



 **tiologic**<sup>®</sup>  
TWINFIT

Prosthetics Manual.

  
DENTAURUM



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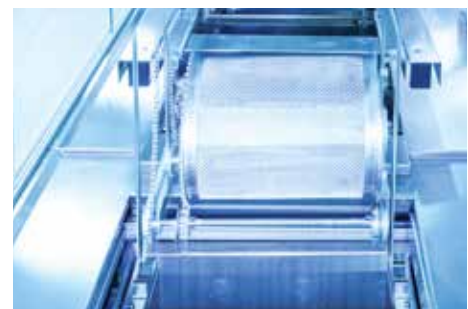
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## High-tech in-house.



There is a high level of professional knowledge in our company that has been built up over the years in our own research and development facilities, both in Germany and in France. Highly qualified employees work together in interdisciplinary teams to find answers to the challenges the future poses. At the same time, long-standing cooperations with experts from universities and clinics contribute to finding new developments and innovations.

A further result of these efforts: a comprehensive product portfolio which is one of Dentaaurum's strengths. No other dental company has such an extensive range of products offering a total of more than 8500 articles.





## Implant system.

The tioLogic® TWINFIT implant system offers you maximum flexibility from insertion to final restoration.

### Implant shape.

The shape of the tioLogic® TWINFIT implant and the thread geometry were calculated using FEM analyses and documented in scientific studies. Tests show a uniform, gentle loading of the bone which prevents local overloading and stress peaks that could damage the bone.

### Thread geometry.

The thread geometry of the tioLogic® TWINFIT implants enables a quick and atraumatic implant insertion and a high level of primary stability. The endosseous region of the implant surface is blasted and etched.



FEM analysis tioLogic® TWINFIT.

### Internal geometry.

The design of the internal geometry of the implant was calculated and proven by FEM analyses and physical investigations carried out by the University of Bonn using a fatigue strength test in accordance with ISO 14801.

Its distinguishing features:

- 2 connector geometries – conical and platform
- high resistance to torsion and high bending strength when under permanent loading
- zero backlash transmission of bending moments
- maximum flexibility in the positioning of the system components

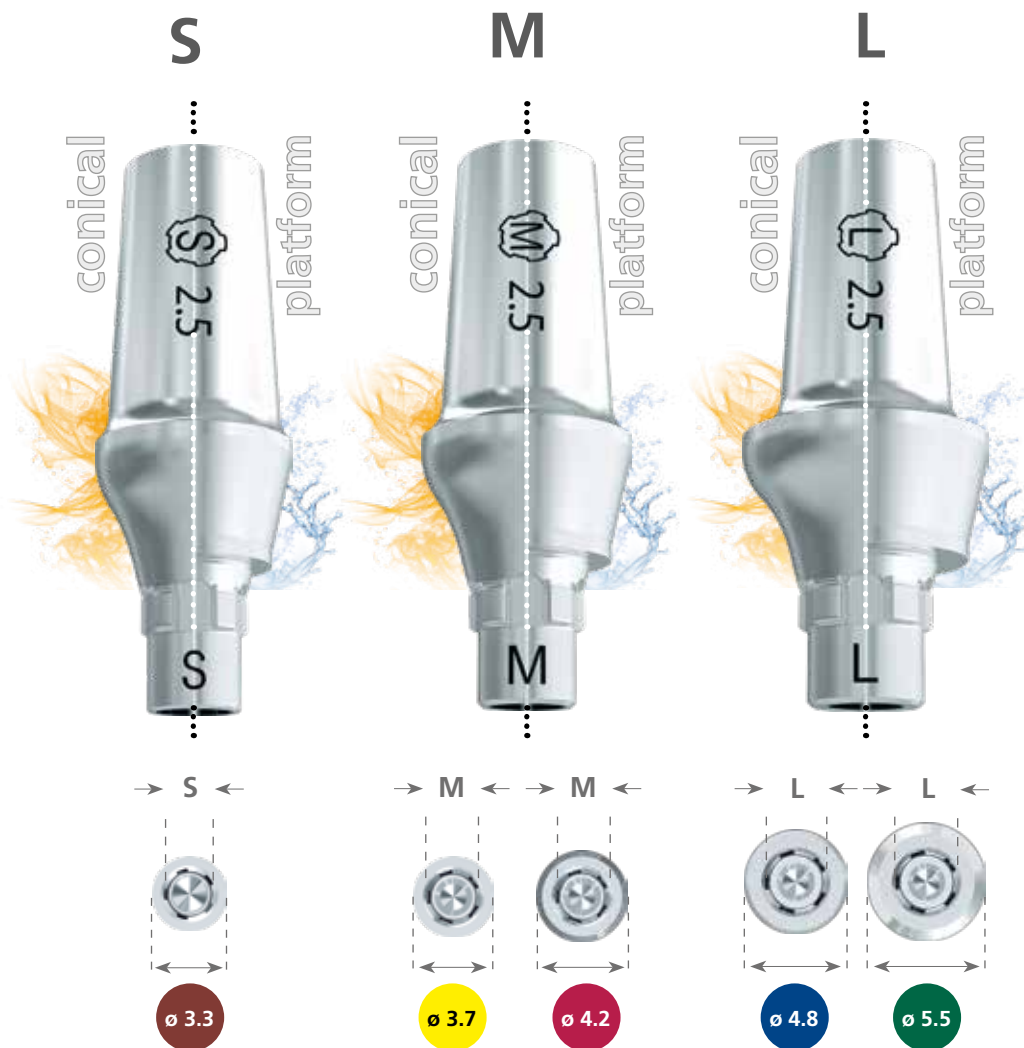




## S-M-L concept.

5 implant diameters. 5 implant lengths. 3 series of abutments. 2 connector geometries.

The optimal grading of implant diameters and lengths ensures that the appropriate implant is used for the indication. The three series of abutments are each available in the two connector geometries, conical or platform. The portfolio includes abutment components in plastic (temporary restorations) and titanium to suit the individual situation. CAD/CAM, ball, tioLOC and 4Base abutments complete the portfolio and enable the implantologist to offer restorations for all kinds of indications. The abutment components S are used for the implant diameter 3.3 mm, the abutment components M for the implant diameters 3.7 mm and 4.2 mm and the abutment components L for the implant diameters 4.8 mm and 5.5 mm. All components are laser-marked with S, M or L for exact identification.





1 prosthetic screw.



3 series of abutments.

S

M

L

5 implant diameters.



7.0 mm



9.0 mm



11.0 mm



13.0 mm



15.0 mm



5 implant lengths.

S

M

L

# ABUTMENTS

2 CONNECTOR GEOMETRIES – 1 IMPLANT

## conical



# T SWITCH

## platform



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### A convincing concept - state-of-the-art.

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The prosthetic restoration represents an important aspect if implantation is to be successful long-term. Close contact between the implantologist and dental technician, careful pre-prosthetic planning and taking the patient's wishes into account are all important factors for the implant-borne restoration to succeed.

The healing stage in the mandible usually takes between three to six months. This phase may be faster or slower depending on the bone quality, healing process and anatomy. Once the healing stage is over and gingiva forming completed, the prosthetic restoration can be fabricated.

The Prosthetics Manual uses actual cases to provide a general overview of various types of prosthetic restorations which represent state-of-the-art scientific knowledge at the time of going to press. The types of prosthetic restoration shown are subject to continual further development. For further information, please refer to current literature.

The Dentaforum Hotline is staffed by experienced implantologists and dental technicians who will be pleased to answer any questions you may have. It provides reassuring information on surgery, implantology and dental prosthetics.



## Practice record card.

To ensure optimal information flow between the implantologist and dental technician, all relevant data, e.g. the implant diameter, implant length and planned prosthetic restoration, are noted on a record card (REF 989-966-22).

The card is kept with the prosthetic restoration during the entire fabrication procedure. At the fitting stage, it is given to the implantologist along with the finished prosthetic restoration. It contains all the important information for fitting the restoration.

**Date of issue:** \_\_\_\_\_

**Patient:**

First name:	_____
Surname:	_____
Date of birth:	_____

**Practice:** \_\_\_\_\_

**Dental laboratory:**

Technician: \_\_\_\_\_  
Date received: \_\_\_\_\_  
Date sent: \_\_\_\_\_

**Date sent:** \_\_\_\_\_

Implant location:	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	21	22	23	24	25	26	27	28
Implant dimensions* (table) After implant placement the different labels included in the implant packaging can be used for documentation.																										
Abutment (refer to label for description)																										
Prosthetic restoration*																										
Implant dimensions* (table) After implant placement the different labels included in the implant packaging can be used for documentation.																										
Abutment (refer to label for description)																										
Prosthetic restoration*																										
48	47	46	45	44	43	42	41																			

**\* Implant dimensions / Series of abutments (S-M-L concept):**

Implant length	7.0 / 9.0 / 11.0 / 13.0 / 15.0 mm
Implant diameter	3.3 mm      3.7 mm      4.2 mm      4.8 mm      5.5 mm
Series of abutments	S      M      L

All components are marked with the relevant series of abutment S, M or L. The 3.3 mm and 5.5 mm ø implants are not available in 7.0 mm length.

**\* Prosthetic restoration:**

cement-retained / screw-retained	removable					
Single restoration	Bridgework	Removable bar / Bar attachment	Milled bar	Telescope	Ball attachment	tool.OC
E	B	S	G	T	K	L

Connector geometry:  Cervical connector     Platform connector

**Material information:**

Alloy:  \_\_\_\_\_ Adhesive:  \_\_\_\_\_ Ceramic:  \_\_\_\_\_  
 Solder:  \_\_\_\_\_ Acrylic:  \_\_\_\_\_ Tooth shade:  \_\_\_\_\_

\* For bioLogic™ TWINFIT only

**D**  
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## Diagnosis and planning.

This section provides a general overview of diagnosis and planning. For more detailed information on these aspects, please refer to current literature. Implantologists and dental technicians with many years of experience are available to answer any questions that you may have.

### Indications.

tioLogic® TWINFIT implant types can be used both in the mandible and maxilla for surgical immediate implantation, delayed immediate implantation and delayed implantation using either the one-stage or two-stage technique. Indications for implant insertion are small and large-bounded saddles (one-tooth restorations, increasing the number of abutments) in the maxilla and mandible, a shortened dentition or an edentulous jaw. The possible benefits and disadvantages as well as the risks involved in implant treatment and alternative treatments should be taken into account when considering whether implant treatment is indicated.

With all implantological cases the implant diameter and length of the tioLogic® TWINFIT implant types should be in proportion to the prosthetic restoration.

If practical with the individual oral situation, implants with a minimum diameter of 4.2 mm should generally be used for restorations that subject the implant and superstructure to high mechanical loading.

The tioLogic® TWINFIT implant type S  $\varnothing$  3.3 mm is available for patients with narrow alveolar ridges. Due to the smaller diameter and lower load capacity (compared to the tioLogic® TWINFIT implant type M  $\varnothing$  4.2 mm), these implants have a limited range of indications (limited angulation compensation). In edentulous jaws, at least four tioLogic® TWINFIT implants S  $\varnothing$  3.3 mm with a splinted restoration must be inserted to ensure forces are evenly applied. Two tioLogic® TWINFIT implants  $\varnothing$  3.3 mm may be used for restorations on ball abutments as long as movement around the axis of rotation is guaranteed. With implant-borne restorations in a partially edentulous jaw, they should be used in conjunction with tioLogic® TWINFIT  $\varnothing$  4.2 mm or  $\varnothing$  4.8 mm/ $\varnothing$  5.5 mm implants and fitted with a fixed, splinted prosthetic restoration. With single-tooth restorations, tioLogic® TWINFIT  $\varnothing$  3.3 mm implants should only be used for lower incisors or upper lateral incisors and only with a length of minimum 11.0 mm. For single-tooth restorations on tioLogic® TWINFIT  $\varnothing$  3.7 mm to  $\varnothing$  5.5 mm implants, a minimum length of 9.0 mm should be planned.

The tioLogic® TWINFIT training program ensures that all dentists, dental technicians and dental assistants involved in the implant procedure are optimally prepared by experienced lecturers.

Dentaurum provides numerous training courses at different levels tailored to suit the target group, the level of knowledge and individual interests.

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### Contraindications.

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Implants with a diameter of 3.3 mm are not suitable for single-tooth restorations of the central incisor in the maxilla or the canines, premolars or molars in the maxilla or the mandible. It is not permitted to use telescope crown constructions on these implants. The use of tioLOC abutments for non-parallel abutments of 10° or more per implant is contraindicated.

It should be taken into account that these contraindications may be long or short-term depending on the extent, duration and individual conditions. The current position of scientific implantological associations relating to indications and contraindications and current literature should be taken into consideration when planning implant treatment.

General contraindications for dental surgery procedures apply. These include:

- reduced immunodeficiency
- steroid treatment
- blood coagulation disorders
- uncontrolled endocrine diseases
- rheumatic disorders
- bone system diseases
- cirrhosis of the liver
- drug, alcohol or tobacco abuse
- depression, psychopathic disorders
- poor patient compliance
- chronic inflammatory diseases
- incomplete physical growth of patient

### Local / personal contraindications.

- osteomyelitis
- radiotherapy in the head region
- recurring mucosal diseases
- temporomandibular joint dysfunctions
- parafunctions
- lack of vertical or horizontal bone availability, jaw defects, inadequate bone quality
- poor oral hygiene

## Temporary restoration.

Screw, temporary abutment M platform



13.5 mm

Temporary abutment tioLogic® TWINFIT,



13.5 mm

### Temporary restoration. Temporary denture (non-implant-borne).

A temporary prosthetic restoration should not be fitted until at least 14 days after implant insertion. Always ensure that there is no mechanical loading on the placed implant. The restoration should be relieved over the implants and fitted with soft lining. If there are residual teeth, a temporary prosthetic restoration is generally fabricated on the abutment teeth prior to implant placement or an existing denture is converted.

### Immediate restoration (temporary abutment).

It is possible to fit a long-term, non-functional immediate temporary restoration on implants if there is absolute primary stability and no recession of the implant site. In aesthetically relevant areas, the peri-implant structures are retained with a temporary abutment. After formation of the peri-implant structures, an optimal impression can be taken.

Temporary abutments with platform connector geometry are available for the S, M and L series of abutments. They are supplied non-sterile and are made from high-strength plastic (PEEK), which can be quickly and easily customized. The temporary abutment can be faced directly with composite or fitted with a temporary crown or bridge.

In both cases the abutment is secured intra-orally with the screw for the temporary abutment; the contours are marked and adjusted extra-orally. The restoration should only be shortened as far as the upper edge of the screw for the temporary abutment.

For a direct build-up of the facing, the temporary abutment is faced with composite extra-orally and then secured to the implant using the correct torque. The screw opening is sealed with composite.

With a crown restoration, the temporary abutment is fitted before sealing the screw aperture with wax and placing the temporary restoration. The crown should only be retained with temporary cement.

#### Tightening torque

- Temporary abutment on the model: manually
- Temporary abutment intra-orally: 15 Ncm

#### Safety information.

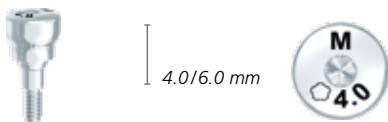
- Only use tioLogic® TWINFIT prosthetic components in combination with tioLogic® TWINFIT implants.

#### Contraindications.

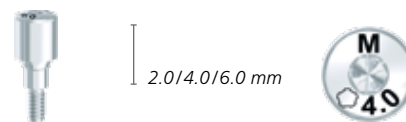
- In situ longer than 180 days
- Primary bracing of abutments
- Single restoration with cantilever bridge unit
- Restorations with a length ratio to the length of the implant which exceeds 1:1.25



Gingiva former M, tioLogic® TWINFIT  
anatomical, platform



Gingiva former M, tioLogic® TWINFIT  
cylindrical, platform



### Implant exposure.

The implant is exposed after the healing stage. The patient should be prepared in the same way as for other surgical procedures. The patient is given a local anaesthetic.

- For detailed information on implant insertion and implant exposure, please refer to the Surgery Manual (REF 989-912-20).



Implant exposure.

### Gingiva forming.

Gingiva formers, anatomically shaped or cylindrical, or 4Base abutments used directly – particularly gentle on the tissue – are available for the implantologist to ensure optimal gingiva management. The anatomical gingiva formers are designed to form a wide gingival contour. Depending on the type of prosthetic restoration, this can make it easier for the implantologist to fit the restoration. The gingiva formers are selected according to the series of abutments, gingival height and insertion depth of the implant. They are available with a platform connector geometry for the series of abutments S, M or L in different gingival heights (laser-marked).

Gingiva formers can also be used with open healing of the implant for specific indications and for preserving the soft tissue.

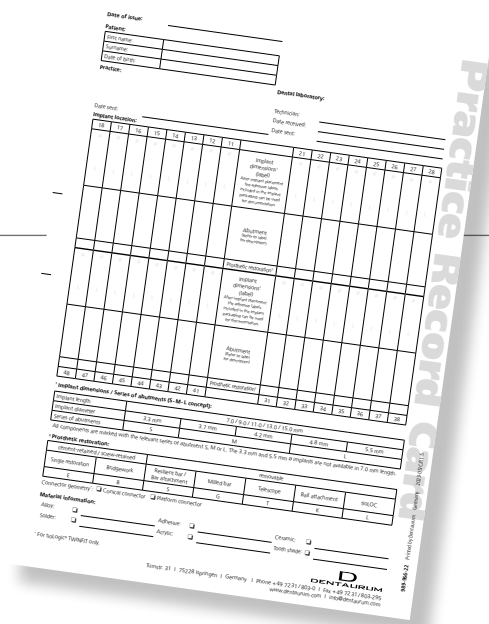
**Important: The gingiva formers and 4Base abutments should be cleaned and sterilized before insertion in the implant.**

If a temporary restoration is fitted, the denture should be relieved during gingiva forming. The impression should not be taken until the tissue is completely free of inflammation.

#### Tightening torque

- 4Base abutment: 35 Ncm
- 4Base closure screw: 15 Ncm

# Impression taking.



## Impression taking.

The impression can be taken using either the open or closed technique. Relevant components are available for both impression techniques.

In the case of removable restorations (restorations with 4Base abutments, ball abutments, tioLOC abutments) the impression can also be taken with other special impression components over the respective primary abutments.

Silicone or polyether impression materials are recommended for impression-taking due to their high precision and elastic recovery.

As an alternative to the classic impression method, the intra-oral situation can also be digitally transferred via scan abutments in titanium or 4Base scan abutments in titanium.

## Practice record card.

To ensure optimal information flow between the implantologist and dental technician, all relevant data, e.g. the implant diameter, implant length and planned prosthetic restoration, are noted in a record card (REF 989-966-22).

The card is kept with the prosthetic restoration during the entire fabrication procedure. At the fitting stage, it is given to the implantologist along with the finished prosthetic restoration. It contains all the important information for fitting the restoration.



Impression post M, tioLogic® TWINFIT, platform,



4Base impression post, tioLogic® TWINFIT



Impression cap for tioLOC

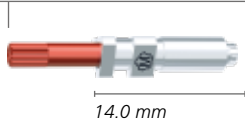


Scan abutment titanium M, tioLogic® TWINFIT

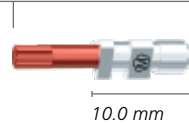


4Base CAD/CAM scan cap titanium, tioLogic® TWINFIT

Impression post M, tioLogic® TWINFIT, open, long



Impression post M, tioLogic® TWINFIT, open, short



### Open impression technique.

Impression posts are available for the series of abutments S, M and L in lengths of 10.0 mm and 14.0 mm with the corresponding screws to cater for different occlusal spaces. The impression and the model are made using high-precision components (pre-fabricated, rotation-stable) on the basis of the platform connector geometry. The impression posts have S, M or L printed on the retention surface and at the interface.

In order to make the abutment series more recognizable during impression taking, the interface is additionally marked with dots:

- 1 dot is equivalent to abutment S
- 2 dots are equivalent to abutment M
- 3 dots are equivalent to abutment L

### Tightening torque

- Sure-grip screw impression post intra-orally: manually or 15 Ncm
- Sure-grip screw impression post in the laboratory implant: manually or 15 Ncm

After the impression has been taken, an individual tray is fabricated. This is strengthened and perforated in the region of the implants.

The temporary restoration and gingiva formers should be removed prior to taking the impression.

The screw is pushed down before fitting the impression post. This provides additional guidance when fitting the post. The inner connection is shorter with an open impression post to ensure a compression-free impression even with divergent axes.

The enclosed red sure-grip screw has a shortened thread which will only grip in the (laboratory) implant if the impression post has been inserted in the correct position into the connection.

### Safety information.

- Impression post should fit on the inserted implant without any gaps.
- The impression components should **NOT** come into contact with the individual impression tray.
- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.

## Impression taking.

For exact implant-supported registration of the maxillomandibular relationship, the impression should be taken only on the basis of the platform connector geometry.

For exact implant-supported registration of the maxillomandibular relationship, the impression should be taken only on the basis of the platform connector geometry.

The impression post corresponding to the series of abutments S, M or L (here M) is fitted until the rotational security engages. A congruent fit of the implant post on the implant shoulder is indicated when an optical mark on the screw is level with the upper edge of the impression post (screw should only be inserted and not tightened).

If the rotational security is not engaged, then the marking on the screw is not visible. The red retaining screw also has a shortened thread which will only grip in the (laboratory) implant if the impression post has been inserted in the correct position into the connection. The impression post should be realigned if necessary and checked to ensure that it fits correctly (x-ray check).

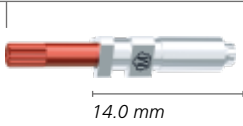


Groove on sure-grip screw.

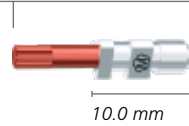


Marking at interface M.

*Impression post M, tioLogic® TWINFIT, open, long*



*Impression post M, tioLogic® TWINFIT, open, short*



When preparing the impression tray, ensure that there is no contact between the impression posts or screws and the tray at the perforations.

The impression should be taken with a silicone or polyether material. The impression posts are secured in the impression material by the retention. Ensure that the peri-implant region is accurately reproduced in the impression.

The screws are loosened and retracted to remove the impression tray. The tray with the screws is sent to the dental technician.

The dental technician obtains all the relevant information from the practice record card (REF 989-966-22).

The respective gingiva formers are refitted after the impression has been taken.



*Impression post M in situ.*

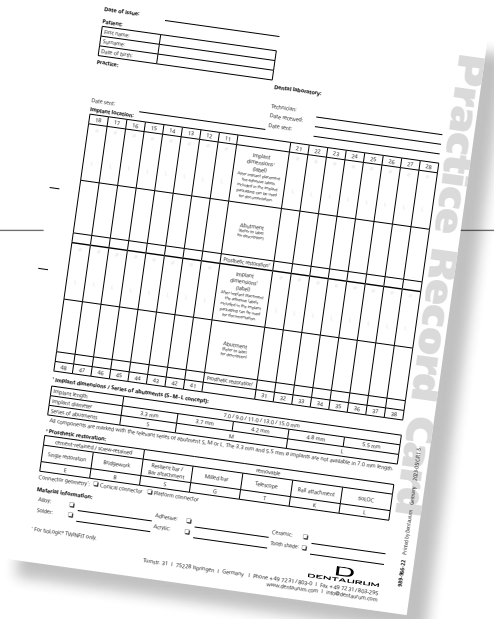


*Impression post M prior to impression-taking.*



*Impression post M in the open impression tray.*

# Impression taking.



To achieve stable apposition of the gingiva with 4Base abutments, you can either take an impression on implants according to conventional methods or take an impression on a 4Base abutment that is fitted in the mouth.

The impression can be taken using either the open or closed technique. The impression is taken with special impression components, which are identical for the series of abutments S, M and L, over the respective 4Base abutment.

Silicone or polyether impression materials are recommended for impression-taking due to their high precision and elastic recovery.

### Practice record card.

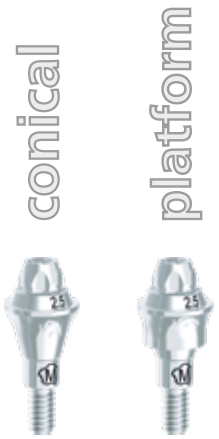
To ensure optimal information flow between the implantologist and dental technician, all relevant data, e.g. the implant diameter, implant length and planned prosthetic restoration, are noted in a record card (REF 989-966-22).

The card is kept with the prosthetic restoration during the entire fabrication procedure. At the fitting stage, it is given to the implantologist along with the finished prosthetic restoration. It contains all the important information for fitting the restoration.

### Open impression technique on 4Base abutments.

To achieve stable apposition of the gingiva it is possible in the case of 4Base abutments to take an impression both using the open impression technique on the implant and by taking an impression on the abutment fixed in the mouth.

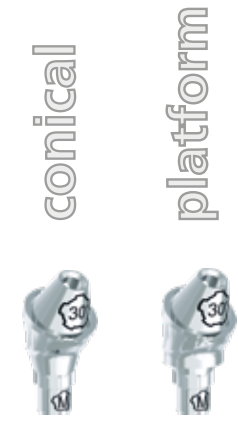
To this end, the 4Base abutment is fixed in position in the implant and the corresponding impression post is screw-retained on the abutment.



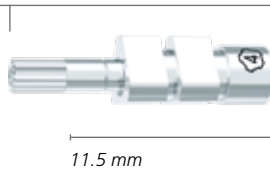
4Base abutments, straight.



4Base abutment, angled 20°.



4Base abutment, angled 30°.



Groove on sure-grip screw.

A congruent fit of the impression post on the abutment is indicated when an optical mark on the screw is level with the upper edge of the impression post (screw is only pushed into place, not fixed). If the impression post does not fit flush, the marking on the screw will not be visible. The impression post should be aligned again, checked for correct fit and fixed with the screw.

Following this, the impression is taken with an open impression tray.

Once the impression material has set, the sure-grip screws are loosened, pushed upwards and the impression tray removed together with the impression posts. The abutments are then covered with the corresponding closure screws.

In the laboratory, the 4Base laboratory implant is fixed on the impression post with the screw. The upper section of this laboratory implant is identical to that of the respective abutment.

#### Tightening torque

- Sure-grip screw impression post: 15 Ncm
- Closure screw on 4Base abutment intra-orally: 15 Ncm



4Base abutment in situ.

#### Safety information.

- Impression post should fit on the inserted implant without any gaps.
- The impression components should **NOT** come into contact with the individual impression tray.
- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.



Open impression post for 4Base abutment in situ.

Impression post M,  
tioLogic® TWINFIT,  
platform, closed



Impression cap M,  
tioLogic® TWINFIT



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### Closed impression technique.

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For exact implant-supported registration of the maxillomandibular relationship, the impression should be taken only on the basis of the platform connector geometry. Components for the closed impression technique include impression post, retaining screw, impression cap. They are laser-printed or marked with the series of abutments S, M or L.

#### Tightening torque

- Retaining screw impression post, intra-orally: manually, or 15 Ncm
- Retaining screw impression post on laboratory implant: manually, or 15 Ncm



Impression post M, tioLogic® TWINFIT  
closed, with impression cap M.

The gingiva formers and temporary restoration are first removed and the relevant impression post S, M or L is secured on the implant with the retainer screw (here, M). Check the correct fit of the impression post by means of an x-ray, if deemed necessary. The red retaining screw has a shortened thread which will only grip in the (laboratory) implant if the impression post has been inserted in the correct position into the connection.

The corresponding impression cap S, M or L (here, M) is fitted according to the vertical retention grooves until it perceptibly and audibly clicks into place.

The orientation of the retention grooves ensures that they can be positioned without coming into contact with the adjacent teeth.

The impression is taken according to the standard criteria (open impression technique). The tray is removed after the impression material has set.

The dental technician obtains all the relevant information from the practice record card (REF 989-966-22).

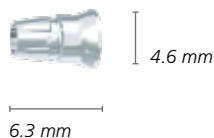
The respective gingiva formers are refitted after the impression has been taken.



Impression tray with impression  
cap M.



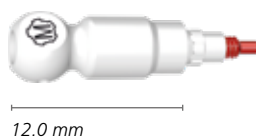
4Base impression post  
tioLogic® TWINFIT,  
closed



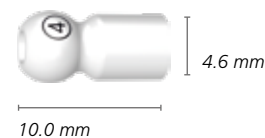
4Base impression cap  
tioLogic® TWINFIT



Scan abutment titanium M,  
tioLogic® TWINFIT



4Base CAD/CAM scan cap titanium,  
tioLogic® TWINFIT



### Closed impression technique on 4Base abutments.

Impression posts including screws and impression caps are available for taking the closed impression.

When taking the closed impression the 4Base abutment is fixed in position in the implant and the corresponding impression post for the closed impression is screw-retained on the abutment. The corresponding impression cap S, M or L is fitted according to the vertical retention grooves until it perceptibly and audibly clicks into place. The design of the retention grooves ensures that they can be positioned without coming into contact with the adjacent teeth.

The impression is taken according to the usual criteria (see chapter Closed impression technique). After the impression material has cured, the tray is removed. The impression posts with screws are delivered to the laboratory together with the impression.

#### Tightening torque

- Sure-grip screw impression post: 15 Ncm
- Closure screw on 4Base abutment intra-orally: 15 Ncm

#### Safety information.

- Impression post should fit on the inserted implant without any gaps.
- The impression components should **NOT** come into contact with the individual impression tray.
- Impression caps are single-use items. They are not suitable for sterilization. Multiple use results in transfer inaccuracies.

- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.

### Digital impression (scan).

The surfaces of the scan abutment titanium and 4Base scan cap titanium are optimized for digital capture, both intra-orally and on the model without scanning spray.

Scan abutments tioLogic® TWINFIT with platform connector geometry are available in the S, M or L series of abutments. The scan abutment is placed on the tioLogic® TWINFIT implant (pay attention to the rotational security) and fixed with the red retaining screw.

4Base scan cap titanium are available for 4Base restorations. They can be scanned directly on the 4Base abutment in the mouth.

The subsequent matching process and design are carried out according to the instructions of the software manufacturer and according to dental prosthetic rules.

## Casting the model.

The laboratory implants for cast and printed models can be used in both the analog and the digital workflow. A description of the processing of the laboratory implants in the printed model can be found in the tioLogic® Manual digital. (REF 989-800-86).

### Open impression technique.

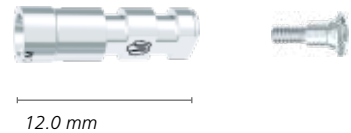
In order to check the exact fit of the impression post, the impression material is removed from the occlusal surface to the top edge of the impression post tioLogic® TWINFIT. Before the laboratory implant is inserted, the series of abutments S, M or L can be clearly read off the impression post tioLogic® TWINFIT interface.

Before the laboratory implant is inserted, the screw is pushed downwards into the impression post. This guarantees additional guidance during insertion.



Gingival mask in the impression.

Laboratory implant M,  
tioLogic® TWINFIT,  
for printed and cast  
models with counter screw



The laboratory implant corresponding to the abutment S, M or L is put into place (in this case M), until the rotational security engages. The impression post fits the laboratory implant congruently when the visible marking on the screw is in line with the upper edge of the impression post (screw is only pushed into place, not fixed). If the rotational security is not engaged, then the marking on the screw is not visible. The impression post should be adjusted again and re-checked for correct fit.

The enclosed red sure-grip screw also has a shortened thread which will only grip in the (laboratory) implant if the impression post has been inserted in the correct position into the connection.

### Tightening torque

- Sure-grip screw impression post: in the laboratory implant manually or 15 Ncm



Loosening the sure-grip screws.



Groove on sure-grip screw.



Marking at interface M.

#### **Fabricating the gingival mask.**

An elastic gingival mask is recommended for use on implant restorations. This provides the optimal reproduction of the crown contour and, when removed, it allows a full view of the implant cervical section. This allows the exact fit of the abutment to be checked and monitored.

The elastic gingival mask is applied directly to the implant area within the impression.

**Caution:** The silicones used could bond inseparably; it is therefore essential to first apply a separating medium.

In the case of removable restorations (restorations with 4Base, ball and tioLOC abutments) the impression can also be taken and the model fabricated with other special impression components.

#### **Casting the plaster model.**

After the gingival mask material has set, the impression can be cast in plaster. The dental arch is cast in the usual manner and the base added. The laboratory implant must fit precisely.

The screws must be removed before the impression tray is lifted off.



Model with gingival mask.



Model without gingival mask.

## Casting the model.

The laboratory implants for cast and printed models can be used in both the analog and the digital workflow. A description of the processing of the laboratory implants in the printed model can be found in the *tioLogic® Manual digital*. (REF 989-800-86).

### Closed impression technique.

All laboratory implants *tioLogic® TWINFIT*, impression posts *tioLogic® TWINFIT* and impression caps *tioLogic® TWINFIT* are laser-marked or marked with the appropriate series of abutments S, M or L.

The S, M or L laboratory implant is wound into the respective impression post. Next, the impression post is placed in the impression cap, taking the diameter S, M or L, and the vertical retention groove into consideration, until it perceptibly and audibly clicks into place. The laboratory implant, screwed to the impression post, must be placed into the impression cap and the cap securely fixed into the impression material.

#### Tightening torque

- Anotite screw impression post in the laboratory implant: manually or 15 Ncm

The gingival mask and the plaster model are fabricated using the same method as described in the section Casting the model – the open impression technique. Loosening and removal of the sure-grip screw is not applicable to the closed impression method. The impression tray can be released directly from the model.

In the case of removable restorations (restorations with 4Base, ball and *tioLOC* abutments), the impression can also be taken and the model fabricated with other special impression components.

Laboratory implant S, *tioLogic® TWINFIT*, for printed and cast models with counter screw



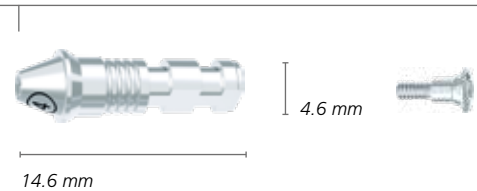
### Safety information.

- Impression post should fit on the inserted implant without any gaps.
- The impression components should **NOT** come into contact with the individual impression tray.
- Impression caps are single-use items. They are not suitable for sterilization. Multiple use results in transfer inaccuracies.
- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use *tioLogic® TWINFIT* components in combination with *tioLogic® TWINFIT* implants.



Impression tray with impression cap M.

4Base laboratory implant,  
tioLogic® TWINFIT,  
for printed and cast  
models with counter screw



In the case of removable restorations  
(restorations with 4Base, ball, tioLOC abutments),  
the impression can be taken and the model cast  
with other special impression components.

#### Open impression technique on 4Base abutments.

In order to check the exact fit of the impression post, the impression material is removed from the occlusal surface to the top edge of the impression post 4Base. Before each 4Base laboratory implant is inserted, the screw is pushed into the 4Base impression post. This guarantees additional guidance during insertion.

##### Tightening torque

- Sure-grip screw impression post in the laboratory implant: manually or 15 Ncm

**Caution:** The silicones used could bond inseparably; it is therefore essential to first apply a separating medium.

##### Casting the plaster model.

After the gingival mask material has set, the dental arch is cast in the usual manner and the base added. The laboratory implant must fit precisely. The screws must be removed before the impression tray is lifted off.

#### Closed impression technique on 4Base abutments.

The 4Base laboratory implant is screwed into the respective 4Base impression post. Next, the impression post is placed in the impression cap, taking the vertical retention groove into consideration, until a click can be both heard and felt.

The laboratory implant, screwed to the impression post, must be placed into the impression cap and the cap securely fixed into the impression material.

##### Tightening torque

- AnoTite screw impression post in the laboratory implant: manually or 15 Ncm

#### Safety information.

- Impression post should fit on the inserted implant without any gaps.
- The impression components should **NOT** come into contact with the individual impression tray.
- Impression caps are single-use items. They are not suitable for sterilization. Multiple use results in transfer inaccuracies.
- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.

## Casting the model.

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### Wax-up/set-up, lingual overcast/palatal overcast.

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An overcast can be adapted to the lingual or palatal aspects of the model in order to determine the amount of space available. For this, a silicone overcast is built over a wax-up / set-up of the planned prosthetic restoration. The overcast is cut in half along the occlusal medial line producing a lingual overcast or a palatal overcast. With this overcast it is possible to determine the amount of space available exactly.

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### Abutments – selection aids.

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After having completed the models with the overcasts, the abutment components may be selected. This selection depends upon the implant axis, gingival height, amount of space available to the antagonists and the material to be used for the abutment and planned restoration.

In order to simplify matters for the dental technician, there are various selection aids with conical and platform connector geometry available for the abutment series S, M and L. These were designed specifically as selection aids for the laboratory and must not be used for the actual prosthetic restoration.

## Information material.

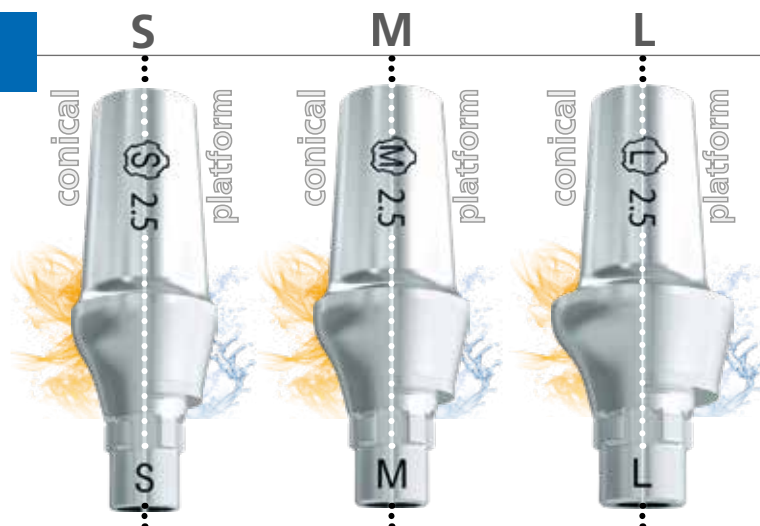


### General information.

<b>REF 989-911-20</b>	Basic folder tioLogic® TWINFIT
<b>REF 989-702-12</b>	Basic folder tioLogic® digital.
<b>REF 989-910-20</b>	Product catalog tioLogic® TWINFIT
<b>REF 989-912-20</b>	Surgery Manual tioLogic® TWINFIT
<b>REF 989-800-86</b>	Manual digital. tioLogic® ST/tioLogic® TWINFIT
<b>REF 989-501-15</b>	Preparation protocol – tioLogic® TWINFIT
<b>REF 989-501-45</b>	Torque ratchet tioLogic® TWINFIT



## Fixed restorations.



Every implant restoration requires exact pre-prosthetic planning. Apart from the anatomical aspects, the prosthetic components and processing (cementation / screw fixation) are also determined.

For every abutment series S, M or L titanium bases are available for hybrid abutments (case 1) and titanium abutments (case 2) with conical and platform connector geometry for individual, fixed restorations on implants.

### Single restorations.

In order to achieve a long term, stable, single restoration, it should be ensured that the relation between the crown length and the length of the inserted implant is optimal (see practice record card). If this value is exceeded, then it is preferable to fabricate a bridge restoration on two or more abutments instead.

#### Case 1: All-ceramic anterior restoration, cemented.

Titanium bases, conical or platform, are used for the fabrication of customized hybrid abutments to bond CAD/CAM zirconium oxide ceramic mesostructures.

The geometry of the titanium bases was specially designed to ensure a reliable, aesthetic bond with the ceramic mesostructure.

#### Tightening torque

- Retaining screw scan abutment on model and intra-orally: manually

- Prosthetic screw CAD/CAM titanium base on model: manually
- AniTite screw CAD/CAM titanium base intra-orally: 30 Ncm

#### CAD/CAM manufacturing.

The scan abutments with platform connector geometry are available in the S, M or L series of abutments. The scan abutment is placed on the implant or on the laboratory implant (pay attention to the rotational security) and fixed with the retaining screw L 9.0 mm.

After selecting the indication (here: hybrid abutments) in the tioLogic® TWINFIT data set of the respective software, the scan abutments can be scanned.

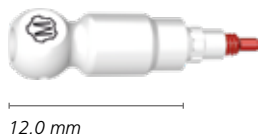
The matching process, design and finalization are carried out according to the instructions of the software manufacturer and dental prosthetic rules.

The angulated screw aperture offers the optimum solution for the complete segment that is occlusally screw-retained. The screw aperture can be inclined at an angle of 20° to the implant axis, allowing discreet emergence in the palatal area, particularly in the anterior region.

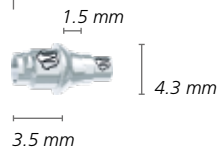
**CAUTION:** Due to the higher gingival height in the conical design of the CAD/CAM titanium base, a recess in the area to be bonded was constructed for the angulated screw aperture. This creates free space for a maximum angulation of 20°. In order to achieve the correct angle when planning, the scanning surface on the scan abutment must be opposite the desired exit of the angled screw aperture. The recess in



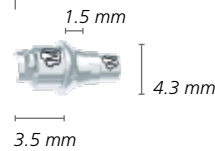
Scan abutment titanium M,  
tioLogic® TWINFIT



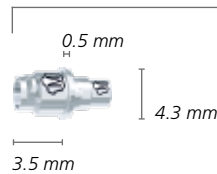
CAD/CAM titanium base M,  
tioLogic® TWINFIT



CAD/CAM titanium base M, tioLogic® TWINFIT,  
angulated screw aperture, max. 20°



conical



platform

the CAD/CAM titanium base (angulation alignment) is flush with a cam from the inner connection. In the case of the scan abutment, the upper scanning surface is located opposite a cam from the inner connection. During scanning, care must be taken to determine where the exit of the screw aperture should be located. For angulated screw apertures, the AnoTite screw for angulated screw apertures L 8.5 mm and the hex ball point key 1.3 are used.

Before bonding, the head of the prosthetic screw, which fixes the CAD/CAM titanium base, is covered with wax. The surfaces to be bonded on the CAD/CAM titanium base and ceramic abutment are sandblasted with aluminum oxide (50 µm / 2 bar).

It is also advisable to use the silanization method to condition the surfaces to be bonded. Before bonding, ensure the surfaces are dry and free from grease. Use the adhesive according to the manufacturer's instructions.

After bonding, excess material is removed and the ceramic abutment is put into position (observing the rotational security). The all-ceramic crown is completed according to the manufacturer's instructions.

#### Safety information.

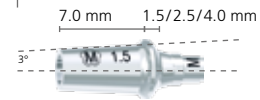
- The thickness of the ceramic abutment must not be less than 0.5 mm
- Prepare a chamfer with angled inner edge and a minimum step of 0.5 mm

- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.
- Titanium abutments and bases are designed for single use only. Reconditioning of a titanium abutment or titanium base that has been inserted previously (recycling) or reuse on patients are not permitted since it can then no longer be guaranteed that the article can be reprocessed safely or can function safely.
- tioLogic® TWINFIT prosthetic components are delivered non-sterile. They are for single use on one patient only. They must be cleaned and disinfected before being used on a patient. Dentaurum generally recommends that the product be sterilized in addition. Only sterilized prosthetic components may be used if bleeding occurs. Additional information can be found at [www.dentaurum.com](http://www.dentaurum.com) (Processing Instructions Instruments and Accessories REF 989-801-09).

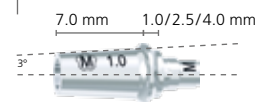
## Fixed restorations.

Titanium abutment M tioLogic® TWINFIT

conical



platform



### Case 2:

#### Bonded anterior restoration, cemented, titanium abutment 20°.

Titanium abutments with conical and platform connector geometry are available in the abutment series S, M and L, in straight, angled (S 15°, M 20° and L 20°) and universal form. The straight and angled titanium abutments tioLogic® TWINFIT can be slightly altered to adapt to the gingival line (straight 1.0 mm, 2.5 mm and 4.0 mm, angled 1.5 mm and 3.0 mm). These abutments have an exactly defined crown margin and an integrated rotational stop. The angled titanium abutments also have different gingival heights (labial/palatal). The universal titanium abutments tioLogic® TWINFIT are anatomically shaped and can be prepared as required for the individual case.

#### Tightening torque

- Prosthetic screw, titanium abutment on model: manually
- AnoTite screw, titanium abutment intra-orally: 30 Ncm

The angled titanium abutment M tioLogic® TWINFIT 20°, GH 1.5 mm is used in the case described below.

The occlusal space and the axial direction must be checked when the abutment is inserted. Both can be altered by marking where necessary. The titanium abutment is fixed onto the model with the AnoTite screw.

The titanium abutment must not become overheated during preparation as this can lead to differences in surface hardening (alpha-case layer). This could complicate or handicap further processing. This applies essentially to the trimmable titanium abutments as it is possible that this is where most trimming will take place.

The mesio construction is fixed onto the model, cast and finished.



Angled titanium abutment and gingival mask, labial view.



Model with shortened, angled titanium abutment, labial view.

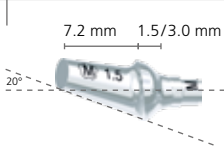


Model with titanium abutment and waxed-up crown, labial view.



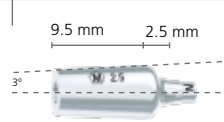
Cast and sandblasted crown, labial view.

Titanium abutment M, tioLogic® TWINFIT, angled

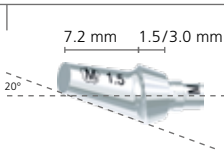


conical

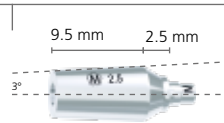
Titanium abutment M, tioLogic® TWINFIT, adjustable, anatomical



conical



platform



platform

**Tip:**

For easier decementation, a notch can be integrated into the metal framework design in the palatal / cervical region. Later, this will not be veneered (attachment for crown remover).

The crown is veneered according to the manufacturer's instructions for use (e.g. ceraMotion®, Dentaaurum). If the restoration framework is made from titanium, a suitable titanium ceramic should be used, such as ceraMotion® Ti from Dentaaurum.

**Safety information.**

- The product should not be used if there is a known allergic reaction to one or more of the material components. Different types of alloy in the oral cavity can lead to galvanic reactions.
- The titanium abutment must not become overheated during preparation as this can lead to differences in surface hardening (alpha-case layer).

- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.
- Titanium abutments are designed for single use only. Reconditioning of a titanium abutment that has been inserted previously (recycling) or reuse on patients are not permitted since it can then no longer be guaranteed that the article can be reprocessed safely or can function safely.
- tioLogic® TWINFIT prosthetic components are delivered non-sterile. They are for single use on one patient only. They must be cleaned and disinfected before being used on a patient. Dentaaurum generally recommends that the product be sterilized in addition. Only sterilized prosthetic components may be used if bleeding occurs. Additional information can be found at [www.dentaaurum.com](http://www.dentaaurum.com) (Processing Instructions Instruments and Accessories REF 989-801-09).



Veneered crown and gingival mask, oral view.

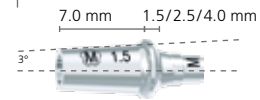


Veneered crown and gingival mask, labial view.

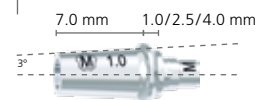
## Fixed restorations.

Titanium abutment M tioLogic® TWINFIT

conical



platform



### Bridge restorations.

#### Free-end cemented, titanium abutment tioLogic® TWINFIT straight.

The straight titanium abutments tioLogic® TWINFIT are selected according to the gingival conditions. There are three different gingival heights (1.0 mm, 2.5 mm and 4.0 mm) available in the abutment series S, M and L with conical and platform connector geometry. The titanium abutments can be customized according to the gingival line. The height of the coronal part of each abutment is min. 7.0 mm and can be shortened according to occlusal space requirements. The titanium abutment is fixed with the supplied AnoTite screw L 9.0 mm.

#### Tightening torque

- Prosthetic screw on model: manually
- AnoTite screw intra-orally: 30 Ncm



Model with gingival mask and titanium abutment tioLogic® TWINFIT, buccal view.



Model with marked abutment in position, buccal view.



Model with gingival mask and waxed-up plastic cap, adhered, buccal view.



Model with anatomical pattern, mesiobuccal view.

The following case uses two straight titanium abutments M, and one straight titanium abutment L.

The crown caps are fabricated and connected using the same fully burn-out resin, in order to achieve an accurate fit of the bridge later.

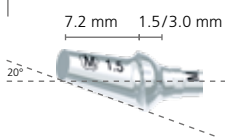
Next the framework is designed according to dental technical prerequisites (reduced final anatomical shape). The waxes from Dentaureum which burn without leaving a residue (StarWax range) are particularly suitable.

The metal alloy is cast and processed according to the relevant manufacturer's instructions.

**Tip:** For easier decementation, a notch can be integrated into the metal framework design in the palatal / cervical region. Later, this will not be veneered (attachment for crown remover).

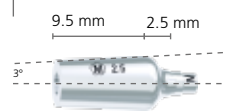
**Important:** It is essential that the framework has an absolutely passive fit on the titanium abutments.

Titanium abutment M, tioLogic® TWINFIT, angled

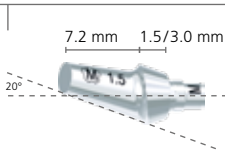


conical

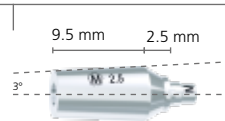
Titanium abutment M, tioLogic® TWINFIT, adjustable, anatomical



conical



platform



platform

**Tip:** If the implant abutments have different implant diameters it is a good idea to mark each individual piece in order to avoid any mix-up during insertion or positioning.

The proximal areas should be designed so that the implant neck may be cleaned with an interdental brush.

#### Safety information.

- The product should not be used if there is a known allergic reaction to one or more of the material components.
- Different types of alloy in the oral cavity can lead to galvanic reactions.
- Titanium must not become overheated during preparation as this can lead to differences in surface hardening (alpha-case layer).

- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.
- Titanium abutments are designed for single use only. Reconditioning of a titanium abutment that has been inserted previously (recycling) or reuse on patients are not permitted since it can then no longer be guaranteed that the article can be reprocessed safely or can function safely.
- tioLogic® TWINFIT prosthetic components are delivered non-sterile. They are for single use on one patient only. They must be cleaned and disinfected before being used on a patient. Dentaurum generally recommends that the product be sterilized in addition. Only sterilized prosthetic components may be used if bleeding occurs. Additional information can be found at [www.dentaurum.com](http://www.dentaurum.com) (Processing Instructions Instruments and Accessories REF 989-801-09).



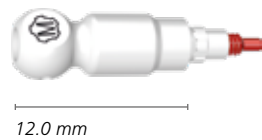
Model with cast bridge framework and gingival mask, oral view.



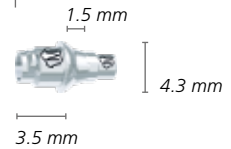
Model with bonded bridge in position, distobuccal view.

## CAD/CAM.

Scan abutment titanium M,  
tioLogic® TWINFIT

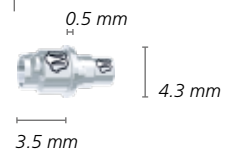


CAD/CAM titanium base M,  
tioLogic® TWINFIT



conical

platform



tioLogic® digital. from Dentaureum provides a coordinated complete solution for CAD/CAM processes on all tioLogic® implant types.

Dentaureum provides a download service under

[www.dentaureum.com/cadcam](http://www.dentaureum.com/cadcam)

for tioLogic® TWINFIT CAD/CAM data records for **3shape**, **dental wings** and **exocad** and integrates them into the respective software. The data sets were created and verified in collaboration with these manufacturers.

The download begins after selection of the relevant software provider. The download contains all data for every type of restoration as a complete package.

The surfaces of the scan abutment titanium and 4Base scan cap titanium are optimized for digital capture, both intra-orally and on the model without scanning spray.

Titanium bases are used for the fabrication of customized hybrid abutments to bond the CAD/CAM zirconium oxide ceramic mesostructures.

### Download data sets

**3shape**



Abutment Designer™

**dental wings**



DWOS

**exocad**



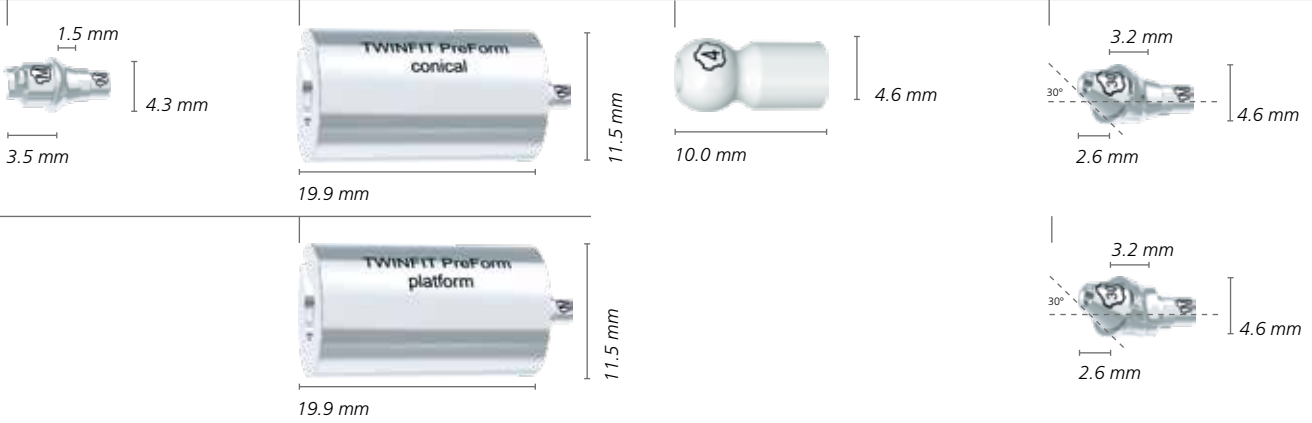
exocad DentalCAD

CAD/CAM titanium base M,  
tioLogic® TWINFIT,  
angulated screw aperture, max. 20°

CAD/CAM titanium block M,  
tioLogic® TWINFIT PreForm

4Base CAD/CAM scan cap,  
tioLogic® TWINFIT

4Base abutment M,  
tioLogic® TWINFIT



The geometry of the titanium bases was specially designed to ensure a reliable, aesthetic bond with the ceramic mesostructure. The screw aperture can be positioned at an angle of up to 20°.

CAD/CAM titanium blocks are available for the fabrication of customized one-piece abutments.

The 4Base abutments and the titanium adhesive bases round off the digital portfolio for bridges and bars. Angulations of up to 50° can be compensated using these abutments.

Detailed information on all tioLogic® digital products can be found in the Manual digital. (REF 989-800-86)



[Download data sets](#)



SCAN.

MATERIAL.

DESIGN.

MANUFACTURE.

SERVICE DEPARTMENT

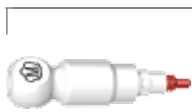
## CAD/CAM.

All abutment components for the tioLogic® TWINFIT implant system are available with conical and platform connector geometry. Scan abutments and scan caps are made of titanium, allowing precise and safe impression-taking, both intra-orally and extra-orally.

### Scan abutments.

The surface of the scan abutment titanium is optimized for digital capture, both intra-orally and on the model without scanning spray. The long cylinder at the connection point of the scan abutment titanium serves for easy integration into the (laboratory) implant and for exact axial detection of the position. The enclosed red retaining screw has a shortened thread, which only grips in the (laboratory) implant when the scan abutment has been inserted into the connection point in the correct position. The matching process of the scan data with the STL data takes place according to the specifications of the respective software manufacturer.

Scan abutment titanium M

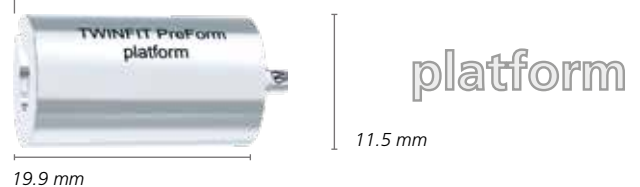


12.0 mm

### One-piece abutments.

By using original Dentaurem CAD/CAM PreForm titanium blocks, it is possible to create highly precise abutments that are specific to each patient, have a precise fit and can be directly screw-retained. The original PreForm titanium blocks were designed for the Medentika® PreFace® abutment holders. These ensure a perfect connection to the tioLogic® TWINFIT implant interface, both for in-house production and for production in a manufacturing center. CAD/CAM PreForm titanium blocks are available for all three series of abutments S, M and L with conical and platform connector geometry.

CAD/CAM titanium block M, PreForm





## Hybrid abutments.

### 1. CAD/CAM titanium bases.

The geometry of the titanium bases is designed to ensure a reliable, aesthetic bond with the ceramic mesostructure. tiologic® TWINFIT CAD/CAM titanium bases are available in all three series of abutments S, M and L with conical and platform connector geometry for tiologic® TWINFIT. Before bonding, the head of the prosthetic screw, which fixes the CAD/CAM titanium base, is covered with wax. The bonding surfaces of the ceramic sleeve and of the CAD/CAM titanium base are blasted with aluminum oxide (50 µm/2 bar). It is also advisable to use the silanization method to condition the surfaces to be bonded. Before bonding, ensure the surfaces are dry and free from grease.

Adhesives must be used according to the manufacturer's instructions (e.g.: "PANAVIA™ F2.0" by Kuraray Noritake or "Multilink® Hybrid Abutment" by Ivoclar Vivadent AG). After bonding, excess material is removed and the ceramic abutment is put into position (observing the rotational security). The all-ceramic crown is completed according to the manufacturer's instructions.

#### Safety information.

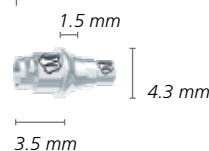
- The wall thickness of the ceramic abutment must **NOT** be less than 0.5 mm.
- Preparation of a chamfer with angled inner edge and a minimum step of 0.5 mm.

Scan abutment titanium M

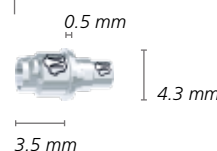


12.0 mm

CAD/CAM titanium base M



conical



platform

\* Dentaureum GmbH & Co. KG gives no warranty for the stability of the meso/superstructure and the adhesive.



## 2. CAD/CAM titanium bases for angulated screw apertures.

The angulated screw aperture is the best solution for the entire segment that is occlusally screw-retained, both for 4Base and for hybrid constructions (in this case, hybrid abutments). This guarantees prosthetic results that are aesthetic and functional. The screw aperture can be inclined at an angle of 20° to the implant axis, allowing discreet emergence in the palatal area, particularly in the anterior region. The geometry of the titanium bases is designed to ensure a reliable, aesthetic bond with the ceramic mesostructure.

tiologic® TWINFIT CAD/CAM titanium bases are available in all three series of abutments S, M and L with conical and platform connector geometry for tiologic® TWINFIT.

Before bonding, the head of the prosthetic screw, which fixes the CAD/CAM titanium base, is covered with wax. The bonding surfaces of the ceramic sleeve and of the CAD/CAM titanium base are blasted with aluminum oxide (50 µm/ 2 bar). It is also advisable to use the silanization method to condition the surfaces to be bonded. Before bonding, ensure the surfaces are dry and free from grease. Use the adhesive according to the manufacturer's instructions. After bonding, excess material is removed and the ceramic abutment is put into position (observing the rotational security). The all-ceramic crown is completed according to the manufacturer's instructions.

CAD/CAM titanium base M, for angulated screw channels



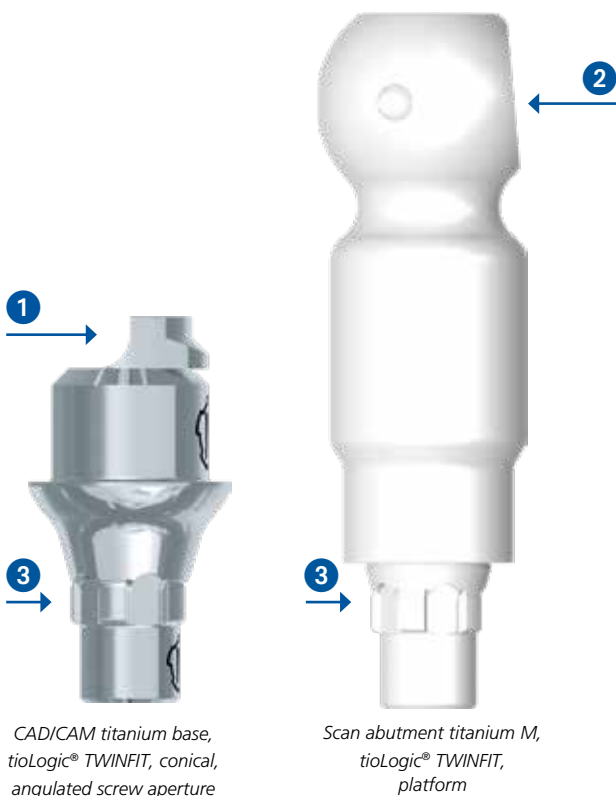


**Safety information.**

- The wall thickness of the ceramic abutment must **NOT** be less than 0.5 mm.
- Preparation of a chamfer with angled inner edge and a minimum step of 0.5 mm.

**CAUTION:**

Due to the higher gingival height in the conical design of the CAD/CAM titanium base, a recess in the area to be bonded was constructed for the angulated screw aperture. This creates free space for a maximum angulation of 20°. In order to achieve the correct angle when planning, the scanning surface on the scan abutment must be opposite the desired exit of the angled screw aperture. The recess in the CAD/CAM titanium base (angulation alignment) ① is flush with a cam from the inner connection ③. In the case of the scan abutment, the upper scanning surface ② is located opposite a cam from the inner connection ③. During scanning, care must be taken to determine where the exit of the screw aperture should be located. For angulated screw apertures, the Anotite screw for angulated screw apertures L 8.5 mm and the hex ball point key 1.3 are used.



## Operator-removable restorations.



*Angulated 4Base abutment with mounted, flexible insertion guide.*

### All-on-4 restoration with 4Base tioLogic® TWINFIT.

#### Fitting the 4Base abutments.

Prerequisite for the successful use of the 4Base system is the best possible accurate angular position of the implant. The more accurate these angles can be maintained, the easier the prosthetic treatment. The cones of each abutment should be positioned parallel to one another.

#### Safety information

- It is essential to splint the denture because of the steep inclination of the implant.
- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.
- 4Base abutments and 4Base components are designed for single use only. Reconditioning of an 4Base abutment or 4Base components that have been inserted previously (recycling) or reuse on patients are not permitted since it can then no longer be guaranteed that the article can be reprocessed safely or can function safely.
- tioLogic® TWINFIT prosthetic components are delivered non-sterile. They are for single use on one patient only. They must be cleaned and disinfected before being used

on a patient. Dentaaurum generally recommends that the product be sterilized in addition. Only sterilized prosthetic components may be used if bleeding occurs. Additional information can be found at [www.dentaaurum.com](http://www.dentaaurum.com) (Processing Instructions Instruments and Accessories REF 989-801-09).

The mounted insertion guide facilitates the insertion of the angulated 4Base abutments. At the same time, they secure the pre-assembled AniTite screw in the 4Base abutment. The insertion guide can be bent sideways to tighten the AniTite screw.

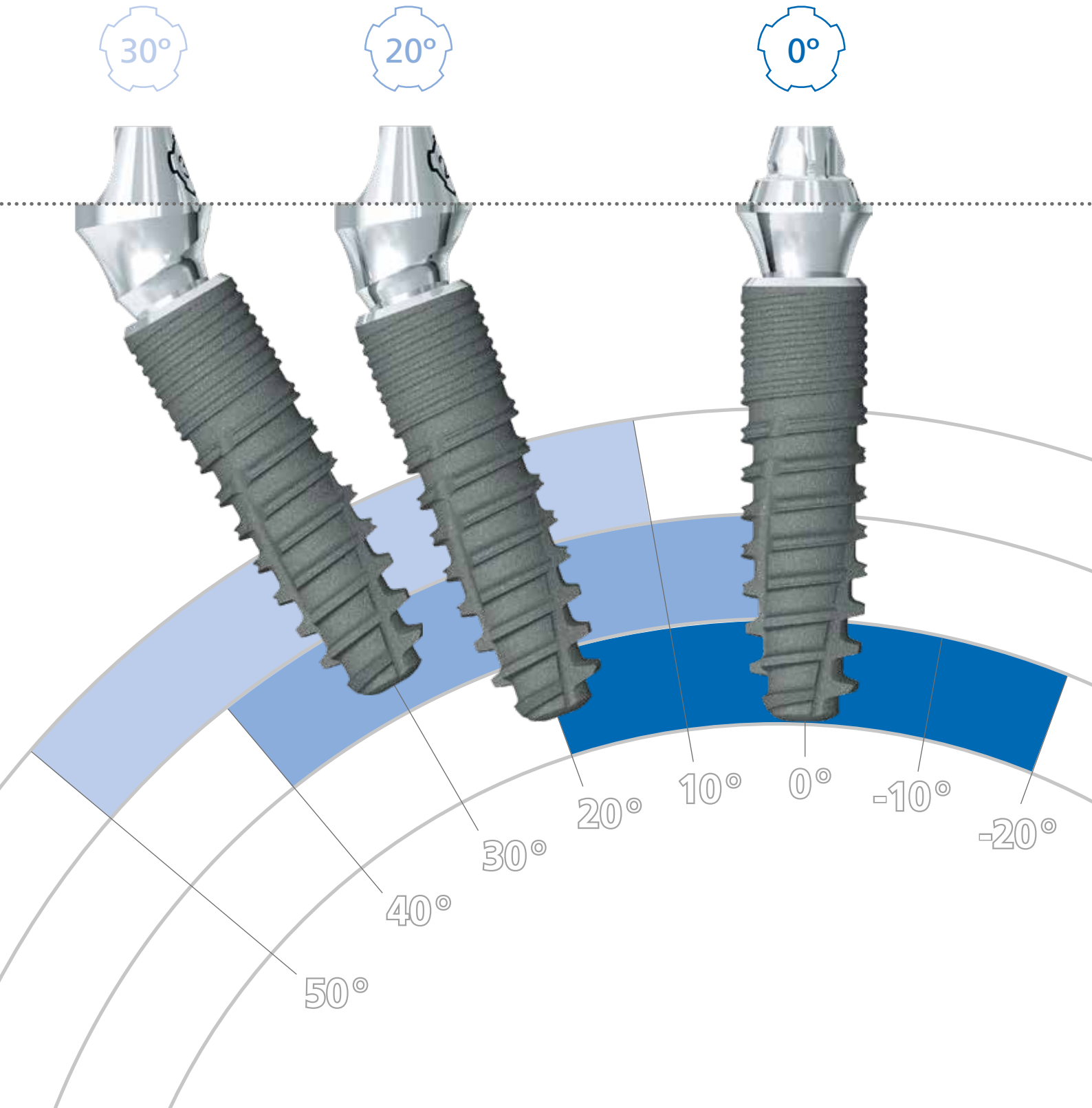
To ensure that the implants are reliably placed in these angles, we recommend the use of navigated implant placement with the pOition for tioLogic® system (see Surgery Manual pOition for tioLogic® for REF 989-999-20).

4Base abutments with conical and platform connector geometry are available for the S, M and L series of abutments. 4Base abutments are provided in 3 angulations: 0°, 20° and 30°. The cone of the 4Base abutments is always identical (40°), so that only one size of impression posts, closure caps etc. is required.

For biomechanical reasons we recommend that the following angulations are not exceeded:

- Abutment with 0°: -20° – 20°
- Abutment with 20°: 0° – 40°
- Abutment with 30°: 10° – 50°

4Base abutments, conical, (0°, 20° and 30°).

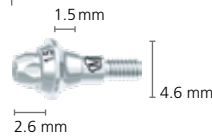


## Operator-removable restorations.

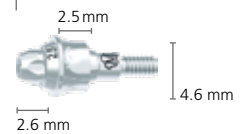
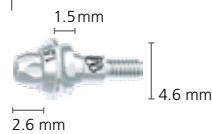
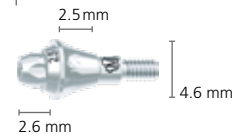
conical

platform

4Base abutment M,  
tioLogic® TWINFIT



4Base abutment M,  
tioLogic® TWINFIT



### Implant position.

Before beginning treatment adequate vertical and horizontal bone, both in terms of quantity and quality, must be exposed, while paying particular attention to the position of the inferior alveolar canal and the mental foramen in the mandible and the maxillary sinus in the maxilla. A minimum clearance of 3.0 mm should be maintained to these critical anatomical structures.

To ensure adequate stability only tioLogic® TWINFIT implant types with the following dimensions should be used for the 4Base system:

For indications with low vestibulo-oral bone width, tioLogic® TWINFIT implants  $\varnothing$  3.3 mm are available. Due to the smaller diameter and lower load capacity (compared for example to the tioLogic® TWINFIT implant  $\varnothing$  4.2 mm), these implants have a limited range of indications. In fully edentulous cases, a minimum of four tioLogic® TWINFIT implants  $\varnothing$  3.3 mm must be inserted in the mandible and a minimum of six in the maxilla, each with a splinted bar restoration without extension.

Restorations with 4Base abutments on tioLogic® TWINFIT implants require a minimum length of 11.0 mm.

In order to achieve an accurate alignment of the angulated cone of the angled abutments the implants should be aligned so that when viewed mesially the marking can be seen symmetrically on the placement aid or insertion aid.

First, the two anterior implants are inserted, whereby the paralleling posts can be used to aid parallel alignment.

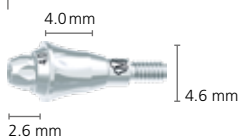
When handling the 4Base abutments, ensure that the occlusal screw is not damaged by tweezers etc.

When fitting the angulated 4Base abutments, keep in mind that the abutments could have a larger diameter than the implants. As part of the abutments may be below the bone line, the bone may have to be removed in this region, if required, so that the abutment sits flush on the implant.



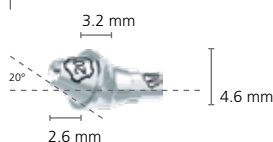
Implant aligned mesially in the posterior region.

4Base abutment M,  
tioLogic® TWINFIT

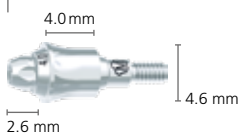
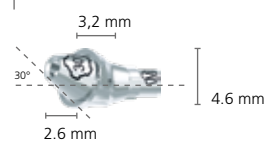


conical

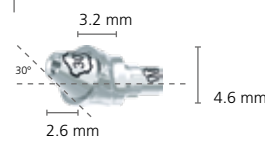
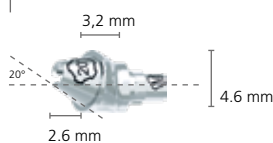
4Base abutment M,  
tioLogic® TWINFIT



4Base abutment M,  
tioLogic® TWINFIT



platform



#### Safety information.

- The product should not be used if there is a known allergic reaction to one or more of the material components.
- Different types of alloy in the oral cavity can lead to galvanic reactions.
- **NO** restorations with mixed retention (tooth/4Base).
- **NO** grinding or shortening 4Base abutments.
- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.
- 4Base abutments and 4Base components are designed for single use only. Reconditioning of an 4Base abutment or 4Base components that have been inserted previously (recycling) or reuse on patients are not permitted since it can then no longer be guaranteed that the article can be reprocessed safely or can function safely.

- tioLogic® TWINFIT prosthetic components are delivered non-sterile. They are for single use on one patient only. They must be cleaned and disinfected before being used on a patient. Dentaurem generally recommends that the product be sterilized in addition. Only sterilized prosthetic components may be used if bleeding occurs. Additional information can be found at [www.dentaurem.com](http://www.dentaurem.com) (Processing Instructions Instruments and Accessories REF 989-801-09).



Implant position in the mouth, jawbone with splinted denture and prosthetic components

## Operator-removable restorations.

### Fabricating the restoration.

4Base abutments with conical and platform connector geometry are available for the S, M and L series of abutments in straight and angled (20°, 30°) form. They are available for the straight abutments in a gingival height of 1.0/2.5 and 4.0 mm and in a gingival height of 3.2 mm for the angulated abutments.

The anterior implants are fitted with straight abutments and the posterior region with 4Base abutments in an angulation of 20° or 30° according to the implant positioning.

Titanium caps or plastic caps can be used for fabricating a restoration on 4Base abutments. The 4Base caps fit on all three series of abutments (S - M - L), as the fitting surface of all 4Base abutments and the cone (40°) are identical (ø 4.6 mm). They are secured in position on the 4Base abutments using the AnoTite screw L 6.0 mm supplied.

### Tightening torque

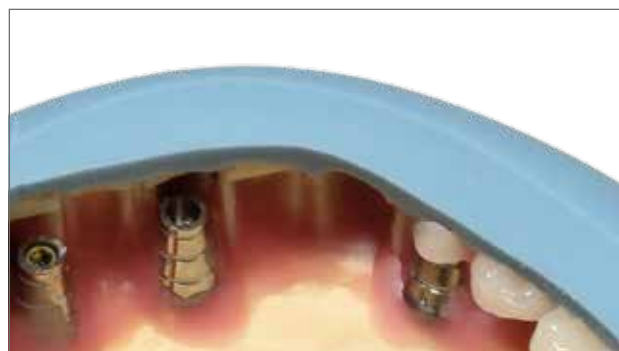
- 4Base abutments, straight on model: manually
- 4Base abutments, straight intra-orally: 35 Ncm
- Prosthetic screw, on model: manually
- AnoTite screw intra-orally: 30 Ncm
- Prosthetic screw for 4Base caps on model: manually
- AnoTite screw for 4Base caps intra-orally: 25 Ncm
- Sure-grip screw impression post on 4Base abutment intra-orally: 15 Ncm
- Closure screw on 4Base abutment intra-orally: 15 Ncm

In the cases described, the straight 4Base abutments M 0° are used in the anterior and angulated 4Base abutments are used in the posterior region.

The straight 4Base abutments (0°) are screwed into the tioLogic® TWINFIT implant with the PentaGrip insertion key tioLogic® TWINFIT – ISO shank. The angulated 4Base abutments (20° and 30°) have a rotationally secure fit in the tioLogic® TWINFIT implants and are fixed with the AnoTite screw 9.0 mm. A new AnoTite screw should be used for the final fitting in the mouth.

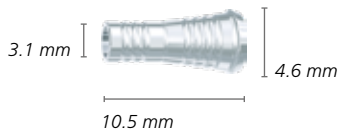
### Tightening torque

- Prosthetic screw for 4Base caps on model: manually
- AnoTite screw for 4Base caps intra-orally: 25 Ncm



Model with shortened 4Base titanium caps on 4Base abutments.





**Case 1:** ■ Titanium cap, adhesive technique



**Case 2:** ■ Plastic cap



**Case 3:** ■ 4Base CAD/CAM scan cap, titanium



For restorations with temporary (case 1), individually cast (case 2) or milled (case 3) 4Base constructions, the appropriate caps are secured on the 4Base abutments:

To fix bridge and bar constructions on 4Base abutments, special prosthetic and AnoTite screws with hexagon screw-head design are available.

Screws with hexagon screw head geometry are tightened manually with the hex key ratchet 1.3 or mechanically with the hex key ISO shank 1.3.

**Case 1:**

**Temporary restoration.**

The 4Base titanium caps are secured in position on the 4Base abutments using the AnoTite screw L 6.0 mm for fabricating a temporary restoration.

The available space is checked using the lingual and palatal overcasts. If there is insufficient space available, the 4Base titanium caps can be lightly and easily trimmed.

The titanium caps must not become overheated during preparation as this can lead to differences in surface hardening (alpha-case layer). This could complicate or handicap further processing.

A wax set-up is then fabricated, which can be checked using the lingual and palatal overcasts.

Before waxing up the temporary restoration, ensure that there is an adequate, uniform cement gap between the 4Base titanium caps and the temporary restoration by blocking out using preparation and casting wax (e.g. Dentaurem REF 120-025-00). This guarantees stress-free fixation.

Finishing, trimming and polishing should be completed according to the instructions of the acrylic manufacturer.

PTFE cylinder pins are available for restorations which are bonded in the laboratory. The pins do not bond with the adhesive and prevent it entering the screw aperture.



Model with blocked out 4Base titanium caps.



Poured temporary restoration with overcast.

## Operator-removable restorations.



Framework design in CAD/CAM software.

### Case 2:

#### Long-term 4Base restoration.

The 4Base plastic caps are secured in position on the 4Base abutments using the AniTite screw L 6.0 mm.

The available space is checked using the lingual and palatal overcasts. If there is insufficient space available, the 4Base plastic caps can be lightly and easily trimmed.

A base structure is then fabricated as a strengthener for a long-term restoration. The wax-up is fabricated taking the lingual and palatal overcasts into consideration. This procedure guarantees that there is still sufficient space for subsequent working stages and the pre-prosthetic planning can be maintained.



Firing the gingiva section in ceramic.

### Case 3:

#### CAD/CAM manufacturing.

The scan caps 4Base titanium are fixed with the prosthetic screw L 6.0 mm on the 4Base abutments.

After selecting the indication in the tioLogic® TWINFIT data set of the respective software, the scan caps 4Base titanium can be scanned.

The matching process and design are carried out according to the instructions of the software manufacturer and according to dental prosthetic rules.

#### Passive fit ("Sheffield Test").

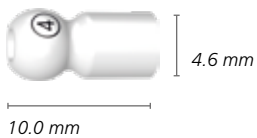
After fabrication, every restoration must be checked for passive fit on the model prior to intra-oral placement. This involves placing the construction on the 4Base abutments and fixing it to the 4Base abutment with only one prosthetic screw (torque 25 Ncm). If this raises the construction to create a gap between the construction and 4Base abutments, stresses are present and must be eliminated.



Milled zirconia framework.



Bonding of the zirconium framework on the 4Base caps.



#### Safety information.

- The product should not be used if there is a known allergic reaction to one or more of the material components.
- Different types of alloy in the oral cavity can lead to galvanic reactions.
- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.
- 4Base abutments and 4Base components are designed for single use only. Reconditioning of an 4Base abutment or 4Base components that have been inserted previously (recycling) or reuse on patients are not permitted since it can then no longer be guaranteed that the article can be reprocessed safely or can function safely.
- tioLogic® TWINFIT prosthetic components are delivered non-sterile. They are for single use on one patient only. They must be cleaned and disinfected before being used on a patient. Dentaurem generally recommends that the product be sterilized in addition. Only sterilized prosthetic components may be used if bleeding occurs. Additional information can be found at [www.dentaurem.com](http://www.dentaurem.com) (Processing Instructions Instruments and Accessories REF 989-801-09).



Labial view of model with finished ceramic crowns.



Finished ceramic restoration on the 4Base abutments.

## Choice of material for the tioLogic® TWINFIT implant system.



### 4. CAD/CAM titanium adhesive bases.

CAD/CAM titanium adhesive bases are suitable for adhesion in the case of multi-unit bridge restorations or full-arch restorations in the edentulous mandible or maxilla. They have a platform connector geometry for all series of abutments S, M and L which ensures the prosthesis sits optimally. There is no rotational security to enable maximum freedom when positioning the base on the implant. The cone for bonding has retention grooves. It is 3.0 mm high and can compensate for divergences of up to 30°. By using the bonding technique, the ceramic bridges, manufactured using CAD/CAM, can be fitted passively. Before bonding, the head of the prosthetic screw, which fixes the CAD/CAM titanium base, is covered with wax. The bonding surfaces of the ceramic sleeve and of the CAD/CAM titanium base are blasted with aluminum oxide (50 µm/2 bar).

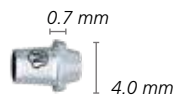
It is also advisable to use the silanization method to condition the surfaces to be bonded. Before bonding, ensure the surfaces are dry and free from grease.

Use the adhesive according to the manufacturer's instructions. After bonding, excess material is removed and the ceramic abutment is put into position (observing the rotational security). The all-ceramic crown is completed according to the manufacturer's instructions.

### Safety information.

- The wall thickness of the ceramic abutment must **NOT** be less than 0.5 mm.
- Preparation of a chamfer with angled inner edge and a minimum step of 0.5 mm.
- **NOT** approved for single restorations

CAD/CAM titanium adhesive base M



Various types of removable prosthetic restoration are feasible:

- Bar restoration on 4Base abutments
- Ball abutment restoration
- tioLOC restoration



## Removable restorations.

### Bar restoration on 4Base abutments.

4Base abutments with conical and platform connector geometry are available for the S, M and L series of abutments in straight and angled (20°, 30°) form. They are available for the straight abutments in a gingival height of 1.0, 2.5 and 4.0 mm and in a gingival height of 3.2 mm for the angulated abutments.

4Base abutments are provided in 3 angulations: 0°, 20° and 30°. The cone of the 4Base abutments is always identical (40°), so that only one size of impression posts, closure caps etc. is required. For biomechanical reasons we recommend that the following angulations are not exceeded:

Abutment with 0°:            -20° – 20°

Abutment with 20°:        0° – 40°

Abutment with 30°:        10° – 50°

#### Passive fit (“Sheffield Test”).

After laser-welding or casting, every bar restoration must be checked for passive fit on the model and prior to placing it intra-orally. This involves placing the construction on the 4Base abutments and fixing it to the 4Base abutment with only one prosthetic screw (torque 25 Ncm). If this raises the construction to create a gap between the bar and 4Base abutment, stresses are present and must be eliminated.

For restorations with prefabricated or individually cast (case 2) or milled (cases 2, 3 + 4) bars, the appropriate 4Base caps are secured on the 4Base abutments:

**Case 1:** ■ Titanium cap

■ Plastic cap

**Case 2:** ■ Plastic cap

■ Titanium cap

**Case 3:** ■ Plastic cap

■ Titanium cap

**Case 4:** ■ 4Base CAD/CAM scan cap, titanium

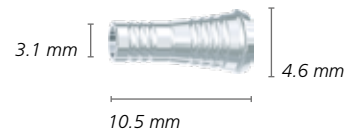


The seating surface for the caps on the 4Base abutments is identical (ø 4.6 mm) for the S, M and L series of abutments. To fix bridge and bar constructions on 4Base abutments, special prosthetic and Anotite screws with hexagon screw-head design are available.

Screws with hexagon screw head geometry are tightened manually with the hex key ratchet 1.3 or mechanically with the hex key ISO shank 1.3.

## Removable restorations.

4Base titanium cap, tioLogic® TWINFIT, adhesive technique



### Tightening torque

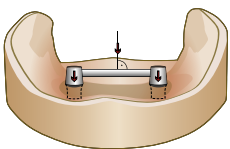
- 4Base abutments, straight on model: manually
- 4Base abutments, straight intra-orally: 35 Ncm
- Prosthetic screw, on model: manually
- AnoTite screw intra-orally: 30 Ncm
- Prosthetic screw for 4Base caps on model: manually
- AnoTite screw for 4Base caps intra-orally: 25 Ncm
- Sure-grip screw impression post on 4Base abutment intra-orally: 15 Ncm
- Closure screw on 4Base abutment intra-orally: 15 Ncm

### Case 1: Prefabricated bar

(laser-welded or cast)

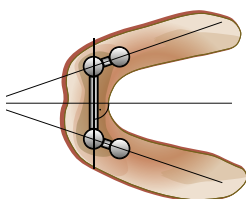
Criteria for positioning a bar  
(bar attachment):

#### Horizontal bar positioning.



To ensure that the masticatory forces are directed correctly, the bar must be positioned horizontally to the ideal occlusal plane. Tilting the bar would load the implants incorrectly and cause excessive pressure to be exerted on the mucous membranes.

#### Vertical bar positioning.



With fixed/free dentures, the bar attachment acts as an axis of rotation. To ensure that the alveolar ridges are loaded uniformly, the bar must be aligned at an angle of 90° to the bisecting angle of the teeth.



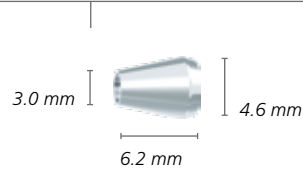
4Base abutments on model with gingival mask.



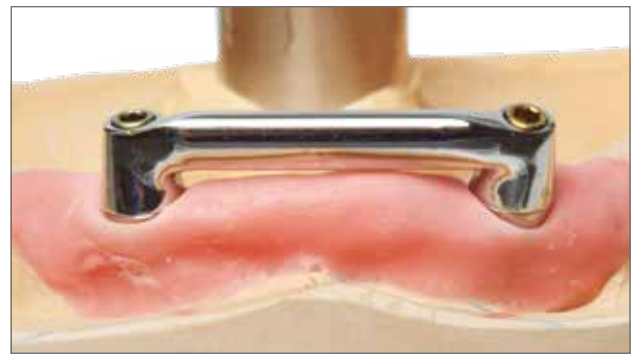
4Base titanium caps for laser-welding on bar abutments on model.

### Laser techniques, titanium caps.

Depending on the impression technique, the prefabricated conical 4Base titanium caps should be secured on the 4Base abutments or the 4Base laboratory implants with the enclosed AnoTite L 6.0 mm screw. They fit all three 4Base abutments (S - M - L). The seating surface of all 4Base abutments is identical (ø 4.6 mm).



Shortened titanium bar with Paralax on the model.



Trimmed titanium bar.

The prefabricated titanium bars are shortened and fixed in the correct horizontal axis for laser-welding with a parallelometer / fixator.

The bar components and titanium caps are then lasered together. The only filler material which can be used is pure titanium wire (e.g. Dentaureum). Should further questions arise on laser-welding and processing titanium, please call the Dentaureum Hotline at: + 49 72 31 / 803 -410.

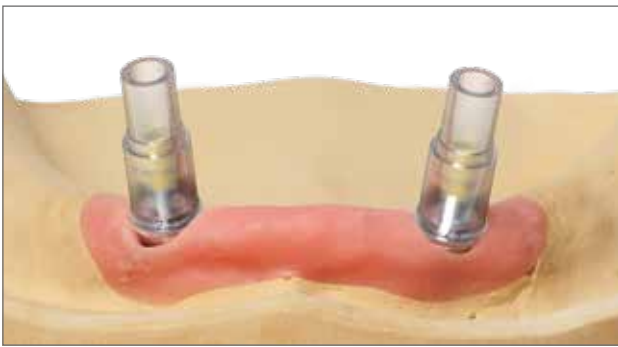
After laser-welding, the titanium bar should be trimmed and polished (e.g. with a Dentaureum rematitan® finishing kit).



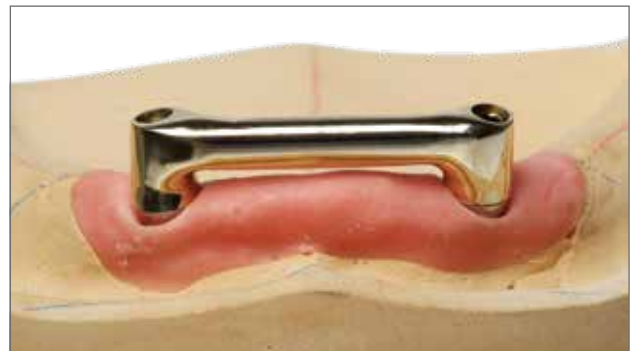
Titanium bar with rider and retainer.

The titanium bar rider is then laser-welded to the titanium retainer and polymerized into the denture.

## Removable restorations.



*Model with screw-retained plastic caps.*



*Model with finished precious metal bar.*

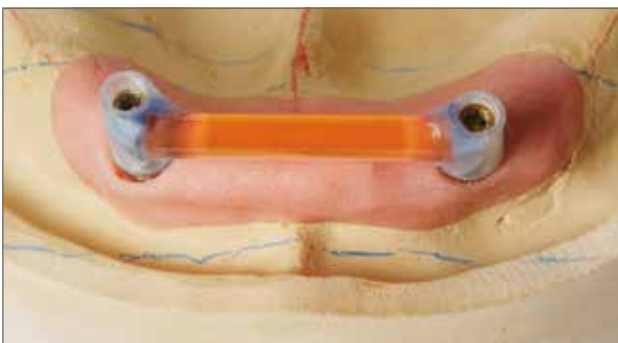
### **Casting, plastic caps.**

Depending on the impression technique, 4Base plastic caps can be fixed to the 4Base abutments or 4Base laboratory implant. They fit all three 4Base abutments (S - M - L). The seating surface of all 4Base abutments is identical ( $\varnothing$  4.6 mm).

If there is insufficient space available, the 4Base plastic caps can be lightly and easily trimmed.

A prefabricated plastic bar is waxed to the plastic caps.

Casting, trimming and polishing should be carried out according to the alloy manufacturer's instructions. A countersink or cutter are available for the post-processing of the screw aperture or the screw seating.



*Model with plastic bar fixed in place.*



### Safety information.

- The product should not be used if there is a known allergic reaction to one or more of the material components.
- Different types of alloy in the oral cavity can lead to galvanic reactions.
- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.
- 4Base abutments and 4Base components are designed for single use only. Reconditioning of an 4Base abutment or 4Base components that have been inserted previously (recycling) or reuse on patients are not permitted since it can then no longer be guaranteed that the article can be reprocessed safely or can function safely.
- tioLogic® TWINFIT prosthetic components are delivered non-sterile. They are for single use on one patient only. They must be cleaned and disinfected before being used on a patient. Dentaurem generally recommends that the product be sterilized in addition. Only sterilized prosthetic components may be used if bleeding occurs. Additional information can be found at [www.dentaurem.com](http://www.dentaurem.com) (Processing Instructions Instruments and Accessories REF 989-801-09).

## Removable restorations.

### Case 2:

#### Milled bar, plastic caps.

4Base titanium caps or 4Base plastic caps can be used on 4Base abutments for fabricating a milled bar. They fit all three 4Base abutments (S - M - L). The seating surface of all 4Base abutments is identical (ø 4.6 mm). They are secured on the 4Base abutments with the prosthetic screw L 6.0 mm.

In this case, 4Base plastic caps were used.

- If there is insufficient space available, the plastic caps can be easily trimmed.
- The plastic caps are bonded to the acrylic.
- Following this, the pattern for the individual bar is fabricated and paralleled with a milling machine.

#### Passive fit ("Sheffield Test").

After laser-welding or casting, every bar restoration must be checked for passive fit on the model and prior to placing it intra-orally. This involves placing the construction on the 4Base abutments and fixing it to the 4Base abutment with only one prosthetic screw (torque 25 Ncm).

If this raises the construction to create a gap between the bar and 4Base abutment, stresses are present and must be eliminated.

- For enhanced retention, horizontal and vertical attachments are integrated.
- Casting, trimming and polishing should be carried out according to the alloy manufacturer's instructions. After casting, the countersink is used for finishing the screw seat.
- The attachments are then placed in position.

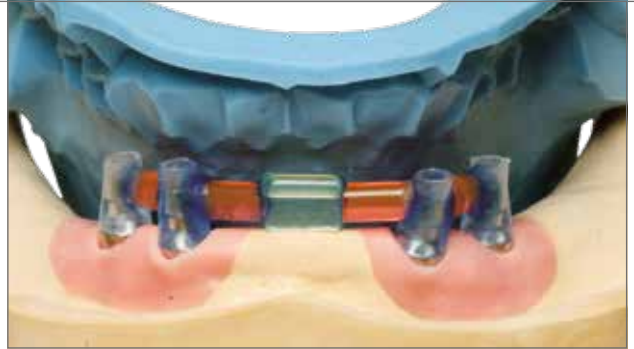
In this case, the restoration is fabricated with an electroplated mesostructure. For static reasons, this is provided with a strengthener made from a cast partial denture alloy (e.g. Dentaureum, remanium® GM 800+).

### Safety information.

- The product should not be used if there is a known allergic reaction to one or more of the material components.
- Different types of alloy in the oral cavity can lead to galvanic reactions.
- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.
- 4Base abutments and 4Base components are designed for single use only. Reconditioning of an 4Base abutment or 4Base components that have been inserted previously (recycling) or reuse on patients are not permitted since it can then no longer be guaranteed that the article can be reprocessed safely or can function safely.
- tioLogic® TWINFIT prosthetic components are delivered non-sterile. They are for single use on one patient only. They must be cleaned and disinfected before being used on a patient. Dentaureum generally recommends that the product be sterilized in addition. Only sterilized prosthetic components may be used if bleeding occurs. Additional information can be found at [www.dentaureum.com](http://www.dentaureum.com) (Processing Instructions Instruments and Accessories REF 989-801-09).



*Model with 4Base plastic caps on 4Base abutments and overcast.*



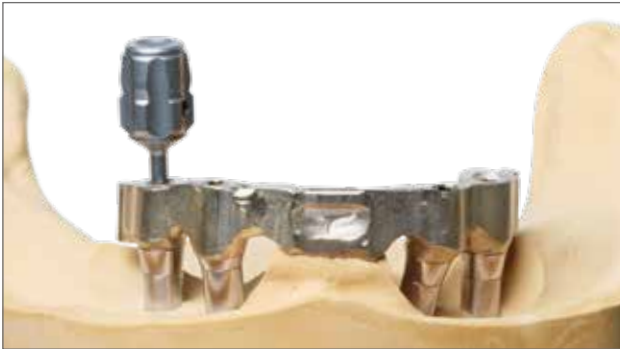
*Model with plastic bar secured in position and palatal overcast.*



*Model with milled bar pattern.*



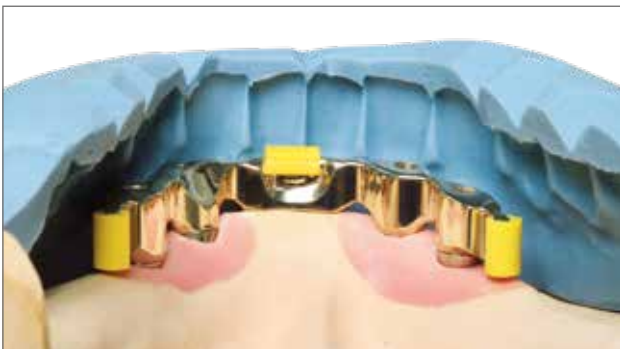
*Model with milled bar pattern and overcast.*



*Model with cast bar.*



*Trimmed bar with attachment parts.*



*Trimmed bar with overcast and attachment parts.*



*Mesostructure.*

## Removable restorations.

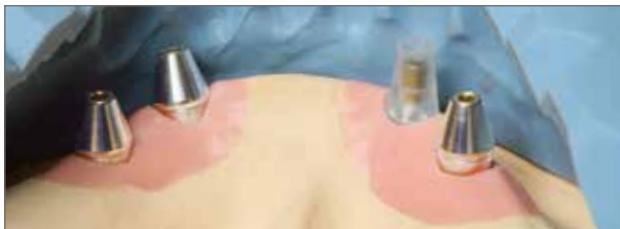


Milled plastic bar, removed.

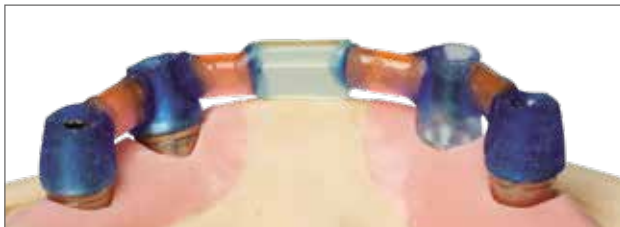
### Case 3: Milled bar, 4Base titanium caps.

Adhesive 4Base titanium caps are available for adhering cast bars intra-orally. They fit all three 4Base abutments (S - M - L). The seating surface of all 4Base abutments is identical ( $\varnothing$  4.6 mm). Adhering the 4Base titanium caps can compensate for imprecise casting and possible differences during impression-taking or model casting.

With restorations supported on four implants, adhesive 4Base titanium caps are secured on three 4Base abutments with an AniTite screw L 6.0 mm. These three act as adhesive bases. A 4Base plastic cap is fixed to the fourth 4Base abutment.

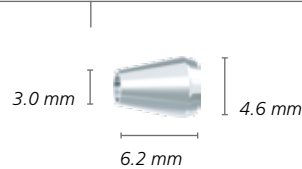


3 titanium caps and one 4Base plastic cap with overcast.



Model with plastic bar fixed in place.

4Base titanium cap, tioLogic® TWINFIT



The 4Base titanium caps and 4Base plastic caps are bonded together with acrylic. The screw in the plastic cap must be loosened before raising the pattern. This keeps the cast bar in place during bonding. Further steps for processing the cast construction are the same as described for case 2 (milled bar).

Prior to bonding, the contact surfaces of the 4Base titanium caps and the inner aspects of the bar must be provided with additional retention and conditioned according to the adhesive manufacturer's instructions. The inner hex of the AniTite screw must be sealed with wax



Cast bar and titanium caps on 4Base abutments.

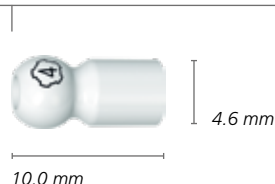


Model with adhered and screw-retained bar.

4Base plastic cap, tioLogic® TWINFIT



4Base CAD/CAM scan cap titanium, tioLogic® TWINFIT



Once the adhesive has been mixed, it is applied to both contact surfaces of the three connectors, the cast bar is placed intra-orally and fixed with the guide screw of the cast plastic cap.

To ensure that the prosthetic screws can be loosened easily, any excess adhesive above them must be removed before it hardens. Once the adhesive has hardened, all prosthetic screws should be loosened and all other excess adhesive removed.

The cast is then replaced on the model before processing the restoration further.

#### Case 4: CAD/CAM manufacturing.

The 4Base CAD/CAM scan caps titanium are fixed with the prosthetic screw L 6.0 mm on the 4Base abutments.

After selecting the indication in the tioLogic® TWINFIT data set of the respective software (here: 4Base abutments), the 4Base scan caps can be scanned.

The matching process and design are carried out according to the instructions of the software manufacturer and according to dental prosthetic rules.

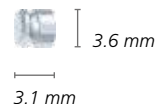


#### Safety information.

- The product should not be used if there is a known allergic reaction to one or more of the material components.
- Different types of alloy in the oral cavity can lead to galvanic reactions.
- The product should not be used if there is a known allergic reaction to one or more of the material components.
- Different types of alloy in the oral cavity can lead to galvanic reactions.
- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.
- 4Base abutments and 4Base components are designed for single use only. Reconditioning of an 4Base abutment or 4Base components that have been inserted previously (recycling) or reuse on patients are not permitted since it can then no longer be guaranteed that the article can be reprocessed safely or can function safely.
- tioLogic® TWINFIT prosthetic components are delivered non-sterile. They are for single use on one patient only. They must be cleaned and disinfected before being used on a patient. Dentaurem generally recommends that the product be sterilized in addition. Only sterilized prosthetic components may be used if bleeding occurs. Additional information can be found at [www.dentaurem.com](http://www.dentaurem.com) (Processing Instructions Instruments and Accessories REF 989-801-09).

## Removable restorations.

Dalbo®-PLUS matrix TE basic



### Ball abutment restorations.

Ball-anchored dentures are implant/tissue-borne restorations. When using ball abutments existing coverdentures can be used as temporary dentures or modified with a cast partial denture framework – alternatively a new coverdenture can be fabricated. Ball anchors function in such a manner that it is advisable to support the denture on at least two implants. The implants may not diverge by more than 20°.

Care should be taken to avoid an excessive mechanical loading when using ball head abutments together with tioLogic® TWINFIT ø 3.3 mm implants.

The tioLogic® TWINFIT ball abutment is available with platform connector geometry in gingival heights of 1.5 mm, 3.0 mm and 4.5 mm for S, M and L abutments. The gingival height is the distance between the uppermost edge of the implant and the lowermost edge of the cylindrical area of the ball abutments. This lower edge should lie approx. 1.0 mm above the gingival line. To achieve optimum retention, all ball abutments should be positioned at the same level. The ball is 2.25 mm in diameter.

The components of the ball abutment may not be modified. Only the matrix withdrawal force can be adjusted by activating the inner matrix. The ball abutment is placed with the PentaGrip insertion key tioLogic® TWINFIT ISO shank.

### Matrices.

The withdrawal force of the matrix Dalbo®-PLUS TE basic can be adjusted to suit the individual patient. Through rotational movements by means of a screwdriver for the matrix Dalbo®-PLUS TE basic, the lamellae are activated or deactivated. If necessary, the inner matrix can be replaced as well using the screwdriver.

### Tightening torque

- Ball abutment on model: manually
- Ball abutment intra-orally: 35 Ncm



Ball head tioLogic® TWINFIT in situ.



Ball head tioLogic® TWINFIT with Dalbo®-PLUS matrix TE basic.

### Different versions of working procedures (direct / indirect).

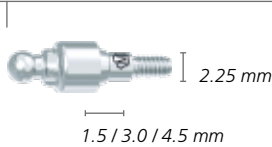
The direct technique involves processing the matrix into an existing denture directly in the patient's mouth without fabricating a model. Neither a tioLogic® TWINFIT impression post nor laboratory implant are required.

The indirect technique requires an impression and a model. The matrix is processed into the denture in the laboratory.

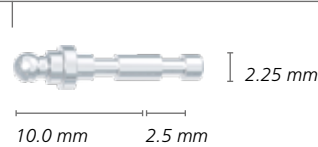
### Impression-taking.

With the indirect version, the impression can also be taken using the closed technique directly over the ball abutments fixed in the mouth. The correct ball abutments tioLogic® TWINFIT for the gingival height and S, M or L abutment should be selected, the closure screws tioLogic® TWINFIT or gingiva formers tioLogic® TWINFIT removed and the ball abutment tioLogic® TWINFIT secured in the implant. Impression material is applied around all ball abutments, the closed impression tray loaded with impression material and the impression taken.

Ball abutment M, tioLogic® TWINFIT



Ball abutment laboratory implant



As soon as the impression material has set, the tray can be removed. Ensure that the impression has captured the ball abutments exactly.

The ball laboratory implant is then repositioned in the impression in the laboratory. The flat surfaces beneath the ball ensure that the implant axes are transferred precisely. The model is then fabricated as described in the section Casting the model – Closed impression technique. A ball laboratory implant is available for all series of abutments as all balls have a diameter of 2.25 mm.

Processing and integration into the denture should be carried out according to the manufacturer's instructions. Additional information can be found at: [index.php \(cmsa.ch\) \(Instructions for use Dalbo® system\)](http://index.php (cmsa.ch) (Instructions for use Dalbo® system))

#### Recall.

Dentures and their retention units must be monitored at six-monthly intervals. The following points, inter alia, must be taken into account:

- Eliminate unfavorable movements of the denture (optimize relining of the denture, activate or replace the matrices)
- Check the fit of the ball abutments on the implant (tighten if necessary)
- Oral hygiene (remove plaque and calculus and, if necessary, re-instruct the patient on cleaning implants)

#### Safety information.

- The product should not be used if there is a known allergic reaction to one or more of the material components.
- Different types of alloy in the oral cavity can lead to galvanic reactions.
- **DO NOT HAVE** an uneven number of implants per jaw.
- **NO** restorations with mixed retention (tooth/implant).

- The implants may not diverge by more than 20°.
- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.
- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.
- Ball abutments and matrices are designed for single use only. Reconditioning of a ball abutment or matrices that have been inserted previously (recycling) or reuse on patients are not permitted since it can then no longer be guaranteed that the article can be reprocessed safely or can function safely.
- tioLogic® TWINFIT prosthetic components are delivered non-sterile. They are for single use on one patient only. They must be cleaned and disinfected before being used on a patient. Dentaurem generally recommends that the product be sterilized in addition. Only sterilized prosthetic components may be used if bleeding occurs. Additional information can be found at [www.dentaurem.com](http://www.dentaurem.com) (Processing Instructions Instruments and Accessories REF 989-801-09).

## Removable restorations.

### tioLOC restorations.

The tioLOC technique is for fabricating implant/tissue-borne restorations with a very low overall height. Existing coverdentures can be modified or remade. The tioLOC abutment can be used for tissue-borne coverdentures with two to four implant abutments. The intermaxillary space should be at least 4.0 mm. tioLOC components must not be modified. Only the withdrawal forces of the matrices can be adjusted as required using the exchangeable retention inserts.

#### tioLOC abutment for tioLogic® TWINFIT.

The tioLOC abutment for tioLogic® TWINFIT is available with platform connector geometry in gingival heights of 1.5 mm, 3.0 mm and 4.5 mm for S, M and L abutments. The gingival height refers to the cylindrical section of the tioLOC abutment. Its upper edge should be placed approx. 1.0 mm above the gingival line. The head with retainer is identical for all tioLOC abutments. The tioLOC abutment is inserted with the insertion key .

#### 4Base tioLOC titanium cap for tioLogic® TWINFIT.

It is possible to place a 20° or 30° angulated 4Base abutment on the implant if the implants diverge strongly. The 4Base tioLOC titanium cap on the angulated 4Base abutment enables integration.

#### Matrices.

The matrix comprises a metal base with an inner retention insert. It is for polymerizing into an existing or new coverdenture.

The withdrawal force of the matrix is regulated with an exchangeable retention insert. This is available in the following versions:

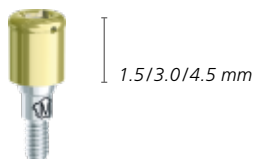
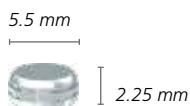
#### Tightening torque

- tioLOC abutment on the model: manually
- tioLOC abutment intra-orally: 30 Ncm

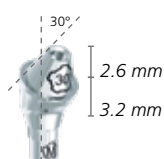
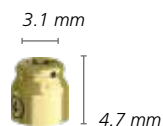
#### Different versions of working procedures (direct / indirect).

The direct technique involves processing the matrix into an existing denture directly in the patient's mouth without fabricating a model. Neither an impression post nor a laboratory implant are required.

The indirect technique requires an impression and a model. The matrix is processed into a denture in the laboratory.



Matrix and tioLOC abutment M, tioLogic® TWINFIT, platform



4Base tioLOC cap, tioLogic® TWINFIT and 4Base abutment M, tioLogic® TWINFIT



Impression cap for tioLOC



Laboratory analog



Processing and integration into the denture should be carried out according to the manufacturer's instructions. Additional information can be found at:

[www.rhein83.com/wp-content/uploads/2019/10/Catalogo\\_GER\\_2019\\_MOD\\_D378-REV00\\_del\\_24-07-2019\\_WEB-1.pdf](http://www.rhein83.com/wp-content/uploads/2019/10/Catalogo_GER_2019_MOD_D378-REV00_del_24-07-2019_WEB-1.pdf) (Catalog/illustrated technical manual).

#### Recall.

Dentures and their retention units must be monitored at six-monthly intervals. The following points, inter alia, must be taken into account:

- Eliminate unfavorable movements of the denture (reline the denture to optimize it, activate or replace the retention elements)
- Check the fit of the tioLOC abutments for tioLogic® TWINFIT on the tioLogic® TWINFIT implant (tighten if necessary)
- Oral hygiene, if necessary (remove plaque and calculus and re-instruct the patient on cleaning the implant)





#### Safety information.



- The product should not be used if there is a known allergic reaction to one or more of the material components.
- Different types of alloy in the oral cavity can lead to galvanic reactions.
- **DO NOT HAVE** an uneven number of implants per jaw.
- The intermaxillary space should be at least 4.0 mm.
- **NO** restorations with mixed retention (tooth/implant).
- Divergencies in excess of 10 ° with tioLogic® TWINFIT implants  $\varnothing$  3.3 mm are not permitted.
- Due to the small size, the article could be swallowed or aspirated. Aspiration could lead to difficulty in breathing or death due to asphyxiation. All articles used intra-orally should therefore be secured against swallowing and/or aspiration.

- All serious incidents arising from the use of the product should be reported to the manufacturer and the competent authority in the country in which the dental professional and/or the patient are resident.
- Only use tioLogic® TWINFIT components in combination with tioLogic® TWINFIT implants.
- tioLOC abutments and matrices are designed for single use only. Reconditioning of a tioLOC abutment or matrix that have been inserted previously (recycling) or reuse on patients are not permitted since it can then no longer be guaranteed that the article can be reprocessed safely or can function safely.
- tioLogic® TWINFIT prosthetic components are delivered non-sterile. They are for single use on one patient only. They must be cleaned and disinfected before being used on a patient. Dentaaurum generally recommends that the product be sterilized in addition. Only sterilized prosthetic components may be used if bleeding occurs. Additional information can be found at [www.dentaaurum.com](http://www.dentaaurum.com) (Processing Instructions Instruments and Accessories REF 989-801-09).

## Precision instruments / Selection aids.

The tioLogic® TWINFIT product range includes precision instruments and selection aids for dental technicians. This simplifies prosthetic procedures even more.

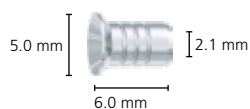
Countersink – Screw seat		Tungsten carbide for trimming the screw seat precisely for cast plastic caps for bar, bridge, AngleFix, <b>4Base</b> .
Drill for guide sleeve		Pre-drill for pre-drilling in the surgical stent.
Screwdriver for Dalbo®-PLUS matrix		For adjusting the withdrawal force of the Dalbo®-PLUS matrix.
Elastic cap insertion/removal tool		For exchanging matrix inserts for tioLOC abutments

<p>Selection aid set S-M-L tioLogic® TWINFIT, conical</p>		<p>Set containing plastic reproductions of the most important tioLogic® TWINFIT abutments, conical and platform, such as titanium and 4Base abutments. For evaluating the gingival height and total height prior to ordering the abutments.</p>
<p>Selection aid set S-M-L, tioLogic® TWINFIT, platform</p>		<p>Set containing plastic reproductions of the most important tioLogic® TWINFIT abutments, conical and platform, such as titanium and 4Base abutments. For evaluating the gingival height and total height prior to ordering the abutments.</p>

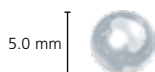
## Data, abutments.

### ■ For example, M series of abutments

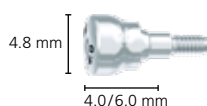
Guide sleeve, titanium  
L 6.0 mm



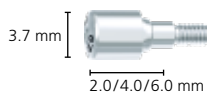
X-ray reference sphere



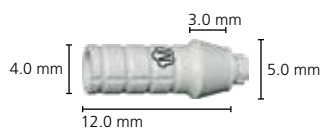
Gingiva former M,  
tioLogic® TWINFIT,  
anatomical, platform,  
GH 4.0 mm



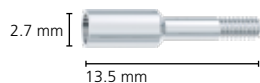
Gingiva former M,  
tioLogic® TWINFIT,  
cylindrical, platform,  
GH 4.0 mm



Temporary abutment M,  
tioLogic® TWINFIT,  
platform, GH 3.0 mm



Screw for temporary  
abutment M

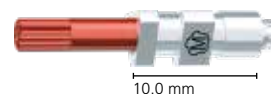


Impression post M,  
tioLogic® TWINFIT,  
platform, open,  
L 14.0 mm,  
incl. screw

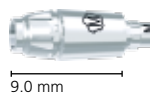


### ■ For example, M series of abutments

Impression post M,  
tioLogic® TWINFIT,  
platform, open,  
L 10.0 mm,  
incl. screw



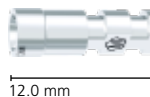
Impression post M,  
tioLogic® TWINFIT,  
platform, closed



Impression cap M,  
tioLogic® TWINFIT

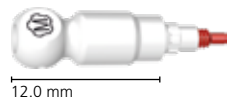


Laboratory implant M,  
tioLogic® TWINFIT, for  
cast and printed models



■ For example, M series of abutments

Scan abutment titanium  
M, tioLogic® TWINFIT,  
platform incl. retaining  
screw



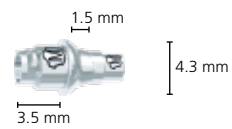
CAD/CAM titanium  
block M,  
tioLogic® TWINFIT,  
PreForm, conical



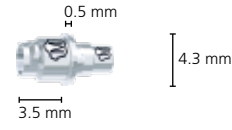
CAD/CAM titanium block  
M,  
tioLogic® TWINFIT,  
PreForm, platform



CAD/CAM titanium base  
M, tioLogic® TWINFIT,  
conical, GH 1.5 mm

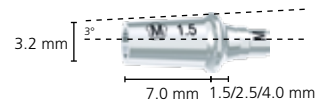


CAD/CAM titanium base  
M, tioLogic® TWINFIT,  
platform, GH 0.5 mm

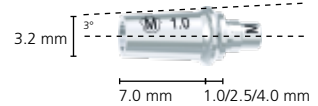


■ For example, M series of abutments

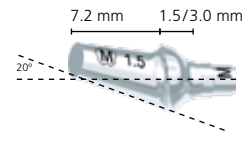
Titanium abutment  
M, tioLogic® TWINFIT,  
conical, GH 1.5 mm



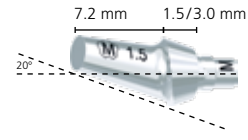
Titanium abutment  
M, tioLogic® TWINFIT,  
platform, GH 1.0 mm



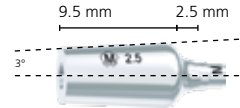
Titanium abutment M,  
tioLogic® TWINFIT,  
angled, conical,  
GH 1.5 mm, 20°



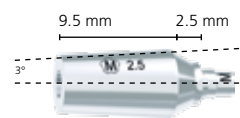
Titanium abutment M,  
tioLogic® TWINFIT,  
angled, platform,  
GH 1.5 mm, 20°



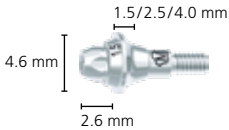
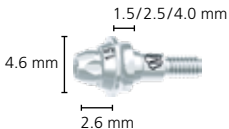
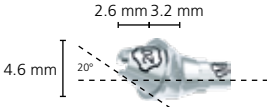
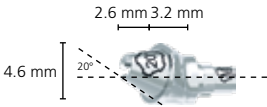
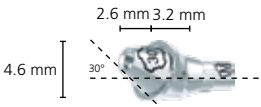
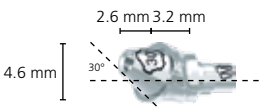
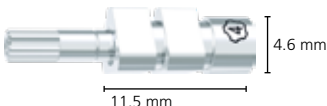
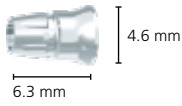
Titanium abutment M,  
tioLogic® TWINFIT,  
conical, GH 2.5 mm,  
adjustable, anatomical


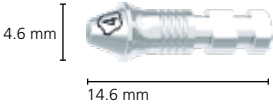
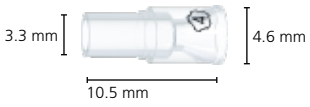
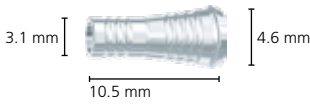


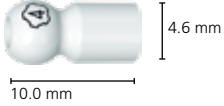


Titanium abutment M,  
tioLogic® TWINFIT,  
platform, GH 2.5 mm,  
adjustable, anatomical



## Data, abutments.

■ For example, M series of abutments	
4Base abutment M, tioLogic® TWINFIT, conical, GH 1.5 mm	
4Base abutment M, tioLogic® TWINFIT, platform, GH 1.5 mm	
4Base abutment M, tioLogic® TWINFIT, conical, GH 3.2 mm, 20°	
4Base abutment M, tioLogic® TWINFIT, platform, GH 3.2 mm, 20°	
4Base abutment M, tioLogic® TWINFIT, conical, GH 3.2 mm, 30°	
4Base abutment M, tioLogic® TWINFIT, platform, GH 3.2 mm, 30°	
4Base impression post, tioLogic® TWINFIT, open, incl. screw	
4Base impression post, tioLogic® TWINFIT, closed, incl. impression cap, AnoTite screw	

■ For example, M series of abutments	
4Base impression cap, tioLogic® TWINFIT	
4Base laboratory implant for cast and printed models, tioLogic® TWINFIT	
4Base plastic cap, tioLogic® TWINFIT	
4Base titanium cap, tioLogic® TWINFIT	
4Base titanium cap, tioLogic® TWINFIT	
4Base tioLOC cap, tioLogic® TWINFIT, GH 3.1 mm, L 4.7 mm	
4Base CAD/CAM scan cap titanium, tioLogic® TWINFIT	

■ For example, M series of abutments	
Ball abutment M, tioLogic® TWINFIT, platform	
Dalbo®-PLUS matrix TE basic	
Ball abutment laboratory implant	
tioLOC abutment M, tioLogic® TWINFIT, platform	
Matrix	
Impression cap	
Laboratory analog	

■ For example, M series of abutments	
AnoTite screw M 1.6, L 9.0 mm	
Prosthetic screw, M 1.6, L 9.0 mm	
AnoTite screw L 6.0 mm	
Prosthetic screw, M 1.6, L 6.0 mm	
AnoTite screw, for angulated screw apertures M 1.6, L 8.5 mm	
Prosthetic screw, for angulated screw apertures M 1.6, L 8.5 mm	
AnoTite screw, for angulated screw apertures M 1.6, L 5.5 mm	
Prosthetic screw, for angulated screw apertures for laboratory use only M 1.6, L 5.5 mm	
Retaining screw for scan abutment and closed impression	

## Torque ratchet



### Description.

The torque ratchet is a precision instrument that can be disassembled. To ensure that it always functions perfectly, the torque ratchet should be disassembled, cleaned, disinfected and lubricated, and then sterilized after reassembly, in accordance with the Instructions for use, before using for the first time and immediately after each use (Torque ratchet).

Read the Instructions for use carefully. The function of the torque ratchet should be checked before each use to ensure the precision of the torque. The torque ratchet should make a uniform sound when functioning properly; the ratchet head should not be blocked. After use, the tension of the torque ratchet spring should be released by loosening the adjusting screw. The torque ratchet should be recalibrated annually.

Accuracy of the torque ratchet: + / - 10 %.

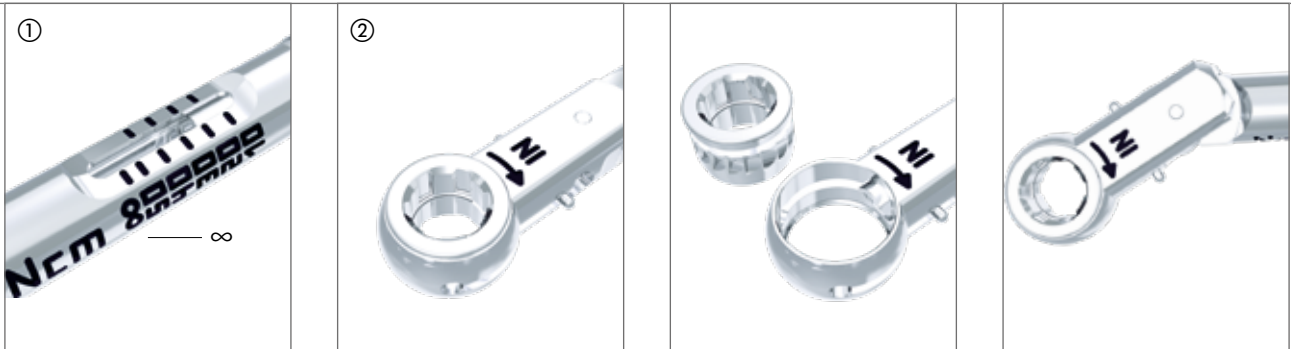
### Use.

The torque ratchet can be used for the surgical procedure, implant insertion, securing the closure screws, gingiva formers and impression posts and for temporary and final prosthetic restorations. There are different inserts available, depending on the application.

The ratchet is set to the required torque using the adjusting screw. The correct torque is set when the graduation line is at the required setting (see fig. ①).

The torque ratchet is additionally fitted with a blocking function. To set the blocking function, turn the adjustment screw to the '∞' symbol. For storage, turn the torque adjustment screw back until the spring is as relaxed as possible.





The pressure point for exact torque release is at the head of the torque adjustment screw. When the set torque has been reached, the scale sleeve will bend around the ratchet head axis. The release is audible and perceptible. After the torque release, **DO NOT** apply more pressure as this could damage the ratchet.

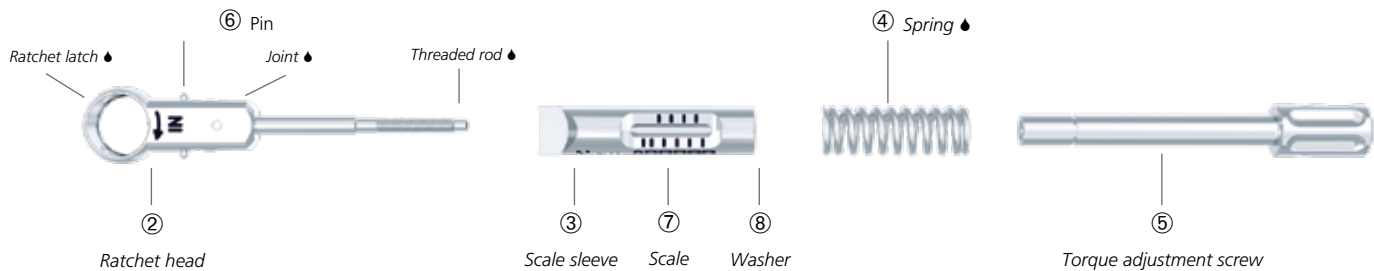
When you let go of the torque adjustment screw, the ratchet returns to its initial position.

Exceeding the torque specified by Dentaureum can cause mechanical damage to components, to the implants, and destruction of bone structures.

The blocking function mode should be used with extreme caution. After use, the torque adjustment screw ⑤ must be loosened and relieved to avoid subsequent errors.

The word 'IN' on the ratchet head (see Fig. ②) shows that the ratchet is in the correct position for tightening. The word 'OUT' stands for loosening the torque.

When fitting the final prosthetic restoration, all prosthetic screws should be tightened with the torque ratchet set at the relevant torque (see Table for torque ratchet settings) and then re-tightened after approx. 5 minutes using the same torque. It is important that the insertion key fits flush in the prosthetic screw. We recommend using a new AniTite prosthetic screw for the final fitting.































The torque ratchet is intended for clinical use only.

Prosthetic screws should be tightened with care

manually in the laboratory.



■ Tightening torques for implants and prosthetic components\*

Implant insertion		max. 40 Ncm (depending on bone density)	
Closure screw Implant tioLogic® TWINFIT		15 Ncm or manually	
Closure screw 4Base abutment tioLogic® TWINFIT		15 Ncm or manually	
Gingiva former tioLogic® TWINFIT		15 Ncm or manually	
Screw for impression post		15 Ncm or manually	
Screw for impression post		15 Ncm or manually	
Retaining screw for closed impression		15 Ncm or manually	
Screw for temporary abutment tioLogic® TWINFIT		15 Ncm or manually	
AnoTite screw – L 9.0 mm		30 Ncm	
4Base abutment tioLogic® TWINFIT		35 Ncm	
AnoTite screw – L 6.0 mm		25 Ncm	
Ball abutment tioLogic® TWINFIT		35 Ncm	
tioLOC abutment tioLogic® TWINFIT		30 Ncm	
AnoTite screw for angulated screw apertures		25 Ncm	

■ Inserts for the torque ratchet\*\*



Hex key  
1.3 – ratchet,  
L 26.0 mm



Hex key  
1.3 – ratchet,  
L 16.0 mm



Insertion key S –  
ratchet, tioLogic® TWINFIT,  
L 26.6 mm



Insertion key M –  
ratchet, tioLogic® TWINFIT,  
L 26.6 mm



Insertion key L –  
ratchet, tioLogic® TWINFIT,  
L 26.6 mm



Insertion key  
tioLOC abutment – ratchet,  
L 15.0 mm



Adapter – ISO shank  
hexagon/ ratchet, L 15.0  
mm



Adapter – ISO shank  
hexagon/ ratchet, L 20.0  
mm

■ ISO shank inserts for adapter ISO shank / ratchet



Insertion key S – ISO shank,  
tioLogic® TWINFIT,  
L 23.5 mm



Insertion key M – ISO shank,  
tioLogic® TWINFIT, L 23.5 mm



Insertion key L – ISO shank,  
tioLogic® TWINFIT, L 23.5 mm



PentaGrip insertion key,  
ISO shank,  
L 22.3 mm



Hex key,  
ISO shank 1.3,  
L 20.0 mm



Insertion key S – ISO shank,  
tioLogic® TWINFIT,  
L 26.5 mm



Insertion key M – ISO shank,  
tioLogic® TWINFIT, L 26.5 mm



Insertion key L – ISO shank,  
tioLogic® TWINFIT, L 26.5  
mm



Drill extension –  
ISO shank hexagon,  
L 21.0 mm



Hex key,  
ISO shank 1.3,  
L 26.0 mm

\* Primary stable and osseointegrated

\*\* There are different inserts available, depending on the application.

# Torque ratchet

After assembly and before each use check the correct function of the torque ratchet.



①

Ratchet wheel

## Disassembly.

Before cleaning (regardless of the selected cleaning method), the torque ratchet must be dismantled into the individual parts. This can be done without tools. Completely unscrew the torque adjustment screw ⑤, and remove the spring ④ and the ratchet head ② with threaded rod.

Take care not to lose the plastic washer ③ as this would have a negative impact on the instrument's precision. (The plastic washer needs only to be removed if there is visible contamination. It can be pulled off if necessary and replaced after cleaning).

## Remove ratchet wheel

Pull back the pin ⑥ in the direction of the arrow using your thumb and index finger and remove the ratchet wheel ①.



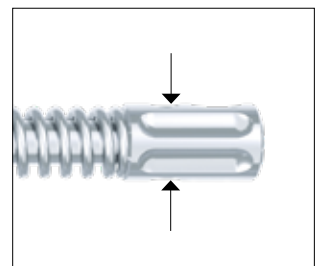
Blocking function – „∞“ mark.



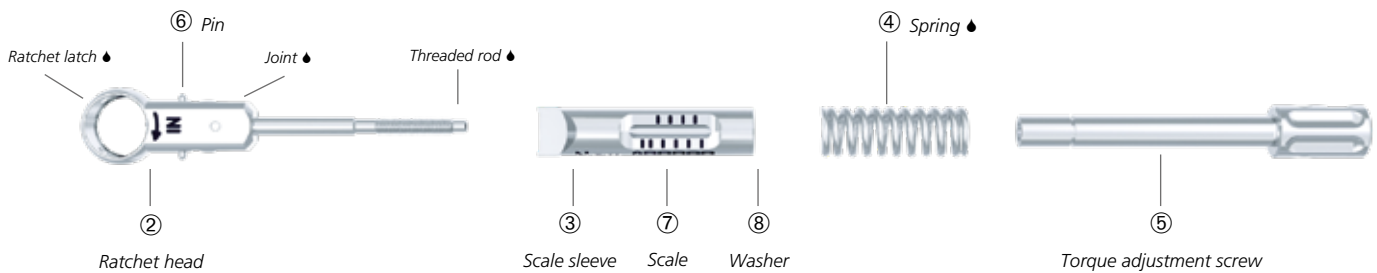
Ratchet head, assembled.



Ratchet head, disassembled.



Never loosen these screws as the ratchet will lose its torque function.



### Maintenance.

If several torque ratchets are in use, do not interchange the individual parts. Each individual part belongs to one instrument.

### Lubricating point (◆)

Lubricate the areas marked with the "drop" symbol lightly with maintenance oil for instruments.

Ensure that only instrument oils (paraffinic white oil without corrosion inhibitor or other additives) are used, which – depending on the maximum sterilization temperature used – are approved for steam sterilization and are certified as biocompatible. The oil should be used sparingly.

Reassemble the ratchet and perform a function test.

### Assembly.

To assemble the torque ratchet correctly, connect the components in the following order: first pull back the pin ⑥ as described above and insert the ratchet wheel ①.

#### Caution:

**To avoid confusion, the ratchet wheel ① can only be inserted on one side.**

Slide the spring ④ back over the torque adjustment screw ⑤.

Pass the ratchet head ② with the threaded rod through the scale sleeve ③ and screw to torque adjustment screw ⑤.

After assembly and before each use check the correct function of the torque ratchet. The instrument is ready for use when there is an audible regular ratchet noise and the mechanism of the torque limit functions.

After reassembly and before sterilization, the torque ratchet should be stress-relieved at max. 10 Ncm.

Additional information can be found at [www.dentaurum.com](http://www.dentaurum.com) (Processing Instructions Instruments and Accessories REF 989-801-09).

## Material composition.

Implants ø 3.3, 3.7 and 4.2 mm	Titanium Grade 5
Implants ø 4.8 and 5.5 mm	Titanium Grade 4
Closure screw	Titanium Grade 5
Depth-stop sleeves	Polycarbonate USP Class VI
Gingiva former	Titanium Grade 5
Impression post:	
■ Impression post, open	Titanium Grade 5
■ Screw for impression post, open	Stainless steel, 1.4305
■ Impression post, closed and screw	Titanium Grade 5
■ Impression cap for impression post, closed	POM
Temporary abutment:	PEEK (polyether ether ketone)
■ Screw for temporary abutment	Titanium Grade 5
Titanium abutment:	Titanium Grade 5
■ Titanium abutment straight/angled	Titanium Grade 5
■ CAD/CAM titanium base	Titanium Grade 5
■ CAD/CAM titanium block	Titanium Grade 5
Scan abutment	PEEK (polyether ether ketone)
Scan abutment, titanium	Titanium Grade 5
4Base abutment	Titanium Grade 5
4Base cap:	
■ 4Base plastic cap	Polycarbonate
■ 4Base titanium cap, laser weldable	Titanium Grade 5
■ 4Base titanium cap, adhesive technique	Titanium Grade 5
■ 4Base closure screw	Titanium Grade 5
■ 4Base impression post, open	Titanium Grade 5
■ Screw for 4Base impression post, open	Stainless steel, 1.4305
■ 4Base impression post, closed	Titanium Grade 5
■ Impression cap for 4Base impression post, closed	POM
■ 4Base scan cap, titanium	Titanium Grade 5
4Base laboratory implant	Titanium Grade 5
4Base scan cap, titanium	Titanium Grade 5
Ball abutment	Titanium Grade 5
Ball abutment laboratory implant	Aluminum
tioLOC abutment	Titanium Grade 5
Prosthetic screws:	
■ AniTite screw	Titanium Grade 5
■ Prosthetic screw	Titanium Grade 5
■ Retaining screw	Titanium Grade 5

**■ Titanium Grade 4 DIN EN ISO 5832-2****Chemical composition (% by mass)**

O	0.4 % max.
Fe	0.5 % max.
C	0.1 % max.
N	0.05 % max.
H	0.0125 % max.
Ti	Rest

**Physical and mechanical properties**

0.2% yield strength	520 MPa min.
Tensile strength	680 MPa min.
Elongation at rupture	10 % min.

**■ Titanium Grade 5 DIN EN ISO 5832-3****Chemical composition (% by mass)**

Al	5.5 % – 6.75 %
V	3.5 % – 4.5 %
Fe	0.3 % max.
C	0.08 % max.
N	0.05 % max.
H	0.015 % max.
O	0.2 % max.
Ti	Rest

**Physical and mechanical properties**

0.2% yield strength	780 MPa
Tensile strength	860 MPa
Elongation at rupture	10 % min.

**■ PEEK****Chemical composition (% by mass)**

Thermoplastic high-performance polymer

**Physical and mechanical properties**

Yield strength	95 MPa
Elongation	> 25 %
Modulus of elasticity	4.2 GPa
Operating temperature	260 °C / 300 °C (500 °F / 572 °F) (continuous/temporary)

## General information.

### Manufacturer.

Dentaurum GmbH & Co. KG |

Turnstr. 31 | 75228 Ispringen | Germany

### Brief description.

tioLogic® TWINFIT implants are designed for insertion in the endosteal region of the maxilla or mandible. Depending on the indication, appropriate transgingival abutments are secured on the implants and fitted with a prosthetic superstructure.

The tioLogic® TWINFIT implant system contains specially coordinated instruments, abutments and accessories for insertion of the implants and fabrication of the prosthetic restoration. Only original components of the tioLogic® TWINFIT implant system should be combined in accordance with the Instructions for use / manuals.

### Further information.

Though placement of dental implants has a high rate of success and implants have a long durability, successful treatment cannot be guaranteed. The implantologist should note and document any problematic cases and inform the manufacturer Dentaurum.

An inadequate number of implants, implants with insufficient length or diameter, unfavorable positioning of the implants or a statically poor prosthetic restoration can cause premature implant loss and fatigue fractures in implants, abutments and prosthetic screws under biomechanical loading.

Placement of the implants and fabrication of the prosthetic restoration should take the situation of each individual patient into account to avoid overloading the components.

Using tioLogic® TWINFIT implant system components in combinations other than those stipulated in the Instructions for use / manuals can cause mechanical failure, damage to the tissue or unsatisfactory aesthetic results.

At the time of going to press, tioLogic® TWINFIT implants are not known to have any side effects or to cause interactions. It cannot, however, be ruled out that in rare cases allergies to components used in the materials of the tioLogic® TWINFIT implant system may occur or that there may be electrochemically-induced discomfort.

### Use, availability, precautions, documentation.

The tioLogic® TWINFIT product range is supplied exclusively to doctors, dentists and dental technicians. It should only be used by doctors, dentists or dental technicians who are familiar with dental implantology, including diagnosis, preoperative planning, surgical techniques and prosthetic restorations.





Before use, implantologists should ensure that they have carefully read and understood all tioLogic® TWINFIT Instructions for use / manuals and check that these are up-to-date. As the instructions and manuals cannot provide all information for immediate use, we strongly recommend that, before using the system, implantologists attend a tioLogic® TWINFIT implant system training course offered by Dentaurum to learn the correct techniques.

- Refer to the Product Catalog and the Surgery Manual for further information on precautions and the selection of components for the surgical procedure.
- Refer to the Product Catalog and the Prosthetic Manual for information on precautions and the selection of components for the prosthetic procedure.

Before using this product, the patient must be thoroughly examined by the implantologist and given a detailed explanation of the product. Dentaurum recommends full clinical, radiological, photographic and statistical documentation.

The implantologist should ensure that the products cannot be aspirated during intra-oral use.

Note: Not all components are available in every country.

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#### Quality, warranty and liability.

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The development, clinical testing, manufacture and quality monitoring of the tioLogic® TWINFIT product range follow stipulations outlined in the Medical Device Regulation (EU) 2017/745 and Directive 93/42/EEC. Sections 9 and 10 of our General Terms of Delivery and Payment apply with regard to warranty or liability – unless stated otherwise in the Instructions for use / manual.

Warranty and liability are rendered void in particular if the products are not used by the dental professional or a third party in accordance with the Instructions for use; this also applies if the tioLogic® TWINFIT product range is used in combination with products from other manufacturers which have not been specifically recommended for use by Dentaurum.

Dentaurum has no control over processing and use of the product. These are the sole responsibility of the dental professional.

The tioLogic® TWINFIT implant system components can be documented, e. g. in the patient file or PatientPass (REF 989-961-20), using the additional labels.

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The Online Shop has a user-friendly design. Its content follows the same structure as the printed Dentaurum catalogs. The required products can therefore be found quickly and ordered directly.

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You can place your order at any time, even outside working hours, in the Dentaurum Online Shop. It saves time and is delivered free of charge<sup>2</sup> for standard delivery<sup>1</sup>.

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<sup>1</sup> Delivery within 24 hours to max 48 hours.

<sup>2</sup> Valid for online orders from Germany, Austria and Switzerland.

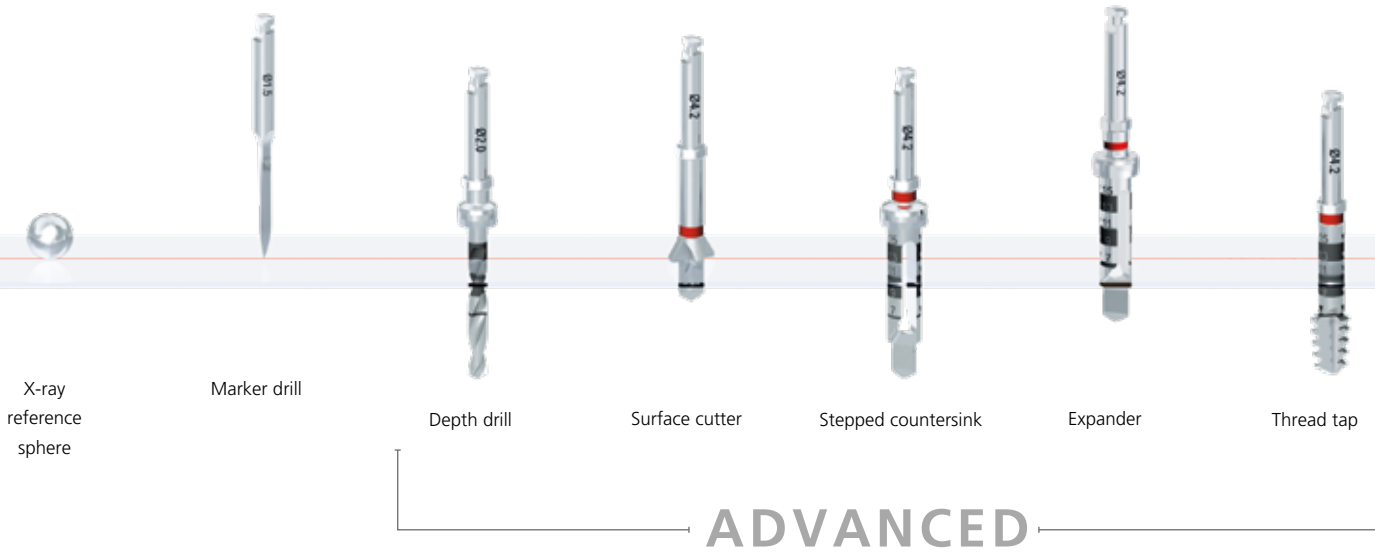
<sup>3</sup> Online orders from Switzerland by 15:30 hours.



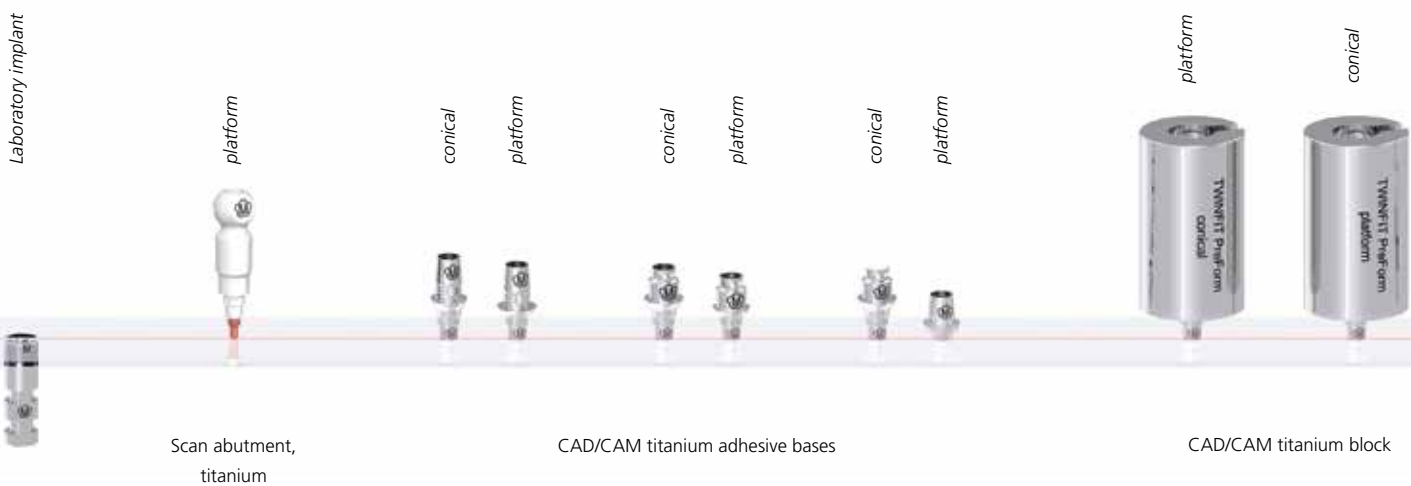
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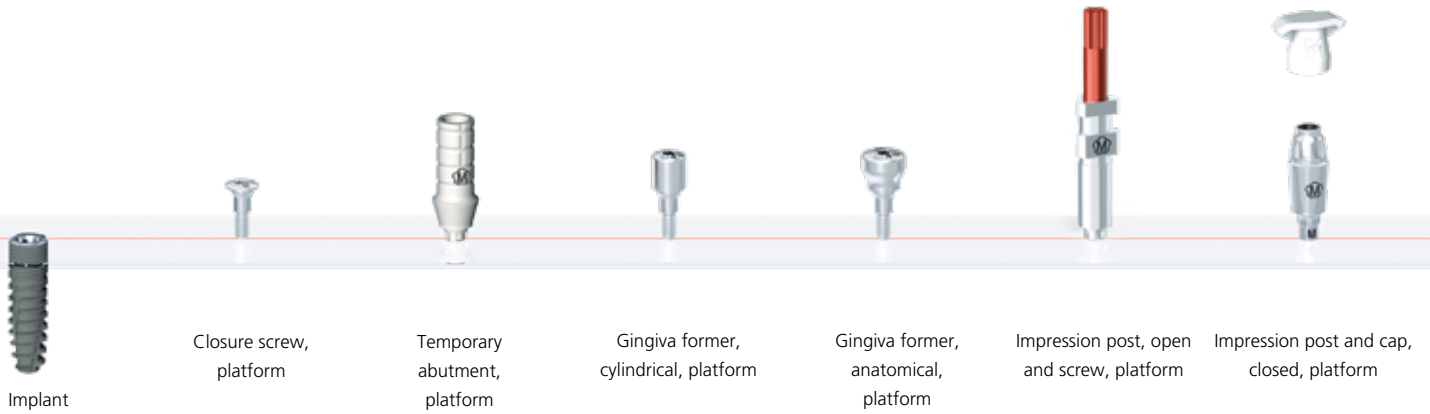
## Surgery – tioLogic® TWINFIT.



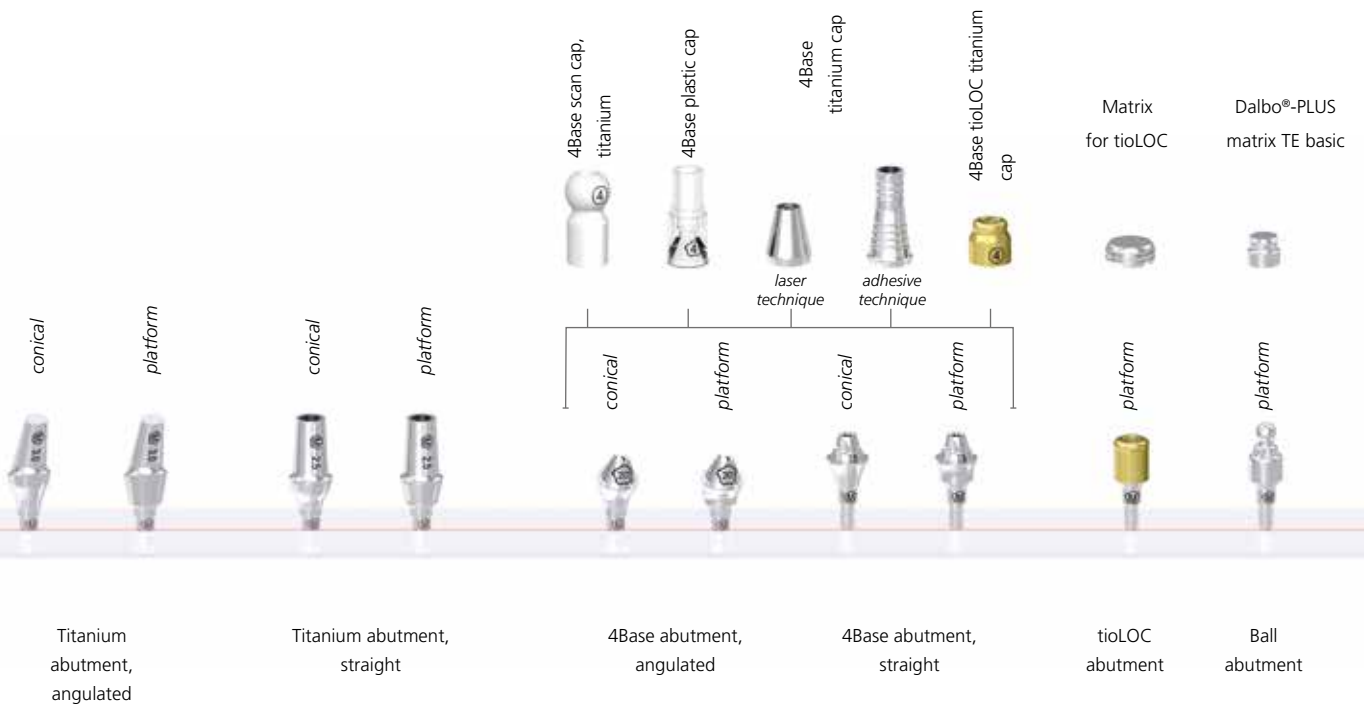
## Prosthetics – tioLogic® TWINFIT.



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SURGERY.



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■ Notes



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