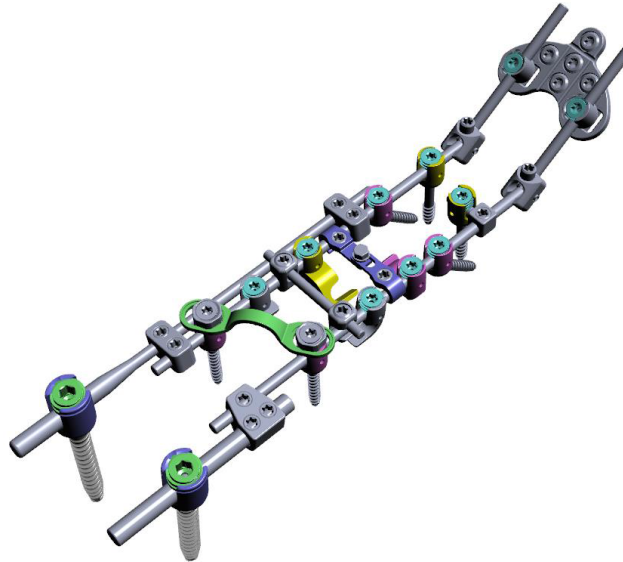


Poseidon™ Surgical Technique



Introduction:

Poseidon™ is designed for posterior stabilization of the cervical spine and upper thoracic spine. The implants provide variety to accommodate disparities in patient anatomy.

Indications:

Occipitocervical and upper cervical spine instabilities:

- – Rheumatoid arthritis
- – Congenital anomalies
- – Posttraumatic conditions
- – Tumours
- – Infections

Instabilities in the lower cervical and upper thoracic spine:

- – Posttraumatic conditions
- – Tumours
- – Iatrogenic instabilities following laminectomy etc.

Contraindications:

- Severe osteoporosis
- Spinal Fracture
- Spinal Tumor
- Spinal Infection

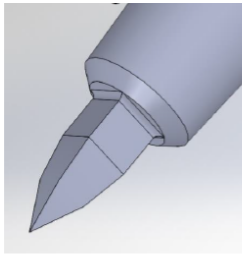
Surgical Technique:

1. Exposition and Preprartion :

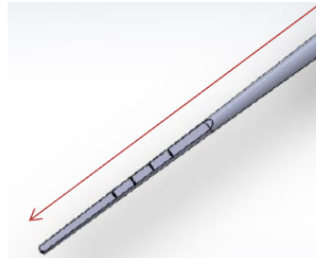
The patient is placed in a prone position with head and neck held securely. A standard midline is carried out to expose spinous processes and laminae of the vertebrae to be fused. Exposure is extended to the external occipital protuberance if fusion includes the occiput.

2. Screw Hole Prepration:

Use the AWL to center and direct the pathway of the screws. Position the AWL for the desired screw trajectory. Once the AWL is in the desired trajectory, apply slowly a downward pressure to penetrate the tip to the bone. Rotate the AWL upward for removal maintaining hole and plate alignment. Use the PROBE if necessary to provide path on pedicle canal.



1.8mm x 1.8mm
Length : 4.0mm



Φ 2.0mm Tip

Attach the Drill Bit onto the Quick Handle. Use the Drill Guide to direct the drill bit into the center and pathway to the screw. Place the measuring latch on Drill Guide on the length of the desired screw depth. The marked sizes in the latch indicates the actual sizes of the screw length.

Use the TESTER to confirm continuity of the cortical walls of the pedicle. The Tester can also be used to palpate the inner surface of the pedicle canal to check for defects or punctures in the cortical walls. **GUIDE PINS may be used to confirm position of screw sites on X-Ray.**



Ø 2.4mm & 2.9mm

Confirm hole depth using the DEPTH GAUGE before selecting the appropriate screw length. The Depth Gauge measure matched with the length of screw.



3. Screw Insertion:

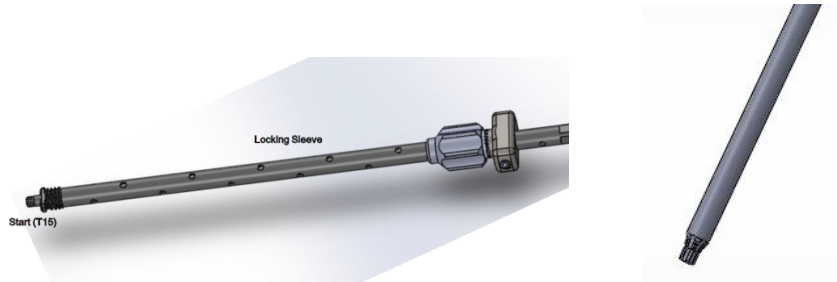
Attach the TAP onto Quick Handle and use the TAP to create screw thread pattern. Rotate until it reached the spring stopper. TAP size collated to the size of screw to be used.



Ø 3.5mm & 4.0mm

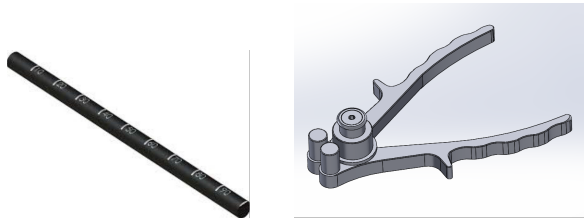
Attach the Poly Screw Driver onto Quick Handle. Select the appropriate screw to be implanted and load the screw on Poly Screw Driver. Make sure screw is loaded fully and securely onto the Screw Driver. Insert the screw on prepared hole and gently remove the

Screw Driver from the loaded screw. You may use the T15 Driver for Quick Screw assembly.

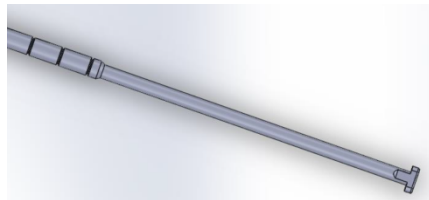


4. Rod Insertion:

Use and contour the Rod Template to measure the estimated rod length that fit the anatomy. Bend the rod using the Rod Bender. The Rod Contour must match the curve of the Rod Template. Cut the Rod with Rod Cutter to the selected appropriate length.

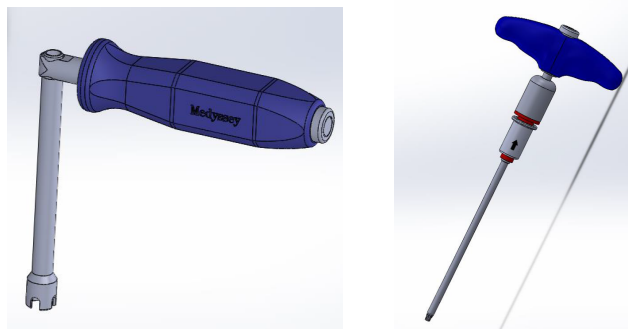


Load the rod onto the screw heads using the Rod Holder. The Alignment Tool may be used to orient the heads to the correct position.



5. Set Screw Insertion:

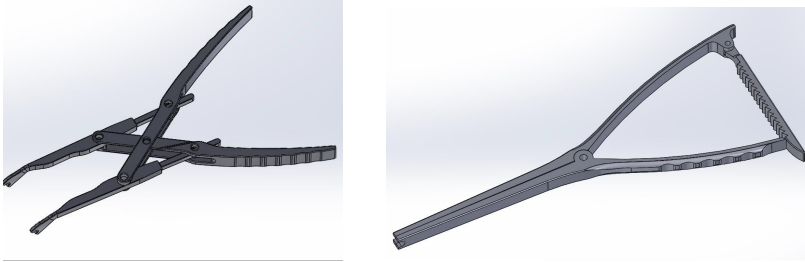
Attach T-15 Driver onto the Torque Wrench ($3 \pm 0.5\text{Nm}$). Then Load set screw onto T-15 Driver and insert each set screw on top of the Rod. Use Anti-Torque to facilitate rod placement and to firmly tighten the Set Screws. You may use the Bending Irons to adjust the curve of the rod in-situ. Use Rod Derotator if necessary to rotate the contoured rod into the lordosis.



Use the Persuader to bring rod to the screw when additional force is needed. Lock the Persuader onto the implant and press the Persuader so rod can be pushed into the screw. When rod is fully seated, lock the screw with Set Screw. Make sure set screw it is securely and fully tighten.

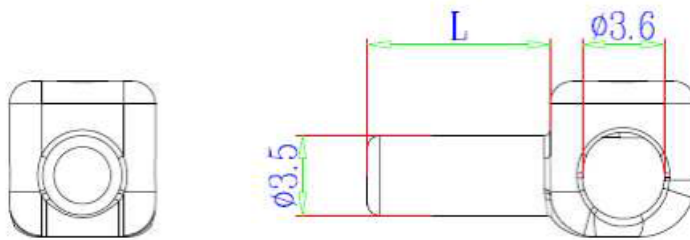
6. Compression and Distraction:

After the construct has been properly assembled, segmental compression and distraction is accomplished as needed to adjust frontal or sagittal plane deformities. Make sure to loosen set screw before conducting compression and/or distraction. Compression is accomplished via the compressor. Compressor should fit onto the rod on the outside of the provisionally-tightened set screw assembly and the screw to be compressed. Distraction is accomplished with Distractor. Distractor fits onto the rod on the inside of the provisionally tightened set screw and the screw to be distracted. After compression and/or distraction is achieved, tighten the set screws with the Torque Wrench.



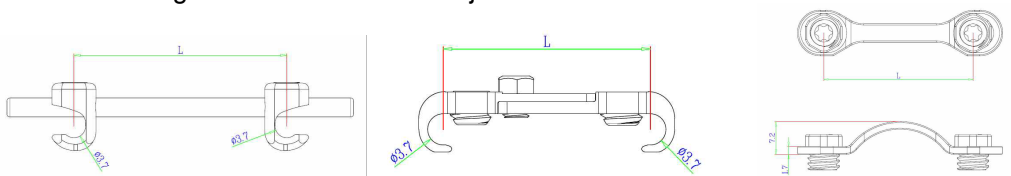
7. Lateral Offset Connector Insertion:

Slide the opening of Lateral Offset Connector over rod and introduce the lateral bar into the offset screw head. Use T-15 Driver to tighten the bolt of the Lateral Offset Connectors. Then tighten the set screw of the offset screw over lateral bar.



8. Cross Link Insertion:

Use Cross Link to increase rotational stability and to protect the dura after laminectomies. You may select from three different types of Cross Link according to patient anatomy and surgical preference (Bar Type, Adjustment, Head to Head). Use T-15 Driver and/or Cross Link Driver to tighten the Bolt for final adjustment.



9. Laminar Hook Placement:

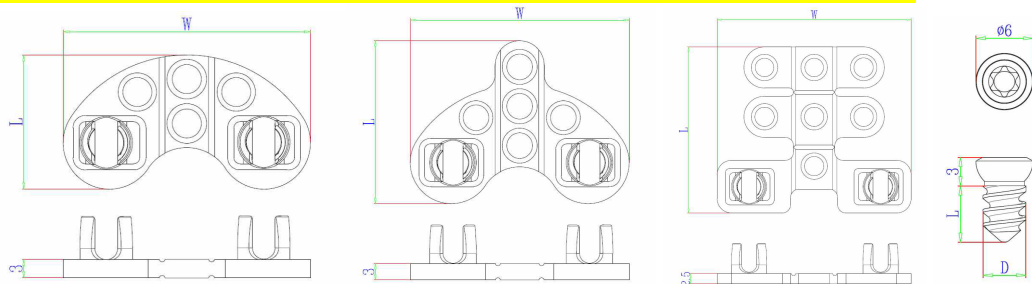
Select appropriate hook size and configuration for the patient anatomy. Use the Hook Finder to prepare and identify the Lamina for Lamina Hook. Hook Finder separates ligamentum flavum from the lamina to ensure good bony contact. Then use the Hook Holder to place the hook in the desired location.



10. Occipito-Cervical (OC) Plate Placement:

Select the appropriate OC Plate according to patient anatomy and surgical preference (4-Hole Plate, 5-Hole Plate, 7-Hole Plate). The OC Plate can be fixed to the occiput first or to the rods and then fixed to the occiput according to surgeon's preference. However, it is recommended to fix OC Plate first on occiput for ease insertion of rod.

Remove irregular bony protuberances to optimize the bone to OC Plate interface, avoiding removing significant portions of cortical bone. **Contour the OC Plate with OC Plate Bender. Make sure not to bend the sliding connectors and to bend only in one direction.**



With OC Plate in position, insert the Fixed Drill and Tap Guide into the superior midline hole of the OC Plate. Use the Joint Drill Bit to make initial occipital pilot hole. Then, confirm the pilot hole with the Depth Gauge. Note that Depth Gauge reflects actual screw thread length.

While keeping the Fixed Drill and Tap Guide, use the Joint Tap to create screw thread pattern. Then use the Joint T-15 Driver to insert and tighten provisionally the selected OC Screw.

Place the rod in the slot of the OC Plate. The sliding connectors help to align smoothly with the rod. If additional contouring is required, use the Bending Irons to gently bend until desired radius is achieved. Tight securely the OC Plate slot with set screw. When all construct is fully assembled with the screws and rods, tighten fully and securely each OC Plate screw using Anti-Torque and Torque Wrench. Make sure not to over-tighten the OC Plate Screw.

