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# Cut and Stack Labels Spray Applied Hot Melt Troubleshooting Guide

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# APPLICATION OVERVIEW

## Application Quantity

- There is no specific recommended quantity of adhesive. The application quality is highly dependent on several factors, including equipment settings, temperature set points, label substrate and application.
- All adjustments should be made when adhesive is at application temperature and has been stable at that temperature for at least 30 minutes.
- Container pattern should be checked on containers exiting the machine at standard line speed. This is because the application amount will increase as line speed decreases.

## Pattern Check

Check the pickup adhesive pattern on the container is full/complete by removing multiple containers in a row, from the production line, at standard line speed. Remove the label gently from the bottle/container.

**Standard Operating Temperatures** - actual settings may vary for specific application needs.

**Pickup & gun**
Temperature: 260°F-285°F
Pressure: 20-30 psi

**Tank & Reservoir**
Temperature: 250°F-285°F
Pressure: 20-30 psi

**Swirl Air Heat**
Temperature: 330°F-360°F
Pressure: 5-20 psi

**Lap hose & gun**
Temperature: 260°F-285°F
Pressure: 20-30 psi

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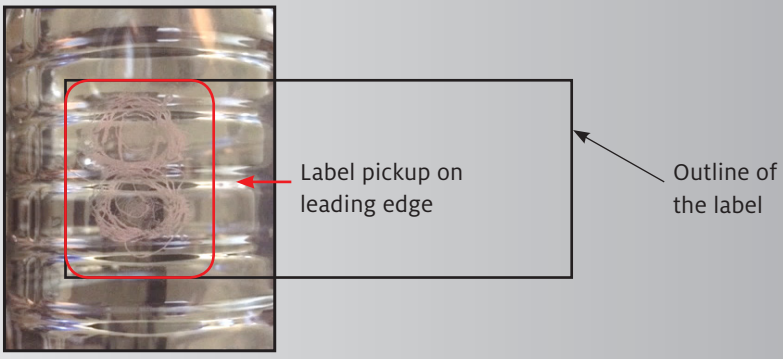
## Pickup Application

- Pickup pattern on the container should be a swirl pattern and not extend beyond the boundaries of the label.
- The spiral circles that form should almost touch, but not overlap each other.
- Adhesive quantity can be adjusted by tank pressure (how much adhesive comes out of the nozzle) and the solenoid on/off or firing time (how long in milliseconds the adhesive is coming out of the nozzle).




## Overlap Application

Overlap pattern on the trailing edge of the label should be full coverage and may or may not extend to the edge of the label. If the adhesive pattern on the trailing edge is incomplete:

- Increase overlap tank temperature – higher temperature will lower the viscosity and allow more adhesive to flow out of slot die.
- Increase overlap tank pressure – higher pressure will increase adhesive flow.
- Increase the duration for the on/off timing, similar to the pickup application.

Figure 1 Poor slot die application

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# ISSUE: PATTERN LOCATION OFF ALIGNMENT (PICKUP)

Adjust pickup gun height to fit the swirl pattern inside the dimensions of the label. The spray pattern location is controlled by the gun bracket and distance from the gun to the container.

| Possible Causes | Solutions |
|---|---|
| Swirl pattern is too high. | Lower the gun bracket. |
| Swirl pattern is too low. | Raise the gun bracket. |
| Swirl pattern is too small. | ■ Move the gun bracket back to increase swirl pattern size.<br>■ Increase duration of adhesive application.<br>■ Increase gun, “spiral” air pressure. |
| Swirl pattern is too large. | ■ Move the gun bracket closer for smaller swirl pattern.<br>■ Decrease duration of adhesive application.<br>■ Decrease gun, “spiral” air pressure. |

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# ISSUE: MISSING LABELS
## (LABELS NOT BEING PULLED FROM BASKET)

| Possible Causes | Solutions |
|---|---|
| Application temperature | Decrease application temperature - too high of a temperature will lower viscosity and keep adhesive from being able to hold the swirl pattern. |
| High swirl air pressure | Decrease either swirl air pressure or swirl air temperature or both – too high of a swirl air pressure or temperature will "blow" the adhesive apart and prevent it from forming a swirl pattern. |
| Adhesive is not cooling fast enough. | ■ Check application temperature; a lower temperature typically provides increased tack and faster set speed.<br>■ Determine if the adhesive is setting up too fast or not fast enough by evaluating adhesive transfer to the label.<br>❍ Increase tack by lowering temperature or decreasing adhesive quantity.<br>❍ Increase open time by increasing temperature or increasing adhesive quantity. |
| Label won't release from the magazine. | ■ Confirm clean label release from magazine fingers, possibly loosen the fingers to allow easier removal.<br>■ Remove any adhesive build up from the magazine fingers. |
| Not enough/poor adhesive pattern | See Incomplete Pickup Pattern information |

Example of a non-optimized spray application. Spirals are not uniform and may "blow" outside the label.

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# ISSUE: ADHESIVE PATTERN
## (INCOMPLETE AND COMPLETE)

| Possible Causes | Solutions |
|---|---|
| Incomplete pickup pattern | ■ Check spray nozzle for plugs and char; clean or replace as necessary.<br>■ Not enough/too much adhesive:<br>❍ Check on/off timing to verify duration of the application is correct.<br>❍ Increase tank pressure, as needed, to increase adhesive amount. |
| Poor label alignment | ■ Line up the leading edge of the adhesive spiral pattern, as close as possible, with the leading edge of the label.<br>■ Verify the basket fingers are set properly to allow a label to be pulled from the basket. |

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# ISSUE: FLAGGING LABELS ON OVERLAP – PRIOR TO CASE PACKING

Verify overlap adhesive pattern is full by removing multiple bonds in a row from the production line, at standard line speed. Assure the overlap application makes contact with both the bottles and label.

| Possible Causes | Solutions |
|---|---|
| Insufficient adhesive being applied | ■ Increase overlap tank air pressure to apply more adhesive.<br>■ Increase overlap tank temperature to lower viscosity and increase adhesive flow. |
| Poor overlap pattern on trailing edge of label | ■ Increase duration of the on/off timing on the overlap slot die.<br>■ Confirm die is making good contact with the label magazine. |
| Poor compression with brushes | ■ Verify compression brushes are clean and in complete contact with container.<br>■ Confirm containers are not wet.<br>■ Verify bottle “plates” rotating the bottles are aligned and rotating correctly, holding the bottlesfirmly in place.<br>■ Verify adequate downward pressure from top support above bottle plates. |

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# ISSUE: ADHESIVE BUILDUP

Assure proper adhesive pattern on bottle and label. Reduce adhesive amount if possible. Over applying adhesive will cause unnecessary buildup.

| Possible Causes | Solutions |
|---|---|
| Adhesive buildup on basket fingers | Check bottle alignment to ensure adhesive makes contact with the label in the correct location. |
| Adhesive stringing | Verify and adjust temperature as needed; increase temperature in 5°F, allow 30 minutes to equilibrate.<br>■ Check the swirl air temperature is high enough – around 325°F.<br>■ Decrease swirl air pressure, if too high. |
| Adhesive slinging | Verify and adjust temperature as needed; decrease temperature in 5°F increments, allow 30 minutes to equilibrate. |

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# ISSUE: CHAR BUILDUP

Adhesive char is typically caused by contamination in the adhesive tank or the adhesive sitting at temperature for extended periods.

- Use proper PPE and Lock Out Tag Out procedures.
- If char is present, drain the hot melt tanks and wipe clean.
- For preventative measures, drain and clean tank monthly to prevent char build up inside tanks.
- Turn off or reduce tank and roller temperature by 100°F below application temperature when not in use.
- Char within a hose can be loosened any time a hose is disturbed after not moving for a long time or any time an alternative adhesive/cleaner is sent through the hose.
- Purging and replacing filters can help to reduce potential nozzle clogs when char is loosened in a hose.

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