Edgebander Pinch Roller Rubber Hardness Check & Calibration

1.0 Maintenance Objective & Frequency

The objective of this procedure is to verify that the rubber hardness of the edgebander pinch rollers remains within OEM specification (typically 60-70 Shore A). Worn or hardened rollers cause insufficient glue bond, edge lifting, and poor panel alignment. This check is performed every 500 operating hours or quarterly, whichever comes first.

2.0 Lockout/Tagout (LOTO) & Safety

- Electrical Isolation: Disconnect main power at the disconnect switch and apply personal lock and tag.
- Pneumatic Isolation: Close the compressed air supply valve and bleed residual air from the pressure regulator and cylinder lines.
- Mechanical Lockout: Ensure the pinch roller pressure release mechanism is engaged to prevent accidental roller movement.
- Mandatory PPE: Safety glasses, cut-resistant gloves, and steel-toed boots.

3.0 Required Tools, Parts & Lubricants

- Shore A durometer (Type A, ASTM D2240 compliant)
- Isopropyl alcohol wipes (for cleaning roller surface)
- Digital caliper (0-150mm range, 0.01mm resolution)
- Replacement pinch roller (if hardness is out of spec)
- Torque wrench (range 10-50 Nm) with appropriate socket
- ServiceGrid work order and digital checklist

4.0 Step-by-Step Maintenance Procedure

1. Perform full LOTO as per Section 2.0. Verify zero energy state by attempting to jog the roller drive (machine should not move).
2. Remove the lower access guard covering the pinch roller assembly using a 5mm Allen key. Set guard aside.
3. Clean the rubber surface of the pinch roller thoroughly with isopropyl alcohol wipes to remove glue residue and dust. Allow to dry for 30 seconds.
4. Using the Shore A durometer, take five hardness readings evenly spaced along the roller length (avoiding the roller ends by at least 10mm). Press the durometer firmly until the foot is flush with the rubber surface. Record each reading.
5. Calculate the average of the five readings. If the average is below 60 Shore A or above 70 Shore A, the roller is out of specification and must be replaced.
6. If replacement is required, loosen the pinch roller retaining bolts using the torque wrench and socket. Remove the bolts and slide the roller off the shaft. Note the orientation of any spacers or washers.

7. Install the new pinch roller, ensuring spacers are reinstalled in the same orientation. Tighten retaining bolts to 35 Nm in a crisscross pattern.

8. Reinstall the lower access guard and secure with the 5mm Allen key. Torque guard bolts to 10 Nm.

9. Remove LOTO devices and restore power and compressed air. Set the pneumatic pressure regulator to the OEM-specified pressure (typically 4-6 bar).

5.0 Verification & Return to Service

1. Run a test cycle with a scrap panel and edgebanding material. Verify that the edgeband is pressed firmly and evenly along the entire length without lifting.

2. Measure the glue line thickness using a digital caliper at three points along the panel edge. Acceptable range is 0.1-0.3mm.

3. Inspect the roller surface for any visible scoring or uneven wear. If found, repeat the hardness check and replace if necessary.

4. Complete the ServiceGrid work order, documenting the average hardness reading, any replacement performed, and the test results. Attach a photo of the durometer reading if possible.

5. Sign off on the PM and return the machine to production. Notify the shift supervisor that the PM is complete.