

prowital 
the implant with system

Prosthetic Manual





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Platform switching is the term used in Germany,
platform shifting is the term used in Austria and Switzerland.

Foreword

to this manual

The Prosthetic Manual shows the different variations of prosthetic restorations with the help of numerous graphics and subsequently builds on the Surgical Manual.

Please read this manual carefully.

Our best regards

A handwritten signature in white ink that reads "Florian Loos". The script is fluid and cursive, with the first letters of "Florian" and "Loos" being significantly larger and more stylized than the rest of the letters.

Florian Loos

Product Manager prowtal

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Introduction

General information about the prowital implant system

The prowital implant system is consistently manufactured to the highest production quality. This assures that the oral situation is exactly transferred to the master model.

Abutments are available for the production of all prosthetic restorations. All components are colour-coded according to the implant diameters.

-  3,5 mm
-  4,3 mm
-  5,0 mm

Prosthetic assignment

The foundation of successful cooperation is the exchange of information between the surgeon, dentist and dental technician. This information must include details of the implant diameter to be used, the abutment type and the prosthetic restoration to be produced.

This exchange of information should ideally start at the beginning of an implantological treatment.

Prosthetic planning

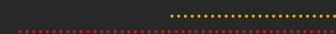
Prosthetic planning should take place before surgery and take the patient's wishes into consideration right from the start, as these may result in very different solution options, even with the same starting situation.

The surgical measures and the costs can then be quantified and the treatment plan drawn up.

Wax-up / set-up / mock-up

At the beginning of surgical treatment the “backward planning” principle should be followed. To this end, a wax-up/set-up or mock-up is created. This makes it possible to check the aesthetic, functional and phonetic situation with the patient.

This wax-up/set-up/mock-up may then form the basis for the creation of the necessary X-ray and drilling templates. The prosthetic situation determined can also be used to produce indices and be used as a control instrument during prosthetic implementation.



Creating a planning template

After articulation of the situation models, the wax-up is created in accordance with functional and aesthetic factors. This is done without consideration of the bone and soft tissue. The planning templates are produced using silicone indices or duplicate models. An X-ray template can be produced by the incorporation of radiopaque materials (balls, CT-sleeves, barium sulphate teeth, etc). A CT or DVT, which enables a three-dimensional X-ray overview of the exact bone situation, is particularly suitable to determine the actual bone structure, course of the nerve canals, etc. This allows not only the implant position, size and length to be determined, but also the implant axis. A possible augmentation can also be recognised before surgery. After evaluation of the radiological images, a drilling template can be created or the X-ray template can be reworked.

The drilling template enables the definitive implant position and potentially the axis to be defined. Titanium sleeves can also be incorporated into the drilling templates.

An impression of the oral situation can be made after the implantation, healing phase and exposure of the implants. When an open impression is made, it is necessary to produce a customised tray. The planning models which formed the basis of the drilling template are used for this. At the position of the planned implant, along the extension of the implant axis, a perforation for the fixing screw is made in the impression tray.

System-required laboratory tools

The following tools are required for the processing of the prowlal implant system.



Screw driver (1.510.0010)



Screw driver for bar & ball abutment (1.520.0020)



Manual torque wrench adapter (1.560.0100)



Locator[®] instrument (1.277.0010)



Finisher for bar base PMMA (1.274.0500)



Handgrip incl. lab inserts (1.540.0000 +1.540.0010)



Selection abutment kit (1.510.0010)



Selection measure post (1.430.0110)

Preparatory work

On receiving the prosthetic assignment, the lab should have the information on the implant diameters used so that the corresponding, colour-coded implant analogues can be used.

Tip

In order to ensure fast model production, it is recommended that the corresponding, colour-coded implant analogues are included in the order from the treating practitioner. It is furthermore recommended that the relevant implant diameters are noted on the lab documentation.

 yellow = 3.5 mm

 red = 4.3 mm

 blue = 5.0 mm

Transfer system

All prosthetic parts may only be screwed manually with controlled force. Modifications must never be made at the connection between the abutment and the implant.

Closed impression

The colour-coded implant analog is screwed together with the impression coping, to this end the guide pin is pushed into the implant analog. Gentle rotation may be necessary. It should be ensured that the impression coping and the implant analog are seamlessly connected.

The impression coping is designed so that it can be replaced at the exact position. This is additionally assured by an impression cap, which remains in the impression and with which the impression coping engages. During model production it should be ensured that the impression coping does not loosen from the impression material (e.g.: excessive shaking).



Open impression

The colour-coded implant analog is placed on the impression coping in the impression tray. By means of gentle rotation it is tested whether the rotation lock has engaged. The implant analog and the impression coping are screwed together.

PLEASE NOTE

The fixing screw in the impression coping is screwed into the implant analog by hand with controlled force using the screw driver (1.510.0010).



A seamless fit of the lab implant should be ensured. When visibility is poor (e.g.: narrow, high jaw ridge) control with a microscope is advisable. The level difference is approx. 1 mm.

NOTE

To remove the impression tray, the impression coping's fixing screw must be loosened and pulled back.

Model production

The impression is now filled as usual. Working with a removable gum mask made of silicone with high shore hardness or plastic has proven successful in implant prosthetics. This enables continuous control of the exact position of the abutment in the implant analog. Furthermore, all relevant soft tissue areas that are necessary for an aesthetic restoration (red/white aesthetics) are maintained.

NOTE for model production using the open impression method

To remove the impression tray, the impression coping's fixing screw must be loosened and pulled back to the stop.

Articulation

After the master models have been made, they are correctly aligned in the articulator with the aid of the bite registration material.

NOTE

If the closed-impression impression coping was used for bite registration, the cap for bite registration must be relocated on the coping before articulation.

Prosthetic implementation



Wax-up / set-up / mock-up

The wax-up/set-up/mock-up created during preoperative planning is fixed by (silicone) indices. These are then placed on the master model.

The production of a wax-up/set-up/mock-up is fundamentally recommended before prosthetic implementation. This determines the space available for the prosthetic restoration.

The wax-up/set-up/mock-up is created without abutments. For fast implementation, the use of prosthetic teeth, the shape of which can be adjusted with wax according to the functional characteristics, is advisable.

The wax-up/set-up/mock-up should ideally be checked on the patient.

The wax-up/set-up/mock-up created during preoperative planning can, of course, be used.

After a final check of the shape, function and aesthetics, the wax-up/set-up/mock-up is fixed using a silicone index.

The index is created entirely from vestibular to oral over the wax-up/set-up/mock-up.

After hardening, the index is cut along the course of the incisal edge/occlusal midline. This makes the anatomical shape of the tooth, in its vestibular/oral and cervical/incisal dimensions, recognisable. This, in turn, facilitates the selection of the correct abutment and its required preparation.

Abutments for fixed prosthetics

CAUTION

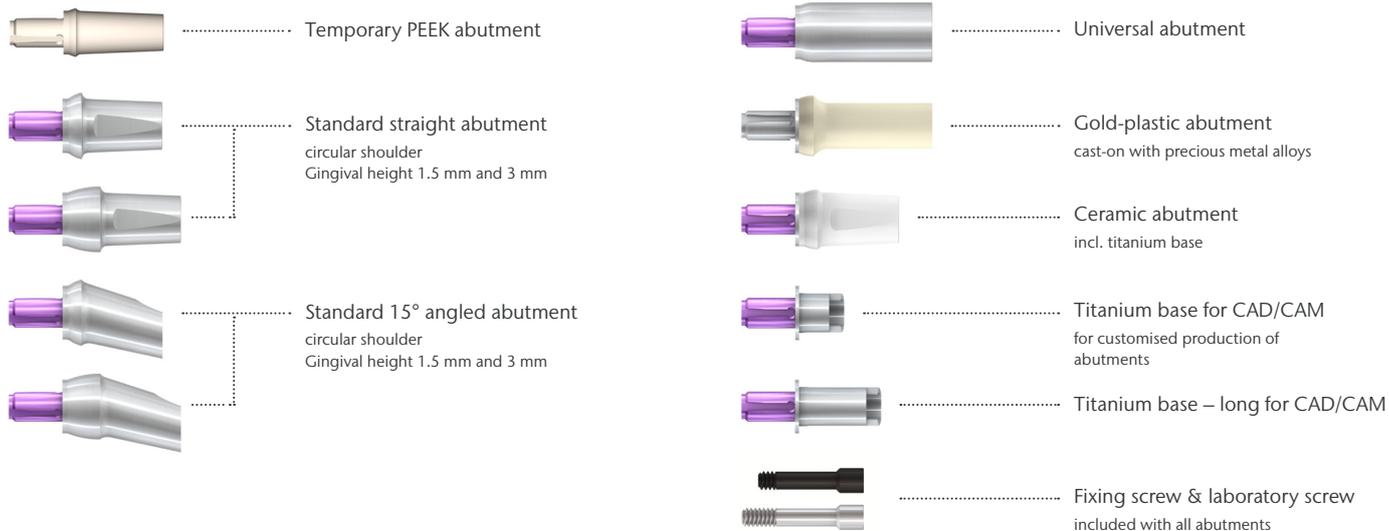
- The abutment-implant connection must never be modified.
- All proWital abutments are supplied with two screws.
- Only the black lab screw may be used for producing the prosthesis and possible try-ins.
- The silver fixing screw is for the final fixation of the abutment in the proWital implant. It can remain sealed in the blister packaging until definitive placement and fixation

The pro vital implant system includes a number of abutments for the production of single crowns and bridges.

Selection criteria

The silicone indices facilitate the correct selection of abutments.

The abutments are selected by clinical criteria (implant axis, mucosal height), according to the prosthetic restoration planned.



Selection abutment

NOTE

The selection abutments must not be used orally.

The selection abutment (1.430.0100) can be used to select the appropriate abutments.

The selection consists of 4 abutments that can be used for all proximal diameters. This aid enables the ideal abutment in angle and height of the circular step to be selected.

Implant axis

The straight abutments are suitable for balancing out implant axes of up to 10°. For larger implant angles, the 15° angled, gold-plastic abutments or the titanium base CAD/CAM should be used.

NOTE

A circular step that lies too deep in the sulcus makes it more difficult to remove residual cement.

From an aesthetic viewpoint, it is always advisable to use the ceramic abutment or to create a customised ceramic abutment using CAD/CAM.

Gingival height

The mucosal height is the selection criterion for the correct determination of the height (1.5 mm/3 mm) of the straight or angled standard abutments. To fulfil the aesthetic and hygienic requirements, the crown edge in the vestibular area should run approx. 1.5 mm subgingivally and orally at the height of the mucosa.

The circular running shoulder can be ideally adjusted to the actual line. If the mucosa is thicker than 4.5 mm, either the universal-, gold-plastic abutment or the titanium base CAD/CAM for the preparation of customised abutments are recommended.

Single crowns

Vertical dimension

When producing implant-supported single crowns, the vertical dimension in relationship to the bone quality should be considered.

With a bone quality of D3 + D4, the crown length to implant length ratio should not exceed the factor 1.0. If this is the case, a crown interlock is recommended.

Example – Implant length 11 mm x 1.0 = crown length max. 11 mm

Temporary PEEK crown



With a temporary restoration, the periimplant soft tissue, especially in the aesthetically relevant region, can be maintained and/or built up, which is of great advantage.

The temporary abutment can be inserted immediately after implant placement, i.e. in case of “immediate loading”, or after the healing phase. The soft tissue is ideally shaped and a perfect emergence profile is obtained. The temporary crown can be made in the lab even during the preoperative planning stage (CT/DVT evaluation, fabrication of the drill template).

PLEASE NOTE

The temporary PEEK abutment is supplied with a lab screw (black) and a fixing screw (green). The green anodised fixing screw must only be used to attach the temporary restoration. It must not be used to fix definitive restorations.

Information

The temporary PEEK abutment can also be used to make a one-part anatomical single crown made of composite. The incisal or occlusal screw channel must be closed after insertion.

The circumferential chamfer can be somewhat adjusted toward apical, if necessary.

For easy grinding, we recommend fixing the PEEK abutment in a laboratory implant. For grinding, diamond-coated grinding tools are recommended for use at high speed, but without water cooling and at low pressure.

The chamfer preparation is thus placed subgingivally so that the soft tissue (emergence profile) can be designed and shaped by a temporary crown.

The temporary PEEK abutment can be modified with veneering plastic to attain an anatomical “emergence profile”. To do this, the abutment must be roughened (e.g. blasted) to achieve a mechanical bond to the veneering plastic. The temporary crown / bridge is fabricated in the usual way. We recommend making the temporary restoration from plastic.

This makes it easier to adapt and shape the periimplant soft tissue according to the anatomical / aesthetic requirements while the patient is wearing the temporary restoration.

Standard abutment – straight / 15°– angle / universal abutment

The selected titanium abutment is screwed into the laboratory implant.
The silicone index is set up and the desired contours (height, axis direction) are marked with a permanent pen. The gingival shape is also marked.

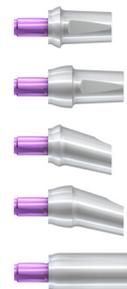
The abutment is screwed into a separate lab implant and processed.
For this, grinding burs suitable for working titanium are to be used.
The height and the axis direction are first adjusted, then a circumferential chamfer is prepared.

The preparation should run max. 1.5 mm subgingivally towards vestibular and at mucosal level orally.

The silicone index makes every step of grinding controllable.

The preparation should be shaped as a triangle or oval according to the basic anatomical form. A guide groove or flat surface is advisable as a rotation lock.
The height of the abutment should be maintained as much as possible, as this provides the greatest possible surface for cementation.

The customised abutment is checked to ensure that there is sufficient room for the definitive restoration.



NOTE

Grinding of the abutments is considerably facilitated by the use of the handgrip with the lab inserts.

CAUTION

Do not overheat the titanium as this restricts further processing (“Alpha-Case” layer).



Gold – plastic abutment

The gold-plastic abutment consists of a cast-on base with a residue-free, plastic burn-out tube. The anatomical shape is achieved by waxing up. Additionally, the gold-plastic burn-out tube is suitable for constructing single or primary crowns, screwed directly to the implant, for the double-crown technique.

The gold-plastic burn-out tube is screwed into the model. With the aid of the silicone index, the length of the plastic burn-out tube is checked and shortened in accordance with the planned restoration.

The desired shape is built up with wax. The lower part of the cast-on base must stay free of wax to approx. 0.3 mm. During casting, this prevents “overrunning” of the liquid melt and impairment of the precise fit between the abutment and implant.

Weight of the cast-on base parts

Abutment for Implant 3.5 mm = 0.39 g

Abutment for Implant 4.3 mm = 0.42 g

Abutment for Implant 5.0 mm = 0.44 g

Investing / preheating

The cast-on base must be checked for wax and plastic residues and the internal connection must be oil-free before investment.

The interior connection is placed in the direction of the centre; the height in the mould is selected depending on the casting procedure. This prevents excessively quick cooling of the cast-on base, enabling an error-free cast. Only phosphate-bonded (without plaster) investment materials, which are suitable for precious metal casting, should be used. It must be ensured that the investment is free of bubbles.

PLEASE NOTE

Only precious metal alloys are suitable for casting.

Casting

The melting range of the alloy to be cast must be clearly below the solidus temperature of the gold-plastic abutment to avoid the cast-on alloy melting it. In centrifugal casting, the objects should be placed in the casting cylinder opposite to the spin direction to ensure an error-free cast.

NOTE

The instructions from the investment material's manufacturer must be observed. The instructions from the alloy manufacturer as regards the **preheating temperature** must be **increased by approx 50°C** and must be at least **750°C** in order to enable error-free casting. The casting cylinders should be prewarmed for a little longer.

NOTE

Finishing/polishing of the abutments is facilitated considerably by use of the handgrip with lab inserts.



Deflasking

Deflasking must be performed with a focus on conservation. The cast objects are blasted with glass polishing beads and minimal pressure (max. 2 bar). The interior connection must not be blasted to avoid risking the high precision. For full cleaning, the object cast can be placed in a warm pickling solution or steamed.

Finishing

The alloys are finished according to the recommendations of the precious metal manufacturer. For finishing/polishing, we recommend fixing the gold-plastic abutment in a laboratory implant.

Manufacture of crowns

Occlusal screw-fixed crown

The gold-plastic abutment is suitable for producing an occlusal screw-fixed single crown. The abutment is fixed in the laboratory implant with the lab screw (black). The plastic burn-out tube is shortened to approx. 1.5 mm – 2 mm under the occlusion level.

In order to achieve an even ceramic layer thickness, an anatomically reduced tooth shape is modelled.

The lower edge of the cast-on base must remain free of wax in order to ensure the exact fit of the abutment in the implant. This area must never be veneered with ceramic (CTE difference).

The minimum wall thickness of the cast precious metal alloy must be 0.3 mm after finishing in order to prevent stress cracks in the ceramic due to CTE differences.

The frame must not have sharp edges after finishing; otherwise cracks or flaking might occur.

Cemented crowns

The customised abutment is fixed in the laboratory implant.

The screw channel is closed.

Wax or plastic are suitable for this, depending on the material chosen to model the frames. To make removal of the modelling easier, the abutment is lightly greased (e.g., Vaseline).

Tip

Vestibular marks (e.g., light dents) are made to facilitate the insertion of abutments in the mouth.

Modelling is carried out in the same way as the classic crown / bridge technique. With crowns with ceramic veneers, an anatomically reduced tooth shape should be aimed for.

For simple loosening of the model/crown, it is advisable to make a small undercut/removal aid in the oral area.

Horizontal screw–fixed / bolted crowns

PLEASE NOTE

Consider the height of the fixing screw, as this must not be damaged under any circumstances.

If horizontal screw-fixing/bolting is planned, this can be done on a case by case basis according to aesthetic/functional factors. It should be ensured that intra-oral insertion is possible. With screw-fixing it is necessary to create a thread at the planned position in the abutment.

The thread is cut into the abutment with a suitable tap. With bolt-fixing, the thread is in the removable crown so that only a bolt pin is required in the abutment.

The screw/bolt connection must only be tightened manually.

Interlocked crowns / bridges

It is therefore necessary to create a common path of insertion for all abutments, which are incorporated into a secondary blocked construction. All abutments are suitable for this.

The abutments are fixed in the implant analog with the lab screw (black). The occlusal length is checked and shortened if necessary (silicone index).

The circular shape of the mucosa is marked and the shape of the crown is defined. The common path of insertion is defined and checked with the parallelometer /milling device.

For simpler processing, the abutments can be fixed into a implant analog.

The common path of insertion can be created on the master model, fixed onto an adjustable model holder.

Tip

If there is great divergence in the implant axes, the universal abutment, gold-plastic abutment or a customised zirconium abutment are recommended.

CAUTION

The abutments must not be primarily blocked as the interior connection must never be modified.

NOTE

Processing is considerably facilitated by the use of the handgrip with lab inserts.



Gold – plastic abutment

When using gold-plastic abutments, the length of the plastic cylinder is checked and shortened if necessary. The abutment teeth are built up into a basic anatomical shape. A joint axial direction should be ensured as this guarantees a common insertion direction.



Ceramic abutment

The ceramic abutment consists of an abutment made of zirconium (ZrO_2), a titanium base, a lab screw (black) and a fixing screw for definitive fixing in the implant.

Processing

The ceramic abutment can be reduced according to the anatomical conditions. Diamond tools in perfect condition should be used for processing.

Grinding burs with an average grain size of approx. $100\mu m$ must be used for coarse ablation. Finishing and smaller grinding corrections

CAUTION

Grinding must be carried out with water cooling and minimal pressure to avoid the formation of tears or cracks.

are done with finer grains < 100 µm. The minimum wall thickness must be no less than 0.5 mm. Sharp edges should be avoided.

Veneering

It is possible to veneer or customise the abutment directly; this must be carried out before adhesion to the titanium base. The ceramic abutment must be cleaned with water before veneering. Veneering is carried out with suitable dental ceramics, in accordance with the manufacturer's instructions.

After processing the ceramic abutment is adhered to the titanium base.

Adhesion of the zirconium abutment and the titanium base

Multilink Implant® – IvoclarVivadent / RelyX™ Unicem – 3MEspe / Panavia™ F 2.0 – Kuraray are recommended for adhesion of the ceramic abutment and the titanium base. The manufacturer's instructions should be followed.

The titanium base is inserted into a model implant and fixed with the lab screw. The adhesive surface of the titanium base is sandblasted with **50 µm Al₂O₃ and 2 bar**.

The adhesive surface of the ceramic abutment is sandblasted with **110 µm Al₂O₃ and 1 bar**.

The titanium base and the ceramic abutment are then thoroughly cleaned. The lab screw is replaced by the gluing aid supplied.

The adhesive composite is applied to the adhesive surface of the titanium base. The ceramic abutment is pushed over the titanium base with rotating motions. As soon as resistance is felt, the definitive position is sought by rotating. The ceramic abutment must seal flush with the plate of the titanium base. After hardening, the glue residues are removed and the abutment is polished.

The gluing aid is removed from the ceramic abutment and replaced by the lab screw.

The screw channel is sealed with suitable material (e.g., wax or plastic) and the ceramic abutment is processed further according to the planned restoration.



Customised ceramic abutments using copy milling or CAD/CAM technology

The titanium base or the titanium base, long for CAD/CAM is used for the production of customised abutments.

CAD/CAM technology

If the abutment is constructed virtually using CAD/CAM technology, the use of the scan abutment (1.264.0100) is necessary (with the exception of Lava 3MEspe).

This scan abutment is fixed into the model implant with the black lab screw and can be used for all prowtal implant diameters. Scanning and virtual construction of the customised abutment depends on the respective CAD software.

The cervical step can be ideally adjusted to the gingival shape.

Copy milling

In this procedure, a wax or plastic model is made on the titanium base for CAD/CAM. To make this easier, the titanium base CAD/CAM is lightly greased (e.g., Vaseline). For modelling, the lab screw can be removed and replaced by the adhesion aid. This optimally creates the screw channel in the axial direction.

After the custom abutment has been produced using CAD/CAM technology or copy milling it is adhered to the titanium base.



NOTE

The subgingival area can be individually shaped. To prevent excessive pressure on the mucosa, the shaping – extension should be carried out in consultation with the treating practitioner.



[See chapter Ceramic abutment](#)

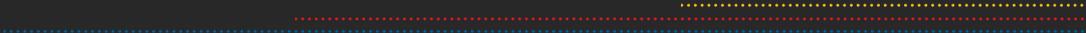
Bridge production

NOTE

For bridge constructions, a trial frame is recommended and the passive fit and hygiene capability should be checked.

The same procedure is recommended here as for the production of cemented crowns (page 23).

Removable restorations



PLEASE NOTE

acc. to Implantology Consensus Conference (a cooperation of the following associations: BDIZ, BDO, DGI, DGZI, DGMKG), for removable restorations, at least 4 implants should be used in an edentulous mandible and 6 in the maxilla.

In double crowns and bar restorations the bearing surface of the prosthesis can be made in a reduced form, e.g., gum-free. If a restoration with Locator® or ball abutments is selected, the prosthesis must be extended as far as possible in order to attain a large surface of mucosal support.

Aesthetic/phonetic planning using a temporary tooth set-up on the patient is advisable with removable restorations. This should ideally take place before surgery. The tooth set-up, optimised in combination with the patient, can therefore be used again as a planning, X-ray and drilling template.

Abutments for hybrid prosthetics

The prowlital implant system provides a number of abutments for the production of hybrid prosthetics.



Double crowns

The universal abutment, gold-plastic abutment and the titanium base for CAD/CAM are recommended for the production of double crowns.

The primary parts can be produced

- on a **secondary model**,
- on a **master model with removable gum mask** or
- on a **master model connected to a milling base**
- **virtually by CAD/CAM technology.**

Position transfer for milling base

The common path of insertion for all abutments must first be defined. Impression copings for open impressions are screwed into the implant analogs for a position-related transfer of the implant position. The impression copings are fixed in the retentive area to a suitable transfer system.

The fixing screws of all impression copings are loosened and pulled back. Corresponding implant analogs are screwed seamlessly to the impression copings. The implant analogs are mounted in a milling base.



NOTE

The fixing screw must remain freely accessible.

Tip

Only plaster implant analogs to $\frac{3}{4}$ of their length. This makes a check of the exact fit possible at any time.



NOTE

A minimum height for the functional surface of approx. 5 mm should be ensured.

CAUTION

Do not overheat the titanium, as this restricts further processing ("Alpha-Case" layer).

Universal abutment

The universal abutments are screwed into the implant analogs of the master model.

The silicone index enables the height to be checked and corrected if necessary.

If milling is necessary on the master model or on a secondary model, the common path of insertion must be defined. This is done in an adjustable model holder.

The universal abutment is processed using a burr suitable for titanium. After processing, the surface should be silky matt (rubber polished). A circular cervical step is made at the mucosal level or slightly above.

Depending on the number of abutments, a cone angle of 1°- 4° is advisable for electroplating.

Gold – plastic abutment



The gold-plastic abutments are fixed in the master model with the laboratory screws (black).

The plastic burn-out tubes are shortened to the required height. A minimum height for the functional surface of approx. 5 mm should be ensured.

After the common path of insertion is defined, the shape is built up in the same way as the classic double crown technique.

[See page 20 for further processing!](#)

Finishing

The cast primary parts are screwed to the lab implant for processing (black screw) and processed according to the selected production procedure.

Depending on the number of abutments, a cone angle of 1°- 4° is advisable for electroplating.



Primary parts made of ZrO_2 using copy milling or CAD/CAM technology

The titanium base or the titanium base, long for CAD/CAM is used for the production of the primary parts.

The remaining procedure corresponds to that in the chapter Customised ceramic abutments on page 28.

After the primary parts have been made they are adhered together with the titanium base and checked for a common path of insertion and reworked in the milling device.

Secondary parts

The secondary parts can be made in the classic casting technique or by electroplating. Electroplating should be used for the double crowns made of ZrO_2 .

Electroplating

The milled primary parts are screwed to the implant analogs. The implant analogs are invested in plastic. The screw channel is closed. All metal areas which are not to be electroplated must be covered with a masking lacquer. The areas to be electroplated must be coated with a conductive lacquer.

The prepared object is contacted and electroplated according to the manufacturer's instructions.

As the electroplated secondary parts have a wall thickness of 0.2 - 0.3 mm, a tertiary structure must be made.

Cast secondary cap

The milled abutments are screwed to the implant analogs. The screw channel is closed. The secondary part is made of residue-free burn-out plastic and completed with wax. The model is made by casting and finishing.

To ensure a tension-free fit, the secondary parts are adhered to the tertiary structure in the mouth.

Electroplating is ideal for implant-supported restorations since a "passive fit"

NOTE

The titanium surface can be directly electroplated, therefore only the area of the covered screw channel must be coated with conductive lacquer.

can be achieved by adhesion in the mouth.
The mode of action is also adhesive rather than fricative.

Bar restoration



Direct method

The bar abutment is screwed in by the treating practitioner directly after the implant has been exposed, according to the defined mucosal height.
The conical part of the bar abutment must be above the level of the mucosa.

The bar abutment is subsequently covered with the sealing cap (1.274.0000).
Once the mucosa has healed (approx. 10–14 days) the impression is made with the aid of a customised functional tray.

A special “impression coping for bar abutments” (1.203.0000) is required for the impression of the bar abutment.

A bar analog (1.274.0300) is required to create the model.

Model production

The bar analog (1.274.0300) is placed in the impression coping for bar abutments, which is in the impression tray. A seamless fit of the bar analog should be ensured. When visibility is poor (e.g.: narrow, high jaw ridge), control with a microscope is advisable.

The impression is now filled as usual.

NOTE

To remove the impression tray, the impression coping's fixing screw must be loosened and pulled back.

Selection measure post

The selection measure post (1.430.0110) can be used to select the components for the hybrid prosthesis (ball, bar or Locator® abutments).

The selection measure post is screwed into the laboratory implant. The circular marks on the selection measure post make the height of the mucosa easy to determine.

The marks are spaced at 1.75/3.0 and 4.25 mm from the implant platform.



Indirect method

Once the mucosa has healed, the impression is made directly on the implant. The relevant model implants are used to produce the working model.

When making the master model, it is important to keep the mucosal height exact so that the bar abutment that is optimal in height can be selected. The selection measure post (1.430.0110) is suitable for this.

Three different bar heights are available for the bar abutment (1.5 mm / 3.0 mm / 4.0 mm). The bar abutment is selected according to the mucosal thickness. The conical part of the bar abutment must be above the level of the mucosa.

The bar abutment is manually screwed into the lab implant with the implant driver (1.520.0020). The bar abutment can balance out an axial divergence of 20°/implant.

Bar production

The following options are available for producing prosthetic solutions on bar abutments.

- Bar base, laser-weldable (1.274.0100)
- Bar base, cast-on (1.274.0110)
- Bar base, burn-out (1.274.0200)
- Bar base, PMMA (1.274.0210)

NOTE

The bearing surface of the bar base must not be modified.

IMPORTANT information

All bar bases are supplied with a fixing screw and a lab screw (black). Only the lab screw (black) may be used for producing and trying-in the prosthetic.

Note

Good hygiene properties must be ensured. (Interdental brush should apply gentle pressure to the mucosa; basal surface of the bar should be convex).



Cast-on bar base

Tip

If a cast bar matrix is produced, the bar must be linear between the implants. To increase the inherent stability of an electroplated bar matrix, a curved bar shape is recommended.

HINWEIS

The instructions of the investment material's manufacturer must be observed. The instructions of the alloy manufacturer as regards the preheating temperature must be increased by approx 50°C and must be at least 750°C in order to enable error-free casting. The casting cylinders should be prewarmed for a little longer.

Milled bar

The bar base (1.274.0110) is fixed in the bar analog or abutment with the lab screw. When placing the bar it should be ensured that it runs underneath the prosthetic teeth.

This can be checked with the aid of previously made indices (vestibular/oral).

The bar bases must be coated with an approx. 0.5 mm thick wax layer. Modelling of the bar can be facilitated by using prefabricated plastic bars.

Investment / casting

Weight of the cast-on bar base = approx. 0.50 g

The fixing screws are loosened after spruing. The bar can now be removed without distortion. The inner surfaces of the bar bases must be free of wax and oil. A phosphate-bound investment material must be used for investment. The bar bases are placed in the direction of the centre of heat in order to ensure error-free casting.

Only precious metal alloys are suitable for casting.

Finishing

After deflasking the bar is fitted. The fit of the screw in the bar base is checked and impurities/casting pearls are removed carefully.

The tension-free fit of the bar is checked using the “Sheffield Test”.

The cast bar is finished according to requirements. A separate milling model is advisable for milling the bar. The use of the bar analog (1.274.0300) is recommended for implementation.

After finishing, the bar rider is made.

Soldering a prefabricated bar

The prefabricated precious metal bar (e.g.: Dolder bar) is fitted between the bar bases (1.274.0110) and fixed with burn-out plastic.

The spacing between the bar and the mucosa must be selected so that the interdental brush applies gentle pressure to the mucosa.

NOTE

The bar analog and the lab screw (black) are made of stainless steel and are thus suitable for soldering.

The bar bases are unscrewed and the bar is carefully removed.

The use of a bar analog (1.274.0300) is advisable for making a soldering model. The bar analogs are screwed into the bar bases and fixed in soldering investment material.

The prefabricated bar is soldered in with a suitable precious metal solder. After removing the lab screw and the excess solder, the tension-free fit of the bar on the master model is checked. The hygiene properties are checked using interdental brushes.

The bar rider is incorporated according to the manufacturer's instructions. The stability of the prosthetic restoration is increased by the incorporation of a tertiary construction.

Burn-out bar base (for customised bars and occlusal screw-fixed bridges)

The burn-out bar base (1.274.0200) consists of a cast-on bar base and a plastic burn-out tube that can be individually shortened.

The bar base is fixed in the bar abutment with the lab screw (black). The length of the plastic burn-out tube is checked and shortened if necessary in the articulator or with the aid of the previously made silicone index. The shape is built up in wax according to the plan.

If a ceramic restoration is planned, the cast-on base must be coated with a wax layer of min. 0.5 mm.

Investment / casting

The fixing screws are loosened after spruing. The bar or bridge construction can now be removed without distortion. The inner surfaces of the bar bases must be free of wax and oil.

A phosphate-bound investment material must be used for investment. The bar bases are placed in the direction of the centre of heat in order to ensure error-free casting.

Note

The instructions of the investment material's manufacturer must be observed. The instructions of the alloy manufacturer as regards the preheating temperature must be increased by approx. 50°C and must be at least 750°C in order to enable error-free casting. The casting cylinders should be prewarmed for a little longer.

PLEASE NOTE

Only precious metal alloys are suitable for casting.

NOTE

It is advantageous not to mill a customised bar on the original model. The use of a milling model is advisable. After the bar has been correctly fixed, the bar analogs (1.274.0300) are placed in the bar bases and secured with the lab screw. The bar prepared in this way is now plastered into a milling base.

After casting the object is carefully deflasked.

The bar or bridge frame is now finished.

If the object is to be veneered with ceramic, it is important to ensure that the cast-on base is coated with a burn-on alloy. Otherwise, cracks may form in the ceramic veneers (CTE problem).

Laser-weldable bar base

The bar base (1.274.0100) is used to incorporate a prefabricated titanium bar.

Important

This bar base (1.274.0100) must not be used for soldering.

The prefabricated titanium bar is fitted between the bar bases (1.274.0100) and fixed with the laser. The spacing between the bar and the mucosa can now be checked.

The spacing between the bar and the mucosa must be selected so that the

interdental brush applies gentle pressure to the mucosa.

The bar can be fixed directly on the master model with the laser.

After lasering, the lab screws (black) are loosened and the tension-free fit of the bar on the bar abutments is checked. The laser connection is subsequently finished and the hygiene properties are checked.

The bar rider is incorporated according to the manufacturer's instructions. The stability of the prosthetic restoration is increased by the incorporation of a tertiary construction.

NOTE

The bearing surface of the bar base must not be modified.

PMMA bar base (for customised bars and occlusal screw-fixed bridges)

The PMMA bar base (1.274.0210) consists of PMMA plastic, which can be burnt out without residue. This enables customised bars or occlusal screw-fixed bridges to be made using the alloy of your choice.

The PMMA bar base is fixed in the bar abutment with the lab screw (black). The length of the plastic burn-out tube is checked and shortened if necessary in the articulator or with the aid of the previously made silicone index.

NOTE

The instructions of the manufacturers of the investment material and the alloy must be observed.

PLEASE NOTE

After casting, possible casting roughness on the conical fit of the bar base and the screw fit is removed and smoothed with the finishers for bar base PMMA (1.274.0500). This attains high precision for the bar abutment and the fixing screw. The finishers for the bar base (1.274.0500) are used in combination with the handgrip (1.540.0000).

The shape is built up in wax according to the plan. The PMMA bar base should be coated with a thin layer of wax.

Investment / casting

The fixing screws are loosened after spruing. The bar or bridge construction can now be removed without distortion. The inner surfaces of the bar bases must be free of wax and oil. A phosphate-bound investment material must be used for investment.

The bar bases are placed in the direction of the centre of heat in order to ensure error-free casting.

All suitable materials (precious alloy, non precious alloy and titanium) can be used for casting.

After casting the object is carefully deflasked.

Passive fit

Preparation

The laser-weldable bar base (1.274.0100) is suitable for the tension-free adhesion of custom bar or occlusally screw-fixed bridge constructions.

The laser-weldable bar bases are fixed onto the bar abutments with the lab screw.

The conical part is lightly greased with Vaseline.

Modelling

The bar base is now wrapped in wax or plastic.

The bar or the occlusally screw-fixed bridge construction is modelled, ensuring that the bar base's screw can be accessed freely. After modelling, the object is processed further according to the production process. The model is loosened from the laser-weldable bar base and the cervical edges are carefully checked.

It should be ensured that the model is precisely aligned with the laser-weldable bar base.

After production

The bar or the occlusally screw-fixed bridge construction are carefully fitted onto the bar base. The fit should always have a little "play". The object is finished before adhesion. With bridges with ceramic veneering, all ceramic firing must be finished before adhesion.

Adhesion

The laser-weldable bar base and the conical inner surfaces of the object are blasted with $50\mu\text{m Al}_2\text{O}_3$ and 2 bar.

Adhesion should ideally take place within the mouth. The bar abutments are screwed into the implants and tightened to 30 Ncm. The prepared laser-weldable bar base is fixed to the bar abutment with the lab screw. The screw head is covered (e.g., wax).

Self-hardening adhesive composites are suitable for adhesion; the manufacturer's instructions should be followed here. It should be ensured that the screw channel remains free of adhesive composite to enable the lab screw to be loosened.

NOTE

Bar components can be ordered from Prowital GmbH. An overview of items is available online at www.prowital.de.

After adhesion

The bar base's lab screw is loosened, the object is taken off the bar abutment and the glue residues are carefully removed. The bar base fixing screws are used for definitive placement.

Ball abutment

Direct method

The ball abutment is screwed in by the treating practitioner directly after the implant has been exposed, according to the defined mucosal height. The ball must sit above the level of the mucosa. Once the mucosa has healed (approx. 10 - 14 days) the impression is made with the aid of a customised functional tray.

In the impression (negative) of the ball, the model axis is reduced.
The functional model is then produced and articulated.

Indirect method

Once the mucosa has healed, the impression is made with a customised functional tray, directly on the implant. The relevant model implants are used to produce the functional model. When making the master model it is important to keep the mucosal height exact so that the ball abutment that is optimal in height can be selected.

The ball abutment is available in three different heights (2.0 mm / 3.0 mm / 4.5 mm).
The ball abutment is selected according to the mucosal thickness. The ball must sit above the level of the mucosa.

The ball abutment is screwed manually into the lab implant with the implant driver (1.520.0020).





Selection measure post

As described on page 39, the selection measure post can also be used here.

Set-up and completion of the prosthesis

The set-up/try-in is carried out as normal. When making a prosthesis, the incorporation of a tertiary structure is recommended.

To make a tertiary structure the spacer is placed over the model axis and sealed basally with wax. The model is doubled and the tertiary structure is created.

Incorporation of the matrix UNOR Ecco

To produce the prosthesis, the assembly inner matrix (blue) is screwed into the retention cap with the torque wrench (1.500.0010). The matrix is placed on the model analog.

When using several matrices it is vital that they have the same parallel and axial path of insertion.

The basal gap is sealed with wax or silicone. The prosthesis is completed in plastic.

Excess plastic at the lower edge of the inner matrix for assembly must be removed before turning.

After completion of the prosthesis, the inner matrix for assembly (blue) is replaced by the inner matrix. This is done with a torque wrench. The pull-off force of the inner matrix is approx. 8 N.

If other pull-off forces are required, the inner matrix can be replaced.

System components can be obtained from the following address (see note).

NOTE

If a matrix with a higher pull-off force (12 N) is required, it can be ordered from Prowital GmbH.

An overview of items is available online at www.prowital.de.



Locator® abutment

Direct method

The Locator® abutment is screwed in by the treating practitioner directly after the implant has been exposed, according to the defined mucosal height. The Locator® abutment must lie 1.5 mm above the mucosa.

Once the mucosa has healed (approx. 10 - 14 days), the impression is made with the aid of a customised functional tray. The impression is made with the Locator® impression coping (1.277.0100).

To make the model, the Locator® analog (1.277.0200) is placed in the Locator® impression coping. The functional model is then produced and articulated.

Indirect method

Once the mucosa has healed, the impression is made with a customised functional tray, directly on the implant. The relevant lab implants are used to produce the functional model. In making the master model it is important to keep the mucosal height exact so that the Locator® abutment that is optimal in height can be selected.

The Locator® abutment is available in four different heights (1.0 / 2.0 / 3.0 / 4.0 mm). The Locator® abutment is selected according to the mucosal thickness and must lie 1.5 mm above the mucosa.

The selection measure post (1.430.0110) is suitable for determining the optimal height of the Locator® abutment.

The Locator® abutment is screwed into the lab implant with the gold-coloured part of the Locator® instrument (1.277.0010).

Selection measure post



As described on page 39, the selection measure post can also be used here.

Set-up and completion of the prosthesis

The set-up/try-in is carried out as normal.

Determining the angulation

The angle of the implants can be checked with the Locator® angle measurement guide (1.277.0020) and the parallel posts (1.277.0030). The parallel posts are placed on the Locator® abutments. The angle measurement guide is placed on the mucosa.



The angle of the implants can now be easily determined and the appropriate retention inserts can be selected.

- **With an angle of up to 10°/ implant or 20° for several implants, the Locator® male processing package (1.277.0600) is used.**
- **With an angle of up to 20°/ implant or 40° for several implants, the Locator® extended range male (1.277.0650) is used.**

The incorporation of a tertiary structure is recommended

To this end, the matrix, with the processing male (black) is placed onto the Locator® abutment. The areas under the matrix are blocked and the matrix is covered with a thin layer of wax. The model is doubled and the tertiary structure is created. Then the matrix is adhered to the tertiary structure with self-hardening adhesive composite.

For completion, the Locator® block-out spacer (white) is placed over the Locator® abutment and the matrices are set up. Completion is carried out as normal.

After completion of the prosthesis

After the prosthesis is completed and polished, the processing male (black) is replaced by a suitable replacement male.

Changing replacement males or processing male

The colour-coded replacement males should ideally be inserted into the matrix by the treating practitioner.

These are included with the Locator[®] male processing package (1.277.0600).

Angle up to 10° / implant

| Retention insert | Pull-off force |
|------------------|----------------|
| transparent | 22.3 N |
| pink | 13.4 N |
| blue | 6.7 N |



Angle of between 10° to 20° / implantat

| Retention insert extended angulation | Pull-off force |
|---|----------------|
| green | 17.8 N |
| orange | 9.0 N |
| red | 6.7 N |



If no pull-off force is desired, the grey replacement male (1.277.1115) can be used.

PLEASE NOTE

All replacement males may only be used once.

The replacement males are inserted with the Locator® instrument (1.277.0010) and replaced if required. The instrument is in 3 parts and performs three functions:

1. Insertion of the Locator® abutments

**Caution: It is not possible to check the correct torque!
Always use the implant driver (1.277.0005) to definitively tighten the implant (Gold-coloured end piece).**

2. Removal of the replacement males or the processing male (Silver-coloured end piece with sharp circular edge).

3. Insertion of the replacement males or the processing male with rebasing (grip piece).



Removing replacement males or processing male

To remove the replacement or processing male, the silver end is screwed out until the bolt disappears in the Locator® instrument and a gap appears between the grip and the tool for removing the matrix.

The instrument is now pressed into the replacement male/processing male to be removed. The sharp circular edge engages with the males.

By turning the tool for removing the matrix in the opposite direction (clockwise), the replacement or processing male is pulled out of the retention cap.





Inserting replacement males or processing male

To insert the replacement males, the tool for removing matrices is removed from the grip piece by anti-clockwise rotation. The replacement male is now placed on the abutting face of the grip piece. Caution: The replacement male is placed without friction!

CAUTION

The replacement male is placed without friction!



The replacement male is now pressed into the retention cap. The male connects audibly.

Procedure for rebasing

If the prosthesis requires rebasing, it is necessary to remove the existing Locator® replacement male from the retention cap.

The replacement male is replaced by a processing male (1.277.0500). Rebasing can now be carried out with a suitable impression material.

When rebasing is complete, a new Locator® replacement male is inserted into the retention cap.



Procedure for fitting Locator® abutments into an existing prosthesis

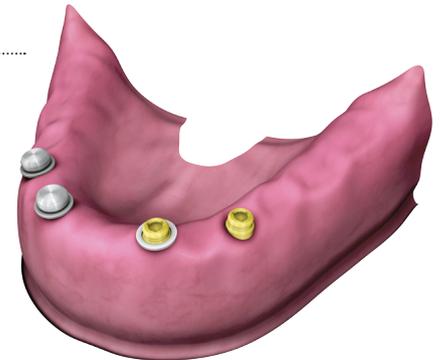
The matrix is supplied with the fitted processing male, a block-out spacer and three replacement males with different pull-off forces.



The prosthesis must be generously hollowed out in those areas containing the Locator® abutments including the matrices.

For incorporation into the prosthesis, the block-out spacer is pushed over the Locator® abutment and the matrix is fixed on the Locator® abutment. The previously hollowed out prosthesis is now checked to ensure there is no contact to the matrix.

The matrix can now be polymerised into the prosthesis. After the prosthesis has been incorporated and completed, the processing male (black) is removed from the retention cap and replaced by a suitable replacement male.



Prosthetic abutments



PLEASE NOTE

The prosthetic abutments (with the exception of ball abutments, bar abutments and Locator® abutments) are always delivered with two screws.

CAUTION

For the definitive fixation of the prosthetic restoration, always use the (titanium) fixing screw (1.213.1600).

The (black) laboratory screw (1.305.1600) may only be used for the fabrication and try-in of the prosthetic restoration.

Information



Torque wrench adjustment

| | |
|--|---|
| Implant closure screw | tightened by hand with controlled force |
| Bar abutment closure cap | tightened by hand with controlled force |
| Healing cap | 20 Ncm |
| Temporary PEEK abutment | 20 Ncm |
| Abutments | 30 Ncm |
| Standard abutment, straight / 15° angulation | |
| Universal abutment | |
| Ceramic abutment | |
| Gold-plastic abutment | |
| Bar abutment | 30 Ncm |
| Bar bases | 20 Ncm |
| Bar base, laser-weldable | |
| Bar base, cast-on / solder-on | |
| Bar base, burn-out | |
| Ball abutment | 30 Ncm |
| Locator® | 30 Ncm |
| Inner matrix (Ecco system) ball abutment | 7 Ncm |
| Drehmomentsteckschlüssel (23831) verwenden | |

PLEASE NOTE

We recommend retightening all abutments about 5 minutes after insertion with the same torque.

Symbols used on labels and in the instructions for use



Sterilisation by irradiation



Non-sterile



Do not sterilise again



Important, observe the documents supplied



Observe instructions for use



Expiry date



Do not re-use



Do not use if packaging is damaged



Article number



Batch designation



Date of manufacture

Safety information

For the patient's safety, the implant drivers and screw drivers have a special hole through which dental floss must be threaded before these instruments are used in the mouth. In this way, it is assured that the instruments cannot be swallowed or aspirated by the patient. The values stated as the maximum speeds for the drills must not be exceeded as the rotational characteristics can otherwise not be assured. Local overheating may also occur.

Products labelled as sterile may only be used if their packaging is undamaged.

NOTE

Further safety information, in the form of the symbols described above, is contained in the labels of the respective products and, where applicable, in the accompanying instructions for use.

Safety, liability, warranty

proWITAL implants are part of an overall concept and may only be used in conjunction with the original components and instruments belonging to it, in accordance with PROWITAL's instructions and recommendations.

The use of non-system components will impair the function of the proWITAL implant system and will void any warranty or replacement obligation by PROWITAL GmbH.

Advice on the application and handling of our products is provided verbally, in writing, by electronic media or by demonstrations. Such advice is based on the latest state of the art known to PROWITAL GmbH at the time the product was placed on the market.

This does not free the user from his personal duty to determine whether the product is suitable for the intended purposes, indications and procedures. The handling and application of the product are outside of the control of PROWITAL GmbH and are the sole responsibility of the user. Any liability for damages caused as a result of this is excluded.

The perfect quality of the products is guaranteed under our Conditions of Sale and Delivery.

Errors in the evaluation of patients, the preoperative diagnostics and therapy planning may result in the loss of the implant. The surgical part of implant treatment must be preceded by a thorough patient evaluation, preoperative diagnostics and therapy planning.

Maintenance instructions

Products that require regular maintenance (e.g., torque wrench, handle) can be identified in the accompanying instructions for use.

Training and training materials

To ensure effective and safe use of our implant system, we recommend an intensive training course at least every two years.

Training materials can be ordered from PROWITAL GmbH and their distributors or downloaded from the website www.prowital.de.

PROWITAL GmbH provides regular training courses. These may be led by external experts or by trained specialists.

Supply, availability

prowital system products are only supplied to dental practitioners and dental laboratories.



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