
Velvet Liner Installation Quality Standard Operating Procedure

1.0 Objective & Quality Standard

The objective of this procedure is to ensure that velvet liners are installed without wrinkles, bubbles, or misalignment, and that adhesive bonds are uniform and durable. The acceptable quality standard requires zero visible wrinkles, no adhesive bleed-through, and liner edges aligned within ± 1 mm of the designated reference lines.

2.0 Required Tools & Gauges

- Digital caliper (0-150 mm range, ± 0.02 mm accuracy)
- Set of metric feeler gauges (0.05 mm to 1.0 mm)
- Non-marring plastic scraper or squeegee
- Clean lint-free cloths
- Isopropyl alcohol (70% or higher) for surface prep
- Adhesive spray (3M Super 77 or equivalent)
- Magnifying lamp or inspection light
- Reference template or jig with alignment marks

3.0 Safety & Material Handling

- Wear clean, powder-free nitrile gloves to prevent oil transfer to velvet and adhesive surfaces.
- Use adhesive spray in a well-ventilated area or under a fume extraction hood.
- Handle velvet liners by edges only to avoid creasing or soiling the pile.
- Store velvet rolls flat in a clean, dry area away from direct sunlight.

4.0 Step-by-Step Procedure

1. Inspect the substrate (wood, MDF, or acrylic) for dust, oil, or debris. Clean with isopropyl alcohol and a lint-free cloth. Allow to dry for 2 minutes.
2. Verify the substrate dimensions against the liner cut size using a digital caliper. The liner must be 2-3 mm larger on each side for proper wrapping.
3. Lay the velvet liner face down on a clean, flat surface. Apply a uniform coat of adhesive spray from a distance of 20-30 cm, covering the entire back surface.
4. Wait 30-60 seconds for the adhesive to become tacky (follow manufacturer's open time specification).
5. Align the liner with the reference marks on the substrate or jig. Start from one edge and gradually lay the liner down, using a plastic squeegee to press from the center outward to expel air bubbles.
6. Wrap the excess liner around the edges, pulling taut but not stretching. Use the squeegee to press the liner into corners and along edges.

7. Trim any excess liner using a sharp blade, cutting flush with the substrate edge. Ensure no frayed edges remain.
8. Inspect the entire surface under a magnifying lamp for wrinkles, bubbles, or adhesive bleed-through. Use a feeler gauge to check for any raised areas exceeding 0.5 mm.
9. Measure the alignment of the liner edges relative to the substrate edges using a digital caliper. Acceptable deviation is ± 1 mm.
10. Allow the assembly to cure for 24 hours in a climate-controlled area (20-25°C, 40-60% RH) before final inspection or packaging.

5.0 Verification & Defect Reporting

1. Perform a final visual inspection under bright, diffused lighting. Reject any unit with visible wrinkles, bubbles, adhesive bleed-through, or misalignment exceeding ± 1 mm.
2. If a defect is found, red-tag the unit and place it in the rework area. Document the defect type and location in the ShopDocs QA module.
3. For minor bubbles or wrinkles, attempt to rework by lifting the liner with a heat gun (low setting) and re-squeegeeing. If the liner is damaged, replace it entirely.
4. Log all out-of-tolerance defects in the ShopDocs QA module for root cause analysis and continuous improvement.

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.