

Glue Pot Temperature Calibration and Purge Procedure (PUR & EVA)

1.0 Maintenance Objective & Frequency

The objective of this procedure is to calibrate the glue pot temperature controller(s) against a certified reference standard and perform a complete purge of the adhesive system to remove degraded material, prevent charring, and ensure consistent adhesive viscosity and bond strength. This PM applies to both PUR (polyurethane reactive) and EVA (ethylene-vinyl acetate) hot melt systems.

Frequency: Every 500 operating hours or quarterly, whichever comes first. Perform a purge cycle immediately upon any adhesive changeover, after a prolonged shutdown (>72 hours), or if adhesive charring or nozzle clogging is observed.

2.0 Lockout/Tagout (LOTO) & Safety

- **Electrical Isolation:** Disconnect main power to the glue pot unit and apply a personal lock and tag. Verify zero voltage with a multimeter at the disconnect switch.
- **Thermal Hazard:** Allow the glue pot to cool below 50°C before opening the lid or accessing heated components. Use a non-contact infrared thermometer to verify surface temperature.
- **Chemical Hazard:** PUR adhesives contain isocyanates. Wear nitrile gloves, safety glasses, and a respirator rated for organic vapours if handling uncured PUR. EVA is generally non-hazardous but avoid skin contact with molten material.
- **PPE:** Mandatory – safety glasses, heat-resistant gloves (rated for 200°C), long sleeves, and closed-toe steel-toed boots.

3.0 Required Tools, Parts & Lubricants

- Certified reference temperature probe (Type K thermocouple or RTD) with NIST-traceable calibration certificate
- Digital multimeter with thermocouple input (or dedicated temperature calibrator)
- Non-contact infrared thermometer (for initial cooldown verification)
- PUR purge solvent (e.g., glycol ether or manufacturer-recommended cleaner)
- EVA purge compound (compatible with current adhesive grade)
- Clean lint-free wipes and disposable gloves
- Small flathead screwdriver (for potentiometer adjustment, if applicable)
- Torque wrench (for nozzle and fitting re-torque, if required)
- Adhesive manufacturer's technical data sheet (TDS) for temperature setpoints

4.0 Step-by-Step Maintenance Procedure

1. Perform LOTO as per Section 2.0. Confirm the glue pot is cool (<50°C) using the infrared thermometer before opening the lid.
2. Remove the lid and visually inspect the adhesive for charring, discoloration, or foreign debris. If charring is present, note the extent and plan for a full purge.

3. Insert the certified reference probe into the glue pot so that the tip is fully immersed in the adhesive and positioned as close as possible to the machine's control thermocouple. Allow 5 minutes for thermal stabilization.
4. Record the temperature displayed on the glue pot controller and the temperature from the reference probe. Calculate the deviation. Acceptable tolerance is $\pm 3^{\circ}\text{C}$ from the setpoint. If deviation exceeds $\pm 5^{\circ}\text{C}$, proceed to calibration adjustment.
5. If the controller has a calibration potentiometer or digital offset setting, adjust it so that the controller reading matches the reference probe within $\pm 1^{\circ}\text{C}$. For digital controllers, enter the offset value per the manufacturer's menu instructions. Re-stabilize and re-check.
6. If the controller cannot be adjusted or the deviation is $> 10^{\circ}\text{C}$, replace the control thermocouple or controller board per OEM guidelines. Document the replacement in the maintenance log.
7. After calibration, set the glue pot to the adhesive manufacturer's recommended operating temperature (typically 120-180°C for EVA, 100-140°C for PUR). Allow the pot to reach setpoint and stabilize for 10 minutes.
8. For PUR systems: Purge the adhesive by applying a small amount of PUR purge solvent to the pot and running the pump or auger until the exiting material runs clear. Collect waste in a metal container and allow to cool before disposal.
9. For EVA systems: Purge by adding EVA purge compound to the pot and running the pump until the exiting material is free of charred particles and runs clear. Follow purge compound manufacturer's dwell time instructions.
10. After purging, refill the pot with fresh adhesive. Run the pump or auger for 2-3 minutes to prime the system and ensure adhesive flows freely from all nozzles.
11. Inspect all nozzles for even flow and absence of dripping. If any nozzle is clogged, remove and clean it with a nozzle cleaning tool or replace it. Re-torque nozzles to the manufacturer's specification (typically 10-15 Nm for M8 nozzles).
12. Clean the lid gasket and mating surfaces with a lint-free wipe. Close and secure the lid. Remove LOTO and restore power.

5.0 Verification & Return to Service

1. Set the glue pot to the production setpoint and allow 15 minutes for full thermal stabilization.
2. Verify the controller temperature reading against the reference probe again. The deviation must be within $\pm 2^{\circ}\text{C}$. If not, repeat the calibration adjustment.
3. Run a test cycle on a scrap piece of substrate. Verify that the adhesive bead is consistent in width, free of voids, and achieves proper bond strength (perform a quick peel test after cooling).
4. Check for any leaks at the lid, pump, or nozzle connections. Tighten fittings as needed.
5. Record the calibration results (reference probe reading, controller reading, offset applied) and purge completion in the maintenance log or ServiceGrid work order. Sign off on the PM.

Regulatory Disclaimer: This document is a generic maintenance template provided for educational and informational purposes only. It does not constitute professional engineering or reliability advice. The end-user assumes all liability for validating all step sequences, torque specs, and LOTO protocols against specific machinery OEM manuals before deployment to a live production floor.