

Trabecular Metal™ Acetabular Revision System (TMARS)

Trabecular Metal Revision Shell

Surgical Technique

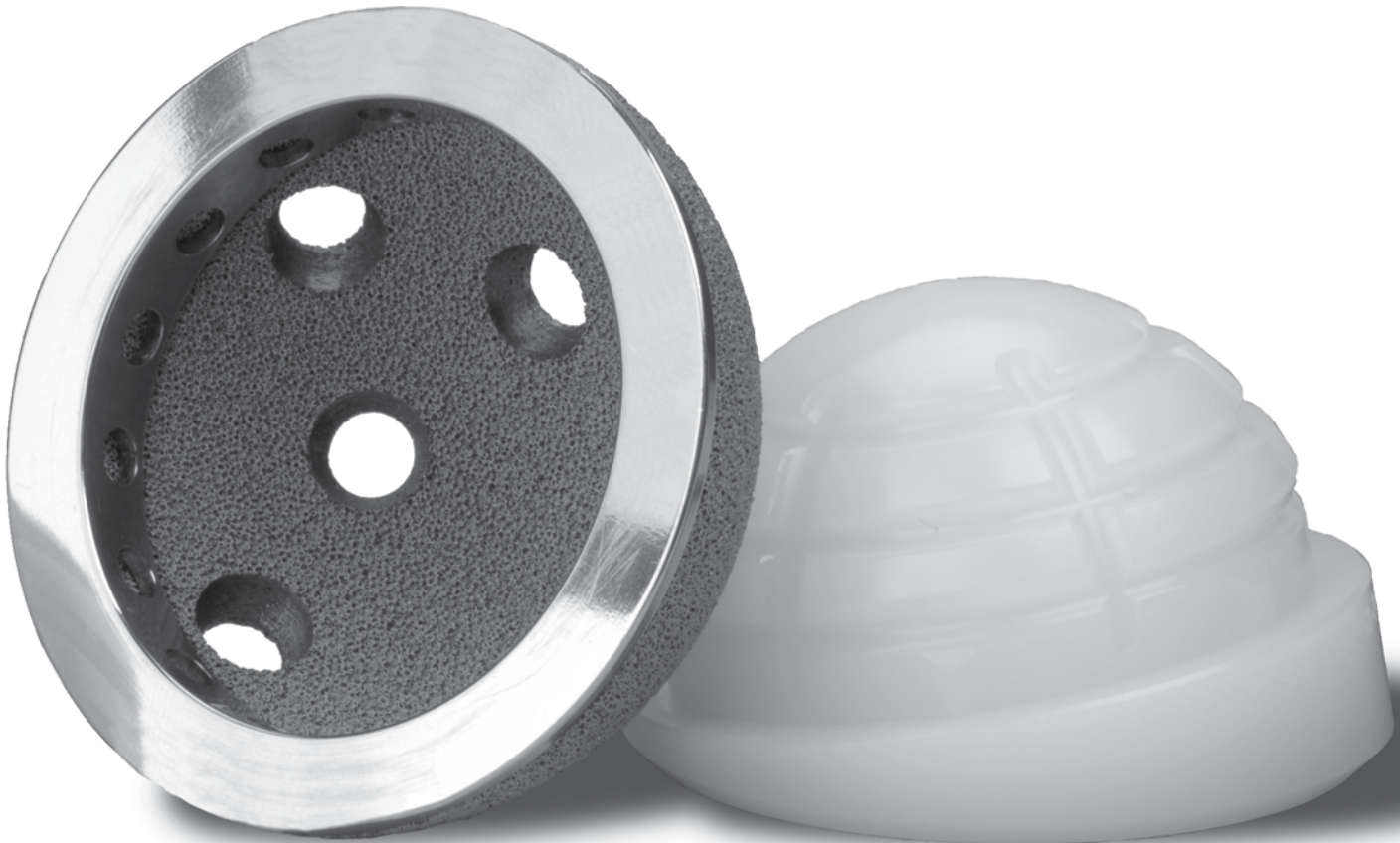
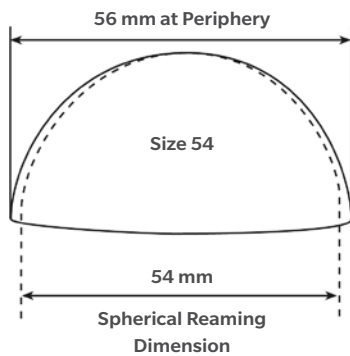


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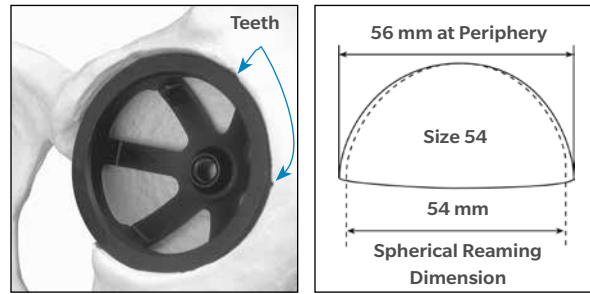
Initial and Long Term Stability

- One-piece construct, created by cementing the liner, eliminates concerns of backside wear.
- Elliptical geometry creates a 2 mm interference fit at the periphery of the shell, maximizing bone contact for initial and long-term stability.

Versatile Fixation and Positioning

- Shell is designed for use in revision and primary cases.
- Shell is placed in best position for optimal host bone contact, while 0° neutral and 10° oblique liners allow for preferred version.
- Dome screw holes allow for additional fixation into structural bone.
- Low wear Longevity® Highly Crosslinked Polyethylene liners in various configurations available to best meet patient need.

Jumbo Revision Shells (72–80 mm) do not have the Bayonet Adapter feature on the rim of the shell.



Elliptical geometry of the shell provides a 2 mm interference fit at the periphery and implant-bone contact at the dome.



Figure 1

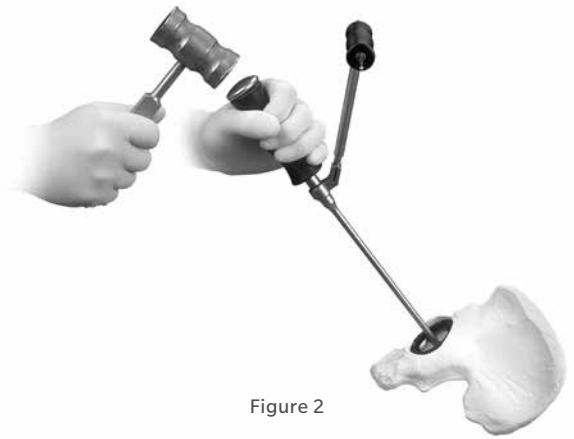


Figure 2

Acetabular Preparation

Use progressively larger reamers to prepare the acetabulum. Hold the reamer steady in the same position in which the shell will be implanted (approximately 45° of abduction and 15° of anteversion (Figure 1). Minimize the amount of bone reaming, performing only that necessary to achieve creation of an adequate hemispherical cavity for support of the Revision Shell.

Shell Sizing and Positioning

Provisional shell sizes match the outside dimensions of the acetabular reamers. The provisional shell has protruding 1 mm teeth beyond the rim to stabilize it during trial reduction. It also has fenestrations so that shell seating within the acetabulum can be assessed. The elliptical Revision Shell implant provides 2 mm of interference fit at its periphery.

Select the provisional shell that is the same size as the last even-numbered reamer used (the final implant size will match the size of the provisional shell that is used). Screw the Provisional Shell Impactor Handle onto the provisional shell. Place the T-handled Version Guide into the slot on the Impactor Handle (Figure 2). When the Version Guide is perpendicular to the longitudinal axis of the patient, the provisional shell is properly positioned at 45° of abduction.

Once the version and contact are acceptable, acetabular preparation is complete. Note the position of the provisional shell so that the implant can be seated in the same position.

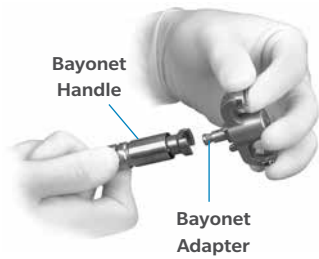


Figure 3



Figure 4



Figure 5



Figure 6

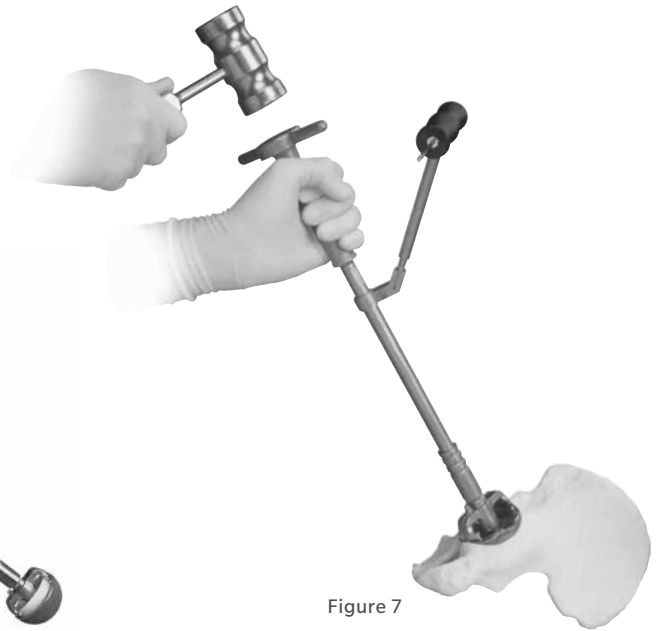


Figure 7

Instrument Assembly

For shells which have the Bayonet Adapter feature on the rim, assemble the Bayonet Adapter, sized to match the implant, on the Bayonet Handle (Figure 3).

With the Bayonet Adapter positioned on the flat portion of the rim of the Revision Shell, turn the adapter until it locks into place (Figure 4). For Jumbo shells, 72–80 mm, which do not have the Bayonet Adapter feature on the rim, utilize the Rim Impactor as discussed (Figure 5). Place the Version Guide on the Bayonet Handle (Figure 6). During impaction, the Version Guide should be perpendicular to the longitudinal axis of the patient and parallel to the planar axis of the patient.

Trabecular Metal Revision Shell Insertion

Orient the solid portion of the shell (devoid of screw holes) in an anterior-inferior position. Bring the Revision Shell to the appropriate version and inclination (approx. 45° of abduction and 15° of anteversion). Impact the Bayonet Handle to seat the shell in position (Figure 7).

Note: Ensure that the Plunger is NOT in the Bayonet Handle during impaction.

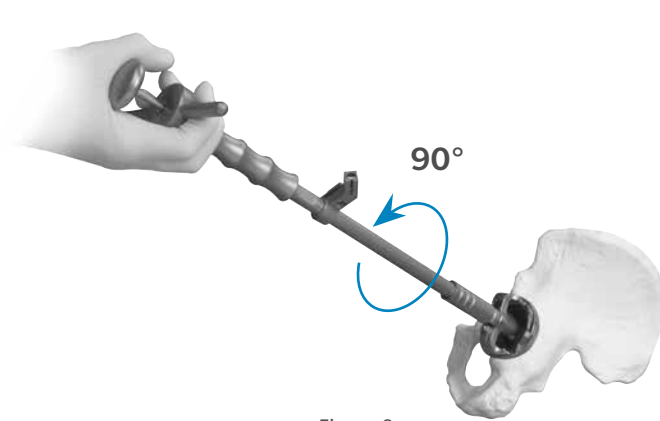


Figure 8

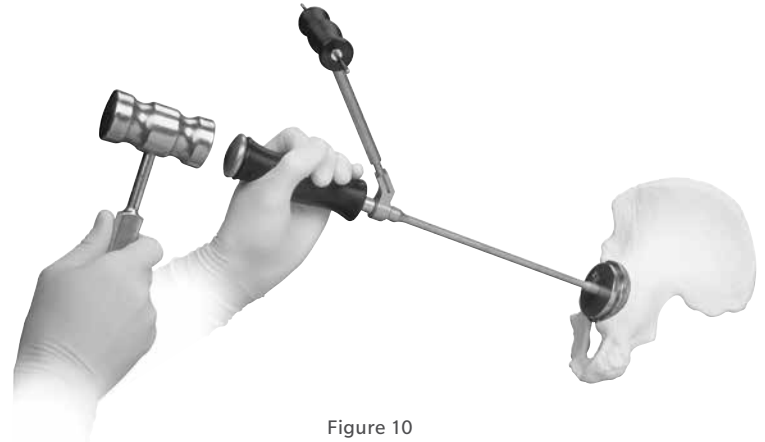


Figure 10

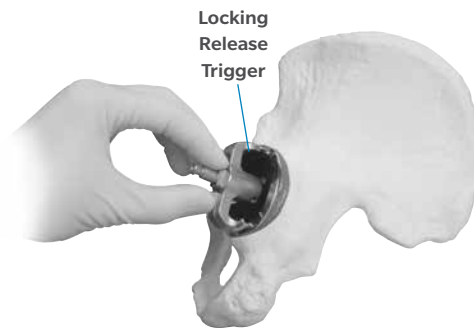


Figure 9

Trabecular Metal Revision Shell Insertion (cont.)

To release the Bayonet Adapter from the cup, slide the Plunger into the Bayonet Handle. Depress the Plunger until the key lifts out of the slot in the shell, then rotate the Bayonet Handle 90° to free it from the cup locking slot (Figure 8). Alternatively, the shell can be disengaged by pushing the Locking Release Trigger at the distal end of the Bayonet Adapter, with or without the Bayonet Handle in place (Figure 9).

For shells which do not have the Bayonet Adapter feature on the rim, the size-matched Rim Impactor attached to the Provisional Shell Handle should be used to impact the shell (Figure 10). For shells which have the Bayonet Adapter feature on the rim, the Rim Impactor can be used for additional impaction following use of the Bayonet Adapter. The Cup Rim Impactor from the General Instrument Set can be used to adjust the face angle of the shell if it is well seated but requires repositioning.

⚠ Warning: The Bayonet is for impaction only. Use of this instrument to change the placement of the shell after partial or full seating, or to remove a seated shell, may cause damage to the implant construct. Only direct axial impaction loads should be applied.



Figure 11



Figure 13



Figure 12

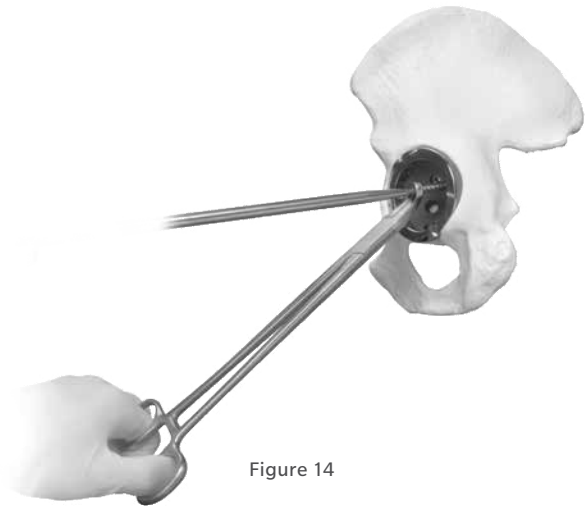


Figure 14

Screw Insertion (as required)

If screw placement is desired, drill a pilot hole by placing the drill through the Drill Guide in the desired screw hole (Figure 11). Measure the hole's depth with the Depth Gauge (Figure 12).

Attach the Torque Limiter to the Screwdriver (Figure 13). Avoid overtightening of screws and potential advancement through the shell screw hole.

ⓘ **Note:** The Torque Limiter does not eliminate the need for surgeon evaluation of bone quality, appropriate screw selection, and torque control.

Select the appropriate length 6.5 mm screw and insert it in the hole with the Screwdriver/Torque Limiter construct (Figure 14). Place additional screws as necessary.

ⓘ **Note:** Unused screw holes should be plugged with bone wax or bone graft. Bone wax should also be used to fill the screw heads. This may assist bone cement removal if future need arises.

ⓘ **Warning:** Avoid screw placement through the shell into the anterior-inferior quadrant of the acetabulum to prevent injury to intrapelvic neurovascular structures.



Figure 15



Figure 16

Provisional Liner and Trial Reduction

Select a Trabecular Metal Revision Shell provisional liner size that matches the shell (Figure 15). Provisional liners are used to assess joint stability and face-angle position. Adjust liner position to best fit the needs of the patient (Figure 16). Perform a trial reduction with the femoral stem and trial femoral head in place.

Both 0° neutral and 10° oblique Longevity liners are available in multiple head sizes to be cemented into the Trabecular Metal Revision Shell. The neutral liner provides an option for standard acetabular reconstruction, while the oblique liner offers additional joint stability with the ability to provide 10° of rotated head coverage. The apex of the 10° coverage is indicated on the oblique liner provisionals with 2 extractor holes.



Figure 17



Figure 19

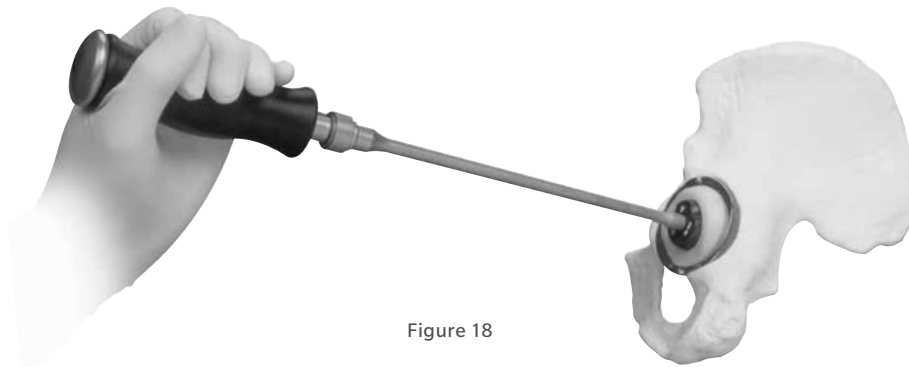


Figure 18

Liner Insertion and Placement

Prepare Bone Cement. Place cement in Revision Shell while in a doughy state (Figure 17). The Revision Shell Liner provides a nominal 2–3 mm cement mantle. If desired, a thicker cement mantle can be achieved by dropping down a liner size (i.e. using a 54 mm OD liner in a 56 mm shell). Place the polyethylene liner into position and hold in place while curing with the Acetabular Impactor Head/Provisional Shell Impactor Handle construct (Figure 18). Remove excess cement.

With the Revision Shell implanted and the liner securely cemented in place, the construct is ready for final reduction with the femoral component (Figure 19).

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