

THINK[®]
SURGICAL

Open Platform Active Robotics

The Future of Total Joint Replacement 



Active Robotics

Not all robotic surgical systems are the same. The TSolution One® Surgical System is the only active robotic system for orthopaedic surgery. Our active robotic system aids surgeons in executing their preoperative plans with essentially effortless control, performing autonomous milling for bone preparation with sub-millimeter accuracy. Other surgical systems merely guide the surgeon to be within range.

Unique Advantages

As a proven clinical system, studies suggests improved fit, fill, and alignment when comparing the TSolution One to conventional joint replacement surgery. The TSolution One features include:

- Surgeon's choice of implants*
- Open platform surgical system
- Precise pre-surgical planning executed every time
- Sub-millimeter dimensional accuracy
- Precise milling for optimal alignment
- High precision smart-tool technology
- Elimination of less accurate templates and jig-based technology
- Non-optical technology

* Legally marketed implants in the U.S. and EU

Paul, H., Bargar, W., Mittlestadt, B., Musits, B., Taylor, R., Kazanzides, P., ... Hanson, W. (1992) Development of a Surgical Robot for Cementless Total Hip Arthroplasty. *Clinical Orthopaedics and Related Research*, 25, 57-66.

Nakamura, N., Sugano, N., Nishii, T., Kakimoto, A., & Miki, H. (2010) A comparison between robotic-assisted and manual implantation of cementless total hip arthroplasty. *Clinical Orthopaedics and Related Research*, 486, 1072-1081.

Engh, C.A., Bobyn, J.D., & Glassman, A.H. (1987) Porous-coated hip replacement. The factors governing bone ingrowth, stress shielding, and clinical results. *Journal of Bone & Joint Surgery*, 69(1), 45-55.



Personalized Surgical Plans for Every Patient

Core Technology

The TSolution One Surgical System utilizes the tandem technologies of the TPLAN® 3D Planning Workstation and the TCAT® Computer-Assisted Tool.

The TPLAN 3D Planning Workstation brings exceptional accuracy to personalized pre-surgical planning. The TCAT Computer-Assisted Tool executes the pre-surgical plan with unparalleled precision.

These revolutionary technologies are the future of total joint replacement surgery.

The TSolution One® Surgical System is the only active robotic system cleared by the United States FDA for total hip arthroplasty for both stem and cup placement. The TSolution One core technology has been used in thousands of successful total joint replacements for both hip and knee* worldwide.



*TSolution One Core Technology



Revolutionary Pre-Operative Planning for Optimal Post-Operative Results

Personalized Pre-Surgical Plans with 3D Visualization

- Make preoperative decisions with TPLAN.
- TPLAN facilitates the design of customized procedures based on patients' unique anatomy.
- Optimize the plan - and the results - before stepping into the OR.



How it Works

- Plan the procedure using 3D models generated from CT scan data
- Examine the entire joint anatomy in AP, lateral and transverse views
- Choose the ideal implant from the TPLAN library of legally marketed implants
- Optimize the implant size, fit, and position based on individual patient anatomy

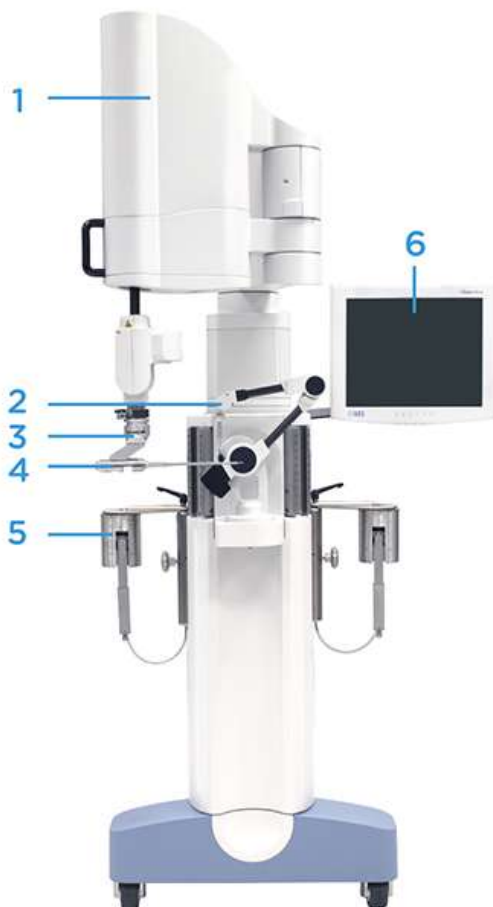




Bone Preparation with Sub-Millimeter Accuracy

Precise Computer-Assisted Preparation of the Bone Cavity and Joint Surfaces

The TCAT Computer-Assisted Tool executes the surgeon's designated pre-operative plan through automated bone milling with sub-millimeter accuracy. The surgeon maintains complete control of the system through the use of a handheld pendant. Therefore, the surgeon applies less physical labor while achieving precise milling at the touch of a button.



1. TCAT Arm
2. Digitizer
3. Coupler
4. Cutting Tool
5. Bone Motion Monitor
6. Monitor
7. Pendant

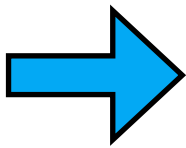
How it Works for Knee

- Bone registration is simplified by the digitizer; there is no need to find anatomical landmarks intra-operatively
- The bone motion monitoring system halts the cutting tool if bone motion occurs
- Precise femoral and tibial resurfacing facilitates optimized placement of implants with improved cavity fit, fill, and alignment



"The TSolution One Active Robotic system is the most sophisticated and accurate surgical tool I have used in more than 30 years of a total joint replacement practice. It will lead the way to replace mechanical instruments—including surgical saws and reamers, for common arthroplasty procedures, while enhancing the accuracy of our reconstructions."

Bernard N. Stulberg, MD
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MKG-17-26 Rev 02