KYOCERA

FINESIA™

TL Implant (Prosthesis) Manual

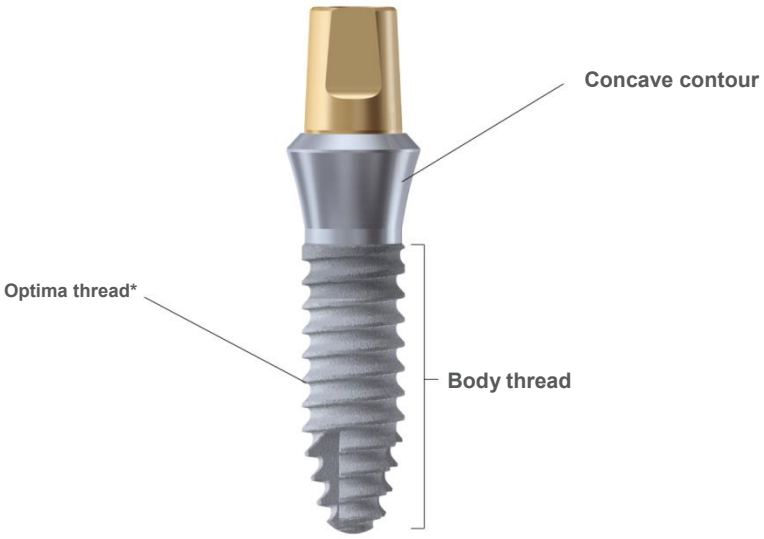
*The pictures are concept images.

FINESIA TL Implant (Prosthesis) Manual Table of Contents

1. Overview

1 Tissue level (TL) implant

TL fixture are particularly suitable for single-stage surgery using the nonsubmerged technique and allows for treatment at the soft tissue level.
For a TL implant, a collar measuring 2.5 mm or 3.5 mm can be selected. With regard to the collar configuration and design, a TL implant is designed with focus on the maintainability; therefore, it is suitable for regions with a high prophylactic demand. TL implants exhibit a 16° tapered octa connection. The tapered or straight implant body has a body thread with a pitch of 0.8 mm.



Optima thread*

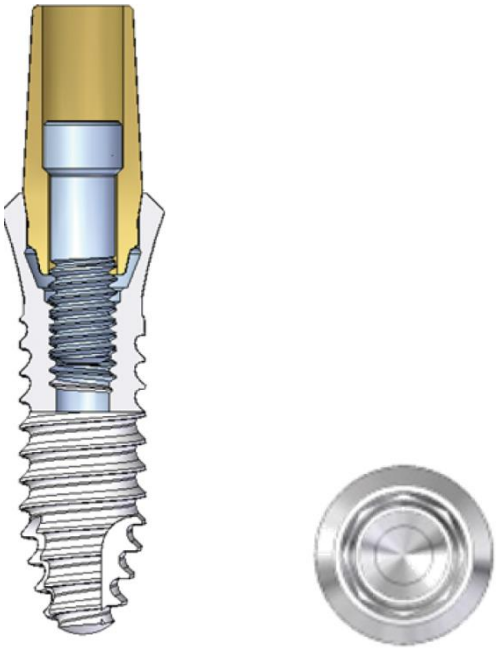
The optima thread is designed on the body thread.
*The term optima thread was coined by combining the terms optimum and thread.

Concave contour

In light of tissue management, the implant collar is designed with a concave contour.

2 Design of the connection

TL fixture exhibit a tapered octa connection.
This connection is designed as a 16° tapered joint (8° on one side) with an octagonal antirotation mechanism.



3 Superstructure

3-1 Types of implant superstructures

The superstructure for an implant-supported denture can be selected according to the conditions and requests of individual patients as well as functional and esthetic requirements. Superstructures can be classified into cement-retained and screw-retained superstructures on the basis of the fixing technique.

A cement-retained superstructure appears esthetic because its crown has no access hole. This type of superstructure can be manufactured using the same technique employed for conventional crown or bridge work.

However, with a cement-retained superstructure, some amount of clearance is required between the implant and opposing tooth for retention. Therefore, it is necessary to select the cuff or set the margin after considering the excessive cement required for retention.

A screw-retained superstructure can be removed by the operator, and its crown has an access hole for placing the screw. This type of superstructure can be attached and removed by tightening and loosening the screw, respectively; therefore, it is suitable for cases where maintenance is of utmost importance. Even if there is not much longitudinal clearance between the implant and opposing tooth, an adequate retentive force can be maintained because a screw is used for retention.

Patient-removable superstructures include overdentures and use the implants for anchorage.

A complete understanding of the characteristics of these superstructures and selection of the appropriate type for each case are important.

Advantages and disadvantages of superstructures

Technique	Cement-retained superstructure	Screw-retained superstructure	Overdenture
			
Advantages	· The manufacturing technique is similar to conventional prosthetic techniques. · Stronger retention is achieved with the use of cement as the interface. · It appears esthetic because of the absence of an access hole.	· The superstructure is removable. · Retention is ensured even if the axial plane is short. · The addition of a gingival portion compensates for deficient soft tissues.	· It allows for the formation of an appropriate dental arch. · The addition of a denture border compensates for deficient soft tissues. [Overdenture with bar attachment] · An excellent retentive force is obtained. · A rotative force can be applied to the implant bodies. [Overdenture with ball attachment] · It is easy to operate. · An easily removable overdenture (patient removable) can be manufactured. · The structure allows for the correction of angles up to 40° between implants. · Combination with the designated attachments allows for adjustment of the retentive force.
Disadvantages	· Residual cement should be carefully assessed. · Retention is difficult to ensure if the axial plane is short or severely tilted.	· Achievement of a passive fit is difficult. · Esthetics are compromised because of the presence of an access hole.	· The denture covering impairs the self-cleaning function of areas surrounding the implants. · The palatal/lingual plate causes discomfort. · Clearance is required.

3-2 Cement-retained superstructure

A cement-retained superstructure is composed of a ready-made post and a custom abutment manufactured by grinding and welding. Both are attached to the implant for fixation of the final prosthesis with cement.

Features of a cement-retained superstructure

- A cement-retained superstructure can be manufactured using a technique similar to the conventional prosthetic technique.
- Stronger retention is achieved with the use of cement as the interface.
- It is esthetic.

Precautions for use

Residual cement should be carefully assessed.
The position of the margin for the final prosthesis should be carefully set. Retention of the final prosthesis may be impaired if there is no clearance between the implant and opposing tooth and if the axial plane of the post is short or severely tilted. A cement-retained superstructure is not recommended for such cases.

Indicated abutments

Post abutment, direct abutment, angle abutment, cast-on abutment, or titanium-based abutment

3-3 Screw-retained superstructure

A screw-retained superstructure is manufactured by fixation of the final superstructure to the implant body with a screw.

Features of a screw-retained superstructure

- The superstructure can be removed by the operator.
- An adequate retentive force can be maintained even if there is no clearance between the implant and opposing tooth and the axial plane is short.
- The addition of a gingival portion compensates for deficient soft tissues.

Precautions for use

It is necessary to achieve a passive fit between the final superstructure and implant body. Appropriate parts should be selected, with great attention to their design.

Indicated abutments

Cast-on abutment, splint abutment, or titanium-based abutment

3-4 Overdenture superstructure

An overdenture is a removable denture that supported by implant body.
When it is used in combination with an abutment that has an attachment mechanism, stable retention is ensured because the abutment serves as an anchor. Functional improvement is greater with this type of superstructure than with a conventional full denture. A [1] bar or [2] ball attachment can be selected as an attachment for this system. During selection of the attachment, the thickness of artificial teeth, clearance, and alveolar ridge condition should be taken into consideration. However, the attachment for an overdenture only aids in retention of the denture; therefore, careful designing of the basic denture is more important.

■Overdenture with bar attachment

When an overdenture with a bar attachment is used, the implants are coupled, which allows the application of a rotative force to the implant bodies.
This type of overdenture is suitable for cases with a severely absorbed alveolar ridge and no undercut. The denture is fixed with a bar attachment placed on the implant bodies and an attachment mounted on the denture.

Features of an overdenture with a bar attachment

- The retentive force is excellent.
- A rotative force can be applied to the implant bodies.

Precautions for use

If parallelism between implants is lost, it is difficult to fix a bar attachment.
A splint abutment is recommended for such cases.
It is difficult to use a bar attachment if the implant bodies are located medially, far from the alveolar crest. The implant position and direction should be carefully considered.
Cleaning of the underside of a bar attachment is more difficult than cleaning of the undersides of other attachments.

Indicated abutments

Splint abutment

■ Overdenture with ball attachments

In an overdenture with ball attachments, the denture is fixed with abutments with φ 2.25-mm balls for retention and the housing type (female part) mounted on the denture.
FINESIA ball abutments can be used in combination with the designated attachments.

Features of an overdenture with ball attachments

- It is easy to operate.
- An easily removable overdenture (patient removable) can be manufactured.
- The structure allows for the correction of angles up to 40° between implants.
- Combination with the designated attachments allows for adjustment of the retentive force.
  (Adjustment range: approximately 200 g to 1200 g)

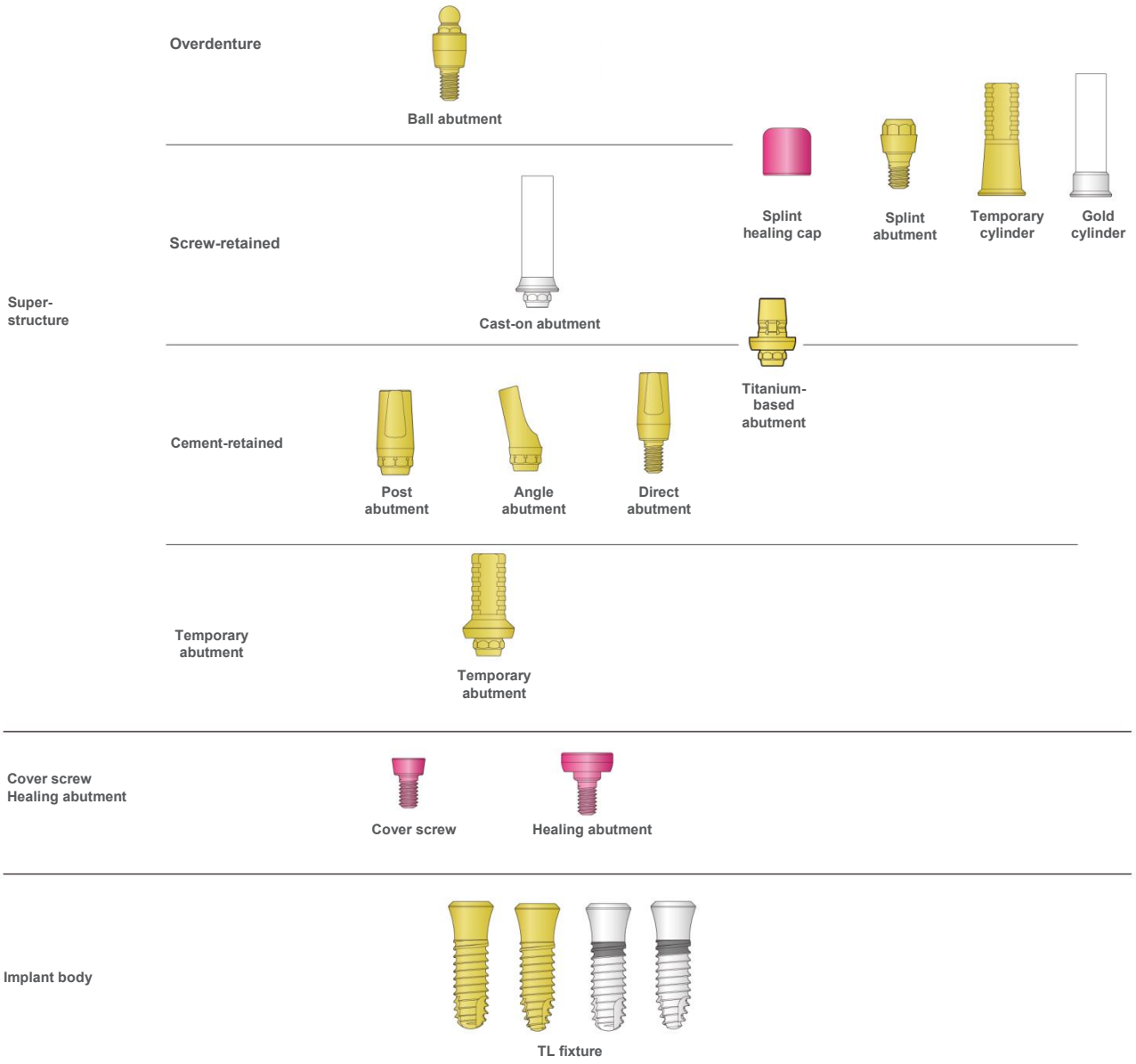
Precautions for use

At least two implant bodies should be inserted. The number of implants should be determined depending on the case. This type of abutment cannot be used if the angle between implants is larger than 40°. The implant bodies should be carefully inserted.
Dentures with ball attachments are mucosa-borne dentures; consequently, some degree of intraoral movement is inevitable. Denture setting should be done with the same amount of care taken for conventional dentures.

Indicated abutments

Ball abutment

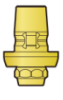
3-5 List of superstructure parts



*This list shows the RP products in the TL implant system.

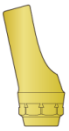
3-6 Types of prostheses and superstructure parts

Single tooth

- Cement-retained
  -  Post abutment
  -  Direct abutment
  -  Angle abutment
  -  Cast-on abutment ST
  -  Titanium-based abutment
- Screw-retained
  -  Cast-on abutment ST
  -  Titanium-based abutment
  -  Splint abutment
  -  Gold cylinder ST

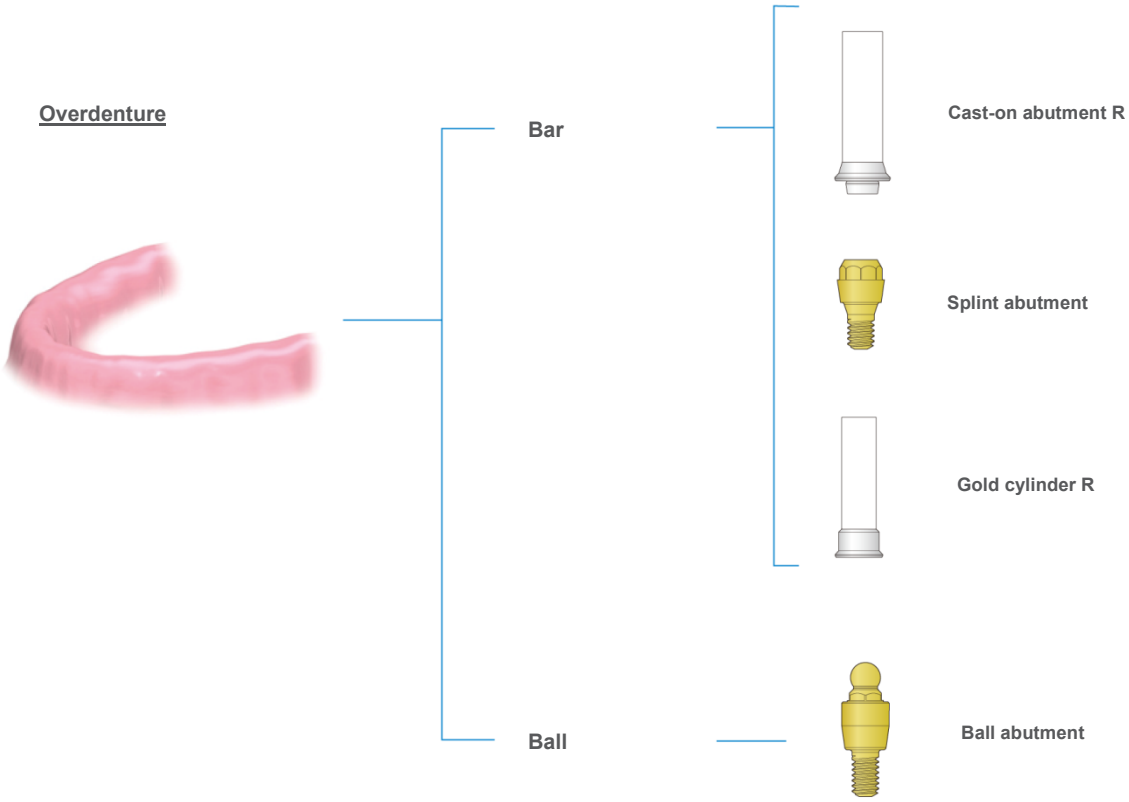
*For inquiries about prosthesis manufacture using the dental CAD/CAM system, contact us.

Bridge

- Cement-retained
  -  Post abutment
  -  Direct abutment
  -  Angle abutment
  -  Cast-on abutment ST
  -  Titanium-based abutment
- Screw-retained
  -  Cast-on abutment R
  -  Splint abutment
  -  Gold cylinder R

*For inquiries about prosthesis manufacture using the dental CAD/CAM system, contact us.

*For a screw-fixed bridge, use splint abutments to achieve a passive fit.

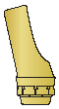
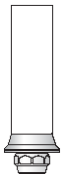


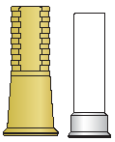
*For inquiries about prosthesis manufacture using the dental CAD/CAM system, contact us.

*For a bar attachment, use splint abutments to achieve a passive fit.

3-7 Precautions for the intraoral attachment of superstructure parts

For each of the superstructure parts for TL implants, the sterilization condition, tightening method and torque, and fixture driver are specified.

Product name	Healing abutment	Temporary abutment	Post abutment	Direct abutment	Angle abutment	Cast-on abutment	Splint abutment
Product drawing							
Sterilization condition	Sterilized	Non-sterilized	Non-sterilized	Non-sterilized	Non-sterilized	Non-sterilized	Sterilized
Tightening method/torque (N·cm)	Manual	15	35	35	35	35	35
Driver							
	Hexalobular driver SH	Hexalobular driver CH	Hexalobular driver CH	Hexalobular driver CH	Hexalobular driver CH	Hexalobular driver CH	Driver for a splint abutment

Product name	Splint healing cap	Temporary/ gold cylinder	Titanium-based abutment	Ball abutment
Product drawing				
Sterilization condition	Non-sterilized	Non-sterilized	Non-sterilized	Non-sterilized
Tightening method/torque (N·cm)	Manual	15	35	35
Driver				
	Hexalobular driver SH	Hexalobular driver CH	Hexalobular driver CH	Ball abutment driver

[Remarks] *Superstructure parts with “Manual” specified as the tightening method need to be manually tightened.

Important

Before attaching a healing abutment, temporary abutment, or superstructure part to the implant body, check the tightening method and recommended tightening torque for each part.

Notes

- Before attaching Non-sterilized products in the oral cavity, please sterilize them.

・ Example of sterilization conditions

(For retention temperature and time, refer to the right table, ISO 17665-2 (Sterilization of health care products - Moist heat - Part 2 : Guidance on the application of ISO 17665 Part 1 : 2006)

- For intraoral attachment of a superstructure part, fix it on the implant body at the tightening torque specified for the particular part.

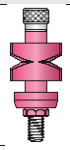
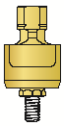
Autoclave conditions

Retention temperature	Retention time
121°C	15 minutes
126°C	10 minutes
134°C	3 minutes

3-8 Color codes

For TL fixture, individual parts such as the cover screw, healing abutment, impression part, analog, and abutment screw are color coded or marked by a platform.

(Unit: mm)

	Diameter of platform (φ)	Diameter of compatible implant (φ)	Cover screw	Healing abutment	Impression post	Transfer coping	Analog	Abutment screw
RP	4.8	3.7 4.2 4.7						
WP	6.5	4.7 5.2						

[Remarks]
The abutment screw is common for both RP and WP in the TL implant system.
The screw for angle abutments is gold in color.

3-9 Precautions for the use of superstructure parts

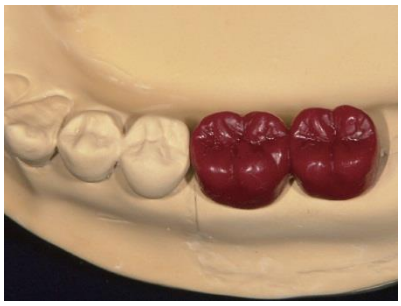
1) Fix the abutment after confirming that the soft tissues and bone have healed at least 3 months after insertion of the implant bodies in the mandible or at least 6 months after insertion of the implant bodies in the maxilla.
2) Some of the abutments are Non-sterilized. Check whether the indicated abutment is sterilized before use.
3) Obtain X-ray images as needed to check for clearance between the abutment and implant.
4) Before attaching the abutment, thoroughly clean the implant body to eliminate foreign material such as blood.
5) Use a lab screw as needed for laboratory work. Do not confuse the lab screw with the abutment screwand the cylinder screw, because both have the same shape.
6) The tightening torque for a tightened screw is slightly decreased because of initial plastic deformation of the screw itself. Retightening is required to restore the original torque and establish a closer connection between parts to prevent loosening. Retighten the abutment screw two to three times.
7) Use an alternatively available abutment screw at the time of replacement during maintenance.
8) Do not store the products in an area exposed to high temperature, humidity, or direct sunlight. An implant body dropped on the floor or contaminated by foreign material such as saliva can be infected. Please discard it immediately.
9) When tightening the abutment or operating a dedicated tool, be careful so that the patient does not accidentally swallow the abutment.
10) The abutment may be deformed or damaged if excessive force is applied.
11) Check the package before opening it. Do not use the abutment, if the package is damaged.
12) Do not use any tool other than dedicated ones, otherwise you can damage the implant body.
13) The maximum period of use for temporary abutments and temporary cylinders is 2 months.
14) The cover screw, healing abutment, temporary abutment, temporary cylinder, and splint healing cap are provisional parts. Avoid the application of bite forces to these parts.
15) Carefully read the package inserts and fully understand the functions of products, methods of use, and surgical procedures before use.

2. Treatment plan

In implant treatment, development of a proper treatment plan based on comprehensive exploration and diagnosis is very important. Implant positioning is important for the manufacture of a functional, esthetic, and clean superstructure. For accurate implant positioning, it is essential to prepare a template.
Preparation of a template provides information regarding the correct implant position as well as information necessary for designing the superstructure.

1 Wax-up/diagnostic cast

A diagnostic wax-up should be fabricated on a study model, and the three-dimensional position and direction for placement of the implant body, type and size of the implant body, and a suitable superstructure should be selected on the basis of the wax-up.
The diagnostic wax-up/model can be used for the fabrication of a diagnostic template or surgical template using X-rays and the provisional restoration.



Technical points

- A study model should be mounted on an articulator and wax-up in order to check the size of the crown, adjacent teeth, opposing dentition, and relationship with the opposing teeth.

2 X-ray template

A diagnostic template is fabricated from X-rays to check the bone mass in the planned region of implant body placement and anatomical conditions such as the bone height and diameter.
The determined implant position is marked on a model, and a wax-up is prepared from material such as clear resin.
Then, a radiopaque metal pin, ball, or stopping is placed at the determined implant position.
The X-ray template can be used to select the size and type of implant body, because the bone mass, shape of the alveolar ridge, and thickness of the mucosa in the planned region of implant body placement can be checked on the X-ray images and CT images acquired with the template.

Technical points

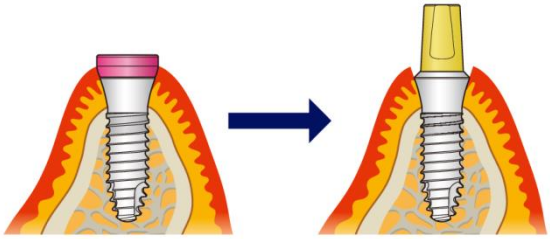
- Set the occlusal condition and guidance with reference to a diagnostic wax-up so that excessive stress is not applied in the planned region of implant body placement.
- To determine the implant position and direction, please refer to the following information: [1] mesiodistal relationship, [2] buccolingual relationship, [3] orientation of the adjacent tooth roots, [4] occlusal plane, and [5] residual buccolingual bone mass.

3 Surgical template

A surgical template is fabricated after the position of implant body placement is successfully checked using the diagnostic template. The use of a surgical template enables correct planning and creation of implant holes.

3. Gingival management

TL implants are designed with importance given to function and prevention. Therefore, the superstructure is set on the soft tissue. Healing abutments indicated for gingival management should be selected according to the set position of the superstructure.



Abutments indicated for gingival management

Healing abutment

1 Healing abutment

◆Intended use
- Gingival management

◆Material
- Titanium alloy (Ti-6Al-4V ELI)

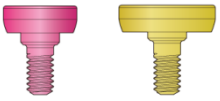
◆Selection criteria
- Thickness of the gingiva
- Position of the margin
- Size of the final prosthesis
- Type of the final superstructure

◆Tightening method
- Manual (manual tightening)

◆Indicated driver
- Hexalobular driver SH

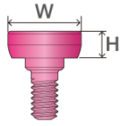
◆Sterilization condition
- Sterilized

Healing abutment

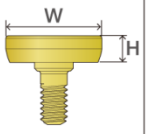


Variations in the healing abutment size

(Unit: mm)

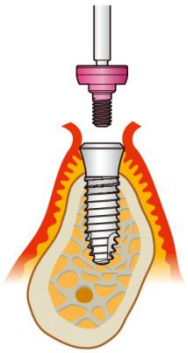
Product drawing	Platform	Platform diameter	Height (H)	Diameter (W)
	RP	4.8	1.5	5.5
			2.0	
			3.0	
			4.5	

(Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)	Diameter (W)
	WP	6.5	1.5	7.2
			2.0	
			3.0	
			4.5	

Procedure for attaching the healing abutment

- Attach the healing abutment to the implant body using a hexalobular driver SH (for manual operation).
  Before attaching the healing abutment, thoroughly clean the inside of the implant body to remove foreign material such as blood.



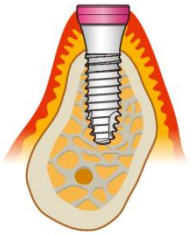
Reference

Use a hexalobular driver SH (for manual operation) to manually tighten the abutment.

Notes

Ensure that the tip of the driver is securely inserted in the cover screw and healing abutment before carrying it into the oral cavity.

- Close and suture the incisions in the alveolar mucosa around the healing abutment.



4. Impression taking

1 Impression techniques

The purpose of recording an impression for dental implant treatment is to precisely replicate the position of the implant body and abutment and the condition of surrounding tissues in the oral cavity on a work model.

For TL implants, the following three impression techniques can be used.
Select a technique suitable for the case and the indicated superstructure part.

(1) Direct impression

In the direct impression technique, a readymade abutment is attached to the implant body, and a direct impression of the readymade abutment is recorded using the same technique used for conventional crown restorations.
This technique is used for cases where a readymade post is used and the margin is above the gingival margin. Using this technique, a superstructure can be manufactured with a normal removable model.

(2) Open tray impression

In the open tray impression technique, an open tray impression coping (transfer coping) is attached and a pick-up impression is recorded.
Thus, the body of the transfer copying is incorporated within the impression. This provides a more accurate impression.
This technique can be used for cases where the margin of the abutment is below the gingival margin and is very effective for long-span prostheses with custom abutments or screw-retained superstructures.

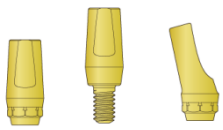
(3) Closed tray impression

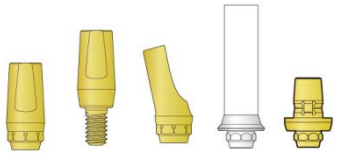
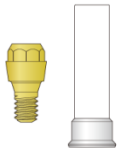
In the closed tray impression technique, a closed tray impression coping (impression post) is attached and an impression is recorded using the same technique used for conventional crown restorations.
This technique can be used for cases where the margin of the abutment is below the gingival margin. With this technique, superstructures such as custom abutments or screw-retained superstructures can be manufactured.

2 Comparison of impression techniques and applicable superstructure parts

Comparison of impression techniques

Direct impression	Open tray impression	Closed tray impression
● Simple ● It is slightly inferior to other impression techniques with regard to the accuracy of the impression.	● A little complicated ● Recording of a pick-up impression results in high impression accuracy. ● In cases where multiple implant bodies are inserted, this technique provides greater impression accuracy compared with the closed tray impression technique.	● Simple ● It is slightly inferior to the open tray impression technique with regard to the accuracy of the impression.

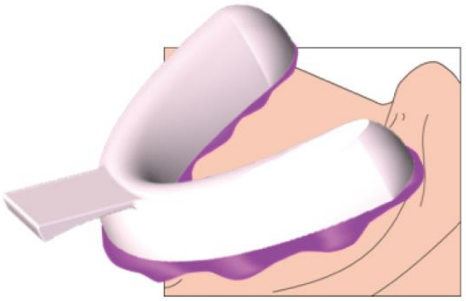
Direct impression			
Impression parts		N/A	Applicable abutments
Prosthesis	Cement-retained	✓	
	Screw-retained	×	
Multiple impressions		(unsuitable for inclination)	

Indirect impression				
Impression technique		Closed tray	Open tray	Applicable abutments
Impression parts		Impression post	Transfer coping	
Prosthesis	Cement-retained	✓	✓	
	Screw-retained	✓	✓	
	Screw-retained (Splint abutment)	Impression post for a splint abutment	Transfer coping for a splint abutment	
		✓	✓	

3 Direct impression

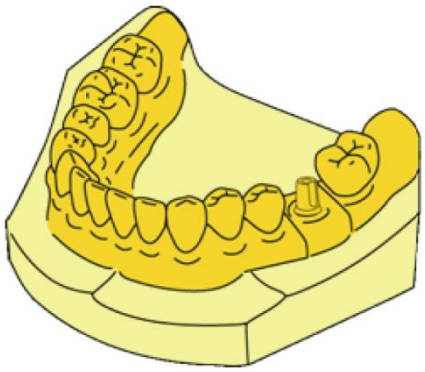
Step 1 Impression taking

- Seal the screw access hole on an abutment to prevent the entry of impression material into the hole. Remove excess sealant so that it does not squeeze out from the access hole.
  Record the impression with silicon impression material using the conventional technique.



Step 2 Manufacturing model

- Pour plaster in the recorded impression using the conventional technique.
  Create a rubber model with a gum material (gum silicon) using the conventional technique.
  Finish it as a work model for fabricating a wax pattern.

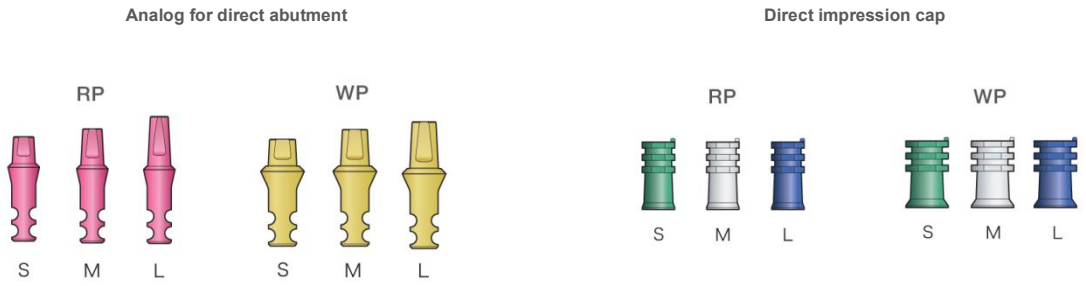


Reference

If the margin of the TL implant is set below the gingival margin, an analog for direct abutments can be used for the impression surface to fabricate a model. This allows accurate replication of the margin position.

Reference

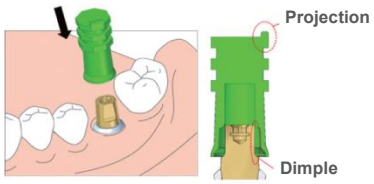
When the margin of the TL implant is set subgingivally, the pick-up impression is obtained using a direct impression cap, and the analog for a direct abutment is applied to the surface of impression. Thus, the model can be created. This allows precise reproduction of the position of the margin.

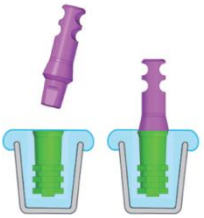


Notes

To take an accurate impression, ensure that the margins of the implant and impression cap are not damaged before use.

When attaching the direct impression cap, align the orientation between the projection of the cap and the dimple in the abutment.





4 Open tray impression technique (implant level)

◆Intended use
- Impression taking using the open tray technique

◆Material
- Titanium alloy (Ti-6Al-4V ELI)

◆Features
- An accurate impression is obtained because the impression parts are picked up within the impression.
- This technique can be used for a single prosthesis as well as a bridge.
- The positional relationship of implant bodies is replicated in the recorded impression.

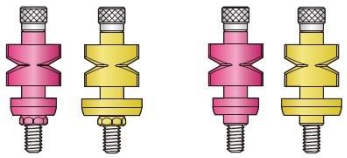
◆Tightening method
- Manual (manual tightening)

◆Indicated driver
- Hexalobular driver SH

◆Sterilization condition
- Non-sterilized

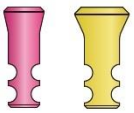
*Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.

Transfer coping



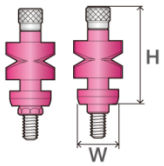
ST R

Analog



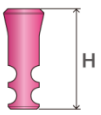
Variations in the transfer coping size

(Unit: mm)

Product drawing	Platform	Screw	Platform diameter	Diameter (W)	Height (H)
	RP	S	4.8	5.5	13.0
		L			21.5
	WP	S	6.5	7.2	13.0
		L			21.5

Variations in the analog size

(Unit: mm)

Product drawing	Platform	Height (H)
	RP	12.0
	WP	12.0

* Pink for RP (implant with a diameter (φ) of 3.7/4.2/4.7 mm)
* Gold for WP (implant with a diameter (φ) of 4.7/5.2 mm)

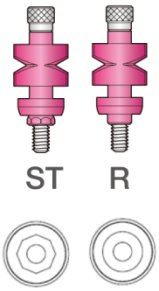
Open tray impression technique (implant level)

Step 1 Transfer coping placement

- Before placing the transfer coping in the implant body, thoroughly clean the inside of the implant body.
- Securely attach the transfer coping to the implant body and tighten the positioning screw using a hexalobular driver SH.

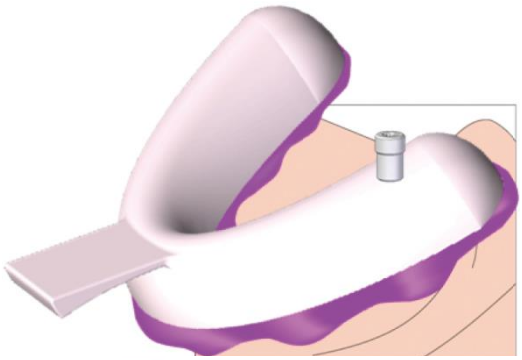
Technical points

For single-tooth impressions, use transfer coping ST (with antirotation mechanism), and for multiple-tooth impressions, use transfer coping R (without antirotation mechanism).

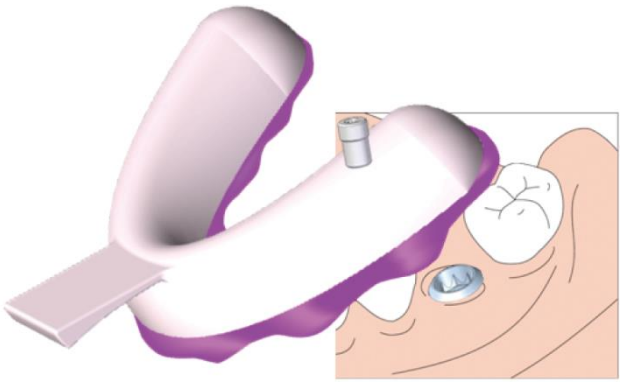


Step 2 Impression taking

- Record an impression with a silicon impression material.



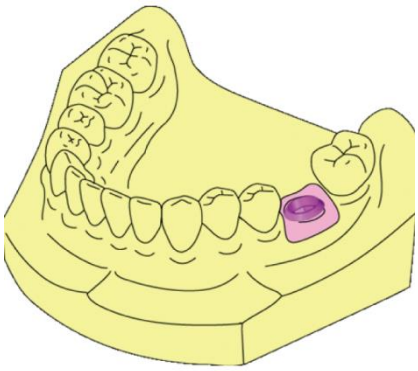
- Once the impression material sets, loosen the screw and remove the impression tray from the oral cavity.



Step 3 Fabrication of a work model

- Connect an analog to the transfer coping picked up within the impression.
  Ensure that the analog is securely connected to the transfer coping. Tighten the screw. Hold the analog in the hand while tightening the screw.

- Pour plaster in the recorded impression using the conventional technique.



5 Closed tray impression technique (implant level)

◆Intended use
- Impression taking using the closed tray technique

◆Material
- Impression post: titanium alloy (Ti-6Al-4V ELI)
- Impression cap: polypropylene (PP)

◆Features
- An accurate impression is obtained because the impression cap is picked up within the impression.
- This technique can be used for a single tooth.
- The positional relationship of implant bodies is replicated in the recorded impression.

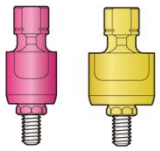
◆Tightening method
- Manual (manual tightening)

◆Indicated driver
- Hexalobular driver SH

◆Sterilization condition
- Non-sterilized

*Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.

Impression post

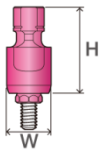


Impression cap

Analog

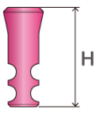
Variations in the impression post size

(Unit: mm)

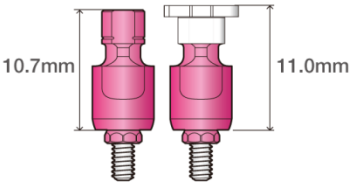
Product drawing	Plat-form	Platform diameter	Diameter (W)	Height (H)
	RP	4.8	5.5	10.7
	WP	6.5	7.2	10.7

Variations in the analog size

(Unit: mm)

Product drawing	Platform	Height (H)
	RP	12.0
	WP	12.0

Information
- The impression cap is equipped with antirotation and anti-displacement mechanisms, which facilitates the acquisition of a pick-up impression replicating the accurate positional relationship.
- The polypropylene (PP) impression cap is common for all sizes of BL and TL implants.
- When the impression cap is used, a margin of 0.3 mm from the impression post is required.



Closed tray impression technique

Step 1 Impression post placement

- Before placing an impression post in the implant body, thoroughly clean the inside of the implant body.
- Securely attach the impression post to the implant body and tighten the positioning screw using a hexalobular driver SH.

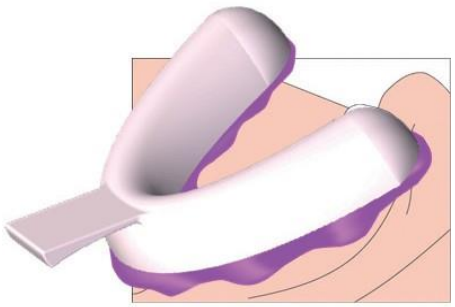
- Accurately attach an impression cap to the impression post.

Notes

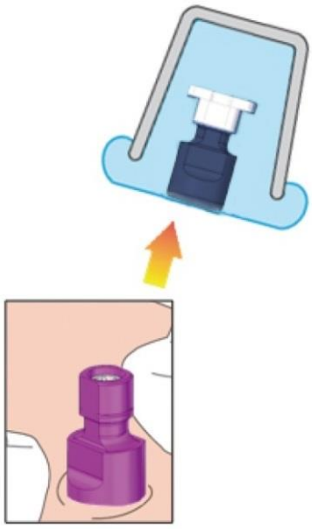
- Do not reuse the impression cap.
- Ensure that the head of the impression post is hidden by the cap.

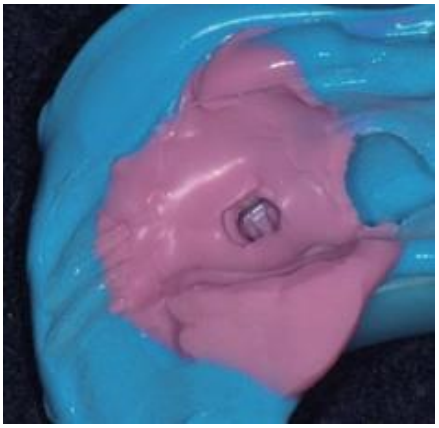
Step 2 Impression taking

- Record an impression with a silicon impression material.



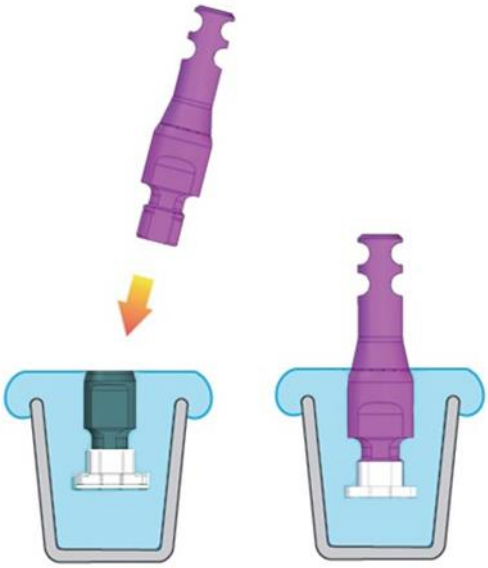
- Once the impression material sets, remove the impression tray from the oral cavity.
  The impression cap is picked up on the surface of the impression.

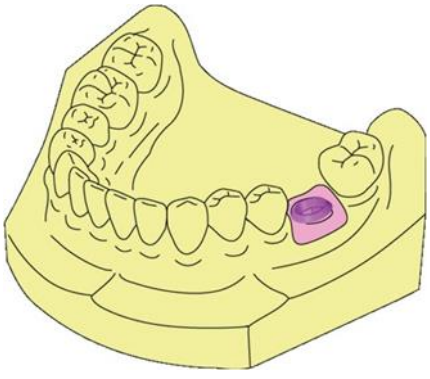




Step 3 Fabrication of a work model

- Replace the impression post coupled with an analog in the impression cap picked up within the impression.
  Pour plaster in the recorded impression using the conventional technique to fabricate a model.





6 Open tray impression technique (abutment level)

◆Intended use
- Impression taking using the open tray technique

◆Material
- Titanium alloy (Ti-6Al-4V ELI)

◆Features
- An accurate impression is obtained because the impression parts are picked up within the impression.
- This technique can be used for a single prosthesis as well as a bridge.
- The positional relationship of the abutment is replicated in the recorded impression.

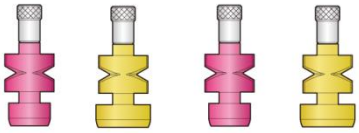
◆Tightening method
- Manual (manual tightening)

◆Indicated driver
- Hexalobular driver SH

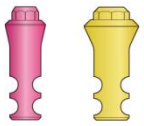
◆Sterilization condition
- Non-sterilized

*Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.

Transfer coping for a splint abutment

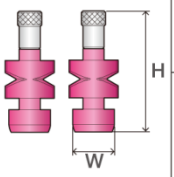


Analog for a splint abutment



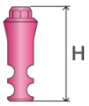
Variations in the size of the transfer coping for a splint abutment

(Unit: mm)

Product drawing	Platform	Screw	Platform diameter	Diameter (W)	Height (H)
	RP	S	4.8	5.5	16.0
		L			21.0
	WP	S	6.5	7.2	16.0
		L			21.0

Variations in the size of the analog for a splint abutment

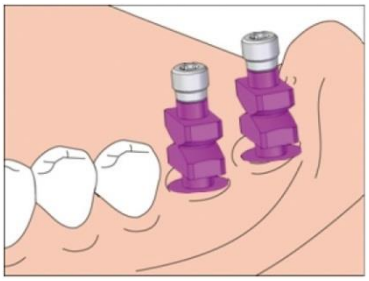
(Unit: mm)

Product drawing	Platform	Height (H)
	RP	13.5
	WP	13.5

Open tray impression technique (abutment level)

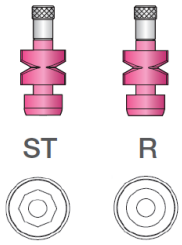
Step 1 Placement of the transfer coping for a splint abutment

- Before placing a transfer coping for a splint abutment in the implant body, thoroughly clean the inside of the implant body.
- Securely attach the transfer coping to the splint abutment and implant and tighten the screw using a hexalobular driver SH.



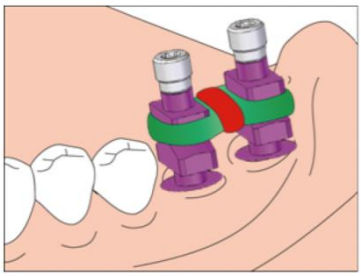
Technical points

For a single-tooth impression, use transfer coping ST (with antirotation mechanism).
For a multiple-tooth impression, use transfer coping R (without antirotation mechanism).



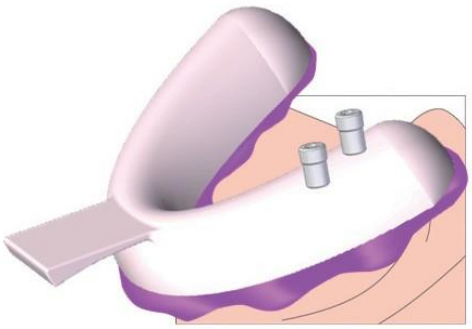
- If required for a bridge, couple the transfer copings.
  To minimize changes due to polymerization shrinkage of resin, follow these steps to couple the transfer copings.

1) Couple the transfer copings using a resin with less polymerization shrinkage.
2) To minimize distortion due to polymerization shrinkage, cut the resin coupling using a thin disk.
3) Recouple the copings using a pattern resin.

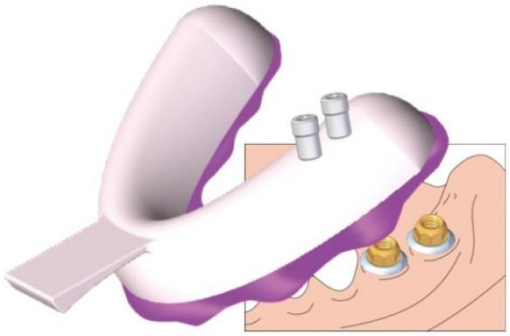


Step 2 Impression taking

- Record an impression with a silicon impression material.

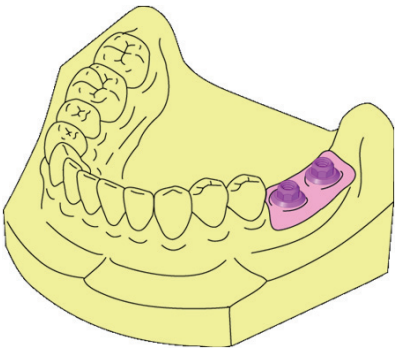


- Once the impression material sets, loosen the screw and remove the impression tray from the oral cavity.



Step 3 Fabrication of a work model

- Connect the analog to the transfer coping for a splint abutment picked up within the impression.
  Ensure that the analog is securely connected to the transfer coping for splint abutments. Tighten the screw. Hold the analog in the hand while tightening the screw.
  Pour plaster in the recorded impression using the conventional technique.



7 Closed tray impression technique (abutment level)

◆Intended use
- Impression taking using the closed tray technique

◆Material
- Titanium alloy (Ti-6Al-4V ELI)

◆Features
- This technique can be used for a single prosthesis as well as a bridge.
- The positional relationship of the splint abutment is replicated in the recorded impression.

*To fabricate a superstructure replacing several teeth using a model based on an impression recorded with an impression post, split the framework into pieces and check the fitness through a try-in in the oral cavity.
Consider fixing the pieces of the framework for the try-in and subsequently couple them by waxing.

◆Tightening method
- Manual (manual tightening)

◆Indicated driver
- Impression driver

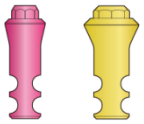
◆Sterilization condition
- Non-sterilized

*Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.

Impression post for a splint abutment

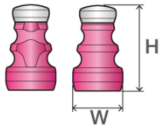
ST R

Analog for a splint abutment



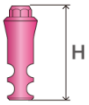
Variations in the size of the impression post for a splint abutment

(Unit: mm)

Product drawing	Platform	Platform diameter	Diameter (W)	Height (H)
	RP	4.8	5.5	9.4
	WP	6.5	7.2	9.4

Variations in the size of the analog for a splint abutment

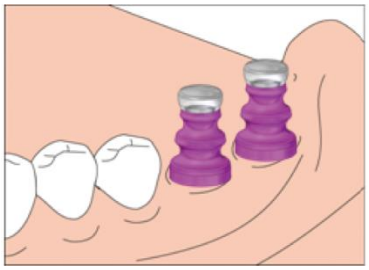
(Unit: mm)

Product drawing	Platform	Height (H)
	RP	13.5
	WP	13.5

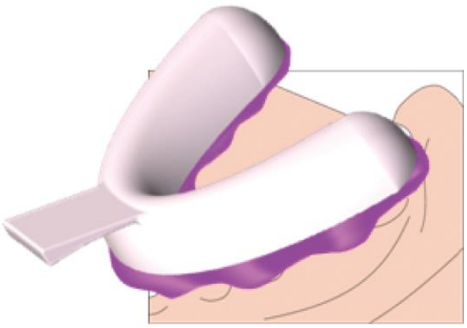
Closed tray impression technique (abutment level)

Step 1 Placement of the impression post for a splint abutment

- Securely attach the impression post to the splint abutment and tighten using an impression driver.



- Once the impression material sets, remove the impression tray from the oral cavity.

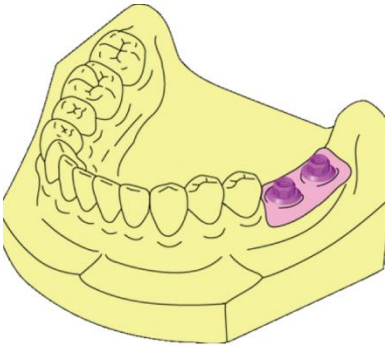


Step 2 Fabrication of a work model

- Connect an analog for a splint abutment to the impression post.

Step 3 Fabrication of a work model

- Replace the impression post for splint abutments coupled with the analog for splint abutments into the impression.
- Pour plaster in the recorded impression using the conventional technique.



8 Digital impression technique

◆Intended use
- Impression taking using the digital technique (scan body)

◆Material
- PEEK

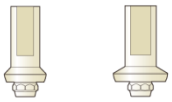
◆Tightening method
- Manual (manual tightening)

◆Indicated driver
- Hexalobular driver SH

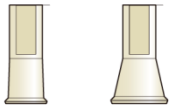
◆Sterilization condition
- Non-sterilized

*Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.

Scan body



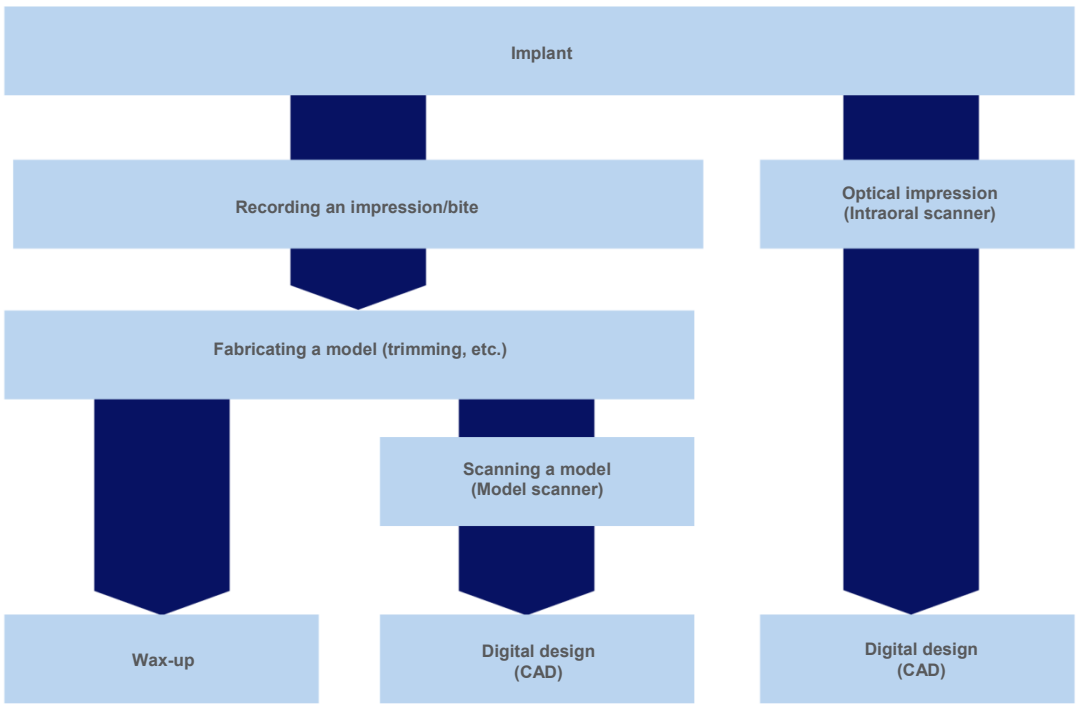
Scan body for a splint abutment



Digital impression technique

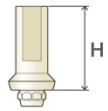
The combination of the FINESIA TL implant system with a scan body allows for the recording of a digital impression using an intraoral scanner and a desktop scanner. The acquired data enables the dental laboratory (in-hospital laboratory) to fabricate prostheses using CAD/CAM techniques.

Flow diagram for the digital impression technique



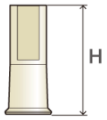
Variations in the scan body size

(Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)
	RP	4.8	10.0
	WP	6.5	10.0

Variations in the size of the scan body for a splint abutment

(Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)
	RP	4.8	12.0
	WP	6.5	12.0

Digital impression technique

Intraoral digital impression technique

Attach a scan body and tighten using an abutment screw.

* Use an abutment screw for the scan body. For the scan body for a splint abutment, use a cylinder screw.

Digital impression technique using a model

Attach an impression coping to the implant body to record an impression.

Fabricate an analog model.

Attach a scan body to the analog model and tighten using a lab screw.

* For a scan body to be used with a model, use a lab screw. For the scan body for a splint abutment to be used with a model, use a lab screw for a splint abutment.

Notes

- Ensure that the abutment screw, cylinder screw, and scan body are sterilized before use.
- Do not reuse the abutment screw or cylinder screw.

Technical points

While recording an impression, attach the scan body in such a manner that the dimple (plane) set on the scan body is on the buccal side or labial or lingual surface.

Record a digital impression using an intraoral scanner.

After obtaining the digital impression data, check for impression accuracy.
Then, send the data to a dental laboratory or in-hospital laboratory.

* For information on dental laboratories that use CAD/CAM systems for the FINESIA TL implant system, contact us.

5. Provisional restoration

1 Temporary abutment

◆Intended use
- Fabrication of provisional crowns for cement-retained or screw-retained superstructures
- Fabrication of provisional bridges for cement-retained or screw-retained superstructures

◆Material
- Titanium alloy (Ti-6Al-4VELI)

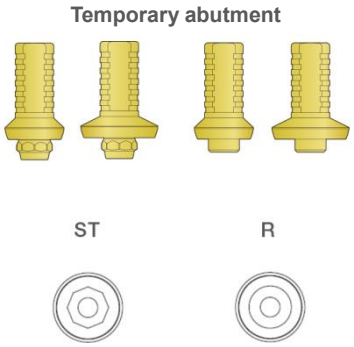
◆Features
- Can be used for manufacturing a provisional restoration
- Can be customized by grinding and resin build-up
- Emergence profile can be formed

◆Tightening torque
- 15 N·cm

◆Indicated driver
- Hexalobular driver

◆Sterilization condition
- Non-sterilized

*Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.



Basic technique for temporary abutments

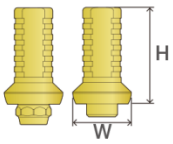
Primary surgery
- Implant placement
- Attachment of cover screw or healing abutment

Tightening method
Manual (manual tightening)
Indicated driver
Hexalobular driver SH

Provisional prosthesis
- Provisional restoration (attachment of temporary abutment)

Tightening torque
15 N·cm
Indicated driver
Hexalobular driver

Variations in the temporary abutment size (Unit: mm)

Product drawing	Platform	Platform diameter	Diameter (W)	Post height (H)
	RP	4.8	5.5	9.0
	WP	6.5	7.2	9.0

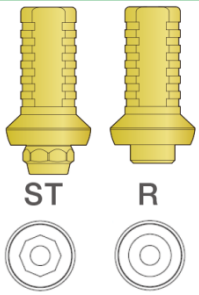
Fabrication of a provisional restoration using a temporary abutment

Step 1 Adjustment of the temporary abutment

- Attach the temporary abutment on an analog and tighten the lab screw using a hexalobular driver.

Technical points

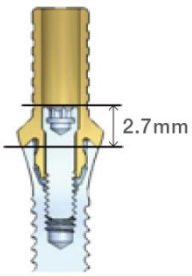
For a single tooth, use temporary abutment ST (with antirotation mechanism), and for a bridge, use temporary abutment R (without antirotation mechanism).



- With reference to the height of the adjacent teeth and clearance of the opposing tooth, mark the post of the temporary abutment at an appropriate height and adjust the post by grinding as required.

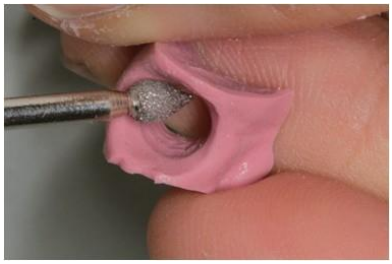
Notes

The screw head is set 2.7 mm from the platform of the TL implant. Adjust the height of the post so that the screw head does not protrude.



Step 2 Adjustment with gum silicon

- Taking the anatomical form into consideration, create an emergence profile by grinding gum silicon as required.



Step 3 Wax-up

- Create a wax-up according to the anatomical form and fabricate a silicon key over it.

Step 4 Building up resin

- Build up resin on the temporary abutment.
  Sandblast the surface of the temporary abutment before building up resin.
  Prevent the sandblaster from coming in contact with the fit. Otherwise, the fit will be compromised.
  Subject the temporary abutment to opacifying treatment and build up resin if the esthetic demand is high.

- Correct the form of the provisional resin restoration.

6. Cement-retained superstructure

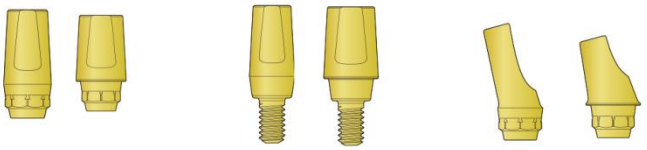
1 Post abutment/direct abutment/angle abutment

◆Intended use
- Fabrication of cement-retained superstructures (single tooth or multiple teeth)

◆Material
- Titanium alloy (Ti-6Al-4VELI)

◆Selection criteria
- Insertion of single-tooth implants
- For insertion of multiple-tooth implants
- If there is clearance between the implant and the opposing tooth

Post abutment **Direct abutment** **Angle abutment**



*** An angle abutment is inclined in the diagonal direction of the octagon**

◆Tightening torque
- 35 N·cm

◆Indicated driver
- Hexalobular driver

◆Sterilization condition
- Non-sterilized

*Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.

Basic technique for post abutments/direct abutments/angle abutments

Primary surgery
- Implant placement
- Attachment of cover screw or healing abutment

Tightening method
Manual (manual tightening)
Indicated driver
Hexalobular driver SH

Provisional prosthesis
- Provisional restoration (attachment of temporary abutment)

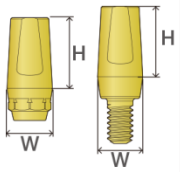
Tightening torque
15 N·cm
Indicated driver
Hexalobular driver

Final prosthesis

- Attachment of abutment/final prosthesis
  Tightening torque
  35 N·cm
  Indicated driver
  Hexalobular driver

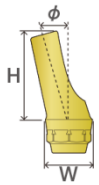
Variations in the post abutment/direct abutment sizes

(Unit: mm)

Product drawing	Platform	Platform diameter	Diameter (W)	Post height (H)
	RP	4.8	3.5	4.0
				5.5
				7.0
	WP	6.5	4.3	4.0
				5.5
				7.0

Variations in the angle abutment size

(Unit: mm)

Product drawing	Platform	Platform diameter	Diameter (W)	Post height (H)	Angle (ϕ)
	RP	4.8	3.5	6.6	15°
	WP	6.5	4.3	5.3	15°

Fabrication of a superstructure using a post abutment

Step 1 Fabrication of a work model

・ Fabricate a work model by recording a direct impression.

Step 2 Wax-up

・ Fabricate a wax-up keeping in mind the anatomical form.

Step 3 Correction of form/polishing

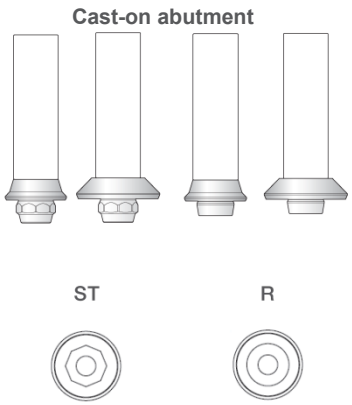
・ Correct the form of the cast superstructure and polish it.
Adequately polish the area that comes in contact with the gingiva.

2 Cast-on abutment

◆Intended use
- Fabrication of cement-retained superstructures using a custom abutment
- Fabrication of screw-retained superstructures (single tooth or multiple teeth)

◆Material
- Gold alloy (Ceramicor: manufactured by CENDRES+MAETAUX)

◆Selection criteria
- Insertion of single-tooth implants
- For insertion of multiple-tooth implants
- Can be used if sufficient clearance between the implant and the opposing tooth is not present.
  (For a screw-retained superstructure)



◆Tightening torque
- 35 N·cm

◆Indicated driver
- Hexalobular driver

◆Sterilization condition
- Non-sterilized

*Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.

Basic technique for cast-on abutments

Primary surgery
- Implant placement
- Attachment of cover screw or healing abutment

Tightening method
Manual (manual tightening)
Indicated driver
Hexalobular driver SH

Provisional prosthesis
- Provisional restoration (attachment of temporary abutment)

Tightening torque
15 N·cm
Indicated driver
Hexalobular driver

Final prosthesis

- Attachment of abutment/final prosthesis

  Tightening torque

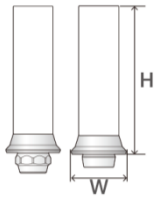
  35 N·cm

  Indicated driver

  Hexalobular driver

Variations in the cast-on abutment size

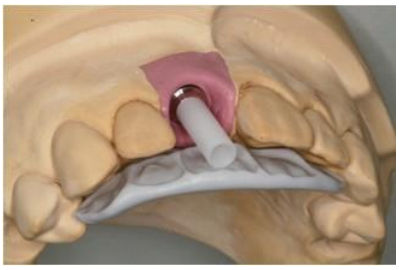
(Unit: mm)

Product drawing	Platform	Platform diameter	Diameter (W)	Height (H)
	RP	4.8	5.1	13.7
	WP	6.5	6.9	13.7

Fabrication of cement-retained superstructures using a cast-on abutment (custom abutment)

Step 1 Adjustment of the cast-on abutment

- Attach the cast-on abutment to an analog model.



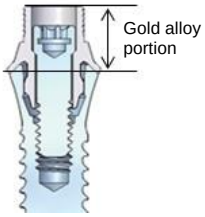
Technical points

For a single tooth, use cast-on abutment ST (with antirotation mechanism).

- With reference to the marginal alveolar ridge of the adjacent teeth and the clearance of the opposing tooth, adjust the post by grinding as required.

Notes

Adjust the height of the post without grinding the gold alloy portion.



Step 2 Wax-up

- Taking the anatomical form into consideration, wax up the cast-on abutment into the shape of a post abutment.

Step 3 Spruing/investing/casting

- Sprue and invest the superstructure after wax-up.
  Cast it using the conventional technique.

Step 4 Correction of form/polishing

- Correct the form of the cast superstructure and polish it.
  Adequately polish the area that comes in contact with the gingiva.

- Check and adjust the relationship with the gingiva to fabricate a framework for the final prosthesis.

- Build up the facing material, polish it, and correct the form.

7. Screw-retained superstructure

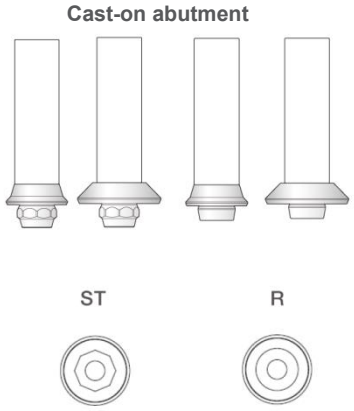
1 Cast-on abutment

◆Intended use
- Fabrication of cement-retained superstructures using a custom abutment
- Fabrication of screw-retained superstructures (single tooth or multiple teeth)

◆Material
- Gold alloy (Ceramicor: manufactured by CENDRES+MAETAUX)

◆Selection criteria
- Insertion of single-tooth implants
- For insertion of multiple-tooth implants
- Can be used if sufficient clearance between the implant and the opposing tooth is not present.

(For a screw-retained superstructure)



◆Tightening torque
- 35 N·cm

◆Indicated driver
- Hexalobular driver

◆Sterilization condition
- Non-sterilized

*Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.

Basic technique for cast-on abutments

Primary surgery
- **Implant placement**
- **Attachment of cover screw or healing abutment**

Tightening method
Manual (manual tightening)
Indicated driver
Hexalobular driver SH

Provisional prosthesis
- **Provisional restoration (attachment of temporary abutment)**

Tightening torque
15 N·cm
Indicated driver
Hexalobular driver

Final prosthesis

- Attachment of abutment/final prosthesis

  Tightening torque

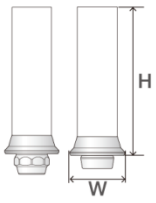
  35 N·cm

  Indicated driver

  Hexalobular driver

Variations in the cast-on abutment size

(Unit: mm)

Product drawing	Platform	Platform diameter	Diameter (W)	Height (H)
	RP	4.8	5.1	13.7
	WP	6.5	6.9	13.7

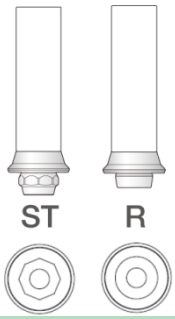
Fabrication of a screw-retained superstructure using a cast-on abutment

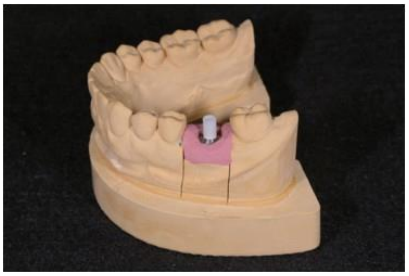
Step 1 Adjustment of the cast-on abutment

・ Attach the cast-on abutment to an analog model.

Technical points

For a single tooth, use cast-on abutment ST. For a bridge, use cast-on abutment R.





・ With reference to the marginal alveolar ridge of the adjacent teeth and the clearance of the opposing tooth, adjust the post by grinding as required.

Step 2 Wax-up

- Taking the anatomical form into consideration, wax up the cast-on abutment.

Step 3 Spruing/investing/casting

- Sprue the superstructure after wax-up. After investing, cast it using the conventional technique.

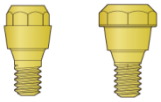
Step 4 Correction of form/polishing

- Correct the form of the cast superstructure and polish it.
  Adequately polish the area that comes in contact with the gingiva.

2 Splint abutment

◆Intended use
- Fabrication of screw-retained superstructures (single tooth or multiple teeth)
- Fabrication of overdentures

Splint abutment



Splint healing cap

◆Material

Splint abutment	Titanium alloy (Ti-6Al-4V ELI)
Splint healing cap	Titanium alloy (Ti-6Al-4V ELI)
Temporary cylinder	Titanium alloy (Ti-6Al-4V ELI)
Gold cylinder	Gold alloy (Ceramicor: manufactured by CENDRES+MAETAUX)

◆Selection criteria
- Insertion of single-tooth implants
- Insertion of multiple-tooth implants

◆Tightening torque/method

Splint abutment	35 N·cm
Splint healing cap	Manual (manual tightening)
Temporary cylinder	15 N·cm
Gold cylinder	15 N·cm

◆Indicated driver

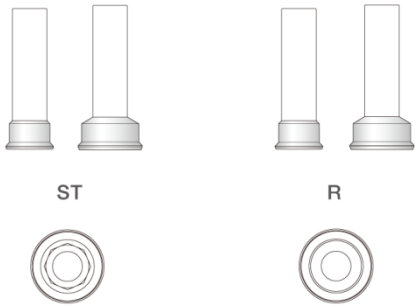
Splint abutment	Driver for a splint abutment
Splint healing cap	Hexalobular driver SH
Gold cylinder	Hexalobular driver
Temporary cylinder	Hexalobular driver

◆Sterilization condition

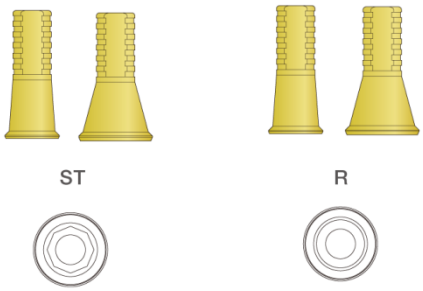
Splint abutment	Sterilized
Splint healing cap	Non-sterilized
Temporary cylinder	Non-sterilized
Gold cylinder	Non-sterilized

* Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.

Gold cylinder



Temporary cylinder



Basic technique for splint abutments

Primary surgery

- Implant placement
- Attachment of cover screw or healing abutment

Tightening method
Manual (manual tightening)
Indicated driver
Hexalobular driver SH

Attachment of splint abutments (secondary surgery)

- Attachment of splint abutments

Tightening torque
35 N·cm
Indicated driver
Driver for a splint abutment

Provisional prosthesis

- Provisional restoration (attachment of temporary abutment)

Tightening torque
15 N·cm
Indicated driver
Hexalobular driver

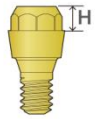
Final prosthesis

- Attachment of abutment/final prosthesis (attachment of gold cylinder)

Tightening torque
15 N·cm
Indicated driver
Hexalobular driver

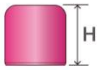
Variations in the splint abutment size

(Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)
	RP	4.8	1.5
	WP	6.5	1.65

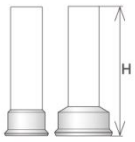
Variations in the splint healing cap size

(Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)
	RP	4.8	5.0
	WP	6.5	5.5

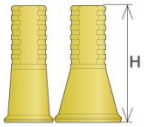
Variations in the gold cylinder size

(Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)
	RP	4.8	15.0
	WP	6.5	15.5

Variations in the temporary cylinder size

(Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)
	RP	4.8	12.0
	WP	6.5	12.0

Features of basic technique for splint abutments

Splint abutments are applied to screw-retained superstructures or overdentures with bar attachments.
Splint abutments are designed on the basis of the one-time one-abutment concept. Therefore, a sterilized abutment should be fastened during the secondary surgery, following which the abutment attached to the implant body is attached to the final prosthesis. This procedure enables accurate prosthetic restoration with a screw-retained superstructure for multiple teeth, where a passive fit is required.

Submerged technique (single-stage technique)

Primary surgery
Cover screw
Attachment of healing abutment
(Tightening method: manual [manual tightening])

Healing period

Attachment of splint abutments
(Tightening toque: 35 N·cm)

Attachment of abutment

Transfer coping for a splint abutment
Impression post for a splint abutment
(Tightening method: manual [manual tightening])

Recording the impression

Attachment of temporary cylinder
(Tightening toque: 15 N·cm)

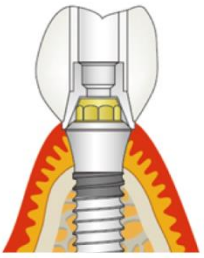
Provisional

Attachment of gold cylinder
(Tightening toque: 15 N·cm)

Final prosthesis

Attachment of a splint abutment

Cross-sectional view of prosthetic equipment using a splint abutment



Fabrication of a screw-retained superstructure using a splint abutment

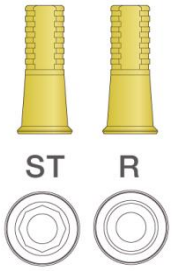
◆Fabrication of a provisional restoration with a temporary cylinder

Step 1 Adjustment of the temporary cylinder

・Attach the temporary cylinder on an analog and tighten the lab screw using a hexalobular driver.

Technical points

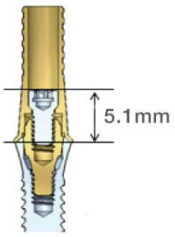
For a single tooth, use temporary cylinder ST (with antirotation mechanism), and for a bridge, use temporary cylinder R (without antirotation mechanism).



・With reference to the height of the adjacent teeth and the clearance of the opposing tooth, mark the post of the temporary cylinder at an appropriate height and adjust it by grinding as required.

Notes

The cylinder screw head is set 5.1 mm from the platform of the TL implant.
Adjust the height of the post so that the screw head does not protrude.



Step 2 Wax-up

- Create a wax-up according to the anatomical form and fabricate a silicon key over it.

Step 3 Building up resin

- Replace the fabricated silicon key on the model and pour resin into the silicon key. Subject the temporary cylinder to opacifying treatment with hard resin if the esthetic demand is high.

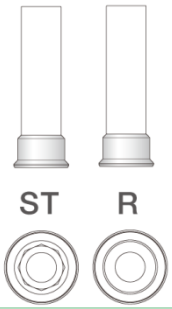
- Correct the form of the provisional resin restoration.

Step 4 Fabrication of the final superstructure

- Attach the gold cylinder on an analog and tighten the lab screw using a hexalobular driver.

Technical points

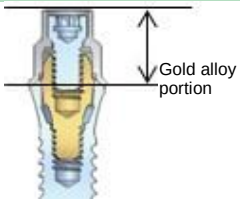
For a single tooth, use gold cylinder ST (with antirotation mechanism), and for a bridge, use gold cylinder R (without antirotation mechanism).



- With reference to the height of the adjacent teeth and the clearance of the opposing tooth, mark the post of the gold cylinder at an appropriate height and adjust the coping by grinding as required.

Technical points

Adjust the height of the post without grinding the gold alloy portion.



- Create a wax-up.

- Consider the materials to be used for the final superstructure and cut it back as needed.

Step 5 Spruing/investing/casting

- Sprue the superstructure after wax-up and cast the wax pattern according to the conventional procedure.

Step 6 Correction of form/polishing

- Adjust the fitting and correct the form of the cast superstructure and polish it. Adequately polish the area that comes in contact with the gingiva.

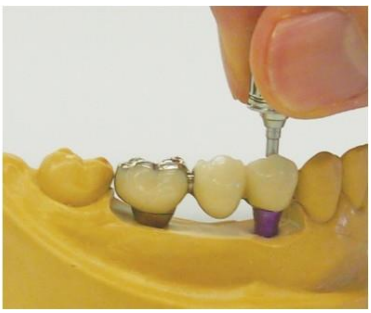
- One-screw test -

The one-screw test should be performed when a screw-retained superstructure is manufactured or abutments are coupled with a bar attachment.

The one-screw test is used to evaluate the accuracy of the fit during the try-in or attachment of a prosthesis supported by multiple implants.

A screw is inserted in one end of the prosthesis to check that the prosthesis does not rise.

If the superstructure and analogs rise, the frame should be cut and connected again by waxing.



Technical information on the welding technique

Precautions for use

A cast-on abutment and gold cylinder can be used for a wide range of applications because they have a high degree of flexibility, which enables the fabrication of a custom abutment or screw-retained superstructure with high accuracy.
During welding, a metal-to-metal bond is formed through the interface reaction (diffusion) of two alloy materials, which takes place when the CENDRES+MAETAUX Ceramicor (gold alloy) base of the cast-on abutment and the cast alloy are wetted in molten metal.

In the TL implant system, the welding technique should be used for cast-on abutments/gold cylinders.

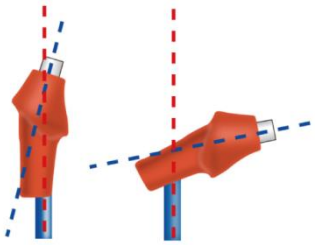
To ensure secure welding, it is important to pay attention to the conditions and method of use at each step.

Wax-up

- Ensure that you add wax to the gold cylinder on an analog and do not let the wax flow over the fit.
- Do not use a metal instrument to adjust excess wax because such instruments can damage the gold alloy base.
- Ensure that the wax layer on the gold alloy base is sufficiently thick (at least 0.5 mm).
- Following completion of the wax-up, remove the oil film or excess wax from the joint and inner surface of the implant using a swab.

Spruing

- Do not sprue at an angle that allows the sprue to go straight along the long axis of the abutment, considering that the casting pressure will not be applied directly to the abutment.
- Provide an air vent for back pressure control.
- Do not use a pattern cleaner for investing.



Provision of an air vent

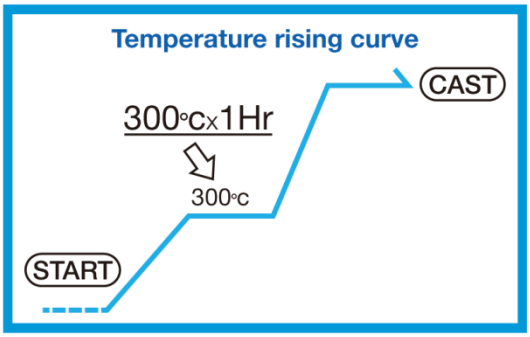
Investing and ring burnout

- Do not use an investing material for quick heating. Use an investing material for conventional heating.
- Use an investing material suitable for the indicated alloy.
- For handling of an investing material, carefully read the instruction manual provided by the manufacturer.
- Temperature rise during ring burnout

  Exercise caution when using burnout plastic, pattern resin, and a plastic sprue for a gold connector.

  Burning of a resin-based material tends to soften the material and cause rapid expansion at a temperature of approximately 190°C. This expansion may damage the investing material. Therefore, the material should be gradually heated, particularly in the range between room temperature and approximately 300°C.

  For the holding temperature and time, check the instruction manual supplied with the investing material being used.



Casting

- Select an alloy for welding from the following: gold alloy for dental casting; ISO 22674:2006 Type 3 and Type 4 equivalent (an alloy with a gold content of 65% or more and a total gold and platinum group element content of 75% or more, or a total gold and platinum group element content of 25% or more and less than 75%).

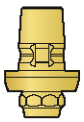
  Use an alloy with an elongation equal to or greater than 5%.
- For a single crown, use a weld body with a height of up to 13.7 mm for a cast-on abutment or a height of up to 15.0 mm for a gold cylinder and a diameter of up to 12.0 mm. Ensure that the weld body is 0.5 mm or more in thickness.
- The casting temperature must be 1200°C or lower.
- Prevent exposure of the internal structure of the cast-on abutment.
- After casting, let the casting ring stand to cool to a room temperature.
- When removing from the ring, avoid strong impacts with tools such as hammers.
- Do not sandblast to remove the investing material. Otherwise, the fit will be compromised.

8. Custom abutment manufactured using CAD/CAM

1 Titanium-based abutment

◆Intended use
- Fabrication of cement-retained superstructures (single tooth/multiple teeth)
- Fabrication of screw-retained superstructures (single tooth)

Titanium-based abutment



◆Material
- Titanium alloy (Ti-6Al-4VELI)

◆Tightening torque
- RP/WP 35 N·cm

◆Indicated driver
- Hexalobular driver

◆Sterilization condition
- Non-sterilized

*Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.

Basic technique for titanium-based abutments

Primary surgery

- Implant placement
- Attachment of cover screw or healing abutment

Tightening method

Manual (manual tightening)

Indicated driver

Hexalobular driver SH

Provisional prosthesis

- Provisional restoration (attachment of temporary abutment)

Tightening torque

15 N·cm

Indicated driver

Hexalobular driver

Final prosthesis

- Attachment of abutment/final prosthesis

Tightening torque

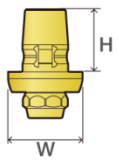
35 N·cm

Indicated driver

Hexalobular driver

Variations in the titanium-based abutment size

(Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)	Diameter (W)
	RP	4.8	4.6	5.5
	WP	6.5	4.6	7.2

[1] Fabrication of cement-retained superstructures (two-piece abutment)

Step 1 Fabrication of custom abutments and frameworks

・ Fabricate a custom abutment and framework using the dental CAD/CAM system, taking into account the relationship with the opposing teeth and design of the prosthesis.


Custom abutment


Framework

Notes

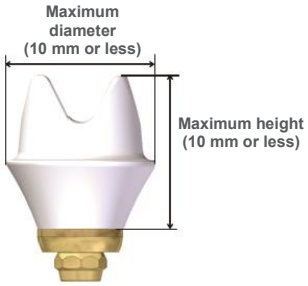
The head of an abutment screw is 2.3 mm in diameter.
When fabricating a custom abutment, prepare an access hole after considering the diameter of the screw head for each platform.

Important

Precautions for custom abutment fabrication

Consider the following when fabricating a custom abutment for bonding to a titanium-based abutment.

・ Use dental zirconia (an approved and certified product conforming to Type II Class 6 specified in ISO 6872) as a ceramic material for fabrication of a custom abutment.
・ Design a custom abutment with a height and diameter of up to 10 mm and allow for angle correction within 15°.
・ Set the cement space to 50 μm or less.

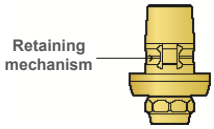


Step 2 Custom abutment bonding

・ Clean the surfaces of the manufactured custom abutment and a titanium-based abutment. Then, extraorally bond the custom abutment to the post of the titanium-based abutment using resin cement for dental bonding. Once the cement sets, remove excess by polishing the cement line with a bar for dental laboratory work, in order to achieve a shape that prevents plaque build-up.

Technical points

The post of a titanium-based abutment has a projection for retention. Check whether the manufactured custom abutment accurately fits the post through try-in.



Recommended cements for dental bonding

For bonding a custom abutment, use the resin cement for dental bonding. For details, refer to the instruction manual for the resin cement .

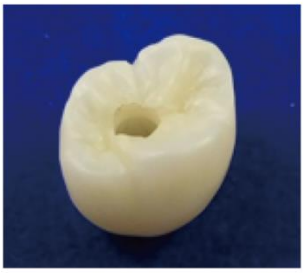
Step 3 Bonding framework

Bond the cleaned framework to the custom abutment according to the conventional technique.

[2] Fabrication of a screw-retained superstructure (one-piece abutment)

Step 1 Fabrication of the framework

Fabricate the framework using the dental CAD/CAM system, keeping in mind the relationship with the opposing teeth and design of the prosthesis.



Notes

The head of an abutment screw is 2.3 mm in diameter. When fabricating a framework, prepare an access hole after considering the diameter of the screw head for each platform.

Step 2 Bonding framework

Bond the cleaned framework to the post of the titanium-based abutment using the conventional technique.

9. Overdenture

1 Overdenture

In cases with significant alveolar ridge resorption, an implant-supported overdenture aids in stability. An overdenture requires lesser implants compared with a cement-retained or screw-retained bridge in edentulous cases. It is also effective for cases where implant body insertion in the molar region is difficult.
The FINESIA products are compatible with the attachment types used for implant-supported overdentures, including [1] bar and [2] ball attachments.

[1] Bar attachment
For an implant-supported overdenture, a bar attachment (stress-breaking) can be used to disperse load to the implant bodies and mucosae. A bar attachment is superior for connecting the implant bodies and is resistant to oscillation and rotation of the denture. However, when a bar attachment is used, a certain distance is required between the bar and the denture because the bar attachment is placed above the alveolar ridge mucosa and the sleeves are set inside the denture. Therefore, it is difficult to use a bar attachment in cases where adequate clearance cannot be ensured.

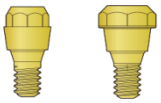
[2] Ball attachment
A ball attachment is removable and consists of a ball abutment and a metal housing (female part). The female with a spring structure fits the ball of the abutment to maintain a retentive force.
Although the implant bodies should be inserted in parallel with each other, if the angle between implants is not larger than 40°, the denture is allowed to rotate. In cases where implant bodies must be inserted at acute angles, other attachments such as bar attachments should be used.

2 Splint abutment

◆Intended use

- Fabrication of screw-retained superstructures (single tooth or multiple teeth)
- Fabrication of overdentures

Splint abutment



Splint healing cap

◆Material

● Splint abutment	Titanium alloy (Ti-6Al-4VELI)
● Splint healing cap	Titanium alloy (Ti-6Al-4VELI)
● Temporary cylinder	Titanium alloy (Ti-6Al-4VELI)
● Gold cylinder	Gold alloy (Ceramicor: manufactured by CENDRES+MAETAUX)

◆Selection criteria

- Insertion of single-tooth implants
- Insertion of multiple-tooth implants

◆Tightening torque/method

● Splint abutment	35 N·cm
● Splint healing cap	Manual (manual tightening)
● Temporary cylinder	15 N·cm
● Gold cylinder	15 N·cm

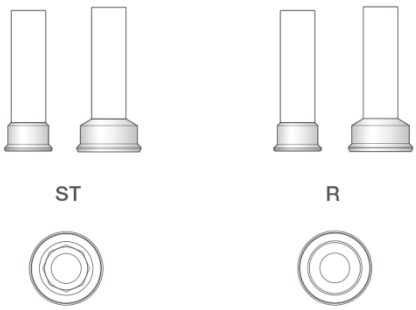
◆Indicated driver

● Splint abutment	Driver for a splint abutment
● Splint healing cap	Hexalobular driver SH
● Gold cylinder	Hexalobular driver
● Temporary cylinder	Hexalobular driver

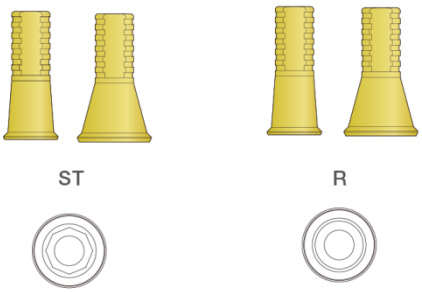
◆Sterilization condition

● Splint abutment	Sterilized
● Splint healing cap	Non-sterilized
● Temporary cylinder	Non-sterilized
● Gold cylinder	Non-sterilized

Gold cylinder



Temporary cylinder



*Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.

Basic technique for splint abutments

Primary surgery

- Implant placement
- Attachment of cover screw or healing abutment

Tightening method

Manual (manual tightening)

Indicated driver

Hexalobular driver SH

Attachment of splint abutments (secondary surgery)

- Attachment of splint abutments

Tightening torque

35 N·cm

Indicated driver

Driver for a splint abutment

Provisional prosthesis

- Provisional restoration (attachment of temporary cylinder)

Tightening torque

15 N·cm

Indicated driver

Hexalobular driver

Final prosthesis

- Attachment of abutment/final prosthesis (attachment of gold cylinder)

Tightening torque

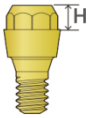
15 N·cm

Indicated driver

Hexalobular driver

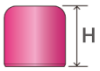
Variations in the splint abutment size

(Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)
	RP	4.8	1.5
	WP	6.5	1.65

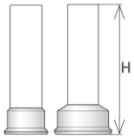
Variations in the splint healing cap size

(Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)
	RP	4.8	5.0
	WP	6.5	5.5

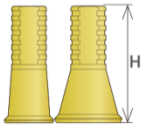
Variations in the gold cylinder size

(Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)
	RP	4.8	15.0
	WP	6.5	15.5

Variations in the temporary cylinder size

(Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)
	RP	4.8	12.0
	WP	6.5	12.0

How to fabricate an overdenture with a bar attachment

Step 1 Placement of artificial teeth

- Place the artificial teeth on the analog model.

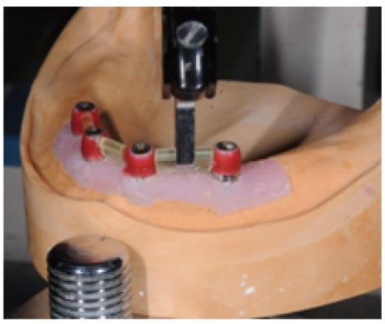
- Obtain a silicon impression.

Step 2 Waxing up the bar attachment

- Attach the gold cylinders to analogs and tighten the lab screws using a screwdriver. Use gold cylinder R.

- Set the artificial teeth on the core impression recorded for replication of the placement status. Consider the denture space and mark the sleeves of gold cylinders at an appropriate height and adjust them by grinding as required.

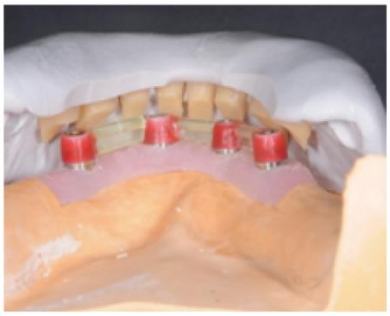
- Install the bar frame.



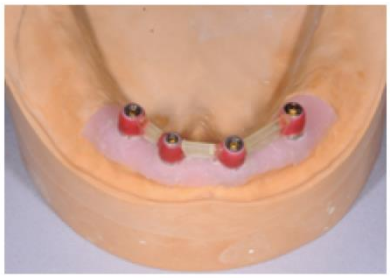
Technical points

- The bar structure for the front teeth must be perpendicular to the midline of the alveolar alveolar ridge.
- Basically, set the bar parallel to the occlusal plane.

Set the artificial teeth on the core impression and check the denture space for the bar frame.



- Wax up the bar attachment.



Step 3 Spruing/investing

- Sprue the superstructure after wax-up.

- Thoroughly clean the superstructure after wax-up and before investing.
  Clean with a swab or brush moistened with alcohol for the complete removal of residual wax.

Step 4 Casting

- Cast a framework in a general manner and remove the investing material.

Step 5 Correction of form/polishing

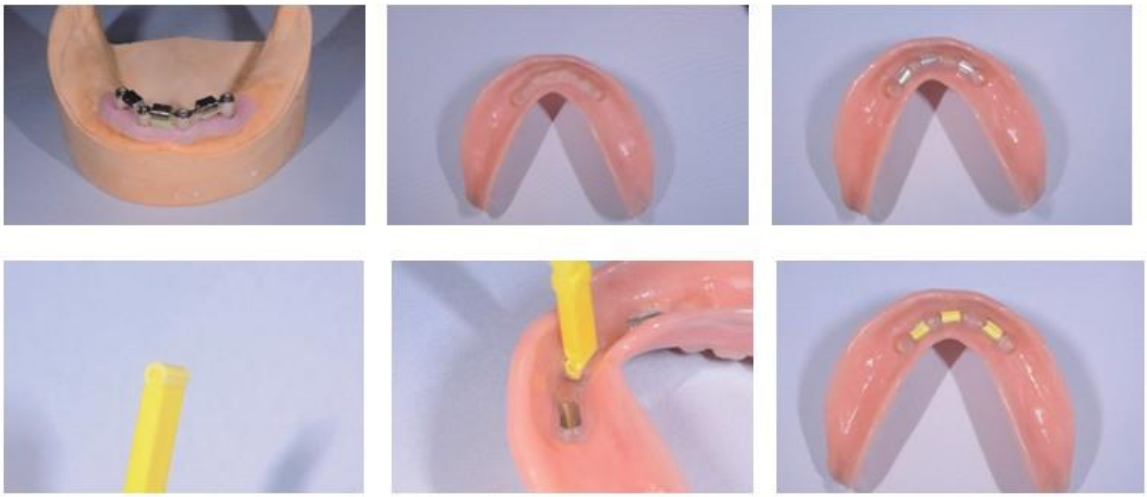
- Adjust the fitting of the framework on the work model and polish it to fabricate a bar attachment.

Technical points

Perform the one-screw test. If the superstructure and analogs rise, cut the frame and connect the pieces again by waxing.

Step 6 Bar clip attachment

- Attach bar clips (for retention) on the inner surface of the denture according to the instruction manual for the bar attachment system being used.



- The below images show a completed overdenture with a bar attachment.

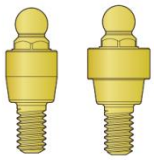
3 Ball abutment

◆Intended use

- Fabrication of an overdenture with ball attachments

*Ball abutments can be used in combination with the designated attachments

Ball abutment



◆Material

- Titanium alloy (Ti-6Al-4V ELI)

◆Selection criteria

- When TL implant RP with φ 3.7 mm or φ 4.2 mm or 4.7 mm is used or when TL implant WP with φ 4.7 mm or φ 5.2 mm is used
- When two or more implants are inserted in the alveolar ridge
  (Determine the number of implant bodies to be inserted, keeping in mind the age and condition of the patient.)

◆Tightening torque

- 35 N·cm

◆Indicated driver

- Ball abutment driver

◆Sterilization condition

- Non-sterilized

*Before attaching Non-sterilized products to implant bodies in the oral cavity, please sterilize them.

Basic technique for ball abutments

Primary surgery

- Implant placement
- Attachment of cover screw or healing abutment

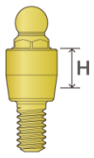
Tightening method
Manual (manual tightening)
Indicated driver
Hexalobular driver SH

Final prosthesis

- Attachment of abutment/final prosthesis

Tightening torque
35 N·cm
Indicated driver
Ball abutment driver

Variations in the ball abutment size (Unit: mm)

Product drawing	Platform	Platform diameter	Height (H)
	RP	4.8	1.0
			2.0
			3.0
	WP	6.5	1.0
			2.0
			3.0

How to manufacture an overdenture with ball attachments

Step 1 Fabrication of a work model

・ Record an impression of the ball abutments, fit the analogs on the impression surface, and fabricate a work model with superhard plaster.

Step 2 Placement of housings

・ Block out quick-cure resin to prevent it from flowing into the designated attachment housings.
*For details on how to operate the designated attachments, refer to the instruction manual.

Technical points

・ Place duplication aids in the ball abutment analogs, record a duplicating impression, and fabricate a duplicate model. The positional relationship of the designated attachment housings can be marked as a guide on the inner surface of the denture by polymerizing the denture on the duplicate model.

- Fix the designated attachment housings on the inner surface of the denture using quick-cure resin.

- Place lamellae retention inserts in the housings fixed on the inner surface of the denture using a screwdriver/activator.

- completion of an overdenture with ball attachments.

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