
Cabinet Door Flatness Measurement With Feeler Gauge

1.0 Objective & Quality Standard

The objective of this procedure is to verify that each cabinet door is flat within the acceptable tolerance of 0.5 mm maximum deviation across the entire face. A flat door ensures proper sealing, consistent reveal gaps, and prevents operational issues such as binding or uneven finish wear. This SOP standardizes the measurement process using a feeler gauge to eliminate subjective visual inspection and ensure repeatable quality.

2.0 Required Tools & Gauges

- Set of metric feeler gauges (0.05 mm to 1.0 mm range)
- Precision straightedge (600 mm length, calibrated within 0.1 mm flatness)
- Clean, lint-free cloth for wiping surfaces
- Inspection log sheet or digital QA tablet with ShopDocs
- Red tag for marking non-conforming parts

3.0 Safety & Material Handling

- Wear clean, non-marking gloves to prevent oil or dirt transfer to door surfaces.
- Handle doors by edges only to avoid damaging the face veneer or paint.
- Place doors on a flat, clean inspection table with protective padding to prevent scratches.
- Ensure the work area is well-lit to accurately read feeler gauge markings.

4.0 Step-by-Step Procedure

1. Place the cabinet door face-up on a clean, flat inspection table. Ensure the door is fully supported and not resting on any debris.
2. Wipe the door face and the straightedge with a lint-free cloth to remove any dust or residue that could affect measurement.
3. Position the straightedge diagonally across the door face, from one corner to the opposite corner. Ensure the straightedge contacts the door surface along its entire length.
4. Select a feeler gauge blade of 0.5 mm thickness. Attempt to insert it between the straightedge and the door surface at the midpoint of the diagonal line.
5. If the 0.5 mm gauge fits without resistance, record the measurement as a deviation. If it does not fit, repeat the test with a 0.3 mm gauge to check for smaller deviations.
6. Repeat the measurement along the second diagonal (from the other two corners) to check for twist or saddle-shaped warpage.

7. Measure along the center of each edge (top, bottom, left, right) by placing the straightedge parallel to the edge, 50 mm from the edge. Insert the feeler gauge at the midpoint.
8. Record the maximum deviation found at any measurement point on the inspection log. Acceptable tolerance is 0.5 mm maximum deviation.
9. If the door passes all measurements (deviation ≤ 0.5 mm), mark it as approved and proceed to the next assembly step.
10. If any measurement exceeds 0.5 mm, immediately attach a red tag to the door with the measured deviation value and date.

5.0 Verification & Defect Reporting

1. Verify that all measurements are recorded in the inspection log or ShopDocs QA module. Confirm that the maximum deviation does not exceed 0.5 mm.
2. For doors exceeding tolerance, isolate them in a designated non-conforming area. Do not proceed with assembly or finishing.
3. Report the defect to the production supervisor and quality manager within the same shift. Include the door ID, measured deviation, and measurement location.
4. Rework options: If the door is salvageable (e.g., slight twist), attempt to flatten using a press and moisture conditioning per engineering instructions. If not, scrap the door and initiate a replacement order.
5. Log all out-of-tolerance defects in the ShopDocs QA module for root cause analysis and to track recurring issues by batch or supplier.

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.