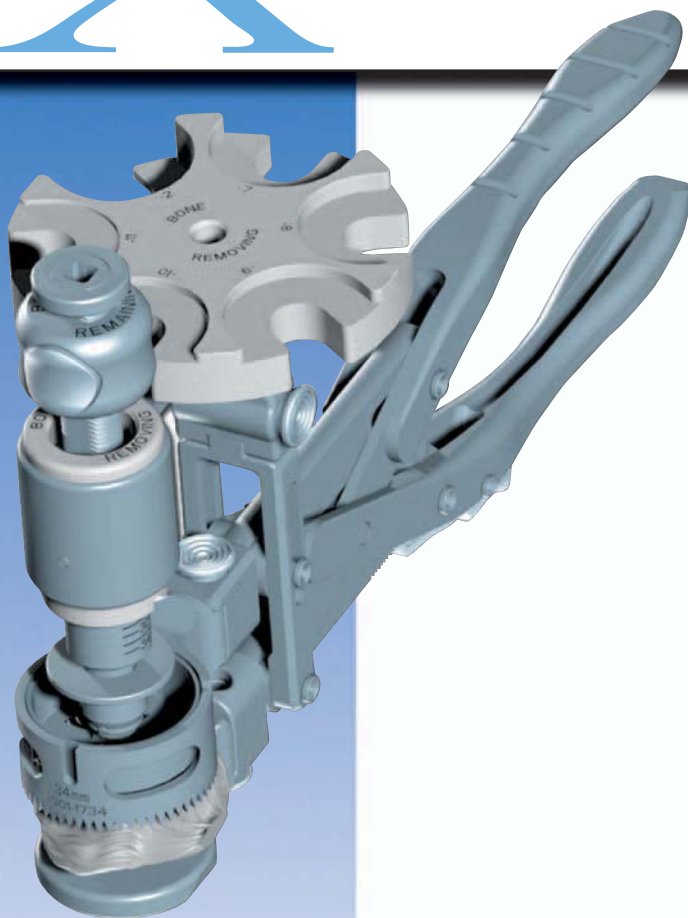


**The information contained in this document  
is intended for healthcare professionals only.**



Patella Reaming Devices





# Patella Reaming System

## Acknowledgments

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Stryker Howmedica Osteonics wishes to thank the following orthopedic surgeons for their expertise in the development of the Xcelerate Patella Reaming system.

### **Duane Marchyn, MD**

Scioto Valley Orthopedics, Inc.  
Orthopedic Surgeon  
Portsmouth, OH

### **Louis Starace, MD**

Ramapo Orthopedic Associates, P.C.  
Orthopedic Surgeon  
Suffern, NY

### **Robert Thomas, MD**

Center for Orthopedic and Neuro Surgery  
Orthopedic Surgeon  
Bend, OR

## ***Patellar Preparation Using Xcelerate® Knee Instruments Surgical Technique***

### **Table of Contents**

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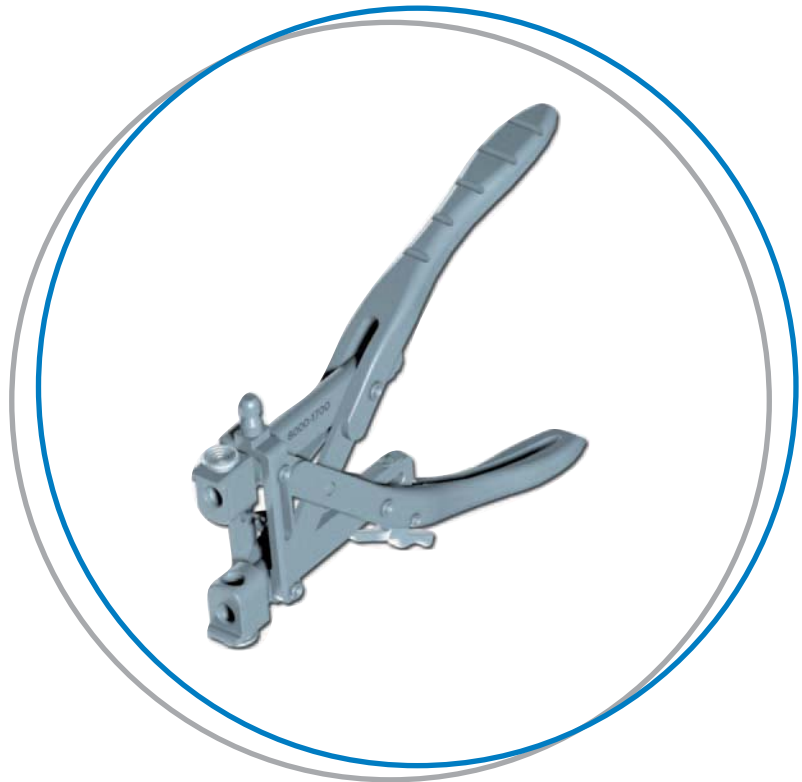
Introduction .....	1
Patellar Thickness Measurement .....	2 - 3
Assembly and Positioning of Clamping Barrel .....	4
Patellar Thickness Measurement .....	5
Patellar Resection	
Option 1 – Bone Remaining Method .....	6
Cutter/Assembly Method .....	7
Option 2 – Bone Removing Method .....	8
Sizing and Fixation Hole Placement	
Duracon .....	10 - 11
Scorpio .....	12
Trial Assessment .....	13
Component Implantation .....	14
Tray Layout .....	15 - 18
Notes .....	19 - 20

## Introduction

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The Stryker Howmedica Osteonics Xcelerate® Patella Reaming System may be used for any Howmedica Osteonics patellar implant.

The following evaluation surgical protocol is organized into sections which detail resurfaced and recessed techniques, for both the Duracon® System and the Scorpio® System respectively.



## Patellar Implant Surgical Technique

Howmedica Osteonics **resurfaced** patellar implants are available in a number of sizes and geometries.

- The Duracon<sup>®</sup> Total Knee system Patellar Component Family offers two distinct **resurfacing** patellar designs for total surgical flexibility.
- The Asymmetric Patella and Symmetric Patella maintain constant surface contact with the trochlear groove throughout the entire range of motion, and provide optimal functioning with all Duracon<sup>®</sup> femoral components.
  - The Duracon<sup>®</sup> Asymmetric Patella is designed to recreate the normal anatomy of the patellofemoral joint. The asymmetric dome naturally medializes the component for improved patellofemoral tracking. The larger lateral facet provides greater bone coverage.
  - The Duracon<sup>®</sup> Symmetric Patella features a dome that allows surgeon preference to dictate patellar orientation.



**Duracon**<sup>®</sup>  
Total Knee System



- 
- Scorpio<sup>®</sup> Single M/L Radius patellar implants are available with either a concentric or medialized dome, in sizes 5 through 11, and are 10mm thick.
  - Scorpio<sup>®</sup> Universal Dome **resurfaced** patellar implants may be used with any Howmedica Osteonics femoral implant and are available in 8mm (sizes 3, 5, and 7) or 10mm (sizes 7, 9, and 11) thickness.
  - Scorpio<sup>®</sup> Single M/L Radius and Universal Dome designs are all-polyethylene only.



**SCORPIO**<sup>™</sup>  
SINGLE AXIS  
TOTAL KNEE SYSTEM



- Howmedica Osteonics **recessed** patellar implants are available in a number of sizes and geometries.
- The Duracon<sup>®</sup> Total Knee system Patellar Component Family offers distinct **recessed** inset patellar designs for total surgical flexibility.
- The Duracon<sup>®</sup> Inset Patella is a unique, bone-sparing, all-plastic prosthesis designed to reproduce the patient's original dome location.

- o The Duracon<sup>®</sup> Inset Patella eliminates the need for a large central lug or pegs, saving an additional step and preserving patellar bone. The recessed design with undercuts and slots provides outstanding resistance to shear and rotational forces and pull-off.

- Size the patella using the **recessed** patellar trials. The proper size (25mm, 27mm, 29mm, 31mm, and 33mm) should provide good coverage without overly thinning the remaining wall.



- Scorpio<sup>®</sup> Single M/L Radius patellas are available as an all-poly or metal-backed option.
- Scorpio<sup>®</sup> Universal Dome **recessed** patellar implants may be used with any Scorpio<sup>®</sup> Single M/L Radius femoral implant and are available in 10mm (diameter sizes 26mm, 28mm, 30mm, and 32mm) thickness.



- Scorpio<sup>®</sup> Single M/L Radius and **recessed** patellar implants are available as a pegged or inset option.
- Size the patella using the recessed patellar trials. The proper size (26mm, 28mm, 30mm, and 32mm) should provide good coverage without overly thinning the remaining wall.

## Assembly and Positioning of the Clamping Barrel

- Determine which clamping barrel, after removal of marginal osteophytes, most closely fits around the perimeter of the patella (Figure 1a). Six Clamping Barrel sizes, from 28 to 46mm, are included in the set.
  - o **Note:** The teeth of the barrel are designed to rest on the patella, not the surrounding ligaments (Figure 1b).
  - o **Note:** For a recessed patella, place the smallest barrel possible on the patella in the desired position for reaming (Figure 1c).
- Assemble the Clamp Base and the selected Clamping Barrel to the Xcelerate® Patella Reaming Clamp (Figure 2).
  - o **Note:** The clamp base must attach to the portion of the clamp that contains the ratcheting mechanism.



Fig 1a



Fig 1b  
Resurfacing  
Barrel Position



Recessing Barrel Position

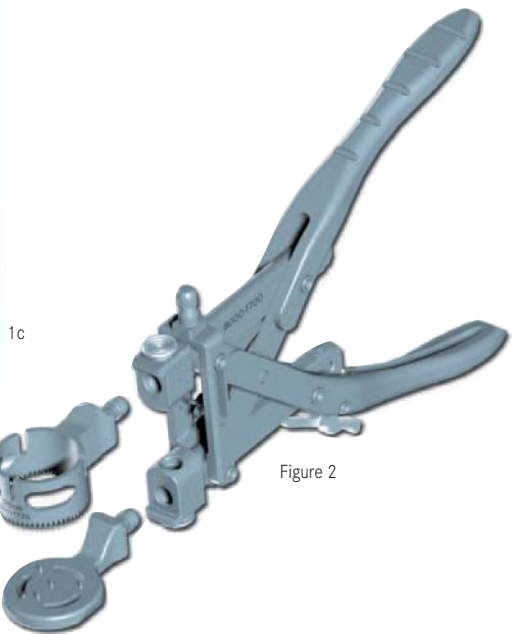


Figure 2



**Patella Clamp**  
8000-1700



**Clamp Base**  
8000-1760



**Fully Toothed Clamping Barrel**  
8001-1728 – 28mm  
8001-1734 – 34mm  
8001-1736 – 36mm  
8001-1738 – 38mm  
8001-1742 – 42mm  
8001-1746 – 46mm



## Patellar Thickness Measurement

---

With the Xcelerate® Patella Reaming System, the patellar thickness is determined as the amount of **bone to be removed** from the articular surface. This facilitates accurate restoration of the overall patellar height, contributing to optimal extensor function.

- Remove marginal osteophytes and remnants of the synovial capsule to the level of patellar ligament and quadriceps tendon attachments.
- Measure the patella at its thickest point using the Reamer Adapter Blank.
  - o **Note:** The Reamer Housing Blank simulates the Reamer Adapter/Patella Cutter assembly length. Assemble the blank with the Reamer Shaft via the square head fitting (Figure 3a). Assemble the Outrigger to the Patella Clamp and slide the Reamer Shaft/Adapter Blank assembly through the Outrigger (Figure 3b). Patellar thickness may be determined by using the scale on the Reaming Shaft.



Fig 3a



Fig 3b



**Patella Clamp**  
8000-1700



**Fully Toothed Clamping Barrel**  
8001-1728 – 28mm  
8001-1734 – 34mm  
8001-1736 – 36mm  
8001-1738 – 38mm  
8001-1742 – 42mm  
8001-1746 – 46mm



**Outrigger**  
8000-1701



**Clamp Base**  
8000-1760



**Reamer Adapter Blank**  
8001-1704



**Reamer Shaft**  
8001-1702

# Patella Reaming System



## Patellar Resection Option 1 - Bone Removing Gage Method

With the Xcelerate® Patella Reaming System, two methods exist for determining the amount of bone to resect from the patellar articulating surface. **Important:** This system was designed to never leave less than 11mm of bone remaining on the patella.



- Use the Bone Removing Depth Gauge in order to determine how much bone will be removed from the patella.
  - o **Note:** When gauging, 1 to 2mm should be added to account for the patella tendon.
  - o **Note:** On the gage, there are 6 different bone removing options, -2mm and -7mm to -11mm in 1mm increments.
- Choose the selected value on the gage (Figure 4). This will determine how much bone you want to remove from the patella.
- With the Reamer Shaft / Adapter Blank assembly resting against the patella, place the Bone Removing Depth Gauge against the Outrigger, as shown in Figure 4. Move the sliding head stop of the Reamer Shaft flush against the depth gage.
  - o **Note:** This gage must sit flush against the Outrigger; note the marking on the bushing of the Outrigger dictates what gage to place in that area.
- Remove the Reamer Shaft / Adapter Blank assembly and Outrigger from the Patella Clamp.
- If additional resection is required during reaming, move the stop on the Reamer Shaft and place the Bone Removing Depth Gauge against the Outrigger and ream again.

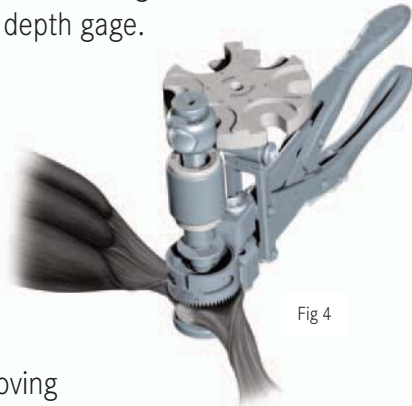


Fig 4



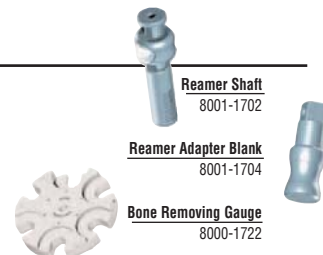
**Patella Clamp**  
8000-1700



**Fully Toothed Clamping Barrel**  
8001-1728 – 28mm  
8001-1734 – 34mm  
8001-1736 – 36mm  
8001-1738 – 38mm  
8001-1742 – 42mm  
8001-1746 – 46mm



**Outrigger**  
8000-1701  
**Clamp Base**  
8000-1760



**Reamer Shaft**  
8001-1702  
**Reamer Adapter Blank**  
8001-1704  
**Bone Removing Gauge**  
8000-1722

## Outrigger/Cutter Assembly

- Remove marginal osteophytes and remnants of the synovial capsule to the level of patellar ligament and quadriceps tendon attachments.
- Choose a Patella Cutter that matches the Clamping Barrel Size.
- Assemble a Patella Cutter with the Reamer Adapter (Figure 5a).
  - o **Note:** A **Resurfaced** Patella Cutter is any cutter  $\varnothing$  36mm or higher. However, a Recessed cutter may be used if necessary if the outer dimensions of the patella does not permit the use of a larger cutter.
  - o **Note:** A **Recessed** Patella Cutter is a cutter that equals the size of the recessed patellar implant. The reamed area is  $\varnothing$  0.5mm larger than the implant diameter.
  - o **Note:** The Cutter chosen must not exceed the size of Barrel chosen.
- Insert Reamer Shaft through the Outrigger and snap the Reamer Adapter and Cutter into the bottom of the Reamer Shaft (Figure 5b).
  - o **Note:** The Reamer Adapter and Reamer Shaft assemble with a square-driver fitting.
- Assemble Reaming Assembly (Figure 5b) to the Patella Clamp.
  - o **Note:** Fully seat the Outrigger assembly onto the Patella Clamp.
  - o **Note:** Patellar thickness may again be determined at any time using the scale on the Reaming Shaft. The centralizing point on the Patella Cutter may interfere with the reading by 2mm if the high point of the patella connects with the that point rather than the plane of the cutter.



Fig 5a



Fig 5b



**Reamer Adapter**  
8001-1703



**Disposable Patella Cutter**  
8000-0025 – 25mm  
8000-0026 – 26mm  
8000-0027 – 27mm  
8000-0028 – 28mm  
8000-0029 – 29mm  
8000-0030 – 30mm  
8000-0031 – 31mm  
8000-0032 – 32mm  
8000-0033 – 33mm  
8000-0036 – 36mm  
8000-0038 – 38mm  
8000-0042 – 42mm  
8000-0046 – 46mm



**Outrigger**  
8000-1701



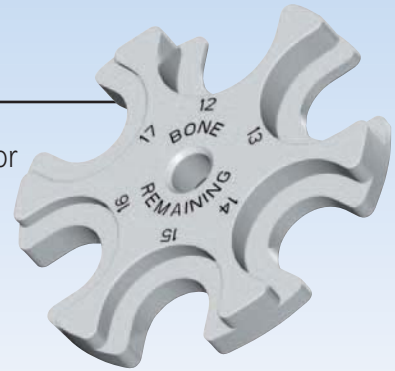
**Reamer Shaft**  
8001-1702

# Patella Reaming System



## Patellar Resection Option 2 - Bone Remaining Gage Method

With the Xcelerate® Patella Reaming System, two methods exist for determining the amount of bone to resect from the patellar articulating surface. **Important:** This system was designed to never leave less than 11mm of bone remaining on the patella.



- Use the Bone Remaining Depth Gage in order to determine how much bone will remain on the patella.
  - o **Note:** When gauging, 1 to 2mm may need to be added to the bone remaining resection level to account for the patella tendon.
  - o **Note:** On the gage, there are 6 different bone remaining options, 12mm to 17mm in 1mm increments.
- Choose the selected value on the gage. This will determine how much bone you want to remain on the patella.
- Place the Bone Remaining Depth Gage on the Reamer Shaft, as shown in Figure 6. Move the sliding head of the Reamer Shaft flush against the depth gage.
  - o **Note:** This gage must sit flush against the sliding stop of the Reamer Shaft and must be placed between the cap of the shaft and the sliding head; note the marking on the stop of the Reamer Shaft dictates what gauge to place in that area. It is possible to gage the Reamer Shaft prior to assembly of Patella Cutter and Reamer Housing.
- Remove depth gage prior to milling.



Fig 6



**Outrigger**  
8000-1701

**Reamer Shaft**  
8001-1702

**Reamer Adapter**  
8001-1703



**Disposable Patella Cutter**

- 8000-0025 – 25mm
- 8000-0026 – 26mm
- 8000-0027 – 27mm
- 8000-0028 – 28mm
- 8000-0029 – 29mm
- 8000-0030 – 30mm
- 8000-0031 – 31mm
- 8000-0032 – 32mm
- 8000-0033 – 33mm
- 8000-0036 – 36mm
- 8000-0038 – 38mm
- 8000-0042 – 42mm
- 8000-0046 – 46mm



**Bone Remaining Gauge**  
8000-1721

## Patellar Resection Option 2 - Bone Remaining Gage Method (cont)

- Assemble the quick-connect Reamer Driver directly to a power reamer.
- Apply the Xcelerate® Patella Clamp to the everted patella with the handles perpendicular to the long axis of the leg. Position the clamp until the teeth of the Clamping Barrel surround the perimeter of the patella.
- Insert the driver into the fitting on the top of the Reamer Shaft advance the Reamer until the sliding head of the Reamer Shaft contacts the bushing of the Outtrigger, thereby stopping further resection (Figure 8).
- The thickness of the resected patella may be read from the scale on the Reamer Shaft.
- If additional resection is desired, refer back to Options 1 or 2 of the Patellar Resection, alter the gage level accordingly and ream.
- Once reaming is complete, unlock the trigger mechanism of the clamp and depress the locking buttons adjacent to the Clamping Barrel on the Patella Clamp and on the Outtrigger in order to release the Clamping Barrel.
- Using an osteotome or rongeur, remove any additional amount of bone remaining on the perimeter of the patella to ensure the resected surface is planar and will accept the implant.

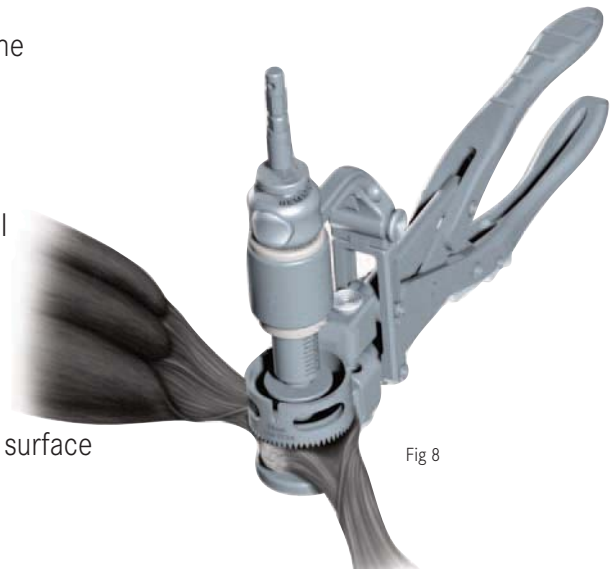
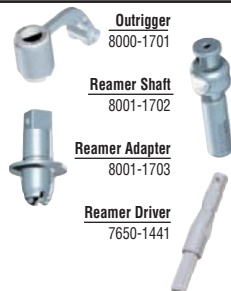


Fig 8



## Sizing and Fixation Hole Placement

With the Xcelerate® Patella Reaming System, patellar drill templates are used to determine the proper size patellar components to implant and prepare holes for the fixation lugs. This technique is for all-poly or metal-backed resurfaced patellae.

- Size the patella using the Drill Templates. The appropriate size provides the most complete coverage of the resurfaced patella without overhang.
  - o **Note:** Drill Templates are available for both Duracon and Scorpio Asymmetric (Figure 9a, 9d) and Symmetric Patellas (Figure 9b, 9c).



Fig 9a

Scorpio Asymmetric



Fig 9c

Duracon Symmetric



Fig 9b

Scorpio Symmetric



Fig 9d

Duracon Asymmetric



**Duracon Asym Drill Guide**

8001-1717 XS  
8001-1718 SM  
8001-1719 MD  
8001-1720 LG  
8001-1721 XL



**Duracon Sym Drill Guide**

8000-1711 27mm  
8000-1712 29mm  
8000-1713 31mm  
8000-1714 33mm  
8000-1715 36mm  
8000-1716 39mm



**Scorpio Asym Drill Guide**

8000-1505 Size 5  
8000-1507 Size 7  
8000-1509 Size 9  
8000-1511 Size 11



**Scorpio Sym Drill Guide**

8000-1603 Size 3  
8000-1605 Size 5  
8000-1607 Size 7  
8000-1609 Size 9  
8000-1611 Size 11

## Sizing and Fixation Hole Placement (cont)

- Assemble the selected Drill Template to the Patella Clamp.
  - o **Note:** The Barrel must be removed and replaced with the appropriate template. The Drill Template will lock with the Clamp. A 'lock' is obtained when an audible 'click' is heard (Figure 10a, 10b).
- Position the Drill Template on the resurfaced patella with the Patella Clamp roughly perpendicular to the long axis of the leg.
  - o **Note:** Orient the drill holes of the template so the triangular hole pattern has one aspect pointed toward the lateral edge of the everted patella.
  - o **Note:** The appropriate Patellar Drill (metal-backed or all-poly) must be chosen depending on the implant utilized.



Fig 10a



Fig 10b



**Patella Clamp**  
8000-1700

**Clamp Base**  
8000-1760



**Duracon Sym Drill Guide**  
8000-1711 27mm  
8000-1712 29mm  
8000-1713 31mm  
8000-1714 33mm  
8000-1715 36mm  
8000-1716 39mm



**Duracon Asym Drill Guide**  
8001-1717 XS  
8001-1718 SM  
8001-1719 MD  
8001-1720 LG  
8001-1721 XL



**Duracon Patella Drill**  
8000-7845 All Poly  
8000-7846 Metal Backed

**Scorpio Patella Drill**  
7650-1447 All Poly



**Scorpio Sym Drill Guide**  
8000-1603 Size 3  
8000-1605 Size 5  
8000-1607 Size 7  
8000-1609 Size 9  
8000-1611 Size 11



**Scorpio Asym Drill Guide**  
8000-1505 Size 5  
8000-1507 Size 7  
8000-1509 Size 9  
8000-1511 Size 11



## Sizing and Fixation Hole Placement

### *For Scorpio® Inset Patellar Implant with Pegs Procedure Only*

With the Xcelerate® Patella Reaming System, patellar drill templates are used to prepare holes for the fixation lugs. This technique is for all-poly or metal-backed patellae.

- Remove all debris from milling site prior to placement of template.
- Position the Drill Template on the recessed patella with the Patella Clamp roughly perpendicular to the long axis of the leg.
  - o **Note:** The drill template should position within the confines of the Clamp Barrel. If necessary, press the template so that it fully seats within the reamed area (Figure 11).
  - o **Note:** The appropriate Patellar Drill (metal-backed or all-poly) must be chosen depending on the implant utilized.

- Using an osteotome or rongeur, remove any additional amount of bone remaining on the perimeter of the patella to ensure that there is no bone interference with the implant or articulating surface.

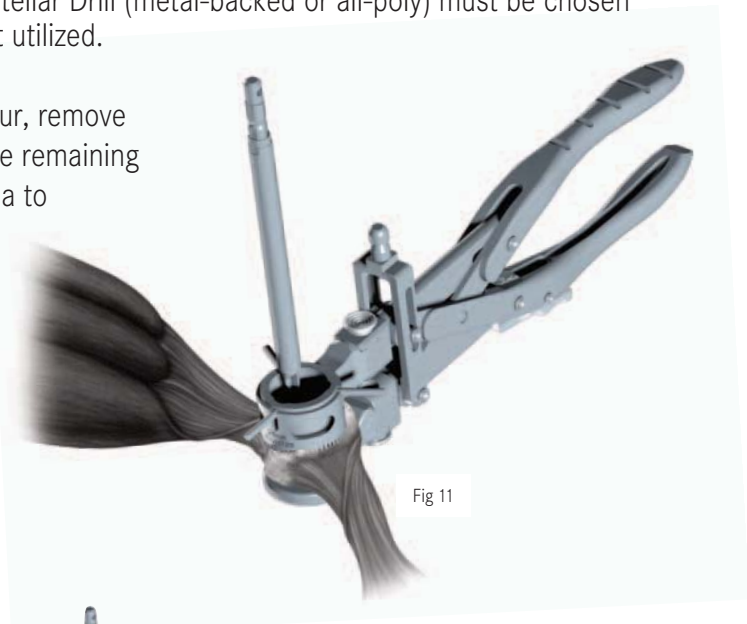
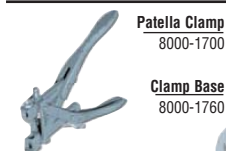


Fig 11



**Patella Clamp**  
8000-1700

**Clamp Base**  
8000-1760



**Scorpio Patella Drill**  
7650-1447 All Poly  
7650-1448 Metal Backed



**Scorpio Inset Drill Guide**  
8000-1703 All Poly, 26mm  
8000-1704 All Poly, 28mm  
8000-1705 All Poly, 30mm  
8000-1706 All Poly, 32mm  
8000-1707 Metal Backed, 26mm  
8000-1708 Metal Backed, 28mm  
8000-1709 Metal Backed, 30mm  
8000-1710 Metal Backed, 32mm



## Trial Assessment

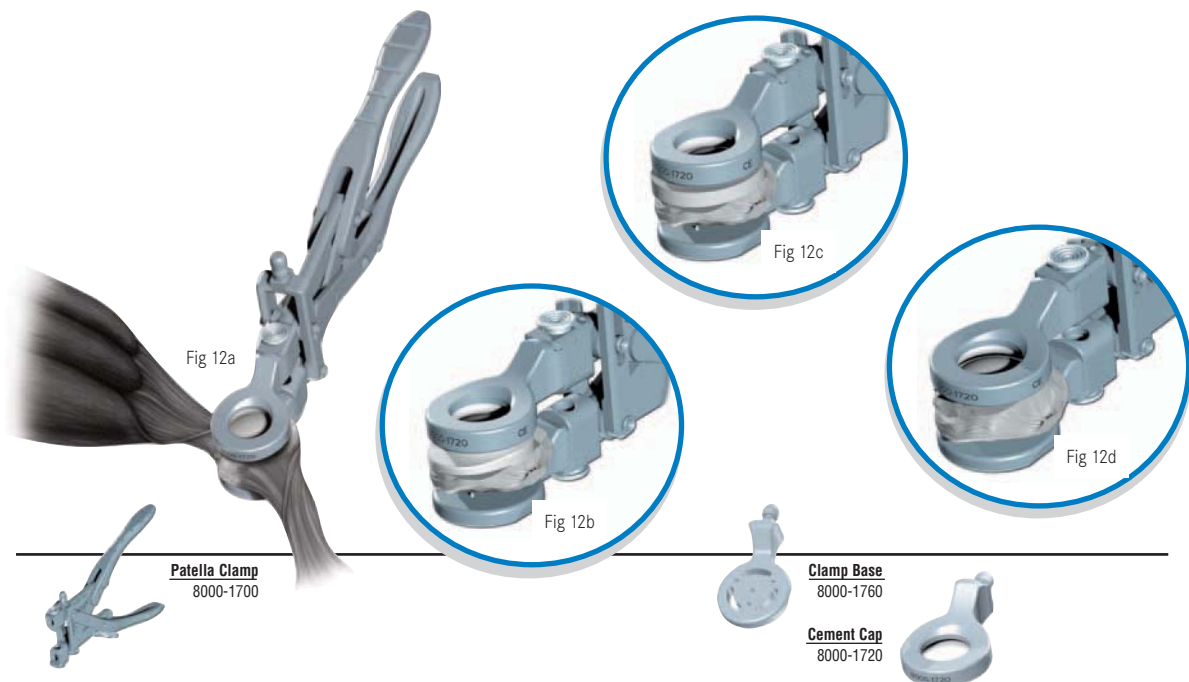
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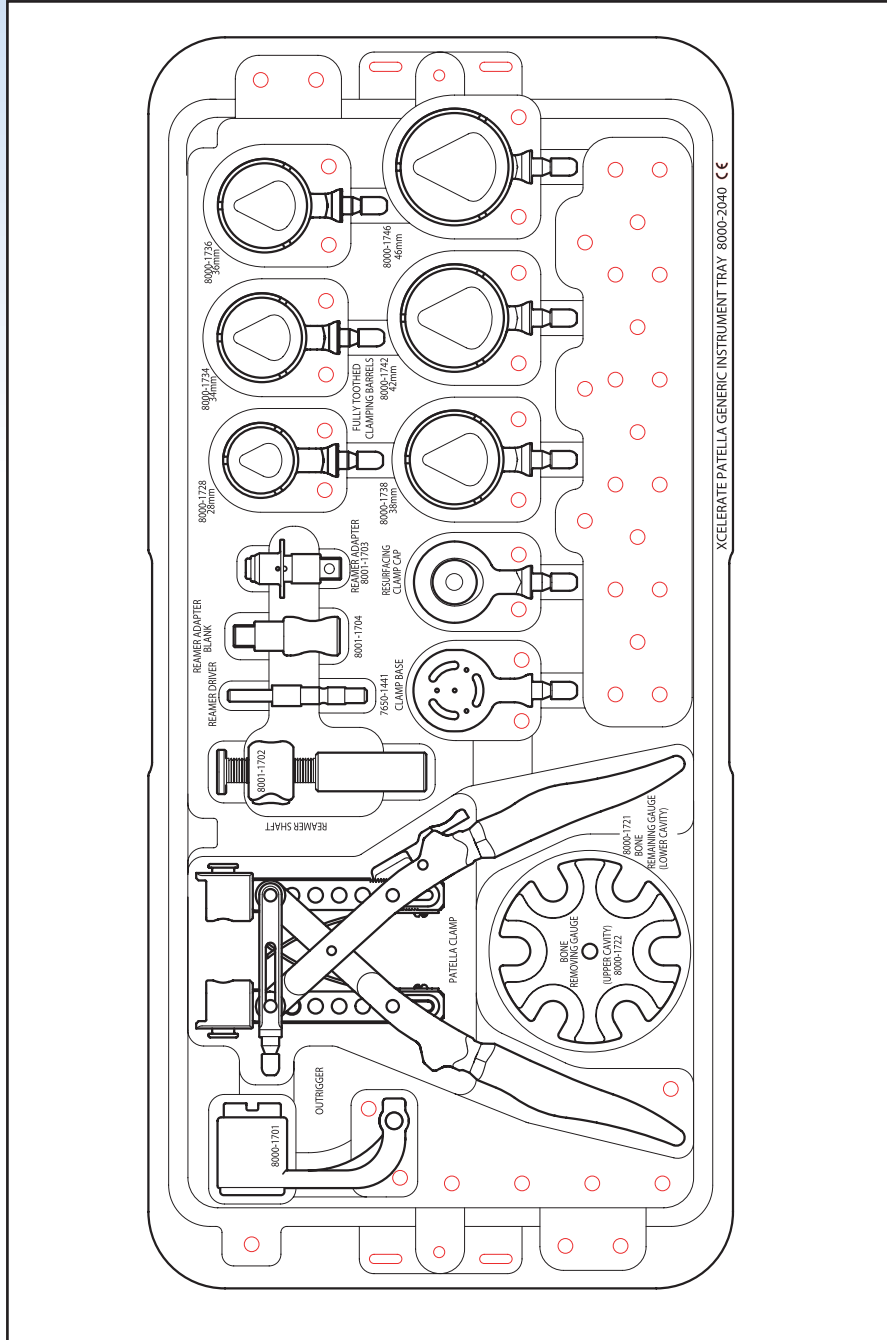
- Remove any residual cartilage and wash away all debris.
- Place correct size Resurfaced Patella Trial onto the prepared patella. The overall height of the patellar composite may be measured using the Reamer Adapter Blank/Outrigger assembly.
- To assess patellar tracking, relocate the patella and take the knee through a range of motion without retinacular closure or pressure on the patella.
- The patella should track normally throughout the range of motion without tendency for tilting or lateral subluxation.
- If lateral pull of the quadriceps mechanism or medial lift-off of the trial is observed, a lateral retinacular release should be considered.



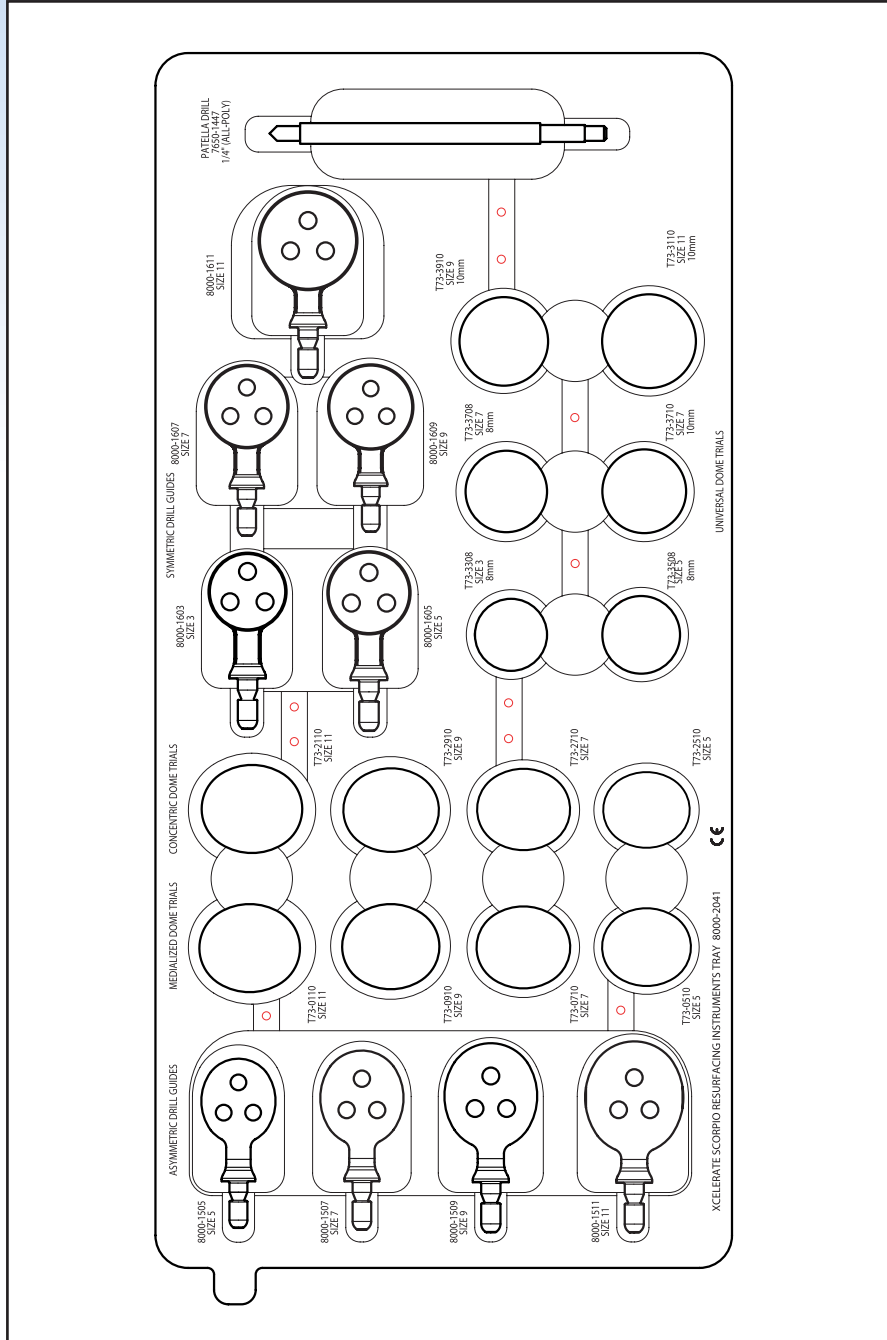
## Component Implantation

- Place bone cement onto the resected patella. If necessary, use a curette to mark the locations of the fixation lugholes.
- Place the implant onto the patella, making certain the fixation lugs are aligned to the corresponding holes.
- Seat the Patellar implant by clamping with the Patellar Cement Cap, securing the silicone o-ring around the articulating aspect of the implant (Figure 12a). Leave the Patella Clamp assembly clamped to the patella while excess cement is cleared and polymerization is completed.
  - o **Note:** The Cement Cap may be used for any patella; if used for a recessed patella, (Figure 12d) removal of perimeter cement around the implant may be necessary
- Once polymerization is complete, unlock the ratcheting trigger mechanism of the clamp and depress the locking button adjacent to the Cement Cap on the Patella Clamp in order to release the Cement Cap.

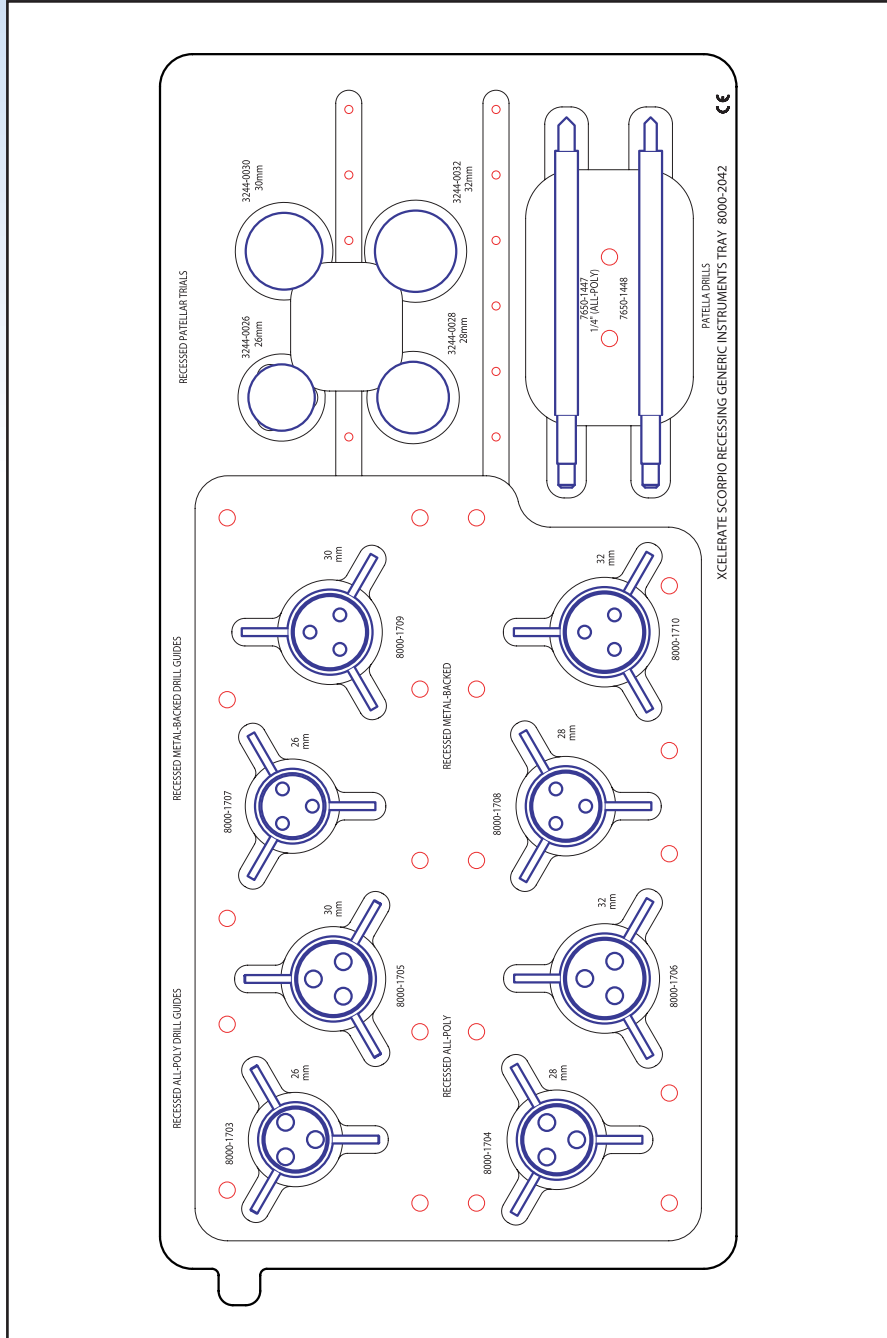




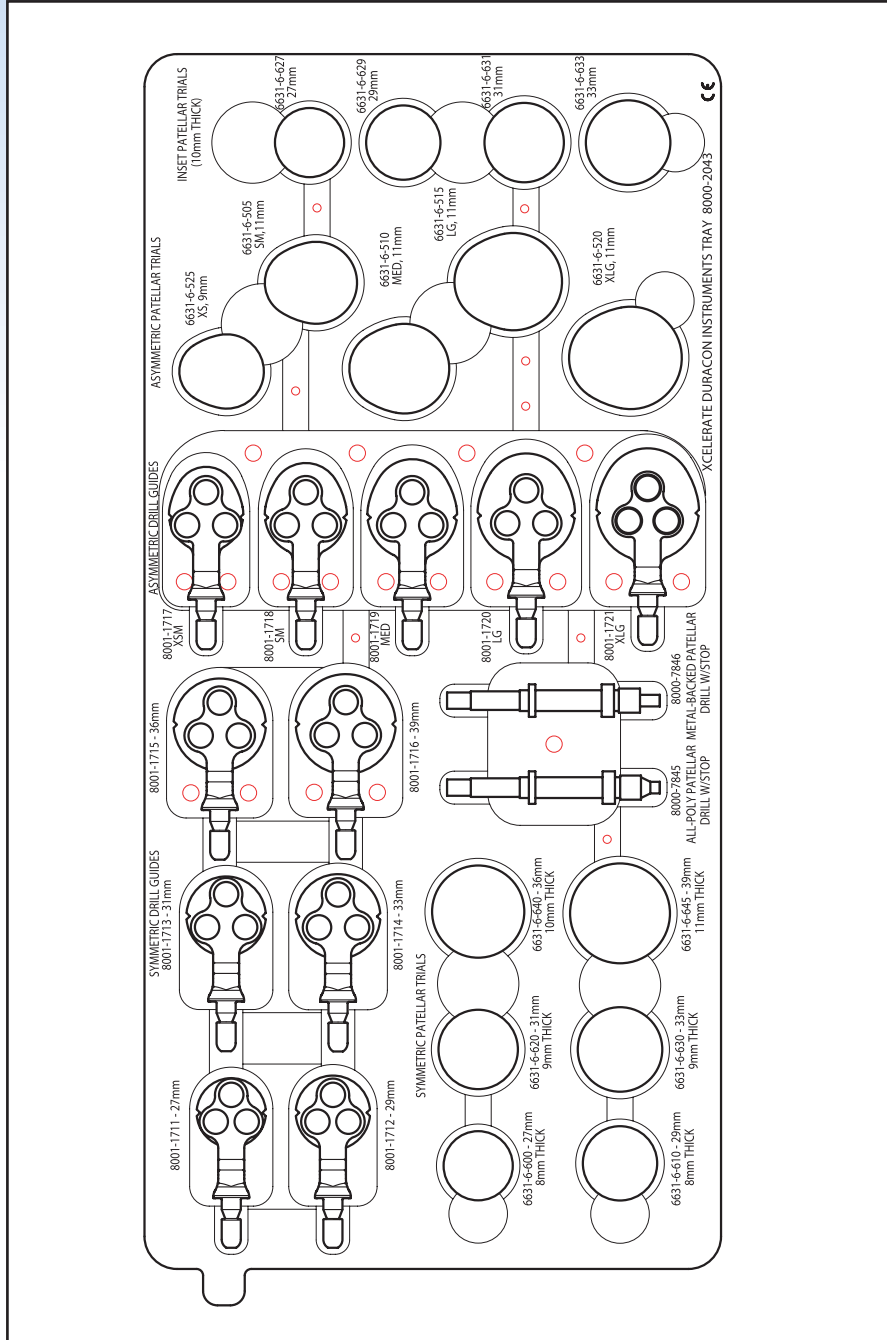
# Patella Reaming System



**XCELERATE SCORPIO RESURFACING INSTRUMENT TRAY 8000-2041**



# Patella Reaming System



**XCELERATE DURACON INSTRUMENT TRAY 8000-2043**







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