

VAN de GRAAF - attachments

Cat: EM4144-001 set of 7 attachments.

ATTACHMENTS FOR THE 'VAN de GRAAF' GENERATOR:

- PA4145-001 Head of hair with 4 mm plug for connection to the socket in the top of the Van De Graaf sphere.
- PA4146-001 Neon lamp in acrylic tube with metal ends.
- PA4147-001 Faraday pail with 4mm plug for connection to the socket in the top of the Van De Graaf sphere.
- PA4148-001 Insulating rod with suspended conducting particle.
- PA4149-001 Needle point discharger for connection to the socket in the top of the Van De Graaf sphere. Also used for the pivot for rotary discharge whirl.
- PA4150-001 Rotary discharge whirl.
- PA4151-001 Insulated cylinder with conductive vibrating particles with 4mm plug for connection to the socket in the top of the Van De Graaf sphere.

EM4144-001 (set of 7x Van De Graaf attachments)



Physical size: box: 200x70x65mm LxWxH

Weight: 0.19 kg

**USES FOR THE ATTACHMENTS:**

The Faraday pail plugs into the 4mm socket in the top of the dome. The acrylic rod plugs on to the stem inside the pail so that the thread and metallised particle may be hung either inside or outside the pail. Run the generator until charged and stop the generator for this experiment.

When the particle is hanging inside the pail, its behaviour proves that no charge resides on the inside surface of the pail. When the particle is hanging outside, it is obvious that the charge resides on the outer surface of a conductor.

The needle point discharger plugs into the top of the dome with the needle pointing upwards. In the dark, a discharge can be seen from the sharp point. Current flowing from the needle point can be measured and it is found also that the dome cannot produce a large spark because the dome cannot rise to a very high in voltage if a sharp point is attached to the dome.

The electrostatic whirler can be placed on the point discharger so that it will pivot. The whirler has a small socket pressed into it so that it can be carefully placed on to the needle point. When a charge is generated, the reaction of the discharge 'spraying' from the two tips of the whirler causes the whirler to rotate. Observe this also in the dark.

The 'head of hair' plugs into the top of the dome to demonstrate the effect of electrostatic charge on fine filaments.

The 'vibrating particles' unit may be plugged into the top of the dome. When the Van De Graaf is running, the particles are firstly charged by the bottom plate which is connected to the dome and they rise away from the dome due to the 'repulsion of like charges'. When they reach the top plate, they discharge themselves to the surrounding atmosphere or to earth and are then attracted violently back to the charged dome because 'unlike charges attract'. The particles rapidly vibrate up and down due to the constant reversal of charge at the top and bottom of their container.

The point discharger may be inverted so that the blunt end protrudes from the dome. Place the acrylic rod on the dome by inserting the blunt pin protruding from the dome into the hole drilled across the diameter of the acrylic rod at one end.

The thread should support the particle at about the diametral point of the dome. Motion of the particle may be examined as the generator charges. The slot at the end of the rod is the normal attachment point but the thread may be attached at any place along the acrylic rod.

One end of the neon lamp holder may be brought close to the dome whilst holding the other end in the hand. Be sure the hand is touching the metal plug at the end of the holder. The current flowing from the dome to the lamp holder, through your body and then to earth is sufficient to make the neon lamp glow. *This current is so small, it cannot be felt by the body.*

Designed and manufactured in Australia