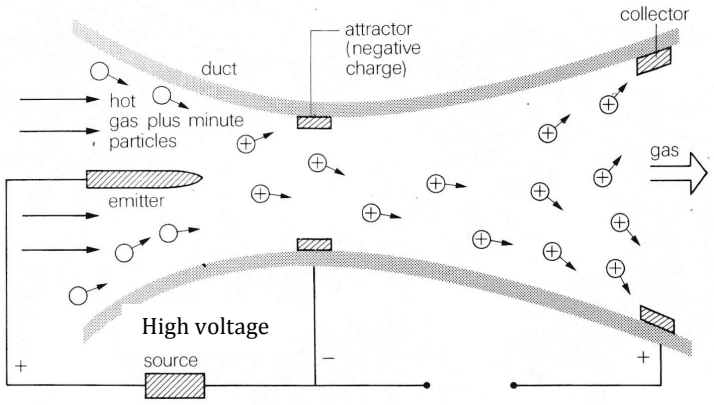

The device used in this technique is known as an EFD (electro-fluid dynamic) generator, which consists of a duct with an electrically-charged emitter, attractor and collector. Hot gas under pressure enters the duct at the emitter end. The gas contains minute (very small) particles of dust which collect electric charges as the gas carries them past the emitter. In this example, the charges are positive, and so the attractor electrode must be made negative. This polarity is determined by the connection of a high voltage across these two electrodes. If the charged particles were not carried along at high speed by the force of the gas, they would all be drawn towards the attractor. However, because of their forward velocity most of them pass this electrode and reach the collector, where they give up their charges to the external circuit. This transfer of electric charges to the external circuit results in a flow of current in that circuit. Current is therefore generated as a result of this process.

Although most of the particles are not collected by the attractor, they are attracted by this negative voltage, and some are repelled by the positive voltage of the collector. This positive charge is due to the positive charges of the particles which have reached it. This results in an electric field being set up in the duct between the collector and the emitter which tends to push the particles back *against* the flow of the gas. The gas must therefore do work in order to overcome this electrostatic force. As a result it loses both heat and speed, and this loss of energy is converted into electrical energy at the output terminals in the form of an electric current.

A small fraction of this output current is used to provide the high voltage source across the emitter and attractor, unless this source is supplied separately.