



***SuperLine* & IMPLANTUM**
Surgical / Prosthesis Manual

DentiumUSA
Developed by Clinicians for Clinicians



S.L.A. Surface

S.L.A. (Sandblasting with Large grits and Acid etching)

- Higher bone-to-implant contact
- Faster bone formation on the surface

reference: Kim H., et. al. "The Biocompatibility of SLA-treated Titanium Implants" Biomed. Mater. 2008; 3(2):025011



Surgical MANUAL

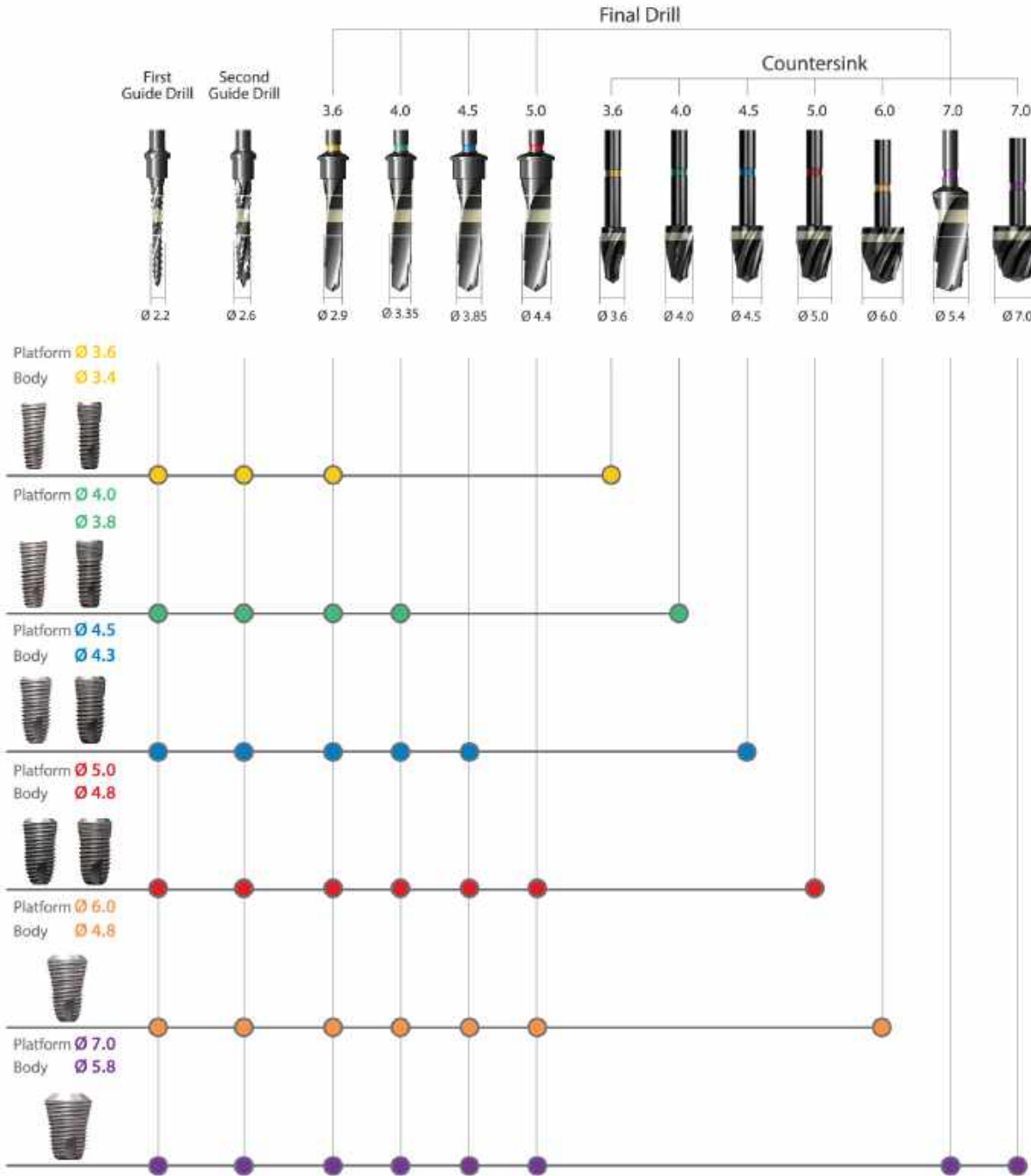
Surgical Drilling Sequence	4
Drilling Depth Guideline	6
Fixture Connection	8
Installation Procedure & Surgical Kit Maintenance	9

Surgical Drilling Sequence

Unit:mm



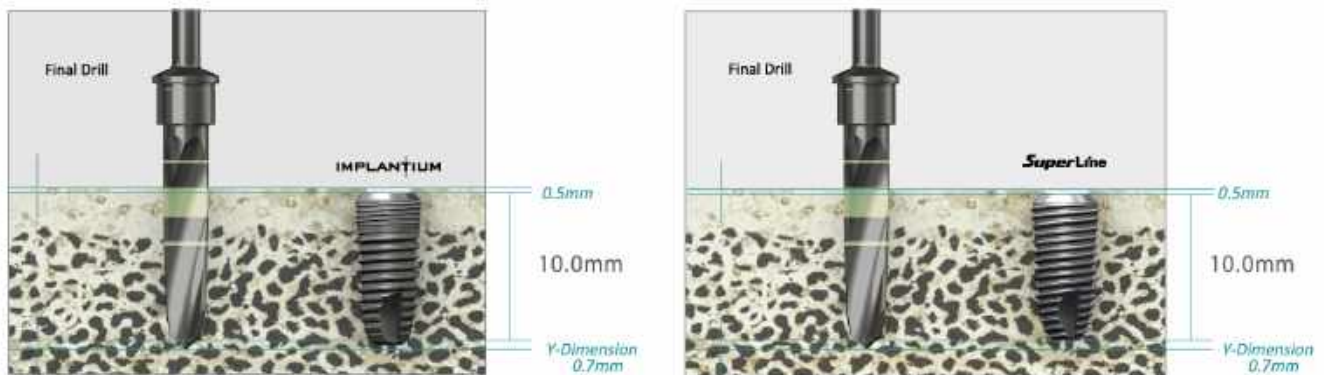
Drilling Sequence Guideline (Final Drill)



30~45 N-cm torque at 20rpm is recommended for fixture insertion.

- Countersink Drills are made for use in cases where dense bone is encountered to ensure passive fit of the implant neck into the surgical site. These drills are designed to enlarge the crestal area of the implant site in the area of dense cortical bone.
- If the bone density is D1~D2, it is recommended to use the Countersink Drill after the final drilling.
- The actual diameter of the Countersink Drill is 0.1mm larger than the fixture platform.

Determination of Fixture Top Level



- Top level of fixture needs to be located 0.5mm below the marginal crestal bone level to minimize bone loss after placing the implant.
- Final Drills are 0.7mm longer than corresponding fixture

Depth Indication

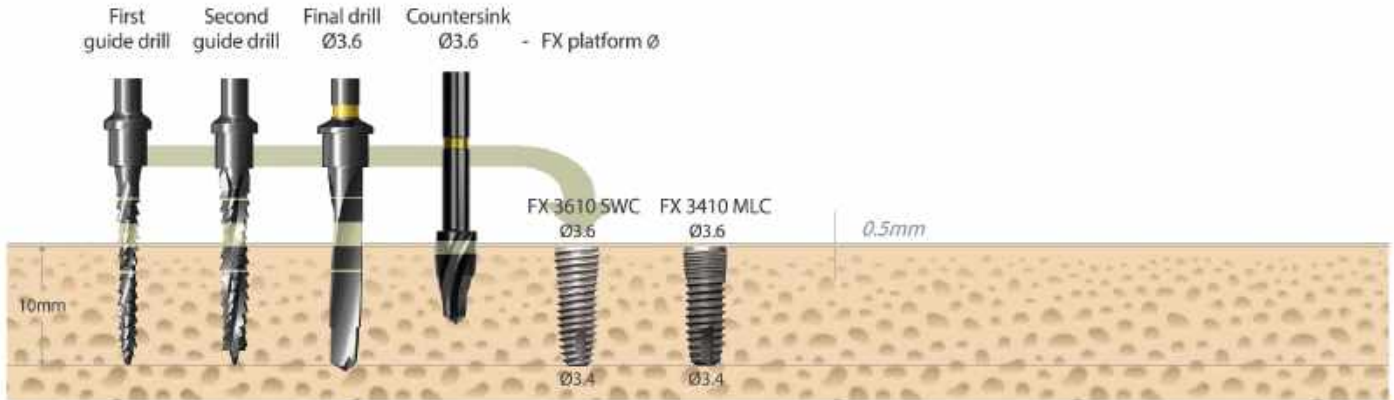


- Use the Depth Gauge after First Drill / Lindermann First Drill to check depth of drilling.
- Place the Depth Gauge against the wall of the osteotomy.

Drilling Depth Guide

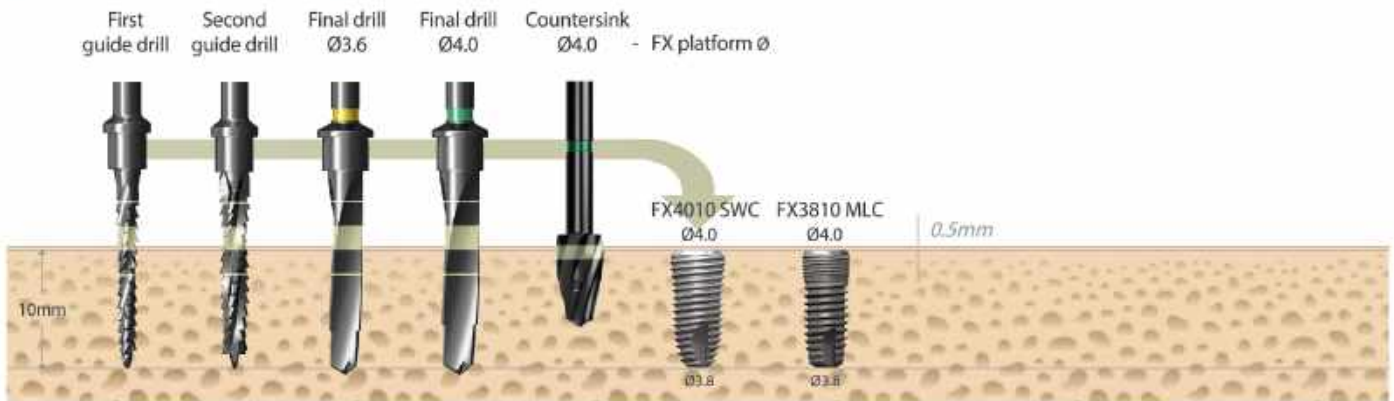
Platform: $\varnothing 3.6$ / Body: $\varnothing 3.4$

(1000rpm / 30~45N-cm)



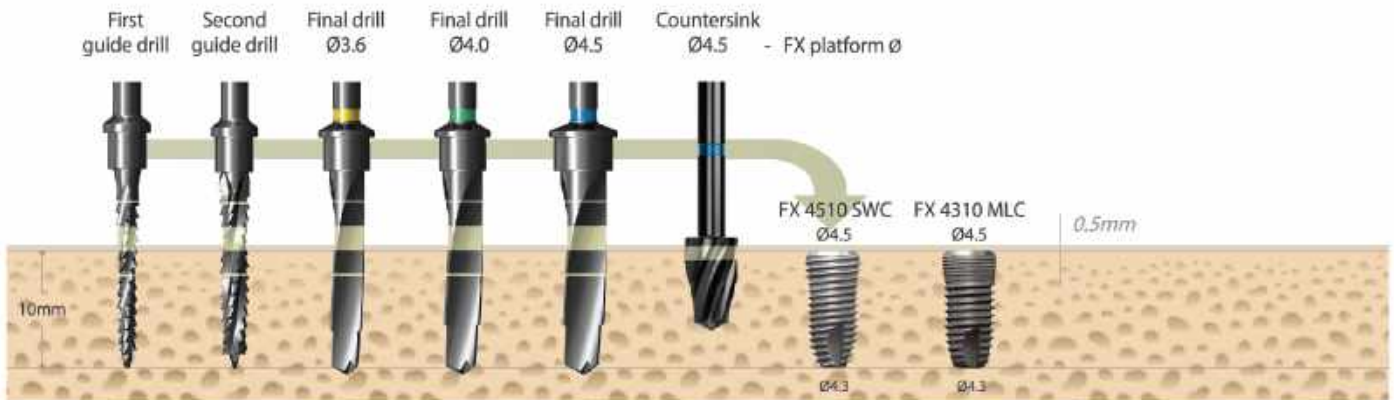
Platform: $\varnothing 4.0$ / Body: $\varnothing 3.8$

(1000rpm / 30~45N-cm)



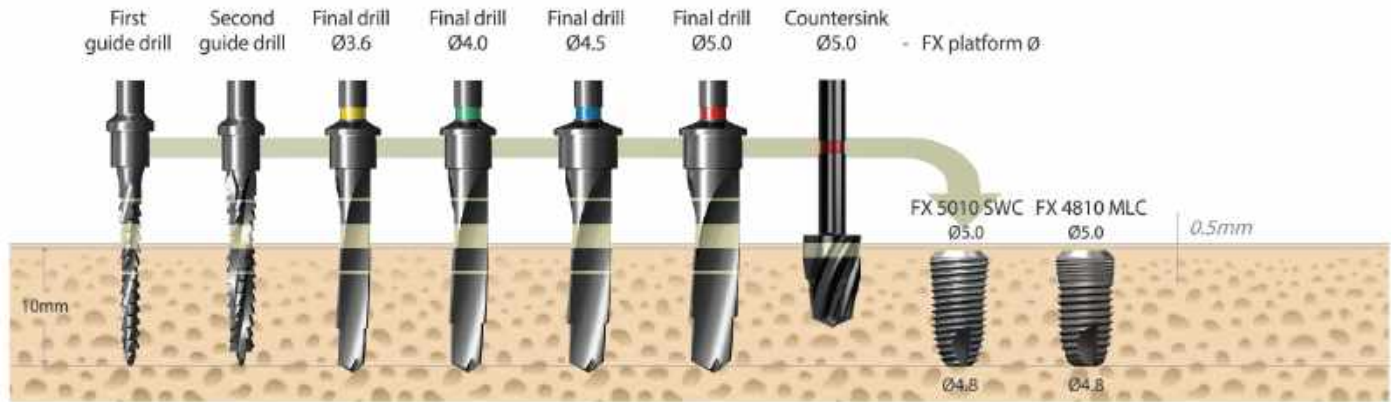
Platform: $\varnothing 4.5$ / Body: $\varnothing 4.3$

(1000rpm / 30~45N-cm)



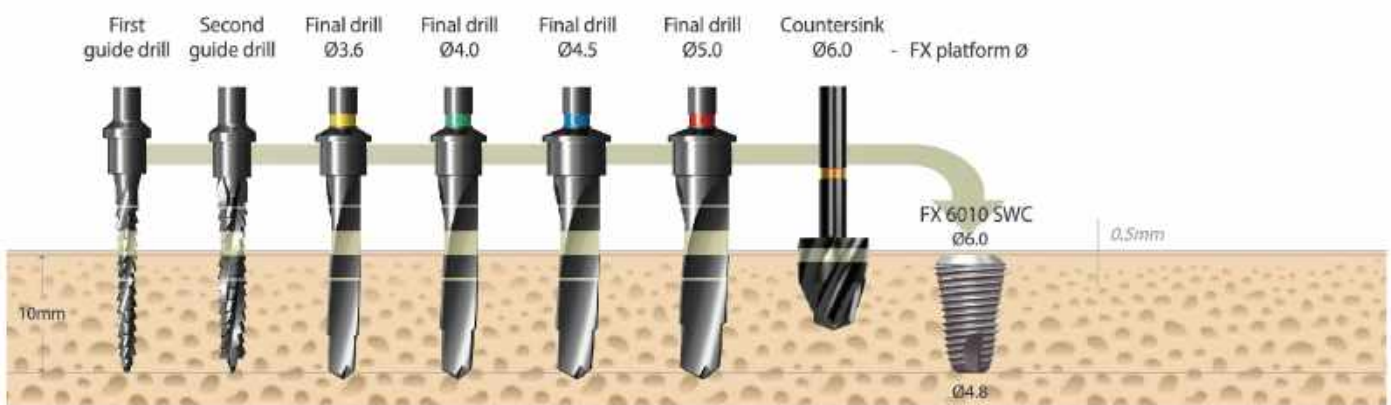
Platform: Ø5.0 / Body: Ø4.8

(1000rpm / 30~45N-cm)



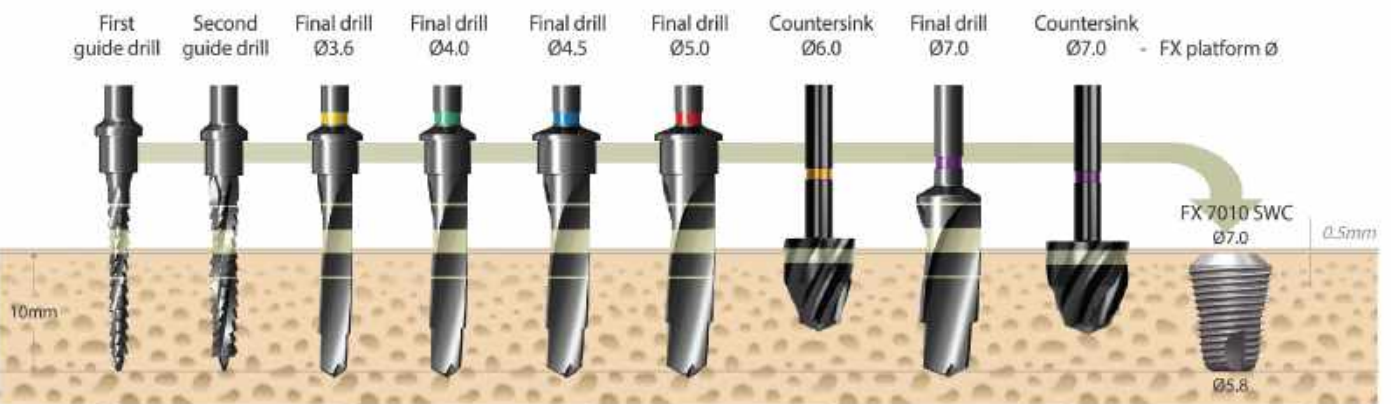
Platform: Ø6.0 / Body: Ø4.8

(1000rpm / 30~45N-cm)



Platform: Ø7.0 / Body: Ø5.8

(1000rpm / 30~45N-cm)



*Note: Instead of using Lindemann Guide Drill, Guide Drill in the Dentium SuperLine & Implantium Product Catalog in page 46 may be used.
 Instead of using Lindemann First Drill, First & Pilot Drill in the Dentium SuperLine & Implantium Product Catalog in page 46 may be used.
 *Do not use Pilot Drill when placing 3.6 platform diameter / 3.4 body diameter fixture.
 Refer to SuperLine & Implantium Product Catalog (page 46), for more information regarding drills.

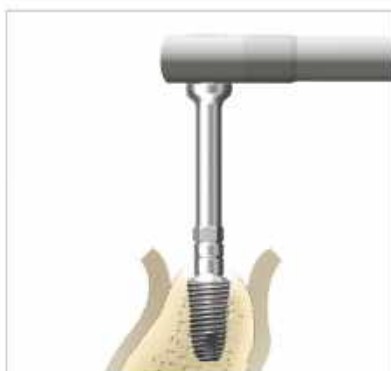
Fixture Connection



Caution: When opening the fixture pack, hold the fixture container upward and engage the adapter into the fixture.



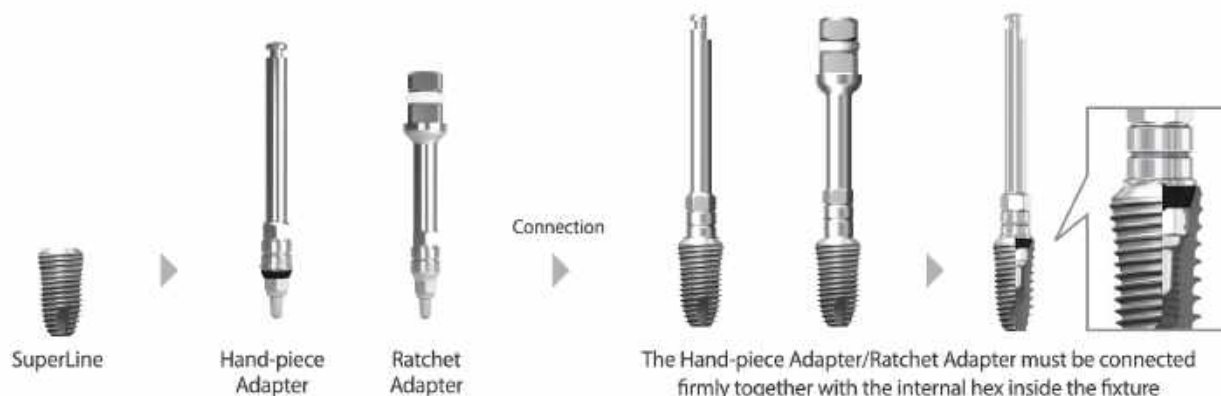
By hand-piece
20rpm / 35 N·cm



By ratchet



Directions Using the Hand-piece / Ratchet Adapter



Installation Procedure & Warnings

Cover Screw



By Hex Driver



Cover Screw (CS36) connection

Healing Abutment



By Hex Driver



Healing Abutment connection

Healing Abutment (HAB402020L)
connection in thin gingiva

Warnings

Dental Implant surgery and restoration involve complex dental procedures. Appropriate and adequate training in proper technique is strongly recommended prior to use.

- Improper medical examination and/or treatment plan can result in implant failure and/or loss of supportive bone.
- Improper initial stability and/or excessive occlusal forces during healing period may lead to osseointegration failure.
- Excessive insertion torque may lead to mechanical failure or implant biologic failure due to bone compression and necrosis.
- When forces or loads are greater than its design, implant or abutment fracture could happen. Therefore clinicians should make careful decisions with regards to clinical treatment planning to minimize the risk of fracture. Appropriate implant quantity, occlusal interface and a nightguard are essential. Potential excessive loading conditions may include the following:

- 01 Inadequate number of implants are placed.
- 02 Implant width and/or length are inappropriate for a treatment site.
- 03 Prosthesis which has excessive cantilever length due to inadequate biomechanical design
- 04 Continuous occlusal force is generated by incomplete connection between implant and abutment and/or abutment screw loosening.
- 05 Direct Casting Abutment angles are greater than 30° from the vertical axis of the implant.
- 06 Occlusal interferences causing excessive lateral forces
- 07 Patient parafunctions such as bruxism
- 08 Inadequate dental laboratory casting procedures
- 09 Improper prosthesis fit
- 10 Trauma from patient habits or accidents
- 11 Excessive marginal bone loss caused by inadequate bone width and/or advanced peri-implantitis

Surgical Kit Maintenance

Manual Cleaning and Sterilization Procedure

It is important to use protective clothing and face shield while cleaning contaminated instruments. Always wear protective glasses, mask, gloves, etc. for your safety.

- Please follow legal regulations, as well as hygienic guidelines to prevent contamination and infection through prevention.
- Please remember that you are responsible for the maintenance and sterility of your medical/dental products/device. It is important to use and follow proper cleaning, disinfection and sterilization procedures.
- It is also important to follow the manufacturer's recommendation on the usage of drills. Please keep a log as to how many times the drills are used.
- Drills are used per implant placed not per patient. Bone density determines the life of the drills
- Replace white and red o-rings on adapters and hex drivers, if worn and dried.
- Drills should be considered for replacement after around 40 uses based on bone density.

Cleaning

- 1 Rinse instruments immediately after use under running tap water (<40°C) for a minimum of one (1) minute to remove all debris including extraneous body fluids, bone debris and tissue.
- 2 Soak all instruments immediately after rinsing in an enzymatic cleaning solution* for 10 to 20 minutes (Do not soak overnight).
 - * Follow manufacturer's instructions and observe recommended cleaning solution concentrations (enzymatic detergent with a pH level between 7-10 and temperature not to exceed 40°C). Do not use incompatible cleaning solutions to clean instruments.
- 3 For internal irrigation drills, use a 1mL syringe and a 25 gauge needle to clean the drill irrigation hole with a minimum of 0.2 mL of the prepared cleaning solution. Repeat this step two (2) more times for a total of three (3) rinses.
- 4 Scrub with a soft brush for a minimum of 1 (one) minute to remove any debris inside the drill irrigation hole.
- 5 Rinse the instruments under running tap water (<40°C) for a minimum of 1 minute. Use a 1 mL syringe and a 25 gauge needle with a minimum of 0.2 mL of tap water to forcefully flush inside the drill irrigation hole. Repeat flushing of drill irrigation hole two (2) more times for a total of three (3) flushings.
- 6 Place instruments into an ultrasonic cleaner with neutral detergent**. Keep instruments inside the ultrasonic bath for 15 minutes using a frequency of 25-50 kHz. Ensure multiple instruments placed within the bath remain separated.
 - **Follow manufacturer's instructions and observe recommended neutral detergent solution concentrations (neutral detergent with a pH level between 7-10 and temperature not to exceed 40°C). Do not use incompatible neutral detergent solutions to clean instruments.
- 7 Rinse instruments thoroughly with running tap water (<40°C) for a minimum of one (1) minute until all traces of neutral detergent solution are removed. Rinse inside drill irrigation hole using a 1mL syringe and a 25 gauge needle with a minimum of 0.2 mL of tap water. Repeat rinsing drill irrigation hole two (2) more times for a total of three (3) rinses.
- 8 Gently wipe instruments with a soft lint-free cloth or place the instruments in a drying cabinet (60°C for less than 10 hours) until fully dry. Blow residual water from drill irrigation hole using a 1mL syringe and a 25 gauge needle. Visually inspect instruments in a well-lit area to ensure they are clean, dry and free of residue.
- 9 Clean instrument trays with a germicidal cleaner prior to returning instruments into the Kit.
- 10 Always check for damage or corrosion after rinsing and drying.

Sterilization

Dentium recommends either the Pre-vacuum or Gravity autoclave methods for sterilization under the conditions described below. However, autoclave performance can affect the efficacy of this process. Healthcare facilities should validate their sterilization processes employing the actual equipment and operators that routinely sterilize instruments.

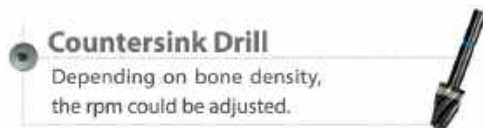
All autoclaves/sterilizers should be regularly validated, maintained and checked in accordance with EN 285/EN 13060, EN ISO 17665, ANSI AAMI ST79 to ensure compliance with these and related standards. Make sure packaging is suitable for steam sterilization.

Recommended Sterilization Parameters

Method-Moist Heat Sterilization	Pre-vacuum	Gravity
Set Point Temperature	132 °C	132 °C
Exposure time	4 minutes	30 minutes
Drying time	20 minutes	40 minutes

Maintenance Period for Surgical Drills

All surgical drills shall be replaced after approximately 40 uses based on bone density.



PROSTHESIS MANUAL

Prosthetic Introduction

Understanding the Implant and Prosthesis	13
Types of Abutment	14
Dual Abutment	15
Combi Abutment	16
Ti-Base Custom / Dual Milling Abutment	17
Angled Abutment	18
Direct Casting / Metal Casting Abutment	19
Temporary Abutment	20
Screw Abutment	21
Points to Consider in Abutment Selection	22
Minimum Height Requirement for Prosthetic Abutment	23

Impression Technique and Restoration

Prosthetic Procedure 1 - Abutment Level Impression	24
Dual Abutment	25
Combi Abutment	28
Prosthetic Procedure 2 - Fixture Level Impression	30
[Pick-up Type] - Dual Abutment	31
[Transfer Type] - Dual Abutment	34
[Transfer Type] - Dual Milling Abutment	37
[Pick-up Type] - Angled Abutment	39
Direct-Casting Abutment	41
Metal-Casting Abutment	42
[Pick-up Type] - Temporary Abutment	43
Prosthetic Procedure 3	44
Abutment Level - [Transfer Type] - Screw Abutment	45
Cementation Repair Method (SCRIP)	48
Prosthetic Procedure 4 - Overdenture Procedure	50
[Overdenture Procedure] - Ball Attachment	51

Understanding the Implant and Prosthesis



- If the cement retained restoration requires retrieval, making a hole in the occlusal surface will allow access to the Abutment Screw to remove final prosthesis.
- To achieve the proper abutment positioning, a radiograph is required after making an impression and abutment seating.
- For Non-hex abutment positioning, a positioning jig is required.

Biological Connection

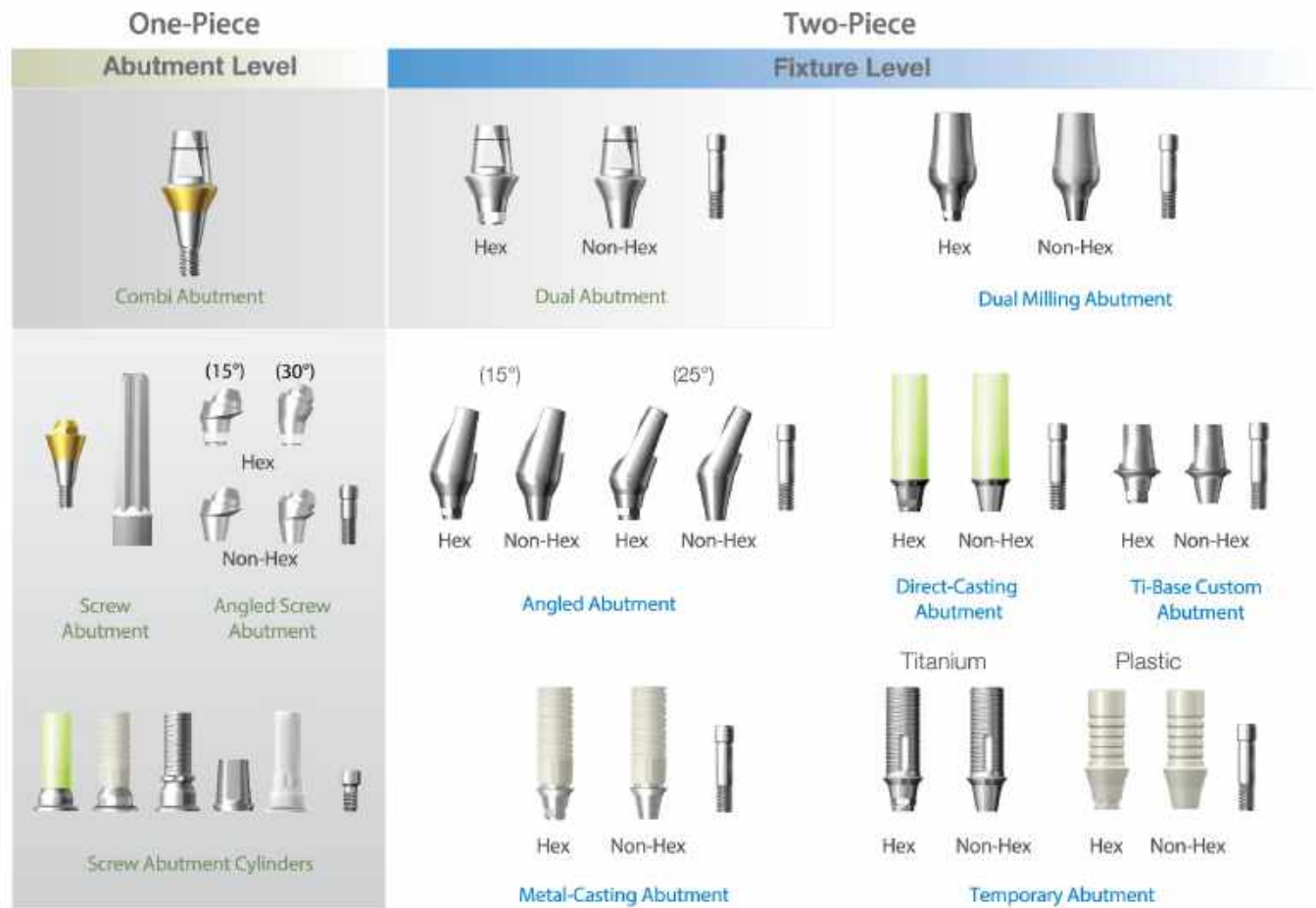
- The tapered conical hex connection between the implant and abutment interface provides virtually hermetic sealing.
- The biologic connection evenly distributes load to the fixture. Therefore it helps minimize micro-movement and marginal bone loss.
- Implant fixtures with various diameters share the same internal hex. One abutment screw fits all abutments and fixtures.



Recommended Torque

Type of Product	Recommended Torque [unit: N-cm]
Cover Screw	5~10
Healing Abutment	
Abutment Screw	25~30
For Dual Abutment	
Dual Milling Abutment	
Ti-Base Custom Abutment	
Angled Abutment (15°/25°)	
Direct-Casting Abutment	
Metal-Casting Abutment	
Combi Abutment	25~30
Ball Attachment	
Screw Abutment	
Angled Screw Abutment (15°/ 30°)	
Ti-Retaining Screw	25~30
For Screw Abutment Cylinder	
Abutment Screw	25~30
For Temporary Abutment	

Types of Abutment (Abutments are available in various diameters & gingival heights)



- Straight abutments are Dual Abutment and Combi Abutment.
- The Angled Abutment or Direct / Metal Casting Abutment can be used depending on the insertion angle and position of the fixture.
- The Screw Abutment can be used when prosthetic retrieval is anticipated.

Abutment Size Selection Guideline

To achieve the ideal emergence profile for full arch



Dual Abutment



- The Dual Abutment may be used when the implant position is optimal and the gingival levels are flat.
- An impression can be made at both fixture level (open tray technique) and abutment level. (closed tray technique)
- A Dual Abutment can be interchanged with a Combi Abutment.
- The same prosthetic procedures are applied to both Dual and Combi Abutments for abutment level impression.
- The abutment is selected on the casting model directly for fixture level impressions.
- It is important to make a precise positioning jig for abutment for fixture level impressions if non-hex abutment is used.
- Hex abutments are used as an anti-rotational mechanism for any abutment that might rotate (eg. single unit crown) or when using splinted crowns that are cement-retained prosthesis.
- If a cement retained restoration requires retrieval, cutting a hole in the occlusal surface may allow access to the screw to be removed dependent on the angle of the implant.

Necessary steps for Hex / Non-hex abutment

Steps	Hex	Non-hex
Positioning Jig	Unnecessary	Required
Radiograph	Required	Unnecessary

Dual Abutment (Hex / Non-hex) Line up

Diameter	G/H	Vertical Angle (A°)
Ø4.5	1.0mm, 1.5mm, 2.5mm, 3.5mm, 4.5mm, 5.5mm	5°
Ø5.5	1.5mm, 2.5mm, 3.5mm, 4.5mm, 5.5mm	6°
Ø6.5	1.5mm, 2.5mm, 3.5mm, 4.5mm, 5.5mm	7°



Combi Abutment



- The Combi Abutment may be used when the implant position is optimal and the gingival levels are flat.
- If the abutment selection has to be made within the mouth, check the thickness of mucosa with the Depth Gauge to measure the gingival height and select the appropriate abutment(s).
- The impression is made using Impression Coping(s).
- Combi Abutment will remain in the mouth after the impression is made.
(DO NOT REMOVE OR CHANGE THE ABUTMENT POSITION)
- Tighten abutment screw to 25-30 N·cm (retighten again before seating final prosthesis).
- Short Combi Abutment is also available for cases with insufficient occlusal space.

Combi Abutment Line Up

Diameter	G/H	Vertical Angle (A°)
Ø4.5	1.0mm, 1.5mm, 2.5mm, 3.5mm, 4.5mm, 5.5mm	5°
Ø5.5	1.5mm, 2.5mm, 3.5mm, 4.5mm, 5.5mm	6°
Ø6.5	1.5mm, 2.5mm, 3.5mm, 4.5mm, 5.5mm	7°



Ti- Base Custom / Dual Milling Abutment



Ti-Base Custom Abutment



Dual Milling Abutment

Ti-Base Custom Abutment

- Impression is made at fixture level.
- Precise seating jig positioning is mandatory when using a non-hexed abutment.

Diameter	G/H	Type
Ø4.5	0.5mm, 1.5mm	Hex / Non-hex
Ø5.5	1.0mm, 2.0mm	



Dual Milling Abutment

- Impression is made at fixture level.
- Precise seating jig positioning is mandatory to deliver abutment to the mouth in the correct position.
- Hexed abutments are used as an anti-rotational mechanism for any abutment that might rotate (eg. single unit crown) while non-hexed abutments are used when prosthetic units are splinted together. (eg. a bridge or bar)
- If a cement retained restoration requires retrieval, cutting a hole in the occlusal surface would allow access to the screw to be removed dependent on the angle of the implant.

Diameter	G/H	Type
Ø4.0	1.0mm	Hex / Non-hex
Ø4.5	1.5mm	
Ø5.5	1.5mm, 2.5mm	
Ø6.5	1.5mm, 2.5mm, 3.5mm	
Ø7.5	2.5mm, 3.5mm	



Angled Abutment



Angled Abutment

- The Angled Abutment is recommended when the restoration path of insertion is not feasible in either anterior or posterior sites.
- Depending on the situation, abutment milling can be done either in Lab or Chairside.
- Precise seating jig positioning is mandatory when using a non-hexed abutment.
- Retention force can be increased through milling process.

Angled Abutment Line Up

Diameter	G/H	Angle
Ø4.5	1.5mm 2.5mm 3.5mm	15° / 25°
Ø5.5	1.5mm 2.5mm 3.5mm	



Direct-Casting / Metal-Casting Abutment



Direct-Casting Abutment



Metal-Casting Abutment

Direct-Casting Abutment

- Excellent for either single or bridge/bar.
- Used as an esthetic custom-made abutment.
- Used when restoration insertion is not ideal and/or a standard abutment cannot be used.
- Used when there is inadequate interarch distance between the upper and lower jaw and a prefabricated abutment is not feasible.
- Used when a final prosthesis is needed to support the soft tissue contours.
- Precise seating jig positioning is mandatory when using a non-hexed abutment.

Diameter	G/H	Type
Ø4.5	1.0mm	Hex / Non-hex



Metal-Casting Abutment

- Equivalent results for a fraction of the price
- Our highly affordable metal alloy replaces expensive gold to alleviate financial burden to all.

Diameter	G/H	Type
Ø4.5	1.0mm	Hex / Non-hex



Temporary Abutment



Ti-Temporary Abutment



Plastic Temporary Abutment

Temporary Abutment

- Temporary Abutments are available with titanium or plastic.
- The titanium abutment comes in both hex and non-hex with a gingival height of 1.0mm.
- The plastic abutment comes in diameters (Ø4.5, 5.5, 6.5) with a gingival height of 2.0mm.

Abutment	Diameter	G/H	Type
Ti-Temporary	Ø4.5	1.0mm	Hex / Non-hex
Plastic Temporary	Ø4.5	2.0mm	Hex / Non-hex
	Ø5.5		
	Ø6.5		

Screw Abutment



Screw Abutment



Angled Screw Abutment

If prosthesis repair is desired, a Screw Abutment retained prosthesis enables easy retrieval.

- Useful for connecting multiple units and cases with a screw retained prosthesis.
- Useful when respective long axes of implants are different. Each side tapers by 30° and this permits up to 60° divergence between two abutments.
- Useful if the prognosis of an adjacent restoration is not ideal. It allows for easier retrieval and modification of the restoration.

Ti-Retaining Screw (1.8mm - body diameter)

- Reduces chances of screw loosening, thanks to the larger occlusal contact space.
- Endures masticatory force.
- 25~30 N-cm of torque is recommended for Ti-Retaining Screw.



Screw Abutment Line Up

Diameter	G/H
Ø4.5	1.0mm, 1.5mm, 2.5mm, 3.5mm, 4.5mm, 5.5mm
Ø5.5	1.5mm, 2.5mm, 3.5mm, 4.5mm, 5.5mm



Angled Screw Abutment Line Up

Diameter	G/H	Angle
Ø4.5	1.0mm 2.0mm 3.0mm	15°, 30°
Ø5.5	1.0mm 2.0mm 3.0mm	



Points to Consider in Abutment Selection

Considerations in Selecting an Abutment

- Esthetic requirement
- Implant angulation
- Implant location
- Fixture installation depth (Gingival height)
- Interarch distance
- Types of prosthesis
- Dentist & dental technician's preference

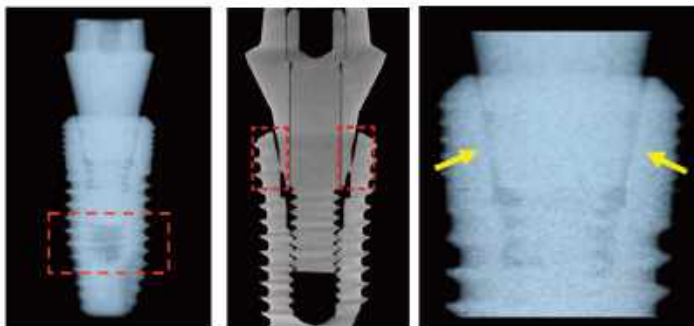
Abutment Impression Recommendation

Impression can be made either at abutment or fixture level depending on the case.

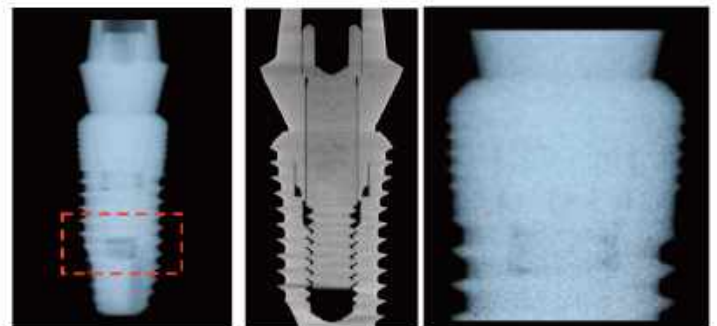
Abutment	Type	Impression
Dual Abutment	Cementation type, screw-cementation type	Fixture level impression or abutment level impression
Combi Abutment	Cementation type	Abutment level impression
Angled Abutment	Cementation type, screw-cementation type	Fixture level impression
Screw Abutment	Screw retained type	Abutment level impression
Direct-Casting Abutment	Cementation type, screw-cementation type	Fixture level impression
Metal-Casting Abutment	Cementation type, screw-cementation type	Fixture level impression
Dual Milling Abutment	Cementation type, screw-cementation type	Fixture level impression

Connection verification using X-Ray

Improper Engagement



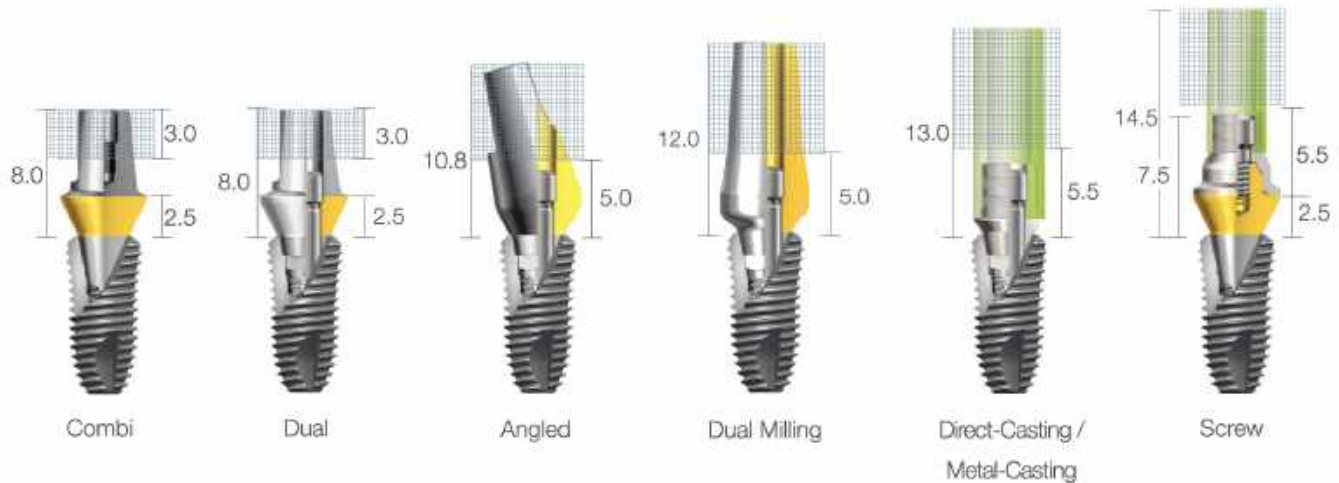
Proper Engagement



· It is recommended to take an x-ray before making impression after seating the abutment, and after the final restoration to verify the abutment is seated properly. No visible gap between the implant-abutment interface of the internal conical connection is allowed as shown above.

· The gap at the bottom of the Abutment Screw should not be bigger than two fixture threads. Gap of three or more fixture threads indicate improper engagement.

Minimum Height Requirement for SuperLine Prosthetic Abutment



* Diagram above indicates the minimum height required for SuperLine prosthetic abutment.

* The minimum height specified is to ensure the abutment or abutment screw will not be damaged

Maximum Reduction for Adjustment

Combi Abutment

Eliminate 3.0mm from the top level Combi Abutment (laser marking:1.5mm)

Caution: It may cause damage to the abutment screw if the abutment is reduced to less than 2.5mm above the gingival height.

Dual Abutment

· Guideline for maximum reduction depending on the gingival height

Gingival Height	Maximum Reduction
1.5mm	2.0
2.5mm	3.0
3.5mm	4.0
4.5mm	5.0
5.5mm	6.0

Angled Abutment & Milling Abutment

· Required minimum abutment height: at least 5.0mm above the Fixture Top.

Direct-Casting Abutment & Metal-Casting Abutment

· Required minimum abutment height: at least 5.5mm above the Fixture top.

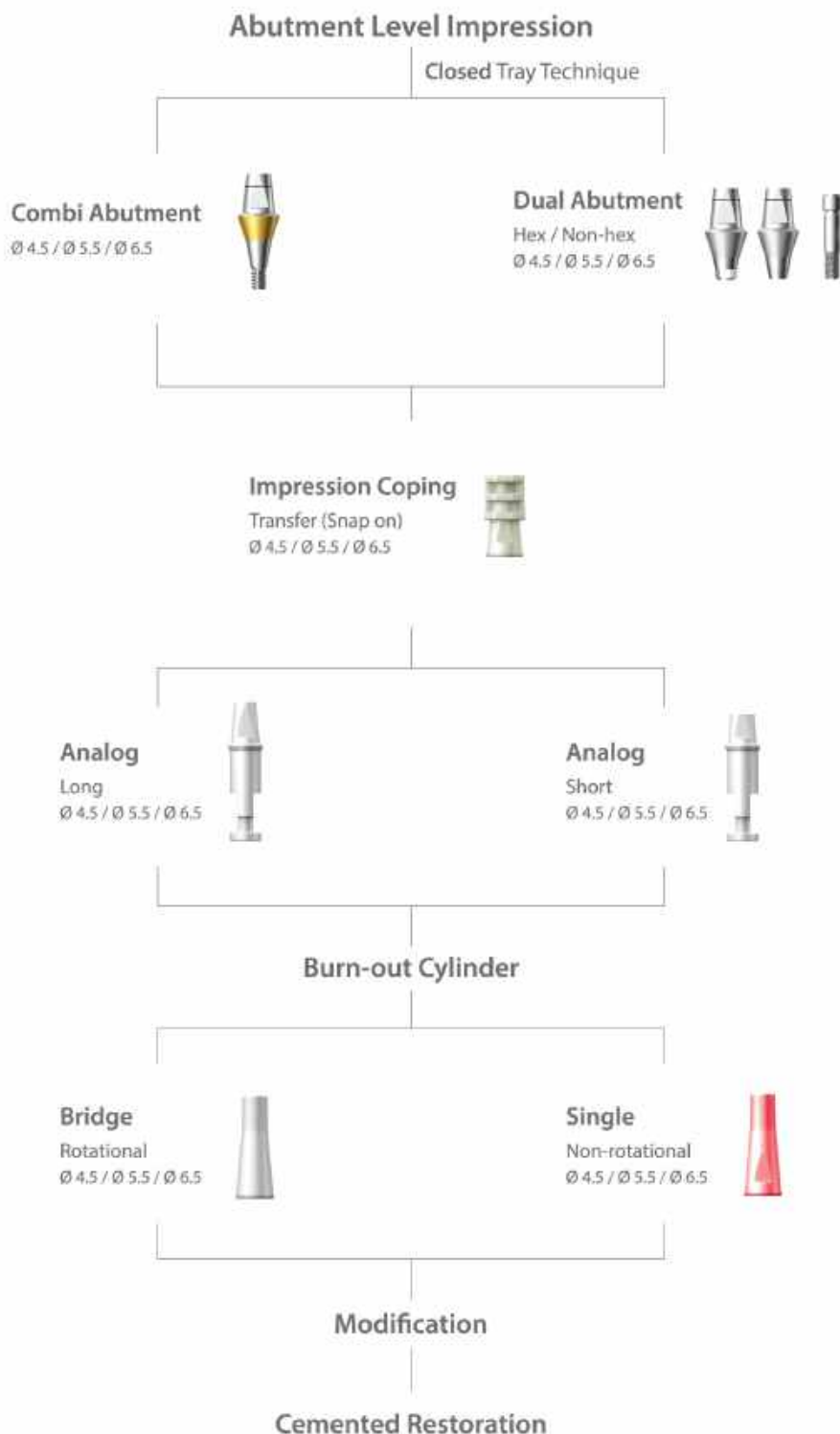
Screw Abutment

· The Screw Abutment cannot be modified, however the cylinder height may be reduced or eliminated based on various interarch distances, still the height of the Ti-Retaining screw should be considered in advance.

Prosthetic Procedure 1

Abutment level impression

Dual / Combi Abutment



Abutment Level - Dual Abutment

Clinical Procedure

[Multiple Units]



Cover Screw

Healing Abutment

Dual Abutment

Comfort Cap

Temporary Restoration or Comfort Cap

Abutment Level Impression

Chairside



Remove the Healing Abutment after the soft tissue is formed



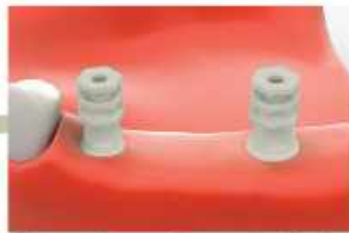
Dual Abutment (Hex / Non-hex)



Select the Dual Abutment by diameter and gingival height.



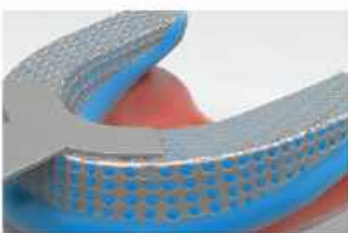
Tighten it to 25~30N-cm and Re-tighten after 15 minutes



Select and Insert the impression Coping over the abutment firmly [Snap-on mechanism]



Inject impression material around the copings



Impression making



Impression Coping is retained within Impression material



Fabrication of provisional restoration or insertion of comfort cap

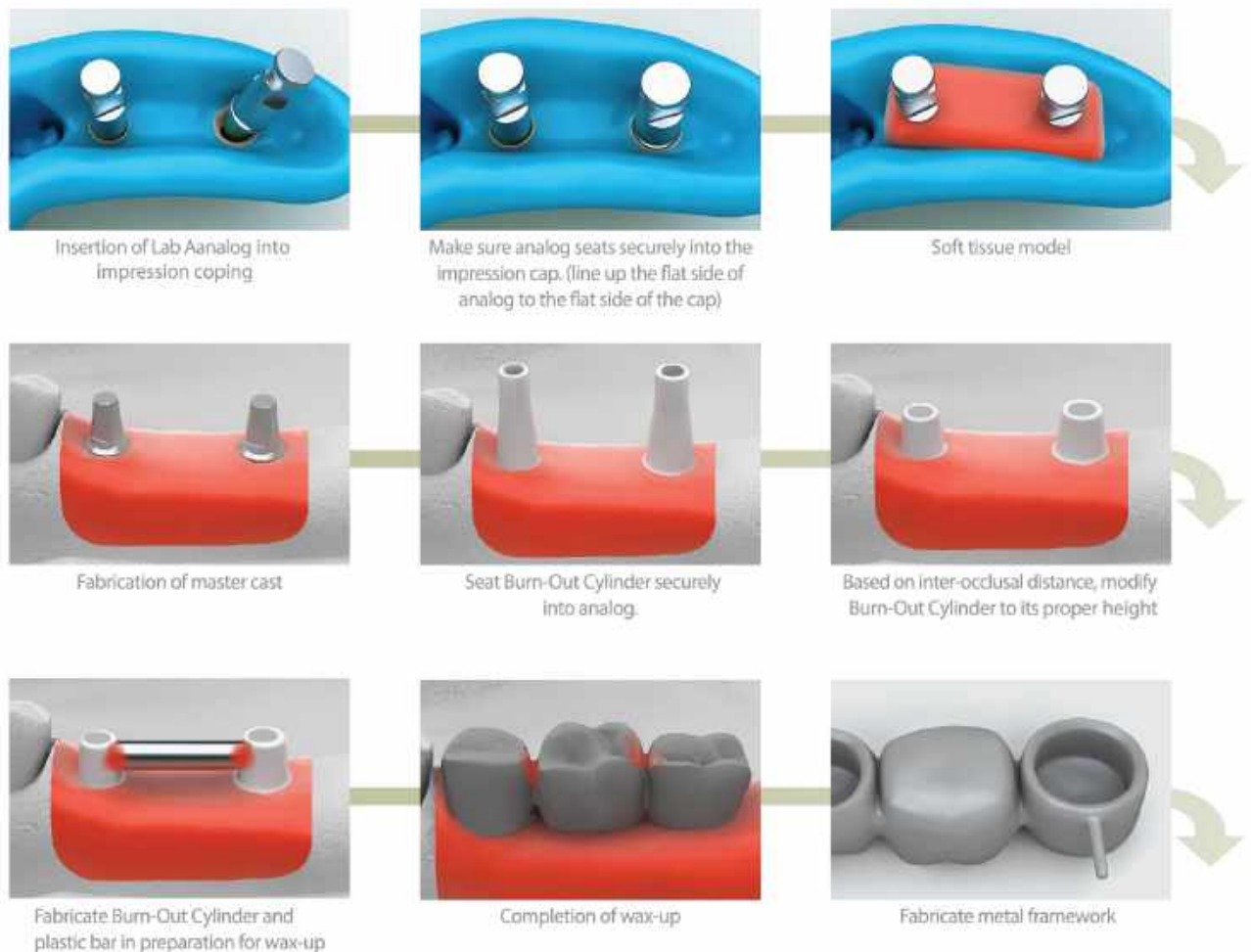
Abutment Level- Dual Abutment

[Multiple Units]

Clinical Procedure



Labside



Abutment Level - Dual Abutment

[Multiple Units]



Trim extended margin with rubber wheel



Metal framework and reamer



Reamer is used to eliminate lip caused by 'snap-on' mechanism.



Metal framework after removal of Lip



Metal framework



Porcelain build-up

SCRIP: Once an access hole has been created, it can be converted to a SCRIP (Screw & Cemented Retained Prosthesis).

* Must use non-hexed abutments if this technique is to be employed in FDP



Final prosthesis



Access hole is made when Burn-Out Cylinder is used to do the wax-up.



Extended margin around the metal framework due to 'snap-on' mechanism



Trim extended margin with rubber wheel



Metal framework and reamer



Eliminate the lip remnant caused by 'snap-on' mechanism by reamer.



Metal framework after removal of Lip



Metal framework



Final prosthesis

Abutment Level - Combi Abutment

[Multiple Units]

Chairside



Second stage surgery (uncovering)



Following the 2nd stage surgery, soft tissue is healed around the Healing Abutment. Healing Abutment should be selected based on the size of abutment.



Select abutment based on gingival height then tighten it to 25-30N-cm. Re-tighten after 15 minutes.



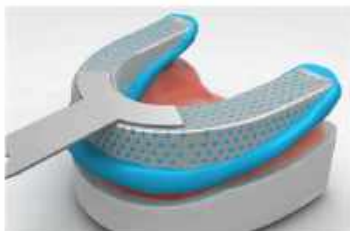
Image of combi Impression coping and abutment assembly



Snap-on the plastic impression coping with the same sized diameter abutment



Inject impression material around the copings



Make impression



Impression Coping is retained within Impression material



Fabrication of provisional restoration or insertion of comfort cap

Labside



Insertion of Lab Analog into Impression Coping



Make sure analog seats securely



Soft tissue model



Fabrication of master cast



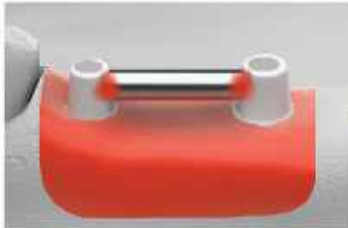
Seat Burn-Out Cylinder securely into the Lab Analog on the master cast.



Based on inter-occlusal distance, modify Burn-Out Cylinder to its proper height.

Abutment Level - Combi Abutment

[Multiple Units]



Fabricate Bum-Out Cylinder and plastic bar in preparation for wax-up



Wax-up



Fabricate metal framework



Trim extended margin with rubber wheel



Metal framework and reamer



Eliminate the lip remnant caused by 'snap-on' mechanism using reamer.



Metal Framework after removal of the Lip remnant



Metal framework



Final prosthesis

Chairside



Seat final prosthesis and adjust the occlusion

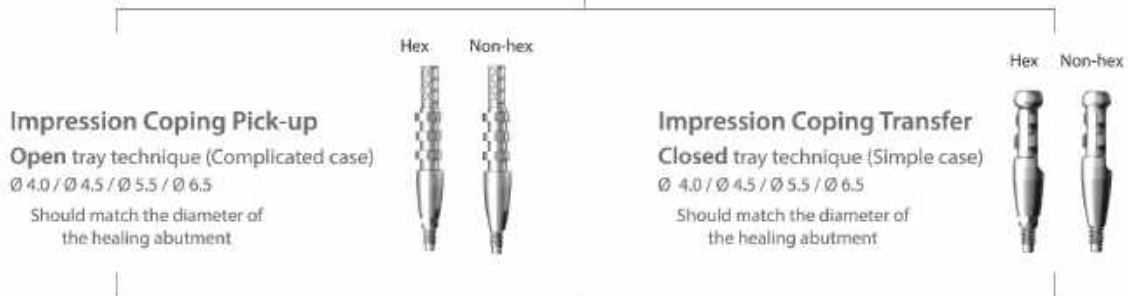
* If the combi analog is trimmed due to the limited inter-occlusal space by the lab, a reduction jig is necessary. A slight modification of the abutment in the oral cavity may be required to reduce the height of the abutment.

Prosthetic Procedure 2

Impression Technique and Restoration Selection

Dual / Custom / Milling / Angled / Direct-Casting / Metal-Casting /
Ti-Temporary / Plastic Temporary Abutment

Fixture Level Impression



Modification

Cemented Restoration

Modification

Screw-Retained Restoration

Fixture Level [Pick-up Type] - Dual Abutment

[Multiple Units]

Clinical Procedure



Chairside



Select & seat Impression Coping which has same diameter as Healing Abutment



After connection of Impression Coping



Inject impression material around Impression Coping



Inject impression coping material on the impression tray



Making impression (individual tray with holes)



Unscrew the Impression Coping Screw before removing the impression tray



Inner surface of impression [Impression Coping picked up with tray]

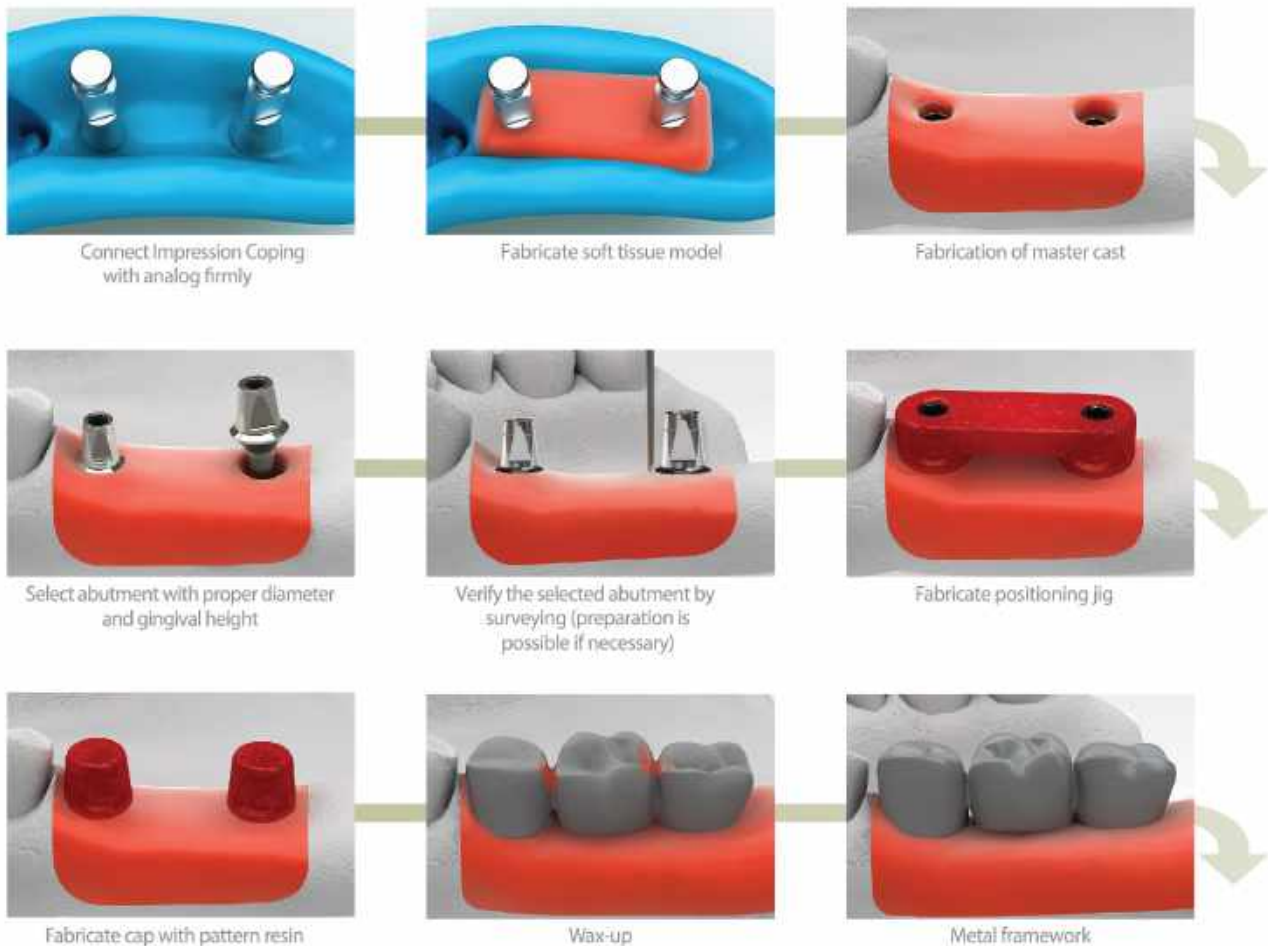
Fixture Level [Pick-up Type] - Dual Abutment

[Multiple Units]

Clinical Procedure



Labside



Fixture Level [Pick-up Type] - Dual Abutment

[Multiple Units]

Chairside



Final prosthesis



Use positioning jig to transfer the abutment in cast to oral cavity then tighten it to 25-30N-cm. Retighten after 15 minutes.



Seat the final prosthesis and adjust occlusion.

* In the process of seating the prosthesis, the prosthesis can be rebounded by gingival tissue. In this case it is advised to apply occlusal load on the prosthesis for 10-15 minutes.

SCR- Labside



Make access hole in the resin cap by using a long impression coping transfer screw



Wax-up



Metal framework

SCR- Chairside



Final prosthesis



Use positioning jig to transfer the abutment in model to oral cavity then tighten it to 25-30N-cm. Retighten after 15 minutes.



Seat the final prosthesis and adjust occlusion. Place Teflon into screw hole of abutment to protect screw head and then composite resin.

* In the process of seating the prosthesis, the prosthesis can be rebounded by gingival tissue. In this case it is advised to apply occlusal load on the prosthesis for 10-15 minutes.

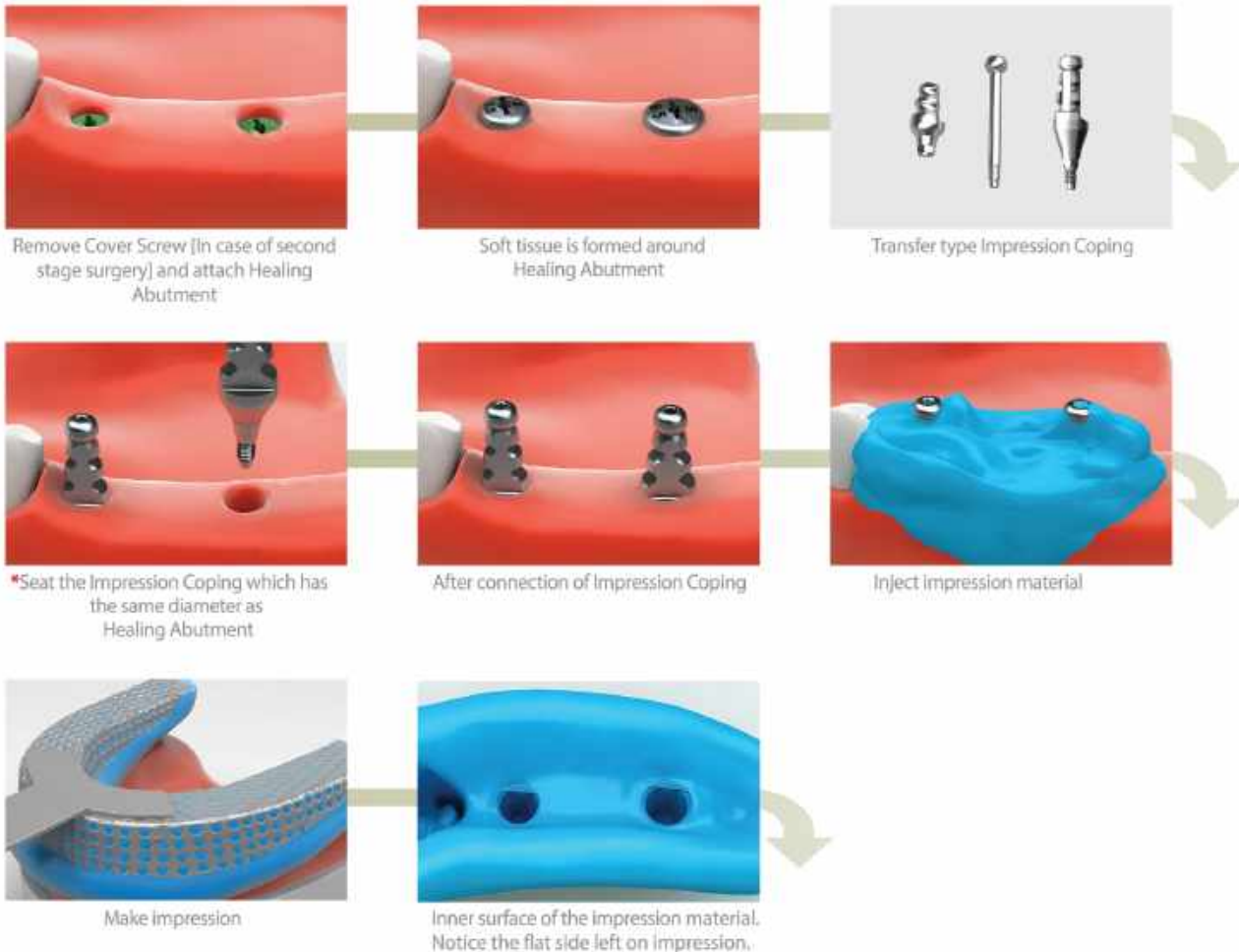
Fixture Level [Transfer Type] - Dual Abutment

[Multiple Units]

Clinical Procedure



Chairside



* If multiple implants, remove one Healing Abutment at a time and place an Impression Coping immediately to prevent soft tissue from slumping in.

Fixture Level [Transfer Type] - Dual Abutment

Clinical Procedure

[Multiple Units]



Labside



Remove the Impression Coping from oral cavity and connect it with Analog firmly.



Attach the Impression Coping to the Analog and insert into the Impression



Fabricate soft tissue model



Fabricate master cast



Soft tissue condition after the removal of Impression Coping



Measuring gingival height with depth gauge



Select Dual Abutment with proper diameter and gingival height



Verify by surveying the selected abutment. (preparation is possible if necessary)



Fabricate positioning jig

Fixture Level [Transfer Type] - Dual Abutment

[Multiple Units]



Seat the cap with pattern resin



Wax-up



Metal framework



Final prosthesis



Use positioning jig to transfer the abutment in model to oral cavity then tighten it to 25~30N-cm. Retighten after 15 minutes.



Seat the final prosthesis and adjust occlusion

SCRP- Labside



Make an access hole in the resin cap by using a long impression coping transfer screw.



Wax-up



Metal framework



Final prosthesis



Use positioning jig to transfer the abutment in model to oral cavity then tighten it to 25~30N-cm. Retighten after 15 minutes.



Seat the final prosthesis and adjust occlusion. Place Teflon into screw hole of abutment to protect screw head and then composite resin.

* In the process of seating the prosthesis, the prosthesis can be rebounded by gingival tissue. In this case it is advised to apply occlusal load on the prosthesis for 10~15 minutes.

Fixture Level [Transfer Type] - Dual Milling Abutment

[Single Unit]

Clinical Procedure



Chairside



Remove Cover Screw [In case of second stage surgery] and attach Healing Abutment



Soft tissue is formed around Healing Abutment



Transfer type Impression Coping



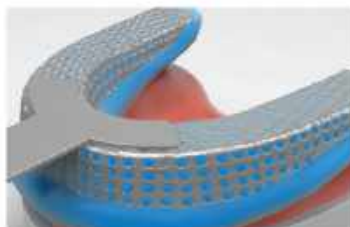
*Seat the Impression Coping which has the same diameter as Healing Abutment



After connection of Impression Coping



Inject impression material



Make impression



Inner surface of the Impression material. Notice the flat side left on impression.

* If multiple implants, remove one Healing Abutment at a time and place an Impression Coping immediately to prevent soft tissue from slumping in.

Fixture Level [Transfer Type] - Milling Abutment

Laboratory Procedure

[Single Unit]



Labside



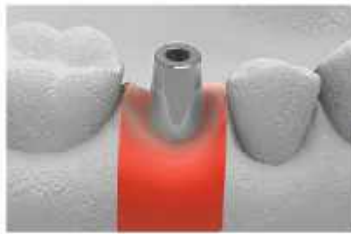
Remove the Impression Coping from oral cavity and connect it with Lab Analog firmly.



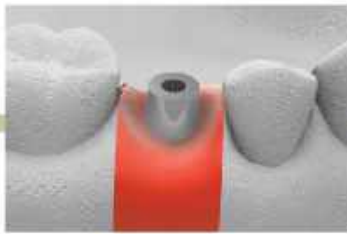
Fabricate soft tissue model



Fabricate master cast



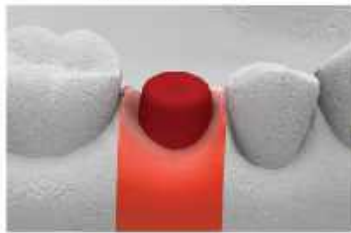
Select Dual Milling Abutment with proper diameter



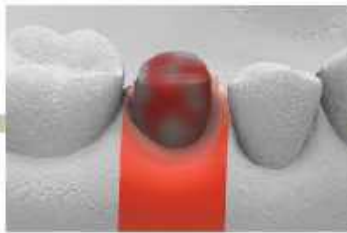
Abutment after milling process



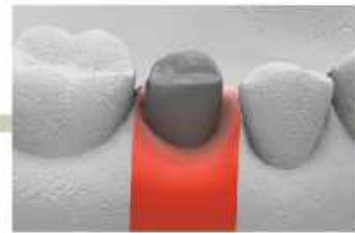
Fabricate positioning jig



Fabricate cap with pattern resin



Wax-up



Metal framework



Final prosthesis



Use positioning jig to transfer the abutment in model to oral cavity then tighten it to 25~30N-cm. Retighten after 15 minutes.



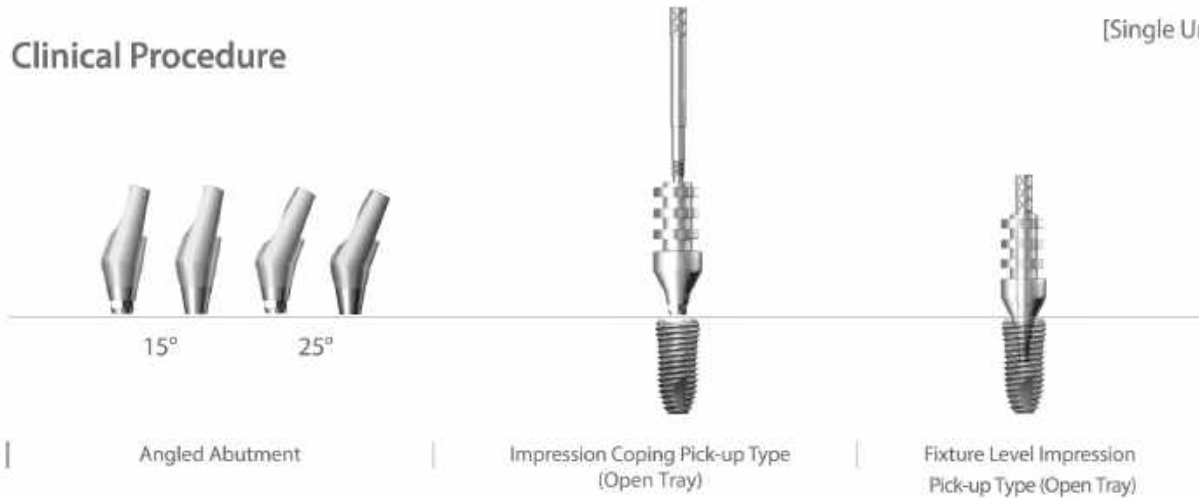
Seat the final prosthesis and adjust occlusion

- * In the process of seating the prosthesis, the prosthesis can be rebounded by gingival tissue.
- * In this case it is advised to apply occlusal load on the prosthesis for 10~15 minutes.

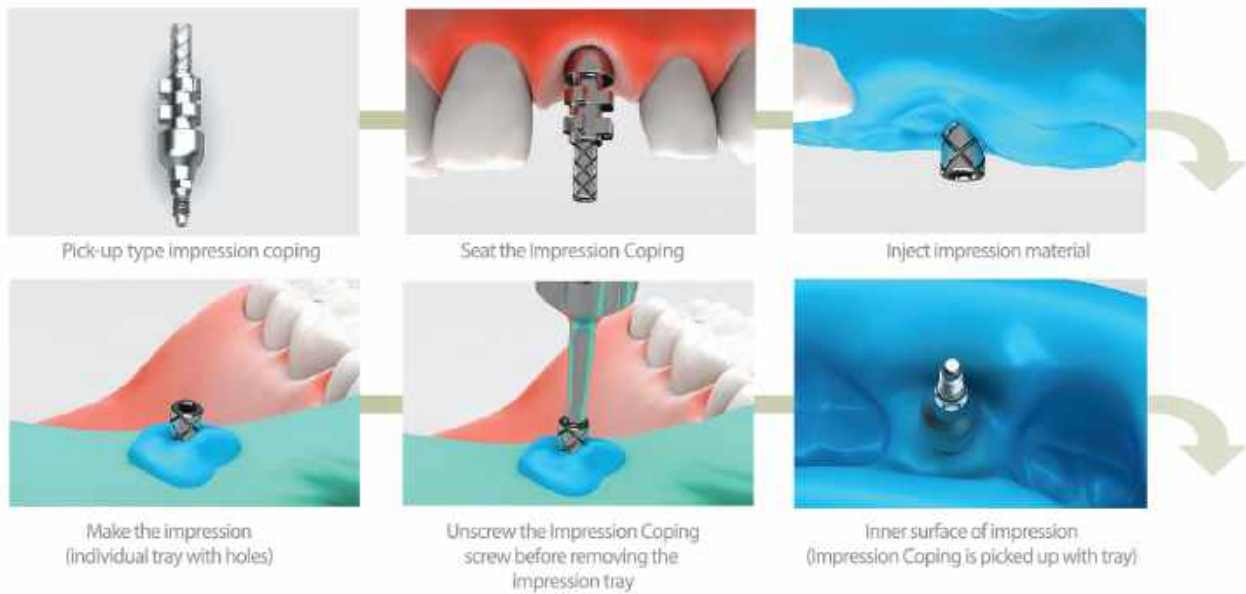
Fixture Level [Pick-up Type] - Angled Abutment

Clinical Procedure

[Single Unit]



Chairside



Laboratory Procedure



Fixture Level [Pick-up Type] - Angled Abutment

[Single Unit]

Labside



Connect Impression Coping with Analog firmly



Fabricate soft tissue model



Unscrew the Impression Coping Screw, separate Impression Coping from the model



Fabricate master cast



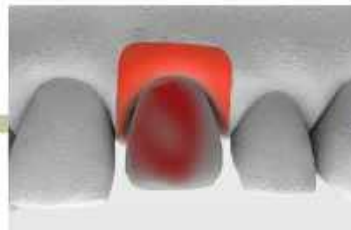
Select and seat proper Angled Abutment in the master cast.



Modify Angled Abutment properly and fabricate positioning jig.



Fabricate cap with pattern resin.



Wax-up



Metal or zirconia framework

Chairside



Final prosthesis



Seat the Angled Abutment using the positioning jig, then tighten it to 25~30N-cm. Re-tighten after 15 min.



Insert final prosthesis and adjust occlusion

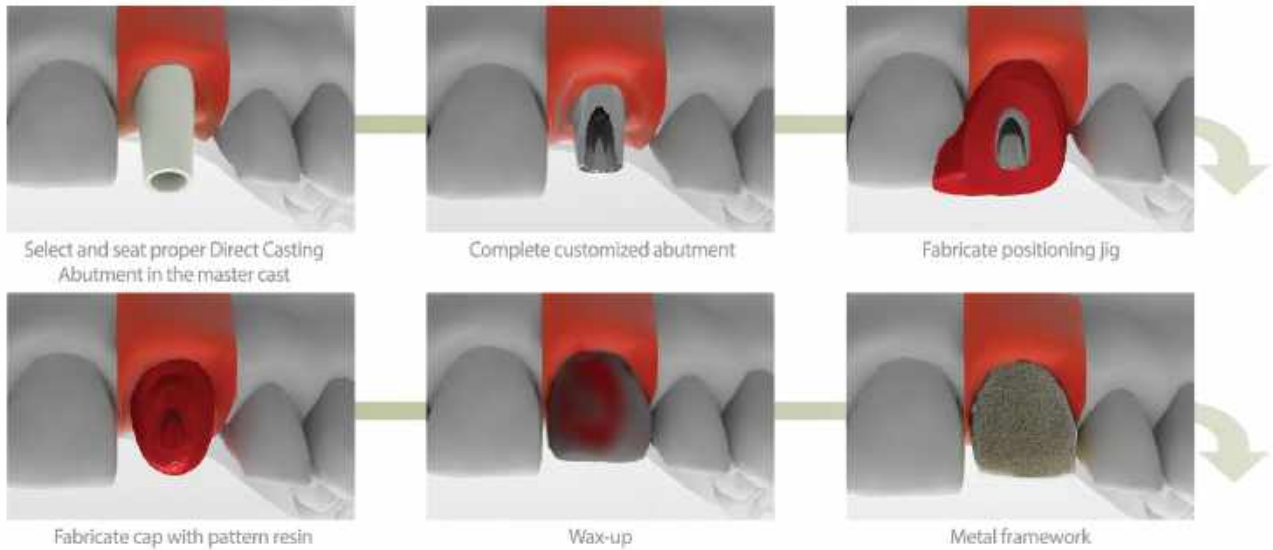
Fixture Level - Direct-Casting Abutment

[Single Unit]

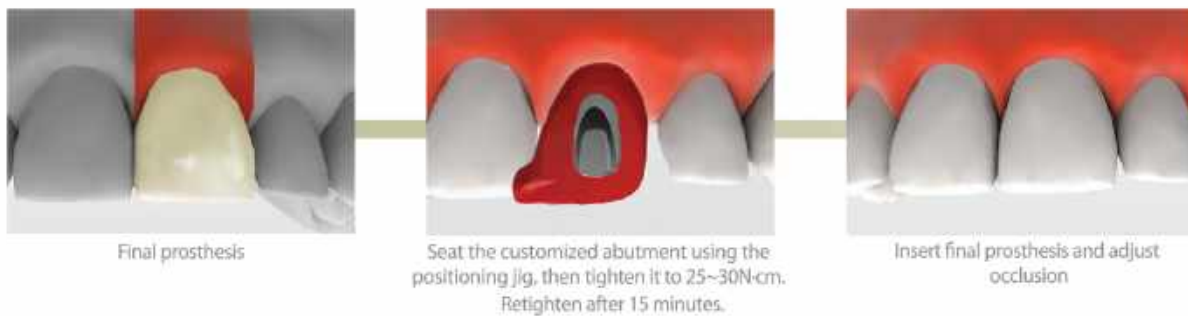
Laboratory Procedure



LabSide



Chairside (Cement Retained Restoration)



Fixture Level - Metal-Casting Abutment

[Single Unit]

Laboratory Procedure



LabSide



Select and seat proper Metal Casting Abutment in the master cast



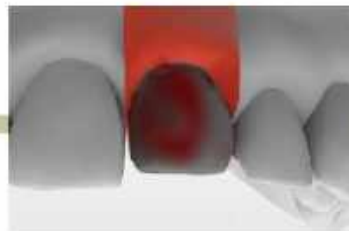
Complete customized abutment



Fabricate positioning jig



Fabricate cap with pattern resin



Wax-up



Metal framework

Chairside



Final prosthesis



Seat the customized abutment using the positioning jig, then tighten it to 25~30N-cm. Retighten after 15 minutes.



Insert final prosthesis and adjust occlusion

Fixture Level [Pick-up Type] - Temporary Abutment

Provisional restoration

[Single Unit]



<Using Ti Abutment>



<Using Plastic Abutment>



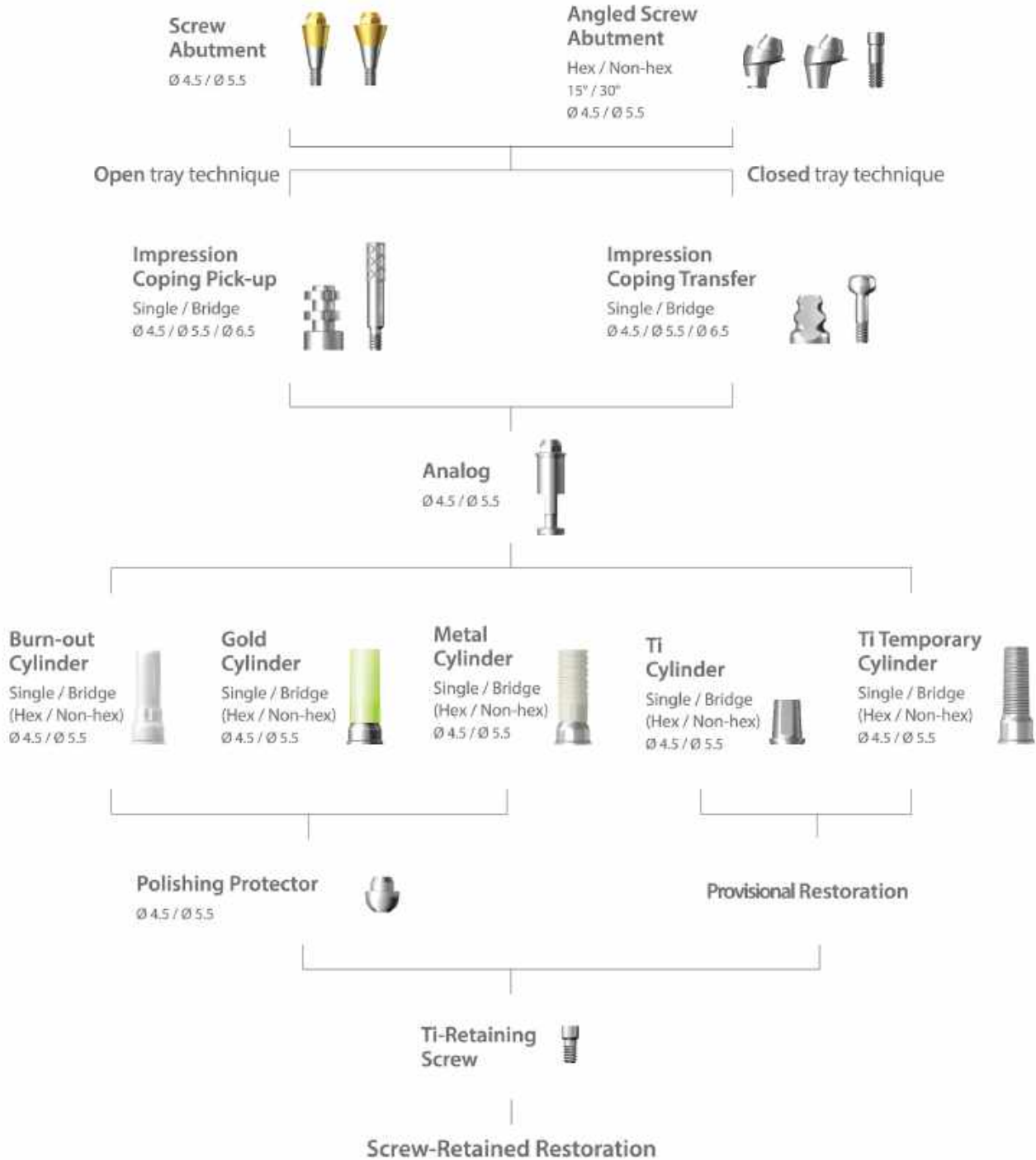
Consider the opposing teeth height before seating the Temporary Abutment. Modify the abutment if needed. Seat the Temporary Abutment using the positioning jig, then tighten it to 15~20N·cm, and re-tighten after 15 minutes. Complete the Temporary Abutment prosthesis with direct resin.

Prosthetic Procedure 3

Impression Technique and Restoration Selection

Screw Abutment

Abutment Level Impression



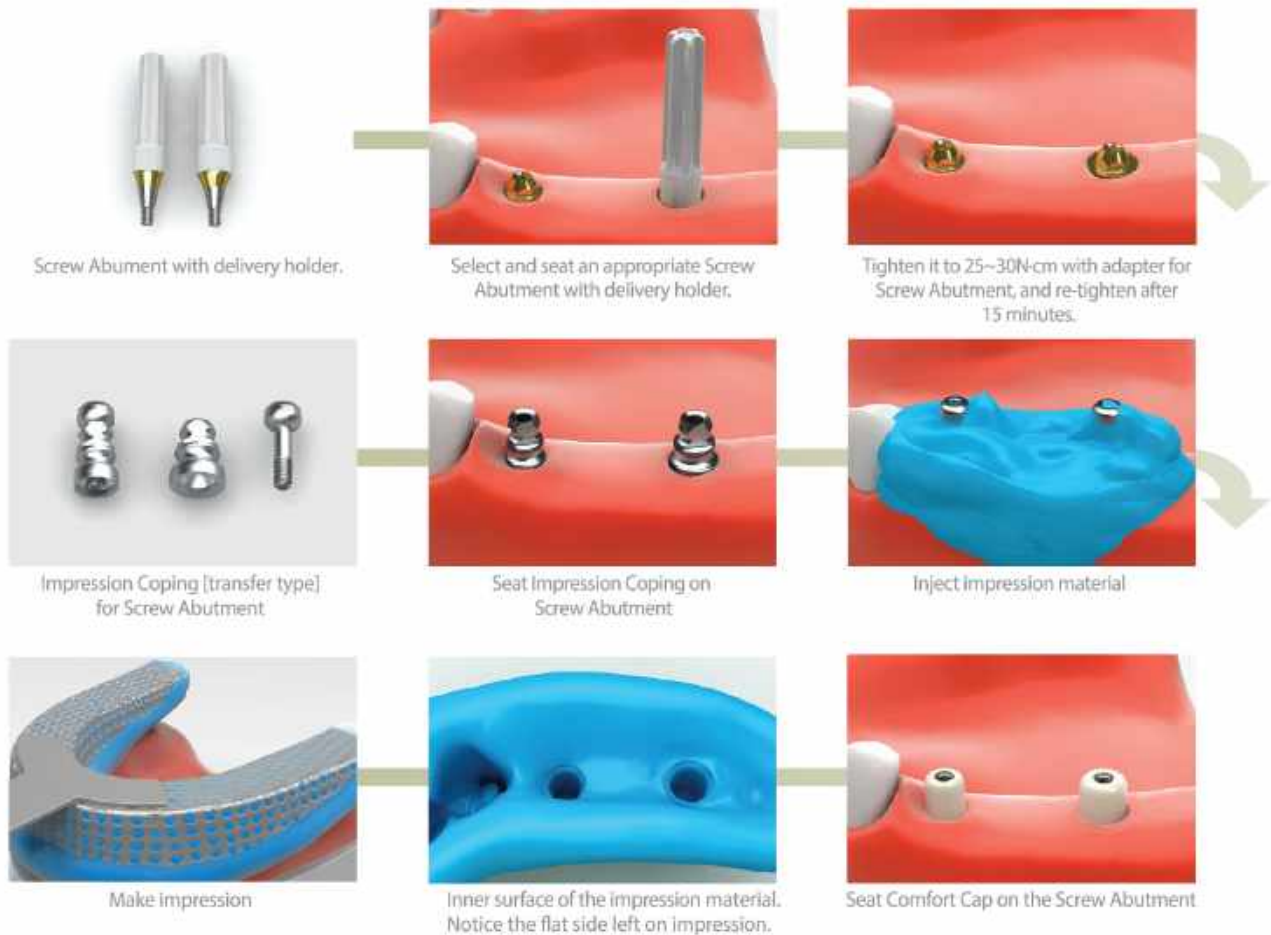
Abutment Level [Transfer Type] - Screw Abutment

[Multiple Units]

Clinical Procedure



Chairside



Abutment Level [Transfer Type] - Screw Abutment

[Multiple Units]

Laboratory Procedure



Labside



Remove the Impression Coping from oral cavity and connect it with Analog firmly.



Attach the Impression Coping to the Analog and insert into the Impression



Fabricate soft tissue model



Fabricate master cast



Removal of Impression Coping



Connect the Screw Abutment cylinder then tighten it to 25–30N·cm with Ti-Retaining screw



Consider the distance of opposing teeth, modify cylinder to its proper height if needed.



Fabricate Burn-Out Cylinder and plastic bar in preparation for wax-up.



Wax-up

Abutment Level [Transfer Type] - Screw Abutment

[Multiple Units]



Fabricate metal framework



Eliminate the lip remnant caused by 'snap-on' mechanism using reamer.



Metal framework after removal of the lip remnant.



Seat the final prosthesis and adjust occlusion. Tighten it to 10N-cm with Ti-Retaining Screw



Place Teflon into opening of the screw hole to protect screw head and composite resin.



Final Prosthesis

Cementation Repair Method (SCRCP)

[Screw & Cement Retained Prosthesis]

In Light of Implant Prosthesis:

- A screw type restoration helps to simplify prosthesis repair, including insertion and removal of the prosthesis if necessary.
- Cement type restoration tend to have a stable occlusion and may enhance the adaptability. However the weak point is that it cannot be removed after permanent cementation.
- A Dual Abutment can be cemented or screw retained.
- Combi Abutments are cement retained and no occlusal hole is necessary for a more esthetic restoration.

In Case of Screw Loosening or when Prosthesis Repair is Needed



In case of screw loosening and/or Prosthesis repair is needed.



In order to unscrew, make access hole on the occlusal surface with bur.



Unscrew, then remove the prosthesis from the oral cavity.



Both cemented prosthesis and abutment are removed.



Finish the repair then re-seat into the oral cavity with a new Abutment.Screw.



Tighten the prosthesis with :25~30N-cm by a screw driver.

* In case of Screw Abutment, Ti-Retaining Screw should be tightened to 10N-cm.



Fill the access hole with Teflon.



Fill the access hole with resin composite and polish.



Final prosthesis

Cementation Repair Method (SCRIP)

[Screw & Cement Retained Prosthesis]

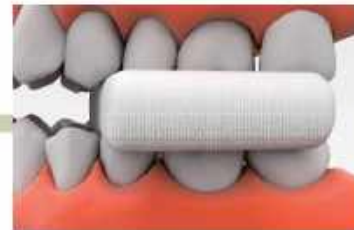
Prosthesis Separation from Abutment due to Cement Loss



Completely remove the screw using 25~30N-cm and remove prosthesis from the oral cavity.



Apply cement to the prosthesis.



Place it back into the oral cavity.



After the cement setting, unscrew and remove the excessive cement.



Finish the repair and seat it inside the oral cavity.



Tighten the prosthesis with 25~30N-cm with a Screw Driver.

Adding to the Interproximal Contact Surface due to Prosthesis Loosening



Adding to the interproximal contact due to loosening



Make access hole



Unscrew, then remove the cemented prosthesis with abutment in the oral cavity.



Add resin to the contact if needed.



Finish the repair then re-seat into the oral cavity with a new Abutment Screw.



Insert the prosthesis in the oral cavity and screw it in. Afterwards, perform light curing, then polish the contact area.



Position the prosthesis in the mouth and tighten the screw with 25~30N-cm, then fill up the access hole.



Fill the access hole with resin composite and polish.

* It is recommended that the abutment screw is retightened after 15 minutes.

Prosthetic Procedure 4

Impression Technique and Restoration Type

Overdenture Procedure

Ball Attachment



Ball Abutment
Ø 3.5

Abutment Level Impression



Ball Impression Coping
Ø 3.5



Ball Analog



Socket Spacer
Ø 4.05 / Ø 4.85



Female Socket / O-ring
Ø 4.05 / Ø 4.85

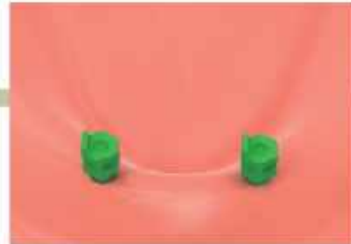
Ball and Socket Attachment for Overdenture

Overdenture Procedure - Ball Attachment

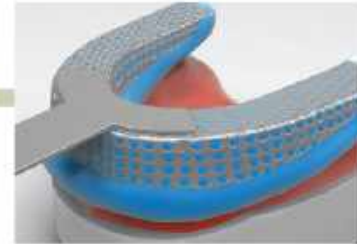
Chairside



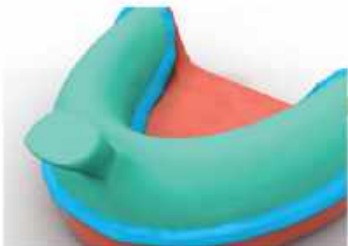
Connect Ball Abutment then tighten it to 25-30N-cm, and re-tighten after 15 minutes.



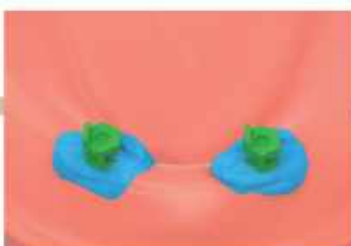
Seat Impression Coping onto Ball Abutment



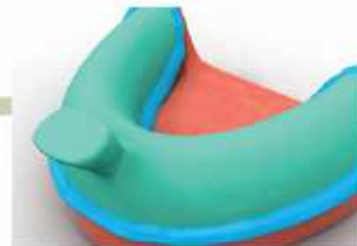
Make Impression for the production of individual tray



Prepare individual tray for denture impression.



Inject impression material.

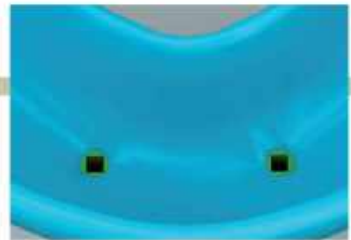


Make impression with individual tray.

Labside



Remove the tray from the oral cavity.



Inner surface of the impression material



Ball Analog



Insert Analog onto impression coping



Fabricate master cast



Socket Spacer



Fabricate denture following standard technique.

Ball Attachment

Case 1: Preferred Procedure Chairside



Using a round bur, reduce denture inner surface to insert Female Socket.



*Connect the Female Sockets to the Ball Abutment in oral cavity and block out undercuts. Then align / parallel metal housings.



Apply small amount of the resin into holes.



Seat the denture onto socket in oral cavity.



Remove denture from oral cavity after initial seating of resin.



After the resin sets, trim the remnant resin from the denture and polish it.

Case 2

Chairside



Using a round bur, create holes for the placement of Female Socket



*Connect the Female Sockets to the Ball Abutment in oral cavity and block out undercuts. Then align / parallel metal housings.



Examine the interference between inner surface of the holes and the Female Sockets.



Apply the resin into the holes to secure Female Sockets



Seat the denture onto socket in oral cavity.



Remove denture from oral cavity after initial setting of resin.



Add resin as needed, with brush around the Female Socket.

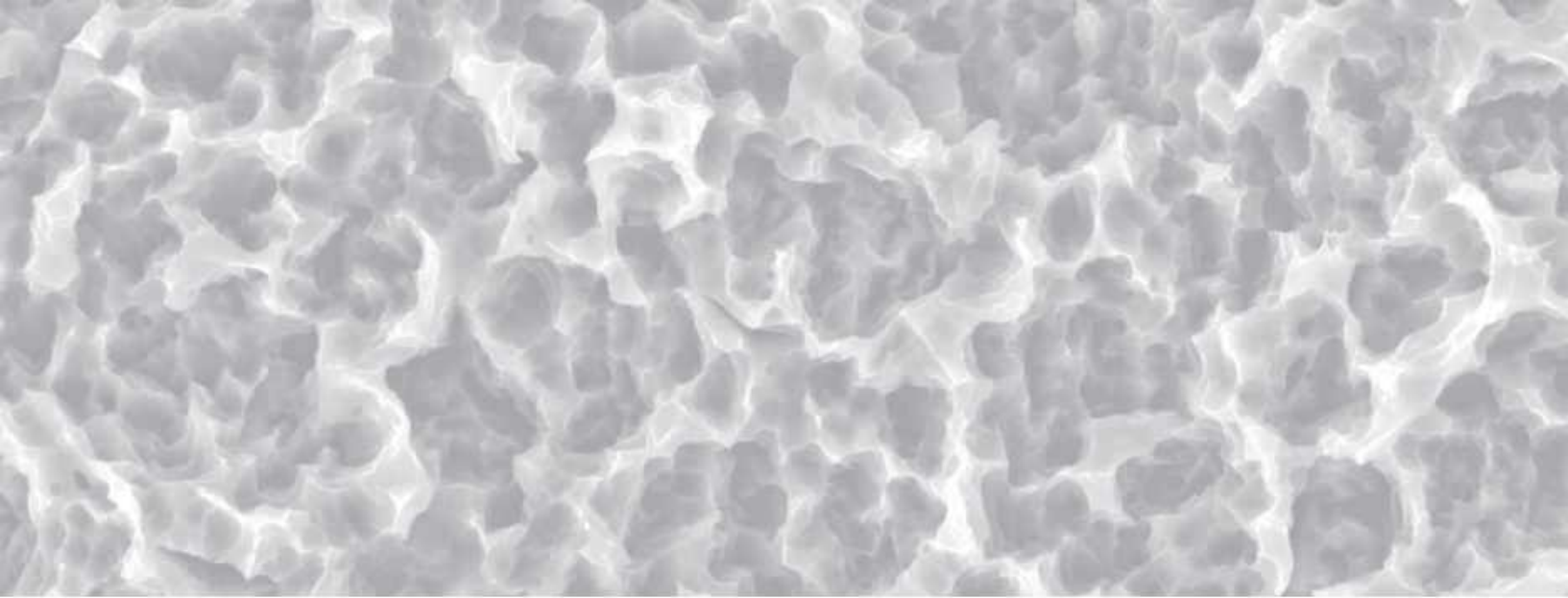


After the resin sets, trim the remnant resin from the denture and polish denture both sides.

* Install rubber dam with a small hole over each O-Ball Abutment to prevent resin from gluing lower surface while attaching denture to Female Sockets.

***SuperLine* & IMPLANTIUM**

Surgical / Prosthesis Manual



Simple & Predictable

15 Years of Clinical Evidence

over years
15 of Long term data

OVER A **DECADE** OF COMMITMENT TO THE BEST PRODUCTS FOR DENTISTS AND PATIENTS



06. 20. 2002
Pre-op



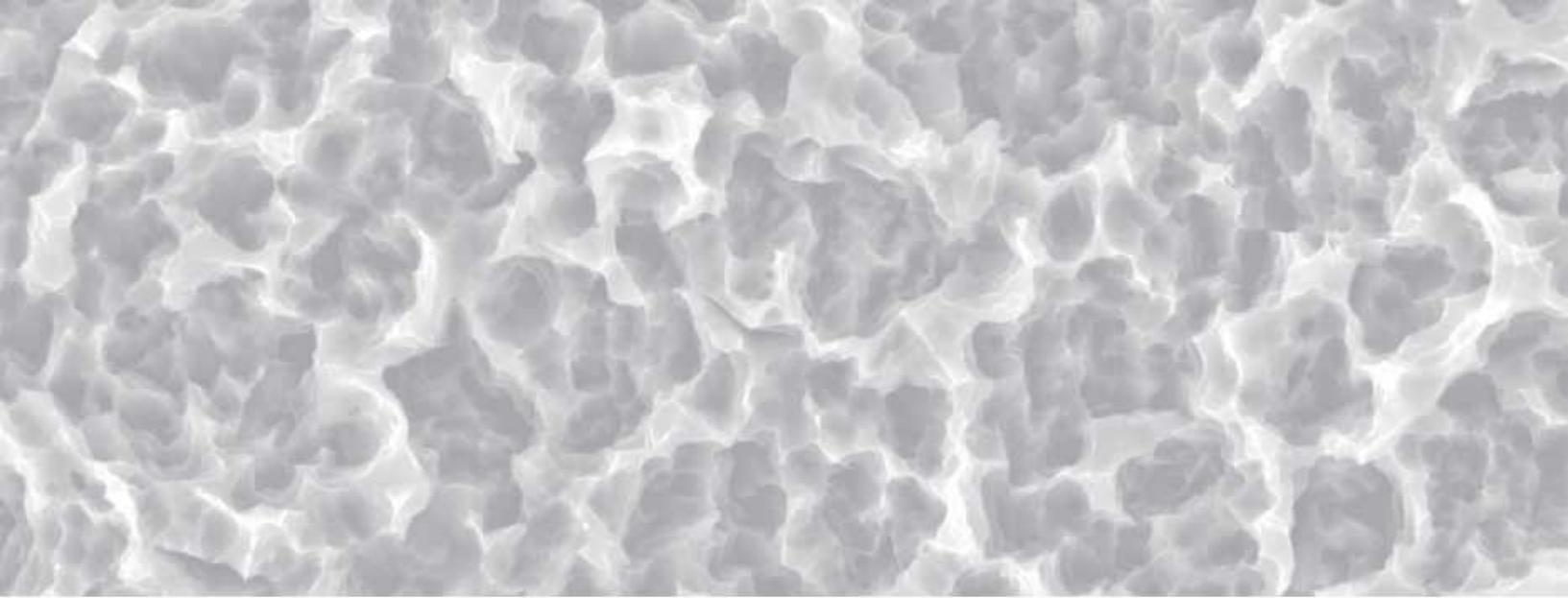
07. 02. 2002
Post-op



11. 29. 2002
Final Prosthesis



06. 02. 2004
1 Years 2 months



11. 15. 2007
5 Years



07. 24. 2009
6 Years 8 months



05. 23. 2012
9 Years 6 months



11. 25. 2017
15 Years

SuperLine & IMPLANTIUM

Surgical / Prosthesis Manual

DentiumUSA
Developed by Clinicians for Clinicians

Surgical and Prosthesis procedures in this manual is for Dentium SuperLine Implant (FX xxxx SWC) series and Implantium (FX xxxx MLC) series.
Specifications are subjected to change without prior notice.
Dentium reserves the right to make any necessary alterations to the methods and procedures stated in this manual.

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