D-Lock Lift Table - Typical Components Overview

In Ford manufacturing plants, a D-Lock Lift Table is a heavy-duty vertical lift table equipped with a mechanical locating and locking mechanism, commonly referred to as a “D-Lock.” The table is used to accurately position and rigidly lock carriers, pallets, or vehicle components at a fixed working height, providing repeatable and stable location during operations. D-Lock Lift Tables are designed to interface with Ford tooling, conveyors, skids, and body shop fixtures, allowing the lift table to function as a rigid, integrated workstation rather than a free-floating lifting device.

The lift tables consist of an eccentric lift table with a power roller bed mounted on it. The eccentric lift table is available with 2-stop or 3-stop stroke.

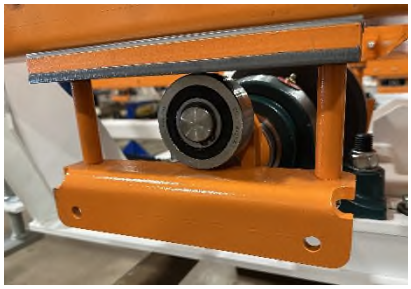
The frame consists of a box section and angle steel that is fixed to the floor by adjustable feet. It holds the pillow block bearings for the shafts, the roller brackets of the guide rollers, and the drive motor.

D-Lock Lift Table with 6-Roll Power Roll Bed and Safety Covers Removed

The eccentric shafts are supported by pillow block bearings and are equipped with toothed belt pulleys, eccentrics, and cam rollers. The cam rollers move within rails mounted to the attached power roller bed.

At the drive side cam rollers are eccentrically screwed with drive pulleys. The twofold distance between the cam roller and the center of the drive shaft is the height of the table.

The two shafts are driven by two toothed belts which are both driven by the pulley of the motor. The drive pulley is fixed to the motor shaft by a clamping set.

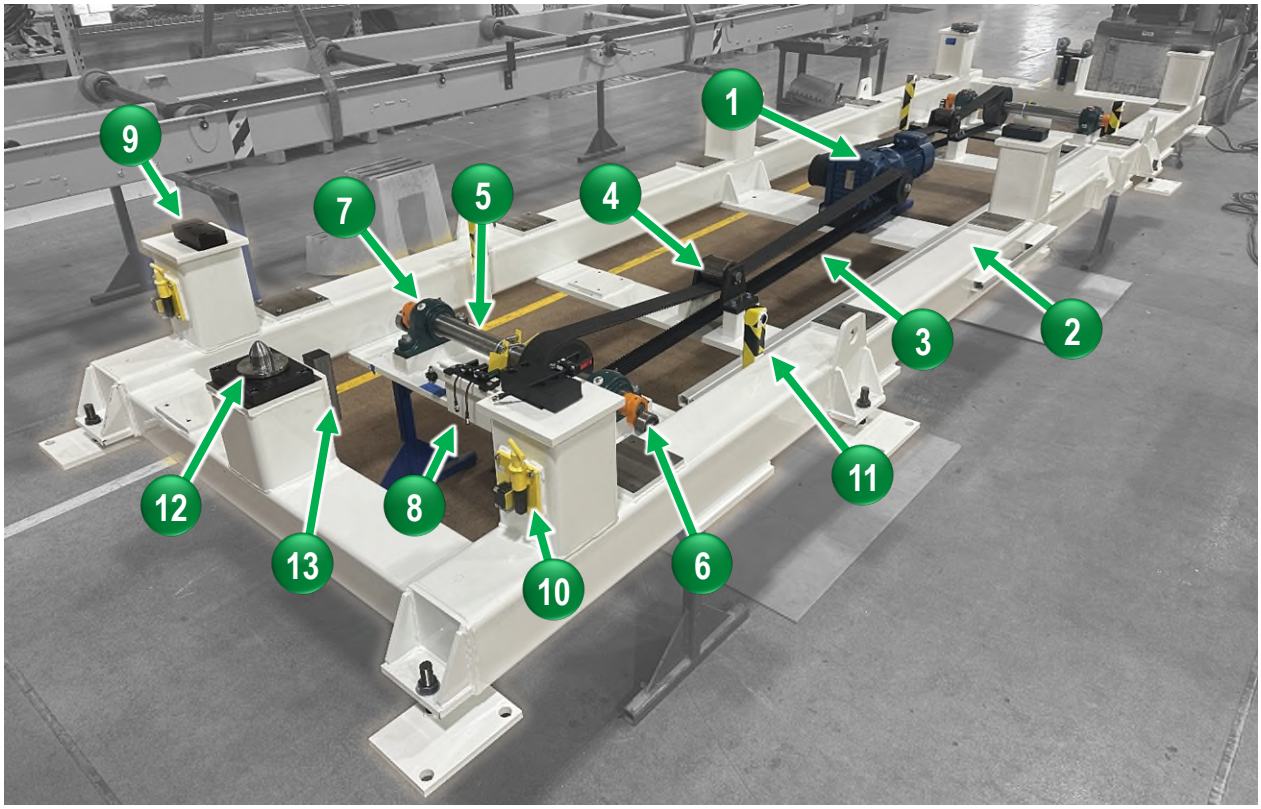


Cam Roller

The vertical support provides the vertical guidance of the roller bed to be lifted. Three guide rollers are mounted to a plate with an angle of 90° and 180° respectively and each are bolted to the frame of the lifting table.

Typically, the 2-position eccentric lift table or hold table is mounted between the two chains of the cross-transfer conveyor. The lift table descends to its lowest position to accept the transported goods, so that the cross-transfer conveyor can place the skid above the power roller bed on the lift table.

D-Lock Lift Table – Eccentric Lift Table Typical Components



Example lift assembly under a 6-Roll PRB

1	Gearmotor	2	Frame	3	Belt
4	Belt Tensioner	5	Cam Shaft	6	Cam Roller
7	Pillow Block Bearing	8	Sensors	9	Pad
10	Safety Pin	11	Safety Pin Slot	12	Skid Lock
13	Vertical Guide				

Power Roll Bed Overview (Installed on Lift Table)

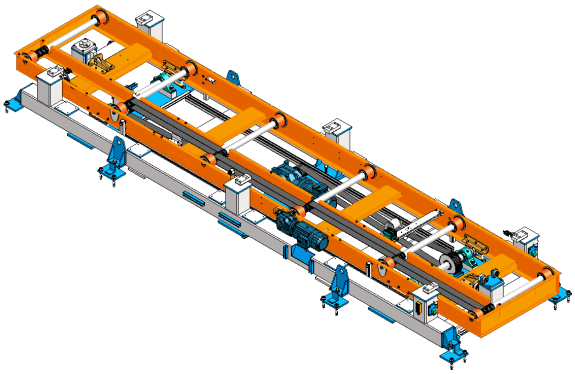
Power Roll Beds are a major element of FATA Automation's Skid Conveyor Systems. The products are modular in design using common components such as motors, belts, rollers, switches, cords, and trunk cables as a complete package.

The side frame of a Power Roll Bed is made of bended Z-profile that mounts the carrying rollers. These side frames are a height of 200 mm and in the front and rear of the Power Roll Beds are connecting ends called dashboards.

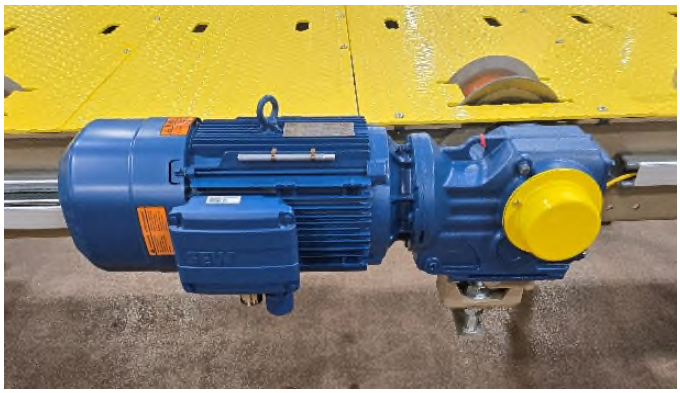
Underneath the frame are mounted support feet that are adjustable for a height range of 25mm. The typical height from top of floor to the bottom of the skid is 500mm.

Power Roll Bed lengths range from 1 roller (bed length 310mm) to 9 rollers (bed length 8862mm) available. At least one drive roller assembly in each Power Roll Bed is made completely out of steel to discharge static voltage from the skid.

The standard track width is 800mm from center to center of 50mm wide skid runners. The supporting width is 60mm and the distance from roller to roller is 1064mm.



Power Roll Bed showing gearmotor, rollers, and belts.



Power Roll Bed with drive mounted externally.

The drive frame unit can either be mounted between the side frames, typically near the center of the bed, or may be externally mounted depending on customer specifications or application.

The gearmotor is connected to adjacent drive rollers with its double tooth pulley fitted to the motor shaft and they in turn are connected to the driven rollers and timing belts to transport skids along the table.

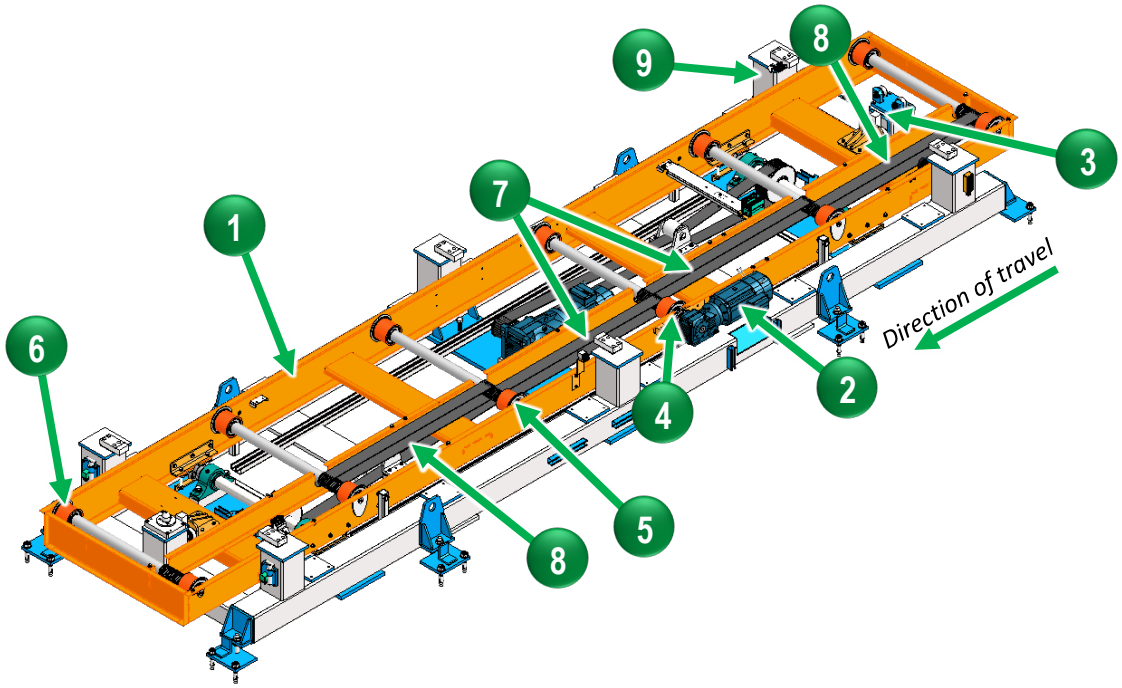
The typical drive roller assembly consists of a flange disc at each side and a steel, grooved center (125mm diameter). The continuous solid shaft has internal bearings that are locked at each shaft end.

A variety of cover options are available to protect the belts and pulleys. The complete Power Roll Bed can be covered with full guard plates as an option.

The function of each individual Power Roll Bed is ensured by the integrated drive controller (IDC).

Unistrut is laterally mounted on one side plate. Adjustable proximity switch brackets are mounted on the Unistrut as well as any TEE and IDC brackets.

D-Lock Lift Table – Power Roll Bed Typical Components



Render shown with safety covers removed

1	Side Frame	2	Gearmotor	3	Vertical Guide
4	Drive Roller	5	Driven Roller	6	Free Roller
7	Drive Belt	8	Driven Belt	9	Proximity Switch