

The ES50 & 51 high voltage power supplies are power supply units for the series R5X AC discharge bars.

The discharge bars and the ES50 & 51 power supply are used mainly in cases where disruptive static charges on fast-moving material webs impair production processes and need to be eliminated.

The ES50 & 51 power supply features the following characteristics:

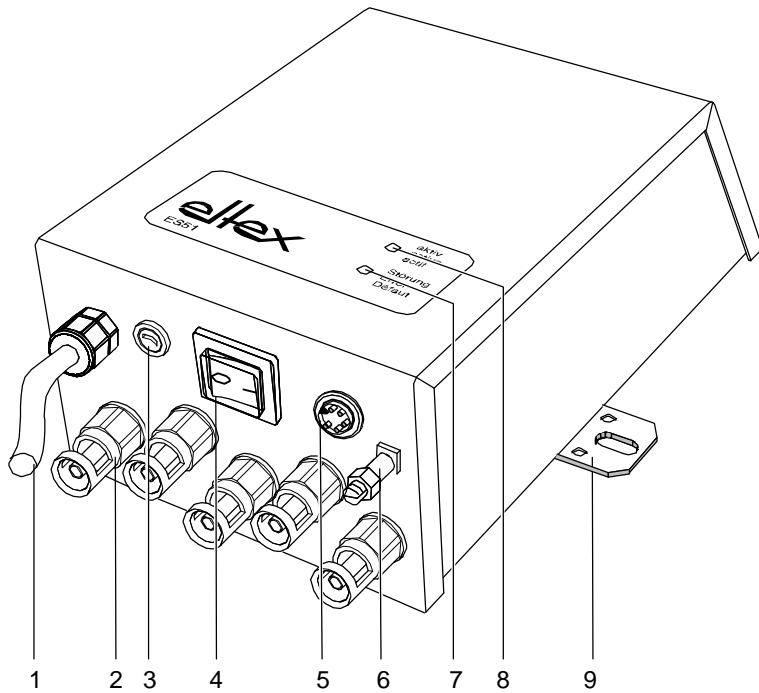
- 5 plug-type high voltage outputs
- stable 5 kV AC output voltage
- small dimensions
- easy installation
- protection class IP 54 design
- function and malfunction monitoring of the bars with floating signal contacts (optional)

Technical Information



Series ES50 & 51 Power Supplies for connection to AC discharge bars

TI-e-2014-0403

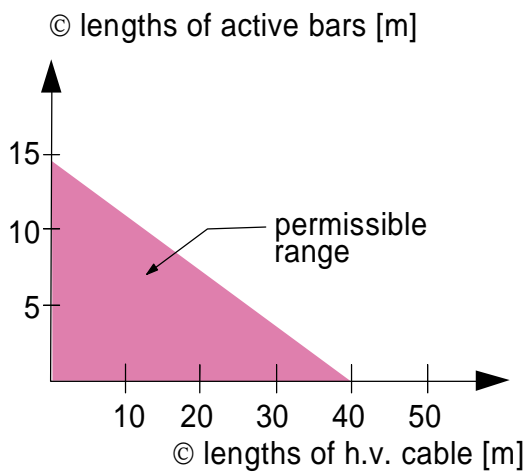


Power supply ES50 & 51

- 1 Power supply lead
- 2 5 high voltage terminals
- 3 Fuse
- 4 ON/OFF switch (ON = illuminated)
- 5 Plug for function and malfunction signals*
- 6 Grounding terminal
- 7 LED red, error signal*
- 8 LED green, high voltage active*
- 9 Mounting bracket

* only with function and malfunction monitoring

Function elements of the ES50 & 51 High Voltage Supply



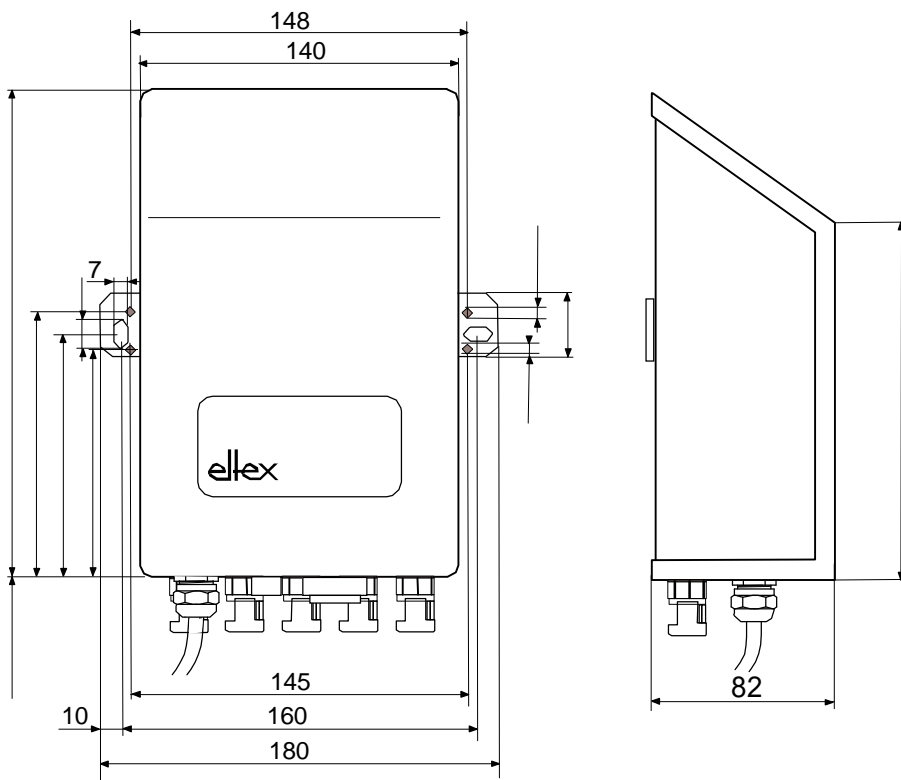
Loading capacity of the power supply

Both the lengths of the high voltage cable and of the active bars are limited. The shielded high voltage cables cause a capacitive load on the transformer inside the power supply. The maximum loading capacity is a result of the function of the total active bar length and the total length of all on power supply connected high voltage cables. The illustration opposite demonstrates this principle for the discharge bars R5X.

*Loading capacity of the power supply as factor of bar length and length of high voltage cable.
Example: The maximum permissible total cable length with a 3 meter active bar length is 32 meters.*

Technical specifications ES50 & 51

Supply voltage	230 V AC 50 Hz; 115 V AC 60 Hz;
Power input	80 VA maximum
Output voltage	5 kV AC; ES51/K: 3.5 kV AC
Loading capacity	depending on length of bar and length of high voltage cable
Output current	max. 6.2 mA at 5 kV
Operating ambient temperature	0...+60°C (+32...+140°F); ES51US: 0...+40°C (+32...+104°F)
Storage temperature	-20...+80°C (-4...+176°F)
Ambient humidity	max. 80% r.h., non-dewing
Function and malfunction signals (optional)	2 floating contacts, max. 250 V AC/1 A or 24 V DC/0.5 A loading capacity green (high voltage active) or red (malfunction) LED in front
Mains power cable	approx. 2.5 meters with earthing-pin plug, national version
Fuse (primary circuit)	see name plate
Ground link	grounding terminal on housing
High voltage connections	5x, plug-type
Enclosure	sheet metal steel with wall bracket
Protection class	IP 54, EN 60529
Dimensions	230 x 140 x 82 mm (H x W x D) (see Fig.)
Weight	approx. 4 kg
UL approval	File No. E227156



Dimensions ES51

The Series R50/R51 discharge bars are designed for the active discharging of disruptive static charges which develop in production processes. The bars are operated with an alternating voltage of 5 kV or 8 kV at 50...60 Hz and are designed for discharging moving surfaces.

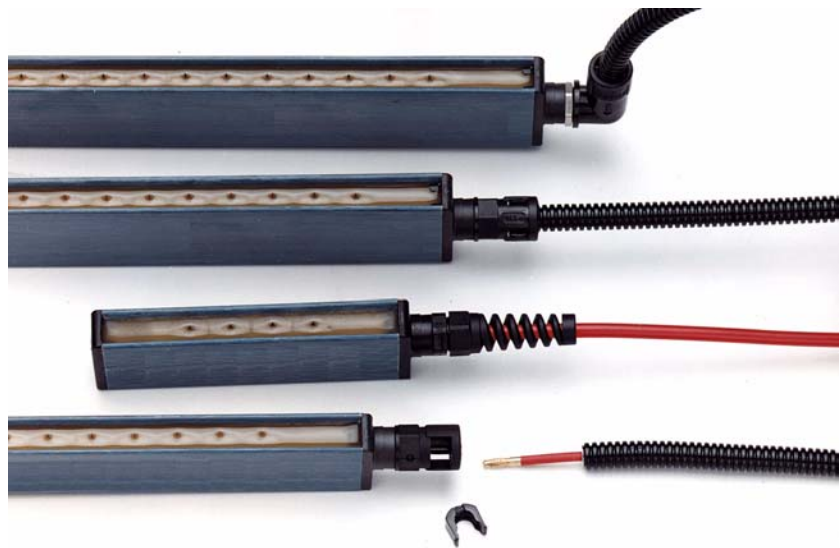
Due to differences in the surface charge profiles on different materials, charges with both polarities are provided by the discharge bars. The corona section with its optimized geometrical configuration ensures ultimate discharging efficiency.

Discharging can be supported by the L50 air profile.

The advantages of the R50/R51 discharge bars:

- ultimate discharge range and hence enhanced depth effect
- high active discharge power through isolated ground conductors
- high safety standards through passive discharging power with deactivated power supplies
- safety through function and malfunction monitoring
- flexible installation
- no health hazards from electric shocks when making contact with the tips

Technical Information



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Series R50/R51 Discharge Bars for AC Operation

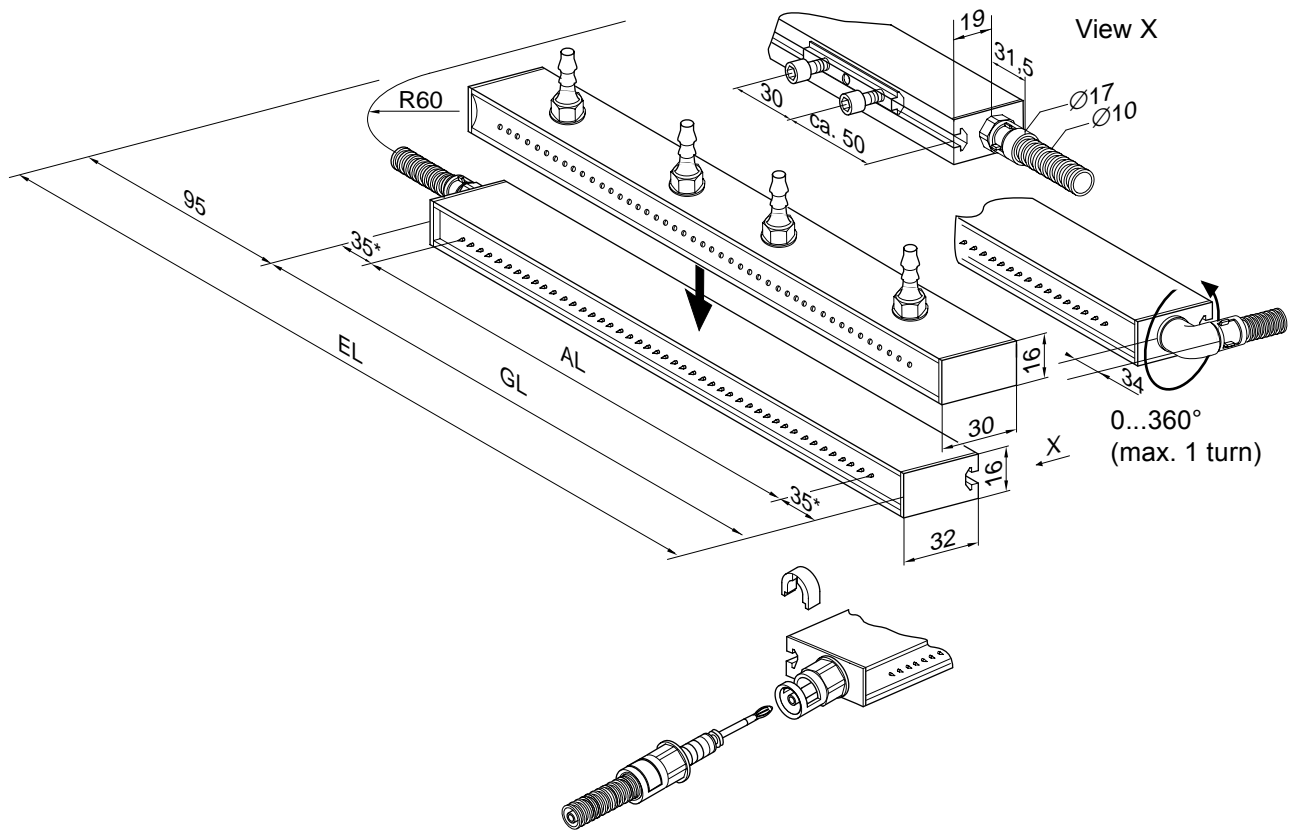
Air Profile L50

TI-e-2016-0512



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Dimensions



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Overview and dimensions of the R50/R51 discharge bar and the L50 air profil
EL = Installation length, AL = active length, GL = total length

* R51: 40 mm

R50 discharge bar:

fixed connection of the h.v. cable, axial and radial design,
 radial connection rotatable by 360°,
 max. active length: 3,915 mm,
 grip spacing of tips: 15 mm

R51 discharge bar:

detachable connection of the h.v. cable, axial design only,
 optional: bilateral connection for serial linking of several bars,
 max. active length: 3,915 m,
 grip spacing of tips: 15 mm

L50 air profile

for surface cleaning support,
 axial, radial or side access air connection,
 max. length: 3,990 mm,
 air outlet nozzles 90° or 28°



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Technical specifications R50/R51

Electrode (bar) element	glass-fibre-reinforced plastic GRP
Encapsulation material	polyurethane, UL-94 V-0
Emission tips	special alloy
Installation material	plastic sliding nuts
Operating ambient temperature	0...+80°C (+32...+176°F)
Ambient humidity	max. 70% RH, non-dewing
Dimensions	profile: 16 x 32 mm, max. length R50: 3985 mm, R51: 3995 mm
Weight	approx. 0.75 kg/m
Operating voltage	R50: max. 8 (5) kV AC, 50/60 Hz; R51: max. 5 kV AC, 50/60 Hz
High voltage supply	via Eltex power supplies
High voltage connection	R50: h.v. cable encapsulated, axial or radial (rotatable by 360°) lead-out, integral component of the bar, specify cable length and power supply R51: exchangeable h.v. cable, axial lead-out, optional: 2 connections for serial link-up of several bars, high voltage cable must be ordered separately, specify cable length and power supply
Short-circuit current/tip	33 µA
Contact protection	EN 61140:2002, paragraph 5.1.6
UL approval (R50)	File No. E227156 (max. 5 kV AC, 50/60 Hz)

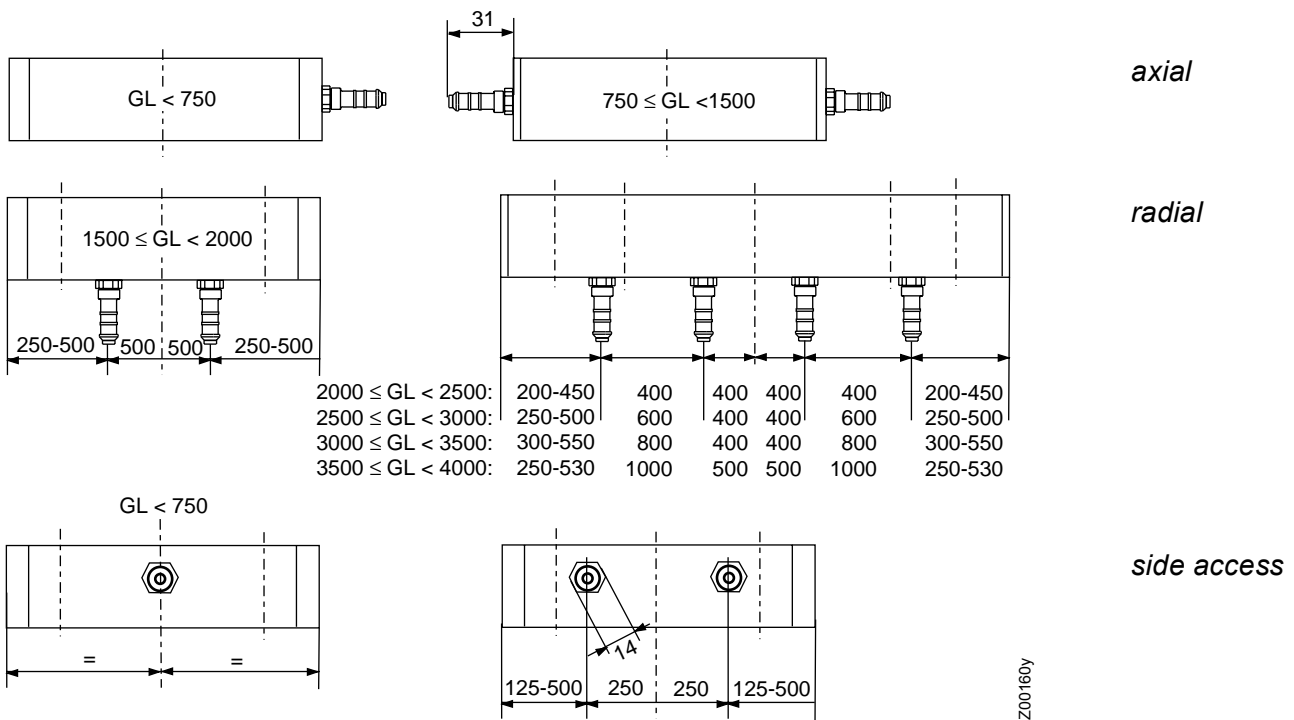


Technical specifications L50

Profile element	glass-fibre-reinforced plastic GRP, UL-94 V-0
Assembly	attached to the bar with Velcro or adhesive tape
Operating ambient temperature	0...+80°C (+32...+176°F) with blown air
Dimensions	profile: 16 x 30 mm, max. length: 3,990 mm
Weight	approx. 0.5 kg/m
Air consumption	150...600 l/min per meter of air profile at 0.1...1 bar
Air pressure	max. 3 bar
Air exit	90° or 28°
Air Connection	NW 8 mm, air connection in axial or radial direction, or optional side-mounted



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Air connections in air channel L50 for different lengths



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Eltex-Elektrostatik-Gesellschaft mbH
 Blauenstraße 67, D-79576 Weil am Rhein
 Phone +49 (0) 76 21/ 79 05 - 230
 Fax +49 (0) 76 21/ 79 05 - 330
 eMail static-control@eltex.com
 Internet www.eltex.com

Eltex offices and agencies

The addresses of all
Eltex agencies can be
found on our website at
www.eltex.com



Eltex-Elektrostatik-Gesellschaft mbH
Blauenstraße 67, D-79576 Weil am Rhein
Phone +49 (0) 76 21/ 79 05 - 0
Fax +49 (0) 76 21/ 79 05 - 310
eMail info@eltex.com
Internet www.eltex.com