



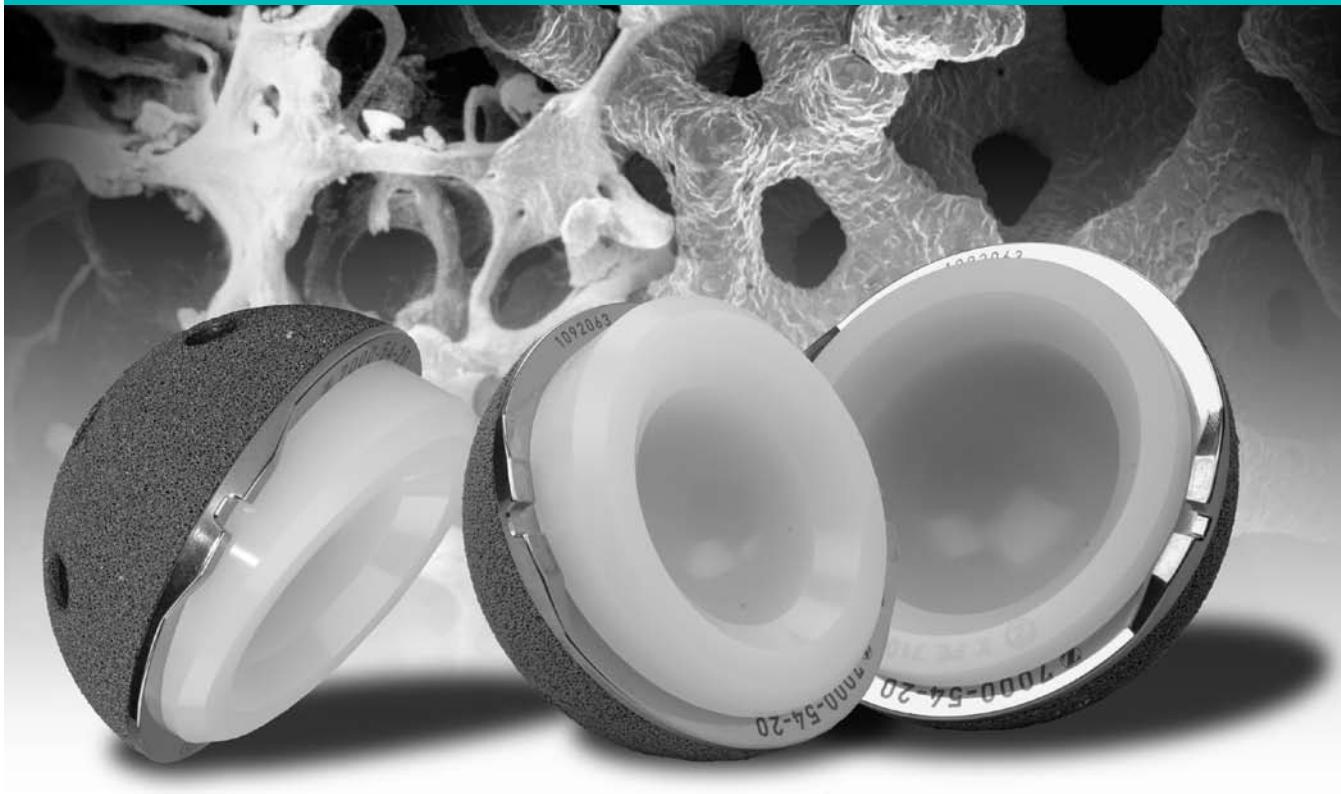
## Trabecular Metal™ Revision Shell

Surgical Technique



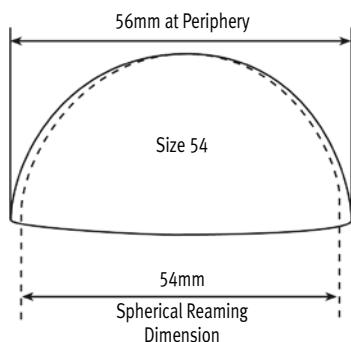
The Best Thing Next to Bone™

 **zimmer**  
Confidence in your hands®



## Initial and Long-Term Stability

- Fully-interconnected trabecular structure with two to three times the porosity of other cups enables extensive tissue ingrowth and strong attachment.<sup>1</sup>
- High coefficient of friction<sup>1</sup> against bone provides enhanced scratch-fit and initial stability.
- Low stiffness of *Trabecular Metal* material can produce more normal physiological loading and reduce stress shielding.<sup>2</sup>
- One-piece construct, created by cementing the liner, eliminates concerns of backside wear.
- Elliptical geometry creates a 2mm 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.



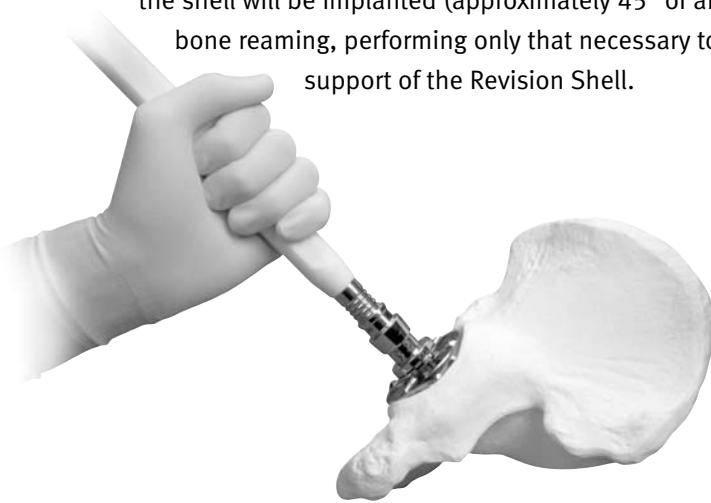
Jumbo Revision Shells (72-80mm) do not have the Bayonet Adapter feature on the rim of the shell.

- 1 Bobyn JD, Hacking SA, Chan SP, et al. Characterization of a new porous tantalum biomaterial for reconstructive orthopaedics. Scientific Exhibit, Proc of AAOS, Anaheim, CA. 1999.
- 2 Pedersen DR, Brown TD, Poggie RA. Finite element analysis of periprosthetic stress of cemented, metal-backed, and porous tantalum-backed acetabular components. 45th Annual Orthopaedic Research Society Meeting, Anaheim, CA. 1999.

# 1

## 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). Minimize the amount of bone reaming, performing only that necessary to achieve creation of an adequate hemispherical cavity for support of the Revision Shell.



# 2

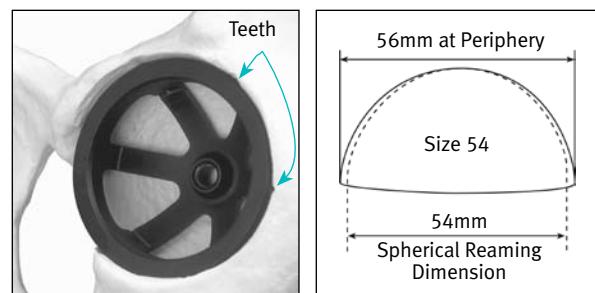
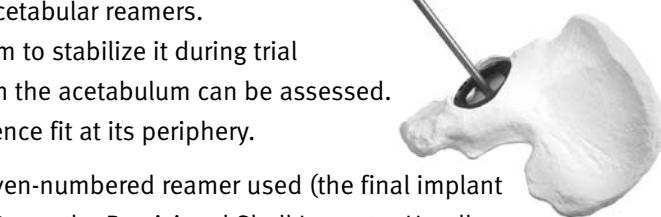
## Shell Sizing and Positioning

Provisional shell sizes match the outside dimensions of the acetabular reamers.

The provisional shell has protruding 1mm 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 2mm 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. 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.

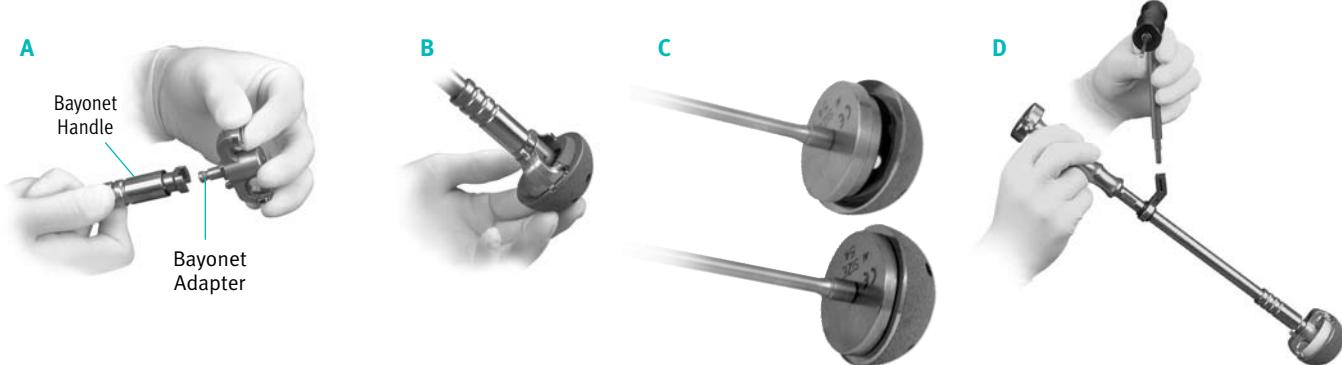


Elliptical geometry of the shell provides a 2mm interference fit at the periphery and implant-bone contact at the dome.

# 3 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 (A).

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



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



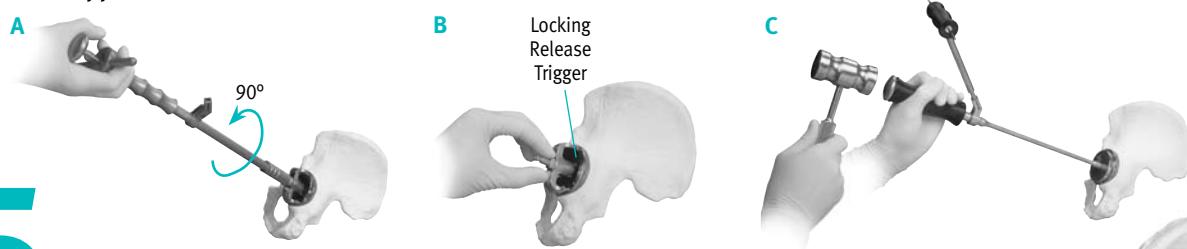
# 4

## 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 (A). 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 (B).

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 (C). 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.



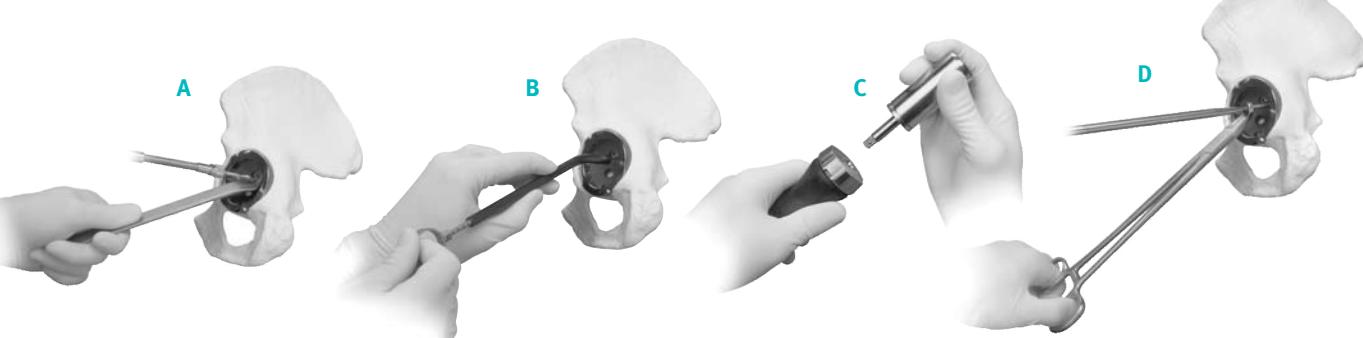
# 5

## 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 (A). Measure the hole's depth with the Depth Gauge (B).

Attach the Torque Limiter to the Screwdriver (C). 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 6.5mm HGP II screw and insert it in the hole with the Screwdriver/ Torque Limiter construct (D). Place additional screws as necessary.

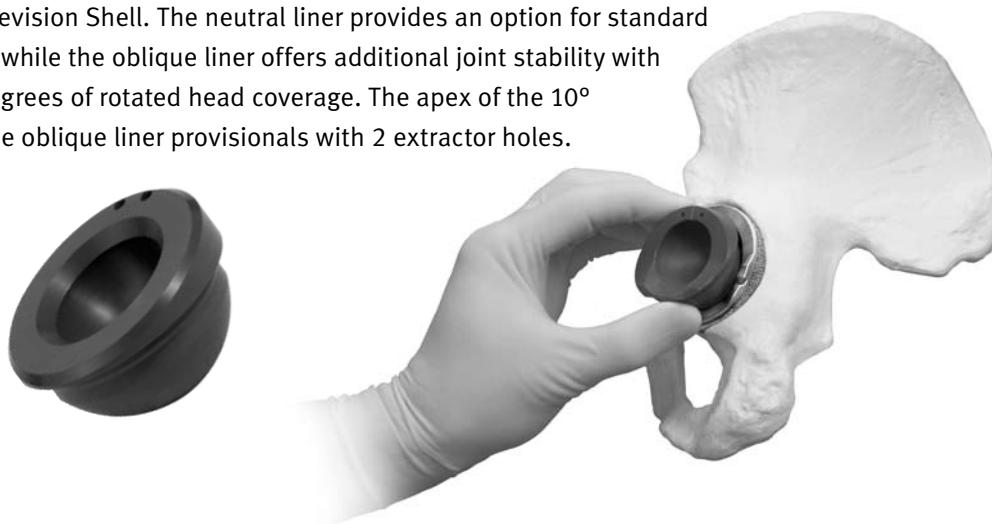
**Note:** Unused screw holes should be plugged with bone wax or bone graft. Bone wax should also be used to fill the screw heads. This may assist bone cement removal if future need arises.



## 6 Provisional Liner and Trial Reduction

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

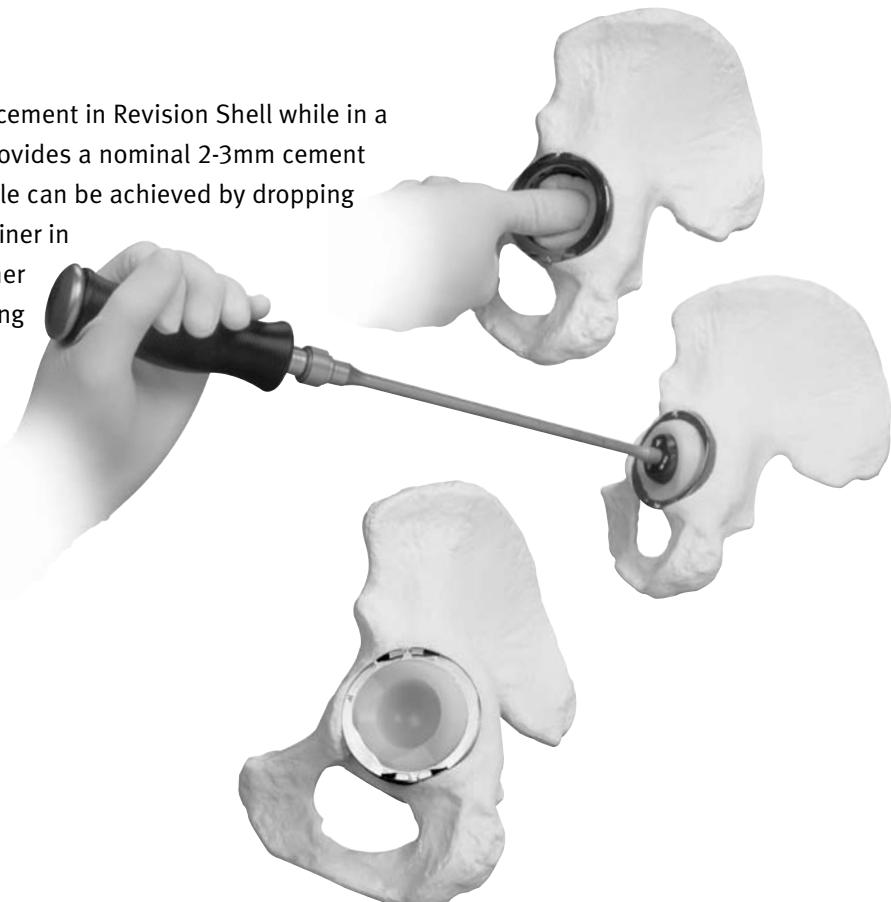
Both 0° neutral and 10° oblique *Longevity* liners are available in multiple head sizes to be cemented into the *Trabecular Metal* Revision Shell. The neutral liner provides an option for standard acetabular reconstruction, while the oblique liner offers additional joint stability with the ability to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



## 7 Liner Insertion and Placement

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



\* PALACOS® is a trademark of Heraeus Kulzer GmbH  
Under license from Heraeus Kulzer GmbH, Hanau, Germany

## Order Information

### Revision Shell

Prod. No.	Description
00-7000-048-20	48mm Cup Size
00-7000-050-20	50mm Cup Size
00-7000-052-20	52mm Cup Size
00-7000-054-20	54mm Cup Size
00-7000-056-20	56mm Cup Size
00-7000-058-20	58mm Cup Size
00-7000-060-20	60mm Cup Size
00-7000-062-20	62mm Cup Size
00-7000-064-20	64mm Cup Size
00-7000-066-20	66mm Cup Size
00-7000-068-20	68mm Cup Size
00-7000-070-20	70mm Cup Size
00-7000-072-70	72mm Cup Size
00-7000-074-70	74mm Cup Size
00-7000-076-70	76mm Cup Size
00-7000-078-70	78mm Cup Size
00-7000-080-70	80mm Cup Size



### Longevity Revision Shell Liner – 0° Neutral

Prod. No.	Description
00-7105-048-28	28mm ID, 48mm OD
00-7105-050-28	28mm ID, 50mm OD
00-7105-052-28	28mm ID, 52mm OD
00-7105-054-28	28mm ID, 54mm OD
00-7105-056-28	28mm ID, 56mm OD
00-7105-058-28	28mm ID, 58mm OD
00-7105-060-28	28mm ID, 60mm OD
00-7105-062-28	28mm ID, 62/64mm OD
00-7105-066-28	28mm ID, 66/68/70mm OD
00-7105-072-28	28mm ID, 72/74mm OD
00-7105-076-28	28mm ID, 76/78/80mm OD
00-7105-054-32	32mm ID, 54mm OD
00-7105-056-32	32mm ID, 56mm OD
00-7105-058-32	32mm ID, 58mm OD
00-7105-060-32	32mm ID, 60mm OD
00-7105-062-32	32mm ID, 62/64mm OD
00-7105-066-32	32mm ID, 66/68/70mm OD
00-7105-072-32	32mm ID, 72/74mm OD
00-7105-076-32	32mm ID, 76/78/80mm OD
00-7105-058-36	36mm ID, 58mm OD
00-7105-060-36	36mm ID, 60mm OD
00-7105-062-36	36mm ID, 62/64mm OD
00-7105-066-36	36mm ID, 66/68/70mm OD
00-7105-072-36	36mm ID, 72/74mm OD
00-7105-076-36	36mm ID, 76/78/80mm OD
00-7105-062-40	40mm ID, 62/64mm OD
00-7105-066-40	40mm ID, 66/68/70mm OD
00-7105-072-40	40mm ID, 72/74mm OD
00-7105-076-40	40mm ID, 76/78/80mm OD

### Longevity Revision Shell Liner – 10° Oblique

Prod. No.	Description
00-7110-048-28	28mm ID, 48mm OD
00-7110-050-28	28mm ID, 50mm OD
00-7110-052-28	28mm ID, 52mm OD
00-7110-054-28	28mm ID, 54mm OD
00-7110-056-28	28mm ID, 56mm OD
00-7110-058-28	28mm ID, 58mm OD
00-7110-060-28	28mm ID, 60mm OD
00-7110-062-28	28mm ID, 62/64mm OD
00-7110-066-28	28mm ID, 66/68/70mm OD
00-7110-072-28	28mm ID, 72/74mm OD
00-7110-076-28	28mm ID, 76/78/80mm OD
00-7110-054-32	32mm ID, 54mm OD
00-7110-056-32	32mm ID, 56mm OD
00-7110-058-32	32mm ID, 58mm OD
00-7110-060-32	32mm ID, 60mm OD
00-7110-062-32	32mm ID, 62/64mm OD
00-7110-066-32	32mm ID, 66/68/70mm OD
00-7110-072-32	32mm ID, 72/74mm OD
00-7110-076-32	32mm ID, 76/78/80mm OD
00-7110-058-36	36mm ID, 58mm OD
00-7110-060-36	36mm ID, 60mm OD

00-7110-062-36	36mm ID, 62/64mm OD
00-7110-066-36	36mm ID, 66/68/70mm OD
00-7110-072-36	36mm ID, 72/74mm OD
00-7110-076-36	36mm ID, 76/78/80mm OD
00-7110-062-40	40mm ID, 62/64mm OD
00-7110-066-40	40mm ID, 66/68/70mm OD
00-7110-072-40	40mm ID, 72/74mm OD
00-7110-076-40	40mm ID, 76/78/80mm OD



### Instruments

Prod. No.	Description
00-7000-015-00	General Acetabular Instrument Set for both Trabecular Metal Revision Shell and Monoblock Cup (Includes one each of all items listed below)
00-7050-076-00	Instrument Case Base w/Lid (Outer Case)
00-7050-077-00	Instrument Case Bottom Tray
00-7050-078-00	Instrument Case Top Tray

### Cup Adapter w/Bayonet

00-7045-040-00	40mm Cup Size
through	through
00-7045-070-00	70 mm Cup Size

Available in 2mm increments.

### General Instruments

00-7050-030-00	Cup Rim Impactor
00-7050-031-00	Cup Version Guide
00-7050-032-00	Provisional Liner Extractor (Monoblock Cup only)
00-7050-033-00	Bayonet Handle w/Hudson Adapter (Plunger included)
00-7050-034-00	Provisional Shell Impactor Handle
00-7050-035-00	Medial Cup Impactor (Monoblock Cup only)
00-7050-036-00	Acetabular Impactor Head, 28mm
00-7050-038-00	Acetabular Impactor Head, 22mm



### Provisional Shell

00-7040-040-00	40mm Cup Size
through	through
00-7040-070-00	70 mm Cup Size

Available in 2mm increments.

### Provisional Liner – 0° Neutral for Monoblock Cup Only

00-7360-040-22	22mm ID, 40mm Cup Size
through	through
00-7360-046-22	22mm ID, 46mm Cup Size
00-7360-048-28	28mm ID, 48mm Cup Size
through	through
00-7360-070-28	28mm ID, 70mm Cup Size

Available in 2mm increments.

### Provisional Liner – 10° Elevated for Monoblock Cup Only

00-7361-040-22	22mm ID, 40mm Cup Size
through	through
00-7361-046-22	22mm ID, 46mm Cup Size
00-7361-048-28	28mm ID, 48mm Cup Size
through	through
00-7361-070-28	28mm ID, 70mm Cup Size

Available in 2mm increments.

### General Instrument Case Holds 0° or 10° Monoblock Provisional Liners

00-7050-095-00	General Instrument Case Holds 0° or 10° Monoblock Provisional Liners
----------------	--



### Replacement Parts

Prod. No.	Description
00-7050-033-01	Plunger (replacement ordered separately)

### Revision Shell Provisional Liner Kits

Prod. No.	Description
00-7105-000-00	Trabecular Metal Acetabular Revision System Provisional Liner Kit (Includes one each of all items listed below)
00-7106-010-00	Trabecular Metal Acetabular Revision System Provisional Liner Case
Provisional Liner – 0° Neutral	
00-7106-048-28	Revision Provisional Liner zero degree 28mm ID, 48mm OD
00-7106-050-28	Revision Provisional Liner zero degree 28mm ID, 50mm OD
00-7106-052-28	Revision Provisional Liner zero degree 28mm ID, 52mm OD
00-7106-054-28	Revision Provisional Liner zero degree 28mm ID, 54mm OD
00-7106-056-28	Revision Provisional Liner zero degree 28mm ID, 56mm OD
00-7106-058-28	Revision Provisional Liner zero degree 28mm ID, 58mm OD
00-7106-060-28	Revision Provisional Liner zero degree 28mm ID, 60mm OD
00-7106-062-28	Revision Provisional Liner zero degree 28mm ID, 62/64mm OD
00-7106-066-28	Revision Provisional Liner zero degree 28mm ID, 66/68/70mm OD
00-7106-054-32	Revision Provisional Liner zero degree 32mm ID, 54mm OD
00-7106-056-32	Revision Provisional Liner zero degree 32mm ID, 56mm OD
00-7106-058-32	Revision Provisional Liner zero degree 32mm ID, 58mm OD
00-7106-060-32	Revision Provisional Liner zero degree 32mm ID, 60mm OD
00-7106-062-32	Revision Provisional Liner zero degree 32mm ID, 62/64mm OD
00-7106-066-36	Revision Provisional Liner zero degree 36mm ID, 66/68/70mm OD
00-7106-062-40	Revision Provisional Liner zero degree 40mm ID, 62/64mm OD
00-7106-066-40	Revision Provisional Liner zero degree 40mm ID, 66/68/70mm OD
Provisional Liner – 10° Oblique	
00-7111-048-28	Revision Provisional Liner ten degree 28mm ID, 48mm OD
00-7111-050-28	Revision Provisional Liner ten degree 28mm ID, 50mm OD
00-7111-052-28	Revision Provisional Liner ten degree 28mm ID, 52mm OD
00-7111-054-28	Revision Provisional Liner ten degree 28mm ID, 54mm OD
00-7111-056-28	Revision Provisional Liner ten degree 28mm ID, 56mm OD
00-7111-058-28	Revision Provisional Liner ten degree 28mm ID, 58mm OD
00-7111-060-28	Revision Provisional Liner ten degree 28mm ID, 60mm OD
00-7111-062-28	Revision Provisional Liner ten degree 28mm ID, 62/64mm OD
00-7111-066-28	Revision Provisional Liner ten degree 28mm ID, 66/68/70mm OD
00-7111-054-32	Revision Provisional Liner ten degree 32mm ID, 54mm OD

00-7111-056-32	Revision Provisional Liner ten degree 32mm ID, 56mm OD
00-7111-058-32	Revision Provisional Liner ten degree 32mm ID, 58mm OD
00-7111-060-32	Revision Provisional Liner ten degree 32mm ID, 60mm OD
00-7111-062-32	Revision Provisional Liner ten degree 32mm ID, 62/64mm OD
00-7111-066-32	Revision Provisional Liner ten degree 32mm ID, 66/68/70mm OD
00-7111-058-36	Revision Provisional Liner ten degree 36mm ID, 58mm OD
00-7111-060-36	Revision Provisional Liner ten degree 36mm ID, 60mm OD
00-7111-062-36	Revision Provisional Liner ten degree 36mm ID, 62/64mm OD
00-7111-066-36	Revision Provisional Liner ten degree 36mm ID, 66/68/70mm OD
00-7111-062-40	Revision Provisional Liner ten degree 40mm ID, 62/64mm OD
00-7111-066-40	Revision Provisional Liner ten degree 40mm ID, 66/68/70mm OD

#### Revision Shell Jumbo Provisional Liner Kit

Prod. No.	Description
00-7105-001-00	Trabecular Metal Acetabular Revision System Jumbo Provisional Liner Kit (Includes one each of all items listed below)
00-7106-015-00	Trabecular Metal Acetabular Revision System Jumbo Provisional Liner Case
00-7106-072-28	Revision Provisional Liner zero degree 28mm ID, 72/74mm OD
00-7106-076-28	Revision Provisional Liner zero degree 28mm ID, 76/78/80mm OD
00-7106-072-32	Revision Provisional Liner zero degree 32mm ID, 72/74mm OD
00-7106-076-32	Revision Provisional Liner zero degree 32mm ID, 76/78/80mm OD
00-7106-072-36	Revision Provisional Liner zero degree 36mm ID, 72/74mm OD
00-7106-076-36	Revision Provisional Liner zero degree 36mm ID, 76/78/80mm OD
00-7106-072-40	Revision Provisional Liner zero degree 40mm ID, 72/74mm OD
00-7106-076-40	Revision Provisional Liner zero degree 40mm ID, 76/78/80mm OD
00-7111-072-28	Revision Provisional Liner ten degree 28mm ID, 72/74mm OD
00-7111-076-28	Revision Provisional Liner ten degree 28mm ID, 76/78/80mm OD
00-7111-072-32	Revision Provisional Liner ten degree 32mm ID, 72/74mm OD
00-7111-076-32	Revision Provisional Liner ten degree 32mm ID, 76/78/80mm OD
00-7111-072-36	Revision Provisional Liner ten degree 36mm ID, 72/74mm OD
00-7111-076-36	Revision Provisional Liner ten degree 36mm ID, 76/78/80mm OD
00-7111-072-40	Revision Provisional Liner ten degree 40mm ID, 72/74mm OD
00-7111-076-40	Revision Provisional Liner ten degree 40mm ID, 76/78/80mm OD

CE  
0086

#### Revision Shell Impactor Kit

Prod. No.	Description
00-7105-003-00	Trabecular Metal Acetabular Revision System Impactor Kit (Includes one each of all items listed below)
00-7106-005-00	Trabecular Metal Acetabular Revision System Impactor Case
00-7330-048-00	48mm Rim Impactor
00-7330-050-00	50mm Rim Impactor
00-7330-052-00	52mm Rim Impactor
00-7330-054-00	54mm Rim Impactor
00-7330-056-00	56mm Rim Impactor
00-7330-058-00	58mm Rim Impactor
00-7330-060-00	60mm Rim Impactor
00-7330-062-00	62/64mm Rim Impactor
00-7330-066-00	66/68/70mm Rim Impactor
00-7330-072-00	72/74mm Rim Impactor
00-7330-076-00	76/78/80mm Rim Impactor
00-7050-030-00	Cup Rim Impactor
00-7050-031-00	Cup Version Guide
00-7050-033-00	Bayonet Handle
00-7050-034-00	Provisional Shell Impactor Handle
00-7050-001-28	Acetabular Impaction Head, 28mm
00-7050-001-32	Acetabular Impaction Head, 32mm
00-7050-001-36	Acetabular Impaction Head, 36mm
00-7050-001-40	Acetabular Impaction Head, 40mm

CE

#### Modular Cup Provisional Shell Set

Prod. No.	Description
00-6270-099-02	Mod Cup Provisional Shell Set (Includes one each of all items listed below)
00-6270-015-00	Provisional Shell Case
00-6242-040-00	Shell Provisional 40mm
00-6242-042-00	Shell Provisional 42mm
00-6242-044-00	Shell Provisional 44mm
00-6242-046-00	Shell Provisional 46mm
00-6242-048-00	Shell Provisional 48mm
00-6242-050-00	Shell Provisional 50mm
00-6242-052-00	Shell Provisional 52mm
00-6242-054-00	Shell Provisional 54mm
00-6242-056-00	Shell Provisional 56mm
00-6242-058-00	Shell Provisional 58mm
00-6242-060-00	Shell Provisional 60mm
00-6242-062-00	Shell Provisional 62mm
00-6242-064-00	Shell Provisional 64mm
00-6242-066-00	Shell Provisional 66mm
00-6242-068-00	Shell Provisional 68mm
00-6242-070-00	Shell Provisional 70mm

CE  
0120

#### Jumbo Shell Provisional Set

00-6270-199-02	Jumbo Shell Provisional Set (Includes one each of all items listed below)
00-6275-018-00	Mod Cup Provisional Shell Jumbo Tray
00-6242-072-00	Shell Provisional 72mm
00-6242-074-00	Shell Provisional 74mm
00-6242-076-00	Shell Provisional 76mm
00-6242-078-00	Shell Provisional 78mm
00-6242-080-00	Shell Provisional 80mm

#### HGP II Bone Screws

Prod. No.	Description
00-6624-065-15	6.5mm x 15mm
00-6624-065-20	6.5mm x 20mm
00-6624-065-25	6.5mm x 25mm
00-6624-065-30	6.5mm x 30mm
00-6624-065-35	6.5mm x 35mm
00-6624-065-40	6.5mm x 40mm
00-6624-065-50	6.5mm x 50mm
00-6624-065-60	6.5mm x 60mm

CE  
0086

#### Screw Instruments

Prod. No.	Description
00-6260-099-02	Trilogy® Holed Instrument Set (Includes one of each of all items listed below)
00-6260-002-00	Flex Shaft w/ Modular Connector
00-6260-003-01	Drill Bit, 15mm Length
00-6260-003-02	Drill Bit, 30mm Length
00-6260-003-03	Drill Bit, 45mm Length
00-6260-006-00	Drill Guide
00-6260-007-01	Tap, 4.5mm Diameter
00-6260-008-01	Tap Guide, 4.5mm Diameter
00-6260-008-02	Tap Guide, 6.5mm Diameter
00-6260-010-00	Tap Handle
00-6260-024-00	Straight Screwdriver
00-6260-025-00	Universal Screwdriver
00-6260-026-00	Modular Universal Handle
00-6260-013-00	Screw Holding Forceps, 15°
00-6260-014-00	Screw Holding Forceps, 45°
00-6611-098-00	Depth Gauge
00-6260-085-01	Case (including base and lid)
00-4215-200-00	Screwdriver Torque Limiter (ordered separately, not in kit)

CE CE  
0086

Contact your Zimmer representative or visit us at [www.zimmer.com](http://www.zimmer.com)

Please refer to package insert for complete product information, including contraindications, warnings, precautions, and adverse effects.



+H12497725508001/\$080929R4I08F