



Optimizing Case Coding Throughput & Quality: Key Factors to Consider When Choosing Piezo Inkjet Equipment

WHY CHOOSE PIEZO INKJET PRINTING? Deployment of a piezo inkjet printing solution can greatly increase case coding throughput and significantly reduce cost. Manufacturers should review their application before installing a piezo inkjet system to ensure this technology is appropriate since there are several factors that can impact performance. These factors include environment, material handling, installation and personnel.

ENVIRONMENT

A dry and temperature-controlled working environment free of dust, debris and any possible electrical interference is the ideal working condition. Dust and debris near the nozzle plate can block the print head nozzles and cause a variety of effects.

- Blocked orifices impact print quality.
- Blocked ink return or vacuum lines can damage the nozzles or nozzle plate permanently and impact print quality, requiring replacement.



Dust and debris (hot melt glue)



Electrical interference comes from a variety of sources, improper grounding and electrostatic discharge (ESD). ESD is the most common form of electrical interference experienced by piezo inkjet systems and occurs when two electrically charged objects come in contact with each other. One common example of this is corrugated boxes sliding alongside guiderails while riding on plastic slates on a conveyor.

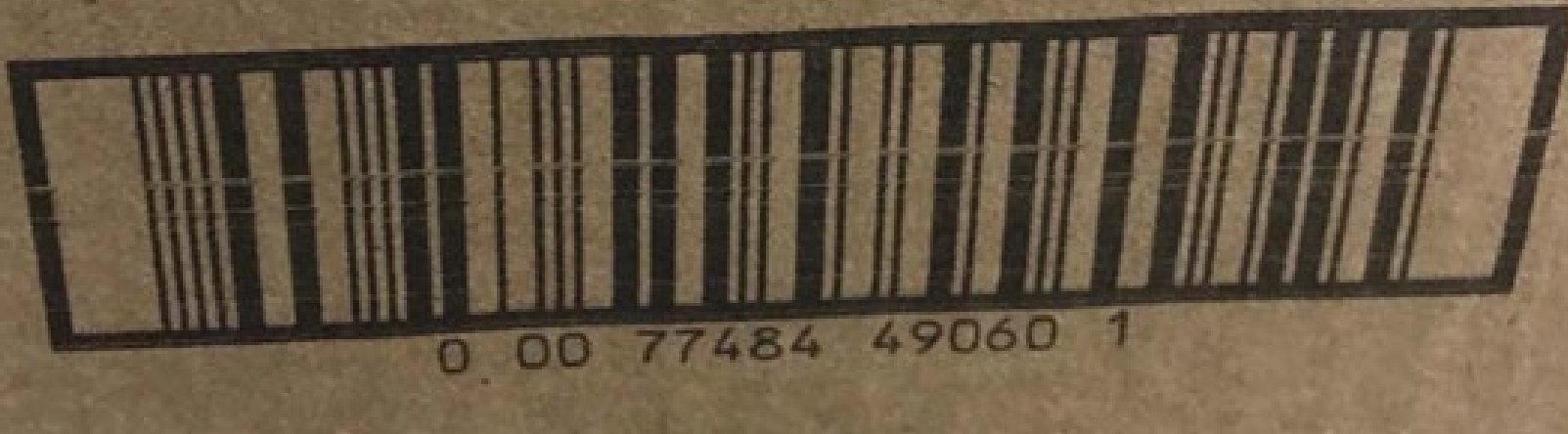
ESD has two potential issues. First, a large buildup of electricity can damage the electrical components of the system. Second, it can charge the front plate of the print which can pull electrically charged dust and debris.

MATERIAL HANDLING

Conveyors and associated equipment used in material handling can significantly impact print quality. Speed, length, belt type, guiderails and installation are all important considerations for conveyors.

Piezo inkjet systems typically handle throughputs of 200 fpm or less. However, more elaborate or higher resolution imaging requires slower line speeds for optimal performance. It's recommended to incorporate an encoder for all systems, even when speed is fixed or controlled. Encoders ensure the system jets ink consistent with real time speed.

Another important factor is for conveyors to have good gearing and transmissions to mitigate vibration and produce smooth transitions. Smooth continuous belts are preferred at the printer location and provide the most uniform product movement. Other conveyors like chain, roller and skate wheel conveyors can induce undesired movement in the print target.



Barcode with print degradation

Guiderrails serve an important role in print quality by providing a sturdy guide for the print target so it is presented smoothly and evenly to the printing system. Conversely, poor guiderail design and application can adversely affect print imaging. Guiderails should have minimal surface contact to reduce static buildup, minimize dust and debris creation and reduce drag on the print target. Rails should also be constructed of static dissipative material. Finally, whenever possible, guiderails should be placed below the print head to mitigate the risk of dust or debris falling into the print head faceplate.

INSTALLATION

Equipment placement should also be considered. Equipment should have easy access for both operation and maintenance needs and should be installed at a flat and straight section to provide a uniform target location for the print. Print systems can be floor or conveyor mounted. Conveyor mount is more convenient and requires space but is subject to conveyor vibration and movement. A floor mount provides the greatest stability and significantly reduces impact from conveyor vibration but requires fastening to floor, limiting flexibility.

PERSONNEL

The human factor is often overlooked when evaluating product identification equipment. Successful deployment of a piezo inkjet system requires proper training on the use and maintenance of the print systems. While piezo inkjet systems are an incredibly useful and cost-effective solution to most case coding applications, they do require education to function properly and provide the highest quality imaging.



CONCLUSION

The ResMark 5000 piezo inkjet system is Diagraph's latest innovation in the impulse jet market. After extensive research and testing, the Resmark 5000 system was designed to offer a simple, reliable, flexible and cost-efficient solution to secondary package printing needs. The TouchPro 2 controller along with the NEXTControl and NEXTCreate software makes creating, storing and printing messages easier than any other legacy print system. The system's small compact design allows for greater flexibility in installation location while requiring the least amount of time for installation, commissioning and training. Finally, Diagraph's patented Trident print engine is a rare technology as it is a repairable print engine. Most other piezo print engines must be replaced when damaged or functioning improperly.

Follow the link below to find out more about the ResMark 5000 system and see how it can be the proper solution for your secondary package printing needs.



Contact us today to discuss the best options for your operation.