SOLUTIONS TO
STATIC PROBLEMS

CLEANROOM

CLEANBENCH HOOD WITH IONISED AIR CLEANING SYSTEM

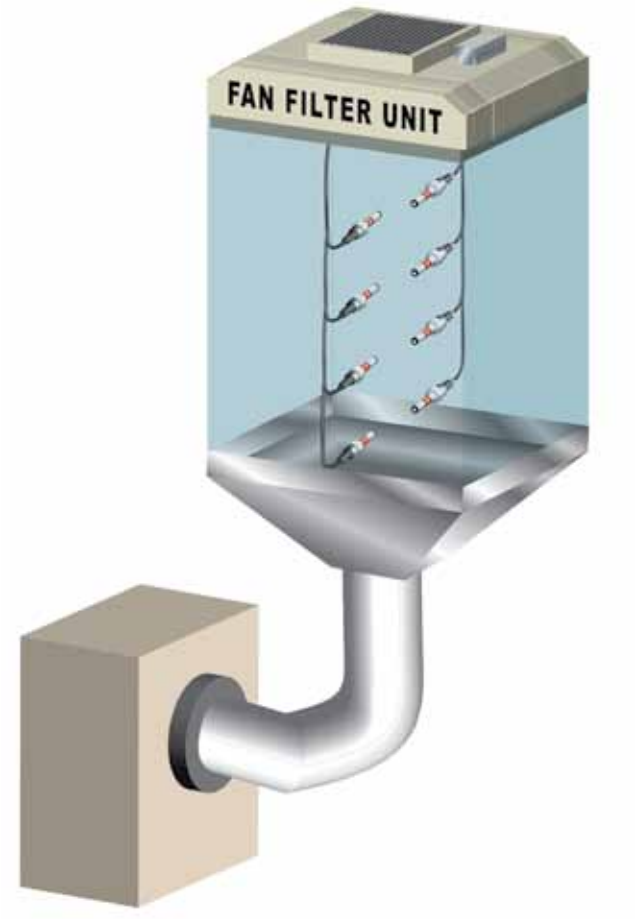
Cleanbench hoods with compressed ionised air driven component cleaning systems and particle extraction with cleanroom filtration are often used to clean particles that are usually retained to the surfaces by electrostatic attraction from the components without causing secondary contamination.

The downward laminar flow from the HEPA filter directs all particles removed downward into a contamination collection funnel and then into a cleanroom extraction and filtration system which insures the continual balance of the host cleanroom.

Normally the ionised cleaning system is comprised of two vertically positioned opposing ionised air jet systems - either our 4200 ionised nozzles in series or two model 5000 ionised airknives.

To save compressed air often proximity sensors with a relay to a solenoid are added to insure that compressed air is not wasted and that the cleaning system only actuates when an operator presents a component into the chamber for cleaning.

This is a semiautomatic system but sometimes similar units are deployed in conjunction with our ionised air pistol model 4110 for manual cleaning of components.



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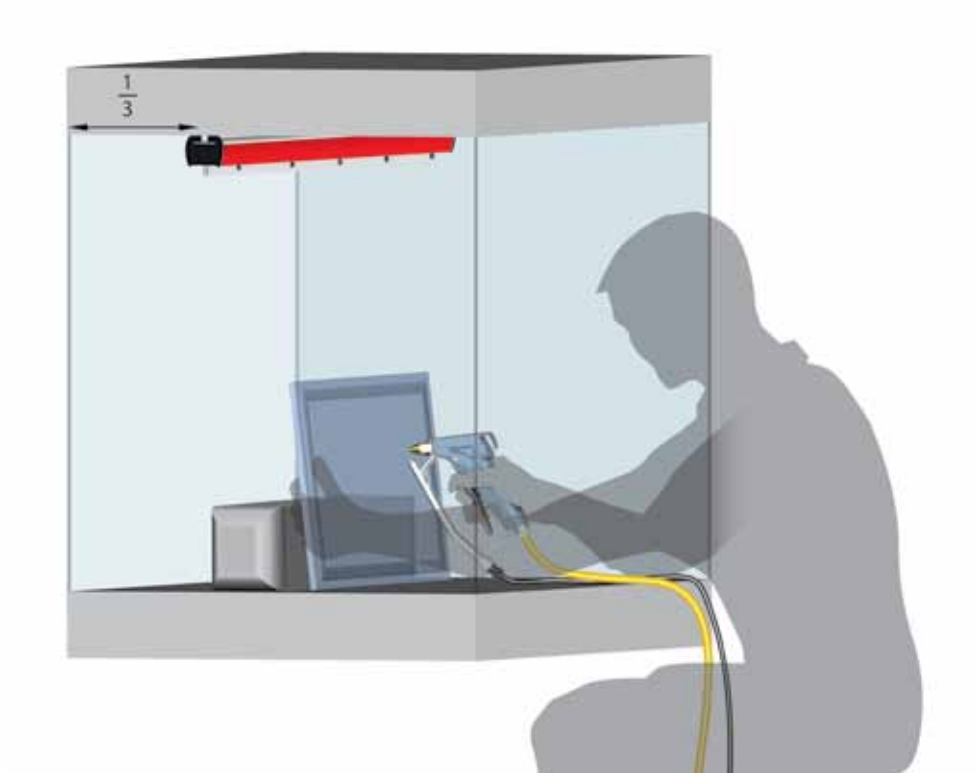
CLEANROOM
VERTICAL FLOW CLEANBENCH

Vertical flow cleanbench or cleanbench hood is the most common of cleanbenches with an upper mounted FFU projecting a full ceiling area column of laminar flow air downwards and out of the hood's front preventing, as with the laminar flow cleanbench, the ingression of contaminants.

This continuous flow of clean dry filtered air very easily generates static charges on everything contained within the critical environment. Subsequent removal of any clean but charged components from the hood area will promote the immediate attraction of many localised airborne contaminants present within the host cleanroom which will undoubtedly be a lower grade environment that the protective hood.

By placing a slim profile 3860 Ionstorm bar or 3024L one third from the back of the hood (200mm approximately) and across the full width (usually 1100mm) you will insure that the laminar flow air that bathes and keeps clean the working deck of the hood which will be fully ionised thus neutralising the working zone and the components held therein.

Where contaminated components are introduced into a cleanbench hood, our 4110 ionised air pistol can be used to remove particles retained by electrostatic attraction.



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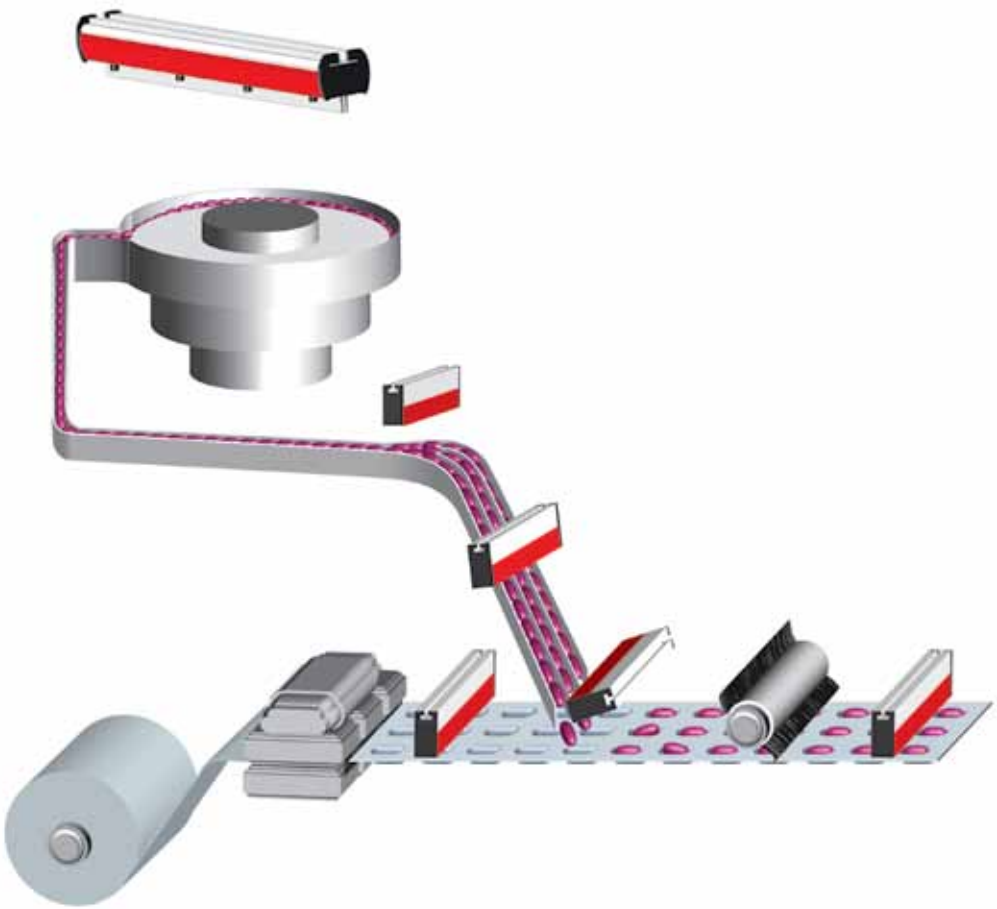
TABLET OR CAPSULE FILLING INTO BLISTER PACKS

Static charges generated up stream in this process often cause tablet repulsion issues and ejection from the host blister cavity in the tray base material at the tray filling position. This is generally caused by the tablet and tray sharing the same polarity of charge, as with magnets like poles repel hence the issue. In most cases placing a 1250S AC ionising bar at the point of tablet placement which is usually directly at the end of the delivery chute will eliminate the issue.

On some lines a knock down fixed or rotating brush may be placed a little further along the line to insert tablets not quite seated correctly in the tray base. These brushes will regenerate static charging and a second bar should be placed directed at the exact point the filled trays exit the brush.

Up stream neutralisation can also help improve the results at the critical point but are equally sometimes required to resolve problematic static issues that occurs in these locations. Two of the most effective pre-filling station neutralisation positions are on the tray base material reel wind off or indeed above the thermoformed tray base just before the filling station. This enhances the elimination process and prevents the attraction of contaminants to the tray bases.

Where tray base material is placed on the line already pre-contaminated, a model 5000 ionised air knife can be used to clean and neutralised the tray cavities prior to filling. Tablets can become trapped by electrostatic attraction and adhesion to surfaces at various positions during their transport along the line to the filling station. Two prominent positions for tablet hold up are either in the bowl feeder if used and in the delivery chute. Placing a small 3850 Ionstorm or 3024L Bar above the open bowl feeder will eliminate the static issues on the delivery chute and often one single bar placed at a position across the top entry point for the tablets should prevent sticking and blockages.



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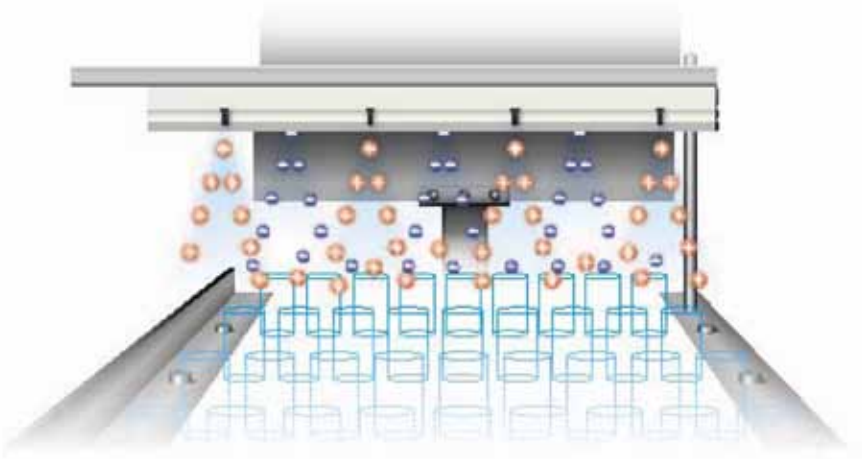
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CLEANROOM
POST CLEANING OPERATION

Post cleaning operation: open containers on a conveyor may hold static charges which were generated by the cleaning process. Placing an Ionstorm Long Range Ionising Bar or 3024L Bar across the conveyor above the open topped containers will neutralise such charges both internally and externally preventing the attraction of contaminants.



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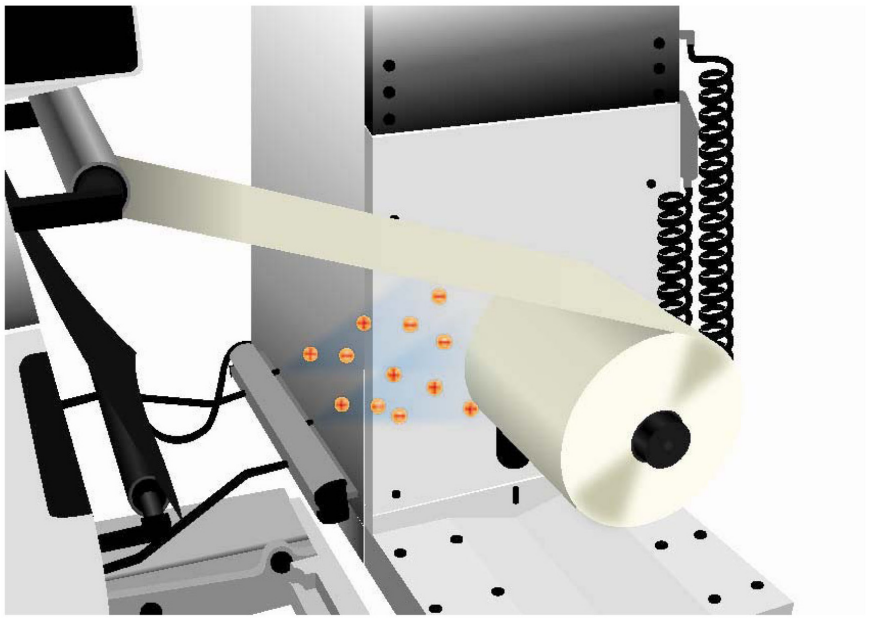
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CLEANROOM
OFFWINDS & ONWINDS

Off winds or On winds within cleanrooms will probably generate static charges on the surface of the webs being processed. These charges will often lead to material misbehaviour as well as the attraction of contaminants. Placing a Long Range Ionstorm Bar or 3024L Bar some distance from the winder will eliminate these charges reducing the possibility of either static issues occurring.



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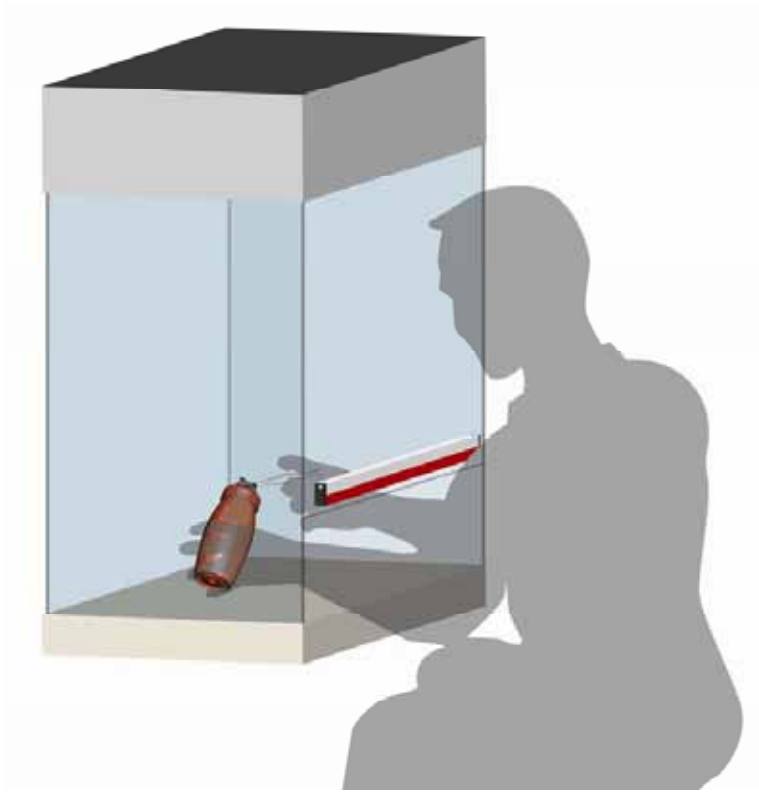
CLEANROOM
NEGATIVE PRESSURE ISOLATION BOX

A negative pressurised isolator box with an air inlet gap at bench top level across the full front of the transparent viewing window of the cabinet. The gap allows the operator to work inside the isolator and also provides, for safety, a continuous airflow inward preventing the escape of gasses or other materials from within the isolator.

These airflows are generally very dry and easily generate large static charges both within the general isolator environment and also on the inside face of the viewing window.

By placing a Super 80 Bar either inside or outside above or below the aperture across the full width it insures that the incoming flow of air is ionised thus eliminating static charges.

If the height of the aperture exceeds 200mm then the use of a second bar facing the initial Ionising bar should guarantee effectiveness up to a maximum aperture height of 400mm.



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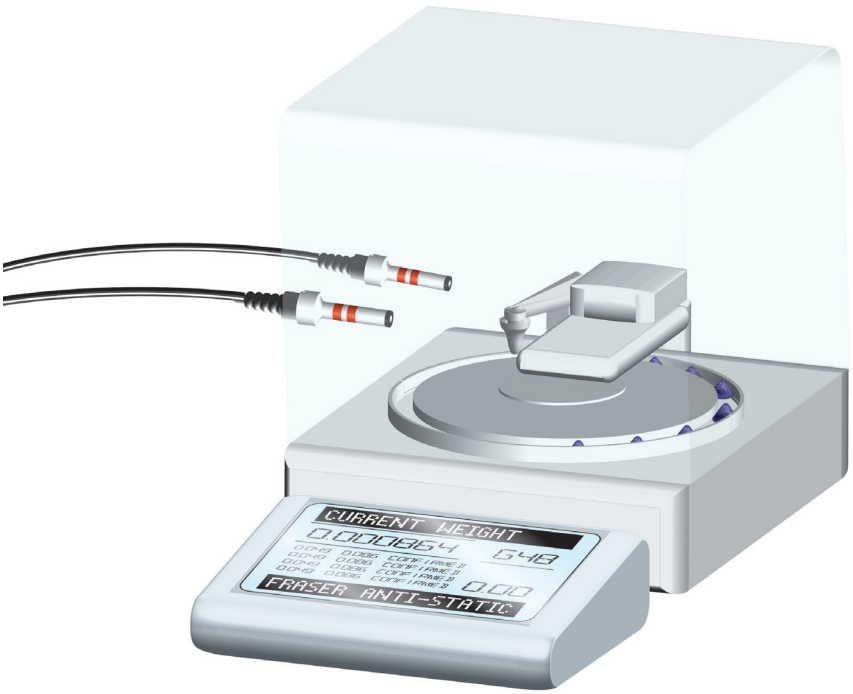
CLEANROOM
MICRO CHECK WEIGHING & DOSING

Critical environment Micro Check Weighing and dosing chambers.

In these devices very low static charges can cause dose weighing to be inaccurate due to the material adhering to the weighing plate, also the sensitive electronics can be corrupted.

AC ionisation is not practical here as it does not offer the potential to flood the cabinet with ions; it can also cause additional interference with the sensitive electronics.

Placing a –ve and +ve pair of Ionstorm single point bars in the isolation box wall will insure the total flooding of the environment with ions that will neutralise all static charges and eliminate the troublesome issues experienced.



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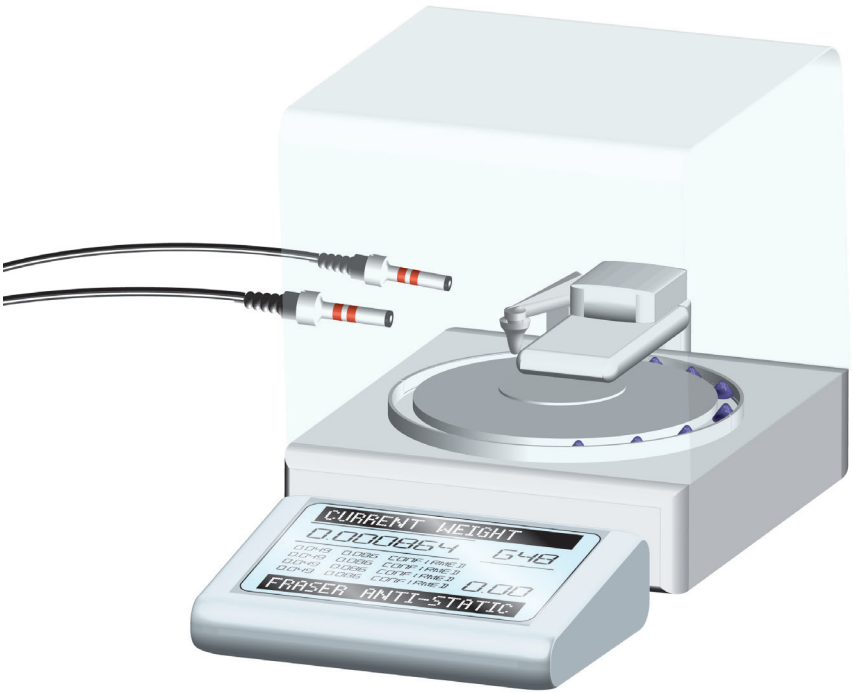
SALLES BLANCHES
MICRO-PESAGE ET DOSAGE

Environnement critique des salles de micro-pesage et dosage.

Dans ces appareils, des charges statiques très faibles peuvent causer des erreurs de pesage de doses avec l'adhésion du matériau au plateau de la machine, les instruments électroniques délicats peuvent aussi être corrompus.

Un système d'ionisation CA n'est pas pratique dans ce cas car il n'a pas le potentiel d'inonder la pièce d'ions ; il peut aussi être la source d'interférences supplémentaires avec les composants électroniques sensibles.

Une paire de barres –ve et +ve Ionstorm à point unique, positionnée dans la cloison de la chambre d'isolation, garantit la couverture complète de l'environnement avec des ions qui neutraliseront toutes les charges statiques et élimineront leurs effets nocifs.



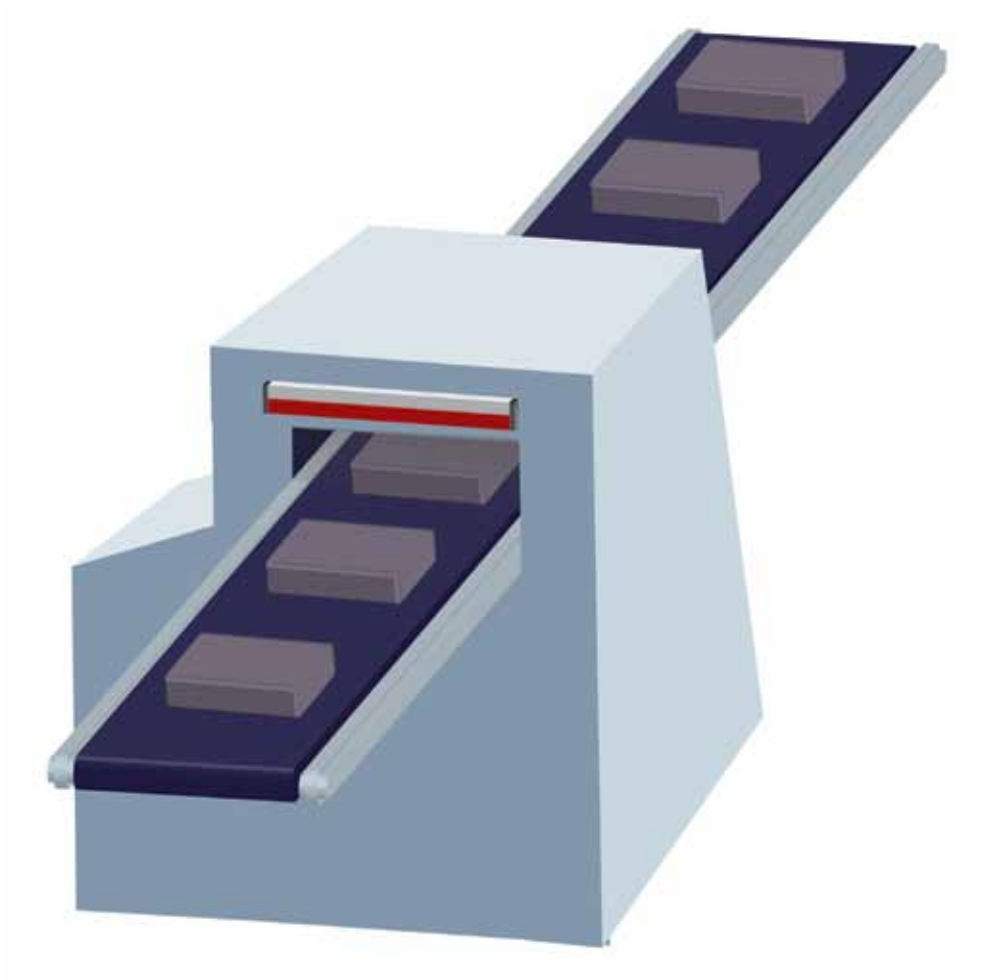
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STATIC PROBLEMS

CLEANROOM
METAL DETECTION TUNNELS

Static charges on outer packing of products entering a metal detection tunnel are all too often identified and rejected by the system as containing metal.

Simply installing a 3850 Ionstorm bar or a 1250S AC ionising bar (device selection related to package dimensions) above and across the tunnel entry will eliminate this costly and time wasting issue.



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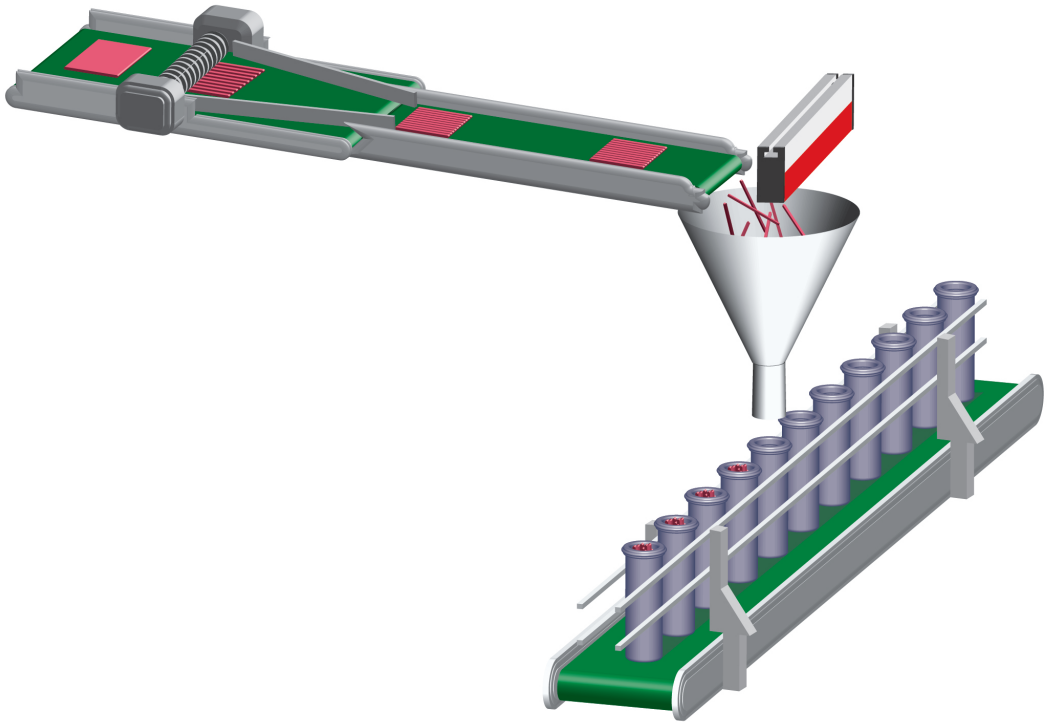
SOLUTIONS TO
STATIC PROBLEMS

CLEANROOM
MEDICAL LIQUID TEST STRIP

In this process pre chemically treated card like small sheets are slit into slim strips of liquid testing tabs often used in hematology. Following conversion the strips are decanted into their final packaging containers usually tubes.

To squeeze the spread of strips into a narrow necked vessel the strips are delivered down a funneling device. It is in the funnels where the charged lightweight strips often stick to the walls of the funnel due to electrostatic attraction.

By neutralizing the strips as they drop of the delivery line in to the funnel using a 1250S or 1260 single point AC bar, the test tabs drop easily into the container.



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CLEANROOM
ISOLATOR LINE, LIQUID FILLING & VIAL CHECK WEIGHING

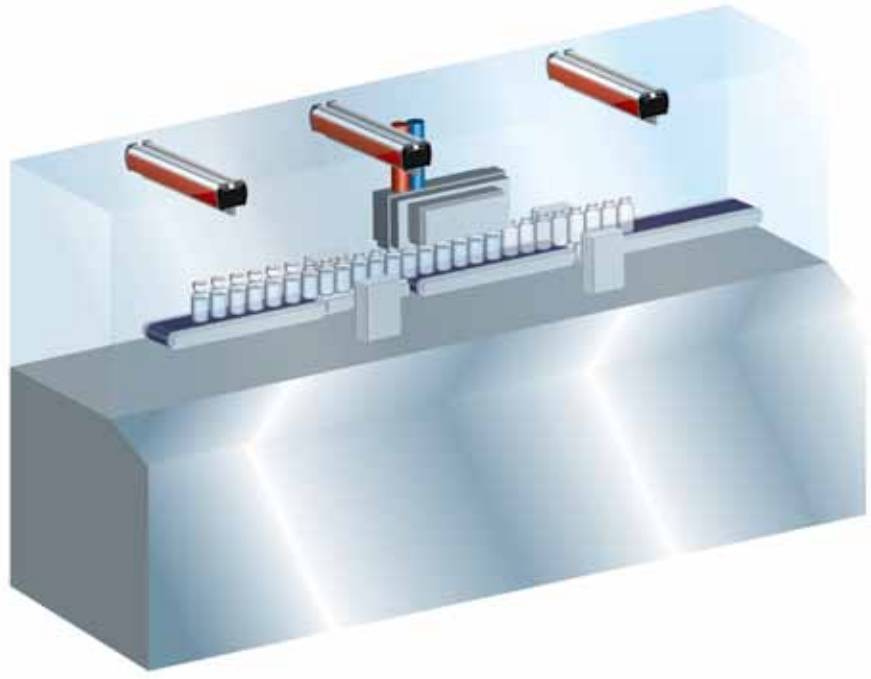
These filling stations can be supplied and emptied of vials either by mobile isolators or can be a continuous line. They can be +ve or –ve pressurised, although most are –ve and are dedicated to the dispensing of liquid Oncology drugs.

Which ever type of isolation chamber is used this is invariably an overhead laminar flow supply from ceiling mounted HEPA filters.

The laminar flow air that bathes the line especially in the filling station zone area generates very high static charges on most surfaces within the critical environment.

These charges on vials can attract as contaminants any localised airborne particles. Internal vial contamination can translate into low product yield.

In addition environmental static charges can corrupt the sensitive electronics of the check weighing stations. By placing 3850 or 3860 Ionstorm or 3024L Bars in front of or at the side of the ceiling HEPA filters all incoming laminar flow air will be ionised thus ensuring a static free critical environment.



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SOLUTIONS TO
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CLEANROOM
ISOLATOR/GLOVE BOXES

Isolator / Glove boxes are usually negatively pressurised but sometimes can be positive - as with most isolators dry continuous air or gas flows generate numerous troublesome environmental static charges. By placing an Ionstorm long range 3D coverage ionising bar on the underside of the isolator ceiling, a shower of continuous ionisation neutralises both the environment and air flow alike eliminating those problematic static charges.





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SOLUTIONS TO
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CLEANROOM
IONISING AIRSHOWER ENTRY AIRLOCKS

Ionising Airshower entry air locks:

Personnel entering critical environments are often cleaned of potentially contaminating particles retained on their clothing before entry by means of exposure to high velocity clean air jets.

Air lock chambers containing these air jets are known as an Airshower of which there are many designs and sizes available. The air used inside the Airshower is fan driven usually self contained, filtered and recycled. The air jets pass through nozzles known as punker louver nozzles which are directionally adjustable to suit the user's needs.

Occasionally personnel's clothing can retain particles despite exposure to the punker louver nozzles jets of air. This is usually caused by electrostatic attraction to the garments, rendering the airstreams from the punker louver nozzles partially ineffective.

The airstreams can become ionised and thus more effective by one of the several methods.

Most simple is the installation of AC ionizing bars (Super 80 or 1250S) inside the air delivery plenum directing the effective face of the bar(s) across the inner aperture of the punker louver nozzles.



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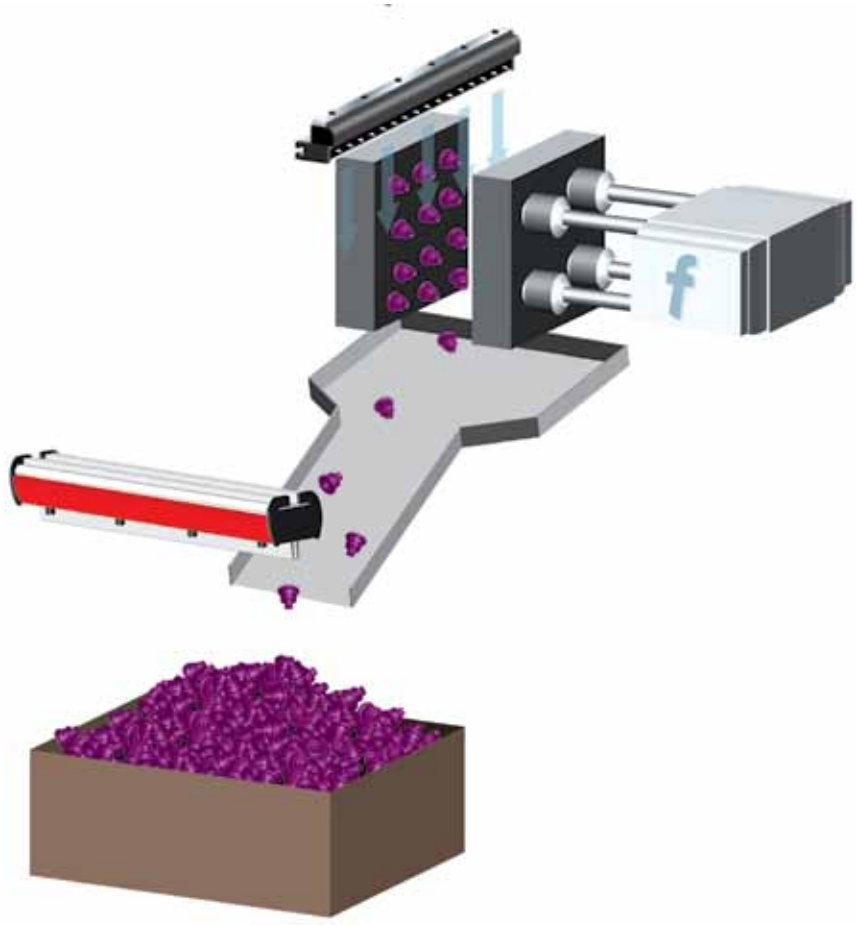
CLEANROOM INJECTION MOULDING

Cleanroom Injection moulding. Plastic components are very highly charged when ejected from an open mould tool resulting in potential contaminant attraction. To prevent this, even the positioning above the open tool of an FFU with a model 3860 Ionstorm bar or 3024L set across the centre of the HEPA filter will keep the laminar flow air and components free of charge and prevent subsequent contaminant attraction.

In collection boxes, the cooling and colliding together of components can translate into additional charging often causing attraction of contaminants and often shocks to operators. Placing a 3850 Ionstorm bar or 3024L over the open collection box will prevent this new charging and the subsequent related issues.

Often following removal from an open tool larger components are placed by robot on to a moving conveyor. Such conveyors in an effort to prevent contamination attraction are fitted with conveyor cover tunnels sometimes even with an FFU installed to produce positive pressure within the tunnel.

If an FFU is used a 3860 / 3024L can be considered in front of the HEPA filter face to keep the laminar flow air and the tunnel environment static free. Often even if an FFU is fitted an AC bar either a Super 80 or 1250S can be installed at the tunnel entrance and exit which will ionise the escaping air keeping components entering or exiting the tunnel neutral.



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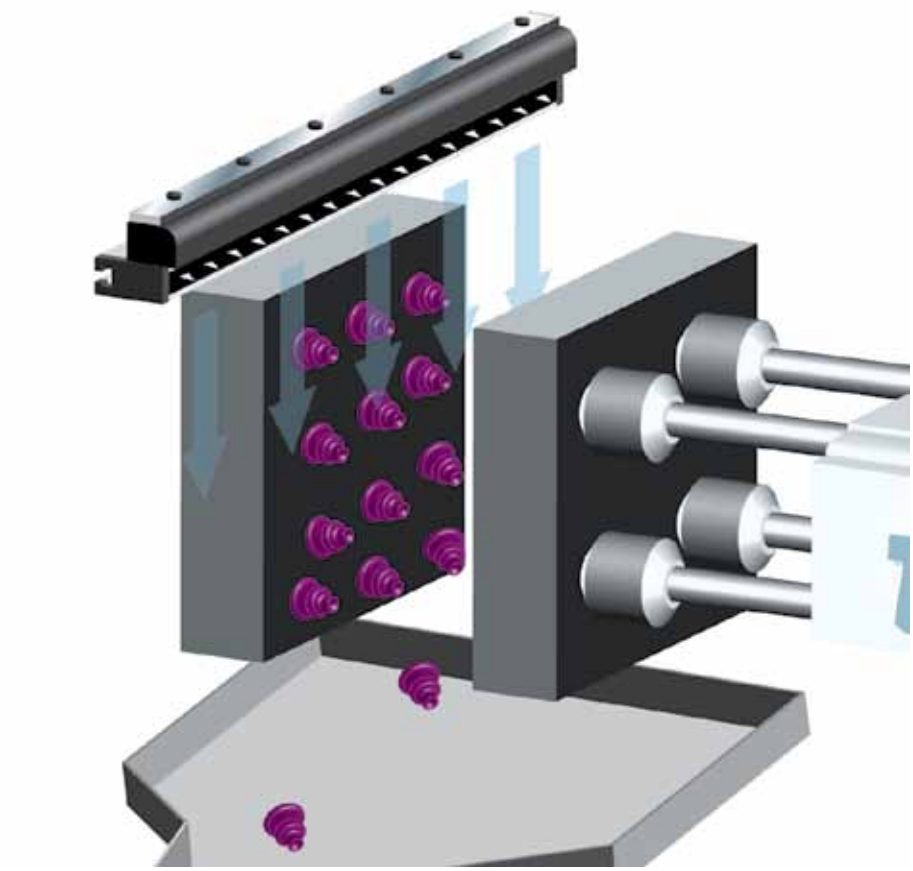
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CLEANROOM

CLEANROOM INJECTION MOULDING CONT.

Where this equipment is not deployed there is often another issue with small components which refuse to drop to the transport conveyor or collection box below the tool. The components instead either adhere to the tool or dance around the open tool area.

By placing a model 5000 ionised air curtain above the open tool projecting a blade of ionised air downward across the tools face, the components are neutralised preventing contaminant attraction and allowing them to be directed downward as required.



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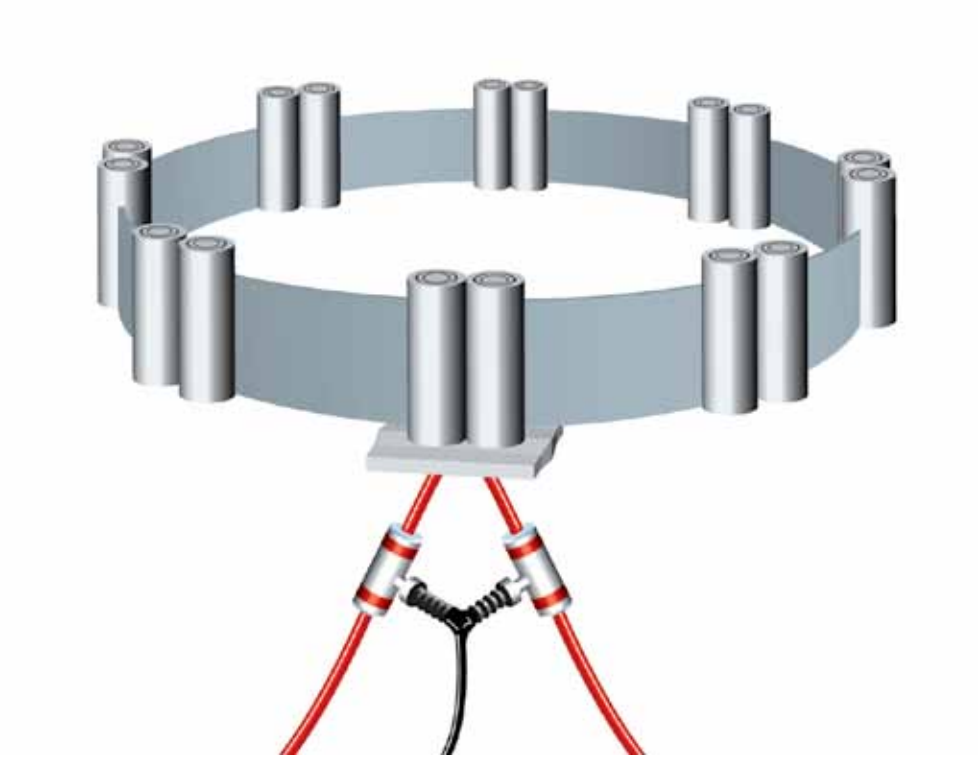
SOLUTIONS TO
STATIC PROBLEMS

CLEANROOM

INHALER VALVE CLEANING STATIONS

Inhaler valve / delivery system cleaning stations – Before these pharmaceutical devices can be released from manufacture it is essential to insure the airway is free from contamination. To do this clean dry compressed air or nitrogen is forced through the system to purge the units. By making this gas flow ionised you can ensure that the flow will neither generate static charges during the purge process and also remove any particles retained in the airway by electrostatic attraction.

The inline model 4300 ionised nozzle is the ideal equipment selection for this application.



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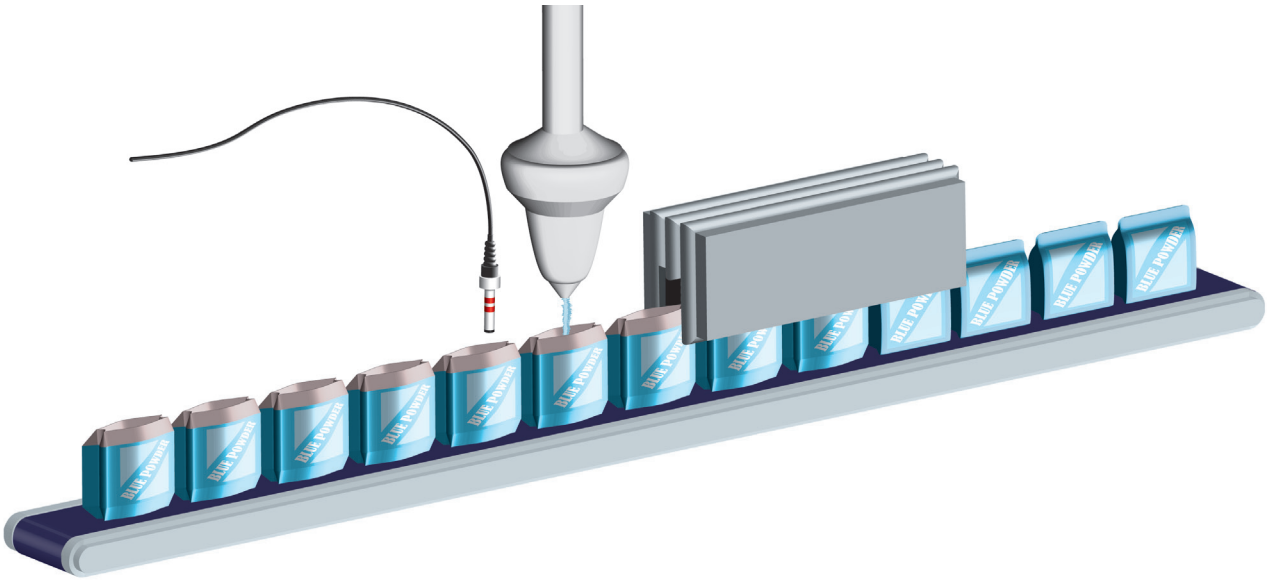
CLEANROOM
HORIZONTAL POUCH/ SACHET FILLING STATION

Horizontal pouch or sachet filling stations often suffer from charged powder contamination from the filling process preventing post filling sachet sealing.

Sometimes you have space to project ions at the powder being dispensed itself by using either a 1260 single point bar or a 1250S bar directed at the free falling powder.

Even if you can neutralise the powder during filling it is still advisable to neutralise inside the empty sachet just prior to the filling station.

If the sachet is clearly open use a 1260, 1265 or 1250 Bar above the open sachet, if the sachet is closed then ionised air must be forced into the sachet by using 4400 mini ionised airknife.



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SOLUTIONS TO
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CLEANROOM

HORIZONTAL FLOW CLEANBENCH HOOD

Horizontal Flow cleanbench hood or bench, is generally used where the operator places their head inside the hood (usually where a microscope is used). Air from the HEPA filter which covers the entire inner face of the hood back wall is projected in block outward towards the operator. This air flow generates problematic static charges within the hood especially at the height at which the operator is working. By placing one or two 3024L Ionising bars across the full width, 25mm off surface centred at the operators working height, all air passing the critical work zone will be ionised and therefore will neutralise troublesome static charges.



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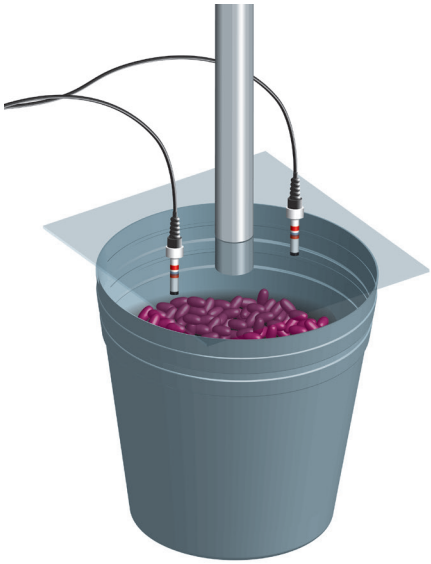
CLEANROOM
HARD TABLET COLLECTION BINS

Hard tablets are very dry and the subsequent and numerous constant collisions of these tablets during collection causes very high static charges with the collection container.

These charges can cause painful operator shocks as well as unwanted contamination attraction. Placing a 3850 Ionstorm or 3024L Bar above the collect bin will resolve both issues.

Occasionally transparent covers are placed over the collection bins to assist in preventing contaminant release or attraction. In this event a 3850 can not be installed but 3810 pairs of single point Ionstorm bars can be installed into the cover plate.





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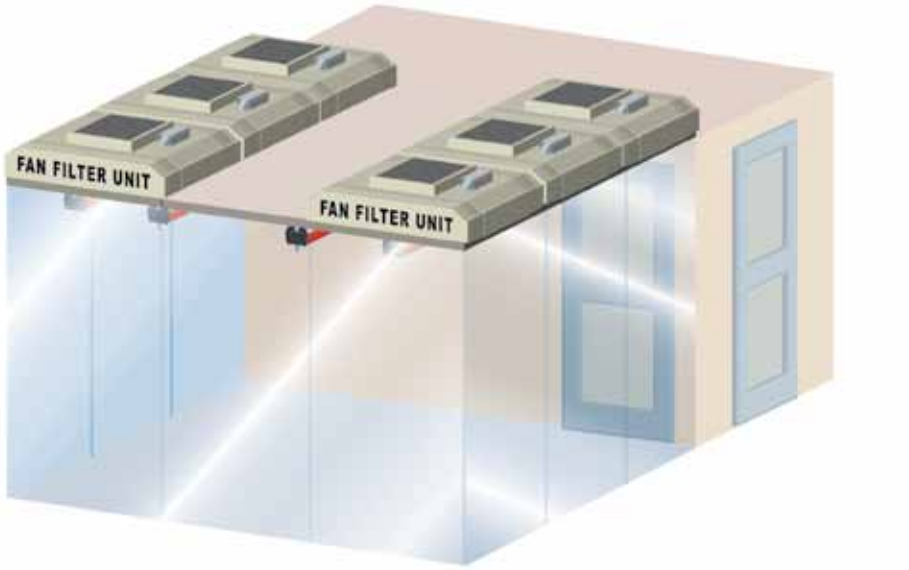
CLEANROOM

CLEANROOM AND CLEANBOOTHS

High volumes of dry clean laminar air exiting HEPA filters often carry static charges within the air stream as well as the ability to charge virtually all surfaces within the critical environment.

These static charged surfaces can cause damage or interference to sensitive electronic equipment or components as will as result in ESA, electrostatic attraction resulting in contamination issues.

By placing either 3850 Ionstorm or 3024L Bars between ceiling mounted HEPA filters or model 3860 Ionstorm or 3024L Bars along the centre of the filter face, the laminar flow air will become ionised thus neutralising the critical environment.



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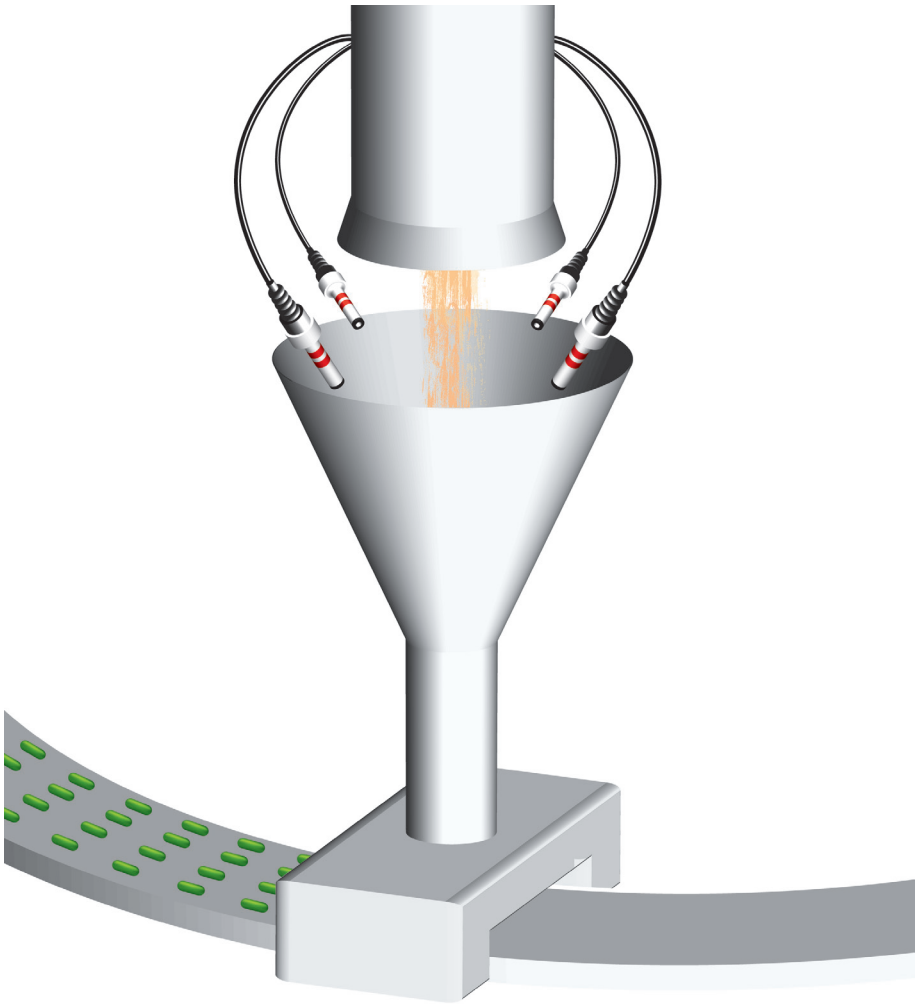
SOLUTIONS TO STATIC PROBLEMS

CLEANROOM
CAPSULE FILLING LINES

In these filling stations very low static charges can cause dose weighing to be inaccurate due to the material adhering to the weighing plate and not dropping as required, also sometimes the sensitive electronics can be corrupted.

AC ionisation is not practical here as its short range does not offer the potential to flood the feed hopper with ions.

Placing –ve and +ve pairs of Ionstorm single point bars in the upper lid of the feed hopper will insure the total flooding of the contained environment with ions that will neutralise all static charges and eliminate the troublesome issues experienced.



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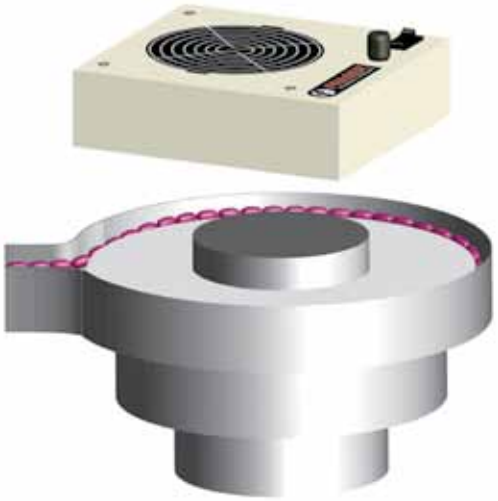
SOLUTIONS TO
STATIC PROBLEMS

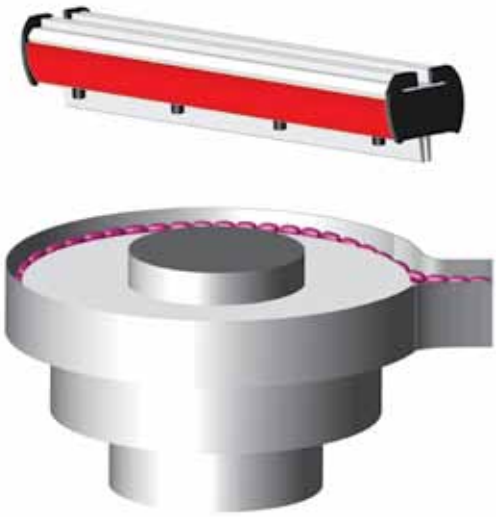
CLEANROOM
BOWL FEEDERS

Bowl Feeders are often used in the electronic, medical and pharmaceutical industries to orient small components or tablets into the right position to be transported on single line delivery systems to filling, packing or auto assembly line.

Static charges on these small parts can either cause sticking to each other or the bowl itself or alternatively repulsion ejecting parts from the bowl.

Positioning a 3850 Ionstorm Bar, 3024L Bar or a 2050 ionised blower above the bowl should eliminate both issues as well as preventing contamination attraction.





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