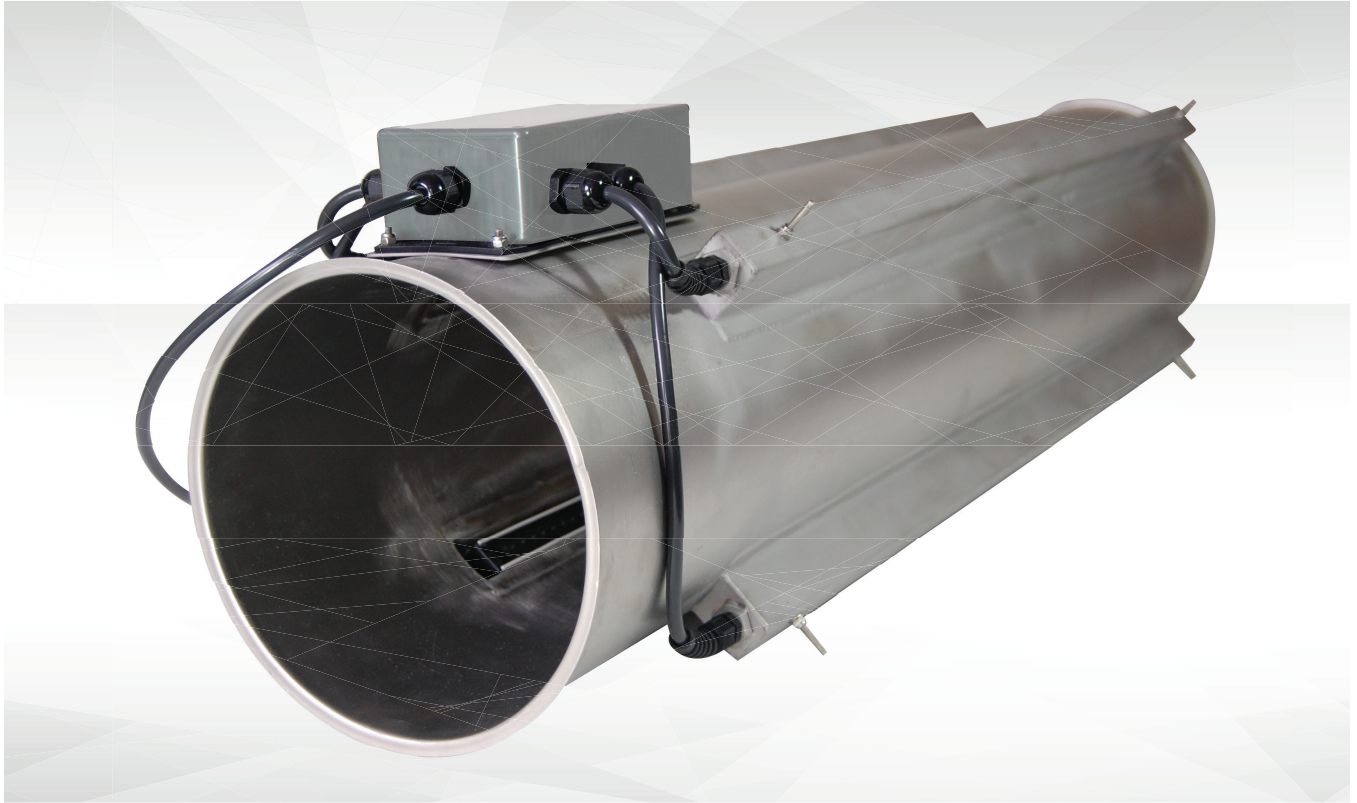

6000 IONTUBE

DISTRIBUTOR MANUAL



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6000 IONTUBE

The 6000 Iontube is becoming more important every year. In the first 8 months of 2016 we have already made more than in the whole of 2015.

The Iontube consists of a stainless steel tube with 1250-S Ionising Bars mounted around the surface and powered by an external power unit.

The main use of Iontubes is in transporting trim or waste from a converting machine to a central collection system. Typically this might be a slitter-rewinder where the rough edges are cut from the web as it is slit into smaller reels.

There are lots of similar applications in converting, flexible plastics and packaging companies.

HOW IS THE STATIC GENERATED?

The static may already be in the product - certainly this will be the case if it has been slit at high speed. But even if the trim/waste is free of static charge when it enters the pneumatic system it can become charged in the pipework.

The air speed in the pneumatic transport system is a minimum of 15 m/second to achieve suspension of the material being transported.

At this speed static is generated as the waste hits the side walls of the pipe.

The position is explained by our colleague Graham Hearn of Wolfson Electrostatics:

Studies at the University of Southampton and elsewhere have shown that electrostatic charge is generated when particles are transported through pipelines and ducts. The charging process arises from the physical interaction of the particles and the duct wall and occurs whether the pipe is constructed from plastic or metal. Industrial processes such as pneumatic conveying can often suffer from static electricity related problems and occasionally very high levels of potential and energetic sparks can be generated.

Parameters influencing the levels of electrostatic potential generated are:

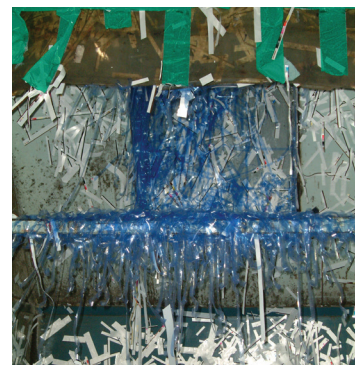
- The nature of the material comprising the particulate.
 - Flow velocity.
 - Mass flow rate/density (kg/m³).
 - Particle size.
 - Composition of duct walls.
 - Turbulence due to bends, constrictions etc.
 - Temperature and humidity.
-

THE PROBLEM

In practice, the main problems for our customers are:

- 1) The material will not separate from the air in the cyclone or air separator
- 2) The material sticks to the side of the chute and will not drop into the collection container.
- 3) The material sticks to the inside wall of the system, especially at sharp corners.

If the waste collection system stops functioning correctly this can stop the converting operation or the whole production process - so it can be a very expensive problem.



INSTALLATION

The answer is to position a 6000 Iontube immediately before the problem area, as shown below.

It is important that the Iontube is positioned as close to the problem as possible to stop the waste becoming charged again as it travels through the pipework.

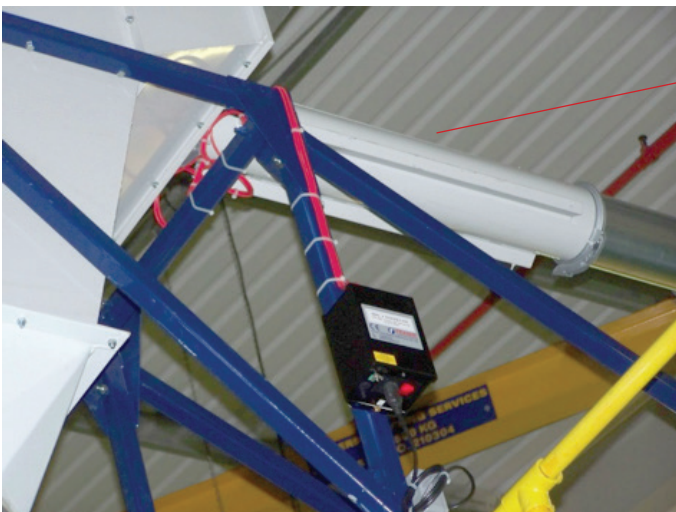
A typical installation of a 6000 Iontube at a packaging plant



Iontube immediately before the separator

Separator where the air escapes through a filter mesh, leaving the product to fall down the chute into the collection container

Collection containers for waste



A better view of the Iontube immediately before the separator.

COMPATIBILITY WITH EXISTING PIPEWORK

The standard pipes which we use in the 6000 Ion tube are made by Jacob. There is a wide range of diameters available. See <http://www.jacob-rohre.de/>

We use Jacob tubes because they are used and available throughout the World. Jacob also offers connection systems to other types of pipework, which makes it easy for the customer to source fittings to join with the existing factory pipework.

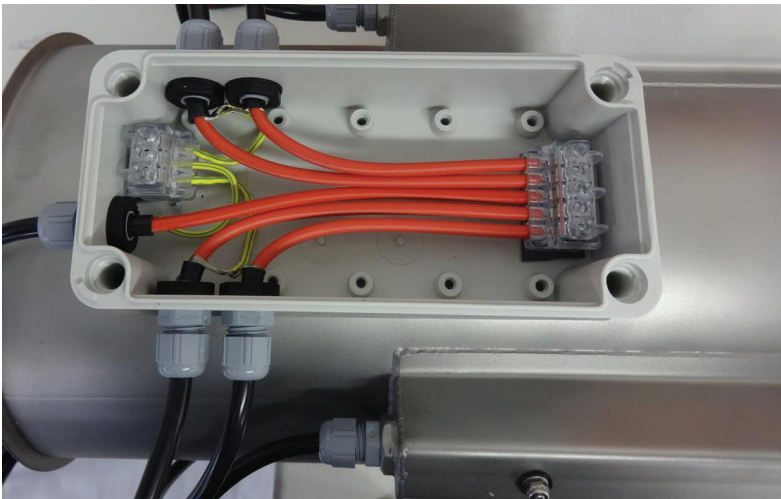
We also use pipes which are customer supplied or specified by the customer. Please send us details of what the customer wants so that we can check that it is possible to use them. We use Jacob tubes with 1 mm stainless steel walls because they are resistant to corrosion and do not need painting. They are also cheaper than most alternatives. Ordinary steel pipes need to be painted after fabrication. Galvanised steel is difficult to weld and also needs to be painted.

We use 1 m long pipes because this length is needed for good ionisation. We can make shorter pipes, but they need more static eliminators around the edge to produce the same level of ionisation. So shorter pipes are usually less effective, or more expensive than 1 m pipes.

THE IONISATION

The number of static eliminator Bars increases with the diameter of the pipe. This is necessary to maintain the level of ionisation. For the standard installation inside a factory we use a connector box mounted on the tube. The cables from the Bars terminate in this box and a single cable goes back to the power unit. This system simplifies the cabling, creating less load and allows a smaller power unit to be used.

This connector box also allows Bars to be replaced easily.



Cable connections inside the connector box

This connector box is only suitable for installations inside a factory.

INSTALLATION INSIDE OR OUTSIDE OF THE FACTORY

Some customers want to install Iontubes outside of the factory where the waste is collected in big bins. We must always be informed if the Iontube is not to be installed inside the factory. The connector box design, shown above, is only suitable for use inside a factory.

Where the Iontube is to be fitted outside of the factory we will not use a connector box, but have cables from each bar to the Power Unit. These will be 2 m long unless otherwise specified. As a minimum the Power Unit should be housed in a weatherproof enclosure, the cables protected and the Iontube covered to protect it from bad weather. This gives it some protection against rain, but we cannot claim that it is weatherproof.

It is for the customer to assess the level of protection required having regard to the local climate.

Non-Waste Products

The target market is collecting and recycling waste products.

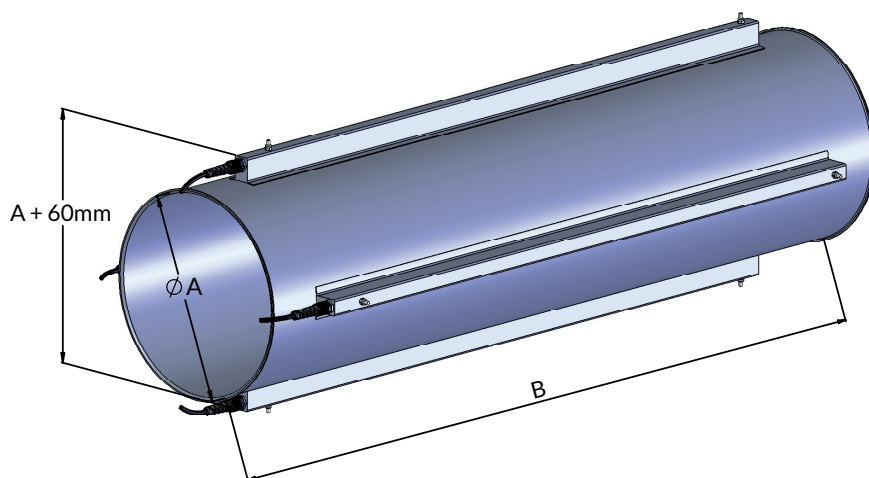
Some customers want to neutralise other products in pneumatic transport systems. The 6000 Iontube is generally not suitable for food and pharma applications. The risk of cross-contamination when changing products is too great.

Please contact Fraser for alternative options which may be suitable for food or pharma applications.

Selling Points of the 6000 Iontube

- 1) Powerful ionisation.
- 2) Robust construction in stainless steel.
- 3) Airtight tube - the continuous welded housings for the Bars does not allow any air leakage. This is not the case with competitors where air leakage can cause a pressure drop in the system.
- 4) Ionising bars are easy to replace if they become damaged.
- 5) Good compatibility with existing pipe systems.

NUMBER OF BARS NEEDED



Size in mm - ϕ x Length	Number of Bars	Code
50 x 500	2	E6000-50-500
50 x 1000	2	E6000-50-1000
80 x 500	2	E6000-80-500
80 x 1000	2	E6000-80-1000
100 x 1000	3	E6000-100-1000
120 x 1000	3	E6000-120-1000
140 x 1000	3	E6000-140-1000
150 x 1000	3	E6000-150-1000
175 x 1000	3	E6000-175-1000
200 x 1000	4	E6000-200-1000
250 x 1000	4	E6000-250-1000
300 x 1000	5	E6000-300-1000
350 x 1000	6	E6000-350-1000