

Chargemaster DC Systems



SIMCO
Industrial Static Control

An Illinois Tool Works Company

Worldwide Leaders in Static Control



Chapman ellex HERBERT

Why Should I use Electrostatic Charging?

Static is an excellent means of temporarily bonding materials. SIMCO's static charging systems can apply charges up to 50,000 Volts using various applicators designed to meet the requirements of your specific application. Many applications are listed on pages 3, 4, and 5.

SIMCO Offers State-of-the-Art Equipment

The leader in static control and static generating since 1936, SIMCO Industrial Static Control offers the most advanced and complete line of static generating equipment.

Chargemaster and ELTEX power supplies utilize high frequency switching technology. There are three major advantages this technology offers the user. First, this technology ensures that the voltage output from the power supply is equal to the voltage requested via the controls. Secondly, the user is ensured that fluctuations on the AC input line will not effect the voltage output. Lastly, variances in load, up to the recommended maximum, do not effect the voltage output.

Additional circuitry controls the duty cycle of an arcing condition, ensuring that little energy is created during arcing to prevent personnel injury and equipment damage.

Features

- High-frequency switching technology
- Regulated voltage, line and load
- Multiple high voltage output ports
- Current limited
- Remote operation capability

Benefits

- Compensates for changing input/output conditions
- No "load down" effect to reduce performance
- Multiple applicator operation
- Operator safety
- Simple, hassle-free systems integration
- High-quality engineering

Charging Applicators

Each Chargemaster system consists of a CH Series or BP Series DC Power Supply and one or more of the following SIMCO charging applicators:

TETRA Charging Bars

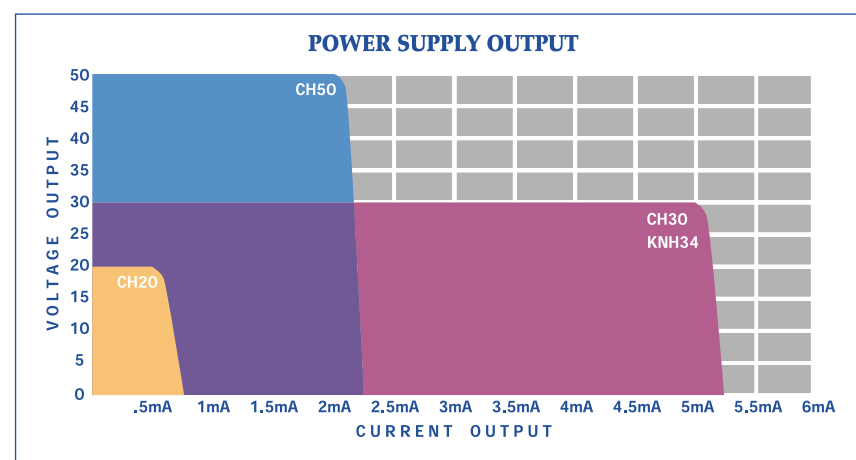
Distinguished by high performance and rugged construction, the TETRA Charging Bar consists of an inner bar of ionizing points mounted in a round rigid housing. The ionizing points are easy to clean with the supplied cleaning brush. A standard TETRA Bar incorporates a straight-end HV connector or an optional right-angle connector. The high voltage cable is flame retardant, highly flexible, and removable to simplify bar maintenance.

Arc-Resistant Bars

The electrostatic bonding force is proportional to the amount of voltage applied. During an arcing condition, no voltage is supplied, therefore no bonding takes place. In some applications, arcing is unavoidable. For such applications, SIMCO's Arc-Resistant Charging Applicators significantly reduce the occurrence of arcing, eliminating voltage drops and intermittent interruptions in the electrostatic bonding process.

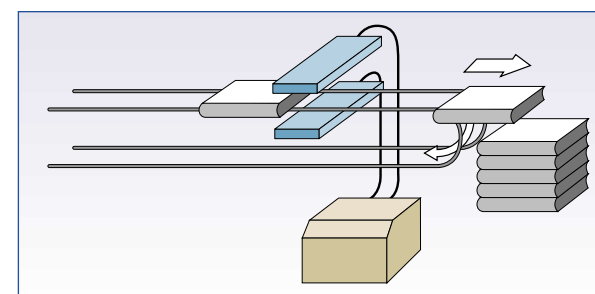
How SIMCO CHARGEMASTER AND ELTEX SYSTEMS WORK

Each Chargemaster and ELTEX DC Power Supply utilizes high frequency switching technology. This technology ensures that the voltage output is equal to the voltage selected. These power supplies are electronically current limited and feature arc protection circuitry. It also guarantees that the voltage output of each power supply will remain consistent with the voltage selected until current output rating is exceeded (see chart). SIMCO and ELTEX charging devices are energized by DC power supplies. The power supplies high voltage to the applicator's ionizing points. The ions generated charge the material, electrostatically bonding the material to another surface.



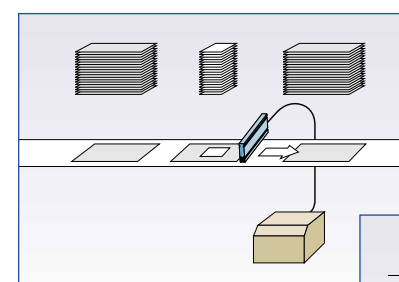
Power supply voltage output is guaranteed to remain at the voltage selection shown. If current output is exceeded (current limit), the unit will shut down to ensure safety.

CATALOG PACKAGING

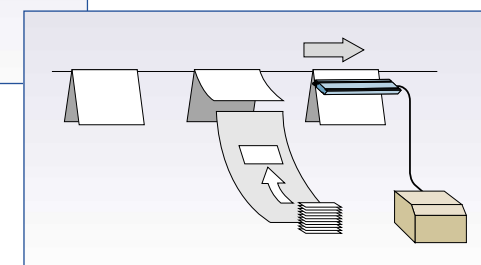


SIMCO Chargemaster BP-30 power supply and Pinner Superbar charge catalogs just prior to stacking. As a result, the catalogs become flat and snap onto the stack, electrostatically adhering to each other. The catalogs are held together in a tight, registered stack as they proceed through the overwrapping and shrinkwrapping processes. Jams and edge damage are eliminated and throughput rate is increased. Use of strapping equipment is reduced or eliminated.

CARD INSERTS

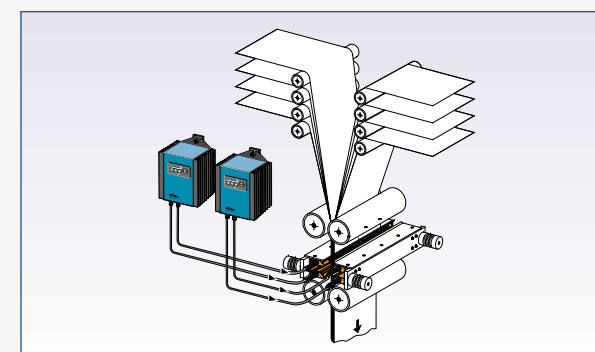


On perfect bound lines, card inserts often overshoot the target area because of the speed of the line. Applying a static charge to the card as it hits the page effectively holds the card in place. The card will not slide into the spine and accidental gluing will be prevented.



On the saddle stitcher, many cards can end up on the bindery floor. The problem can be practically eliminated by immediately pinning the catalog closed once the card has been inserted. A charging bar placed near the spine of the magazine, just as the magazine closes, will force the air from the magazine entrapping the card in place.

ELTEX SOLUTIONS FOR THE PRESSROOM

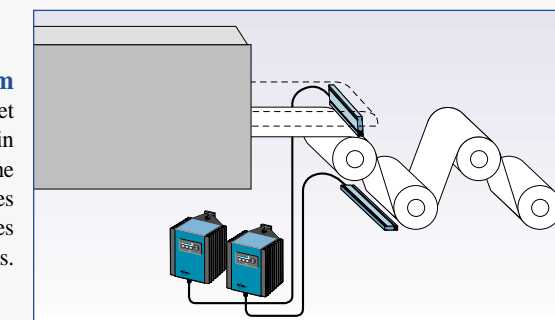


Ribbon-Tacking System

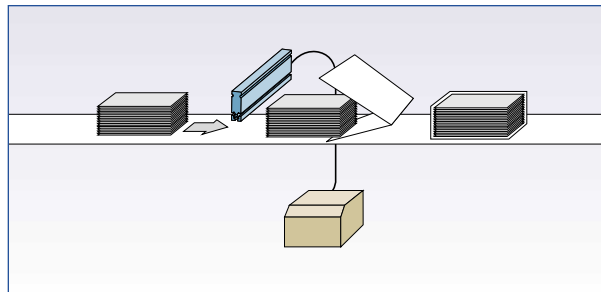
The Eltex Ribbon-Tacking System uses opposite polarity, high voltage DC charges to tack ribbons together. This action displaces the laminar airflow between ribbons and the ribbons gain strength from the intense but temporary static charge. The ribbons are now easily moved through to finishing with 'dog-ears' and creases prevented.

Chill-Tack System

The ELTEX Chill-Tack System is designed for heat-set web offset printing presses. The Chill-Tack system uses high voltage to pin the web to the chill-roll at the first point of contact. Pinning the web to the chill-roll prevents slippage and eliminates condensation streaking. Preventing slippage also reduces tension upsets and improves registration throughout the press.

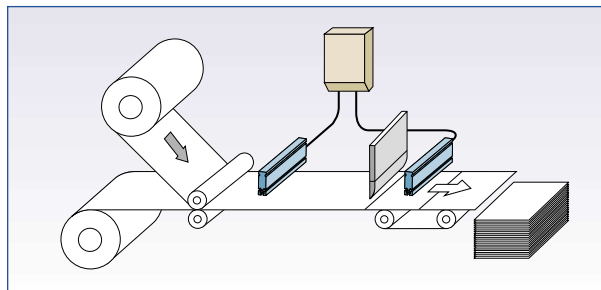


SHRINK WRAPPING



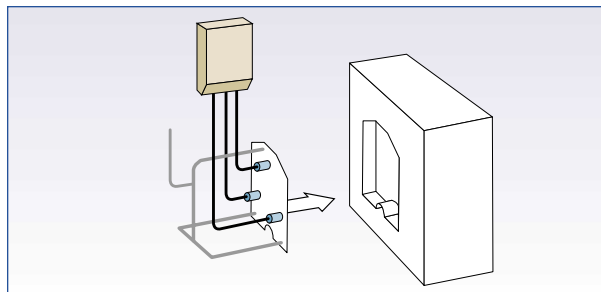
An electrostatic bond holds sheets of paper or plastic in place until the heat sealing or welding is completed. Chargemaster applies an electrostatic charge to bond sheets together to keep them in a tight stack. This prevents the film overwrap from pushing the top sheet out creating a shingling problem. Imperfect packaging and damaged sheets are also prevented.

INTERLEAVING



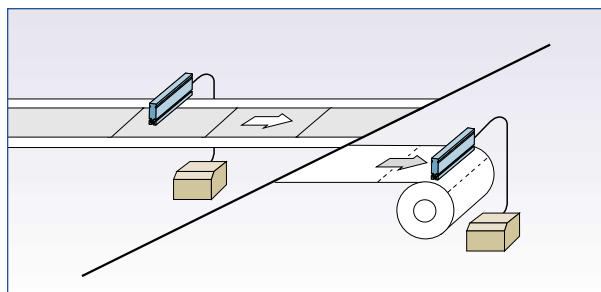
Chargemaster pins the protective sheet to the base material, holding it in position through the shearing and stacking processes. Chargemaster equipment supplies the electrostatic force to bond a protective layer of paper or film to cut sheets of metal, glass, wood, and other products. Chargemaster is also used to hold wood laminates to core board prior to thermal bonding of desk tops and panels.

IN-MOLD DECORATING



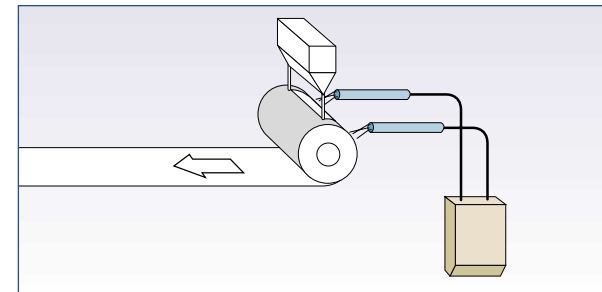
Static charges can be used to pin a decorative decal tight against the inner mold surface during injection molding, a procedure which greatly improves finished product quality. A decal is placed by robot into the mold cavity. An electrostatic charge is applied simultaneously as label vacuum is turned off. The static charge pins the decal to the mold. The decal will not slip or change position in the mold.

PLASTIC BAG PROCESSING



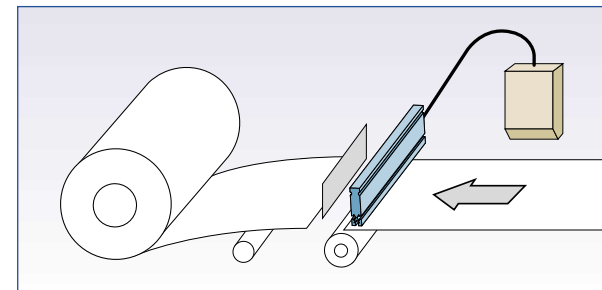
The speed of the conveyor can cause the lead edge of the bag to lift up and shift. Electrostatically pinning trailing to leading edges prevents lifting and keeps bags proceeding smoothly along the conveyor line. Chargemaster can also be used to remove air from bags prior to packaging. The reduced thickness allows the use of smaller, more cost-efficient packaging.

CHILL ROLL EDGE PINNING ON CAST FILM LINES



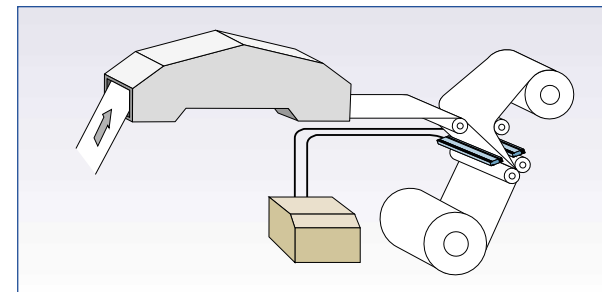
A SIMCO charging applicator at each edge of the roll applies a static charge to the extruded film as it contacts the chill roll. The static charge effectively prevents "neck-in" of the film.

ROLL-TO-ROLL CHANGEOVER



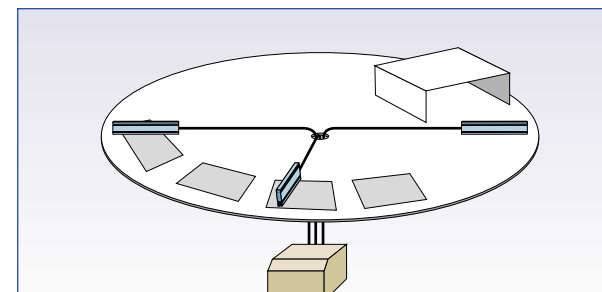
Chargemaster applies a temporary charge to the leading edge of the roll of film at rewind. The edge then adheres to the core without the use of tape or messy adhesives. Finished product quality is enhanced by elimination of creases in the roll of film caused by tape and glue on the core.

DRY-BONDING LAMINATION



Chargemaster power supplies and charging bars work to bond the substrate and the laminating material. The materials pass between the two bars without contact and are electrostatically bonded. This ensures that materials remain aligned during the lamination process.

BINDER OR VIDEO CASSETTE CASES



3-ring binders, cassette cases, and other types of binders are assembled in layers. The seal process requires that the layers stay in the position in which they were placed. Pinner bars strategically located over the assembly table allow pinning the materials together before the seal process to eliminate rejects. The various layers of the structure are held in their correct position.

ELECTRICAL SPECIFICATIONS

CH Power Supplies	Single polarity, negative or positive voltage power supplies	Remote Control	The voltage can be electronically turned on/off, raised/lowered, by a remote relay
BP Power Supplies	BiPolar, dual polarity negative and positive voltage output power supplies	Check System Indicator	LED lamp provides indication of overload and other system faults
Line Input Voltage	90 - 130 VAC 50/60 Hz., 180 - 260 VAC 50/60 Hz.	AC Line Protection	Internally located slow blow fuses provide protection of the users line
Line Regulation	2% of full rated output voltage	Arc Control Protection	Peak arc and average arc are circuit controlled
Load Regulation	2% of full rated output for a current change from 0 to maximum	Input Connector	Line filter with IEC 320 connector with line cord
Ripple Peak to Peak	5% of full rated output voltage at full rated output current (full load)	Ambient Temperature	32°F-105°F (0°C - 40°C)
Short Circuit Protection	Dual electronic current limit with peak current and arc duty cycle control	Construction	Gray painted aluminum case and cover

CHARGEMASTER CH SERIES 30/50 CE



Model	CH-30	CH-50
Full Rated Voltage	0-30 kV	0-50 kV
Full Rated Current	0-5 mA	0-2 mA
Input Current (115/230)	2.5/1.25 Amps	1.4/0.7 Amps
Maximum Watts	150 Watts	100 Watts
Output Short Circuit	6 mA maximum	3 mA maximum
Voltage Control	Front Panel Digital	Front Panel Digital
Weight	9.5 lbs.	9.5 lbs.
Dimensions (W x H x D)	10.5" x 4.25" x 13.5"	10.5" x 4.25" x 14.5"
Convection	fan cooled	fan cooled
Ports	4	4

CHARGEMASTER CH 20 CE



Model	CH-20
Full Rated Voltage	0-20 kV
Full Rated Current	0-0.5 mA
Input Current (115/230)	0.3/0.15 Amps
Maximum Watts	10 Watts
Output Short Circuit	0.7 mA maximum
Voltage Control	Front Panel Digital
Weight	7.5 lbs.
Dimensions (W x H x D)	6.4" x 3.5" x 12"
Convection	Normal convection
Ports	2

CHARGEMASTER BP SERIES 30/50



Model	BP-30	BP-50
Full Rated Voltage	0-30 kV (pos/neg)	0-50 kV (pos/neg)
Full Rated Current	0-5 mA (x2)	0-2 mA (x2)
Input Current (115/230)	5/2.5 Amps	2.8/1.4 Amps
Maximum Watts	150 Watts (x2)	100 Watts (x2)
Output Short Circuit	6 mA maximum (x2)	3 mA maximum (x2)
Voltage Control	Front Panel Analog	Front Panel Analog
Weight	19.5 lbs.	19.5 lbs.
Dimensions (W x H x D)	14.5" x 8.5" x 13.5"	14.5" x 8.5" x 14.5"
Convection	fan cooled	fan cooled
Ports	8	8

ELTEX CHILL-TACK AND RIBBON-TACKING SYSTEMS



Description CE

ELTEX systems are designed with the printing industry in mind. Ribbon-Tacking System eliminates 'dog ears' and creases in the folder. Chill-Tack System eliminates solvent streaking and improves tension control.

ELTEX system features and benefits include:

- Variable 30 kV, 5 mA high-frequency switching power supply provides performance flexibility
- Maximum voltage and current control with password protection prevents unauthorized changes to settings
- Remote control panel allows control of all features of all power supplies connected to the remote system. Very handy when power supplies and bars are mounted in inaccessible locations
- System data can be transmitted to a higher order control panel or a system printer via RS-232 interface
- Arc-resistant charging bar with points on quarter inch centers provides perfect distribution of voltage across the web
- Arc-resistant bar technology eliminates the need to cover ionizing pins exposed to the bare chill roll. The resistors inside the bar reduce the voltage on exposed pins preventing an arc and allowing the bar to continue to perform without damage to the chill roller
- Fiberglass, spring-loaded and insulated mounting brackets simplify bar removal for cleaning

TETRA™ CHARGING BAR



Description

Distinguished by its rugged construction, the TETRA Bar consists of a row of emitter points mounted in a round rigid housing.

Typical Use

Converting: Windup roll changeover and web alignment on rollers.
Packaging: Overwrap and heatshrink packaging.

Specifications

Type	Direct connect to high voltage
Points	316 SS fixed
Profile	1.31" diameter, PVC
Inner Bar	Teflon
Effective Lengths	6" to 141" (overall length is 2.31" longer)
Voltage Rating	30 kV, 50 kV with added insulation
Weight	0.5 lb per foot
Cable	Removable, straight exit, 50 kV rated, 221°F (105°C), 10' length. Also available in 20' and 30' lengths.
Mounting	Fully adjustable mounting centers with bar rotation of ± 30 degrees
Hardware	3/8-16 nylon nut and bolt kit
Temp. Rating	110°F (43°C)
Options	Removable right angle cable exit

CHARGING APPLICATORS



Specifications

	Pinner 5-Point	Pinner Blade	Pinner Claw	Multi-Point
Profile	7" x 0.75" dia.	7" x 0.75" dia.	8.5" x 0.75" dia.	3.25" x 1.125" dia.
Points	5 fixed	Blade	3 removable	6 fixed
Temp. Rating	500° F/260° C	500° F/260° C	500° F/260° C	221° F/105° C
Power Supplies	30 kV/50 kV	30 kV/50 kV	30 kV/50 kV	30 kV

Description

SIMCO offers a broad selection of charging applicators including high temperature, resistor coupled and non-resistor coupled. A SIMCO representative can help you to select the most efficient Chargemaster applicator for your application.

Typical Use

Converting: Edge pinning on cast film lines
Packaging: Overwrap and heatshrink packaging
Printing: Card insertion on saddle stitcher and perfect bound

PINNER ARC RESISTANT BAR



Description

Pinner Bars are current limited and feature 50 kV rated high-voltage cables with silicone sleeving to ensure operator and equipment safety. They feature removable ionizing pins for fast, easy maintenance and an optional high-voltage cable connector so bars can be easily removed without unthreading the cables. Pinner Bars are rated for use in temperatures up to 200° F and with high voltage to ±30 kV and to ±50 kV with special provisions.

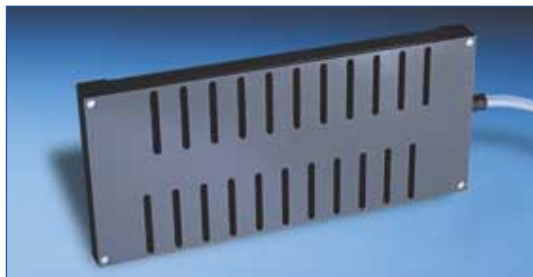
Typical Use

Designed and intended for use in all applications.

Specifications

Type	Resistor-coupled, arc resistant
Points	316 SS, removable, replaceable
Profile	3.25" x 0.75", Glass-filled Vinylester
Inner Bar	Epoxy
Effective Lengths	3" to 144" (overall length is 2" longer)
Voltage Rating	30 kV, 50 kV with added insulation
Weight	2 lb. 2 oz. per foot
Cable	Fixed mount, straight exit, 50 kV rated, 221°F (105°C), 10' length. Also available in 20' and 30' lengths.
Mounting	Fully adjustable bolt head channel
Hardware	5/16-18 nylon nut and bolt kit
Temp. Rating	200°F (93°C)
Options	Removable right angle cable exit

PINNER SUPERBAR



Description

The Pinner Superbar delivers more voltage and current than any high voltage applicator available. The Pinner Superbar is built for serious pinning tasks such as catalog stacking. For instance, when used for catalog stacking, the Superbar fits between the belts, offers easy height adjustment, and outperforms every other product available.

Typical Use

Printing: Catalog stacking in Bindery and Finishing.

Specifications

Type	Resistor-coupled, arc resistant
Points	316 SS, removable, replaceable
Profile	1.25" x 6.5", PVC
Inner Bar	RTV silicone compound
Length	10.5", 14.25" (overall)
Voltage Rating	30 kV, recommended for CH-30 & BP-30
Weight	5 lb. 8 oz.
Cable	Removable, straight exit, 50 kV rated, 221°F (105°C), 10' length. Also available in 20' and 30' lengths.
Mounting	Key slots (x4)
Hardware	5/16-18 SS nut and bolt kit
Temp. Rating	110°F (43°C)

ARC RESISTANT TECHNOLOGY

Resistance within a charging applicator enables the use of high voltage for temporary bonding while limiting the current to safe levels. It is an important feature because it ensures equipment and personnel safety.

To create ionization, an applicator with a sharp ionizing point is connected to the output of a power supply. At voltage levels above 4,000 volts, corona onset occurs and the air is ionized. The voltage polarity — negative or positive — determines whether the ions generated are negative or positive. The level of current flow depends upon the applied voltage and

proximity to a ground reference. The closer to the ground, the greater the current draw. Without in-line resistance, current levels can be drawn that abruptly break down the air, which becomes conductive and forms a blue arc. During an arcing condition, the flow of voltage is disrupted, so there is no ionization and therefore no pinning action. If arcing is prevalent or unavoidable in an application, select a resistor-limited applicator, which will prevent arcing and supply a continuous, though lower, ionization level. When the ground reference comes too close to the

ionizing point, more current is drawn from the power supply. By limiting the current in the applicator, a demand for increased current from the power supply is minimized. The resistor lowers the output pin voltage to prevent arcing. Voltage, however, is still flowing, and pinning action is still possible. There are four points per each resistor. If one part of the bar is stressed, only one resistor (4 points) are in current limit. All other pins are still ionizing at peak efficiency.

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