DIOnavi. Surgical Manual_E Ver.6

Product Introduction: DIOnavi.

Surgical Process

DIO IMPLANT

DIOnavi

Surgical Manual **Ver.6**

DIOnavi. Surgical Manual is provided as guideline for dental clinics and hospitals to give surgical assistance and to be referred when making DIOnavi. Orders, Planning Process etc.

** This catalog contains all products of DIO Corporation. Please check with your local sales office and your sales representative when you want to order products because of different product certification periods each country.*

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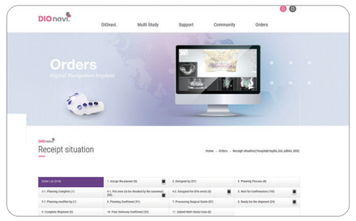
* UV Activator 2 / DIO PROBO / PrograMill PM7 / PrograMill One / PL900S is not to be treated as a medical device.

DIOnavi. Workflow

Clinic | DIOnavi. Center | Dental laboratory



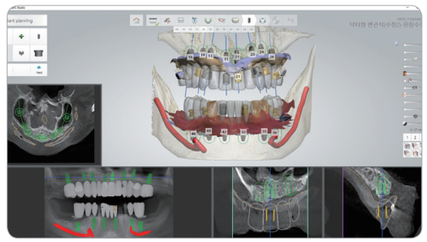
Order

Clinic Upload CT file and place order on DIOnavi. website.

Oral scan

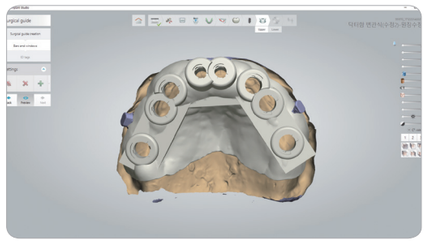
Clinic Send scanned file using trios from 3Shape server to the DIOnavi. Center.

* For any other scanned file not of trios, is to be uploaded on DIOnavi. website along with CT file.



Planning

DIOnavi. Center Start implant planning following details of the order.



Guide design

DIOnavi. Center Confim the planning on DIOnavi. website to move on to gudie design.

01 → 02 → 03 → 04 → 05 → 06 → 07

Packing & Delivery

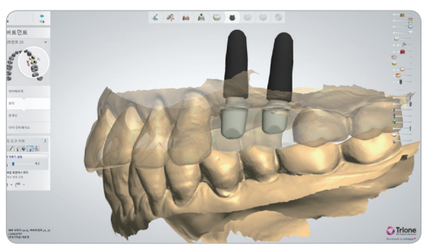
DIOnavi. Center Drilling protocol is printed and DIOnavi. Guide is sent.

Dental laboratory Shipment of SA, CA, DA, TC, AJ.

Production

DIOnavi. Center Dental laboratory

Surgical guide and SA, CA, DA, TC, AJ are produced using 3D printer.



Prosthetic design

DIOnavi. Center Dental laboratory

SA, CA, DA, TC, AJ are designed following the positions set in implant planning.

How to order

Once scanned data of CT and intra oral are sent to DIOnavi. Center, implant surgery can be conducted within a week with the surgical guide produced by 3D printer.

When planning with DIO - **Trios intra oral scan**

1 CT scan + Intra oral scan 12p

2 Register order sheet on DIOnavi. website 26p
(Upload CT scan file)
* If not scanned using trios scanner, upload intra oral scan

3 Forward trios scan file (DIOnavi. Center) 15p
* Send immediately from the trios scanner

When planning with DIO - **Plaster model**

1 CT scan + Design plaster model 12p

2 Register order sheet on DIOnavi. website 26p
(Upload CT scan file)

3 Forward plaster model (DIOnavi. Center) 15p
* Printed order sheet is included in the shipment

4 Implant planning (DIOnavi. Center) 35p

5 Confirm (DIOnavi. website / Doctor) 39p

6 Surgical guide design 40p

7 Manufacturing the guide 40p
(DIOnavi. Center)

8 Forward products to the Clinic 41p

9 DIOnavi. Surgery

When planning with DIO - **Intra oral scan**

1 CT scan + Intra oral scan 12p

2 Implant planning (Clinic) 34p

3 Confirm (Clinic / Doctor)

4 Register order ship in the DIOnavi. website 39p
(Upload planning file)

Clinic

DIOnavi. Center

DIOnavi. Process

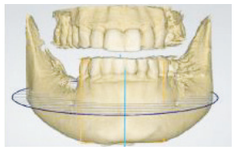
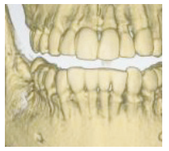
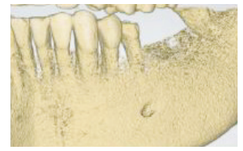
1 CT Process

Confirm CT

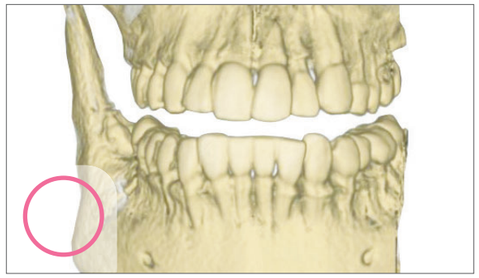
As conditions of each dental clinics and its CT types are varied, precision can be altered when manufacturing the guide. It is therefore recommended that thorough checks on such conditions are made prior to manufacturing the guide.

① F.O.V size

Check the F.O.V size of dental clinic's CT in advance.
Case may be limited depending on the size of F.O.V.

	If bigger than 10 x 8.6cm	8 x 8cm	8 x 5cm
Scan image			
Indication	Up to full arch is possible	Possible from the moral tooth at the farthest back on one side ~ to the premolar tooth on the opposite side (1~8 units)	Possible from the moral tooth at the farthest back on one side ~ to the anterior tooth (1~3 units)
Remarks	-	If the number of implantation increases, surgical guide can be manufactured separately in two	

② Occlusion at the time of filming



Open bite (Normal case)

Close bite (Splint or Denture)

Caution Process cannot be continued if CT is scanned with close bite as information taken may be inaccurate.

Tip Open bite can be achieved by patient biting into a gauze.

③ CT resolution

If the resolution of dental clinic's CT is poor, information taken such as of bones, teeth and nerves etc may not be visible. Preliminary adjustment is necessary prior to CT if the resolution is poor.

CT reiteration

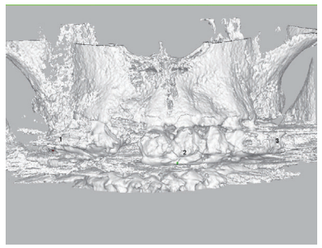
Cause of error

Reiteration of CT images due to movement of the patient at the time of filming.

Solution

Re-scan ensuring the patient is kept still.

CT scattering



Cause of error

Setting of matching point made not possible due to a metal artifact such as metal prosthesis in the intra oral of a patient.

Solution

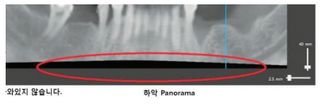
Scan and take CT image after having attached a resin or a marker on the area of such prosthesis.

* Refer to p15 for more detailed instruction of attaching a resin or a marker.

CT distortion

Sinus Case - Cutting of maxillary sinus

Mandibular case - Cutting of mandibular nerve



Anterior tooth area case - Cutting of anterior tooth area

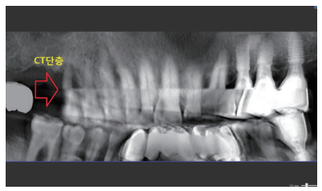
Cause of error

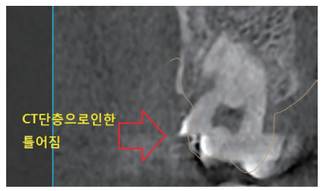
Anatomical structure (Maxillary molar area: Sinus / Mandibular molar area: Nerve alveolaris inferior) is partially scanned and cannot be identified correctly due to being cut out in fliming.

Solution

Need to reset the CT domain.

CT fault





Cause of error

Error in the CT filming method.

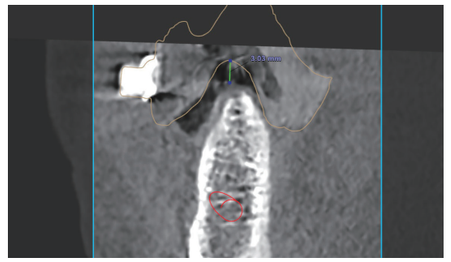
Solution

Contact the manufacturer.

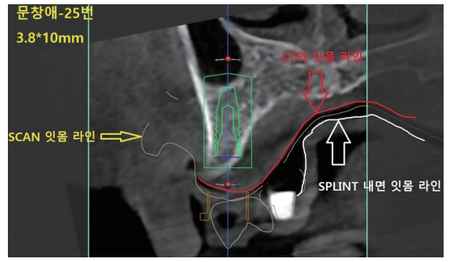
Wearing of denture or splint

(In edentulous case)

Non-settlement of denture



Non-settlement of splint



Cause of error

Difficulty appears in finding an accurate matching point in edentulous case due to weak placement of denture or splint.

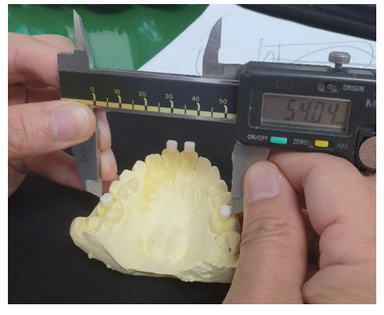
Solution

Retake the CT in close bite after having firmly placed onto a patient's gum.

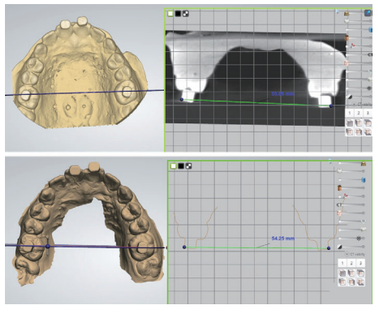
Horizontal error in CT

If there is horizontal error in CT, it could result in matching failure or cause distortion in direction during surgery. If more than 0.5mm of error occurs, correction must be made.

How to check CT error by using plaster model



Attach a marker onto the plaster model and measure the actual distance.



Take CT image of the plaster model and compare the measurement with the actual distance.

※ If the measurement taken is different, please contact the manufacturer to make the correction required.

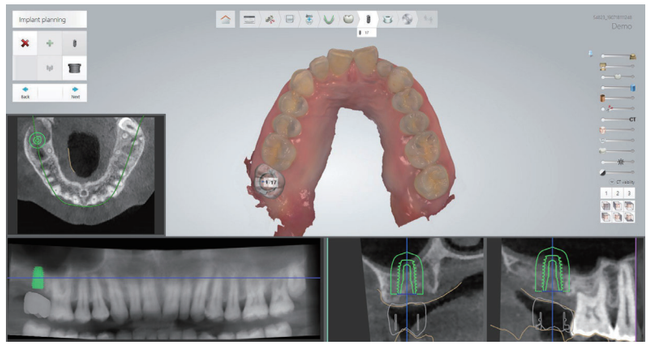
2 Scan Process

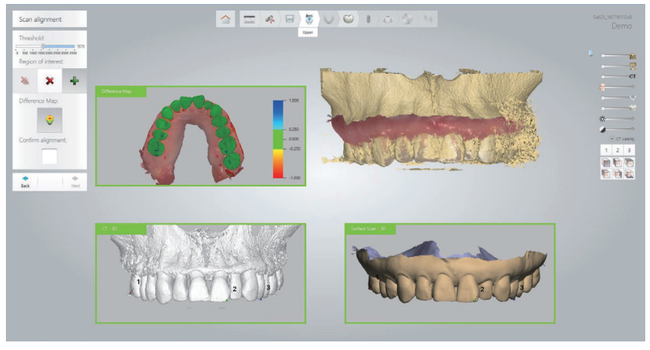
① Necessity of CT and Intra oral scan

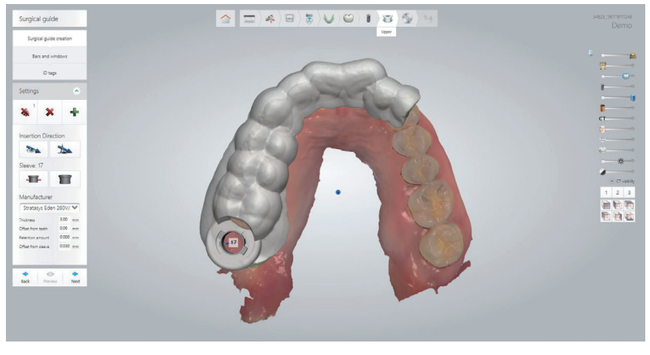
In CT scanned data, informations such as teeth and bones are clear however not of those gum. In addition, in intra oral scans, the anatomical information of teeth and gum can be obtained but not of those bones.

To produce surgical guide, information on every teeth, bone and gum are necessary and the common information gathered from both CT scan and intra oral data are used.

* To define matching point : Teeth information (Those of common from the CT scan and intra oral scan)

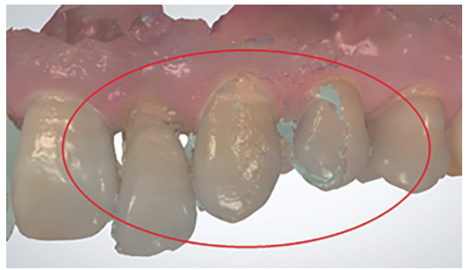


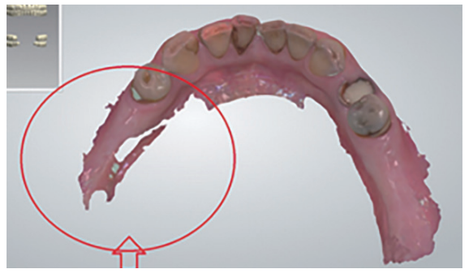




② Check scan

When performing DIOnavi. a precise intra oral scan is required to accurately place the guide onto a patient's intra oral. It is necessary to check for any partial or distorted area before finalizing the scan.

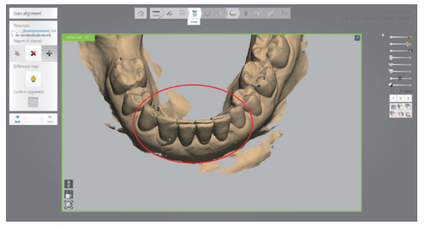


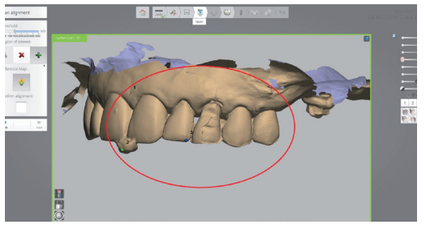


※ Press the surface button  to a black and white viewing mode for better clarification.

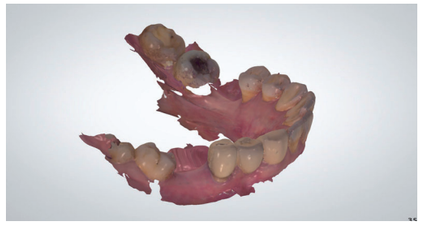
Scan error case

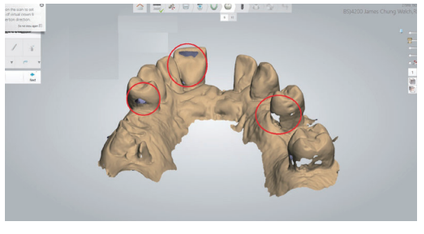
Scan reiteration



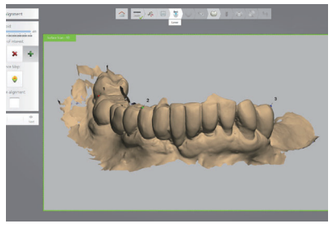


Scan perforation

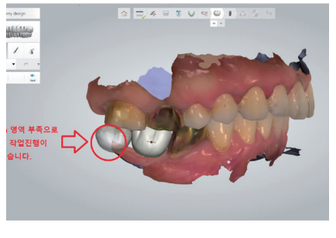




Excessive scan

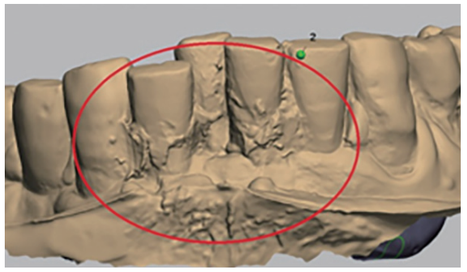


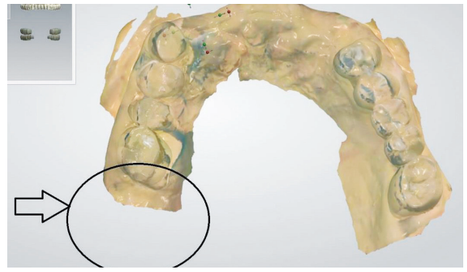
Lack of scan domain



③ Manufacturing of precise plaster model

When performing DIOnavi. a precise designing of plaster model is required to accurately place the guide onto a patient's intra oral. Carefully check for any deformation of plaster model.

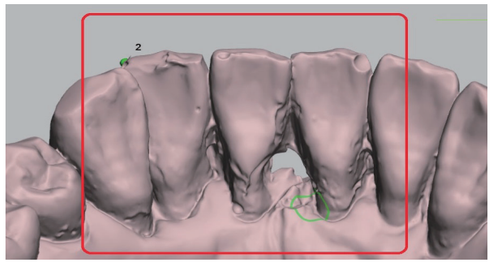


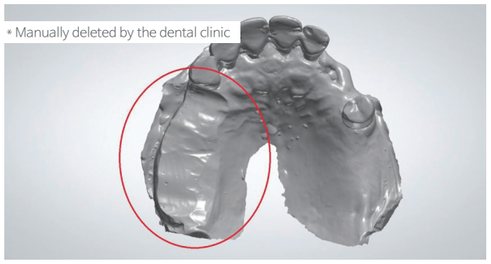


※ Silicone impression material is recommended to be used on the operated area.

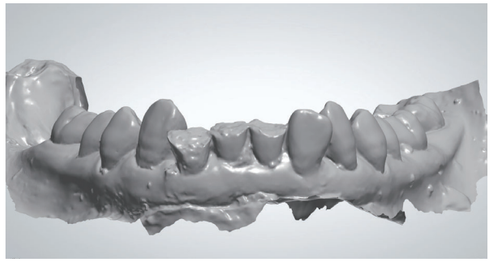
Plaster model error case

Deformation of impression / Occurrence of air bubble





Plaster model fracture



④ Scanning method for each case

Depending on the patient's intra oral condition, relevant case from the listed should be selected; Normal case / Metal artifact case / Partial edentulous case / Edentulous case.

Normal case

▸ If the dental office has intra oral scanner

Scan carefully ensuring there is no empty space in the tooth next to the operated area.
Acquisition of an accurate impression taking is necessary since the surgical guide is manufactured on the basis of scanned data.

- Scan all of maxillary / Bite / Mandibular sections
- Convert the color mode to black & white and check precisely after having scanned with intra oral scanner
- Intra oral scanner lab account : Select DIOnavi.
- File name : Hospital name - Patient name

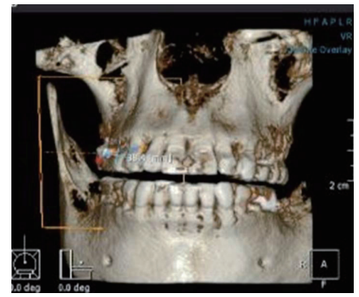
CT scan (Film with open bite)

\+

Intra oral scan (Maxillary scan / Mandibular scan / Occlusion scan)

▸ Manufacturing with plaster model

- All of listed impression taking is required: Maxillary / Bite / Mandibular areas
- Be aware of any air bubble or sharp parts in the model



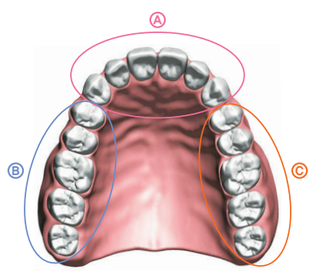
CT scan (Film with open bite)

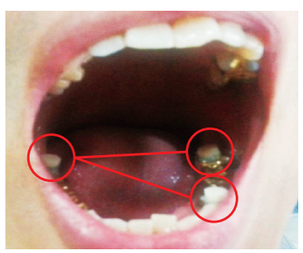
\+

Case with metal prosthetics

Attach resin or marker

- Attach to the arch where surgical guide is to be manufactured.
- Attach widely to 3 locations inside the intra oral except from the operated area.
- Dry the occlusion surface with air etc, and apply sufficient amount of flow resin which then should be placed with a resin or a marker and irradiated with photopolymerizer for around 10 seconds.





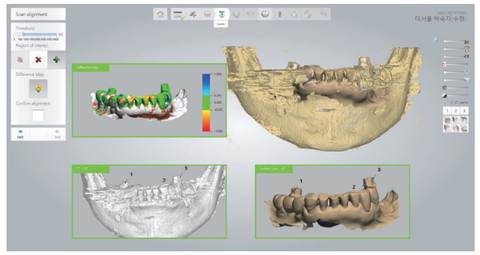
Direction on attachment of resin or marker

- Attach if there is metal prosthesis in the A zone.
- Attach if there is metal prosthesis in the B zone.
- Attach if there is metal prosthesis in the C zone.

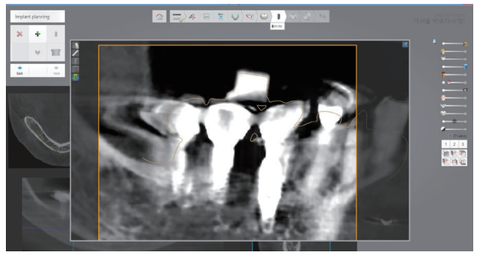
※ Attach resin or marker if there are any continuous prosthesis in each zone.

▸ If the dental clinic has trios

① Scan after having attached a resin or a marker on the arch of the operated area.
② Take CT image with a resin or a marker attached (Be aware of detachment from moving / Open bite)
③ Scan occlusion with antagonist teeth having removed any resin or marker

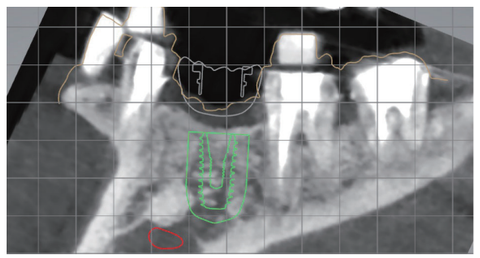


Intra oral scan with a marker attached

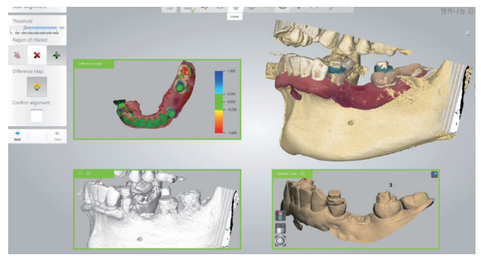


Take CT image with a marker attached

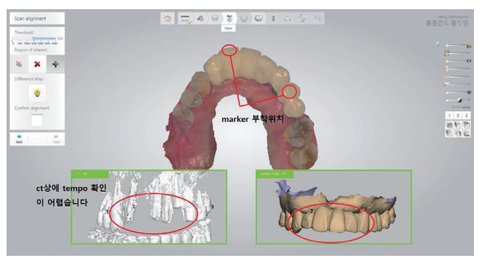
*** A marker must be attached in the case of temporary crown**



Take CT image with a marker attached



Intra oral scan with a marker attached



Data of temporary crown without a marker attached

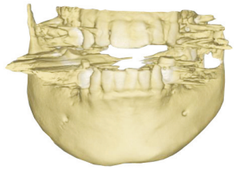
▸ Manufacturing with plaster model

CT filming Before attachment of a resin or a marker

① Be aware of detachment of a resin or a marker whilst moving from one place to another for CT filming.
② Make sure that resin or marker is fully included and not cropped.
③ Take CT image in open bite.

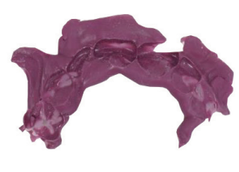
Impression taking

① Produce plaster model after having taken the impression with a resin or a marker attached.
※ Be aware of detachment of a resin or a marker whilst impression taking.
② Impression of relative teeth to antagonist teeth.
③ Bite impression
※ It is recommended that rubber material is used for impression taking of the working side.



Scan CT (Open bite) with a resin or a marker attached

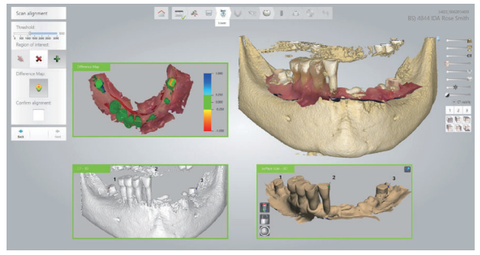
Produce plaster model from impression taking of the working side with a resin or a marker attached



Bite impression

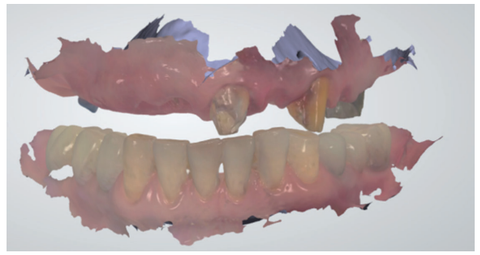
Partial edentulous case

▸ If the dental clinic has trios

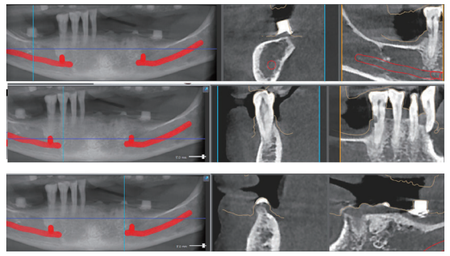


① Attach resin or marker to the arch of the working side (Histoarcryl to be used)

② Scan antagonist teeth



③ Bite scan (Only if the bite impression is possible)



④ Scan CT with a resin or a marker attached

* Note when attaching a marker

01

Hold a marker with a pair of tweezers and place on the gum or an occlusion surface desired to be attached

02

Apply flow resin and process curing with photopolymerizer

5~10 seconds

03

When attaching to gum, use Histoacryl, which is not necessary when attaching to teeth

20 seconds

How to attach flow resin using histoacryl

01

Pour flow resin to the gum where to be attached

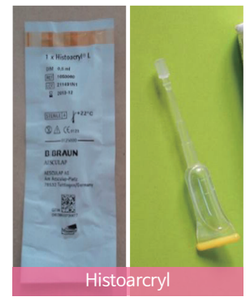
02

Process curing with photopolymerizer

5~10 seconds

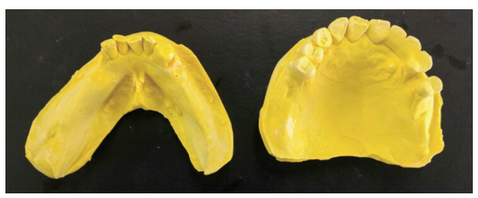
03

Apply histoacryl around the resin



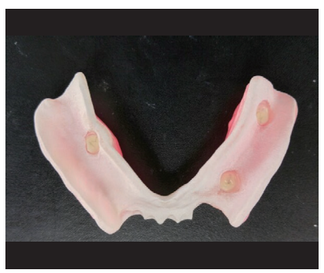
Histoarcryl

▸ Manufacturing with plaster model



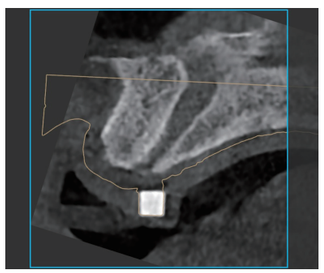
① Send the finished maxillomandibular plaster model to DIOnavi. Center. (Bite index is not required)

※ If Bite index is available, it can be sent along with the plaster model in which case the splint need not be returned to DIOnavi. Center after filming.



② Manufactured splint will be sent to the dental clinic from DIOnavi. Center.

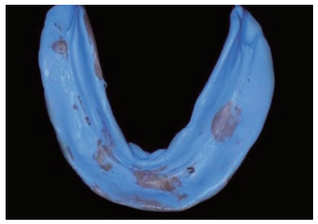
③ Check occlusion by using the splint. (Bite + V.D check)



④ Scan CT with the splint placed inside the intra oral.
(When manufacturing the splint, scan in close bite)

Edentulous Case

▸ If the dental clinic has both trios and denture



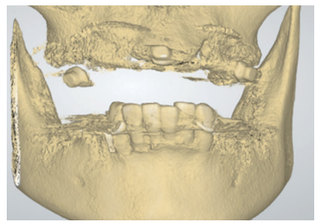
① Reline interior of a denture with impression material.

② Attach marker on the exterior of a denture.

③ Scan teeth and both of interior / area where the marker is attached.

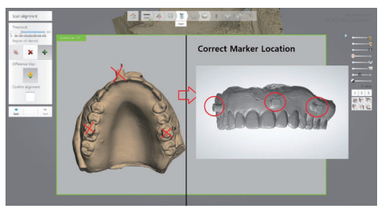
④ Place the denture with the marker attached inside the intra oral.

⑤ Scan in bite once the denture is firmly placed.

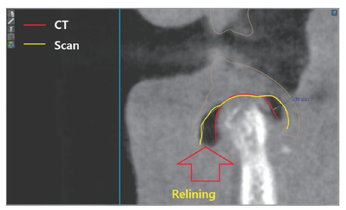


⑥ Scan CT of a firmly placed denture.

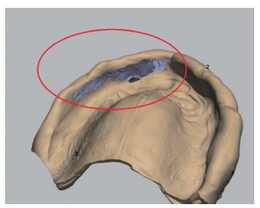
* Precautions when using denture



01. Note when attaching marker



02. Note when relining



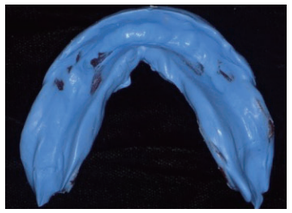
03. Note when scanning denture

Attach a total of 3 including 1 on the anterior tooth section, and 2 on the molar areas on both sides.
Attach close to the border section of the denture.

▸ Manufacturing with trios and Wax denture

① Immerse in hot water (44°C~55°C) for 10 seconds.

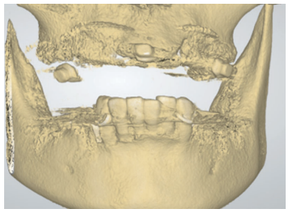
② Insert inside the patient's intra oral to form the shape of interior.



③ Insert the impression material inside the Wax denture .

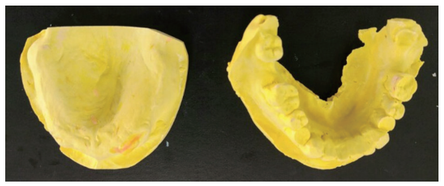
④ Place the wax denture inside a patient's intra oral with a marker or a flow resin attached.

⑤ Scan both inner and external sides of the Wax denture and the antagonist teeth.



⑥ Scan CT with the wax denture fitted.

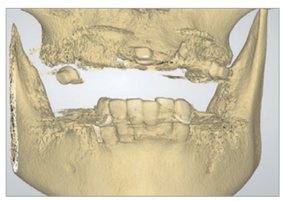
▸ Manufacturing with plaster model and splint



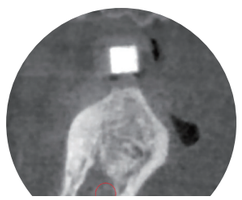
① Send the finished maxillomandibular plaster model to DIOnavi. Center.

② Manufactured splint will be sent to the dental clinic from DIOnavi. Center.

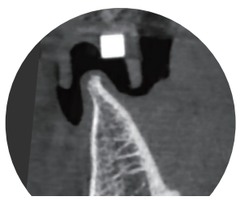
③ Check occlusion by using splint.



④ Scan CT with a splint fitted.



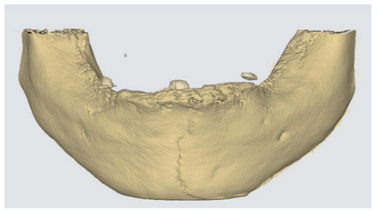
Case with a firm placement of splint



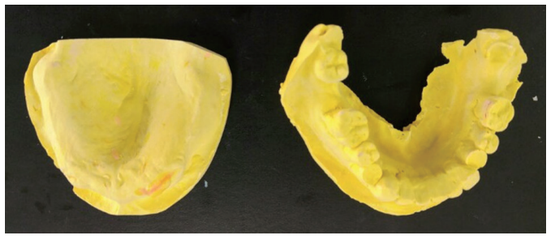
Case with a misplacement of splint

▸ Manufacturing with plaster model and splint

① Attach marker or flow resin in the intra oral using histoacryl.



② Scan CT.



③ Produce plaster model from the impression taking.
※ Be aware of detachment of resin or marker during impression taking.

④ Immerse in hot water (44°C~55°C) for 10 seconds.

⑤ Insert inside the patient's intra oral to form the shape of interior and check the bite .

⑥ Send all of the maxillomandibular plaster model and wax denture to DIOnavi. Center.

⑤ Edentulous scan – Scan retractor

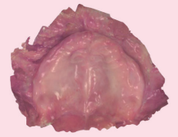
Reduced in time by removing any hindering sources at scanning with an increased accuracy of scanned data in edentulous case.

▸ To utilize

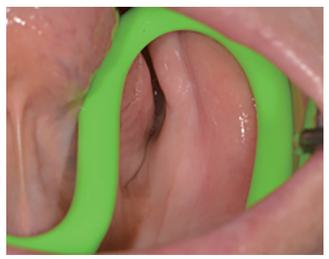
01 Clear recognition of maxillary palate.

02 Control over the movement of tongue/cheek(Mandibular).

03 Act as a control point in intra oral scan.

	Maxillary	Mandibular
Prior to the use of scan retractor	Difficult to identify the boundary with an attached gum or an alveolar mucosa etc. 	Intra oral scan not possible due to movement of tongue etc. ✕
After the use of scan retractor	Clear recognition of maxillary palate. 	Control over the movement of tongue. 
Configuration of scan retractor	For maxillary 	Mandibular area 

* Example of utilization (Mandible)



Select the scan retractor appropriate for the arch and adjust accordingly to fit the intra oral.

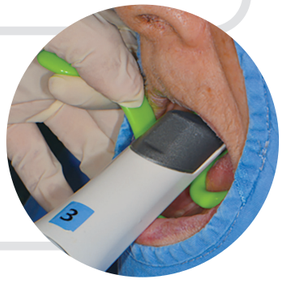
▸ Application method

01 Keep the area of Scan retractor wished to be used with a fair amount of moist.

02 Wearing surgical gloves, insert a finger into the intra oral to lift one of the corners of the mouth away from the teeth and insert the Scan retractor starting from one corner into the intra oral.

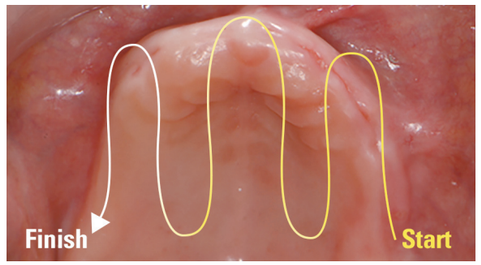
03 Check for any compression caused to the lips or cheeks by the Scan retractor.

04 While executing intra oral scan, keep the handle of the Scan retractor steady to prevent any movement within the intra oral.



05 Carefully remove the Scan retractor out of patient's intra oral after the use ensuring no damage is caused to the dried lips of the patient.

▸ Order of scanning



Upper

Left maxillary molar area → Anterior tooth section → Left molar area palate → Central palate section in the Anterior tooth section → Right palate section in the Anterior tooth section → Right molar area in the Anterior tooth section

Lower

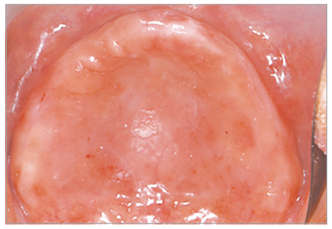
Right mandibular molar area → Anterior tooth section → Left mandibular molar area (When moving, scan in zigzag form from facial side to lingual side / from labial side to lingual side)

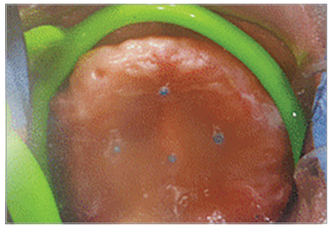
▸ Precautions in usage

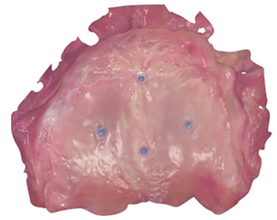
01 Difficulty in scanning if the palate of the patient is excessively flat.

02 The scan retractor must be stationed and be aware of an excessive distension of soft tissue or compression.

03 When scanning, the patient must breathe through nose while stayed still.







Scan the palate with flow resin attached

3 Order Process

Ordering process is varied by the country.

Please do contact the sales agent in your region.

DIOnavi. Center

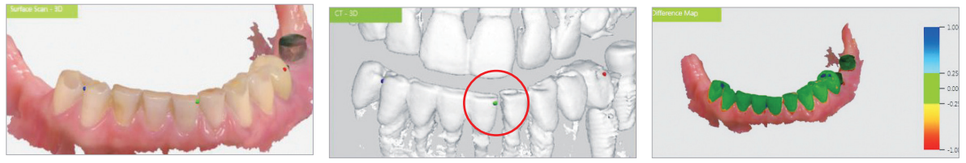
4 DIOnavi. Surgical Guide Design

Design process using 3shape implant studio

01 CT + Intra oral scan Consolidation
02 Implant planning
03 Planning confirm
04 Surgical guide design

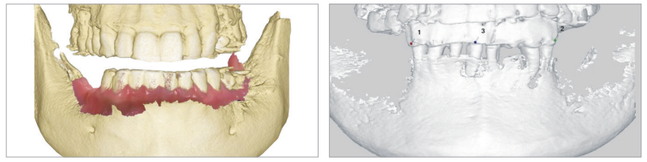
① Consolidation

▸When consolidating the CT and the scan data, information on the key aspects within the common area of the teeth are selected.



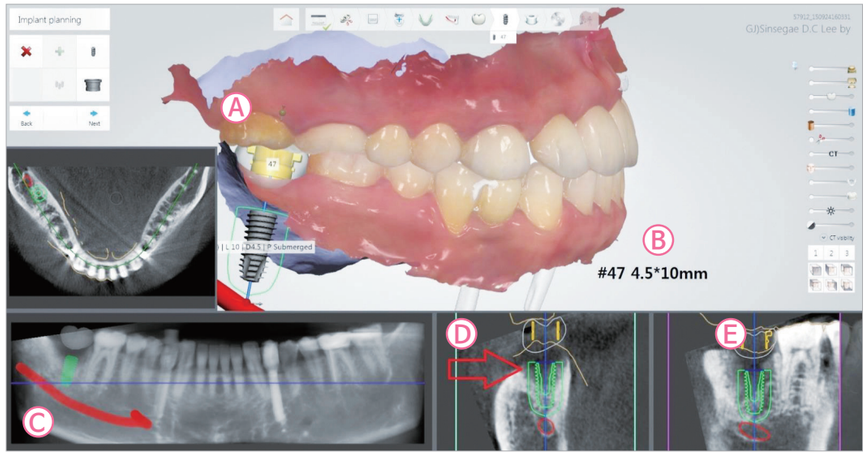
Caution It must be made sure that the environment of the intra oral is the same at the time of CT scanning, intra oral scanning and acquisition of impression.

▸Scan with open bite.



Caution To avoid any difficulty in obtaining information required for consolidation we recommend filming in open bite and not with close bite.

② Implant planning



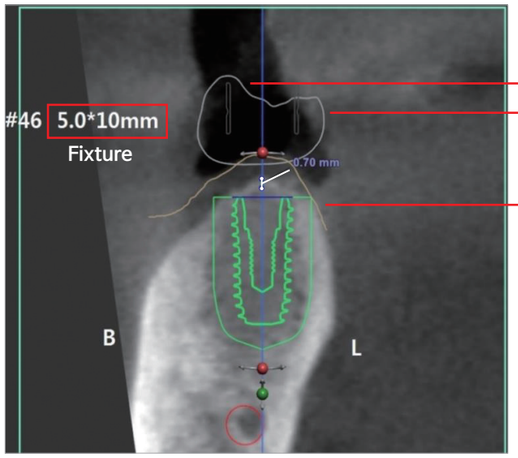
Ⓐ Scan-View : Check the correlation of the prosthesis

Ⓑ Fixture information on the corresponding dental formula

Ⓒ Panoramic view

Ⓓ Buccal-Lingual view

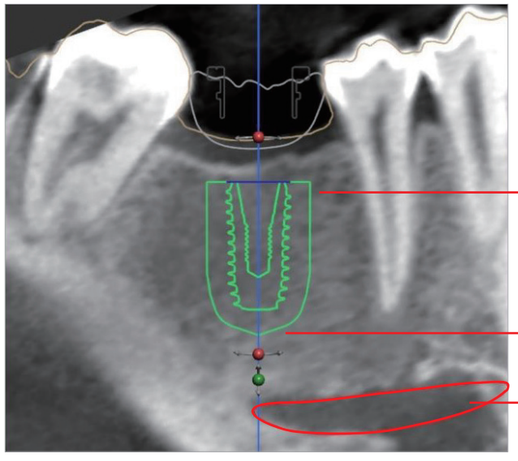
Ⓔ Mesial-Distal view



Sleeve

Virtual teeth

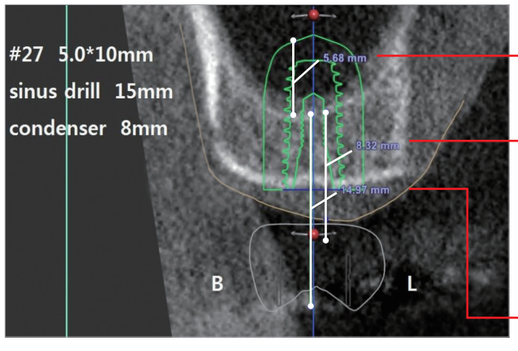
Scan line



Safety distance of the lateral area : 1.5mm

Safety distance of the bottom area : 2.0mm

Mandibular nerve



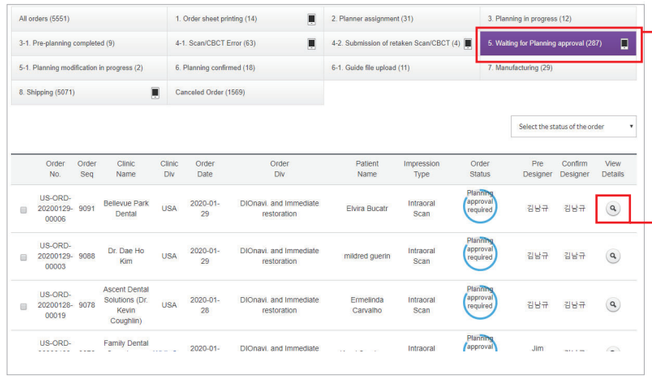
Height of sinus lift to be performed

Select relevant length of the stopper by using the length from the gum to the sinus wall and the length of the bone condenser measured when pushing of the bone while performing the bone graft.

Able to identify the length from sleeve top to sinus wall, length of the drill and the length of stopper in use.

Able to locate the implant and its surrounding anatomical information. Density of the bone can be determined by making reference to the bone's white balance.

③ Planning confirm

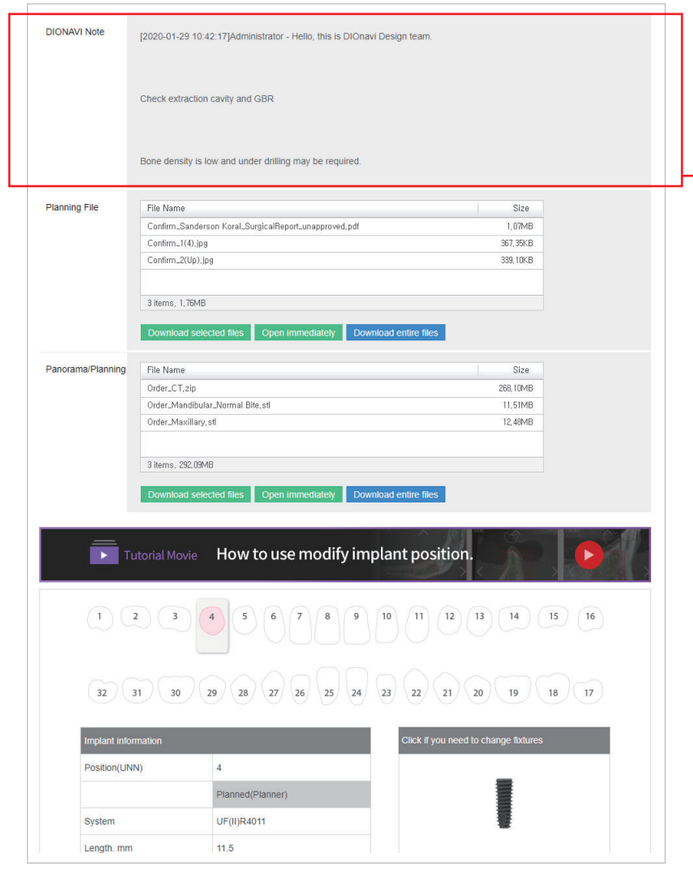


Await for planning confirmation

Your final confirmation on the file, planned by DIOnavi. Center, is required for us to continue the process.

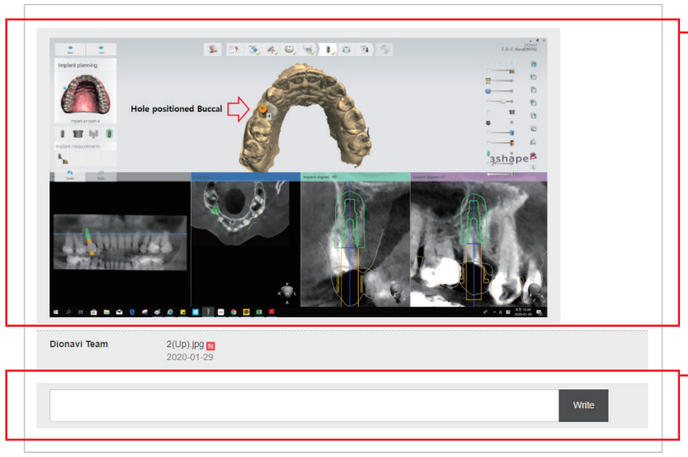
Checking detailed contents

Click on the magnifying glass icon to check for any opinion or error examined by the DIOnavi. Team.



Checklist on planning confirmation

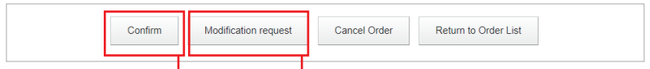
- Planning confirmation is possible on DIOnavi. website in which the DIOnavi. was ordered.
- Able to view the original opinion from the planning confirmation stage.



Click to enlarge image

Comment

Click on the registration button to submit an updated comments regarding initial modification.



Request for modification on the initial planning

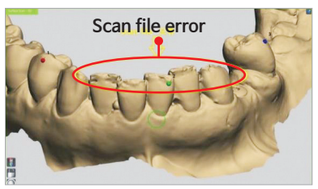
Click on request for modification with an updated comment on the amended review of the initial Planning.

Planning confirmation finalized

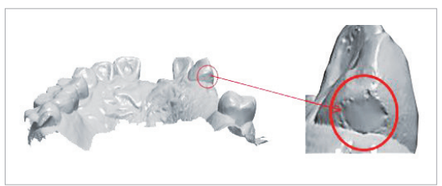
Click to confirm and proceed with the planning.

④ Surgical guide design

Surgical guide is designed on the basis of the scan data.

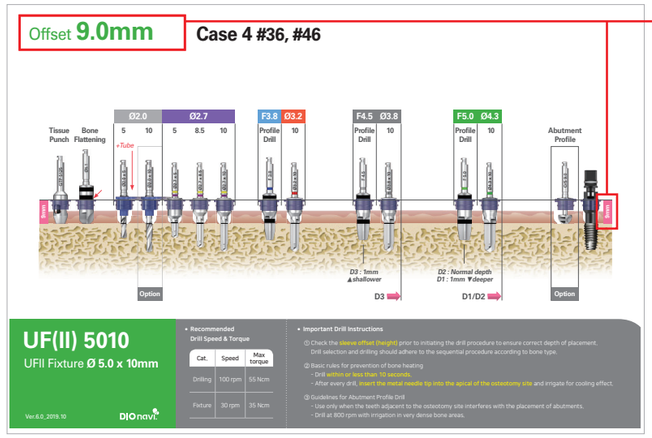


Caution It is only possible to produce the exact surgical guide that is matching to the intra oral if the scanned data is accurate.



Caution Guide may be misplaced If there is any error of the plaster model or the scan.

* Checklist upon receiving the DIOnavi. product and protocols



Implant information		
Implant position (FDI)	36	37
Manufacturer	DIO	DIO
Type	UF(II) 5010	UF(II) 5008
Order number	UF(II) 5010	UF(II) 5008
Length, mm	10	8.5
Diameter (Ø), mm	5	5
Color	Green	Green
Sleeve information		
Name	DIO GS 53	DIO GS 53
Type	Fully guided	Fully guided
Order number	GS 53	GS 53
Offset, (mm)	9	10.5
Drill information		
Minimum drill length	19	19

Check the drilling protocol offset

TIP Affix the report in the operating room to refer if necessary during surgery!

Confirm from the file uploaded on the DIOnavi. website

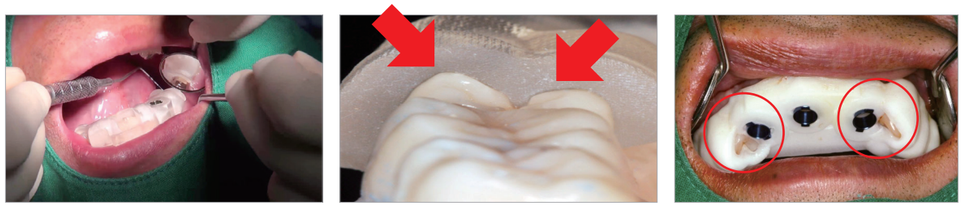
Surgical report.pdf (1.8MB)
Drilling protocol.pdf (204KB)

Surgical Process

1 Caution / Checklist for safe placement of DIOnavi. Guide

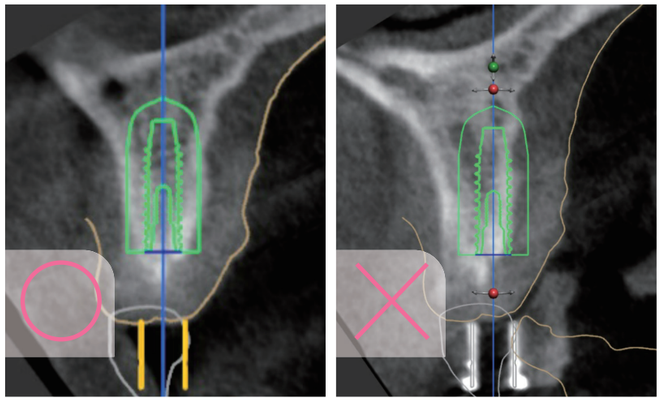
① Visual inspection of the joining section inside the intra oral

Check to determine whether the open Window of the guide and the neighboring teeth around the surgery area are compatible.



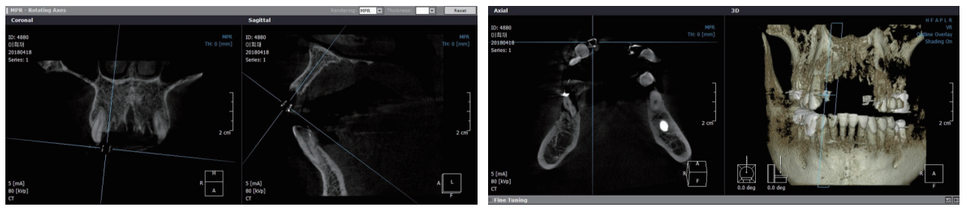
② Checking both position and direction of the sleeve in CT image

Check to see if the position and direction of the sleeve in the CT image match the planning.
※ Prior to operation we recommend to confirm the CT image and check if the guide is securely fastened.



③ Check the standard size information of the sleeve center in the CT image

Configurate sleeve center-based screen.

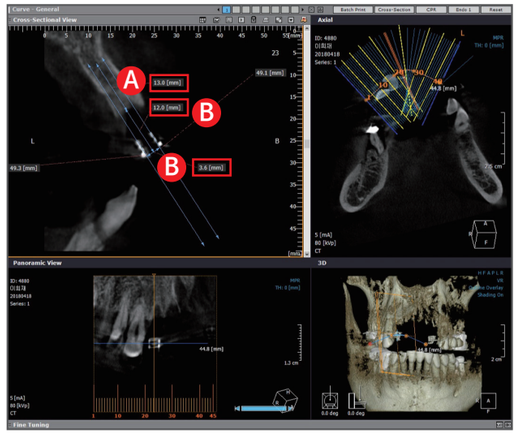


Check if the size in the CT match as planned, through the sleeve (Internal diameter and offset) drilling protocol and fixture size provided by DIO.

Implant information	
Implant position (FDI)	12
Manufacturer	DIO
Type	UF(II)N 3313S
Order number (A)	UF(II)N 3313S
Length, mm	13
Diameter (Ø), mm	3.3
Color	Yellow
Sleeve information	
Name	DIO GS 36
Type	Fully guided
Order number	GS 36
Offset, (mm) (B)	12
Drill information	
Minimum drill length	25

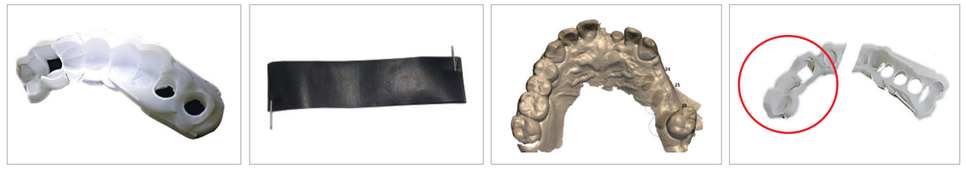
A Fixture size information
Length, Diameter

B Information on internal diameter of sleeve and the size of offset
- Size of the internal diameter of sleeve
- Offset size: Measure the size from the sleeve top area to the top surface of the bone



④ Measures to be taken if DIOnavi. Guide is unsafely secured

If any part of the guide cause clutch.

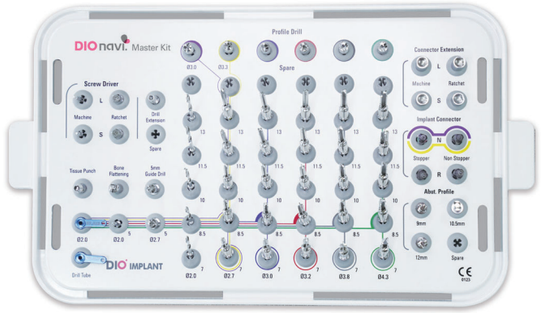


TIP Delete the marking area then secure with the check-bite which should be placed on the base of the guide.

TIP Since distortion can occur occasionally where the Arch rotates in the case of anterior teeth, or by metal prosthesis during trios scan, cut out the irrelevant part of the area to operation before joining.

2 DIOnavi. Surgical Kit Line-up

① DIOnavi. Kit configuration

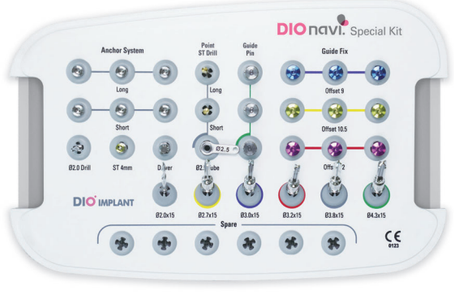


DIOnavi. Master Kit

DIOnavi. Narrow Kit

DIOnavi. Wide Kit

DIOnavi. Flapless Crestal Sinus Kit



DIOnavi. Special Kit

Launching soon

DIOnavi. Protem Kit

② Surgical kit by surgical case

Sleeve size case Regular | Narrow | Wide

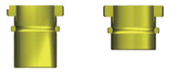
Regular

DIOnavi. Master Kit

[GS 53]

Narrow

DIOnavi. Narrow Kit
DIOnavi. Protem Kit



[GSL 36] [GS 36]

Launching soon

Wide

DIOnavi. Wide Kit

[GS 68GN]

Surgical case Sinus | Edentulous

Sinus case

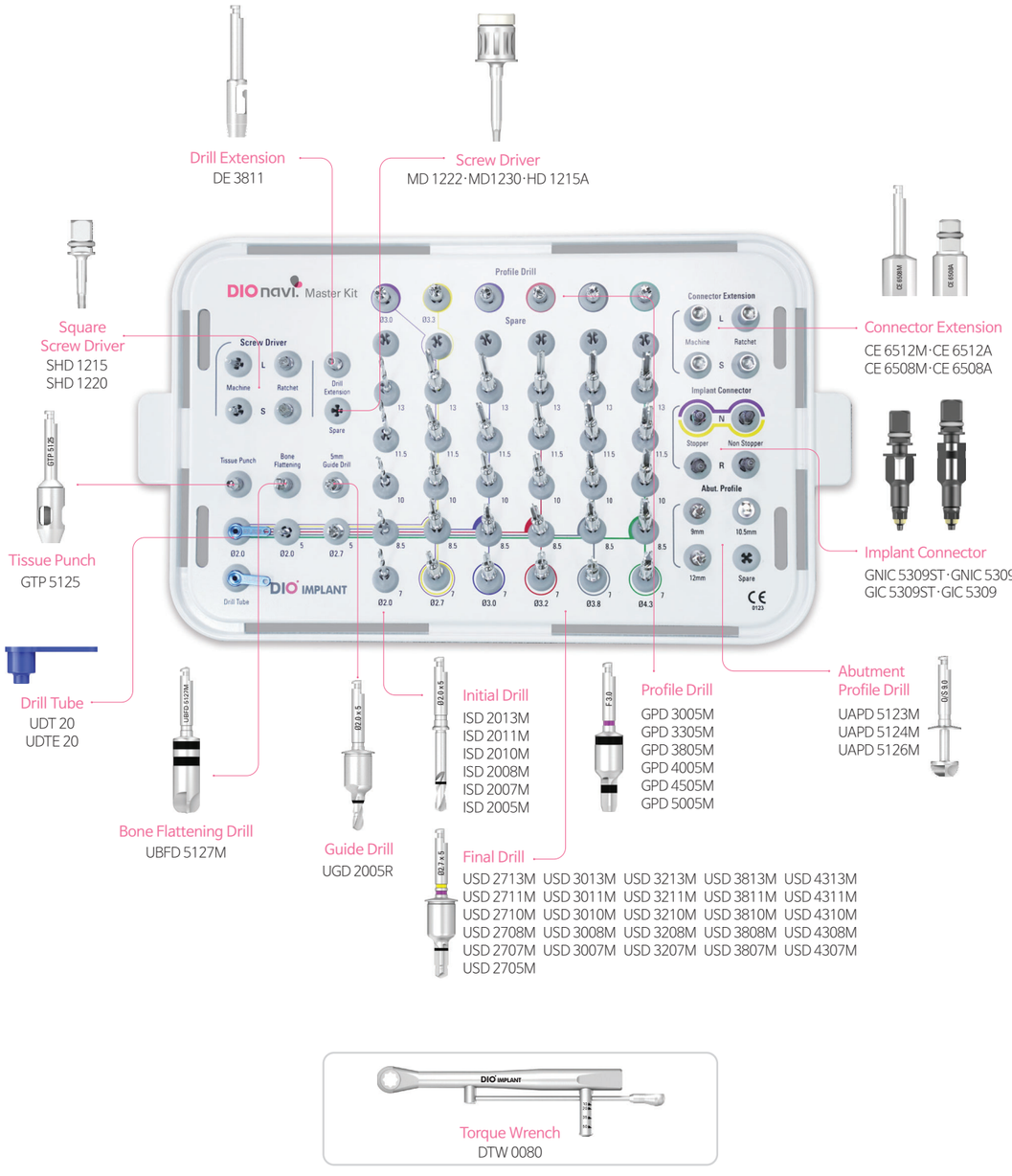
DIOnavi. Master Kit &
DIOnavi. Flapless crestal sinus Kit

Edentulous

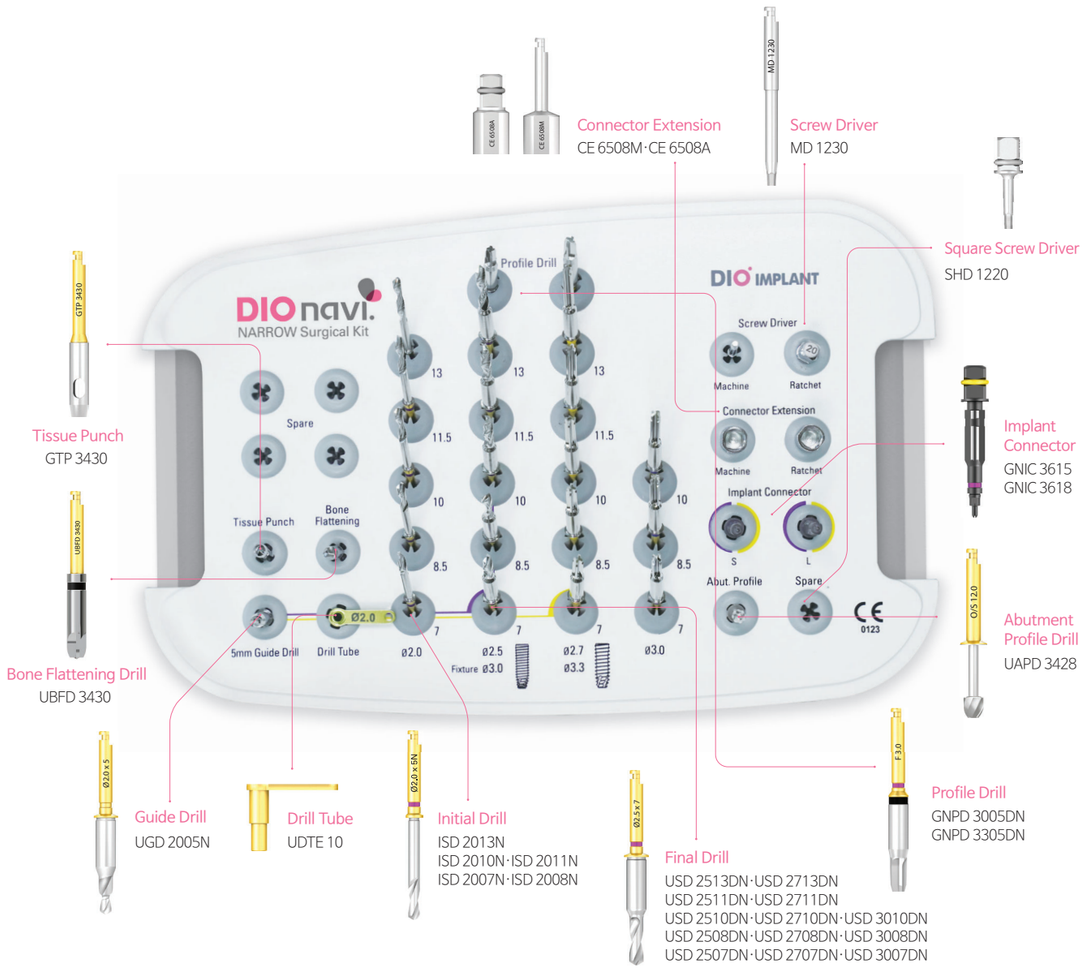
DIOnavi. Master Kit &
DIOnavi. Special Kit

3 Surgical Kit Components

DIOnavi. Master Kit

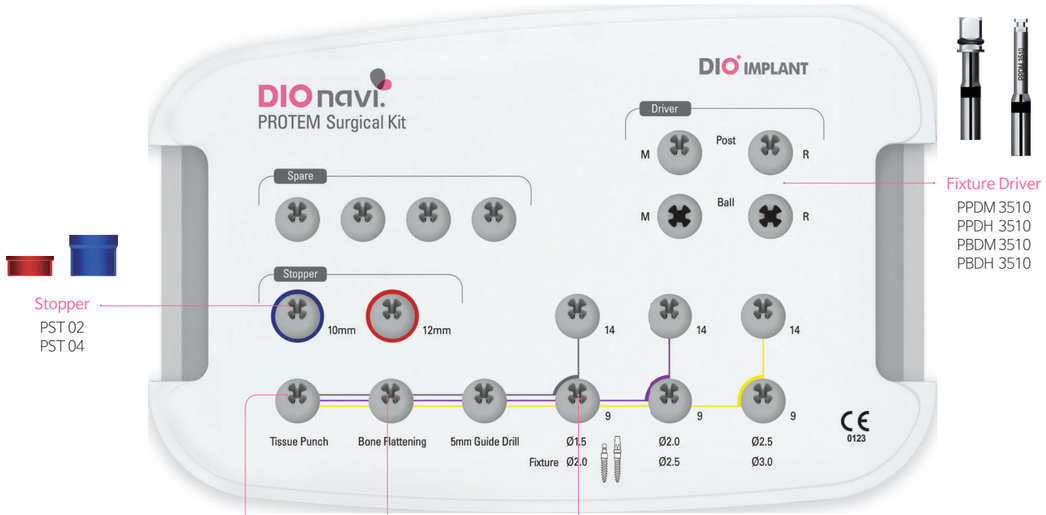


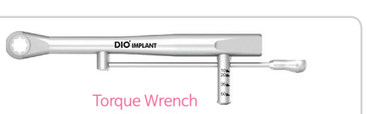
DIOnavi. Narrow Kit



Torque Wrench
DTW 0080

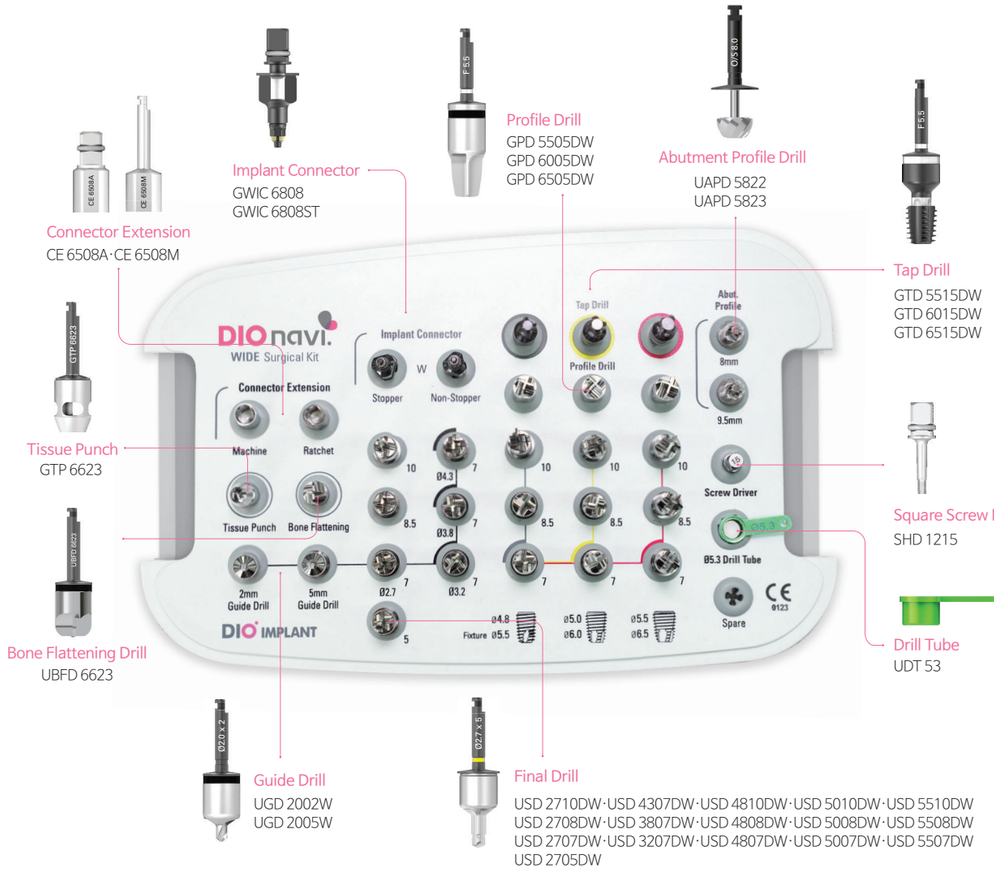
DIOnavi. Protem Kit Launching soon





Torque Wrench
DTW 0080

DIOnavi. Wide Kit



Torque Wrench
DTW 0080

① Tissue punch

Cut open the gum of the location where to be implanted and remove the gum tissues.

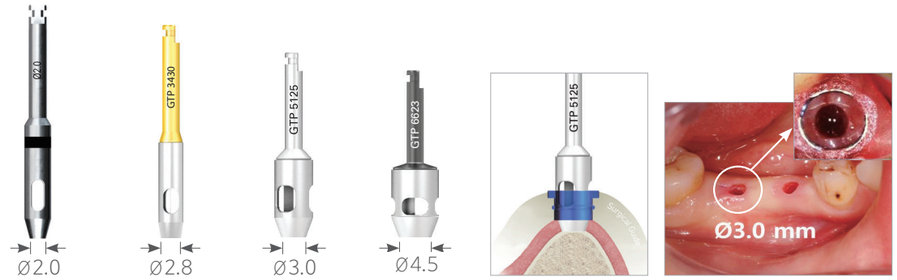
* Recommended rpm: 100 rpm

- Tissue punch smaller than the diameter of the implant is effective.

01 Hemostasis effect after the surgery through the contact between the mucous membrane and abutment surface

02 Healing of cut wound progresses rapidly

03 Healed leaving small scars



Protem [ISD 2010M] | Narrow [GTP 3430] | Regular [GTP 5125] | Wide [GTP 6623]

TIP It must be managed clean after every operation to prevent any rust occurring.
It can be removed easily using explore or steam.
Remove the residual gum with blade.

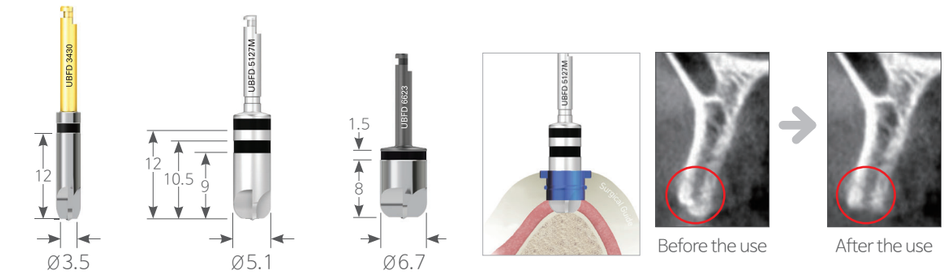
② Bone flattening drill

Make the alveolar crest bone surface flat.

(If the bone surface is not flat, drill will get slipped and will drill in the unintended direction.)

Remove the soft tissues remaining at alveolar crest after using tissue punch.

If the cortical layer is thick, use 100rpm while injecting water.

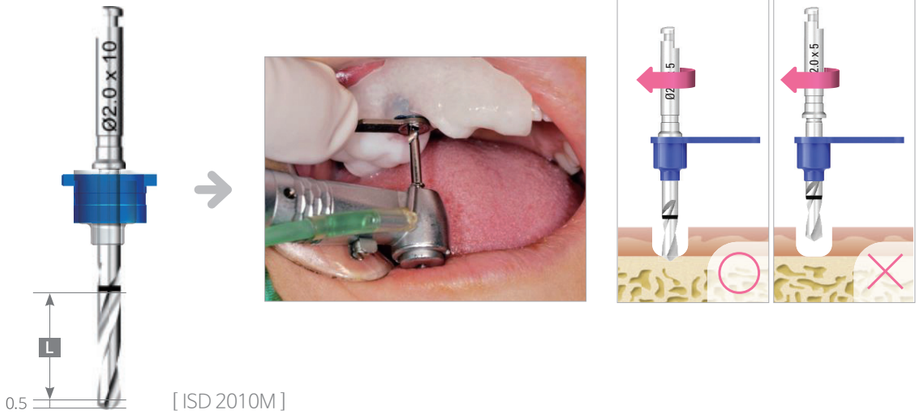


Narrow, Protem [UBFD 3430] | Regular [UBFD 5127M] | Wide [UBFD 6623]

③ Ø2.0 Initial drill

Secure the accurate position and direction of the initial drilling hole.
Using Drill tube, drill into 5mm then select the according drill for the fixture size.

* The drill will be much more securly fixated and give more precision in location and direction if used with the drill tube.
* Recommended rpm : 100 rpm without injecting water



[ISD 2010M]

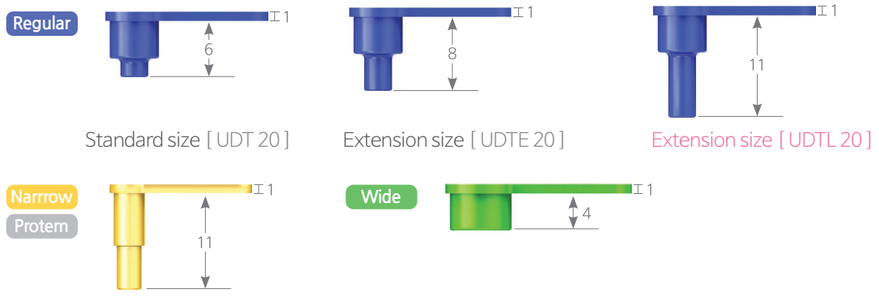
L Length = 5 / 7 / 8.5 / 10 / 11.5 / 13 / 15mm ※ Product sold separately

Caution The drill must pass through the drill tube and be safely palced onto the bone before the Drilling.
If it enters as it rotates, drill can be stuck in the drill tub.

▸ Ø2.0 Drill tube

Drilling can be much more stablized by choosing relevant legnths for the sleeve offset and drill.

※ Product sold separately



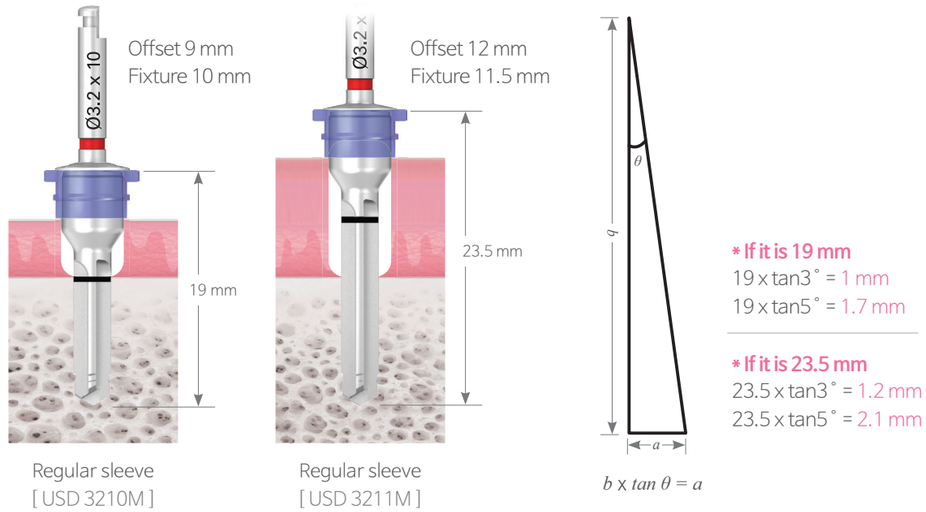
Standard size [UDT 20] Extension size [UDTE 20] Extension size [UDTL 20]

Standard size [UDTE 10] Extension size [UDT 53]

▸ Need for the drill tube

In the case of narrow width of the bone and in order to attach abutment produced in advance in the guided surgery, error range of less than 3˚ is required.
(Digital Flapless Implantology, Byeong-Ho Choi, 2015)

Reason why surgery error of more than 3° is dangerous?



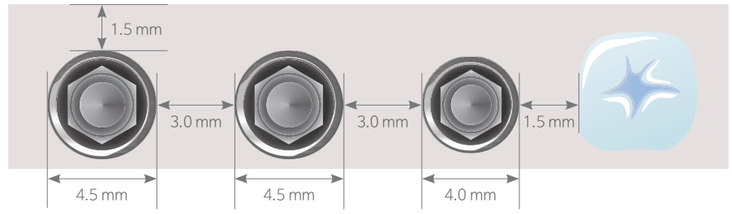
Regular sleeve [USD 3210M]

Regular sleeve [USD 3211M]

$b \times \tan\theta = a$

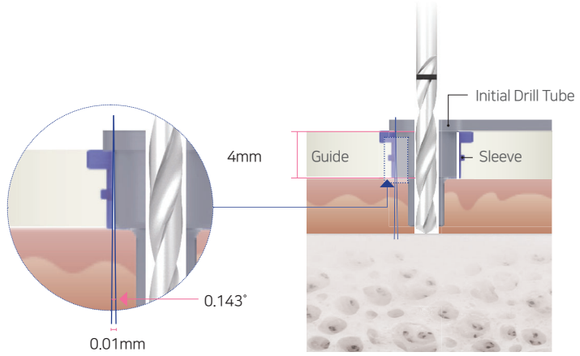
* **If it is 19 mm**
19 x tan3˚ = 1 mm
19 x tan5˚ = 1.7 mm

* **If it is 23.5 mm**
23.5 x tan3˚ = 1.2 mm
23.5 x tan5˚ = 2.1 mm



▸ It is more precise when drill tube is used

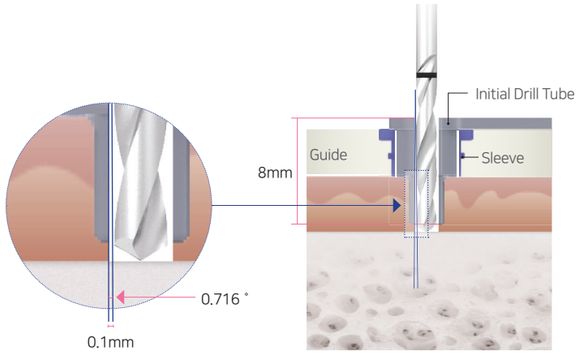
Accuracy of the initial drill determines the precision of the procedure.



* Error according to the tolerance between the drill tube and the sleeve

Gap between the drill tube and the sleeve = 0.01mm

Error in angle = 0.143°

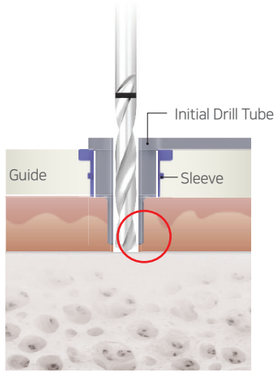


* Error according to the tolerance between the drill and the tube

Gap between the drill and the tube = 0.1mm

Error in angle = 0.716°

Max ① + ② ➔ 0.143 + 0.716 = 0.859°



※

With the design in which the drill tube enters deep into the soft tissue, it can reduce error in initial drilling.

④ Ø2.0 Guide drill

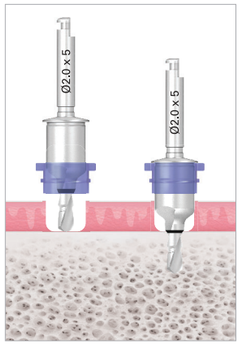
If the opening is small, only 5mm initial drilling without drill tube can be used.
(If for wide, there are 2 options of 2mm and 5mm)

* Use only if the opening is small
* Recommended rpm : 100 rpm

Narrow
[UGD 2005N]

Regular
[UGD 2005R]

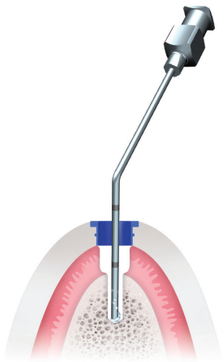
Wide
[UGD 2002W]
[UGD 2005W]

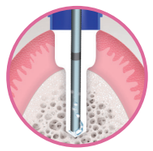


Drill stably after the drill is fixated in contact with the inner surface of the guide sleeve.

▸ Inject water lifter drilling

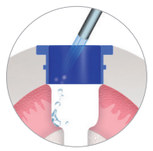
It can prevent bone heating and cleanly remove particles within the bone cavity if it is placed to the depth of the bone cavity using metal needle.





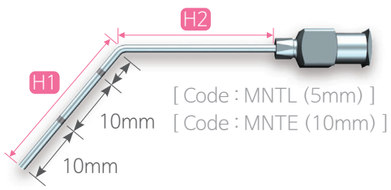
O

Needle is placed to the depth of the bone cavity and water is injected.



X

Since the needle is not positioned deep, it is difficult to inject water into the bone.

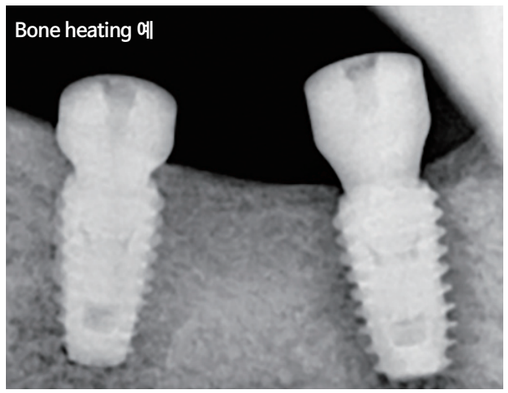


Code	H1	H2
MNTE	30	50
MNTL	25	25

* Recommended syringe specifications

30~50cc (Store in refrigerator prior to the procedure)

▸ Recommendations for the drill stage



Repetitive cleaning of the drilling hole and suction at each drilling stage is recommended.

Although not injecting water is the principle in drilling at low speed of less than 100 rpm, repetitive cleaning of the drilling hole and suction even for the bone cavity at each drilling stage is recommended in order to prevent bone heating and remove particles within the bone cavity.

TIP 10-second drilling rule!

When drilling at low speed in the case with high bone density, the drilling time will increase the risk of bone heating. Accordingly, the drilling should not exceed 10 seconds.

If time gets longer, drill for less than 10 seconds and remove the drill before re-drilling after injecting water to the bone cavity.

⑤ Final drill

Drill body and the guide sleeve will be fixed onto each other without the drill tube and use the drill relevant to the fixture size.

* 15mm drill can be purchased separately or is basically composed in the case of special kit.
* Recommended rpm : 100 rpm

Protem [MSD 2509] | Narrow [USD 2508DN] | Regular [USD 4310M] | Wide [USD 3207DW]

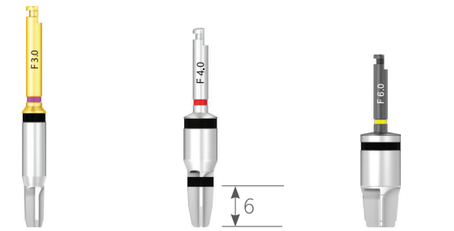
Caution It can prevent slipping, etc. if drill with short length is used since double contact appears when drill body and sleeve are placed in the drilling hole.

⑥ Profile drill

Prevent excessive torque in embedding fixture by expanding the cortical bone in the D1 or D2 mandibular bone.

In addition, it is helpful that bone is flattened and drill enters stably.

* Recommended rpm : 100 rpm



Narrow [GNPD 3005DN] | Regular [GPD 4005M] | Wide [GPD 6005DW]

⑦ Tap drill

Prevent excessive torque in embedding fixture.

* Recommended rpm : 50 rpm

※ Product sold separately

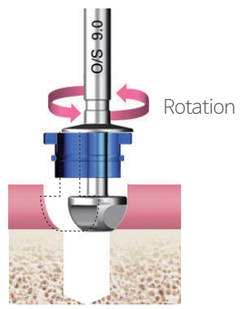
Regular [GTD 4515] | Wide [GTD 6015W]

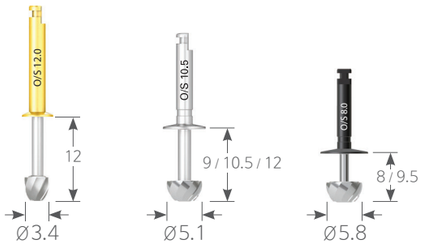
⑧ Abutment profile drill

Remove alveolar bone which interfere when binding abutment or H-Scanbody.

Form abutment profile by rotating the drill along the internal sleeve.

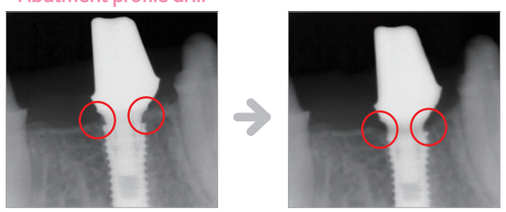
* Recommended rpm : 800 rpm





Narrow [UAPD 3428] | Regular [UAPD 5124M] | Wide [UAPD 5822]

* Abutment profile drill

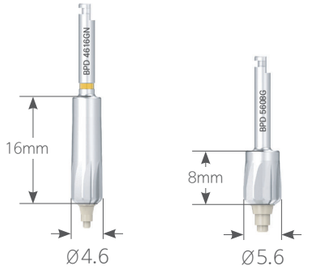


Before the use | After the use

* Bone profile drill (※ Product sold separately)

Cover screw will firstly be removed then the neighboring bone to the Fixture, at the 2nd operation making fastening of the abutment (Healing) easier.

* Recommended rpm : 100 rpm



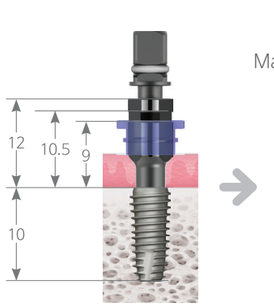
Narrow
[BPD 4616GN]

Regular
[BPD 5608G]

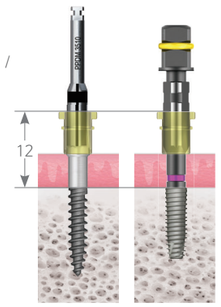
Bone profile drill

⑨ Implant connector

Safely tow the fixture to the guide sleeve for implantation.
Match the depth of sleeve offset and implant connector.

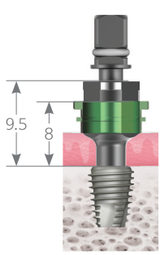


Regular

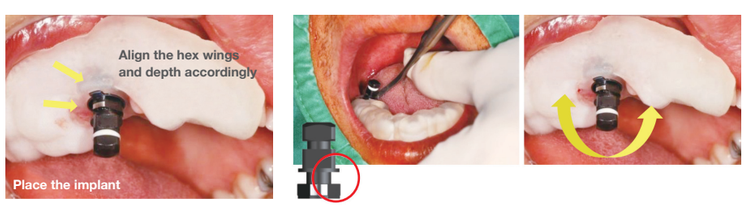


Protem Narrow

Caution When binding the customized abutment manufactured in advance, both the depth and direction of the implant connector and sleeve must be matched.



Wide

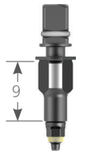


TIP If the implant connector is stuck in the sleeve, remove it on the principle of levers by inserting the crown remover into the groove.

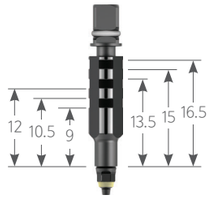
K UFII Regular

※ Product sold separately ※ Product sold separately

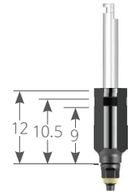
Non-Stopper
[GIC 5309]



Stopper
[GIC 5309ST]

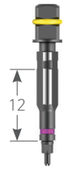


Multi
[GIC 5317]

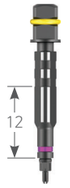


Machine non-Stopper
[GICC 5309]

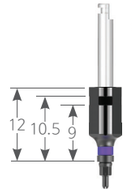
K UFII Narrow



Non-Stopper (Short)
[GNIC 3615]



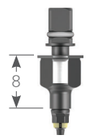
Non-Stopper (Long)
[GNIC 3618]



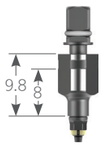
※ Product sold separately

Machine non-Stopper
[GNICC 5309]

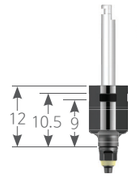
K UFII Wide



Stopper
[GWIC 6808ST]



Non-Stopper
[GWIC 6808]



※ Product sold separately

Machine non-Stopper
[GWICC 6808]

⑩ Connector extension

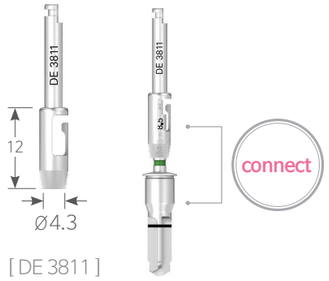
Embed the fixture with ratchet and hand piece by extending the implant connector.

Ratchet
[CE 6508A]

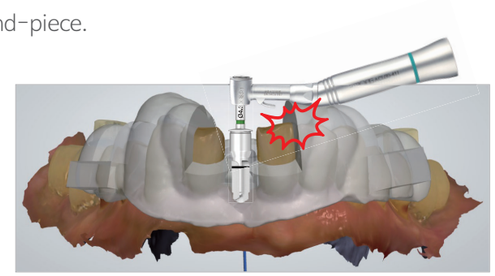
Machine
[CE 6508M]

⑪ Drill extension

Extend the drill before drilling using hand-piece.



[DE 3811]



Caution If the hand piece gets caught by the neighboring tooth, it is necessary to use drill extension or to remove neighboring tooth.

⑫ Torque wrench

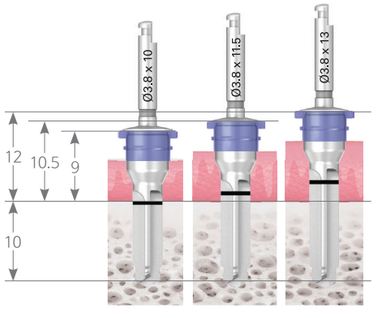
It is used in embedding fixture using implant connector.

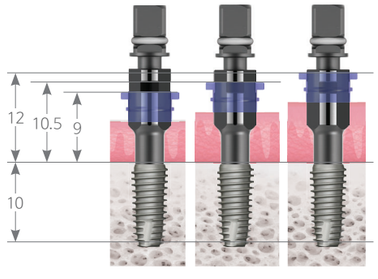
[DTW 0080]

Understanding of offset

▸ Use of sleeve offset and the product

① Regular





How to select drill according to the sleeve offset (10mm drill as the reference)

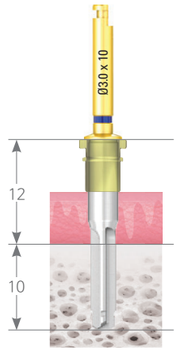
In the case of offset 9mm	Drill 10mm
In the case of offset 10.5mm	Drill 11.5mm
In the case of offset 12mm	Drill 13mm

Standard height of implant connector according to the sleeve offset (For 10mm fixture)

In the case of offset 9mm	Up to the first scale marking
In the case of offset 10.5mm	Up to the second scale marking
In the case of offset 12mm	Up to the third scale marking

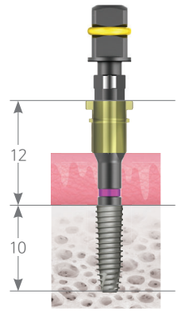
Caution Both the depth and direction of the implant connector and sleeve must match when binding the customized abutment manufactured in advance.

② Narrow



How to select drill according to the sleeve offset (10mm drill as the reference)

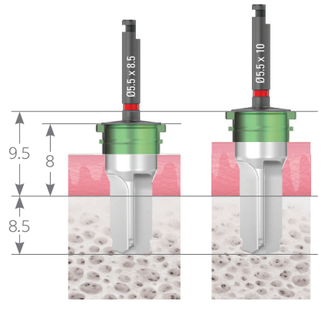
In the case of offset 12mm → Drill 10mm



Standard height of implant connector according to the sleeve offset (For 10mm fixture)

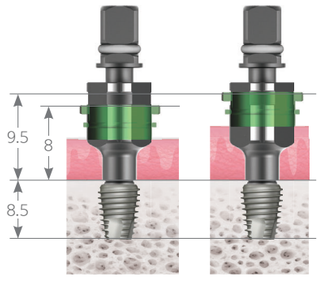
In the case of offset 12mm → Up to the first scale marking

③ Wide



How to select drill according to the sleeve offset (8.5mm drill as the reference)

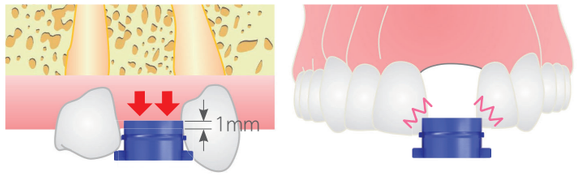
In the case of offset 8mm	Drill 8.5mm
In the case of offset 9.5mm	Drill 10mm



Standard height of implant connector according to the sleeve offset (For 8.5mm fixture)

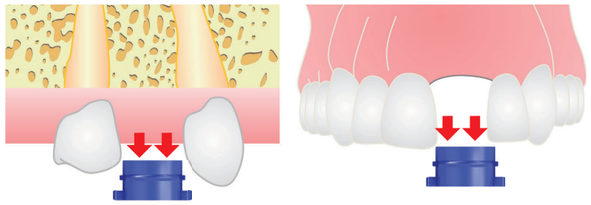
In the case of offset 8mm	Up to the first scale marking
In the case of offset 9.5mm	Up to the second scale marking

▸When applying sleeve offset

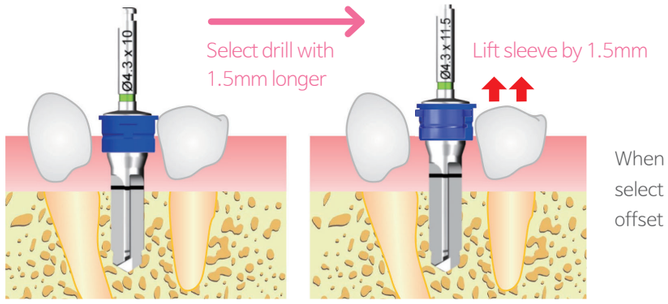


It can be placed inside the gum

- Remove the neighboring tooth when tightening the guide will cause interference in entering the sleeve due to the narrow gap between adjacent teeth.
- If the gum is thick, it is possible to plan the sleeve to enter into the gum by about 1mm.



Lift up the sleeve by 1.5mm / 3mm.



When embedding 10mm implant, select 11.5mm Drill if the sleeve offset is 10.5.

DIOnavi. Flapless Crestal Sinus Kit

Sinus Drill
GSRD 3217
GSRD 3218
GSRD 3219

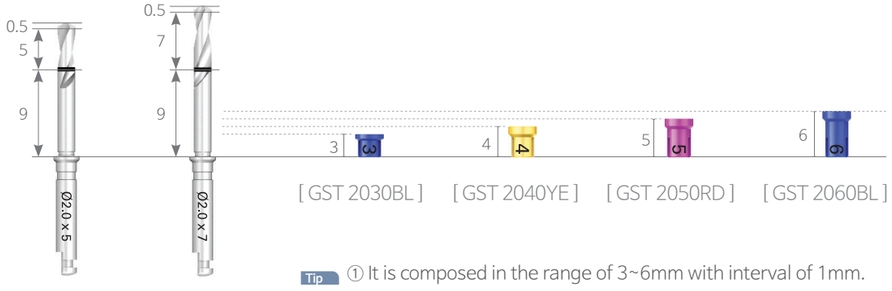
Membrane Lifter
WML 6627

Square Wrench
DSW 050

Depth Gauge & Bone Condenser
GSDB 2619

① Stopper for exclusive use of Ø2.0 Drill

Install on Ø2.0 initial drill (DIOnavi. Master Kit) and stably drill to the desired depth.

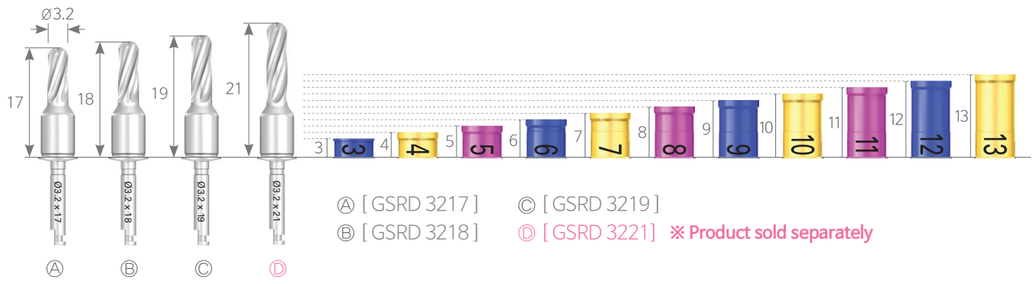


Tip ① It is composed in the range of 3~6mm with interval of 1mm.
② It is anodized (Electrolytic coloring) and laser marked for each depth.

② Sinus drill (For crestal) & Stopper

Front blade with round shape drills by approaching the sinus without damaging the membrane.

* Low speed drilling without injecting water (10 rpm)

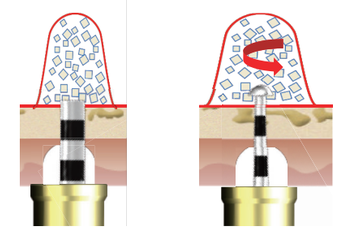


Ⓐ [GSRD 3217] Ⓒ [GSRD 3219]
Ⓑ [GSRD 3218] Ⓓ [GSRD 3221] **※ Product sold separately**

Tip ① Use it attached to the straight drill (DIOnavi. Master Kit), Sinus drill, Depth gauge & Bone condenser.
② It is composed of 11 items in the range of 3~13mm with interval of 1mm.
③ The height of stopper signifies the depth.

③ Depth gauge & Bone condenser

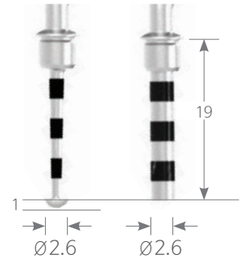
After checking the thickness of the residual bone and whether the membrane is lifted, push in the bone into the lifted sinus.



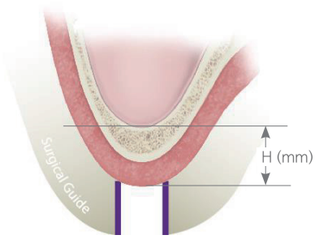
19mm - (H+1)
Bone condenser

19mm - (H+2)
Depth gauge

Tip After separating the guide, make sure to use it attaching the stopper.



[GSDB 2619]



Tip If the H value is less than 5mm, 2 Stoppers must be combined.

④ Membrane lifter

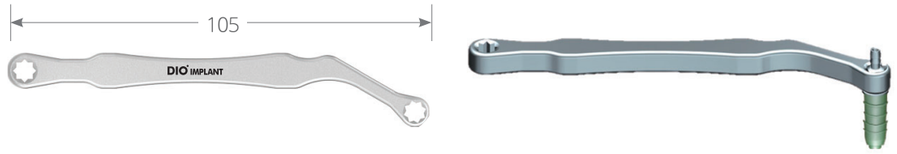
Inject 0.6cc slowly in single case in the hydraulic way using saline solution.

Tip ① Prohibit use in patient with inflammation in the maxillary sinus membrane.
② Prohibit use in cases with complicated morphological configuration of Sinus floor (Septum, etc.).
③ Use saline solution or patient's blood.
④ Use while the guide is bound.

Caution Use after autoclaving it prior to the surgery and use the Lift tube only once since cross-contamination can occur.

⑤ Square wrench

Place and fixate the membrane lifter in the drilling hole.



⑥ Syringe & Tube

Syringe ※ Product sold separately

It must be a needleless syringe with capacity of 5ml / cc with clear scale for 0.2ml / cc.

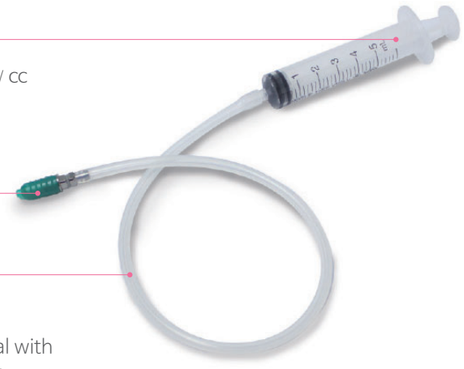
* Disposable sterilized medical device.

Membrane lifter

Tube ※ Product sold separately

[MLT 40300]

It is a tube made of semi-transparent silicon material with dimensions of external diameter of Ø4.0 / internal diameter Ø2.0 and length of 300mm.

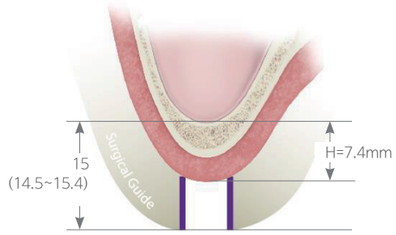


Tip ① After the primary packaging with sterilized sheet, the user manual is included in the secondary packaging.
② Customer will open the secondary packaging.
③ Use by executing autoclaving while the product is in the primary (Sterilized sheet) packaging.

Caution Use only once since cross-contamination can occur.

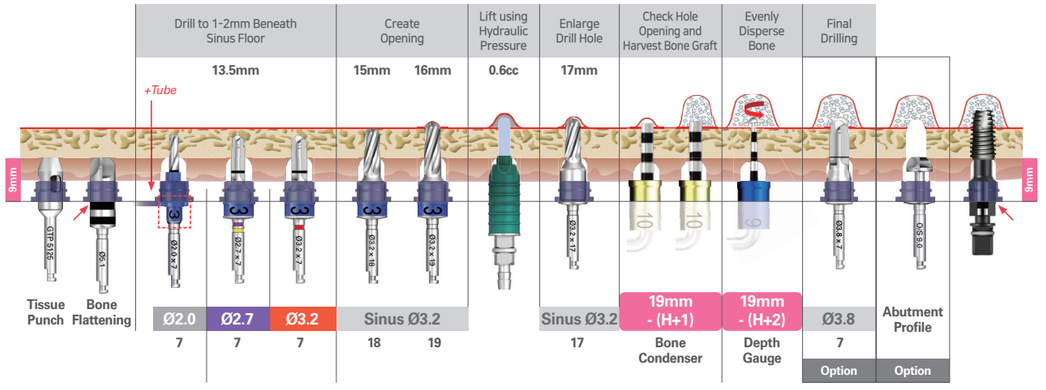
⑦ Drilling protocol

ex) Ø5.0 x 10mm Offset 9mm



* Recommended drilling speed & Torque value

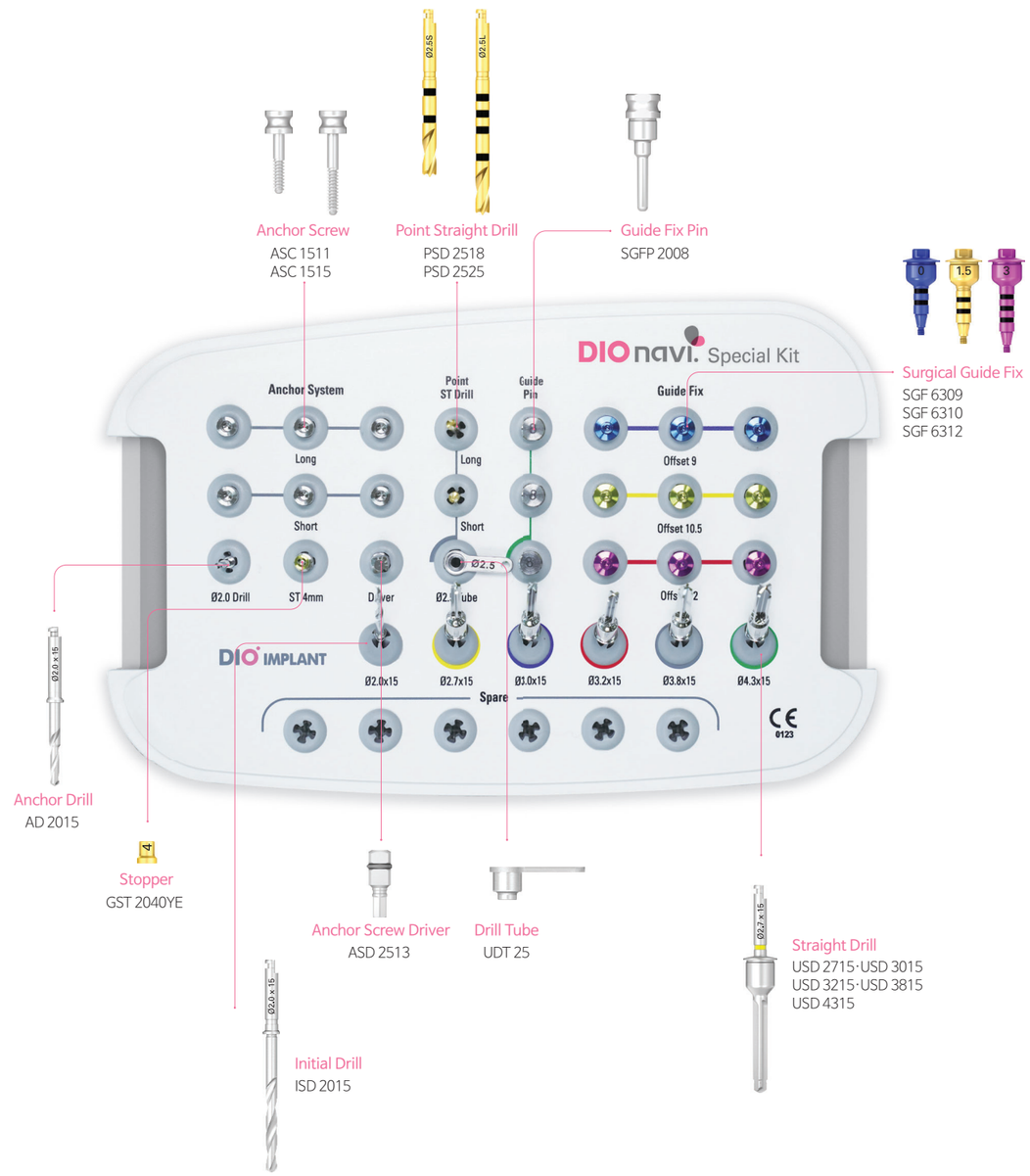
Cat.	Speed	Max torque
Drilling	100 rpm	55 Ncm
Sinus drill	10 rpm	35 Ncm
Fixture	30 rpm	35 Ncm



Stopper	3mm	3mm	3mm	3mm	3mm	After seperate guide	-	H+1	H+2	-	-
Drill length	7mm	7mm	7mm	18mm	19mm		17mm	19mm -(H+1)	19mm -(H+2)	7mm	-
Ref	Ø2.0 Initial drill	Ø2.7 Straight drill	Ø3.2 Straight drill	Ø3.2 Sinus drill	Ø3.2 Sinus drill		Ø3.2 Sinus drill	Bone condenser	Depth gauge	Ø3.8 Straight drill	Abutment profile drill

Caution Use abutment profile drill if the residual bone is more than 6mm.
It is recommended that fixture with more than 4.5 is embedded for sinus case.

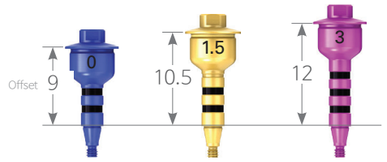
DIOnavi. Special Kit



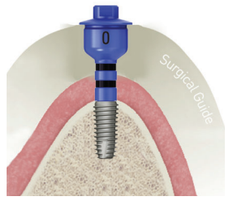
① Surgical guide fix & Fix pin

Fixate the surgical guide by binding it on to the drilling hole or embedded fixture first to prevent moving.

* Fix(Fixture + Surgical guide)

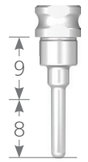


[SGF 6309] [SGF 6310] [SGF 6312]

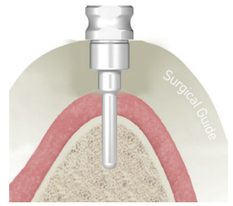


Caution Make sure to fasten the sleeve offset with the according fixture.

* Fix pin(Ø2.0 Drill hole + Surgical guide)



[SGFP 2008]

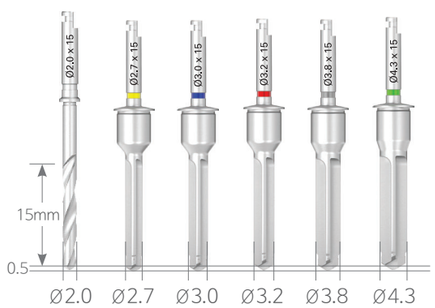


TIP Using bone flattening drill is recommended to reduce the interference of the gum and use for drilling of more than Ø2.0 x 8.5㎜ regardless of the sleeve offset.

② Initial drill & Straight drill

Use when embedding offset of more than 12mm and fixture of more than 13mm.

* Recommended rpm : 100 rpm



*** Initial drill**

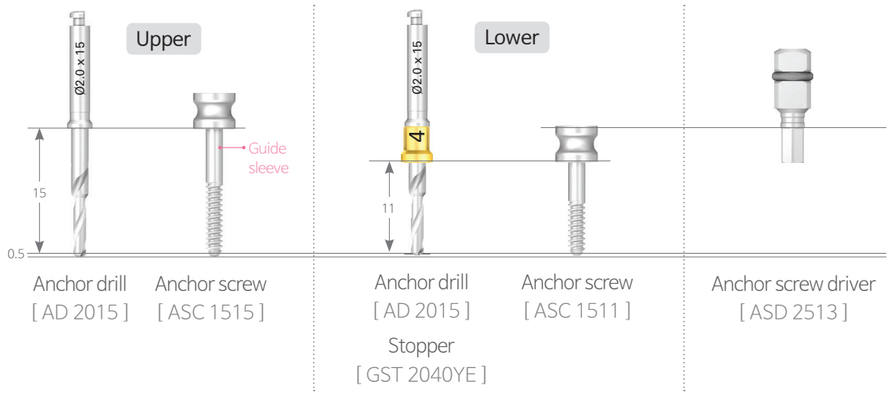
Ø2.0 [ISD 2015]

*** Straight drill**

Ø2.7 [USD 2715]
Ø3.0 [USD 3015]
Ø3.2 [USD 3215]
Ø3.8 [USD 3815]
Ø4.3 [USD 4315]

③ Anchor drill & Anchor screw

Fixate the anchor screw after drilling outside the surgical guide.

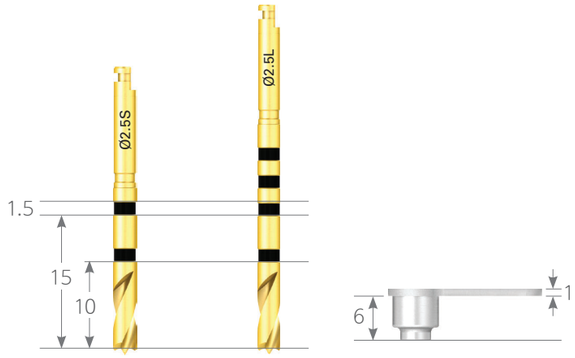


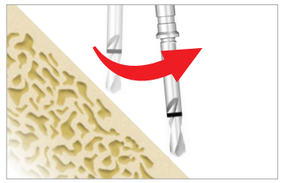
TIP In the case of mandible, make sure to use 4mm stopper and exclusive anchor screw.

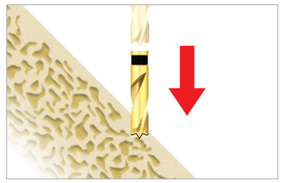
Caution When binding anchor screw.
① Bind with hand.
② Make sure to bind several holes simultaneously since the guide can become crooked if it is bound 100% for 1 hole and then other holes successively.
③ To prevent gum from causing misplacement, push carefully through.

④ Ø2.5 point straight drill

It is a specialized drill to form guide hole accuratly and to prevent slipping on bone with severe inclination.




Ordinary drill can cause slipping.


Stable drilling when point straight drill is used.

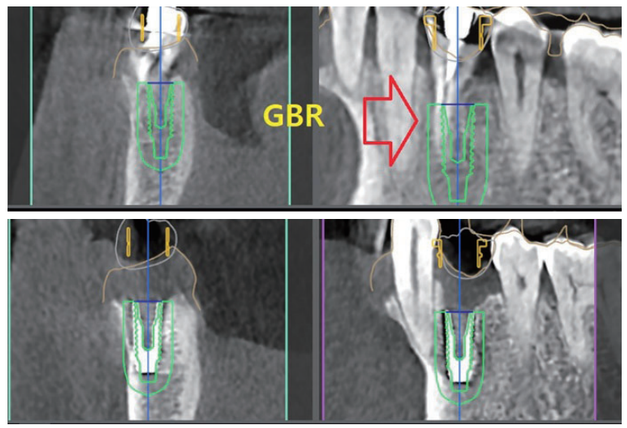
Caution Make sure to use it after attaching the exclusive drill tube.

TIP

How to use surgical tools for each type of surgery

1 Case of extraction immediately after

In the event of extracting tooth on the day of the procedure + DIOnavi. Master Kit



Drill can slip immediately after tooth extraction and in the section where the extraction window area has not yet fully healed.

▸ Solution ①

Drill stably to the desired depth attached in Ø2.0 initial drill (DIOnavi. Master Kit).

[ISD 2005M] [ISD 2007M] [ISD 2010M]

Ø2.0 initial drill attached with drill tube can drill accurately with stable chucking power and can minimize the error range that can occur using it sequentially from short drills.

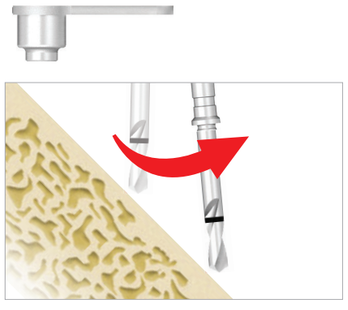
[USD 2705] [USD 2707] [USD 2710]

Ø2.7 Drill can secure chucking force in the guide sleeve from the shorter lengths.

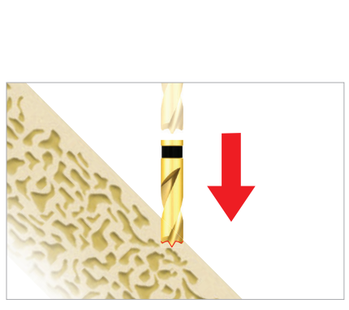
▸ Solution ②

Ø2.5 point straight drill in the special kit is a exclusive drill designed to prevent slipping.

Short Long



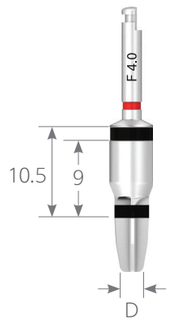
Ordinary drill can result in slipping



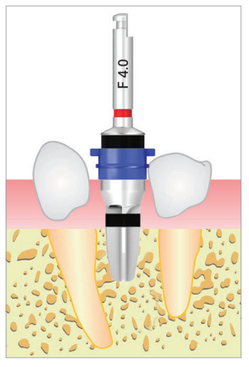
Stable drilling when point straight drill is used

▸ Solution ③ : Profile drill

Useful in flattening work on bone remaining after extracting tooth with profile drill.



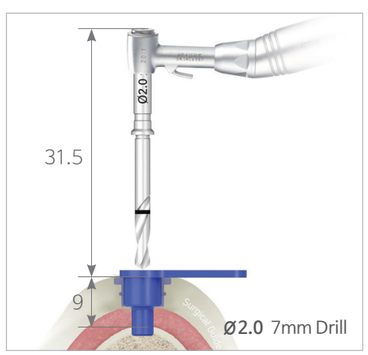
[GPD 4005M]

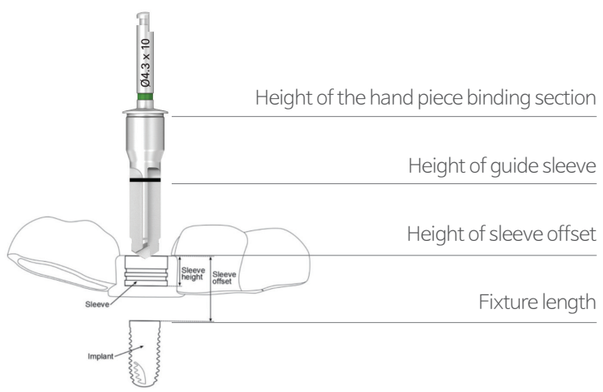


2 Case with small opening

In procedure in molar area for patient with small opening (Mostly for moral tooth No. 2) + DIOnavi. Master Kit

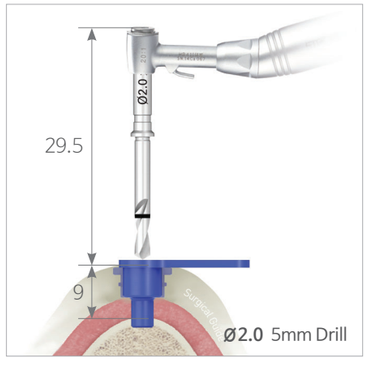
▸ Normal Case

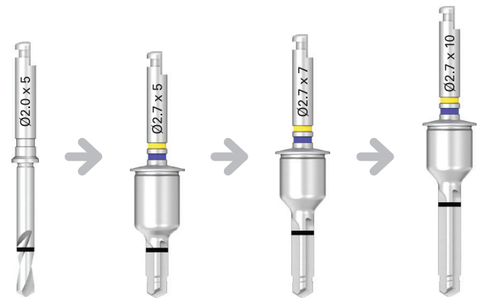




At the time of DIOnavi. operation, the opening of the mouth becomes about 20mm higher than ordinary operation, thereby making entry of the drill difficult in molar area.

▸ Solution ①

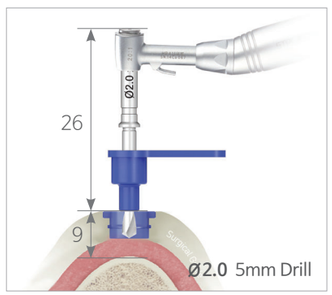




Use 5mm Drill (Reduction of opening by 2mm)

With 5, 7 and 10mm, increase sequentially beginning with shorter drill.

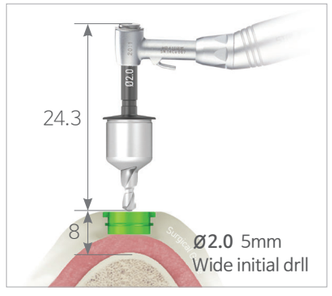
▸ Solution ②



Attach guide after binding drill tube and 5mm Drill outside the intra oral (Reduction of opening by 5.5mm)

If guide is attached after attaching Ø2.0 x 5mm Drill to the drill tube outside the intra oral, it can reduce the height.

▸ Solution ③



When using wide sleeve and wide initial drill (Reduction of opening by 7.7mm)

Use wide sleeve and exclusive Kit for kit.

3 Sinus Case

① DIOnavi. Surgical Kit preparation

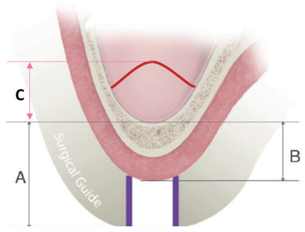
In sinus case procedure using the guide, both the DIOnavi. Master Kit and DIOnavi. Flapless Crestal Sinus Kit must be prepared in advance.

DIOnavi. Master Kit

+

DIOnavi. Flapless Crestal Sinus Kit

* Values that need to be checked in the surgery

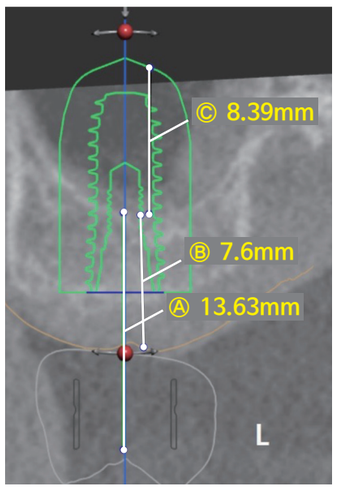


Ⓐ Length from the top of the surgical guide sleeve to the bottom of the maxillary sinus.

Ⓑ Length from the bottom of the maxillary sinus to the gum.

※ Able to identify the depth with the scale using bone condenser & depth gauge.

Ⓒ Height of lifting maxillary sinus and bone graft.



② Use tool in the sinus case surgery

Fixate by binding the anchor screw after drilling outside the surgical guide.

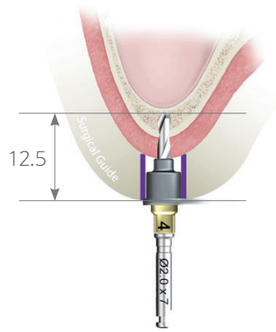
▸Initial drill & Straight drill

After using the tissue punch and bone flattening drill of DIOnavi. Master Kit, drill sequentially binding the stopper to the initial drill and straight drill.

* Initial drill - Form embedding hole (Osteotomy site)

- Form drilling hole using Ø2.0 initial drill.
- Drill to 1~1.5mm below the bottom of the maxillary sinus with the height of the bone at the bottom of the maxillary sinus measured from the CT as a reference.

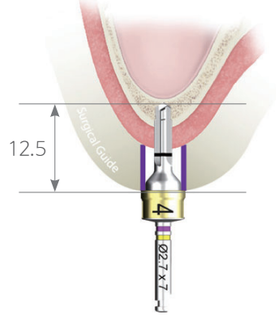
※ Drill tube : Secure fixation for more accurate position and direction.



Caution ① Must use stopper for depth control.
② Low drilling without injecting water. (100 rpm / 55Ncm)
③ Use Ø2.0 initial drill in the DIOnavi. Master Kit.

* Straight drill - Drilling hole expansion and access to lower edge

Expand the drilling hole using the straight drill sequentially.



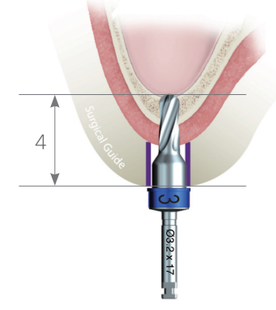
Caution ① Must use stopper for depth control.
② Low drilling without injecting water. (100 rpm / 55Ncm)
③ Use Ø2.0 Initial drill in the DIOnavi. Master Kit.

▸Sinus drill for perforation in the maxillary sinus basal bone

Penetrate through with force while drilling 1mm deeper than the drilling in the previous stagedrilling in the previous stage.

Caution Make sure to use stopper for depth control and low speed drilling without injecting water. (10 rpm)

Tip How to controll depth when using sinus drill.
① Length can be controlled using stopper.
② It can be used fixing stopper and changing the length of drill.
③ Sinus drill : 17mm / 18mm / 19mm / 21mm (Option)



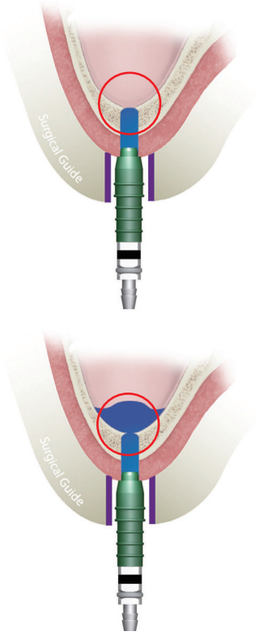
▸Water membrane lifter - Lift sinus membrane

Inject saline solution into the drilling hole using water membrane lifter after removing the guide.

- Inject approximately 0.6cc for lifting the membrane.
- Compute the quantity of injection as you experience pressure when injected.

*** Section with exertion of pressure**

About 0.5cc is injected before the pressure is exerted.
At this time, inject about 0.4cc more except the quantity already injected and lift the membrane.
※ Before pressure is exerted, injection quantity differs in the height and expansion quantity of the bone.



*** Penetration of the lower edge of maxillary sinus (A)**

Pressure can be felt when saline solution is injected and the pressure falls as the membrane is lifted and saline solution is injected again.

*** If the lower edge of maxillary sinus (A) is not penetrated**

After feeling pressure as saline solution is injected, it is not possible to exert pressure any more or the nozzle is pushed out.
※ Retry after drilling 1mm deeper with sinus drill.

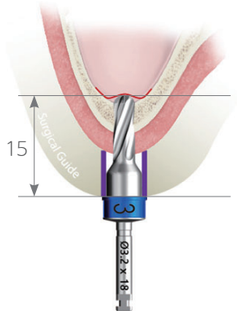
*** Check lifting of maxillary sinus membrane**

Aspire saline solution while maintaining the nozzle to the hole.
The status of aspirational level from the saline solution inserted displays whether the membrane is safely intact.
※ Mixture of blood will flow.

▸Sinus drill - Penetrate the lower edge of maxillary sinus

After lifting the maxillary sinus membrane, drill 1mm deeper with sinus drill to completely penetrate through the lower edge of maxillary sinus.
It can be checked whether lower edge of maxillary sinus is penetrated using bone condenser.

Caution
① Make sure to use stopper for depth control.
② Low speed drilling without injecting water. (10 rpm / 35Ncm)
③ Use after attaching stopper to the bone condenser.
④ If bone graft material is injected without being penetrated, it can ocuur that the bone graft material cannot be injected any further.

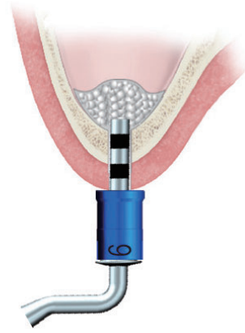


▸Bone condenser - Injection of bone graft material

Inject the bone graft material into the maxillary sinus through the drilling hole to bone condenser after removeing surgical guide.

- DIOnavi. sponge type bone graft material is recommended.
- Bone graft material can maintain the space lifting up the membrane within the maxillary sinus.
- In the case of embedding implant immediately after bone graft, implant helps maintenance of space within the maxillary sinus and promotes osteogenesis along with the sponge type of bone graft material.

Caution Must use stopper for depth control.



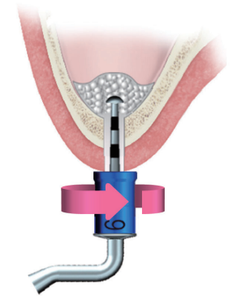
*** Determine the volume of bone graft material**

Height of sinus membrane lifting	1mm	2mm	3mm	4mm	5mm	6mm	7mm	8mm	9mm	10mm
When implant is embedded	0.1cc	0.2cc	0.3cc	0.4cc	0.5cc	0.6cc	0.7cc	0.8cc	0.9cc	1.0cc
When implant is not embedded	0.3cc	0.6cc	0.9cc	1.2cc	1.5cc	1.8cc	2.1cc	2.4cc	2.7cc	3.0cc

▸Depth gauge - Dispersion of bone graft material (Option)

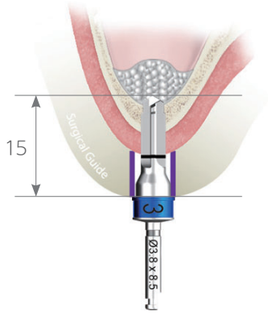
After surgical guide is removed, place and rotate depth gauge into the maxillary sinus and disperse the bone graft material.

Caution Use stopper for depth control.



▸Final drilling

Drill 2mm deeper than the depth of the sinus drill after attaching surgical guide.



Caution ① Make sure to use stopper for depth control.
② Low speed drilling without injecting water. (100 rpm / 55Ncm)
③ It is recomentd that drill below 1~2 level is used if the osseous tissue is weak.

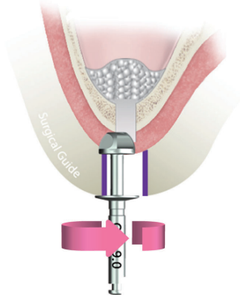
▸Abutment profile drill

Remove alveolar bone that interferes when abutment or H-scan body is bound.

Produce abutment profile rotating the drill along the inner sleeve.

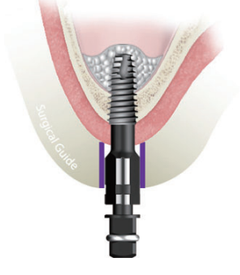
※ Increase rpm while injecting water if cortical layer is thick. (800 rpm)

※ It can be limited if the remaining bone is 1~2mm after penetration of the sinus.



▸Implant connector - Fixture embed

After embedded using Surgical guide, the implant that entered the maxillary sinus disperse the bone graft material by pushing it out.



Tip Embed fixture according to the quantity of remaining bones.
- If it is more than 4mm, implant can be firmly fixated in the initial stage and be embedded immediately and restoration of the temporary prosthesisn is possible.
- If it is thinner than 3mm and implant can not be innitially fixated, execute only maxillary sinus bone graft without embedding implant at once.

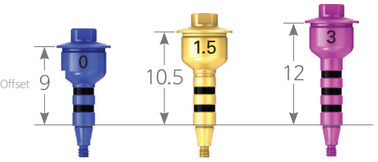
Caution Low speed drilling without injecting water in embedding implant (30 rpm / 35Ncm)

4 Edentulous Case

How to fixate in edentulous case + DIOnavi. Special Kit

DIOnavi. Special Kit

Pin

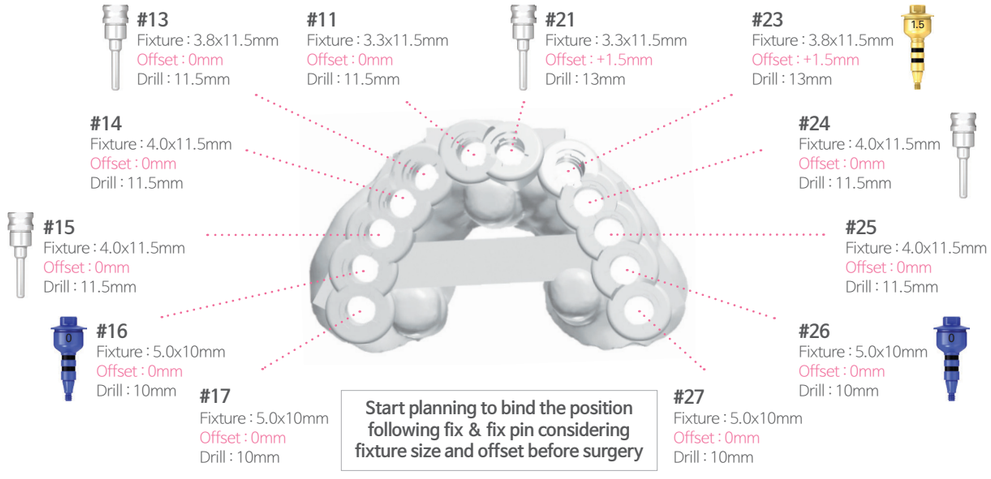


[SGF 6309] [SGF 6310] [SGF 6312]

* Fix includes 9mm, 10.5mm and 12mm depending on the sleeve offset.

▸Edentulous fixation guide fix & fix pin

Without producing Hole, it can be fixated in the place when implant is embedded.



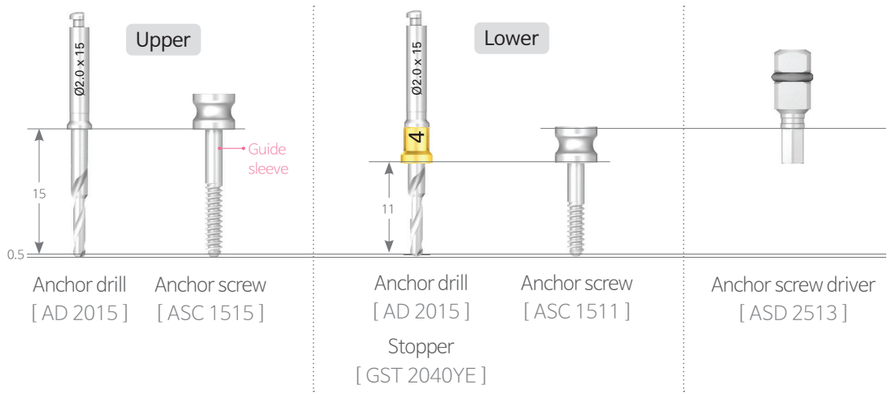
* Example : How to fixate edentulous case

Caution It is recommended that thick bone is used in the part of fixed pin.

MEMO

▸Anchor drill & Anchor screw

It is fixed in the side of guide.

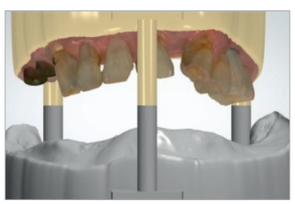


TIP In the case of mandible, make sure to use 4mm stopper and exclusive anchor screw.

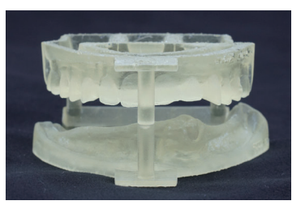
Caution When binding anchor screw.
① Bind with hand.
② Make sure to bind several holes simultaneously since the guide can become crooked if it is bound 100% for 1 hole and then other holes successively.
③ To prevent gum from causing misplacement, push carefully through.

* Anchor process

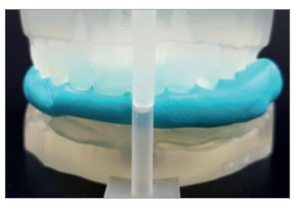
① Anchor planning



② Design articulator



③ Produce articulator



④ Fixed bite is produced using articulator

⑤ Guide is attached in the intra oral using fixed bite

※ It can not be produced if errors in bite taking are found in scan files and plaster models.

It is recomentd that fixed bite is produced in the intra oral.

MEMO

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