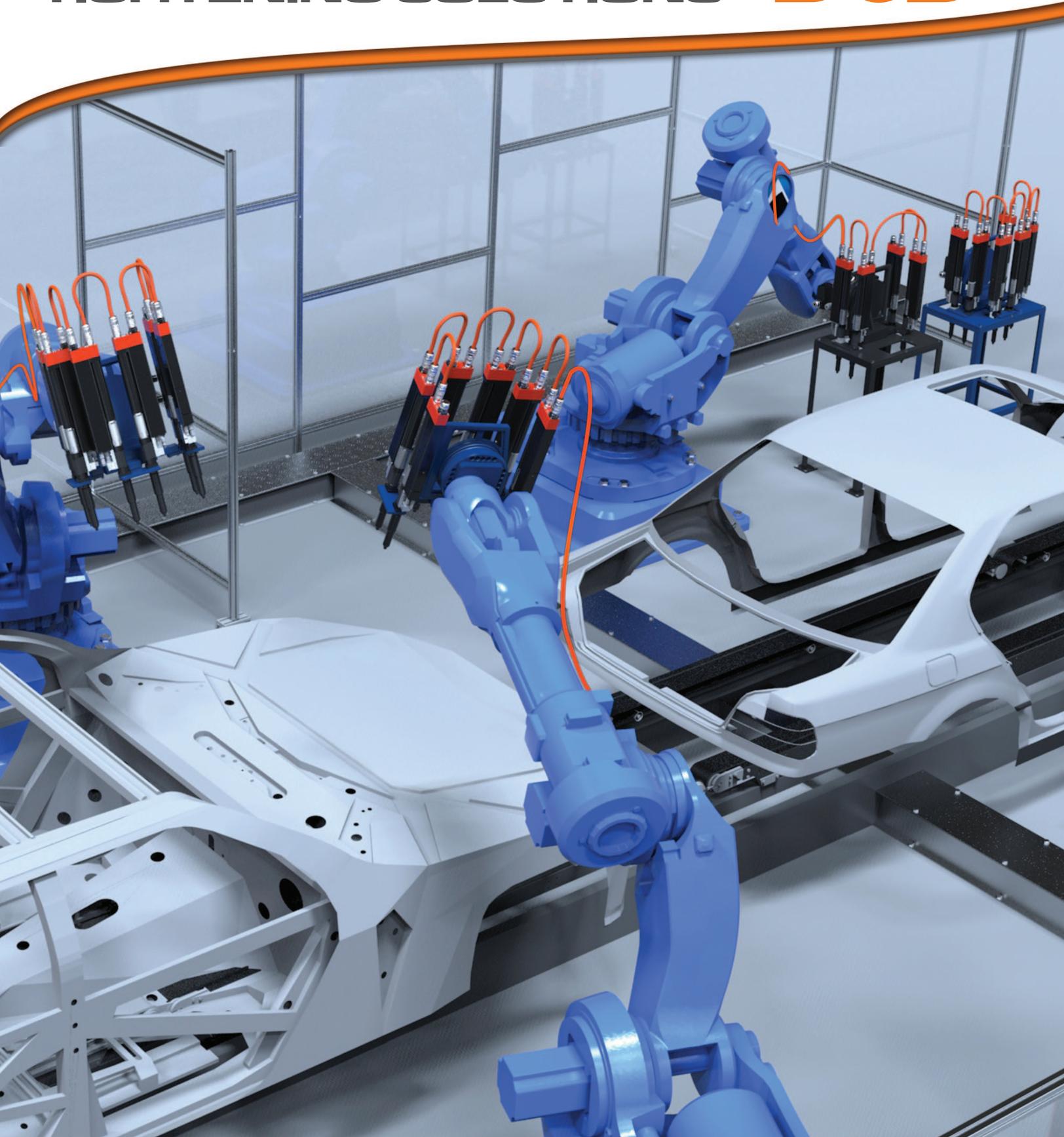


ULTIMATE ROBOT TIGHTENING SOLUTIONS



INTELLIGENT SPINDLE SOLUTIONS
ENABLE HIGHER PRODUCTIVITY

THE VALUE OF INTELLIGENT SPINDLE:

Increase your productivity and reduce your ROI time which provide the following advantages of up to:

- 25% reduction in total cost of ownership
- 25% reduction in need for spare parts
- 50% reduction in floor space usage
- 50% reduction in installation cost

2ND STATION HIGH-PERFORMANCE INTELLIGENT SPINDLE ADVANTAGE

- Single cable for a group of spindles: *Apex Tool Group is the only supplier of this technology*
- One controller for multiple group of spindles
- Simple cable management
- Industry-leading speed
- Simple integration

INTEGRATOR BENEFITS

- Quick integration and start-up
- Reduced system complexity
- Simple cable management
- Use robots with smaller pay load capacity

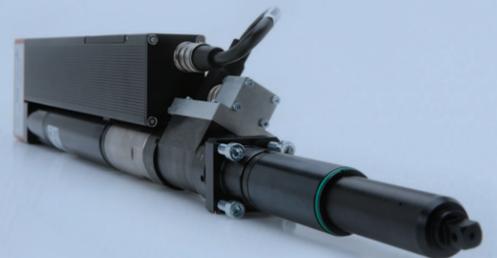
1ST STATION CONVENTIONAL SPINDLES

- One power drop required per controller
- Elaborate cable festooning required
- One controller required per spindle
- One cable required per spindle
- Higher total cost of ownership over intelligent spindles



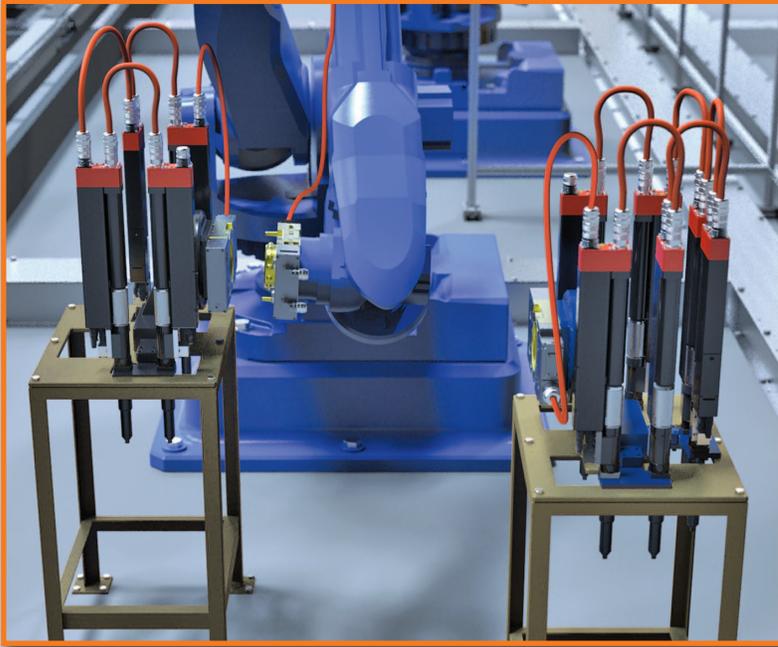
3RD STATION INTELI-SWAP: AN INDUSTRY FIRST

- One controller for multiple groups of spindles
- High flexibility and ease of reuse
- Rapid plug-and-play
- Reduced floor space



**INTELLIGENT SPINDLE
SOLUTIONS ENABLE
HIGHER PRODUCTIVITY.**

ULTIMATE ROBOT TIGHTENING SOLUTIONS



INTELI-SWAP AN INDUSTRY FIRST:

Our patented technology in conjunction with an automatic tool changer enables rapid changing from one group of spindles to another using a common controller.

This results in:

- *minimal floor space consumption*
- *reduced capital equipment cost*
- *lower total cost of ownership*
- *improved productivity*
- *increased flexibility*

SYSTEM STRUCTURE

WORLD-CLASS FIXTURED SPINDLES

TORQUE RANGE FROM 5-2800 NM

We offer a complete portfolio of wireless, conventional, and intelligent spindles, that are controlled by the Cleco® mPro400 global controller.



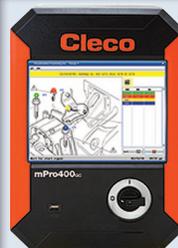
Mini intelligent spindle

Intelligent spindles with simple cable management

CABLES:



- ◆ Patented architecture allows a group of spindles to be controlled by a single cable
- ◆ Super high-flex field cables have been tested to **7 million cycles** without failure
- ◆ Can easily be used on robots with hollow or solid wrist to the EOAT



mPRO400 CONTROLLER:

- ◆ The mPRO400 global controller is able to control all of our tools, spindles, and torque wrenches
- ◆ mPRO400 can handle up to 32 spindles from a single controller
- ◆ Compact foot print that saves on floor space