Dr. Won Moon is the Thomas R. Bales Endowed Chair in Orthodontics and serving as the program director for an orthodontic residency program, UCLA School of Dentistry. He has been a Diplomate of the American Board of Orthodontics since 2002.

He completed his dental education at Harvard and orthodontic education at UCLA. He studied mathematics prior to dentistry, and his research topics include 3D image analysis utilizing surface mapping functions and Elliptical Fourier’s Descriptors, Genomewide Association Study of Craniofacial Phenotypes, Finite Elements Model Development and Simulation, Applications of 3D Printing in Orthodontics, Orthopedic Correction, Airway Changes with Orthopedic Corrections, Accelerated Tooth Movement, and Micro-implant (MI) Design study.

His work has been published in various journals, not necessarily limited to Orthodontics because of his background, and he is a co-author of two textbooks. He is currently working on a textbook, “Mid-facial Expansion”. He has presented these findings in 17 countries, totaling over 150 presentations. His current focus has been establishing protocols for Orthopedic corrections with MI, improving the airway for patients with nasal obstruction, and creating virtual patients utilizing image analysis.

His interest in Mid-facial expansion began in 2005 as Micro-implant became available in USA, and he is responsible for developing Maxillary Skeletal Expander (MSE), a unique Micro-implant assisted rapid palatal expander (MARPE). He has been active in advocating non-surgical skeletal expansion in both children and adult patients, especially for those who may suffer from airway restrictions. His presentation in MSE has been widely accepted internationally, and numerous peer-reviewed publications are available.

BioMaterials America, Inc.
20280 S. Vermont Ave.
Suite#200 Torrance, CA 90502
TEL: 213-618-8725
andybmx@gmail.com

BioMaterials Korea, Inc.
#506, 55 Digital-ro 34-gil,
Guro-gu, Seoul 08378, Korea
TEL: +82-2-2025-0726
info@biomk.com
www.biomk.com
www.moonmoe.com
**COMPONENTS**

- **Starter kit**
- **Refill kit**

### Components

1. **MSE Expander** (Available expansion sizes: 8mm, 10mm & 12mm)
   - Choose an expander size according to the width of the patient's palatal vault.

2. **Micro Implant (MI)** (Ø 1.8mm X 11mm & 13mm Lengths are available)
   - Choose MI length according to the thickness of the patient's palatal bone.

3. **2 Activation Keys** (1 Short & 1 Long)

4. **Mini Hand Driver**
   - Use with initial insertion of MI placement.
   - The best way is to use Mini Hand Driver for initial insertion.

5. **Ratchet Wrench Driver**
   - Inserting and Removing MI.

6. **Short Engine Blade (Shaft)**
   - Attach to Mini Hand Driver.

7. **Safety Leashes**
   - With Activation key.

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**PRODUCT SPECIFICATION**

### Expander Size

<table>
<thead>
<tr>
<th>Expander Size</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSE 8mm</td>
<td>14.1mm</td>
</tr>
<tr>
<td>MSE 10mm</td>
<td>16.1mm</td>
</tr>
<tr>
<td>MSE 12mm</td>
<td>18.1mm</td>
</tr>
</tbody>
</table>

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**HOW TO USE COMPONENTS**

### Mini Hand Driver + Short Engine Blade

1. Place MI same as picture
2. Insert a blade into the mini-hand driver hole
3. Rotate the blade until going through the MHD

### Ratchet Wrenches

- **Max. Insertion Torque:** 80Ncm
- The button on the top: Locking direction
- The button on the bottom: Releasing direction

### Safety Leash + Activation Key

- **Activation Key & Safety Leashes**
- **Pass through the key hole**

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**LAB WORK**

- Less than 1mm space between palatal vault and the expander.
- Keep at least 3mm space between supporting arms and soft tissue in order to prevent tissue implantation.

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**INSERTION M.I**

- * (Manual Driver), MSE + SEB
- * (Manual Driver), RW

- The inventor recommends to use the manual driver for placing MI. Because you can feel insertion torque and bi-cortical engagement as well.
- If you use motor driver, you can't feel insertion torque and bi-cortical engagement.
- Please don't insert the TAO too tightly because MSE body will be bent by strong pressures or forces.

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**MINI SCREW**

- SDiameter
- L1 (Head part)
- L2 (Non-thread part)
- L3 (Thread part)

<table>
<thead>
<tr>
<th>Model</th>
<th>D2 (Diameter)</th>
<th>L1 (Head part)</th>
<th>L2 (Non-thread part)</th>
<th>L3 (Thread part)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OAS-1811</td>
<td>1.80</td>
<td>2.10</td>
<td>4.00</td>
<td>7.00</td>
</tr>
<tr>
<td>OAS-1813</td>
<td>1.80</td>
<td>2.10</td>
<td>6.00</td>
<td>7.00</td>
</tr>
</tbody>
</table>

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**ACTIVATION PROTOCOL**

**Caution:** There could be situation when the hexagonal nut is not able to turn by the activation key. In this case, stop activation for max. 3 weeks for bone regeneration.

**MSE II**

- Early teens: 6X / week (0.80mm / week)
- Late teens: 2X / day (0.27mm / day)
- Older: Min. 4~6X / day
- After Diastema: 2X / day (0.27mm / day)

---

<table>
<thead>
<tr>
<th>Expansion Size</th>
<th>Soldered arms to the molar bands are intended as a guide for proper MSE placement. Even if the Mid-Palatal suture line is not in the middle, MSE must be placed vertically from the Mid-Line of the maxilla.</th>
<th><strong>CAUTION:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>8mm</td>
<td>No. of MSE II = 12 means to expand 12 times. Max. 9H turns</td>
<td><strong>MSE II</strong></td>
</tr>
<tr>
<td>10mm</td>
<td>6X / week (0.80mm / week)</td>
<td>Early teens</td>
</tr>
<tr>
<td>12mm</td>
<td>2X / day (0.27mm / day)</td>
<td>Late teens</td>
</tr>
<tr>
<td>14mm</td>
<td>6<del>8X (0.53</del>0.80mm / day)</td>
<td>Early to Mid-20's</td>
</tr>
<tr>
<td>16mm</td>
<td>4<del>6X / day (0.33</del>0.50mm / day)</td>
<td>Older</td>
</tr>
<tr>
<td>18mm</td>
<td>4~6X / day (0.27mm / day)</td>
<td>After Diastema</td>
</tr>
</tbody>
</table>