

# ROSA<sup>®</sup> Knee

with

**Personalized  
Alignment™**



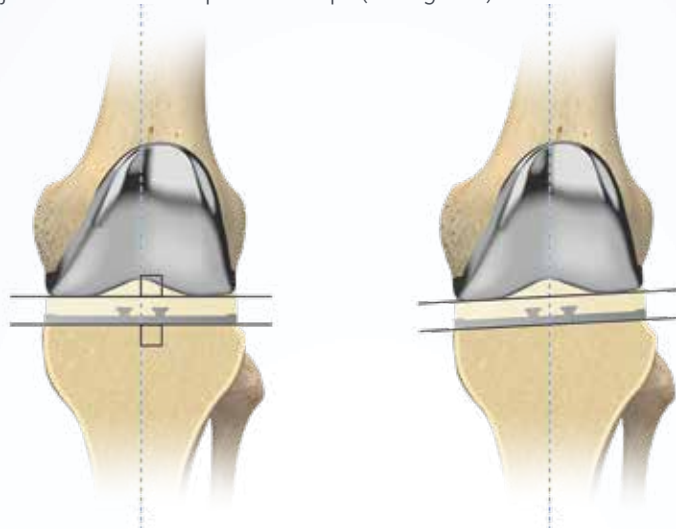
**ZIMMER BIOMET**  
Moving You Forward.™

# Personalized Alignment™

is a surgical technique that can be performed using the ROSA® Knee System. This technique aims to restore a patient's native joint line by resecting the femur and tibia parallel to the native pre-arthritic joint line to reduce or eliminate the need for soft-tissue releases to achieve acceptable joint soft-tissue tension.



Personalized Alignment is accomplished by performing distal and posterior femoral resections that are equal to the distal and posterior thickness of the femoral implant after compensating for cartilage wear. The proximal tibial resection is performed to restore the patient's native varus/valgus joint inclination and posterior slope (see Figure 1).



**Figure 1:** Comparison of Mechanical Alignment and Personalized Alignment Techniques

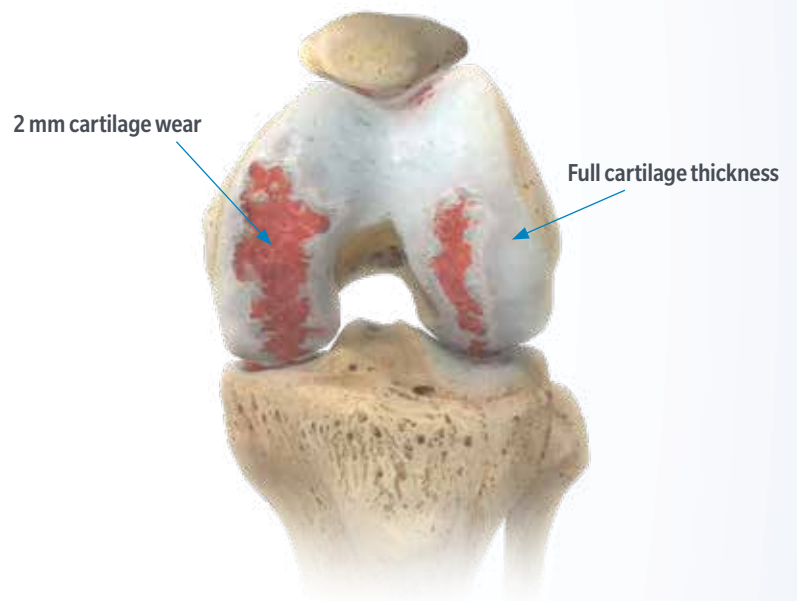
### Performing the Personalized Alignment Technique with ROSA Knee

The Personalized Alignment technique can be performed without any changes to ROSA Knee's hardware or software. ROSA Knee allows for personalized alignment of the component, enabling the surgeon to choose resection levels of the distal femur and proximal tibia with robotic guidance that would, in most cases, restore the pre-wear natural knee alignment. Surgeons may determine their own personal limits for coronal adjustments for each patient (within the ROSA Knee planning limits).

#### Landmarks

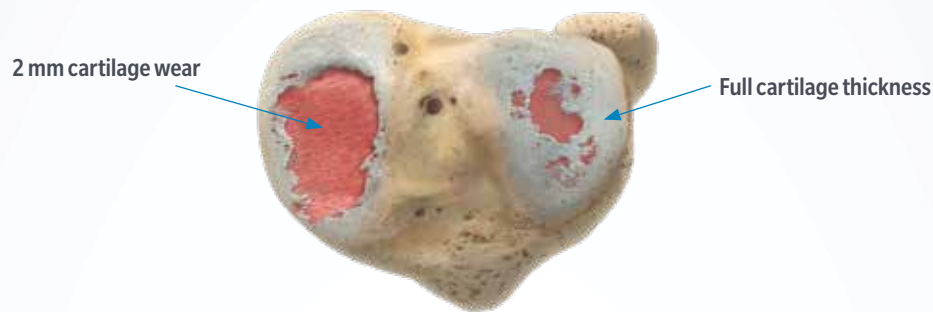
Landmarks are selected per the ROSA Knee Surgical Technique (2300.6). Particular attention should be paid to the selection of the following landmarks in the Personalized Alignment technique:

- **Femoral Distal Condyles:** On the less affected condyle, the landmarks should be taken on the most distal part of the condyle with full cartilage thickness. The landmarks on the more affected condyle should be taken directly on the bone or region of most cartilage wear, avoiding regions of bony wear (Figure 2). When selecting the resection reference landmarks on the two condyles, the surgeon should estimate the thickness of cartilage wear on the more affected condyle (e.g., 2 mm).



**Figure 2:** Distal Condyle Landmarks

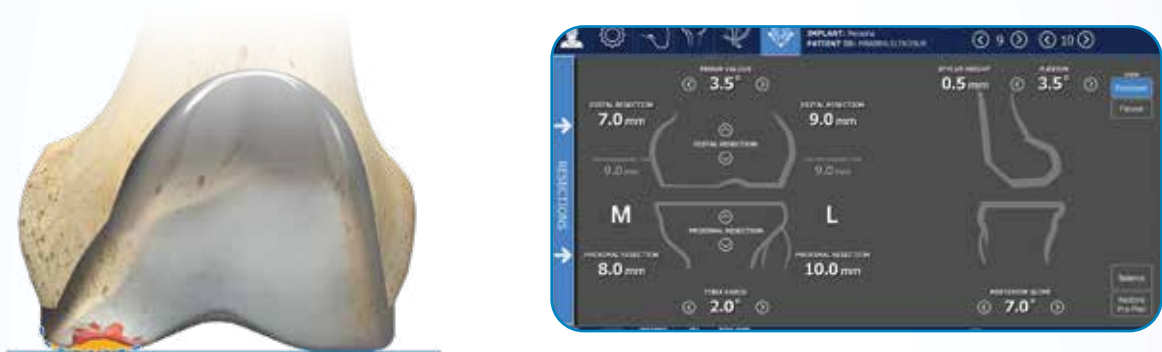
- **Tibia Plateau Resection References:** On the less affected plateau, the landmarks should be taken on the lowest point of the plateau with full cartilage thickness. The landmarks on the more affected plateau should be taken directly on the bone or region of most cartilage wear, avoiding regions of bony wear (Figure 3). When selecting the resection reference landmarks on the two plateaus, the surgeon should estimate the thickness of cartilage wear on the more affected plateau (e.g., 2 mm).



**Figure 3:** Tibial Plateau Resection References

### Planning

- **Distal Resection:** On the less affected condyle, the distal resection should be set to be equal to the implant thickness. On the more affected condyle, the distal resection should be set to the implant thickness minus the estimated cartilage wear (e.g., 9 mm – 2 mm = 7 mm). The resulting varus/valgus angle will be representative of the patient's pre-arthritic joint line angle (Figure 4).
  - Note: ROSA Knee limits the mechanical varus/valgus alignment to  $\pm 5^\circ$  on the femur.

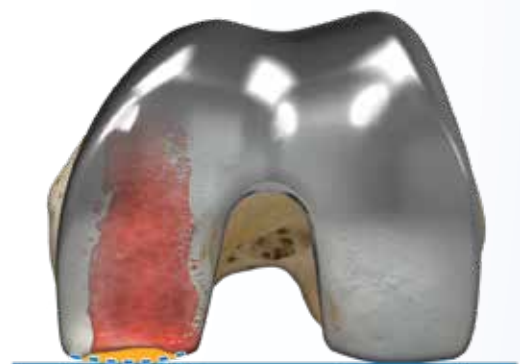


**Figure 4:** Restoration of Pre-Arthritic Femoral Joint Line in Extension

### Planning

- **Posterior Resection:** Posterior resection and femoral rotation can also be adjusted to restore the pre-arthritic natural anatomic alignment of the posterior condyles (Figure 5). If there is full cartilage thickness present on the posterior condyles, posterior resection should be set equal to the thickness of the posterior aspect of the implant (e.g., 9 mm). The femoral rotation should be set to  $0^\circ$  from the posterior condyle axis. If cartilage wear is present, the resection on the affected condyle should be set to the implant thickness minus the estimated cartilage wear.

- Note: ROSA Knee limits the rotation alignment from  $3^\circ$  internal to  $10^\circ$  external relative to the posterior condyle axis.



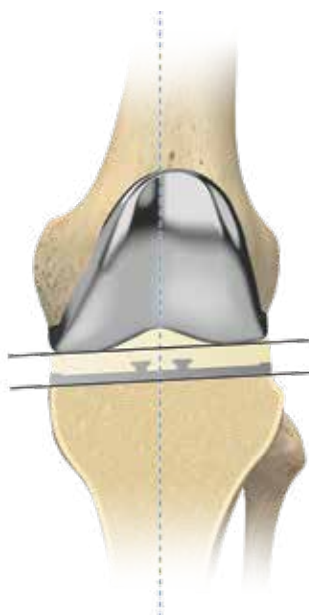
**Figure 5:** Restoration of Pre-arthritic Femoral Joint Line in Flexion

- **Tibial Proximal Resection:** On the less affected plateau, the proximal resection should be set to equal to the implant thickness (e.g., 10mm). On the more affected plateau, the proximal resection should be set to the implant thickness minus the estimated cartilage wear (e.g., 10 mm – 2 mm = 8 mm). The resulting varus/valgus angle will be representative of the patient’s pre-arthritic joint line angle (Figure 6).
  - Note: ROSA Knee limits the mechanical varus/valgus alignment to  $\pm 5^\circ$  on the tibia.



**Figure 6:** Restoration of Pre-Arthritic Tibial Joint Line

- **Overall Hip/Knee/Ankle (HKA) Alignment:** By restoring the native joint line on the femur and tibia, the patient’s overall pre-arthritic HKA alignment can be restored and the soft-tissue envelope can be preserved as much as possible (Figure 7). Using the “HKA” button on the ROSA Knee user interface, the surgeon can verify if the overall planned HKA is within surgeon-defined acceptable bounds for that patient.



**Figure 7:** Restoration of Native HKA Prior to Osteoarthritis.

For all ROSA Knee cases, the implant surgical technique, the ROSA Knee Surgical Technique and product labeling must be followed.

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