

# EXACTECH | HIP

Operative Technique

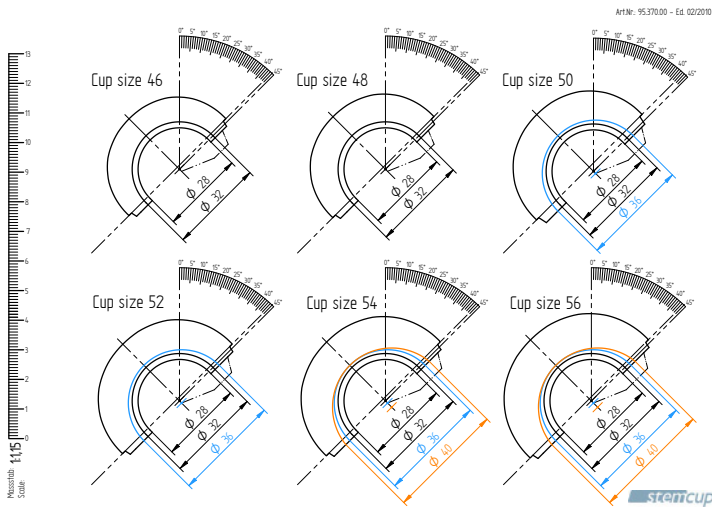


Universal Cup



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**Figure 1**  
Universal Cup Templates

### PREOPERATIVE PLANNING

Accurate pre-operative planning and acetabular templating is essential for obtaining a successful surgical outcome. The acetabular cup size and position can be predetermined using the available x-ray templates (*Figure 1*). Pre-operative planning can be done using conventional hard-copy or digital x-ray films. Templating should be done on the affected side, but the contralateral side may also be templated to confirm size.

# OPERATIVE TECHNIQUE OVERVIEW



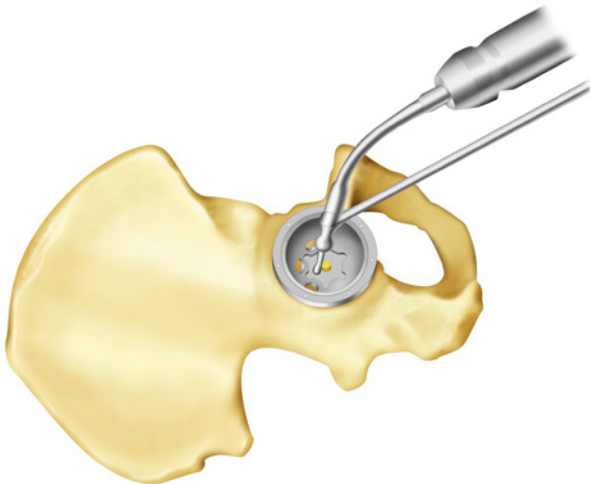
**1**  
**Acetabular Reaming**



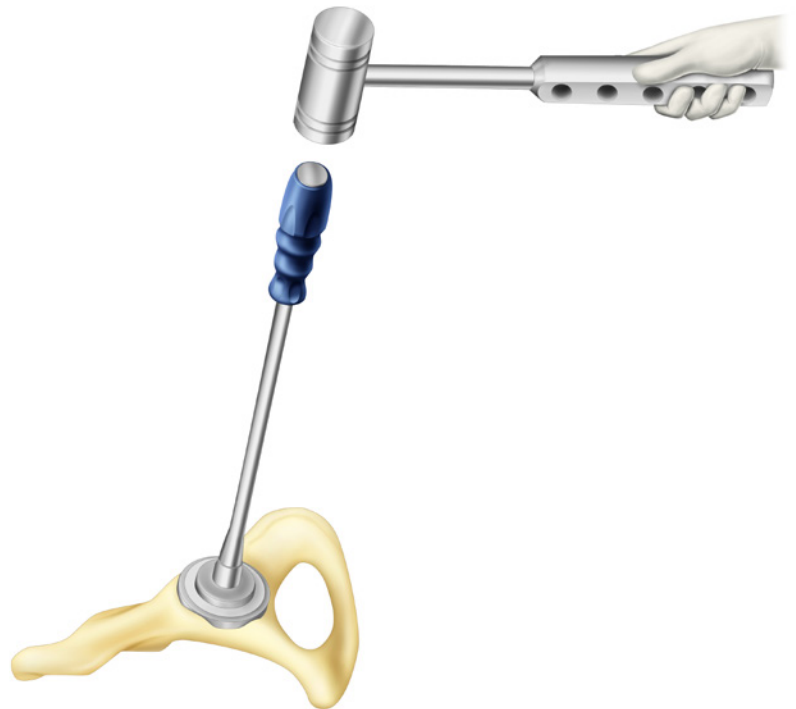
**2**  
**Acetabular Trialing**



**3**  
**Acetabular Shell Implantation**



**4**  
**Adjunctive fixation (optional)**



**5**  
**Liner Insertion (PE, XPE or Ceramic)**

## DETAILED OPERATIVE TECHNIQUE

### ACETABULAR REAMING

**Step 1:** Assemble the **Acetabular Reamer Handle** into the power source. Assemble an Acetabular Reamer 4 to 6mm smaller than the size templated onto the reamer handle.

**Step 2:** Circumferential exposure of the acetabulum is essential prior to reaming. Osteophytes and peripheral soft tissues should be removed to assess the acetabular rim.

**Step 3:** Initial reaming may be directed more medially, though subsequent reaming should be done in 45 degrees of abduction and 20 degrees of anteversion (Figures 2 and 3). The depth of the acetabulum is determined using the smallest reamer.

**Step 4:** Continue reaming incrementally until the articular cartilage has been removed and bleeding bone has been exposed along the superior dome, anterior and posterior walls. Care should be taken to avoid excessive acetabular reaming.

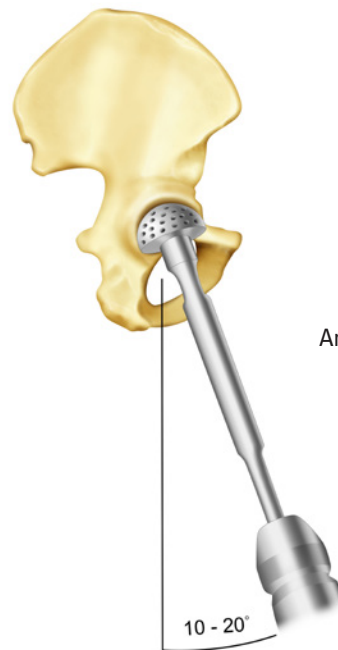
### ACETABULAR TRIALING

**Step 1:** Assemble the appropriate **Acetabular Shell Trial** onto the handle (straight or curved) and insert the trial into the reamed acetabulum (Figure 4). Trialing of the shell will determine reaming accuracy, and provide a good indication of the final implant placement relative to the peripheral rim of the acetabulum.

**Step 2:** Check quality of fit and bone apposition and remove the **Shell Trial**.



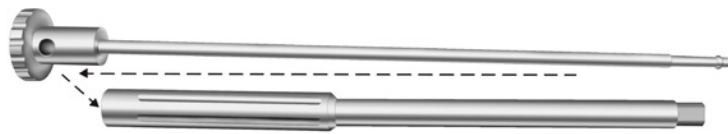
**Figure 2**  
Entry Angle of the  
Acetabular Reamer



**Figure 3**  
Anteversion/Retroversion Angle



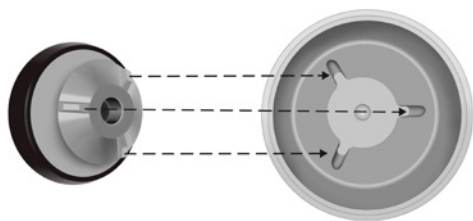
**Figure 4**  
Shell Trial Placement and  
Impaction



**Figure 5**  
Insert the Threaded Rod



**Figure 6**  
Insert the Setting Device



**Figure 7**  
Set the Shifted Notches into the  
Bottom of the Cup



**Figure 8**  
Shell Impaction

### ACETABULAR SHELL IMPLANTATION

**Step 1:** Select the desired Shell Configuration (No-Hole or Three-Hole). Choose the appropriately sized **Acetabular Shell** based on reaming and bone quality.

**Step 2:** Assemble the cup impaction device by first inserting the **Threaded Rod** into the setting device (*Figure 5*). Then, insert the **Setting Device** into the **Setting Device Attachment** (*Figure 6*). The 120 degree shifted notches on the Setting Device must be set into the slots on the bottom of the cup (*Figure 7*). Now, screw the Threaded Rod into the acetabular shell.

### SURGICAL TIPS

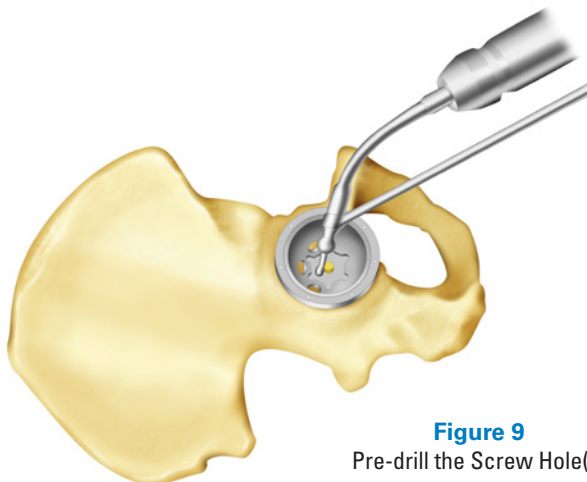
*It is easiest to screw the threaded rod into the shell when the cup lays flat on the operating table.*

**Step 3:** Once assembled, the Setting Device can be used to impact the shell into the prepared acetabulum (*Figure 8*). Introduce the shell into the reamed acetabulum and impact it into place. Correct alignment for typical anatomy is approximately 45 degrees of inclination and 20 degrees of anteversion. Seating of the acetabular shell at this position is recommended to ensure proper positioning and to decrease the potential for dislocation and impingement. Stability of the bone-implant interface should be checked by applying moderate force to several areas on the rim of the prosthesis. The acetabular shell should be firmly fixed within the acetabulum, with no gaps between the shell and the acetabulum. If the shell rotates within the acetabulum, a larger shell must be selected and the bone preparation process should be repeated by reaming to a larger size.

#### ADJUNCTIVE FIXATION (OPTIONAL)

If adjunctive fixation is required, the **Three-Hole Cup** offers screw holes that accept **6.5mm Bone Screws**. The **No-Hole Cup** is intended as press-fit only, offering no opportunity for adjunctive fixation.

If the **6.5mm Bone Screws** are to be used, pre-drill the screw holes using the drill guide, screw holder, and flexible drill bits (*Figure 9*).



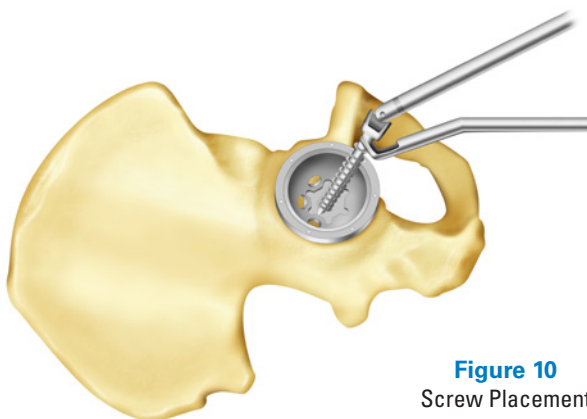
**Figure 9**  
Pre-drill the Screw Hole(s)

#### SURGICAL TIPS

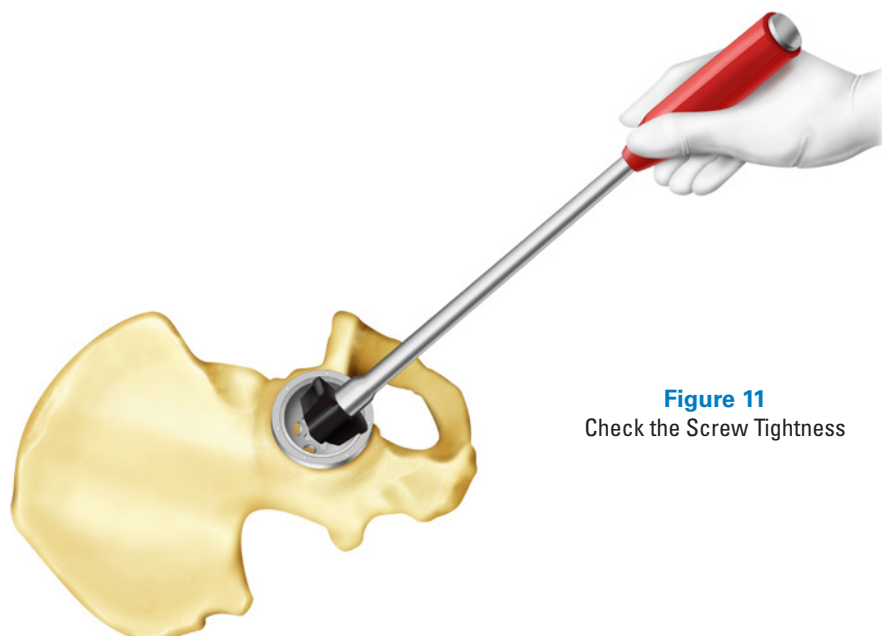
*Screws should not penetrate the soft tissues as this may lead to complications.*

To insert the bone screw, position the screw through the screw holder and seat the screw with the universal joint screwdriver (*Figure 10*). Take care to fully seat the screw. Failure to fully seat the screw could result in impingement between the liner and the screw. Repeat as necessary for additional screw fixation. Place screw hole covers over the unused screw holes, if desired.

The **Master Gauge** can be used to determine if the screws are fully inserted. To do so, assemble a suitable control gauge onto the handle and, by rotating it, check the tightness (*Figure 11*).



**Figure 10**  
Screw Placement



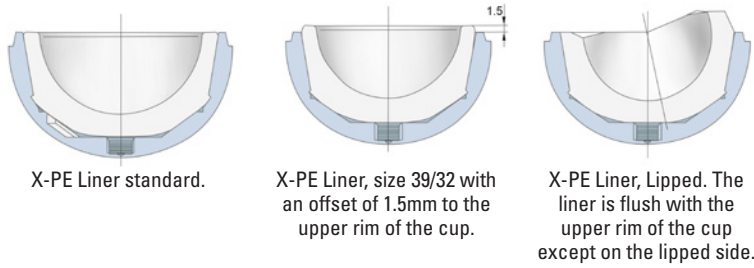
**Figure 11**  
Check the Screw Tightness



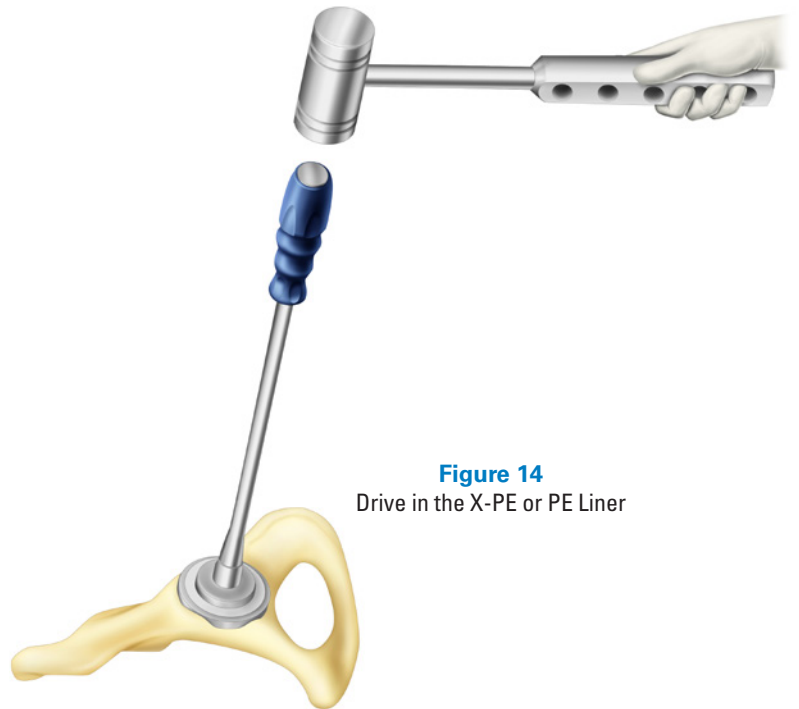
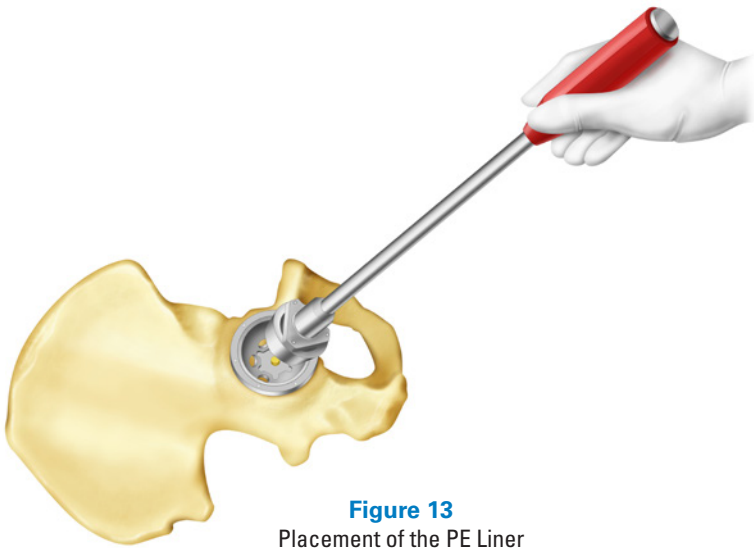
## LINER INSERTION

### Option 1: Polyethylene Liner or Highly Crosslinked Polyethylene Liner Options

Select the desired Liner Option—Standard or Lipped (*Figure 12*). In case of Standard PE, place the Liner on the appropriate **Liner Driver Handle** (*Figure 13*). Insert the Liner into the Acetabular Shell (*Figure 14*). For the Neutral Liners, drive the **Standard Liner Option** until the Liner is flush with the upper rim of the cup.



**Figure 12**





**Figure 15**  
Placement of the Ceramic Liner

**Option 2: BIOLOX®delta Ceramic Liner**

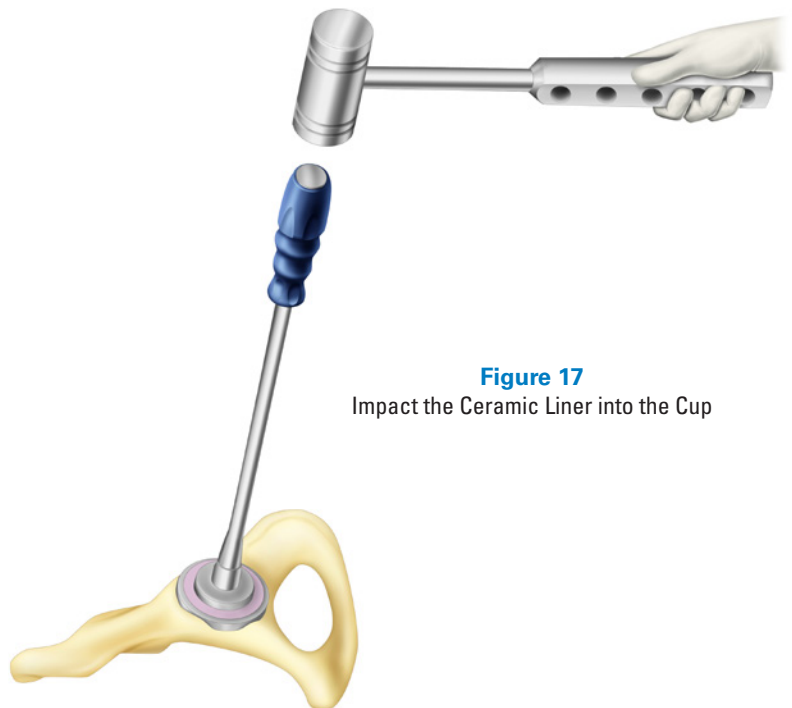
Place the **Ceramic Liner** into the acetabular shell by hand (*Figure 15*). Align the outer taper of the insert to the inner taper of the shell and move the ceramic liner downward until the top of the insert is flush with the upper rim of the cup (*Figure 16*).

If the delta Ceramic Liner is not inserted properly, it can be removed as described later in the operative technique.

Screw the impactor attachment for the ceramic liner onto the handle, and impact the liner into the cup by lightly tapping on the outer rim (*Figure 17*).

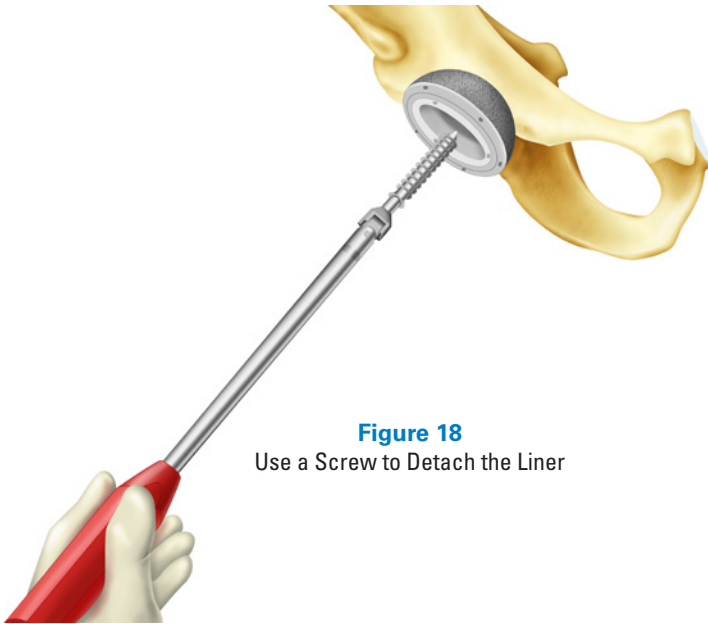


**Figure 16**  
Insert Ceramic Insert Flush with the Upper Rim of the Cup



**Figure 17**  
Impact the Ceramic Liner into the Cup





**Figure 18**  
Use a Screw to Detach the Liner

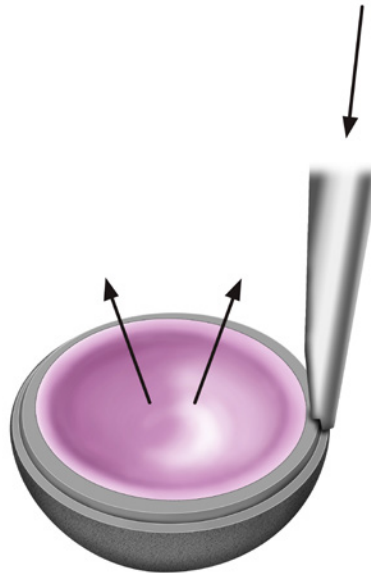
#### LINER REMOVAL

##### Option 1: Removal of the PE or X-PE Liner

If liner replacement is required, drive a screw into the bottom of the PE or X-PE liner being replaced until the PE or X-PE liner detaches itself from the outer cup (*Figure 18*).

##### Option 2: Removal of the Ceramic Liner

Place the ceramic liner extraction tool on the rim of the cup (*Figure 19*). Using a mallet, apply a few soft taps to the outer rim of the ceramic liner. This will disengage the taper, and then the liner can be removed from the shell by hand.



**Figure 19**  
Use the Ceramic Liner Extractor Punch to Remove the Liner

## IMPLANT ORDERING INFORMATION

### UNIVERSAL CUP IMPLANTS REFERENCE NUMBERS

| Cup Ømm | No-Hole        | Three-Hole     | No-Hole, HA    | Three-Hole, HA | 3 Covers, HA   |
|---------|----------------|----------------|----------------|----------------|----------------|
| 46      | 01-034-01-4639 | 01-034-02-4639 | 01-034-03-4639 | 01-034-04-4639 | 01-034-05-4639 |
| 48      | 01-034-01-4839 | 01-034-02-4839 | 01-034-03-4839 | 01-034-04-4839 | 01-034-05-4839 |
| 50      | 01-034-01-5044 | 01-034-02-5044 | 01-034-03-5044 | 01-034-04-5044 | 01-034-05-5044 |
| 52      | 01-034-01-5244 | 01-034-02-5244 | 01-034-03-5244 | 01-034-04-5244 | 01-034-05-5244 |
| 54      | 01-034-01-5448 | 01-034-02-5448 | 01-034-03-5448 | 01-034-04-5448 | 01-034-05-5448 |
| 56      | 01-034-01-5648 | 01-034-02-5648 | 01-034-03-5648 | 01-034-04-5648 | 01-034-05-5648 |
| 58      | 01-034-01-5852 | 01-034-02-5852 | 01-034-03-5852 | 01-034-04-5852 | 01-034-05-5852 |
| 60      | 01-034-01-6052 | 01-034-02-6052 | 01-034-03-6052 | 01-034-04-6052 | 01-034-05-6052 |
| 62      | 01-034-01-6252 | 01-034-02-6252 | 01-034-03-6252 | 01-034-04-6252 | 01-034-05-6252 |
| 64      | 01-034-01-6452 | 01-034-02-6452 | 01-034-03-6452 | 01-034-04-6452 | 01-034-05-6452 |
| 66      | 01-034-01-6652 | 01-034-02-6652 | 01-034-03-6652 | 01-034-04-6652 | 01-034-05-6652 |

### UNIVERSAL CUP STANDARD LINERS REFERENCE NUMBERS

| Cup Ømm                    | PE Liner, Standard |                | PE Liner, Lipped |                |
|----------------------------|--------------------|----------------|------------------|----------------|
|                            | Ø28mm              | Ø32mm          | Ø28mm            | Ø32mm          |
| 46<br>48                   | 01-033-01-3928     | ---            | 01-033-11-3928   | ---            |
| 50<br>52                   | 01-033-01-4428     | 01-033-01-4432 | 01-033-11-4428   | 01-033-11-4432 |
| 54<br>56                   | 01-033-01-4828     | 01-033-01-4832 | 01-033-11-4828   | 01-033-11-4832 |
| 58<br>60<br>62<br>64<br>66 | 01-033-01-5228     | 01-033-01-5232 | 01-033-11-5228   | 01-033-11-5232 |

## UNIVERSAL CUP X-PE LINERS REFERENCE NUMBERS

| Cup Ømm                    | X-PE Liner, Standard |                |                |                | X-PE Liner, Lipped |                |                |
|----------------------------|----------------------|----------------|----------------|----------------|--------------------|----------------|----------------|
|                            | Ø28mm                | Ø32mm          | Ø36mm          | Ø40mm          | Ø28mm              | Ø32mm          | Ø36mm          |
| 46<br>48                   | 01-033-02-3928       | 01-033-02-3932 | ---            |                | 01-033-12-3928     | ---            | ---            |
| 50<br>52                   | ---                  | 01-033-02-4432 | 01-033-02-4436 |                | ---                | 01-033-12-4432 | ---            |
| 54<br>56                   | ---                  | ---            | 01-033-02-4836 | 01-033-02-4840 | ---                | ---            | 01-033-12-4836 |
| 58<br>60<br>62<br>64<br>66 | ---                  | ---            | 01-033-02-5236 | 01-033-02-5240 | ---                | ---            | 01-033-12-5236 |

## UNIVERSAL CUP ØMM IN COMBINATION WITH CERAMIC LINER ØMM REFERENCE NUMBERS






| Cup Ømm                    | Ceramic Liner  |                |                |
|----------------------------|----------------|----------------|----------------|
|                            | Ø32mm          | Ø36mm          | Ø40mm          |
| 46<br>48                   | 01-033-03-3932 | ---            | ---            |
| 50<br>52                   | ---            | 01-033-03-4436 | ---            |
| 54<br>56                   | ---            | 01-033-03-4836 | 01-033-03-4840 |
| 58<br>60<br>62<br>64<br>66 | ---            | 01-033-03-5236 | 01-033-03-5240 |












## UNIVERSAL CUP SCREWS





|                   |                |
|-------------------|----------------|
| Sterile, 6.5x20mm | 01-035-01-0620 |
| Sterile, 6.5x25mm | 01-035-01-0625 |
| Sterile, 6.5x30mm | 01-035-01-0630 |
| Sterile, 6.5x35mm | 01-035-01-0635 |
| Sterile, 6.5x40mm | 01-035-01-0640 |

|                     |                |
|---------------------|----------------|
| Unsterile, 6.5x20mm | 01-035-11-0620 |
| Unsterile, 6.5x25mm | 01-035-11-0625 |
| Unsterile, 6.5x30mm | 01-035-11-0630 |
| Unsterile, 6.5x35mm | 01-035-11-0635 |
| Unsterile, 6.5x40mm | 01-035-11-0640 |

## INSTRUMENT LISTING

| Catalog Number   | Part Description   |   |
|--|--|---|
| 65-301-801-01-90   | Universal Cup Instrument Tray 1  |   |
| 65-301-14  | Acetabular Reamer Handle   |    |
| 65-301-44<br>65-301-46<br>65-301-48<br>65-301-50<br>65-301-52<br>65-301-54<br>65-301-56<br>65-301-58<br>65-301-60<br>65-301-62<br>65-301-64<br>65-301-66 | Acetabular Reamer, Size 44<br>Acetabular Reamer, Size 46<br>Acetabular Reamer, Size 48<br>Acetabular Reamer, Size 50<br>Acetabular Reamer, Size 52<br>Acetabular Reamer, Size 54<br>Acetabular Reamer, Size 56<br>Acetabular Reamer, Size 58<br>Acetabular Reamer, Size 60<br>Acetabular Reamer, Size 62<br>Acetabular Reamer, Size 64<br>Acetabular Reamer, Size 66 |    |
| 65-311-46<br>65-311-48<br>65-311-50<br>65-311-52<br>65-311-54<br>65-311-56<br>65-311-58<br>65-311-60<br>65-311-62<br>65-311-64<br>65-311-66              | Acetabular Shell Trial, 46mm<br>Acetabular Shell Trial, 48mm<br>Acetabular Shell Trial, 50mm<br>Acetabular Shell Trial, 52mm<br>Acetabular Shell Trial, 54mm<br>Acetabular Shell Trial, 56mm<br>Acetabular Shell Trial, 58mm<br>Acetabular Shell Trial, 60mm<br>Acetabular Shell Trial, 62mm<br>Acetabular Shell Trial, 64mm<br>Acetabular Shell Trial, 66mm         |    |
| 65-331-35<br>65-331-36<br>65-331-37<br>65-331-38   | Control Gauge, Size 39 for Universal Cup, Three-Hole<br>Control Gauge, Size 44 for Universal Cup, Three-Hole<br>Control Gauge, Size 48 for Universal Cup, Three-Hole<br>Control Gauge, Size 52 for Universal Cup, Three-Hole   |  |
| 60-1041<br>60-1042<br>60-1043<br>60-1053   | Impactor Attachment for Liner, 28mm<br>Impactor Attachment for Liner, 32mm<br>Impactor Attachment for Liner, 36mm (optional)<br>Impactor Attachment for Liner, 40mm (optional)   |  |

| Catalog Number                                   | Part Description   |   |
|--|--|---|
| 65-301-801-02-90                                 | Universal Cup Instrument Tray 2  |   |
| 65-301-800-02-05                                 | Holder for Titanium Screws   |    |
| 65-321-21-01                                     | Setting Device for Universal Cup   |    |
| 65-321-21-02                                     | Threaded Rod for Setting Device for Universal Cup  |    |
| 65-331-41  | Fixation for Drill Guide and Screw Holder  |    |
| 65-331-43  | Universal Joint Screw Driver   |    |
| 65-331-44  | Thread Measuring Wire  |    |
| 60-1013<br>60-1014<br>60-1028<br>60-1029         | Setting Device for PE Insert, Standard 28<br>Setting Device for PE Insert, Standard 32<br>Setting Device for PE Insert, Dysplasia 28<br>Setting Device for PE Insert, Dysplasia 32   |    |
| 60-1017  | Pusher, Straight   |    |
| 60-1018  | Pusher, Curved   |   |
| 60-1051  | Ceramic Insert Extractor   |  |
| 60-370-03<br>60-370-04<br>60-370-05<br>60-370-06 | Setting Device Attachment, Size 46-48 for Universal Cup<br>Setting Device Attachment, Size 50-52 for Universal Cup<br>Setting Device Attachment, Size 54-56 for Universal Cup<br>Setting Device Attachment, Size 58-66 for Universal Cup |  |
| 60-7906  | Flexible Drill, Short  |  |
| 60-7907  | Flexible Drill, Long   |  |

|  |   |   |
|--|---|---|
| 65-301-801-03-90                                 | Universal Cup Instrument Tray 3, MIS option   |   |
| 60-1062  | Offset Guiding Shaft Synthes-AO-Connection  |  |
| 60-1062 handle                                   | Handle for 60-1062  |  |
| 60-1066  | MIS Bowed Setting Device for Universal Cup  |  |
| 60-370-07<br>60-370-08<br>60-370-09<br>60-370-10 | Setting Device, attach to MIS-Setting Instrument 46-48 for Universal Cup<br>Setting Device, attach to MIS-Setting Instrument 50-52 for Universal Cup<br>Setting Device, attach to MIS-Setting Instrument 54-56 for Universal Cup<br>Setting Device, attach to MIS-Setting Instrument 58-66 or Universal Cup |  |









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