DIO Digital Implant System

Full Digitalized Implant Solution
Most Advanced World Class Digital Implant System

- Optimal Surgical Guide system that is 100% digitalized from diagnosis to final prosthetics
After confirming the dental plan, 4 nights, 5 days based on work hours. (In KOREA)
With DIOnavi, selective treatment for the patient situation is possible

**Immediate restoration**
- Permanent Customized Abutment Placement
- Provisional Restoration (PMMA Temporary)

**Delayed restoration**
- H-scan Body Placement
- Cover Screw Placement

- Temporary Customized Abutment Placement (Hybrid Link)
- Provisional Restoration (PMMA Temporary)
2. Comfortable Treatment for patients

- Surgical procedure convenient for patients without suture, irrigation, and noise.
- Because there is less bleeding, it is possible to treat patients with high blood pressure, diabetes and mental diseases.
- It is possible to treat patients with high blood pressure, diabetes.
- 1-2 unit implant surgery can be finished within 10-20 minutes up to provisional crown delivery.
- Patient satisfaction increase and chair time reduction

<table>
<thead>
<tr>
<th>Common Procedure</th>
<th>Comparison</th>
<th>DIOnavi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Patient satisfaction</td>
<td>Very satisfied</td>
</tr>
<tr>
<td>Less than 60 minutes</td>
<td>Average treatment time of 1~2 unit</td>
<td>Less than 10~20 minutes</td>
</tr>
<tr>
<td>Many (minimum of 7~14 times)</td>
<td>Average visiting times</td>
<td>Little (minimum of 3~4 times)</td>
</tr>
<tr>
<td>Some ~ very much</td>
<td>Surgical Pain</td>
<td>Little</td>
</tr>
<tr>
<td>Ok ~ not satisfied</td>
<td>Esthetic quality after surgery</td>
<td>Very satisfied</td>
</tr>
</tbody>
</table>
Patient Visiting Time in the Digital Implant Surgery

Compared to the conventional implant surgery, DIOnavi can finish making the final restoration in minimum of 3 visits and can reduce the waiting period of chair time and number of visiting times.

Conventional Surgery: 7 visits to the clinic at minimum
- Visit (Consultation) CT shoot
- 1st surgery
- Suture Removal
- 2nd surgery
- Impression taking
- Temporary Prosthetics
- Final Prosthetics

DIOnavi: 3 visits to the clinic at minimum
- Visit (Consultation) CT scanning, Trios Scanning
- Surgery and Provisional Restoration
- Final Prosthetics
3. Doctors’ convenience

- Complicated construction process has been simplified and production period has been shortened due to the Full Digital method
- Guide length is shorter than other guide systems (DIONavi. 9mm, Others 12~15mm)
- Large amount of auto-genous bone is harvested.
- After fixture placement, one can immediately use the H-scan body if needed.
4. All time highest accuracy and stability (Full Digital)

- Average treatment deviation **0.4 ~ 0.9 degrees**
- Exact patient information acquisition with Digital Impression such as patient’s bone quality.

<table>
<thead>
<tr>
<th>Literature</th>
<th>Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Assche N. Clin Periodontol 2010.</td>
<td>2.7°</td>
</tr>
<tr>
<td>Ozan O. J Oral Maxillofac Surg 2009.</td>
<td>4.1°</td>
</tr>
<tr>
<td>Sarment DP. Int J Oral Maxillofac Implants 2003.</td>
<td>4.5°</td>
</tr>
<tr>
<td>Di Giacome GA. J Periodontol 2005.</td>
<td>7.3°</td>
</tr>
<tr>
<td>Valente F. Int J Oral Maxillofac Implants 2009.</td>
<td>7.9°</td>
</tr>
</tbody>
</table>

Guide system procedure accuracy comparison
## Comparison of Guide System

<table>
<thead>
<tr>
<th></th>
<th>N-Guide (Sweden)</th>
<th>R2 (Korea)</th>
<th>DIONavi. (Full digital)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impression Method</td>
<td>Alginate Impression Stone Model</td>
<td>Alginate Impression Stone Model</td>
<td>Digital Oral Scanning</td>
</tr>
<tr>
<td>Guide height (Sleeve Top~Fixture Top)</td>
<td>10 mm</td>
<td>12~13.5 mm</td>
<td>9 mm</td>
</tr>
<tr>
<td>Recommended Drilling RPM</td>
<td>1000~1200 RPM</td>
<td>1000~1200 RPM</td>
<td>50 RPM</td>
</tr>
<tr>
<td>Precision result before and after surgery</td>
<td>0.1~15.3 degree average 4.9°</td>
<td>0.1~5 degree average 2.5°</td>
<td>0.1<del>1.9 degree Average 0.4</del> 0.9°</td>
</tr>
</tbody>
</table>
Degree of precision of Surgical Guide comparison

**Analog**
Plaster model > Resin for Orthodontics > Guide Production

**Half Digital**
Nobel Guide, R2 Gate
Plaster Model > Scan > Guide Production

**Full Digital**
DIONavi.
Oral Scan > Guide Production
Importance of Initial Stage Drilling
Method of measuring the degree of precision

Compare the implant coordination by taking a CT before and after the surgery while biting a same reference place.

(SCI dissertation scheduled for the method and result of the degree of precision)
Chapter 1  Characteristic of DIOnavi

Precision Results before and after the DIOnavi surgery  

(0.1~1.9°; Average of 0.4~0.9°)

Even when the Ridge is narrow, if the surgical guide and instrument with high accuracy are used, it is possible to treat this case safely and easily with a flapless surgery and without bone grafting.
Chapter 1  Characteristic of DIONavi

Characteristics of DIONavi

1. Full Digital Implant Surgery

2. Comfortable Treatment for patients, doctors, staffs

3. World #1 accuracy and safety (Full Digital)

4. Improvement clinic management with patient marketing
DIONavi. vs. Ordinary

ordinary
Planning a surgery based on experience

DIONavi.
3D virtual surgery
Accurate and safe
Predictable surgery
DIONAVI. vs. Ordinary

Flap

Bleeding, pain, edema
High chances of infection

Flapless

Less bleeding and edema
Faster recovery and lower chances of infection
DIO navi brings a butterfly effect to patient marketing

DIO navi Implant Surgery.

Analyze the patients’ bone status in a 3D-image, and place an implant in an optimized place by a mock surgery and produce a customized surgical guide in advance.

This is a most advanced surgical guide system that can place an implant at once, in a day, in a flapless surgery method that doesn’t expose the patients’ bone.
DIONavi. vs. Ordinary

**ordinary**

2D Panorama

Hard to analyze

**DIONavi.**

3D CT

Accurate analysis of bone and nerve system
DIONavi. vs. Ordinary

**ordinary**

**rubber impression**

gagging, can't reproduce the oral status

**DIONavi.**

**digital impression**

time saving, accurate and comfortable
## Clinical superiority of DIONavi

<table>
<thead>
<tr>
<th>Metric</th>
<th>Primary implant surgery</th>
<th>DIONavi.</th>
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</thead>
<tbody>
<tr>
<td>Failure (%)</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Time (min/two fixtures)</td>
<td>60</td>
<td>15</td>
</tr>
<tr>
<td>Final prosthesis</td>
<td>After 8~12 week</td>
<td>After 4~8 week</td>
</tr>
<tr>
<td>Patient visits</td>
<td>At least 7 times</td>
<td>At least 3 times</td>
</tr>
<tr>
<td>Satisfaction value (Max 10)</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Pros and Cons</td>
<td>edema, bleeding, pain</td>
<td>Flapless, less painful, waterless, less noise</td>
</tr>
</tbody>
</table>
DIONavi. vs. Ordinary

Ordinary Result

DIONavi. Result

Chances to harm nerve and prosthesis
Digital Implant Service Platform

**Patient Information**
- Chart No.: 20151224005
- Reservation Date: 2015-12-24
- Name: Kim Donald
- Social: Male
- Age: 52

**Need navi kit Set**
- DIO navi Master kit
- DIO navi Sinus kit
- DIO navi Fix pin kit

**Need Implant Fixture**
- UF01 3810 X 2
- UF01 3811 X 1
- UF01 4007 X 1
- UF02 3810 X 2
- UF02 3811 X 1
- UF02 4007 X 1

**Surgery Protocol (Road Map)**

1. **Fixture:** 3.8 x 11.5mm
   - **Offset:** 9mm
   - **Drill:** 11.5mm

2. **Fixture:** 3.8 x 10mm
   - **Offset:** 9mm
   - **Drill:** 10mm

3. **Fixture:** 4.5 x 8.5mm
   - **Offset:** 9mm
   - **Drill:** 8.5mm

4. **Fixture:** 5.0 x 8.5mm
   - **Offset:** 9mm
   - **Drill:** 8.5mm

5. **Fixture:** 3.8 x 10mm
   - **Offset:** 10.5mm
   - **Drill:** 11.5mm

6. **Fixture:** 4.5 x 7mm
   - **Offset:** 10.5mm
   - **Sinus:** 16mm Protocol

7. **Fixture:** 5.0 x 10mm
   - **Offset:** 9mm
   - **Drill:** 10mm

**Instrumentation**
- Tissue Punch
- Bone Flattening Drill
- Initial Drill (2.7mm)
- Initial Drill (2.8mm)
- Tap Drill
- Abutment Profile Drill

**Notes**
- 16.5mm
Product & Service Value Proposition

Core Value and Technology

Providing Auto-Planning Platform to Dentists

Dental Clinic
Dentist

Sharing diagnosis, clinical info.

Patient

Clinical Prognosis, Analysis, Technic

Update diagnosis, clinical info.
H-Scan body

- With DIONavi, one can immediately use the H-scan body after fixture placement.
## H-Scan body and Hex Direction of the inner part of the fixture

<table>
<thead>
<tr>
<th>Fixture</th>
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<tr>
<td><img src="image1.png" alt="Image" /></td>
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<tr>
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<td><img src="image8.png" alt="Image" /></td>
<td><img src="image9.png" alt="Image" /></td>
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**DIOnavi. Surgical Protocol**

- Bone Density: D2 Bone  Fixture: Ø4.0x10mm placement
- Recommended Drilling Speed: **50 RPM**

**Flapless, Low speed 4N Technique.**

(If the bone quality is very hard, Initial drilling should be done with high speed and irrigation)
Thank You