

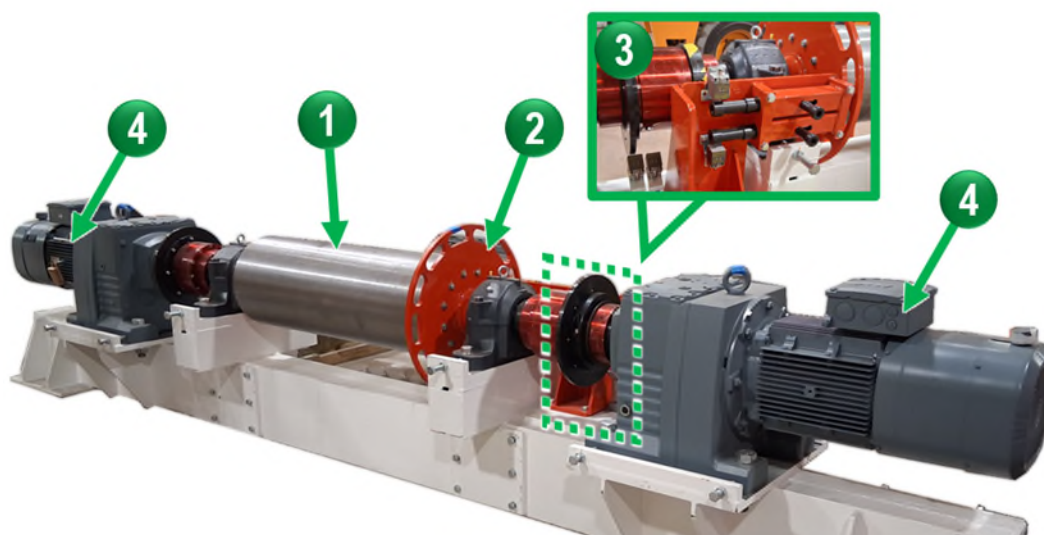
4-Post Vertical Drop Lifter – Components

Your 4-Post Vertical Drop Lifter (VDL) system contains the following major components:

- **VDL Lift Drive & Drum Assembly**
- **VDL Elevator Platform Assembly**
- **VDL Counterweight Assembly**
- **Mounted Power Roll Bed (PRB)**



4 Post VDL – Lift Drive & Drum Assembly


1

Drum

2

Star Wheel

3

MPS Locking System

4

Gearmotor

4-Post VDL Lift Drive & Drum Assembly Overview

At the top of one side of the VDL frame is the drive system. It is comprised of a belt drum with a star wheel, a pneumatically driven safety shot pin assembly on one side of the drum, and two gearmotors. Four smooth, cable-reinforced lift belts ride on the belt drum and carry the combined weight of the lift carriage and counterweight.

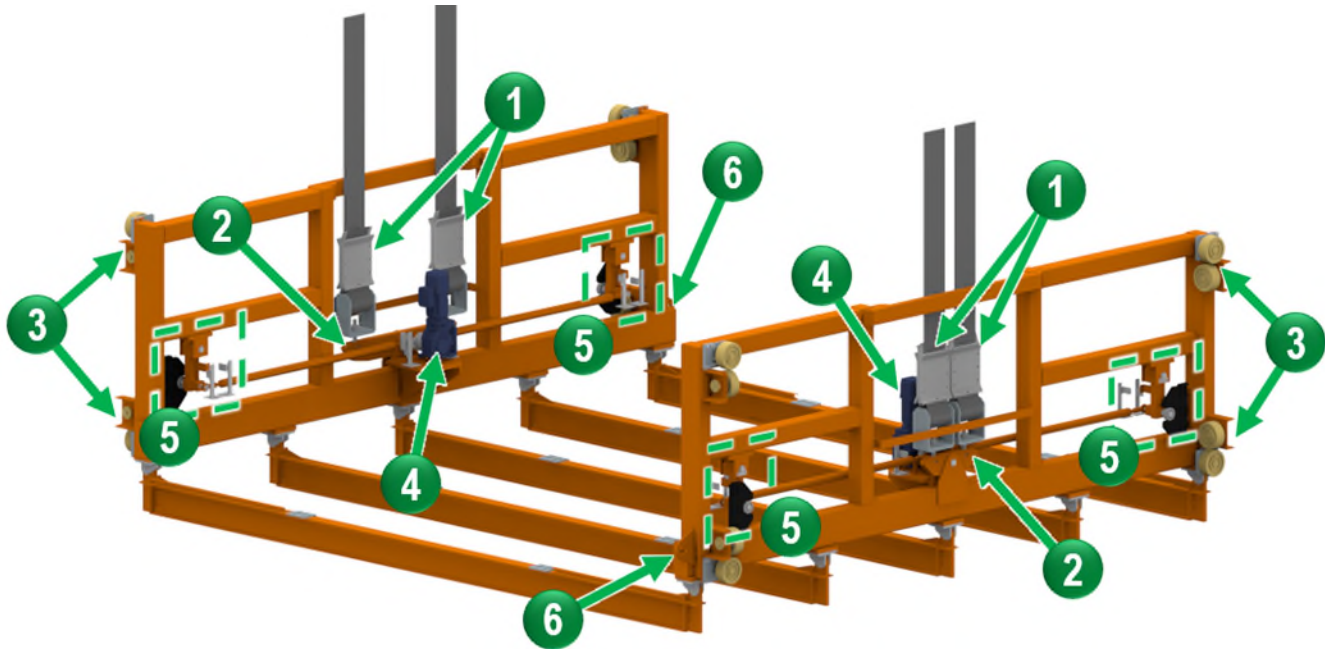


Belt Layout

Two of the lift belts descend from the drive unit to connect to one end of the elevator platform, and the other two cross the frame to an idle drum assembly before descending and connecting to the opposite end of the elevator platform.

When put into MPS mode, the cylinders on the safety pin assembly will fire the two safety pins upon which at least one will pass through the star wheel. This will mechanically lock the belt drum preventing any travel by the lift carriage and counterweight. Switches on the safety pin assembly will inform the system if the pins are in the retracted or extended position.

4-Post VDL – Elevator Platform Assembly



- | | | |
|-------------------------------------|----------------------------|---------------------------|
| 1 Drum Belt Connection Plate | 2 Pivot Assembly | 3 Guide Wheels |
| 4 Positioner Gearmotor | 5 Positioner Device | 6 Locking Pin Slot |
| 7 Code Rail Reader* | 8 Code Rail* | |

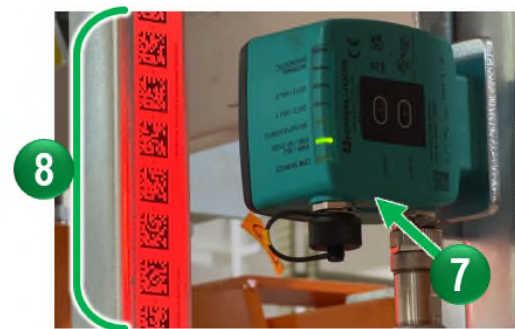
*shown below

4-Post VDL – Elevator Platform Assembly Overview

The VDL elevator platform assembly is supported by four lifting belts and anchors to the top of a counterweight assembly. These lift belts attach to a pivot assembly within the elevator to detect a loose or broken belt condition. The lifting action is belt driven by the top mounted drive assembly where the belts connect to the elevator and counterweight.

To provide lateral and transverse stability, guide wheels are mounted to the outer portion of the H-Beam posts and guide the VDL elevator assembly. Likewise slide pads at the corners of the counterweight assembly ride on the flange on the inner portion of the H-Beam to control side-to-side and back-and forth swaying.

The VDL uses a code rail mounted on a vertical rail between the beams and a code rail reader mounted on the carriage to accurately position the carriage.



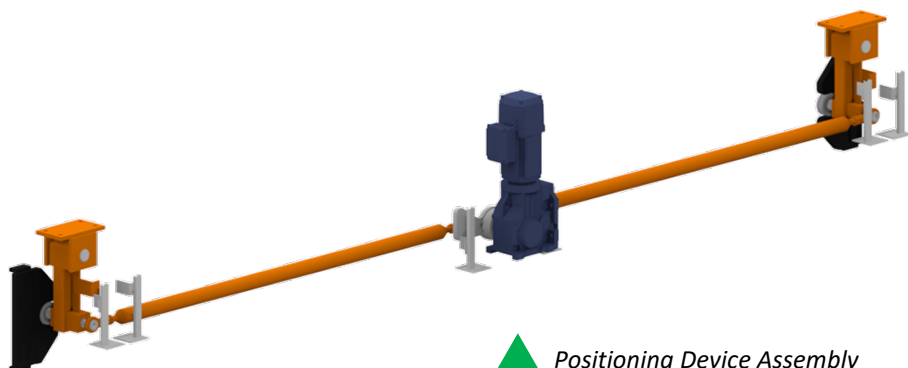
▲ Code Rail (8) and Reader (7)

There are safety lock pin slots on opposite corners of the VDL elevator. These slots will line up to their sister-slots on the frame assembly when the lift is in its fully raised or lowered positions.

An electric motor driven positioning device extends levers at each side into an external reference positioning device assembly that mounts to the floor and positions the carriage. The system also has a carriage overtravel limit switch.

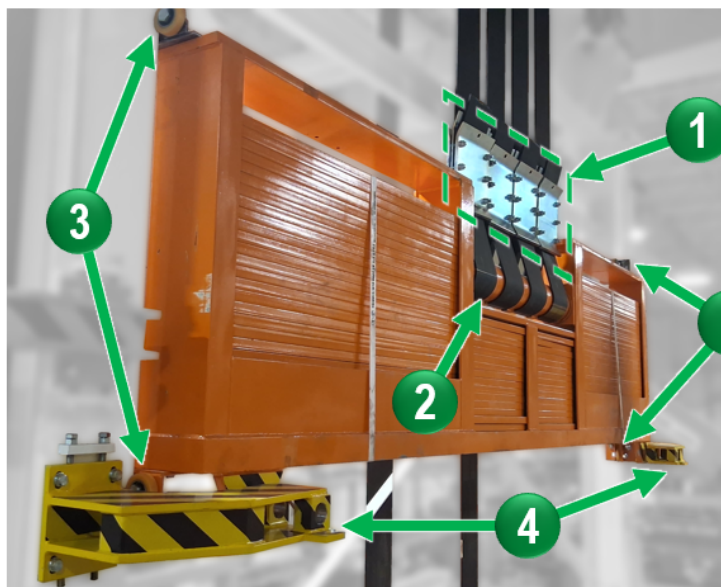


▲ Locking Pin Slots



▲ Positioning Device Assembly

4-Post VDL – Counterweight Assembly



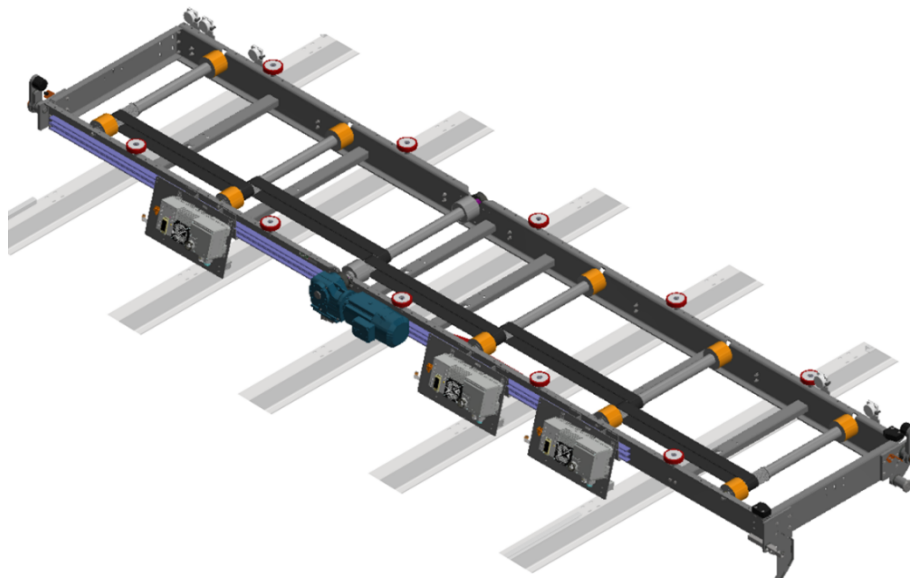
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| <div style="background-color: #008000; color: white; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1</div> <p>Drum Belt
Connection Plates</p> | <div style="background-color: #008000; color: white; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">2</div> <p>Belt Hangers</p> | <div style="background-color: #008000; color: white; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">3</div> <p>Guide Wheels</p> | <div style="background-color: #008000; color: white; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">4</div> <p>Locking Pin Slots</p> |
|--|---|---|--|

Mounted Power Roll Bed Options

Depending on the requirements of the 4-Post Vertical Drop Lifter there may be a different Power Roll Bed mounted to the elevator platform.

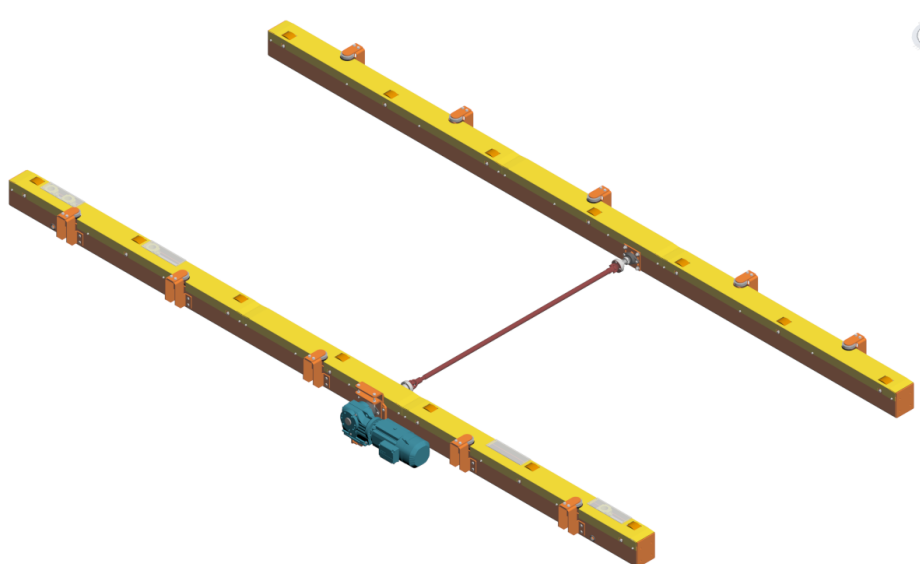
Please use the visual aids on this page to distinguish which Power Roll Bed is installed and use the applicable steps in the other sections of this manual.

1. Power Roll Bed Normal Application

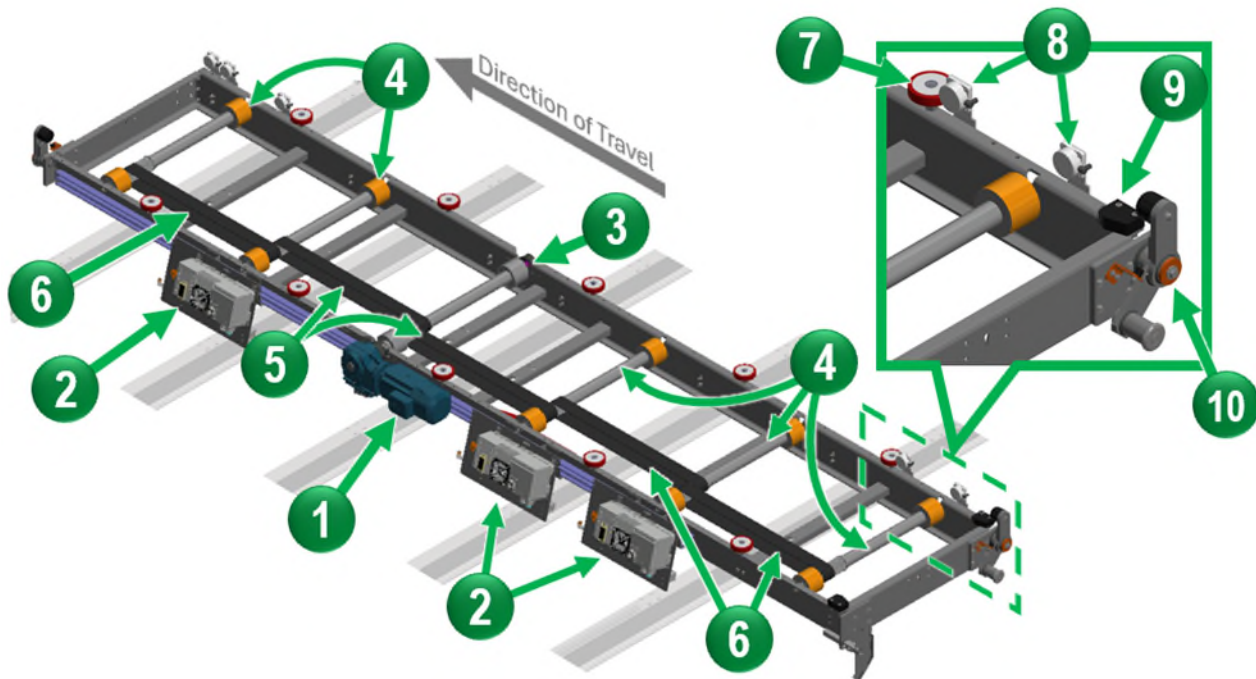


Render shown with safety covers removed

2. Skillet Power Roll Bed



Power Roll Bed Normal Application



▲ Power Roll Bed with safety covers removed to show detail.

- | | | |
|-------------------------------------|----------------------|------------------------|
| 1 Gearmotor | 5 Driven Belts | 9 Guide Block |
| 2 Integrated Drive Controller (IDC) | 6 Drive Belts | 10 Pivot Lock Assembly |
| 3 Driven Roller | 7 Side Guide Wheels | |
| 4 Drive Rollers | 8 Proximity Switches | |

Power Roll Bed Normal Application Overview

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, and the front and rear of the Power Roll Beds are connected by ends called "dashboards."

Power Roll Bed lengths range from 1 to 9 attached rollers. 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 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. 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.

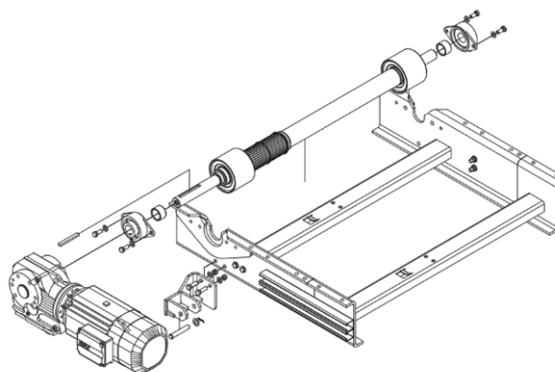
Unistrut is typically mounted laterally on one side plate. Adjustable proximity switch brackets can be mounted on the Unistrut as well as any TEE and IDC brackets.



▲ Drive roller with its attached bearing.

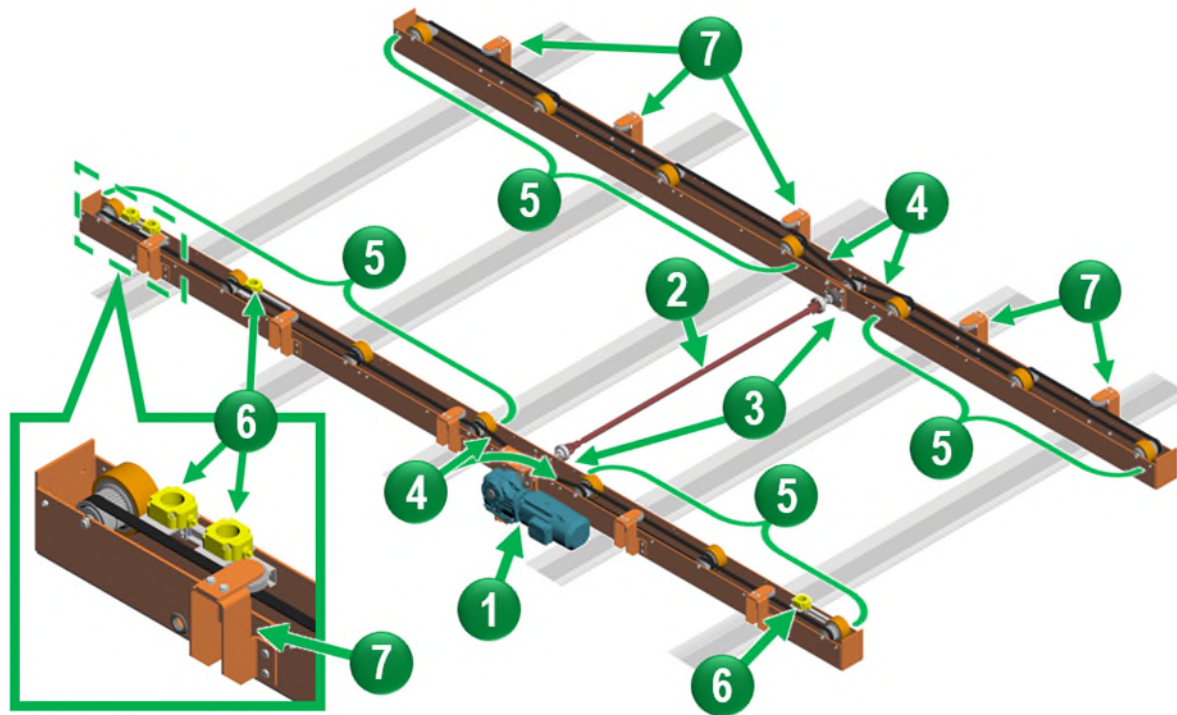


▲ Power Roll Bed with drive mounted externally.



▲ Exploded view of a drive shaft assembly.

Skillet Power Roll Bed



▲ Skillet PRB with safety covers removed to show detail.

1

Gearmotor

4

Drive Belts

7

Side Guide Wheels

2

Cardan Shaft

5

Driven Belts & Rollers

3

Drive Shaft Assembly

6

Proximity Sensors

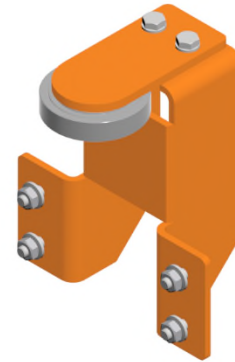
Skillet Power Roll Bed Overview

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.

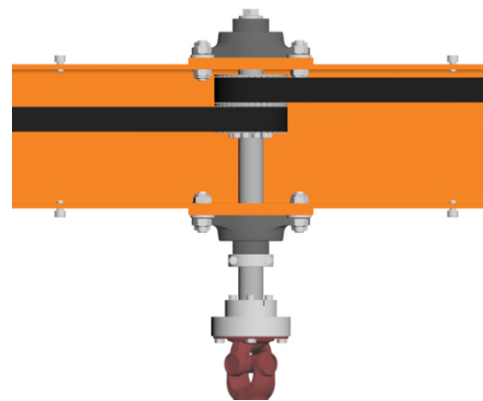
The side frame of a Power Roll Bed is made of bended C-profile that mounts the carrying rollers.

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.

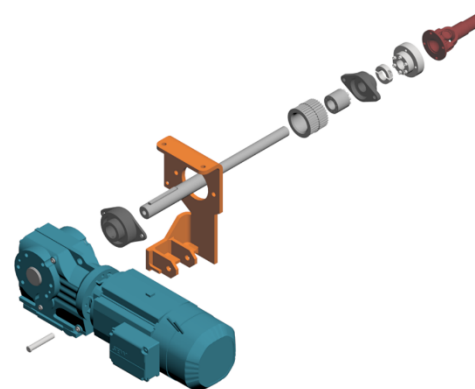
The "Skillet" Power Roll Bed features a cardan shaft connected to the drive shaft which connects to the opposite end of the frame, which features another shaft assembly to turn more sets of rollers and belts.



▲ Side-mounted guide wheel



▲ Top-down view of driven-side shaft assembly.



▲ Exploded view of motor-side drive shaft assembly.