

FORMATIONS M210

THERMOFOIL MANUFACTURING STANDARD OPERATING PROCEDURES

SOP-005 SITTEX AUTOMATED GLUE LINE

Document Number: SOP-M210-005

Revision: Rev 0

Prepared By: Darren Miyagishima – Production Manager

Reviewed By: Glue Line Lead _____

Approved By: Phil Land – Production Supervisor

Department Overview

KPI

600 DOORS PER 8-HOUR SHIFT

OR

1,620 SQ FT PER 8-HOUR SHIFT

Department Capacity

Approximately 1,400 Doors per 8-Hour Shift

Performance Measurement

Department performance shall be evaluated using both:

Door Count

- 600 completed doors per shift

Material Throughput

- 1,620 square feet processed per shift

Square footage is used to better reflect actual workload when processing:

- Large slab doors
- Raised panel doors
- Deep profile doors
- Mixed product runs
- Oversized components

Upstream Department

Sanding & Surface Preparation

Downstream Department

Wemhöner Variopress 3D Eagle

Quality Ownership

The Sittex Glue Line owns:

- Adhesive coverage
 - Glue consistency
 - Transfer quality
 - Oven cure quality
 - Product sequencing
 - Colour flow management
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Critical Daily Checks

- Edge filter condition
- Fan RPM

- Spray gun condition
- Glue coverage
- Dry spot inspection
- Paper belt condition
- Oven performance
- Production sequencing
- Colour grouping

Revision Control

Revision	Date	Description	Approved By
Rev 0		Initial Release	Phil Land

1. Purpose

To ensure adhesive is applied consistently and accurately to all thermofoil door components while maintaining quality, productivity, traceability, and equipment reliability.

The Sittex Glue Line is responsible for preparing all doors for thermofoil pressing through proper adhesive application and controlled drying.

2. Scope

This SOP applies to all employees responsible for:

- Sittex spray line operation
- Adhesive management
- Startup procedures
- Shutdown procedures

- Product inspection
 - Documentation
 - Equipment cleaning
 - Product transfer
 - Production sequencing
-

3. PPE Requirements

Required PPE:

- CSA Approved Safety-Toe Footwear
- Hearing Protection

Cleaning and Maintenance Activities

The following PPE shall be worn when performing cleaning, flushing, maintenance, or adhesive handling activities:

- Safety Glasses
- Protective Gloves
- Dust Mask

Additional PPE may be required based on the task being performed.

4. Department KPI

Production Target

- 600 Doors per 8-Hour Shift
 - 1,620 Square Feet per 8-Hour Shift
-

Department Capacity

- Approximately 1,400 Doors per 8-Hour Shift
-

Performance Measurement

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-

Production Expectations

Production output may vary based on:

- Product size
- Colour changes
- Priority orders
- Remakes
- Line interruptions
- Equipment maintenance
- Product mix

Quality requirements shall never be compromised to achieve production targets.

5. Responsibilities

The Glue Line Operator is responsible for:

- Startup inspections
 - Machine operation
 - Glue quality monitoring
 - Product quality inspections
 - Production sequencing
 - Documentation completion
 - Equipment cleaning
 - Reporting equipment concerns
 - Reporting process abnormalities
-

6. Production Scheduling – Smartsheet

Purpose

Smartsheet is the production scheduling system used throughout Formations to manage daily priorities and order completion.

Smartsheet is not used for traceability scanning.

Traceability is maintained through Business Central.

Daily Schedule Review

At the beginning of every shift:

Review:

- Daily schedule
- Priority orders
- Due dates
- Rush orders
- Remakes
- Special instructions

Report scheduling conflicts immediately.

Order Completion

When processing is complete:

Verify:

- Product has been processed
- Documentation completed
- Product transferred correctly

Mark the order complete in Smartsheet.

7. Colour Grouping & Production Flow

Purpose

The Sittex Glue Line shall process product in a sequence that maximizes production efficiency while minimizing unnecessary thermofoil colour changes.

Colour Grouping Requirements

Whenever possible:

Group and process orders of the same thermofoil colour together.

Orders from multiple customers may be processed together provided the thermofoil colour is the same and order identification remains clear.

Objective

Reduce:

- Colour changes
- Production interruptions
- Material handling
- Scheduling disruptions

Maintain efficient flow into Thermofoil.

Smartsheet Verification

Prior to beginning production:

Review:

- Production schedule
- Colour requirements
- Priority orders
- Remakes
- Rush orders

Production shall be sequenced to maintain efficient colour grouping whenever practical.

Priority Orders

The following may take precedence over colour grouping:

- Rush orders

- Remakes
- Customer priority orders
- Supervisor-directed orders

Priority production requirements override normal colour sequencing.

Alternate Conveyor Orders

Orders arriving through the priority conveyor shall be reviewed immediately.

Verify:

- TFO Number
- Quantity
- Colour
- Priority requirements

before processing.

Production Flow Priority

When practical:

1. Priority Orders
2. Remakes
3. Colour Grouped Production
4. Standard Production

Production Supervisor direction takes precedence.

8. Business Central Scanning

Scan Into Department

When beginning an order:

Scan:

1. Assembly Order
 2. Sittex Glue Line Department
 3. Employee Barcode
-

Scan Out Of Department

When work is completed:

Scan:

1. Assembly Order
 2. Sittex Glue Line Department
 3. Employee Barcode
-

9. Documentation Verification

Before beginning work verify:

- TFO Number
- Quantity
- Customer requirements
- Deficiency Reports
- Remake documentation

Missing documentation shall be reported immediately.

10. First-Off Inspection

A first-off inspection is required whenever:

- Starting a new order
- Starting a remake order
- Product profile changes
- Machine adjustments are made

Verify:

- Glue coverage
- Product transfer quality
- Adhesive consistency

No separate paperwork is required.

By initialing the Production Report, the operator confirms the first-off inspection was completed.

11. Startup Procedure

Step 1 – Glue Booth Edge Filter Inspection

Inspect glue booth edge filters.

Verify:

- Filters are clean
- Filters are unrestricted
- No excessive glue buildup
- No filter damage

Report abnormalities to the Production Supervisor.

Step 2 – Fan RPM Verification

Check fan RPM on the control panel.

Standard Operating RPM

< 1400 RPM

Purpose

Fan RPM is used as an indicator of glue booth filter condition.

As filters become loaded with overspray and contaminants, airflow restriction increases and fan RPM rises.

Filter Replacement Threshold

When fan RPM reaches **1800 RPM or greater**, the glue booth edge filters shall be replaced.

Operator Action

RPM Below 1400

- Continue production
- Continue monitoring

RPM Between 1400 and 1800

- Continue production
- Monitor filter condition closely
- Inform Production Supervisor if RPM continues to increase

RPM 1800 or Above

1. Notify Production Supervisor
2. Replace filters
3. Verify airflow performance
4. Confirm RPM returns below 1400

Step 3 – Brush Machine Cleaning

Before production:

1. Raise brush machine to 80 mm.
2. Turn on dust collection.
3. Blow out and clean the entire brush machine.
4. Remove accumulated dust and debris.

Step 4 – Glue Quantity Verification

Verify adhesive quantity.

Confirm sufficient glue is available for scheduled production.

Refill glue pot if required.

Step 5 – Recipe Verification

Verify correct recipe is loaded for:

- Thermofoil colour
- Product type
- Production requirements
- Scheduled production run

Confirm recipe settings match current production requirements.

Step 6 – Laser Operation

Turn on laser alignment system.

Step 7 – Verify Proper Operation

Verify:

- Laser alignment system is functioning correctly
 - Laser is properly aligned
 - No faults are present
 - Recipe settings remain correct
-

Step 8 – Home Machine

Home all machine functions including:

- Spray guns
 - Oven system
-

Step 9 – Flush Water From Guns

Flush residual water from all spray guns.

Verify:

- Water completely removed
 - Lines clear
-

Step 10 – Spray Gun Inspection

Inspect all spray guns.

Verify:

- Gun tips clean
- Caps clean
- No glue buildup

- No restrictions
 - No damaged components
-

Step 11 – Automatic Mode

Switch machine into Automatic Mode.

Step 12 – Bleed Spray Guns

1. Verify glue pot is full.
 2. Fill glue pot if required.
 3. Bleed all guns.
 4. Spray until glue flow is consistent.
 5. Confirm water has been completely removed.
-

Step 13 – Paper Belt Inspection

Inspect both sides of the paper belt.

Verify:

- No tears
 - No contamination
 - No excessive buildup
 - Proper tracking
 - Acceptable operating condition
-

End Roll Verification

Change paper roll when:

- Roll is approximately 4 inches or less from the cardboard core
 - Remaining roll length is insufficient for production
-

Paper Surface Inspection

Change paper immediately if:

- A black line is visible on the paper
 - Surface contamination exists
 - Damage is visible
 - Creases or folds are present
-

Operator Action

If any of the following exist:

- Paper within 4 inches of core
- Black line present
- Torn paper
- Damaged paper
- Contaminated paper

The operator shall:

1. Remove paper roll from service
 2. Install replacement roll
 3. Verify tracking
 4. Verify tension
 5. Confirm acceptable condition
-

12. Production Ready Checklist

- ☐ Edge filters inspected
- ☐ Fan RPM below 1400 verified
- ☐ Brush machine cleaned
- ☐ Glue quantity checked
- ☐ Recipe verified
- ☐ Laser operational
- ☐ Machine homed
- ☐ Water flushed from guns
- ☐ Guns inspected
- ☐ Automatic mode selected
- ☐ Guns bled
- ☐ Glue pot full
- ☐ Paper roll more than 4" from core
- ☐ No black line present on paper
- ☐ Paper belt inspected

Production may begin only after all requirements have been completed.

13. Adhesive Requirements

Adhesive System

- Kleiberit 1-Part Adhesive

14. Controlled Process Settings

The following settings are established and shall not be adjusted without authorization:

- Glue weight
- Line speed
- Spray coverage
- Oven dwell time

15. Oven Standards

Equipment

- 6-Tray Oven

Dry Time

- 315 Seconds

Product shall remain in the oven for the established cycle time.

16. Product Loading and Transfer

Verify:

- Doors are loaded properly
- Doors transfer smoothly
- Product spacing is maintained
- Components track correctly

Prevent:

- Product collisions
- Product overlap
- Conveyor interference

17. In-Process Quality Inspections

Inspect throughout production.

Glue Coverage Inspection

Verify:

- Uniform coverage
- No skipped sections
- No dry spots
- No missed areas
- No excessive buildup

Product Transfer Inspection

Verify:

- Stable movement
- Proper transfer
- Consistent adhesive application
- Proper tracking

18. Glue Coverage Standards

Acceptable Coverage

- Uniform appearance
- Complete coverage
- No visible dry areas

Unacceptable Coverage

- Missed areas
- Skipped sections
- Excessive buildup

- Poor atomization
 - Inconsistent coverage
-

19. Defect Escalation

Notify the Production Supervisor immediately if recurring issues are observed.

Equipment Issues

- Fan problems
- Conveyor issues
- Belt problems
- Spray gun issues
- Glue delivery concerns

Product Issues

- Coverage issues
 - Transfer issues
 - Repeated defects
 - Adhesive inconsistencies
-

20. Deficiency Reports

Complete a Pink Deficiency Report whenever:

- Product is incomplete
- Quantities are short
- Components are pending

Attach report to the front of the production package.

21. Remake Procedure

If a remake is required:

1. Complete Yellow Remake Form.
2. Record remake code.
3. Attach labels.
4. Submit to Programming Office.

Remake Codes

- BD – Board Defect
- 3D – Vinyl Defect
- ME – Machine Error
- HE – Human Error

Remakes receive production priority.

22. Production Reporting

Before releasing an order:

Record:

- Date
- Initials

By initialing the Production Report, the operator confirms:

- First-off inspection completed
 - Glue coverage verified
 - Quality inspections completed
 - Product ready for Thermofoil
-

23. Shutdown Procedure

Gun Line Cleaning

At the end of each shift:

1. Flush all gun lines using water.
 2. Continue flushing until all adhesive has been removed and clean water is flowing from each line.
 3. Press Manual Spray for 10 seconds on each gun.
 4. Continue until clean water is visibly flowing from each gun.
 5. Verify no glue residue remains.
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Gun Line Verification

Verify:

- Glue lines are completely clean
 - Clean water is flowing from each gun
 - No adhesive residue remains
 - Spray pattern is clean and unrestricted
-

Gun Maintenance

Clean exterior gun surfaces using:

- Approved machine oil
 - Clean cloths
-

Remove Using Brush and Oil

- Glue residue

- Overspray buildup
 - Dried adhesive
 - Surface contamination
-

Inspection

Inspect:

- Gun tips
- Air caps
- Exterior gun surfaces
- Visible fittings

Verify:

- No damage
 - No excessive wear
 - No plugging
 - No adhesive buildup
-

General Machine Cleaning

Clean:

- Machine surfaces
- Conveyor areas
- Surrounding floor area
- Glue booth surfaces

Complete housekeeping requirements.

24. Weekly Maintenance

Performed during Friday deep clean.

Glue Pot Cleaning

- Empty glue pot completely
- Thoroughly clean glue pot

Glue Line Cleaning

- Flush entire glue system with water
- Flush all adhesive lines completely

Component Inspection

Inspect:

- Filters
- Hoses
- Fittings
- Spray guns
- Air caps

25. Daily Housekeeping

Final 10 minutes of shift:

- Clean work area
 - Clean machine surfaces
 - Remove waste
 - Organize materials
 - Report maintenance concerns
-

26. Friday Deep Clean

Glue System Cleaning

Glue Pot Cleaning

- Empty glue pot completely
- Thoroughly clean glue pot

Glue Line Cleaning

- Flush entire glue system
 - Verify no glue remains
-

Oven Cleaning

Oven Blow Out

Blow out oven using compressed air.

Remove:

- Dust
 - MDF fibres
 - Paper debris
 - Glue residue
 - General contamination
-

Oven Inspection

Verify:

- Oven interior is clean
- No excessive dust accumulation
- Air passages unobstructed

- No transferable contamination
-

Spray System Inspection

Inspect:

- Filters
 - Hoses
 - Fittings
 - Spray guns
 - Air caps
-

Department Cleaning

Clean:

- Glue booth
 - Machine surfaces
 - Conveyor surfaces
 - Floor areas
 - Material staging areas
-

27. Release Checklist

- ☐ Smartsheet reviewed
- ☐ Colour grouping reviewed
- ☐ Priority orders reviewed
- ☐ Production sequencing verified
- ☐ Business Central Scan-In completed

- ☐ Startup procedure completed
 - ☐ Fan RPM below 1400 verified
 - ☐ First-off inspection completed
 - ☐ Glue coverage acceptable
 - ☐ Transfer quality acceptable
 - ☐ No dry spots visible
 - ☐ Production Report completed
 - ☐ Date recorded
 - ☐ Initials recorded
 - ☐ Deficiency Report attached if required
 - ☐ Remake Form completed if required
 - ☐ Business Central Scan-Out completed
 - ☐ Housekeeping completed
 - ☐ Oven blown out (Friday only)
 - ☐ Friday Deep Clean completed (Friday only)
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Appendix A – Sittex Training Record

Employee Name: _____

Trainer: _____

Date: _____

Competencies Verified

- ☐ Startup Procedure
- ☐ Recipe Verification
- ☐ Colour Grouping

- ☐ Production Sequencing
- ☐ Spray Gun Inspection
- ☐ Paper Belt Inspection
- ☐ Glue Coverage Inspection
- ☐ Product Transfer Inspection
- ☐ Business Central Scanning
- ☐ Documentation
- ☐ Shutdown Procedure
- ☐ Housekeeping

Employee Signature: _____

Trainer Signature: _____

Appendix B – Monthly Sittex Audit

Documentation Compliance: ☐ Pass ☐ Fail

Scanning Compliance: ☐ Pass ☐ Fail

Startup Compliance: ☐ Pass ☐ Fail

Filter Replacement Compliance: ☐ Pass ☐ Fail

Colour Grouping Compliance: ☐ Pass ☐ Fail

Glue Application Compliance: ☐ Pass ☐ Fail

Housekeeping Compliance: ☐ Pass ☐ Fail

KPI Review Completed: ☐ Yes ☐ No

Auditor: _____

Date: _____

Appendix C – Warranty Reference

All products processed through the Sittex Glue Line shall receive consistent adhesive coverage and curing sufficient to support thermofoil adhesion and final warranty requirements.