TIMKEN | PRECISION DRIVES

for SEMICONDUCTOR MANUFACTURING

RELIABLE MOTION FOR ADVANCED SEMICONDUCTOR EQUIPMENT

From wafer handling and inspection to precision positioning and factory automation, Timken Precision Drives delivers compact, accurate motion technologies for demanding semiconductor equipment applications.

Wafer Handling **Inspection** **Metrology** **Precision Positioning** **Robotics** **Factory Automation**

Designed to Meet Critical Requirements

- ✓ High positioning accuracy and repeatability
- ✓ Zero or low backlash
- ✓ Smooth, controlled motion
- ✓ Compact, space-efficient designs
- ✓ High stiffness and reliable operation

Timken Precision Drives combines **strain wave, cycloidal, planetary, and micro gearing technologies** with **high-resolution encoders, precision bearings, and engineered motion solutions** to support accurate positioning and automation throughout semiconductor manufacturing equipment.



Semiconductor Automation

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



Inspection



Precision Material Handling

Precision motion. Global engineering and manufacturing. Timken quality.

TIMKEN | PRECISION DRIVES

Cone Drive · CGI · 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

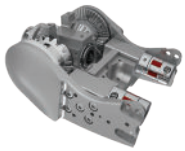
- ✓ High power density
- ✓ Low backlash options
- ✓ Efficient torque transmission



SLEW BEARINGS & DRIVES

Integrated rotary positioning

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



MICRO GEARING

Miniature precision motion

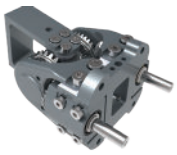
- ✓ Extremely small package sizes
- ✓ Precision gearheads
- ✓ Custom configurations available



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.