



TIMKEN | PRECISION DRIVES

for MEDICAL AUTOMATION

PRECISION MOTION FOR ADVANCED MEDICAL EQUIPMENT

From surgical robotics and diagnostic systems to laboratory automation and patient positioning, Timken Precision Drives delivers compact, precise motion technologies for advanced medical equipment.

Surgical Robotics

Diagnostics

Lab Automation

Imaging

Patient Positioning

Pharmacy Automation

Designed to Meet Critical Requirements

- ✓ High positioning accuracy
- ✓ Zero or low backlash
- ✓ Smooth, precise motion
- ✓ Compact lightweight designs
- ✓ Long service life and reliability

Timken Precision Drives combines **strain wave, cycloidal, planetary, worm, and micro gearing technologies** with **integrated actuators, precision bearings, high-resolution encoders, and custom motion solutions** to help medical equipment manufacturers solve demanding automation and positioning challenges.



Surgical Robotics

Built on Timken Capabilities

- ✓ Global manufacturing and support
- ✓ Collaborative application engineering
- ✓ Advanced engineering and R&D resources
- ✓ Decades of proven quality systems
- ✓ Standard, modified, and custom solutions
- ✓ Multiple precision motion technologies



Laboratory Automation



Imaging and Positioning

Precision motion. Global engineering and manufacturing. Timken quality.



TIMKEN

PRECISION DRIVES

**SPINEA****TIMKEN
ENCODERS**

ONE PARTNER. MULTIPLE MOTION TECHNOLOGIES.

Distinct technologies engineered for different motion challenges.
Together, they create one of the industry's most comprehensive precision motion portfolios.



STRAIN WAVE GEARING

Compact, zero-backlash precision

- ✓ Zero backlash
- ✓ High reduction ratios
- ✓ Exceptional positioning accuracy



CYCLOIDAL GEARING

High torque and exceptional rigidity

- ✓ High torque capacity
- ✓ Exceptional torsional stiffness
- ✓ DriveSpin® integrated actuators



WORM GEARING

Reliable right-angle motion

- ✓ High torque capacity
- ✓ Wide range of reduction ratios
- ✓ Flexible mounting configurations



PLANETARY GEARING

Compact, efficient power transmission

- ✓ High power density
- ✓ Low backlash options
- ✓ Efficient torque transmission



SLEW BEARINGS & DRIVES

Integrated rotary positioning

- ✓ High-capacity rotary positioning
- ✓ Smooth rotary positioning
- ✓ Bearing and drive configurations



MICRO GEARING

Miniature precision motion

- ✓ Extremely small package sizes
- ✓ Precision gearheads
- ✓ Custom configurations available



MAGNETIC ENCODERS

High-resolution motion feedback

- ✓ High-resolution position sensing
- ✓ Accurate speed feedback
- ✓ Compact, integrated design



ENGINEERED SOLUTIONS

Integrated motion solutions

Standard, modified, and custom solutions backed by application engineering expertise.

Why Timken Precision Drives?

- ✓ Multiple Motion Technologies
- ✓ Proven Quality & Reliability
- ✓ System-Level Engineering
- ✓ Global Support
- ✓ Standard, Modified, & Custom Solutions
- ✓ 125+ Years of Innovation

One Partner. Every Motion Challenge.