Total Filtration Solutions for the Power Generation Industry

## CLARCOR

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### CLARCOR is positioned to meet your Total Filtration and service needs.















**CLARCOR** is a global provider of filtration products and services for the power generation industry. We offer the industry's broadest product range with more than 80,000 filter types, superb product quality, leading brands, extensive distribution network and technical expertise to serve customers worldwide.

**CLARCOR** provides Total Filtration from a single source by bringing together the products, experience and expertise of our companies to meet all your power generation filtration needs. This collaboration insures that customers receive the best filtration and on-time delivery directly to each business location—to protect people, equipment and the environment.

Power Generation Solutions

**CLARCOR** companies offer the most extensive breadth of filtration products, technologies and services to meet current and future power industry requirements. Our customers, worldwide, depend on CLARCOR filtration products to fuel their future—whether they generate power from fossil fuels, nuclear, steam, gas, wind or other sources.

**CLARCOR** companies provide unparalleled customer value with filtration solutions for water, fuels, lubricants, oils and gases in every stage of the power cycle. We optimize equipment reliability, efficiency and power output to reduce equipment downtime and unplanned power outages.

Total Filtration Services, or TFS, offers products and services designed to maximize your profitability by managing all costs associated with filtration. The greatest value is created by managing filter selection and usage to minimize the total cost of ownership.



#### TurboPulse GT

#### **TurboPulse GT**

Clark Filter's TurboPulse GT cartridges are crafted to meet and exceed OEM specification for efficiencies, construction and

operation. Available in cylindrical and conical configurations, these cartridge filters are designed for self-cleaning pulse-jet systems and or non-pulsing barrier systems. The blended media provides high strength and durability to ensure efficiency in the harshest environments.

#### **Quality Construction**

- Finished metal component surfaces ensure resistance to caustic and harsh abrasive outdoor conditions.
- Expanded inner and outer retainers are 72% open to provide significant structural integrity while minimizing restriction of air flow.





Clark Filter premium inlet air cartridges keep systems operating at optimum levels by preventing outdoor elements, including dust, pollen, sand and salt from entering the internal areas of gas turbines. Designed to fit most manufacturers' intake systems, these high-quality panel and cartridge filters prevent fouling, particle fusion and corrosion.

- Galvanized end caps prevent oxidation in normal conditions as well as resist deterioration in severe environments. Optional materials, such as stainless steel, are also available.
- Polyisoprene, neoprene and silicone gaskets are available as necessary to meet application requirements.

#### **Excellent Customer Service**

Clark Filter offers exceptional customer service from factory-trained technical sales representatives. These filter experts can assist you in selecting the right cartridges for your application. And, our extensive inventory of filters will ensure timely delivery on all your shipments. Airguard offers barrier filters for self-cleaning and non-pulsing cartridge systems. These products fit into most turbomachinery air intake units, including gas turbines, compressors, turbocharged engines, fans and blowers. Airguard's performance proven filtration products prevent fouling and erosion of turbine blades and maintain like-new operating efficiency.

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#### Vari+Plus® VP

Vari+Plus® VP

Vari+Plus VP is a high-efficiency intake barrier filter engineered to optimize turbomachinery equipment performance. Offering low resistance and long service, Vari+Plus VP filters feature Dura-Tuff<sup>™</sup>. This durable, 100% synthetic media is more resistant to tears, abrasion and other damage than traditional fiberglass media.

Lightweight and resistant to moisture and chemicals, this unique filter is manufactured with all plastic components—and no rivets, screws, faceguards or cross bars. Vari+Plus also features a dual layer, depth loading design and high dust holding capacity, which can be enhanced with the use of a frameless, space-saving pre-filter. And best of all, these filters are incinerateable, which simplifies disposal.

#### Vari+Plus GT and Duraflow



Duraflow

Vari+Plus GT and Duraflow filters are engineered to provide rated efficiency and maintain structural integrity under the extreme operating conditions experienced by turbomachinery. Vari+Plus GT is a high efficiency, high

> capacity barrier filter with mini-pleat media pack construction. It has the lowest pressure drop of any high-efficiency barrier filter, and can save thousands of dollars in energy costs. Duraflow is also a high efficiency, heavy duty barrier filter, but features corrugated separator style media pack construction. Built tough for turbomachinery applications, Duraflow has 24-gauge galvanized steel construction with expanded metal faceguards on both sides and microglass paper media with corrugated aluminum separators.



Septa Tube

#### Poroplate® Filter Septa

Cleanable Poroplate Filter Septa are specifically designed for reactor resin retention elements and laterals, resin traps, reactor water cleanup (RWCU), deep bed condensate demineralizers, radwaste, condensate polishing and fuel pool applications.

Tailored to the specific operating conditions and requirements of your system, these septa and elements:

- Increase pre-coat run times.
- Upgrade protection to the reactor vessel internals and piping.
- Improve chemistry index value.
- Maximize use of ion exchange.
- Enhance backwash efficiency with no measurable resin bleed through.
- Optimize filter demineralizer (F/D) system performance with better water chemistry.

#### **EPIC<sup>™</sup> Melt-Blown Cartridges**

For condensate polishing and other water applications, Purolator Facet features EPIC Melt-Blown filters. Made of 100% polypropylene fibers on a high-strength polypropylene center core, these replacement cartridges provide consistent filtration with no leaching. EPIC filters can be used in most commercially available configurations to retrofit existing cartridges. And most important, these replacement filters meet all regulatory guidelines for use in potable water applications.

#### Will-Fit Lube Oil Elements

Purolator Facet offers a line of replacement elements for lube oil applications, as well as a convenient cross-reference to all major filter brands.

- Microfil<sup>®</sup> III filter media provide maximum dirt holding capacity for longer filter life and finer filtration.
- Micropleat <sup>®</sup> filter media are used as an economical pre-filter to minimize contaminant loading.
- Poromesh<sup>®</sup> stainless steel filter media offer corrosion resistance, higher operating temperatures and higher collapse ratings.

Purolator Facet offers filtration solutions for oil/natural gas power providers, hydroelectric facilities, gas turbines, coal power plants, power generator feed water generator feed water systems and dielectric oil filtration. We specialize in the design and manufacture of custom filters utilizing cleanable or disposable media to fit your company's requirements.



EPIC<sup>™</sup> Cartridges

#### Metaledge® Filters

For boiler feed water condensate and fuel and lube applications, Metaledge media filter the most viscous of fluids. These self-cleaning filters, commonly used in coal fire plants, dramatically reduce change-out costs.



**KLEENTEK**<sup>®</sup> Varnish Removal Systems

Kleentek varnish removal systems keep machinery running at maximum efficiency by continuously cleaning oil of contaminants and actually extending the life of lubricants. As machines run, a chemical process called oxidation occurs-forming tar, varnish and sludge. Varnish acts as a catalyst to shorten the life of the lubricant.



Products of oil oxidation coat hydraulic servo, proportional and cartridge valves which forces the friction in these valves to increase. This change in friction in these highly sensitive, close tolerance components can cause unwanted effects including:

- · Loss of control stability.
- Constant valve adjustment.
- Reduced machine performance.
- Erratic cycle times.
- Increased downtime.
- Slow start-ups.

#### Patented Electrostatic Technology

Unlike traditional oil filtration, Kleentek's patented electrostatic technology removes all insoluble contaminants, including degradation by-products that are responsible for varnish. Conventional filters remove only large particulates, but leave the smaller particles that are at the heart of varnish buildup problems.

So, "clean oil" is not really clean if varnish is still present in the system.

Kleentek electrostatic oil cleaners actually clean the internals of the system. This unique technology allows the ultra-clean lubricant to act as a system cleaner. Rather than depositing varnish over time, lubricants cleaned by a Kleentek unit have the opposite effect; with clean oil stripping away varnish one molecular layer at a time.

Avoid unplanned outages
Extend oil life
Eliminate costly system flushes
Extend seal and o-ring life
Improve heat exchanger performance







Hurricart Filters

#### Hurricane Pulse Filter Systems

CLARCOR UK manufactures the self-cleaning Hurricane air intake system to meet filtration requirements of gas turbines, diesel engines, electrical rotating machines and compressors. Constructed with heavy-duty steel, the modular Hurricane housing unit can be adapted to suit any airflow process for either combustion or ventilation purposes.

#### **Hurricart Filters**

High-efficiency, cylindrical Hurricart replacement cartridges fit into the Hurricane, as well as other name brand air intake systems. Available in several types of media, CLARCOR UK's Hurricart ensure:

• Long life due to rugged and reliable construction of the element.

- High efficiency due to small diameter of media fibers.
- Low pressure drop due to low air restriction resulting from high media air built up in the pleated filer pack.

#### Autoflo 2000 and LP Oil Bath

CLARCOR UK also offers heavy-duty oil baths and filters primarily for diesel engines. The Autoflo 2000 is a selfcleaning, steel housing unit consisting of a rotating curtain-type assembly and adhesive oil tank. Inside, woven mesh panel filters circulate in and out of oil, where they are cleaned by agitation. The LP Oil Bath uses a centrifugal process to clean intake air for engines, compressors and blowers. It functions with extremely low pressure loss and requires no external power for operation.

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#### **Gas Filtration and Separation Systems**

Facet International provides filtration systems for fuel used in gas turbines. These systems meet the most stringent technical operating and performance requirements of most turbine manufacturers and offer many cost effective design solutions. Equipped with state-of-the-art PLC control cabinets, these units are suitable for use in remote locations and extreme operating conditions.

#### **Distillate Fuel Filtration and Separation Systems**

Facet International also offers main duty and standby treatment plants. These systems are carefully designed using calculations specific to the physical properties of the distillate fuel and known contaminants to ensure performance quality.

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