Welcome to the 21st Century

In 2004, the APEX Knee™ System was designed by a team who desired to create a knee replacement system for the 21st century. The goal was to utilize features that both surgeons and engineers understand to be critical to successful total knee replacement. Without the limitations of legacy systems, the opportunity arose to create a feature rich system that is untethered to the constraints of 20 year old designs.

Combined with an intuitive surgical protocol and instrumentation, APEX Knee prostheses are able to successfully provide patients with restored range of motion, returning them to their daily activities. Coupled with OMNINAV™, featuring APEX Robotic Technology™, OMNI is at the forefront of total knee replacement surgery.
Recreating Natural Kinematics

In order to accurately address the needs of today’s patients, the APEX Knee™ System features a high flex geometry that can offer a high degree of flexion while maintaining consistent knee kinematics. With a single radius geometry from heel strike to toe-off, the APEX Knee provides smooth continuous motion through normal gait. Large spherical posterior condyles ensure that forces are distributed evenly, maintaining low contact stress, even in deep flexion.

The elongated patella track, with a built in 6° Q angle, and deep spherical groove, allows the patella to track naturally without putting additional strain on the extensor mechanism, virtually eliminating the need for lateral retinacular release. The dome shaped patella mates with the trochlear groove to ensure excellent patello-femoral contact.
Optimized patello-femoral and tibio-femoral contact areas significantly reduce contact stresses, to promote implant longevity.
Precise Insert to Femur Matching

One common issue with contemporary knee designs is the inability to consistently match the femoral condylar dimensions to the articulating tibial geometry. Often, tibial inserts are size matched to the tibial baseplate, and not the femoral component. Differences in tibial and femoral sizes can result in imperfect tibio-femoral congruency. This non-conformity can lead to increased stress on tibial inserts, and potential implant weakening or failure.

The APEX Knee™ System matches the femoral component to the tibial insert, ensuring optimal congruency, in every size combination. This is all possible due to a unique tibial insert locking mechanism that allows any size insert to be used on all tibial baseplates. Dual Dovetail locking rails on the tibial baseplate mate with any size tibial insert, and a Morse tapered bolt fixes the assembly into place.
Minimum Resection

Posterior stabilized knees are a mainstay in total knee arthroplasty. Substituting the PCL with a cam and post mechanism allows the knee replacement to go into deep flexion with added stability. The downside to this mechanism is the additional bone resection typically required to implant these devices. The APEX PS™ Knee utilizes a cylindrical resection, following the natural shape of the intercondylar fossa, preserving useful bone stock. This unique design also allows the femoral component to have an elongated patella track, increasing range of motion in flexion.

Maximum Stability

The APEX PS Knee utilizes the same anatomic features as the APEX CR™ Knee, adding a cam/post mechanism for additional stability. The cam and post are not engaged during normal gait, and rounded to avoid point contact. In flexion, the rounded cam is designed to roll down the post, and the posterior condyles maintain consistent contact with the tibial insert.
Options

The APEX Revision Knee System is the latest addition to the APEX Knee™ product family. The same principal design philosophy that produced the APEX CR™ and the APEX PS™ was maintained while building the Revision System. This includes, but not limited to, optimized tibiofemoral congruency, advanced patella tracking, and anatomic sizing.

Combined with an intuitive surgical protocol and instrumentation, the APEX Revision Knee is designed to provide surgeons intra-operative versatility, allowing them to effectively provide patients with restored range of motion and pain relief.

In order to best fit the remaining boney geometry, both the femur and tibia have a variety of augment options. The unique “waffle” design of the tibia augments allows the implant to taper the medial or lateral sides to best match the tibial geometry. Fixation stems are available in a variety of offset and length options to get ideal implant fixation.
Total Knee OMNIPlasty™

OMNIPlasty is a dynamic knee replacement procedure, utilizing robotic-assisted surgical cutting guides coupled with intelligent robotic navigation technology. Combined with advanced APEX Knee™ implant design, OMNI is pushing the limits of accuracy and efficiency in total knee replacement.

Simply put, surgical navigation is surgery with the assistance of a computer. Computers have become a part of, and changed, our everyday lives. They continue to improve how we perform simple and complex tasks, with increased accuracy and efficiency.

OMNINAV™ advanced navigation technology enables surgeons to map patient geometry and plan implant alignment in real time. The robotic cutting guide helps guide the surgeon to make his planned resections to great accuracy, potentially improving implant longevity and patient satisfaction.