

Zimmer® Segmental System

Distal Femoral & Distal Femoral XT

Surgical Technique



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Figure 1

Introduction

The Zimmer® Segmental System is designed to address significant bone loss resulting from oncology, trauma, and/or the salvage of previously failed arthroplasty. The segmental distal femoral component features the same condylar-loading geometry as the Zimmer NexGen® Rotating Hinge Knee (RH Knee), but allows both medial and lateral access to the hinge pin locking assembly. The segmental one-piece hinge post, packaged with the corresponding size segmental articular surface, ensures a minimum 40 mm jump-height of the post for all sizes of segmental articular surface. The system also includes specific instruments designed to facilitate the surgical procedure.

Femoral Replacement Options

The Zimmer Segmental System offers solutions for both distal femoral replacement and total femoral replacement, in addition to proximal tibial replacement (Figure 1).

System Compatibility

The segmental distal femoral component may be implanted with:

- all segmental distal femoral components
- segmental Trabecular Metal™ proximal tibial component
- segmental stems
- segmental stem collars
- segmental segments
- NexGen RH Knee tibial components
- VerSys® Hip System 12/14 heads
- and the legacy 12/14 heads (Figure 2).

The segmental distal femoral component may be used with:

- both fluted stems (cemented)
- and variable stiffness stems (press-fit) in many stem lengths and diameters.

All stems are compatible with:

- both Trabecular Metal collars
- and Titanium® Ti-6Al-4V alloy collars (Figure 2).
- Variable stiffness stems are not indicated for use in the knee with the segmental distal femoral components in the United States.

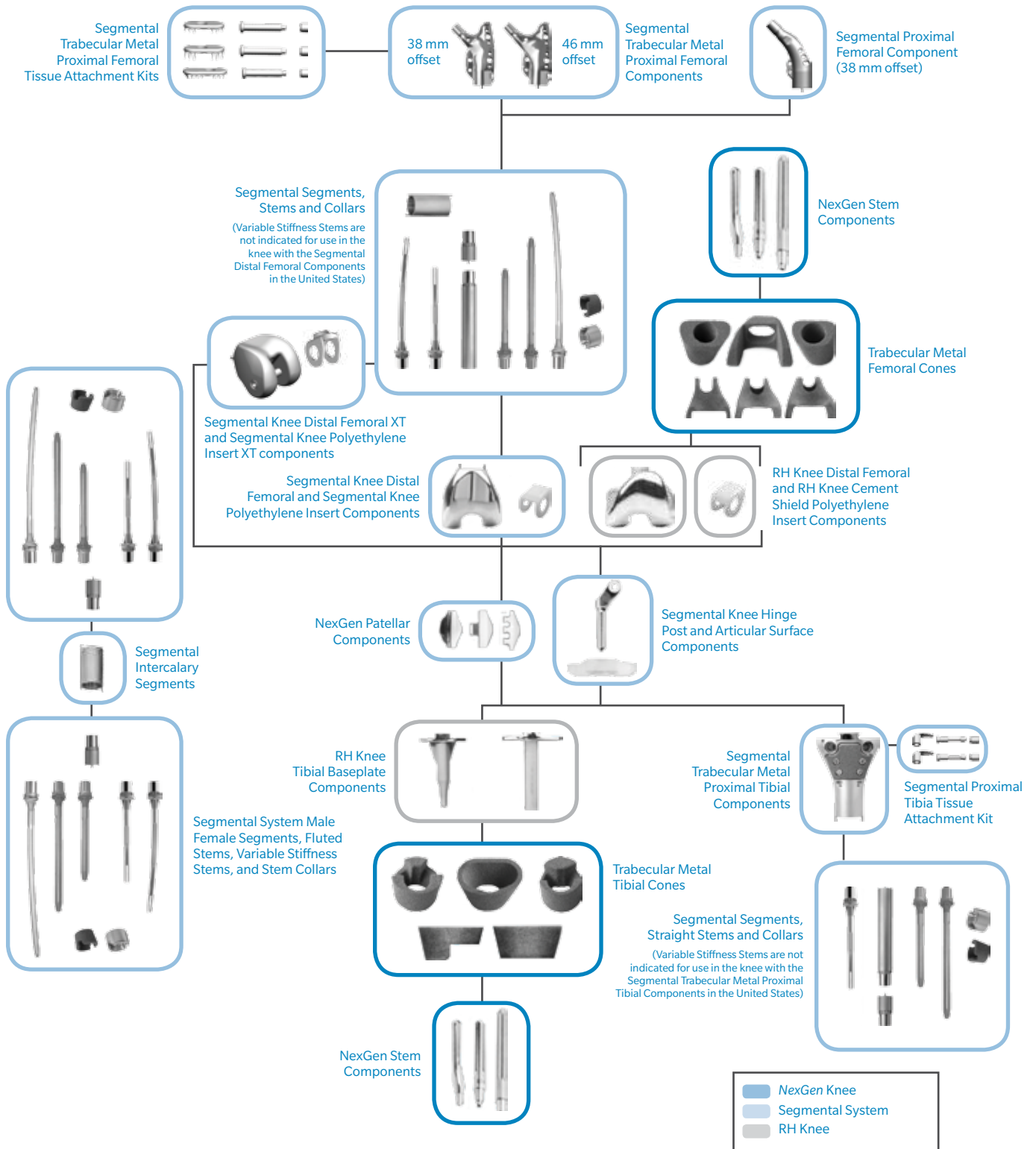


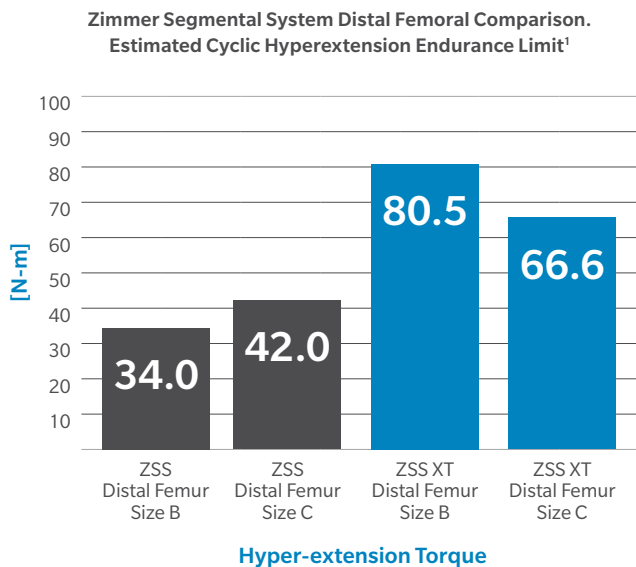
Figure 2



Figure 3

Segmental Distal Femoral XT Components

The Segmental Distal Femoral XT Components are not compatible with the original Segmental Distal Femoral, Segmental Polyethylene Insert, or Hinge Servicing Kit. XT is offered as a product enhancement to provide a poly insert with strength beyond the original design. The difference with the XT design from the original design is that it has a boss (bump) on the Polyethylene Insert component and a mating recess on the XT femoral component (Figure 3).



Segmental Distal Femoral XT Assemblies	
00-5850-042-01	Distal Femoral XT Component, Size B, Lt
00-5850-042-02	Distal Femoral XT Component, Size B, Rt
00-5850-043-01	Distal Femoral XT Component, Size C, Lt
00-5850-043-02	Distal Femoral XT Component, Size C, Rt
Segmental Distal Femoral XT Polyethylene Inserts	
00-5850-012-96	Polyethylene Insert XT, Size B
00-5850-013-96	Polyethylene Insert XT, Size C
Segmental Distal Femoral XT Hinge Servicing Kits	
00-5850-071-12	Femoral Hinge XT Servicing Kit, Size B
00-5850-071-13	Femoral Hinge XT Servicing Kit, Size C



Figure 4



Figure 5

Premature failure of the Segmental Distal Femoral hinge may be caused by:

1. Stretching of the knee to insert the segmental distal femoral hinge post (after back table hinge-post assembly). In vivo assembly is required (Figure 4).
2. Not replacing the tibial bushing when servicing the hinge at revision (Figure 5). The tibial bushing is packaged in the Hinge Servicing implant kit and the tibial bushing remover 00-5881-055-00 (Figure 5) is in the NexGen RH Knee instrument kits KT-5979-005-00 or 00-5979-005-00.

These conditions may place excessive demand/ severe loading on the polyethylene insert (box) component of the Segmental Distal Femoral Construct:

- Neuropathic Arthropathy (Charcot's knee)
- Muscle deficiencies (quadriceps insufficiency or previous patellar tendon/tibial tubercle rupture)
- Refusal to modify postoperative physical activities
- Morbid obesity (Body Mass Index >39)

Distal Femoral Replacement Using the Segmental Distal Femoral Component

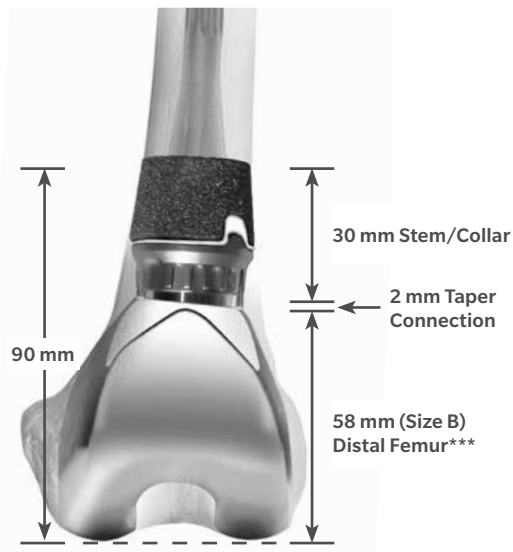


Figure 6

Step One: Prepare the Femur

After exposing the distal femur and proximal tibia, extend the leg in a reproducible position (typically full extension).

Distal Femoral Resection and Distal Femoral XT Resection

Based on preoperative planning and the implant configuration (Table 1 and Figure 6), use a marker, osteotome or electrocautery to make a horizontal line marking the proposed resection level measuring from the articular surface of the distal femur.

Resect the distal femur at or slightly distal (0.5 mm-1.0 mm) to the marked resection level. Resecting the femur slightly below the mark will account for slightly oblique cuts and help accommodate femoral resection planning.

ⓘ Technique Tip: Consider marking femoral rotation outside of the resection area prior to resection for later reference.

ⓘ Technique Tip: To ensure proper leg length, consider marking both the tibia and femur outside of the resection area. Measure and record the distance between the two lines for later reference during trialing.

Distal Femur**	Stem/ Collar	Segments	Total Length*
Size B 58 mm***	30 mm	None	90 mm
		30 mm	122 mm
		35 mm	127 mm
		40 mm	132 mm
		45 mm	137 mm
		50 mm	142 mm
		55 mm	147 mm
		60 mm	152 mm
		35+30 mm	159 mm
		40+30 mm	164 mm
		40+35 mm	169 mm
		80 mm	172 mm
		40+45 mm	179 mm
		60+30 mm	184 mm
		60+35 mm	189 mm
		100 mm	192 mm
		60+45 mm	199 mm
		80+30 mm	204 mm
		80+35 mm	209 mm
		120 mm	212 mm
		80+45 mm	219 mm
		100+30 mm	224 mm
		100+35 mm	229 mm
		140 mm	232 mm
		100+45 mm	239 mm
		120+30 mm	244 mm
		120+35 mm	249 mm
		160 mm	252 mm
		120+45 mm	259 mm
		140+30 mm	264 mm
		140+35 mm	269 mm
		180 mm	272 mm
140+45 mm	279 mm		
30 + 160 mm	284 mm		
200 mm	292 mm		
30 + 180 mm	304 mm		
220 mm	312 mm		
30 + 200 mm	324 mm		

Table 1

Distal Femoral Resection with Stems, Collars, and Segments

* Each large taper connection adds 2 mm to the total length.

** Distal Femoral XT has the same resection lengths as the original Distal Femur design.

*** Size C Segmental Distal Femoral is 60 mm tall. Resect an additional 2 mm beyond the total length of resection listed in the table above for the Size C.

		Stem Diameter (mm)										
		9	10	11	12	13	14	15	16	17	18	19
Stem IM Length	Stem Type	130 mm Straight (Fluted & Variable Stiffness)										
		190 mm Straight (Fluted)										
		190 mm Bowed (Variable Stiffness)										
		250 mm Bowed (Fluted)										

Table 2a
Stem Types and Lengths

Ream the Femoral Canal

Ream the femoral canal until the reamer contacts cortical bone in the isthmus. For a straight stem, use the straight reamers from the VerSys Hip System. For a bowed stem, flexible reamers from the Pressure Sentinel® Intramedullary Reaming System are recommended. Use the Pressure Sentinel Reamer Expanded Hip Set (00-2228-000-03) or the ZMR® Flexible Reamer Set (00-9975-000-11).

If preferred, the flexible reamers can also be used for a straight variable stiffness stem to allow for point contact in the canal. The intramedullary lengths of the stems are listed in the chart above (Table 2a). Ream to a depth greater than the intramedullary length to allow proper seating of the stem collar on the cortical bone and placement of a cement restrictor if using a fluted stem.

Stem Size	Minimum Ream Diameter (Fluted)	Minimum Ream Diameter (Variable Stiffness)
9 mm	11 mm	8.5 mm
10 mm	12 mm	9.5 mm
11 mm	13 mm	10.5 mm
12 mm	14 mm	11.5 mm
13 mm	15 mm	12.5 mm
14 mm	16 mm	13.5 mm
15 mm	17 mm	14.5 mm
16 mm	18 mm	15.5 mm
17 mm	19 mm	16.5 mm
18 mm	20 mm	17.5 mm
19 mm	21 mm	18.5 mm

Table 2b
Recommended reamer diameters

Variable Stiffness Straight Stems

For optimal fit, the segmental $\frac{3}{4}$ mm reamers may be used.

Flexible reamers may be used to allow for point contact in the canal.

If insertion is difficult, consider reaming an additional time with the final reamer diameter used.

Note: The diameters indicated for the segmental variable stiffness stems represent the actual outer diameters of the stems which include the height of the splines. The diameter of the reamed canal should be 0.5 mm smaller than the labeled stem size to provide for apposition of the distal splines with the femoral canal (Table 2b).

Note: When using a bowed variable stiffness stem, it may be necessary to ream the intramedullary canal to a diameter equal to or slightly greater than the diameter of the stem to accommodate any difference between the bow of the stem prosthesis and the anatomy of the patient.

Note: The diameters indicated for the segmental fluted stems represent the actual outer diameters of the stem. Therefore, the diameter of the definitive stem should be 2 mm smaller than that of the largest reamer to allow for an adequate cement mantle (Table 2b).

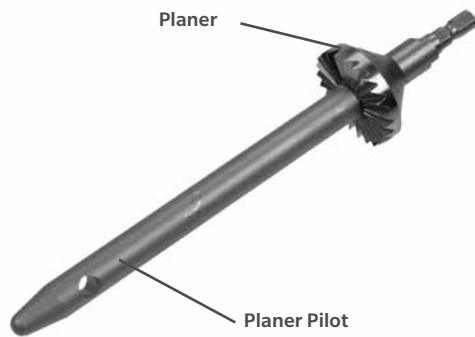


Figure 7

Stem Size	Planer Pilot Diameter (Fluted)	Planer Pilot Diameter (Variable Stiffness)
9 mm	9 mm	8 mm
10 mm	10 mm	9 mm
11 mm	11 mm	10 mm
12 mm	12 mm	11 mm
13 mm	13 mm	12 mm
14 mm	14 mm	13 mm
15 mm	15 mm	14 mm
16 mm	16 mm	15 mm
17 mm	17 mm	16 mm
18 mm	18 mm	17 mm
19 mm	19 mm	18 mm

Table 3
Recommended Planer Pilot Diameters

Plane the Femoral Bone

Based on the selected stem diameter, thread the appropriately sized segmental planer pilot (130 mm long) onto the femoral/tibial planer (Figure 7).

If the anatomy requires the use of a shorter planer pilot, use the 75 mm length segmental planer pilots. If the canal is bowed, use the shorter planer pilots from the segmental variable stiffness stem instrument kit (KT-5853-008-00). A planer pilot 1–2 mm smaller than the stem diameter chosen can be used to facilitate insertion into a curved medullary canal (Table 3). Attach the assembly to a power driver with a Zimmer adapter. Plane the resected distal femur until the cortical bone is smooth and flat.

To aid in removing the planer pilot from the planer, insert the pin on the segmental collar provisional sizer through the cross-hole and, while securing the noncutting end of the planer, turn the shank counterclockwise.

Segmental Planer Pilot
(See ZSS Profiler)
00-5851-070-XX



Segmental Planer
5100-00-052



Segmental Collar Provisional Sizer
00-5853-056-10



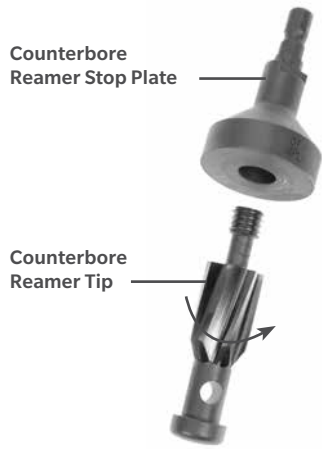


Figure 8

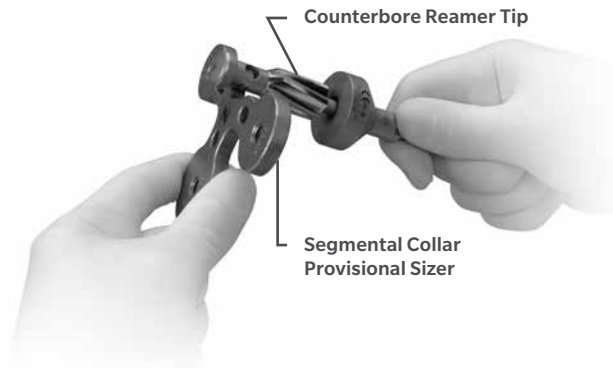


Figure 9



Figure 10

Counterbore the Femoral Canal (Variable Stiffness Stems Only)

The full diameter of a variable stiffness stem proximal to the splines will be 0.5 mm greater than the reamed diameter of the femoral canal. Counterboring this proximal portion is required for proper insertion of the stem in the intramedullary canal.

Thread the appropriate size counterbore reamer tip into the counterbore stop plate (Figure 8).

Insert the assembly into a power driver. Insert the pin on the segmental collar provisional sizer through the cross-hole of the counterbore reamer tip and turn the collar to tightly secure it to the counterbore stop plate (Figure 9).

Insert the assembly into the reamed canal and counterbore the proximal canal (Figure 10). The counterbore stop plate will serve as a stop when the appropriate depth is achieved. **Do not over ream or elongate the hole.**

Counterbore Reamer Tip
(See ZSS Profiler)
00-5851-073-XX





Counterbore Reamer Stop Plate
00-5851-073-01



Segmental Collar Provisional Sizer
00-5853-056-10



Stem Collar Compatibility Table

Stem Diameter	Smooth Collar (Item #)	Trabecular Metal Collar (Item #) (Dimension A)
9–16 mm		30 mm for 9–16 mm Stems (00-5852-042-09)
		25 mm for 9–16 mm Stems (00-5852-040-25)
		30 mm for 9–16 mm Stems (00-5852-040-30)
17–19 mm		35 mm for 9–16 mm Stems (00-5852-040-35)
		30 mm for 17–19 mm Stems (00-5852-041-30)
		35 mm for 17–19 mm Stems (00-5852-041-35)

Stem Size	Provisional Stem Diameter (Fluted)	Provisional Stem Diameter (Variable Stiffness)
9 mm	9 mm	8 mm
10 mm	10 mm	9 mm
11 mm	11 mm	10 mm
12 mm	12 mm	11 mm
13 mm	13 mm	12 mm
14 mm	14 mm	13 mm
15 mm	15 mm	14 mm
16 mm	16 mm	15 mm
17 mm	17 mm	16 mm
18 mm	18 mm	17 mm
19 mm	19 mm	18 mm

Table 4
Recommended stem provisional diameters

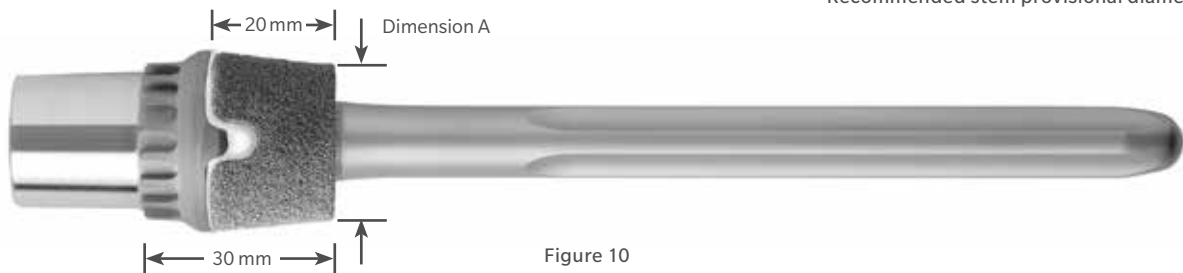


Figure 10

Step Two: Prepare the Tibia

To prepare the tibia for use with the NexGen RH Knee, refer to the Zimmer NexGen RH Knee Primary/Revision Surgical Technique (97-5880-002-00, revision 4 or later).

Step Three: Prepare the Patella

To resurface the patella, refer to the steps in the Zimmer NexGen RH Knee Primary/Revision Surgical Technique (97-5880-002-00, revision 4 or later). Other surgical techniques that may be helpful are those for the Zimmer Patella Reamer, the Augmentation Patella, and the Trabecular Metal Primary Patella.

Step Four: Assemble Provisional Components and Perform Trial Reduction

Stem Extension Provisional Assembly

Use the segmental collar provisional sizer to select the collar size that provides the best coverage of the bone surface. If using a nonporous collar, only the 30 mm diameter collar is available. As an option, the collar sizer may be threaded onto the selected planer pilot to facilitate collar selection. Select the appropriate stem provisional (Table 4).

Segmental Planer Pilot
(See ZSS Profiler)
00-5851-070-XX



Segmental Collar Provisional Sizer
00-5853-056-10



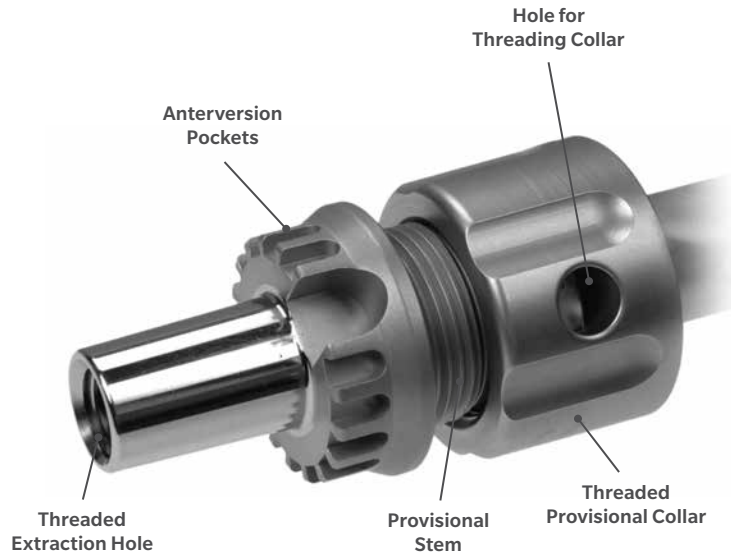


Figure 11

Stem Extension Provisional Assembly (cont.)

Confirm that the stem and stem collar sizes are compatible (Table 4) and thread the segmental collar provisional onto the selected segmental stem provisional (Figure 11).

ⓘ **Note:** The diameters of the segmental stem provisionals represent the actual diameters of the stems, i.e. a 14 mm stem provisional has a nominal 14 mm outer diameter.

ⓘ **Note:** The same segmental straight stem provisionals (130 mm) are used for both the 130 mm segmental fluted straight stem and the 130 mm variable stiffness straight stem, although, when trialing, a diameter 1 mm less than the stem to be implanted is recommended for the segmental variable stiffness stems.

ⓘ **Technique Tip:** Check the fit of the stem extension provisional assembly by inserting it into the reamed canal. For a bowed canal, it may be necessary to perform additional reaming, possibly causing the next smaller stem size to be utilized.

Segmental Stem Provisional Bowed
(See ZSS Profiler)
00-5853-054-XX



Segmental Stem Provisional Straight
(See ZSS Profiler)
00-5853-05X-XX



Collar Provisional
(See ZSS Profiler)
00-5853-056-XX



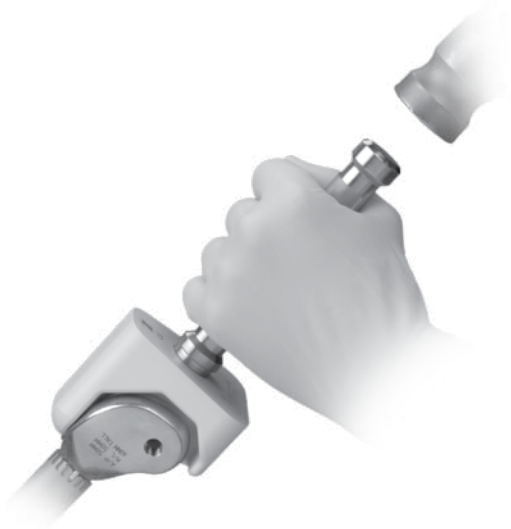


Figure 12

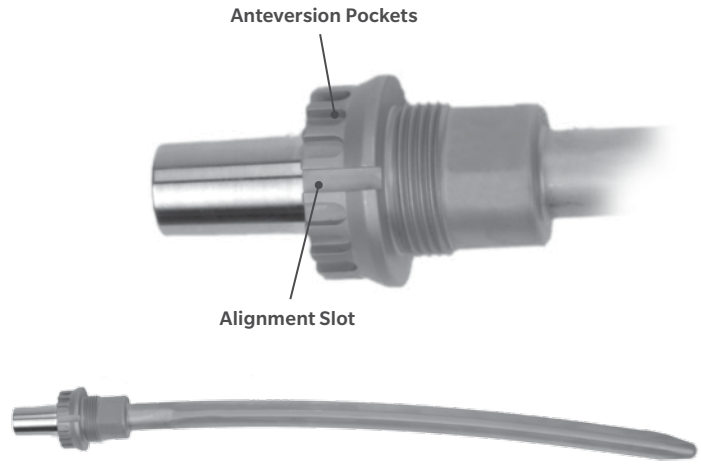


Figure 13

Femoral Provisional Assembly and Insertion

After verifying that all sizes are correct, assemble the provisional femoral components. The components can be assembled either on the back table or in vivo.

Back-table Assembly

For back-table assembly, place the segmental distal femoral provisional into the segmental condyle impactor. If using a segment provisional, place the male taper into the female taper of the distal femoral provisional. Using the appropriate segmental implant/provisional male or female impactor and the universal impactor handle, impact the segment provisional onto the distal femur. Next attach the stem provisional to the segment provisional or femoral provisional using the appropriate impactor. Ensure that all tabs on the provisional components are properly engaged in the corresponding pockets. Use gauze to protect the stem tip and impact with a mallet.

In Vivo Assembly

Alternatively, the femoral provisionals may be assembled sequentially in vivo. If necessary, the universal impactor handle can be threaded into the base of the segmental condyle impactor (Figure 12).

Insert the femoral provisional assembly into the femoral canal and evaluate the fit. If necessary to achieve full seating, use the segmental condyle impactor, the universal impactor handle, and a mallet to lightly impact the distal end of the segmental distal femoral provisional (Figure 13). Evaluate the fit of the stem collar on the bone surface to determine if the stem is fully seated. Assess the orientation of the distal femoral provisional and determine whether a rotation adjustment is necessary. If desired, the femoral component can be slightly externally rotated based on the anterior femur and linea aspera to facilitate patellar tracking.

If a bowed stem is being used, mark the femoral bone in line with the alignment slot on the mediolateral side of the segmental bowed stem provisional to provide a locator for proper orientation of the implant (Figure 13).

Segmental Stem Provisional Bowed (See ZSS Profiler) 00-5853-054-XX



Segmental Stem Provisional Straight (See ZSS Profiler) 00-5853-05X-XX



Segmental Implant/ Provisional Male Taper Impactor (Stem Impactor) 00-5851-080-00



Segmental Implant/ Provisional Female Taper Impactor (Segment Impactor) 00-5851-074-02



Segmental Distal Femoral Provisional (See ZSS Profiler) 00-5851-01X-XX



Segmental Condyle Impactor 00-5851-074-00



Segment Provisional (See ZSS Profiler) KT-5853-004-00



Universal Handle 6216-01-125



Collar Provisional (See ZSS Profiler) 00-5853-056-XX



Mallet 00-0155-002-00



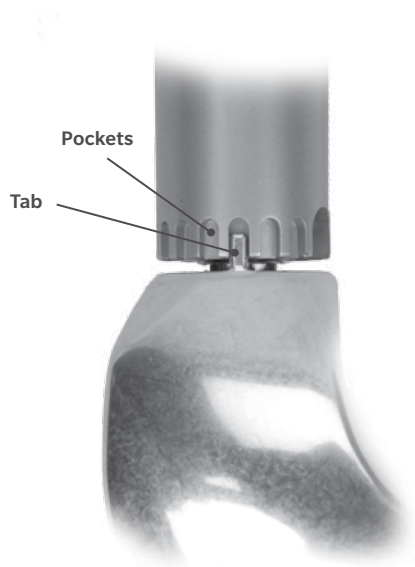


Figure 14

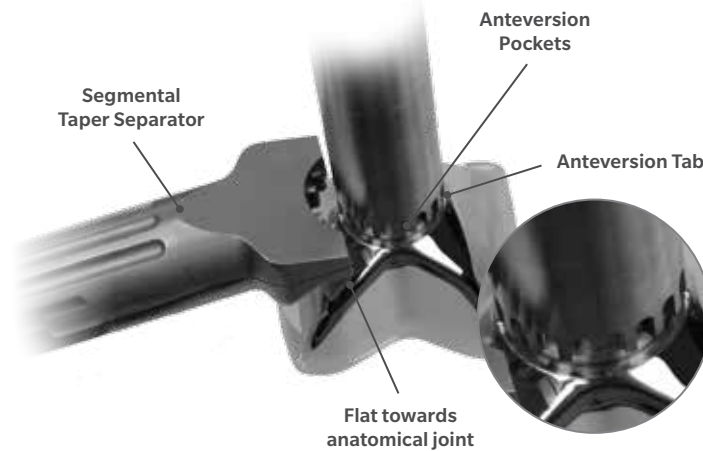


Figure 15

Femoral Version Adjustment

If a rotation adjustment is necessary, use the segmental taper separator to disassemble the provisional taper. The anteversion pockets and tabs on the provisional components allow the component rotation to be adjusted in a controllable manner in 20-degree increments (Figure 14).

Using the Segmental Taper Separator

Before employing the segmental taper separator, make sure that the inside wedging portion of the instrument is fully retracted and centered within its housing. To orient the instrument correctly, insert the tabs of the separator into the anteversion pockets with the flat of the separator toward the anatomical joint as etched on the instrument (Figure 15). Slowly turn the handle clockwise until the tapers are disengaged, taking care not to pinch fingers against the rotating impactor cap. If necessary, lightly tap the impactor cap on the instrument to facilitate taper disassembly.

Note: If the taper connection is tight, use the taper separator technique of impaction on the impactor cap, followed by a quarter turn on the taper separator handle, followed by impaction, followed by another quarter turn of the handle and then impaction, to be continued until the taper loosens. Additionally, two taper separators may be used on contralateral sides of the connection at once on a tight taper connection to loosen the taper connection, if the size of the wound allows access.

Note: To protect the taper integrity of the femoral provisional components, use only the segmental taper separator with the turning handle when disassembling the femoral provisional construct.

Segmental Taper Separator
00-5851-020-00



Segmental Stem Provisional Bowed (See ZSS Profiler)
00-5853-054-XX



Segmental Stem Provisional Straight (See ZSS Profiler)
00-5853-05X-XX

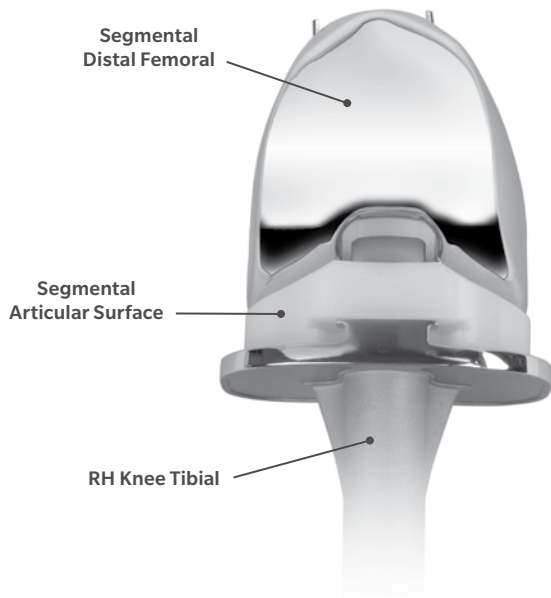


Segment Provisional (See ZSS Profiler)
KT-5853-004-00



Collar Provisional (See ZSS Profiler)
00-5853-056-XX





		Segmental Distal Femoral Size	
		B*	C*
RH Knee Tibial Size	1	B/123456	C/123456
	2	B/123456	C/123456
	3	B/123456	C/123456
	4	B/123456	C/123456
	5	B/123456	C/123456
	6	B/123456	C/123456

*Segmental Distal Femoral XT has the same compatibility as the original Segmental Distal Femoral. XT uses the same provisionals as the current design as well.

Table 5
Interchangeability Chart: Segmental Knee System
(using an RH Knee Tibial Component)

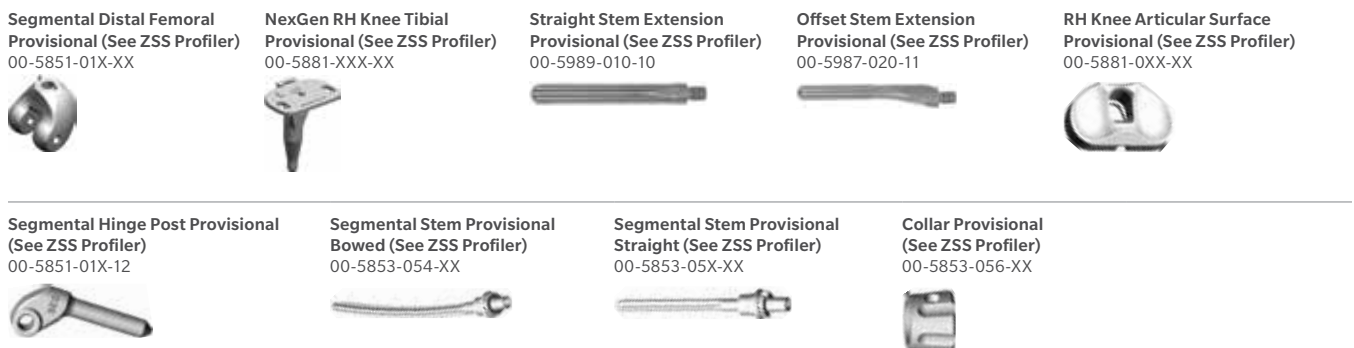
Tibial Provisional Assembly and Insertion

Assemble the NexGen RH Knee tibial provisional components and NexGen stem extension provisional (for the provisional tibia), if applicable. Use the provisionals from the RH Knee Articular Surface Provisional Instrument Set (Kit# 5979-04). Remember that the exact size on the femoral provisional must match the size of the articular surface provisional. The size on the tibial provisional must be appropriate for the size of the femoral provisional and tibial articular surface provisional (Table 5).

Note: When using a large tibia component paired with a small femoral component, some portion of the tibia base plate will be visible under the articulating surface. This is normal.

Insert the tibial provisional construct into the tibial canal and then insert the appropriate size articular surface provisional. Place the knee through a full range of motion to evaluate soft tissue tension and knee stability. A thicker articular surface provisional should be used if necessary to correctly balance the knee.

Note: The segmental distal femoral component and the RH Knee tibial components are linked, forcing the tibia to be in alignment directly under the femur (on the mechanical axis) by virtue of the one-piece hinge post that links the femoral and tibial components.



Trial Reduction

When assessing hyperextension during trial reduction, use only the segmental one-piece hinge post provisionals, which have gold color on their superior ends, with the segmental distal femoral provisional. This is important because these hinge post provisionals incorporate the thickness of the segmental polyethylene insert into the design. Using a one-piece hinge post provisional without the gold color on its end, will not provide an accurate assessment of hyperextension during trial reduction.

Insert the segmental one-piece hinge post provisional into the articular surface provisional and tibial provisional before attaching to the femoral provisional.

The hinge post provisional must match the femoral provisional size. Use the segmental hinge pin aligner to align the hole in the hinge post provisional with those on each side of the femoral provisional.

While maintaining the position, remove the aligner and insert the segmental distal femoral bolt provisional using the 4.5 mm hex driver to secure the bolt into the femoral provisional.

The femoral provisional rotation should be evaluated and adjusted, if necessary. Leg holders should not be used during the assembly process.

Insert the appropriate patellar provisional if patellar resurfacing is being performed. Conduct a complete evaluation of range of motion. Evaluate the patellar tracking, and palpate the posterior soft tissues to ensure that there is not excessive tension. To avoid causing damage to nerve and vascular structures, do not pull too hard on the leg. Assess the rotation of the limb and, if necessary, adjust the rotation of the components. Then perform any necessary soft tissue releases.

<p>Segmental Distal Femoral Provisional (See ZSS Profiler) 00-5851-01X-XX</p> 	<p>NexGen RH Knee Tibial Provisional (See ZSS Profiler) 00-5881-XXX-XX</p> 	<p>Straight Stem Extension Provisional (See ZSS Profiler) 00-5989-010-10</p> 	<p>Offset Stem Extension Provisional (See ZSS Profiler) 00-5987-020-11</p> 	<p>RH Knee Articular Surface Provisional (See ZSS Profiler) 00-5881-0XX-XX</p> 	<p>Segmental Hinge Post Provisional (See ZSS Profiler) 00-5851-01X-12</p> 
<p>Segmental Stem Provisional Bowed (See ZSS Profiler) 00-5853-054-XX</p> 	<p>Segmental Stem Provisional Straight (See ZSS Profiler) 00-5853-05X-XX</p> 	<p>Collar Provisional (See ZSS Profiler) 00-5853-056-XX</p> 	<p>Segmental Hinge Pin Aligner 00-5851-084-00</p> 	<p>Segmental Distal Femoral Bolt Provisional 00-5851-012-07</p> 	<p>Screw Driver (4.5 mm) 00-5881-026-00</p> 

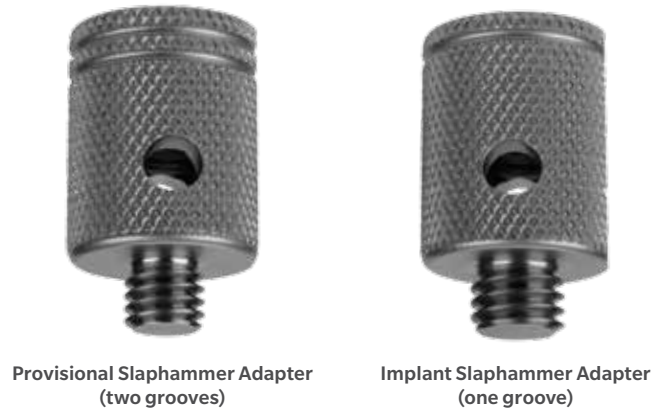


Figure 16

Provisional Disassembly

Remove the patellar provisional, if used, segmental distal femoral bolt provisional, segmental one-piece hinge post provisional, and articular surface provisional. Manually attempt to remove the femoral provisional, segment provisional, if used, and the stem provisional. If these components cannot be removed manually, use the segmental taper separator to loosen the taper between the stem and the femoral provisional or segment provisional, if used.

Thread the provisional slaphammer adaptor (Figure 16) onto the slaphammer and thread into the stem provisional. Impact the slaphammer to remove the stem provisional. Then remove the tibial base plate provisional and associated extension provisional, if used.

Segmental Distal Femoral Provisional
(See ZSS Profiler)
00-5851-01X-XX



Segment Provisional
(See ZSS Profiler)
KT-5853-004-00



NexGen RH Knee Tibial Provisional
(See ZSS Profiler)
00-5881-XXX-XX



Straight Stem Extension Provisional
(See ZSS Profiler)
00-5989-010-10



Offset Stem Extension Provisional
(See ZSS Profiler)
00-5987-020-11



Segmental Hinge Post Provisional
(See ZSS Profiler)
00-5851-01X-12



Segmental Distal Femoral Bolt Provisional
(See ZSS Profiler)
00-5851-012-07



Screw Driver (4.5 mm)
00-5881-026-00



Segmental Taper Separator
00-5851-020-00



Provisional Slaphammer Adapter
00-5851-097-12



Slaphammer
00-6551-006-00



		Segmental Femoral Size	
		B*	C*
RH Knee Tibial Size	1	B/123456	C/123456
	2	B/123456	C/123456
	3	B/123456	C/123456
	4	B/123456	C/123456
	5	B/123456	C/123456
	6	B/123456	C/123456

*Segmental Distal Femoral XT has the same compatibility as the original Segmental Distal Femoral. XT uses the same provisionals as the current design as well.

Table 6
Interchangeability Chart: Segmental Knee System
(using an RH Knee Tibial Component)



Figure 17

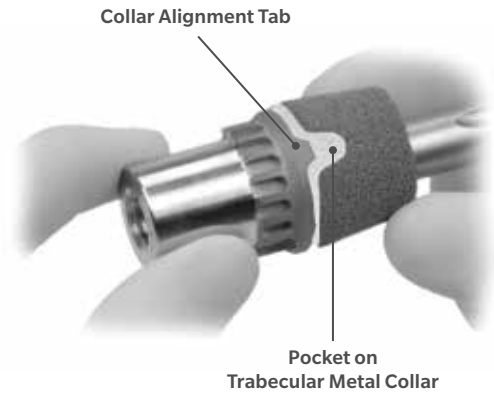


Figure 18

Step Five: Assemble Implants

- ⓘ **Note:** Remove any debris from tapers prior to assembly of the tapered components.
- ⓘ **Note:** If implanting the variable stiffness stem/collar/segment/distal femoral assembly separately, DO NOT impact the segment or stem to the distal femur at this time. Please proceed to the next section “Stem Extension Assembly.”

Distal Femoral Assembly

Before assembling the final components, verify the accuracy of the implants selected and the compatibility of all component sizes (Figure 2 and Table 6).

Assemble the femoral and tibial components as described in the provisional assembly step before mixing the cement. If segments will be used, rest the distal condyles of the femoral component on the segmental condyle impactor (Figure 17). Align the anteversion tabs, and use the segmental implant/provisional male or female impactor, the universal impactor handle, and a mallet to solidly impact the segment into the femoral component.

- ⓘ **Note:** Avoid notching, scratching, or directly striking the implants during assembly.

With the femoral component resting on the segmental condyle impactor on the back table, ensure that all anteversion tabs are properly aligned. For a fluted stem, protect the end of the stem with gauze during impaction. Then use a mallet to solidly impact the stem into the femoral component or segment.

When impacting the variable stiffness stem into the distal femoral component or segment, the variable stiffness stem impaction sleeve must be used to avoid damaging the prongs on the variable stiffness stem tip.

Slide the variable stiffness stem impaction sleeve over the stem until the notches on the sleeve capture the collar alignment tabs on the stem base. Use a two-pound mallet to solidly strike the impaction head of the sleeve. This will impact the stem into the femoral component or segment. Use the cementing technique described for fluted stems (Figure 18) to cement the collar to the variable stiffness stem.

Segmental Implant/
Provisional Male Taper
Impactor (Stem Impactor)
00-5851-080-00



Segmental Implant/
Provisional Female Taper
Impactor (Segment Impactor)
00-5851-074-02



Segmental Condyle
Impactor
00-5851-074-00



Universal Handle
6216-01-125



Mallet
00-0155-002-00



Variable Stiffness
Stem Impaction Sleeve
00-5853-074-05



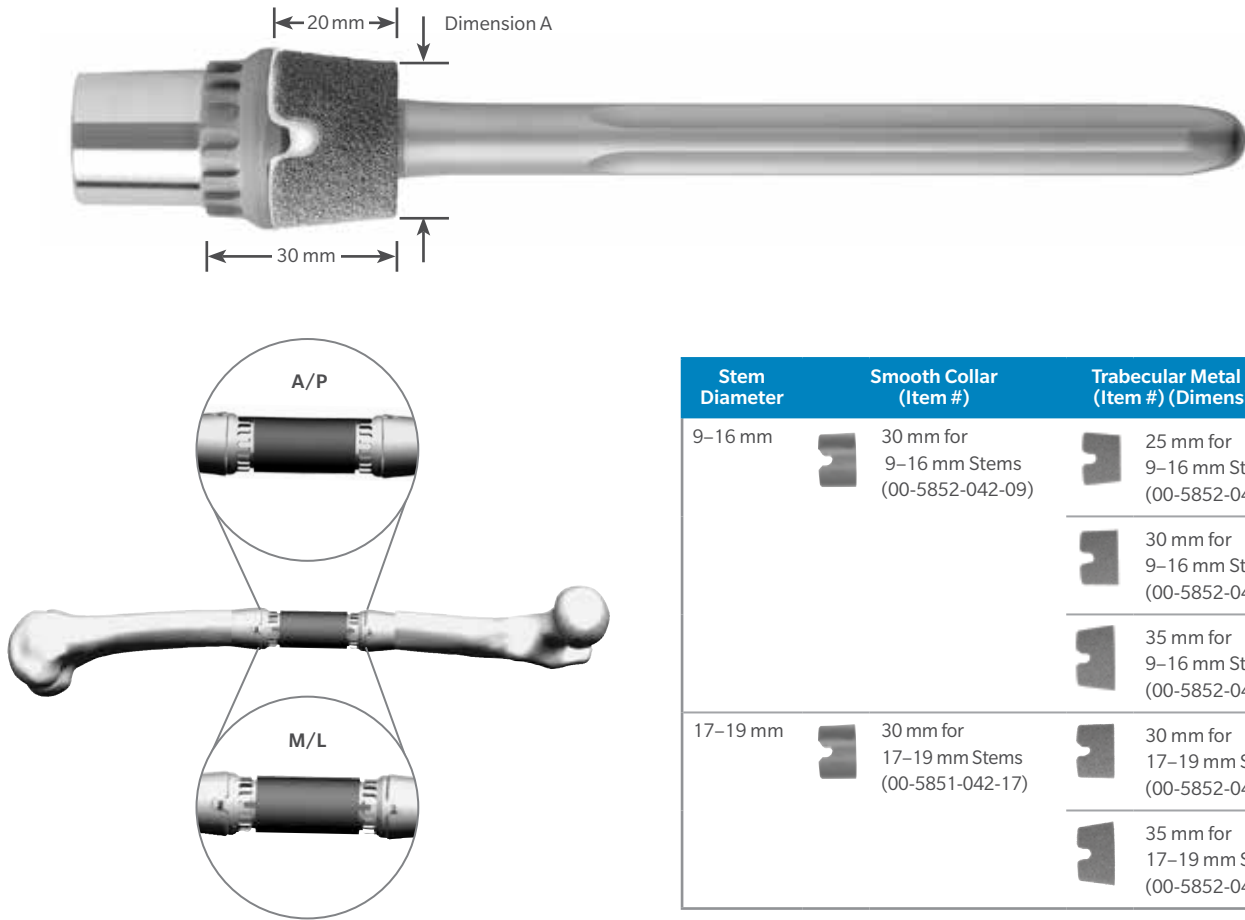


Figure 19

Stem Diameter	Smooth Collar (Item #)	Trabecular Metal Collar (Item #) (Dimension A)
9–16 mm	30 mm for 9–16 mm Stems (00-5852-042-09)	25 mm for 9–16 mm Stems (00-5852-040-25)
		30 mm for 9–16 mm Stems (00-5852-040-30)
		35 mm for 9–16 mm Stems (00-5852-040-35)
17–19 mm	30 mm for 17–19 mm Stems (00-5851-042-17)	30 mm for 17–19 mm Stems (00-5852-041-30)
		35 mm for 17–19 mm Stems (00-5852-041-35)

Table 7
Stem Collar Compatibility Table

- ⓘ **Note:** Impacting the taper more than once may loosen the taper connection.
- ⓘ **Note:** Do not strike the tip of the variable stiffness stem with any instrument as this may damage the distal tines.
- ⓘ **Note:** Position the segment anteversion tabs in either the A/P or M/L direction to facilitate access for the segmental taper separator (Figure 19).

Stem Extension Assembly

- ⓘ **Note:** All segmental stems must be used with collars, and all collars must be cemented to the stems. Refer to Table 7 for an overview of stem and collar combinations. Be sure to verify compatibility of the collar with the stem size being used on the product label before the implant packages are opened.

- ⓘ **Technique Tip:** Consider using two mixes of bone cement. The first can be used to cement the collar to the stem. Once the cement has set, the stem/collar assembly can be inserted as a unit. The second mix can be used to cement the stem/collar assembly (if using a fluted stem), tibial component, and patellar component.
- ⓘ **Technique Tip:** If using a fluted (cemented) stem, insert the stem implant into the intramedullary canal before cementing the collar to confirm that the stem will fully seat. Clean off the stem prior to cementing the collar.

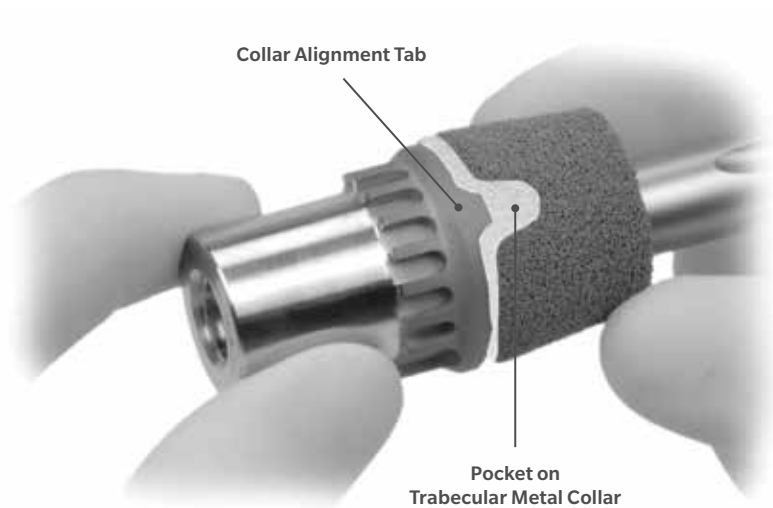


Figure 20

For a fluted stem, apply cement in the doughy state to the base/taper end of the stem. Slide the stem collar over the stem and advance it to the shank area where cement was applied. Clean off excess cement as the collar is advanced. Care should be taken to prevent cement from contacting the taper, the anteversion adjustment pockets, and the external surfaces of Trabecular Metal material. Collars must be assembled to the stem with the pockets toward the anatomical joint and engaged into the tabs on the stem (Figure 20). Allow the cement to fully harden before inserting into the distal femoral component.

Proximal Tibial Assembly

To assemble the NexGen RH Knee tibial component, refer to the Zimmer NexGen RH Knee Primary/Revision Surgical Technique (97-5880-002-00, revision 4 or later).

If the segmental proximal tibial component will be used, refer to the Zimmer Segmental System Trabecular Metal Proximal Tibial Component Surgical Technique (97-5850-006-00).

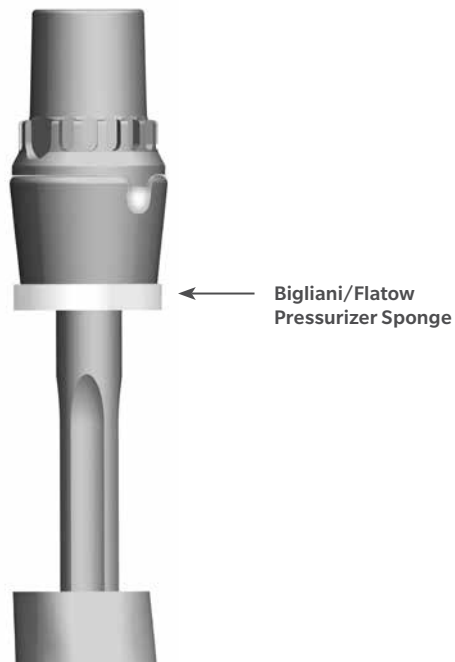


Figure 21

Step Six: Insert Implants

Implanting the Fluted Stem/Collar/Segment/ Distal Femoral as a Single Unit

Before final implantation, verify that the properly sized components (segmental polyethylene insert, segmental hinge pin, segmental one-piece hinge post, segmental articular surface, segmental stem, and segmental segments) have been used in the assemblies, as determined when using provisionals.

If desired, use a plastic cement restrictor to permit the cement to be manually pressurized after cementing the collar onto the stem. A Bigliani/Flatow[®] Pressurizer Sponge (00-4301-035-01) may be used to prevent cement from extruding out of the femoral canal and onto the face of the Trabecular Metal collar that contacts the planed surface of the femoral cortex (Figure 21). If using this technique, after the cement that secures the collar to the stem has cured, slide the sponge onto the stem until it contacts the base of the Trabecular Metal collar. Inject cement into the intramedullary canal.

Apply cement to the shank of the stem to ensure adequate cement coverage at the implant/bone interface. Attach the universal impactor handle to the segmental condyle impactor. Use this impactor and a mallet to tap the implant until fully seated. Clean off excess cement as the femoral implant assembly is inserted. Be careful to keep cement off of the external surfaces of the smooth or Trabecular Metal collars, the entire surface of the tapers, and the crevices of the anteversion adjustment pockets. If using the Bigliani/Flatow Pressurizer Sponge, remove the sponge just prior to the collar sitting flush with the prepared cortex and prior to the cement curing. Fully seat the stem, taking care not to leave any foam material in the wound or on the Trabecular Metal Material's surface. Do not implant the pressurizer sponge.

Note: Cement must be added to the base of the smooth collar where it contacts the bone.

Bigliani/Flatow Pressurizer Sponge
00-4301-035-01



Universal Handle
6216-01-125



Segmental Condyle Impactor
00-5851-074-00



Mallet
00-0155-002-00



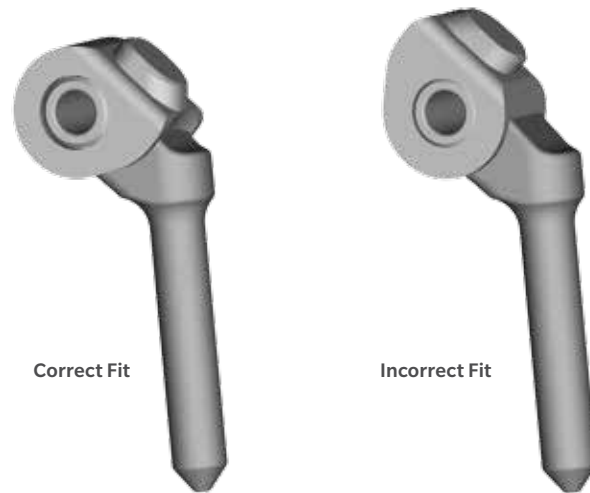


Figure 22

Other Components

To implant the tibial component, refer to the NexGen RH Knee Primary/Revision Surgical Technique (97-5880-002-00, revision 4 or later). To implant the patellar component, refer to “Step Three: Prepare the Patella.” The articular surface provisional may be inserted and the knee placed in extension while the cement is setting to maintain compression on the components.

Segmental Polyethylene Insert/Hinge Post Orientation

The size of the segmental polyethylene insert must match the femoral size selected. If the XT distal femoral is going to be utilized, the XT poly insert (box) must be used. If the standard distal femoral component (non-XT) is going to be utilized, the standard poly insert (box) components (non-XT) must be used. Attach the segmental polyethylene insert or XT polyethylene insert to the segmental one-piece hinge post by spreading the sides of the polyethylene insert out slightly and pressing it over the hinge post until it snaps into place. The holes in the polyethylene insert must match the bosses on the hinge pin bushing to assure proper orientation (Figure 22). If attached backwards, the segmental polyethylene insert or XT polyethylene

insert and segmental one-piece hinge post will not fit easily within the segmental distal femoral component without interference.

Once the cement has set, remove the articular surface provisional, if used. Insert the final segmental articular surface. The segmental articular surface is packaged with a mating hinge post that ensures a 40 mm jump height. Do not use a hinge post from another articular surface size.

⚠ Warning: Do not use segmental system components (such as the segmental one-piece hinge post) with NexGen RH Knee articular surfaces. They were not designed to be compatible.

Attach the hinge post assembly (with segmental polyethylene insert or XT polyethylene insert snapped on) to the segmental distal femoral component. Insert the hinge post assembly (with segmental polyethylene insert snapped on) into the tibial component before attaching it to the femoral component. Then follow the steps below to lock the hinge post to the femoral component.



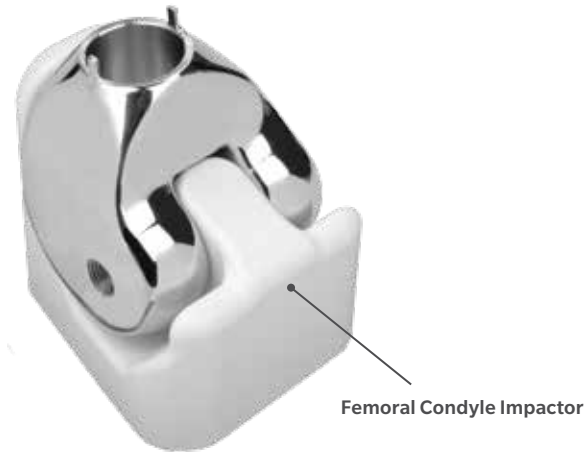


Figure 23

Implanting the Variable Stiffness Stem/Collar/Segment/Distal Femoral as Single Unit

After cementing the collar onto the stem (see previous section “Stem Extension Assembly” for details), insert the construct into the femoral canal. Use the segmental condyle impactor (Figure 23) with the universal impactor handle attached and a mallet to tap the implant until fully seated.

Note: Cement must be added to the base of the smooth collar where it contacts bone.

As the stem advances into the canal, use the vertical mark on the bone to assess rotational alignment. If the stem fits too tightly in the bone, consider removing the stem and passing the last reamer used through the canal several more times. This can help to increase the canal diameter slightly, which will permit the stem to be more easily impacted into the bone.

Implanting the Variable Stiffness Stem/Collar Assembly and the Segment/Distal Femur Assembly Separately

After cementing the collar onto the stem, insert the stem/collar assembly into the femoral canal and use the segmental implant/provisional male taper impactor (assembled to the universal impactor handle) and a mallet to tap the stem implant until fully seated.

Note: Cement must be added to the base of the smooth collar where it contacts bone.

As the stem advances into the canal, use the vertical mark on the bone to assess rotational alignment. If the stem fits too tightly in the bone, consider removing the stem and passing the last reamer used through the canal several more times. This can help to increase the canal diameter slightly, which will permit the stem to be more easily impacted into the bone.

Note: Remove any debris from tapers prior to assembly of tapered components.

Segmental Implant/Provisional
Male Taper Impactor (Stem Impactor)
00-5851-080-00



Segmental Condyle Impactor
00-5851-074-00



Universal Handle
6216-01-125



Mallet
00-0155-002-00



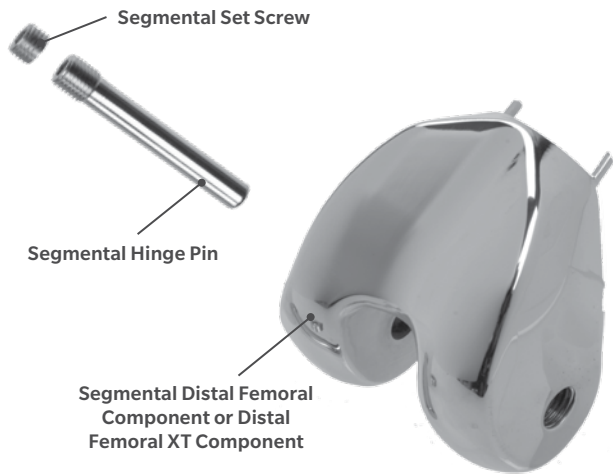


Figure 24

If using a segment, assemble it to the distal femur using the segmental condyle impactor. Impact the assembly together with the segmental implant/provisional female taper impactor assembled to the universal impactor handle. Use a mallet to firmly tap the tapers to the seated position.

Place the distal femoral assembly onto the stem taper, and use the segmental condyle impactor (with universal handle) and a mallet to tap the two assemblies together until fully seated.

Locking the Hinge Post to the Femoral Component

Use the segmental hinge pin aligner to align the hole in the hinge post with the holes of the femoral implant. Then remove the aligner. Use the 4.5 mm hex driver to insert and thread the segmental hinge pin through the hole of the femoral implant (Figure 24). Make sure that the pin crosses through the hole in the hinge post bushing. The hinge pin may be inserted either medially or laterally into the femoral component. Use the RH Knee



Figure 25

torque wrench with the blue handle and 4.5 mm hex driver to tighten the hinge pin to 130 in-lbs within the patient. While torquing the hinge pin, watch the stylus on the wrench until it reaches the 130 line, then stop (Figure 25). Insert the segmental hinge pin set screw on the same side as the hinge pin (Figure 24) and use the RH Knee torque wrench with the blue handle and 4.5 mm hex driver to torque the set screw to 130 in-lbs within the patient. While torquing the set screw, watch the stylus on the wrench until it reaches the 130 line then stop (Figure 25).

⚠ Caution: Do not torque the hinge-pin or set screw beyond 130 in-lbs or damage to the hex-drive or driver will occur.

ⓘ Note: Stretching the knee to insert the hinge post shank into the tibia (back-table hinge post assembly) is not recommended. In vivo assembly of the hinge pin to the hinge post is required with the segmental distal femorals.

Segmental Hinge Pin Aligner
00-5851-084-00



Screw Driver (4.5 mm)
00-5881-026-00



Torque Wrench
00-5881-027-00



Segmental Implant/Provisional
Female Taper Impactor
(Segment Impactor)
00-5851-074-02



Universal Handle
6216-01-125



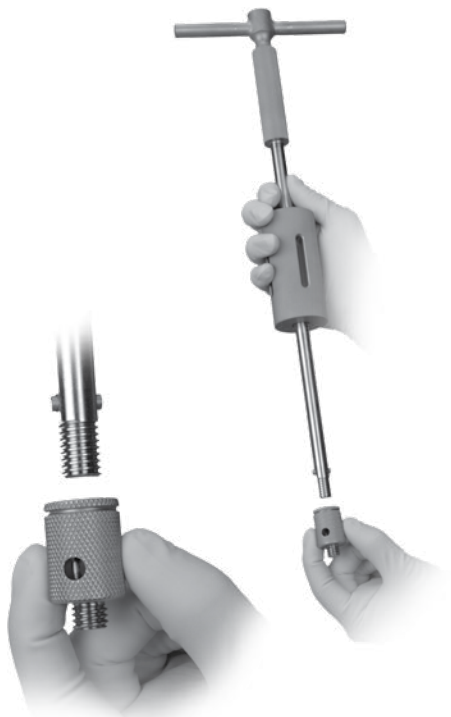


Figure 26

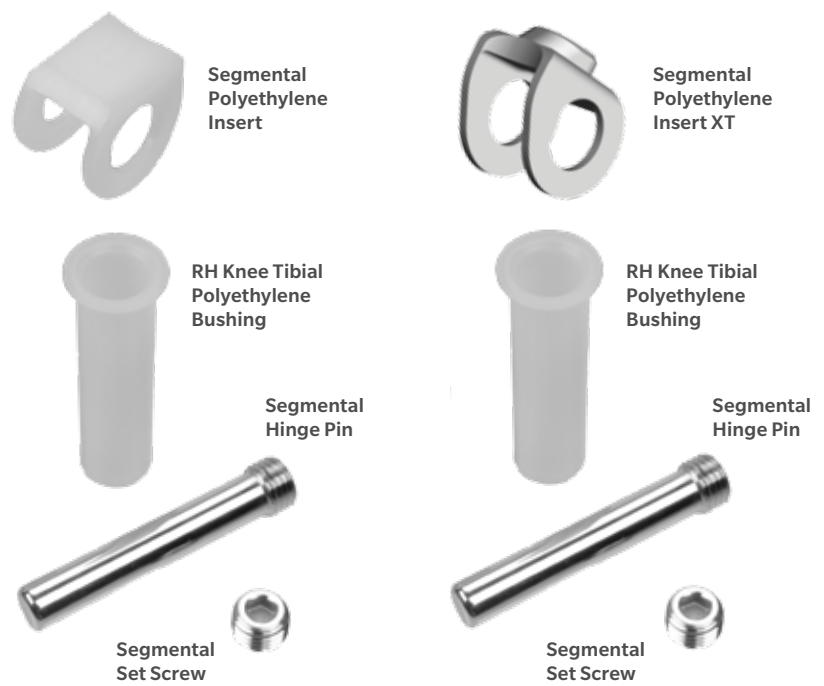


Figure 27

Figure 28

Step 7: Disassembly

If disassembly is necessary during surgery, the segmental taper separator is designed to enable separation of the junctions between segments, stems, and femoral implants without damaging the tapers. Refer to “Using the Segmental Taper Separator” under “Femoral Version Adjustment” in Step Four for instructions related to the segmental taper separator.

For stem removal, thread the implant slaphammer adaptor (Figure 26) onto the slaphammer and thread it into the stem. Impact the slaphammer to remove the stem.

Step 8: Closure

Before closing, thoroughly cleanse the surgical site of bone chips, bone cement, and any other debris. Foreign particles at the articular interface may cause excessive wear.

A Segmental Hinge Servicing Kit (Figure 27) or a Segmental Hinge Servicing Kit XT (Figure 28) is available if a component is dropped or damaged during surgery. This kit is also used during revisions of the segmental XT hinge. In addition, the segmental polyethylene insert and segmental polyethylene insert XT are available as a separate package from the kit.

Note: Do not use the polyethylene insert XT with the segmental distal femur (original design) and vice versa, they are not compatible.

Segmental Taper Separator
00-5851-020-00



Slaphammer
00-6551-006-00



Implant Slaphammer Adapter
00-5851-097-11





Figure 29

Using the Segmental One-piece Hinge Post with the NexGen RH Knee

Refer to the NexGen Rotating Hinge Knee Surgical Technique (97-5880-002-00, revision 4 or later) (Figure 29) to use the segmental one-piece hinge post with the NexGen RH knee.

Proximal Femur	Distal Femoral***	Male-Male Segments	Male-Female Segments	Total Length*
80 mm	58 mm** Size B	80 mm	-	222 mm
		90 mm	-	232 mm
		80 mm	30 mm	254 mm
		80 mm	35 mm	259 mm
		90 mm	30 mm	264 mm
		90 mm	35 mm	269 mm
		90 mm	40 mm	274 mm
		90 mm	45 mm	279 mm
		80 mm	60 mm	284 mm
		90 mm	55 mm	289 mm
		80 mm	30 + 35 mm	291 mm
		90 mm	60 mm	294 mm
		90 mm	30 + 35 mm	301 mm
		80 mm	80 mm	304 mm
		90 mm	30 + 40 mm	306 mm
		80 mm	40 + 45 mm	311 mm
		90 mm	80 mm	314 mm
		90 mm	40 + 45 mm	321 mm
		80 mm	100 mm	324 mm
		80 mm	60 + 45 mm	331 mm
		90 mm	100 mm	334 mm
		90 mm	60 + 45 mm	341 mm
		200 mm	-	342 mm
		80 mm	120 mm	344 mm
		90 mm	80 + 35 mm	351 mm
		90 mm	120 mm	354 mm
		90 mm	80 + 45 mm	361 mm
		80 mm	100 + 40 mm	366 mm
		80 mm	100 + 45 mm	371 mm
		200 mm	30 mm	374 mm
		90 mm	100 + 60 mm	376 mm

Table 8
Total Femoral Replacement

Total Femoral Replacement

For total femoral replacement, the Zimmer Segmental System is compatible with the Zimmer NexGen RH Knee tibial baseplate (see Figure 2).

Implant Configuration

In the event that a total femur is required, the procedures for a proximal femur replacement and distal femur replacement are essentially combined. The suggested procedures are performed after a routine approach has been performed for opening and exposing the

Proximal Femur	Distal Femoral***	Male-Male Segments	Male-Female Segments	Total Length*
80 mm	58 mm** Size B	200 mm	35 mm	379 mm
		200 mm	40 mm	384 mm
		200 mm	45 mm	389 mm
		90 mm	100 + 60 mm	396 mm
		80 mm	140 + 35 mm	401 mm
		200 mm	60 mm	404 mm
		80 mm	140 + 45 mm	411 mm
		90 mm	180 mm	414 mm
		90 mm	140 + 45 mm	421 mm
		200 mm	80 mm	424 mm
		200 mm	40 + 45 mm	431 mm
		90 mm	200 mm	434 mm
		90 mm	160 + 45 mm	441 mm
		200 mm	100 mm	446 mm
		200 mm	60 + 45 mm	451 mm
		90 mm	220 mm	454 mm
		90 mm	180 + 45 mm	461 mm
		200 mm	120 mm	464 mm
		200 mm	80 + 45 mm	471 mm
		90 mm	200 + 40 mm	476 mm
		90 mm	200 + 45 mm	481 mm
		200 mm	140 mm	484 mm
		200 mm	100 + 45 mm	491 mm
		90 mm	200 + 60 mm	496 mm
		90 mm	220 + 45 mm	501 mm
		200 mm	160 mm	504 mm
		200 mm	120 + 45 mm	511 mm
		90 mm	220 + 60 mm	516 mm
		200 mm	140 + 35 mm	521 mm
		200 mm	180 mm	524 mm

Total femur with segments table

* Note: Each large taper connection adds 2 mm to the total length.
 ** Size C Segmental Distal Femoral is 60 mm tall. Resect an additional 2 mm beyond the total length of resection listed in the table above for the Size C.
 *** Distal Femoral XT has the same resection lengths as the original Distal Femur design.

acetabulum, femur, and proximal tibia. It is critical that leg length be checked and noted before any bone resection. Care should be taken during reconstruction to avoid stretch injury to the neurovascular structures.

Note: If needed, please reference the Segmental System scope compatibility chart (Figure 2) for system cross-compatibilities.

Determine the implant configuration based on the estimated length of the femur (Table 8).



Figure 30

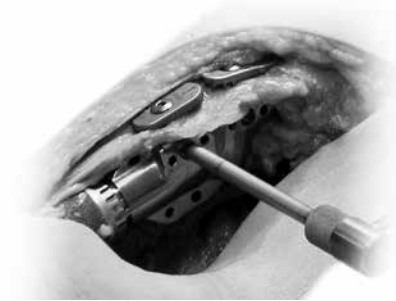


Figure 31a



Figure 31



Figure 31b

Proximal Femoral Options

The Zimmer Segmental System offers three solutions for proximal femoral replacement (Figure 30) with various tissue attachment options (Figure 31, 31a and 31b), including tissue attachment washers for the Trabecular Metal Material components.

The standard proximal femoral component has suture holes on both the medial and lateral aspects of the prosthesis.

The Trabecular Metal proximal femoral component offers solutions for attaching both trochanteric bone and/or soft tissue to the prosthesis. Multiple tissue attachment washer options are available depending on the type and thickness of remaining tissue. Soft tissue may also be attached to the prosthesis via suture holes on both medial and lateral sides.

The Zimmer Segmental System proximal femoral components are compatible with all Zimmer Segmental System segments. The segmental proximal femoral components can be anteverted in 20-degree increments to enhance proximal joint stability using the anteversion alignment features between either the proximal femoral component or the distal femoral component and the segmental femoral/tibial segments (Refer to the Zimmer Segmental Proximal Femoral Components and Intercalary Segments Surgical Technique for instructions and compatibility).

Distal Femoral Replacement

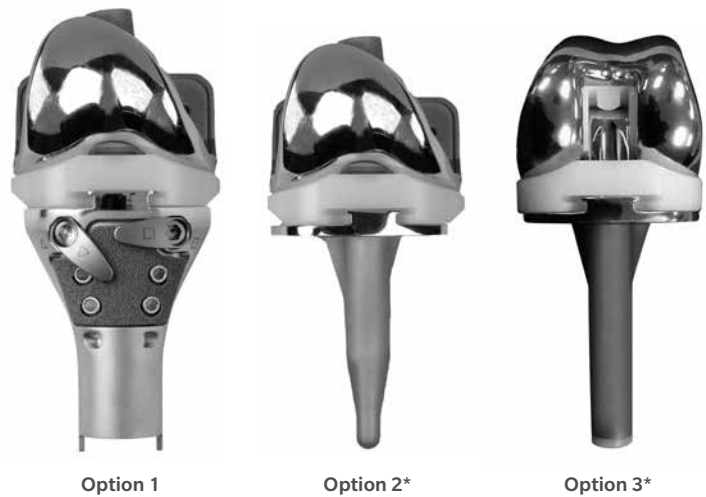
To replace the distal femur, begin with Step 4: Assembly Provisional Components and perform trial.



Figure 32

Proximal Tibial Replacement

The Zimmer Segmental System includes a Trabecular Metal tibial component that enables tissue attachment to the implant via sutures and/or arms included in the optional tissue attachment kit (Figure 32). Please refer to the Zimmer Segmental System Proximal Tibial Surgical Technique.



Option 1: Segmental Trabecular Metal Proximal Tibial Component

Option 2: NexGen RH Knee Non-Modular Proximal Tibial Component*

Option 3: NexGen RH Knee Modular Proximal Tibial Component*

* Refer to NexGen RH Knee Surgical Technique (97-5880-002-00 revision 4 or later)

Note: Segmental Distal Femoral not pictured

Figure 33
Proximal Tibial Replacement Options





The Trabecular Metal tibial component may be implanted with the NexGen Rotating Hinge Knee distal femoral component or the segmental distal femoral component (Figure 33). A total femoral replacement can also be performed using the NexGen RH Knee proximal tibial components (Figure 33).

Appendix A

NexGen RH Knee & Segmental Articular Surface/Hinge Kit Compatibilities

Picture/Item Number	Item Description	Use On/With	Do Not Use With/Why
1  00-5850-020_060-12_26	Segmental Articular Surface <ul style="list-style-type: none"> • Segmental One piece Hinge Post • Segmental Articular Surface Piece 	Segmental Distal Femoral and XT(00-5850-012_013-01/02), (00-5850-042_043-01/02) Segmental Trabecular Metal Proximal Tibial (00-5850-001_003-10) NexGen RH Knee Distal Femoral (00-5880-012_016-01/02) NexGen RH Knee Tibial Plate (00-5880-001_006-00/02) Segmental Articular Surface can be used with the NexGen RH Knee Hinge Post Extension (from Item 2 below) EXCEPT with the Trabecular Metal Proximal Tibial (see next page for the Servicing Kit Compatibility Chart)	Segmental One-piece Hinge Post with NexGen RH Knee Articular Surface Piece <ul style="list-style-type: none"> • Mating components are not compatible RH Knee Modular Hinge Post Extension + Segmental Articular Surface + Segmental Trabecular Metal Proximal Tibial <ul style="list-style-type: none"> • Only Segmental One-piece Hinge Post is indicated with the Segmental Trabecular Metal Proximal Tibial
2  00-5880-020_060-12_26	NexGen RH Knee Articular Surfaces <ul style="list-style-type: none"> • NexGen RH Knee Hinge Post Extension • NexGen RH Knee Articular Surface Piece 	NexGen RH Knee Distal Femoral NexGen RH Knee Tibial Plate	Segmental Distal Femoral and XT Segmental Trabecular Metal Proximal Tibial Segmental One-piece Hinge Post <ul style="list-style-type: none"> • Mating components are not compatible
3  00-5850-075-12_16	NexGen RH Knee <u>Cement Shield</u> Hinge Service Kit <ul style="list-style-type: none"> • Poly Insert with Shield • Shoulder Bolt Hinge Pin • Hinge Pin Plug • Tibial Bushing 	NexGen RH Knee Distal Femoral with Segmental Articular Surface & Segmental One-Piece Hinge Post (Item 1 above)	NexGen RH Knee Distal Femoral with NexGen RH Knee Hinge Post Extension <ul style="list-style-type: none"> • Mating components are not compatible
4  00-5850-070-12_13	Segmental Hinge Service Kit <ul style="list-style-type: none"> • Segmental Poly Insert • Segmental Hinge Pin • Segmental Hinge Pin Set Screw • Tibial Bushing 	Segmental Distal Femoral Segmental Articular Surface with Segmental One-piece Hinge Post (Item 1 above)	NexGen RH Knee Distal Femoral <ul style="list-style-type: none"> • Mating components are not compatible • Segmental Distal Femoral XT

NexGen RH Knee & Segmental Articular Surface/Hinge Kit Compatibilities (cont.)

Picture/Item Number	Item Description	Use On/With	Do Not Use With/Why
<p>5</p>  <p>00-5880-090-12_16</p>	<p>NexGen RH Knee Hinge Service Kit</p> <ul style="list-style-type: none"> • Poly Box Insert • Hinge Post • Shoulder Bolt Hinge Pin • Hinge Pin Plug • Tibial Bushing 	<p>NexGen RH Knee Distal Femoral</p> <p>NexGen RH Knee Articular Surface and RH Knee Hinge Post Extension (Item 2 above)</p>	<p>Segmental Distal Femoral and XT</p> <p>NexGen RH Knee Distal Femoral with Segmental One-piece Hinge Post</p> <ul style="list-style-type: none"> • Mating components are not compatible
<p>6</p>  <p>00-5850-012_013_96</p>	<p>Segmental Poly Insert XT</p>	<p>Segmental Distal Femoral XT</p> <p>Segmental Articular Surface with Segmental One-Piece Hinge Post (Item 1 above)</p>	<p>NexGen RH Knee Distal Femoral</p> <ul style="list-style-type: none"> • Mating components are not compatible <p>Segmental Distal Femoral</p>
<p>7</p>  <p>00-5850-071-12_13</p>	<p>Segmental Hinge Service Kit XT</p> <ul style="list-style-type: none"> • Segmental Poly Insert • Segmental Hinge Pin • Segmental Hinge Pin Set Screw • Tibial Bushing 	<p>Segmental Distal Femoral XT</p> <p>Segmental Articular Surface with Segmental One-Piece Hinge Post (Item 1 above)</p>	<p>NexGen RH Knee Distal Femoral</p> <ul style="list-style-type: none"> • Mating components are not compatible <p>Segmental Distal Femoral</p>
<p>8</p>  <p>00-5850-012_013-95</p>	<p>Segmental Poly Insert</p>	<p>Segmental Distal Femoral</p> <p>Segmental Articular Surface with Segmental One-piece Hinge Post (Item 1 above)</p>	<p>Distal Femoral</p> <ul style="list-style-type: none"> • Mating components are not compatible <p>Segmental Distal Femoral XT</p>

Appendix B



Figure 34



Figure 35

Servicing the Hinge of a Well-fixed Segmental Distal Femoral or Segmental Distal Femoral XT

Removing the Hinge Pin and Components

Disconnect the hinge post by untorquing the set screw and hinge pin, utilizing the 4.5 mm screw driver (00-5881-026-00) with the torque wrench (00-5881-027-00) or with the wrench (00-5881-054-00). Remove the articular surface from the construct. Remove the tibial bushing from the tibial plate stem with the tibial bushing remover (Figure 34) 00-5881-055-00, found in instrument kits KT-5979-005-00 and 00-5979-005-00. Be careful to avoid scratching the tibial plate surface.

Implanting the tibial bushing using the Segmental Distal Femoral or Distal Femoral XT Hinge Servicing Kit

Insert the new tibial bushing from the Segmental Distal Femoral or Distal Femoral XT Hinge Servicing Kit and press into place until the top of the bushing lip is flush with the tibial plate surface (Figure 35).





Torque Wrench
00-5881-027-00



Screw Driver (4.5 mm)
00-5881-026-00



Servicing Kit Compatibility Chart

RH Knee	Hinge Servicing Kit Used	Compatible Articular Surfaces and Hinge Components	
 <p>Base Component System</p>	 <p>NexGen RH Knee Hinge Servicing Kit</p>	 <p>NexGen RH Knee Articular Surface (with the Hinge Post Extension)</p>	<p>Segmental Articular Surface (with the Hinge Post)</p>  <p>DISCARD</p> <p>OR</p>  <p>DISCARD</p> <p>Segmental Articular Surface with the Segmental One-Piece Hinge Post</p> <p>Note: Articular surfaces must be of the same size and thickness for Segmental and RH knee in this scenario.</p> <p>NexGen RH Knee Articular Surface (with the Hinge Post Extension)</p>
 <p>Base Component System</p>	 <p>NexGen RH Knee <u>Cement Shield</u> Servicing Kit</p>	 <p>Segmental Articular Surface with the Segmental One-Piece Hinge Post</p>	

References

1. Internal data on file at Zimmer Biomet.
2. ZRR_WA_2716_13

Magnetic Resonance (MR) Safety

The risks associated with these devices have been evaluated for safety and compatibility in the MR environment. The risks are known to include heating, migration, and image artifacts at or near the implant site. Scanning a patient who has this device may result in patient injury.

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