



## SBCB3/5 Charging Bar Manual



SBCB3/5

# Static Generation Electrodes

## Operating Instructions

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# Static Generation Electrodes

## 1. Introduction

This manual applies to Static Clean SBCB3/5 Static Generation Electrode.

It is essential that you read and understand the complete manual before installing and using this equipment. This is important for safety and for warranty cover.

### 1.1 Explanation of Symbols



#### Warning!

This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in serious personal injuries.



#### Caution!

This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in damage to property.

## 2. Safety

Static Clean Generator Electrodes are intended for use in industrial applications to apply static electricity.

It is very important that the user understands the nature of this equipment. Ensure the following warnings and information contained within this manual are read and understood to prevent injury or damage.



### Warnings:

- Only qualified engineers or electricians should install, operate or maintain this equipment.
- The high voltage should be turned OFF at source before carrying out any work on it.
- Do not touch any live parts of the equipment as this could result in an unpleasant electrical shock. Which could be dangerous to a person with a pacemaker or a weak heart.
- The electric field from static charging electrodes can induce a static charge in nearby machine parts - if these parts are not grounded they will be capable of giving an electric shock. Nearby machine parts must be connected to earth.
- Any changes to the equipment without written consent of the manufacturer will nullify the warranty and CE approval.

## 3. Use

Static Clean's Static Generation Electrodes which are used in industrial processes for applying electrostatic charges. They are designed for installation on machinery.

They are used in conjunction with Static Clean's Charging Power Supplies, which supply the high voltage.

The system consisting of the Static Generator and the Electrode are used for temporary adhesion in many areas of industry.

## 4. Checking on Delivered Equipment

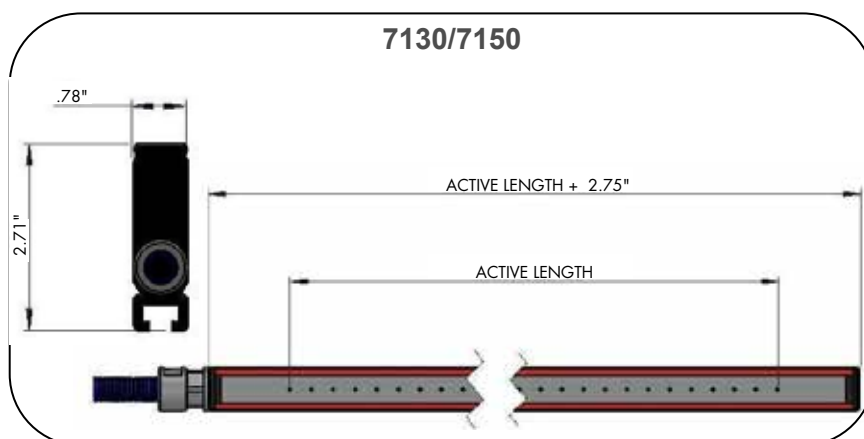
The equipment leaves our factory in suitable protective packaging. Please check that it is undamaged when it arrives. If there is visible damage contact the Factory or one of our Distributors immediately, before carrying out any installation.

Check that the parts that which have been delivered are the same as you have ordered.

- Loose Parts: Electrode + plastic installation fixings.
- Plastic slide to cover/screen emitters, if ordered.
- Static Generator, if ordered.

## 5. General Specification and Dimensions

	SBCB3 and SBCB5
<b>Operating Voltage:</b>	To 50kV.
<b>Operating Conditions:</b>	Same.
<b>Weight:</b>	Same.
<b>Material: Body</b>	Same.
<b>Resin</b>	Same.
<b>Endcaps</b>	Same.
<b>Maximum o/all Length:</b>	From 3.5" to 157.4 inches
<b>Active Length:</b>	Overall length less 3 inches.
<b>Emitters:</b>	Tungsten. Same.
<b>Resistance between HV and emitters:</b>	170MOhm.
<b>Cable:</b>	6ft cable unless ordered otherwise.
<b>Generator, to use with:</b>	SBCB3 with connectors for SB30A or similar Charging Power Supply, 30kV output. SBCB5 with connectors for Charging Power Supply, 50kV output only. The only difference is the SBCB5 connector is longer



## 6. Positioning

Operating Distance: Guidelines: minimum 20mm (.78") to object for 30kV, + minimum of 2mm per extra kV above 30kV e.g if operational voltage is 40kV then minimum distance to object is 40mm (1.57"). The best distance is achieved by experiment.

Mounting: The M8 nylon mounting bolts should be used for installation.  
One M8 bolt is needed every 500mm (19.68") to maintain rigidity.



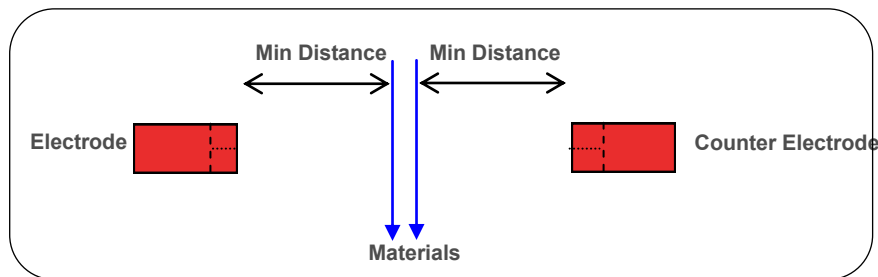
**Important:** There should be no metal parts within 50mm (1.96") of the electrode for 30kV or within 75mm (2.95") for 50kV. If this is not followed there is a risk of electrical break down or poor performance.



All metal parts within 500mm (19.68") of the electrode must be earthed.

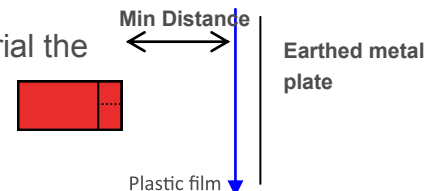
Keep cables away from grounded surfaces. Max bend radius 50mm (1.96").

There must always be an electrode and a counter electrode on the other side of the materials which are to be stuck together electrostatically. The counter electrode is to allow mirror-image ions of the opposite polarity to be generated. The efficiency of the process depends on the counter electrode. The normal methods of achieving adhesion between two non conductive materials, and the options for the counter electrode, are shown below.



	<u>Electrode</u>	<u>Materials</u>	<u>Counter Electrode</u>
A)	SBCB5	7150 of opposite polarity	Best Adhesion
B)	Ditto	Ionising Bar, e.g. 1250-S	Good adhesion
C)	Ditto	Anti-Static Brush, earthed	Good adhesion
D)	Ditto	Earthed metal rod	Moderate adhesion

Where a non-conductive material is to stick to a conductive material the process is simpler. The conductive material must be earthed but there is no need for a counter electrode.



In this application if the plastic film is smaller than the effective length of the electrode it is important to mask any emitter pins which can "see" the metal. The photo shows the Emitter Mask supplied by Static Clean - part 715003, which clips into the grooves on the SBCB3/5 Bars.



## 7. Maintenance

The high voltage should be turned **OFF** at source before carrying out any maintenance.



Static generator electrodes should be kept clean - dust and contaminants around the emitters and body will waste energy, reduce performance and lead to a breakdown of insulation and failure of the bar electrode.

Cleaning is the only maintenance required. Dirt around the emitters will reduce efficiency and result in unsatisfactory performance. A soft toothbrush is ideal for cleaning Bars. Do not use a wire brush as this could damage the Bar. The Bar can be washed with soapy water or IPA, but it must be dry on the inside of the Bar around the emitters before turning the power on.

When cleaning around the emitters - take care as the pins are sharp!



## 8. Health and Safety

The ozone generated by this product is less than 0.1ppm and within internationally accepted limits. Please note, when handling and cleaning, that the emitter pins are sharp and care is needed.



## 9. Certification and CE Declaration of Conformity

We declare that this equipment conforms to the following EC Directives:

Low Voltage Directive: 2006/95/EC.

EMC Directive: 2004/108/EC

And is entitled to display the CE Mark.

For further instructions and information, please contact the manufacturer.

## 10. Troubleshooting

Fault	Sparking - Electrode too close to an earthed surface.
	<ul style="list-style-type: none"> <li>• Increase distance.</li> <li>• Cover emitters so that they do not “see” metal parts . See emitter mask on page 3.</li> <li>• Check that energy is not tracking through dirt - clean the electrode.</li> </ul>

Fault	No Energy.
	<ul style="list-style-type: none"> <li>• Check HV Supply from Generator.</li> </ul>

Fault	Performance not satisfactory.
	<ul style="list-style-type: none"> <li>• Check optimal distance between electrode and product - adjust as necessary.</li> <li>• Dirty electrode - clean.</li> <li>• Check conductivity of material - if paper it must be <math>&gt;10^{10}</math> Ohm per Square. Check using a Model 730 SRM.</li> <li>• Material already charged - Neutralise it with a Static Eliminator.</li> </ul>



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Static Clean International offers a full range of charging equipment including:

Static Bond Charging Power Supply and Additional Charging Applicators:

Please see separate datasheets for charging equipment specifications etc.



SB-30A (30kV) Charging Power Supply



FastTack Charging Applicator



Talon Charging Applicator