

Drawer Box Assembly And Glue Squeeze Out Control

1.0 Objective & Quality Standard

The objective of this SOP is to ensure that all drawer boxes are assembled square, structurally sound, and free of visible glue squeeze-out on interior and exterior surfaces. Acceptable quality standard: no glue residue visible on any surface after assembly, joint gaps not to exceed 0.5mm, and drawer box diagonal measurements must be within 1.5mm of each other to confirm squareness.

2.0 Required Tools & Gauges

- Drawer box assembly jig (adjustable for box size)
- PVA wood glue (Titebond II or equivalent)
- Glue bottle with fine-tip nozzle (1mm-2mm opening)
- Digital caliper (0-150mm, 0.01mm resolution)
- Set of metric feeler gauges (0.1mm to 1.0mm)
- Damp lint-free cloth (for immediate squeeze-out removal)
- Rubber mallet (soft face)
- Assembly clamps (quick-grip type, 4 per box)
- Tape measure (metric, 3m length)

3.0 Safety & Material Handling

- Wear cut-resistant gloves when handling drawer box components to prevent splinters.
- Use safety glasses to protect against glue splatter during application.
- Ensure all components are placed on a clean, flat assembly table to avoid warping or scratching.
- Handle glued parts with care to avoid transferring glue to surfaces or skin.
- Keep glue bottles capped when not in use to prevent drying and contamination.

4.0 Step-by-Step Procedure

1. Verify all drawer box components (sides, front, back, bottom panel) are free of defects, clean, and match the cut list dimensions within 0.5mm tolerance.
2. Set the assembly jig to the exact drawer box dimensions and lock all stops in place.
3. Apply a continuous, even bead of PVA glue to the dovetail or dado joint surfaces on both side panels using the fine-tip nozzle. Bead width must be 1.5mm to 2mm, applied 3mm from the edge to prevent squeeze-out.
4. Insert the drawer front and back into the side panel joints within 30 seconds of glue application. Use a rubber mallet to seat joints fully until flush with the side panel edge.

5. Immediately wipe any visible glue squeeze-out from the exterior surfaces using a damp lint-free cloth. Do not wipe interior surfaces at this stage.
6. Slide the bottom panel into the groove, ensuring it is fully seated. Apply a thin bead of glue (1mm) to the bottom panel edges only, avoiding excess on the groove walls.
7. Clamp the assembly using four quick-grip clamps: one at each corner, positioned 25mm from the edges. Tighten clamps evenly until joints are snug but not over-compressed (no visible glue squeeze-out from clamped joints).
8. Measure diagonal lengths from opposite corners using the tape measure. Both diagonals must be within 1.5mm of each other. If out of tolerance, loosen clamps, adjust the jig, and re-clamp.
9. Inspect all joints with a feeler gauge. No gap should exceed 0.5mm. If a gap is detected, disassemble, clean off glue, and reapply with a slightly thicker bead (2.5mm) before re-clamping.
10. Allow the assembly to cure in the jig for a minimum of 30 minutes at 20°C. Do not disturb during curing.
11. After curing, remove clamps and inspect all surfaces for residual glue squeeze-out. Use a damp cloth to remove any missed spots. Do not use scrapers or abrasive tools that could damage the finish.
12. Final check: measure drawer box depth and width with digital caliper at three points (top, middle, bottom). All measurements must be within 0.5mm of the target dimension. Record measurements in the QA log.

5.0 Verification & Defect Reporting

1. If any glue squeeze-out is visible on interior or exterior surfaces after final inspection, the drawer box is rejected. Clean the affected area immediately with a damp cloth and allow to dry. If residue remains, sand lightly with 220-grit sandpaper and refinish as per finishing SOP.
2. If diagonal measurements differ by more than 1.5mm, the drawer box is out of square. Disassemble, clean all glue from joints, and reassemble following steps 4.3 through 4.9. Log the defect in the ShopDocs QA module for root cause analysis.
3. If joint gaps exceed 0.5mm, the drawer box is structurally compromised. Red-tag the unit and place in the rework area. The operator must review glue application technique and jig setup before proceeding with the next assembly.
4. All defects must be recorded in the ShopDocs QA module with photos, operator ID, and timestamp. A daily summary of glue squeeze-out defects will be reviewed during the morning stand-up meeting to identify training needs or process improvements.

Regulatory Disclaimer: This document is a generic quality assurance template. The end-user assumes all liability for validating all dimensional tolerances, testing procedures, and engineering specifications against actual production requirements before deployment.