BioUni® OATS® System

Surgical Technique

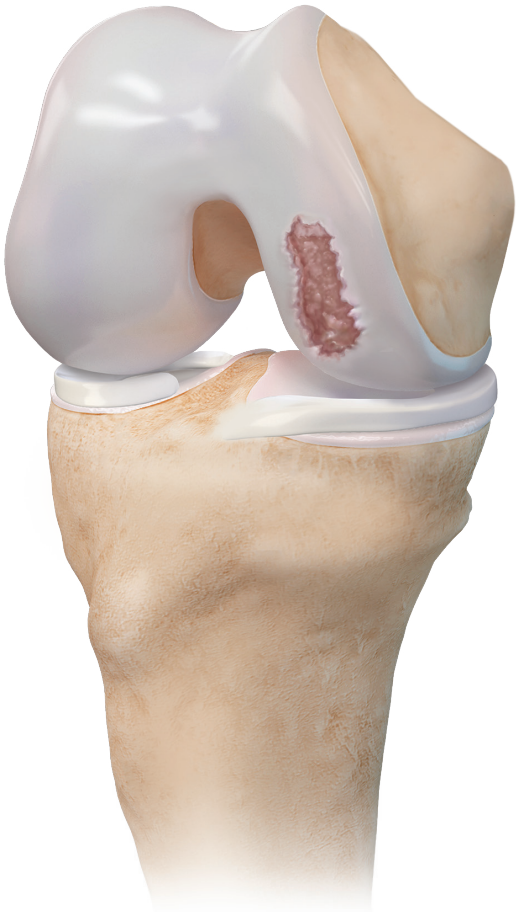
Arthrex®

Introducing the Arthrex BioUni® OATS® System

The BioUni Instrument Set is the standard for restoration of the articular surface when presented with elongated cartilage defects in the medial femoral condyle. Through a series of precisely designed cutting instruments, surgeons can replace damaged cartilage with a single, elliptical piece of viable, hyaline cartilage.

The BioUni instruments address many of the challenges and risks associated with the recovery and implantation of multiple small and large cartilage cores. Overlapping multiple cores adds complexity of curve matching, fit, and surgical time for each procedure. The BioUni instruments were designed to match the natural curvature of the femoral condyle to remove those complexities. Multiple sizes allow flexibility for the surgeon to adjust the width and length of the cartilage defect and to ensure proper restoration of the articular surface with a single cartilage piece.

Technique described by Matthew Provencher, MD (Vail, CO)



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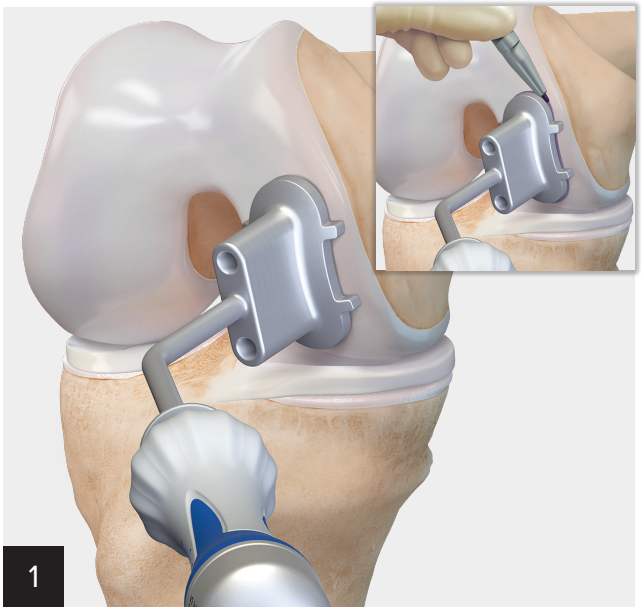
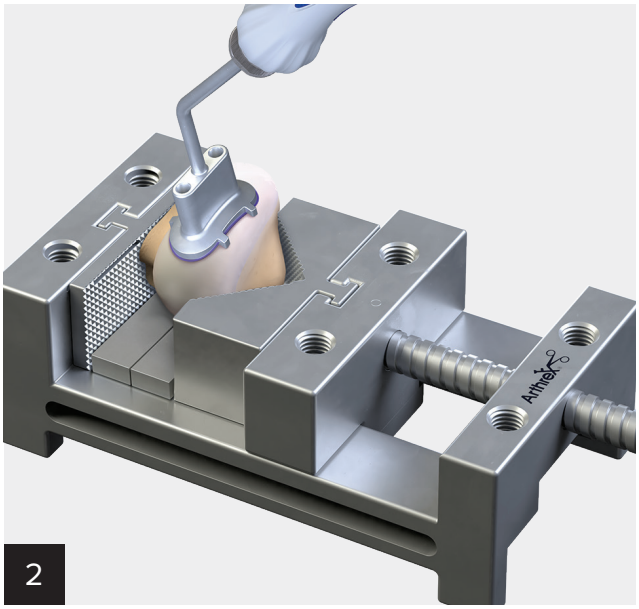
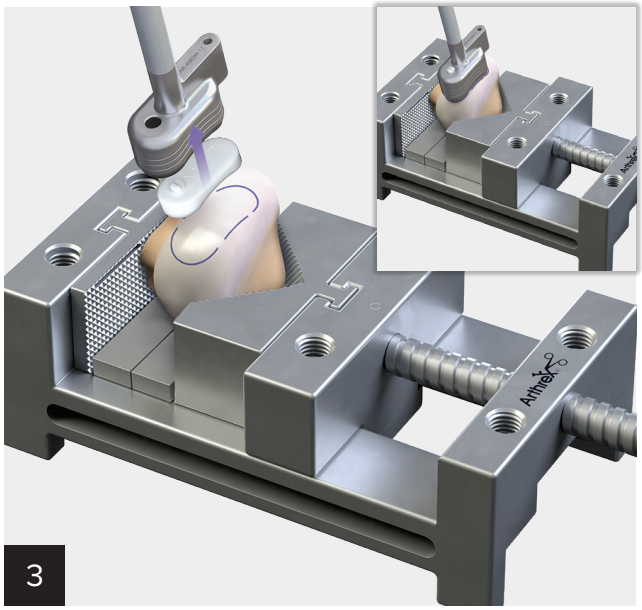


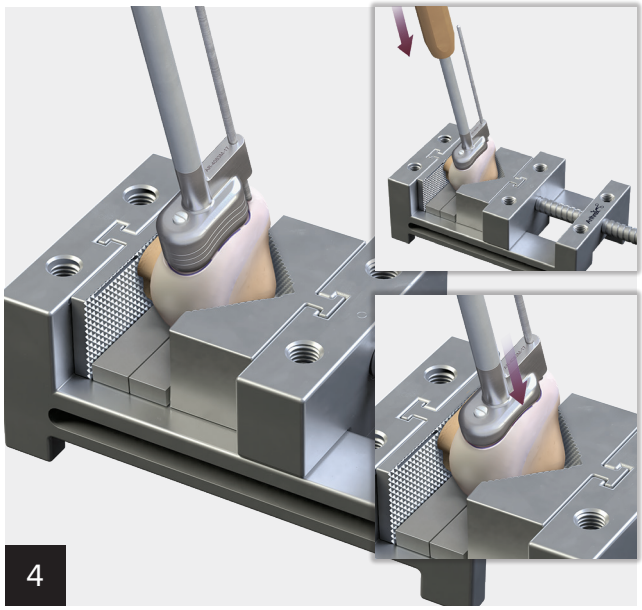
Following standard preoperative examination and diagnostic studies to confirm the size and extent of the lesion, perform a standard parapatellar arthrotomy to expose the defect. Select among the appropriately sized BioUni sizers/drill guides to determine the best size coverage of the lesion.



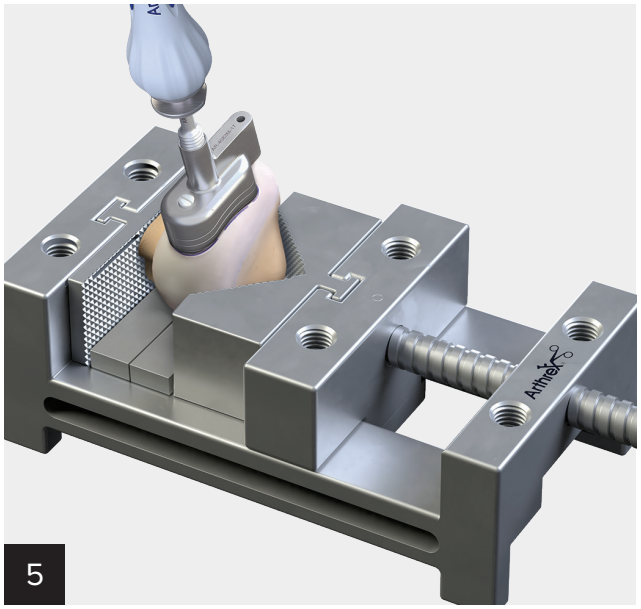
Place the selected sizer over the allograft condyle to establish the appropriate donor site. Mount the condyle into the allograft OATS workstation and secure it so that the identified donor site is easily accessible for graft harvesting. Use the workstation spacers to support the base of the allograft and elevate the working plane as desired.



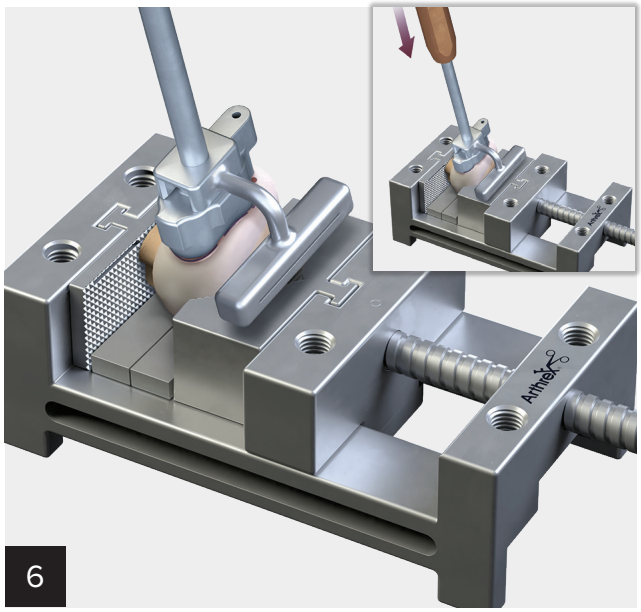
Retrieve the impactor handle and 2.8 mm guide pin, as well as the appropriately sized oblong cutter with cutter insert. Ensure the cutter insert is fully seated in the oblong cutter. Place the oblong cutter assembly on the allograft condyle to identify the harvest location.



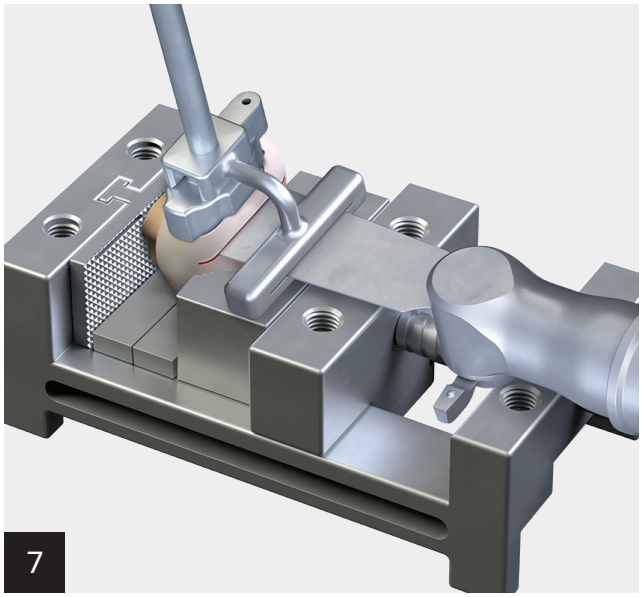
Drill the 2.8 mm guide pin through the guide pin hole and advance it fully through the allograft. Use a mallet to drive the oblong cutter into the graft until the third laser line is flush with the surrounding cartilage.



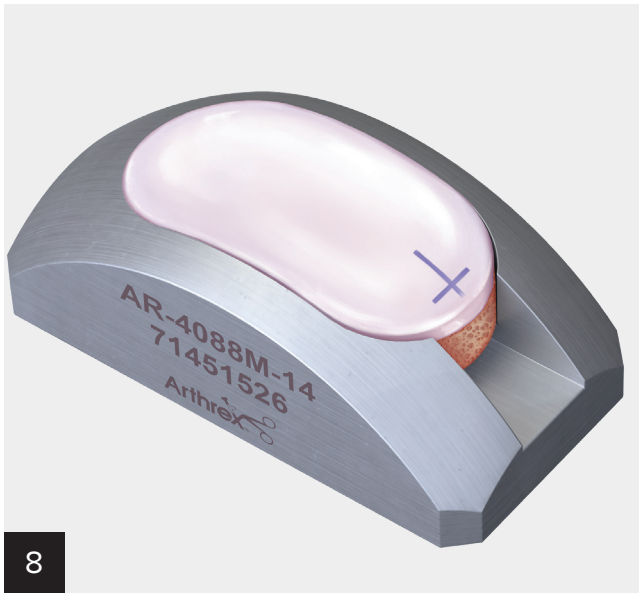
Assemble the quick-connect distractor tool into the driver handle and insert it into the oblong cutter. Remove the 2.8 mm drill pin. Advance the distractor to remove the oblong cutter.



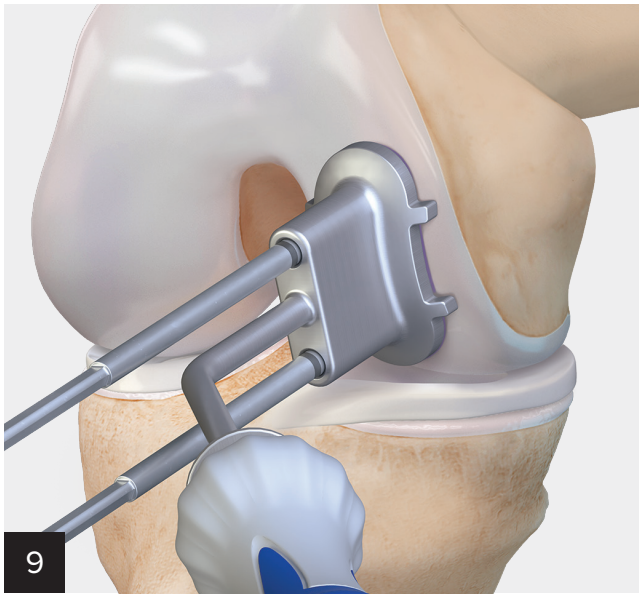
Assemble the saw depth guide over the sagittal saw guide and secure it by screwing on the impactor handle. Place the assembly into the previously made cut and impact as necessary. Ensure all 4 hard stops on the saw depth guide are in contact with the surrounding cartilage.



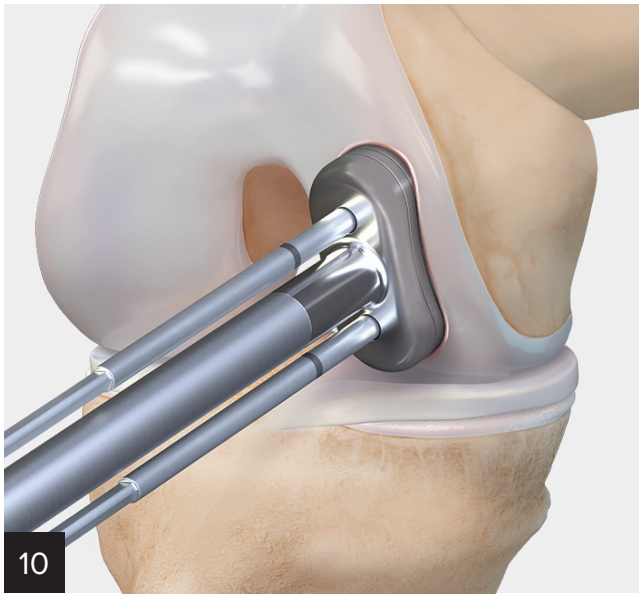
Using a sagittal saw, advance the blade through the sagittal saw guide until it advances through the condyle to create the base of the donor graft. Remove the impactor handle and sagittal saw attachments. The donor graft will be contained by the sagittal saw depth guide.



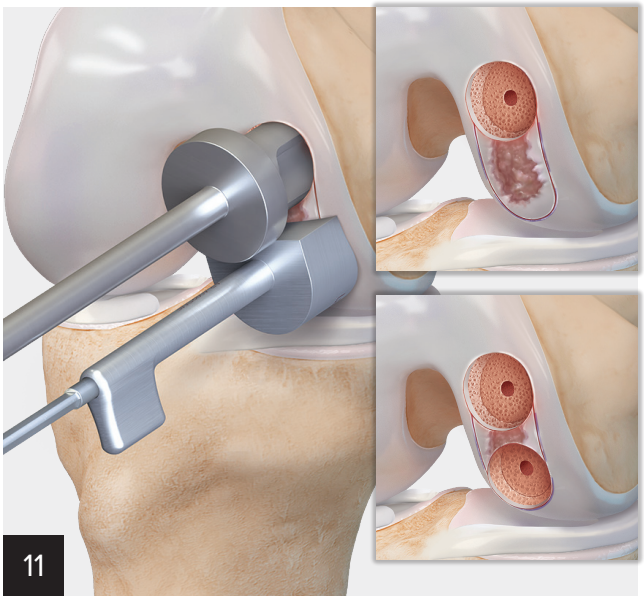
Insert the assembled distraction tool to slowly extract the allograft implant. Place a mark on the superior aspect of the graft to assist with orientation. Insert the implant into the appropriately sized donor trial to confirm sizing. It is recommended to pulse lavage the bony aspect of the donor graft to remove antigenic elements.



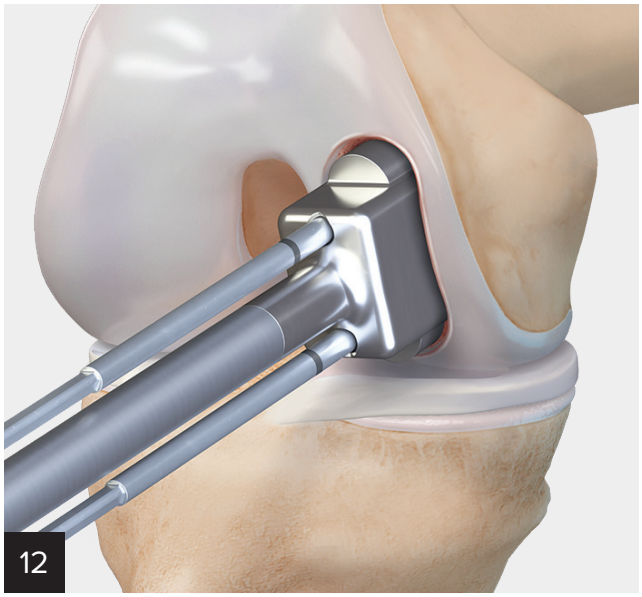
Place the sizer/drill guide over the defect site until it is flush on all sides and covers the defect. Place a 4 mm drill pin into the drill hole, then attach the drill, and advance it 2 cm to 3 cm. Repeat for the second 4 mm drill pin. Remove the sizer/drill guide and leave the drill pins in place.



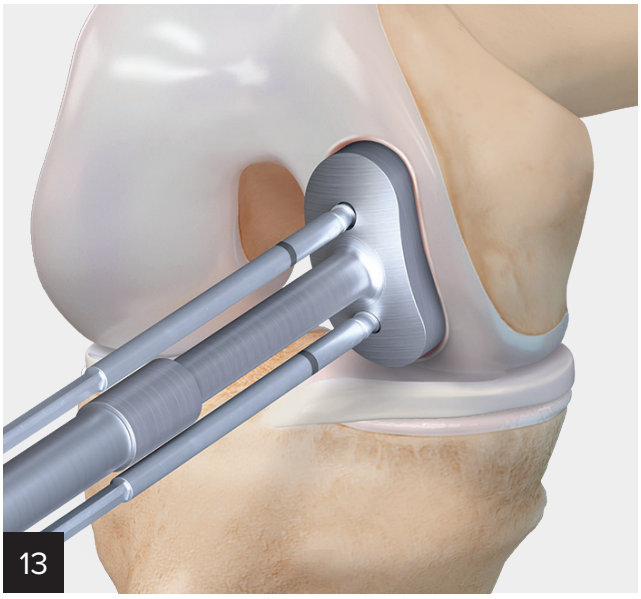
Retrieve the scoring device and attach it to the impactor handle. Place the assembly over the drill pins and impact the impactor handle to create a cut in the cartilage about 2 mm to 3 mm deep. Ensure the device remains parallel between the pins when impacting. Remove the scoring device over the drill pins.



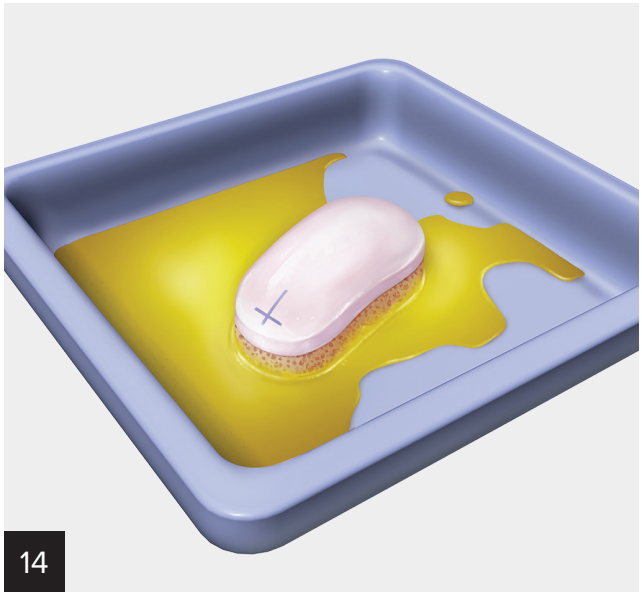
Retrieve the appropriately sized drill depth guide (see Pearls section) and appropriately sized reamer from the tray. Place the drill depth guide over the bottom drill pin and advance down to the cartilage. Place the reamer over the top drill pin and advance the reamer until the depth guide prevents further insertion. Create a second circle by inserting the instruments over the opposite drill pins.



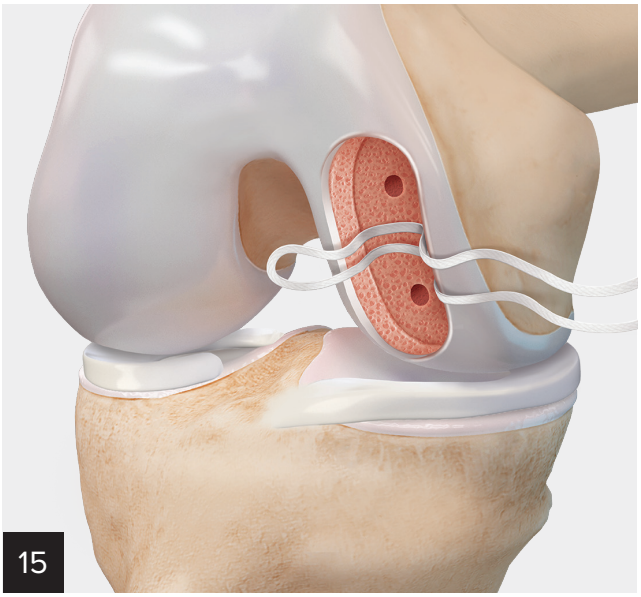
Retrieve the box cutter and attach it to the impactor handle. Advance the box cutter over the drill pins until the tabs of the box cutter are touching the cancellous bone in the recipient site and will no longer advance. Remove the drill pins. Residual bone or cartilage edges may be removed with the elevator and curette.



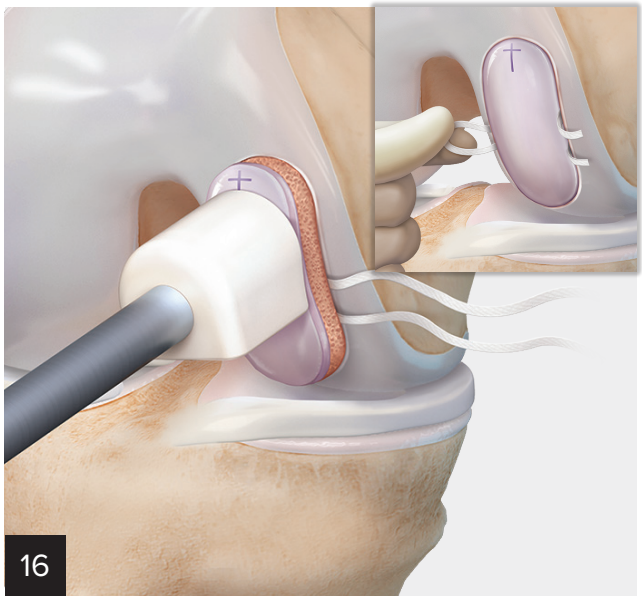
Retrieve the dilator/trial and attach it to the impactor handle. Dilate the recipient site and confirm the fit. If the trial is proud, attach the reamer to a Jacob's chuck and ream by hand to make minor adjustments. If the trial is recessed, autologous bone chips or demineralized bone matrix can be used to make minor adjustments.



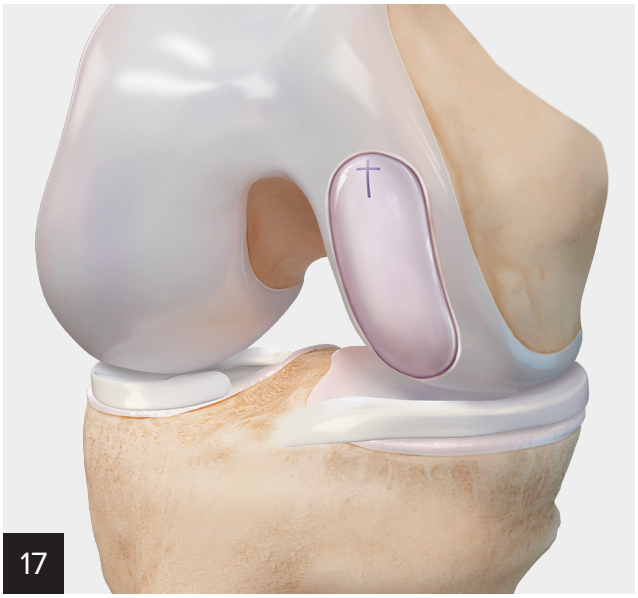
Use a rongeur to bulletize the cancellous edges of the allograft and ease implantation. Autologous conditioned plasma (ACP) may be mixed with the allograft bone of the BioUni® allograft implant.



Optionally, to prepare for implantation of the BioUni® allograft, place a looped suture into the bed of the recipient site.



Place the BioUni implant by hand into the recipient site. Retrieve the properly sized nylon tamp and attach it to the impactor handle. Gently impact the cartilage implant into place. If needed, withdraw the implant by pulling on the suture and adjust the bony recipient site or allograft implant, as needed, to achieve a congruent fit. Upon achieving the desired fit, trim the suture tails and withdraw the suture by pulling on the suture loop.



Final look at the BioUni® graft. Close the surgical site following standard protocol. Cover the staples, sutures, or adhesive glue with JumpStart® antimicrobial wound dressing, dotted side down, to help reduce risk of infection at the site and to assist with the healing cascade. Cleanse the wound area and moisten the JumpStart dressing with sterile saline, water, or water-based hydrogel. Keep the dressing moist and leave in place for up to 7 days.

Implantation Pearls

Drill Depth Stops

- 0.0 mm (flush) = Use if donor cartilage piece is flush in the donor trial.
- 1.0 mm (shallow) = Use if donor cartilage piece is recessed in the donor trial.
- +1.0 mm (deep) = Use if donor cartilage piece is proud in the donor trial.

Recipient Base Preparation

- Use the PowerPick™ device to create a bleeding base to stimulate healing.
- The addition of AlloSync™ demineralized bone matrix to the base will stimulate new bone formation and will fill in gaps in the bone.
- Hand reaming can fine-tune minor adjustments to the bony base to allow for a flush fit of the donor cartilage.

Donor Cartilage Preparation

- Trimming the bone edges of the donor cartilage piece with a rongeur allows for easier fit of the graft within the recipient base.
- Soak the cancellous bone in platelet-rich plasma from the Arthrex ACP® or Angel® systems.

Ordering Information

BioUni® OATS® System

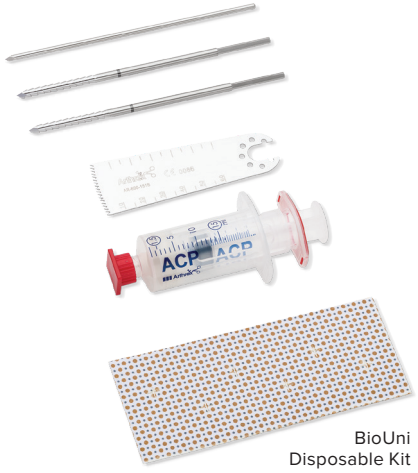
Product Description	Item Number
BioUni OATS Instrument Set	RAR-**4058MS**

Required Disposables (Provided in RAR-4058MS-D)

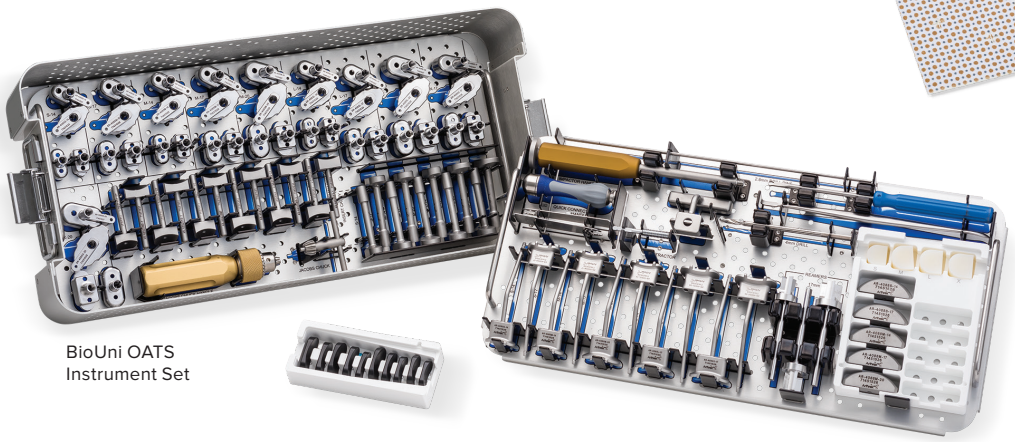
BioUni Disposable Kit	ABS-**4080D**
BioUni Disposable Cutting Kit, S14	ABS-**4080D-S14**
BioUni Disposable Cutting Kit, S17	ABS-**4080D-S17**
BioUni Disposable Cutting Kit, M14	ABS-**4080D-M14**
BioUni Disposable Cutting Kit, M17	ABS-**4080D-M17**
BioUni Disposable Cutting Kit, M20	ABS-**4080D-M20**
BioUni Disposable Cutting Kit, L14	ABS-**4080D-L14**
BioUni Disposable Cutting Kit, L17	ABS-**4080D-L17**
BioUni Disposable Cutting Kit, L20	ABS-**4080D-L20**
BioUni Disposable Cutting Kit, X17	ABS-**4080D-X17**
BioUni Disposable Cutting Kit, X20	ABS-**4080D-X20**

Accessories

PowerPick instrument, 45°, 6 mm depth	AR-**8150PX-45**
PowerPick instrument, 30°, 4 mm depth	AR-**8150PP-30**
PowerPick instrument, 45°, 6 mm depth (5 pack)	AR-**8150PP-45**
AlloSync DBM Gel, 1 cc	ABS-**2013-01**
AlloSync DBM Gel, 5 cc	ABS-**2013-0D**



BioUni Disposable Kit



BioUni OATS Instrument Set

This description of technique is provided as an educational tool and clinical aid to assist properly licensed medical professionals in the usage of specific Arthrex products. As part of this professional usage, the medical professional must use their professional judgment in making any final determinations in product usage and technique. In doing so, the medical professional should rely on their own training and experience and should conduct a thorough review of pertinent medical literature and the product's directions for use. Postoperative management is patient-specific and dependent on the treating professional's assessment. Individual results will vary and not all patients will experience the same postoperative activity level or outcomes.

View U.S. patent information at www.arthrex.com/corporate/virtual-patent-marking