANT Guide, with CAD/CAM technology (“computer-aided design” and “computer-aided manufacturing”), this workflow is fully digitized.

Temporary restorations before implant surgery without special components

The fact that the bridge and SIMPLANT Guide are delivered together before surgery allows the dentist to perform the surgery and placement of the bridge in one single visit. The unique part of this procedure comes from the fact that the temporary screw retained restoration is secured using an intuitive and fast procedure without requiring special components. The dentist can stick to his/her favorite implant brand.

Predictable esthetics even for cases with tooth extractions

Innovative and versatile, this technology can also be used for predictable esthetics even for cases with tooth extractions. If the patient still has his natural teeth but they are lost, the tooth extractions are simulated with SIMPLANT. The bridge is then made based on the implant planning and the patient’s natural teeth.

The Immediate Smile bridge gives the opportunity to switch from “natural teeth” to “teeth on implants” in one single visit.

Cumbersome and time-consuming immediate loading procedures before, during and after surgery are definitely history with the Immediate Smile bridge!

Simplified and time saving workflow with a fully digital process

Traditionally when a patient needs a temporary bridge for immediate loading, dentists must make an impression or plaster model and bite registration. Then they send it to the dental laboratory and wait for one to be made.

From now on a full digital workflow allows for a quick and easy fabrication of a bridge. All information is already available in the SIMPLANT planning, so no extra preparations are needed anymore. It’s just about ordering the bridge with SIMPLANT and receiving it together with the SIMPLANT Guide before the actual surgery takes place.
2. Product Description

The Immediate Smile bridge is a provisional PMMA restoration that needs to be screwed onto dental implants using an implant or abutment-specific temporary cylinder.

The restoration is intended to be used immediately (within 24h) after implant placement.

The bridge has holes adapted to the dimensions of the implant or abutment-specific temporary cylinders. The size of these temporary cylinders must be specified by the customer during online ordering. The cylinders have a loose fit (standard tolerance of 0.8 mm in diameter) and need to be glued inside the bridge to obtain a passive fit onto the implants.

The Immediate Smile bridge can be used in conjunction with a tooth-, bone- or mucosa supported SIMPLANT SAFE Guide or SIMPLANT Universal Guide.

For the SIMPLANT Universal Guide, the use of the LongStop drill system is required. The implant diameter is limited to the regular platform and only straight abutments are allowed.

Clinical Indication:
For both, partially and totally edentulous patients, with a minimum of three and a maximum of 12 teeth to be restored.

- The inserted implants must comply with the general guidelines for immediate loading stated by the implant manufacturer (e.g. sufficient primary implant stability, no bone augmentation procedure, no short implants, sufficient number of implants, …).
- Extensions are not allowed.
- Pontics are limited to two elements in the dorsal region and four elements in the frontal region. The chewing forces must be limited, a soft diet is recommended.

Intra oral use is limited to twelve weeks.

Contra Indication:
The Immediate Smile bridge cannot be used as a final restoration.

The Immediate Smile bridge may not be used if:

- a deep bite and/or class 2 deviation are present in the anterior maxilla
- there are parafunctions
- the patient is allergic to PMMA or other components listed
- the inserted implants are not complying with the general guidelines for immediate loading stated by the implant manufacturer (e.g. no or insufficient primary stability, bone augmentation procedure, short implants, small implants, insufficient number of implants, smoker, …)
Design of the Immediate Smile® bridge:

The Immediate Smile bridge can be made based on a scan prosthesis, natural teeth or a virtual tooth set-up made by the dentist.

*Only when the SIMPLANT file does not include a scan prosthesis or natural teeth for the tooth elements to be restored or when these (i.e. the tooth set-up of the scan prosthesis or the natural teeth) need to be adapted, a virtual tooth set-up needs to be provided by the dentist within the SIMPLANT ordering file.*

During the design of the Immediate Smile bridge the following information is taken into account:

1. Prosthetic information of the scan prosthesis, natural teeth, or virtual teeth
2. Soft tissue
3. Diameter of the temporary cylinders
4. Crown information

1. Prosthetic information of the scan prosthesis, natural teeth or virtual teeth.

For partially edentulous cases, the prosthetic information is derived from a physical or digital wax-up (e.g. virtual teeth).

For edentulous cases, the prosthetic information is derived from the scan prosthesis.

The following information is taken into account during the design of the Immediate Smile bridge:

- occlusal plane and buccal cusps
- incisal plane and incisal edges
- bucco-oral tooth position
- mesio-distal tooth dimensions

The full occlusal pattern of the scan prosthesis or natural teeth will not be transferred or duplicated, manual adaptations will be necessary to optimize the occlusion and articulation.

2. Soft tissue

The Immediate Smile bridge will be designed starting from the soft tissue.

When a scan prosthesis is used, the soft tissue information is derived from the prosthesis. The Immediate Smile bridge will be designed perfectly fitting on to soft tissue; this will allow you to correctly position the restoration.

When natural teeth are still present, the soft tissue will change after extraction of the teeth. A virtual soft tissue model is assumed at 3 mm above the implant level. If you want the soft tissue on a different height, please specify the required distance during online ordering.

In partially edentulous cases, without scan prosthesis and without tooth extractions, the plaster cast will be used for the soft tissue information.
3. Diameter of the temporary cylinders

The occlusal openings in the Immediate Smile bridge are designed based on the diameter of the temporary cylinders you are going to use. Depending on the implant manufacturer, a temporary cylinder can be used on the abutment or on the implant level.

Specifications for the online shop

It is important to fill in the correct diameter in the Online Shop. When the given diameter is too small, you will need to enlarge the holes within the bridge yourself which compromises the strength of the bridge.

When the given diameter is too large, the gap between the cylinder and bridge will be very big which compromises the bonding strength between cylinders and bridge.

Check the list of the most commonly used temporary cylinders at the end of this document and use the specified diameters.

If however, the temporary cylinder you are going to use is not available in this list, please measure the diameter as instructed to the right.

The bridge is designed starting from the gingiva, as the first +/- 2mm of the cylinder will be subgingival you do not have to take into account this information.

Measure the diameter of the SUPRA gingival part of the temporary cylinder. For most cylinders the supra gingival part is smaller than the total diameter, especially for cylinders on the abutment level.

In case of conical cylinders you need to measure the widest diameter.
Design of the occlusal opening and bridge reinforcement

The diameter of the occlusal opening created in the Immediate Smile bridge will be determined by the diameter of the temporary cylinder you specified in the online shop (see above) + a standard space of 0.8mm. This space is needed for the relining procedure to obtain a passive fit of the restoration.

A minimum thickness of the bridge (1.4mm buccal side, 1.6mm oral side) is needed to make sure the restoration is sufficiently strong.

Standard bucco-oral tooth dimensions are +/- 8mm. When a temporary cylinder of more than 4mm diameter is used or the implant is planned too buccal, esthetics can be compromised as a part of the bridge reinforcement can appear at the vestibular side (e.g. temporary cylinder of 5mm + 0.8mm + 1.4mm + 1.6mm = 8.8 mm).

Therefore temporary cylinders on the abutment level are preferred as these cylinders are smaller. Also relining of the bridge will go faster as the location of the cylinders will be only 1 to 2mm subgingival depending on the abutment height.

Sample:
Temporary cylinder diameter specified in the online shop: 3.7mm
Diameter of the occlusal opening used during design of the bridge: 3.7mm + 0.8mm = 4.5mm
Minimum thickness bridge bucco-oral direction: 4.5mm + 1.4mm + 1.6mm = 7.5mm

1. Temporary cylinder: The cylinders can be on the implant or abutment level. Cylinders on the abutment level are preferred. The correct diameter needs to be specified in the online shop.
2. Space of 0.8 mm: This space is needed for the relining procedure to obtain a passive fit and is added automatically.
3. Immediate Smile bridge: A minimum thickness of 1.4 mm at the buccal and 1.6mm at the oral side is needed to make sure the restoration is sufficiently strong.
4. Crown information

**Elongated Crowns (default option):**

The length of the crown is elongated until it touches the soft tissue. The length will depend on the amount of bone resorption.

This option is preferred by most doctors because application of pink colored resin will not be necessary. The bridge can be used without extra finishing. (Of course, you can always optimize aesthetics by applying small amounts of pink colored resin to simulate the papillae.)

**Standard Crowns:**

The standard length of the crown as defined in the scan prosthesis, natural teeth or virtual teeth will be kept in the design of the Immediate Smile bridge. Starting from the cervical area of the crown, a support will be created up to the soft tissue.

Additional finishing will be necessary before the restoration can be used. The support facilitates the application of pink colored resin.

Note:

- When there is almost no resorption, the crown length will be more or less the same as a standard crown.
- For the final restoration you can still decide to work with a hybrid bridge to enhance the aesthetics.

Note:

- Pink colored resin is NOT applied.
Product specifications:

**PMMA**: polymethylmethacrylate

The Immediate Smile Bridge can be ordered in three different colors:

- Light: A1; B1; D2; C1
- Middle: A2; A3; B2; B3; B4; C2; C3; D3; D4
- Dark: A3.5; A4; C4

**Finishing and Individualizations:**

The Immediate Smile bridge will be high gloss polished. When adjustments are made, you can polish the restoration with standard PMMA polishing agents.

You can individualize the ISB by adding stains or incisal translucent composite. Soft tissue can be simulated by applying pink colored resin.

Roughen the surface with a cutter or by sandblasting and carefully clean the surface. Apply a bonding agent and veneering material suitable to be used in conjunction with PMMA according to the instructions provided by the manufacturer.

Important: Make sure you do not reduce the cylinders or connector as this will compromise the strength of the restoration.
3. Guidelines for securing the Immediate Smile® bridge

Not all clinical indications allow for parallel placement of all implants. The following technique describes an easy placement of the restoration even in case of non-parallel implants.

When some of the implants/cylinders are not planned parallel, it is important to compensate for the difference in insertion axis! Please read the instructions below to avoid manual adaptations.

1. The parallel temporary cylinders are placed in the patient’s mouth and tightened. The non-parallel cylinders are placed loosely inside the restoration.

Note: when working on the implant level, it is important to use non-hexed cylinders.

2. The bridge, including the loose non-parallel cylinders, is positioned over the parallel cylinders. The screws of the non-parallel cylinders are tightened. At this moment the bridge has a loose fit around the cylinders. However, because of the difference between the direction of the parallel and the non parallel implants, it will not be possible to remove the restoration.
3. The occlusion is checked, if necessary primary contacts are removed. Use only high speed drills to adapt the occlusion intra-orally. Make sure no vibrations are transferred to the implants!

In some cases, it can be necessary to shorten or reshape the temporary cylinders. It is advised to adapted them outside the patient’s mouth!

The tolerance between the bridge and the cylinders facilitates a correct alignment of the occlusion. The small injection holes at the vestibular side are rinsed and dried.

4. A composite cement (e.g. SmartCem2, Dentsply) is injected to secure the temporary cylinders onto the bridge one by one. Make sure the injection holes are clean and dry before injecting the cement.

Follow the instructions of the composite cement manufacturer.

Unscrew the cylinders and remove the bridge from the patient’s mouth. Finish by applying additional cement around the cylinders both at the occlusal and cervical side.

Reshape the bridge at the cervical area to facilitate proper oral hygiene.

The bridge is placed in the mouth again and the occlusion is verified again. If necessary, adjust the occlusion as advised by the implant manufacturer.

Instruct the patient to limited chewing forces and instruct proper oral hygiene.
4. General guidelines for immediate loading procedures

Edentulous mandible:
Different randomized controlled trials have shown that the success and survival rates of immediate loaded implants in the anterior edentulous mandible* are comparable to conventionally loaded implants.

Edentulous maxilla:
Immediate loading of the edentulous maxilla* has a high level of evidence to be comparable with conventional loading procedures but randomized controlled studies are missing.

Partially edentulous case:
Immediate loading of prostheses supported on multiple implants in partially edentulous cases* have a high level of evidence to be comparable with conventional procedures but randomized controlled studies are limited.

Important: make sure to always follow your implant manufacturer’s guidelines!

1. Patient selection:
Exclusion criteria:
- Parafunctional habits
- poor bone quality
- limited bone quantity
- uncontrolled: diabetes, cardiovascular disease, hypertension, …
- compromised immune system
- radiotherapy
- class 2/3 deviations
- deep bite

2. Planning:
- sufficient number of implants
  A minimum of four implants is advised in the edentulous mandible. A minimum of six implants is advised in the edentulous maxilla.
- sufficient length/diameter of the implants
  A length of minimum 10 mm and diameter of minimum 3.5 mm is advised.
- sufficient bone volume
- good bone quality
- no bone augmentation procedure

3. Surgery:
- sufficient primary stability of the implants (at least 35 Ncm)

4. Prosthetics:
- Rigid fixation of the implants
- Screw-retained passive fitting restoration
- NO cantilevers, limited pontics
- Correct occlusion and articulation
  Partially edentulous cases: infra-occlusion, no articulation
  Fully edentulous cases: bilateral balanced occlusion, group guidance.
Take care that you do not use low speed hand pieces to adjust the occlusion. Temporary cylinders need to be shortened outside the patient’s mouth!

5. Follow-up:
- Soft food for minimum 8 weeks
- Chlorhexidine mouthwash 2x day
- After 10 days, start the use of interdental brushes
Do not remove the restoration before 8 weeks healing period.

At the moment there are no completely evidence based guidelines yet for immediate loading concerning exclusion and inclusion criteria, threshold values for implant stability, bone quality, minimal implant length and diameter, loading conditions,… . More randomized controlled studies and larger patient numbers are necessary.

The following guidelines are derived from the papers below and can help you to select an appropriate treatment plan based on the clinical situation and your clinical knowledge / experience*.

For SIMPLANT: DENTSPLY Implants NV, Research Campus 10, B-3500 Hasselt, Belgium
* Literature:


SIMPLANT as the manufacturer of medical devices, does not practice dentistry and does not recommend particular devices or surgical techniques for any particular patient.
5. Guidelines for temporary cylinders

Carefully read the manufacturer’s instructions for use. Make sure the components are intended to be used for the planned treatment.

When a temporary cylinder is used on the implant level, make sure to order a NON HEXED (non engaging) cylinder.