For education

SIMPLE GUIDE Plus

User Manual Ver.1

CONTENTS

I . Introduction

What is **SIMPLE GUIDE Plus?**

Successful Digital Guide Surgery

Perform a precise surgery

✚ **SIMPLE GUIDE** Plus simple, convenient digital implant system with higher accuracy and compatible with all dental implant systems

Completion of 1 visit guide solution from diagnosis to guide output, and to surgery as well in dental clinic.

Economical price of the kit and cost-effective composition of the drills.

High accuracy without data loss due to digitalization of data of the entire processes of treatment protocol.

Guide solution in which clinical know-hows of digital clinicians and Dentis are concentrated.

Completion of open guide system due to compatibility of CEREC Guide 2

Easy guide planning system

SIMPLE GUIDE Plus

Why SIMPLE GUIDE Plus is Special?

Real One Day System

Only one-day guide system from diagnostic, surgical guide printing to implant surgery in your clinic.

- ✚ Enable to surgery within 3hours(With model process) or 2hours(with intraoral scanner)
  (*Single or couple implant case)
- ✚ Depends on patient's condition, Immediate prosthetics loading (Coming soon)

Open Guide System

Open guide system compatible with all implant systems.

- ✚ Compatible with CEREC Guide2
- ✚ Make your own surgical guide in your clinic or guide center

Economic System

Accurate and cost-effective with convenient surgical kit.

- ✚ Economic system with self guide production at chair side or center

Accurate System

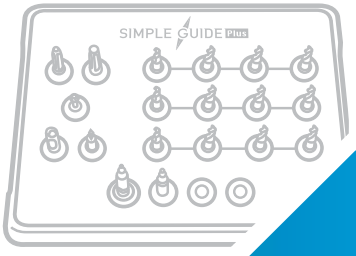
The most accurate system with innovate design of the step drill & reamer drill.

- ✚ 2 way drill and sleeve contacts improve accuracy
- ✚ Controls space between guide and drill / sleeve and drill

User-friendly System

Convenient and easy system with new planning software.

- ✚ Improve DACOM and STL merge algorithm to design surgical guide in 10 minutes
- ✚ Convenient and easy software
- ✚ Optional titanium sleeve and sleeveless system
- ✚ Optional open and close guide tube



Work-flow

Material

CBCT Data

CT

Scanning

Intraoral or Model scanner

Planning

PC & S/W

3D Printing

ZENITH U or Zenith D

Surgery

Simple Guide PLUS
& Final Drill

Temporary

ZENITH U or Zenith D

Ⅱ. Advanced Preparation

Step1. CT Scan

Step2. Oral or Model Scanning

Step1. CT Scan

✚ Material

Essential Material	CT, Cotton roll
Recommended Resolution	Slice interval 〈 0.25 mm Slice thickness 〈 0.25 mm Resolution 〈 0.25 mm x 0.25 mm
Recommended FOV Size	10X8.5 or higher (When it is below that level, it is impossible to fabricate the guide up to full arch.)

✚ Method

1. CT Scan

① Remove any metallic objects in the head and neck region such as earrings, and glasses.
② Assure jaw separation during scan by biting over a cotton roll or similar object (Fig.1, 2, 3).

Fig.1 Open bite

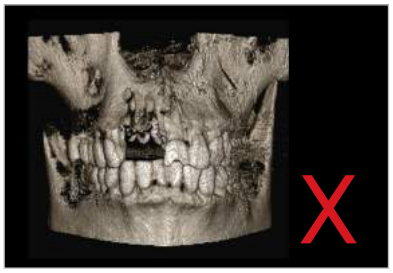


Fig.2 Closed bite

Fig.3 Cotton roll

Notice If the patient moves during CT taking and the CT image is thus shaken, or CT FOV size is small (10 × 8.5 and over is recommended), or CT is cut out, or there are many prosthesis, it may be difficult to fabricate the guide.

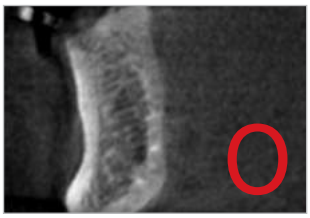


Fig.4 Correct CT data

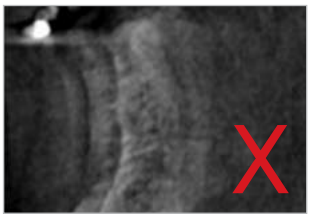


Fig.5 Shacked CT data

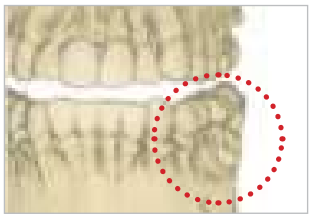


Fig.6 Unenough CT Information

Fig.7 Many Metallic Restorations Cases

2. Extract CT File (Dicom file)

Notice Method for file extraction may differ depending on the products.For detailed method, check on each manufacturers or inquire additionally.

Step2. Oral or Model Scanning

✚ Material

Essential Material	(Option1) Intra-oral scanner
	(Option2) Stone model or model scanner


✚ Method

1. Intra-oral Scan Data

Extract STL File →

2. Model Scan Data

Stone Model Scan →

Extract STL File →

Ⅲ. Method for chair-side fabrication

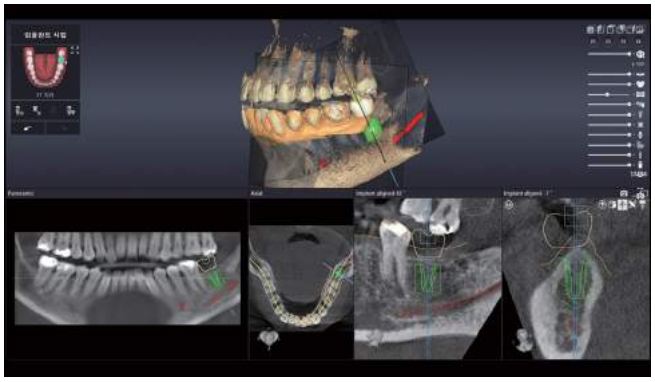
Step1. Implant Planning

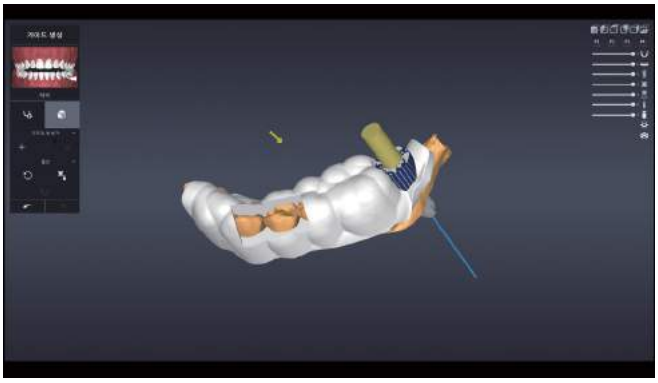
Step2. Surgical Stent 3D Printing

Step1. Implant Planning

✚ Outline

- Guide planning S/W is a pre-operative planning software used to plan the placement of one or more implants based on CT and 3D scan data.
- The implant library that includes authenticated implants are supported.
- User can export the aligned implant and scan data as STL file.
- The use of this software requires having the necessary expertise in implant dentistry.





✚ Recommended Guide Planning S/W

- DentiqGuide
- CEREC GALILEOS

Notice Method for file extraction may differ depending on the products.For detailed method, check on each manufacturers or inquire additionally.

Step1. Implant Planning

✚ Material

Essential Material	PC, S/W

1. System Requirements

Category	Minimum System Requirements	Recommended
OS	Windows 7, 8, 10 (64bit)	Windows 7, 8, 10 (64bit)
RAM	8GB	16GB or higher
Graphics Card	cs card compatible with DirectX 11	High end graphic card compatible with DirectX 11 or higher GPU-dedicated memory 2GB
CPU	Intel i3 Dual Core	Intel i5 Quad Core or higher
HDD	2GB free space	4GB free space

* Minimum system requirements are only available when the S/W to be in sole occupancy.

✚ Work-flow

Reference : DentiqGuide

Step2. Surgical Stent 3D Printing

✚ Material

Essential Material	Printing	ZENITH D or U, resin, vat sealer, vat, plate, PC, scraper, urethane paddle
	Cleaning	Cleaning container, alcohol, brush, ultrasonic waves
	Fabricating	UV curing, sleeve, handpiece

1. ZENITH U

- Multi play desktop 3D printer that could be utilized in wide range of application

Technology	Stereolithography Apparatus (SLA)
Build Size	110 x 110 x 150mm
Machine Size X/Y/Z	354 x 366 x 483mm
Weight	17.5 kg
Interface	USB
Layer Thickness	16㎛, 50㎛, 100㎛
Light Source	Blue Laser
Software	ZENITH S/W
OS	Windows 7,8,10 / Mac OS 10.10 or higher
Input file format	Standard STL file
Power supply	Input : AC 100~240V / 50-60Hz, Output : DC 24V 5A
Material Properties	Photopolymer Resin
Electrical consumption	120W

Dental Model — Surgical Guide — Temporary — Cast Coping & Partial Frame — Splint

2. ZENITH D

- Popular 3D printer special for model and guide
- DLP method 3D printer that is economical and cost effective

Technology	DLP(Digital Light Processing)
Build Size	128 x 80 x 150 mm
Machine Size X/Y/Z	340 x 460 x 430 mm
weight	15 kg
XY Resolution	100㎛
Interface	USB, Wi-Fi
Layer Thickness	50㎛, 100㎛
Light Source	405㎛ LED
Software	Zenith D Slicer
OS	Windows 7,8,10 / Mac 10.10 or higher
Input file format	Standard STL file
Power supply	INPUT : AC 100V-240V / 50-60 Hz 2A max OUTPUT : 24V 5A
Material Properties	Photopolymer Resin

Dental Model — Surgical Guide — Temporary — Cast Coping & Partial Frame — Splint — IDB Tray — Bite Tray

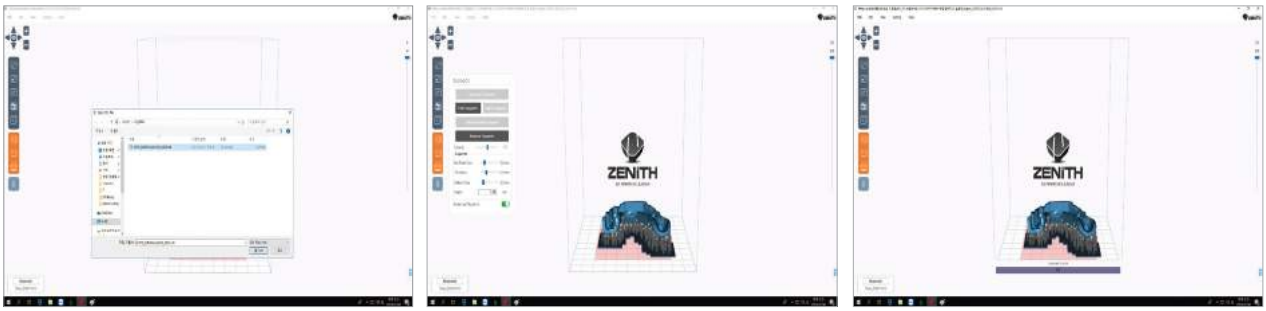
Notice Specifications of the product may change depending on the circumstances of the company.

Step2. Surgical Stent 3D Printing

✚ Method

1. 3D Printer S/W

① Import STL file by executing 3D printer S/W.
② Determining the location of the output, Designing of the strut and floor surface strut.
③ Data transfer by using 3D printer(Automatic start-up)

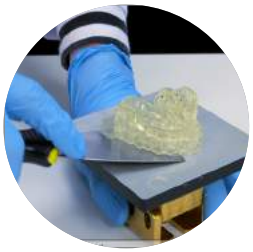


2. Printing

① 3D Printer

② Removal of output board

③ Separation of output



3. Post-treatment

① Cleaning

② Separation of the strut

③ UV Curing

Notice For 3D printer manual, refer ZENITH software manual and user manual.

Step2. Surgical Stent 3D Printing

✚ Guide Stent Fabrication

1. Sleeveless Guide Stent Trimming (Optional)

- It is used when the hole of the surgical stent output is not printed out precisely.
- It is used to lower the ratio of error while performing surgery by maintaining the gap between surgical stent and drill evenly.

① Prepare surgical stent, Ø4.5 Reamer of SIMPLE Guide Plus KIT

Surgical Stent

Ø 4.5 Reamer

② Perform drilling of the surgical stent under 1000-1200 rpm with Ø 4.5 Reamer extra-orally.

Notice
* Perform reaming so that it becomes perpendicular to the guide.
* Pay attention to the path.

Step2. Surgical Stent 3D Printing

2. Sleeve Guide Stent Trimming (Optional)

- It is used when the hole of the surgical stent output is not printed out precisely.
- It is used to lower the ratio of error while performing surgery by maintaining the gap between surgical stent and drill evenly.

① Prepare Surgical guide stent, Ø5.3 Reamer of SIMPLE Guide Plus KIT의 Ø5.3 Reamer, Sleeve Connector, Sleeve


Surgical Guide Stent


Ø 5.3 Reamer


Sleeve (Inside Ø4.5/ OutsideØ5.3)


Sleeve Connector

② Perform drilling of the surgical stent under 1000-1200 rpm with Ø 5.3 reamer extra-orally.

Notice Perform reaming so that it becomes perpendicular to the guide. Pay attention to the path.

③ Connect the sleeve into the surgical stent by connecting the sleeve into the sleeve connector.

Notice Removing and attaching is easy without separate sleeve adhesive.



3. Sleeve Removing and Attaching Method

① Prepare sleeve connector

② Removal is easy by inserting the sleeve connector into the opposite side of the stent.


Ⅳ. Surgical Procedure

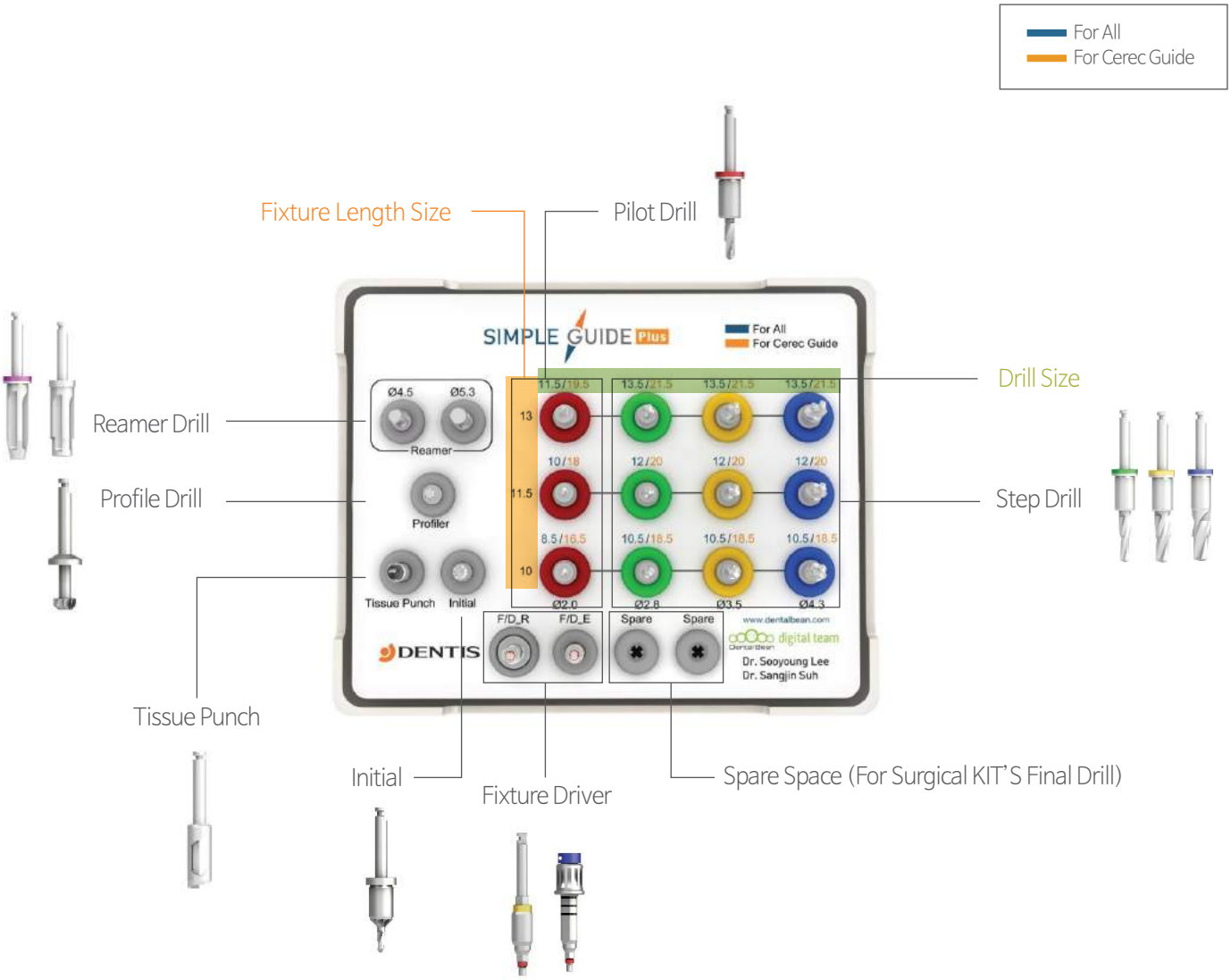
Simple Guide Plus KIT

Drilling Sequence

Surgical Process

Simple Guide Plus KIT

1. SIMPLE GUIDE Plus KIT



Code : DSGPK

Simple Guide Plus KIT

2. Component

For All
For Cerec Guide

· Reamer Drill (Option)

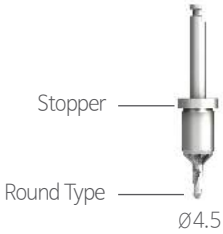
- Maintain the tolerance steadily between guide and drill, between sleeve and drill, and between sleeve and guide
- It is used when surgical stent is printed inaccuracy
- Ø 4.5 is used in sleeveless/ Ø5.3 is used in sleeve
- Code : Ø4.5_DSGPR45, Ø5.3_DSGPR53

· Tissue Punch

- Remove soft tissue for flapless surgery
- Bone flattening function
- Code : Ø4.0_DSGPTP

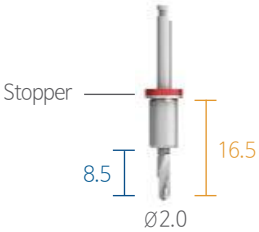
· Initial Drill

- Mark accurate points at any bone density
- Remove the gingiva that has not been removed by tissue punch
- Code : Ø1.8_DSGPID



· Pilot Drill

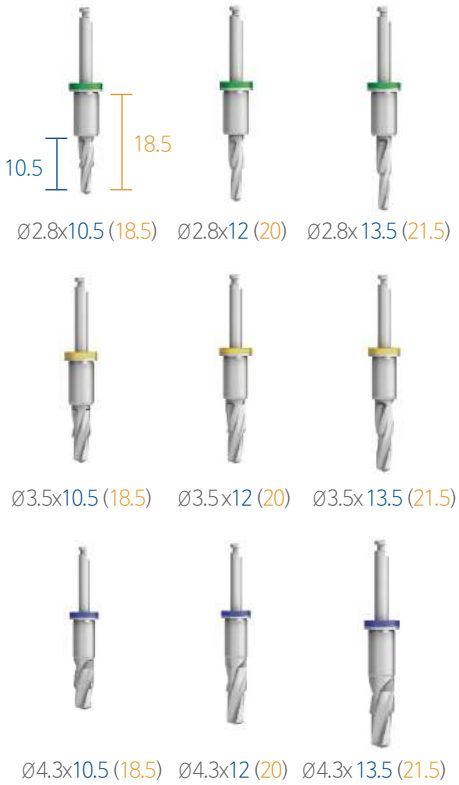
- Enlarge depth and diameter
- Minimize bone cutting through drill sequence avoid bone heating
- Code : Ø2.0x8.5 (16.5)_DSGPSD 2016
  Ø2.0x10 (18)__D SGPSD 2018
  Ø2.0x11.5 (19.5)_DSGPSD 2019



Simple Guide Plus KIT

· Straight Drill

- Step drill of which error ratio is dramatically reduced due to 2 point fixationl
- Only with single final drilling, implant installation is possible
- Code : Ø2.8x10.5 (18.5)_DSGPSD 2818
  Ø2.8x12 (20)_DSGPSD 2820
  Ø2.8x13.5 (21.5)_DSGPSD 2821
  Ø3.5x 10.5 (18.5)_ DSGPSD 3518
  Ø3.5x 12 (20)_DSGPSD 3520
  Ø3.5x 13.5 (21.5)_ DSGPSD 3521
  Ø4.3x 10.5 (18.5)_ DSGPSD 4318
  Ø4.3x 12 (20)_DSGPSD 4320
  Ø4.3x 13.5 (21.5)_DSGPSD 4321



· Fixture Driver (Machine / Ratehcet) (Optional)

- It is composed of 2 types which are for machine and for ratchet
- 3 points marking enable to implant hex position
- Enable to adjust depth with laser Marking
- When the fixture that is smaller than Ø 4.2 is installed, direct use on the stent is possible. If it is over that level, using is possible after removing the sleeve
- It is compatible with domestic implant fixtures (Choice is possible depending on using product)
- Code : Machine (Ø4.5)_DSGPDA, Ratchet (Ø4.5)_DSGPRDA
  Machine (Ø4.5)_DSGPDO, Ratchet (Ø4.5)_DSGPRDO

· Profile Drill

- To trim residue bone after implant insertion for best supra structure parts connection
- Trim up to 6.5 (Regular implant)
- Code : Ø4.0_DSGPPD


Ø4.0

Simple Guide Plus KIT

3. Separately sold product

· **Anchor Drill**
- A drill used for inserting the screw for fixation of surgical stent
- Ø1.3
- Code : DGATD13

· **Anchor Driver**
- A tool used for fixation of anchor screw
- Two different types for machine and for ratchet
- Code : Machine_DMHD24
  Ratchet_DRHDS24

· **Anchor Screw**
- A tool used for fixation of surgical stent
- Code : DGAS18

· **Sleeve**
- Separate sleeve adhesive is unnecessary, and the groove on labial and lingual side makes checking hexa-surface easy
- Code : DSGPS

· **Sleeve Connector**
- A tool for removing and attaching the sleeve
- Removal is possible when insertion is done on the opposite side of the stent
- Code : DSGPSC

Simple Guide Plus KIT

4. Method for Storage and Management of the KIT

1) Cleaning and disinfection

① Thoroughly pre-rinse blood stain or foreign body on the instruments after using the kit by using a cleaning brush on the surface in distilled water or 30 ~ 40℃ running water for 20 seconds.

② Pre-rinse it by immersing it in disinfectant liquid for 10 minutes.

③ Cleanse additionally by using ultrasonic cleanser.

④ After cleansing it by using detergent and cleaning brush, wash it in running water thoroughly.

⑤ Either 100% naturally dry the cleansed instruments or use a clean cloth to directly remove wetness.

⑥ Reposition the dried instruments in accordance with the mark of base plate of the kit.

⑦ Wrap the kit with sterilization wrap.

⑧ Mark the sterilization date after attaching sterilization tape on sterilization wrap.

⑨ Place the wrapped kit into the sterilization device and proceed sterilization.





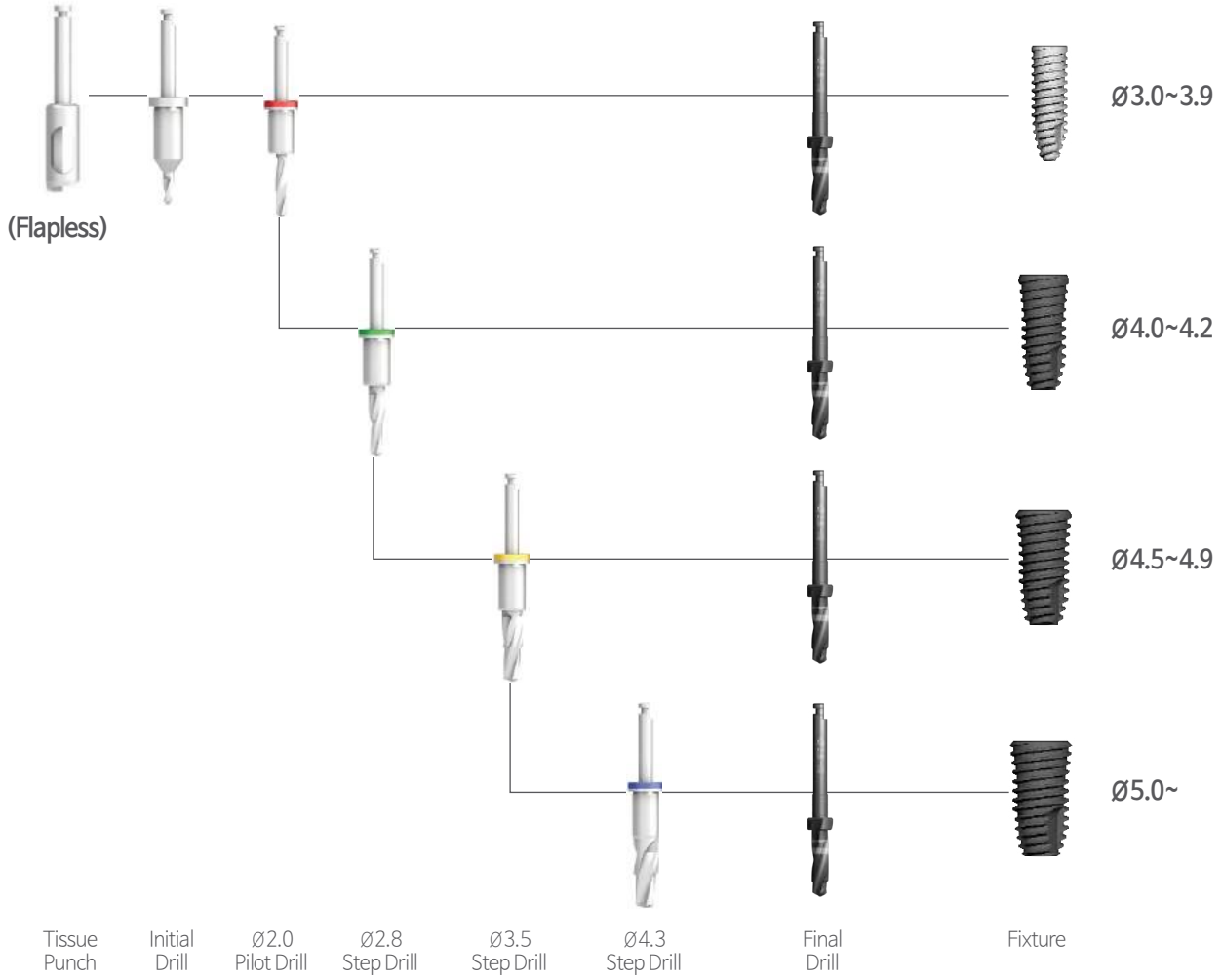
2) Method for storage

① Store it in room temperature on uncontaminated area.

② Check the marked sterilization date, and if it has not been used within 3 ~ 4 days, re-sterilize it before using it for surgery.

Drilling Sequence

Universal System



Notice According to the patient's bone quality, over drilling or under drilling

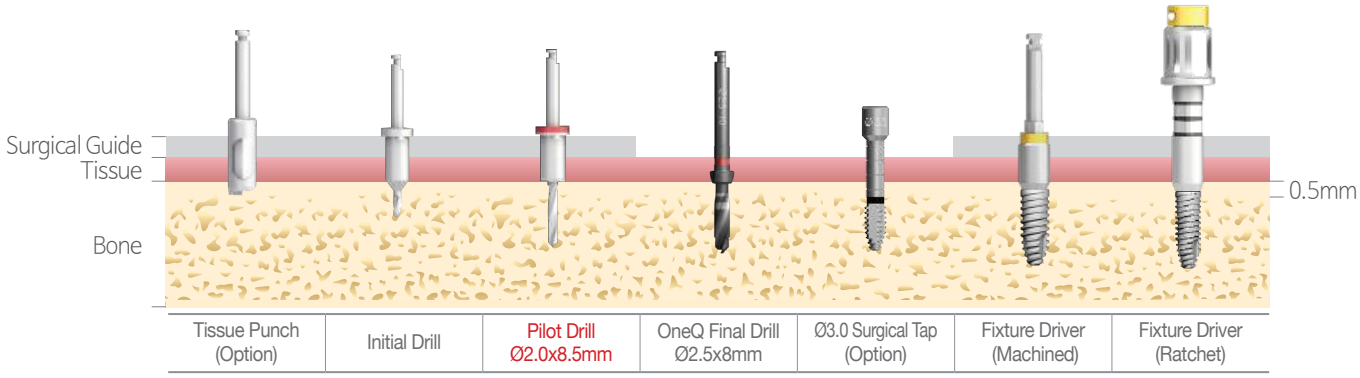
Drilling Sequence

DENTIS OneQ Implant System

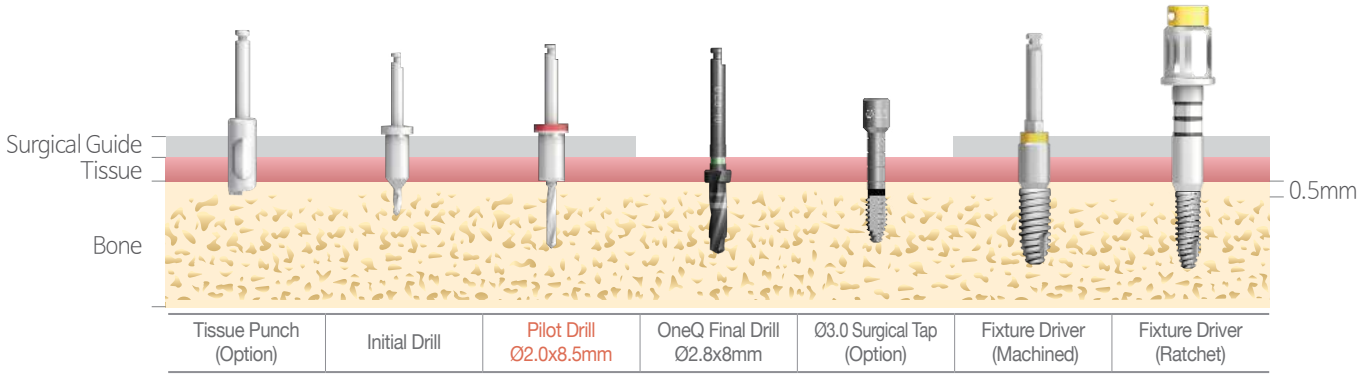
One System for All
Implant Indications

OneQ-SL

Ø3.0 x 8.0mm



Ø3.3 x 8.0mm



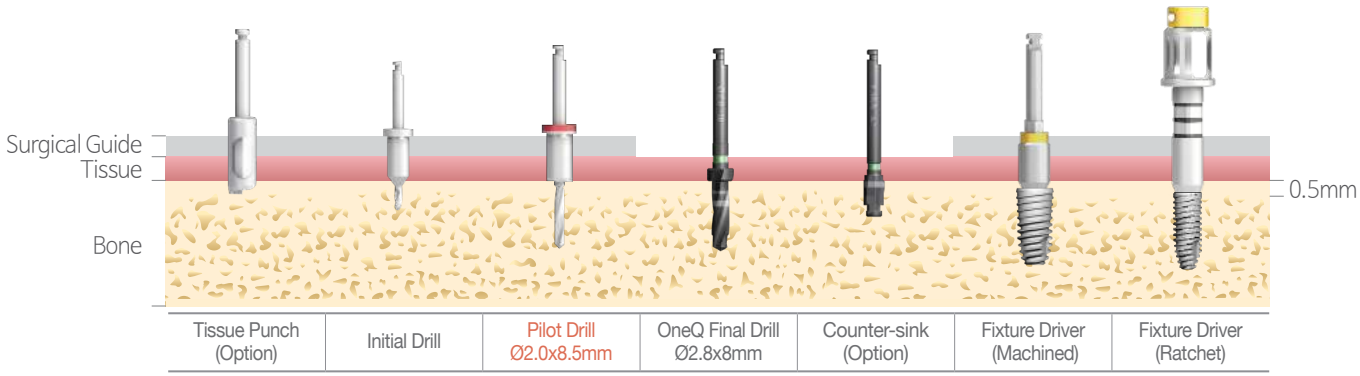
Drilling Sequence

DENTIS OneQ Implant System

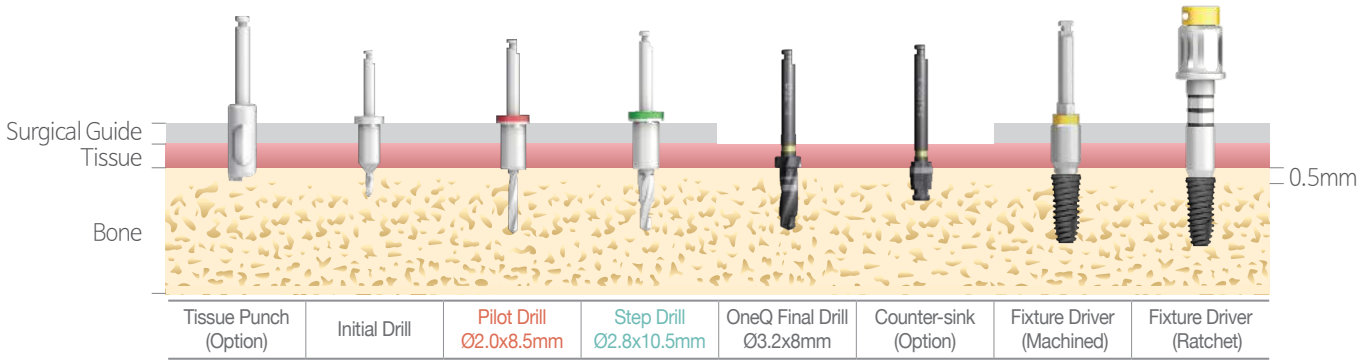
One System for All
Implant Indications

OneQ-SL

Ø3.9 x 8.0mm



Ø4.2 x 8.0mm



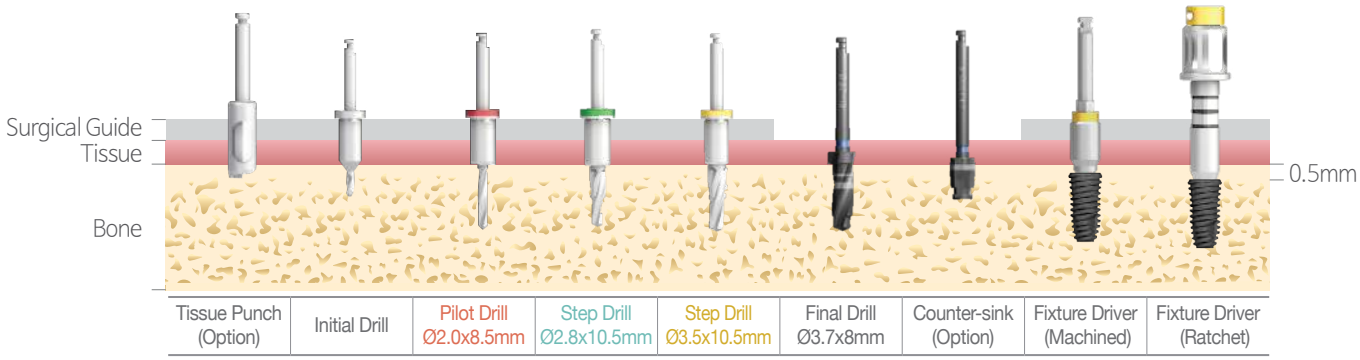
Drilling Sequence

DENTIS OneQ Implant System

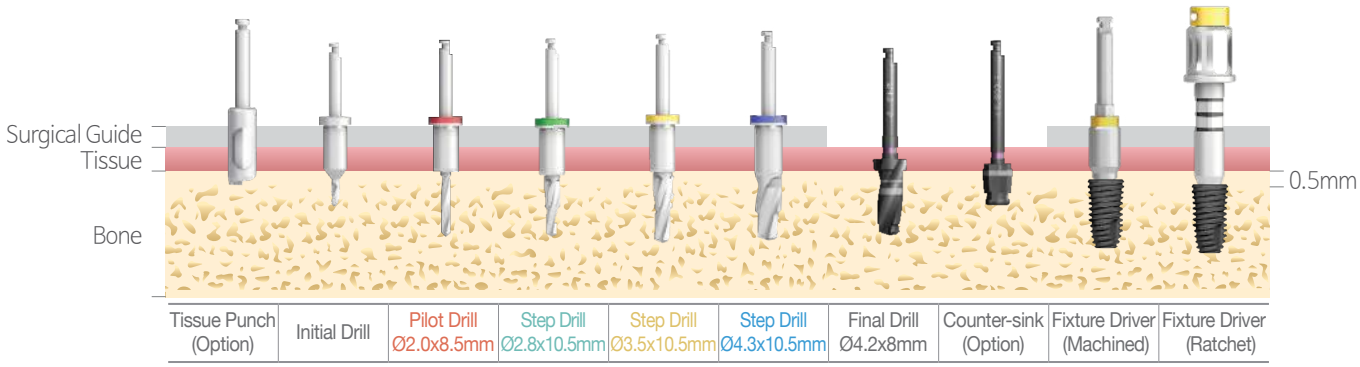
One System for All
Implant Indications

OneQ-SL

Ø4.7 x 8.0mm



Ø5.2 x 8.0mm



Surgical Procedure

1. Preparation of Guide Stent

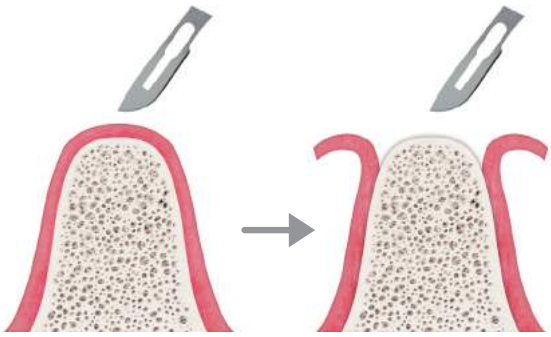
1) Chlorohexidine disinfection of guide stent

· Prior to surgery, immerse the surgical stent in chlorohexidine for 5 – 10 minutes for disinfection.

Surgical Procedure

2. Remove Soft Tissue

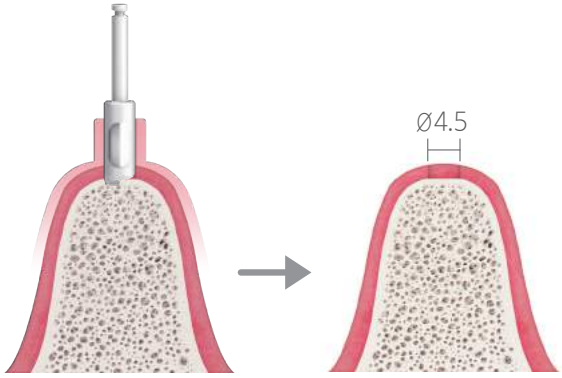
1) Incision & Flap elevation (It could be chosen depending on the situation)



· When performing flap surgery, make an incision on the gingiva of the site for implant insertion by using a blade, and separate periosteum by using periosteal elevator or similar kind instrument.

Notice In flapless surgery case, use tissue punch.

2) Tissue Punch (It could be chosen depending on the situation)



· When performing flapless surgery, remove the gingiva on the site for implant installation by using tissue punch.

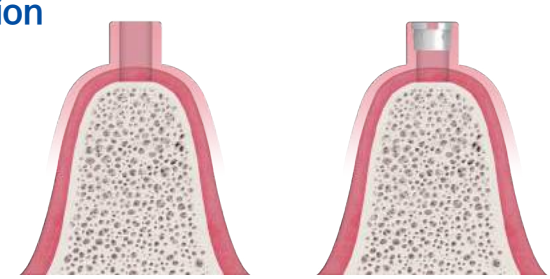
· Healing is faster since the wound is smaller than that by incision and flap elevation.

Tip Since tissues punch has bone flattening function as well, bone surface can be flattened without additional flattening drilling procedure

Notice Drilling is done under 800~1000 rpm recommendation

Surgical Procedure

3. Guide Stent Installation



Surgical Guide Stent

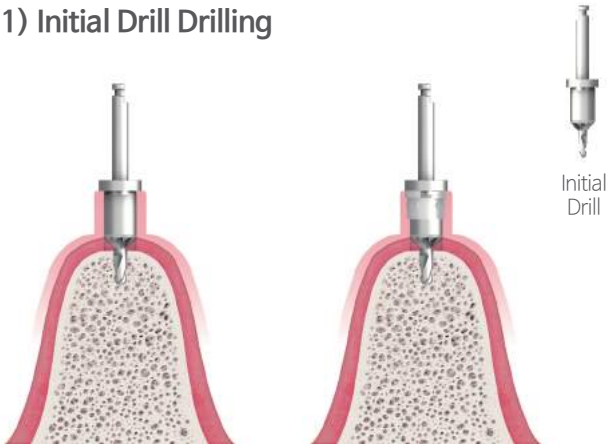
· Installation of the patient's surgical stent that has been fabricated.

Tip * Installation is done in planned direction on guide S/W image design.After installation, check whether there is opened part by pressing bilateral ends of the stent through open window, and nicely settle it in the mouth.

4. Drilling

Notice Drilling is done under 800~1000 rpm if it is high speed drilling, and 50~100 rpm if it is low speed drilling. While drilling is being done, insert the drill in the guide hole and check whether it has been accurately fixed.
All drillings must be done under copious water irrigation with pumping action (up and down).

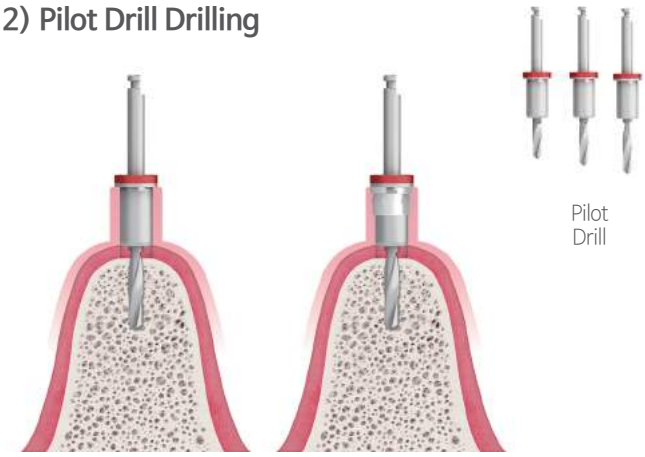
1) Initial Drill Drilling



· It is a drill that is used for forming an accurate hole on the initial stage, and it could be used regardless of quality or form of the bone.

Notice
Drillings must be done under copious water irrigation with pumping action (up and down).

2) Pilot Drill Drilling



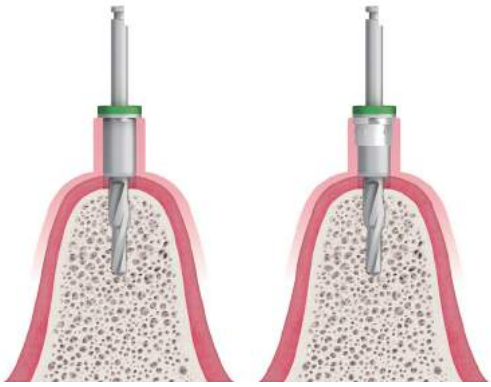
· Ø2.0 Pilot drill for widen diameter and depth

Notice

* Appropriate size drill for fixture length is chosen, and drilling is not done up to the full size but to the size that is one step below to prevent bone heating.
* Before drilling, adjust the drill into the pre-made hole and perform drilling with pumping action(up and down).

Surgical Procedure

5. Step Drill Drilling



Notice Before drilling, adjust the drill into the pre-made hole and perform drilling with pumping action(up and down).

6. Removal Guide Stent

· Removal Surgical stent.

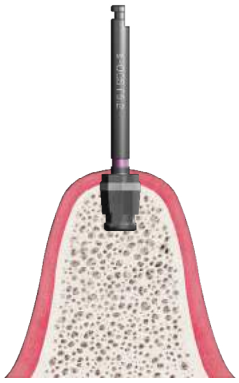
Surgical Procedure

7. Final Drill Drilling

Final Drill

· Perform drilling in accordance with the method recommended by the manufacturer by using final drill of fixture surgical kit.

8. Countersink Drilling (Optional)

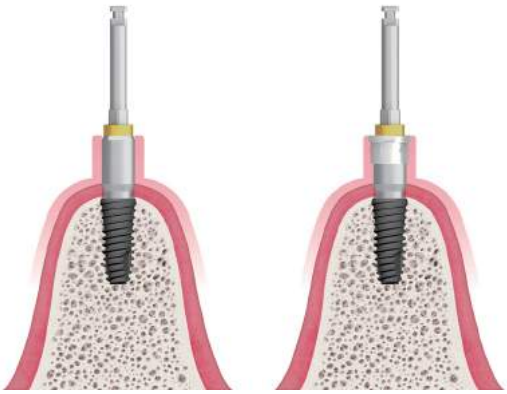


Countersink

· Perform drilling in accordance with the method recommended by the manufacturer by using countersink drill.

Surgical Procedure

9. Installation



· Fixture installation with fixture driver.

· When other implant system is used, however, and the fixture driver or separately purchased drivers are thus not compatible, use the driver of the corresponding manufacturer for installation.

Notice

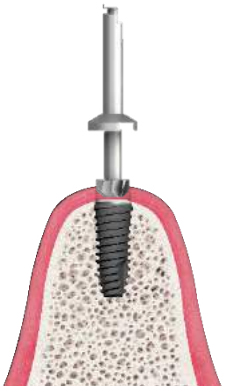
* When the implant with Ø4.2 diameter or smaller is being installed, final installation will be possible when guide stent is connected again after final drilling.
* If you install over Ø4.2 diameter fixture, remove the guide stent and install the implant using machined fixture driver first and try-in guide stent again and install with ratchet driver.

10. Connect upper prophetic part

· Choose between cover screw and healing abutment, and connect upper prophetic part.

Surgical Procedure

11. Profile Drilling (Optional)



Profile

· When the upper prophetic part cannot connect because of bone, cut the bone using profile drill.

Notice Drilling is done under 800~1000 rpm recommendation

V. Clinical Cases

Case1. Sleeveless Case

#37 Implant Placement

Dr. Sangjin Suh / Yein Dental Clinic

Patient Information

Placement Implant Area	7	Sex / Age	Female / 39Y
C.C.	#37 tooth missing		
Treatment Plan	#37 implant placement using surgical guide stent and GBR		
Materials and Methods	1. Guide design using DentiqGuide S/W 2. Surgical guide stent printed by 3D printer, Zenith 3. Try-in guide stent and drilling with Simple Guide Plus KIT 4. Removed guide stent and drilling with final drill of OneQ surgical guide KIT 5. OneQ Implant placement (4.7X8mm) 6. 3 months after connect metal customized abutment and delivery prosthesis		

Pre-operation

Fig.1 Pre-op panorama

Guide Stent Fabrication Procedure

DentiqGuide S/W Planning

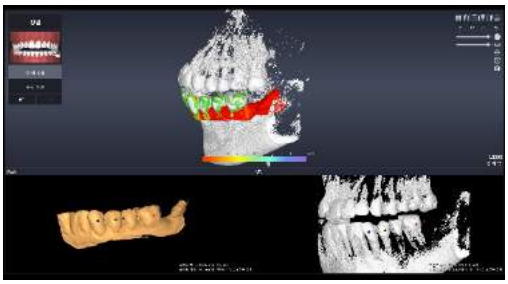


Fig.2 Alignment

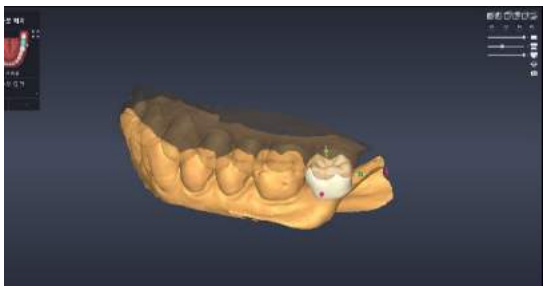


Fig.3 Crown placement

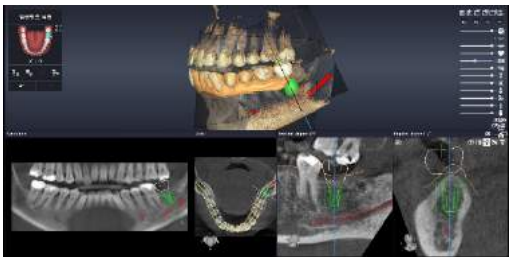


Fig.4 Implant placement

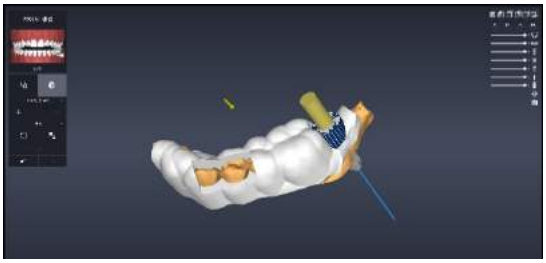


Fig.5 Guide

3D Printer Printing

Fig.6 Guide stent printed by ZENITH

Implant Installation


Fig.7 Drilling with initial drill


Fig.8 Drilling with pilot drill


Fig.9 Drilling with step drill


Fig.10 Drilling with final drill


Fig.11 4.7x8mm OneQ-SL implant installation

Post-operation


Fig.12 Post-op CT


Fig.13 Post-op panorama


Fig.14 3 Ms after surgery


Fig.15 Connect metal customized abutment


Fig.16 Delivery prosthesis

Conclusion

In the case of surgery on mandibular 2nd molar, there often are the cases where implant installation while securing the prosthetic position is difficult due to limitation of sight securing and mouth opening by anterior teeth. However, through simple guide plus system, guide surgery could be performed easily and precisely on the planned position.

Case2. Sinus OP Case

Upper Molar Implant Placement

Dr. Sangjin Suh / Yein Dental Clinic

Patient Information

Placement Implant Area	7 6 4 |	Sex / Age	Male / 55Y
C.C.	#16, #17 tooth missing, #14 root rest		
Treatment Plan	#14, #16, #17 implant placement using surgical guide stent		
Materials and Methods	1. # 14 r.r extraction 2. Guide design using DentiqGuide S/W 3. Surgical guide stent printed by 3D printer, Zenith 4. Try-in guide stent and drilling with Simple Guide Plus KIT 5. Removed guide stent and drilling with final drill of OneQ surgical guide KIT 6. OneQ Implant placement #14, #17 (4.7X10mm), #16 (4.7X8mm)		

Pre-operation

Fig.1 Pre-op panorama

Fig.2 Pre-op clinical view

Guide Stent Fabrication Procedure

DentiqGuide S/W Planning

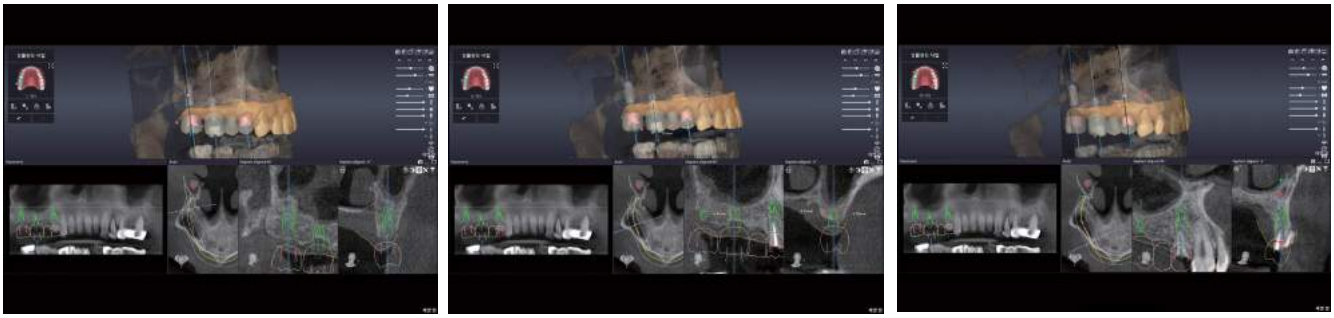


Fig.3a-c Implant placement

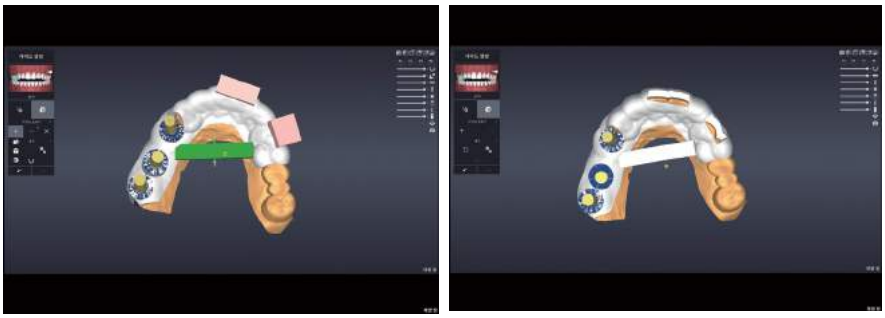


Fig.4a-b Guide

3D Printer Printing

Fig.5a-b Guide stent printed by ZENITH

Implant Installation

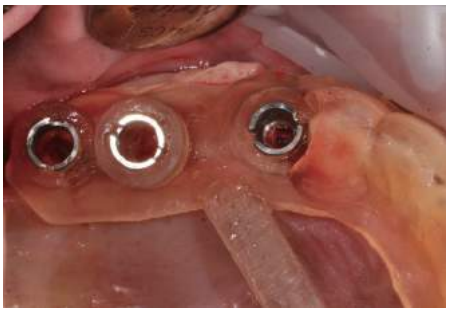



Fig.6a-b Drilling with initial drill

Fig.7 Drilling with pilot drill

Fig.8 Drilling with step drill

Fig.9 Drilling with final drill

Fig.10 #14, #17 (4.7X10mm), #16 (4.7X8mm) OneQ-SL implant installation and connected healing abutment and suturing

Post-operation

Fig.11 Post-op panorama

Fig.12 Post-op 6 months

Conclusion

It is a case of immediate implantation in sinus elevation by using simple guide plus system. Imaginary prosthesis was made and implant position was planned. By using metal sleeve, tolerance between drill and sleeve was reduced and thus stable drilling was possible. It was possible to install the implant on a precise location by using the guide after extracting the remaining root of right maxillary 1st premolar. And, on the area on right maxillary 1st pre-molar, implantation was planned up to lower border of maxillary sinus, and bone grafting was safely done after performing the drilling so that the mucosa of maxillary sinus is not ruptured by guide surgery. During sinus elevation procedure, the height of remaining bone that had been marked while implant planning could be referred.

Case3. Implant Placement Avoid Sinus Case

Upper Molar Implant Placement Avoid Sinus

Dr. Sangjin Suh | Yein Dental Clinic

Patient Information

Placement Implant Area	7 5	Sex / Age	Male / 48
C.C.	#15, #17 chronic periodontitis		
Treatment Plan	#15, #17 implant placement using surgical guide stent		
Materials and Methods	1. # 15, #17 extraction 2. Guide design using DentiqGuide S/W 3. Surgical guide stent printed by 3D printer, Zenith 4. Try-in guide stent and drilling with Simple Guide Plus KIT 5. Removed guide stent and drilling with final drill of surgical guide KIT 6. Implant placement #15 (4.0X10mm), #17 (5.0X10mm) 7. Bone graft application 8. 3 months after connect metal customized abutment and delivery prosthesis		

Pre-operation

Fig.1 Before extraction panorama

Fig.2 Pre-op panorama

Fig.3 Pre-op CT

Fig.4 Pre-op clinical view

Guide Stent Fabrication Procedure

DentiqGuide S/W Planning

Fig.5a-b Implant placement

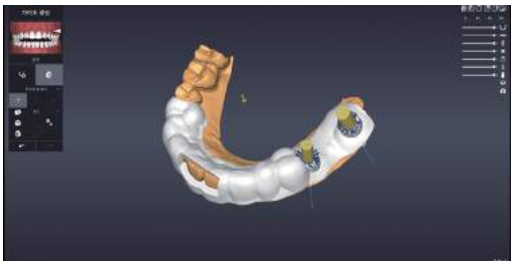


Fig.6 Guide

3D Printer Printing

Fig.7 Guide stent printed by ZENITH

Implant Installation

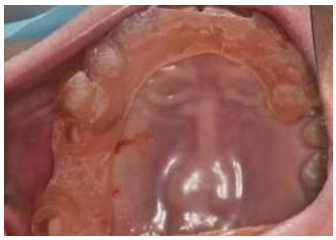


Fig.8 Try-in Guide Stent


Fig.9 Drilling and implant placement


Fig.10 Connect healing abutment and GBR


Fig.11 Suturing

Post-operation


Fig.12a-b Post-op CT. a. #16, b. #17


Fig.13 3 Ms after surgery


Fig.14 Connect metal customized abutment


Fig.15 Delivery prosthesis (Full zirconia)

Conclusion

In this case, although implantation was planned on #15 to 17 3-unit bridge after extraction due to chronic periodontitis, elevation of inferior border of maxillary sinus and ridge augmentation had to be performed and long term healing period over 6 months had to be waited.
In this case, however, tilted implant was planned by calculating the possible angle that allows custom made abutment on posterior portion where remaining bone is preserved by using surgery guide, and quantity of bone graft was thus minimized, and only simple ridge augmentation was done and the prosthesis was completed in 3 months.

Case4. Implant Placement Avoid Sinus Case

Upper Molar Implant Placement Avoid Sinus

Dr. Sangjin Suh | Yein Dental Clinic

Patient Information

Placement Implant Area	6 7	Sex / Age	Male / 69Y
C.C.	#26, #27 implant placement using surgical guide stent		
Materials and Methods	1. Guide design using DentiqGuide S/W 2. Surgical guide stent printed by 3D printer, Zenith 3. Try-in guide stent and drilling with Simple Guide Plus KIT 4. Removed guide stent and drilling with final drill of surgical guide KIT 5. Implant placement OneQ-SL #26 (4.7X10mm), #27 (5.2X8mm)		

Pre-operation

Fig.1 Pre-op panorama

Fig.2 Pre-op clinical view

Guide Stent Fabrication Procedure

DentiqGuide S/W Planning

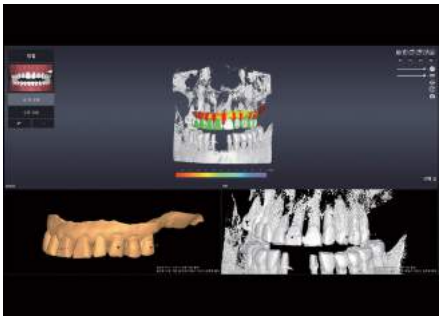


Fig.3 Alignment

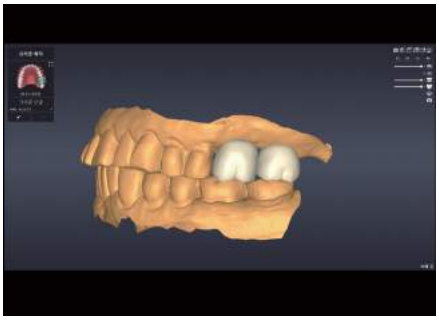


Fig.4 Crown placement

Fig.5a-b Implant placement

Fig.6 Guide

3D Printer Printing

Fig.7a-b Guide stent printed by ZENITH

Implant Installation

Fig.8 Try-in Guide Stent

Fig.9 Implant placement

Post-operation

Fig.10a-b Post-op CT. a. #16, b. #17

Fig.11 Post-op panorama

Fig.12 Post-op 3 months panorama

Fig.13 3 months after metal custom abutment

Fig.14 Delivery final prosthesis

Conclusion

On #26 and #27, vertical height of the remaining bone is insufficient. In this case, conventional sinus elevation technique should be used. However, 10 mm and 8 mm length implants were able to be installed without bone grafting by positioning the implant being tilted toward the portion where bone quantity was sufficient by using the guide, and the surgery was thus done simply.

Case5. Immediate Implant Placement Case

#36 Extraction and immediate implant placement

Dr. Sangjin Suh | Yein Dental Clinic

Patient Information

Placement Implant Area	6	Sex / Age	Female / 52Y
C.C.	#36 tooth fracture		
Treatment Plan	#36 extraction, immediate implant placement using surgical guide stent and GBR		
Materials and Methods	1. Guide design using DentiqGuide S/W 2. Surgical guide stent printed by 3D printer, Zenith 3. Try-in guide stent and drilling with Simple Guide Plus KIT 4. Removed guide stent and drilling with final drill of surgical guide KIT 5. Implant placement (5.0X10) 6. Bone graft and colla tape application		

Pre-operation

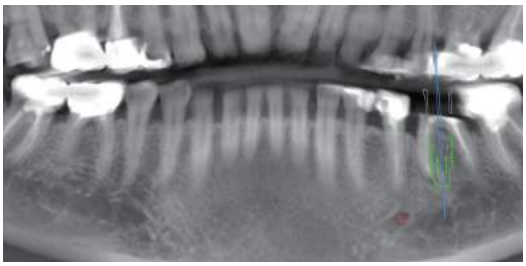


Fig.1 Pre-op panorama

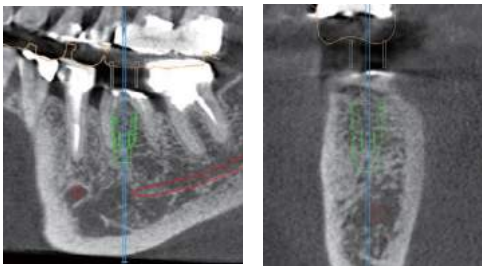


Fig.2a-b Pre-op CT

Fig.3 Pre-op clinical view

Guide Stent Fabrication Procedure

DentiqGuide S/W Planning

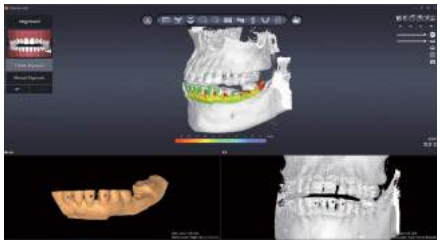


Fig.4 Alignment

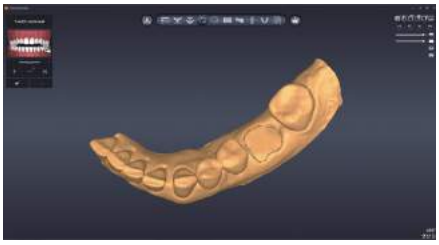


Fig.5 Tooth removal which will be tooth extraction

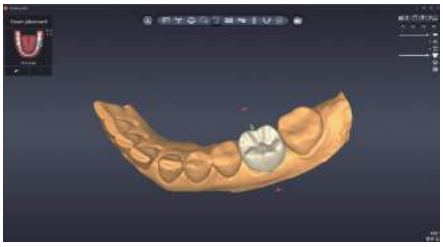


Fig.6 Crown placement

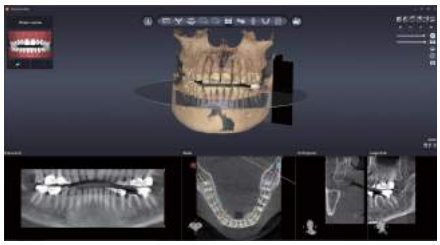


Fig.7 Draw curve

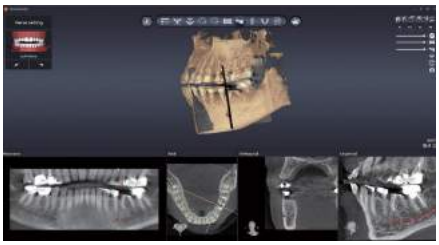


Fig.8 Nerve setting

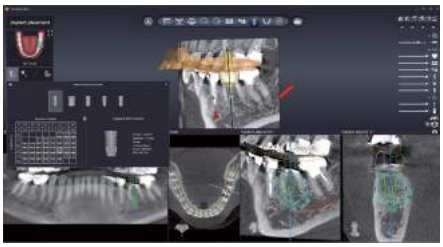


Fig.9 Implant placement

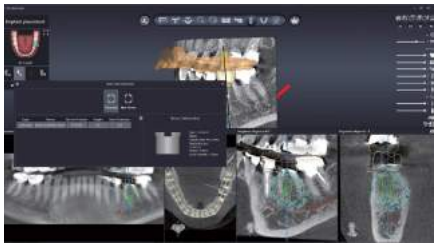


Fig.10 Sleeve select

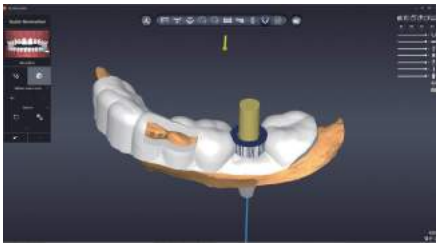


Fig.11 Guide Window open

3D Printer Printing



Fig.12a-b Guide stent printed by ZENITH

Implant Installation


Fig.13 #36 extraction


Fig.14 Try-in Guide Stent


Fig.15 Drilling with initial drill


Fig.16 Drilling with pilot drill


Fig.17 Drilling with step drill


Fig.18 Drilling with final drill


Fig.19 Implant installation


Fig.20 GBR


Fig.21 Collar tape

Post-operation


Fig.22 Post-op CT


Fig.23 Post-op panorama


Fig.24 2 Ws after surgery


Fig.25 Post-op 2 months panorama


Fig.26 Delivery final prosthesis

Conclusion

It is an immediate implantation case of right mandibular 1st molar by using simple guide plus system. In immediate implant cases of mandibular molars, gaining stability of implant while drilling the septal bone accurately is often difficult. However, guide surgery could solve this issue. After installing implant, extraction socket was grafted with heterogenous bone, and soft tissue defect was closed with absorbable collagen membrane, and closure was done by using tissue adhesive. In 2 weeks, stable healing appearance is observed. The best part of simple guide plus is that the clinician himself / herself could directly plan surgery procedures and the outcome of the surgery will be satisfactory as well accordingly.

Case6. Multiple Implant Placement Case

Multiple implant placement

Dr. Sangjin Suh | Yein Dental Clinic

Patient Information

Placement Implant Area	6 4 2 | 2 6 6 | 4 5 6	Sex / Age	Male / 70Y
C.C.	#12, 14, 16, 22, 26, 34, 35, 36, 46 missing tooth		
Treatment Plan	Implant placement using surgical guide stent		
Materials and Methods	1. Guide design using DentiqGuide S/W 2. Surgical guide stent printed by 3D printer, Zenith 3. Try-in guide stent and drilling with Simple Guide Plus KIT 4. Removed guide stent and drilling with final drill of surgical guide KIT 5. Implant Fixture #12, 22 (3.6X10), #14, 34, 35 (4.0X10), #16, 26 (5.0X10), #36, 46 (4.5X10) 6. Delivery prosthesis		

Pre-operation

Fig.1 Pre-op panorama

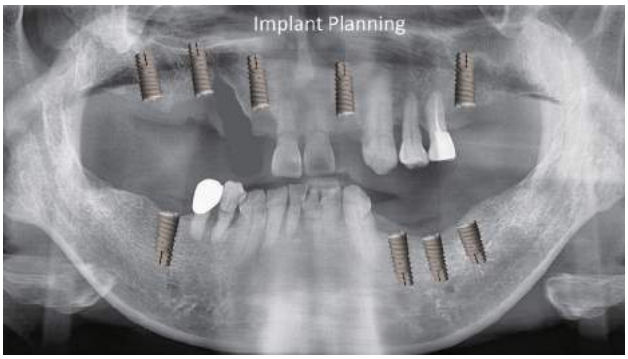


Fig.2 Implant placement treatment plan

Guide Stent Fabrication Procedure

DentiqGuide S/W Planning

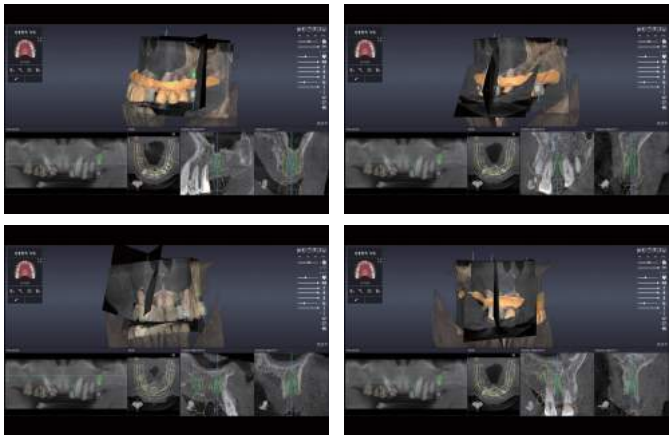


Fig.3a-d Upper Implant placement

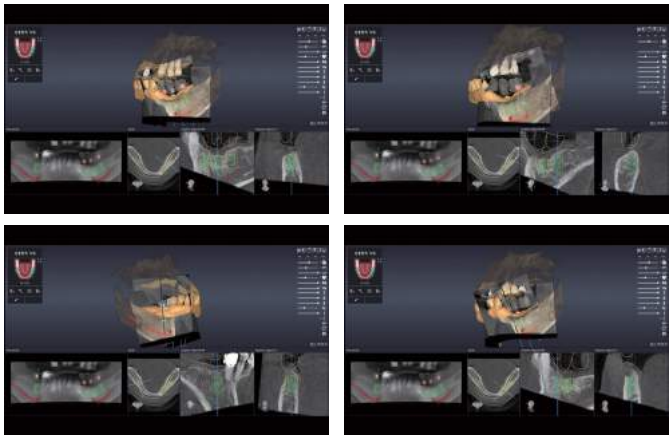


Fig.4a-d Lower Implant placement

Fig.5 Upper Guide

Fig.6 Lower Guide

3D Printer Printing

Fig.7a-b Upper Guide stent printed by ZENITH

Fig.8a-b Lower Guide stent printed by ZENITH

Implant Installation


Fig.9 Try-in upper Guide Stent


Fig.10 Drilling


Fig.11 Upper Implant installation


Fig.12 Try-in lower Guide Stent


Fig.13 Drilling


Fig.14 Lower Implant installation

Post-operation


Fig.15 Post-op CT

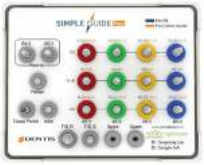

Fig.16 Post-op panorama


Fig.17 Post-op clinical view

Conclusion

This is a case where it is not easy to install implant on a precise spot in prosthetic perspective without using the guide because number of remaining teeth is insufficient. Since #13 is mesially tilted and it needs to be extracted due to chronic periodontitis, imaginary extraction was done on guide software and then guide for surgery was fabricated. In order to check the condition of irregular alveolar bone, flap opening was done and then implant was installed by using surgery guide. Upper and lower implants were simultaneously installed, and the surgery could be finished quickly on the precise location thanks to the guide.

VI. Specifications



* SIMPLE GUIDE Plus Kits

· Exclusive Surgical Guide Kits of Dentis Simple Guide Plus System

Type	Size	Code
Guide Kits	134(W X39(H)X109(D) mm	DSGPK

* SG SCAN M

· Stable Scan Stage (SSS) method with moving camera technology allows you scan without any fixture or adhesive.

Type	Size	Code
Model Scanner	330(W)X495(H)X430(D) mm	MEQDOF0001

* ZENITH U

· Independent development by DENTIS

· 16㎛ resolution galvanometer scanning method of 3D printer for specialized for the dental industry

· Grade optical system application

· Working Area: 110X110X150 (X,Y,Z/mm)

Type	Size	Code
SLA	354X366X483mm	PP1000-02120

* ZENITH D

· Independent development by DENTIS

· Self-developed ZENITH resins enable more reliable, low-cost production of a variety of dental products in-clinic, including surgical guides, dental models, temporary C&B.

· Working Area: 128 x 80 x 145mm (X,Y,Z/mm)

Type	Size	Code
DLP	340x460x430mm	PP2000-02000

* ZENITH Accessary

· ZENITH U VAT

· Application of special resin tank plate make possible to use as a semi-permanently.

Type	Code
Vat tank	PP1000-0V120
Vat Plate	PP1000-0V110

· ZENITH D VAT

· More than 20 ~ 30 times use for printing

Type	Code
Vat tank	SP2MVA-10010

* ZENITH Resin

ZMD-1000B Clear SG

· For ZENITH U

· Working time (Min~Max) : 150 min. ~ 200 min. (100㎛, Standard 2 full arch)

· The number of output arrangement on the working plate (Max) : 2-3 Full arch

· Each consumption (g) : About 15g (standard 1 full arch)

· For ZENITH D

· Working time (Min~Max) : 40 min. ~ 80 min. (100㎛, Standard 2 full arch)

· The number of output arrangement on the working plate (Max) : 2-3 Full arch

· Each consumption (g) : About 15g (standard 1 full arch)

Application	Weight	Code
Surgical Guide	1Kg	PP0R1Z-45122

ZMD-1000B Temporary

· For ZENITH U

· Working time (Min~Max) : 150 min. ~ 200 min. (100㎛, Standard 25 single crown)

· The number of output arrangement on the working plate (Max) : 20-25 single crown (Standard temporary exclusive plate)

· Each consumption (g) : About 1-1.5g (standard 3 unit bridge, include support)

· For ZENITH D

· Working time (Min~Max) : 25 min. ~ 60 min. (Influenced bv crown length)

· The number of output arrangement on the working plate (Max) : 20-25 single crown (Standard temporary exclusive plate)

· Each consumption (g) : About 1-1.5g (standard 3 unit bridge, include support)

Application	Weight	Code
Temporary	1Kg	PP0R3Z-45141

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