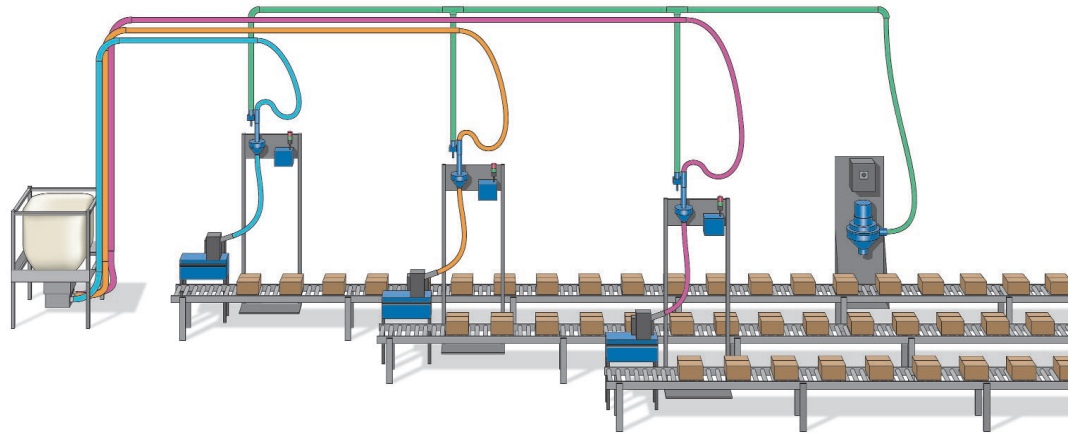


## **Advances in Automated Adhesive Loading**



*Multiple Station System Improves Productivity  
and Helps Provide Safe Workplace*

## Introduction

Increased global competition has resulted in consolidation and streamlining of plant operations in many industries. Fewer employees, running production lines faster than ever before, have increased workloads and less time for routine tasks, such as manual filling of hot melt units. The chances of overfilling a unit or letting a tank run dry increase significantly as time demands increase. The result is equipment or production problems that can lead to costly downtime.



Increased emphasis on employee safety, combined with increasing federal regulations and rising insurance and medical costs, has led many manufacturing companies to seek new methods for routine production processes. To meet these challenges, equipment companies are designing systems to minimize operator tasks.

These combined factors led to the development of the Fill Sentry™ system, an innovative, new design for automatically refilling hot melt units.

## Automated Adhesive Fill Systems Help Meet Production Challenges

Automated refilling capabilities can increase production efficiencies, reduce operational costs, and help provide a safe workplace.

### *Increased Production Efficiency*

- Maximizes productivity by freeing operators for other tasks.
- Prevents accidental overfill of adhesive units, minimizing component failure.
- Reduces product rejects due to missing beads caused when hot melt units run dry.
- Reduces nozzle-clogging incidences by keeping adhesive free from contaminants.
- Maintains strong bond strength by preventing *cold shocking*, the condition of adding too much adhesive at one time to the tank causing adhesive temperatures to drop too low.
- Eliminates corrugated disposal of packaged adhesives.

### *Increased Operator Safety*

- Helps in lowering incidents of injuries due to lifting or moving heavy containers because the system eliminates carrying heavy adhesive boxes.
- Minimizes the opportunity for operator to incur burn injury from melted adhesive because adhesive filling is automated.
- Reduces incidents of spilled hot melt.
- System minimizes fumes and particulates released into plant environment.

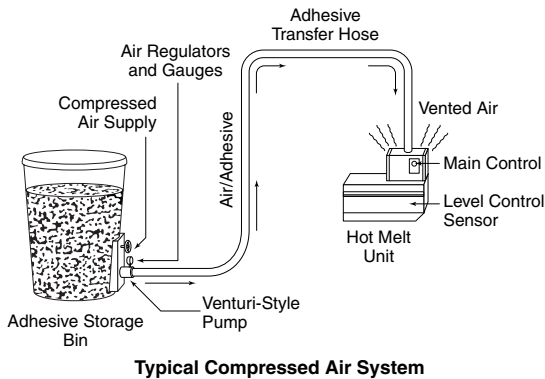
# Selecting the Correct Automated Adhesive Fill System

## Conveying Systems

Automated adhesive systems typically consist of a pump, adhesive transfer tubing/piping, adhesive level sensor, bulk adhesive container and a control mechanism. The two types of conveying systems – *compressed air* and *vacuum* – utilize many common operating elements, but vary significantly in design, operation and operational efficiencies.

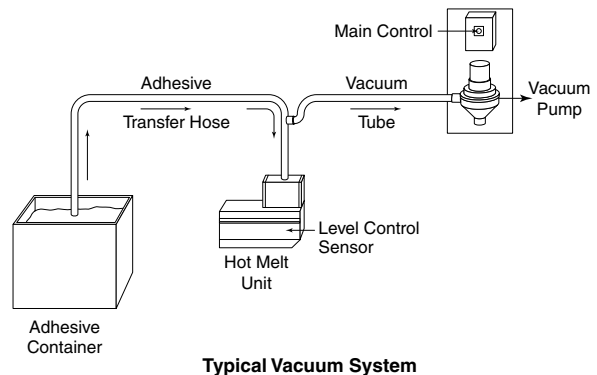
### Compressed Air Systems

Compressed air systems use compressed air and pneumatic pumps to *push* adhesive through tubing from the adhesive supply to the hot melt unit.



### Vacuum Systems

Vacuum systems use a pump and electric motor to create a vacuum in the adhesive transfer lines to *pull* adhesive from the supply source to one or more hot melt tanks.



### Benefits

- Low initial capital equipment cost.
- Operates adequately for limited application conditions.

### Limitations

- Requires large amounts of compressed air causing higher long-term operational costs.
- Demands clean, dry compressed air; oil or water in air lines can contaminate adhesive.
- Air blown into small tanks cools the adhesive and causes more charring.
- Vented air releases particulates and fumes into plant environment.
- Generally, handles pellets only.

Although less common than compressed air systems, vacuum systems are more reliable and cost less to operate.

### Benefits

- Superior long-distance conveying capability.
- Requires minimal floor space to operate.
- Operating costs are lower; compressed air not required for adhesive transfer.
- Closed system keeps adhesive and production lines cleaner.
- Handles variety of adhesive forms (pellets, pastilles, chicklets, etc).

### Limitations

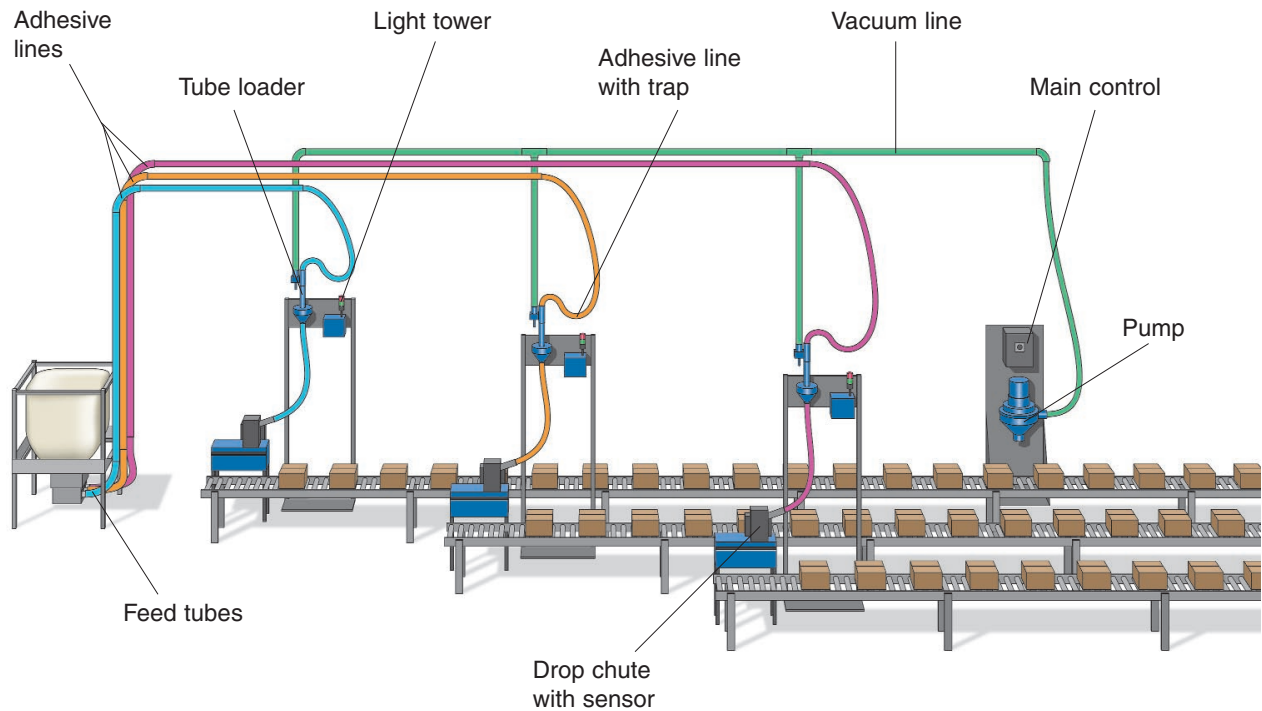
- Higher initial equipment investment.

## Nordson® Fill Sentry™ Automated Fill System Delivers High Performance Standards

### Simple Vacuum System Design Provides Reliable Operation

The Fill Sentry system automatically refills up to five hot melt units from a single adhesive supply source. Each multi-station system uses a single remote vacuum pump and controller to convey adhesive to the hot melt units. Overhead adhesive and vacuum lines of rigid, aluminum piping connect the adhesive supply with the units and the units to the pump. Special feed tubes are available to pick up adhesive from sacks or large adhesive bins, known as totes. Vibrators and/or tilt tables can be used to keep adhesive free-flowing for easy transfer.

Each hot melt unit contains a simple to calibrate, highly reliable, low-level sensor, which can detect adhesive level regardless of adhesive state: liquid, semi-liquid or solid. When the sensor signals a low-level condition, the adhesive pump turns on, pulling adhesive to the appropriate fill station. When the optimum adhesive level of the hot melt unit is achieved, the pump shuts off.



### *Features*

- Quick disable switch for each unit.
- Automatic air blowback keeps filter clean.
- Adhesive trap on tube loader allows operator to visually check adhesive delivery operation.
- Removable lid allows manual filling of hot melt unit, if required.
- Quick access design for many components, such as filters and sensors.
- Large, pleated filter can be cleaned for re-use.
- Tilt table and vibrator ensure adhesive remains free-flowing.
- Unique drop chute design prevents bridging of adhesive caused by fumes and heat.
- Memory capability allows easy storage or retrieval of system program.
- Simple timer relay is easy to set.
- Password protection eliminates unauthorized access.
- Unique tube loader design prevents overflow of unit.
- Light tower provides visual system status.
- Low-level sensor mounted to drop chute can be removed easily for inspection or cleaning.
- Tote cover keeps adhesive clean.

### *System Capabilities*

- Adhesive transfer: 100 ft (30.5 m) horizontal, 12 ft (3.7 m) vertical
- Adhesive size/shape: pellets, chicklets, and pastilles less than 1/2 in. (12.7 mm)
- Maximum number of units: 5
- Adhesive delivery rate: approximately 220 lbs/hr (100kg/hr) – actual rate depends on number of total units and total adhesive consumption.
- System configuration: flexible design accommodates many plant layouts.
- Adhesive pick-up: feed tubes can pick-up adhesive from many types of adhesive bins.

## Fill Sentry System Components

### Adhesive Feed Tubes and Container

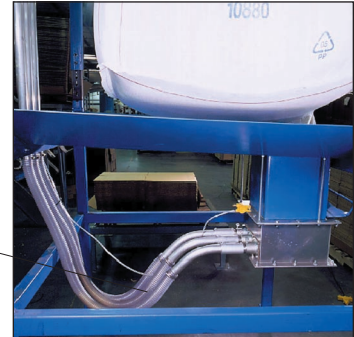


#### *Tilt Table with Vertical Feed Tubes*

Air-operated tilt table automatically inclines container towards vertical feed tubes to ensure all adhesive is used. Vibrators prevent adhesive bridging in tote and the tarp cover protects adhesive from contamination.

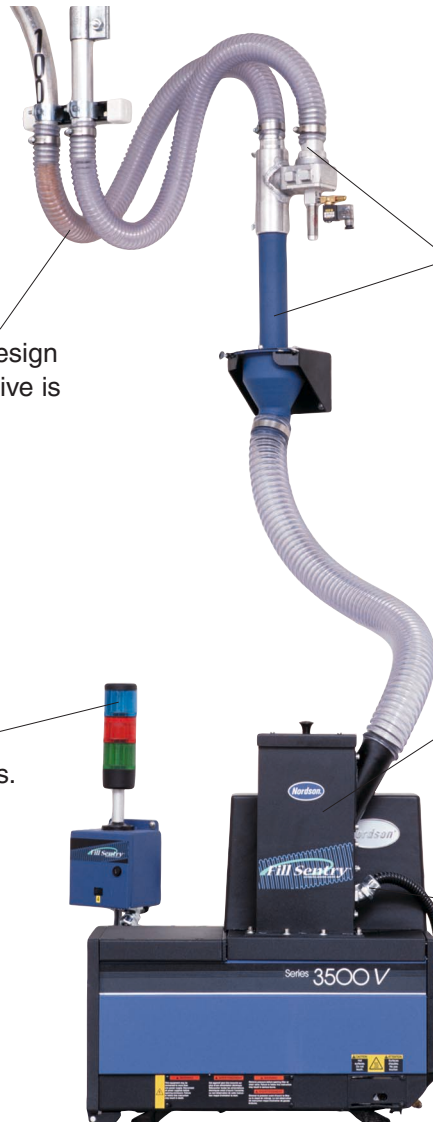
#### *Optional Horizontal Feed Tubes*

Customized adapters use horizontal feed tubes to pick up adhesive directly from sacks.



### Complete Fill Station

Unique adhesive trap design visually indicates adhesive is being delivered to unit.



Tube loader with vacuum valve controls the amount of adhesive delivered to hot melt tank and prevents overflow of hot melt unit.

Light tower provides visual identification of system status.

#### *Drop Chute*

- Unique drop chute design minimizes heat and fumes in adhesive lines.
- Removable lid allows for manual inspection or filling of adhesive.
- Low-level sensor is mounted to removable plate for easy access.

**Pump and Main Control Unit**

*Main Control*

Simple keypad for programmable relay provides easy set-up for load time and fault condition settings.



*Vacuum Pump with Filter*

Dust collection chamber is easily removed to access filter and collects residues removed from filter.



*Filter*

Easy-to-remove filter traps powders and fines preventing damage to the motor.

Filter blowback assembly cleans the filter at regular intervals.

## Nordson Delivers Total Dispensing Solutions Around the World

For more than 30 years, Nordson has been at the forefront of designing and manufacturing adhesive dispensing systems for manufacturing operations worldwide; providing advanced solutions that integrate easily with customers' operations.

From research and product development to manufacturing and after sale service, Nordson works in partnership with customers to develop comprehensive solutions and service for the most demanding production challenges. To ensure we're meeting the needs of our customers with the new Fill Sentry™ system, Nordson provides turnkey, seamless installation and operation.

Technology isn't the only benefit you get from Nordson. We operate a network of direct operations in 32 countries around the world and our worldwide sales and service teams are available locally to serve you. Nordson has also strategically located testing and demonstration labs around the world to let you evaluate equipment before the sale.

Talk with your Nordson representative today about the Fill Sentry system or other Nordson® systems that can make your operation more efficient and competitive.

---

*For more information, talk with your Nordson representative or contact your Nordson regional office.*

**United States**

Duluth, Georgia

Telephone: (800) 683-2314

Facsimile: (770) 497-3733

**Canada**

Markham, Ontario

Telephone: (800) 463-3200

Facsimile: (905) 475-8821

**Europe**

Lüneburg, Germany

Telephone: (49) 4131-894-0

Facsimile: (49) 4131-894-149

**Japan**

Tokyo, Japan

Telephone: (81) 3-5762-2700

Facsimile: (81) 3-5762-2701

**Asia/Australia/**

**Latin America**

Duluth, Georgia

Telephone: (770) 497-3400

Facsimile: (770) 497-3588

[www.nordson.com/packaging](http://www.nordson.com/packaging)



When you expect more.®