

## Why humidify?

For electronics...

Humidification and Evaporative Cooling

 **nortec**  
humidity.com

# Eliminate harmful electrostatic discharge with proper humidification.

Electronic devices, printed circuit boards, components and data are highly sensitive to electrostatic discharge. Correct humidity levels are essential to minimizing the damage caused by ESD.

## **What is ESD?**

Electrostatic discharge (ESD) is the sudden flow of electricity between two electrically charged objects caused by contact. The ESD occurs when differently-charged objects are brought close together or when the dielectric between them breaks down, sometimes creating a visible spark.

However, many ESD events occur without a visible or audible spark. A person carrying a relatively small electric charge may not feel a discharge that is sufficient to damage sensitive electronic components. These invisible forms of ESD can cause outright device failures, or may affect the long term reliability and performance of electronic devices. The effects of ESD on some electronics may not become evident until well into their product life.

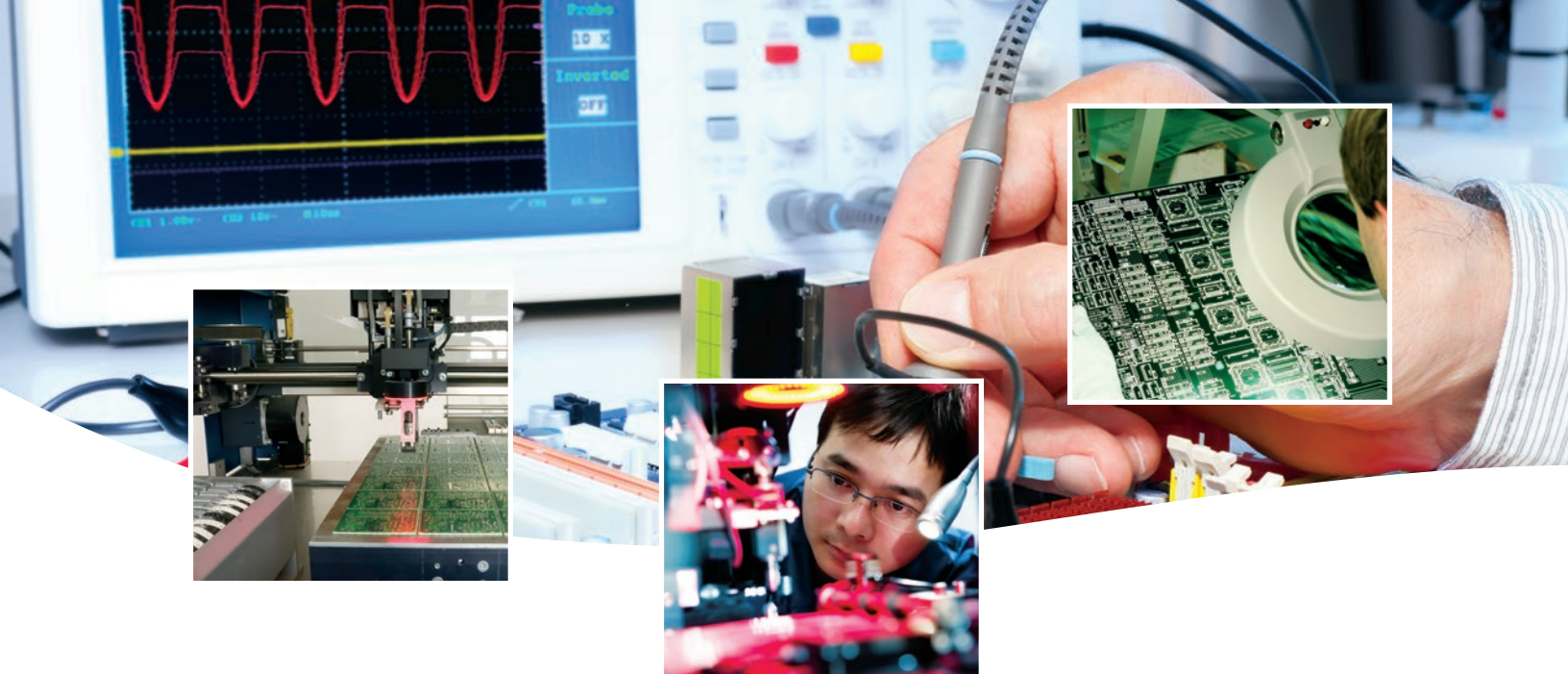
## **What causes ESD?**

### **Static Electricity**

One of the causes of ESD events is static electricity. Static electricity is often generated through tribocharging – the separation of electric charges that occurs when two materials are brought into contact and then separated. Examples of tribocharging include walking on a rug, rubbing a plastic comb against dry hair or rubbing a balloon against a sweater. The friction between two materials results in tribocharging, thus creating a difference of electrical potential that can lead to ESD.

### **Electrostatic Induction**

Another cause of ESD damage is through electrostatic induction. This occurs when an electrically charged object is placed near a conductive object isolated from ground. The presence of the charged object creates an electrostatic field that causes electrical charges on the surface of the other object to redistribute.



### How do you minimize ESD?

Most electronics manufacturers establish electrostatic protective areas free of static, using measures to:

- Prevent charging – by avoiding highly charging materials
- Remove static – by grounding human workers or providing antistatic devices
- Control humidity

### Humidity control – the ideal solution to eliminate ESD.

With a humidity level of 40% RH, surface resistance is lowered on floors, carpets, table mats and other areas. Humidifiers add moisture to the air, and the moisture in the air forms a thin protective “film” on surfaces that serves as a natural conductor to dissipate electric charges. When humidity drops below 40% RH, this protection disappears and normal employee activities lead to objects being charged with static electricity.

Having an overall program of static electricity reduction, helps to:

- Increase productivity
- Decrease waste from damaged components
- Improves indoor air quality for both manufacturing and employee health

# Solutions for the electronics industry.

Nortec manufactures a comprehensive range of humidifier and evaporative cooling systems across all humidification technologies. Whether you manufacture or store electronics, Nortec's humidification engineers are able to provide the right solution for every environment.

“Our Nortec humidification system has lived up to all our expectations. Now, we rarely think about dry air and static electricity. There really aren't issues anymore.”

– Paul Anders

Facilities and Operation Manager, Itron Inc.



**EL-Series** Electrode steam humidification



**LS-Series** Pressure steam humidification



**DR-Series** Direct Room humidification



**ME-Series** Media Evaporative cooling & humidification

As the leading manufacturer of commercial/industrial humidification systems for more than 40 years, Nortec has the technology and application expertise to meet the needs of any application.

**Contact us today and ensure you have the best humidification solution for your electronics facility.**

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