

How It Works

Kleentek electrostatic oil conditioners (EOC) are dedicated oil purification/oil varnish removal systems designed for installation on hydraulic and lubricating equipment. Through a kidney-loop process, the EOC draws oil from a main reservoir and circulates it at a low velocity.

Kleentek electrostatic oil conditioners do not charge particles or the oil, but instead use a vertically positioned electrode to produce a high potential electrostatic field between itself and a ground surface within the system's pleated cellulose collector element. As oil passes upward through this patented electrostatic filter element and parallel to the electrode and ground surfaces, suspended contaminants as small as sub-micron are forced by the voltage field against the collector media and removed from the oil.

As fluid flows freely through the oil purification system, Kleentek removes contaminants, submicron particles, dust, dirt and products of oil oxidation, including tars and varnishes. These contaminants are trapped in the collector for easy disposal.

Electrostatics

Kleentek electrostatic oil conditioners use the principles of electrostatics (branch of physics that deals with forces exerted by a static or unchanging electric field upon charged objects) for particle and oil varnish removal, as well as oil purification via **electrophoresis** (removal of naturally charged particles by electrostatic force) and **dielectrophoresis** (removal of a charge-neutral particle by gradient voltage field force).

A particle with a positive charge is drawn toward a negative electrode within the system, while one with an inherent negative charge is drawn toward a grounded plate. A charge-neutral particle that either is already highly polar in nature, or is polarized by the non-uniform voltage field of the collector is drawn toward the area of the greatest field strength (folds of the collector pleats).

And, unlike mechanical oil filter systems, Kleentek electrostatic oil conditioners are equally effective at removing soft or hard particles.

