Case Study | Columbus, OH

PRECISION MANUFACTURING TURNTABLE

How a Custom 24SRI Turntable Brought Lash-Free 180° Positioning to a Live Transfer-Cart Line

Product Installed: Carousel-USA 24SRI Precision Manufacturing Turntable

OVERVIEW:

Cummins Inc., a global leader in power solutions, needed a turntable that would integrate directly into an existing manufacturing line at its Columbus, Ohio facility. An existing railed transfer cart had to roll onto the turntable, rotate 180° in either direction, and return to a fixed position with automated, repeatable precision — cycle after cycle, as part of the normal production flow.

Carousel-USA engineered and delivered a fully customized 24SRI turntable that dropped into the live line and met its structural, alignment, and operator-safety demands — without reworking the existing cart or floor rails.

THE CHALLENGE:

The turntable had to satisfy several demands common to live production lines:

- Top-mounted tracks aligned exactly with the fixed floor tracks, in both directions of travel
- Lock and hold at position with no rotational lash once rotation stops
- Controls that prevent unintended operation
- Active detection of human presence in the surrounding work zone

They needed a solution that was precise, repeatable, and safe to run alongside personnel — without disrupting the broader line.

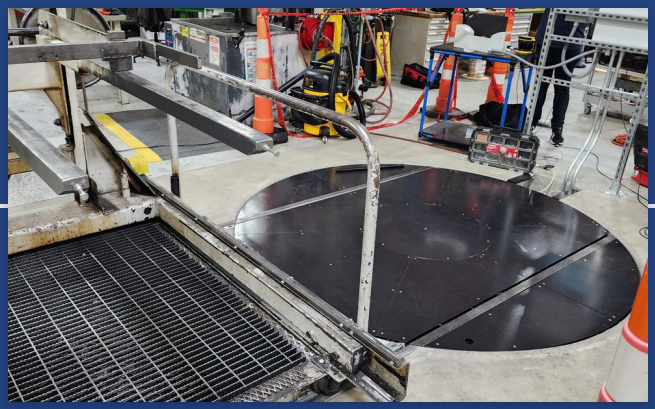
THE SOLUTION: 24SRI PRECISION TURNTABLE

Carousel-USA engineers designed a Model 24SRI turntable built around a precision center bearing that retains its center axis through millions of cycles, with flush-mounted 1045 steel tracks carried on smooth steel top panels so the existing transfer cart rolls across the transition without interruption.

To eliminate rotational lash, a pneumatic shot pin engages at the 180° position and firmly latches the turntable in place once it stops, while a passive mechanical cart latch secures the cart itself while it is aboard.

KEY FEATURES

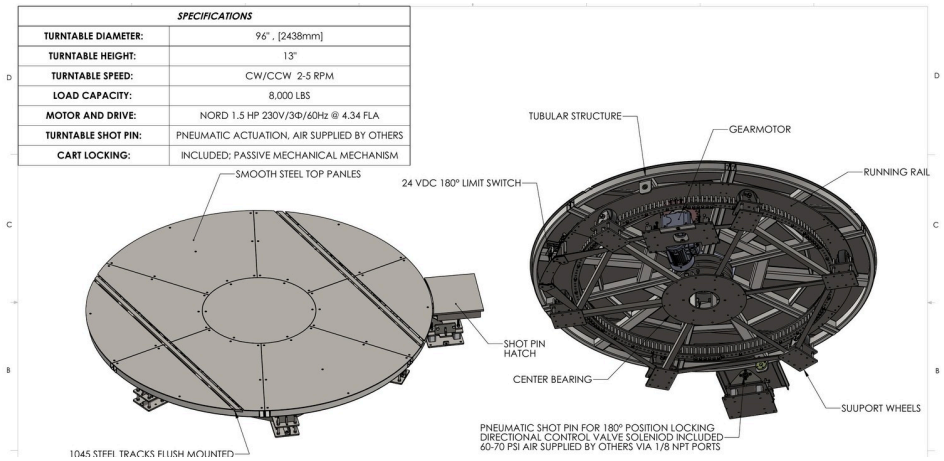
- **NORD 1.5 HP gearmotor** — 2–5 RPM rotation, clockwise or counter-clockwise
- **8,000 lb load capacity** — six 2,500 lb wheel assemblies plus a 4,000 lb center bearing
- **±0.09″ track alignment** — flush 1045 steel tracks laser-set to the existing floor rails
- **Pneumatic shot-pin locking** — 24 VDC position confirmation, 60–70 PSI actuation, zero lash
- **Integrated operator safety** — area scanners slow and stop the table when personnel enter the zone
- **Made in the USA** — designed, engineered, and fabricated in Fontana, CA



The completed 24SRI turntable — smooth steel top with flush-mounted tracks (left), and the tubular steel structure set into the pit alongside the Carousel-USA control panel (right).

DESIGN PROCESS:

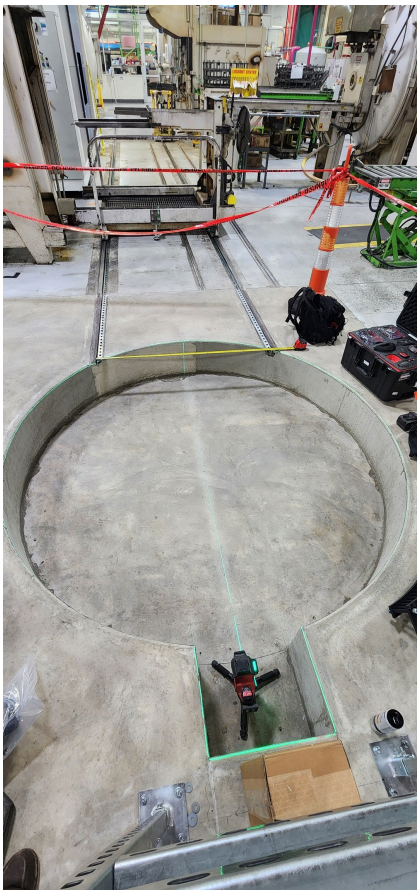
Beyond the drivetrain and locking hardware, the Carousel-USA controller manages the full set of input and output signals and choreographs the motion sequence — rotation, position confirmation, pin engagement, and release. For operator safety, Carousel-USA controls engineers integrated area scanners that monitor the surrounding zone. If a person enters the designated area, the system immediately slows and shuts down, protecting personnel without disrupting the broader line.



General arrangement of the Model 24SRI turntable — the smooth steel top (left) and internal structure (right), showing the gearmotor, center bearing, running rail, support wheels, and pneumatic shot pin.

IMPLEMENTATION:

On site, the turntable was set into a 13″-deep concrete pit, with the wheel assemblies, center bearing, drive motor, shot pin, and limit switch anchored to the pit floor. The flush-mounted tracks were then aligned to the existing floor rails — laser-checked and adjusted to within ±0.09″ — so the existing transfer cart crosses the transition in either direction without interruption, and the smooth steel top panels finish flush with the surrounding floor for a clean transfer.



Laser alignment of the concrete pit against the existing floor tracks at the Cummins facility.

RESULTS:

The 24SRI turntable integrated cleanly into Cummins' existing production line, delivering controlled 180° rotation with repeatable, lash-free positioning and flush tracks matched to the cart already in service.

- Repeatable, lash-free 180° positioning locked by the pneumatic shot pin
- Flush track alignment to within ±0.09″ for uninterrupted cart transfer
- Existing transfer cart and floor rails reused — minimal line disruption
- Integrated area-scanner safety for operation alongside personnel

By reusing the existing transfer cart and aligning to the established floor rails, Carousel-USA delivered a solution that dropped into the line with minimal disruption — **engineered, fabricated, and built in Fontana, CA.**

CarouselUSA
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