

CAS-KIT

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Crestal Approach - Sinus KIT

Edition 08 / 2010

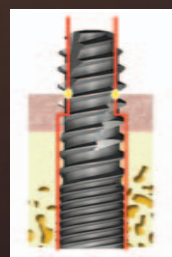


CAS-KIT

(Crestal Approach - Sinus KIT)

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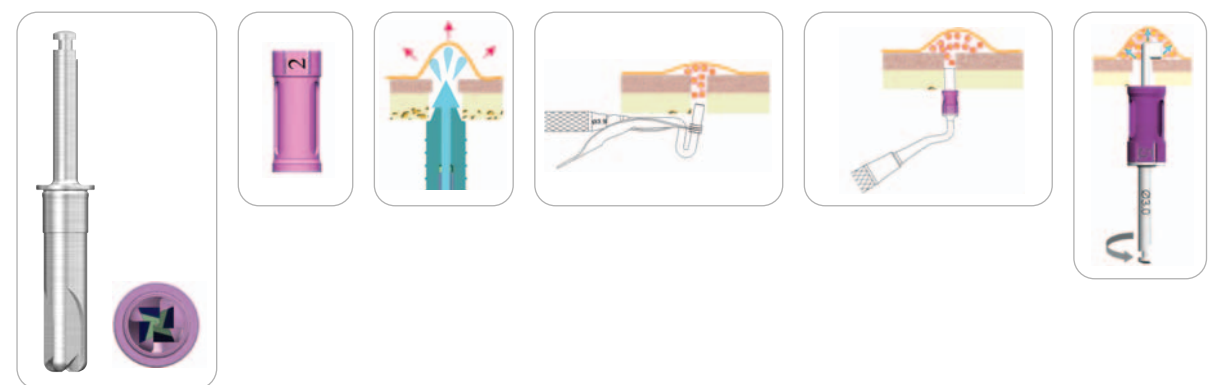
● Introduction ↙

- Hiossen's Crestal Approach Sinus KIT (CAS-KIT) is specifically designed to easily and safely lift the membrane in the maxillary sinus from a crestal approach.

The key component of the CAS-KIT is the CAS-Drill. The unique design of the CAS-Drill enhances convenience and safety of maxillary sinus surgery by; safely lifting the membrane while drilling, precision cutting, flexible cutting speed from low to high speed (800rpm), formation of conical shaped bone chip, generation of bone particles, smooth & stable insertion, easy path correction and septum surgery.

● FEATURES of CAS-KIT ↙

- Safely and rapidly lifts the sinus membrane while drilling
- Unique Stopper system that prevents over drilling into the sinus cavity
- Hydraulic Lift System that easily & safely lifts the membrane
- Bone Carrier System for transferring and filling bone material
- Bone Spreading System for spreading & compacting bone material
- Simple and intuitive surgical system
- The ability to combine Osteotome in surgery

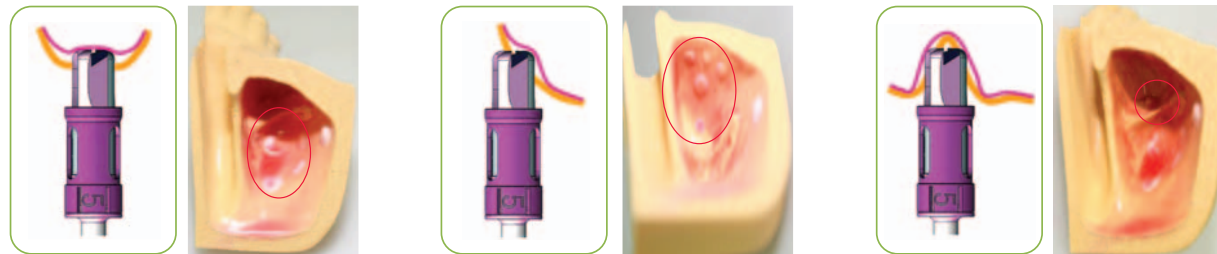


CAS-Drill SPECIFICATIONS & PERFORMANCE

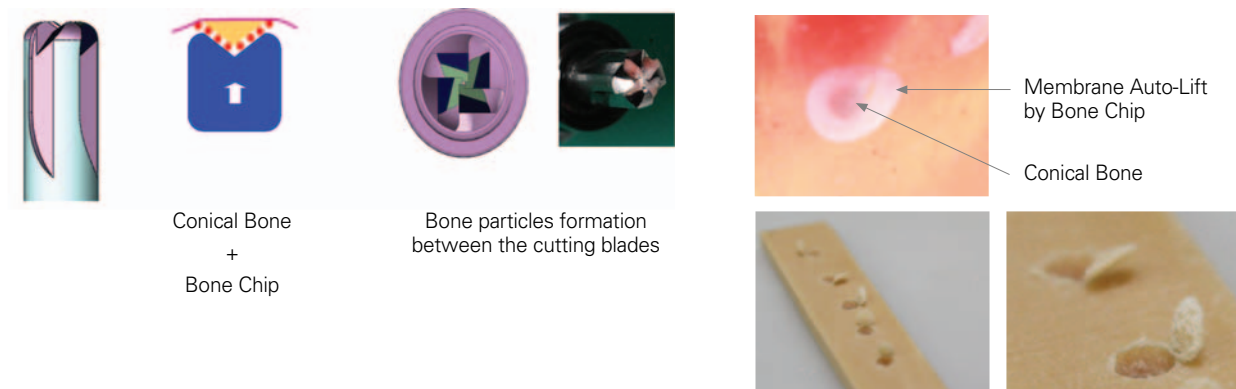
- The CAS-Drill is designed to safely and rapidly lift the maxillary sinus membrane from a crestal approach. The CAS-Drill can be used for either general-straight or tapered fixtures. It is optimized for insertion torque, initial fixation strength, and tactile feedback when using Hiossen's HG III & OSSTEM's GS / TS III Fixtures.

The CAS-Drill:

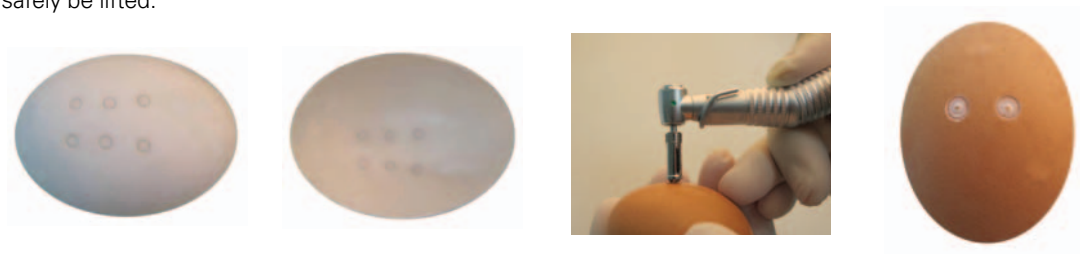
- The atraumatic design of the drill tip allows the user to perform sinus surgery even if the sinus floor is flat, incline, or septum.



- Its design forms conical bone and bone chips.
- The CAS-Drill tip has an inverse conical shape. This shape will form a conical bone chip when drilling, which assists with safely lifting the membrane. In addition, bone particles generated when drilling discharge upwards, producing a Membrane Auto-Lift function.

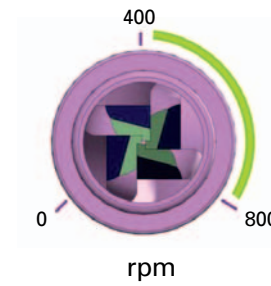


- Membrane can safely be lifted.



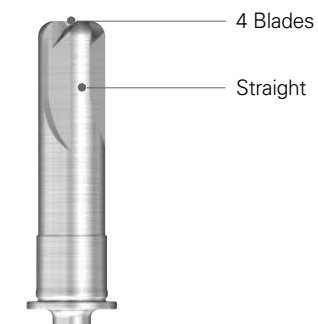
The CAS-Drill can:

- Drilling can be done at various speeds, from low to high speed (800rpm), allowing flexibility during surgery.

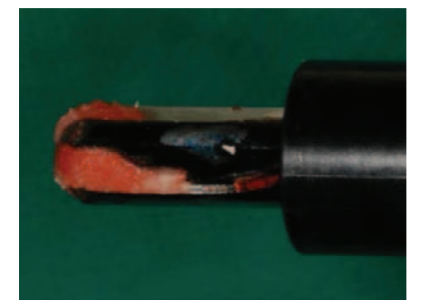


Guide : 400 ~ 800 rpm
However, 400 to 600rpm is recommended for first time users.

- The drill is designed with four blades which reduce deflecting off of the bone, and the straight sides dampen vibrations.



- Extraction of bone particles (at low speed of ~50rpm).



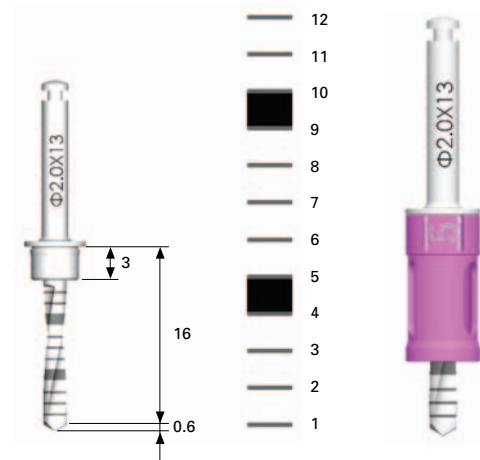
- Generally, the CAS-Drill can be used up to 50 times.

The number of uses may vary depending on the type of bone.

● Components

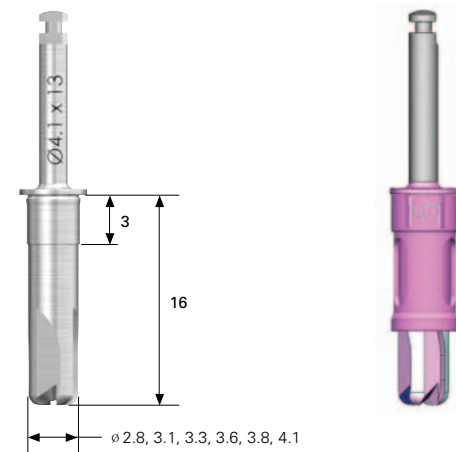
1) ϕ 2.0 Twist Drill

- The drill tip is 0.6mm and is 13mm long.
- Recommended drill speed: 1000~1500 RPM (Water Infusion + Pumping)
- 1mm spaced markers with wide bands at 4~5, 9~10
- Unique Stopper system
- It is recommended to stop drilling when there is about 2mm of bone left, please calculate this beforehand when using CT images as a guide.



2) CAS-Drill

- Comes in six (6) diameters: ϕ 2.8 / ϕ 3.1 / ϕ 3.3 / ϕ 3.6 / ϕ 3.8 / ϕ 4.1
- Allows a 13mm Fixture to be implanted
- Drilling is dependent upon the fixture diameter and the how far the fixture protrudes into the maxillary cavity.
- Drilling speed ranges from low speed to high speed (800rpm)
Experienced: 800rpm; Beginner: 400 to 600rpm is recommended (Water Infusion + Pumping)
- Unique Stopper system



■ An example of a CAS-Drill dependence on the Hiossen's HG III & OSSTEM's GS / TS III Fixture diameter and protrusion height - Fixture protrusion height (mm)

Fixture	HG III, GS / TS III F ϕ 4.0		HG III, GS / TS III F ϕ 4.5		HG III, GS / TS III F ϕ 5.0	
	0~3	3~6	0~3	3~6	0~3	3~6
	ϕ 2.8	ϕ 3.1	ϕ 3.3	ϕ 3.6	ϕ 3.8	ϕ 4.1
CAS-Drill						
Code	SNDR2813T	SNDR3113T	SNDR3313T	SNDR3613T	SNDR3813T	SNDR4113T

● Components

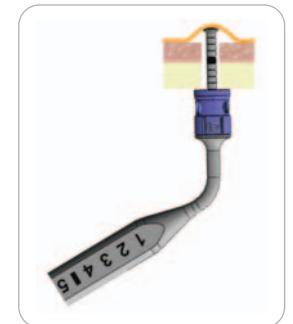
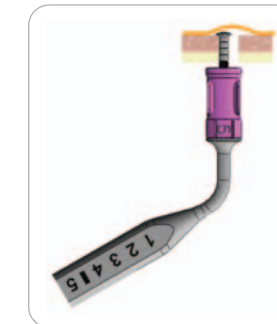
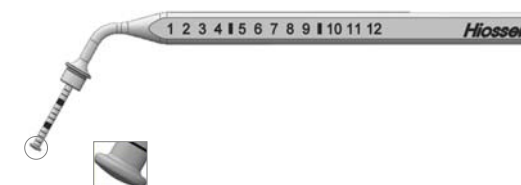
3) Stopper System

- A total of eleven (11) stoppers; labeled 2 to 12mm
- Labels indicate the remaining length of the drill (from drill tip to stopper top)
- Each stopper is anodized and color coded. Labels are laser etched.



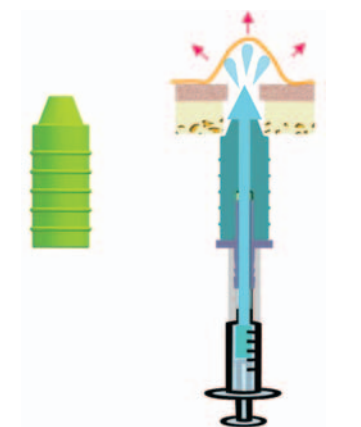
4) Depth Gauge

- Measures the thickness of the remaining bone
- The atraumatic tip can be used to confirm membrane lifting
- Can be used with the Stopper system
- **Caution: Do not use the Depth Gauge to lift membrane beyond 1mm.**



5) Hydraulic Lifter

- The Hydraulic Lifter uses normal saline to raise the membrane
- **Infuse 1cc with a syringe**
- Required volume of saline
To expand 3mm of the membrane, generally 0.2 to 0.3cc of saline is injected. Inject saline very SLOWLY.
- **Contraindication**
 - Not recommended for patients with inflammation of the maxillary Sinus (Sinusitis)
 - Not recommended for patients with complex morphology of the sinus floor (including the septum)

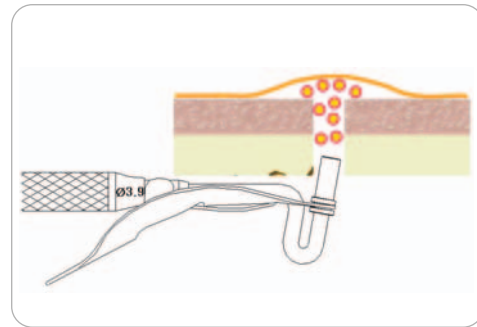


6) Bone Carrier

- Transplanting bone material to the grafting site
- Has dual diameters: $\varnothing 3.5$ and $\varnothing 3.9$

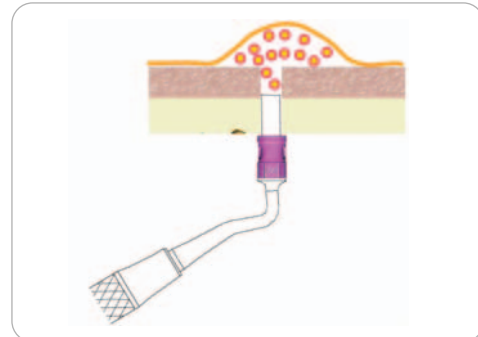
※ Bone graft material and filler (for reference)

Herry Y and Lee DY, 2005	
Lift heigh	Volume of bone matrix
3mm	0.36cc
4mm	0.5cc
5mm	0.7cc
6mm	0.9cc



7) Bone Condenser

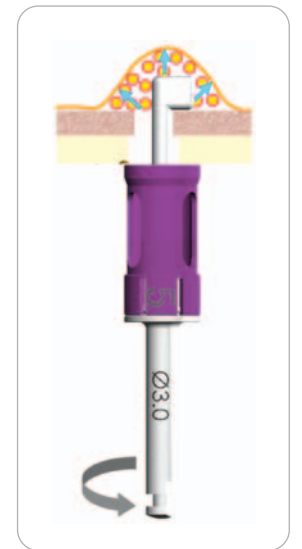
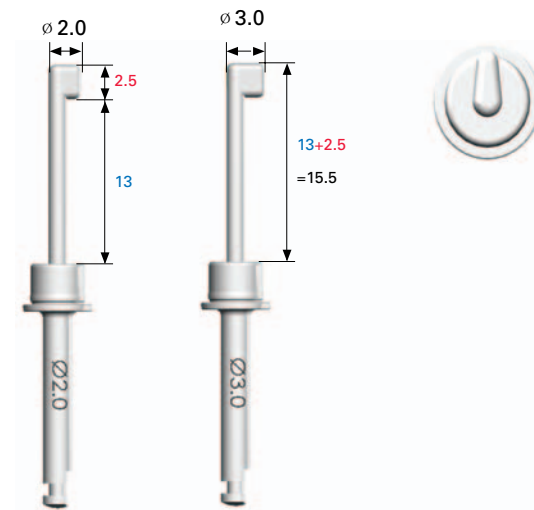
- Assists compacting bone grafting material
- Has dual diameters: $\varnothing 2.3$ and $\varnothing 3.3$
- Can be used with the Stopper system
- Wide banded markers at 4-5 and 9-10mm
- Can also be used to confirm membrane lifting after using the CAS-Drill



Components

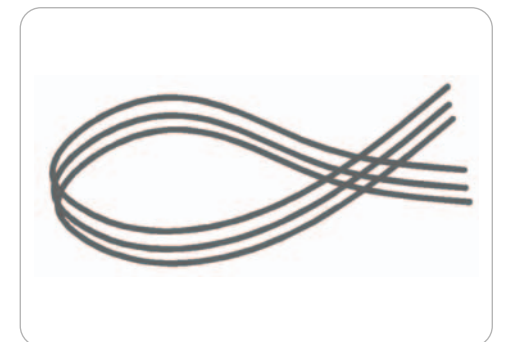
8) Bone Spreader

- Evenly spreads bone material after transplanting bone material to the site.
- After injecting 0.2 to 0.3cc use the spreader and add additional material
- Use at lower speeds: ~ 30 rpm is recommended
- Comes in two diameters: $\varnothing 2.0$ / $\varnothing 3.0$
- Can be used with the Stopper feature
- The total length (head tip to stopper hilt) is 2.5mm longer other CAS-KIT tools
- Caution: When equipping this tool remember that the length is 2.5mm longer.



9) Hydraulic Lifter Tube

- Used with a syringe
- Reusable, sterilize in an autoclave.



● Clinical Indications & Case Study

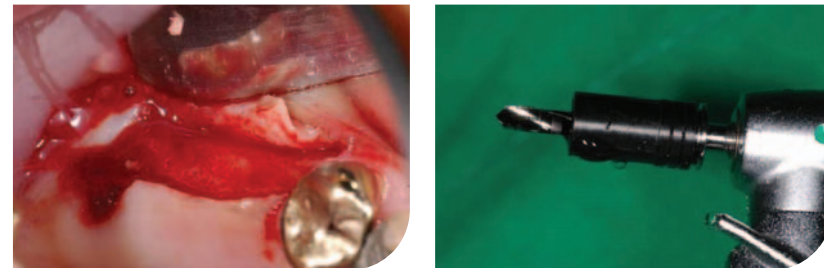
1) #26, #27 Septum Case (F/36)

*Data source from: Professor Kim Gyeong-won from Chungbuk National Univ. Hospital

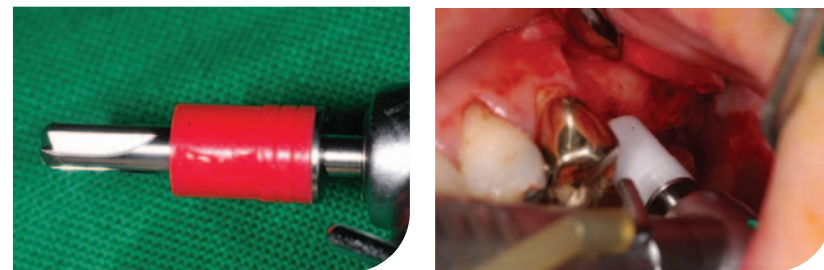
- #26 Septum Case
- The membrane is lifted 4~5mm and the remaining bone is about 5mm
- #26 GSII ϕ 4.0 x 10mm
- #27 GSII ϕ 4.5 x 10mm were implanted



- ϕ 2.0 Twist Drill
- Using a 3.0mm Stopper with the 2.0 Twist Drill, we are able to drill 3mm into the bone, confidently leaving 2mm of bone.



- ϕ 2.8 \rightarrow ϕ 3.1 CAS-Drill (800rpm)
- A 5mm Stopper is used for the final drilling and lifting of the membrane.



- Membrane safely lifted
- A conical bone chip is formed and pushes up the membrane, with the assistance of bone particles formed during drilling.



● Clinical Indications & Case Study

1) #26, #27 Septum Case

- Depth Gauge
- Confirm membrane lifting and measuring the bone thickness



- Membrane Lift
- The membrane is lifted by slowly injecting 0.30cc of saline solution using a 1cc syringe



- Bone Carrier
- Osteoss Bone Powder 0.25cc is transplanted
- A mix of Cortical 50%: Cancellous 50%



- Bone Condenser
- Vertical compacting of the bone grafting material

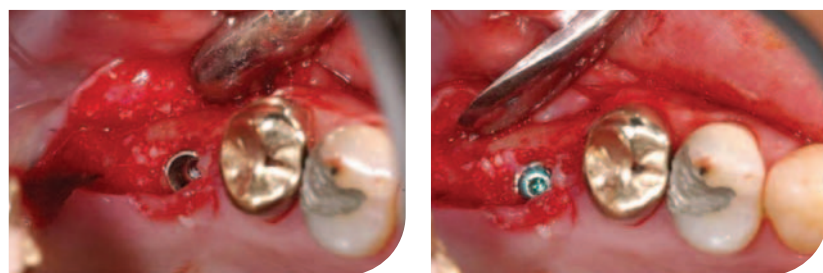
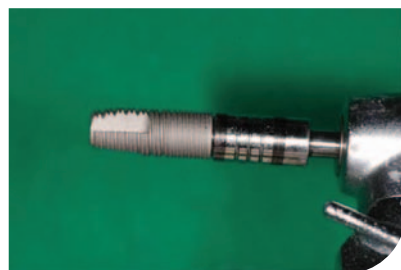


- Bone Spreader
- Evenly spread the bone grafting material at 10rpm of rotational speed

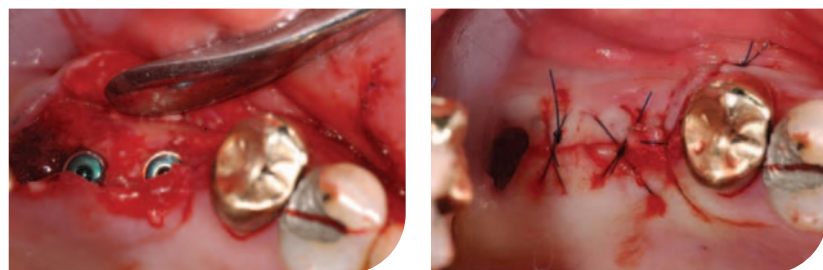


1) #26, #27 Septum Case

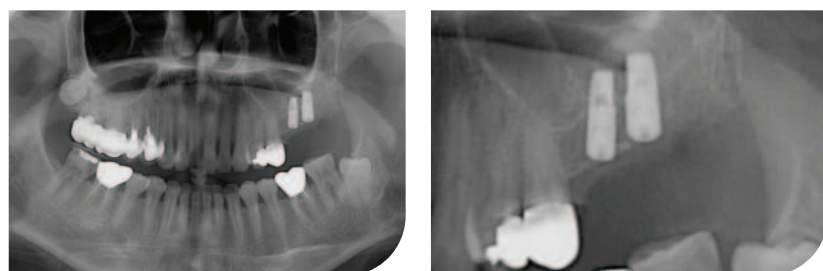
- Fixture implantation
#26 GSII ϕ 4.0 x 10mm implanted using 20 to 30Ncm



- Fixture implantation
#27 GSII ϕ 4.5 x 10mm implanted using 20 to 30Ncm



- Results
#26, #27 Missing, a case with 6mm of bone remaining



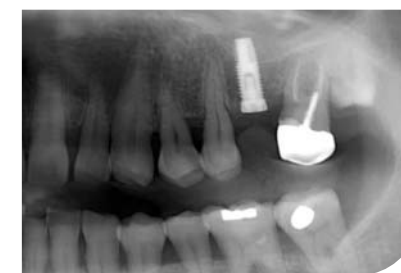
Even though there was a Septum at #26, fixture implantation was successfully completed using the CAS-KIT to safely lift the membrane and establishing a secure implant site.

Clinical Indications & Case Study

2) #26 Missing Case

*Data source from: Dr. So, Gwang-seup; Mirae Dental Clinic

- USII ϕ 4.0 x 11.5mm implant planning
 - Initiated using a ϕ 2.0 Twist Drill
 - CAS-Drill at 800rpm
 - Membrane lifted with 0.25cc of saline solution
 - Bone Condenser 4~5mm lifting
 - Bone Spreader at 10rpm
 - Initial fixation force 36Ncm



3) #25 Hydraulic Lift Case

*Data source from: Dr. Jung, Gi-don; Bright Smile Dental Clinic

- TSIII ϕ 4.5 x 10mm implant planning
 - Initiated using a ϕ 2.0 Twist Drill
 - CAS-Drill at 800rpm
 - Membrane lifted with 0.30cc of saline solution
 - Bone Condenser: 4mm lifting
 - Bone Spreader at 30rpm



Surgical Procedure

The CAS-Drill design is optimized for Hiossen's HG III & OSSTEM's GS / TS III Fixtures. Use the matrix below to prepare for surgery. There are a few things that need to be taken into consideration; the diameter of the fixture, the height of the fixture apex protruding into the sinus floor, and the necessary force for a stable fixture. In the case of a general straight type fixture, use a CAS-Drill that is 1mm smaller in diameter than that of the fixture.

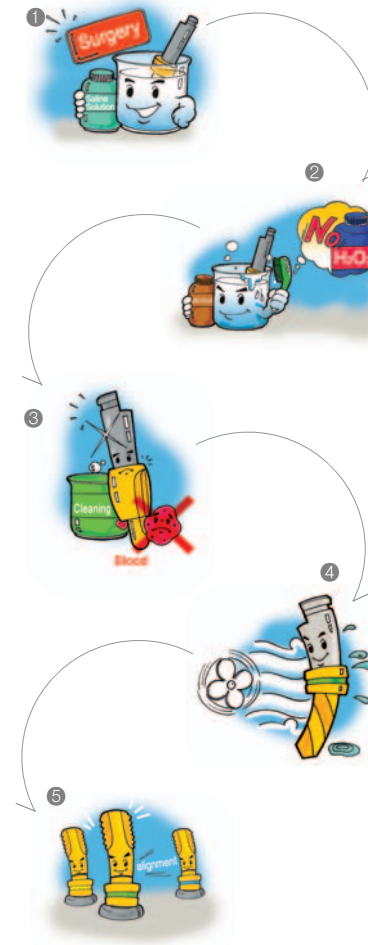
● : Required ● : Optional

Fixture selection	Twist Drill	CAS-Drill						Hydraulic Lift & Bone Condensing					CAS-Drill	
		F \varnothing 4.0		F \varnothing 4.5		F \varnothing 5.0		Depth Gauge	Hydraulic Lifter	Bone Carrier	Bone Condenser	Bone Spreader		Final
Diameter(\varnothing)	Fixture protruding height	\varnothing 2.0	\varnothing 2.8	\varnothing 3.1	\varnothing 3.3	\varnothing 3.6	\varnothing 3.8	\varnothing 4.1						
F \varnothing 4.0	0-3 mm	●	●						●	●	●	●	●	● \varnothing 3.3
	3-6 mm	●	●	●					●	●	●	●	●	-
F \varnothing 4.5	0-3 mm	●	●		●				●	●	●	●	●	● \varnothing 3.8
	3-6 mm	●	●	●		●			●	●	●	●	●	-
F \varnothing 5.0	0-3 mm	●	●		●		●		●	●	●	●	●	● \varnothing 4.1
	3-6 mm	●	●	●		●		●	●	●	●	●	●	-

CAS-KIT



CAS-KIT Care & Maintenance



① Prepare tools for surgery by soaking them in a "saline solution" or in "distilled water."

② After surgery: All tools should be soaked in an "alcohol solution".
Caution
 - Avoid using Hydrogen Peroxide.
 - Hydrogen Peroxide will discolor laser markings and anodized surfaces.

③ Tools should be cleaned thoroughly with distilled or tap water to wash away any remaining blood and foreign material.

④ Completely dry all tools using a dry cloth or warm air.

⑤ Dried tools should be stored in the KIT case.
 (Please refer to the color coding when placing the tools back in the case)

⑥ After placing all the tools back into the kit, dry the entire kit in an Autoclave (132°C for 15 minutes) and then store the kit at room temperature.

NOTES:

It is recommended to re-sterilize the surgical KIT right before surgery. (132°C; for 15 minutes)

Immediately after surgery, all the tools should be cleaned and stored.

The CAS-KIT has a one year warranty on all parts & case.

The recommended usage of the drills is 50 times.