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Mako

Mako
Spine

Mako

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Introducing
Mako 4

With more than 1.5 million hip and knee Mako procedures performed around the world, including in 45 countries and in every U.S. state over the last 19 years,[1] you can trust us to be your reliable ally in robotics. The arrival of Mako 4 brings us into our fourth generation of surgical robotics.

Mako has been featured in over **500** peer-reviewed manuscripts,[1] establishing it as a well-studied and well utilized technology

Mako Systems are installed across **45** countries[1]

Mako is a trusted technology with a footprint across sites of care including **ASC's and teaching institutions**[2-4]

Mako Spine comes with **marketing resources, a comprehensive service program, surgeon training, and clinical and technical support** from our Clinical Specialist team

Mako SmartRobotics™
Welcome to **more**

Simplify planning and performance with **Mako Spine**
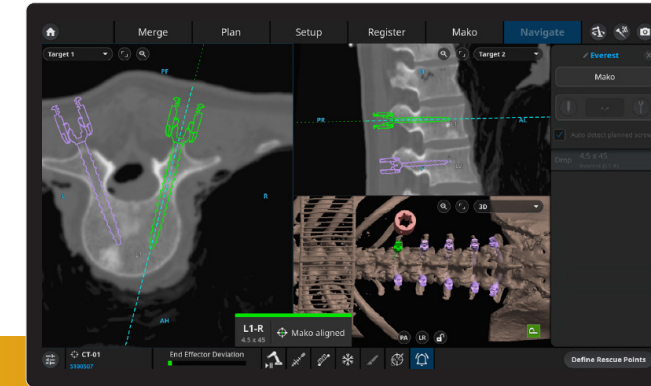
Confidence with AccuStop™ haptic technology

Mako Spine is designed to give you confidence that you're executing your procedure to plan.

Mako Spine

- Designed to support correct level selection with visual level indication and haptic feedback
- Has been shown to provide accurate and repeatable trajectory guidance for drilling, tapping and placing pedicle screws[1]
- Allows for reduced errors associated with non-navigated/non-robotic screw placement[1]

Mako puts the control
in your hands

Mako Spine allows for free positioning of the unit and robotic-arm, unrestricted level selection and lock-and-hold features to help provide stability within haptic boundaries.

Surgeon driven, robotic-arm assisted

- Once the surgeon moves the robotic-arm to the area of interest and a vertebral level is identified, Mako Spine is designed to leverage AccuStop™ haptic technology to enable alignment to, and help provide stability within, the haptic boundaries of a pre-planned trajectory that has been suggested by the software and confirmed by the surgeon, based on a patient's unique anatomy.
- Seamless transition between navigated and non-navigated workflows
- Position the Mako System anywhere in the OR thanks to patient registration that is independent of robotic-arm registration*
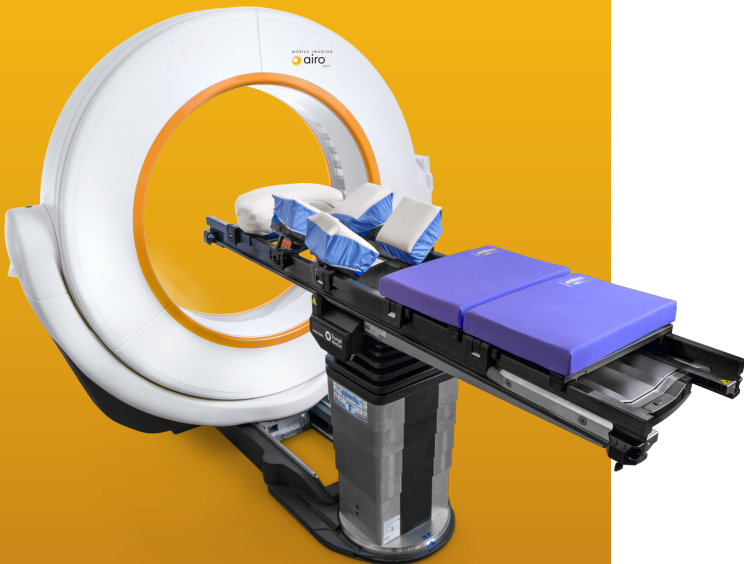- Complete your Mako Spine set-up with a single-step registration process

* The Mako Robotic-Arm must be positioned within view of the Q Guidance FP8000 camera.

Integrated technologies
maximized for Mako Spine

Airo TruCT

- Diagnostic image quality
- Dose modulation
- Large scan volume
- Highly mobile

FP8000 camera

- Up to 15x faster than the competition[1]

Flexibility

- Multiple tracking methods, including full spectrum active/passive hybrid optical tracking

Dual PCs

- Designed to ensure consistent, low latency computation of position and orientation of tracked instruments, independent of workload running on application PC[1]

Q Guidance System

- Smart Segmentation
- Automatic and customizable screw suggestions
- Auto-detect planned screw
- Screw guidance view
- Specialized algorithms designed to optimize screw placement and reduce the occurrence of screw breaching
- Extended tab visualization for MIS screw system
- Rod visualization and length estimation

Spine Guidance Software

Copilot

Smart Zones
for bone resection*

Follow your plan in near real-time regardless of hand position or drill orientation

Smart Zones

Collision alerts with the high speed drill are designed to give assurance, allowing you to hear and feel when you cross pre-planned boundaries of anatomical no-fly zones

Smart Tracking with 360 ActiveTrack technology

Powered by ActiveTrack technology and enabled by our FP8000 camera, Copilot Q 360 Tracker allows you to follow your plans in near real-time, regardless of your hand position or drill orientation.

*Mako Spine is intended for use during pedicle preparation and screw placement, and can be used together with the Q Pedicle Instruments and Copilot Smart Driver.

### Smart screw placement
with automatic depth stop

Once a vertebral level is identified, Mako Spine holds a guide tube in place, allowing you to drill, tap, and place pedicle screws in a pre-planned size and trajectory that have been automatically suggested by the software and confirmed by the surgeon, based on a patient's unique anatomy.

Automatic depth stop

The Copilot Smart Driver stops automatically when it reaches a pre-planned depth, supporting precision during pedicle screw placement

Compatible with:

- ES2
- Everest
- Everest MI
- Everest MI XT
- Mesa 2
- Serrato
- Xia 3
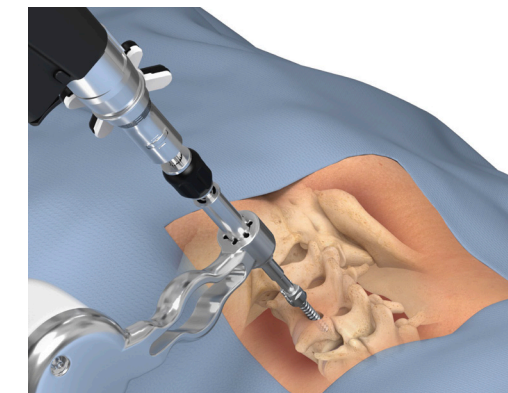
Mako SmartRobotics™

combines 3D CT-based planning and AccuStop™ haptic technology for level and trajectory guidance in spine surgery

Mako Spine seamlessly integrates with our OR technologies, simplifying imaging, planning, and surgical execution

Imaging

Seamless integration and automatic registration with the Airo TruCT and Ziehm RFD 3D C-Arm imaging systems

Planning

Streamlined and simplified surgical planning and workflow thanks to Smart Segmentation and automatic screw suggestion

Execution

SmartRobotics™ takes Copilot's capabilities to the next level, enabling screw placement confidence with automatic depth stop

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The next generation of Mako isn't just about what it does. It's about who it serves - more surgeons, more patients, across more specialties and more procedures.

Mako means more than ever.
Let us show you all the possibilities.

References

1. Stryker data on file

2. Mahoney O, Kinsey T, Sodhi N, et al. Improved Component Placement Accuracy with Robotic-Arm Assisted Total Knee Arthroplasty. J Knee Surg. 2022;35(3):337-344

3. Sicat CS, Buchalter DB, Luthringer TA, Schwarzkopf R, Vigdorchik JM. Intraoperative Technology Use Improves Accuracy of Functional Safe Zone Targeting in Total Hip Arthroplasty. J Arthroplasty. 2022;37(7S):S540-S545

4. Kayani B, Konan S, Tahmassebi J, Rowan FE, Haddad FS. An assessment of early functional rehabilitation and hospital discharge in conventional versus robotic-arm assisted unicompartmental knee arthroplasty: a prospective cohort study. Bone Joint J. 2019;101-B(1):24-33