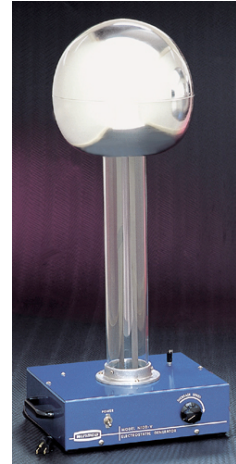


# Deluxe Van de Graaff Generator

P6-3300 and P6-3500



## UNPACKING AND INSPECTION:

After unpacking the unit, immediately inspect for damage that may have occurred during transit. If any damage is noted, file a claim at once with the carrier or call the dealer from whom the unit was purchased. Save all of the packing materials so that the carrier's claim representative can inspect them. Be sure to retain the shipping carton, the inside pillows and the corner braces. These will be of great help in properly storing the machine or when it must be transported. Always load and unload the unit from the bottom of the carton, using the handles on the cabinet base. Never lift the machine by the column or the dome.

## NORMAL OPERATION:

When two dissimilar materials in contact are separated, there may be a preferential transfer of electrons from one to the other, leaving each with a charge. With a Van de Graaff, this occurs when the rotating belt separates from the lower felt-covered pulley and starts up toward the dome. The charge remains relatively stationary on the belt, and when it reaches the upper pulley, that pulley begins to acquire a charge. When that charge is sufficient, there will be an electron flow across the air gap to the upper brush electrode and thence out to the surface of the dome.

## FIRST USE:

As received, your Van de Graaff is ready for use. In a very small number of instances, the Generator may not initially perform to your expectations. This will almost always be the result of its most recent temperature cycling experience. If the unit is unpacked in a nice warm building after a number of hours in a cold delivery truck, there will be immediate moisture condensation on the belt and pulleys and no or very little charge may result. If, for any reason, your new Van de Graaff fails to perform, send an email to [mail@arborsci.com](mailto:mail@arborsci.com). Include your name, phone number and the best time to call. A technical representative will contact you with help to get back up and running.

## TROUBLESHOOTING:

When you do not get any charging action, there are a number of possible causes.

**Humidity:** One of the first hurdles to get past is the present level of humidity and its effect on the belt and the lower pulley. The felt will absorb moisture over time and may need to be dried with an ordinary hair dryer. To do this, remove the base of the cabinet and lay the machine on its side. Remove the belt from the lower pulley and blow on the felt for 15 to 20 minutes. Be careful not to overheat.

**Aged Belt:** If the belt is old (more than 1 year), it may be oxidized on the surface and needs to be replaced. Use a newly manufactured belt, not one that has been sitting on the shelf in its package for several years.

**Moist Belt:** If the belt is not old, it may have a small amount of moisture on its surface or absorbed into the light coating of talcum powder. It can often be revived by putting a small amount of fresh talcum powder in a plastic bag along with the belt. Shake it up for a minute or so to get it completely coated. Remove the belt and wipe it off with a clean, dry paper towel.

**Brush Positioning:** Finally, check the positioning of the upper and lower brushes. Both should be positioned with points or ends of the wires pointing directly at the belt (perpendicularly), leaving an air gap of about 4-5mm. Putting them closer does not improve performance – it only increases the chance of snagging the belt or scratching a pulley. In normal operation, the pulleys should last many years. If, however, the felt has worn away on the lower pulley or the coating on the upper pulley is embedded with grime and rubber particles, they should be replaced.

## FOR MORE INFORMATION:

To learn more about the operation and care of the Van de Graaff, visit [arborsci.com/van-de-graaff-generators](http://arborsci.com/van-de-graaff-generators)

## RELATED PRODUCTS:

**Discharge Electrode (P6-3310).** Comes with 90cm flexible grounding lead and solid connections.

**Volta's Hail Storm (P6-3320).** Place small bits of aluminum foil or vermiculite in the cylinder, bring it near the generator, and watch the particles bounce up and down.

**Replacement Belt (P6-3300-1).** For Deluxe Van de Graaff Generator (P6-3300 and P6-3500).

