

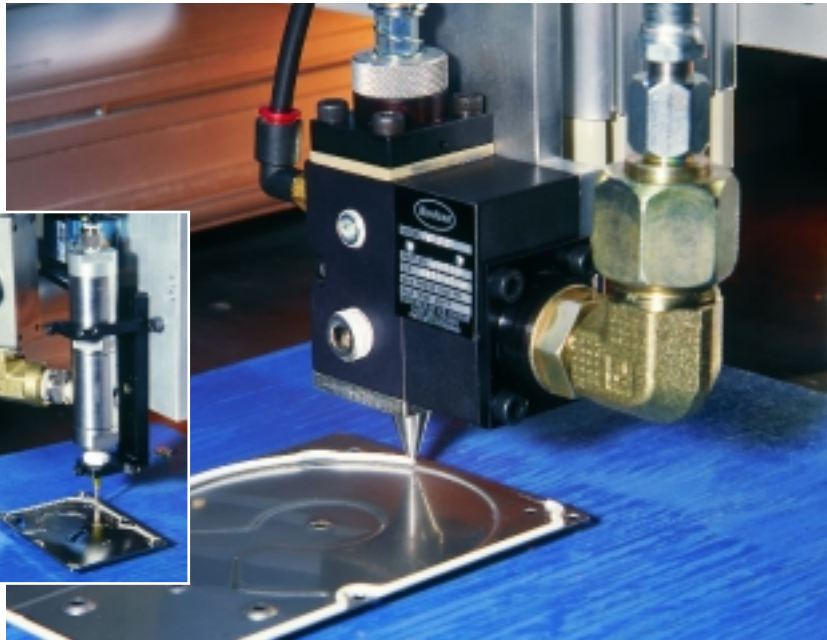
# Form-In-Place Gasketing System for Hard Disk Drives



*Cost-effective automated application of gaskets to hard disk drive covers.*

Conventional gasketing and sealing methods for computer hard disk drives can be labor-intensive, costly and may not meet today's demanding contamination requirements.

Innovative dispensing technologies from Nordson can provide an integral cover gasket and can greatly reduce manufacturing costs compared to conventional tape, over-molding and die-cut gasket methods.



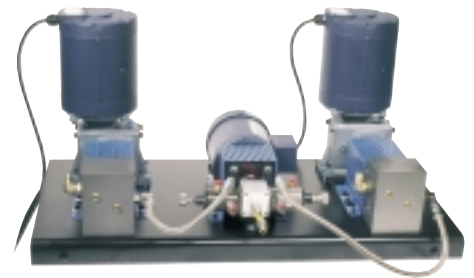
*Nordson systems are available for the various sizes of covers used for hard disk drives in computers and television devices.*

## The Nordson® Form-In-Place Gasketing System

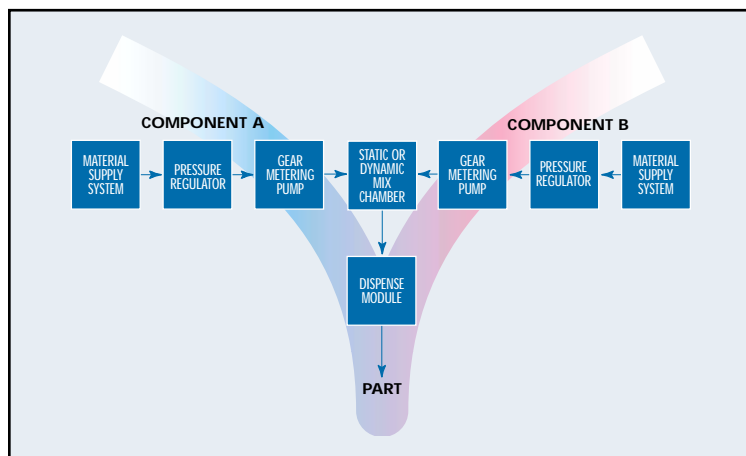
The Nordson system utilizes new plural-component materials which have been developed specifically for hard drive cover applications. These materials provide durable gaskets and are fully compliant with the containment requirements of major disk drive manufacturers.

The equipment used to mix and dispense these materials is the result of Nordson's decades of experience with both plural-component materials and form-in-place gasketing methods. Dispensing systems are available for all sizes of hard drives, including those for standard desktop computers, laptop computers and television devices.

In a typical system, 10 to 16 disk drive covers are palletized and conveyed into a dispensing station. Multiple guns dispense the gasket onto the covers. The parts are then conveyed to a curing oven.



*The meter/mix delivers precise metering and thorough mixing of materials.*



*PluraMix system flow diagram.*

## Pumping System

The materials used in this application typically require a mix of high and low viscosity materials, which are pumped to a meter/mix station. High-viscosity materials are pumped with a Nordson bulk unloader, and low-viscosity materials are pumped with a Nordson air-operated single-piston pump. An auto-changeover option is available to automatically change material-supply containers without stopping production.

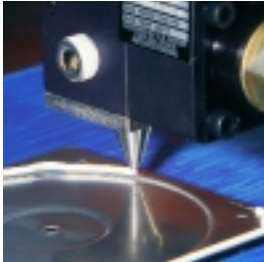
## Meter/Mix Station

The Nordson PluraMix™ 200 utilizes a precision AC motor driven gear-metering pump for each component for accurate, repeatable flow rates and mix ratios. The advanced AC motor controllers utilize load compensation, providing mix ratios repeatable to up to  $\pm 2$  percent.

## Form-In-Place Gasketing System

The Nordson system utilizes a proprietary dynamic mixer that delivers the high mix energy needed for materials with wide viscosity variations and mix ratios.

The low-speed, low-shear rotating mixing element minimizes temperature induced viscosity changes that can be caused by shear heating of the materials.



*Nordson AG-900 dispensing gun for standard bead size.*



*Nordson DV-03N dispensing gun for smaller bead sizes.*

Nordson's DV-03N dispensing gun provides a compact profile along with the high-pressure capability needed to dispense viscous materials through a narrow nozzle. The DV-03N includes a "suck back" feature, which actually pulls material back into the dispensing gun when the gun is triggered off. This delivers a clean cutoff without stringing.

The design of the meter mixing station provides excellent performance in a small package, minimizing valuable floor-space requirements.

### Dispensing Guns

Nordson offers a choice of dispensing guns, each designed for specific application requirements. The guns provide a sharp, clean cutoff to minimize stringing of material and provide cleaner knit lines.

For larger 3 1/2-inch hard drive covers, the Nordson zero-cavity AG-900 dispensing gun allows for standard or custom nozzle and needle designs to meet a variety of gasket profiles. The zero-cavity feature provides sharp cutoff and minimizes stringing.

For smaller hard-drive covers, such as those used in laptops,



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



*The PLC controller provides a wide range of process information.*

### System Controller

The Nordson FIP gasketing system includes a PLC-based controller that provides process control capability in an easy-to-use format. The controller includes highly visible pressure readouts, system diagnostics, triggering timers and mix ratio, mixer speed and flow controls.

### Optional Automation

The Nordson disk drive FIP gasketing system can be adapted to your existing automation or provided

as a complete automated dispensing system. Nordson can provide conveyor systems, automation, pallets, pallet locating stations and curing ovens.

Quality Nordson automation systems include reliable ball-screw drive for superior repeatability. Typical belt drive systems can lose accuracy over time due to stretching of the drive belt.

### Features and Benefits

- **Efficient form-in-place process** reduces sealing cost while providing an integral cover gasket.
- **Accommodates wide mix ratios and materials with diverse viscosities** to allow use with the widest variety of plural-component materials.
- **Compact system** minimizes floor space requirements.
- **Precision gear-metering pumps** provide accurate metering of both high and low viscosity materials.
- **Rotating mixer** minimizes shear heating that can cause variations in material viscosity.
- **Dispensing guns with sharp, clean cutoff** minimize knit lines and material stringing.
- **PLC control** provides precise timing to enhance quality control.
- **Fully automated systems available** including accurate ball-screw drive, three-axis automation, conveyors and ovens in an integrated package.

*Nordson offers worldwide sales and service support through a network of regional offices. Please contact the nearest Nordson office for more information.*

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