Zimmer® Unicompartmental High Flex Knee System

High-Flex Solutions for the MIS Era

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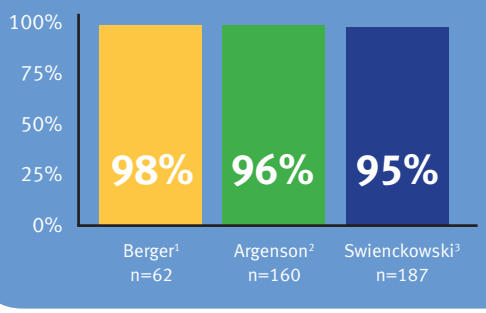
Zimmer Unicompartmental High Flex Knee
Built On Success

In today's health care environment, meeting patient demands means building on proven concepts while expanding surgical options and flexibility. The *Zimmer* Unicompartmental High Flex Knee System is based on the established implant design of the *M/G*® Unicompartmental Knee System, which has more than 10 years of clinical success.[1,2,4] The system offers a choice of minimally invasive surgical approaches while providing conservative solutions for patients with isolated osteoarthritis. This is the system that redefines UKA for the minimally invasive era.

10 Years of Clinical Success

Clinical Results – Survivorship 10-years



M/G Unicompartmental Knee System

- Over 10 years of clinical success
- Accommodates flexion up to 125˚

Zimmer Unicompartmental Knee System

- Based on the clinically successful design of the *M/G* Unicompartmental Knee
- Accommodates flexion up to 155˚

Implant Design Strategies

- Designed to facilitate minimally invasive procedures.
- Femoral geometry created specifically to accommodate high flexion.
- Tibial articular surface covers 87.8%* of tibial base plate.
- Tibial base plate dimensions provide optimal tibial coverage.
- Secure tibial articular surface/base plate locking mechanism helps minimize micromotion.
- Comprehensive tibial sizing for accurate patient matching.

The Goals of Minimally Invasive Surgery

- To facilitate the patients recovery
- To provide less pain
- To provide earlier mobilization
- To provide shorter hospital stay
- To provide quicker rehabilitation

MIS™
minimally invasive solutions

Instrumentation Strategies

- Surgical approaches include Intramedullary (IM), Extramedullary (EM), and Spacer Block Option all designed to provide accurate, reproducible bone resection and implant placement.
- Precision resection guides help optimize contact area of implant articulating surfaces.
- Linked distal femoral and proximal tibial resections with EM and Spacer Block Option approaches.
- Choice of tibial-first or femoral-first bone preparation with IM and EM approaches.
- All instruments, including provisional sets, contained in three trays for easy access and instrumentation management.

* Tibial articular surface size 2.

Multi-Approach Instrumentation

Delivering True Surgeon Choice

The *Zimmer* Unicompartmental High Flex Knee System adapts to a range of surgical approaches to satisfy specific surgeon preferences. This is accomplished with a single system of instruments that can be used with an Intramedullary, Extramedullary, or Spacer Block approach. A common tibial assembly is used in all three approaches. In addition, the instruments are designed to accommodate a smaller exposure and the procedure can be performed without everting the patella. This is the system that redefines flexibility while minimizing complexity.

Spacer Block Approach

The Spacer Block Option provides an alternate extramedullary method for resecting the distal femoral condyle. After resecting the tibia, the Spacer Block is inserted into the joint space. The Distal Femoral Resector is then attached to the Spacer Block, providing a linked resection, to help ensure that the proximal tibial and distal femoral resections are parallel.

Tibial Fixation Provisional Plates & Tibial Articular Surface Provisionals

IM Approach

In the IM approach, the Resection Guide is inserted into the femoral canal so the distal femoral resection is based off the anatomic axis. The Cutting Block is then attached to the Resection Guide and positioned to reproduce the desired angle. This results in a distal femoral resection that is perpendicular to the mechanical axis of the femur, and parallel to the tibial resection.

EM Approach

In the EM approach, limb alignment is determined and set before committing to any bone resection. Initial preparation of the distal femur and proximal tibia is achieved by linked resection guides. This creates parallel cuts and a preset space that is calculated to match the thickness of the implants and reproduce the selected alignment.

Tibial Resector Assembly

Comprehensive Sizing
Patient-Specific Results

The *Zimmer* Unicompartmental High Flex Knee System places a premium on surgeon choice and patient specificity by offering a comprehensive selection of femoral and tibial components. The system includes seven femoral component sizes, six tibial component sizes in both modular and all-polyethylene options, and six net-shape molded polyethylene tibial articular surface thicknesses. This is the system that offers comprehensive sizing and complete interchangeability for patient matching.

Femoral Component Sizing

Size	A/P Dimension
A	40mm
B	42.5mm
C	45mm
D	48mm
E	51.5mm
F	55.5mm
G	60mm

Modular Tibial Component Sizing

Size	M/L	A/P	Articular Surface Thicknesses
1	23mm	41mm	8, 9, 10, 11, 12, 14mm
2	25mm	44mm	8, 9, 10, 11, 12, 14mm
3	27mm	47mm	8, 9, 10, 11, 12, 14mm
4	29mm	50mm	8, 9, 10, 11, 12, 14mm
5	31mm	53mm	8, 9, 10, 11, 12, 14mm
6	33mm	56mm	8, 9, 10, 11, 12, 14mm

All-Polyethylene Tibial Component Sizing

Size	M/L	A/P	Articular Surface Thicknesses
1	23mm	41mm	8, 10, 12, 14mm
2	25mm	44mm	8, 10, 12, 14mm
3	27mm	47mm	8, 10, 12, 14mm
4	29mm	50mm	8, 10, 12, 14mm
5	31mm	53mm	8, 10, 12, 14mm
6	33mm	56mm	8, 10, 12, 14mm

Extended posterior condyle aids rollback and accommodates high-flexion activities.

Tibial base plate/articular surface locking mechanism designed to ensure a secure fit and help minimize micromotion.

Round-on-flat articulation provides unconstrained kinematics.

Net-shape molded polyethylene articular surface.

Tibial base plate dimensions optimized for maximum bone coverage.

Pegs and keel designed for stable tibial implant fixation.

Size A
40mm

Size B
42.5mm

Size C
45mm

Size D
48mm

Size E
51.5mm

Size F
55.5mm

Size G
60mm

Size 1
8mm

Size 2
9mm

Size 3
10mm

Size 4
11mm

Size 5
12mm

Size 6
14mm

Size 1
23mm x 41mm

Size 2
25mm x 44mm

Size 3
27mm x 47mm

Size 4
29mm x 50mm

Size 5
31mm x 53mm

Size 6
33mm x 56mm

Size 1
23mm x 41mm
(8,10,12,14mm)

Size 2
25mm x 44mm
(8,10,12,14mm)

Size 3
27mm x 47mm
(8,10,12,14mm)

Size 4
29mm x 50mm
(8,10,12,14mm)

Size 5
31mm x 53mm
(8,10,12,14mm)

Size 6
33mm x 56mm
(8,10,12,14mm)

Suggested Reading
Clinical Performance Reviews

Kennedy et al. Unicompartmental arthroplasty of the knee *Clin Orthop*. 1985.

- A presentation that describes postoperative alignment issues and the influence it has on overall results. 100 consecutive medial UKAs reviewed.
- 51-month median follow-up.
- Excellent description of the rating (described by Marmor) and mechanical axis.
- Authors describe best results from knees where the mechanical axis passed slightly medial to the center.

Berger et al. Unicompartmental knee arthroplasty. *Clin Orthop*. October, 1999.

- 62 consecutive UKAs in 51 patients were followed over 6-10 years.
- Zimmer *M/G* Unicompartmental Knee was used in all patients.
- Cemented UKA yielded excellent clinical and radiographic results.
- 10-year survival using radiographic loosening or revision as the end point was 98%.
- Mean ROM at follow-up was 120 degrees.

Argenson et al. Modern unicompartmental knee arthroplasty with cement: A three to ten-year follow-up study. *J Bone Joint Surg*. 2002;84(12).

- 3-9.3 year follow-up of 160 consecutive cemented metal-backed Zimmer *M/G* Unicompartmental Knees, in 147 patients.
- Mean follow-up was 66 months.
- HSS scores improved from 59 to 96 at time of review.
- 10-year survival rate was 94 ± 3% with revision for any reason or radiographic loosening as the endpoint.

Pennington et al. Unicompartmental knee arthroplasty in patients sixty years of age or younger. *J Bone Joint Surg*. 2003;84-A(10).

- 46 consecutive UKAs using the Zimmer *M/G* (41 patients) Unicompartmental Knee.
- All patients were under 60 years of age and active.
- Mean follow-up was 11 years.
- 42 of 45 knees had retention of all original components.
- HSS score was excellent for 93% of the remaining 42 knees and good for 7%.

References

1. Berger RA, Nedeff DD, Barden RM, et al. Unicompartmental knee arthroplasty: Clinical experience at 6- to 10-year follow-up. *Clin Orthop*. 1999;367:50-60.
2. Argenson JN, Chevrol-Benkeddache Y, Aubaniac JM. Modern cemented metal backed unicompartmental knee arthroplasty: A 3- to 10-year follow-up study. Presented at: 68th Annual Meeting of the American Academy of Orthopaedic Surgeons; Feb. 28-March 4, 2001 - San Francisco, CA.
3. Kelly MA. Minimally invasive total knee arthroplasty and the unicompartmental knee. 14th Annual Vail Orthopaedics Symposium, 2000.
4. Swienckowski J. Unicompartmental knee arthroplasty: Ten-year follow-up. 2001 Poster, Osteopathic Specialists Meeting.
5. Pennington DW, Swienckowski JJ, Lutes WB, Drake GN. Unicompartmental knee arthroplasty in patients sixty years of age or younger. *J Bone Joint Surg*. 2003;84-A(10).

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+H124975842001001/$090304R2G09-

97-5842-001-00 Rev.2 0805-K03 5ML Printed in USA