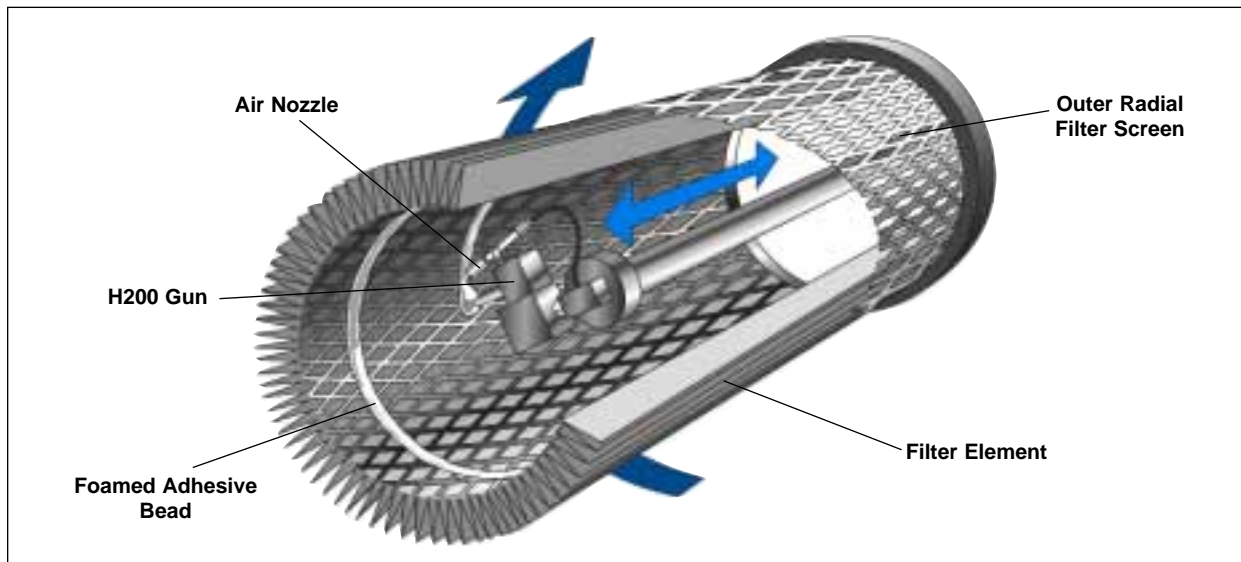


# FILTER MANUFACTURING SOLUTIONS

## HEAVY DUTY RADIAL AIR FILTER SPIRAL BEADING



### Situation

Radial (round)-shaped air filters are used to clean air passing through the engines of industrial vehicles including buses, trucks and tractors, as well as construction, military or recreational vehicles. Radial filters are also used for machines operating in high-vibration environments.

The core of the filter media is constructed of chemically-treated paper, which catches and holds dirt and contaminants while allowing maximum air flow.

A continuous bead of hot melt adhesive is applied to the filter media and screen on the inner and/or outer diameter of the radial filter. The hot melt material flows through the screen wetting into the paper media, bonding both surfaces together. The hot melt adhesive maintains a uniform filter pleat separation and stabilizes the media during use, preventing friction against the screen caused by excessive vibration and strenuous use. Wear is reduced, and filter life and efficiency are improved.

In a typical operation, an operator manually loads the radial filters into a horizontal or sometimes vertical fixture. The automatic gun(s) applies the hot melt adhesive to the filter as the gun bracketry, or in some cases, the filter, traverses on one axis. The spiral adhesive bead then cools as the gun(s) or filter is retracted, but the filter continues to spin while the bead completely cures. If the filters are removed from the fixture too soon, the hot melt material will run or sag. This limits the overall production speed of the operation by as much as three to four minutes waiting for the hot melt to cool. Once cured, the filters are manually removed and sent to the final production stage where they are packaged for shipment.

### Nordson Solution

For solid applications only, Nordson uses high performance melt tanks with accurate metering pumps and state-of-the-art automatic guns to dispense uniform patterns with excellent cut-off, eliminating glue stringing. Many applications suffer

from processes with inaccurate metering pumps and systems that have poor thermal control. Thus, the beads are not uniform in size or width. The overall filter performance and general appearance is sacrificed.

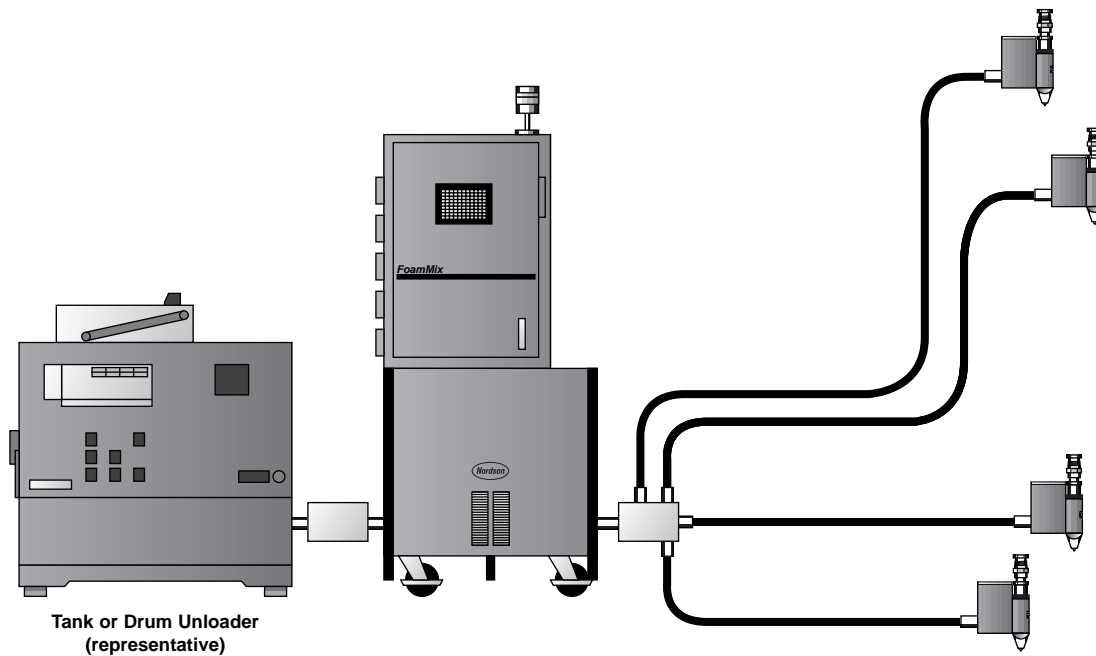
To improve production rates and reduce hot melt material costs, Nordson offers a proven technology using foamed hot melt adhesive. A nominal amount of inert gas is combined with the adhesive, creating a homogeneous foamed solution. The foamed material is applied like the more conventional approaches, but material usage is reduced 40 to 60 percent.

The foamed adhesive dispensing system is easily retrofitted into all types of operations. Significant changes to a current process are not necessary. A wide variety of equipment combinations are available to fit each application. A FoamMelt® system equipped with automatic guns is used for lower usage operations. Medium to high material demand applications have the hot melt material melted and pumped from a traditional Nordson

(continued on reverse side)



# FILTER MANUFACTURING SOLUTIONS



The Nordson® Foamed Adhesive Solution

(One to Eight Guns)

tank unit or drum unloader. It feeds the Nordson FoamMix® system where the inert gas is mixed with the material. Again, automatic guns accurately apply uniform spiral beads to the filter.

Foamed hot melt adhesive eliminates the need for curing stations and the longer cycle times needed to allow the material to cool. The foamed hot melt cools in seconds, allowing almost immediate product handling. Production rates are enhanced and floor space is used more efficiently. Foamed hot melt fills gaps and voids that can mean a better seal or stronger bond. In addition, material usage is typically reduced by one-half. These combined benefits and savings, in most cases, allow a foamed adhesive dispensing system to pay for itself in one year or less.

## Benefits

- Accurate beads dispensed uniformly from part to part.
- Foamed materials require less cooling time than traditional non-foamed beads, improving production rates and space usage.
- Material consumption and costs savings from 40 to 60 percent can be achieved by foaming.
- Using foamed material reduces the weight of the filter, complementing the design of many radial air filters.

## 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, 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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