

Conveyor Belt Tracking Adjustment and Roller Replacement

1.0 Maintenance Objective & Frequency

The objective of this procedure is to correct conveyor belt tracking deviations and replace worn or seized rollers to prevent belt edge damage, material spillage, and premature belt failure. Proper tracking ensures the belt runs centrally on the conveyor structure, reducing friction and extending component life.

This PM should be performed quarterly (every 3 months) or immediately upon observation of belt misalignment, unusual noise, or visible roller wear. For high-speed or heavy-load conveyors, monthly inspection is recommended.

2.0 Lockout/Tagout (LOTO) & Safety

- **Electrical Isolation:** Disconnect and lock out the main conveyor motor disconnect switch. Verify zero energy state with a voltage tester.
- **Mechanical Isolation:** Engage the belt tension release mechanism if equipped. Chock wheels or block any moving parts that could shift.
- **Gravity Hazard:** Ensure the belt is fully stopped and cannot move under its own weight on inclined sections. Use belt clamps if necessary.
- **PPE:** Wear safety glasses, steel-toed boots, cut-resistant gloves, and hearing protection. Use a hard hat if working under overhead conveyors.

3.0 Required Tools, Parts & Lubricants

- Replacement rollers (matching diameter, length, and bearing type per OEM spec)
- Belt tracking tool or straightedge (1.5 m minimum)
- Adjustable wrench set (metric and imperial)
- Torque wrench (range 20-100 Nm)
- Crowbar or roller puller
- Hammer and brass drift punch
- Grease gun with NLGI #2 lithium grease
- Penetrating oil (e.g., WD-40 or equivalent)
- Rags and parts cleaning solvent
- Belt clamps (if required for tension release)

4.0 Step-by-Step Maintenance Procedure

1. Perform LOTO as per Section 2.0. Confirm the conveyor is isolated and cannot be energized accidentally.
2. Inspect the entire belt path visually. Note any areas where the belt is rubbing against the structure, has frayed edges, or shows uneven wear patterns.

3. Identify the rollers that need replacement: seized rollers (won't spin freely), worn bearings (noisy or rough rotation), or damaged shells (dents, cracks, or flat spots). Mark them for removal.
4. Release belt tension using the take-up mechanism (screw or gravity take-up). For screw take-ups, back off the adjustment bolts evenly. For gravity take-ups, lock the counterweight in the raised position.
5. Remove the defective roller: unbolt the roller bracket from the conveyor frame using the appropriate wrench. If the roller is seized, apply penetrating oil to the mounting bolts and let it sit for 5 minutes before removal.
6. Install the new roller: position the roller in the bracket, ensuring the bearing housings seat fully. Tighten the mounting bolts to the OEM torque specification (typically 40-60 Nm for standard rollers). Apply a small amount of grease to the bearing fittings if equipped.
7. Repeat steps 5 and 6 for all marked rollers. For idler rollers, ensure the roller axis is perpendicular to the belt travel direction within ± 1 degree.
8. Restore belt tension evenly. For screw take-ups, tighten both sides equally to maintain alignment. For gravity take-ups, release the counterweight lock slowly. Check that the belt is taut but not over-tensioned (no visible sag between rollers).
9. Perform initial tracking adjustment: start the conveyor briefly (after removing LOTO) and observe belt movement. If the belt drifts to one side, adjust the tracking rollers (snub rollers or return rollers) by turning the adjustment bolts in small increments (1/4 turn at a time). Turn the bolt clockwise to move the belt toward that side.
10. Run the conveyor for a full cycle (at least 3 complete belt revolutions) and re-check tracking. The belt should run centered on the head and tail pulleys, with no more than 1/4 inch (6 mm) deviation from center at any point.
11. Re-tighten all locking nuts on tracking adjustment bolts to prevent vibration loosening. Torque to 25 Nm.
12. Clean up the work area: remove all tools, rags, and debris. Dispose of used rollers and contaminated rags per site waste management procedures.

5.0 Verification & Return to Service

1. Remove LOTO devices and re-energize the conveyor. Perform a test run at normal operating speed for 10 minutes.
2. Monitor belt tracking continuously during the test run. Confirm the belt does not touch the conveyor frame and remains centered on all pulleys.
3. Listen for unusual noises (squealing, grinding, or thumping) that indicate bearing or roller issues. Investigate and correct any abnormal sounds.
4. Check for material spillage along the belt path. If spillage is observed, re-evaluate tracking and roller alignment.
5. Sign off on the PM work order in ServiceGrid, noting the number of rollers replaced, tracking adjustments made, and any remaining observations.

Regulatory Disclaimer: This document is a generic maintenance template provided for educational and informational purposes only. It does not constitute professional engineering or reliability advice. The end-user assumes all liability for validating all step sequences, torque specs, and LOTO protocols against specific machinery OEM manuals before deployment to a live production floor.