
Dovetail Drawer Joint Gap Tolerance Verification

1.0 Objective & Quality Standard

The objective of this procedure is to ensure that all dovetail joints on drawer assemblies are assembled with a consistent, tight fit. The acceptable gap between the pin and tail at any point along the joint shall be 0.0mm to 0.5mm. Any gap exceeding 0.5mm is considered a defect and must be flagged for rework or rejection.

2.0 Required Tools & Gauges

- Set of metric feeler gauges (0.05mm to 1.0mm range)
- Digital caliper (0-150mm range, 0.01mm resolution)
- Bright LED inspection light or task light
- Magnifying glass or 10x jeweler's loupe (optional for fine inspection)
- Red defect tags (non-adhesive, reusable)
- QA inspection log sheet or ShopDocs mobile device

3.0 Safety & Material Handling

- Wear clean, lint-free cotton gloves when handling finished drawer components to prevent oil or dirt transfer.
- Place drawer boxes on a padded, non-marring assembly table to avoid scratching finished surfaces.
- Ensure adequate lighting (minimum 500 lux) at the inspection station to clearly see joint gaps.
- Use proper lifting technique (bend knees, keep back straight) when moving assembled drawers weighing over 10 kg.

4.0 Step-by-Step Procedure

1. Place the assembled drawer on the inspection table with the front or back panel facing upward, ensuring the dovetail joint is fully visible.
2. Visually inspect the entire length of the dovetail joint for any obvious gaps, misalignment, or glue squeeze-out. Note any areas of concern.
3. Select the 0.5mm feeler gauge from the set. Attempt to insert it gently into the joint gap at the midpoint of the joint. If it slides in without resistance, the gap exceeds 0.5mm and is out of tolerance.
4. If the 0.5mm gauge does not enter, repeat the test using the 0.3mm and 0.1mm gauges at the same location to determine the actual gap size. Record the largest gauge that fits snugly.
5. Repeat the feeler gauge test at three additional locations along the joint: near the top edge, near the bottom edge, and at one intermediate point. Record all readings.
6. If any reading exceeds 0.5mm, use the digital caliper to measure the gap width at that specific point for precise documentation. Zero the caliper before each measurement.
7. Inspect the opposite side of the drawer (if applicable) and repeat steps 2 through 6 for that joint.

8. For drawers with multiple dovetail joints (e.g., four corners), repeat the full inspection procedure on each joint.
9. If all gaps measure 0.5mm or less, mark the drawer as PASSED in the QA log and proceed to the next assembly step.
10. If any gap exceeds 0.5mm, attach a red defect tag to the drawer, noting the location and measured gap size on the tag.

5.0 Verification & Defect Reporting

1. For any drawer flagged with a red tag, the QA inspector must notify the assembly lead immediately and log the defect in the ShopDocs QA module, including photos of the gap and the measured value.
2. The assembly lead will assess whether the joint can be reworked (e.g., by disassembling, cleaning, and re-gluing with clamping pressure) or if the component must be scrapped and replaced.
3. If rework is attempted, the drawer must be re-inspected following the full procedure in Section 4.0 before being accepted.
4. All rework actions and final disposition (pass/fail/scrap) must be recorded in the QA log with the operator's signature and date.
5. A weekly summary of dovetail gap defects shall be reviewed during the continuous improvement meeting to identify root causes (e.g., dull cutter, incorrect setup, material variation) and implement corrective actions.

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.