



Crestal Approach - Sinus KIT

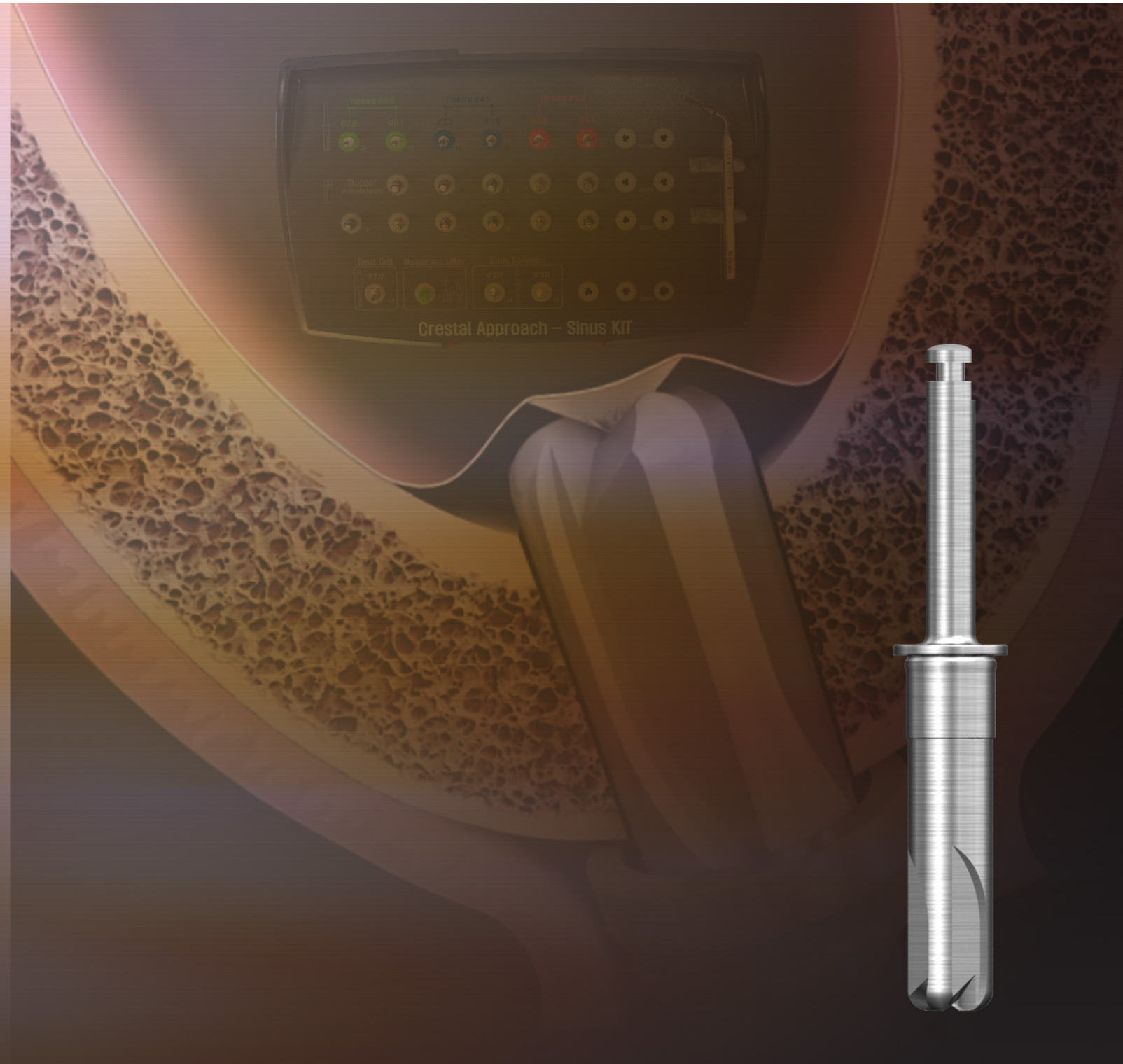
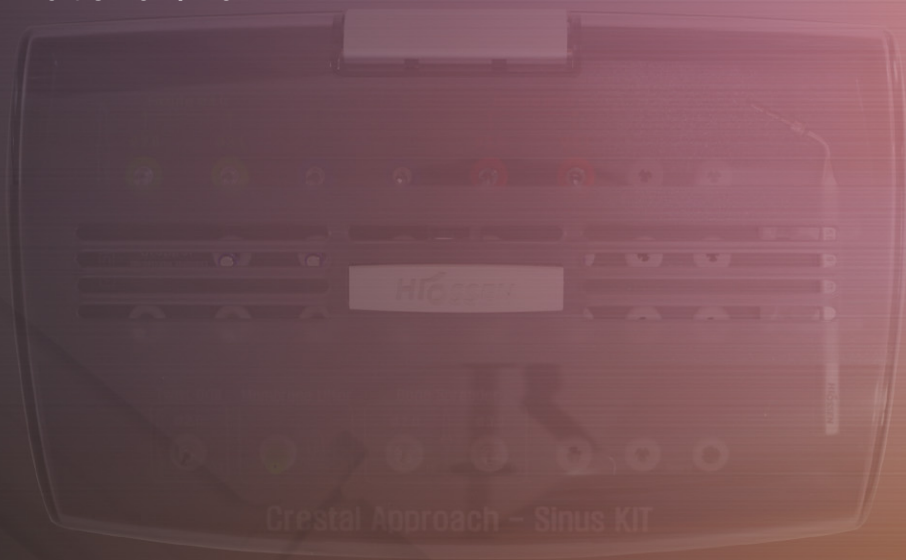
# CAS-KIT / CAS-KIT Plus

Crestal Approach - Sinus KIT

# CAS-KIT / CAS-KIT Plus

No Fear of Membrane Perforation!

Edition 07 / 2014



# CAS-KIT/CAS-KIT Plus

(Crestal Approach - Sinus KIT)

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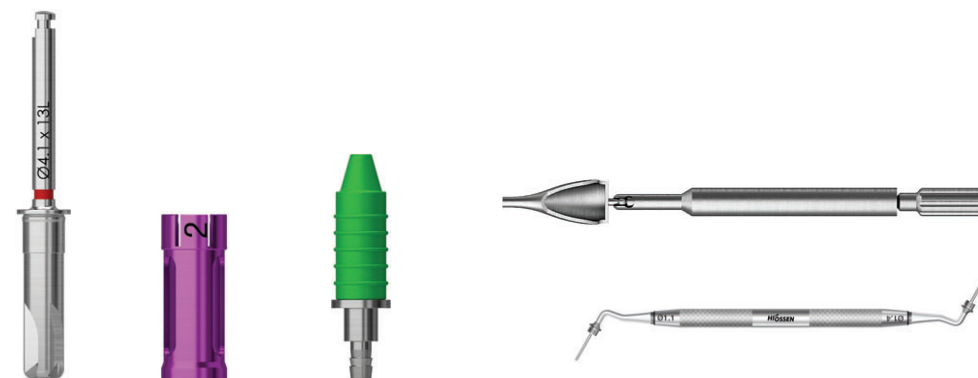
## ● Introduction ↙

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

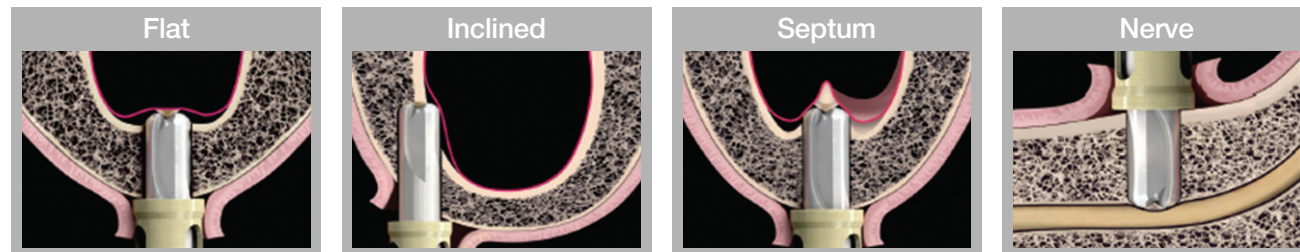


## CAS-Drill SPECIFICATIONS & PERFORMANCE

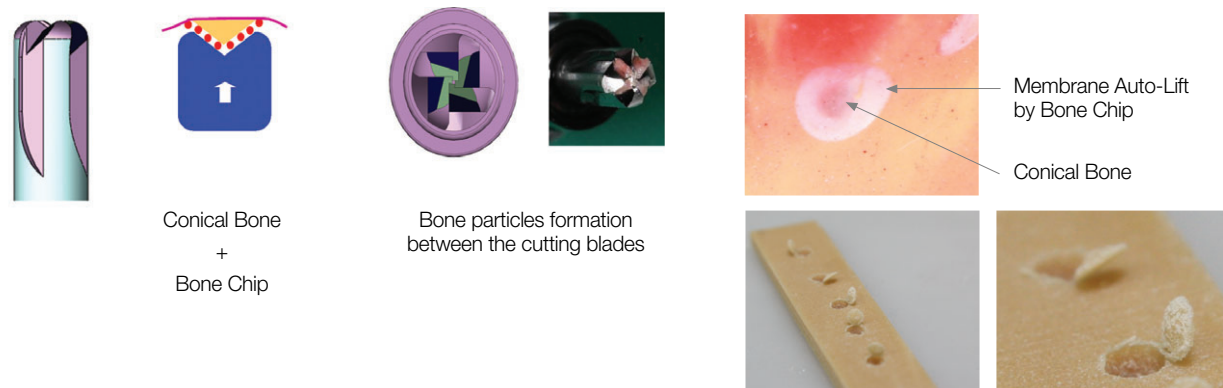
- The CAS-Drill is designed to safely and rapidly lift the maxillary sinus membrane from a crestal approach. The CAS-Drill can be used for either general-straight or tapered fixtures. It is optimized for insertion torque, initial fixation strength, and tactile feedback when using Hiossen's HG III & OSSTEM's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

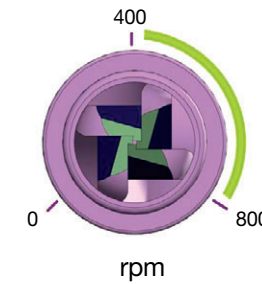


- Membrane can safely be lifted.



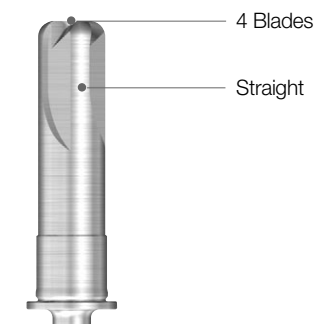
### The CAS-Drill can:

- 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).



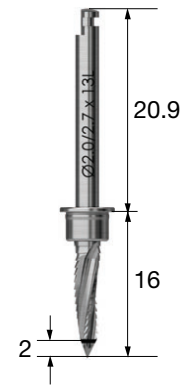
- Generally, the CAS-Drill can be used up to 50 times.

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

## ● Components

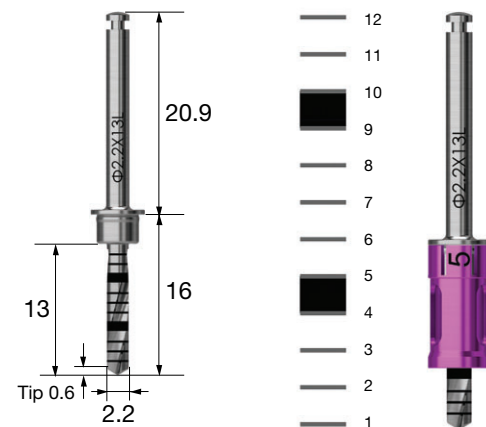
### 1) $\varnothing$ 2.0 Guide Drill

- 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



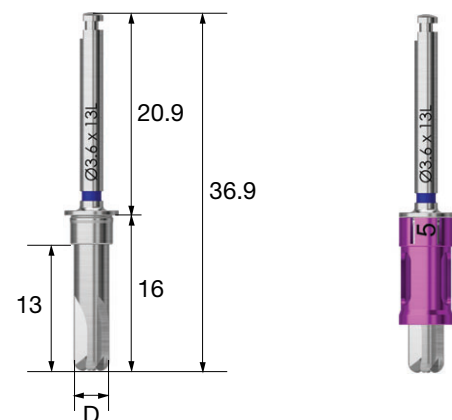
### 2) $\varnothing$ 2.2 Twist Drill

- 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

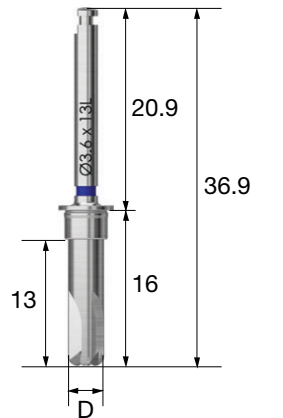


## CAS-KIT (HCRSNK)

### 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

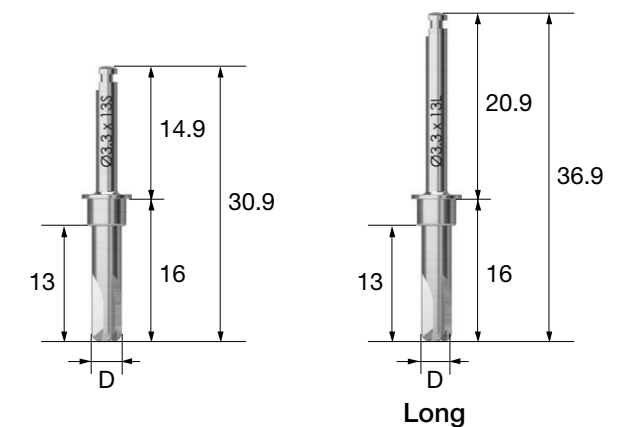
| D | $\varnothing$ 2.8 | $\varnothing$ 3.1 | $\varnothing$ 3.3 | $\varnothing$ 3.6 | $\varnothing$ 3.8 | $\varnothing$ 4.1 |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|   | SNDR2813TL        | SNDR3113TL        | SNDR3313TL        | SNDR3613TL        | SNDR3813TL        | SNDR4113TL        |



## CAS-KIT Plus (HCRSNKP)

### CAS-Drill

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



| L \ D | $\varnothing$ 2.8 | $\varnothing$ 3.1 | $\varnothing$ 3.3 | $\varnothing$ 3.6 | $\varnothing$ 3.8 | $\varnothing$ 4.1 |
|-------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Short | SNDR2813TS        | SNDR3113TS        | SNDR3313TS        | SNDR3613TS        | SNDR3813TS        | SNDR4113TS        |
| Long  | SNDR2813TL        | SNDR3113TL        | SNDR3313TL        | SNDR3613TL        | SNDR3813TL        | SNDR4113TL        |

## Components

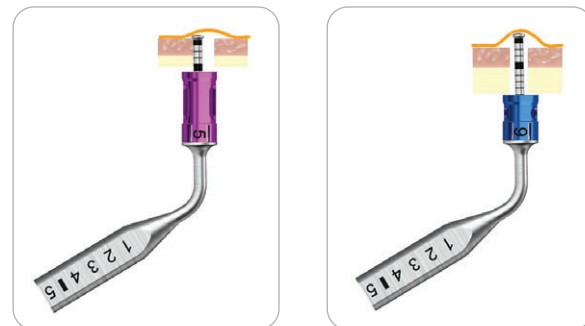
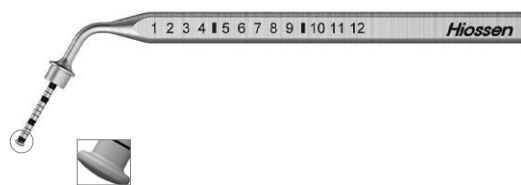
### 4) Stopper System

- 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   |
|-------|--------|------|--------|--------|------|--------|--------|------|--------|--------|------|
|       |        |      |        |        |      |        |        |      |        |        |      |
| Color | Purple | Blue | Yellow | Purple | Blue | Yellow | Purple | Blue | Yellow | Purple | Blue |

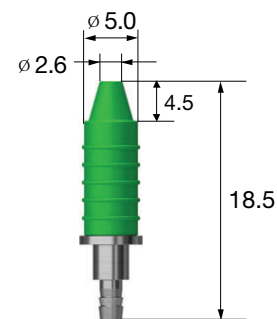
### 5) Depth Gauge

- 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)



### 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)

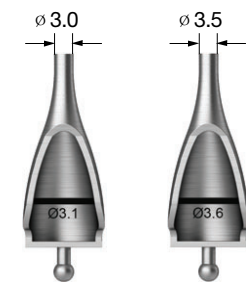
| Herry Y and Lee DY, 2005 |                       |
|--------------------------|-----------------------|
| Lift high                | Volume of bone matrix |
| 3mm                      | 0.36cc                |
| 4mm                      | 0.5cc                 |
| 5mm                      | 0.7cc 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



SNBCS35

### 8) Bone Carrier Head

- Used to fill bone graft materials inside sinus cavity
- SNBCH30: Use after drilling with CAS-drill  $\phi$  3.1/ $\phi$  3.3
- SNBCH35: Use after drilling with CAS-drill  $\phi$  3.6/ $\phi$  3.8/ $\phi$  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 | $\phi$ 3.1 | $\phi$ 3.6 |
|---|------------|------------|
|   | SNBCH30    | SNBCH35    |

### 9) Bone Condenser

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

| D | $\phi$ 1.1 / 1.4 |
|---|------------------|
|   | SNBC1114         |





## ● Components

### 10) Hydraulic Membrane Lifter Tube

- Connect to hydraulic membrane lifter



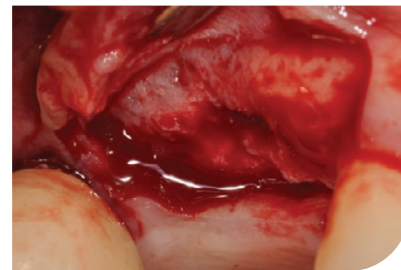
## ● Clinical Indications & Case Study

### 1) Single molar missing case

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



Missing of right 1<sup>st</sup> molar



Flap elevated



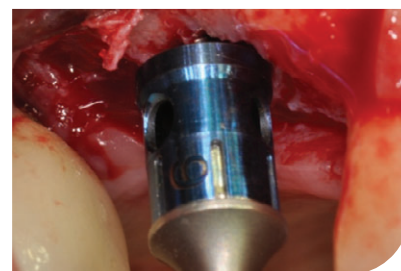
∅ 2.2 twist drill  
with 4.0 mm stopper



∅ 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



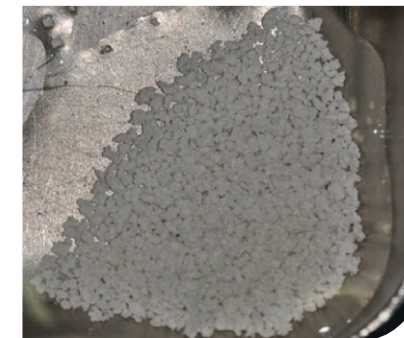
Hydraulic membrane lifter



Membrane safely elevation using the  
Hydraulic membrane lift system



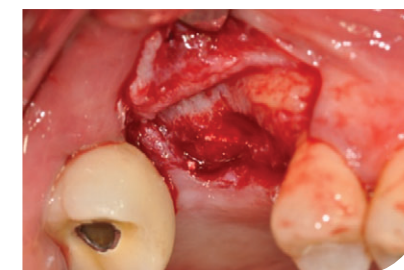
New bone carrier and bone condenser



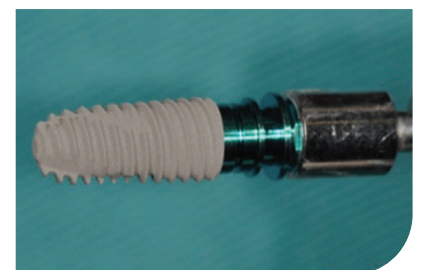
Q-Oss+ 0.25g



Bone grafting into the sinus



Finished bone grafting

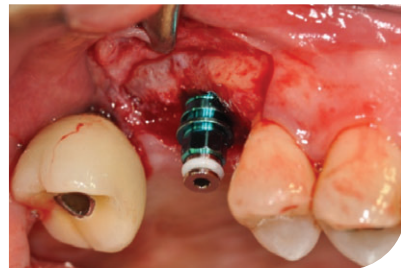


TSIII SA ∅ 4.5x10.0mm

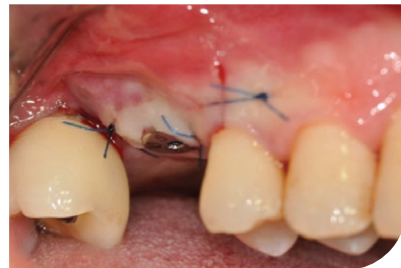
## Clinical Indications & Case Study



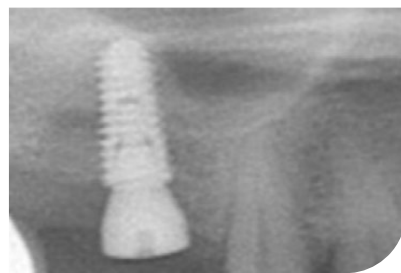
### 1) Single molar missing case



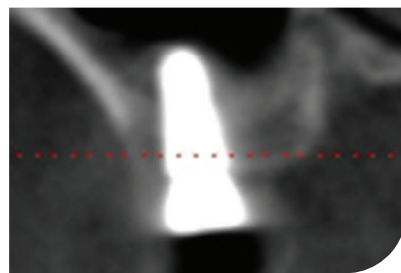
14Ncm, ISQ:66/66



ø 5.0 Healing abutment connection



POP Radiography



POP CT view

## Clinical Indications & Case Study



### 2) #26 Missing Case

- USII ø 4.0 x 11.5mm implant planning
  - Initiated using a ø 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



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

### 3) #25 Hydraulic Lift Case

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



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

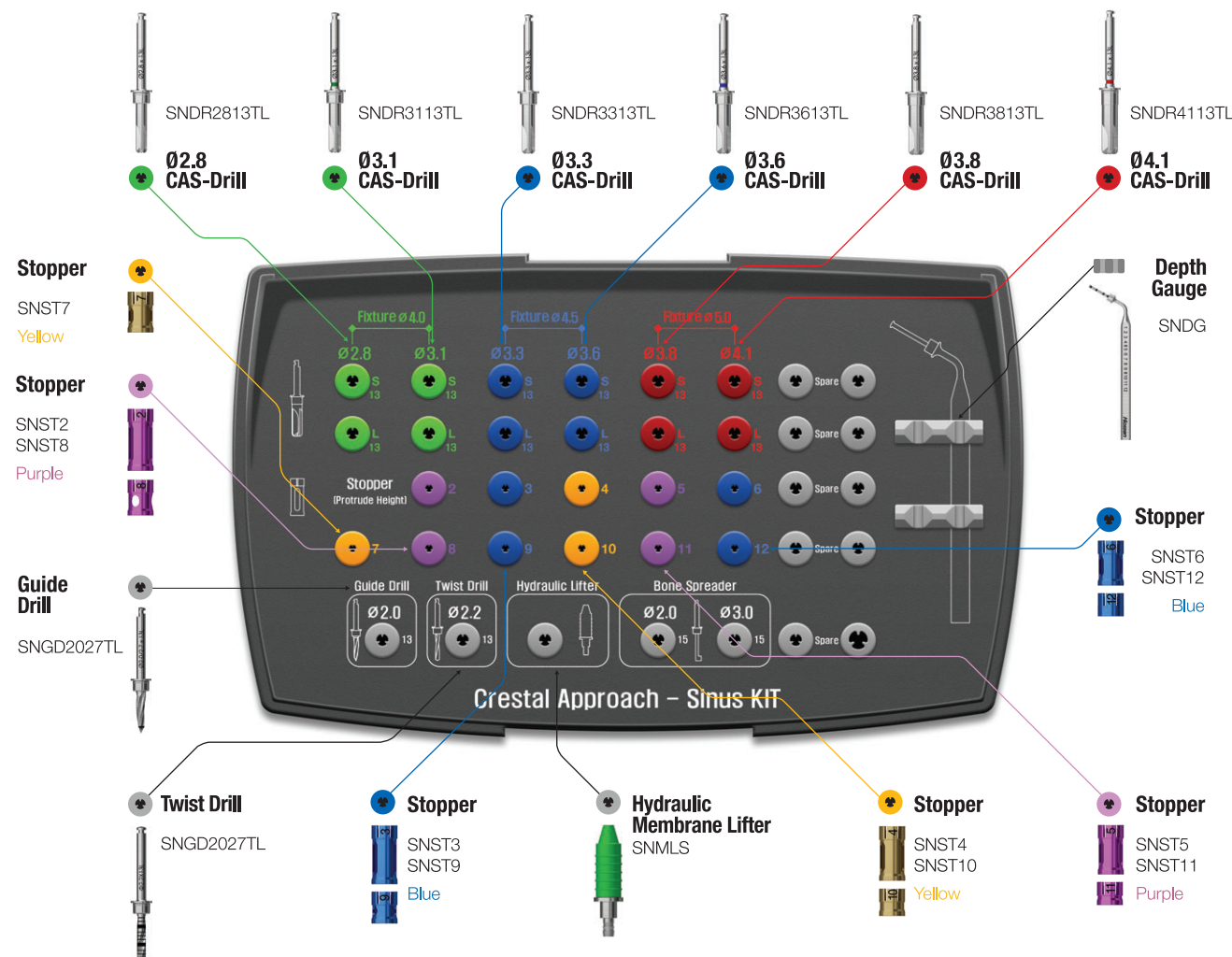
## Surgical procedure

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.

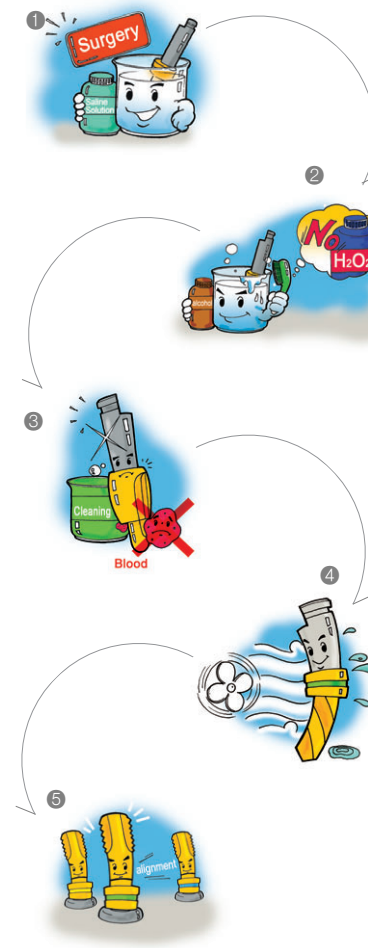


►: Required ▶: Optional

| 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             |              | ▶           | ▶           |           | ▶     |       |       | ▶     |       | ▶           | ▶                      | ▶            | ▶              |



## 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.