

AIR & GAS DRYERS • OIL DEGASIFICATION EQUIPMENT • LUBRICATION SYSTEMS • VACUUM OIL PURIFIERS

MOBILE OIL FILTER CARTS • SF<sub>6</sub> GAS SERVICING EQUIPMENT

BATCH WASTEWATER TREATMENT SYSTEMS • CENTRAL COOLANT RECYCLING SYSTEMS • TRAMPOIL SEPARATORS • OZO-BAC BACTERIA CONTROL SYSTEMS

### HIGH VACUUM DEGASIFICATION - Model E865A

ENERVAC's High Vacuum Process is used for the dehydration and degasification of electrical insulating liquids including transformer oils, polybutene and silicone fluids to increase and maintain their dielectric strength. The processing includes the removal of free and soluble water, dissolved air and gases and particulate matter.

The most important applications of high vacuum degasifiers are in the field of extra high voltage transmission and in the manufacture of electrical apparatus. In addition, the high vacuum process is used in the degasification of cable oils including polybutene. Outside of the electrical industry, this process is used for electronic and radar equipment, vacuum pump sealing oils, brake fluids and refrigeration oils - including phosphate esters and silicones.

Mobile and stationary units are available in sizes 50 to 6000 GPH.



### SF<sub>6</sub> GAS RECOVERY UNIT - Model GRU-4

ENERVAC's latest SF<sub>6</sub> Gas Recovery Unit incorporates a new and improved high pressure, totally oil-less compressor capable of 1000 psig of pressure. This new technology allows for liquefaction of SF<sub>6</sub> gas even in the warmer climates typical of the southern United States.

The cart is ideally suited for servicing small volume SF<sub>6</sub> equipment. All processes required for servicing SF<sub>6</sub> equipment can be performed such as gas removal, temporary storage, contaminant filtration to 0.1 microns, gas purification and drying, equipment evacuation, and equipment re-pressurization. The cart is also ideally suited for consolidating partially used SF<sub>6</sub> bottles into one bottle.



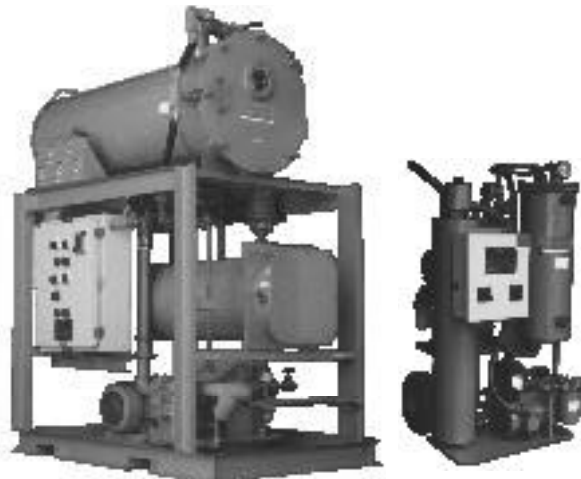
### VACUUM OIL DEHYDRATORS - Model E859A

#### Reclaim Oils with ENERVAC Vacuum Process

One of the most frequently encountered contaminants in oil is water. Water is detrimental to the performance and life of oil.

In view of their high disposal cost, the extension of the service life of oils is of great importance. The ENERVAC Vacuum Dehydrator, in sizes ranging from 30 GPH to 1800 GPH, uses a vacuum process and ENERVAC's exclusive accelerator elements to remove water, light hydrocarbons and solid contaminants and has successfully been performing services in many applications such as:

- Lubricating oils
- Hydraulic oils
- Turbine oils
- Compressor seal oils
- Cutting and cooling mineral oils
- Synthetic fluids
- Insulating fluids
- Quenching oils



## INDUSTRIAL OIL HEATERS - Model E873A

### Electric Heating Low Watt Density

ENERVAC specializes in the design and manufacture of low watt density electric heating for industrial oils. We manufacture our own ASME coded heat exchangers and our own CSA/UL approved heating elements.

The ENERVAC Model E873A Oil Heater System assures less than 12 watts per square inch UNIFORM low watt density oil heating. The electric heating coils are mounted inside heating tubes. The coils heat the air in the tube which uniformly heats the tube walls.

The heating coils do not come in direct contact with the oils, eliminating the natural hot spots in resistance heaters and preventing any burning of oil. Isolating the heating element from the oil permits service removal without disturbing the oil process.

Present us with your oil heating problems, no matter how unique, and our staff of experienced professionals will be pleased to make recommendations.



## MOBILE OIL FILTER CART - Model E858M

The ENERVAC Mobile Oil Filter Cart is ideal for extending oil life by the removal of moisture, particulate and carbon from dielectric fluids and oils used in Transformers, Circuit Breakers, Voltage Regulators and Switch Gear. The cart is completely mobile and certified for highway travel. The Mobile Oil Filter Cart can be used to retrieve the fluid, flush and refill the breakers. Operator friendliness and ease of maintenance is designed into each cart. Save on the disposal cost of carbon contaminated oil by restoring it with ENERVAC's Mobile Oil Filter Cart. Available in several sizes and special designs to suit your application.

- Robust compact design
- Year round operation
- Suitable for highway travel
- ASME registered filter cases
- Can be supplied with one or two storage tanks
- Flow rate up to 60 USGPM
- Filtration to  $\frac{1}{2}$  micron
- Removes free water
- Self contained - includes necessary oil hoses and power cable
- Positive displacement pumps
- All welded piping
- Single operator operation



## TAP CHANGER FILTER SYSTEM - Model TFS-2

### Oil Filtration On-Line

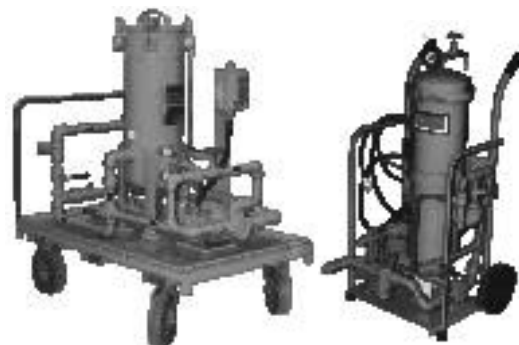
ENERVAC developed the On-line Tap Changer Filter System (TFS-2) to reduce the carbon, water and metallic particles in Tap Changers. These contaminants are produced by arcing contacts during the transfer of loads from tap-to-tap in the tap changer compartment. By using this system, operation and maintenance costs are reduced and the system's reliability is improved. Load Tap Changer problems can be effectively reduced with the use of ENERVAC's On-line oil filtration system.



## PORTABLE FILTER CART - Models EPF & EFP

The ENERVAC Pumping and Filtering Modules are completely packaged, compact units for Liquid Filtration. They are available in a variety of sizes and flow rates, stationary or portable. The ENERVAC pumping and filtering modules provide a most complete and widely applicable line of portable and stationary filter units embodying striking economy, uniformity and interchangeability of filter media.

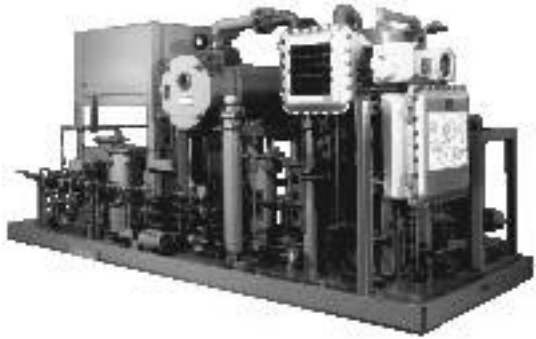
Lubricating, hydraulic, quench and insulating oils are maintained to ISO cleanliness standards through the removal of dirt, sludge, carbon and metallic particles as well as water, gums, tars, resin and asphaltenes.



## VACUUM PURIFICATION SYSTEM - Model E865S

### Seal Oil Purifiers

The ENERVAC Seal Oil Purifier can effectively remove dissolved and adsorbed gases including hydrogen sulfide, which is detrimental in even trace quantities. Lighter fraction hydrocarbons are driven out returning the oil to its original viscosity. Water is always a major contaminant, particularly in combination with other components, such as ammonia and carbon dioxide. When present in synthetic lubricants, the vacuum process removes water easily to low levels below saturation point. The Seal Oil Purifier provides mechanical separation of particulate matter down to the sub-micronic range. The removal of the above prevents oxidation from taking place and assures the acid number remains within acceptable levels.



## TURBINE OIL PURIFICATION SYSTEM - Model E859T

It is generally recognized that water is an enemy of turbine lubricating oils. Water in oils impairs its lubricating properties and increases the rate of oxidation, develops sludge formation and causes costly corrosion to equipment. Modern high quality oils, designed to meet severe requirements imposed on them by turbine lubrication, are more inclined to form emulsions. At the same time, their performance depends on numerous additives which are easily dissolved in, or damaged by water. Since it is often impossible to prevent water from entering the lubricating system, it is extremely important to remove it from the oil before it causes permanent damage. The ENERVAC Turbine Oil Purifiers address all these areas of concern. This system dehydrates, filters, de-aerates and purifies the turbine oil - maintaining its lubricating properties as close to original specifications as is possible.



## TURBINE OIL PURIFIER - Model E855T

### Coalescing Principle

The ENERVAC Model E855T is ideal for extending turbine oil life by removing free moisture and particulates. Skid-mounted and self-contained, the unit is designed for unattended operation. Removes free and emulsified water to 150 ppm and restores oil to ISO 14/11 cleanliness. Flow rates up to 100 GPM are available. ASME coded filter vessels are an ENERVAC standard. The unit features little maintenance, ease of operation, low operating cost and quick, easy installation. The benefits of this system are numerous:

- Longer Turbine Life
- Reduced Bearing Failures
- Reduced Power Outages
- Reduction in Turbine Overhauls
- Precise Hydraulic Valve Operation
- Quicker Oil Flush Cycles



## WASTE OIL RECOVERY - Model E859W

### In-plant Reclamation System

The ENERVAC Waste Oil Recovery Systems provide all the necessary components to properly reclaim and purify oil by removing all types of contaminants which are formed or introduced into the oils, maintaining new oil specifications. Contact your nearest ENERVAC Representative or contact ENERVAC direct. Discuss your problems with our Engineers, submit samples and let us make recommendations for a system to meet your particular needs. You could substantially lower your operating cost while helping with the environmental problem.

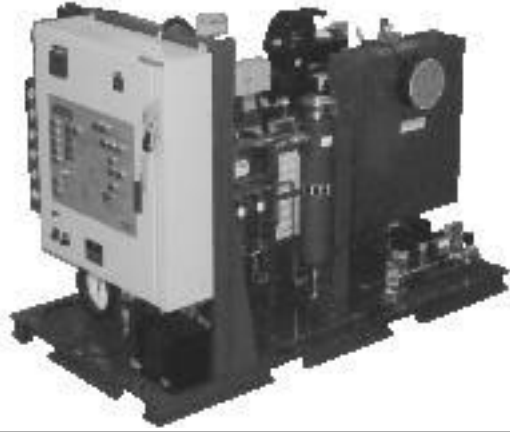


## SF<sub>6</sub> GAS SERVICING CART - Model E736A

The ENERVAC SF<sub>6</sub> Gas Servicing Cart is designed for the processing of Sulfur Hexafluoride used in high voltage metal clad switch gear, bus ducts, accelerators, circuit breakers and transformers that are charged during normal operation with SF<sub>6</sub> gas as a dielectric. The Cart will perform the following functions;

- 1) Removal of SF<sub>6</sub> gas from equipment, liquefaction and storage of the gas in the cart's storage tank.
- 2) The Servicing Cart evacuates the serviced equipment for dry out prior to re-charging.
- 3) Re-evaporating SF<sub>6</sub> gas and refilling evacuated equipment.
- 4) Purification of SF<sub>6</sub> gas by absorption and removal of decomposition products and moisture.

All functions can either be fully automatic, controlled by a programmable controller or manual.



## SF<sub>6</sub> GAS STORAGE TANK - Model E736T

Various sizes of liquid SF<sub>6</sub> storage tanks are available. ENERVAC's stationary or mobile Gas Storage Tanks are designed, fabricated and registered to the ASME code. Standard features include: Liquid level gauge, ASME relief valve, pressure gauge, temperature gauge, tank inspection flange, inlet and outlet valves. Mobile tanks are mounted on 12" casters with a tow bar.

- Sizes available from 300 to 4000 lbs.
- Epoxy coated internals to prevent corrosion
- Ideal storage vessel for consolidating partially used SF<sub>6</sub> bottles



## SF<sub>6</sub> GAS RECOVERY UNIT - Model GRU-6

The ENERVAC SF<sub>6</sub> Gas Recovery Unit GRU-6 is ideal for medium sized breakers. It has available on board 345 lbs. storage capacity. The GRU-6 will perform all of the functions necessary for servicing a breaker. The unit is designed with latest oil-less compressor technology, capable of producing pressure up to 1000 psig. The GRU-6 will recover 99.6% of the gas from a breaker. One switch - One valve operation makes it easy to operate.



## SF<sub>6</sub> GAS ACCESSORIES

ENERVAC's SF<sub>6</sub> Gas Leak Detector will detect leaks as small as 0.25 oz./yr. This compact, lightweight unit features rechargeable power cells and automatic background zeroing.

ENERVAC's Aerotest Light SF<sub>6</sub> Gas By-Product Detector will check the quality of SF<sub>6</sub> by measuring moisture and Sulfur Dioxide content. The unit allows for quick, accurate readings.



## HEAT REACTIVATED DRYER - Model E2DA-2E

ENERVAC's Type 2E Dryers consist of two identical pressure chambers filled with desiccant and an external heater for continuous removal of water vapour from compressed air or gases to  $-40^{\circ}\text{F}$  dew point or lower. They are capable of processing gas from 0-100% of the design inlet flow rate without adjustment.

Continuity in the drying process is achieved by switching from one chamber to the other. While one chamber is used for drying, the other will be reactivated by a heating and cooling period with a small dry air purge flow to assure total regeneration.



## HEAT REACTIVATED DRYER - Model E2DB-3E

### Atmospheric Blower Type

ENERVAC's Type 3E Dryers consist of two desiccant towers designed to maintain a continuous dry flow,  $-40^{\circ}\text{F}$  dew point or lower are capable of processing gas from 0-100% of the design inlet flow rate without adjustment.

Regeneration of the saturated bed is accomplished by circulating regeneration air by means of a blower through an external heater, then through the desiccant bed, on through a purge exhaust valve, where moisture is ejected to atmosphere. At the end of the heating cycles, a small purge of dry air is utilized to cool the bed down sufficiently before the next switch over. Cooling flow is in the opposite direction to heating, giving the most efficient cool down.

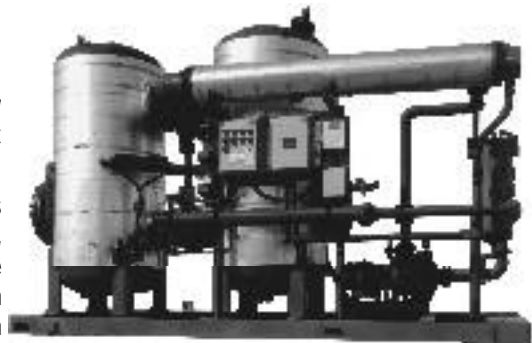


## HEAT REACTIVATED CLOSED LOOP DRYER - Model ED2A-5E

### Zero Purge Loss

ENERVAC's Type 5E Dryers consist of two desiccant towers designed to maintain a continuous dry flow,  $-40^{\circ}\text{F}$  dew point or lower. They are capable of processing gas from 0-100% of the design inlet flow rate without adjustment and will regenerate at pressure without loss of process gas.

Heating and cooling of the saturated bed is accomplished by recirculating the regeneration gas volume in a closed circuit by means of a centrifugal blower. The gas flows into an external heater, then through the desiccant bed, followed by a cooler/separator, where moisture is ejected. The Type 5E Dryers employ the principle of heat pulse regeneration, utilizing complete breakthrough of both heating and cooling temperatures to assure total restoration of the desiccant prior to switch over.



## HEATLESS TYPE DRYER - Model E2DD-7H

ENERVAC's Heatless Dryer consists of two identical pressure chambers filled with desiccant for continuous removal of water vapour from compressed air or gases to  $-40^{\circ}\text{F}$  dew point or lower.

The dryer will perform at any inlet flow variation between 75 to 100% of design conditions without requiring adjustment.

Continuity in the drying process is achieved by switching from one chamber to the other; while one chamber is used for drying, the other will be reactivated by a small purge of dry air from effluent to assure total restoration.



## MOBILE BREATHING AIR SYSTEMS - Model E770B

The ENERVAC Transformer Breathing Air System is a mobile unit used to purge clean, dry air into a confined transformer while maintenance personnel carry out routine repairs. These systems also feature carbon monoxide removal and monitoring, providing breathable air at atmospheric pressure. It also includes an air dryer ensuring the absence of moisture inside the transformer. The system comes fully mobile and ready for hook up and operation.



## AIR AND GAS FILTERS - Models E868A - E869A - E950F

### Low Pressure and High Pressure, ASME Designs

ENERVAC's Air and Gas Filter Separator, coalescer type of dryer pre filter, designed for 99.7% separation efficiency. Removes fine oil mist, water and dirt from air and gases.

ENERVAC's Air and Gas Filter or Dryer after-filter, designed for high efficiency removal of dirt or desiccant fines from compressed air or gases.

ENERVAC's 1400 psig, stainless steel filter features CRN number, high flow rates and no tools required for filter element change out.



## INDUSTRIAL FILTERS - Model E858A

The ENERVAC Model E858A Filter is ASME code designed and labelled for 150 psi operating pressure. The all-steel case has multiple spindles to accommodate a wide variety and number of interchangeable elements, absorptive, adsorptive and mechanical type. The selection of the proper element for specific application depends upon the customer's micronic selectivity and flow requirements.

- Rolling oils
- Turbine oils
- Engine oils
- Quench oils
- Insulating oils
- Hydraulic oils
- Full flow lube oil
- Aviation fuels
- Diesel fuels
- Fuel oils



## REPLACEMENT ELEMENTS

ENERVAC offers one of the most complete lines of filtration replacement media available to industry today.

ENERVAC performance rated filtration-elements for contamination removal by absorption, adsorption, coalescing, separating, mechanical filtration of air, gas, oils, fuels, water and fluids in general.

- Pleated
- Depth
- Disc-pac
- Roll tube
- Fuller's earth
- Carbon
- Coalescer
- Separator

Elements are made from the highest quality materials, carefully manufactured, inspected and backed by a full warranty.

ENERVAC has an element just right for your application.



## LUBRICATION EQUIPMENT - Model E831B

### Circulating Oil Systems

Adapted and ideally suited where it is desirable to provide a complete lubricating system for individual mill stands or drives and for the lubrication of light-duty equipment or wherever a smaller capacity system is desired.

Extensively used in many fields, including the paper, rubber, textile, machine tool, metal rolling, blower, fan, and associated industries.



## LUBRICATION EQUIPMENT - Model E829A

### Centralized Oil Circulating Lubrication System

Lubrication equipment for heavy industry. Gravity or Pressure types. ENERVAC's Filtration & Oil-Circulating Systems assure:

1. Dependable lubrication of vital bearings.
2. Lower maintenance and replacement expenses.
3. Longer life for lubricated machinery.

ENERVAC's Self-contained Lubricating Units are exactly what the name implies - a complete oil circulating and filtering system with all the essential equipment compactly assembled as a unit. They incorporate the knowledge gained with more than forty years of experience in designing and building equipment to lubricate the wheels of industry.



## LUBRICATION EQUIPMENT - Model E818A

### Pressure Oiler

The ENERVAC Model E818A Pressure Feed Oilers provide precise control plus visual indication of the quantity of oil being fed under pressure to a lubrication point. The oiler design permits installation in any convenient location, close to, or remote from the lubrication point. Up to four oilers may be manifolded together and any number of these groups centrally located. This is particularly advantageous for equipment having many points of lubrication, as the operator can observe and control the flow from a central control point to remote or inaccessible lubrication points through discharge tubing from the pressure feed oiler.



## CENTRAL COOLANT RECYCLING SYSTEMS - Model E940A

An economical, simple solution to the high cost of maintaining water based metal-working fluids. The operator simply pumps the contaminated coolant from the sump and allows the Coolant Recovery System (CRS) to automatically produce clarified and concentration adjusted coolant for reuse.

Our CRS (E940A) in combination with a sump cleaner/filter, is a COOLANT RECYCLING SYSTEM for a plant with various machine tools and is installed as a central processing facility. The CRS E940A is a complete turnkey system, designed for easy installation, start-up and maintenance.



## TRAMPOIL SEPARATORS - Model E910A

A cost effective way to extend the life of metal working fluids and wash-waters by removing free floating, dispersed and loosely emulsified tramp oils from coolant reservoirs or parts washers.

The ENERVAC Trampoil Separator is designed for efficiency and versatility. Both portable and stationary units can be placed on individual machine sumps or on small central reservoirs to remove tramp oils and suspended solids.

Typical applications include coolant and wash-waters in the metalworking industry, such as machining, roll forming, stamping, drawing and parts washing.



## FULLER'S EARTH FILTER - Model E575A

### Fuller's Earth Treatment Adsorption Columns

ENERVAC's Fuller's Earth systems are specifically engineered to remove soluble contaminants such as acids, waxes, gums, resins, asphaltenes, sludges, carbon residues and colloidal particles from lubricating, hydraulic, seal, quench and insulating oils.

Surfactants, resins, traces of free water and by-products of oxidation can also be effectively removed from aviation, automotive and diesel fuels.

Stationary and mobile units available with electrically actuated covers. Columns are designed to ASME code.



## HIGH PRESSURE AIR DRYER - Model E2DC

ENERVAC's Model E2DC High Pressure Dryer is specially designed to meet today's stringent dry air requirements for air blast circuit breakers. Design pressure up to 3600 psig, moisture content less than 5 ppmv. Available in all stainless steel construction. PLC controlled dryers will provide quality air with trouble free operation.

- Differential Pressure Gauges for Filters
- ASME Safety Relief Valves
- Available Operator Interface Terminal
- ASME coded S.S. Filters
- Two Stage Pre-Filter Drain System
- Spring Loaded Desiccant Beds



Representative:

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