MagDen System
Magnetic Implant
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MagDen Concept

> Recommended Clinical Cases

- For patients whose existing denture have got loosened
- For patients who need careful attention because of age or health problem
- For patients who feel the psychological and financial burden on implant surgery

> Features

- Enhanced retention force and mastication ability
- Simple and easy surgical procedure
- Easy attachment and detachment of denture using magnetic force
- Low cost

> Product Line-up

<table>
<thead>
<tr>
<th>Type</th>
<th>MagDen 600</th>
<th>MagDen 800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Yellow</td>
<td>White</td>
</tr>
<tr>
<td>Magnet Size</td>
<td>Ø3.6mm</td>
<td>Ø4.0mm</td>
</tr>
<tr>
<td>Fixture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keeper</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Easy
Less surgical trauma
Less chair time
Lower cost
MagDen Properties

> MagDen Fixture

Morse taper connection: Enhance the stable connection with keeper

RBMplus Surface Treatment

Polished collar: Minimize alveola involution

Tapered design: Provide the excellent initial fixation

Cutting edge: Optimized design for easy initial set-up and self-tapping

> MagDen Keeper & Magnet (MAGFIT™)

MagDen Keeper
Keeper is connected to the MagDen fixture. It is TiN-coated with 1.0~4.0µm thickness to prevent retention decrease by the abrasion. Keeper height is available from 1.5mm to 5mm. It is indispensable to connect the keeper with recommended torque (20Ncm) using MagDen exclusive driver and the maximum torque must not exceed 30Ncm.
*Clean the keeper with alcohol before use.

MagDen Magnet (MAGFIT™)
To prevent the magnet from getting rusty, the exposed area of magnet is made of magnetic stainless yoke and nonmagnetic stainless steel disc which has strong corrosion-resistance. The magnet is covered with yoke and disc and hermetically sealed with micro-laser welding to protect the magnet from corrosion in the oral environment.
RBM Surface

> RBM PLUS SURFACE

- Proved safety in many clinical cases and over 5 steps of safety test
- Stable Osseointegration
- Use of biocompatible HA Blasting media
- Implementation of optimum roughness (Ra 1.5 μm)
- Cleanliness through over thirty steps of semi-conductor precision cleaning

> SEM
(Scanning Electron Microscopy)

> Roughness

> IC (Ion Chromatography)

<table>
<thead>
<tr>
<th>Test Items</th>
<th>RBM Plus</th>
<th>A company</th>
<th>B company</th>
</tr>
</thead>
<tbody>
<tr>
<td>F^-</td>
<td>N.D.</td>
<td>0.09</td>
<td>0.01</td>
</tr>
<tr>
<td>Cl^-</td>
<td>N.D.</td>
<td>0.07</td>
<td>0.09</td>
</tr>
<tr>
<td>NO3^-</td>
<td>N.D.</td>
<td>0.41</td>
<td>0.06</td>
</tr>
<tr>
<td>PO4^{3-}</td>
<td>N.D.</td>
<td>N.D.</td>
<td>0.06</td>
</tr>
<tr>
<td>SO4^{2-}</td>
<td>N.D.</td>
<td>0.05</td>
<td>0.03</td>
</tr>
</tbody>
</table>
## MagDen Fixture

### Size

<table>
<thead>
<tr>
<th>Bone Density</th>
<th>Bone Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>MagDen Fixture</td>
<td>≥5.5mm</td>
</tr>
<tr>
<td>Ø2.7mm Screw Type</td>
<td>o</td>
</tr>
</tbody>
</table>

* MagDen Keeper: please be sure that the keeper must be exposed about 2mm high from gingival margins.
* D1 = Very Dense Bone
* D4 = Very Soft Bone
* NR = Not Recommended
### MagDen Keeper & Magnet (MAGFIT™)

#### > MagDen Keeper size

- **MagDen Keeper size**

![MagDen Keeper Diagram](image)

**MagDen 3.8mm Keeper**
- Keeper Diameter: ø3.8mm
  - Magnet size: ø3.6mm
  - Keeper Diameter: ø3.8mm

**MagDen 4.2mm Keeper**
- Keeper Diameter: ø4.2mm
  - Magnet size: ø4.0mm
  - Keeper Diameter: ø4.2mm

*Keepers of various heights provide a wide range of clinical applications.*

#### > MagDen Magnet (MAGFIT™) size

<table>
<thead>
<tr>
<th>Type</th>
<th>MagDen 600</th>
<th>MagDen 800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attractive Force(gf)</td>
<td>600</td>
<td>800</td>
</tr>
<tr>
<td>Height(mm)</td>
<td>1.2</td>
<td>1.3</td>
</tr>
<tr>
<td>Magnet size(mm)</td>
<td>ø3.6</td>
<td>ø4.0</td>
</tr>
</tbody>
</table>

**Dimension of part(mm)**
- ø3.6
- ø4.0
MagDen Surgical Kit

- Screw type Driver H/P
- Screw type Driver T/W
- Ø1.8/2.4 R Drill
- 1.2 Hex Driver (L)
- * 1.2 Hex Driver (S) [optional]
- * Torque Wrench [optional]
### MagDen Drilling Depth Guide

#### > D1 bone

<table>
<thead>
<tr>
<th>MagDen Fixture</th>
<th>MSI3608RF</th>
<th>MSI3610RF</th>
<th>MSI3611RF</th>
<th>MSI3613RF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rough Surface Length</td>
<td>8.5mm</td>
<td>10.0mm</td>
<td>11.5mm</td>
<td>13.0mm</td>
</tr>
<tr>
<td>Bone Drilling Depth</td>
<td>8.5mm</td>
<td>10.0mm</td>
<td>11.5mm</td>
<td>13.0mm</td>
</tr>
<tr>
<td>Real Drilling Depth</td>
<td>8.5mm+G/H</td>
<td>10.0mm+G/H</td>
<td>11.5mm+G/H</td>
<td>13.0mm+G/H</td>
</tr>
</tbody>
</table>

* Real Drilling Depth = Bone Drilling Depth + Gingival Height (G/H)

#### > D2/D3 bone

<table>
<thead>
<tr>
<th>MagDen Fixture</th>
<th>MSI3608RF</th>
<th>MSI3610RF</th>
<th>MSI3611RF</th>
<th>MSI3613RF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rough Surface Length</td>
<td>8.5mm</td>
<td>10.0mm</td>
<td>11.5mm</td>
<td>13.0mm</td>
</tr>
<tr>
<td>Bone Drilling Depth</td>
<td>4.0mm</td>
<td>7.0mm</td>
<td>8.5mm</td>
<td>10.0mm</td>
</tr>
<tr>
<td>Real Drilling Depth</td>
<td>4.0mm+G/H</td>
<td>7.0mm+G/H</td>
<td>8.5mm+G/H</td>
<td>10.0mm+G/H</td>
</tr>
</tbody>
</table>

* Real Drilling Depth = Bone Drilling Depth + Gingival Height (G/H)
MagDen Surgery Procedure

> Step 1: Drilling & Setting up parallel pin

1. After anesthesia, measure the gingival height using probe to apply it when drilling (Refer to p.9)

2. Remove the gingival tissue using a diamond bur

3. Drill the gingiva using ø1.8/2.4 R drill in consideration of bone density and fixture type and size (Refer to p.9)

4. After drilling, set up a parallel pin

5. Measure the gingival height using probe to apply it when drilling (Refer to p.9)

6. Remove the gingival tissue using a diamond bur

7. Drill the gingiva parallel to the parallel pin in consideration of bone density and fixture type and size (Refer to p.9)
   * Caution: Drilling within 800RPM with a plenty of sterile water

8. After drilling, set up another parallel pin to check the parallel

> Drilling Depth Guide

<table>
<thead>
<tr>
<th>Drilling Depth Guide</th>
<th>D1 bone</th>
<th>D2/D3 bone</th>
</tr>
</thead>
<tbody>
<tr>
<td>L=8.5mm</td>
<td>L=10.0mm</td>
<td>L=10.0mm</td>
</tr>
<tr>
<td>L=10.0mm</td>
<td>L=13.0mm</td>
<td>L=13.0mm</td>
</tr>
<tr>
<td>*L: Rough Surface Length</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In case of D1 bone, build up the counter sink using bur
- Tissue thickness less than 2mm
  : Round bur diameter 3.1mm (CB141.205.031)
- Tissue thickness more than 2mm
  : Round bur diameter 2.7mm (CB141.205.027)
**MagDen Surgery Procedure**

> Step 2: Placement of Fixture, Keeper and Denture

1. Place MagDen fixture  
   * The maximum torque must not exceed 40Ncm

2. Place the keeper with its exclusive hex driver  
   * Recommended torque is 20Ncm and the maximum torque must not exceed 30Ncm.

3. Apply zinc oxide powder on the keeper and place the denture to mark the magnet location on the denture

4. Make the space for magnet placement

5. Place the denture without magnet and leave for 2 weeks for gingival healing

6. Fix the rubber dam to keeper to prevent undercut

7. Place the magnets on the keepers

8. After making the spill way so that the extra resin spills out, apply the denture resin on the denture

9. Place the denture and wait until the resin is completely cured

10. Check if the magnet is properly placed

11. Place the denture and check the retention

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**Caution**

1. Do not grind the magnet. If the hermetical sealing of magnet is damaged, it may cause corrosion on the magnet and weaken its attractive force.

2. Keep the magnet away from the high temperature over 150°C and do not boil the denture. Boiling denture also cause the lose of attractive force and shorten the lifetime of denture.

3. Make sure remove the denture when patients have MRI test. Magnetic field used in MRI damages magnet. Inform the patient that the keeper also has some effect on MRI image.

4. When placing the magnet on the denture, do the process in the patient’s oral cavity to prevent gap between keeper and magnet. If there is 0.1mm gap between keeper and magnet, it causes 30% of attractive force.