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As the demand for dentures continues to boom, there has never been a better time to start offering the MDI treatment plan in your practice.

Introduced in 1999 as the IMTEC Sendax MDI™ System, the MDI Mini Dental Implant System is a global market leading small diameter implant system, and has quickly become one of the hottest dental products on the market. To the thousands of doctors using the system, it’s no secret why the MDI system is so popular: results.

**Indications:**
- Long-Term Full Denture Stabilization
- Long-Term Partial Denture Stabilization
- Long-Term Splinted Fixation of Bridges

In addition for MDI 2.9 mm implant:
- Long-Term Fixation of Single Crowns

**Benefits:**
- Minimally invasive procedure
- Often no grafting necessary
- Immediate load in most cases
- Very cost effective for the dental practice
- Very affordable for denture patients

MDI is not the only small diameter implant system available but there are plenty of reasons why it is a global market-leading system and has been for years:

**Features:**
- Implants are placed through a small pilot hole, not into a full osteotomy
- Implant designs for stability in soft and dense bone (essential for immediate loading)
- Attachment designs for customized retention for each case
- Attachment designs that forgive up to 30° divergence between two implants
- Original retention can be restored by simply changing an O-Ring
- A market leading small diameter implant training program
3M® ESPE™ MDI Mini Dental Implants
How to Get Started with the MDI System

3M ESPE offers market-leading small diameter implant continuing education solutions. MDI Certification Courses are affordable one-day seminars or mini-residencies lead by some of the most experienced small diameter implant clinicians in the world. Contact your MDI Mini dental implant representative to learn more about MDI Certification seminars.

**MDI Certification Seminars Offer:**
- Expert instructors
- Hands-On Practice with realistic anatomical models (yours to keep)
- Group discussion
- Opportunity to review potential MDI case diagnostics with your instructor

**MDI Certification Mini-Residencies Offer:**
- Expert instructors
- LIVE surgical demonstration by your instructor in their clinic
- Group discussion
- Opportunity to review potential MDI case diagnostics with your instructor
## 1.8 mm Diameter Implants

### O-Ball Implants

<table>
<thead>
<tr>
<th>Ø 1.8 mm</th>
<th>10 mm</th>
<th>13 mm</th>
<th>15 mm</th>
<th>18 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collared O-Ball Implants</td>
<td>OB-10</td>
<td>OB-13</td>
<td>OB-15</td>
<td>OB-18</td>
</tr>
<tr>
<td>Classic O-Ball Implants</td>
<td>S1810OB</td>
<td>S1813OB</td>
<td>S1815OB</td>
<td>S1818OB</td>
</tr>
</tbody>
</table>

### Square Head Implants

<table>
<thead>
<tr>
<th>Ø 1.8 mm</th>
<th>10 mm</th>
<th>13 mm</th>
<th>15 mm</th>
<th>18 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collared Square Head Implants</td>
<td>SH-10</td>
<td>SH-13</td>
<td>SH-15</td>
<td>SH-18</td>
</tr>
</tbody>
</table>
# 3M™ ESPE™ MDI Mini Dental Implants
## 2.1 mm Diameter Implants

### Ø 2.1 mm

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Length</th>
<th>Collared O-Ball Implants</th>
<th>Classic O-Ball Implants</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>10 mm</td>
<td>I OB-10</td>
<td>S1810IOB</td>
</tr>
<tr>
<td></td>
<td>13 mm</td>
<td>I OB-13</td>
<td>S1813IOB</td>
</tr>
<tr>
<td></td>
<td>15 mm</td>
<td>I OB-15</td>
<td>S1815IOB</td>
</tr>
<tr>
<td></td>
<td>18 mm</td>
<td>I OB-18</td>
<td>S1818IOB</td>
</tr>
</tbody>
</table>

- **Prosthetic Head**: Ø 1.8 mm
- **Thread Length**:
  - 4 mm
  - 2.5 mm
  - 10 mm
  - 13 mm
  - 15 mm
  - 18 mm

- **Polished Threads**: Ø 2.1 mm
- **Transgingival Collar**: Ø 2.7 mm

---

3M™ ESPE™ MDI Mini Dental Implants
2.1 mm Diameter Implants
2.4 mm Diameter Implants

**O-Ball Implants**

<table>
<thead>
<tr>
<th>Ø 2.4 mm</th>
<th>10 mm</th>
<th>13 mm</th>
<th>15 mm</th>
<th>18 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOB-10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOB-13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOB-15</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>MOB-18</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Classic O-Ball Implants**

<table>
<thead>
<tr>
<th>Ø 2.4 mm</th>
<th>10 mm</th>
<th>13 mm</th>
<th>15 mm</th>
<th>18 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1810MOB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1813MOB</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>S1815MOB</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>S1818MOB</td>
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</table>

**Collared O-Ball Implants**

**Square Head Implants**

<table>
<thead>
<tr>
<th>Ø 2.4 mm</th>
<th>10 mm</th>
<th>13 mm</th>
<th>15 mm</th>
<th>18 mm</th>
</tr>
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<tbody>
<tr>
<td>MSH-10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSH-13</td>
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<tr>
<td>MSH-15</td>
<td></td>
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</tr>
<tr>
<td>MSH-18</td>
<td></td>
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</tbody>
</table>

**Collared Square Head Implants**
MDI Radiographic Transparencies

- Radiographic Transparency for MDI Implants with Collar
- Radiographic Transparency for MDI Implants without Collar
- Radiographic Transparency for 2.9 mm MDI Implants

3M ESPE provides MDI radiographic transparencies at no charge. Ask your 3M ESPE implant representative for details.

### MDI Implant Selection Guide

<table>
<thead>
<tr>
<th>Implant Type</th>
<th>Bone Density*</th>
<th>Soft-Tissue Depth</th>
<th>Buccolingual Width</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>D1</td>
<td>D2</td>
<td>D3</td>
</tr>
<tr>
<td>Ø 1.8 mm with Collar</td>
<td>✓</td>
<td>✓</td>
<td>NR</td>
</tr>
<tr>
<td>Ø 1.8 mm without Collar</td>
<td>✓</td>
<td>✓</td>
<td>NR</td>
</tr>
<tr>
<td>Ø 2.1 mm with Collar</td>
<td>✓</td>
<td>✓</td>
<td>NR</td>
</tr>
<tr>
<td>Ø 2.1 mm without Collar</td>
<td>✓</td>
<td>✓</td>
<td>NR</td>
</tr>
<tr>
<td>Ø 2.4 mm with Collar</td>
<td>NR</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ø 2.4 mm without Collar</td>
<td>NR</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ø 2.9 mm with Collar</td>
<td>NR</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

*D1 = Very Dense Bone
*D4 = Very Soft Bone
NR = Not Recommended
Prosthetics

Metal Housings

<table>
<thead>
<tr>
<th></th>
<th>MH-1</th>
<th>MH-2</th>
<th>MH-3</th>
<th>S1014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Metal Housing</td>
<td>Micro Metal Housing</td>
<td>O-Cap</td>
<td>1.4 mm MDI Diamond Bur*</td>
</tr>
<tr>
<td>Height</td>
<td>3.6 mm</td>
<td>3.3 mm</td>
<td>3.0 mm</td>
<td>3.0 mm</td>
</tr>
<tr>
<td>Ø Diameter</td>
<td>4.75 mm</td>
<td>4.3 mm</td>
<td>4.0 mm</td>
<td>4.0 mm</td>
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* Used for retention reduction of O-rings.

O-Rings

Replacement O-Ring – For Metal Housing

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>0550-01</td>
<td>Standard MH-1 MDI O-Ring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0550-10</td>
<td>Standard MH-1 MDI O-Ring (10 pack)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0550-25</td>
<td>Standard MH-1 MDI O-Ring (25 pack)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Replacement O-Ring – For Micro Metal Housing & O-Cap

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<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>0351-01</td>
<td>Micro MH-2 MDI O-Ring</td>
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<td></td>
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<tr>
<td>0351-10</td>
<td>Micro MH-2 MDI O-Ring (10 pack)</td>
<td></td>
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</tr>
<tr>
<td>0351-25</td>
<td>Micro MH-2 MDI O-Ring (25 pack)</td>
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Blockout Shims

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
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<tbody>
<tr>
<td>S1010</td>
<td>Blockout Shims (Pack of 25)</td>
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Lab Analogs & Restorative Copings for 1.8 mm, 2.1 mm & 2.4 mm Implants

Lab Analogs – O-Ball & Square Head

<p>| | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>5118</td>
<td>MDI O-Ball Prosthetic Head Analog</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LA0B</td>
<td>MDI Collared Standard O-Ball Analog</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LASH</td>
<td>MDI Collared Standard Square Head Analog</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Restorative Copings – O-Ball

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>2921</td>
<td>MDI 2.9 mm O-Ball Impression Coping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2924</td>
<td>MDI O-Ball Immediate Temporization Cap</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S4118</td>
<td>MDI Impression &amp; Waxing Coping*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Compatible with O-Ball & Square Head Implants
Lab Analogs & Restorative Copings for MDI 2.9 mm One-Piece Implants

Lab Analog – O-Ball & Tapered Abutment

| MII-LA | MDI 2.9 mm Hybrid Lab Analog |

Restorative Copings – O-Ball

| 2921 | MDI 2.9 mm O-Ball Impression Coping |
| 2924 | MDI O-Ball Immediate Temporization Cap |
| S4118 | MDI Impression & Waxing Coping* |

*Compatible with O-Ball & Square Head Implants.

Restorative Copings – Tapered Abutment

| 2920 | MDI 2.9 mm Tapered Abutment Impression Coping |
| 2923 | MDI Tapered Abutment Immediate Temporization Cap |
| 2922 | MDI Tapered Abutment Waxing Coping |

Lab Analog Kit for MDI 2.9 mm One-Piece O-Ball Head

| MII-LAKO | MDI 2.9 mm Hybrid Lab Analog Kit O-Ball Abutment |

| MII-LA | 2921 | 2924 |

Lab Analog Kit for MDI 2.9 mm One-Piece Tapered Abutment

| MII-LAKT | MDI 2.9 mm Hybrid Lab Analog Kit Taper Head |

| MII-LA | 2920 | 2923 |
Instruments & Drivers

Site Preparation

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<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>1325</td>
<td>Ridge Mapping Caliper</td>
</tr>
<tr>
<td>S0150</td>
<td>1.5 mm Tissue Punch</td>
</tr>
<tr>
<td>S1011</td>
<td>1.1 mm MDI Surgical Drill (Sterile)</td>
</tr>
<tr>
<td>2000</td>
<td>15 mm Irrigated Drill Extender</td>
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Optional

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<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>2020</td>
<td>Locator Drill</td>
</tr>
<tr>
<td>S1013</td>
<td>1.3 mm MDI Surgical Drill</td>
</tr>
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For use with MDI 2.9 mm Implants

<table>
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<tbody>
<tr>
<td>2012-01</td>
<td>2.0 mm MDI Surgical Drill</td>
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<tr>
<td>2011D</td>
<td>MDI Drill Duo Kit*</td>
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</table>

*2011D includes the 1.8 mm Pilot Drill and 1.4 mm Round Bur.

Drivers, Wrenches, Ratchet Extension & Adapters

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>S9030</td>
<td>MDI Finger Driver</td>
</tr>
<tr>
<td>S9032</td>
<td>MDI Winged Thumb Wrench</td>
</tr>
<tr>
<td>8010</td>
<td>Ratchet Wrench</td>
</tr>
<tr>
<td>8070</td>
<td>Graduated Torque Wrench (including 8071)</td>
</tr>
<tr>
<td>1030</td>
<td>Titanium Locking Pliers for Implants</td>
</tr>
<tr>
<td>8016</td>
<td>16 mm Ratchet Wrench Extension</td>
</tr>
<tr>
<td>S7015</td>
<td>MDI Ratchet Adapter Long</td>
</tr>
<tr>
<td>S7011</td>
<td>MDI Ratchet Adapter Medium</td>
</tr>
<tr>
<td>S7007</td>
<td>MDI Ratchet Adapter Short</td>
</tr>
<tr>
<td>8071</td>
<td>MDI Torque Wrench Replacement Socket (for 8070)</td>
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</tbody>
</table>

1030 16 mm Titanium Locking Pliers for Implants
3M™ ESPE™ MDI Mini Dental Implants
Surgical & Restorative Kit & Accessories

Surgical & Prosthetic Kit

S1805* MDI Surgical & Prosthetic Kit
Includes:
- 1.1 mm MDI Surgical Drill (Qty. 5) S1011
- MDI Finger Driver S9030
- MDI Winged Thumb Wrench S9032
- MDI Ratchet Adapter Short – 5 mm S7007
- Ratchet Extension – 16 mm 8016
- Blockout Shims (Pack of 25) S1010
- Titanium Locking Pliers 1030
- MDI Surgical Box 1303
- SECURE Hard Pick-Up Kit 8720
- Secure Dispensing Gun 8028

S1801* MDI Surgical & Prosthetic Kit
Includes:
- 1.1 mm MDI Surgical Drill (Qty. 3) S1011
- MDI Finger Driver S9030
- MDI Winged Thumb Wrench S9032
- MDI Ratchet Adapter Short – 5 mm S7007
- Ratchet Extension – 16 mm 8016
- Blockout Shims (Pack of 25) S1010
- MDI Small Surgical Box 0121

*Ratched Wrench not included

Patient Demonstration Models

SMDI-001
SMDI-003
SMDI-004
SMDI-005

SMDI-001 MDI Model Clear Acrylic Base
SMDI-003 MDI Model Maxilla Base
SMDI-004 MDI Model Pink Acrylic Base
SMDI-005 MDI Hybrid Model

ACCESS Toothbrush

6008-12 ACCESS Toothbrush Bristle Density #1 (Pack of 12)
6009-12 ACCESS Toothbrush Bristle Density #2 (Pack of 12)
Denture Materials

SECURE Hard Pick-Up and SECURE Soft Reline materials are fast and easy chair-side products that can be applied in one session. These proprietary materials are perfectly mixed from the 1:1 safety cartridge for simple, time-saving and bubble free applications. Both products are odorless, tasteless and provide color stability. They are also aesthetic and allow for high patient acceptance and comfort.

SECURE Hard Pick-Up Kit

SECURE Hard Pick-Up creates a smooth surface and allows new layers to be added at any time. Additional benefits are low heat development while polymerizing and the odorless, tasteless quality of the material.

8720 SECURE Hard Pick-Up Kit

Contents:
- 50 ml safety cartridge of hard pick-up material
- 10 ml adhesive
- Accessories

SECURE Soft Reline Kit

SECURE Soft Reline has high biocompatibility and reduces irritation of the mucosal membrane. It provides a stable adhesion between the silicone and the denture. SECURE Soft Reline is easy to clean and has permanent elasticity.

8120 SECURE Soft Reline Kit

Contents:
- 50 ml safety cartridge of soft reline material
- 10 ml glazing catalyst
- 10 ml glazing base
- 10 ml adhesive
- Accessories

SECURE Accessories

8366-10 Insertion Tips Type 1 (Pack of 10)
8448-10 Mixing Tips Type 8 (Pack of 10)
8449-12 Adhesive Brushes (Pack of 12)
1.8 mm, 2.1 mm and 2.4 mm Implants

Collared O-Ball Implants
Corresponds with Lab Analog LAOB

1.8 mm diameter: OB-10
2.1 mm diameter: OB-13
2.4 mm diameter: OB-18

Classic O-Ball Implants
Corresponds with Lab Analog S118

1.8 mm diameter: S1810DB
2.1 mm diameter: S1813DB
2.4 mm diameter: S1818DB

Collared Square Head Implants
Corresponds with Lab Analog LASH

1.8 mm diameter: SH-18
2.1 mm diameter: SH-15
2.4 mm diameter: SH-13

Collared O-Ball Analog
Corresponds with Lab Analog LAOB

O-Ball/ Square Head Waxing Copings

O-Ball Restorative Copings

O-Ball/ Square Head Waxing Coping

Corresponds with Lab Analog LASH

Metal Housings

Standard
MH-1
 MH-2
 MH-3

0550-01
0351-01

0-Rings

O-Rings

Blockout Shim

S1010

3M™ ESPE™ MDI Mini Dental Implants
Prosthetic Flow Chart
2.9 mm Implants

O-Ball Implants

Tapered Abutment Implants

2.9 mm diameter
10 mm — MI-DB10
13 mm — MI-DB13
15 mm — MI-DB15
18 mm — MI-DB18

2.9 mm diameter
10 mm — MI-T10
13 mm — MI-T13
15 mm — MI-T15
18 mm — MI-T18

Blockout Shim
S1010

Metal Housings

Standard
MH-1

Micro
MH-2

O-Cap
MH-3

O-Rings

0550-01
0351-01

O-Ball

2.9 mm Hybrid Lab Analog Coping
MII-LA

Tapered Abutment

2.9 mm Hybrid Lab Analog Kit
MII-LAKO

Tapered Abutment Restorative Copings

2920
Tapered Abutment Impression Coping

2923
Tapered Abutment Immediate Temporization Cap

2922
Tapered Abutment Waxing Coping

MII-LAKT
2.9 mm Hybrid Lab Analog Kit (Tapered Abutment)

O-Ball Restorative Copings

2921
O-Ball Impression Coping

2924
O-Ball Immediate Temporization Cap

S4118
O-Ball Waxing Coping

S1010

MDI 2.9 mm Hybrid Lab Analog Kits

MII-LA
2921 2924

MII-LA
2920 2923
Mandibular Denture Stabilization

Preoperative Planning

After patient selection and evaluation protocols have been completed, the number of MDI implants required (minimum of four) is determined and thoroughly discussed with the patient. The patient’s lower denture is then fabricated or modified, followed by identification of appropriate implant sites. After site selection, the MDI implants should be placed at least 5 mm apart. For mandibular placement, the implants should be placed beginning at least 7 mm anterior to the mental foramen.

1 Site Preparation

- Entry points for each MDI implant are marked on the patient’s tissue via bleeding points or a marker.
- The 1.1 mm Pilot Drill is delicately placed over the entry point and lightly pumped up and down until the cortical plate is penetrated. No incision is necessary in most cases.
- The average depth is one-third to one-half the threaded length of the implant. Sterile irrigation is utilized throughout the drilling procedure.
- In extremely dense bone an extended penetration may be required. Optionally, a 1.3 mm MDI drill (S1013) may be necessary to further widen the drill channel.
- The pilot hole depth should never equal the length of the implant, as the tip of the drill is wider than the tip of the implant.
- Recommended motor RPM = 1200–1500

2 Use of Finger Driver

- Open the MDI implant vial.**
- Carry implant to the site using the vial cap, or grasp the body of the implant firmly with titanium locking pliers, and attach the Finger Driver to the head of the implant. (It has a friction grip o-ring and can be used as a carrier to the patient’s mouth, as well as a beginning surgical driver.)
- After inserting the implant into the pilot opening through the attached gingiva, rotate clockwise while exerting downward pressure.
- This procedure initiates the self-tapping process and is used until noticeable bony resistance is encountered.

*The 1.5 mm Disposable Tissue Punch can be used to remove mobile mucosa.

**All MDI Implants are delivered sterile.
3 Use of the Winged Thumb Wrench

Use the Winged Thumb Wrench to thread the implant into place until the wrench becomes difficult to turn.

**IMPORTANT:** If no significant resistance is met during this mid-stage of insertion, the prognosis for the implant reaching its full potential is doubtful. The patient’s bone at this site possibly lacks the required density for predictable success.

4 Use of the Ratchet or Graduated Torque Wrench with Ratchet Adapter

- The Ratchet Wrench or Graduated Torque Wrench will then finalize the insertion process.
- Grasp the wrench (with the directional arrow facing clockwise) and engage the square neck of the Ratchet Adapter into the square opening of wrench.
- This final stage of MDI implant placement requires slow, carefully controlled ratchet turns.
- The ideal implant position allows the abutment head to protrude from the gingival soft tissue at its full length but with no neck or thread portions visible.
- Advance the implant with the Torque Wrench to a minimum of 35 Ncm to allow immediate load.
- If a resistance of at least 35 Ncm cannot be reached a temporary soft-loading without metal housings is recommended.

**CAUTION IN DENSE BONE:** If torque exceeds 45 Ncm unscrew the implant and deepen the drill hole to 2/3 of implant length.

5 Final Implant Positioning

A minimum of 4 MDI implants is required to stabilize a full lower denture.

**IMPORTANT:** The removable o-ring attachments inside an over-denture will not loosen an integrated MDI implant. A loose implant is one that did not fully integrate into the bone. The primary reason for non-integration is over-instrumentation of the bone. The MDI implant utilizes a fully self-tapping protocol. It demands that the implant bite into the bone and advance itself from the initial point to completion. The procedure requires torquing forces that progress from the Finger Driver to the Winged Thumb Wrench to Ratchet or Torque Wrench with the Ratchet Adapter.
Maxillary Denture Stabilization

1 Site Preparation

Entry points are made with the Pilot Drill (Item S1011) by perforating the cortical plate.

2 Use of the Finger Driver

Insertion of the MDI implant begins with the vial cap and continues with the Finger Driver until more torque is necessary.

2.4 mm diameter MDI implants require use of the 1.1 mm Pilot Drill (Item S1011).

2.9 mm diameter MDI implants require use of the Disposable Tissue Punch (Item S0150)* followed by the Drill Duo Kit (Item 2011D). Optionally, in dense bone a 2.0 mm MDI drill (2012-01) may be necessary to widen the drill channel.

*S The 1.5 mm Disposable Tissue Punch can be used to remove mobile mucosa.
3 Use of the Winged Thumb Wrench

Insertion continues with the Winged Thumb Wrench.

4 Use of the Ratchet or Graduated Torque Wrench with the Ratchet Adapter

To verify initial stability is sufficient for each implant, connect the Graduated Torque Wrench and confirm at least 35 Ncm of resistance.

If there is less than 35 Ncm of resistance — which might frequently be the case in maxillary bone — a temporary soft-loading without metal housings is recommended.

**IMPORTANT:** If no significant resistance is met during this mid-stage of insertion, the prognosis for the implant reaching its full potential is doubtful. The patient’s bone at this site possibly lacks the required density for predictable success.

5 Final Implant Positioning

A minimum of 6 MDI implants are required to stabilize a full maxillary denture.

**IMPORTANT:** The removable O-ring attachments inside an over-denture will not loosen an integrated MDI implant. A loose implant is one that did not fully integrate into the bone. The primary reason for non-integration is over-instrumentation of the bone. The MDI implant utilizes a fully self-tapping protocol. It demands that the implant bite into the bone and advance itself from the initial point to completion. The procedure requires torquing forces that progress from the Finger Driver to the Winged Thumb Wrench to Ratchet or Torque Wrench with the Ratchet Adapter.

6 Restorative Protocol

For maxillary denture stabilization cases using MDI, a soft reline without metal housing attachments is recommended for the first 4–6 months (see page 20 for Soft Reline Protocol). After osseointegration is complete, the denture can be retrofitted with metal housings (see page 18 for Hard Pick-Up Protocol).
SECURE Hard Pick-Up Protocol

1. Relieve denture to accommodate implants and metal housings, creating individual holes or a trough.

2. Trim Blockout Shims to appropriate length and place one shim on each implant to block out undercuts.

3. Place Metal Housings on each implant and check for passive fit over shims. Place denture in patient’s mouth and check for passive fit over implants and housings.

4. Apply a thin layer of adhesive to the tissue-contact surface of the denture.
Extrude SECURE Hard Pick-Up material directly onto Metal Housings and into the troughed denture.

Seat denture in patient’s mouth and have patient apply normal bite pressure in centric occlusion and allow 7–9 minutes for SECURE Hard Pick-Up material to set.

Remove denture and all blockout shims, trim and polish. Seat the final denture and inform the patient to keep the denture in place for the first 48 hours after placement to prevent tissue overgrowth.

**SECURE Hard Pick-Up Kit**

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<tr>
<th>8720</th>
<th>SECURE Hard Pick-Up Kit</th>
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<tbody>
<tr>
<td></td>
<td>Contents:</td>
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<tr>
<td></td>
<td>• 50 ml safety cartridge of hard pick-up material</td>
</tr>
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<td></td>
<td>• 10 ml adhesive</td>
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<td>• Accessories</td>
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SECURE Soft Reline Protocol

Recommended for maxillary cases. May be necessary when implants are placed in softer bone in the mandible.

- Grind down denture base at least 1mm and relieve denture to accommodate the prosthetic heads of each implant.
- Roughen the tissue-contact surface of the denture with an acrylic bur and degrease the surface with isopropyl alcohol.
- Apply a thin coat of adhesive.
- Extrude SECURE Soft Reline material onto the tissue-contact surface of the denture.
- Place the denture in the patient’s mouth and ask patient to apply normal bite pressure in centric occlusion.
- Allow seven minutes for SECURE Soft Reline material to set.
- Remove denture and trim excess material with fine scissors or a surgical blade.

- Mix equal drops of glazing base and catalyst.
- Use a brush to apply the mixture to the corresponding margins.
- DO NOT remove the palate of a maxillary denture during this stage.
- Ask the patient to keep the denture in place for the first 48 hours after placement to prevent tissue overgrowth.
- Four to six months after soft load, the soft liner can be replaced with a hard pick-up of the MDI Metal Housings (follow instructions for “SECURE Hard Pick-Up Protocol”) to increase the level of retention.

SECURE Soft Reline Kit

8120 SECURE Soft Reline Kit

Contents:
- 50 ml safety cartridge of soft reline material
- 10 ml glazing catalyst
- 10 ml glazing base
- 10 ml adhesive
- Accessories
Indirect Restorative Protocol

1. Seating the Copings
Snap the O-Ball Impression Copings directly onto each O-Ball MDI Implant.

**NOTE:** Soft tissue may prevent full engagement of the coping on implants seated too deeply into soft tissue. In such a case, it is recommended to take an impression of the O-Ball head of the implant without impression copings applied.

2. Seating the Impression
Standard crown and bridge impression techniques are used to pick up the impression copings, recording each implant’s position easily and accurately. 3M™ ESPE™ Impregum™ Polyether Impression Material is recommended for implant impressions.

3. Removal of the Impression
Once the impression has fully set, carefully remove the tray from the patient’s mouth and confirm all impression copings have been captured accurately in the impression.

4. Insertion of the Lab Analogs
This step can be observed in the clinic or at the dental laboratory.

Confirm the appropriate MDI Lab Analog will be inserted by reviewing the type of MDI O-Ball Implant used in the case. Use the Collared O-Ball Analog (LAOB) any time Collared O-Ball MDI Implants are used. When Classic O-Ball MDI Implants are used, coordinate the case using Classic O-Ball Analogs (5118).

Align the square neck of MDI Analog with the square opening at the base of the Impression Coping. Press the analog into the coping until a snap fit is observed. Insert a lab analog into each coping and prepare the impression to be used to fabricate a stone model.

5. Fabrication of the model
Use standard stone model fabrication techniques to form the model. Once the stone has set completely, carefully remove the impression from the model.
Surgical Protocol

2.9 mm MDI implants are not recommended for placement in extremely dense (D1) or extremely soft (D4) bone.

1 Site Preparation

1a Probe soft tissue at implant site and record tissue thickness.

1b Remove soft tissue at implant site using the 1.5 mm tissue punch.

1c Create pilot hole using 1200–1500 rpm and sterile irrigation.

Soft Bone Drilling Protocol (D3 Bone)

Entry divots are made with the Round Bur (included in item 2011D). Then the 1.8 mm MDI drill (included in item 2011D) is used to perforate the cortical plate.

Dense Bone Drilling Protocol (D2 Bone)

Entry divots are made with the Round Bur. Pilot holes then made with the 1.8 mm Pilot Drill should have a depth equal to approximately ½ the length of the planned implant plus the measurement of soft tissue thickness. Optionally, in dense bone a 2.0 mm MDI drill (2012-01) may be necessary to widen the drill channel. An endodontic stopper is helpful in marking appropriate depth.

Example: For a 13 mm implant in a site with 2.5 mm soft tissue thickness, a pilot hole of approx. 9 mm is ideal (6.5 mm + 2.5 mm = 9 mm).
Implant Placement

2 Use of the Finger Driver

Insertion of the MDI implant begins with the vial cap or with the Finger Driver and continues with the Finger Driver until more torque is necessary.

3 Use of the Winged Thumb Wrench

Insertion continues with the Winged Thumb Wrench.

4 Use of the Ratchet or Graduated Torque Wrench with the Ratchet Adapter

Insertion continues with the Ratchet Adapter connected to the Ratchet or Graduated Torque Wrench.

To verify initial stability is sufficient for each implant, connect the Ratchet Adapter to the Graduated Torque Wrench and confirm at least 35 Ncm of resistance.

5 Final Implant Positioning

Final placement is achieved once all blasted surfaces are engaged in bone, and the crown margin is positioned at the appropriate level subgingivally.

NOTE: For instructions on impressioning and temporization, see the following page.
Impression & Temporization Protocol

1 Taking An Impression

A Pick-Up impression is made using the retentive impression coping.

2 Forming the Temporary Restoration

Once adjacent teeth are lubricated with petroleum jelly, Tapered Abutment (2923) or O-Ball (2924) Immediate Temporization Caps are seated on the implants. 3M™ ESPE™ Protemp™ 4 Temporization Material* is then extruded in the temporary crown impression or stint and placed in the patient’s mouth for 1 minute and 40 seconds to 2 minutes and 50 seconds from the onset of mixing.

3 Finishing the Temporary Restoration

Remove the temporary restoration and cap (now bonded together) from the patient’s mouth. Let the material continue to cure in the matrix for a total of 5 minutes from the onset of mixing. Trim excess flash and remove oxygen inhibition layer with alcohol. Press temporary restoration in place directly on implant abutments. 3M™ ESPE™ RelyX™ Temporary Cement (Eugenol or Non-Eugenol) is optional due to the retentive nature of the Temporization Cap. If you need to add to the temporization material, you can use the shade matching restorative material from the 3M™ ESPE™ Filtek™ line.*

* For more information on ordering 3M ESPE products visit www.3MESPE.com
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3M ESPE is committed to help redefine the evolving field of dentistry, with the goal of providing products and services that transform the way clinicians practice today.

MDI Mini Dental Implant System
Great care is taken in the selection of materials, production methods, sterilization and packaging of 3M ESPE dental implants and associated components. Strict inspection procedures have been established to ensure all 3M ESPE dental implant products are in compliance with an array of regulatory standards.

3M ESPE dental implant products are manufactured under a certified ISO 13485 quality system and FDA’s Good Manufacturing Practices (GMP). In addition, they meet the stringent European Medical Device Directive and thus can carry the CE mark. 3M ESPE dental implant products have been cleared by the Food and Drug Administration (FDA) to be marketed and sold in the United States. This demonstrates 3M ESPE’s commitment to quality and patient safety.

Quality
3M ESPE dental implant products meet the rigid specifications of the medical device regulations. Many of the products and components are subject to 100% inspection during various stages of production.

Packaging
MDI implants and sterile components utilize packaging configurations that have been validated to provide clean, sterile barriers for a duration of at least five years. Each sterile device includes a removable patient chart label for future referencing and simplified record keeping. Dental instrumentation and components are provided non-sterile unless otherwise noted.

Commitment
Our commitment is to provide the dental profession with state of the art, cost effective dental implants and associated products, coupled with competent, reliable customer service. We stand ready to serve you at all times. Please visit our website at www.3MESPE.com to locate your 3M ESPE office for more information.

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