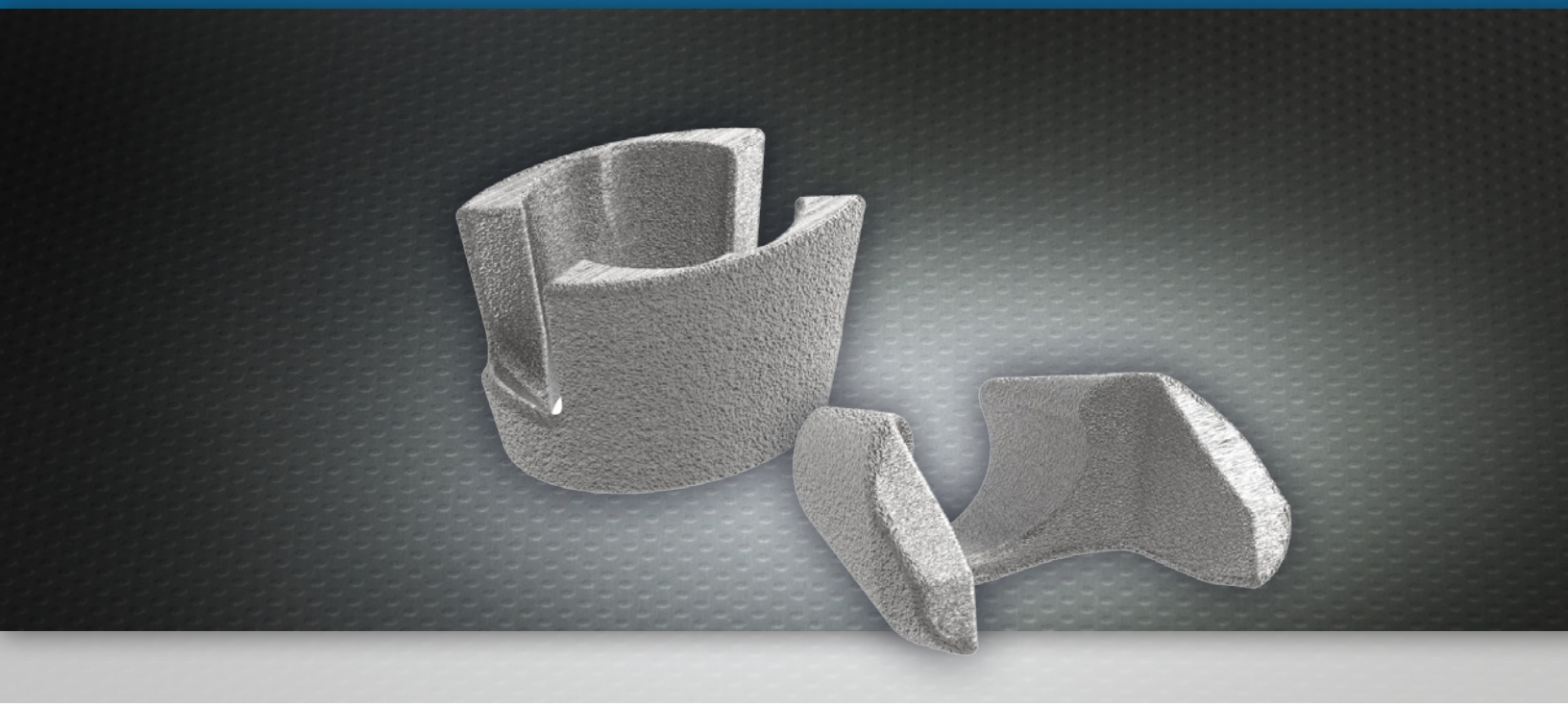
EXACTECH | KNEE

Operative Technique
ADDENDUM



OPTETRAK LOGIC®

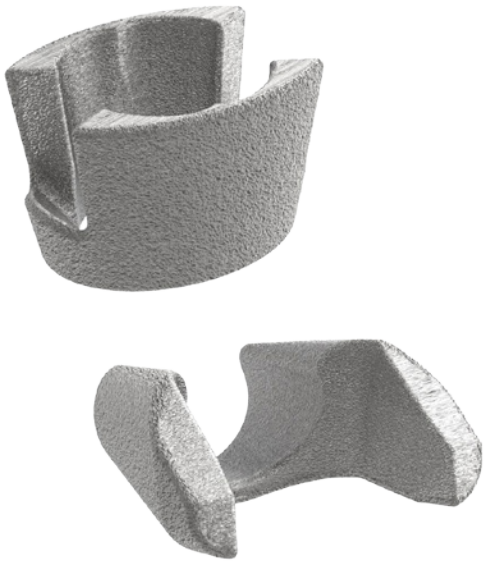
Metaphyseal Cones

Exactech® *Surgeon focused. Patient driven.™*

TABLE OF CONTENTS

OPTETRAK LOGIC® METAPHYSEAL CONES

OPERATIVE TECHNIQUE ADDENDUM



INTRODUCTION

This addendum provides detailed instructions for implantation of the Optetrak Logic® Metaphyseal Cones.

The objective of using metaphyseal cones is to achieve metaphyseal fixation in cases where bone stock is compromised. In revision situations, positioning of the femoral and tibial components is often dictated by the interaction of the stem extension and the intramedullary canal. Therefore, use of offset and/or straight stem extensions should be considered during the initial cone selection process.

The Logic Metaphyseal Cones feature instruments that reference the IM canal or offset position. This alignment feature ensures the position of the cone does not interfere with the final position of the femoral and tibial components. Furthermore, the instruments help the surgeon to remove bone only to the depth that matches the metaphyseal cone and to cut at a trajectory that matches the shape of the implant.

All steps should be completed up until this point as described in the Optetrak Logic CC Operative Technique.

DESCRIPTION

The Optetrak Logic Femoral and Tibial Metaphyseal Cones are designed for use with Optetrak Logic CC femoral components, Optetrak Trapezoidal Trays, Optetrak Logic Trapezoidal Trays, and Optetrak Logic Fit tibial trays in cases of severe bone loss. The Cones are intended for cementless or cemented fixation with the proximal tibial or distal femur and the final implant construct is completed by cementing a tibial tray or femoral component in place. The Optetrak Logic Femoral and Tibial Metaphyseal Cones are made from Titanium Alloy.

DETAILED OPERATIVE TECHNIQUE

INITIAL PREPARATION AND PLANNING

Tibial Cone Size	Compatible FIT Tibial Tray Size	Maximum Stem Extension Diameter			
		No Offset	2mm Offset	4mm Offset	6mm Offset
29mm	0-3	16	12	N/A	N/A
32mm	0-5	22	18	14	N/A
39mm	0-5	22	18	14	N/A
48mm	0-5	24	20	16	12
57mm	0-5	24	20	16	12
65mm*	0-5	24	20	16	12

Values in the table are the maximum allowable stem extension diameter without preassembly of the construct on the back table of the operating room.

**Special Order Only.*

Table 1
Tibial Compatibility Chart

INITIAL PREPARATION AND PLANNING

Prepare all the bone resections for the femur and tibia as described in the Logic CC Operative Technique. After assessing the fit of the femoral and tibial trials, stem extensions and any required augments, begin preparation for the metaphyseal cones.

If desired, preparation for the cones can be performed over a stem extension reamer at any time during the procedure. The reamer must be seated deep enough so that the cutting flutes do not interfere with the broach. This technique only works for straight stem extensions (no offset). Final cone depth and rotation should be considered based on the final positions of the femoral component and tibial tray. Follow the same steps as described below for preparing the bone for the cone implant.

With the trials in the joint, mark the tibial bone with a bovie or methylene blue to identify the center of the anterior aspect of the tibial baseplate. This will be important when determining the rotational freedom of the metaphyseal cones when broaching.

After marking the tibia, remove the femoral and tibial trials while leaving the stem extension trials in the diaphysis. It is critical that the stems do not move with regard to the offset position, since their location will guide the placement of the metaphyseal cones.

Femoral Cone Size	Compatible Logic CC Femoral Size	Maximum Stem Extension Diameter			
		No Offset	2mm Offset	4mm Offset	6mm Offset
Small H32	1-3	16	Limited**	Limited**	N/A
Small H42	1-3	16	Limited**	Limited**	N/A
Small H52	1-3	16	Limited**	Limited**	N/A
Medium H32	1-5	18	14	Limited**	N/A
Medium H42	1-5	18	14	Limited**	N/A
Medium H52	1-5	18	14	Limited**	N/A
Large H32	1-5	20	16	Limited**	N/A
Large H42	1-5	20	16	Limited**	N/A
Large H52	1-5	20	16	Limited**	N/A
X-Large H32*	1-5	20	16	Limited**	N/A
X-Large H42*	2-5	20	16	Limited**	N/A
X-Large H52*	2-5	20	16	Limited**	N/A

Values in the table are the maximum allowable stem extension diameter without preassembly of the construct on the back table of the operating room.

**Special Order Only.*

***Refer to Table 9 and Figure 21 in the Appendix for additional compatibility.*

Table 2
Femoral Compatibility Chart

It is important to review the compatibility charts *(Tables 1 and 2)* prior to preparing the bone for the metaphyseal cones. The combination of the femoral and/or tibial component size, as well as the selected stem extension and amount of offset required will determine the metaphyseal cones available. Review the compatibility prior to selecting the final offset and stem extension sizes to ensure the required cone will assemble appropriately.

The compatibility provided in *Tables 1 and 2* assumes the metaphyseal cone is implanted first, and then the femoral and tibial components are assembled and implanted into the cone. If additional offset and sizing options are desired, the implants can be trialed on the back table. If assembling the construct on the back table, verify with trials that the chosen stem does not interfere with the interior of the cone prior to preparation of the bone cavity.

Additional compatibility is available depending on the specific combination of implants, as well as the offset position. See appendix for more detail.

Metaphyseal tibial cones are available in six sizes, as shown in *Table 1.* The size corresponds to the M/L width of the cone.

Metaphyseal femoral cones are available in four sizes, with each size available in three different heights.

DETAILED OPERATIVE TECHNIQUE

TIBIAL BONE PREPARATION

Figure 1
Remove FIT Tray Trial

Figure 2
Metaphyseal Cone Broach Rod Assembly

TIBIAL BONE PREPARATION – TIBIAL SIZING

If only a Metaphyseal Femoral Cone is required, please proceed to the Femoral Bone Preparation section.

Once fit of the trial is assessed, use the **Hex Driver** to loosen the screws attaching the stem extension trial to the **FIT Tibial Tray Trial**. Attach the **CC Trial Extractor** to the **LPI Slaphammer** and insert the extractor into the tibial tray trial.

Turn it 90 degrees until the lock symbol is facing anteriorly and then remove the tibial tray trial while leaving the stem extension trial in the bone *(Figure 1)*.

Thread the **Metaphyseal Cone Broach Rod** into the **Stem Extension Trial** in the tibial bone *(Figure 2)*.

Figure 3
Tibial Sizing

Select a **Metaphyseal Tibial Cone Trial** that is approximately the correct size and depth of the defect. Invert the trial and place on the tibial plateau to identify the proximal void size *(Figure 3)*. Ensure the trial is centered on the broach rod for proper positioning.

Place the cone trial on the top of the Broach Rod, which indicates the center of the final tibial tray implant. Multiple cone trials are available to select the appropriate size. The selected trial size corresponds to the final broach size needed in the next step.

If the defect is deeper than 25mm, the tibial cones are able to be stacked to fill deeper tibial voids. If this application is necessary, the tibial cones are designed to be fixed together with bone cement.

Figure 4
Assemble Broach Handle

Figure 5
Tibial Broaching

TIBIAL BONE PREPARATION – BROACHING

Select the appropriate **Tibial Cone Broach** and attach it to the **Universal Handle** *(Figure 4)*. Slide the assembly over the Broach Rod. The Tibial Cone Broach size should have been determined in the tibial sizing step. The broach should be used for final preparation of the cone cavity using the alignment marks to determine rotation with respect to the marked center of the proximal tibia *(Figure 5)*. A smaller sized broach may be used at first moving to larger broaches to assist with cavity preparation.

Additional bone can be removed with a burr, osteotome, rongeur or a reamer to optimize fit. However, it is important to finish the tibial preparation with the broach to ensure the bone cavity will accommodate the implant.

Insert the Tibial Broach until the top or proximal portion of the broach teeth are at or below the proximal surface of the tibia. If using tibial augments, insert the broach until it is below the most distal portion of the proximal tibia.

Figure 6
Tibial Broaching - Stacking

	57mm Stack	48mm Stack	39mm Stack
Proximal Metaphyseal Cone	57mm	48mm	39mm
Distal Metaphyseal Cone	39mm	32mm	29mm

Table 3
Tibial Cone Stacking Compatibility

If it is necessary to stack tibial cones, broach to the stacking line on the broach. Only two cones may be stacked on one another *(Figure 6)*. When stacking tibial cones, it is required to upsize the second cone by two sizes. For example, a 29mm cone can be stacked with a 39mm cone, but not a 32mm. Please see *Table 3* for the complete stacking capabilities. When stacking cones, compatibility with stems and tibial trays is determined by the smallest cone size.

DETAILED OPERATIVE TECHNIQUE

TIBIAL BONE PREPARATION

Figure 7
Tibial Cone Trialing

Figure 8
Tibial Cone and Tray Trialing

TIBIAL BONE PREPARATION – TRIALING

Assemble the **Metaphyseal Tibial Cone Impactor** with the universal handle. Insert the appropriate Metaphyseal Tibial Cone Trial in the bone using the impactor assembly to assess the fit *(Figure 7)*. The broach rod can stay in the bone to guide the cone trial. After inserting the cone trial, remove the broach rod and the stem extension trial from the tibia. If a full trial reduction is desired, assemble the FIT Tibial Tray Trial with the appropriate stem extension and augments per the Logic CC Operative Technique and place on the tibial bone *(Figure 8)*.

If femoral cones are required, continue to the next step. If not, move to the Trial Removal section.

Figure 9
Remove Femoral Trial

Figure 10
Metaphyseal Cone Broach Rod Assembly

Figure 11
Femoral Sizing

FEMORAL BONE PREPARATION – FEMORAL SIZING

Once fit of the trial is assessed, use the hex driver to loosen the screws attaching the stem extension trial to the CC Femoral Trial. Attach the **CC Trial Extractor** to the LPI Slaphammer and insert the extractor into the CC Femoral Trial. Turn it 90 degrees until the lock symbol is facing anteriorly and then remove the femoral trial while leaving the stem extension trial in the bone *(Figure 9)*.

Thread the Metaphyseal Cone Broach Rod into the Stem Extension Trial in the femoral bone *(Figure 10)*.

Examine the femoral defect that is present by placing the Metaphyseal Femoral Cone Trial upside down on the distal femur to assess the size and orientation of the bony defect *(Figure 11)*. Place the trial over the top of the Broach Rod, which indicates the center of the final femoral implant. Ensure the trial is centered on the broach rod for proper positioning. Multiple cone trials are available to select the appropriate size. The selected trial size corresponds to the final broach size needed in the next step.

Figure 12
Assemble Broach Handle

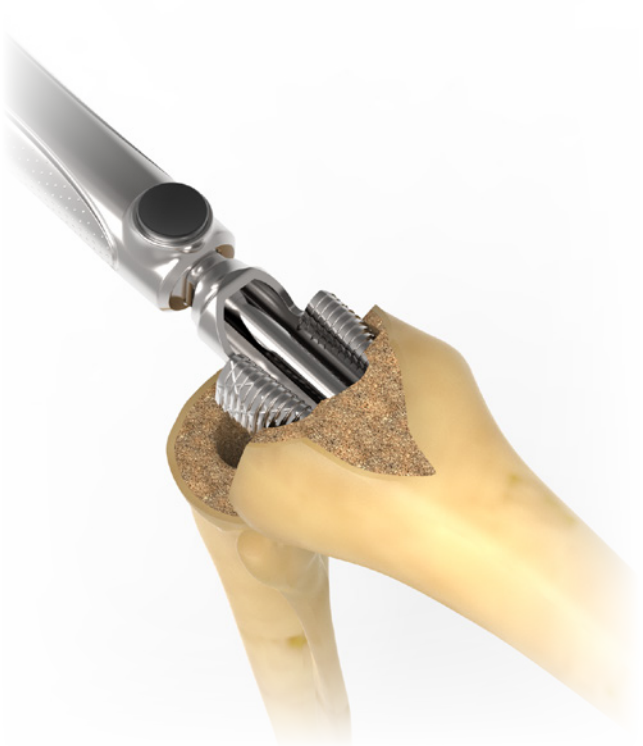


Figure 13
Femoral Broaching

FEMORAL BONE PREPARATION – BROACHING

Select the appropriate Femoral Cone Broach and attach it to the Universal Handle *(Figure 12)*. Slide the assembly over the Broach Rod. The Femoral Cone Broach size was determined in the femoral sizing step. The broach should be used for final preparation of the cone cavity. A smaller size broach may be used at first moving to larger broaches to assist with cavity preparation. It is important to minimize the rotation between the broach and the prepared bone to ensure the final implant will be oriented properly with appropriate clearance with the femoral component.

Additional bone can be removed with a burr, osteotome or a reamer to optimize fit. However, it is important to finish the femoral preparation with the broach to ensure the bone cavity will accommodate the implant.

Metaphyseal Femoral Cones are available in three different heights: 32, 42 and 52mm. Insert the Femoral Broach to the required depth to accommodate the desired cone. For example, if a 32mm trial is selected, broach until the 32mm mark is aligned with the most proximal portion of the femoral condyles *(Figure 13)*.

For example, if there is a 10mm distal medial augment and no augment on the lateral condyle, the desired broach depth should be read from the medial condyle.

Figure 14
Femoral Cone Trial Placement

Figure 15
Femoral Cone Trialing

Figure 16
Femoral Trialing

FEMORAL BONE PREPARATION – TRIALING

After preparing the bone, remove the broach rod and the stem extension trial from the tibia.

Insert the appropriate Metaphyseal Femoral Cone Trial in the bone. The Metaphyseal Femoral Cone Impactor may be used to aid in the assessment of the fit; however, do not impact the femoral cone trial *(Figures 14 and 15)*. Assemble the Logic CC Femoral Trial with the appropriate stem extension and augments per the main Logic CC Operative Technique and place in the femoral bone *(Figure 16)*.

It is recommended to insert the trial by hand. The impactor can be used for final insertion. Using the impactor for initial insertion can potentially alter the geometry of the bone cavity.

Figure 17
Trial Removal

TRIAL REMOVAL

Remove the Logic CC femoral and tibial component trials per the Logic CC Operative Technique.

Assemble the **Metaphyseal Cone Extractor** with the universal handle. Remove the trials from the bone by inserting the Extractor inside the cone trial *(Figure 17)*.

Optional: The stem extension trial can be left in the tibial canal and mated with the metaphyseal broach rod to aid with the placement of the tibial implant in the subsequent step.

Figure 18
Impact Tibial Cone

Figure 19
Impact Femoral Cone

Figure 20
Implant Cones

IMPLANT CONES

As a final check to ensure the cone implant is positioned properly, replace the fully assembled femoral and/or tibial trial into the bone cavity to ensure all of the components seat properly together. If the components do not mate properly, the cone implant should be removed and repositioned.

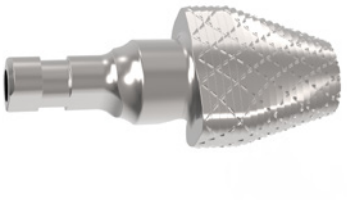
Assemble the appropriate Tibial or Femoral Cone Impactor with the Universal Handle. Insert the metaphyseal cone implants with the corresponding impactor *(Figures 18 – 20)*. When inserting the femoral cone, it is important to verify the cone is not implanted in flexion.

Assemble the femoral and tibial component implants per the Logic CC Operative Technique. Add cement to the internal cavity of the metaphyseal cones and implant the femoral and tibial component.

If desired, bone graft can be applied between the metaphyseal cones and bone.

INSTRUMENT LISTING

CATALOG NUMBER	PART DESCRIPTION
02-019-66-0110	Metaphyseal Femoral Cone Broach, Small
02-019-66-0120	Metaphyseal Femoral Cone Broach, Medium
02-019-66-0130	Metaphyseal Femoral Cone Broach, Large
02-019-66-0140	Metaphyseal Femoral Cone Broach, X-Large*



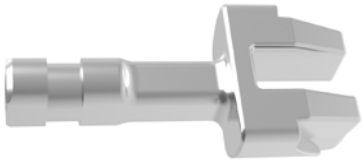
02-019-66-0210	Metaphyseal Tibial Cone Broach, ML29mm
02-019-66-0220	Metaphyseal Tibial Cone Broach, ML32mm
02-019-66-0230	Metaphyseal Tibial Cone Broach, ML39mm
02-019-66-0240	Metaphyseal Tibial Cone Broach, ML48mm
02-019-66-0250	Metaphyseal Tibial Cone Broach, ML57mm
02-019-66-0260	Metaphyseal Tibial Cone Broach, ML65mm*

02-011-66-1001	Metaphyseal Femoral Cone Trial, Small, H32mm
02-011-66-1002	Metaphyseal Femoral Cone Trial, Small, H42mm
02-011-66-1003	Metaphyseal Femoral Cone Trial, Small, H52mm
02-011-66-2001	Metaphyseal Femoral Cone Trial, Medium, H32mm
02-011-66-2002	Metaphyseal Femoral Cone Trial, Medium, H42mm
02-011-66-2003	Metaphyseal Femoral Cone Trial, Medium, H52mm
02-011-66-3001	Metaphyseal Femoral Cone Trial, Large, H32mm
02-011-66-3002	Metaphyseal Femoral Cone Trial, Large, H42mm
02-011-66-3003	Metaphyseal Femoral Cone Trial, Large, H52mm
02-011-66-4001	Metaphyseal Femoral Cone Trial, X-Large, H32mm*
02-011-66-4002	Metaphyseal Femoral Cone Trial, X-Large, H42mm*
02-011-66-4003	Metaphyseal Femoral Cone Trial, X-Large, H52mm*

02-013-66-1000	Metaphyseal Tibial Cone Trial, ML29mm
02-013-66-2000	Metaphyseal Tibial Cone Trial, ML32mm
02-013-66-3000	Metaphyseal Tibial Cone Trial, ML39mm
02-013-66-4000	Metaphyseal Tibial Cone Trial, ML48mm
02-013-66-5000	Metaphyseal Tibial Cone Trial, ML57mm
02-013-66-6000	Metaphyseal Tibial Cone Trial, ML65mm*

**Special Order Only*

CATALOG NUMBER	PART DESCRIPTION
02-019-66-0000	Metaphyseal Cone Universal Handle
02-019-66-0002	Metaphyseal Cone Broach Rod
02-019-66-0003	Metaphyseal Cone Extractor
02-019-66-0004	Metaphyseal Cone Tibial Impactor, Small
02-019-66-0005	Metaphyseal Cone Tibial Impactor
02-019-66-0006	Metaphyseal Cone Femoral Impactor, Small
02-019-66-0007	Metaphyseal Cone Femoral Impactor



APPENDIX

Table 4
FIT Tibial Tray Compatibility (X – indicates compatibilty)

Tibial Cone Size	FIT Tibial Tray Size												
	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
29mm	X	X	X	X	X	X	X						
32mm	X	X	X	X	X	X	X	X	X	X	X		
39mm	X	X	X	X	X	X	X	X	X	X	X		
48mm	X	X	X	X	X	X	X	X	X	X	X		
57mm	X	X	X	X	X	X	X	X	X	X	X		
65mm	X	X	X	X	X	X	X	X	X	X	X		

Table 5
Trapezoidal Tibial Tray Compatibility (X – indicates compatibility)

Tibial Cone Size	Trapezoidal Tibial Tray Size											
	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	6
29mm	X	X	X	X	X	X	X	X	X			
32mm	X	X	X	X	X	X	X	X	X	X	X	X
39mm	X	X	X	X	X	X	X	X	X	X	X	X
48mm	X	X	X	X	X	X	X	X	X	X	X	X
57mm	X	X	X	X	X	X	X	X	X	X	X	X
65mm	X	X	X	X	X	X	X	X	X	X	X	X

Table 6
Tibial Stem Compatibility

Values in the table are the maximum allowable stem extension diameter without preassembly of the construct on the back table of the operating room.

Tibial Cone Size	Offset			
	0	2	4	6
29mm	16	12	N/A	N/A
32mm	22	18	14	N/A
39mm	22	18	14	N/A
48mm	24	20	16	12
57mm	24	20	16	12
65mm	24	20	16	12

Table 7
Tibial Rotational Freedom

Tibial Cone Size	Rotational Freedom with Fit Tray or Trapezoidal Tray
29mm	±10°
32mm	±15°
39mm	±15°
48mm	±15°
57mm	±15°
65mm	*±15°*

Table 8
Logic CC Femoral Compatibility (X – indicates compatibility)

Femoral Cone Size	Logic CC Femoral Size				
	1	2	3	4	5
Small H32	X	X	X		
Small H42	X	X	X		
Small H52	X	X	X		
Medium H32	X	X	X	X	X
Medium H42	X	X	X	X	X
Medium H52	X	X	X	X	X
Large H32	X	X	X	X	X
Large H42	X	X	X	X	X
Large H52	X	X	X	X	X
X-Large H32	X	X	X	X	X
X-Large H42		X	X	X	X
X-Large H52		X	X	X	*X*

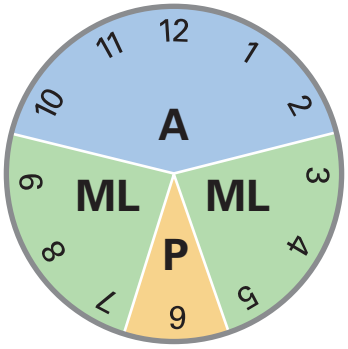
Table 9
Femoral Stem Compatibility

Values in the table are the maximum allowable stem extension diameter without preassembly of the construct on the back table of the operating room.

Femoral Cone Size	Offset									
	0	2			4			6		
		A	ML	P	A	ML	P	A	ML	P
Small	16	N/A	14	18	N/A	12	16	N/A	N/A	N/A
Medium	18	14	16	16	N/A	14	14	N/A	N/A	N/A
Large	20	16	20	24	N/A	18	22	N/A	N/A	N/A
X-Large	20	16	20	24	N/A	18	22	N/A	N/A	N/A

Figure 21
Femoral Offset Position

Blue - Anterior femoral offset (A)
Green - Mediolateral femoral offset (ML)
Orange - Posterior femoral offset (P)



Exactech, Inc. is proud to have offices and distributors around the globe. For more information about Exactech products available in your country, please visit www.exac.com

---

For additional device information, refer to the Exactech Knee System–Instructions for Use for a device description, indications, contraindications, precautions and warnings. For further product information, please contact Customer Service, Exactech, Inc., 2320 NW 66th Court, Gainesville, Florida 32653-1630, USA. (352) 377-1140, (800) 392-2832 or FAX (352) 378-2617.

Exactech, as the manufacturer of this device, does not practice medicine, and is not responsible for recommending the appropriate surgical technique for use on a particular patient. These guidelines are intended to be solely informational and each surgeon must evaluate the appropriateness of these guidelines based on his or her personal medical training and experience. Prior to use of this system, the surgeon should refer to the product package insert for comprehensive warnings, precautions, indications for use, contraindications and adverse effects.

Exactech®
Surgeon focused. Patient driven.™

GLOBAL HEADQUARTERS
2320 NW 66TH COURT
GAINESVILLE, FL 32653 USA

+1 352.377.1140
+1 800.EXACTECH
+1 352.378.2617
www.exac.com