THE QUEEN'S AWARDS FOR ENTERPRISE: INTERNATIONAL TRADE 2015

FRASER
Anti-Static Techniques

CONTROLLING STATIC ELECTRICITY IN INDUSTRY WORLDWIDE

www.fraser-antistatic.com

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INTRODUCTION TO FRASER ANTI-STATIC

Fraser Anti-Static has been a specialist manufacturer of static control equipment since the company started in 1991. This specialisation has allowed us to focus on what our customers want. Today we are presenting a range of equipment which has been designed to solve our customers' problems - not just in performance, but also in terms of reliability, ease of use and cost-effectiveness.

THE QUEEN'S AWARDS FOR ENTERPRISE: INTERNATIONAL TRADE 2015

Fraser Anti-Static Techniques are proud to be named winners of a 2015 Queen's Award for Enterprise - the UK's highest accolade for business success.

TECHNOLOGY AND PRODUCTS

Fraser Anti-Static Techniques equipment is specified by manufacturing companies and OEMs in every industry where static is a problem: plastics, packaging, converting, paper, pharmaceutical, food, medical, textiles, electronics - in fact wherever non-conductive materials are processed.

Fraser equipment is manufactured in the UK. Customer support is provided direct from the factory and from distributors throughout the industrial world.

Fraser products fall into two main technologies and seven application categories.

TECHNOLOGIES:

Advanced DC Products

These include:

- Intelligent, high performance static eliminators with all of the electronics and controls built into the body of the static eliminator and powered by 24V DC.
- Static generation equipment for temporary adhesion in industrial processes, powered by 90-250 V AC or 24 V DC.

Conventional AC Static Eliminators

These use an external high voltage Power Unit to power ionisation electrodes in the form of Bars, Blowers, Airknives, Guns and Nozzles.

APPLICATION CATEGORIES:

Short Range Static Elimination
Eliminating static electricity at distances of 25 mm to 150 mm from the product and at speeds up to 1500 m/minute.

Longer Range Static Elimination
Neutralising static charges at distances from 150 mm to over 1 m, with or without air assistance. Fraser has the most comprehensive selection of long range static eliminators available.

Static Neutralisation and Cleaning
Static and contamination are closely connected. Fraser has developed a range of Ionised Air Guns, Airknives and Nozzles to neutralise the static charge and remove statically attracted dust and other contaminants.

EX and ATEX Static Elimination
The special requirements of hazardous areas are addressed with our ATEX and IECEx certified static neutralisation and measurement products.

Static Generators
Using static generation for temporary adhesion is a growth area in industry. It is a clean, safe, fast and reliable process.

Passive Static Eliminators
Fraser was the first company to commercialise anti-static brushes in industrial applications. Since then we have concentrated on higher technology products, but passive equipment still has a role to play in many applications and is still manufactured by Fraser.

Measurement
Scientific investigation of static problems is difficult and frustrating without a method of measurement. The Fraser 715 Static Meter is used throughout the industrial world. The EX715 Static Meter has a unique ATEX and IECEx certification for investigating hazardous areas.

Standards and Certifications
Fraser products are manufactured within an ISO9001 quality system and product certifications include CE, UL, CB, ATEX and IECEx.

NEOS 12F

SHORT RANGE

NEOS 12L
NEOS 20

MEDIUM & LONG RANGE

A NEW DIMENSION IN STATIC CONTROL

Fraser launched the NEOS range of intelligent static eliminators in March 2015. This was a major advance and set new standards in static neutralisation efficiency.

NEOS technology uses a precision electric field measurement system which works through the emitters. NEOS measures the electric field and responds by emitting ions of the opposite polarity to neutralise the charge.

The measurement signal automatically adjusts the ionisation balance and frequency to give optimal static neutralisation across a range of distances and static charge levels. This effectively 'closes the loop' around the statically charged material and the NEOS bar. This gives performance increases of up to 250% for short range applications and 200% for longer range applications, compared to non-intelligent static eliminators.

NEOS Bars were developed to meet the increasing speeds and static electricity levels in industry. There are three NEOS Bars available for short, medium and long range applications, coping with speeds up to 1500 m/minute.

DC RANGE & NEOS

EVEN MORE POWERFUL

3024

IONSTORM

DC technology is an important advance on traditional AC technology. DC enables integrated electronics to manipulate the ionised output - in terms of waveform, voltage, frequency, feedback and duty cycle - to produce more efficient static neutralisation.

NEOS and 3024 Bars are designed to provide the industrial customer with performance of the highest standard and market-leading reliability. In addition to the automatic intelligent operation, NEOS Bars also have manual settings to allow them to operate as conventional DC Bars.

The three NEOS Bars complement the existing 3024 Bar giving many benefits to the customer:

- Electronics built into the body of the Bar, no high voltage cables required.
- 24 V DC operation. Optional 90-250 V AC power supplies are also available.
- Effective length same as overall length.
- Robust IP67 construction.
- Local and remote monitoring of operation.
- Shockless operation.
- NEOS Bars also have a 'clean me' feature which gives a signal to the operator that the Bars need attention.
- Bars available in lengths up to 5 m.
- Tungsten emitters for long term, heavy duty performance.
- CE, UL and CB certification.

3024 BARS

Launched in 2012, the 3024 Bar quickly became a best-seller for machinery manufacturers and end-users throughout the world. Operating at 10-11 kV, it is compact, powerful and economical. 3024 are available in two versions:

- 3024F for close range applications, 25 mm to 100 mm and speeds in excess of 1000 m/minute.
- 3024L for medium range applications from 100 mm to 500 mm.

NEOS 12

Like the 3024, the intelligent NEOS 12 is available in two versions, both operating at 12 kV DC.

NEOS 12F is for distances from 40 mm to 150 mm and speeds up to 1500 m/minute. Performance is up to 250% more than the 3024F.

NEOS 12L is for medium range distances from 100 mm up to 600 mm. Performance is typically 200% more than the 3024L.

NEOS 20

Operating at 20 kV, the NEOS 20 Bar opens a new sector in static control - high performance operation at distances from 150 mm to 750 mm.

It offers double the static neutralisation performance of the NEOS 12.

NEOS 20 has replaceable tungsten emitters.

NEOS 30

NEOS 30 is the most powerful Bar in the NEOS range, operating at 30 kV. It doubles the static neutralising power of the NEOS 20.

It is designed to operate from 200 mm to over 1 m and cope with the most difficult static problems in industry.

NEOS 30 has replaceable tungsten emitters.

IONSTORM

Ionstorm pulsed DC is a versatile DC static control system used for wide area and multi-bar applications.

The operator has complete control of its operation, being able to adjust the polarity, frequency and power on the Controller. Two or more Bars can be powered with an external connector box. Ionstorm may be powered by 115 V AC, 230 V AC or 24 V DC.

SHORT RANGE STATIC ELIMINATION

The Fraser Short Range Static Eliminators use the latest electronics to provide high performance and cost-effective operation.

There is a choice of the latest 24 V DC Bars and more traditional AC Bars powered by transformer-style power units. All Bars are filled with epoxy resin, making them suitable for food, medical, pharmaceutical and cleanroom applications. This robust construction with stay-sharp emitters ensures a long life of high performance.

1250-S Series Short Range Static Eliminator Bar

facts

Short Range Static Eliminators neutralise static on sheet, web and similar processes throughout the plastics, packaging and converting industries. Ideal location is 20 - 150 mm from the object to be neutralised.

NEOS 12F

- Compact, high speed, intelligent and reactive. A premium short range DC Bar

3024F

- 24 V DC with built-in electronics, shockless and powerful short range ioniser

1250-S Bar

- The 1250-S Bar used with HP Power Units are especially suited to multi-Bar applications. They are available in lengths up to 6 m

1100 Bar

- A compact static eliminator Bar for use where the 1250-S is too big

1260 & 1265

- Compact and versatile, ideal for small objects and spaces

EX1250

- ATEX certified high performance static eliminator for hazardous areas

LONGER RANGE STATIC ELIMINATORS

When fast and powerful ionisation is necessary at distances of up to 1.5 m, long range static elimination is required.

Fraser have developed a selection of Anti-Static Bars that cover ranges from 100 mm to 1.5 m without air-assistance, making them perfect for winders and applications with changing geometry, where long range control is needed. This allows us to deliver effective ionisation to the source of the problem.

Our Blowers additionally make this possible even when it is in a confined, hard to reach place.

For more information on the appropriate long range static elimination solution for your needs, please call or email our team today.

3024L

- Compact with built-in electronics, ideal for distances between 100 mm to 500 mm

NEOS 12L

- NEOS intelligence boosts the performance of this 12 kV Bar for medium range applications

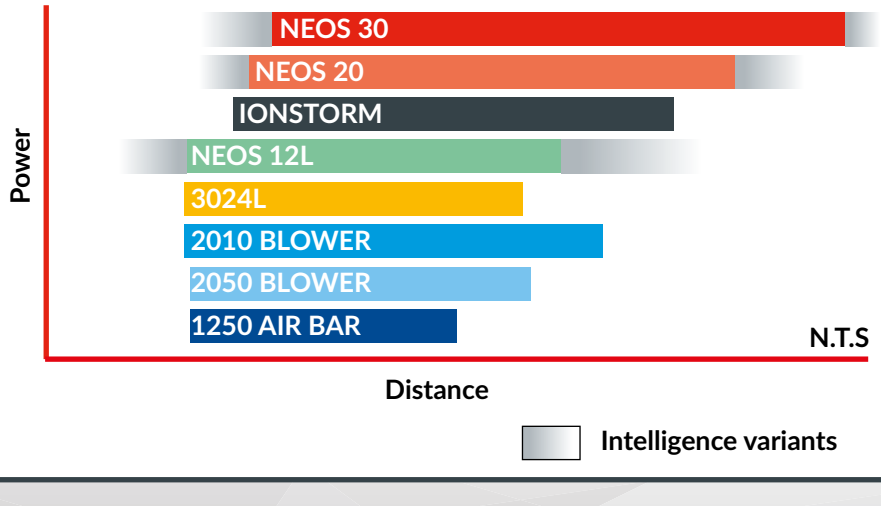
NEOS 20

- Serving a whole new market sector operating at 20 kV, this is a high power static eliminator for medium/ long range applications

IONSTORM

- Flexible and adaptable, fully controllable output.
- Bars can be manufactured in series for greater effective area coverage

Discuss your requirements with an expert from Fraser.



NEOS 30

The most powerful Fraser Long Range Static Eliminator, operating at distances from 200 mm to over 1 meter. With reactive intelligence incorporated into the Bar the NEOS 30 is unrivalled in quality, performance and value.

2050 Blower

- A compact ionised air blower especially suited to technology applications. Available in 250, 500, 750 and 1000 mm lengths

2010 Blower

- Industrial ionised air blower available in lengths up to 2 meters

1250 Air Bar

- Uses low pressure compressed air to extend the effective static neutralisation range of the 1250 Bar to over 500 mm

DUST REMOVAL AND CLEANING

Dust and particulate contamination adversely affect yield and quality, causing additional costs in many production environments. Static attracts unwanted airborne particles to the product in all sorts of industry, including electronics, printing, painting, converting, moulding, pharmaceutical and many more.

Fans and blowers can be used to neutralise the static on the product but they will not generally remove the contamination.

With Fraser's range of powerful ionised air equipment, we are able to neutralise the static attraction and remove the contaminant at the same time.

4125 Airgun

Ionised Airguns and Nozzles are ideal for demanding dust removal including: preparing parts for painting, cleaning sheets for printing, cleaning electronics and displays during assembly. Airknives are used to handle larger applications.

4125 Airgun

- The 4125 Ionised Airgun produces ionised air at a thrust of 5.2 N at 5 Bar air pressure for maximum cleaning power
- Available with bottom or top air entry

4400 Air Nozzle

- A compact, highly efficient ionised air jet which consists of a 1260 single point Ionising Bar and a proprietary air nozzle

4510 Air Jets

- Used in many applications, including long distance static neutralisation, dust removal and cleaning, sheet separation

5100 Airknife

- Ideal for large plastic parts – removing the dust and eliminating the static electricity to prevent re-attraction

5500 Ionised Airknife

- High performance fan-driven Ionised Airknife for static neutralisation and cleaning of mouldings, glass, automobiles and other large objects

In Situ

- 5500 fan driven airknives are used for larger installations, for example in the automotive industry

4600 Flexible Ionising Nozzle

- Flexible ionising nozzle for pin-point ionisation and cleaning

Iontube

- Designed to be incorporated into pneumatic transport systems to neutralise the static electricity generated in this process

In Situ

- An Iontube installed in a factory

EX HAZARDOUS AREAS

Hazardous environments require specialist ATEX equipment for detecting and neutralising static.

Fraser Anti-Static Techniques have developed a range of EX certified static control and static measurement products which perform perfectly in hazardous or dangerous environments.

The risk of fire is a very important consideration in the coating, gravure printing and other industries where combustible solvents are used. The static charge on a film can cause a spark discharge which ignites the solvent and creates a fire or explosion.

Contact Fraser to get advice on the range of ATEX certified products available to measure and control static charge and prevent fires.

EX1250 Static Eliminator Bar

EX Brushes

- EX-HPSD Passive Eliminator offers unrivalled cost-effectiveness in hazardous areas. Particularly effective on high speed, high charge applications
- Non-contact application

EX Power Unit

- UL certified high load power unit for EX1250 Bars. Must be installed outside the controlled area and so has a choice of monitoring options including remote

EX715

- The EX715 is ATEX and IECEx certified for use in hazardous areas
- It allows the engineer to determine risk and monitor the effectiveness of actions taken

MEASUREMENT OF STATIC

Static Electricity is a problem in many industrial areas. It slows production, reduces product quality, attracts contaminants and gives shocks to operators.

It is a well-known phenomenon throughout the plastics, packaging, electronics, printing, paper, medical, pharmaceutical and textile industries. Static can create the additional hazard of fire and explosion risks where solvents and explosives are used.

The 715 and EX715 Static Meters enable engineers to investigate these problems safely and give a scientific basis for analysis and action.

The 715 Static Meter measures up to 200 kV and is used to investigate static problems in nearly every industry.

For hazardous areas see EX715, below.

EX715 Static Meter

- The EX715 is the only ATEX and IECEx meter available for use in certified areas. It has two auto-scaling ranges, 0-20 kV and 0-200 kV

740 SRM

- The 740 Surface Resistance Checker is a pocket-sized instrument providing fast and repeatable measurements of conductive, static dissipative and insulative surfaces. It can also measure resistance to ground

720 Static Bar Checker

- The 720 Static Bar Checker allows operators and maintenance personnel to quickly verify that AC static eliminator Bars are working

AC POWER UNITS

Producing high voltage, low current in a controlled and safe way is the primary function of each Fraser Anti-Static Power Unit.

Our power units allow multiple AC products to be connected, requiring only a straightforward mains input.

There are a range of power units available depending upon size, load, capacity and total number of outputs required.

HP50

- Powers up to 4 eliminators
- High load option with max 30 m of combined bar and cable
- Optional remote monitoring for high voltage status and bar cleaning requirements
- Current limited for safety
- UL Approved

HP50-1

- Compact size for small machines
- Powers one static eliminator
- Maximum load 10 m of combined bar and cable
- 115 or 230 V, 50 or 60 Hz options

HP50-2

- Compact size for small machines
- Powers two static eliminators
- Maximum load 12 m of combined bar and cable
- 115 V 50/60 Hz or 230 V 50/60 Hz options
- UL Approved

EXHP

- High load 6 kV power unit for ATEX certified EX1250 Bars
- EX rated version of HP50 with optional remote monitoring
- Power unit must be situated outside of ATEX area
- 115 V or 230 V, 50 or 60 Hz options

HP50-ION

- High load version of HP50 with additional Performance Monitoring System
- ATEX certified option available for use with EX1250 Static Eliminators
- LED Display for high voltage, bar condition and charge on material
- Alarm for fault condition
- Remote monitoring option for high voltage status and bar cleaning requirement

HP Connector Box

- Four into one Connector Box suitable for all Fraser HP Power Units
- Provides cable disconnect options
- Allows additional eliminators to be connected within power unit load capacity
- Single one to one Inline Connector for cable disconnect or extension also available

BRUSHES/PASSIVE SOLUTIONS

102 Anti-Static Brush

Passive static eliminators do not need to touch the material being neutralised, but must be close to it - typically 2-3 mm.

While they cannot eliminate 100% of the static charge, an 80% neutralisation is typical, depending on the application, which is sufficient for many applications.

They are cost-effective anti-static tools, especially suitable for occasional or unexpected problems. See also EX-HPSD Static Dischargers which have been certified for use in hazardous areas.

101, 102 & 201 Anti-Static Brushes

- Designed for neutralising webs and sheets. They are custom made to the required length, with a choice of carbon or conductive nylon fibres and available in 18, 30, 50 and 80 mm fibre

660 Brush

- An anti-static strip brush with soft stainless steel filaments. It is available in 1 m lengths or can be custom made for larger requirements

801 Anti-Static Tinsel

- A low cost and versatile method of static control used in thousands of factories
- Available in boxes of 22 m

850 & 850E Cord

- Contains conductive micro-fibres which ionise the air and eliminate the static charge. It is available in reels of 10 m and 25 m. 850E is an elasticated version available in 10 m reels

406/7 & 409/11 Tape Brushes

- Versatile and flexible
- No fixing required
- Highly conductive and easy to install

GENERATORS

Static Generators are widely used for providing clean, safe temporary adhesion in situations where glue or other adhesives are unsuitable, too expensive or inefficient.

Fraser Anti-Static Generators and Charging Electrodes are designed to be easily installed and integrated with your machinery, and are supplied with rugged mechanical enclosures for wall or bench mounting.

To find out more or to discover which Static Generator or Charging Electrode is most suitable for your application, please contact the team at Fraser Anti-Static today.

Static Generators

- Clean
- Low energy
- Non-contaminating
- Controllable
- Precise
- Safe

7000 Series Generator

7333 Generator

Model	Input Power	HV Max	Output Current	Output Power	Local Operation	Remote Operation	Remote Monitoring	HV & I Limiting	HV Connections
7333 DC	24V DC	30 kV	1 mA	30 W	No	Yes	Yes	Yes	2
7333 AC	90-264 V 50/60 Hz	30 kV	1 mA	30 W	No	Yes	Yes	Yes	2
7360 DC	24V DC	30 kV	2 mA	60 W	Yes	Yes	Yes	Yes	2
7360 AC	90-264 V 50/60 Hz	30 kV	2 mA	60 W	Yes	Yes	Yes	Yes	2
7560 DC	24V DC	50 kV	1.2 mA	60 W	Yes	Yes	Yes	Yes	2
7560 AC	90-264 V 50/60 Hz	50 kV	1.2 mA	60 W	Yes	Yes	Yes	Yes	2
73150 DC	24V DC	30 kV	5 mA	150 W	Yes	Yes	Yes	Yes	2
73150 AC	90-264 V 50/60 Hz	30 kV	5 mA	150 W	Yes	Yes	Yes	Yes	2
75150 DC	24V DC	50 kV	3 mA	150 W	Yes	Yes	Yes	Yes	2
75150 AC	90-264 V 50/60 Hz	50 kV	3 mA	150 W	Yes	Yes	Yes	Yes	2

CHARGING ELECTRODES

7080

- The 7080 is a Generator Bar for low intensity applications. It is compact and economical

7130 Generator Bars

- Available in 30 kV and 50 kV versions. Individual resistors for each tungsten emitter
- Precise, safe, clean, controllable, low energy

7090

- Single point static pinner, compact, flexible and versatile

7093

- Designed specifically for edge pinning on plastic films

7095

- Ideal for “neck in” applications on cast film lines, edge pinning, in-mould labelling

FREQUENTLY ASKED QUESTIONS

The following pages include some typical questions that often arise. You can find many more solutions by visiting our Frequently Asked Questions section on our website or alternatively call us:

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What is electrostatics?

Generally there are two types of static electricity – current electricity which flows through conductors and which is used to power the machines and devices which support the modern world, and static electricity which is usually found on non-conductive materials and will not flow as current.

Electrostatics is the study of static electricity. In many ways, electrostatics has been a neglected science because it was not as useful as "current electricity". This is changing in the industrial world because static electricity is a problem in many areas of manufacturing, but it can also be used productively in new industrial methods and processes.

Causes of static electricity in manufacturing

The five main causes of static electricity in manufacturing are:

- Contact and separation between two materials – typically this could be between a roller and film, or by friction where two materials rub together
- Rapid heat change – in heat curing or drying ovens
- Cutting processes – sheet cutters or slitting and trimming processes
- Parts of the UV spectrum
- Induction – where one charged object creates a charge in a separate object

How to get rid of static electricity

If the object is conductive, just connect it to earth and any static charge generated will flow harmlessly to ground. If the object is non-conductive – plastics, paper, textiles, glass, wood etc – then it becomes more difficult as the charge will not flow to ground, hence the name "static".

Increasing ambient moisture levels will reduce static generation in materials that absorb water, like cotton textiles or paper, but this is not very effective for other materials that do not absorb water.

How to choose a static control device

There are many factors to consider when choosing a static eliminator.

Distance from the material: some static eliminators are designed for short range operation, others for longer range. As a general rule, choose a short range static eliminator if your application allows this. Short range static eliminators are lower in cost and usually more effective.

Modern design: there has been a revolution in the performance of static control equipment. It started in about 2004 with the launch of the Fraser Ionstorm Long Range Static Eliminators. Since then, advances have been rapid. The modern DC powered static eliminator is many times better than older equipment with separate high voltage transformers. Older designs still may be adequate for many applications, but it is unwise to base a purchase just on cost. Modern DC static eliminators may be 10% more expensive, but they provide up to 100% more power, with many other advantages.

Choosing the right static product

Static electricity is not an exact science and many of the rules seem counter-intuitive to engineers. Some static problems may have an obvious solution, but most are more complicated and need experienced consideration. It is always worth contacting specialist manufacturers for advice on specific applications.

Companies like Fraser have many years of experience in diagnosing static problems and offering the correct equipment to solve the problem.

Using static electricity

Static electricity in industry is usually regarded as a problem to be avoided. But it can also be used productively in many modern processes. These include;

- Manipulating small cells in biological applications – for example with electrostatic tweezers
- Removing dust and contaminants from industrial chimneys
- Temporary adhesion

Temporary adhesion is a fast-growing application for static electricity. It is clean, controllable, safe, does not use consumables and is relatively inexpensive. To discover how you could benefit from using static electricity for temporary adhesion, contact Fraser Anti-Static.

Static control for the converting industry

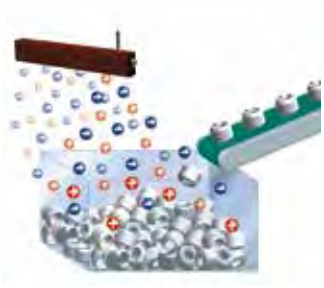
The converting industry uses many processes where static electricity is a major problem. These include slitting, sheeting, coating, die cutting and many other areas. The problems can be product misbehaviour, dust attraction, shocks to operators or even fires.

With production speeds often in excess of 1000 m/min, static control is becoming an essential part of many processes.

Fraser has become the static control supplier of choice for many of the world`s leading converters and converting machinery manufacturers because it offers modern, cost-effective solutions to these problems.

Static control for the plastics industry

Static electricity can be a major problem in the plastics industry because of the non-conductive nature of the materials used in its static generative processes.



Injection moulding or extrusion processes generate high levels of static electricity which remain on the product causing production, quality and safety problems.

There are usually cost-effective answers to most static problems in plastics and the place to start looking for these is by browsing through the Fraser Anti-Static website for background information and general advice.

Static control for the printing industry

Printing on paper often has static problems; printing on plastics nearly always produces static problems.

This applies to offset, gravure, flexo, screen, pad, inkjet, laser and digital printing processes.

The static problems can be product misbehaviour, attraction of dust and other contaminants, shocks to operators, fires and poor printing quality.

Static control solutions for Cleanrooms

Static control in cleanrooms is an increasingly important topic because of the wider range of processing which is being conducted in controlled atmospheres. Cleanrooms are no longer just used for electronics, medical and high technology applications. They are becoming normal in many areas of plastics processing – injection moulding, extrusion, converting and assembly. In all of these areas, static electricity can be an important problem.

Fraser Anti-Static has designed a range of static control equipment which has been tested and certified for use in most cleanrooms.

Static control for the automotive industry

The increasing use of plastics means that static electricity is becoming a bigger issue in the automotive industry.

Ensuring that vehicle bodies and plastic components are static and dust-free before painting is a critical area for quality and cost control. If an automobile has dust included in the body paintwork, the rectification can cost thousands of dollars. If a painted bumper or light cluster is rejected because of dust, the cost can be in the hundreds.

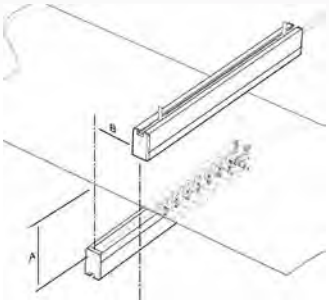
There are well tried methods to prevent these quality and cost problems.

Static control solutions for the textile industry

Textiles were the first industry to discover the problems caused by static electricity. In the basic processing of cotton – such as carding, beaming, warping – static caused misbehaviour of the silver and filament breaks.

With more synthetic materials and higher processing speeds, the diversity of static problems in the textile industry has increased greatly. It has expanded from the basic pre-fabric stages right through to final transfer and digital printing processes.

Where to mount a static control device



As a general rule, a static eliminator should be mounted immediately before the critical area where static is causing a problem. If you position it too far "upstream", the charge could be regenerated by rollers or other static generative processes.

How far from the material? This depends on the type of static eliminator – there are short range and long range static eliminators. Whichever type you use, the life of the ionised air produced is limited and generally good guidance says "the closer the better", subject to the minimum distance specified by the manufacturer.

The material should be in free air. This is a very important rule which is often ignored. When a material touches another object, such as a roller, the static charge couples with that object and is not available to be measured or neutralised. If you put an anti-static Bar to neutralise film when it is travelling over a roller, it will not be effective. This is probably the most common mistake in the installation of static control equipment.

- Emitters facing material
- Bar >50 mm from rollers or machine parts
- Material in free air
- Distance "A": 25 mm to 200 mm. Closer is better
- Distance "B": if there are 2 Bars, offset them >50 mm
- Cable not bent more than 70 mm diameter
- Dry and oil-free

Replacing an anti-static ionising bar

How do you know if an anti-static Bar is working? The easiest way is with an electrician`s "Volt Stick" which will show if the Bar is producing an electric field. If it is producing a field, the first thing to do is to make sure the Bar is clean – dirty static eliminators are not efficient as they allow the energy to flow away through the dirt instead of producing ionisation.

If there is no field from the static eliminator, then the problem could be a fault in the Bar, or in the high voltage supply. Most high voltage power units have a current limitation which shuts down the high voltage if a fault is detected in the Bar. If you are using more than one Bar, remove each Bar from the power unit, one at a time, and see if the power unit starts to produce high voltage. In this way, you can see which Bar is faulty. If high voltage does not restart with all Bars removed, then there is a fault with the power unit. This could be a fuse, which is easy to replace. Or it could be a fault in the transformer, in which case contact the manufacturer for further advice.

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