UNITED ORTHOPEDIC®

U-Motion II PLUS™ Cup

Acetabular Hip System

Surgical Technique Guide

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Device Description

U-Motion II PLUS –

U-Motion II PLUS is a comprehensive acetabular hip system that offers a wide range of acetabular cup, liner, and femoral head prostheses options for primary and revision hip arthroplasty.
U-Motion II PLUS Acetabular System offers larger femoral head sizes to improve hip activities and to reduce the risk of joint dislocation. The advanced acetabular system grants orthopedic surgeons flexibility during surgery for addressing clinical problems they might encounter.

- Bearing options with 28 mm, 32 mm, 36 mm and 40 mm articulation diameters are available.
- Cup size from 44 mm to 70 mm supports a variety of acetabular anatomy.
- Cluster-, multi- and no-hole cups are available.
- Two Acetabular Cup Coating Options:
  - Titanium Plasma Spray PLUS
  - Titanium Plasma Spray PLUS with Hydroxyapatite (HA)

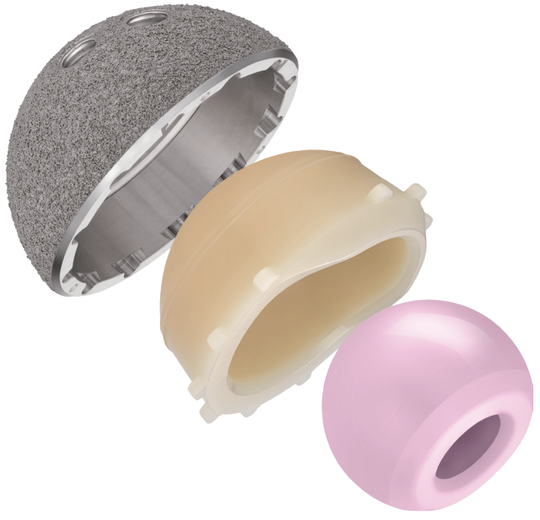
INDICATIONS

The device is used for reduction or relief of pain and/or improved hip function in skeletally mature patients with the following conditions:

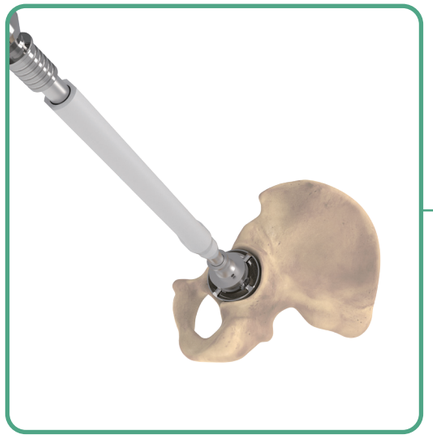
1. Painful, disabling joint disease of the hip resulting from: degenerative arthritis, rheumatoid arthritis, post-traumatic arthritis or late stage avascular necrosis.
2. Revision of previous unsuccessful femoral head replacement, cup arthroplasty or other procedure.
3. Clinical management problems where arthrodesis or alternative reconstructive techniques are less likely to achieve satisfactory results.
4. Correction of functional deformity.
5. Treatment of nonunion femoral neck and trochanteric fracture of the proximal femur with head involvement that is unmanageable using other techniques.

This device is a single use implant and intended for cementless use only.

Please refer to the package inserts for important product information, including, but not limited to contraindications, warnings, precautions, and adverse effects.

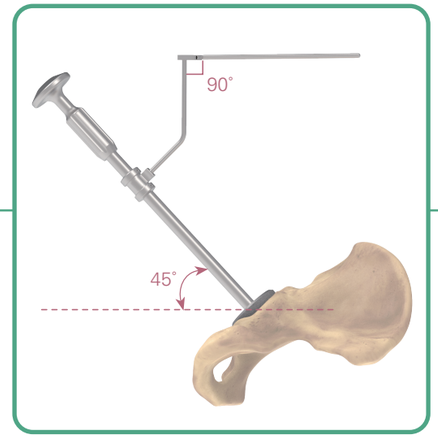


Surgical Overview

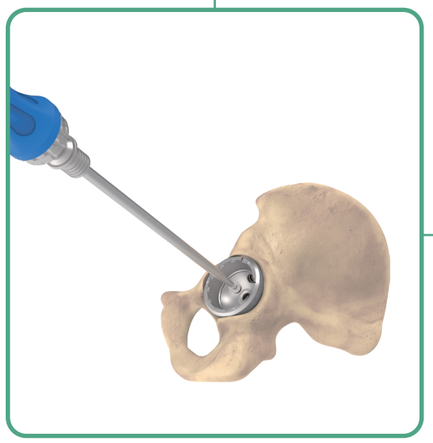


A. Acetabular Reaming

B. Cup Trialing

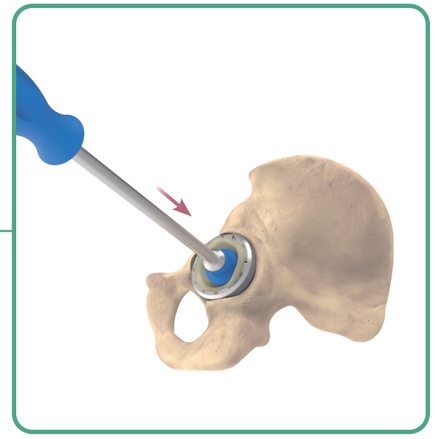


C. Cup Orientation



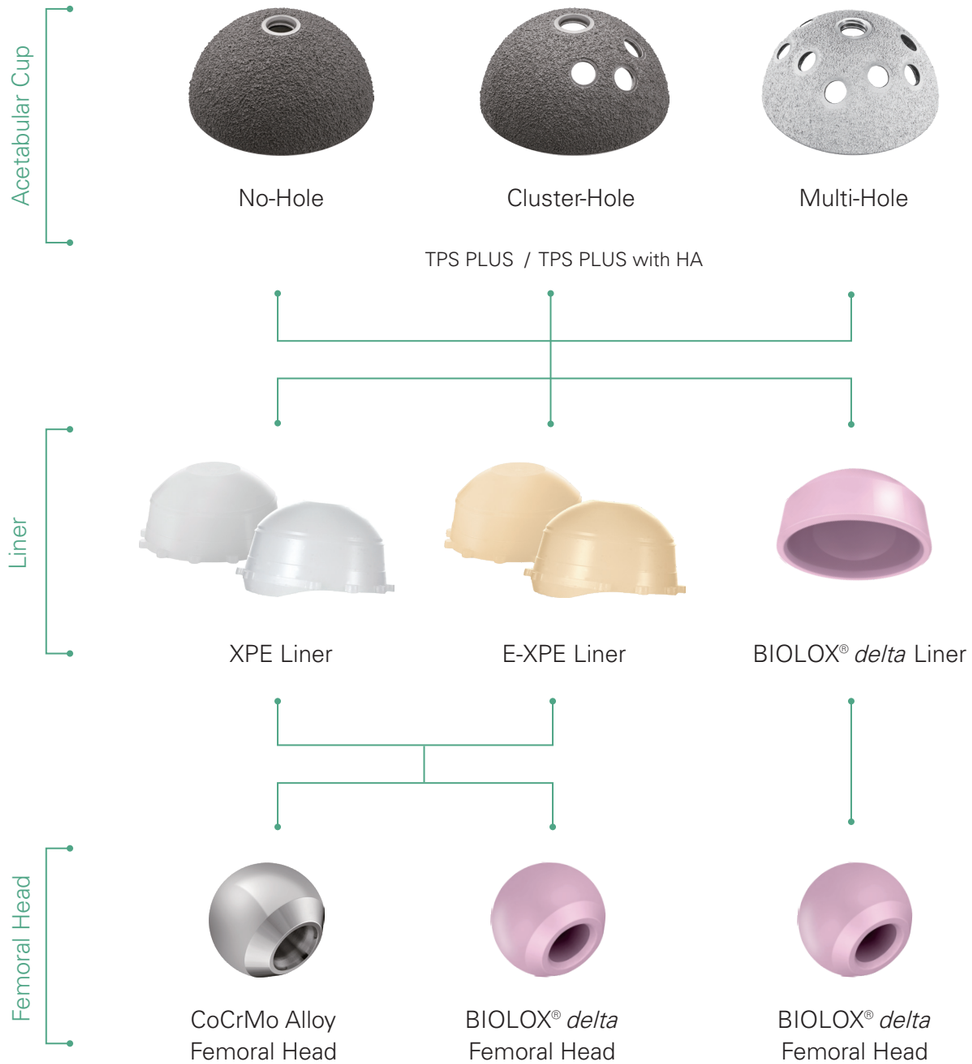
D.Cup Insertion

E. Liner Trial Reduction



F. Liner Insertion

Product Overview



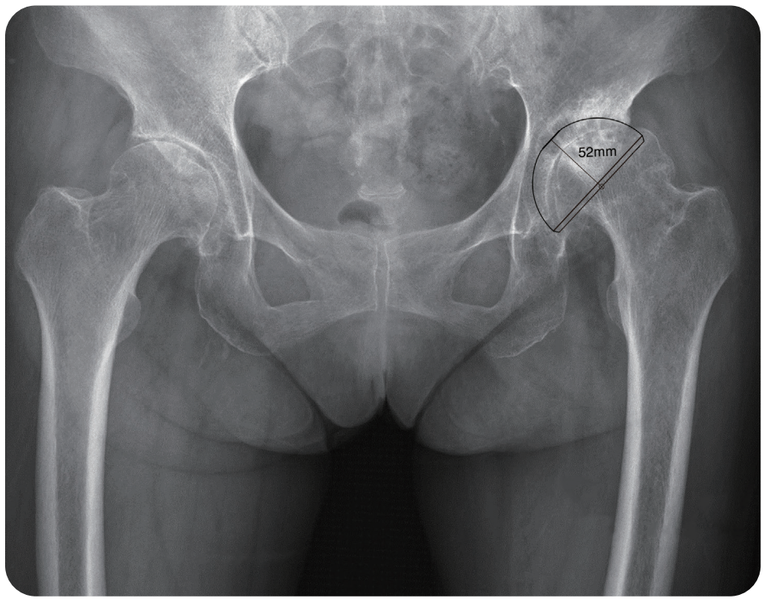
*BIOLOX® is a registered trademark of the CeramTec Group, Germany
*CoCrMo is an abbreviation for cobalt chromium molybdenum.

Preoperative Planning and Templating

The reconstruction of hip anatomy and restoration of joint biomechanics are the main objectives in restoring joint function through total hip replacement. A comprehensive analysis of the affected hip is needed. Anteroposterior (AP) and lateral roentgenographic images are crucial to help determining hip rotational center and correcting component size. A AP roentgenographic image of the pelvis may be necessary to verify preoperative decisions by comparing with the contralateral side.

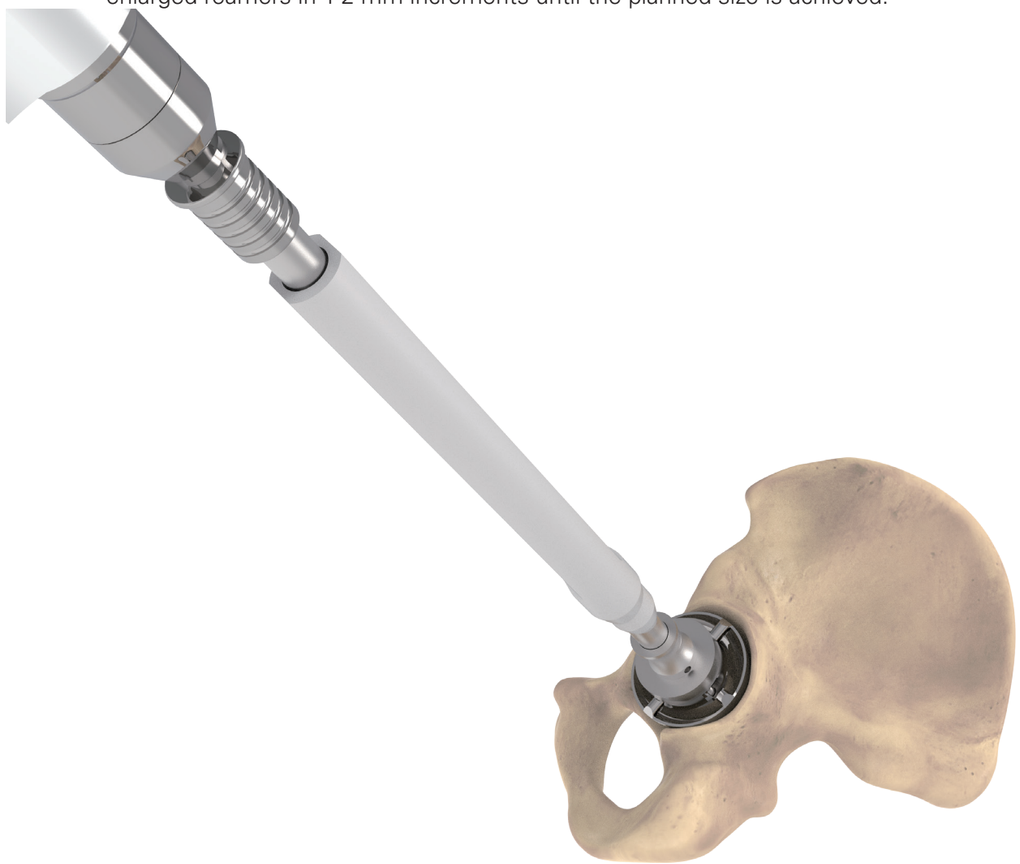
Templating the outline of the component which best fits the acetabulum is recommended, thus an ideal implant position and a correct sizing can be achieved. The template of acetabular cup should be positioned towards the medial aspect of the acetabulum as possible, simultaneously, the appropriate center of rotation is important to consider in restoring optimal hip biomechanics.

Care should be taken to avoid overlap between the component and the teardrop, any uncovering of the component, and inclination over 45°. However, the final determination should be made depending on the actual condition and patient needs during surgery.



A. Acetabular Reaming

Appropriate reaming of the acetabulum is important for the cup to be fully seated within. It is important to understand that the labeled size on the U-Motion II acetabular instrumentation is an absolute dimension (include coating). All articular cartilage, osteophytes, and any soft tissues should be removed throughout the reaming process. Hold the **Cup Reamer Handle** at an abduction of 40°- 45° and an anteversion of 15°-20°. Utilize the smallest **Cup Reamer** to begin acetabular reaming, then gradually proceed with enlarged reamers in 1-2 mm increments until the planned size is achieved.



Instruments

Cup Reamer Handle

Cup Reamer

A. Acetabular Reaming

The implant with TPS PLUS type has 0.35 mm surface coating thickness on each side. For example, a 58 mm cup of TPS PLUS type represents a 58.7 mm at the outer diameter.

The under reaming of the cavity by 1 mm is recommended. Sometimes a line-to-line reaming would be required to treat an acetabulum with high bone density.

Acetabular Reamer

Acetabular Cup

Reamer Guide

	Reaming Technique	Reamer	Cup Diameter Including Coating
U-Motion II PLUS	Under ream 1 mm	57 mm*	58.7 mm
	Line to line	58 mm	58.7 mm

*Reaming the acetabulum with 56 mm reamer, then trialing the size with 56 mm trial, and finally reaming again with the 57 mm reamer.

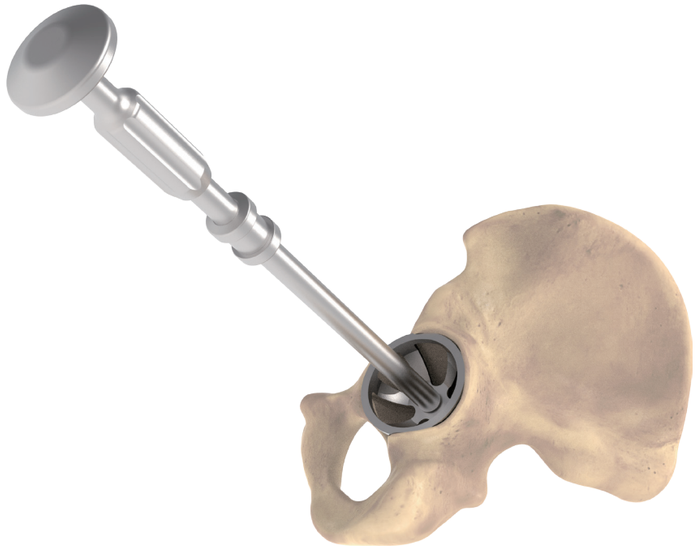
B. Cup Trialing

Once a proper acetabular cavity is established, place an **Acetabular Cup Trial** to :
(1) confirm the bone-implant congruency via the apical hole on the trial
(2) verify the prepared acetabulum is truly hemispherical
(3) check the stability of the trial cup before final implant insertion

Before trialing, clean acetabular cavity and excise any protruded tissues.
Follow the abduction angle and anteversion angle which are evaluated during templating to place the cup trial.

Generally, control the cup trial to be inserted with a 40°-45° abduction and a 15°-20° anteversion. Impact the cup trial into the cavity with a mallet. Palpate the peripheral edge of the cup trial to ensure it is fully seated at an appropriate orientation.

Thread the appropriate cup trial onto the **U-M II Cup Impactor**. The same diameter trial of the last reamer is recommended to avoid destruction during press-fit procedure. The profile of the cup trial is characterized as a true hemisphere corresponded to the marked diameter.



Instruments

Acetabular Cup Trial

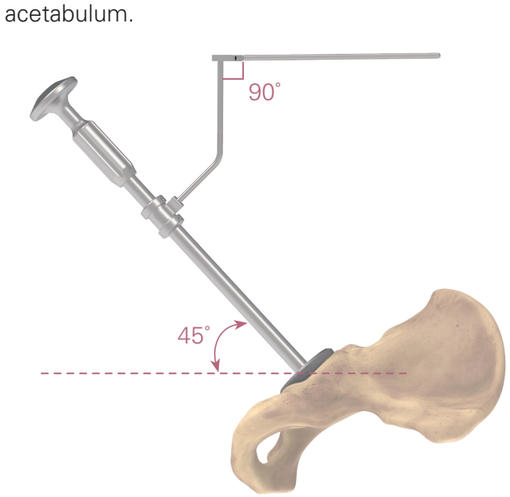
U-M II Cup Impactor

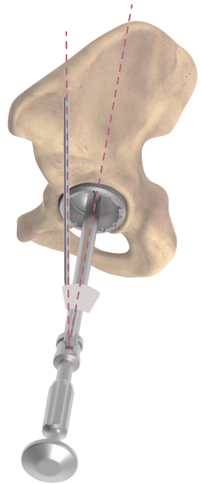
C. Cup Orientation

Three cup configurations are available in U-Motion II PLUS System: cluster-hole, multi-hole, and no-hole. The surgeon can select the appropriate cup configuration depending on the patients' anatomy.

Proper implant orientation can be guided by the external alignment system. The U-Motion II alignment system assists in directing a satisfactory level of acetabular cup abduction and anteversion. Attach the quick connect **Alignment Tower** to the cup impactor and thread the **Alignment Rod** into left/right screw hole of the tower.

Firmly secure the acetabular cup onto the tip of the **U-M II Cup Impactor**. Following the abduction and anteversion angle during the cup trialing, place the implant into the acetabulum.





If using a cluster-hole cup, for a correct orientation, care should be taken with regards to the screw hole placement superoposteriorly and/or inferoposteriorly. The laser marks on the rim of the cup indicate the position of screw holes.

Caution: When a ceramic liner is used, cup abduction should not be greater than 45° (approximately 40° is recommended). In addition, the anteversion angle should lie between 10° and 20° in order to reduce the risk of impingement.

Instruments

Acetabular Cup Trial

U-M II Cup Impactor

Alignment Tower, lateral

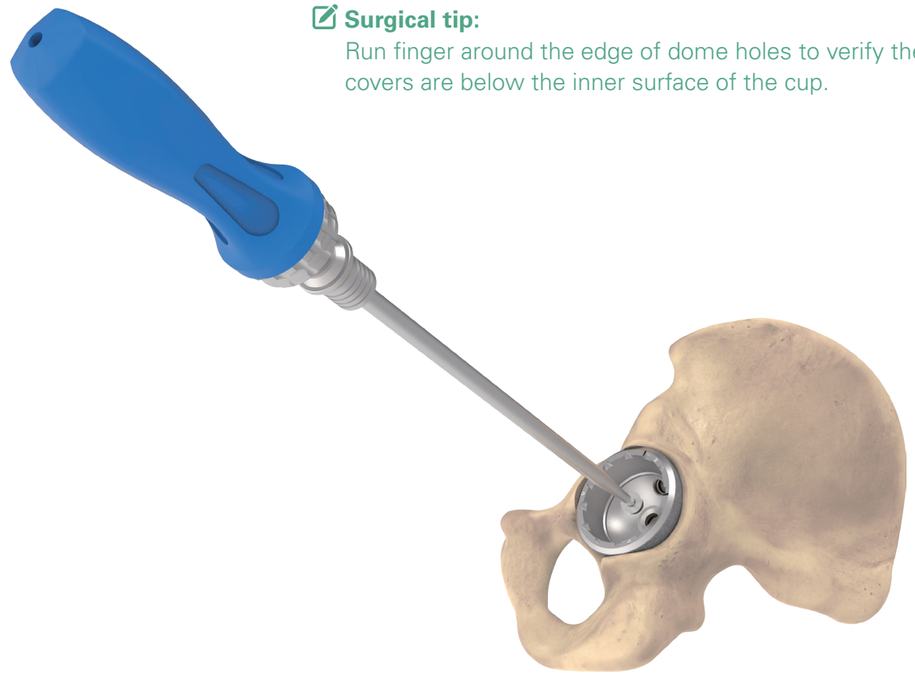
Alignment Rod

D. Cup Insertion

Apical Hole Plugging

All U-Motion II PLUS acetabular cups can be implanted using the same surgical technique guide. While handling the cup prosthesis, at the proper position and alignment, strike the **U-M II Cup Impactor** with a mallet until the cup is fully seated. By sighting through the apical hole or screw holes if present, confirm whether a congruent contact between bone-implant interface is achieved.

An apical hole cover among the Screw-Hole Cover set is then plugged with a hex head **Straight Screwdriver** by the **Ratchet Handle** following cup seating. Supplementary threaded covers are prepared for residual screw holes as well.



Surgical tip:
Run finger around the edge of dome holes to verify the covers are below the inner surface of the cup.

Instruments

U-M II Cup Impactor

Straight Screwdriver

Ratchet Handle

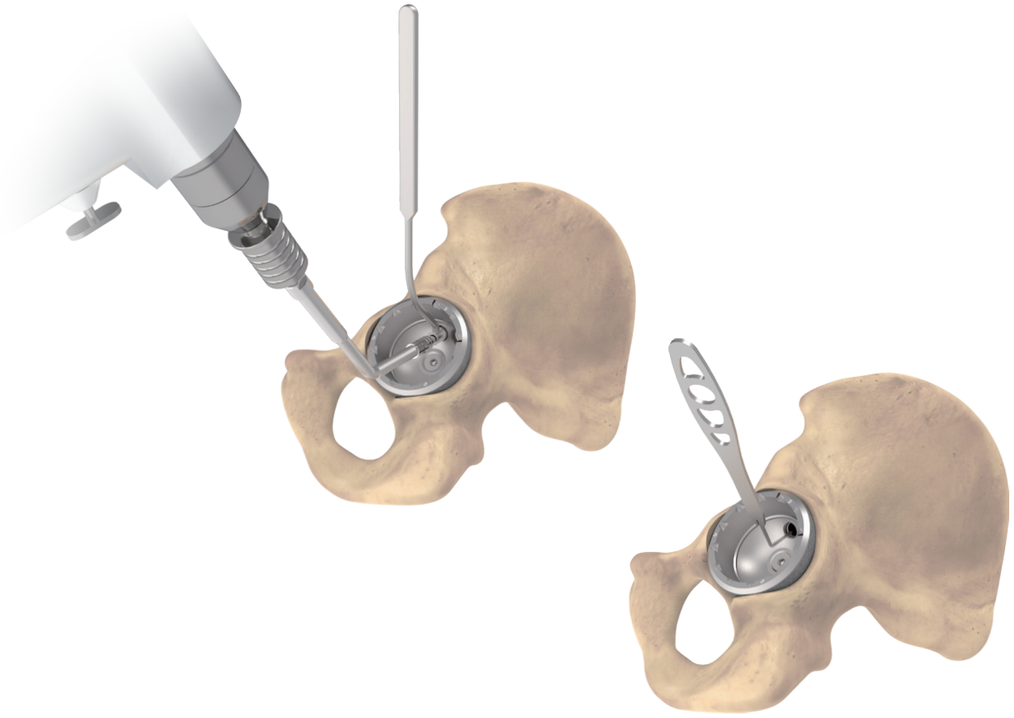
D. Cup Insertion

Screw Insertion

The screw should be inserted in the posterior superior quadrant of the acetabulum on a thick part of the ilium where there is a low-risk area of neurovascular damage.

Use the **U-Motion II Drill Guide, Drill Bit,** and **Modular Flex Shaft** for drilled hole preparation.

The lengths of four **Drill Bits** are 15, 25, 35 and 50 mm.
Carefully drill into acetabulum within selected holes, utilize the **Depth Gauge** to determine an appropriate screw length.



Instruments

U-M II Drill Guide

Drill Bit

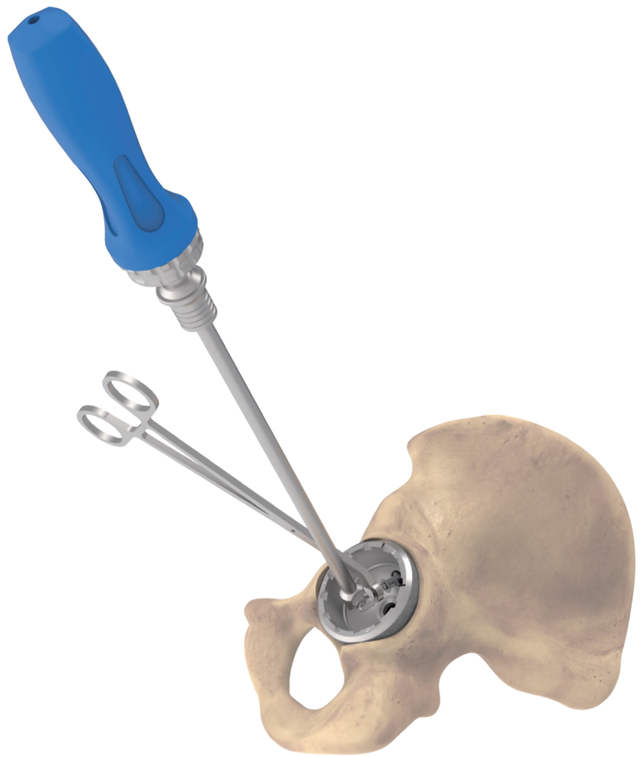
Modular Flex Shaft

Depth Gauge

D. Cup Insertion

Grasp the screw with the **U-M II Screw Forceps**. Attach the flexible **Universal Screwdriver** to the screw head, then insert the screw using the **Ratchet Handle**.

Care should also be taken to confirm the screw is fully seated within the screw hole without damaging the liner.



Surgical tip:
Run finger around the edge of dome holes to verify inserted screws are below the inner surface of the cup.

Instruments

Ratchet Handle

U-M II Screw Forceps

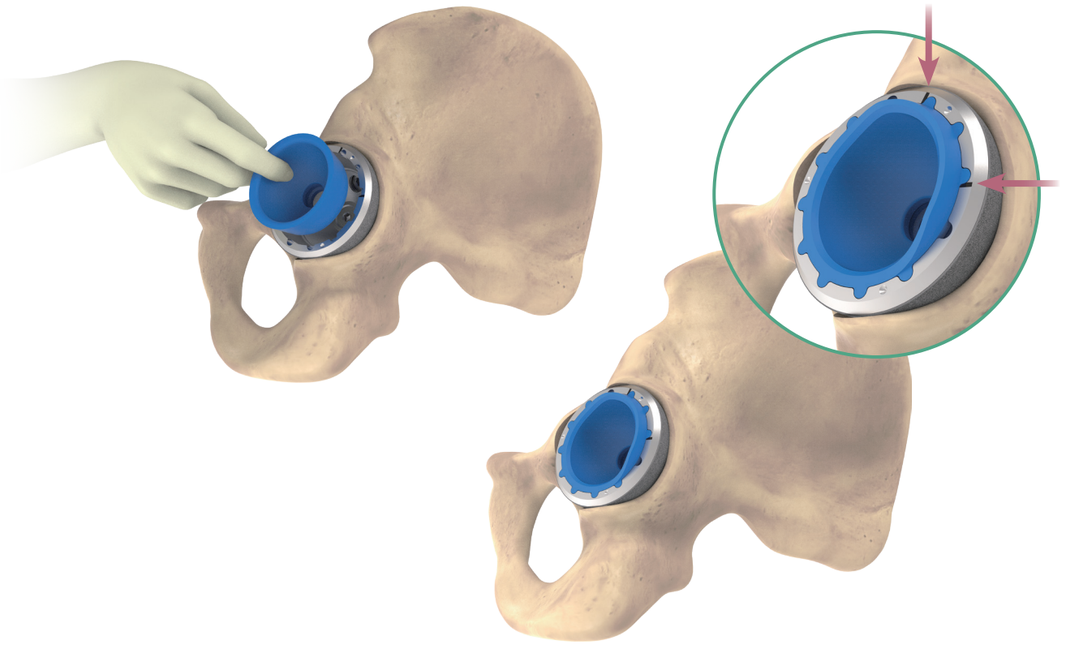
Universal Screwdriver

E. Liner Trial Reduction

After securing the prosthetic cup into the acetabular cavity, introduce a size-matched **Acetabular Liner Trial** for trial reduction. Make sure the orientation of the liner trial if a 20° lipped liner is desired. Ensure the liner trial is well placed within the cup before an overall evaluation of joint biomechanics.

Following acetabular and femoral preparations, the trial reduction can be carried out. Trial heads with 28 mm, 32 mm, 36 mm, and 40 mm (ceramic only) diameters are available options for surgeons to select an optimized size, which corresponds to the implanted acetabular cup.

Femoral heads with different neck length are also available for surgeons to make a proper determination and to revalidate preoperative decision. After final trial reduction, assessment of joint stability, range-of-motion, leg length, and component size can be accomplished.



Instruments

Acetabular Liner Trial

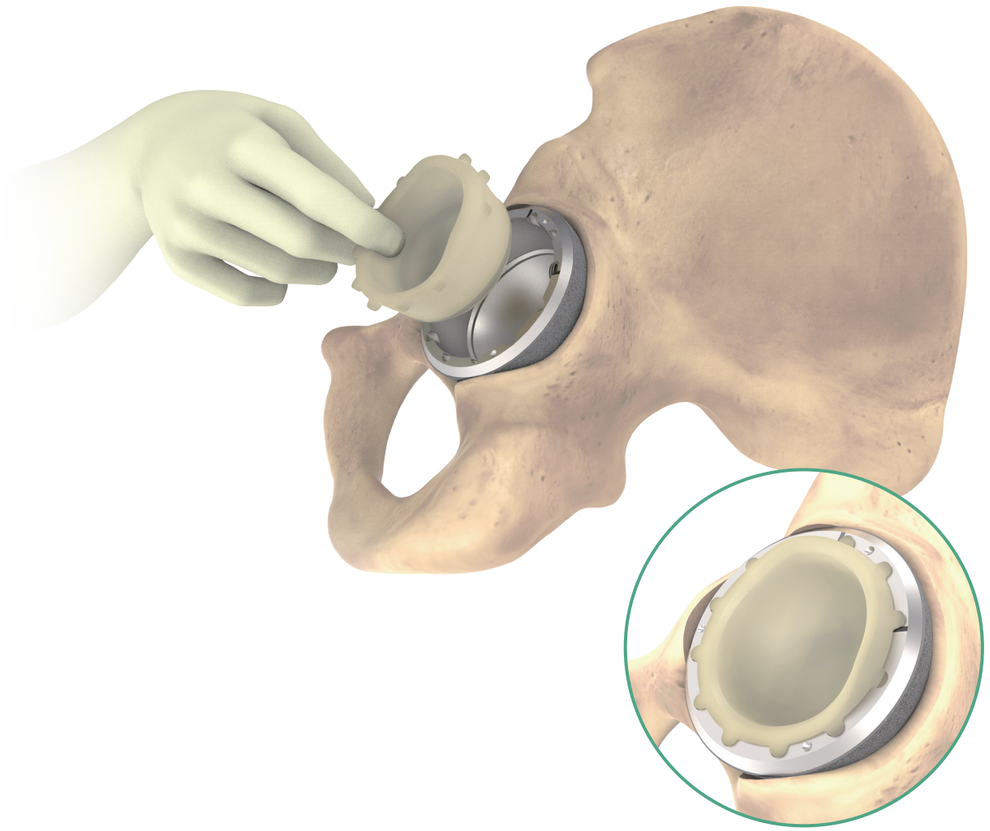
Acetabular Liner Trial, 20°

F. Liner Insertion

XPE & E-XPE Insertion

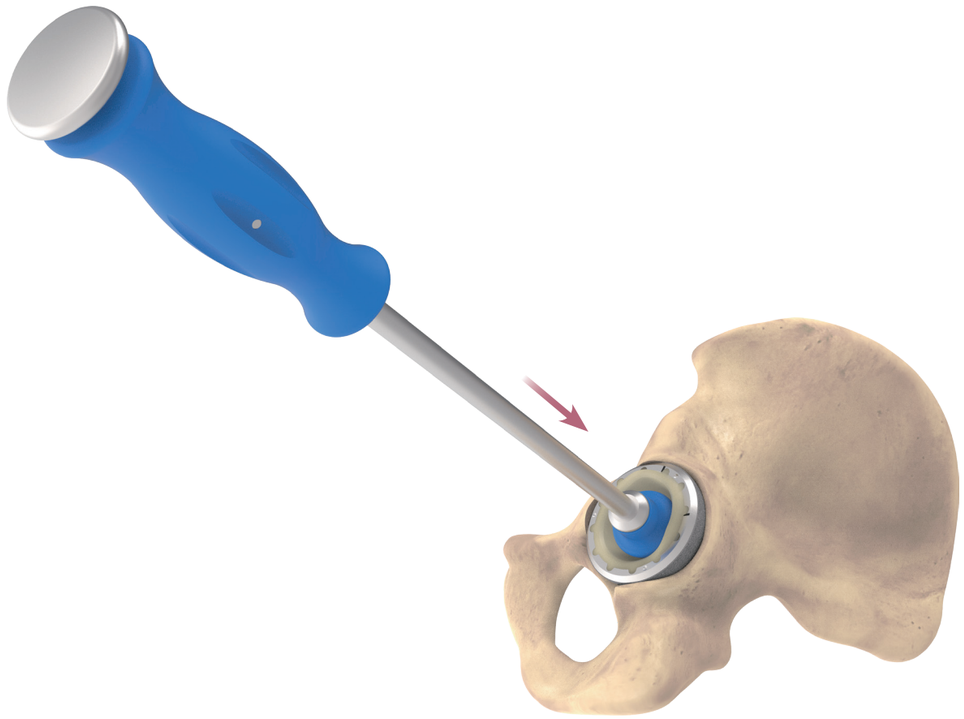
Eliminate any particle on the inner surface of acetabular cup like bone fragment prior to inserting the final liner. It is important to inspect that the cup/liner locking groove is free from debris.

Attach a **Liner Impactor** matched with the selected liner to the tip of the **Universal Handle**. Place the polyethylene liner into the acetabular cup by hand, making sure that the tabs on the liner are aligned with corresponding tabs in the acetabular cup. There are 12 tabs in the cup that provide variable liner position in 30° increments.



F. Liner Insertion

Impact the **Universal Handle** until the liner is fully seated. To confirm a complete seating of the liner, palpate around the rim of the cup.



Instruments

Liner Impactor

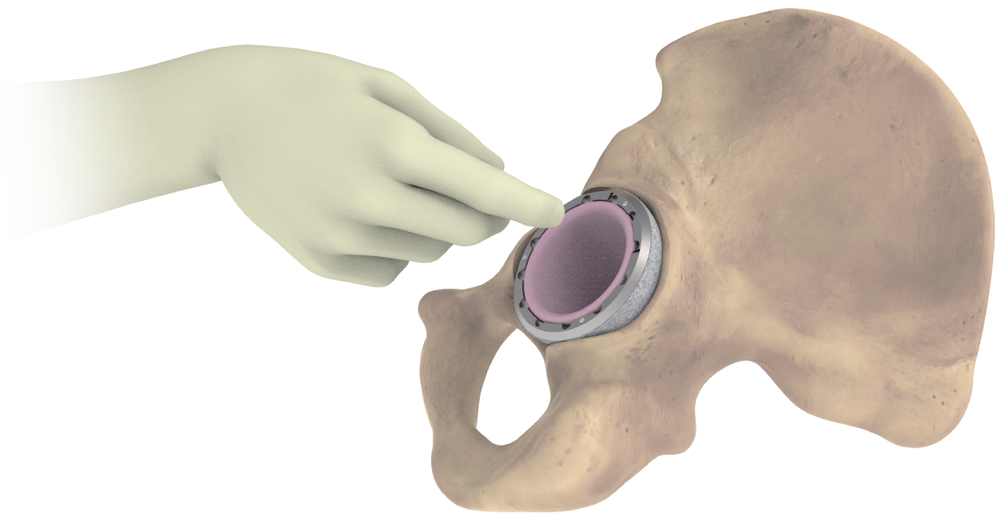
Universal Handle

F. Liner Insertion

Ceramic Liner Insertion

Prior to introducing the ceramic liner, ensure all taper surfaces of the cup and the mating liner are clean and free of debris.

Direct the ceramic liner into the cup by hand or by the **Ceramic Liner Holder** which attached to the ceramic liner with an appropriate taper-to-taper alignment.
Verify a well aligned initial seating by running a finger around the circumference of the liner.

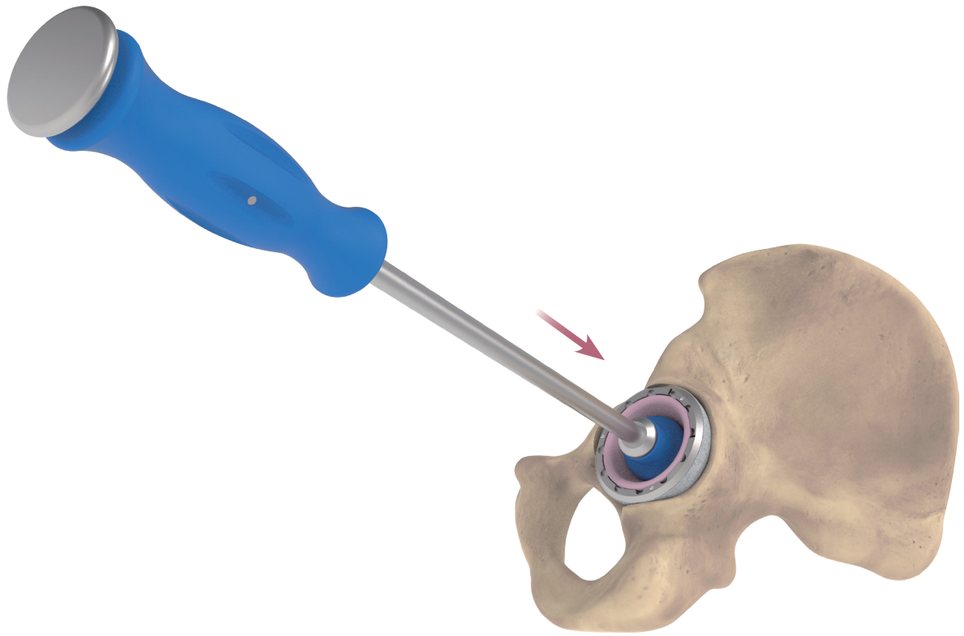


Instruments

Ceramic Liner Holder

F. Liner Insertion

Mount the proper sized **Liner Impactor** with the **Universal Handle**. Strike the **Liner Impactor** with several slight taps to fully engage the liner with the cup. Again, palpate the outside of the liner to check a complete seating in the cup.



Instruments

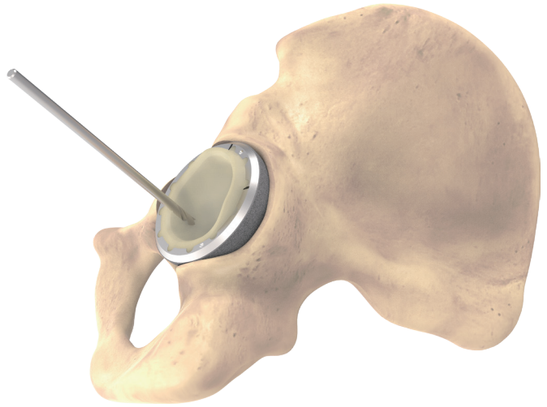
Liner Impactor

Universal Handle

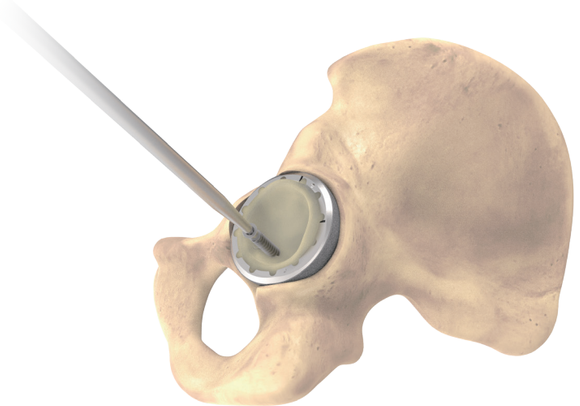
Appendix : Liner Extraction

XPE & E-XPE Liner Removal

Utilize a **Straight Drill** combined with the drill guide to drill an eccentric hole in the polyethylene liner.



Using a **Hex-driver**, a cancellous screw is then advanced into the drilled hole until dislodgement of the polyethylene liner from the acetabular cup is achieved.



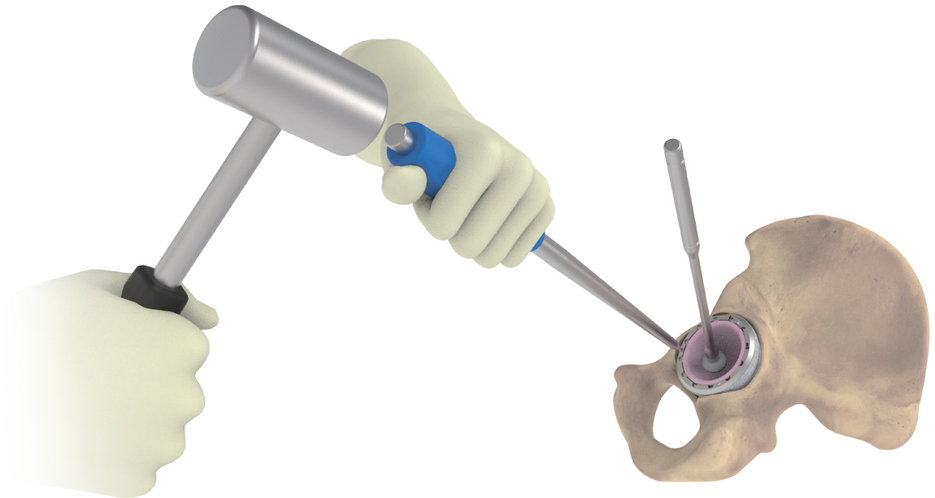
Instruments

Straight Drill

Appendix : Liner Extraction

Ceramic Liner Removal

A **Ceramic Liner Extractor** and **Ceramic Liner Holder** are provided for ceramic liner extraction. Use the suction cap of the holder to engage with the inner surface of the ceramic liner first. Then, position the tip of the extractor in three dimples on the rim of acetabular cup, respectively and gently tap acetabular cup through the extractor. The resulting vibration will loosen the integrity of taper locked interface between the ceramic liner and the cup. Then the ceramic liner can be lifted out of the acetabular cup by using **Ceramic Liner Holder**.



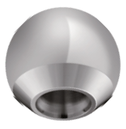
Instruments

Ceramic Liner Extractor

Ceramic Liner Holder

Order Information

Compatibility Guide for Polyethylene Liner (E-XPE, XPE) and CoCrMo Head



* Special Order Items

• Special Specification Items: Only sold in certain regions, please contact the local distributor for further information.

Cup	Coating	Outer Diameter (mm)																	
		44	46	46	48	50	48	50	52	54	56	58	60	62	64*	66*	68*	70*
Cluster-Hole	TPS PLUS	1306-3144	1306-3146	1306-3147•	1306-3148	1306-3150	1306-3149•	1306-3151•	1306-3152	1306-3154	1306-3156	1306-3158	1306-3160	1306-3162	1306-3164	1306-3166	1306-3168	1306-3170
	TPS PLUS with HA	1306-1144	1306-1146	1306-1147•	1306-1148	1306-1150	1306-1149•	1306-1151•	1306-1152	1306-1154	1306-1156	1306-1158	1306-1160	1306-1162	1306-1164	1306-1166	1306-1168	1306-1170
No-Hole	TPS PLUS	1306-3344	1306-3346	1306-3347•	1306-3348	1306-3350	1306-3349•	1306-3351•	1306-3352	1306-3354	1306-3356	1306-3358	1306-3360	1306-3362	1306-3364	1306-3366	1306-3368	1306-3370
Multi-Hole	TPS PLUS with HA	1306-1544	1306-1546	1306-1547•	1306-1548	1306-1550	-	1306-1551•	1306-1552	1306-1554	1306-1556	1306-1558	1306-1560	1306-1562	1306-1564	1306-1566	1306-1568	1306-1570

Liner	Lipped	Inner Diameter (mm)																
		28		32			36											
XPE	0°	1406-3844	1406-3846	1406-3247•	1406-3248	1406-3250	1406-3649•	1406-3651•	1406-3652	1406-3654	1406-3656	1406-3658	1406-3660	1406-3662	1406-3664	1406-3666	1406-3668	1406-3670
	20°	1406-5844	1406-5846	1406-5247•	1406-5248	1406-5250	1406-5649•	1406-5651•	1406-5652	1406-5654	1406-5656	1406-5658	1406-5660	1406-5662	1406-5664	1406-5666	1406-5668	1406-5670
E-XPE	0°	1406-7144	1406-7146	1406-7247•	1406-7248	1406-7250	-	1406-7351•	1406-7352	1406-7354	1406-7356	1406-7358	1406-7360	1406-7362	1406-7364	1406-7366	1406-7368	1406-7370
	20°	1406-7544	1406-7546	1406-7647•	1406-7648	1406-7650	-	1406-7751•	1406-7752	1406-7754	1406-7756	1406-7758	1406-7760	1406-7762	1406-7764	1406-7766	1406-7768	1406-7770

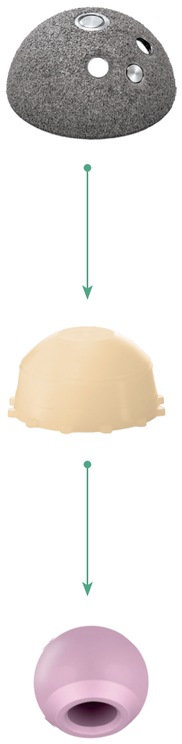
Liner	Lipped
XPE	0°
	20°
E-XPE	0°
	20°

Inner Diameter (mm)									
32									
1406-3252•	1406-3254•	1406-3256•	1406-3258•	-	-	-	-	-	-
1406-5252•	1406-5254•	1406-5256•	1406-5258•	1406-5260•	1406-5262•	1406-5264•	1406-5266•	1406-5268•	1406-5270•
1406-7252•	1406-7254•	1406-7256•	1406-7258•	1406-7260•	1406-7262•	-	-	-	-
1406-7652•	1406-7654•	1406-7656•	1406-7658•	1406-7660•	1406-7662•	-	-	-	-

Femoral Head	Diameter (mm)		
	28	32	36
CoCrMo	1206-1028 (-3)	1206-1032 (-3)	1206-1036 (-3)
	1206-1128 (+0)	1206-1132 (+0)	1206-1136 (+0)
	1206-1228 (+2.5)	1206-1232 (+2.5)	1206-1236 (+2.5)
	1206-1428 (+5)	1206-1432 (+5)	1206-1436 (+5)
	1206-1628 (+7.5)	1206-1632 (+7.5)	1206-1636 (+7.5)
	1206-1828 (+10)	1206-1832 (+10)	1206-1836 (+10)

Order Information

Compatibility Guide for Polyethylene Liner (E-XPE, XPE) and Ceramic Head



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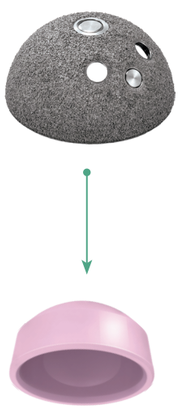
Cup	Coating	Outer Diameter (mm)																	
		44	46	46	48	50	48	50	52	54	54	56	58	60	62	64*	66*	68*	70*
Cluster-Hole	TPS PLUS	1306-3144	1306-3146	1306-3147•	1306-3148	1306-3150	1306-3149•	1306-3151•	1306-3152	1306-3154	1306-3155•	1306-3156	1306-3158	1306-3160	1306-3162	1306-3164	1306-3166	1306-3168	1306-3170
	TPS PLUS with HA	1306-1144	1306-1146	1306-1147•	1306-1148	1306-1150	1306-1149•	1306-1151•	1306-1152	1306-1154	-	1306-1156	1306-1158	1306-1160	1306-1162	1306-1164	1306-1166	1306-1168	1306-1170
No-Hole	TPS PLUS	1306-3344	1306-3346	1306-3347•	1306-3348	1306-3350	1306-3349•	1306-3351•	1306-3352	1306-3354	1306-3355•	1306-3356	1306-3358	1306-3360	1306-3362	1306-3364	1306-3366	1306-3368	1306-3370
Multi-Hole	TPS PLUS with HA	1306-1544	1306-1546	1306-1547•	1306-1548	1306-1550	-	1306-1551•	1306-1552	1306-1554	-	1306-1556	1306-1558	1306-1560	1306-1562	1306-1564	1306-1566	1306-1568	1306-1570

Liner	Lipped	Inner Diameter (mm)																	
		28		32			36				40								
XPE	0°	1406-3844	1406-3846	1406-3247•	1406-3248	1406-3250	1406-3649•	1406-3651•	1406-3652	1406-3654	1406-3055•	1406-3056	1406-3058	1406-3060	1406-3062	1406-3064	1406-3066	1406-3068	1406-3070
	20°	1406-5844	1406-5846	1406-5247•	1406-5248	1406-5250	1406-5649•	1406-5651•	1406-5652	1406-5654	1406-5055•	1406-5056	1406-5058	1406-5060	1406-5062	1406-5064	1406-5066	1406-5068	1406-5070
E-XPE	0°	1406-7144	1406-7146	1406-7247•	1406-7248	1406-7250	-	1406-7351•	1406-7352	1406-7354	-	1406-7456	1406-7458	1406-7460	1406-7462	1406-7464	1406-7466	1406-7468	1406-7470
	20°	1406-7544	1406-7546	1406-7647•	1406-7648	1406-7650	-	1406-7751•	1406-7752	1406-7754	-	1406-7856	1406-7858	1406-7860	1406-7862	1406-7864	1406-7866	1406-7868	1406-7870

Femoral Head	Diameter (mm)			
	28	32	36	40
BIOLOX® *delta*	1203-5028 S (-2.5)	1203-5032 S (-3)	1203-5036 S (-3)	1203-5040 S (-3)
	1203-5228 M (+1)	1203-5232 M (+1)	1203-5236 M (+1)	1203-5240 M (+1)
	1203-5428 L (+4)	1203-5432 L (+5)	1203-5436 L (+5)	1203-5440 L (+5)
	-	1203-5632 XL (+8)	1203-5636 XL (+9)	1203-5640 XL (+9)

Order Information

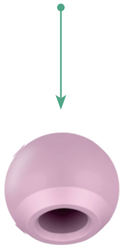
Compatibility Guide for Ceramic Liner and Ceramic Head



* Special Order Items

Cup	Coating	Outer Diameter (mm)													
		44	46	48	50	52	54	56	58	60	62	64*	66*	68*	70*
Cluster-Hole	TPS PLUS	1306-3144	1306-3146	1306-3148	1306-3150	1306-3152	1306-3154	1306-3156	1306-3158	1306-3160	1306-3162	1306-3164	1306-3166	1306-3168	1306-3170
	TPS PLUS with HA	1306-1144	1306-1146	1306-1148	1306-1150	1306-1152	1306-1154	1306-1156	1306-1158	1306-1160	1306-1162	1306-1164	1306-1166	1306-1168	1306-1170
No Hole	TPS PLUS	1306-3344	1306-3346	1306-3348	1306-3350	1306-3352	1306-3354	1306-3356	1306-3358	1306-3360	1306-3362	1306-3364	1306-3366	1306-3368	1306-3370
Multi-Hole	TPS PLUS with HA	1306-1544	1306-1546	1306-1548	1306-1550	1306-1552	1306-1554	1306-1556	1306-1558	1306-1560	1306-1562	1306-1564	1306-1566	1306-1568	1306-1570

Liner	Inner Diameter (mm)				
	28	32	36	40	
BIOLOX® *delta*	1406-1844	1406-1248	1406-1652	1406-1056	1406-1064



Femoral Head	Diameter (mm)			
	28	32	36	40
BIOLOX® *delta*	1203-5028 S (-2.5)	1203-5032 S (-3)	1203-5036 S (-3)	1203-5040 S (-3)
	1203-5228 M (+1)	1203-5232 M (+1)	1203-5236 M (+1)	1203-5240 M (+1)
	1203-5428 L (+4)	1203-5432 L (+5)	1203-5436 L (+5)	1203-5440 L (+5)
		1203-5632 XL (+8)	1203-5636 XL (+9)	1203-5640 XL (+9)

Special Order Items

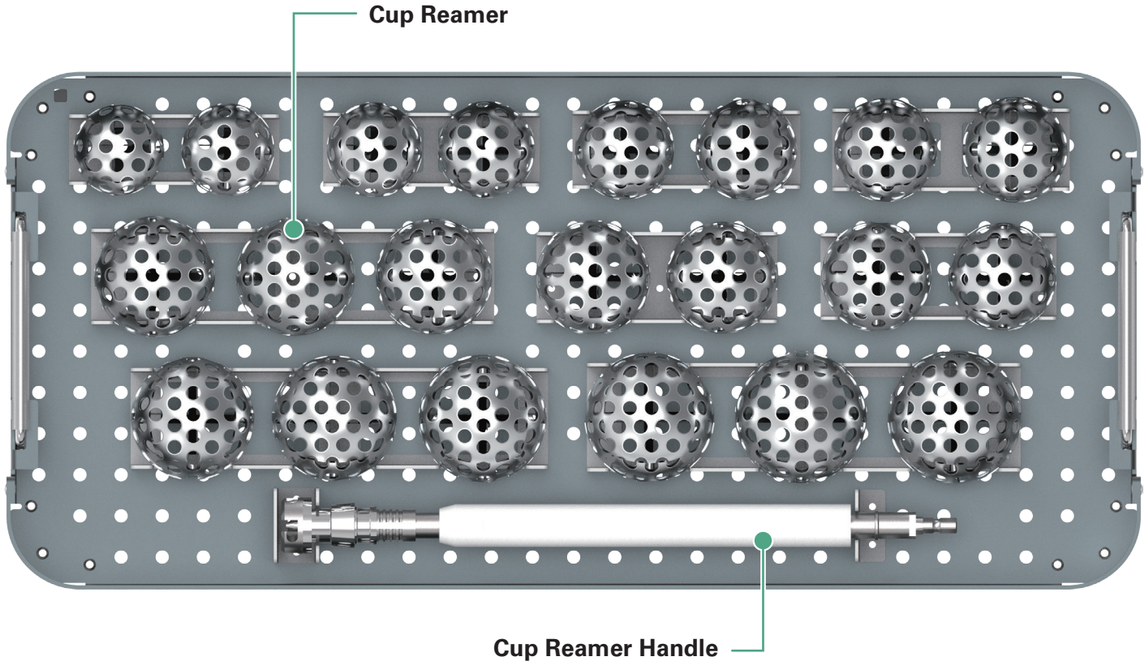
Order Information

	Catalog Number	Length
Ti Cancellous Screw, Ø 6.5 mm		
	5206 - 1015	15 mm
	5206 - 1020	20 mm
	5206 - 1025	25 mm
	5206 - 1030	30 mm
	5206 - 1035	35 mm
	5206 - 1040	40 mm
	5206 - 1045	45 mm
	5206 - 1050	50 mm
Screw Hole Covers		
	1306 - 1001	

Each Step
We Care

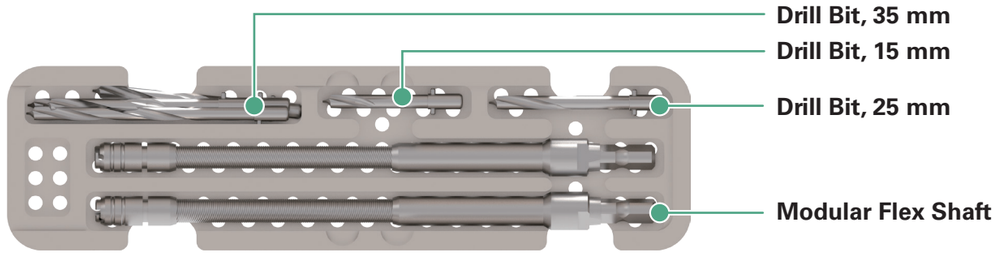
Instrument Tray Guide

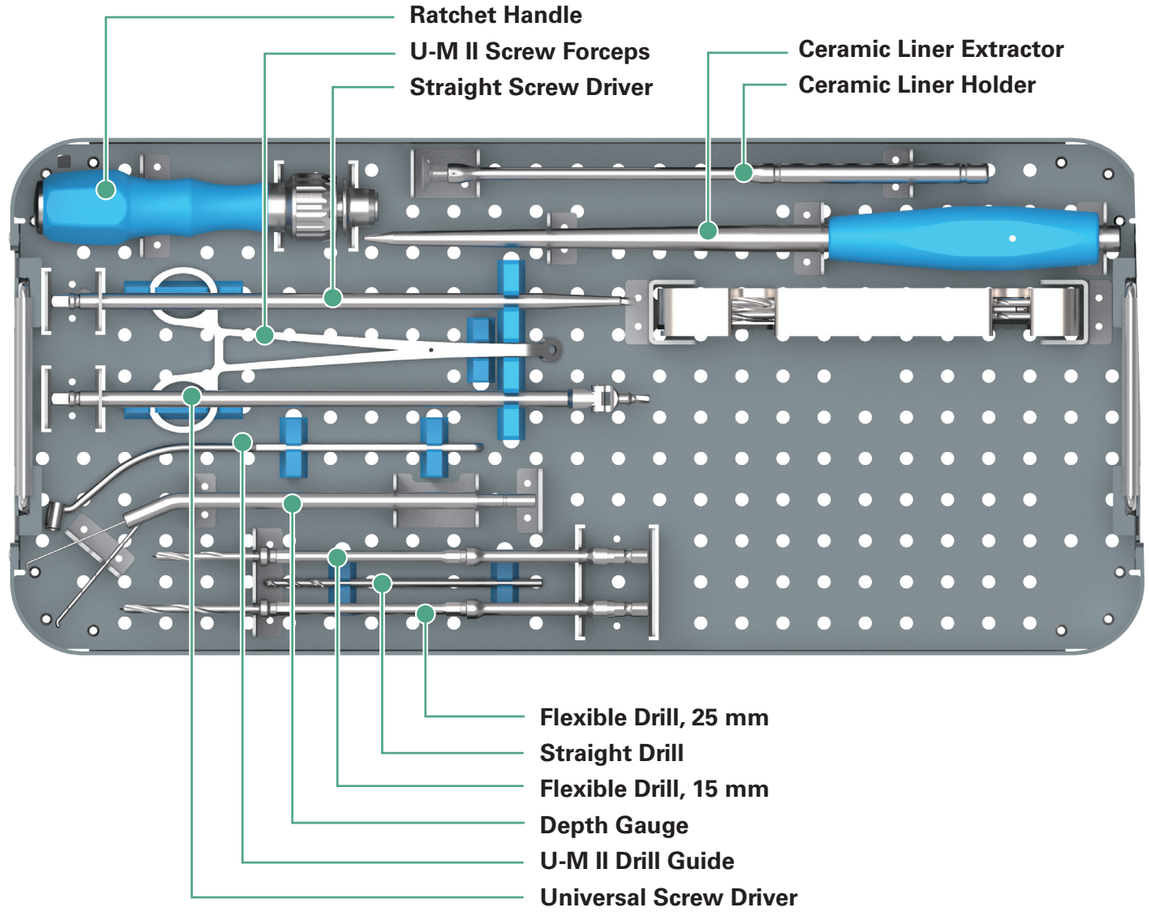
Cup Reamer 42~62 mm Tray



Instrument Tray Guide

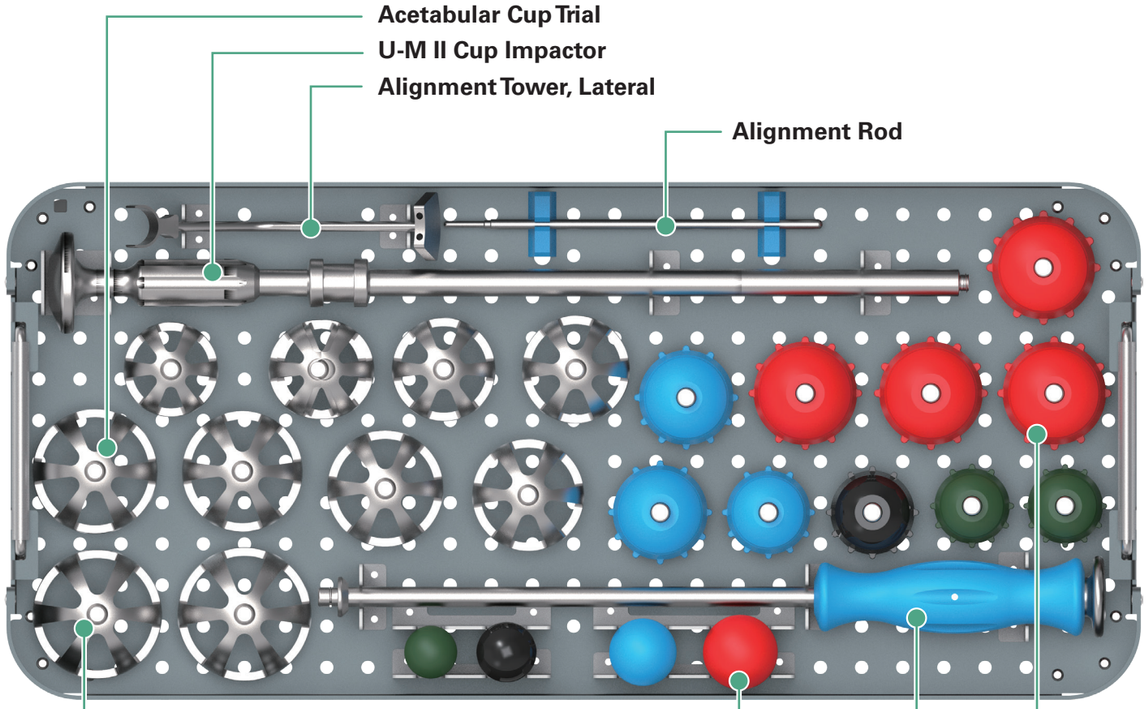
Acetabular Screw Set Tray / Modular Flexible Drills Caddy





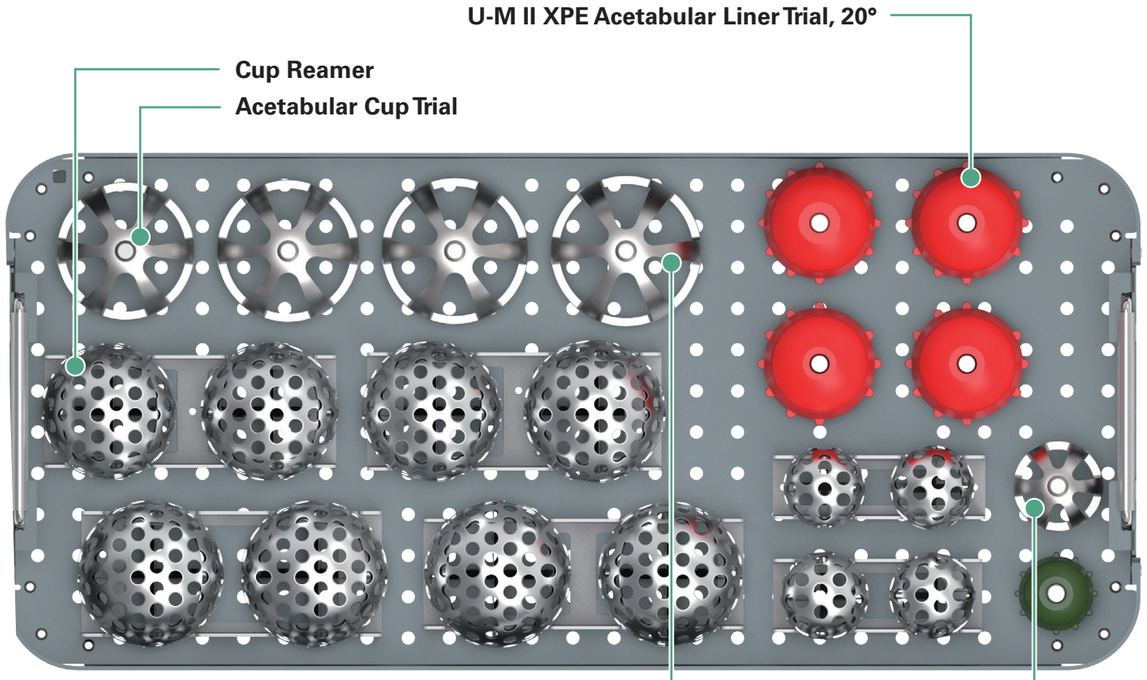
Instrument Tray Guide

U-Motion II Trials 44~62 mm Tray



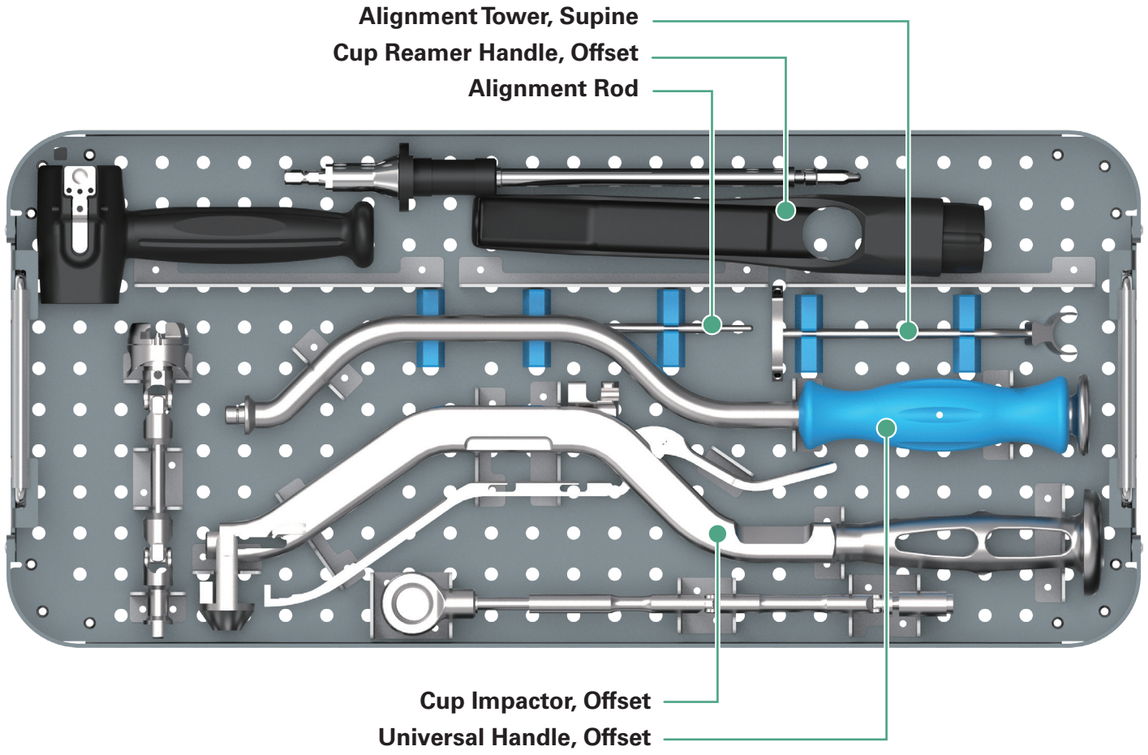
Instrument Tray Guide

U-Motion II Extreme Sizes Tray



Instrument Tray Guide

U-Motion II MIS Tray



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