

ADVANCING
CR
KNEE IMPLANT
SOLUTIONS

Continuing the commitment.
Expanding the possibilities.



M/G™ UNICOMPARTMENTAL KNEE
TRABECULAR METAL
kinematics

NexGen® Complete Knee Solution

PROLONG™ HIGHLY CROSSLINKED POLYETHYLENE

Minimally Invasive Solutions



c r u c i a t e r e t a i n i n g

N e x G e n K n e e s

**WORKING WITH NATURE.
WORKING LIKE NATURE.**

Restoring natural, pain-free mobility is the ultimate goal of virtually any knee arthroplasty. To this end, retaining a functional posterior cruciate ligament offers opportunity to retain a degree of inherent posterior stability. It also may promote a more natural rolling and gliding movement of the femur on the tibia.



P E R F O R M A N C E

c o n f i d e n c e



w o r k i n g l i k e

BUILDING ON A SOLID FOUNDATION.

Zimmer continues its long-standing commitment to advancing cruciate retaining knee technology. From its early entry into knee implant design more than 25 years ago, Zimmer has actively and consistently advanced the technique of cruciate retaining knee arthroplasty through the development of materials, instrumentation, and innovative implant design features.



DESIGNING FOR NORMAL FUNCTION AND STABILITY.

By dedicating ongoing research and development, Zimmer is devising new technologies and applying them to cruciate retaining arthroplasty in a quest to further reduce wear, improve implant fit and fixation, increase range of motion, and facilitate the surgical technique. This is accomplished without compromising the essentials of CR arthroplasty – maintaining stability without constraint, minimizing bone resection and, wherever possible, preserving the natural soft-tissue structures of the knee joint.



These products are indicated for use with bone cement in the United States.

TECHNOLOGY AT THE FOREFRONT.

Cruciate retaining implants from Zimmer bring together innovative design, material technologies, and technique options to help the surgeon reestablish normal kinematic knee function and provide a stable prosthesis. The result is less-constrained fixed bearing knee implant options that offer strength and endurance for clinically successful knee replacements.^{1,2}

ADVANCED MATERIALS.

Critical to the clinical success of a knee replacement are the materials used. Zimmer uses compression molded ultra-high molecular weight polyethylene and metal alloys to design implants that help minimize wear while optimizing strength and endurance.

PROLONG HIGHLY CROSSLINKED POLYETHYLENE.

Designed specifically for knee replacement surgery, this highly advanced polyethylene helps reduce surface wear by 81 percent in laboratory tests*. The material also helps resist compression and tensile stresses that can cause subsurface fatigue, leading to delamination.



Prolong's three-dimensional structure created by crosslinking makes polyethylene more resistant to wear.

NexGen Primary Porous Patella with *Trabecular Metal* (Must be used with bone cement in the United States.)

NexGen CR Monoblock Tibia with *Trabecular Metal* (Hexagonal posts can be pressfit. Tibial plate must be cemented in the United States.)



TRABECULAR METAL.

The cellular structure of *Trabecular Metal*[†] resembles bone and approximates its physical and mechanical properties more closely than other prosthetic metals. *Trabecular Metal* products are available exclusively from Zimmer. Distinctive, highly porous, trabecular material is conducive to bone formation, enabling rapid and extensive tissue infiltration and strong attachment.

*Data on file at Zimmer. The results of *in vitro* wear tests have not been shown to correlate with clinical wear mechanisms.

[†]Manufactured by Implex Corp.



strength & precision

PROGRESSIVE TECHNIQUES.

Precision instrumentation facilitates the successful fit and alignment of NexGen CR implants. With every instrument set, the technique is simple, precise, and reproducible. Plus, the instrumentation offers cross-over capabilities that allow surgeons to switch techniques intraoperatively, yet use one set of primary instruments.

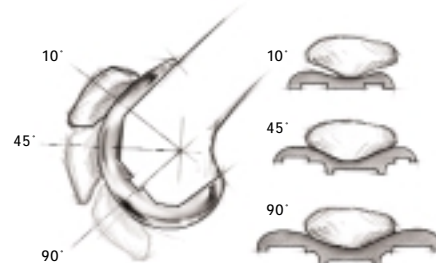
MIS™ Instrumentation provides a minimally invasive solution for unicompartmental knee arthroplasty.

MIS Unicompartmental Intramedullary Knee Instrumentation System helps to reestablish lower extremity alignment relative to the mechanical axis.

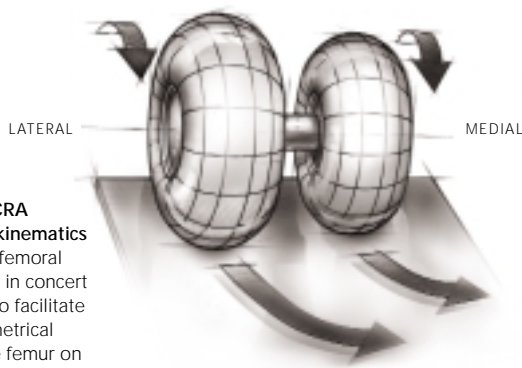


RE-CREATING NATURE BY DESIGN.

In designing cruciate retaining implants, Zimmer carefully considers sagittal curvatures and frontal geometry of the femoral component, as well as the shape of the tibial component articular surface.



NexGen CR/CRA patellofemoral articulation
A deepened patellar groove increases the contact area, and a thinner anterior flange helps relieve tension on the extensor mechanism.



NexGen CR/CRA tibiofemoral kinematics
Asymmetrical femoral condyles work in concert with the PCL to facilitate normal asymmetrical rollback of the femur on the tibia during flexion.



NexGen CR/CRA tibiofemoral conformity
Contact stresses are distributed over a wide area and slightly dishd curvature to avoid unnecessary constraint.



M/G Uni Unicompartmental Knee



Complete surgeon choice

With seven femoral A/P sizing options, the surgeon can choose the component that will fit virtually any patient with an accuracy of +/-2mm.

Optimal bone coverage, fixation, and stability

Two hourglass-shaped posts and a triangular fin give a firm three-point foundation and help to resist rotation and toggle.

Security and flexibility combined

Exclusive retaining spring mechanism allows the articulating surface to be intraoperatively inserted and changed after the fixation plate has been implanted.



NexGen CR Cruciate Retaining Knee

Different radii of curvature in the sagittal plane

Asymmetric femoral radii aid combined natural rotation and rollback, working in concert with soft tissues.

Deeper patellar groove

Enhanced trochlear recess provides for a deeper patellar groove to relieve pressure on the patella and reduce forces that can lead to premature wear or breakage.

Tibiofemoral conformity

The articulating radii ratio of 1.07-to-1 provides a high degree of conformity in the frontal plane that better distributes and reduces contact stresses.

Prolong highly crosslinked polyethylene

Three-dimensional polyethylene structure helps to reduce surface wear by 81 percent in laboratory tests* and resist compression and tensile stresses that can cause subsurface fatigue.



*Data on file at Zimmer.

CREATING A LOGICAL SELECTION PROCESS.

In any total knee arthroplasty, the selection process considers the components that will help to restore normal kinematic functions to the individual patient, as well as the surgeon's preferences for implant technique.

Zimmer cruciate retaining implants are available in an array of component sizes

and a systematic design that allows broad interchangeability among femoral and tibial components. A wide choice of implant options also provides a high level of selectivity. Diverse instrumentation helps to ensure proper orientation, alignment, and patient fit.



Modular femoral and tibial augments

For patients with inadequate bone stock, tibial and femoral augments offer true patient specificity.

Double-locking mechanism

Femoral and tibial stem housings have a double-locking mechanism for the modular stem extensions to deliver a secure attachment.



NexGen CRA

Cruciate Retaining Augmentable Knee

Double dovetail locking mechanism

Full-capture containment rail, double dovetail, and posterior undercuts provide improved security and stability of the articulating surface and minimize micromotion.

Stem extensions

Interchangeable stemmable, straight, and offset stem extensions offer optimal canal fill and component positioning.



1 *NexGen Complete Knee Solution Device Outcome Study*
Annual Report, 2002

2 Berger RA, Nedeff DD, Barden RM, et al. Unicompartmental
Knee Arthroplasty: Clinical experience at 6- to 10-year
follow up. *Clin Ortho Rel Res.* 1999;367: 50-60

For more information about CR Knee Implant
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NexGen CR and *M/G Unicompartmental*
components are manufactured by Zimmer, Inc.



CR Monoblock tibial and *Trabecular Metal* patella
components are manufactured by Implex Corp.

