

Prophecy[®]

Pre-Operative Navigation Guides



Envision the Results[™]

Simple Instrumentation

Improved OR Time

Accurate Results



MicroPort
Orthopedics

Integrity In Motion[™]



Prophecy[®] Pre-Operative Navigation Guides

Patient satisfaction and implant survivorship in total knee arthroplasty can be directly tied to accurate alignment of the prosthetic components. Studies have shown the probability of revision surgery at fifteen years with accurate alignment is 4.7%, but the rate drastically increases to 54% with malalignment.¹⁻⁶ Prophecy[®] Pre-Operative Navigation Guides can deliver more repeatedly accurate resections for optimal function and balanced loading to the prosthesis, which can address patient dissatisfaction and minimize the risk of implant failure.



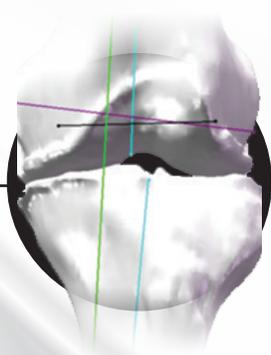
More accurate and precise alignment through a solution that can increase surgical efficiency and decrease overall operative and turnover time.

The Prophecy® Process

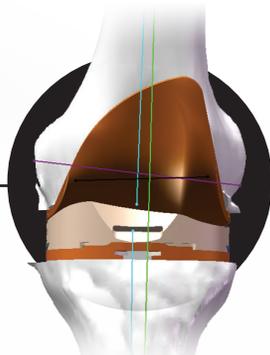
1. The patient receives a full leg CT or MRI scan following the Prophecy® protocol.
2. Virtual pre-operative alignment is performed according to surgeon preferences.
3. The surgical plan is approved by the surgeon. The surgeon may alter the plan if they wish.
4. Prophecy® patient-specific resection guides are manufactured and shipped.
5. The guides are oriented to align the femoral and tibial resections necessary for producing either neutral mechanical axis alignment or an alignment of the surgeon's choosing.



The patient receives a CT or MRI scan following the Prophecy® guide protocol.



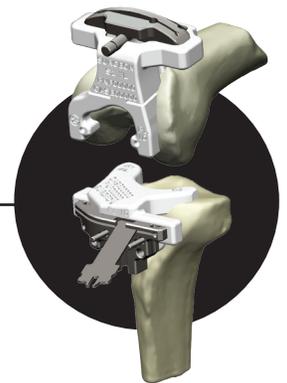
Virtual Pre-Operative alignment is performed according to surgeon preferences.



The surgical plan is approved by the surgeon.



A rapid prototyping machine produces patient-specific Prophecy® guides out of high resolution nylon. Guides are then sent out for surgery.



Surgery is performed in accordance with the Pre-Operative report.

Prophecy® guides are specifically designed to provide for accurate alignment, sizing, and implant placement.

Simple Instrumentation

Conforming Resection Guides

Prophecy® guides replace much of the standard instruments typically involved in establishing proper resections by conforming specifically to each patient's native anatomy. Through natural contours and osteophytes, the guides are designed to fit exactly to the patient for optimal alignment, implant function, and longevity.

Competitive designs require resecting through nylon cutting slots; this can create particulate debris in the joint. Prophecy® guides, however, are fully compatible with standard instrumentation and have built in housing for the metal cutting guides to provide precise, clean resections and allow the option for recuts if necessary.

Compatible with CT and MRI

Available in Two Guide Options

Alignment and Resection Guides



Pin Alignment Guides



Less instrumentation in the operating room can translate to a quicker and safer surgery for the patient and provide benefits to the surgeon and hospital.

Improved OR Time

Reduced Surgical Steps

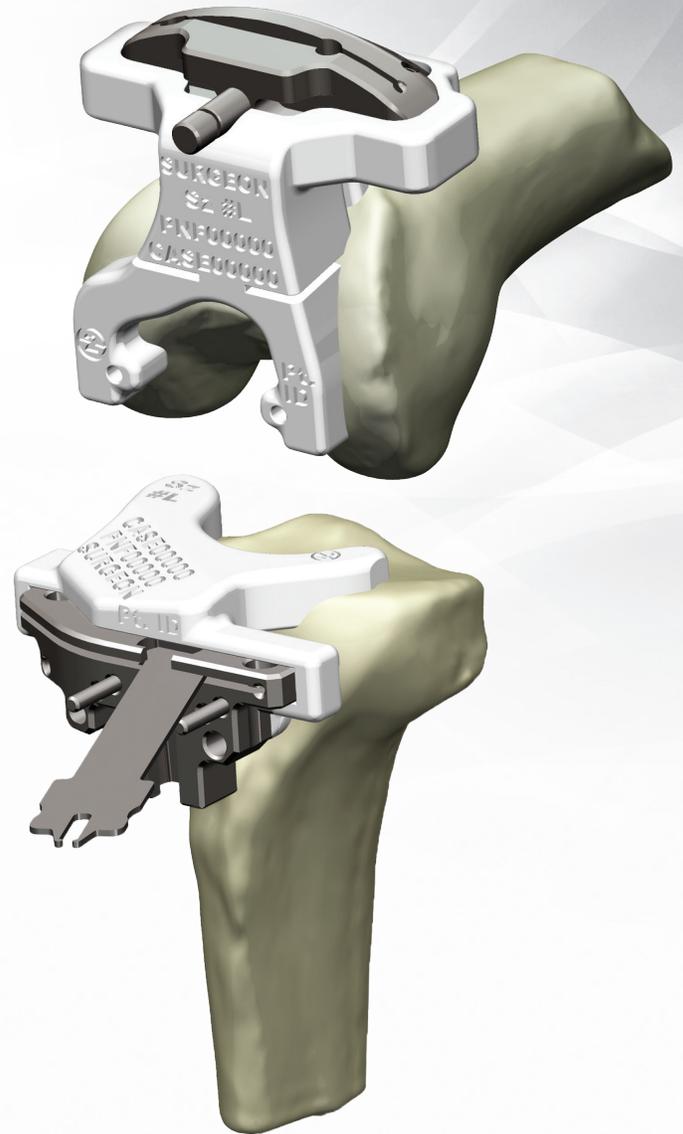
Utilizing Prophecy® guides, up to twenty or more of the surgical steps required using standard instrumentation can be eliminated. Sizing, rotation, and axial alignment of the components are all determined prior to surgery.

Reduced Operative and Turnover Time

By increasing surgical efficiency and reproducibility, Prophecy® guides can greatly reduce operative and setup time over standard instrumentation.

No IM Canal Penetration

When using standard instrumentation in TKA, surgeons must drill into the intramedullary canal to establish correct alignment, which can potentially increase the risk of intraoperative complications caused by fat embolism to the patient. Prophecy® cutting guides, however, do not require intramedullary canal penetration because alignment and rotation are established virtually prior to surgery.



Several studies found the amount of time reduced per surgery was anywhere up to 28 minutes on average using “custom cutting guides” based on reduction in preparation and operative times.⁷⁻⁸

Accurate Results

Improved Alignment

Prophecy® guides do not require intraoperative bony landmark identification to determine the ideal femoral alignment and rotation. These landmarks are often cited as unreliable when using standard instrumentation due to variations in femoral anatomy and difficulties with proper location and exposure. Prophecy® guides improve accuracy by aligning the knee pre-operatively using unobscured anatomic landmarks.

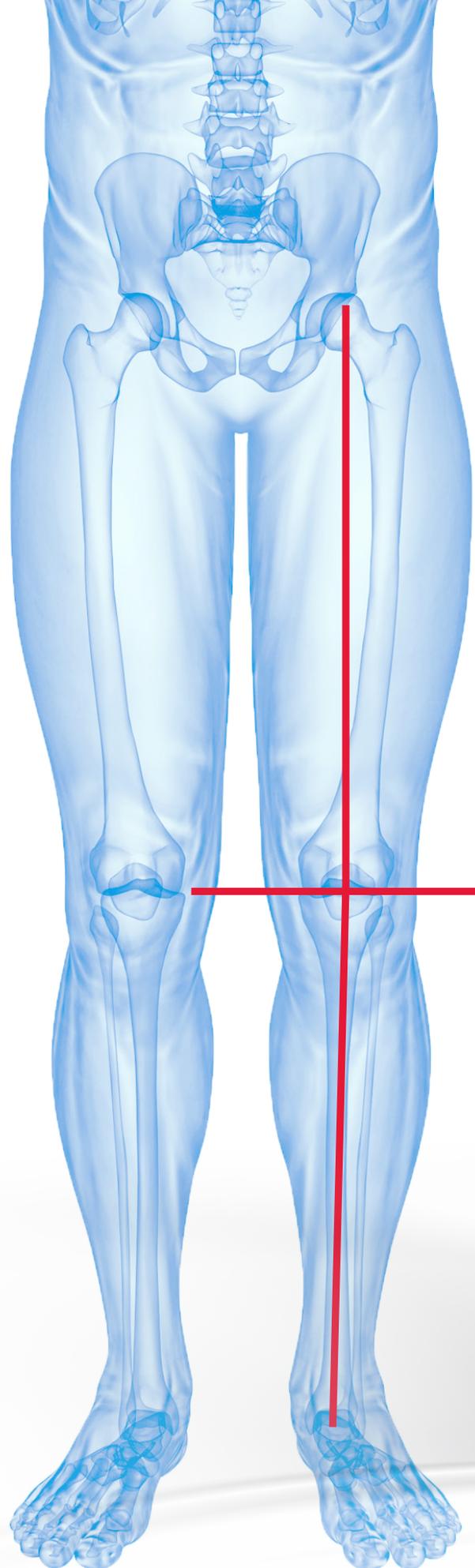
Standard Checks

Unlike other competitive designs, Prophecy® guides are fully compatible with standard instrumentation to provide secondary checks for proper alignment and resections.

Advantages:

- More consistent neutral mechanical axis alignment.
- Fewer +/- 3° outliers of the hip-knee-ankle line.
- No soft tissue impingement or issues with poor bone quality.

Standard instrumentation has been reported to result in malalignment (defined as greater than 3° deviation from the mechanical axis) in approximately 28% of knee replacement procedures.¹⁰



Solution

For Addressing Difficult Trauma or Hardware Procedures

In order to avoid removing existing hardware, Prophecy® guides can be utilized to accurately obtain the size and position of bony cuts to restore the mechanical or anatomic axis prior to surgery.

Shown in FIGURE 1, a case involving distal femoral hardware that was avoided with the use of Prophecy Pre-Operative Navigation Guides.

Minimized Risk of Fat Embolism and Intraoperative Blood Loss

When using standard instrumentation in TKA, surgeons must drill into the intramedullary canal to establish correct alignment and rotation. However, drilling into the canals can generate high pressures, causing fat particles to enter the systemic circulation. This can increase the risk of intraoperative complications caused by fat embolism.¹¹⁻¹²

By using Prophecy® guides the risk of embolism can be significantly reduced by not requiring intramedullary canal penetration, which can also translate to less overall blood loss during surgery.¹³

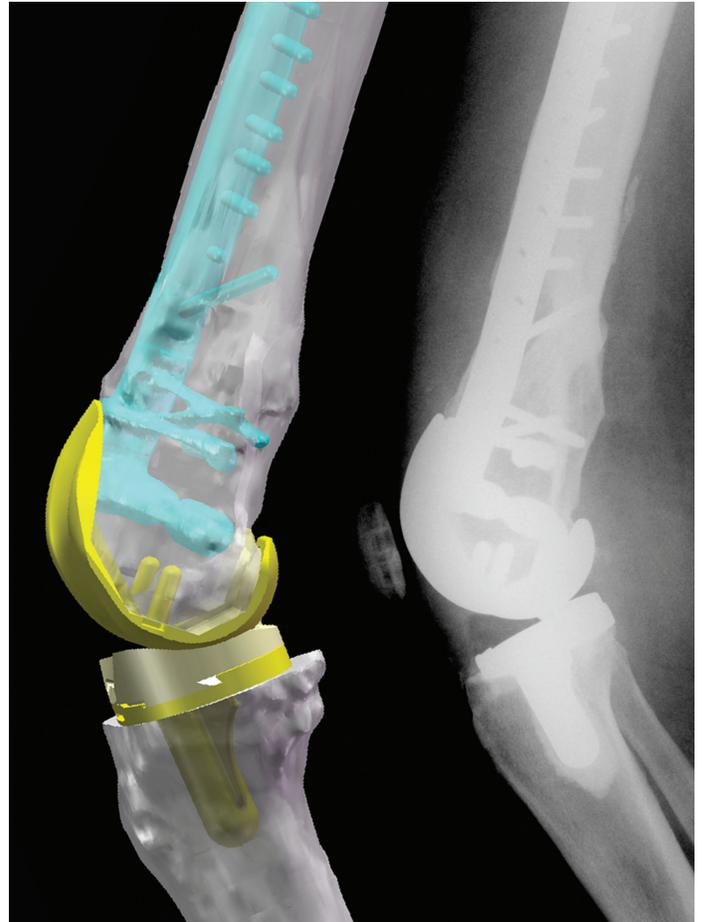


Figure 1: Prophecy® femoral guide manufactured to allow proper sizing and alignment without necessitating removal of the femoral plates.

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Cutting Edge Innovation

1/17 Rodborough Rd, Frenchs Forest NSW 2086
PO Box 6052, Frenchs Forest DC NSW 1640, Australia
Customer Service T: 1300 665 884 F: 1300 665 886
www.surgicalspecialties.com.au



MicroPort Orthopedics Inc.
5677 Airline Road
Arlington, TN USA 38002
866 872 0211

EC REP

MicroPort Orthopedics BV
Hoogoorddreef 5
1101 BA Amsterdam
The Netherlands
+31 20 545 01 00

ortho.microport.com

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