

---

# Door Damper Function Test

## 1.0 Objective & Quality Standard

The objective of this procedure is to verify that each installed door damper (soft-close mechanism) functions correctly, ensuring the door closes smoothly and silently within the specified time and force tolerances. A properly functioning damper prevents slamming, reduces wear on hinges, and enhances the end-user experience.

Acceptable Quality Standard: The door must close from a 45-degree open position in 3 to 6 seconds without any audible clicking, sticking, or hesitation. The closing force must be consistent across the full range of motion. No oil leakage or excessive play in the damper arm is permitted.

## 2.0 Required Tools & Gauges

- Digital stopwatch or timer (accuracy  $\pm 0.1$  seconds)
- Digital force gauge (0-50 N range,  $\pm 0.1$  N resolution)
- Protractor or angle gauge (to verify 45-degree test position)
- Clean, lint-free cloth (for checking oil leaks)
- Inspection flashlight
- Torque screwdriver (for damper adjustment if applicable)

## 3.0 Safety & Material Handling

- Wear safety glasses to protect against potential spring-loaded damper components.
- Use cut-resistant gloves when handling dampers with sharp edges or metal brackets.
- Ensure the cabinet is stable and secured on a level work surface before testing.
- Do not force the door closed manually; allow the damper to operate naturally during testing.

## 4.0 Step-by-Step Procedure

1. Visually inspect the damper assembly for any signs of physical damage, oil leakage, or loose mounting screws. Wipe the damper shaft with a lint-free cloth and check for any residue.
2. Open the door to a 90-degree position and release. Observe that the damper engages smoothly without binding or excessive free play.
3. Using the protractor, position the door at exactly 45 degrees from the closed position. Mark this angle on the cabinet face for repeatability.
4. Release the door from the 45-degree position and start the stopwatch. Stop the timer when the door is fully closed and latched. Record the closing time.
5. Repeat the closing time measurement two more times from the same 45-degree position. Calculate the average of the three readings. The average must fall between 3.0 and 6.0 seconds.

6. Attach the digital force gauge to the door handle or a consistent point near the latch edge. Pull the door open to 45 degrees, then release and allow the damper to close. Record the peak force reading during the closing cycle.
7. Perform the force measurement three times and calculate the average. The average closing force must be between 5 N and 15 N, with no single reading exceeding 20 N.
8. Listen carefully during each closing cycle for any abnormal sounds such as clicking, grinding, or hissing. If any noise is detected, flag the damper for replacement.
9. Check the damper arm for lateral play by gently pushing the door side-to-side at the latch edge. Acceptable play is less than 2 mm. If play exceeds 2 mm, inspect the mounting bracket and damper pin.
10. If the damper has an adjustable speed valve, use the torque screwdriver to adjust the damping rate according to the manufacturer's specification. Re-test closing time and force after adjustment.
11. Document all test results on the ShopDocs QA checklist, including closing time, force, and any observations. Attach a photo of the damper label if available.
12. Apply a green 'Pass' sticker to the inside of the cabinet door if all criteria are met. If any criterion fails, proceed to Section 5.0 for defect reporting.

## 5.0 Verification & Defect Reporting

1. If the closing time is outside the 3-6 second range, or the force exceeds 20 N, or any abnormal noise or oil leak is detected, red-tag the damper with a 'Fail' sticker and note the specific defect.
2. Remove the defective damper and replace it with a new unit from the approved stock. Re-test the replacement damper following the full procedure in Section 4.0.
3. If the damper fails due to an adjustable speed valve issue, attempt adjustment per manufacturer instructions. If adjustment does not bring it into tolerance, replace the damper.
4. Log all out-of-tolerance defects in the ShopDocs QA module, including damper model, batch number, and failure mode. Initiate a root cause analysis if the defect rate exceeds 2% for a given batch.
5. Segregate all failed dampers in a clearly marked 'Reject' bin. Do not return them to production stock. Notify the purchasing team for supplier corrective action if applicable.

**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.