

Laminate Panel Squareness Verification & Adjustment After Pressing

1.0 Maintenance Objective & Frequency

The objective of this procedure is to verify and adjust the squareness of laminate panels immediately after the pressing cycle to ensure dimensional accuracy and prevent downstream assembly issues. Out-of-square panels cause scrap, rework, and increased cycle times.

This calibration must be performed at the start of each production shift and after any press tooling change or maintenance event. A full verification is required weekly.

2.0 Lockout/Tagout (LOTO) & Safety

- Electrical Isolation: Disconnect main power to the press control panel and apply personal lock.
- Pneumatic Isolation: Close the compressed air supply valve and bleed residual pressure from the press cylinders.
- Hydraulic Isolation: If hydraulic assist is present, close the hydraulic supply valve and relieve system pressure per OEM instructions.
- Mandatory PPE: Safety glasses, cut-resistant gloves, and steel-toed boots.
- Hot Surface Warning: Allow press platens to cool below 40°C before performing any adjustments.

3.0 Required Tools, Parts & Lubricants

- Precision machinist square (grade B or better, 300 mm leg length)
- Feeler gauge set (0.05 mm to 1.00 mm)
- Digital protractor (resolution 0.1°)
- Torque wrench (range 10-50 Nm) with 10 mm hex bit
- Clean lint-free cloths
- Isopropyl alcohol (99%) for cleaning reference surfaces
- Panel marking pencil or tape for reference

4.0 Step-by-Step Maintenance Procedure

1. Ensure the press is locked out and all energy sources are isolated. Verify platen temperature is below 40°C using a contact thermometer.
2. Clean the press platen surface and the machinist square reference edges with isopropyl alcohol and a lint-free cloth. Remove any adhesive residue or debris.
3. Place the machinist square firmly against the fixed (reference) side of the press platen. Ensure the square's leg contacts the platen surface evenly along its full length.
4. Using the feeler gauge, measure the gap between the square's other leg and the adjacent platen edge at the top, middle, and bottom of the platen. Record the maximum gap.

5. If the maximum gap exceeds 0.25 mm, proceed to adjust the platen alignment. Loosen the four M10 platen retaining bolts using a 10 mm hex bit and torque wrench set to 20 Nm (do not fully remove).
6. Tap the platen gently with a soft-faced mallet to shift it into square. Re-check the gap with the feeler gauge. Repeat until the gap is ≤ 0.10 mm across the entire platen length.
7. Tighten the retaining bolts in a cross-pattern sequence to 45 Nm using the torque wrench. Re-verify the gap after tightening.
8. Place a test laminate panel (pre-cut to known dimensions) onto the press platen. Close the press briefly (no heat, no pressure) and then open. Remove the panel.
9. Using the digital protractor, measure the squareness of the pressed panel at all four corners. Record the deviation. Acceptable deviation is $\pm 0.5^\circ$ from 90° .
10. If the panel squareness is out of tolerance, repeat steps 5-9. If the issue persists, inspect the press frame for wear or damage and escalate to maintenance engineering.

5.0 Verification & Return to Service

1. Remove all tools and test panels from the press area. Ensure no debris remains on the platen.
2. Restore all energy sources: open pneumatic supply, re-engage hydraulic system, and re-connect main power.
3. Run a full production cycle with a standard laminate panel. After pressing, measure the panel squareness using the digital protractor. Confirm all corners are within $\pm 0.5^\circ$ of 90° .
4. Document the final squareness readings and any adjustments made in the ServiceGrid PM work order. Attach a photo of the feeler gauge measurement if possible.
5. Sign off on the PM work order in ServiceGrid and notify the production supervisor that the press is ready for service.

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.