



PERSONA[®]

THE PERSONALIZED
KNEE SYSTEM

Trabecular Metal[™] Tibia

Surgical Technique



Introduction

The *Persona*™ *Trabecular Metal*™ Tibia unites stable fixation with a modular design enabling use with compatible cruciate-retaining, ultracongruent and posterior stabilized articular surface implants. The modularity also allows replacement of just the articular surface, if necessary, when revising a well-fixed tibial tray.

A wide variety of component sizes, shapes and constraint options support proper component fit and soft tissue balancing. The surgeon can choose a midvastus approach, a subvastus approach or a parapatellar medial arthrotomy.

See the *Persona* Knee Surgical Technique for the available implant constraint options.



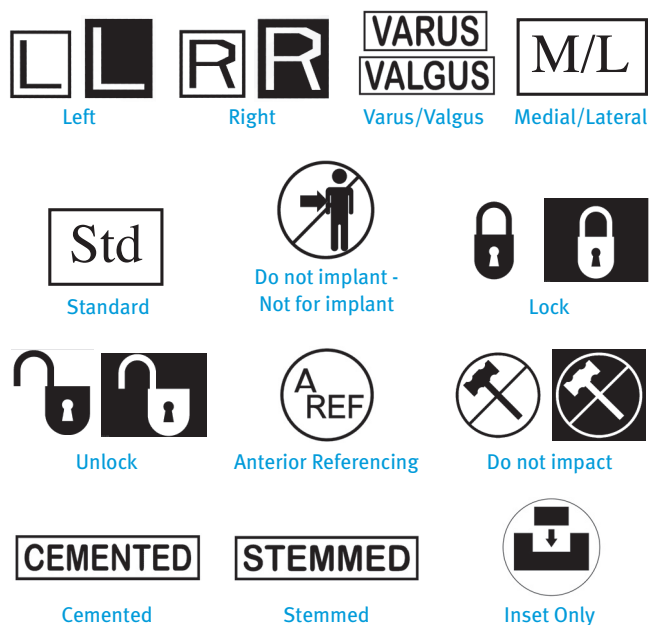
Magnet Usage

Warning: Some instruments in the *Persona* System contain magnets. All *Persona* magnetic instruments should be kept at a safe distance from a patient's active implantable medical device(s) (i.e. pacemaker). These types of devices may be adversely affected by magnets. Instruments containing magnets should be kept on an appropriate table or stand when not in use at the surgical site.

Symbols

Symbols have been established for the following:

- Left
- Right
- Varus/Valgus
- Medial/Lateral
- Standard
- Do not implant – Not for implant
- Lock
- Unlock
- Anterior Referencing
- Do not impact
- Cemented
- Stemmed
- Inset Only



Screw Information

A new screw and driver is available with the introduction of the *Persona* System.

The screws are shipped sterile, two per package and are designed for single use.

Note: If this screw is used during the procedure for instrument fixation, it should be removed prior to closure as it is NOT implantable.



2.5mm Male
Hex Driver
42-5099-025-00



25mm x 2.5mm
Female Hex Screw
42-5099-025-25

**Persona
The Personalized
Knee System
Trabecular Metal
Tibia Surgical
Technique**

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Trabecular Metal Tibia

Resect the Tibia

- Refer to the “Resect Proximal Tibial” section of the *Persona* Knee surgical technique (97-5026-001-00) for additional resection instructions.
- Additional care must be taken when implanting porous components. The flatness of the proximal tibial resection is critical to ensuring adequate contact between the *Persona Trabecular Metal* Tibial Implant and the bone. Evaluate the flatness of the proximal tibial resection prior to drilling the hexagonal pegs.

TECHNIQUE TIP

1.A

Check the flatness of the tibial cut with a flat surface, such as the top of one of the tibial cut guides. If necessary, modify the tibial cut so that it is completely flat (Fig. 1).

TECHNIQUE TIP

1.B

Areas where the bone transitions from high to low density, such as from cortical to cancellous bone, may cause the saw blade to skive and result in an inconsistent cut. Use caution when resecting in these regions and operate the saw at high speed but advance the saw slowly to ensure a consistent cut.

- Before securing the sizing plate to the bone, evaluate the bone quality for pore size and consistency of pores. If the bone is of poor quality, the *Persona Trabecular Metal* Tibial Tray should be cemented to the proximal tibia.

TECHNIQUE TIP

1.C

*Bone quality may be analyzed by palpating the bone in the intercondylar region of the tibial plateau. If the bone can be indented with light finger pressure, then the *Persona Trabecular Metal* Tibial Tray should be cemented to the proximal tibia.*



Fig. 1

Size and Finish the Tibia

- Once tibial osteophytes have been thoroughly removed, select the appropriate *Trabecular Metal* right or left Sizing Plate (Sizes A-I) that provides the desired tibial coverage, without overhang at any location on the resected tibia. Attach the Sizing Plate Handle to the sizing plate (**Fig. 2**). The recommended tibial rotational alignment is within 5° of the axis created by the medial 1/3 of the tibial tubercle and the PCL attachment point. The engraved line on the sizing plate can be used to aid in establishing the desired tibial rotation. (**Fig. 3**)
- Rotate the sizing plate to attain the desired tibial rotational alignment. The notch in the lateral periphery of the sizing plate provides an aid to establish proper position with respect to the lateral border of the tibia without medialization of the sizing plate.
- When the desired position has been attained, secure the sizing plate by placing 25mm x 3.2mm (2.5mm female hex) screws or 25mm x 3.2mm short head holding pins in the medial and lateral holes near the PCL cutout of the sizing plate (**Fig. 3 and Fig. 4**). The remaining adjunct fixation holes shown on the surface of the sizing plate can be used if necessary. Use only the female hex head screws in the holes designated with a caution symbol. Ensure that the sizing plate remains in the proper position when securing it to the bone.

TECHNIQUE TIP

1.D

Do not impact, lever, or pry the sizing plate handle; this instrument is designed for alignment purposes only. Use the alignment rod in the hole or slot in the sizing plate handle to verify proper tibial plate varus/valgus alignment. (See Appendix A of the Persona Knee Surgical Technique (97-5026-001-00) for correcting varus/valgus resections)

TECHNIQUE TIP

1.E

If using a screw through the anterior medial hole on the periphery of the sizing plate, ensure that the sizing plate remains in the desired position and does not lift off posteriorly.

Ensure that the sizing plate remains in the proper position when securing it to the bone. Once desired alignment has been verified with the Alignment Rod, remove the sizing plate handle from the sizing plate (**Fig. 5**).

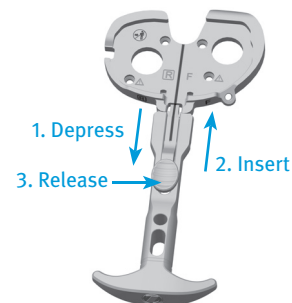


Fig. 2

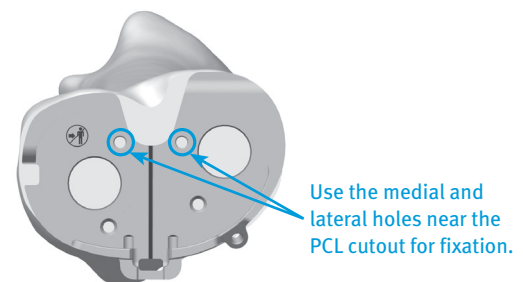


Fig. 3

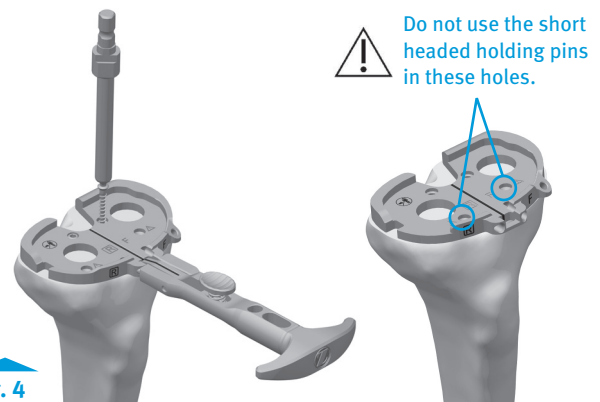


Fig. 4

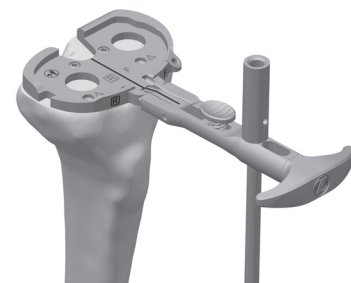


Fig. 5

Instruments



*Persona
Trabecular Metal
Sizing Plate
Size F Right
42-5398-075-02*



*Persona Tibial
Sizing Plate
Handle
42-5399-017-00*



*25mm x 2.5mm
Female Hex
Head Screw
42-5099-025-25*



*2.5mm Male
Hex Driver
42-5099-025-00*



*25mm X 3.2mm
Short Head
Holding Pin
00-5977-056-03*



*Alignment Rod
with Coupler
00-5785-080-00*

- The location of the pegs on the TM tibial components are unique for each size, therefore, it is critical to select the proper size at this step before drilling for the pegs. Once these subsequent steps have been performed, the size should not be changed.

If desired, femoral finishing can be performed in conjunction with provisional trialing at this stage to assure that the desired range-of-motion and soft tissue balance can be attained with the sizing plate in place, prior to drilling the tibia.

With the sizing plate fixed in position, seat the *Trabecular Metal* Tibial Drill Guide into one of the holes for a 16mm hexagonal peg (Fig. 6).

Drill with the *Trabecular Metal* Tibial Drill until it bottoms out on the drill guide (Fig. 7). Repeat process for other hole.

TECHNIQUE TIP

1.F

The holes must be drilled straight (90° to the resected tibial surface). Because the Trabecular Metal Tibial Drill Guide has a slight taper where it engages with the Sizing Plate, applying a small axial force will help ensure that the Drill Guide is oriented correctly. Angulation of the holes may prevent the Tibia from seating properly.

Warning: Once you have drilled the two holes for the *Persona Trabecular Metal* Tibial Tray, you cannot crossover to other *Trabecular Metal* tibial implants because the hole locations are not compatible.

Trial Fit

- Upon completion of femoral, tibial, and patella preparation, insert all provisionals and check the range of motion and joint stability (Fig. 8). In addition, ensure that the *Trabecular Metal* Tibial Sizing Plate is in uniform contact with the resected tibia. Perform any necessary soft tissue releases. After the trial reduction is complete, remove all provisionals.

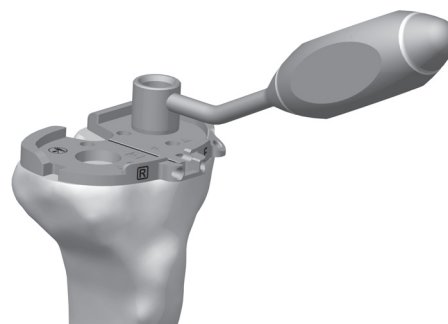


Fig. 6

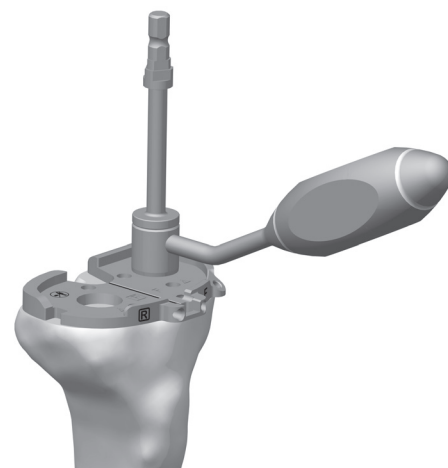


Fig. 7

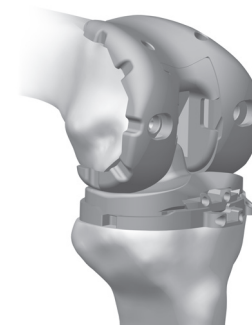


Fig. 8

Instruments



Persona
Trabecular Metal
Drill Guide
42-5398-020-00



Persona Tibial
Sizing Plate
Handle
42-5399-017-00



Persona
Trabecular Metal
Sizing Plate
Size F Right
42-5398-075-02



Trabecular Metal
Tibial Drill
00-5887-052-00

Component Implantation

- After the implants have been chosen, make a final check to ensure that the size chosen for the femoral, tibial and articular surfaces are compatible.

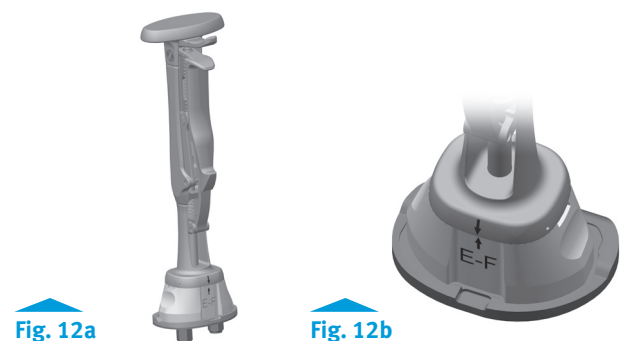
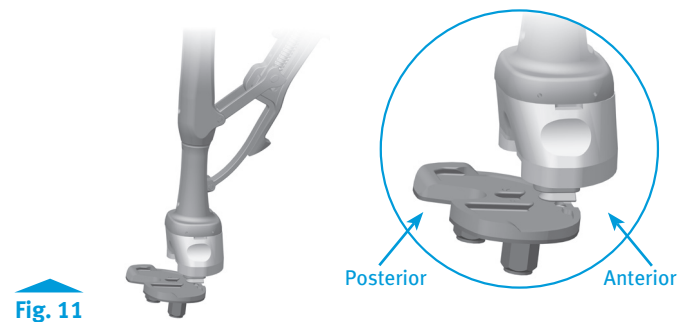
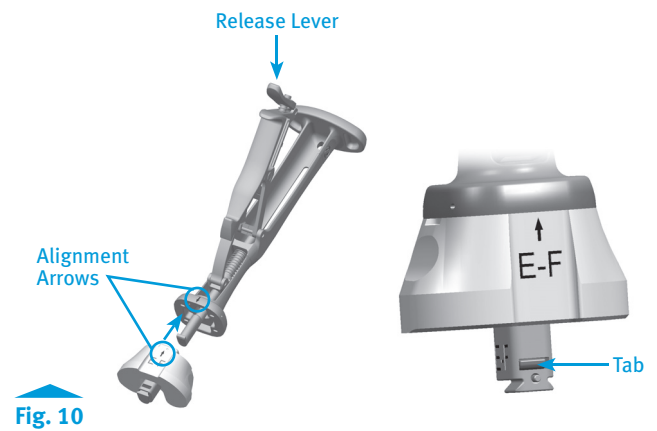
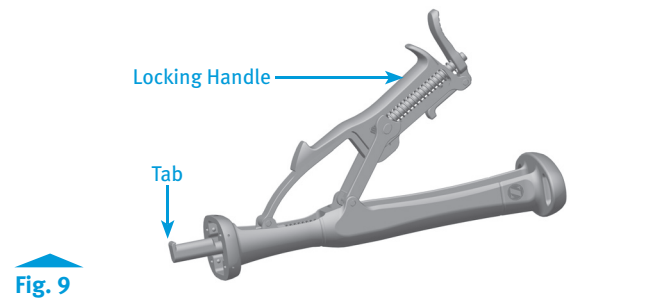
Tibial Impaction Pad Assembly

- Open the locking handle on the TM Tibial Inserter with the tab on the inserter arm pointed in the same direction as the locking handle of the inserter (**Fig. 9**).
- Select the appropriate *Persona* Locking Tibial Impactor Pad that includes the size of the tibial component that will be implanted. The yellow impactor pad is used for sizes A-D, the green impactor pad is used for sizes E-F, and the blue impactor pad is used for sizes G-J. Orient and fully seat the tibial impaction pad onto the inserter so that the arrows on the impactor pad and inserter are aligned (**Fig. 10**).

Warning: Do not use the *Persona* Locking Tibial Impactor Pads with the *Persona* Femoral Inserter/Extractor (42-5099-092-00).

Inserter/Implant Assembly

- With the locking handle of the inserter facing anteriorly in the open position, insert the metal distal tab of the tibial impaction head into the dovetails on the central portion of the tibial component. Slide the metal tab posteriorly until it bottoms out on the implant's dovetails (**Fig. 11**).
- Secure the tibial component to the inserter by closing the locking handle of the inserter (**Fig. 12a**). Ensure that the impactor pad is seated flush to the proximal surface of the tibial implant (**Fig. 12b**).



Instruments



Persona TM
Tibial Inserter
42-5099-092-10



Persona
Locking Tibial
Impactor Pad
42-5398-005-00



Persona
Trabecular Metal
Tibial Tray
Size F Right
42-5300-075-02

TECHNIQUE TIP

1.G

Stabilizing the proximal portion of the inserter on the back table may assist in attachment of tibial component to the inserter (Fig. 13).

- The *Persona Trabecular Metal* Tibial Tray may be implanted with or without bone cement (cemented or cementless options).

Cementless Implantation Option

- Prior to implantation of a *Persona Trabecular Metal* Tibial Tray, the resected tibial bone surface must be flat and free of bone debris and fragments. Also, when using the cementless option, the patient's bone quality must be assessed for density and quality to ensure adequate support and fixation of the *Persona Trabecular Metal* Tibial Tray. Bone stock of insufficient quality and/or density may not be capable of adequately supporting the component. If the bone stock is of questionable quality or density, the *Persona Trabecular Metal* Tibial Tray should be cemented to the proximal tibia.

The tray is inserted with the knee fully flexed and the proximal tibia advanced anteriorly. The two hexagonal-shaped *Trabecular Metal* pegs must be axially aligned with the prepared holes in the proximal tibia. The chamfered ends of the *Trabecular Metal* pegs aid in initial engagement of the implant and the prepared tibia.

After initial engagement of the *Persona Trabecular Metal* Tibial Tray with bone and prior to impaction via the Locking Tibial Impactor Pad, ensure that the inferior surface of the implant and proximal tibia are parallel with respect to each other and that the *Trabecular Metal* pegs are perpendicular to the proximal tibia. Once this visual check is performed, the *Persona Trabecular Metal* Tibial Tray may be impacted into place (Fig. 14).

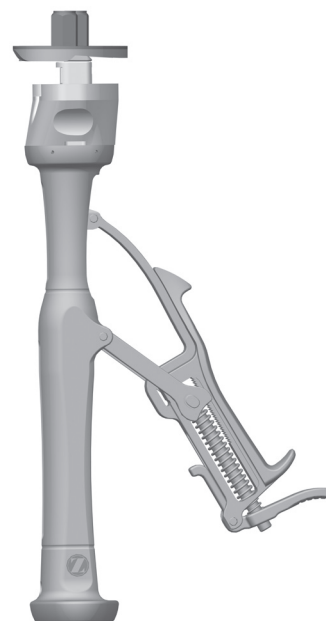


Fig. 13



Fig. 14

TECHNIQUE TIP

1.H

Slowly impact the tibial plate until the pegs are approximately half-way seated. Perform a visual check to ensure that pegs are still well aligned to the holes prior to fully seating the implant. Assess the initial stability of the tibial component by applying moderate thumb pressure on the tibial plate either anteriorly or posteriorly. If movement is detected, the *Persona Trabecular Metal* Tibial Tray should be cemented to the proximal tibia.

Instruments



Persona™
Tibial Inserter
42-5099-092-10



Persona
Locking Tibial
Impactor Pad
42-5398-005-00



Persona
Trabecular Metal
Tibial Tray
Size F Right
42-5300-075-02

Verify that the inferior surface of the component and the surface of the resected tibia remain parallel during impaction.

See section on the following pages on "Removing the TM Tibial Inserter from the Component Section."

Warning: If the bone density varies across the tibial plateau, one peg may be easier to seat than the other. Care must be taken to ensure level impaction across the plate. Uneven impaction of the device may compromise the initial fixation.

Warning: Levering the assembled Locking Tibial Impaction Pad on the tibial plate may compromise the initial fixation of the device. Disengage the Locking Tibial Impaction Pad from the Tibial plate immediately upon seating the implant.

After the inserter has been removed, the locking handle can be closed and the assembly can be used as a non-locking impactor for final seating of the tibial component (Fig. 15).

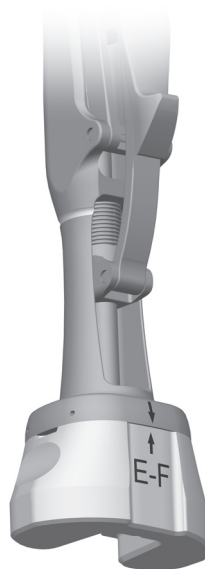


Fig. 15

Note: After impaction, it is extremely important to ensure that the *Trabecular Metal* Tibial Tray is in uniform contact with the resected tibia, and that no gaps are present between the implant and bone (Fig. 16). Fixation, support and/or stability may be insufficient if gaps are present between the implant and bone. Assess the initial stability of the tibial component by applying moderate thumb pressure on the tibial plate either anteriorly or posteriorly. If movement is detected, the *Persona Trabecular Metal* Tibial Tray should be cemented to the proximal tibia.

Warning: The *Persona* Locking Tibial Impactor Pads should never be used to extract the tibial implant from the tibia. This instrument is designed for impaction only.



Fig. 16

Instruments



Persona TM
Tibial Inserter
42-5099-092-10



Persona
Locking Tibial
Impactor Pad
42-5398-005-00



Persona
Trabecular Metal
Tibial Tray
Size F Right
42-5300-075-02

Cemented Implantation Option

- The *Persona Trabecular Metal* Tibial Tray is implanted with cement between the baseplate and bone only; the *Trabecular Metal* pegs are implanted without bone cement (cementless). Bone cement should be applied in a doughy state in order to control its application to the *Trabecular Metal* Tibial Tray and/or bone.

Bone cement is applied directly onto the *Trabecular Metal* baseplate of the *Persona Trabecular Metal* Tibial Tray in a uniform fashion; care must be taken to ensure a consistent and continuous cement layer is applied to the Tibial Tray. *Trabecular Metal* Tibial Cement Masks are provided in the instrument set for covering the *Trabecular Metal* pegs; the Cement Masks prevent bone cement from coming into contact with the *Trabecular Metal* pegs (Fig. 17).

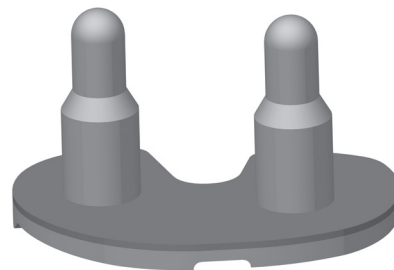


Fig. 17

Bone cement may also be applied to the proximal tibia; the cement masks can be used to occlude the prepared holes and prevent the ingress of bone cement (Fig. 18). Remove the cement masks once the cement has been applied to the Tibial Tray.

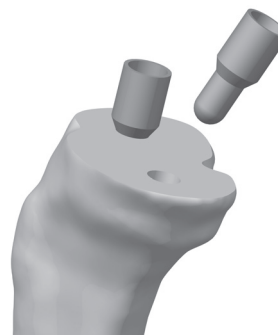
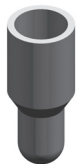


Fig. 18

Make sure the two hexagonal-shaped *Trabecular Metal* pegs are axially aligned with the prepared holes of the proximal tibia. The *Persona Trabecular Metal* Tibial Tray is inserted into the holes. After initial engagement of the *Trabecular Metal* pegs and prior to impaction via the *Trabecular Metal* Tibial Impactor, ensure that the inferior surface of the implant and proximal tibia are parallel with respect to each other and that the *Trabecular Metal* pegs are perpendicular to the proximal tibia. Once this visual check is performed, the *Persona Trabecular Metal* Tibial Tray may be impacted into place. After impaction, it is extremely important to ensure that the cemented interface between the *Trabecular Metal* Tibia Tray and resected tibial bone is of uniform thickness and consistency. Excess bone cement must be removed from the periphery of the *Persona Trabecular Metal* Tibial Tray, and there must be no bone cement on the top surface of the tibial tray.

Instruments



Trabecular Metal
Tibial
Cement Mask
00-5887-055-00



Persona
Trabecular Metal
Tibial Tray
Size F Right
42-5300-075-02

Removing the TM Tibial Inserter from the Component

- To remove the Locking Tibial Impactor Pad from the tibial component, pinch the release lever on the proximal portion of the inserter to unlock the assembly from the component (**Fig 19**). Take care by slowly opening the locking handle to prevent disruption of the peg to bone interface.

TECHNIQUE TIP

1.1

Do not impact the medial or lateral aspects or the release lever of the Inserter.

- While gently pulling the inserter anteriorly, slightly tilt the proximal portion of the inserter handle posteriorly, so the impactor pad clears the anterior portion of the tibial component without disrupting the bone implant interface (**Fig. 20**).

Note: Fully support the inserter prior to instrument removal to prevent disruption of the peg to bone interface due to the weight of the inserter.

Implant the Femoral Component

- If the tibial component is implanted before the femoral component, place the TASP bottom on the tibial component to prevent the posterior femoral condyles from catching on the posterior rails of the tibial component. Once the femoral component is initially seated on the prepared bone, place the knee in 90° of flexion. Impact the femoral component parallel to the posterior condylar axis, being careful not to allow the posterior condyles to contact the tibial component (**Fig. 21**).
- Refer to the "Implant Components" section of the *Persona* Knee surgical technique for additional femoral insertion instructions.



Fig. 19



Fig. 20

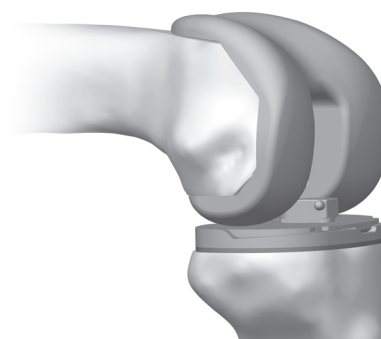
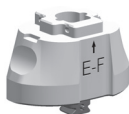


Fig. 21

Instruments



Persona TM
Tibial Inserter
42-5099-092-10



Persona
Locking Tibial
Impactor Pad
42-5398-005-00



Persona
Trabecular Metal
Tibial Tray
Size F Right
42-5300-075-02



Persona TASP
Right EF +0
Bottom
42-5270-005-05



Persona CR Femoral
Component
Size 7 Right
42-5026-062-02

Implant the Articular Surface

- The Articular Surface Inserter applies both downward and rearward forces to aid in the insertion of the articular surface onto the tibial base plate. Choose the correct tibial articular surface based on size, side, constraint and thickness as determined by the trial range of motion. Place the articular surface onto the *Persona Trabecular Metal Tibial Tray*, apply pressure anterior to posterior to properly engage the tibial component and tibial articular surface for final seating. This is necessary to allow the inserter to properly engage the tibial component and tibial articular surface for final seating (**Fig. 22a**). Steady the surface of the *Persona Trabecular Metal Tibial Tray* with one hand by applying downward pressure near the posterior cruciate cutout. Engage the hook on the Articular Surface Inserter with the mating slot in the front of the *Persona Trabecular Metal Tibial Tray* and close the lever with your index finger. This locks the inserter to the *Persona Trabecular Metal Tibial Tray* (**Fig. 22b**). Squeeze the handle of the Articular Surface Inserter to seat the articular surface (**Fig. 22c**). Open the lever and remove the Articular Surface Inserter.

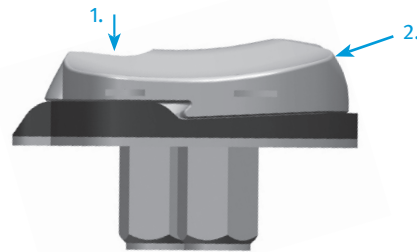


Fig. 22a

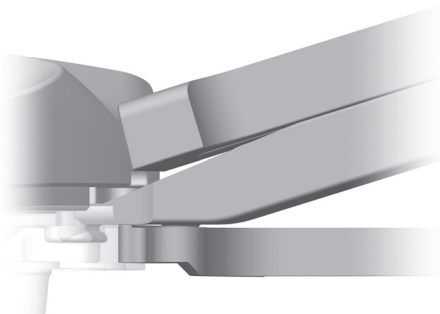


Fig. 22b

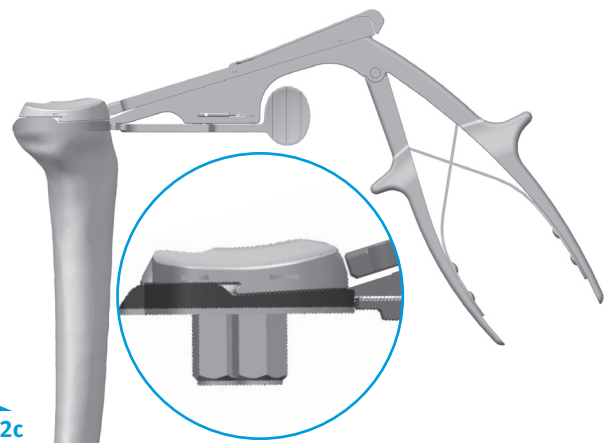


Fig. 22c

TECHNIQUE TIP

1.J

Insert an articular surface only once. Never reinsert the same articular surface onto a tibial base plate.

TECHNIQUE TIP

1.K

*To help stabilize the *Persona Trabecular Metal Tibial Tray*, the articular surface can be inserted with the knee in extension.*

Instruments



*Persona Articular
Surface Inserter*
42-5299-001-00



*Articular
Surface Removal
Instrument*
00-5977-021-00

TECHNIQUE TIP

1.L

When using the Persona Trabecular Metal Tibial Tray, in-vivo assembly of the articular surface is required. The Locking Tibial Impactor cannot be used to align the pegs to the bone preparation if the articular surface is assembled before impaction.

TECHNIQUE TIP

1.M

Engage the lever of the inserter with the tibial baseplate to set the proper alignment for articular surface insertion and to avoid levering on the baseplate during the insertion process. Failure to do so may disrupt the implant-to-bone interface.

Warning: Do not lever the articular surface inserter proximally while it is engaged with the tibial component as this may compromise the initial fixation and cause anterior liftoff. If liftoff is observed, the *Persona Trabecular Metal* Tibial Tray should be cemented to the proximal tibia.

- Refer to the “Implant Components” section of the *Persona* Knee surgical technique for additional tibial articular surface insertion instructions and for tibia and femur component compatibility.

Disclaimer

This documentation is intended exclusively for physicians and is not intended for laypersons.

Information on the products and procedures contained in this document is of a general nature and does not represent and does not constitute medical advice or recommendations. Because this information does not purport to constitute any diagnostic or therapeutic statement with regard to any individual medical case, each patient must be examined and advised individually, and this document does not replace the need for such examination and/or advice in whole or in part.

Please refer to the package inserts for important product information, including, but not limited to, contraindications, warnings, precautions, and adverse effects.

Contact your Zimmer representative or visit us at www.zimmer.com

