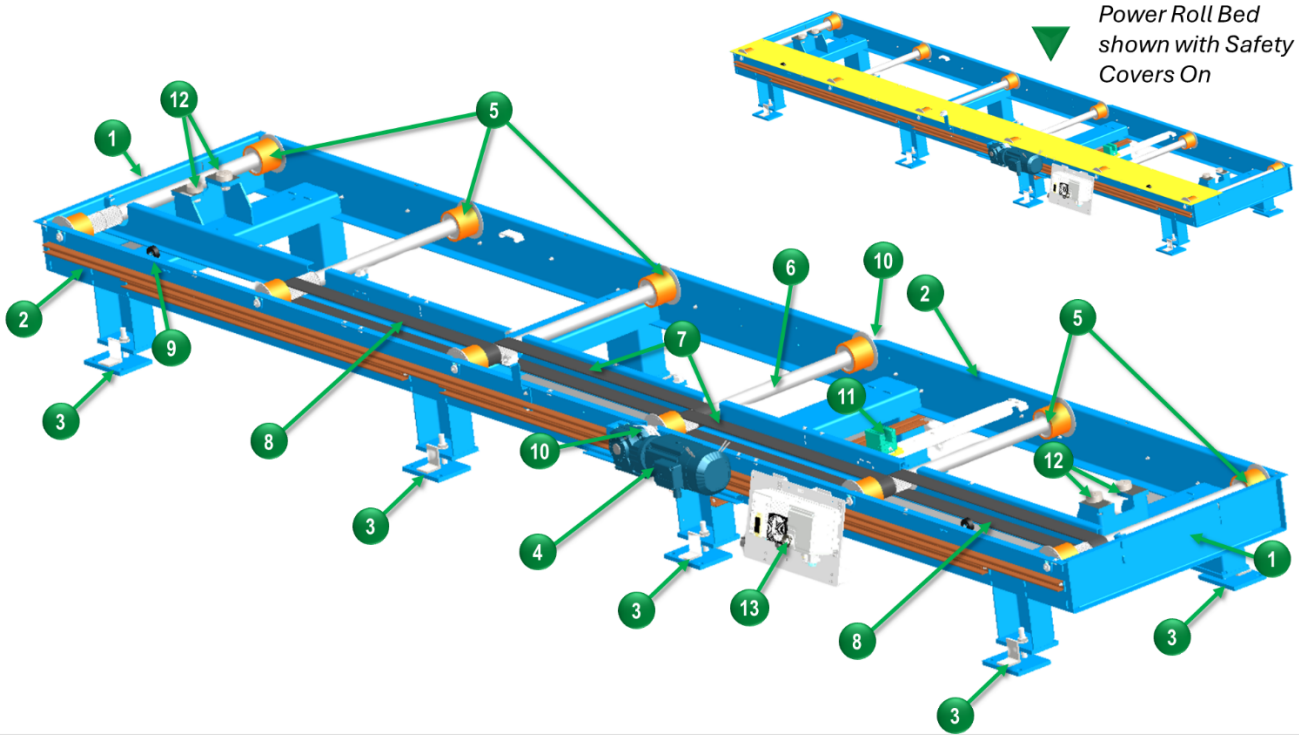
Power Roll Bed Normal Application Typical Components



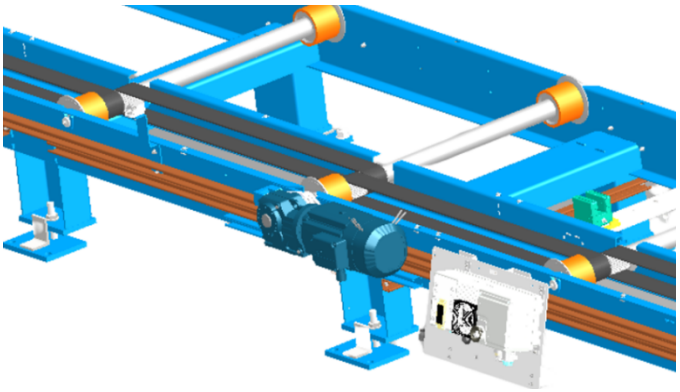
Power Roll Bed - 3D rendition of 6 Roll shown with safety covers removed to show detail.

1	Dashboard	6	Drive Roller	11	Bar Code Reader*
2	Side Frames	7	Drive Belts	12	Cam/Guide Rollers*
3	Adjustable Feet	8	Driven Belts	13	Proximity Switch**
4	Gearmotor	9	Anti-Static Assembly	14	Independent Drive Controller (IDC)
5	Driven Rollers	10	Flange Bearing		

** - Optional items on select Power Roll Beds.*
*** - Not shown in this 3D rendition.*

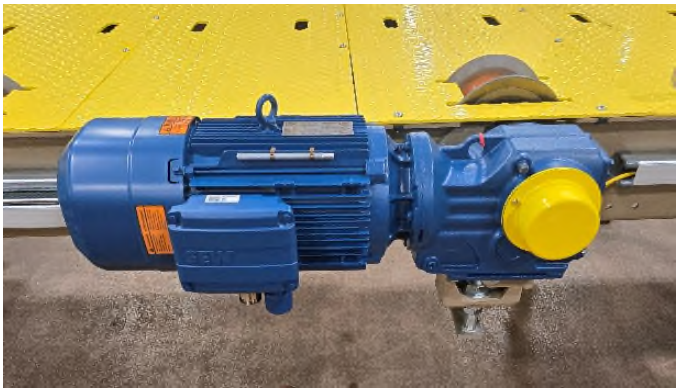
Power Roll Bed Normal Application Overview

Power Roll Beds are a cornerstone of FATA Automation's innovative approach to skid conveyor systems, integrating modularity, durability, and adaptability to meet the rigorous demands of modern industrial environments. These beds are engineered to facilitate smooth and reliable movement of skids within large-scale manufacturing plants, particularly in the automotive sector, where efficiency and precision are paramount.



Power Roll Bed showing gearmotor, rollers, IDC and belts.

At the heart of a Power Roll Bed lies a modular philosophy, enabling flexible deployment and maintenance. The design leverages common, interchangeable components—motors, belts, rollers, switches, cords, and trunk cables—assembled as a complete package. This modularity not only simplifies installation but also streamlines replacement and upgrades, reducing downtime and lowering total cost of ownership.



Power Roll Bed with drive mounted externally.

Each bed is constructed from bent Z-profile side frames, which serve as the mounting structure for the carrying rollers. The bent Z-profile provides both rigidity and ease of assembly, ensuring that the Power Roll Bed can withstand significant operational stresses while maintaining alignment and stability. The side frames have a standardized height of 200 mm, providing consistent mechanical support and simplifying integration with other conveyor modules.

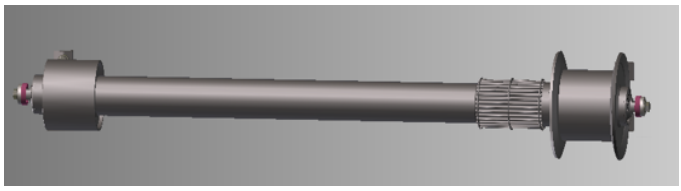
The Power Roll Bed's side frames are complemented by dashboard-style connecting ends at both the front and rear, facilitating secure attachment in linear or networked conveyor layouts. Beneath the frame, adjustable support feet offer a height range of 25 mm, allowing installers to fine-tune the bed height to suit floor irregularities or specific application demands. This adjustability ensures that the top of the conveyor remains level, optimizing skid transport and minimizing mechanical wear.

Typically, the vertical distance from the top of the floor to the bottom of the skid is approximately 500 mm. This dimension is critical in maintaining ergonomic and operational consistency throughout the entire conveyor system, ensuring that skids are always positioned for optimal accessibility by machinery or personnel.

Rollers are the primary moving components, and their arrangement defines the bed's functional scope. Power Roll Beds are available in lengths ranging from a single roller (bed length 310 mm) to nine rollers (bed length 8862 mm). This range accommodates diverse facility layouts, from compact assembly lines to extensive transfer systems.

The rollers themselves feature a standard track width of 956 mm, measured from center to center across the 2 5/8-inch-wide skid runners. Supporting width is set at 97 mm, providing adequate stability for heavy loads while minimizing lateral movement. The inter-roller distance is 864 mm, calibrated to support skids of varying dimensions and weights without risking sagging or misalignment.

A defining feature of each Power Roll Bed is the presence of at least one drive roller assembly constructed entirely from steel. This not only delivers robust mechanical power but also serves a critical safety function by discharging static voltage from the skid. In industrial environments where static buildup can damage sensitive components or pose safety hazards, this design consideration reflects FATA Automation's commitment to reliability and operator safety.



Drive Roller Assembly.

The typical drive roller assembly comprises a flange disc on either side and a polyurethane-coated center with a 125 mm diameter. The continuous solid shaft incorporates internal bearings, securely locked at each shaft end. This bearing system ensures smooth rotation and longevity, resisting wear even under heavy, continuous loads.

The drive frame unit can be flexibly mounted between side frames—often near the bed's center—or externally, depending on customer requirements and specific application constraints. The gearmotor, an integral part of the drive unit, is configured with a double tooth pulley attached to its shaft. This assembly drives adjacent rollers using timing belts, which, in turn, propel the skids along the conveyor bed.

By utilizing timing belts and double tooth pulleys, the Power Roll Bed achieves synchronized movement across multiple rollers, reducing slippage and ensuring consistent transport speeds. This is especially important in automated manufacturing, where precise timing and predictable motion are vital for process integration.

FATA Automation offers a suite of cover options to protect belts and pulleys from debris, accidental contact, or environmental exposure. Customers may opt for full guard plates, which enclose the entire Power Roll Bed, or select partial covers for targeted protection. These covers not only enhance operator safety but also extend the lifespan of mechanical components by shielding them from contaminants.

The operation of each Power Roll Bed is governed by an integrated drive controller (IDC), which ensures precise and reliable functioning. The IDC manages motor speed, roller synchronization, and safety interlocks, enabling seamless communication with broader conveyor control systems. This integration allows facilities to implement complex automation strategies, from simple start/stop controls to advanced feedback loops and error diagnostics.

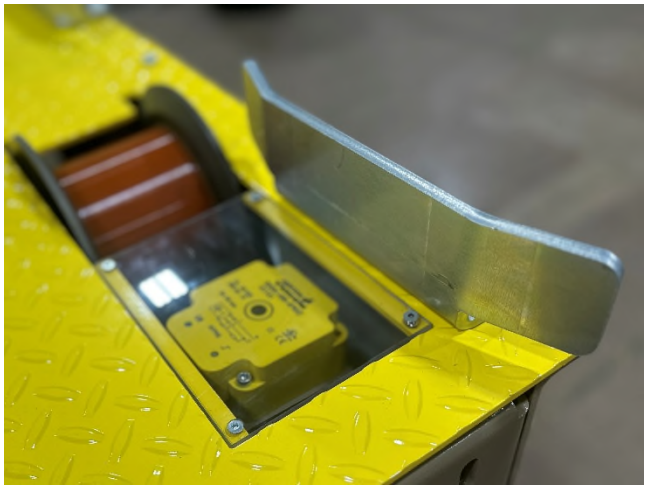
To accommodate various monitoring and automation requirements, a lateral Unistrut is mounted along one side plate. This support rail serves as the attachment base for adjustable proximity switch brackets, TEE brackets, and IDC hardware. The proximity switches detect the position of skids, providing essential input for synchronization, jam detection, and workflow optimization.

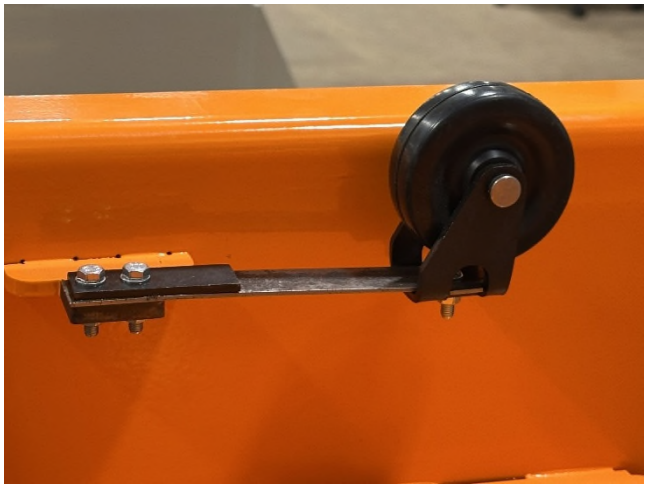
Flexibility in mounting and configuration means that sensors and controls can be tailored to each customer's unique workflow, facilitating rapid adaptation to new products, layouts, or process changes.

Power Roll Beds are designed to meet the diverse needs of automotive and heavy manufacturing. Their modularity and adaptability allow engineers to configure systems for material transport, buffer storage, assembly line integration, and quality control stations. Customers can select specific bed lengths, track widths, drive configurations, and sensor packages to match their operational requirements.

For example, a manufacturer may deploy shorter beds with fewer rollers for high-speed transfer zones, while utilizing long beds with multiple rollers and full guard plates in heavy-duty assembly areas. The ability to tailor every aspect of the Power Roll Bed system—from frame height to control logic—empowers facilities to optimize both throughput and safety.

Optional Equipment



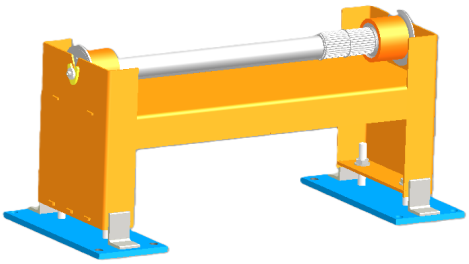


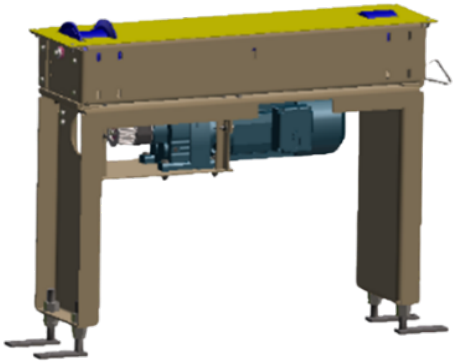
Optional equipment installed on select Power Roll Beds include Cam/Guide Rollers, Bar Code Readers, Proximity Switches, Anti-Static Assemblies, Guide Blocks and Guides.

Power Roll Beds Normal Application Gallery

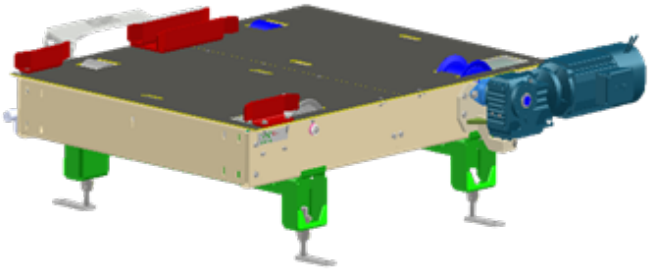
(Various Configurations Used for Ford Motor Company Plants)

The following represent some of the configurations that may be used in your facility.

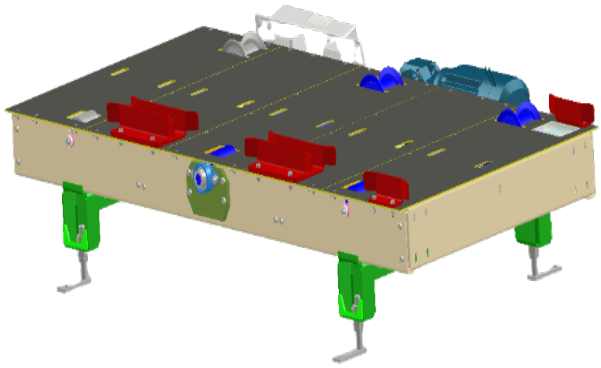


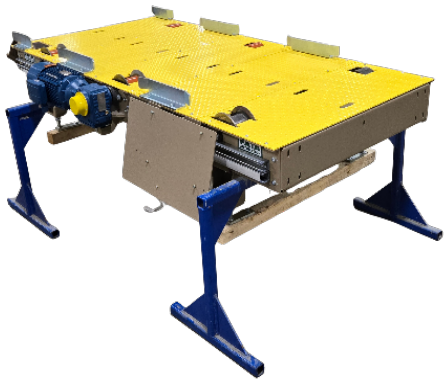


1 Roll Power Roll Bed or Gravity Stand

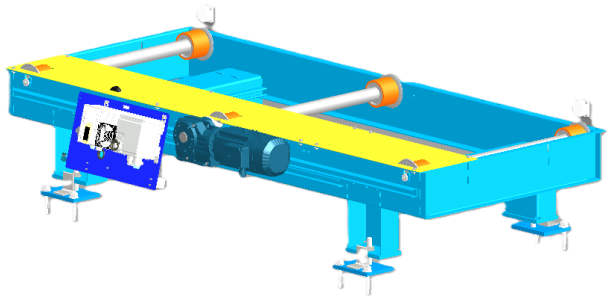


2 Roll Power Roll Bed

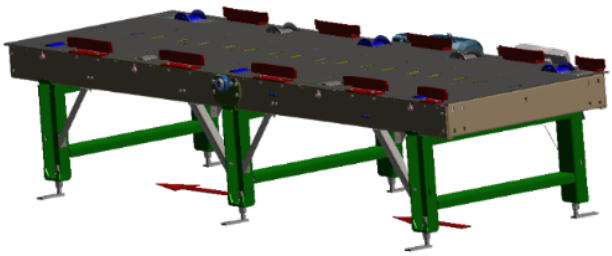




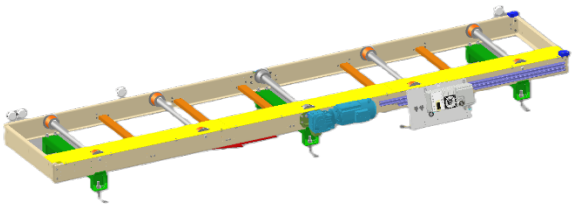
3 *Roll Power Roll Bed*



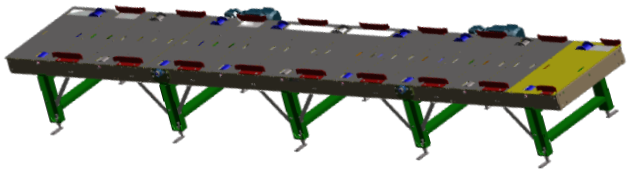
3 *Roll Power Roll Bed*



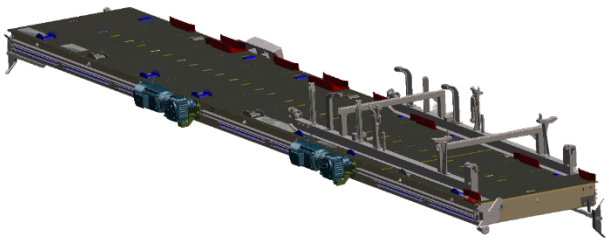
5 *Roll Power Roll Bed*



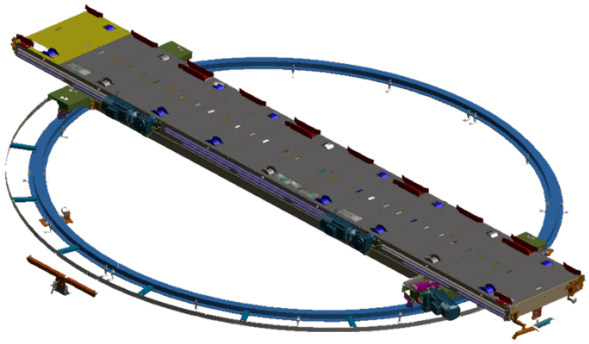
5 *Roll Power Roll Bed*



9 *Roll Power Roll Bed*



9 *Roll Power Roll Bed for Vertical Drop Lifter (VDL)*



9 Roll Turn Table (PRB mounted on top)