Sinus Lift System

1. Crestal approach kit
2. Aqualiftor approach kit
3. Lateral approach Kit
Sinus Lift System

Canon A.I Drill (Artificial Intelligence) (Safety Stop)

Crestal Approach Kit

Lateral Approach Kit - EASY, Open Window

Aqualifter Kit (better to use with Crestal Approach Kit) - FREE, membrane perforation
Application
Lift up sinus membrane & make space to place Implant Fixture on upper jaw without perforation risk in crestal approach technique.

Recommendation
Crestal approach operation is available using only Crestal approach Kit. However, we recommend applying Crestal approach Kit + Aqualifitor approach kit, because these components can show our product’s merits in full performances.

Feature
Typical drill, Canon A.I. drill, stop automatically when its tip meets the sinus membrane during rotation.
This drill is only available from us, other manufacturers don’t have such as this one.

Components
1) Canon A.I. Drill(C-12(2.8 mm)), 1ea
2) Canon Drill(C-11(2.4 mm), C-13( 3.2 mm)), 2ea
3) Sensor Gauge(C-14), 1ea
4) Bone Condenser(C-15), 1ea
5) Stoppers(S-1~ S-9), 9ea
6) Pilot Drill(C-10), 1ea
7) Casette for Crestal approach kit(C-16), 1ea
8) Spring for Canon A.I Drill(C-17(2.8 mm)), 3ea
9) Spring for Sensor Gauge(C-18), 3ea
1) Canon A.I. drill (1200 RPM)
The canon AI drill is used to build holes that reach to the maxillary sinus from the mouth. An AI drill stands for an artificial intelligent drill, which means it proceeds and then stops automatically when it comes in contact with the maxillary sinus. Make sure that a stopper whose length is 1mm longer than that measured on radiographs should be used. In the event that the drill does not stop even when stopper contact crestal bone, which indicates that it has not yet penetrated the inferior border of the maxillary sinus, a stopper with a longer length by 1mm needs to be so installed and used that the drill stops automatically. Even if the drill happens to penetrate the inferior border, it still achieves a maximum safety when it comes in contact with its membrane, for it is designed to rotate in perfect circles with a considerably large radius.
2) Canon drill (1200 RPM)
The canon drill is used to widen spots that are marked by a lancet or round drill. You can get safe access to the depth of up to 1 mm from the inferior border of the maxillary sinus. Even if the drill happens to penetrate the inferior border by mistake due to a wrong measurement, it still achieves a maximum safety when it comes in contact with its membrane, for it is designed to rotate in perfect circles with a considerably large radius. Be noted that a stopper whose length is 1mm shorter than that measured on radiographs should be used.

3) Sensor gauge
The sensor gauge is used not only as a normal depth gauge but also a device with which to check whether the AI drill makes a hole up to the membrane and then comes to a stop properly. This gauge is mounted to the stopper that was used when the canon AI drill drilled the inferior border of the maxillary sinus. When the gauge is inserted into the hole, it remains stable when the inferior border of the sinus is properly drilled, while it becomes unstable, or spring sensation if the inferior border is not perforated.
4) Bone condenser

The bone condenser is used with a stopper to push bone materials up to the maxillary sinus.

5) Stoppers

A set consists of a total of nine stoppers; a proper length can be used according to requirements.
Application
Lift up and peel off Sinus membrane from anterior border with water smoothly and safely

Feature
Water is out from 5 holes on tip of Aquatap. It scatters the lifting pressure in wide range of the contact points.

Components
1) Aqua tap(A-11(S tap), A-12(3.15 tap), A-13(3.5 tap)), 3ea
2) Aqua injector(A-17), 1ea
3) Aqua guide Drill(A-10), 1ea
4) Manual Adaptor(A-14), 1ea
5) Engine Adaptor(A-15), 1ea
6) Finger Wrench(A-16), 1ea
7) Stopper(S-1~ S-9), 9ea
8) Casette for Aqualiftor approach kit(A-19), 1ea
9) Tubes for Aquatap(A-18), 3ea
10) Caps for Aqualiftor approach kit(A-20), 2ea
1) Aquatap

The acqualiftor acts like a duct that guides the liquid flowing from the aquainjecter to the membrane of the maxillary sinus when it is lifted. The size of its tip is designed to create a little bigger thread than that of the canon AI drill to ensure increased airtightness. When the canon AI drill stops, mount the used stopper to the aquatap and let it proceed to touch the stopper softly, using an engine. When the engine is given an excessive force, care should be taken because the direction may deviate from the right path. Three types- short, long, and thick- are available for proper use.

Because the formation of a closed structure at the membrane of the maxillary sinus and, furthermore, the unblocked flow of liquid from the remaining side holes, even when the central hole of the five holes at the tip of the aquatap is clogged by bone chips, allow a doctor to expect planned lifting thanks to the hydraulic pressure.

Make sure that the aquatap should be immersed in a normal saline and then stripped of air inside when it is used with the engine.
2) Aqua injector

The aquainjector is a device designed to generate hydraulic pressure strong enough to lift the membrane of the maxillary sinus. A total of 8 clicks are available. And 10 or 5 cc conventional disposable syringes can be used for the aquainjector.

The quantity of a click varies depending on a syringe; in general, a 5cc syringe releases about 0.5cc with a click, while a 10cc syringe about 1cc.

Doctors do not need to worry about pressure because the aquainjector produces by far stronger hydraulic pressure than is required to lift the membrane. This device is intended to slowly inject a liquid to give a membrane enough time to gain recovery from the strain formed inside it when it is raised so that doctors can lift as an adequate quantity of membrane as possible.

Because doctors can measure the currently lifted volume of a membrane by calculating the amount of a liquid in an injector measured at the beginning and that left after the injection, they can decide the amount of bone powder they want to put in.

For the height of a membrane to be calculated, a contrast medium is used to lift the membrane, which is then scanned by a standard X-ray or panorama to obtain the figure.

It is recommended to inject a liquid at a speed of a click every 10 seconds for a safe lifting of the membrane. Furthermore, the volume of the injected liquid should be decided depending on the shape of the inferior border of the maxillary sinus. When the inferior border is flat, it is recommended to check the result with one radiograph per each injection of 0.5cc; when it is depressed (concave), it is recommended to check the result with one radiograph per each injection of 1cc; when it is prominent (convex), it is recommended to check the result with one radiograph per each injection of 0.25cc. If the liquid is found to leak, it is recommended to inject it at a speed of a click per 4 seconds.

The use of a contrast medium for lifting the membrane will make doctors easy to check whether the membrane breaks or not.
3) **Aquaguide drill**

If it is deeper than 3mm or bone density is more than D2 when the aquatap is used, this drill is used with a stopper mounted on it to help the aquatap achieve its tapping work easily.

4) **Manual adaptor**

It is mounted on the aquatap to extend its length using a finger wrench or engine wrench.
5) **Engine adaptor**

It is used to mount and place the aquatap in position using an implant engine. We recommend this first choice.

6) **Finger wrench**

It is mounted on the aquatap and used for a wrench. As it is open at one side, it can be used even when a tube is inserted in the aquatap.
Application
Make a space for Implant Fixture with implant technique, window opening technique.

Feature
Expose the sinus membrane using auto-stopping “A.I. drill for lateral approach”. This drill can be adaptable in both to contra angle handpiece and straight handpiece.

Components
1) A.I Drill for lateral approach(L-1), 1ea
2) Aqualift for lateral approach(L-3), 1ea
3) Burin bur for Handpiece(L-5), 1ea
4) Burin bur for Contra angle(L-4), 1ea
5) Wide Burin drill for Handpiece(L-7), 1ea
6) Wide Burin drill for Contra angle(L-6), 1ea
7) Adaptable shank for contra angle of A.I. Drill(L-2), 1ea
8) Wrench, holding neck of A.I. Drill(L-9), 1ea
9) Wrench, holding semicircular joint part of shanks of A.I. Drill(L-8), 1ea
10) Casette for Lateral approach Kit(L-10), 1ea
1) **A I drill for lateral approach**  
(straight angle 1:1 less than 6000RPM; contra angle 1:20 1200RPM)  
This drill, having no stopper, is designed to be put at vertical angle to the lateral wall of the maxillary sinus. It automatically stops when it comes in contact with the membrane of the sinus. When the shaft is replaced with a longer one, the drill can be used at straight angle. The speeds mentioned above shall be applied.

2) **Aqualift for lateral approach**  
One unit of the aqualiftor is provided. It can be used with disposable syringes. Fill it with 1~1.5cc of a physiological salt solution or contrast medium.
3) **Burin bur**

It consists of one unit for contra angle and one for straight angle. The tip of this bur is treated to take an even and round shape; when this part comes in contact with the membrane, its design will minimize damage to the surface. The blades at its sides are used to cut maxillary bones. Unlike conventional methods, cutting can be made safely and conveniently like carving on the maxillary bone after its membrane is first separated.

# Contra angle type is optional.
See pictures shown below
4) Wide Burin drill

This drill is applied to grind bones to make windows after the Burin drill is first used.
# Contra angle type is optional.
Canon A.I. Drill is a device designed to decide the transmission of power by itself in reaction to the pressure delivered to the tip of the drill. That means the drill proceeds and stops automatically and goes no further when it comes in contact with the sinus membrane.

Whatever bone tissues, whatever type of inclinations, whatever depth, doctors can obtain the same results.
Drilling Protocol

Canon A.I. drill will stop automatically if there is no resistance at the tip of drill. It doesn’t mean that it touches membrane of maxillary sinus even though drill stopped. Drill may stop if there is void at the tip of drill or if a bone substance is too weak. Also drill may stop if drill reaches inferior margin of maxillary sinus slantingly. Therefore, you need to check if inferior margin of maxillary sinus is opened through surely as following formulas.

1. Insert 1mm longer stopper than measured length at panoramic X-Ray into Canon A.I. drill. If a drilling direction is correct, you can feel a drill breaking open inferior margin of maxillary sinus, and it means that inferior margin of maxillary sinus is opened through very well if a drill stops momentarily.

2. When Canon A.I. drill stops, use canon A.I. drill one more time at the same spot using 1mm longer stopper than the stopper which was used when canon A.I. drill stopped. It means inferior margin of maxillary sinus is opened through if Canon A.I. drill stops instantly without rotation. But if drill tip rotates, it means that inferior margin of maxillary sinus was not opened through yet. In this case, you need to repeat this process until canon A.I. drill stops correctly.

3. If you finished above no.2, insert sensor gauge into the area where Canon A.I. drill opened through after installing stopper which was used when Canon A.I. drill stopped correctly in sensor gauge. If inferior margin of maxillary sinus is opened through, you cannot feel action of spring inside sensor gauge.

4. If you feel spring action, it means inferior margin of maxillary sinus was not opened through yet. In this case, you need to open inferior margin of maxillary sinus with appropriate method.

5. **You can use mixing above 2,3,4 process properly.**

6. Please use the stopper which you used in opening through inferior margin of maxillary sinus when you use Aquatap. And be careful to make stopper touch maxilla slightly. If stopper touches it too strong, Aquatap may be twisted causing less sealing effect of it.

7. First time user of Canon A.I. drill may think that its cutting capability is less than general drill. However, Canon A.I. drill was designed not to damage membrane of maxillary sinus rather than cutting function, and it is a drill similar to a reamer. Hence, its cutting function is a little weak. But it is better cutting efficiency than any other maxillary sinus equipment.