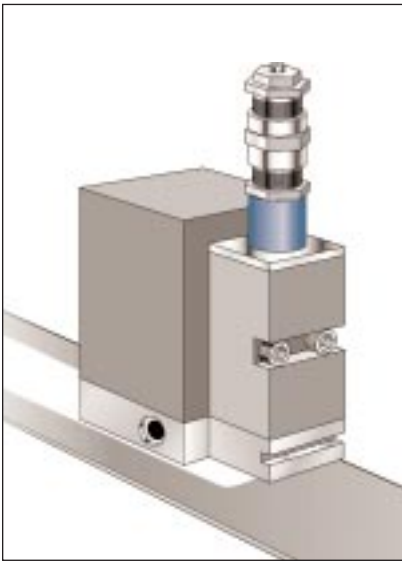


# FILTER MANUFACTURING SOLUTIONS

## AIR (HVAC) FILTER ASSEMBLY



Slot (Ribbon) Coating



Multi-Bead



Controlled-Fiberization™ (Swirl)

### Situation

Disposable/replaceable air filters are used to screen out contaminants passing through industrial and residential heating, ventilation and air conditioning (HVAC) systems.

The core of the filter media is typically constructed of spun fiberglass or pleated filter paper. Adhesive is applied to a paperboard frame, which bonds it to the filter media.

The adhesive is continuously applied while the paperboard is unwound from a flat-rolled supply. The paperboard is cut and scored, then wrapped around the filter media and secured. Cold glues or water-based adhesives are often used to bond the paperboard to the filter media. Although these materials are relatively inexpensive, they lack the initial *tack* strength required to instantly hold the frame in place.

As a result, disposable air filter manufacturers may be faced with lengthy cure times. Without any

heat, water-based adhesives require several minutes to fully cure. The filters must travel through long compression stations that hold the filter media and frame together while the glue dries. As an alternative, some operations use a heat chamber or a heated press to flash the water out of the glue, enabling the adhesive to cure faster.

In either case, these conventional processes require curing equipment to provide a secure bond between the filter media and the frame for a quality end product. As a result, the cumbersome manufacturing lines hinder productivity, and the additional maintenance, labor and energy costs increase overall operating expenses.

### Nordson Solution

Hot melt adhesives offer a faster, more efficient alternative to cold glue bonding for disposable air filter manufacturing. Hot melt adhesive, which is comparable in price to cold glue, provides a bond between the paperboard frame and filter media

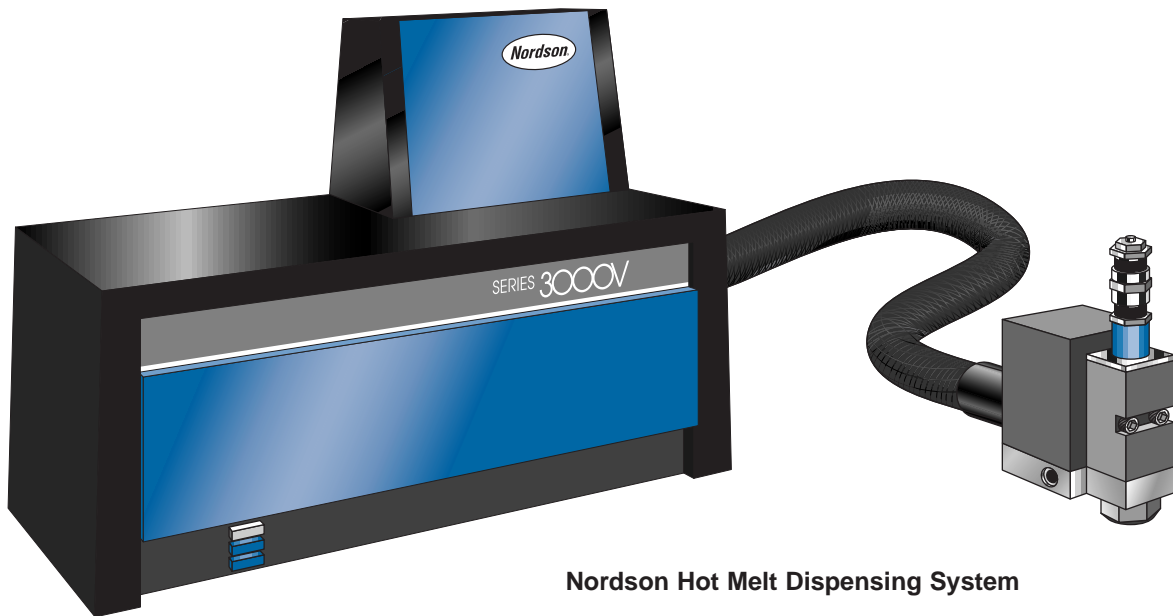
that is almost instantaneous. The adhesive begins to cure as soon as it is exposed to ambient temperatures, eliminating the need for curing ovens and the associated labor and maintenance costs.

An automated hot melt system from Nordson Corporation provides a simple, fast solution for bonding paperboard to disposable filter media. The adhesive is fed into a standard Nordson hot melt tank system that melts it into a liquid state. A pumping component supplies a specified amount of adhesive through a heated hose to the manufacturing operation. The adhesive is then accurately applied to the paperboard filter frame using a Nordson automatic dispensing gun.

(continued on reverse side)



# FILTER MANUFACTURING SOLUTIONS



**Nordson Hot Melt Dispensing System**

Depending on specific application requirements, the Nordson system can dispense hot melt material in three patterns - ribbon, swirl or bead - simply by using a different gun:

- An automatic slot nozzle gun dispenses material in a ribbon pattern for maximum adhesive coverage and the best possible bond.
- An automatic gun can be used to apply multiple beads, providing a good bond while using a minimal amount of adhesive.
- Nordson's controlled fiberization gun can be used to apply a controlled swirl pattern of adhesive, which provides the coverage offered by a ribbon pattern, but using only half the material.

Some operations find that reactivating the adhesive after it is dispensed and cured provides the most efficient manufacturing process. In this case, the hot melt adhesive

is applied and allowed to cool before the frame is wrapped around the filter. An oven or heat press reactivates the adhesive. Once exposed to ambient temperatures, the hot glue cures instantaneously and allows the filter assembly to be completed in just seconds.

#### **Benefits**

- Accurate and proven dispensing system that is simple to operate and maintain.
- Fast curing adhesive allows nearly immediate filter handling capability.
- The system eliminates the need for excessive curing ovens and the associated labor, maintenance and energy costs.
- Shorter manufacturing process saves floor space.
- Three different material dispensing options offer the flexibility to meet most any application requirement.

#### **Backup That Keeps You Productive**

Nordson offers a broad range of application equipment to tailor a system that is right for you.

Our promise of customer satisfaction is backed by a team of application engineers, sales specialists and service technicians. The Nordson Package of Values® helps keep you productive and profitable with local sales and service support, engineering assistance, readily available parts, comprehensive product manuals and customer training programs.

Nordson reserves the right to make design changes to products to improve their function. These changes may occur between printings.



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