overture
ORTHOPAEDICS®

OvertureTi Knee Resurfacing System® & Focalplasty® Technique

SURGICAL TECHNIQUE GUIDE

SINGLE USE INSTRUMENTS

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INTRODUCTION

The OvertureTi Knee Resurfacing System is composed of femoral and tibial implants that are intended to be used in the partial replacement of the articular surfaces of the knee.* These implants are designed with sizing options that allow the surgeon to replace only the diseased or damaged region of the joint while preserving healthy surrounding cartilage and meniscus. We refer to this technique of replacing only the affected areas and preserving healthy tissue as Focalplasty.

SYSTEM COMPATIBILITY

The tibial and femoral implant components are compatible across all sizes. Any sized tibial component can be used with any sized femoral component and vice versa. Instruments described in this technique shall only be used with the Overture Knee Resurfacing System.

PATIENT POSITION

The patient should be positioned in the supine position. A lateral knee post is recommended to stabilize the knee in the flexed position. Alternatively, a dynamic lower extremity positioner may also be used. The hip and knee should be freely movable. A minimum of 120 degrees of knee flexion should be achievable with this proposed set-up.

TYPICAL PATIENT PROFILE

- Age Range: 30-60
- 50% or greater meniscal volume
- Competent collateral and cruciate ligaments
- Focal articular cartilage loss/thinning in affected compartment (femur, tibia)
- Normal stability examination
    - Negative Lachman
    - Negative Drawer test
    - Negative Pivot Shift
- Less than 3mm pseudo-laxity in affected compartment with coronal plane stability testing
- Patellar mobility at least 10mm medially and laterally
- Preserved joint space in affected compartment
- Minimal osteophyte formation
- Weight bearing line (weight bearing axis) falls within central 75% of the affected compartment
- Ideally, bone edema should not be present in the remaining two compartments

See the IFU at www.overtureortho.com for a complete indications statement.

EXPOSURE

The exposure techniques listed below are provided by Dr. Riley Williams, sports medicine and orthopedic surgeon at the Hospital for Special Surgery in New York City. Overture Orthopaedics does not require any particular method for surgical exposure, and encourages surgeons to use their experience and judgment to achieve both a safe and effective exposure method for the patient.

MEDIAL JOINT EXPOSURE

A longitudinal skin incision is made along the medial border of the patellar tendon. A medial parapatellar arthrotomy is made. The quadriceps insertion should be preserved. Removal of the retro-patellar fat pad is recommended for visualization. The periosteum and soft tissues of the proximal medial tibia are elevated and dissected medially, taking care to preserve the superficial medial collateral ligament. Deep retractors are placed. Release anterior meniscal insertion to provide access to the tibial plateau. Upon closure, the anterior meniscal insertion should be repaired at the native site using suture anchors. Additional repair of the meniscus may be necessary more posteriorly at the tibial plateau. This should be accessed intra-operatively by the surgeon. A sharp tipped retractor should be used to translate the affected compartment forward for resurfacing of the tibia. This would ideally be placed behind the affected compartment.

LATERAL JOINT EXPOSURE

A longitudinal skin incision is made along the lateral border of the patellar tendon. A lateral parapatellar arthrotomy is made. The quadriceps insertion should be preserved. The proximal portion of the arthrotomy may be extended into the iliotibial band. Removal of the retro-patellar fat pad is recommended for visualization. The periosteum and soft tissues of the proximal lateral tibia are elevated and dissected laterally, taking care to preserve the insertion of the IT Band at Gerdy's tubercle and lateral collateral ligament. Deep retractors are placed. Release anterior meniscal insertion to provide access to the tibial plateau. Upon closure, the anterior meniscal insertion should be repaired at the native site using suture anchors. Additional repair of the meniscus may be necessary more posteriorly at the tibial plateau. This should be accessed intra-operatively by the surgeon. A sharp tipped retractor should be used to translate the affected compartment forward for resurfacing of the tibia. This would ideally be placed behind the affected compartment.

FEMORAL AND TIBIAL DEFECT SIZING

TIBIAL SIZING

Remove Femoral Round and Tibial Sizer from sterile packaging. This sizer is marked with both femoral and tibial sizing options. Choose the correct sizing option for the tibia. It is important that the base of Femoral Round and Tibial Sizer fully extends beyond the edges of defect to ensure adequate implant coverage and complete removal of the affected area. (Figure 1A)

Select the tibial instrument kit that corresponds with the size chosen using the Femoral Round and Tibial Sizer. Open tibial instrument kit from sterile packaging.

FEMORAL SIZING

Remove Femoral Round and Tibial Sizer and/or Femoral Oblong Sizer from sterile packaging. Choose correct configuration and sizing option for femoral defect. It is important that the base of the selected sizer fully extends beyond the edges of defect to ensure adequate implant coverage and complete removal of the affected area. (Figure 1B, 1C)

Select the Femoral configuration and size that corresponds with size chosen using the Femoral Round and Tibial Sizer or Femoral Oblong Sizer. Remove corresponding Femoral Instrument Kit from sterile packaging.

FIGURE 1A

FIGURE 1B

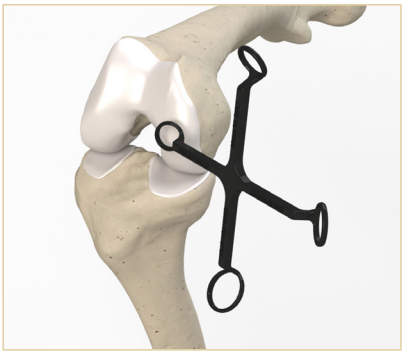
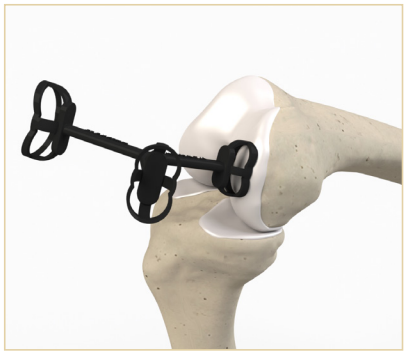


FIGURE 1C



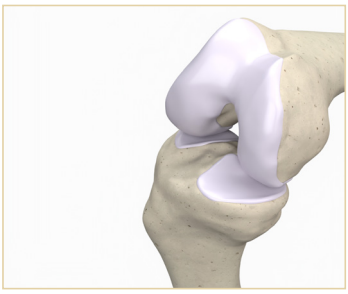
NOTE:
Pin, Peg Drill and Trial Handle from Femoral Instrument Kit will be used during Tibial implant preparation.

TIBIAL IMPLANTATION

DEFECT ACCESS

Once the initial exposure is complete, flex the knee into deep flexion with external rotation (medial side) or internal rotation (lateral side) of the tibia to expose the surface of the tibial plateau (Figure 2). To gain better visualization of the plateau surface, it is recommended that the anterior horn of the meniscus be detached. The meniscus is left adherent to the joint capsule during the dissection. This technique is meniscus sparing. The anterior horn insertion is re-attached at the conclusion of the case using suture anchors.

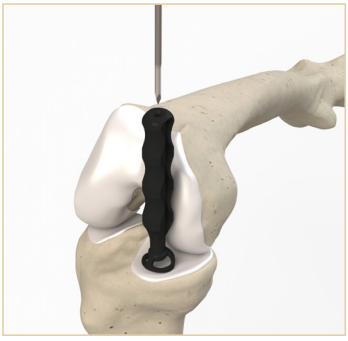
FIGURE 2



PIN PLACEMENT

Place the Tibial Pin Guide on the tibial surface over the cartilage defect (Figure 3). The instrument should be rotated such that the cutout in the base is rotated towards the femur. This will allow for greater clearance with the femur and ease instrument insertion.

FIGURE 3



NOTE:
When the base of the instrument is flush with the tibia, the handle will be tilted 10 degrees anteriorly from being perpendicular to the articular surface.

NOTE:
Proper sizing should result in full coverage of the defect; central placement of the implant is recommended.

With the Tibial Pin Guide flush to the tibial surface, drive the Pin, taken from Femoral Instrument Kit, into the tibia using the guide. The circumferential groove on the Pin should ultimately be flush with the top of the Tibial Pin Guide (Figure 4A). Carefully remove the Tibial Pin Guide (Figure 4B).

FIGURE 4A

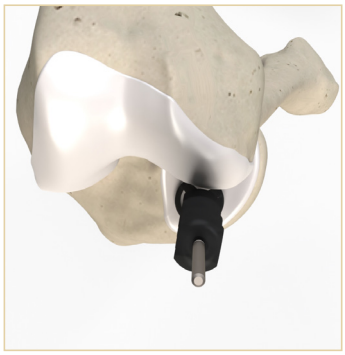


FIGURE 4B

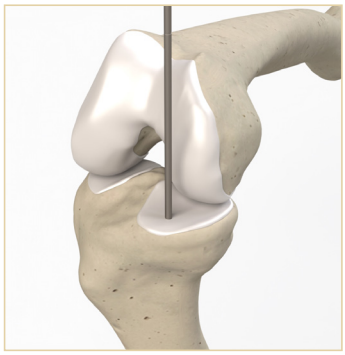


FIGURE 5

NOTE:
Very little pressure is required to cut into cartilage. It is not necessary to cut into bone at this step.

CARTILAGE SCORING

Place the appropriately sized Cartilage Scoring Tool over the Pin (Figure 5). Manually rotate the tool one revolution to create a clean, shallow cut on the surface of the articular cartilage. The cut should fully encompass the pre-existing defect if possible. If this step does not capture all damaged area, a larger size implant may be needed.

TECHNIQUE TIP:
If Cartilage Scoring Tool becomes stuck in bone, stop applying torque and re-engage before continuing.

REAMING

Place the Primary Tibial Reamer over the Pin using power (Figure 6A). Ensure the cutout section of the reamer is rotated towards the femur (Figure 6B). This will allow for additional clearance when inserting the instrument. Ream until the shoulder on the Reamer shaft is aligned with the cartilage surface. Note that this contact may not occur along the entire periphery of the Reamer. Carefully remove the Reamer with the cutout facing the femoral condyle.

FIGURE 6A

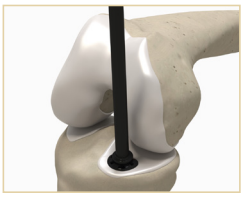
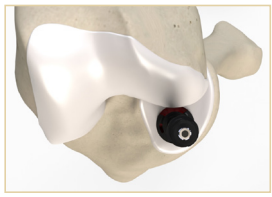


FIGURE 6B



TECHNIQUE TIP:
To avoid thermal necrosis of the bone, apply saline irrigation to the reamer during tibial reaming.

Hand ream over the Pin using the Secondary Tibial Reamer until the high side (with vertical groove) of the reamer is recessed into the anterior aspect of the tibial plateau 0.5mm-1.0mm below the cartilage surface (Figure 7A). Note that the shape of the top surface of the Secondary Tibial Reamer approximately matches the surface/thickness of the final implant. Make a mark on the tibial plateau to correspond with the vertical groove on the Reamer using a surgical marker to indicate the high side (thicker side of the implant) (Figure 7B). This will help to ensure the trial and final implant is properly rotated during insertion. Remove the Reamer and Pin. Irrigate to remove debris prior to tibial trialing. Always check fit with corresponding sized Tibial Trial to ensure appropriate fit and depth of implant prior to final implantation.

FIGURE 7A

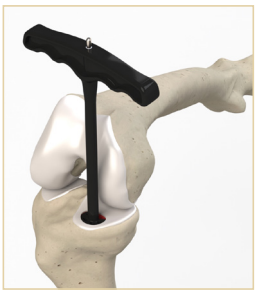
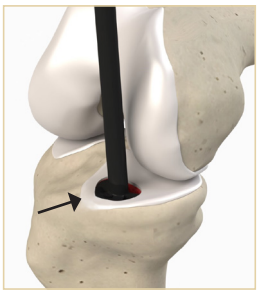


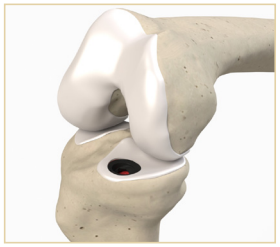
FIGURE 7B



TECHNIQUE TIP:
The secondary reamer has the cutout or notched region at the base to avoid damage to the femur during insertion. This notched section does not have the ability to cut, so to ream the posterior tibial bone appropriately, the reamer must be rotated 360^0 while in contact with the tibia.

TECHNIQUE TIP:
If Primary Tibial Reamer becomes stuck in bone, reverse power attachment and apply axial force to remove.

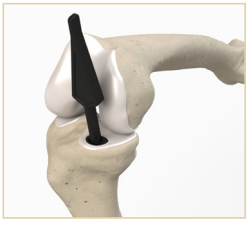
FIGURE 8A



TRIALING

Insert the Tibial Trial, rotating it to align the grooved notch line on the trial with the mark made on the cartilage (Figures 8A). Visually inspect to ensure the Tibial Trial is flush or recessed below the adjacent cartilage. Check for depth particularly at the posterior edge of the trial, since the reamer cutout prevented visual assessment here previously.

FIGURE 8B



To remove the trial, attach the Trial Removal Handle, taken from the Femoral Instrument Kit, by inserting the handle and turning 90° clockwise before applying axial force (Figure 8B). Do not lever trial out. This could cause damage to the collateral cartilage.

If Tibial Trial sat proud prior to removal, re-insert Pin and Secondary Tibial Reamer to hand ream until the proper depth is achieved. If the Tibial Trial sat too low, apply additional cement under the implant to build it up to the proper height.

NOTE:
When the knee joint is under normal physiologic loading, it is reasonable to expect the healthy articular cartilage to compress. Ensure the implant is recessed 0.5 - 1.0mm to prevent premature cartilage wear on the articular surfaces of the adjacent femur. Since the Trial is the same thickness as the actual implant, the Trial allows the user a visual confirmation the implant will be placed at the correct depth below the articular cartilage.

PEG PREPARATION AND CEMENTATION

Attach Peg Drill (taken from Femoral Instrument Kit) to power. Insert distal end of the peg drill into the hole created by the Pin and drive until the shoulder on the drill contacts the bone (Figure 9A). Remove the Peg Drill. Irrigate the area to remove any loose debris and dry the area using a lap sponge.

Apply approximately 1cc of bone cement into the central drill hole only (Figure 9B).

FIGURE 9A

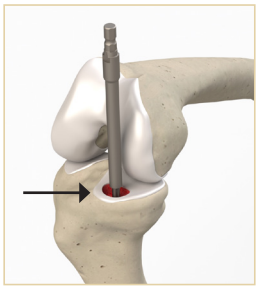
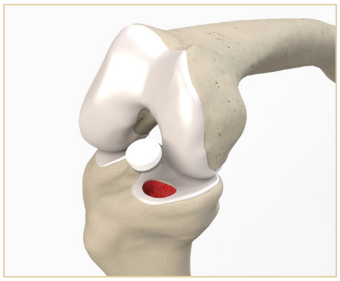


FIGURE 9B

FIGURE 10A



TIBIAL IMPLANTATION

Align the vertical mark on the OvertureTi Tibial Implant® with the mark on the tibial plateau created during the hand reaming stage. Place the Tibial Implant into position (Figure 10A). Using the Tibial Impactor, fully seat the Tibial Implant, ensuring that periphery of the Tibial Implant is 0.5mm-1.0mm recessed relative to the adjacent articular cartilage (Figures 10B, 10C).

FIGURE 10B

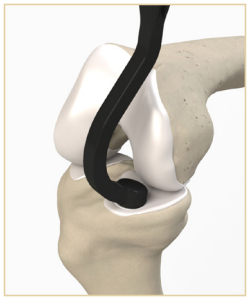
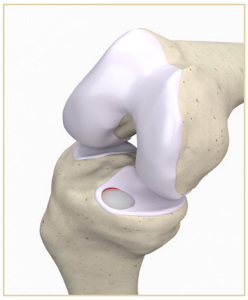


FIGURE 10C



Excessive impaction force is not necessary. Start with light taps and progress until implant is properly seated.

FEMORAL IMPLANTATION - ROUND

PIN PLACEMENT

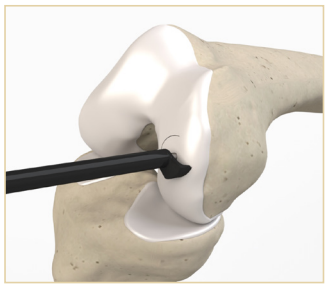
Place the Femoral Round Pin Guide flush with the surface of the native cartilage, drive the Pin into the center guide hole on the Femoral Round Pin Guide until the circumferential groove is flush with the handle of the Femoral Round Pin Guide (Figure 11). Remove the Femoral Round Pin Guide.

FIGURE 11

NOTE:
Proper size should fully cover the defect while minimizing excess bone removed.

FIGURE 12A

FIGURE 12B



CARTILAGE SCORING

Place the appropriately sized Cartilage Scoring Tool over the Pin (Figure 12A). Manually rotate the tool one revolution to create a clean, shallow cut on the surface of the articular cartilage (Figure 12B). The cut should encompass any existing damage or defect. If it does not capture all damaged areas, a larger size implant may be needed.

NOTE:
Very little pressure is required to cut into cartilage. It is not necessary to cut into bone at this step.

TECHNIQUE TIP:
If Cartilage Scoring Tool becomes stuck in bone, stop applying torque and re-engage before continuing.

PRIMARY AND SECONDARY REAMING

Place the Primary Femoral Round Reamer over the Pin (Figure 13A). Drive the Reamer until proper depth is achieved via the Hard Stop at the base of the Reamer. Remove the Reamer (Figure 13B). Irrigation should be used to prevent thermal necrosis during reaming.

Hand ream over the Pin using the Secondary Femoral Round Reamer until the top surface of the reamer is slightly recessed below the adjacent cartilage surface (Figure 14A). This will ensure that the implant is positioned at the proper level upon final implantation.

NOTE:
The shape of the top surface of the Secondary Femoral Round Reamer approximately matches the surface/thickness of the final implant.

FIGURE 13A

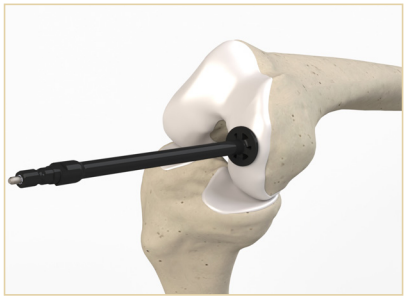
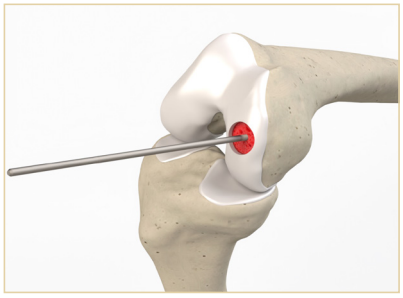


FIGURE 13B



The final Implant should sit 0.5mm-1.0mm recessed relative to the adjacent cartilage surface (Figure 14B). Remove the Reamer and Pin before proceeding with femoral trialing. Always check fit with corresponding sized Femoral Round Trial to ensure appropriate fit and depth of implant prior to final implantation.

TRIALING

Insert the correctly sized Femoral Round Trial (Figure 15A). Visually inspect to ensure the edges or periphery of the Femoral Round Trial is correctly recessed below the surface (0.5mm-1.0mm) (Figure 15B). To remove the trial, attach the Trial Removal Handle by inserting the handle and turning 90° clockwise before applying axial force (Figure 15c). Do not lever trial out. This could cause damage to the collateral cartilage.

If Femoral Round Trial sat proud prior to removal, re-insert Pin and Secondary Femoral Round Reamer to hand ream until the proper depth is achieved. If the Femoral Round Trial sat too low, apply additional cement under the implant to build it up to the proper height.

NOTE:
When the knee joint is under normal physiologic loading, it is reasonable to expect the healthy articular cartilage to compress. Ensure the implant is recessed 0.5 - 1.0mm to prevent premature cartilage wear on the articular surfaces of the adjacent tibia. Since the Trial is the same thickness as the actual implant, the Trial allows the user a visual confirmation the implant, will be placed at the correct depth below the articular cartilage.

TECHNIQUE TIP:
If Primary Round Reamer becomes stuck in bone, reverse power attachment and apply axial force to remove.

FIGURE 14A

FIGURE 14B

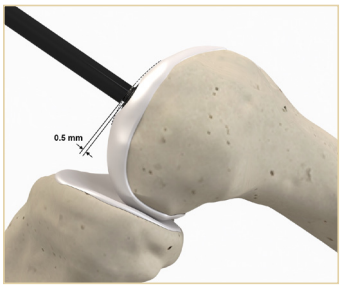


FIGURE 15A

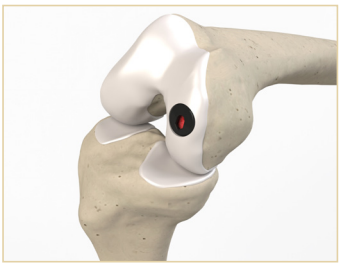


FIGURE 15B

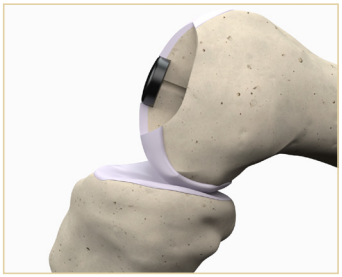


FIGURE 15C

PEG PREPARATION AND CEMENTATION

Attach Peg Drill to power. Insert distal end of the Peg Drill into the hole created by the Pin and drive until the shoulder on the drill contacts the bone (Figure 16A). Remove the Peg Drill. Irrigate the area to remove any loose debris and dry using a lap sponge. Apply approximately 1cc of bone cement into the central drill hole only (Figure 16B).

FIGURE 16A

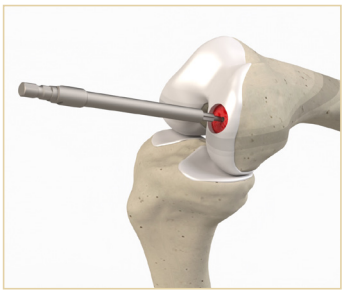


FIGURE 16B

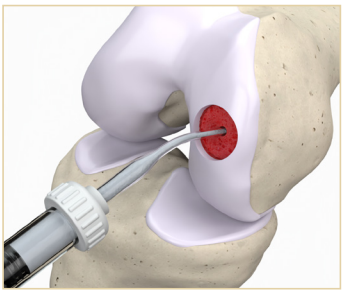


FIGURE 17A

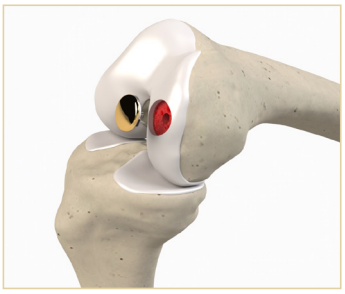


FIGURE 17B

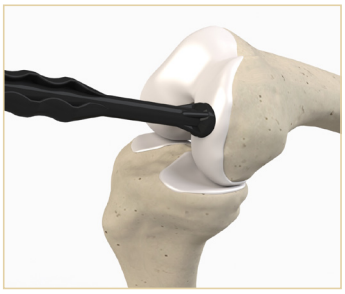


FIGURE 17C

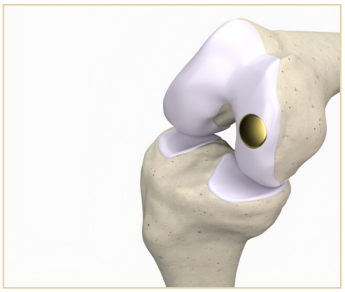
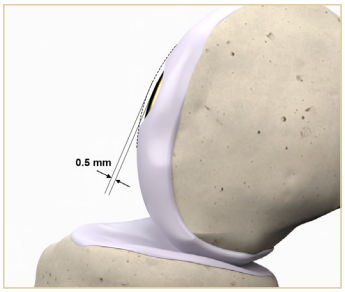


FIGURE 17D



NOTE:
There are four pockets evenly spaced around the implant. Align pockets in either the M/L or A/P plane.

IMPLANTATION

Align the peg of the round OvertureTi Femoral Implant® with the drilled hole (Figure 17A). Using the Femoral Impactor (Figure 17B), fully seat the implant ensuring that periphery of the implant is recessed relative to the adjacent cartilage (0.5-1.0mm below) (Figures 17C, 17D). Excessive impaction force is not necessary. Start with light taps and progress until implant is properly seated.

NOTE:
Take care to center the Femoral Impactor over the implant to ensure that the instrument does not contact the adjacent tissues to avoid unwanted trauma to the native articular surface.

FEMORAL IMPLANTATION - OBLONG

PIN PLACEMENT

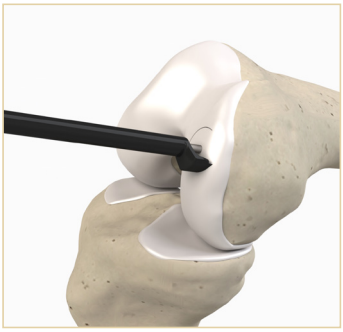
With the Femoral Oblong Pin Guide flush with the surface of the native cartilage, drive the Guide Pin into the superior hole on the Femoral Oblong Pin Guide so the circumferential groove is flush with the handle of the Femoral Oblong Pin Guide. Mark two lines on the cartilage at the superior and inferior poles of the Sizer to record its orientation (Figure 18). Remove the Femoral Oblong Pin Guide.

FIGURE 18

CARTILAGE SCORING

Place the appropriately sized Cartilage Scoring Tool over the superior Pin. Manually rotate the tool one revolution to create a clean, shallow cut on the surface of the articular cartilage. The cut should extend beyond any existing defect. If it does not capture all damaged area on the superior and lateral aspects, a larger size implant may be needed (Figure 19).

FIGURE 19

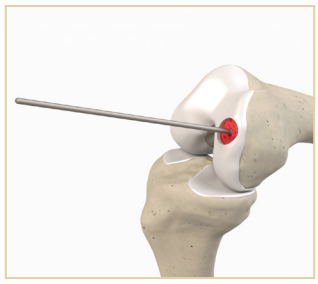


NOTE:
Very little pressure is required to cut into cartilage. It is not necessary to cut into bone at this step.

TECHNIQUE TIP:
If Cartilage Scoring Tool becomes stuck in bone, stop applying torque and re-engage before continuing.

FIGURE 20A

FIGURE 20B



TECHNIQUE TIP:
If Primary Oblong Reamer becomes stuck in bone, reverse power attachment and apply axial force to remove.

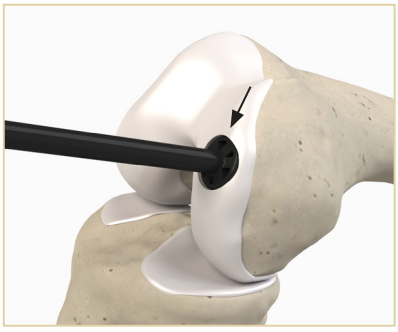
PRIMARY AND SECONDARY REAMING

Place the Primary Femoral Oblong Reamer over the superior Pin using power (Figure 20A). Drive the Secondary Femoral Oblong Reamer until proper depth is achieved via the Hard Stop at the base of the reamer. Irrigation should be used to prevent thermal necrosis during reaming. Leave pin in place following reaming (Figure 20B).

Hand ream over superior Pin using the Secondary Femoral Oblong Reamer until the reamer is 0.5mm recessed below the adjacent cartilage level (Figure 20C). When checking for depth, the notched surface on the reamer should align with the superior mark on the cartilage. In this orientation, the shape of the top surface of the Secondary Femoral Oblong Reamer approximately matches the surface/thickness of the final implant. (Figure 20D).

FIGURE 20C

FIGURE 20D



Place the Femoral Oblong Pin Guide over the superior Pin. Orient the guide to align its superior-inferior axis with the lines previously marked on the cartilage. Insert the inferior Pin through the Femoral Oblong Pin Guide until the circumferential groove is flush with the top of the handle to ensure the Pin has achieved appropriate depth (Figures 21A, 21B). Remove the superior Pin and then remove the Femoral Oblong Pin Guide.

The inferior defect is now ready for preparation. Repeat the steps for cartilage scoring, primary reaming under power, and secondary hand reaming over the inferior Pin (Figures 21C, 21D, 21E). When secondary hand reaming, orient the notched surface with the inferior mark on the cartilage (Figure 21F). Perform additional hand reaming until Secondary Femoral Oblong Reamer is between 0.5mm-1.0mm recessed. The superior and inferior reamed surfaces should be at the same depth without a step. Remove inferior Pin.

FIGURE 21A

FIGURE 21B

FIGURE 21C

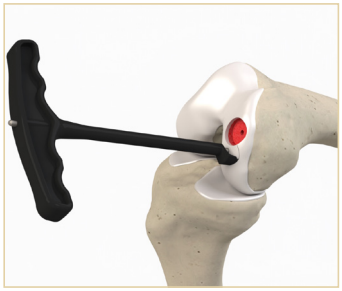


FIGURE 21D

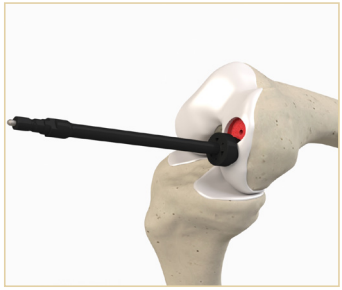
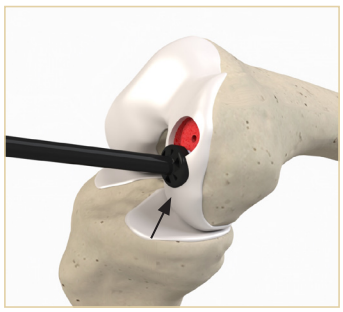


FIGURE 21E

FIGURE 21F



CENTRAL SCORING AND REAMING

Insert the Femoral Reamer Guide into the reamed implant defect (Figure 22A). Using a scalpel, score the remaining cartilage visible through the Femoral Reamer Guide (Figure 22B). Place the Primary Femoral Oblong Reamer through the round port on the Femoral Reamer Guide. Drive the Primary Femoral Oblong Reamer until proper depth is achieved via the Hard Stop at the base of the reamer (Figure 22C). Always check fit with corresponding sized Femoral Oblong Trial to ensure appropriate fit and depth of implant prior to final implantation.

FIGURE 22A

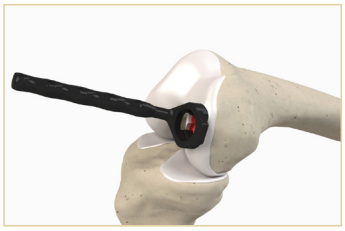


FIGURE 22B

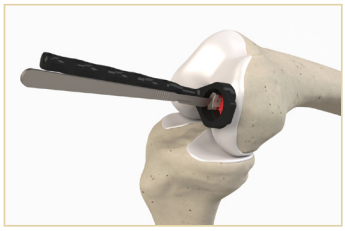


FIGURE 22C

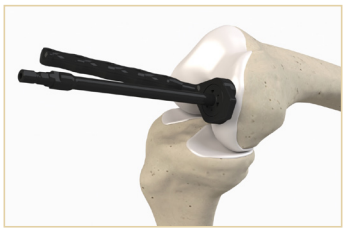


FIGURE 23A

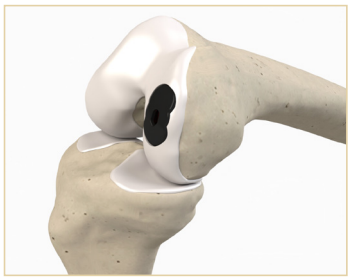


FIGURE 23B

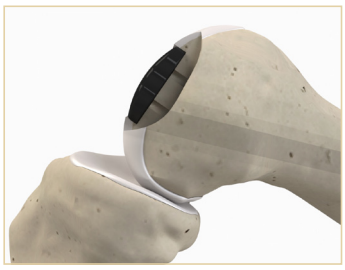


FIGURE 23C

TRIALING

Insert the Femoral Oblong Trial into the reamed cavity (Figure 23A). Visually inspect to ensure the edges or periphery of the Femoral Oblong Trial is correctly recessed below the articular surface (0.5mm-1.0mm) (Figures 23B).

To remove the trial, attach the Trial Removal Handle by inserting the handle and turning 90° clockwise before applying axial force (Figure 23C). Do not lever trial out. This could cause damage to the collateral cartilage.

If Femoral Oblong Trial sat proud prior to removal, re-insert Pin and Secondary Femoral Oblong Reamer to hand ream until the proper depth is achieved. If the Femoral Oblong Trial sat too low, apply additional cement under the implant to build it up to the proper height.

> NOTE:
> When the knee joint is under normal physiologic loading, it is reasonable to expect the healthy articular cartilage to compress. Ensure the implant is recessed 0.5 - 1.0mm to prevent premature cartilage wear on the articular surfaces of the adjacent tibia. Since the Trial is the same thickness as the actual implant, the Trial allows the user a visual confirmation the implant, will be placed at the correct depth below the articular cartilage.

PEG PREPARATION AND CEMENTATION

FIGURE 24A

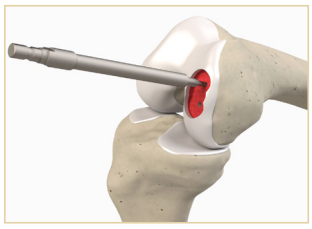
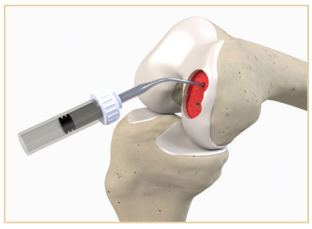


FIGURE 24B



Attach the Peg Drill to power. Insert distal end of Peg Drill bit into the hole created by the Pin, and drive until the shoulder on the Peg Drill contacts the bone (Figure 24A). Repeat for the second hole. Irrigate the area to remove any loose debris and dry using a lap sponge. Apply approximately 1cc of bone cement into the drill holes only (Figure 24B).

IMPLANTATION

Align the pegs of the oblong OvertureTi Femoral Implant® with the drilled holes (Figure 25A). Using the Femoral Impactor, fully seat the implant, ensuring that periphery of the implant is recessed relative to the adjacent cartilage (0.5mm-1.0mm) (Figures 25B, 25C). Excessive impaction force is not necessary. Start with light taps and progress until implant is properly seated.

NOTE:
Take care to center the Femoral Impactor over the implant to ensure that the instrument does not contact the adjacent tissues as it may cause unwanted trauma.

FIGURE 25A

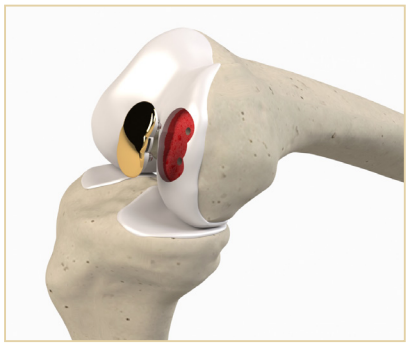
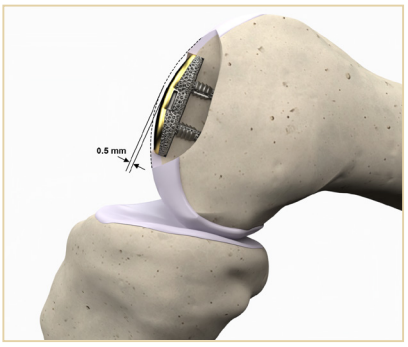


FIGURE 25B

FIGURE 25C



FEMORAL IMPLANT REMOVAL - ROUND

The Femoral Round Implant has a set of four removal pockets equally spaced around the implant, just below the articular surface. To gain access to the pockets, place the Hole Saw around the Femoral Round Implant under power and drill until the Hole Saw reaches its full depth to the surface of the Femoral Round Implant (Figures 26A, 26B). Remove the Hole Saw.

FIGURE 26A

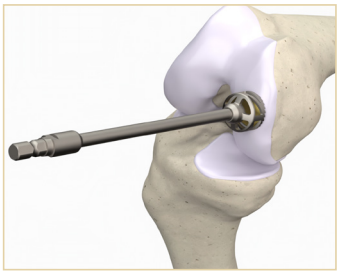
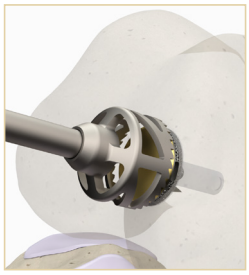


FIGURE 26B



Place the Removal Tool around the Femoral Round Implant in the groove created by the Hole Saw. Line up the prongs of the Removal Tool with the removal pockets of the Femoral Round Implant (Figures 27A, 27B). Squeeze the grip of the removal tool to grab the implant. Attach the Slap Hammer as necessary to aid in removal (Figure 27C).

FIGURE 27A

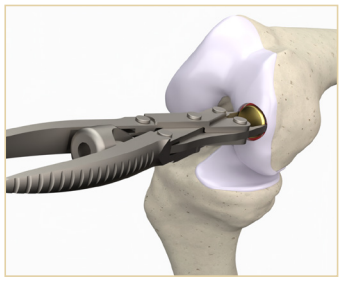


FIGURE 27B

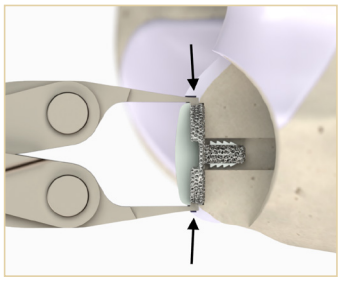
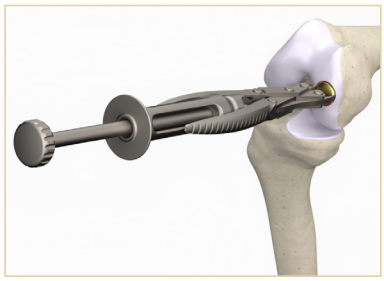


FIGURE 27C



NOTE:
The removal pockets are likely oriented on the M/L or A/P axes.

FEMORAL IMPLANT REMOVAL - OBLONG

Similar to the Femoral Round implant, the Femoral Oblong implants have a set of removal pockets on opposite M/L sides of the midline of the implant just below the articular surface of the implant (Figure 28A). Chisel around the edges of the Femoral Oblong Implant using the Straight Femoral Removal Punch and Curved Femoral Removal Punch (Figures 28B, 28C). This will aid in freeing it from any adjacent bone (Figure 28D).

FIGURE 28A

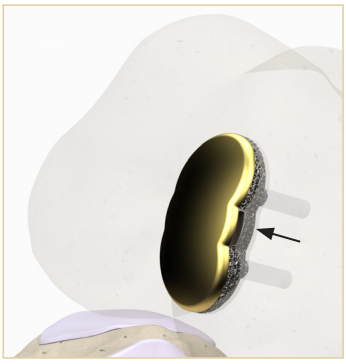


FIGURE 28B

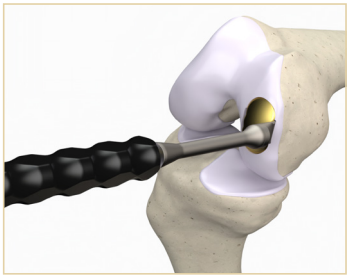


FIGURE 28C

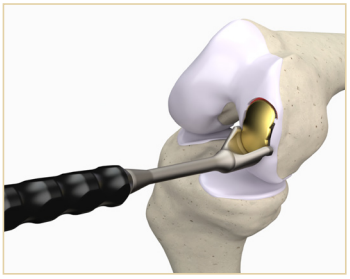
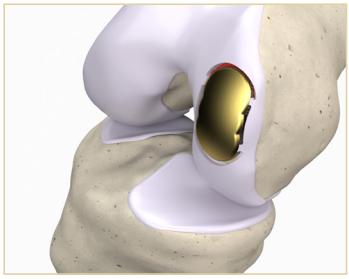


FIGURE 28D



Place the Removal Tool around the Femoral Oblong Implant in the lateral grooves created by the Punch. Line up the prongs of the Removal Tool with the removal pockets of the Femoral Oblong Implant (Figure 29A). If it is difficult to get both prongs connected, with the Slap Hammer attached, tap lightly downward on the Removal Tool until you feel the prongs grasp into the implant removal pockets. Squeeze the grip of the Removal Tool to grasp the Femoral Oblong Implant (Figure 29B).

FIGURE 29A

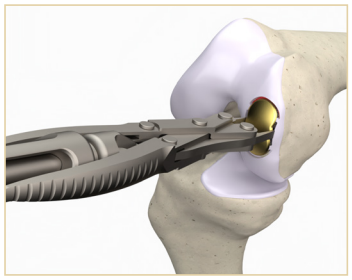
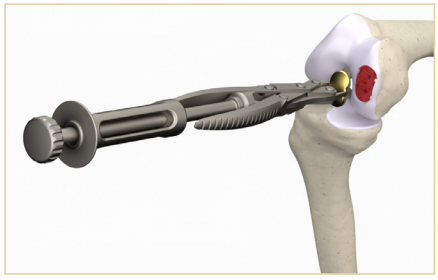


FIGURE 29B



TIBIAL IMPLANT REMOVAL

The Tibial Implant has a circumferential groove just below the articular surface which can be used for removal (Figure 30A).

To gain access to the removal groove, place the appropriately sized Hole Saw around the Tibial Implant and drill under power until the Hole Saw reaches its full depth to the surface of the Tibial Implant (Figure 30B). Remove the Hole Saw.

Alternatively, manual instruments may be utilized to create holes adjacent to the Tibial Implant. The holes just need to be wide enough to accommodate insertion of the tips of the working end of the Removal Tool.

Place the Removal Tool around the Tibial Implant in the groove created by the Hole Saw. Line up the prongs of the Removal Tool with the removal groove of the Tibial Implant (Figures 31A, 31B). If it is difficult to get both prongs connected, with the Slap Hammer attached, tap lightly downward on the Removal Tool until you feel the prongs grasp the implant removal groove. Squeeze the grip of the removal tool to grab the Tibial Implant (Figure 31C).

FIGURE 30A

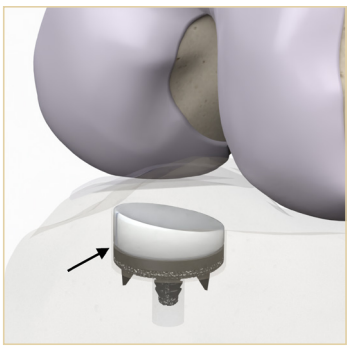


FIGURE 30B

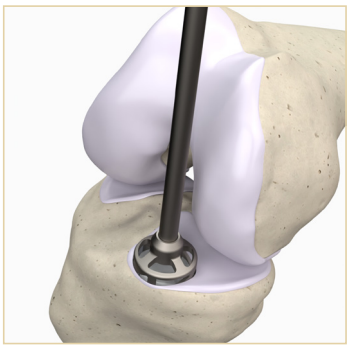


FIGURE 31A

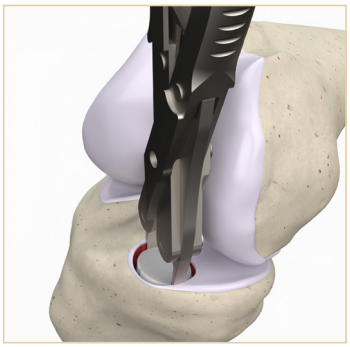


FIGURE 31B

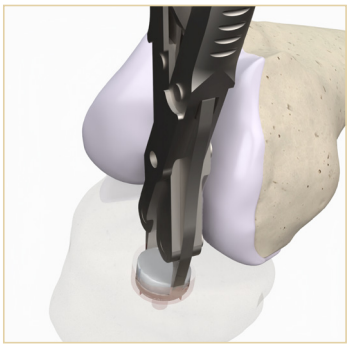
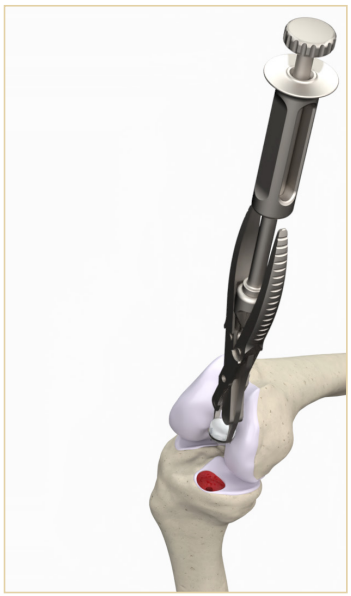


FIGURE 31C



TIBIAL INSTRUMENT KIT

1. Tibial Pin Guide
2. Cartilage Scoring Tool
3. Primary Tibial Reamer
4. Secondary Tibial Reamer
5. Tibial Trial
6. Tibial Impactor

FEMORAL ROUND INSTRUMENT KIT

1. Femoral Round Pin Guide
2. 3.2mm Pin
3. Cartilage Scoring Tool
4. Primary Femoral Round Reamer
5. Secondary Femoral Round Reamer
6. Femoral Round Trial
7. Peg Drill
8. Trial Handle
9. Femoral Impactor

FEMORAL OBLONG INSTRUMENT KIT

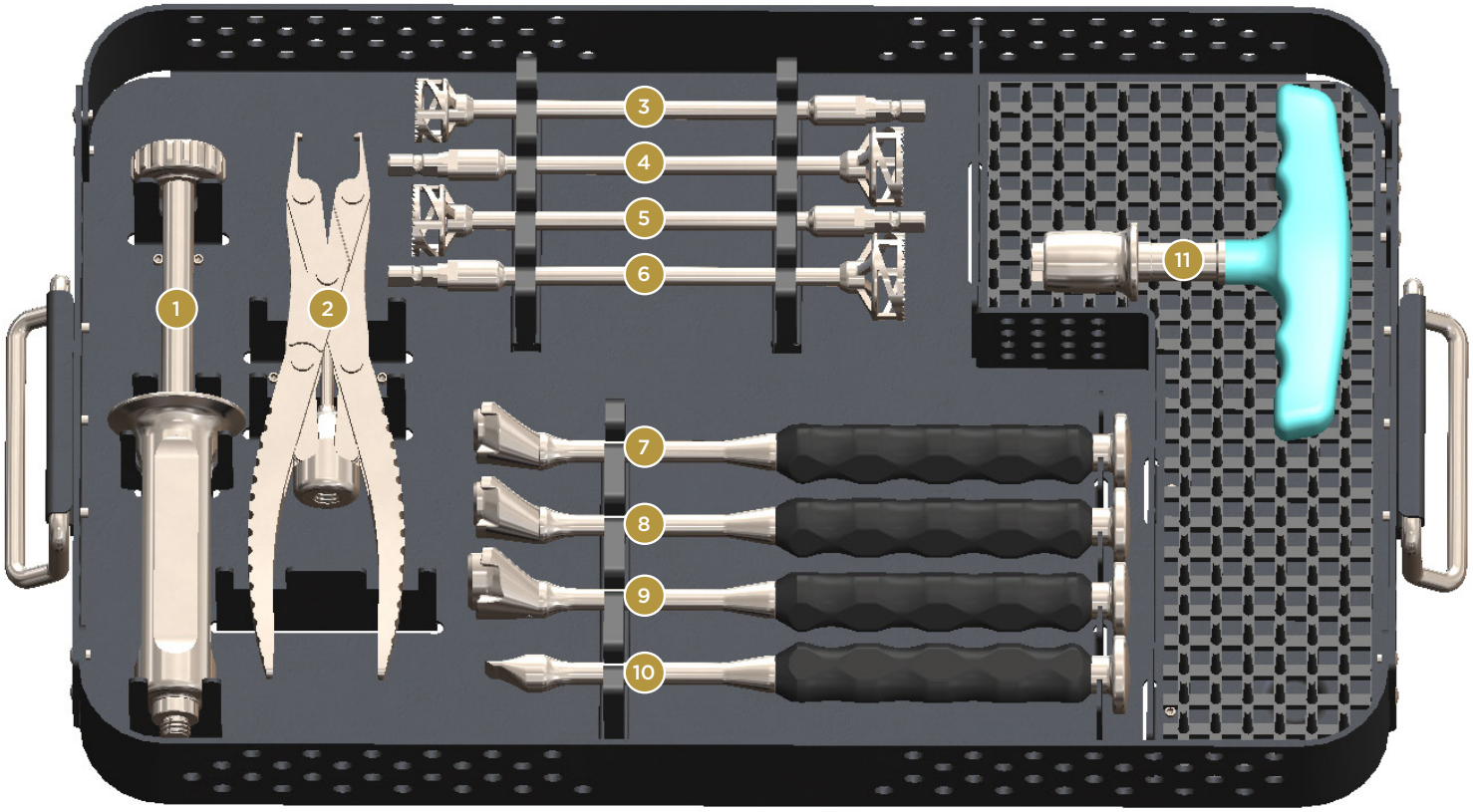
1. Femoral Oblong Pin Guide
2. 3.2mm Pin
3. Cartilage Scoring Tool
4. Primary Femoral Oblong Reamer
5. Secondary Femoral Oblong Reamer
6. Femoral Oblong Trial
7. Reamer Guide
8. Peg Drill
9. Trial Handle
10. Femoral Impactor

UNIVERSAL SIZING KIT

1 Femoral Round and Tibial Sizer

2 Femoral Oblong Sizer

REMOVAL TRAY



1	90-OVR-760000	Slap Hammer
2	90-OVR-770000	Removal Tool
3	90-OVR-660017	Implant Removal Hole Saw 17.5mm
4	90-OVR-660020	Implant Removal Hole Saw 20.0mm
5	90-OVR-660022	Implant Removal Hole Saw 22.5mm
6	90-OVR-660025	Implant Removal Hole Saw 25.0mm
7	90-OVR-520017	Femoral Removal Punch, Curved 17.5mm
8	90-OVR-520020	Femoral Removal Punch, Curved 20.0mm
9	90-OVR-520022	Femoral Removal Punch, Curved 22.5mm
10	90-OVR-521000	Femoral Removal Punch, Straight
11	90-OVR-750000	T-Handle

IMPLANTS

TIBIAL

90-OVR-350017	17.5 MM
90-OVR-350020	20.0 MM
90-OVR-350022	22.5 MM

FEMORAL - ROUND

90-OVR-200017	17.5 MM
90-OVR-200022	22.5 MM
90-OVR-200025	25.0 MM

FEMORAL - OBLONG

90-OVR-101730	17.5 X 30.0 MM
90-OVR-102035	20.0 X 35.0 MM
90-OVR-102240	22.5 X 40.0 MM