

Digital Printing

A guide to the effects of static control and solutions to overcome these, for advanced quality output



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The Negative Effects of Static

Digital Printing is susceptible to a range of static issues which can lead to a poor finish, affecting end customers, as well as machine malfunction, affecting production.

Meech are trusted in the industry to deliver effective static control in order to maximise productivity.

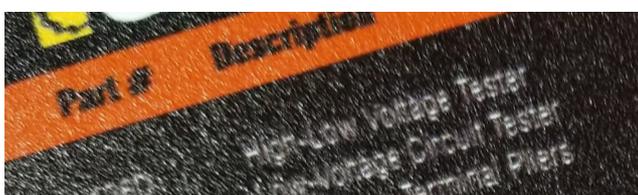
Poor Print Quality:

Quality and finish issues in printing can cause a number of problems; customer dissatisfaction, high reprint costs affecting the profit margin and loss of repeat custom. Static issues can lead to a number of quality issues for digital printers:

- Feathering of print edges
- Ink splatter & greying on unprinted areas
- Print head contamination & surface ink droplets
- Pin holes in block colour printing
- Poor definition on small text
- Striping Pantone variance

Premature Print Head Failure:

The print heads are one of the most sensitive components of the printer. Therefore, any issues can be costly. Static can disrupt the performance of the print heads, both adding to nozzle plate contamination and also acting as a direct route for an EMP pulse to access the system's electronic circuitry.



Before Meech Static Control Installed

Dust and Fibre Attraction:

When static charges are present, dust and fibre particles are attracted to the material surface. The ink will then settle on the contaminated surface, potentially leaving defects on the final product.

Electrostatic Discharge:

Static voltages of 30 - 40kV can often be seen on the media as it passes through a printer, resulting in frequent electromagnetic pulses (EMP). EMP damage can affect any circuit within the system and is most commonly seen through PCB failure, nozzle loss and computer failure.

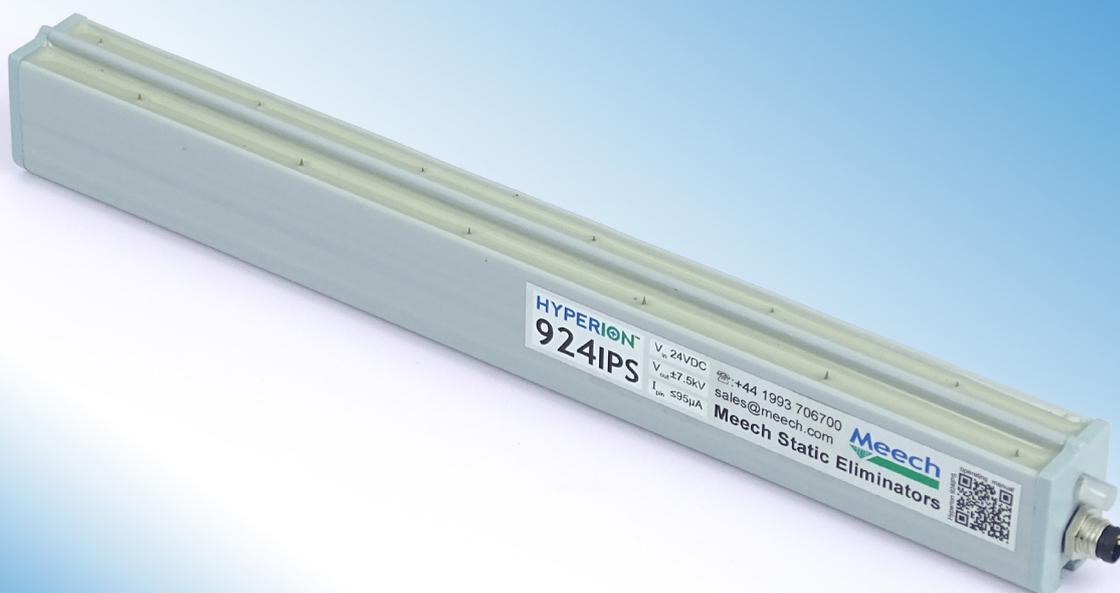
Operator & Personnel Shocks:

Health & Safety is of utmost importance in the workplace. Static charges can lead to dangerous shocks to personnel.



After Meech Static Control Installed

Engineered Solution: Hyperion 924IPS Short-Range Pulsed DC Ionising Bar



Powered by 24V DC, the Hyperion 924IPS is the most compact pulsed DC bar available on the market and is especially suited to the digital printing industry, with a short-range ionising distance.

Case Study 1:

Problem: High static charges generated during the print process caused ink variances and poor print quality.

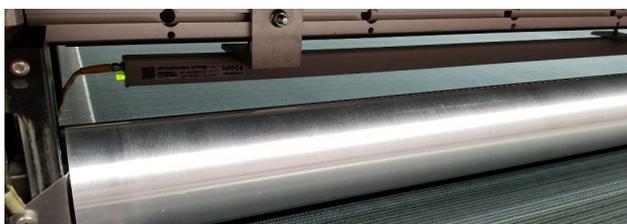
Solution: Mounting 924IPS bars each side of the print carriage eliminated overspray issues.



Case Study 2:

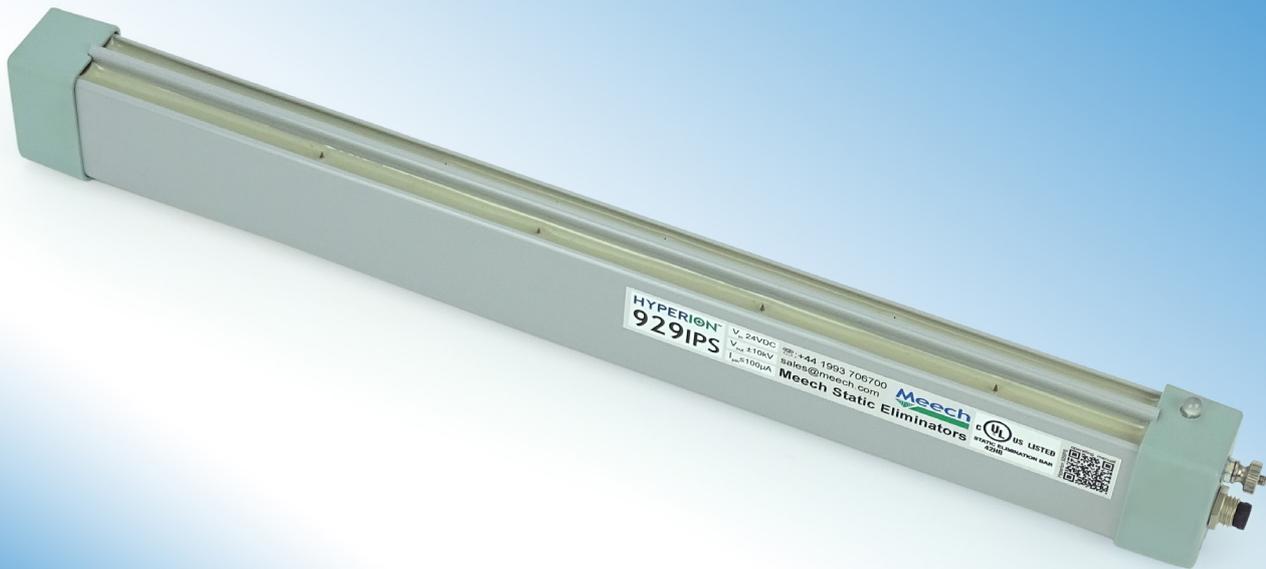
Problem: Static charges on substrates caused material to not feed effectively and misalign.

Solution: Mounting 924IPS bar on the underside between the feed table and print station led to the material feeding correctly.



Feature	Benefit
Optimum Working Distance	20-200mm; suitable for short range applications, such as web paths on converting machinery, printing presses or applications that have traditionally used AC equipment.
Compact Size & Full Length Ionisation	At just 22mm (W) x 32mm (H), it will fit into tight installations. The bar is also designed to give full performance over its entire length.
Low Voltage Wiring	Requiring a 24V DC supply removes the need for high voltage wiring to the ionising bar.
Integrated Power Supply (IPS)	The integral pulsed DC power supply uses surface-mount high voltage components. This reduces the overall size of the bar, making it the most compact 24V DC bar available.
Adjustable Output	Output voltage, frequency and balance can be adjusted using the BarMaster programmer. Adjustable output optimises the bar for sensitive applications like RFID.
Adjustable Clean Pin Alert	Meech Ion Current Monitoring (ICM) technology detects when the 924IPS needs to be cleaned. The LED on the bar alerts operators of the need for cleaning. This ensures peak performance is maintained.
Environmental Protection	IP66 construction makes the bar suitable for harsh environments.
Remote Signal	An output signal will activate when the bar needs cleaning or a fault has been detected. This will alert operators remotely to check the bar.

Engineered Solution: Hyperion 929IPS Mid-Range Pulsed DC Ionising Bar



With profile dimensions of just 26mm x 43mm, the Hyperion 929IPS is easily installed onto printing machinery. The class-leading +/-10kV pulsed DC output provides extremely powerful ionisation at mid-range.

Case Study 1:

Problem: High static charges generated during the print process resulted in overspray of the ink, affecting the print quality.

Solution: Mounting 929IPS under the front cover, over the substrate eradicated the ink overspray.



Feature	Benefit
Optimum Working Distance	100-500mm; suitable for mid range applications, such as reducing the static charge on blow moulded bottles or printing presses.
Low Voltage Wiring	Requiring a 24V DC supply removes the need for high voltage wiring to the ionising bar.
Integrated Power Supply (IPS)	The integral pulsed DC power supply uses surface-mount high voltage components. This reduces the overall size of the bar.
Adjustable Output	Frequency and balance can be adjusted with the BarMaster programmer.
Adjustable Clean Pin Alert	Meech Ion Current Monitoring (ICM) technology detects when the 929IPS needs to be cleaned. The LED on the bar alerts operators of the need for cleaning. This ensures peak performance is maintained.
Environmental Protection	IP66 construction makes the bar suitable for harsh environments.
Remote Signal	An output signal will activate when the bar needs cleaning or a fault has been detected. This will alert operators remotely to check the bar.

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