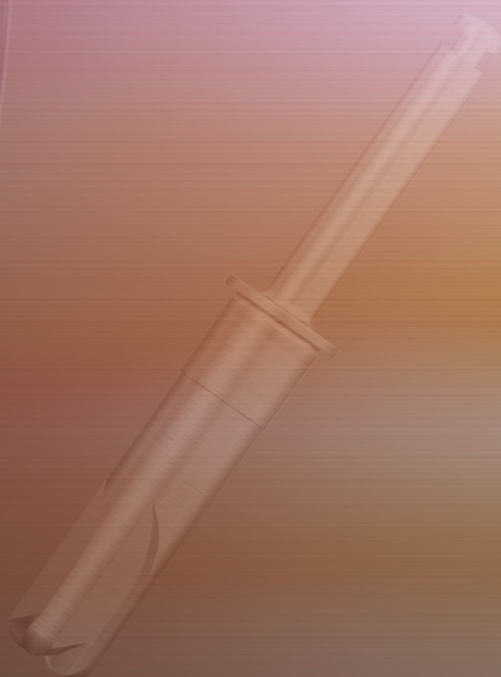
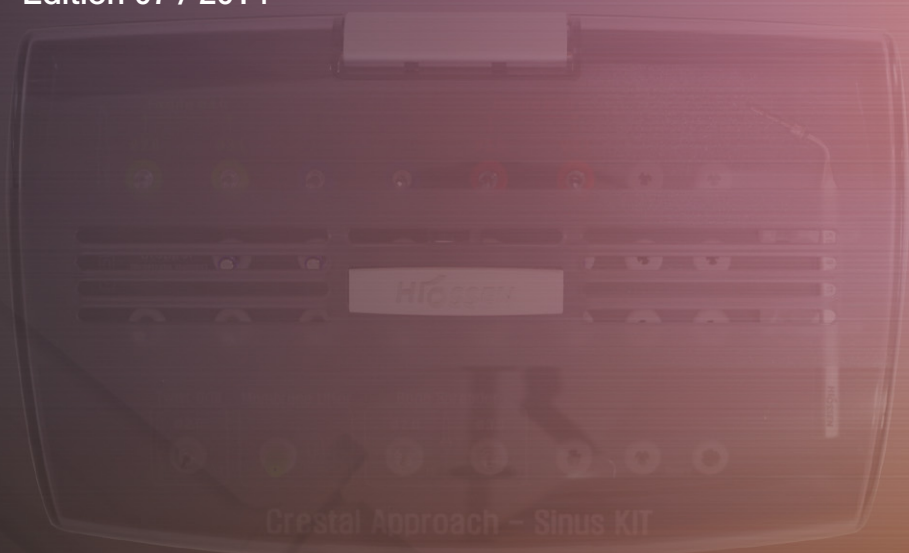


Crestal Approach - Sinus KIT

CAS-KIT / CAS-KIT Plus

Edition 07 / 2014



HIOSSEN

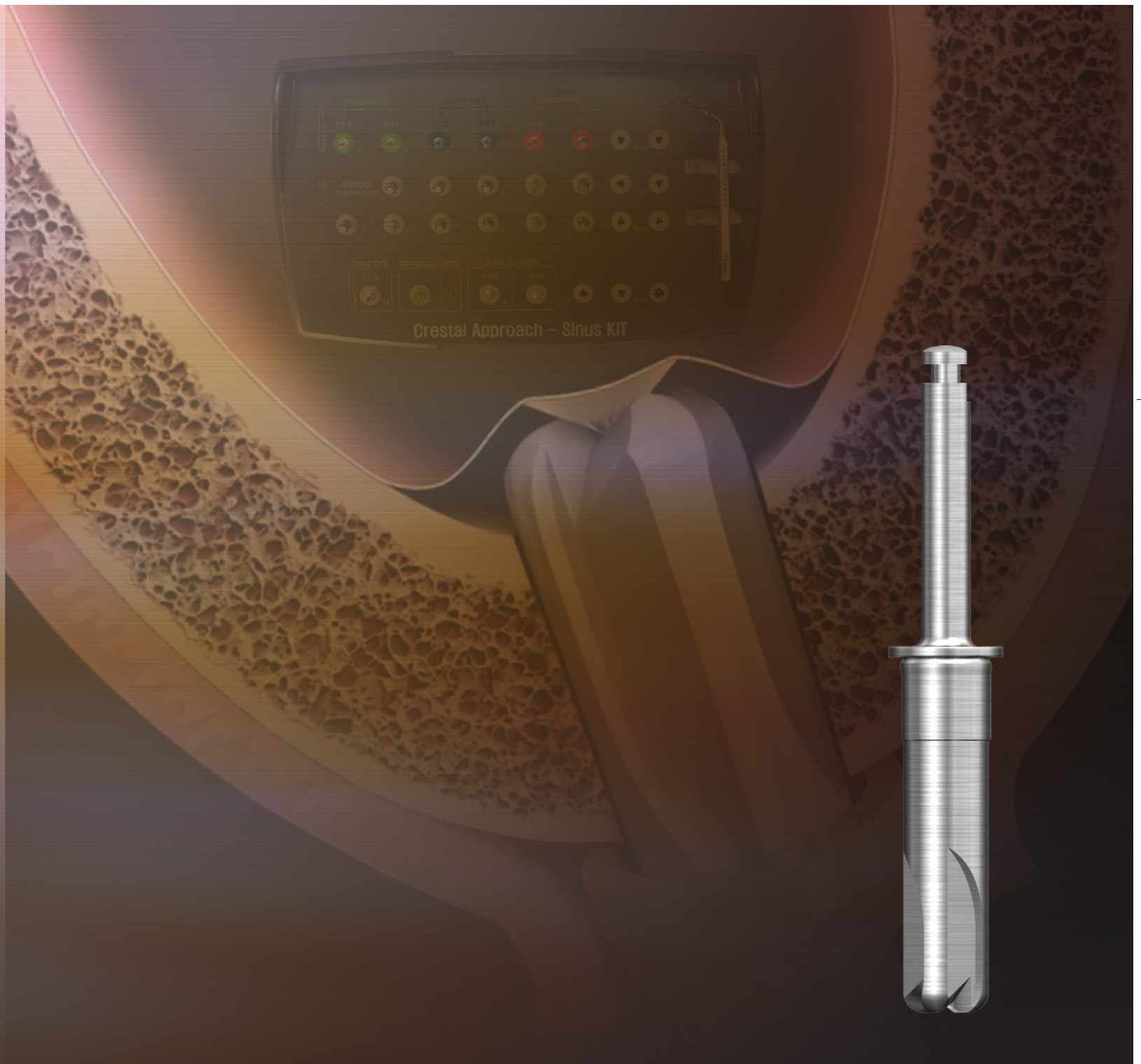
HIOSSEN Inc. www.hiossen.com
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Crestal Approach - Sinus KIT

CAS-KIT / CAS-KIT Plus

No Fear of Membrane Perforation!



Crestal Approach - Sinus KIT

CAS-KIT/CAS-KIT Plus

(Crestal Approach - Sinus KIT)

Contents

- 1 Introduction
- 2 CAS-KIT Feature
- 3 CAS-Drill Specifications & Performance
- 4 Components
- 5 Clinical Indications & Case Study
- 6 Surgical Procedures
- 7 Others

HIOSSEN CAS-KIT / CAS-KIT Plus

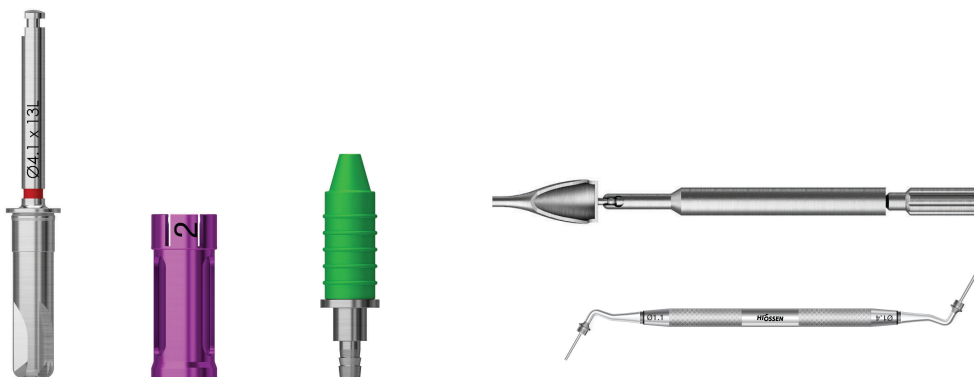
● Introduction

- 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
- New Bone Carrier System for transferring & filling bone graft materials
- Simple and intuitive surgical system
- The ability to combine Osteotome in surgery

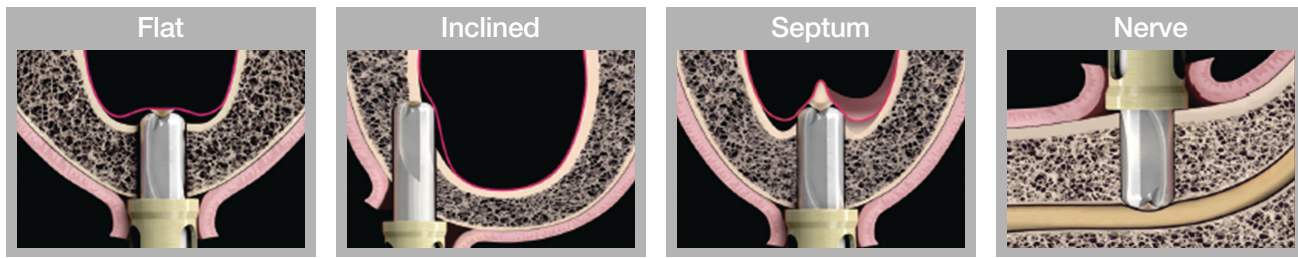


CAS-Drill SPECIFICATIONS & PERFORMANCE

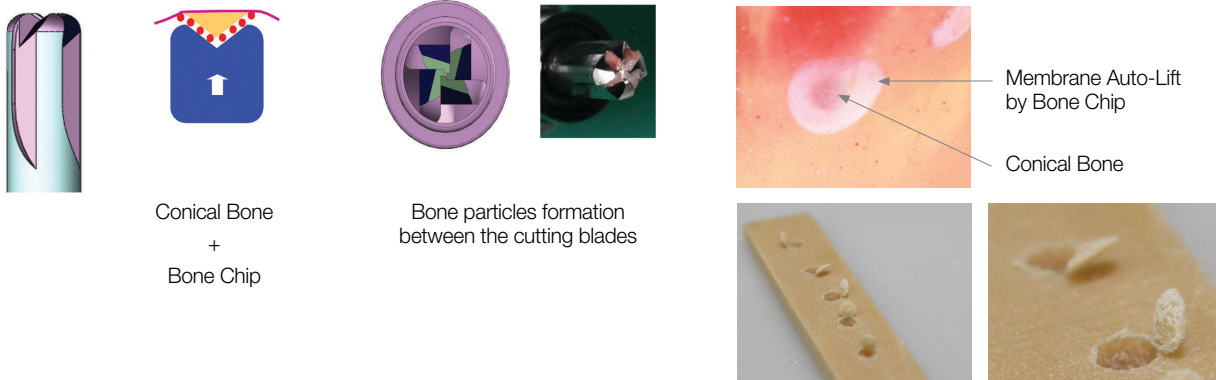
- The CAS-Drill is designed to safely and rapidly lift the maxillary sinus membrane from a crestal approach. The CAS-Drill can be used for either general-straight or tapered fixtures. It is optimized for insertion torque, initial fixation strength, and tactile feedback when using Hiossen's HG III & OSSTEM's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

The CAS-Drill:

- CAS Drill forms a conical bone barrier, protecting the membrane.
- The atraumatic design of the drill tip allows the user to perform sinus surgery even if the sinus floor is flat, inclined or septum & Inferior alveolar canal.



- 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.



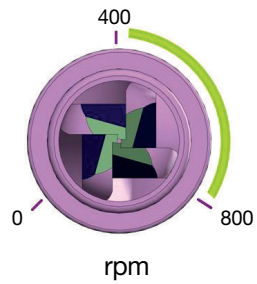
- Membrane can safely be lifted.



CAS-KIT / CAS-KIT Plus

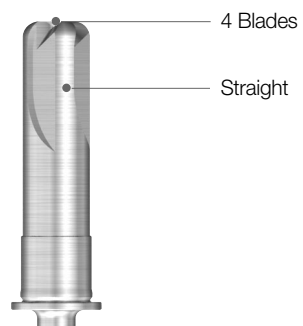
The CAS-Drill can:

- 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.

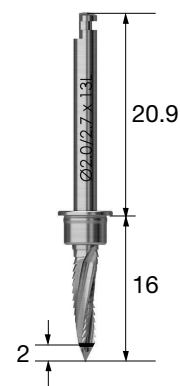
The number of uses may vary depending on the type of bone.

HIOSSEN CAS-KIT / CAS-KIT Plus

● Components

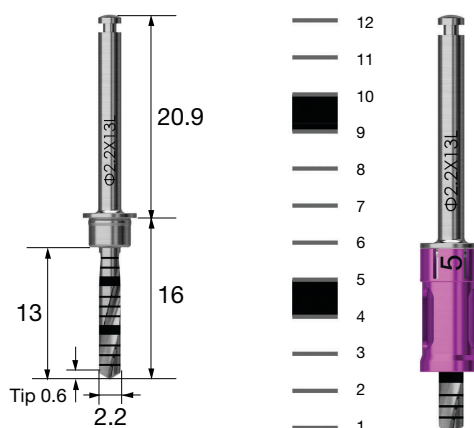
1) $\varnothing$ 2.0 Guide Drill

- Marking drill to mark fixture insertion location
- Used to remove side wall of tooth extraction with its side blade formation
- Marking on apex at 2mm



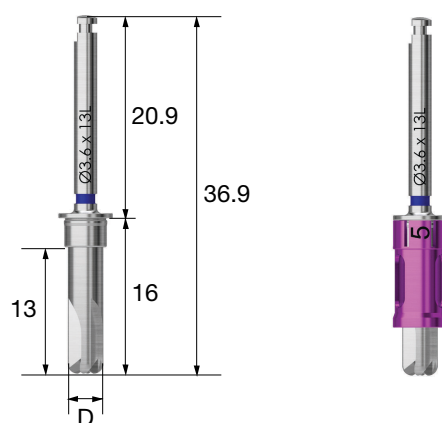
2) $\varnothing$ 2.2 Twist Drill

- The drill tip is 0.6mm and is 13mm long.
- Recommended drill speed: 1000~1500 RPM
Irrigation with saline solution
- 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 or radiograph as a guide



3) CAS-Drill

- Comes in six (6) diameters: $\varnothing$ 2.8 / $\varnothing$ 3.1 / $\varnothing$ 3.3 / $\varnothing$ 3.6 / $\varnothing$ 3.8 / $\varnothing$ 4.1
- Allows a 13mm Fixture to be implanted
- Drilling is dependent upon the Fixture diameter and the bone density
- Drilling speed ranges from low speed to high speed (800rpm)
Experienced: 800rpm; Beginner: 400 to 600rpm is recommended
Irrigation with saline solution



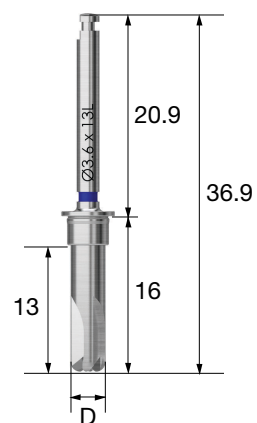
CAS-KIT / CAS-KIT Plus

CAS-KIT (HCRSNK)

CAS-Drill

- When operating on maxillary sinus, forms conical bone lid and augments membrane safely
- Superior bone removing capability from low speed to high speed, harvesting autogenous bone on low speed
- Safely advance to the floor of sinus with stoppers (1mm increment)
- Final drill diameter selected according to fixture diameter and bone density, independently of straight or tapered fixture type

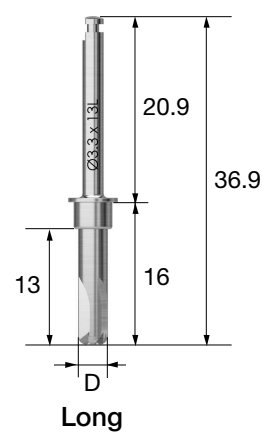
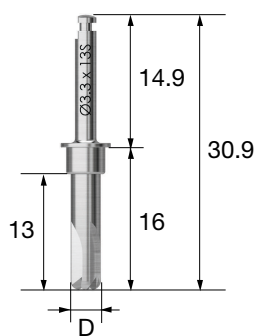
D	Ø2.8	Ø3.1	Ø3.3	Ø3.6	Ø3.8	Ø4.1
	SNDR2813TL	SNDR3113TL	SNDR3313TL	SNDR3613TL	SNDR3813TL	SNDR4113TL



CAS-KIT Plus (HCRSNKP)

CAS-Drill

- CAS-KIT plus includes short CAS-Drills in the original CAS- KIT



L \ D	Ø2.8	Ø3.1	Ø3.3	Ø3.6	Ø3.8	Ø4.1
Short	SNDR2813TS	SNDR3113TS	SNDR3313TS	SNDR3613TS	SNDR3813TS	SNDR4113TS
Long	SNDR2813TL	SNDR3113TL	SNDR3313TL	SNDR3613TL	SNDR3813TL	SNDR4113TL

HIOSSEN CAS-KIT / CAS-KIT Plus

● Components

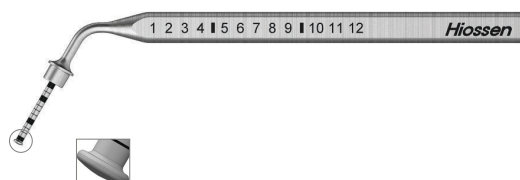
4) Stopper System

- 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 marking

L	2	3	4	5	6	7	8	9	10	11	12
											
	SNST2	SNST3	SNST4	SNST5	SNST6	SNST7	SNST8	SNST9	SNST10	SNST11	SNST12
Color	Purple	Blue	Yellow	Purple	Blue	Yellow	Purple	Blue	Yellow	Purple	Blue

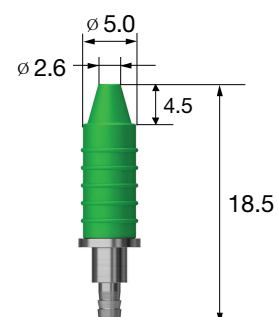
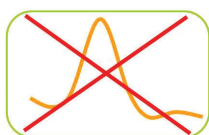
5) Depth Gauge

- 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.**



6) Hydraulic Lifter

- The Hydraulic Lifter uses normal saline to raise the membrane
- **Infuse 1cc or 3cc with a syringe**
- Required volume of saline solution
To expand 3mm of the membrane, generally 0.2 to 0.3cc of saline solution is injected. Inject saline solution 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)



CAS-KIT / CAS-KIT Plus

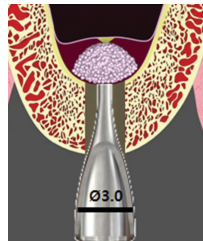
7) Bone Carrier

- Used to fill bone graft materials inside sinus cavity
- Fixes head part by tightening the back of body part
- Head(SNBCH30 or SNBCH35) can be replaced

※ Bone graft material and filler (for reference)

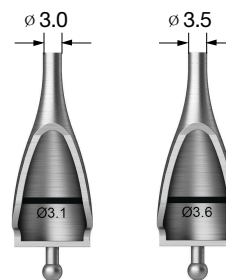
Herry Y and Lee DY, 2005	
Lift heigh	Volume of bone matrix
3mm	0.36cc
4mm	0.5cc
5mm	0.7cc
6mm	0.9cc

SNBCH35



8) Bone Carrier Head

- Used to fill bone graft materials inside sinus cavity
- SNBCH30: Use after drilling with CAS-drill $\varnothing 3.1 / \varnothing 3.3$
- SNBCH35: Use after drilling with CAS-drill $\varnothing 3.6 / \varnothing 3.8 / \varnothing 4.1$
- Fill in bone material to the back of marking line on head part, separate gradually with bone condenser to fill inside of sinus completely, and repeat the procedure



D Ø3.1 Ø3.6

SNBCH30

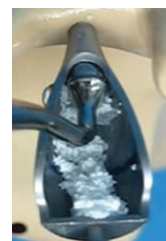
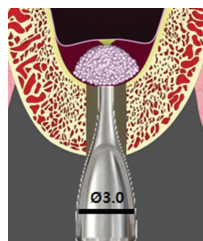
SNBCH35

9) Bone Condenser

- Tool to push in when filling bone materials inside sinus cavity
- SNBCH30: Uses $\varnothing 1.1$ / SNBCH35 : Uses $\varnothing 1.4$

D Ø1.1 / 1.4

SNBC1114



HIOSEN CAS-KIT / CAS-KIT Plus

● Components

10) Hydraulic Membrane Lifter Tube

- Connect to hydraulic membrane lifter



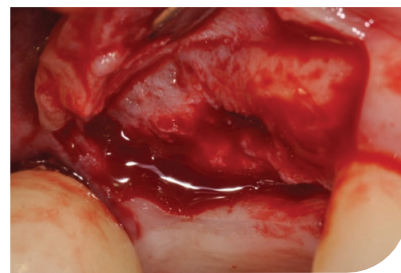
● Clinical Indications & Case Study

1) Single molar missing case

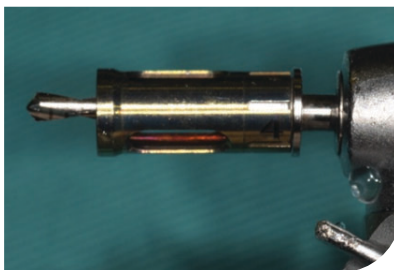
Data source : Apsun dental clinic, Dr. Y.S. Cho



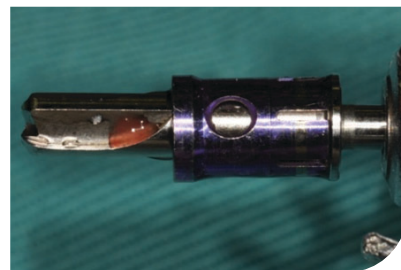
Missing of right 1st molar



Flap elevated



Ø 2.2 twist drill
with 4.0 mm stopper



Ø 3.6 CAS drill
with 8.0 mm stopper



Depth gauge
with 9.0 mm stopper



Sinus floor was passed

● Clinical Indications & Case Study

1) Single molar missing case



Hydraulic membrane lifter



Membrane safely elevation using the Hydraulic membrane lift system



New bone carrier and bone condenser



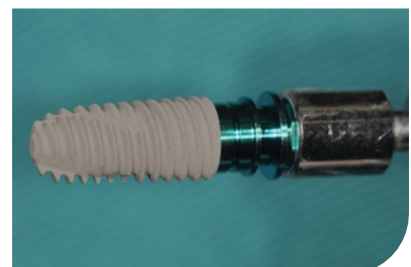
Q-Oss+ 0.25g



Bone grafting into the sinus



Finished bone grafting

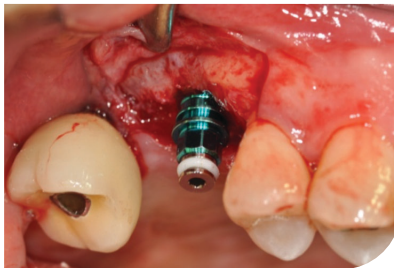


TSIII SA ϕ 4.5x10.0mm

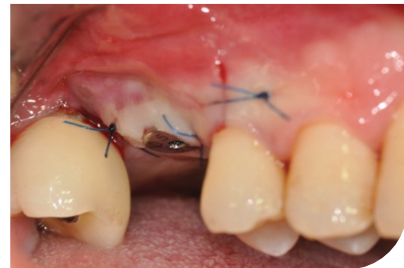
HÖSSEN CAS-KIT / CAS-KIT Plus

● Clinical Indications & Case Study

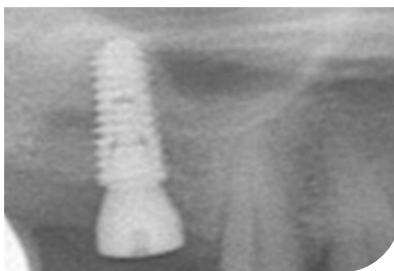
1) Single molar missing case



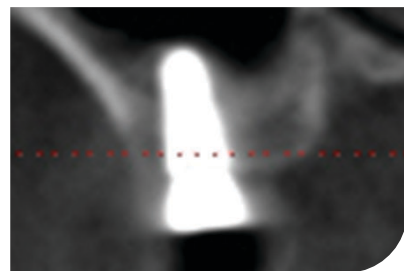
14Ncm, ISQ:66/66



ø 5.0 Healing abutment connection



POP Radiography



POP CT view

● Clinical Indications & Case Study

2) #26 Missing Case

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

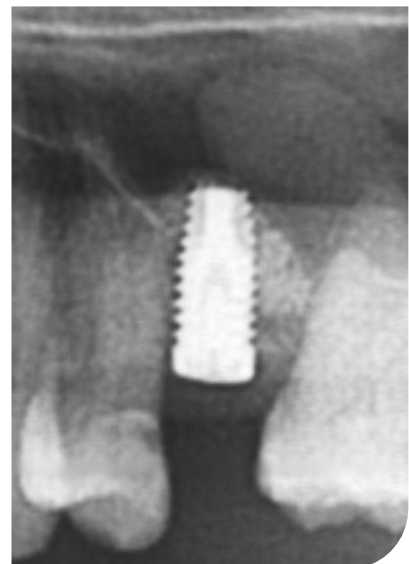
- USII $\varnothing 4.0 \times 11.5\text{mm}$ implant planning
 - Initiated using a $\varnothing 2.0$ Twist Drill
 - CAS-Drill at 800rpm
 - Membrane lifted with 0.25cc of saline solution
 - Bone Condenser 4~5mm lifting
 - Bone Spreader at 10rpm
 - Initial fixation force 36Ncm



3) #25 Hydraulic Lift Case

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

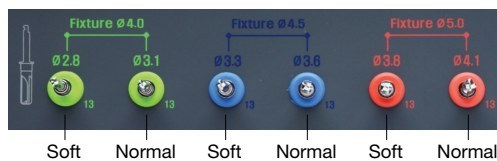
- TSIII $\varnothing 4.5 \times 10\text{mm}$ implant planning
 - Initiated using a $\varnothing 2.0$ Twist Drill
 - CAS-Drill at 800rpm
 - Membrane lifted with 0.30cc of saline solution
 - Bone Condenser: 4mm lifting
 - Bone Spreader at 30rpm



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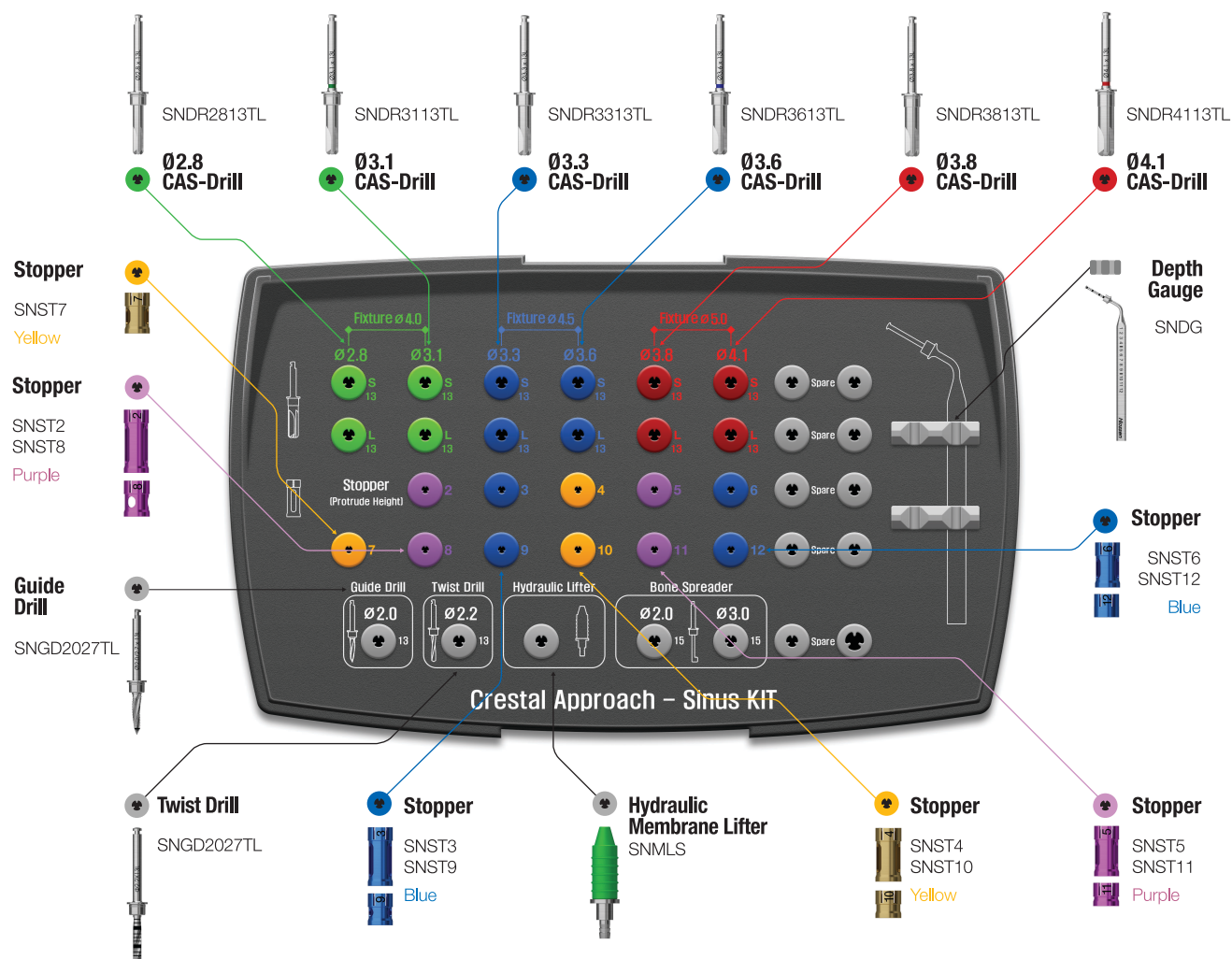
● Surgical procedure

- 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, Bone density 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.



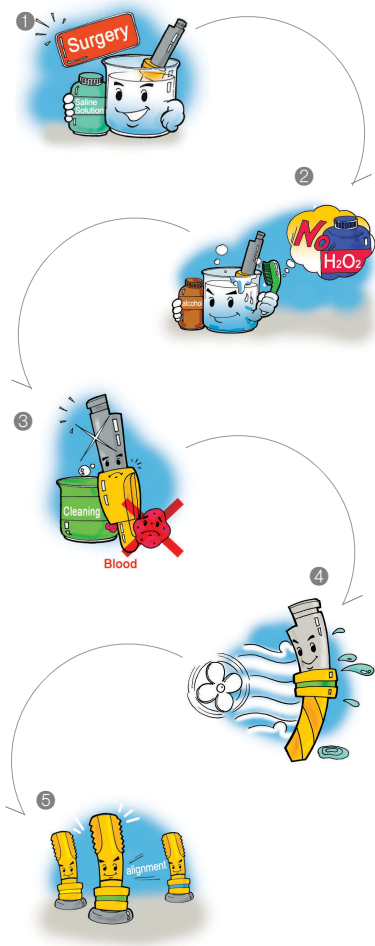
►: Required ►: Optional

Implant Selection		Guide Drill	Twist Drill	CAS-Drill						Depth gauge	Hydraulic Memb. Lifter	Bone carrier	Bone condensor
F(φ)	Bone Density	φ 2.0/2.7	φ 2.2	φ 2.8	φ 3.1	φ 3.3	φ 3.6	φ 3.8	φ 4.1				
φ 4.0	Soft	►	►	►						►	►	►	►
φ 4.5		►	►	►		►				►	►	►	►
φ 5.0		►	►	►				►		►	►	►	►
φ 4.0	Normal	►	►		►					►	►	►	►
φ 4.5		►	►		►		►			►	►	►	►
φ 5.0		►	►		►				►	►	►	►	►



Instruction for Use

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”.



- 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.