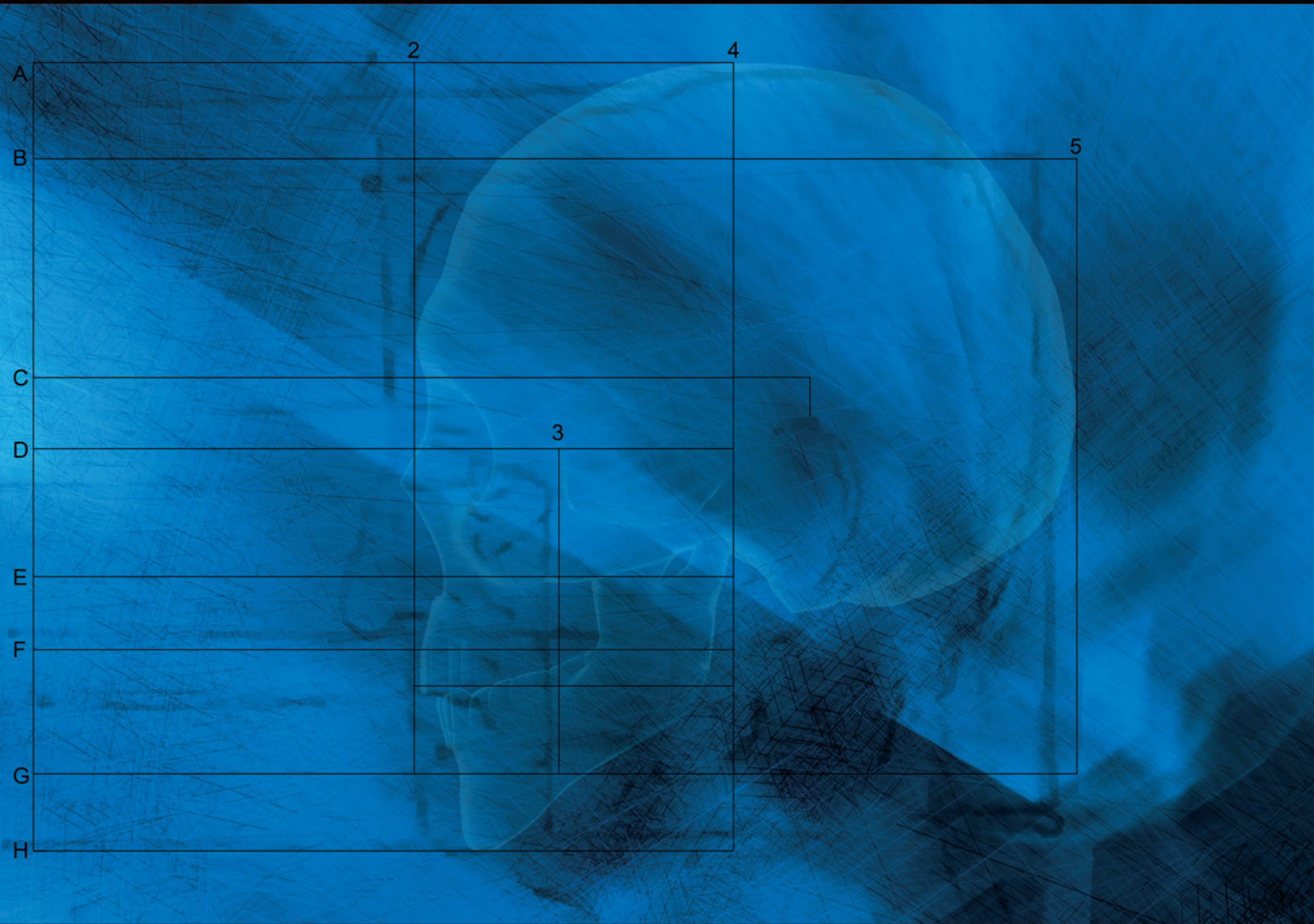




A TRADITION OF QUALITY AND INNOVATION



OsteoMed Rigid Fixation Instrumentation

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Rigid Fixation Instrumentation

1. Fracture Reduction

Fracture Reduction Options:

- **Bone Manipulation Screw (220-0593):**



- Drive Bone Manipulation Screw into fractured zygoma
- Utilize Bone Manipulation Screw to manipulate fracture fragments until reduction is achieved
- **Note: May be used intraorally or transcutaneous**

- **Reduction Forceps (220-0522):**



- Insert Reduction Forceps into pre-drilled anchor holes within fracture segments
- Squeeze Reduction Forceps until fracture is reduced

2. Select appropriate plate that will:

- Adequately bridge the defect
- Provide stable fixation
- Fit structure of anatomical region
- Return form and function of fractured bone

3. Contour and cut plate to match anatomic location of the fracture

Contouring Options:

- **Plate Bending Forceps (220-0049):**



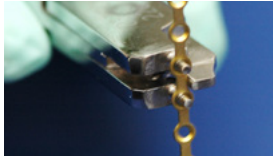
- Grasp plate with Plate Bending Forceps
- Manipulate plate to desired shape
- Use forceps or hands to provide supplementary stability to plate during contouring
- Use with appropriate plates-1.2mm/1.6mm/2.0mm plates
- **Note: Do not use with 2.0mm locking plates**

- **Right Angle Plate Bender (220-0024):**



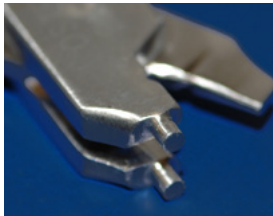
- Grasp plate with Right Angle Plate Bender
- Squeeze the Right Angle Plate Bender until plate forms right angle and desired shape
- Use forceps or hands to provide supplementary stability to plate during contouring
- Use with appropriate plates-1.2mm/1.6mm/2.0mm plates
- **Note: Do not use with 2.0mm locking plates**

- **3 Prong Midface/Micro Plate Bender (220-0574):**



- Place plate onto two prong side of 3 Prong Midface/Micro Plate Bender, allow prongs to penetrate screw holes of plates
- Squeeze 3 Prong Midface/Micro Plate Bender until plate bends to desired angle
- Use forceps or hands to provide supplementary stability to plate during contouring
- Use with appropriate plates - 212-0034, 212-1032, 218-0038

- **3 Prong Mini Plate Bender (220-0043):**



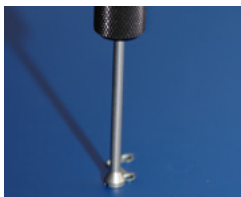
- Place plate onto two prong side of 3 Prong Mini Plate Bender, allow prongs to penetrate screw holes of plates
- Squeeze 3 Prong Mini Plate Bender until plate bends to desired angle
- Use forceps or hands to provide supplementary stability to plate during contouring
- Use with appropriate plates - 210-0032, 210-0034, 210-0232

- **Calibrated Micro/Mini Plate Bender (220-0046):**



- Grasp plate so that plate is parallel with appropriate calibrated plate bender's etching, the numbers on Calibrated Plate Benders denote length of step provided
- Example: 2 on Calibrated Plate Bender will yield 2mm step, post bending
- Use forceps to ensure accurate step bend of plate and to provide supplementary stability to plate during contouring
- Use with appropriate plates - 1.2mm/1.6mm/2.0mm plates

- **1.6mm On-Bone Plate Bender (220-0229):**



- Insert On-Bone Plate Bender into Screwdriver Body
- Grasp plate at screw hole that does not already contain screw
- Manipulate plate to desired shape
- Use with appropriate plates - 213-0000 through 213-0010
- **Note: Plate should already be secured to bone with screws except at screw hole being contoured**

- **Fracture Plate Bending Pliers (220-0566, 220-0657):**



- Place plate in Fracture Plate Bending Pliers so that plate fits in recessed area
- Manipulate plate to desired shape
- Use with appropriate plates- 2.0mm/2.4mm fracture plates
- **Note: Medial holes will not fit in recess**
- **Note: Anterior flat in bending pliers is to be used to contour medial portion of plates**

- **Reconstruction Plate Bending Pliers (220-0529, 220-0548):**



- Place plate in Reconstruction Plate Bending Pliers so that plate fits in recessed area
- Manipulate plate to desired shape
- Use with appropriate plates- 2.4mm reconstruction plates
- **Note: When using a pre-bent reconstruction plate, screw holes in bend will not recess into pliers**

- **Universal Plate Bender (220-0575):**

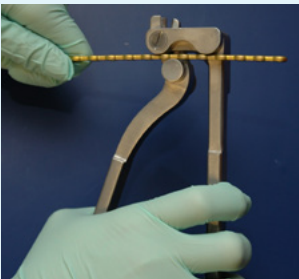


- Place plate in 1 of 3 options on Universal Plate Bender:
- **Note: Do not bend directly over the plate hole**
- **Note: Use with appropriate plates - 2.0mm/2.4mm fracture/2.4mm reconstruction plates**



Option 1:

- Place plate between prongs
- Squeeze Universal Plate Bender until plate bends to desired angle



Option 2:

- Place plate between full circle and 2 convex, semi-circles
- Squeeze Universal Plate Bender until plate bends to desired angle

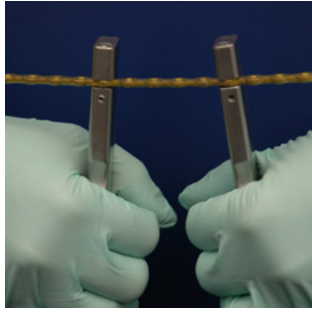


Option 3:

- Place plate between circle and concave semi-circle
- Squeeze until plate bends to desired angle

- **Bending Iron (220-0510):**

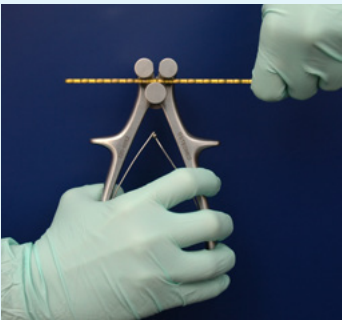
- Place plate into 1 of 3 recessed areas
- Manipulate plate to desired shape
- Use with appropriate plates - 2.4mm reconstruction plates



- **Recon Plate Roller Bender (220-0052):**

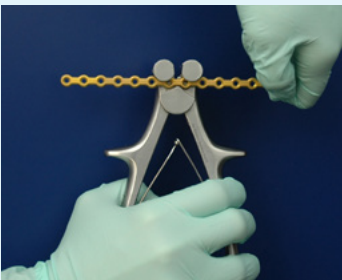
- Place plate in 1 of 2 options on Recon Plate Roller Bender

Note: Always contour between plate holes



Option 1:

- Place plate between 3 circles
- Squeeze Recon Plate Roller Bender until plate bends to desired angle



Option 2:

- Place plate between 2 circles and step
- Squeeze Recon Plate Roller Bender until plate bends to desired angle
- Use with appropriate plates - 2.4mm reconstruction plates

Cutting Options:

- **Plate Cutter (220-0028):**



- Place plate into cutting jaw
- Squeeze Plate Cutter until plate is separated into 2 pieces
- Use with appropriate plates - 1.2mm/1.6mm plates

- **Rigid Mini Plate Cutter (220-0077):**



- Place plate into cutting jaw
- Squeeze Rigid Mini Plate Cutter until plate is separated into 2 pieces
- Use with appropriate plates - 1.2mm/1.6mm/2.0mm plates
- **Note: Do not use with 2.0mm locking plates**



- **Geomed Cutter (220-0711):**



- Place plate into cutting jaw
- Squeeze Geomed Cutter until plate is separated into 2 pieces
- Use with appropriate plates – 1.2mm/1.6mm/2.0mm/2.4mm fracture plates

Cutting Options:

- **Round Reconstruction Plate Cutter Assembly (220-0584, 220-0585, 220-0532, 220-0533):**
 - Place plate into handle labeled 'cut'
 - Slide second handle into first handle until plate is secure
 - Rotate handles in towards each other and then back apart, repeat this until plate is separated into 2 pieces
 - Use with appropriate plates - 2.0mm/2.4mm fracture/2.4mm reconstruction plates



- ***Note: Plate cutters may leave sharp edges which could lead to patient discomfort if left uncorrected***

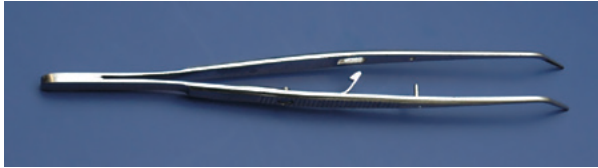
Notes: _____

4. Plate Positioning

Plate Positioning Options:

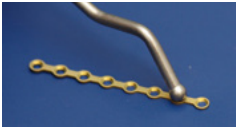
• Small Grasping Forceps (220-0027):

- Grasp plate with Small Grasping Forceps
- Position plate where desired
- Use with appropriate plates -1.2mm/1.6mm/2.0mm/2.4mm fracture/2.4mm reconstruction plates



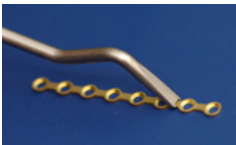
• Plate Holders (220-0590, 220-0591, 220-0592):

- Position plate with Plate Holders using 1 of 2 options



Option 1:

- Place ball portion of plate holders in screw hole of plate
- Position plate where desired



Option 2:

- Place flat portion of plate holders between screw holes of plate
- Position plate where desired
- Use with appropriate plates -1.2 mm/1.6mm/2.0mm plates



• Plate to Bone Forceps (220-0524, 220-0525):

- Place ball portion of bone forceps in screw hole of plate
- Position pointed portion of bone forceps onto bone and adjust plate as desired
- Use with appropriate plates - 2.4mm fracture/2.4mm reconstruction plates
- **Note:** *Trocar systems also offer plate holding caps that position plate against mandible*



5. Select Screw

Screw Options:

- Auto-Drive ®
- Standard
- Locking
- Angled Locking

6. Select trocar system: When Transbuccal Approach is necessary follow sequence below to achieve desired surgical results

- Select cheek retractor

Cheek Retractor Options:

- **U-Shaped Cheek Retractor (220-0712)**
- **Clamping Cheek Retractor (220-0577)**
- **Blade Cheek Retractor (220-0516)**



- Select appropriate Modular Cannula

Cannula Options:

- **Long Pointed Modular Cannula (220-0580)**
- **Short Pointed Modular Cannula (220-0579)**
- **Mandible Modular Cannula (220-0589)**



- Attach Modular Cannula to Modular Handle



- Select appropriate Trocar by matching **banding** on Modular Cannula with **banding** on Trocar



- Insert Trocar into Modular Cannula and punch through previously made stab incision in cheek



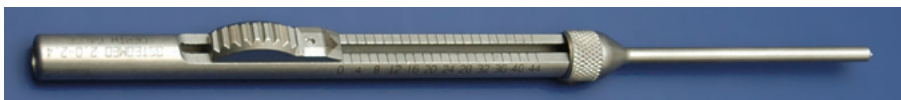
- Remove Trocar from Modular Cannula
- Attach cheek retractor to Modular Cannula
- Position plate where desired
- Select appropriate Drill Guide by matching **banding** on Modular Cannula with banding on Drill Guide
- Insert Drill Guide into Modular Cannula
- Insert appropriate drill into Drill Guide
- Follow Pilot Hole Drilling instructions for drilling

7. Drill Pilot Hole: When a pilot hole is necessary follow sequence below to achieve desired surgical results

- Select appropriate diameter drill bit based on screw selection and surgical application
- Use Drill Guide when fixating mandibular fractures and in conjunction with: Trocar System, standard screws, locking screws, angled locking screws
- Drill first pilot holes most proximal to fracture line/osteotomy
- Drill remaining pilot holes in a distal orientation from fracture line/osteotomy
- **Note: Pilot hole depth should match or exceed the length of screw**
- **Note: The following drills are color banded with different colors representing different drill bit lengths (220-0250, 220-0251, 220-0252, 220-0253, 220-0254, 220-0255, 220-0256)**
- **Note: Drill speed and torque must follow power system parameters**
- **Note: Use irrigation to prevent bone necrosis**
- **Note: Cannula is to never be used as an intraoral cheek retractor while drilling pilot holes**

8. Use Depth Gauge (220-0572) in Mandible:

- Insert Depth Gauge into pilot hole until it engages lingual cortex
- Read measurement using markings etched on Depth Gauge to determine screw length
- **Note: When measurement falls between two markings, the longer length should be considered for screw selection**
- **Note: Use when inserting bicortical screws**



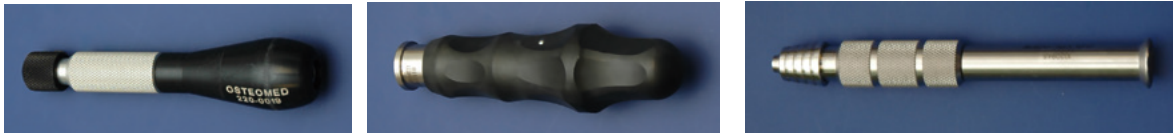
9. Load and Insert Screw:

Loading:

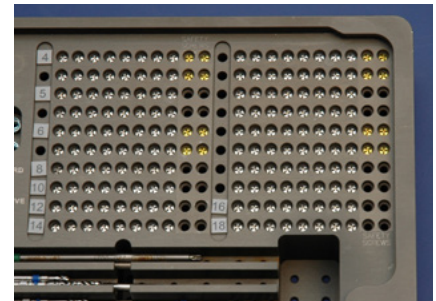
- Select desired screwdriver body

Screw Driver Options:

- Ratcheting Screwdriver Body (220-0018)
- Taperlock™ Screwdriver Body (220-0019)
- Taperlock™ Driver (220-0705, 220-0710)



- Insert appropriate driver into screw driver body based on screw diameter
- Insert driver into appropriate screw, applying a perpendicular force that engages screw
- Remove screw from screw module
- **Note: Screw modules have recessed screw holes to ease loading of screws and are customizable to meet surgeon's screw size needs**



Inserting:

Standard:

- Drive first screw into pilot hole most proximal to fracture/osteotomy until screw is flush with surface of bone/plate
- Drive second screw into pilot hole on opposite side of fracture/osteotomy until screw is flush with surface of bone/plate
- Drive remaining screws in same manner in a distal orientation from fracture line/osteotomy

AutoDrive:

- Drive first screw into bone, applying a perpendicular force until screw is flush with surface of bone/plate
- Drive second screw into bone on opposite side of fracture line/osteotomy, applying a perpendicular force until screw is flush with bone/plate
- Drive remaining screws in same manner in a distal orientation from fracture line/osteotomy
- **Note: Higher torque may be required to fully engage threads when using AutoDrive™ screws**
- **Note: In high dense bone pilot drilling may be necessary**

Locking:

- Drive first screw into proximal, pilot hole until the screw is seated into plate
- Drive second screw into pilot hole on opposing side of fracture line/osteotomy until locked into plate
- Drive remaining screws in a distal direction from fracture line/osteotomy

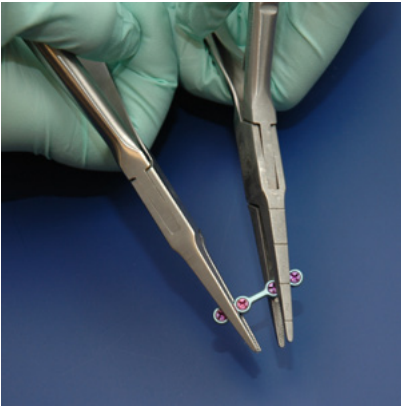
Angled Locking:

- Drive first screw into proximal, pilot hole until screw is seated into plate
- Drive second screw into pilot hole on opposing side of fracture line/osteotomy until locked into plate
- Drive remaining screws in a distal direction from fracture line/osteotomy

- **Note: Excessive torque during insertion of screws may lead to implant failure**
- **Note: Safety screw may be necessary if pilot hole diameter is too large for screw to grip sufficient amount of bone**
- **Note: 2 or 3 screws should be placed on either side of fracture line/osteotomy to prevent rotational movement**
- **Note: Never drill multiple screws holes without seating screws**

Notes: _____

2.0mm Locking Plate: Contour & Application



1. Expose the defect.

2. Place the bending inserts into the locking plate and contour using contouring options.

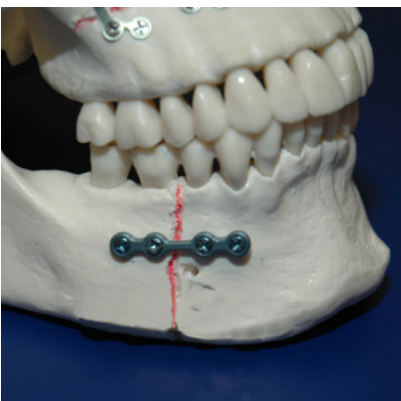


3. Cut the locking plate if necessary, using the Round Reconstruction Plate Cutter Assembly (220-0584, 220-0585, 220-0532, 220-0533). Place the locking plate in the first handle labeled cut. Slide the second handle into the first handle until the locking plate is secure. Rotate the handles towards each other and then back apart, repeat this until plate is separated into 2 pieces.



4. If transbuccal approach is needed, use the Trocar System to insert the Drill Guide into the Modular Cannula and drill the pilot hole utilizing the proper technique as previously described.

Note: Drill guides must be used with locking screws

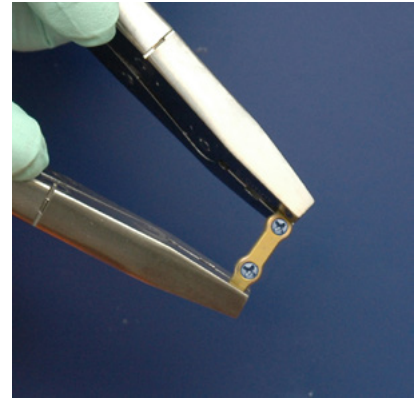


5. Drive the first screw into proximal pilot hole until the screw is seated into the plate. Drive the second screw into the pilot hole on the opposing side of the fracture line/osteotomy until the screw is locked into the plate. Drive the remaining screws in a distal direction from fracture line/osteotomy.

Mandible Locking Fracture Plate: Contour & Application

1. Expose the defect and select and contour the appropriate template

2. Place bending inserts into the fracture plate and contour using the Fracture Plate contouring options to match the template.



3. Cut the fracture plate if necessary, using the Round Reconstruction Plate Cutter Assembly (220-0584, 220-0585, 220-0532, 220-0533). Place the fracture plate in the first handle labeled cut. Slide the second handle into the first handle until the fracture plate is secure. Rotate the handles towards each other and then back apart, repeat this until plate is separated into 2 pieces.

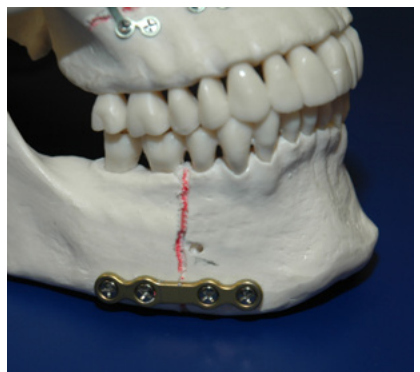


4. If transbuccal approach is needed, use the Trocar System to insert the Drill Guide into the Modular Cannula and drill the pilot hole utilizing the proper technique as previously described.



5. Use the Depth Gauge (220-0572) to determine the appropriate screw length.

6. Drive the first screw into proximal pilot hole until the screw is seated into the plate. Drive the second screw into the pilot hole on the opposing side of the fracture line/osteotomy until the screw is locked into the plate. Drive the remaining screws in a distal direction from fracture line/osteotomy.



Mandible Reconstruction Plate (Ablative): Contour & Application



1. Expose the defect and select and contour appropriate template
2. Place bending inserts into the reconstruction plate and contour using Reconstruction Plate contouring options to match the template.



3. Cut the reconstruction plate using the Round Reconstruction Plate Cutter Assembly (220-0584, 220-0585, 220-0532, 220-0533). Place the reconstruction plate in the first handle labeled cut. Slide the second handle into the first handle until the reconstruction plate is secure. Rotate the handles towards each other and then back apart, repeat this until plate is separated into 2 pieces.



4. Use the Depth Gauge (220-0572) to determine the appropriate screw length.



5. Drive the first screw into proximal pilot hole until the screw is seated into the plate. Drive the second screw into the pilot hole on the opposing side of the osteotomy until the screw is locked into the plate. Drive the remaining screws in a distal direction from osteotomy.
6. Once plate is in place, remove screws and plate. After mandibular resection, replace plate and screws.



Customer Service: 800.456.7779



A COLSON ASSOCIATE

3885 Arapaho Road | Addison, TX 75001 | Phone: 972.677.4600 | Fax: 800.390.2620

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