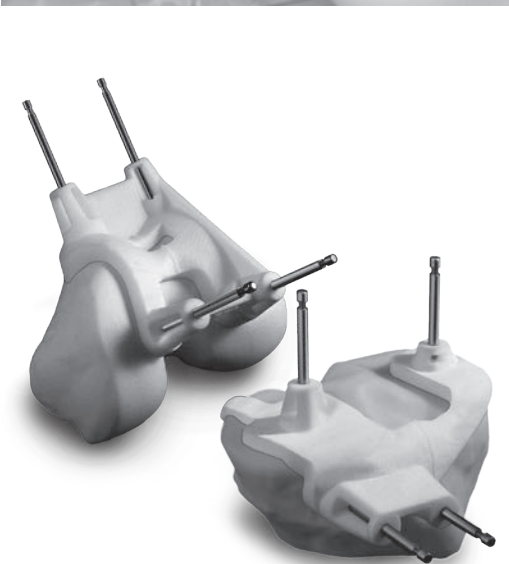





# Zimmer® Patient Specific Instruments


Surgical Techniques  
for NexGen® Complete  
Knee Solution




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## Introduction

### General Considerations

Zimmer PSI is not designed for use with the Zimmer® MIS Quad-Sparing™ Total Knee Procedure.

Zimmer PSI should be used in conjunction with a femur first technique.

Verify stability and fixation of all pins. When securing the conventional tibia cutting guides, avoid the use of spring pins as these may cause stress / unwanted shift on the tibia cutting guide.

## Position Femoral Pin Guide

Do not remove osteophytes from the femur.

Position the Pin Guide on the distal femur (**Fig. 1**).

Pin Guide will be captured by the anterior ridge of the femur.

The epicondylar axis and A/P axis reference lines on the Pin Guide can be used to assess alignment.

Apply posterior pressure to the Pin Guide and verify secure fit.

**Fig. 1**



## Drill and Pin the Anterior Pin Holes

Drill and pin the medial and lateral anterior pin holes of the Pin Guide using the Universal Disposable Drill (2001-00-000) (**Fig. 2**).

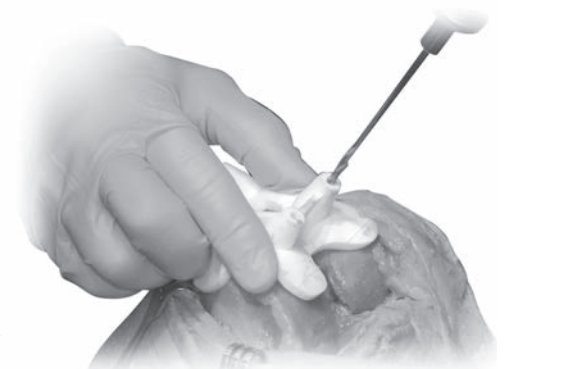
**Fig. 2**



## Drill Distal Pin Holes

Drill the distal pin holes of the Pin Guide (do not place pins) (**Fig. 3**).

**Fig. 3**



## Place Distal Cut Guide and Cut Femur

Remove the Pin Guide by sliding it off the pins, leaving the anterior pins in the bone.

Secure the MIS Distal Cut Guide (00-5967-036-00).

Check alignment if desired, and make the cut (Fig. 4).

### TECHNIQUE TIP

**1.A**

*When performing the cuts, excessive force (considering the pressure being applied to the guide) on the medial or lateral side of the cut guide could influence the amount of varus/valgus in the cut.*

## Remove Distal Cut Guide and Place Distal Pins

Locate the drilled pin holes.

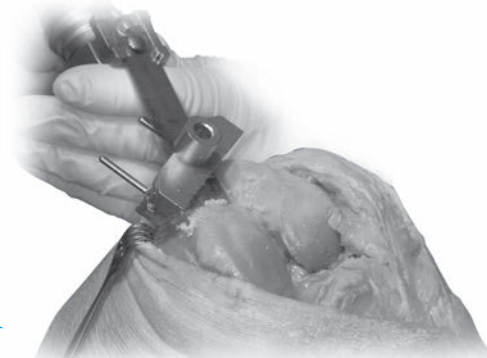
Place the distal pins in drilled holes of the distal femur.

Remove the anterior pins (Fig. 5).

### TECHNIQUE TIP

**1.B**

*In the event the drilled distal holes are covered up following the distal cut, clean the area. Alternatively, prior to removing the anterior pins, place the Pin Guide back over the anterior pins and locate the distal pins through the distal Pin Guide holes (Fig. 6).*


**Fig. 4**

**Fig. 5**

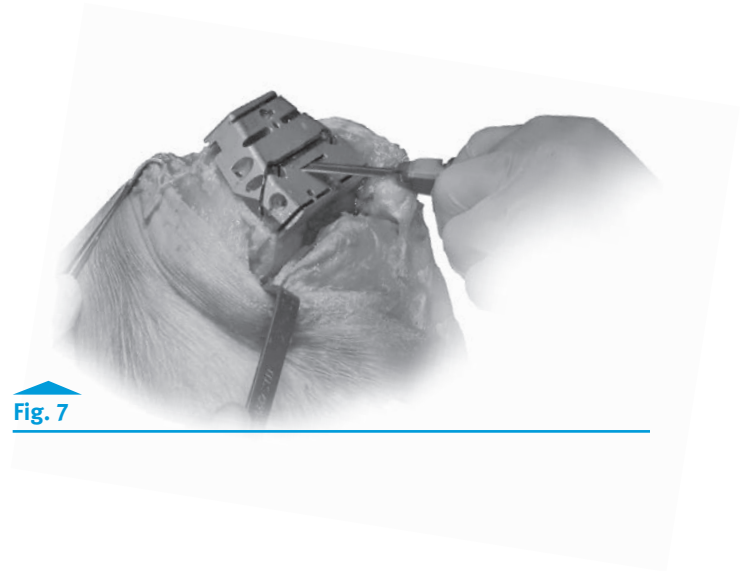
**Fig. 6**

## Place Femoral Finishing Guide

Place the *NexGen* 4-in-1 Femoral Finishing Guide (silver) or the Flex Femoral Finishing Guide (gold) over the distal pins.

Adjust the M/L positioning for appropriate placement.

Secure the Finishing Guide and remove the pins. Verify resections using an angel wing and make the cuts (**Fig. 7**).



**Fig. 7**

## Follow 4-in-1 Femoral Surgical Technique

Following the 4-in-1 cuts, proceed with the surgery as suggested in the *Zimmer MIS Multi-Reference*® 4-in-1 Femoral Instrumentation Surgical Technique.

## Position Tibial Pin Guide

Remove the meniscus.

Position the Pin Guide on the tibia (**Fig. 1**).

Do not remove osteophytes from the tibia. Remove any soft tissues that may prevent proper placement of the Pin Guide.

Ensure the posterior medial hook goes over the posterior ridge of the tibia.

The mechanical axis and proximal resection reference lines on the Pin Guide can be used to assess alignment.



Fig. 1

## Drill and Pin Anterior Lateral Pin Hole

Drill and pin the lateral hole of the Pin Guide. (**Fig. 2**).

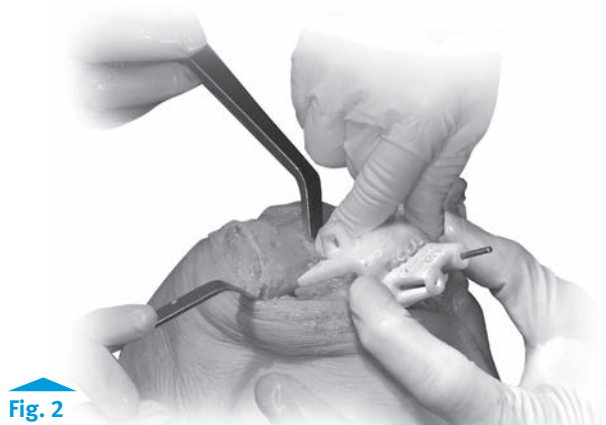


Fig. 2

## Drill Anterior Medial Hole

Drill the medial hole of Pin Guide (do not place pin) (**Fig. 3**).



Fig. 3

## Establish Tibia Rotation (Drill Proximal Holes)

Tibia rotation may be established through the Pin Guide per surgeon discretion.

Drill the proximal medial and lateral holes of the Pin guide (do not place pins) (Fig. 4).

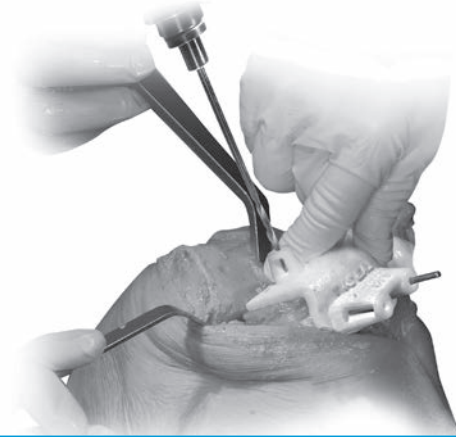


Fig. 4

## Remove Tibial Pin Guide

Remove the Pin Guide by lifting the medial hook off the posterior ridge and sliding off the anterior lateral pin (Fig. 5). Do not pry the Pin Guide from the tibia as this could shift the pins. (It may be necessary to remove the previously placed pin from the anterior lateral hole.)

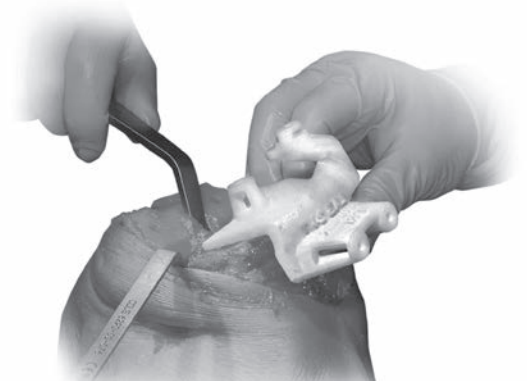


Fig. 5

## Place Pins in Anterior Holes

Ensure both pins are placed in the drilled anterior holes (Fig. 6).



Fig. 6

## Secure Cut Guide and Cut Tibia

Secure the NexGen Tibial Cut Guide.

Make tibial cut (Fig. 7).

Use the appropriate right or left tibia cut guide.

|                    |                |
|--------------------|----------------|
| 0° Left Cut Guide  | 00-5997-075-00 |
| 0° Right Cut Guide | 00-5997-076-00 |

**Note:** If you wish to check alignment, per the design of the above referenced tibia cutting guides, the pin placement of the tibial Pin Guide is offset 20 degrees medially to avoid soft tissues. This is more apparent when using the tibia alignment rod as an intra-op alignment check. Noting this offset placement, ensure the alignment rod is parallel with respect to the tibial shaft.

Insert the Alignment Arch into the Tibial Cut Guide, insert the Alignment Rod and check alignment (Fig. 8).

|                |                |
|----------------|----------------|
| Alignment Arch | 00-5977-024-00 |
| Alignment Rod  | 00-5785-080-00 |

### TECHNIQUE TIP

2.A

*When fixating the Cut Guide, excessive force from screws can alter the planned location and could influence the amount of varus/valgus in the cut.*

### TECHNIQUE TIP

2.B

*When performing the cuts, excessive force (considering the pressure from leaning on the guide) on the medial or lateral side of the cut guide could influence the amount of varus/valgus in the cut.*

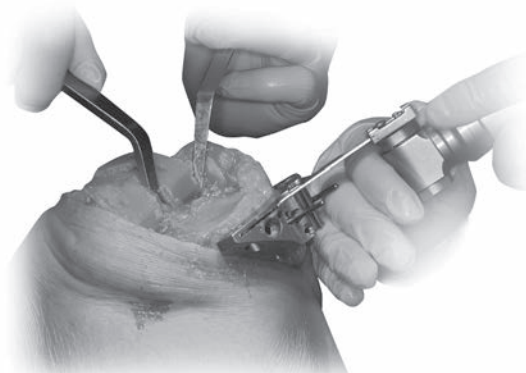


Fig. 7

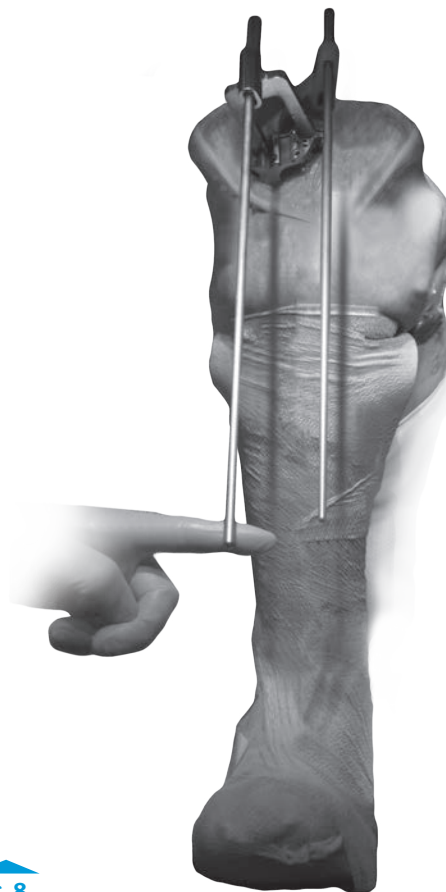


Fig. 8



## Position Tibial Sizing Plate

Position the tibial sizing plate to align with the drilled proximal holes (Fig. 9).

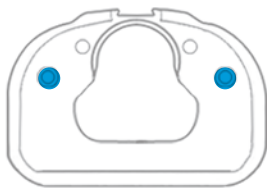
### TECHNIQUE TIP

**2.B**

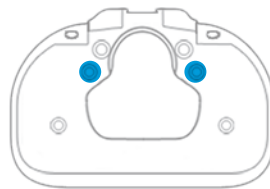
*In the event the drilled proximal holes are covered up following the proximal cut, clean the area. Alternatively, prior to removing the anterior pins, place the Pin Guide back over the anterior pins and locate the proximal holes through the Tibial Pin Guide.*



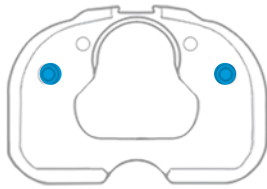
**Fig. 9**



3° Fluted Tibial Plate (00-5999-060-01\_02)



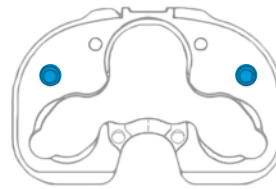
3° Fluted Tibial Plate (00-5999-060-03\_08)



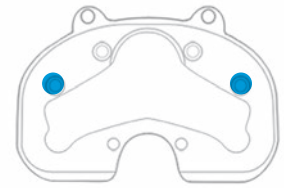
7° Fluted Tibial Plate (00-5997-060-01\_02)



7° Fluted Tibial Plate (00-5997-060-03\_10)



A/P Wedged Tibial Plate (00-5987-043\_048-00)



All-Poly Tibial Plate  
(00-5966-003\_008-10\_17) &  
(00-5996-003\_008-10\_17)



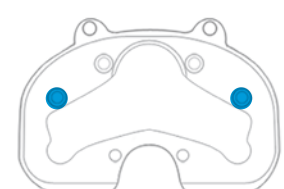
Trabecular Metal™ Tibial Plate  
(00-5953-012-02\_08)



Trabecular Metal Monoblock Tibial Plate  
(00-5887-043\_048-00)



Pegged Tibial Plate (00-5977-015-01\_10)



Stemmed Tibial Plate (00-5951-019-01\_10)

## Follow 4-in-1 Femoral Surgical Technique

Following the positioning of the tibial plate, proceed with the surgery as suggested in the *Zimmer MIS Multi-Reference 4-in-1 Femoral Instrumentation Surgical Technique*.

## Position Femoral Pin Guide

Do not remove osteophytes from the femur.

Position the Pin Guide on the distal femur (**Fig. 1**).

Pin Guide will be captured by the anterior ridge of the femur.

The A/P axis reference line on the Pin Guide can be used to assess alignment.

Apply posterior pressure to the Pin Guide and verify secure fit.



**Fig. 1**

## Drill and Pin the Anterior Pin Holes

Drill and pin the medial and lateral pin holes of the Pin Guide using the Universal Disposable Drill (2001-00-00) (**Fig. 2**).



**Fig. 2**

## Drill Distal Pin Holes

Drill the distal pin holes of the Pin Guide (do not place pins) (**Fig. 3**).



**Fig. 3**

## Place Distal Cut Guide and Cut Femur

Remove the Pin Guide by sliding it off the pins, leaving the anterior pins in the bone.

Secure the NexGen Posterior Referencing Distal Femoral Resection Guide (00-5901-064-00)

Check alignment if desired, and make the cut (Fig. 4).

### TECHNIQUE TIP

**3.A**

*When performing the cuts, excessive force (considering the pressure being applied to the guide) on the medial or lateral side of the cut guide could influence the amount of varus/valgus in the cut.*



Fig. 4

## Remove Distal Cut Guide

Locate the drilled pin holes.

Remove the anterior pins (Fig. 5).

### TECHNIQUE TIP

**3.B**

*In the event the drilled distal holes are covered up following the distal cut, clean the area. Alternatively, prior to removing the anterior pins, place the Pin Guide back over the anterior pins and locate the distal pins through the distal Pin Guide holes.*



Fig. 5

## Place Posterior Referencing Femoral Cut Guide

Secure the NexGen Posterior Referencing 4-in-1 Flex Femoral cut guide, verify resections with an angel wing and finish the femur following the instructions from the Zimmer NexGen CR-Flex and LPS-Flex Knees Surgical Technique with Posterior Referencing Instrumentation (Fig. 22).



Fig. 6

## Position Tibial Pin Guide

Remove the meniscus.

Position the Pin Guide on the tibia (**Fig. 1**).

Do not remove osteophytes from the tibia. Remove any soft tissues that may prevent proper placement of the Pin Guide.

Ensure the posterior medial hook goes over the posterior ridge of the tibia.

The mechanical axis and proximal resection reference lines on the Pin Guide can be used to assess alignment.

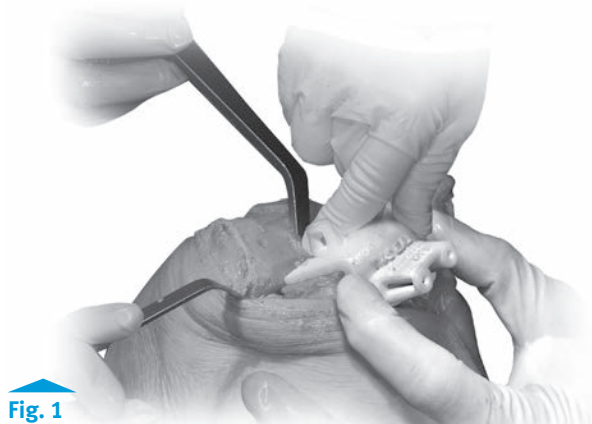


Fig. 1

## Drill and Pin Anterior Lateral Pin Hole

Drill and pin the lateral hole of the Pin Guide (**Fig. 2**).



Fig. 2

## Drill Anterior Medial Hole

Drill the medial hole of Pin Guide (do not place pin) (**Fig. 3**).



Fig. 3

## Establish Tibia Rotation (Drill Proximal Holes)

Tibia rotation may be established through the Pin Guide per surgeon discretion.

Drill the proximal medial and lateral holes of the Pin guide (do not place pins) (Fig. 4).

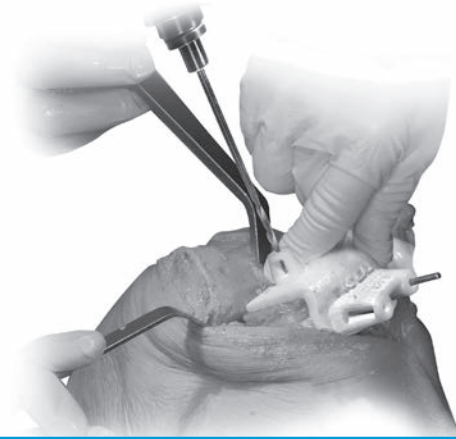


Fig. 4

## Remove Tibial Pin Guide

Remove the Pin Guide by lifting the medial hook off the posterior ridge and sliding off the anterior lateral pin (Fig. 5). Do not pry the Pin Guide from the tibia as this could shift the pins. (It may be necessary to remove the previously placed pin from the anterior lateral hole.)



Fig. 5

## Place Pins in Anterior Holes

Ensure both pins are placed in the drilled anterior holes (Fig. 6).



Fig. 6

## Secure Cut Guide and Cut Tibia

Secure the *NexGen* Posterior Referencing Tibial Cut Guide.

Make tibial cut (**Fig. 7**).

Use the appropriate right or left tibia cut guide.

0° PRI Left Cut Guide                    00-5901-075-00

0° PRI Right Cut Guide                    00-5901-076-00

**Note:** If you wish to check alignment, use of the Tibia Alignment Rod with the *NexGen* Posterior Referencing Tibia Cut Guides allows for a standard observance of the tibia alignment rod.

Insert the Alignment Adapter into the Tibial Cut Guide, insert the Alignment Rod and check alignment (**Fig. 8**).

PRI Alignment Adapter                    00-5901-086-00

Alignment Rod                              00-5785-080-00

### TECHNIQUE TIP

2.A

*When fixating the Cut Guide, excessive force from screws can alter the planned location and could influence the amount of varus/valgus in the cut.*

### TECHNIQUE TIP

2.B

*When performing the cuts, excessive force (considering the pressure from leaning on the guide) on the medial or lateral side of the cut guide could influence the amount of varus/valgus in the cut.*

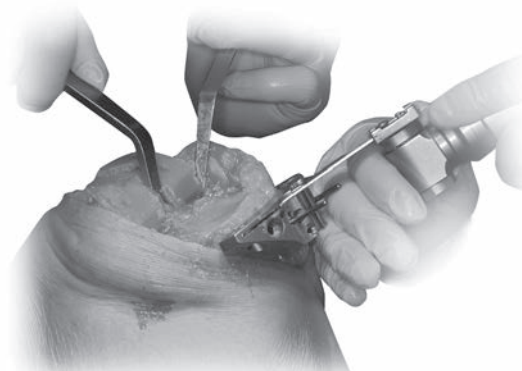


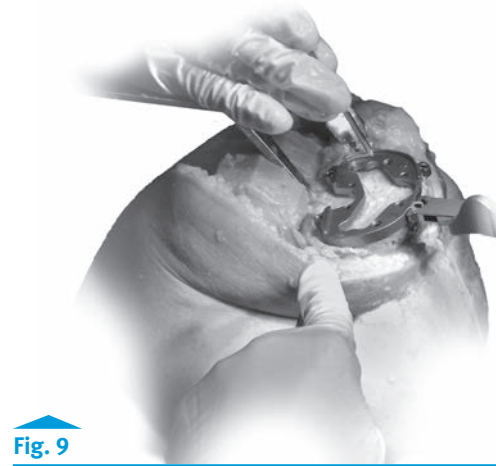
Fig. 7



Fig. 8

## Position Tibial Sizing Plate

Position the tibial sizing plate to align with the drilled proximal holes (Fig. 9).

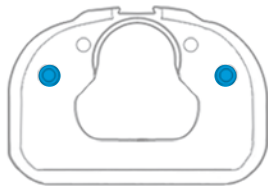


**Fig. 9**

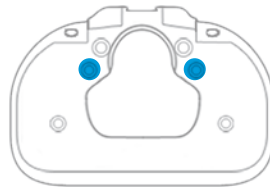
**TECHNIQUE TIP**

**4.B**

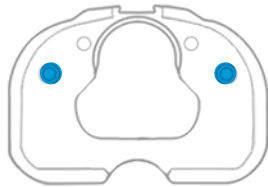
*In the event the drilled proximal holes are covered up following the proximal cut, clean the area. Alternatively, prior to removing the anterior pins, place the Pin Guide back over the anterior pins and locate the proximal holes through the tibial Pin Guide.*



3° Fluted Tibial Plate (00-5999-060-01\_02)



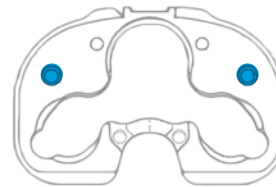
3° Fluted Tibial Plate (00-5999-060-03\_08)



7° Fluted Tibial Plate (00-5997-060-01\_02)



7° Fluted Tibial Plate (00-5997-060-03\_10)



A/P Wedged Tibial Plate (00-5987-043\_048-00)



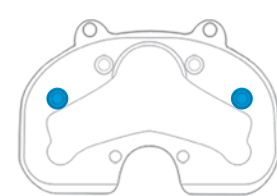
Trabecular Metal Tibial Plate  
(00-5953-012-02\_08)



Trabecular Metal Monoblock Tibial Plate  
(00-5887-043\_048-00)



Pegged Tibial Plate (00-5977-015-01\_10)



Stemmed Tibial Plate (00-5951-019-01\_10)

## Follow NexGen Posterior Referencing Instrumentation Surgical Technique

Following the positioning of the tibial component, proceed with the surgery as suggested in the *Zimmer NexGen CR-Flex* and *LPS-Flex Knees Surgical Technique with Posterior Referencing Instrumentation*.



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