

Increasing the Charging Capability of a Highly Constrained Corona Charger

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Abstract— In a digital printing press using electrophotographic printing technology, a corona charger recharges residual toner particles residing on a static dissipative surface. The aim is to improve their removal via an electrostatic brush cleaning process. There is a need to increase the charging capability of this corona charger in a minimalistic fashion due to the constraints of cost, space, implementation time, and backward compatibility (into presses previously installed at customer sites). A combination of two methods is shown to meet these constraints and double the charging capability: (1) a reduction in the corona wire diameter from 80 to 50 μm , and (2) the addition of a resistor between the charger shell and ground. As a side benefit, this work provides the ability to estimate uniquely both the resistance of the static dissipative surface and the spacing of the charger from this surface.