

Static Controls

BR1200-BR2200-BRE2200

Static Neutralizing Bars

Operating Description

Contact and separation between two materials creates static electricity, which can often cause materials like paper, plastic, textiles and other non-conductive materials to randomly attract to or repel from themselves or their surroundings. In a manufacturing environment this causes process problems which include jams, clogs, mis-feeds, poor stacking, reduced transport speeds, shocks to operators, fires, explosions, and a variety of contamination related problems.

The BR1200, BR2200 & BRE2200 Models are "shockless" static neutralizing bars designed to help you control these troublesome and costly problems by neutralizing the static electricity that causes them.

Except for the shape, the BR1200, BR2200 & BRE2200 are essentially the same.

BR1200 Specifications

Round: 3/4 inch diameter
 Overall Length: 6 to 144 inches
 Effective Length: 3 to 141 inches
 Ionizing Point Spacing: 3/4 inch on center
 High Voltage Cable: 15KVDC, 80C, UL VW-1. Standard length 72 inches inside a Flex Conduit, terminated in a factory installed spring-loaded connector to mate with TSN75A or comparable Power Supply.
 Optimum Range: 3/4 to 3 inches
 Mounting: Loop Clamps

BR2200 & BRE2200 Specifications

Rectangular: 3/4 inch wide x 7/8 inch high
 Overall Length: 3"-144" BR2200, 3.25"-142.75" BRE2200
 Effective Length: 3"-144" BR2200, 2.25"-141.75" BRE2200
 Ionizing Point Spacing: 3/4 inch on center
 High Voltage Cable: 15KVDC, 80C, UL VW-1. Standard length 72 inches inside a Flex Conduit terminated in a factory installed spring-loaded connector to mate with TSN75A or comparable Power Supply.
 Optimum Range: 3/4 to 3 inches
 Mounting: Adjustable rear mounting studs; 8-32 x 1/2 inch
 Model BRE2200 has a 1" plastic end cap opposite the HV cable end that dramatically improves system reliability.
 Power Supply (Required); Model TSN75A 7.5kV or comparable unit rated 7.8-8.0kV (max) with compatible connector.

General Guidelines

- Keep water, oil, grease and other contamination away from static bars and power supplies at all times.
- Clean the ionizing points routinely as needed for optimum performance. Make sure power is off before performing any maintenance, removal, or repositioning of any static neutralizing equipment or power supplies.
- Mount the remote Power Supply as close as possible to the static bar.
- Dress and secure the high voltage cable neatly along the machine frame avoiding sharp corners and pointed edges.
- Make sure the static bars metal (aluminum) casing and the power supply are well "grounded."

Initial Set-up and Positioning

Proper location and positioning of the static bar(s) and power supply is essential to satisfactory performance and life of the equipment. Because each application is unique, careful thought is required to establish the best location and installation. The following guidelines will help to determine that.

Most of the time, the best place to install a static bar is immediately ahead of the problem. For example, if an operator is getting "shocked" from a rewind roll, then the static bar should be located so that it would be the last thing the material passes before it winds onto the roll. Another example is stacking paper at the end of a sheeter. Allowing the sheet to pass by the static bar last would assure a static "neutral" sheet enabling it to slide properly into place.

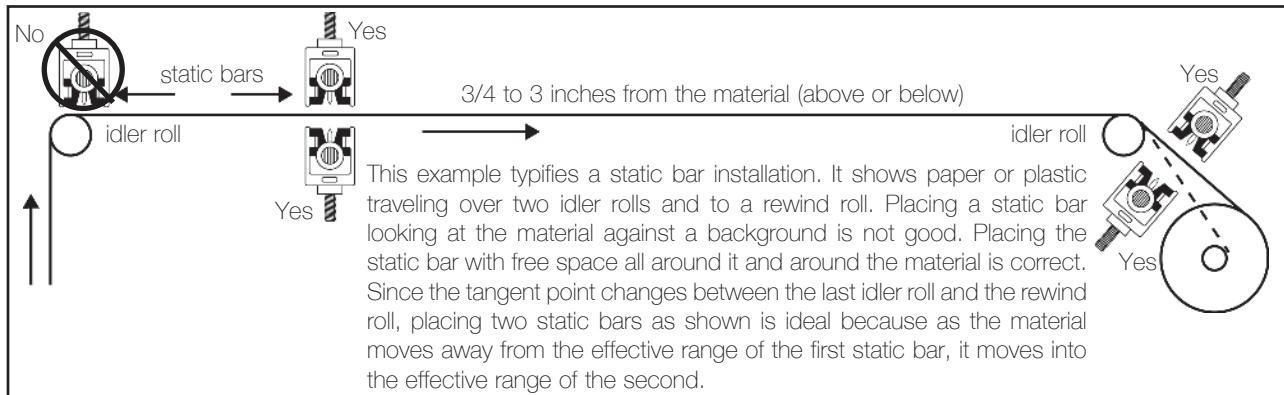
1. Metal parts in proximity to static bars tend to reduce their effectiveness. Whenever possible, allow two inches of free space all around the static bar and behind the material to be neutralized.
2. Unless the static bar is air assisted, the most effective distance between the static bar and the material to be neutralized is 3/4 inch to 3 inches. Do not place the static bar so that its ionizing points are facing the material where the material is against a background surface.
3. Static bars will operate efficiently above, below, or on either side of the material. Keeping the ionizing points facing downward with the bar mounted over the material tends to minimize contamination from falling on them.
4. Universal hardware is provided with the static bars. Use them or other metal clamping (if preferred) to secure the static bars to the machine frame or other suitable stationary angle or rod.



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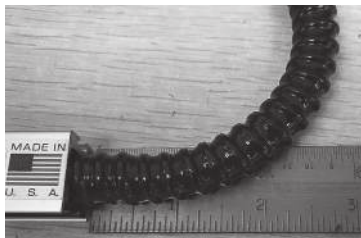
5. To prevent electrical shock and to assure proper operation and performance of the equipment, the static bars and power supply must be grounded. Metal clamps or mounting bolts tightened securely against the static bar's metal housing and attached to a "grounded" metal machine frame will provide an adequate "ground". If the static bars or power supply must be mounted to any non-metal surface, you must attach an external ground wire from the static bar and/or power supply to a suitable electrical ground.

Remember: The metal case of the static bars and the power supply must be electrically grounded! DO NOT ATTACH GROUND WIRE TO HOT WATER, STEAM, OR GAS PIPES. DO NOT REMOVE THE GROUND STUD FROM POWER SUPPLY OR THE GROUND POST FROM POWER SUPPLY LINE CORD. ALWAYS PLUG THE LINE CORD INTO A PROPERLY GROUNDED RECEPTACLE, OR IF WIRING DIRECT WITHOUT THE PLUG, BE CERTAIN TO PROPERLY AND SECURELY CONNECT THE GROUND WIRE.

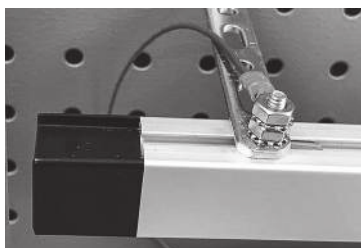
Mounting the Static Bar

Unlike the BR1200, which uses loop clamps for mounting, the BR2200 & BRE2200 are conveniently slotted on the back to house weld-screws for mounting. Slide the weld-screws into and along the slot to the desired position and lock into place. Use universal extension brackets to bridge to the machine's side frame or attach the mounting weld-screws to a pre-selected and prepared angle iron, rod or brace.

1. **IMPORTANT:** Before proceeding with the installation, be sure that you have 3" or more space at the cable end of the bar for the HV Cable with Flexible Conduit to prevent damaging the static bar or cable.



i. for model BRE2200 only; keep at least 1/4" of airspace at the end and (4) sides of the black plastic end cap as shown.
ii. for BR1200 & BR2200, keep at least 1/4" airspace at the end of the bar w/o the HV cable.



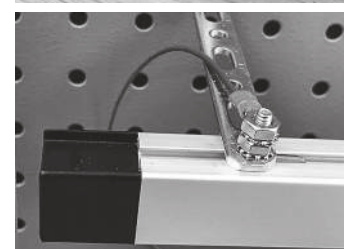
2. Slide a weld-screw into the groove at the back of the BR(E)2200 static bar, then tighten (1) 8-32 keps-nut firmly onto the weld-screw to lock it in place.

3. Install a perforated mounting strap (provided) onto the weld-screw.



4. Install a 2nd 8-32 keps-nut onto the weld-screw and tighten firmly onto weld-screw.

5. Repeat steps above to secure all provided perforated mounting straps to the static bar so they are evenly spaced, to provide adequate support to the bar.



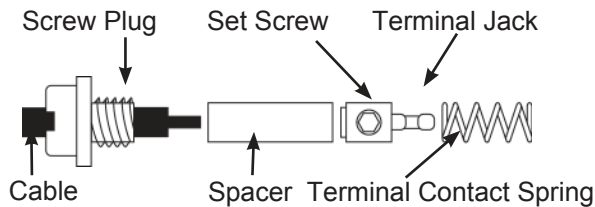
6. Secure the other end of all the mounting straps to a solid structure/frame (by others) to complete the static bar mounting.



7. If the bar is not mounted directly to a grounded metal bracket/frame, use a ground-wire with ring-terminal as shown here to tie the bar/bracket to a known, good ground.

8. If convenient, the ground wire can be terminated to the external chassis-ground stud on the HV Power Supply as shown.

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Locating the Power Supply

Locate the Power Supply as close as possible to the static bar using its mounting plate to securely fasten the unit in place. Choose a location free of oil, water and gross contamination. Avoid areas where ambient temperature is continuously in excess of 120°F. Mount the Power Supply so that the High Voltage Output Ports are facing down or to either side to prevent entry of foreign material. Unless specified differently on the order, each static bar is equipped with a standard 72 inch length of high voltage cable. This length of cable allows the installation of two static bars approximately 10 feet apart connected to one, centrally located power supply. If the high voltage cable is too long, you may coil it and secure it neatly out of harm's way.



Connecting the Static Bar and Power Supply

1. With the HV Power Supply unplugged and only after the static bar has been properly grounded as described above, insert the spring-loaded connector kit on the Static Bars HV Cable into one of the HV output sockets (ports) of the Power Supply, then snug the threaded nut hand-tight. **DO NOT USE A TOOL TO TIGHTEN THE NUT AS IT WILL LIKELY BREAK!**



IMPORTANT: If the HV cable is higher than the Power Supply be sure to route the HV cable to have a dip or curve near the power supply so that any fluids that may leak or spill onto the cable drip from the cable rather than follow it into the HV socket of the Power Supply.

2. Plug the power cord into a properly grounded outlet that provides MAINS power matching the nameplate on the Power Supply. Turn the Power Supplies switch on to activate the system. **IMPORTANT:** the TSN75A Power Supply has a voltage selector that can be set to 115V or 230V. Be sure it is set to match your input MAINS voltage to avoid damage to the power supply and or static bar.

Operation

After the static bars have been installed, they need little attention during operation. Because the ionizing points are capacitively coupled to the high voltage cable, these static bars are categorized as "shockless". This means there is so little energy at the points an operator scarcely feels a tingle if he or she accidentally touched them when powered. However, use caution whenever handling static bars since the ionizing points are sharp and can cut or break the skin.

Routine Service

Static Clean static bars and power supplies are designed to be durable, dependable, and trouble free. They require a minimal amount of maintenance. Each application and each environment, in which static control equipment is installed, is different making it difficult to state accurately how often cleaning is required.

After a period of use, a small sphere of dust will accumulate on the ionizer points. Do not allow this accumulation to continue indefinitely. Although they may continue to perform satisfactorily when they are dirty, gross contamination will degrade their efficiency.

Clean the ionizer points periodically with a stiff bristle brush (such as a toothbrush). A few quick swipes across the points along the length of the bar is usually sufficient. Do not use a brush with metal bristles since they may damage the points; scratch the plastic holding the points, and / or shed bristles, which may ultimately lead to a short circuit condition.

You may also use a compressed air blow-off gun or nozzle to blow out loose dirt from the static bars. Use caution and proper eye protection when doing so.

Be sure power to the static control equipment is off before cleaning any part of it.

Troubleshooting

The static control system is designed to neutralize static electricity on non-conductive materials by creating a field of positive and negative ions. When the electrostatically charged material passes through the ionized field it will attract ions of the polarity required to become "neutralized". If static electricity is the cause of a process problem, most of the time, the problem can be controlled, if not alleviated, with the proper application and use of this type equipment. If you find that the system you have chosen does not significantly reduce or eliminate the problem after it has been properly installed, proceed with the following checklist.

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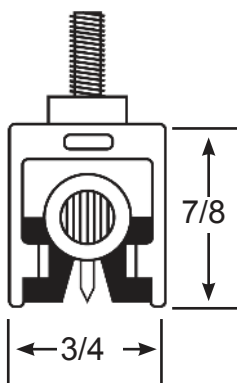
Static Neutralizing Bars

Troubleshooting Checklist

- With power off, check to see that the high voltage cable connector is properly assembled and connected?
 - Does the power supplied match that specified on the power supply nameplate?
 - Are the static bars and power supply adequately grounded?
 - Are the static bars too close or far from the material to be neutralized?
 - Are the static bars surrounded by metal or "shorting out"?
 - Is there "free air" surrounding the static bars and below the material as indicated in illustration on page 2?
 - Has the high voltage cable been cut or otherwise damaged?
- Call Static Clean International and speak to customer service or technical field representatives for further assistance.

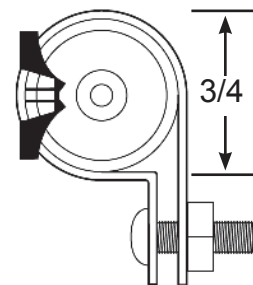
Additional Electrostatic Products and Services

- Instruments, Electrostatic Measuring: Miniature Handheld and Rack Mount, mV to kV Voltmeters, Fieldmeters, Monitors and Alarm; Resistivity / Resistance Meters (104-1014); NanoAmmeters and Nanocoulombmeters; Faraday Cups and Charged Plate Analyzers.
- Equipment, Static Neutralizing: Ionizing Air Blowers, Air Nozzles, Air Guns, Air Knives, Grounding Bars and Brushes. Static Neutralizing/Vacuum: Web Cleaners and Sheet Cleaners (Narrow and Wide) Static Generating: Bars (4 to 120 inches); Spot Chargers. Power Supplies: 110-220VAC, 50-60hz (4 to 7.5kV) 14-110VAC/DC (1 to 20kV), Constant Voltage - Constant Current Controllers
- Services: Electrostatic (ESD) Audits, In-plant Surveys, Training, Consultation, and Application Engineering.



Which Static Bar Should I Choose?

The shape of the static bar does not govern its efficiency or performance. Usually, the choice is made based upon how it will fit or look in the machine. The round one has the advantage of being easily rotated enabling it to be more precisely pointed at a target. However, if there is "free air" surrounding the material to be neutralized and the static bar is properly powered and grounded as outlined in the instructions, there is no need to point precisely at the target. Loop clamps are provided for mounting the BR1200.



The BR2200 & BRE2200 static bars are easily and conveniently mounted on the ends, and anywhere along their length, by using the weld-screws that slide inside the channel on the opposite side of the emitter pins. This mounting method coupled with the ruggedness of the aluminum profile minimizes sag even over the longest lengths.

About *Static Clean International*

At Static Clean, we've been providing Static and Contamination Control Solutions to clients worldwide since 1973. We capitalize upon this wealth of experience to service our customers in a variety of ways. Whatever their needs, our comprehensive approach to controlling static / contamination translates into a much lower total cost of ownership solution for them.

Industrial Applications: We provide a line of Static and Contamination Control industrial products including static bars, power supplies, ionizers and WebVacs that we manufacture ourselves. These exceptional products address a host of common process problems including mis-feeds, poor lamination, jogging and stacking problems, shock to operators, jammed injection molds, particle contamination, fires and explosions.



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