stryker

Orthopaedics

Trident®
Constrained Acetabular Insert
Surgical Protocol

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Surgical Protocol

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Introduction

The Trident® Constrained Acetabular Insert is indicated for use in primary and revision total hip patients who exhibit a high risk of hip dislocation. It should be used when more conservative methods of soft tissue management, such as lengthening the femoral neck or lateralizing the joint's center of rotation, are insufficient for restoring joint stability.

The Trident® Constrained Acetabular Insert offers less range of motion than standard total hip replacement components but can be a better solution when the likelihood of dislocation is high.

Trident® Constrained Acetabular Insert

The Trident® Constrained Acetabular Insert is designed specifically for the Stryker UHR® bipolar head. The bipolar head is preassembled in the insert and securely retained by a titanium alloy retaining ring. The Trident® 0° and 10° Constrained Acetabular Inserts can only be used in a Trident® Acetabular Shell.

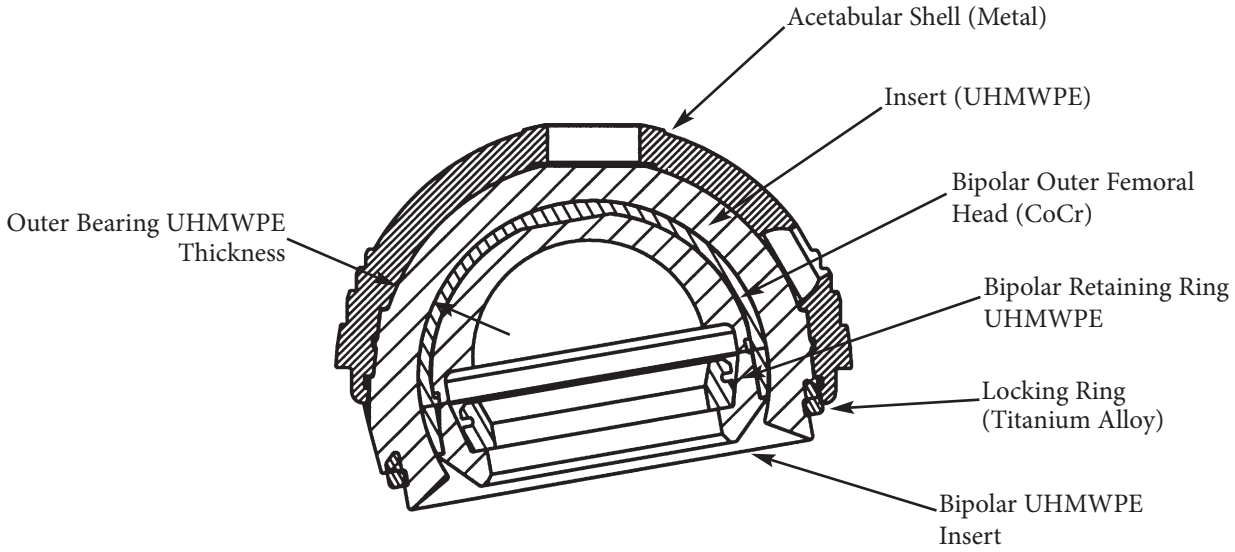
The Trident® 0° All-Poly Constrained Insert can be cemented into an existing shell or cage device, or directly into the acetabulum.

Articulation occurs at both the femoral head-to-bipolar interface and at the bipolar-to-insert interface.

A unique, split-ring locking mechanism facilitates ease of femoral head assembly, yet provides the potential for enhanced protection against component disassembly.

A head removal key allows for easy, non-destructive component disassembly.

A dynamic valgus alignment creates a constant neutral alignment of the bipolar within the insert during weight bearing to provide increased head coverage. This prevents inner bearing articulation from occurring on the locking mechanism, thus sparing the mechanism from extreme loading.



Trident® Constrained Acetabular Inserts

Trident® 0° Constrained Acetabular Insert

Trident® 10° Constrained Acetabular Insert

Trident® 0° All-Poly Constrained Acetabular Insert

Table 1: **Trident® 0° Constrained Inserts**

Trident® Alpha Code*	Trident® Constrained Insert Catalog Number	Bipolar Femoral Head Size (mm)	Bipolar Head OD (mm)	Outer UHMWPE Thickness (mm)	Total Range of Motion***	Outer OD Spherical Diameter (mm)	Head Removal Key Catalog Number	Insert Catalog No.
D	690-00-22D	22	36	5.6	82°	40.4	HI-UHRK-3638**	2270-22D
E	690-00-22E	22	36	7.5	82°	44.4	HI-UHRK-3638**	2270-22E
F	690-00-28F	28	42	6.5	90°	48.5	HI-UHRK-28	2270-28F
G	690-00-28G	28	42	8.1	90°	51.5	HI-UHRK-28	2270-28G
H	690-00-32H	32	46	7.8	94°	55.0	HI-UHRK-32	2270-32H
I	690-00-32I	32	46	9.3	94°	58.0	HI-UHRK-32	2270-32I
J	690-00-32J	32	46	11.3	94°	62.0	HI-UHRK-32	2270-32J

Table 2: **Trident® 10° Constrained Inserts**

Trident® Alpha Code*	Trident® Constrained Insert Catalog No.	Bipolar Femoral Head Size (mm)	Bipolar Head OD (mm)	Outer Bearing UHMWPE Thickness (mm)	Total Range of Motion***	Outer Bearing OD Spherical Diameter (mm)	Head Removal Key Catalog Number	Insert Trial Catalog No.
E	690-10-22E	22	36	7.9	82°	44.4	HI-UHRK-3638**	2230-22E
F	690-10-22F	22	36	9.9	82°	48.4	HI-UHRK-3638**	2230-22F
G	690-10-28G	28	42	8.4	90°	51.5	HI-UHRK-28	2230-28G
H	690-10-28H	28	42	10.2	90°	55.0	HI-UHRK-28	2230-28H
I	690-10-28I	28	42	11.6	90°	58.0	HI-UHRK-28	2230-28I
J	690-10-28J	28	42	13.7	90°	62.0	HI-UHRK-28	2230-28J

Table 3: **Trident® 0° All-Poly Constrained Inserts**

Trident® Constrained Insert Catalog No.	Bipolar Femoral Head Size (mm)	Bipolar Head OD (mm)	Outer Bearing UHMWPE Thickness (mm)	Total Range of Motion***	Outer Bearing OD Spherical Diameter (mm)	Head Removal Key Catalog Number	Insert Trial Catalog No.
69-2244	22	36	7.3	82°	44.0	HI-UHRK-3638**	1090-2244
69-2246	22	36	8.3	82°	46.0	HI-UHRK-3638**	1090-2246
69-2248	22	36	9.3	82°	48.0	HI-UHRK-3638**	1090-2248
69-2850	28	42	7.3	90°	50.0	HI-UHRK-28	1090-2850
69-2852	28	42	8.3	90°	52.0	HI-UHRK-28	1090-2852
69-2854	28	42	9.3	90°	54.0	HI-UHRK-28	1090-2854
69-3256	32	46	8.3	94°	56.0	HI-UHRK-32	1090-3256
69-3258	32	46	9.3	94°	58.0	HI-UHRK-32	1090-3258
69-3260	32	46	10.3	94°	60.0	HI-UHRK-32	1090-3260

**The alphabetical letter at the end of a Trident® catalog number identifies compatibility among all Trident® acetabular components.*
***NOTE: Special Key for 690-00-22D, 690-00-22E and 690-10-22E, 690-10-22F, 69-2244,69-2246, 69-2248 only.*
****Values calculated using Accolade® TMZF Size 3 stems.*

Primary Surgery:

When used in a primary surgery, the Stryker femoral and Trident® metal shell components should be implanted in accordance with the applicable Surgical Protocols. However, if an uncemented metal shell is being implanted with the Trident® Constrained Acetabular Insert, supplemental fixation, with a minimum of two (2) bone screws, is recommended.

Revision Surgery:

When the Trident® Constrained Acetabular Insert is chosen for use in the revision of a Trident® Acetabular Component, the existing Trident® insert should be removed in accordance with the appropriate Stryker Surgical Protocol.

Care should be taken not to mar the interior of the existing metal shell when removing the insert. The stability of the metal shell and the locking barbs must be assessed for any damage. Also, remove any tissue that may get wedged between the insert and shell lip.

Revising the Metal Shell:

If the shell requires replacement due to instability, bone loss, damage to the locking ring groove, or any other condition, the metal shell may be replaced with a Stryker Trident® shell in accordance with the appropriate Surgical Protocol. If an uncemented metal shell is being implanted with the Trident® Constrained Acetabular Insert, supplemental fixation, with a minimum of two (2) bone screws, is recommended.

Retaining the Metal Shell:

Once the integrity of the existing metal shell is established, remove any membranes from the screw holes and inside the shell. Also remove any tissue that may impinge the polyethylene liner engagement at the periphery of the metal shell.

Trial Evaluation

The appropriate size Trident® Constrained Trial Insert is selected to evaluate joint mechanics (**Figure 1**). Refer to the trial table on page 6 for the appropriate size trial insert. The Trident® Constrained Trial Inserts contain a screw mechanism to secure the trial to the acetabular shell. The trial insert is inserted into the Trident® Acetabular Shell and the screw mechanism must be tightened by using the Stryker Torx Screw Drivers. Once the trial insert is fully seated, the trial reduction can be performed. Once the trial reduction is performed, remove the trial insert.

Figure 1

Component Selection

Select the appropriate sized Trident® Constrained Acetabular Insert by correlating the insert letter designation (alpha code) with that of the shell (See **Tables 1 & 2** on page 2).

Implantation

For proper seating and locking of the constrained insert, the insert must be both rotationally and axially aligned to the acetabular shell prior to final impaction. While holding the insert in your fingers, rotationally align the insert locking grooves to the barbs of the shell making sure the location of the 10° lip matches that of the trial insert.

Once the insert is rotationally aligned, press the insert into the shell while keeping the axis of the insert parallel to the axis of the shell (**Figure 2**).

Push the insert into the shell until the insert will not go any further. Care must be taken not to rock, tilt, or misalign the insert prior to final impaction, as this may damage the polyethylene locking bead thus preventing proper seating and locking.

Locking of the Trident® Constrained Acetabular Insert into the appropriately sized Trident® metal shell is the same as standard Trident® Acetabular Polyethylene Inserts. The constrained insert, however, cannot be impacted into the shell with the Stryker Acetabular Cup Insert Impactor (2101-0130).

Figure 3

Figure 2 (10° insert shown)

Locking Insert into Shell

Method One

Select the Constrained Liner Inserter/Impactor Tip (2199-20XX or 2199-20XX Rev. C or greater) that corresponds to the femoral head size (**Figure 3**). **If using the 2199-20XX Impactor Tip –** Thread the tip onto the Trident® Cup Positioner / Impactor handle (2101-0200, **Figure 4A**). **If using the 2199-20XX Rev. C or greater Impactor Tip –** Thread the metal adapter onto the tip. Load the tip into the Insert Positioner / Impactor Handle (2111-0000B, **Figure 4B**). Insert the tip into the bipolar (**Figure 5**). Impact the insert to its final seating with the rim of the Impactor Tip flush with the face of the insert. Check for proper seating by assuring that the periphery of the insert is in contact with the shell, circumferentially.

Figure 4A

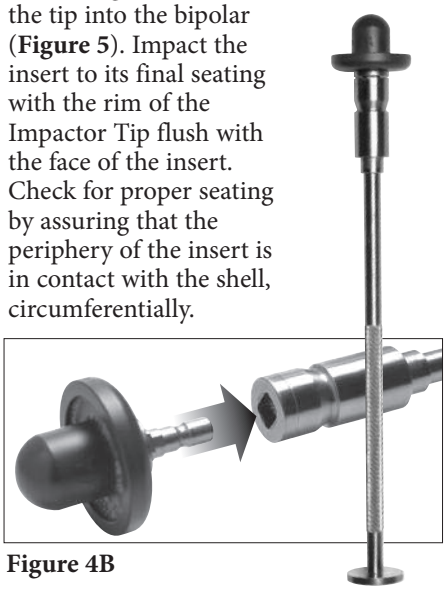


Figure 4B

Figure 5

Method Two

Use the Cutting Edge Femoral Head Impactor (1104-1000) to strike against the spherical surface of the inner bipolar metal shell. Alternatively, the Command Femoral Head Impactor (6266-0-140) may be used. Impact the insert to its final seating with the force and instrument perpendicular to the shell face. Check for proper seating by assuring that the periphery of the insert is in contact with the shell, circumferentially.

Method Three

Select a Threaded Trial Head (1205-0022 / 1205-0028 / 1205-0032) with the same outer diameter as the inner diameter of the chosen constrained insert. Also, select an appropriately sized Head Removal Key (HI-UHRK-3638 / HI-UHRK-28 / HI-UHRK-32).

WARNING: Ensure the Head Removal Key is available to remove the Threaded Trial Head before proceeding.

Assemble the Howmedica Osteonics Threaded Trial Head onto the Howmedica Osteonics Threaded Impactor/Extractor Handle (2101-0004).

Once assembled, insert the Threaded Trial Head into the bipolar component of the constrained insert. Impact the insert to its final seating with the force and instrument perpendicular to the shell face. Check for proper seating by assuring that the periphery of the insert is in contact with the shell, circumferentially. Once the insert is seated, remove the Threaded Trial Head / Impactor / Extractor Handle assembly from the constrained bearing insert with the selected Head Removal Key.

Use of the Head Removal Key

Insert the Head Removal Key into the inner bearing area between the bipolar component and the Threaded Trial Head of the Impactor / Extractor and push upward toward the UHR® head center. This spreads the locking ring within the UHR® component. With a gentle pulling action, remove the Impactor / Extractor Handle assembly ***and*** the key from the constrained insert ***at the same time.***

Femoral Bearing Head/Insert Assembly

After assembly of the constrained insert into the metal shell, the head of the implanted femoral stem is positioned on the opening of the constrained insert's bipolar component. If utilizing a femoral stem with a modular femoral head, the modular femoral head must be fully seated onto the femoral stem trunnion prior to assembly with the Trident® Constrained Acetabular Insert (See **Table 2** for head compatibility). The bipolar component's opening must be fully visible before introducing the femoral bearing head into the component.

Reduce the stem in the standard fashion by elevating the patient's leg and applying a slight downward force until the head snaps into the bipolar component. The bipolar component has a positive locking mechanism which enables the bipolar and femoral head to be assembled with less than five pounds of force. The locking mechanism consists of a split polyethylene ring which is captured within the bipolar's polyethylene insert. As the femoral head is inserted into the bipolar, the assembly load forces the expansion of the split ring within the bipolar. Upon clearing the maximum diameter of the head, the ring contracts to its normal diameter, resulting in the entrapment of the head within the bipolar.

Once the joint is reduced, the femoral head is retained within the constrained insert and can be removed only through use of a Stryker UHR® Head Removal Key.

Use of the Head Removal Key

Insert the Head Removal Key into the inner bearing area between the bipolar component and the Threaded Trial Head of the Impactor/Extractor and push upward toward the UHR® head center. This spreads the locking ring within the UHR® component. With a gentle pulling action, remove the Impactor/ Extractor Handle assembly ***and*** the key from the constrained insert ***at the same time.***

Constrained Insert Removal

Removal of the constrained acetabular cup insert, if necessary, may be accomplished using a 3.3mm drill bit and a self-tapping bone screw with 3.4mm or higher major thread diameter and a round bullet tip. Rotate the bipolar component within the cup insert to allow the drill access to the medial wall of the insert. Using a 3.3mm drill bit, create a hole slightly off-center of the medial wall of the insert. Caution should be taken to avoid drilling through the dome hole of the metal shell. The deepening of this hole should be stopped before contact is made with the inner surface of the metal shell.

Figure 6 Head Removal Key

The appropriately-sized bone screw is started into the drill hole (a 35mm screw length or longer is recommended). Advance the screw until the tip contacts the inner surface of the metal shell. Continued advancement of the screw levers the cup insert from its seated position. Once the cup insert has been lifted from its fully-seated position by the bone screw, additional distractive force may be applied with an elevator or osteotome.

If access to the medial wall of the insert is unattainable, the titanium alloy retaining ring on the outer rim of the acetabular insert may be removed using an osteotome and/or forceps. Insert removal may proceed as indicated above, only in the area of the outer rim of the insert.

The cup insert may also be removed by utilizing an osteotome, elevator and/or forceps at the cup insert/metal shell junction, to pry the insert from its locked position within the cup shell.

Table 4:

Femoral Head Compatibility with Stryker Trident® Constrained Insert

Femoral Head Component	Catalog Number Series
CoCr Morse Taper	1001-XXXX
CoCr C-Taper	6001-XXXX
CoCr/LFIT™ Morse Taper	01-XXXX and S-1399-HHXX
CoCr/LFIT™ C-Taper	06-XXXX and S-1400-HHXX
Alumina C-Taper	17-XXXXE
Delta Ceramic C-Taper	18-XXXX
Modified V40™ CoCr	6260-4-XXX and 6260-5-XXX
CoCr/LFIT V40™	6260-9-XXX
Alumina V40™	6260-7-XXX and 6565-0-XXX
Delta Ceramic V40™	6570-0-XXX
PCA® CoCr +15mm	2284-0-XXX
Modified PCA® CoCr	6280-0-XXX

Option 1:

Cementing into an Implanted Shell or Cage:

Following the fixation of a shell or cage device, a Trident® All-Poly Constrained Insert may be cemented into the device.

Trialing

To assess head center placement, a trial reduction may be performed by using the appropriate Trident® All-Poly Constrained Trial Insert and head trial to assess joint mechanics and appropriate head center placement. Refer to the trial table on page 6 for the appropriate size trial insert. The Trident® All-Poly Constrained Trial Inserts contain a screw mechanism to secure the trial to a shell or cage with compatible dome hole threads. The screw mechanism must be tightened using the Stryker Torx Screwdrivers.

NOTE: The insert trials are the same size as the actual implant, and do not take into account a cement mantle.

Figure 7

Cementing and Inserting Implant

Once trial reduction is complete, the insert can now be cemented in place (see **Table 3** on page 2).

Method One

If using the 2199-20XX Impactor Tip – Thread the Constrained Liner Inserter/ Impactor Tip onto the Trident® Cup Impactor handle. Place the anteversion rod in the correct position.

If using the 2199-20XX Rev. C or greater Impactor Tip – Thread the metal adapter onto the tip. Load the tip into the Insert Positioner / Impactor Handle.

Mount the selected Trident® All-Poly Constrained Insert on the inserter tip (**Figure 5** on page 3). Mix one pack of Simplex bone cement according to the manufacturer's specifications and lavage the inside of the cup shell. Dry thoroughly prior to the introduction of the bone cement. The cement is mixed and is inserted into the acetabular shell in bolus form. Once it has achieved a doughy state, the insert, mounted on the inserter tip, is then pressed gently into the cup and driven deeply into the bed of cement. The angle guide allows assessment of proper cup position, which is typically 40 to 45 degrees of abduction or lateral opening and 10 to 20 degrees of anteversion.

NOTE: When determining the proper angulation of the insert, it is important to critically evaluate the anatomic landmarks and patient anatomy for optimum placement.

It is essential that the insert be compressed into the cup and the introducer held as still as possible until cement has hardened. After the cement is cured, the insert introducer is then carefully removed from the insert. Take special measures to remove all excess bone cement from the edges of the cup by utilizing curettes and osteotomes.

Method Two

Select a Threaded Trial Head (1205-0022 / 1205-0028 / 1205-0032) with the same outer diameter as the inner diameter of the chosen constrained insert. Also, select an appropriately sized Head Removal Key (HI-UHRK-3638 / HI-UHRK-28 / HI-UHRK-32).

WARNING: Ensure the Head Removal Key is available to remove the Threaded Trial Head before proceeding.

Assemble the Howmedica Osteonics Threaded Trial Head onto the Howmedica Osteonics Threaded Impactor/Extractor Handle (2101-0004).

Once assembled, insert the Threaded Trial Head into the bipolar component of the constrained insert. Mix one pack of Simplex™ bone cement according to the manufacturer's specifications and lavage the inside of the cup shell. Dry thoroughly prior to introduction of the bone cement. The cement is mixed and is inserted into the acetabular shell in bolus form. Once it has achieved a doughy state, the insert, mounted on the introducer (Impactor / Extractor Handle Assembly), is then pressed gently into the cup and driven deeply into the bed of cement.

NOTE: When determining the proper angulation of the insert, it is important to critically evaluate the anatomic landmarks and patient anatomy for optimum placement.

It is essential that the insert be compressed into the cup and the introducer (Impactor / Extractor Handle Assembly) held as still as possible until cement has hardened. After the cement is cured, the insert introducer (Impactor / Extractor Handle Assembly) is then carefully removed from the insert with the selected Head Removal Key. Take special measures to remove all excess bone cement from the edges of the cup by utilizing curettes and osteotomes.

Use of the Head Removal Key

Insert the Head Removal Key into the inner bearing area between the bipolar component and the Threaded Trial Head of the Impactor / Extractor and push upward toward the UHR® head center. This spreads the locking ring within the UHR® component. With a gentle pulling action, remove the Impactor / Extractor Handle assembly ***and*** the key from the constrained insert ***at the same time.***

Head Assembly

Go back to page 5 and proceed with the instructions for final implant head assembly.

Option 2:

Cementing into the Acetabulum:

To cement the Trident® All-Poly Constrained Insert directly into the acetabulum, the bone must first be properly prepared. This is done through spherical acetabular reaming.

Reaming

Acetabular reaming is initiated with a reamer size that fits easily into the socket. This allows reaming based on the anatomic center of the acetabulum. Initial reaming should be carried out to identify the medial wall. Reaming should medialize the socket to this point but care should be taken not to compromise or violate the medial wall.

NOTE: If too small a reamer is chosen to begin with, the reaming process may begin eccentrically, thus removing excessive anterior or posterior wall bone stock with resultant non-anatomic placement of the acetabular component.

The low profile design of the Cutting Edge Spherical Reamer necessitates the need to ream to the full depth. The reamer head should be driven to the point where the rim/cross bar contacts the acetabular wall at the peripheral lunate region. Removal of the reamer from the handle is performed by pulling back on the locking sleeve and rotating the reamer head a quarter-turn in a clockwise direction.

NOTE: Care should be taken not to enlarge or distort the acetabulum by eccentric reaming. Final acetabular reaming ideally shows the hemispherical acetabulum denuded of cartilage, with the subchondral plate preferably intact, and the anterior acetabular wall preserved.

It is believed that the subchondral plate functions as an important load-sharing and support mechanism. Preserving as much of the subchondral plate as possible may help preserve the qualities of the bone/metal composite.

Reaming should be done to the desired implantation size.

NOTE: It is recommended to have a 2mm cement mantle, so 4mm should be added to the respective Trident® Constrained Insert Outer Bearing OD Spherical Diameter (see **Table 3** on page 2) to equal the implantation size (i.e., if you ream to 56mm, add cement and implant the insert with a 52mm OD).

NOTE: The Cutting Edge Spherical Reamers are very aggressive and perform best when sharp. Care should be taken to protect the reamer from unnecessary handling, as dull or damaged cutting teeth may cause improper reaming. Dull cutting teeth will resist hard bone and will deflect to cut softer bone. This situation may result in an irregularly shaped or enlarged acetabulum preparation.

Cement Fixation Holes

After completion of reaming, fixation holes may be made in the subchondral plate. These can be made with a flexible drill and drill guide provided in the instrument set, a curette, or a power bur. A single primary fixation hole should be created in each of three areas: the acetabular dome, ischial ramus, and pubic ramus. Additional holes can be created at the surgeon's discretion.

Trident® Constrained Acetabular Insert Trials

Trident® 0° Insert Trials	Trident® 10° Insert Trials	Trident® All-Poly Insert Trials
2270-22D	2230-22E	1090-2244
2270-22E	2230-28F	1090-2246
2270-28F	2230-28G	1090-2248
2270-28G	2230-28H	1090-2850
2270-32H	2230-28I	1090-2852
2270-32I	2230-28J	1090-2854
2270-32J		1090-3256
		1090-3258
		1090-3260

Trident® Constrained Acetabular Inserts utilize the Cutting Edge Bone Screw Tray and Acetabular Reamer Tray

Drivers (included in Bone Screw Tray)	
Straight Driver Shaft	2107-1014
Universal Driver Shaft	2107-1015
Flexible Driver Shaft	2107-1016
Straight Driver Shaft - 6"	2107-1017
Captive Twist Straight Driver Shaft	2107-2014
Ratchet Handle for Drivers	2107-1000

Trialing

Trialing can be accomplished by using the respective Insert Trial. The insert trials are the same size as the actual implant and do not take into account the cement mantle. The trials should also be used to assess the fit and estimate final orientation of the cup prior to implantation.

NOTE: To maintain a 2mm cement mantle, a trial 4mm greater than the final implant may be used to assess reaming depth. Take care to note the associated head size of the larger trial.

Cementing and Inserting Implant

Once trial reduction is complete, the insert can now be cemented in place.

Method One

If using the 2199-20XX Impactor Tip – Thread the Constrained Liner Inserter/ Impactor Tip onto the Trident® Cup Impactor handle. Place the anteversion rod in the correct position.

If using the 2199-20XX Rev. C or greater Impactor Tip – Thread the metal adapter onto the tip. Load the tip into the Insert Positioner / Impactor Handle.

Mount the selected Trident® All-Poly Constrained Insert on the inserter tip. Mix one pack of Simplex bone cement according to the manufacturer's specifications and lavage the inside of the acetabulum. Dry thoroughly prior to the introduction of the bone cement. The cement is mixed and is inserted into the acetabulum in bolus form. Once it has achieved a doughy state, the insert, mounted on the inserter tip, is then pressed gently into the cup and driven deeply into the bed of cement. The angle guide allows assessment of proper cup position, which is typically 40 to 45 degrees of abduction or lateral opening and 10 to 20 degrees of anteversion.

NOTE: When determining the proper angulation of the insert, it is important to critically evaluate the anatomic landmarks and patient anatomy for optimum placement.

It is essential that the insert be compressed into the acetabulum and the inserter held as still as possible until cement has hardened. After the cement is cured, the inserter tip is then carefully removed from the insert. Take special measures to remove all excess bone cement from the edges of the cup by utilizing curettes and osteotomes.

Method Two

Select a Threaded Trial Head (1205-0022 / 1205-0028 / 1205-0032) with the same outer diameter as the inner diameter of the chosen constrained insert. Also, select an appropriately sized Head Removal Key (HI-UHRK-3638 / HI-UHRK-28 / HI-UHRK-32).

WARNING: Ensure the Head Removal Key is available to remove the Threaded Trial Head before proceeding.

Assemble the Howmedica Osteonics Threaded Trial Head onto the Howmedica Osteonics Threaded Impactor/Extractor Handle (2101-0004).

Once assembled, insert the Threaded Trial Head into the bipolar component of the constrained insert. Mix one pack of Simplex™ bone cement according to the manufacturer's specifications and lavage the inside of the cup shell. Dry thoroughly prior to introduction of the bone cement. The cement is mixed and is inserted into the acetabular shell in bolus form. Once it has achieved a doughy state, the insert, mounted on the introducer (Impactor / Extractor Handle Assembly), is then pressed gently into the cup and driven deeply into the bed of cement.

NOTE: When determining the proper angulation of the insert, it is important to critically evaluate the anatomic landmarks and patient anatomy for optimum placement.

It is essential that the insert be compressed into the cup and the introducer (Impactor / Extractor Handle Assembly) held as still as possible until cement has hardened. After the cement is cured, the insert introducer (Impactor / Extractor Handle Assembly) is then carefully removed from the insert with the selected Head Removal Key. Take special measures to remove all excess bone cement from the edges of the cup by utilizing curettes and osteotomes.

Use of the Head Removal Key

Insert the Head Removal Key into the inner bearing area between the bipolar component and the Threaded Trial Head of the Impactor / Extractor and push upward toward the UHR® head center. This spreads the locking ring within the UHR® component. With a gentle pulling action, remove the Impactor / Extractor Handle assembly ***and*** the key from the constrained insert ***at the same time.***

Femoral Bearing Head/Insert Assembly

See page 5 for the instructions to perform the final implant head assembly.

Additional Required Instruments	
Femoral Stem Head Impactor	1104-1000
Head Removal Key 22MM Inner Diameter	HI-UHRK-3638
Head Removal Key 28MM Inner Diameter	HI-UHRK-28
Head Removal Key 32MM Inner Diameter	HI-UHRK-32
Trident® Cup Impactor	2101-0200
Constrained Liner Inserter/Impactor Tip	2199-2022
Constrained Liner Inserter/Impactor Tip	2199-2028
Constrained Liner Inserter/Impactor Tip	2199-2032
Threaded Trial Head 22mm (3/pk)	1205-0022
Threaded Trial Head 28mm (3/pk)	1205-0028
Threaded Trial Head 32mm (3/pk)	1205-0032
Threaded Impactor / Extractor Handle	2101-0004
Command Femoral Head Impactor	6266-0-140
Insert Positioner / Impactor Handle	2111-0000B

Cases and Trays	
Trident® 0° and All-Poly Constrained Insert Trial Tray/Case	2402-3020
Trident® 0° and All-Poly Constrained Insert Trial Lid	2402-3090
Double Tier Case	8000-0200
Single Tier Case	8000-0100
Trident® 10° Constrained Insert Trial Tray	2402-1100

The system provides the option of either a Single Tier or Double Tier Case. The Double Tier Case accommodates both the 10° Constrained Insert Trial Tray **and** the Eccentric Insert Trial Tray.

Indications, Contraindications and Warnings

Description

The Trident® Constrained Acetabular Insert is comprised of two pre-assembled components: an outer insert component and a captured UHR® (Universal Head) component. The UHR® component is comprised of an outer shell into which a bearing insert has been permanently assembled. The UHR® bearing insert has a factory assembled UHMWPE retention ring. The outer acetabular insert has a Ti alloy retaining ring which retains the UHR® head in the plastic portion of the insert. With the exception of the Trident® All-Poly Constrained Inserts, the Trident® Constrained Acetabular Inserts are designed to be assembled with Trident® metal acetabular shells. The Trident® All-Poly Constrained Inserts can be cemented directly into a GAP Cup, GAP Ring, Trident® metal acetabular shell, or directly into the acetabulum. The assembled acetabular component is used in conjunction with any appropriately sized Howmedica Osteonics stem of compatible head size, to achieve total reconstructive replacement of the hip joint.

Indications

- The Trident® Constrained Acetabular Insert is indicated for use as a component of a total hip prosthesis in primary and revision patients at high risk of hip dislocation due to a history of prior dislocation, bone loss, joint or soft tissue laxity, neuromuscular disease, or intraoperative instability.

Contraindications

- Bone or musculature compromised by disease, infection or prior implantation, which cannot provide adequate support or fixation for the prosthesis.
- Infection in or about the hip joint.
- Skeletal immaturity.

Warnings and Precautions

See package insert for warnings, precautions, adverse effects and other essential product information.

Notes

Notes

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Joint Replacements

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