FILTREX Corporation is dedicated to helping its industrial customers worldwide to ensure fluid purity in their products & processes.

Revolutionizing the filtration industry with new and innovative ideas, FILTREX Corporation is able to meet any fluid purification, separation or handling requirement.

THE FILTER MEDIA

The Driving Force of the FILTREX System is its Patented & Uniquely Shaped Filter Element that constitutes the FILTER MEDIA.

In the filtration technology it has always been the desire of the people involved in this industry to produce a filter media that is characterized and distinguished by a high open area ratio.

This parameter defines the ratio of a media’s pore area as a percentage of the media’s total surface area.

To this end, the Filtrex element design not only achieves a high open area ratio, but also a permanent media with a superior ability to self-clean in a matter of seconds.

The element, the Filtrex wafer, is an arcaded design thermoplastic wafer, with micro-grooves precisely etched on each of its arc surfaces.

It has integral element cavities which serve as fluid conduits and a center hexagonal cavity which is used to stack the elements in perfect alignment.

The micro-grooves follow a distribution pattern which allows for the maximum utilization of the element's surface area. The number of micro-grooves varies from one element rating to another.

For example, a 5-micron rated element will have over two thousand micro-grooves etched on its surface. The material of construction of the Filtrex wafer is as varied as the number of engineered injectable thermoplastics.
THE FILTREX CANDLES

The FILTREX Candles are the Columns which are formed by stacking the FILTREX Wafers on Top of Each Other.

The filter candles are the columns which are formed by stacking the Filterex wafers. The resulting "candle" assembly consists of the stacked Filterex wafers, the hexagon support core, upper support plate, lower compression plate, the seal plate, and the compression spring.

The Filterex wafer stacks are precisely arc-aligned by virtue of the hexagonal orientation between the wafer's center cavity and the hexagonal support core. Compression of the elements is achieved via a compression spring and the lower compression plate. The spring serves a dual function:

- To compress the wafers to full surface contact.
- To provide the flexibility which allows the separation of the wafers during the backwash/cleaning cycle.

Separation during backwash is achieved by hydraulic and mechanically applied forces. As the fluid flow reverses direction during cleaning, the resultant hydraulic force impacts the compression plate and causes greater spring compression, thus momentarily releasing the compression of the wafer stacks and causing their separation.

This action breaks up the created filter cake and dislodges any containment that will otherwise be extremely difficult to remove.

THE FILTREX SYSTEM

FILTREX Corporation Offers Filterex Systems which will Handle Flows Starting at a Fraction of a Gallon per Minute to Virtually Unlimited Upper Flow Rates.

Depending on the application, the Filterex candles are grouped into vessels, varying in number from a single candle to as many as several hundred.

Each Filterex candle is held in suspension from a support plate, referred to as a tube sheet.

The candle assemblies are lowered and secured in place into the filter vessels, usually consisting of an upper and lower chamber.

The "dirty" fluid enters the filter vessel from the lower chamber flowing radially across the filter elements, where filtration will occur.

The fluid will then be transported, via the element integral conduits, to the upper chamber, now as clean filtrate.

The upper chamber also functions as the self-contained reservoir where a residual volume of the clean fluid is used to backwash and clean the filter elements.
**Service Cycle - No Precoat**

Filtration requiring 5 microns or larger particle retention.

Dirty fluid will enter the lower filter vessel chamber, flowing radially across the filter elements.

It enters the micro-grooves at the outer diameter of the element arcs and exits through cavities which are integrally formed into the filter elements.

Contaminants are intercepted either directly or through bridging across the filter pores.

The clean fluid is transported through the cavities into the upper chamber and out to the service connections.

The service cycle will continue until a predetermined differential pressure across the filter is reached.

At this point the Backwash Cycle will be initiated.

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**Service Cycle - With Precoat**

For severe applications & filtration requirements below 5 microns.

Precleaning is accomplished by circulating a slurry of filter aid, such as diatomite, cellulose fibre or pearls, and filtered or clean liquid, between the filter and a precoat tank.

The filter aid particles create a coat over the filter candle. This coat now virtually becomes the filtering media, supported by the filter elements.

This action is greatly enhanced in the Filtrex units due to the unique support feature offered by the “ledges” created as a result of stacking the Filtrex units.

The precoat cycle time takes 3 to 4 minutes to complete and forms an evenly distributed cake along the length of the filter candle.

Various grades of precoat material are used to achieve the desired clarity and flow characteristics.

Precoat body feeds are normally injected during services in order to enhance the service cycle time.
The BACKWASH Cycle is the FILTREX System's Most Significant Feature Due to it's Extremely High Efficiency

**BACKWASH CYCLE**

When backwashing is initiated, the self-contained reservoir is pressurized, (usually by air or any other pressurizing media) to pressure ranges between 80 - 120 p.s.i.

The drain valve is quickly opened, causing the fluid in the filter vessel to flow in a reverse direction at extremely high velocities.

The kinetic energy force produced acts to impact the compression plate, which further compresses the spring causing the filter wafers to loosen and momentarily separate.

This action coupled with the vacuuming effect produced from the vessel emptying out in only a fraction of a second, cleans the candle elements and the vessel extremely efficiently.

The Backwash cycle takes less than 15 seconds to complete. If a rinse cycle is deemed necessary, an additional 15 seconds will be needed.

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The FILTREX Industrial Filtration Systems are Supplied with State-of-the-Art Electronic Control Packages

CONTROL PACKAGES normally consist of:
(a) Programmable Logic Controllers
(b) Actuated Precision Valves
(c) High-Visibility Display Panels
(d) Electronic Pressure Switches

Plus all the necessary components custom-tailored to the individual application to assure Consistent Product Quality & Reduced Operator Workload.

Operating information for Specific Applications is Programmed into the Controller Memory.

The Controller operates all system cycles, and sequences multiple filter operation which allows one or more filter vessels to be on-line at all times.
**APPLICATIONS**

Contamination of Lubricants & Coolants is the #1 Cause of Machinery Failure and Inferior Product Quality.

**HYDRAULIC LUBRICANTS & COOLANTS**

FILTREX provides the necessary state-of-the-art technology capable of delivering the ultimate in filtering efficiencies. This high standard of excellence is achieved with the absolute minimum of maintenance and negligible operator interface plus virtually no costly down time.

**PETROLEUM**

Meeting the ever growing demands of the petroleum industry, FILTREX applications include: amine feedstocks, reduced crudes, fuel & motor oils, injection fluids, synthetic lubricants and completion fluids.

**THE PAPER INDUSTRY**

FILTREX Corporation meets the exacting demands of the Paper Industry. Applications in this field include: intake water, coolant water, waste water, white water, green & black liquor, mill water, dyes, pump seal water, decker shower water, clay slurry and wet end additives.

**WASTE & WASTE WATER**

Typical FILTREX applications include bottled water, R.O. membrane protection, pond water, cooling tower water, gas & oil drilling make-up water, D.I. water, waste water, poultry wash water, bottling wash water and dairy wash water.

**FOOD & BEVERAGES**

FILTREX leads the way in the filtration processes of food & beverage production. Including: corn syrup, dextrose, cane, jelly, juices, edible oils, milk sugar, city & well water, extracts, chocolates, soybeans, and beer & wine production.

**PROCESS & CHEMICAL FLUIDS**

The FILTREX Systems have produced outstanding results with Processed & Chemical Fluids, such as resins, paints, photographic solutions, ink manufacture, adhesives, herbicides & pesticides, sodium sulphates, cellulose nitrate, sodium chlorides, sulphuric acid and many, many more.
THE FILTREX ADVANTAGE

By Combining Sophistication with Simplicity of Design, the FILTREX Systems Offer Answers to Many of the Filtration Problems of Today.

1. REDUCED OPERATIONAL COSTS - Savings are quite large in applications where high solid loadings & hazardous waste production is an issue.

2. REDUCED HAZARDOUS WASTE HANDLING & PRODUCTION - Throwaway media such as cartridges, paper and others, normally make up most of the hazardous waste volume; in some cases it exceeds 70% of total volume. In the Filtrex System the only hazardous waste is the contaminant itself.

3. MINIMUM OPERATOR INTERFACE - This reduces cost and exposure to hazardous material.

4. PERMANENT FILTER MEDIA - The system elements are normally manufactured from materials which are compatible with various chemicals and service conditions, excluding abnormal applications, the service life of the elements could be indefinite.

5. BACKWASH FLUID REQUIREMENTS ARE MINIMAL - If compared with the backwashing of a sand filter. The Filatrex System requires a small fraction of clean fluid for backwashing. Example, for a service flow of 1,000 g.p.m., the sand filter will need 45,000 gallons of clean water to backwash. The Filatrex unit will need only 250 gallons.

6. CUSTOM DESIGN & ENGINEERING - FILTREX will design and supply units to match the exact requirements of any particular application. Almost all systems are field tested and are configured for ease of integration with the end user's existing installations.

7. ALL FILTREX SYSTEMS ARE SKID MOUNTED & ready for connection with existing lines. Skids are available with optional equipment such as pumps, dewatering systems and other accessories needed to satisfy any particular service requirements.

PRODUCT SELECTION

The FILTREX Systems are Available in Several Sizes, Degrees of Filtration, System Control Options & Material of Construction.

Many factors are carefully considered when selecting the appropriate filter elements and housing. The following is a brief description of the most important factors.

1. Nature of Contaminant - It is important to determine exactly what the filter is required to remove, and whether this material is hard, fibrous or gelatinous. This determination will assist in selecting the correct filter media and backwash specifications.

2. Degree of Filtration - In general, the “finer” the filter medium, the more costly it is. Therefore, the most economical filter selection is accomplished by determining as exactly as possible what removal rating is required to meet the particular filtration application. The most effective way of determining the removal rating is by conducting field tests. As this is not always possible, the following guidelines will be helpful:
   - To protect nozzles or clearances against plugging, select a rating that is half of the diameter of the opening to be protected.
   - To remove visible particles, a 40 or 50 micron filter should be specified.
   - To produce optical clarity in a liquid, a 25 micron or finer rating is required.
   - To remove a haze from a liquid, a 10 micron or finer rating is required.

3. Compatibility to the Filter Media - In order to insure proper filtration and system integrity, the filter media must be compatible with the material to be filtered. Knowledge of the operating conditions, such as the temperature, maximum differential pressures and service pressure is also important.

4. Housing and System Material - Material of construction must be compatible with the process in which it is being used.

5. System Size - Flow requirements, dirt loading, viscosity of fluid being filtered and pressure drop requirements will determine the number of filter candles necessary, and thus the size of the housing and connecting pipes. Since Filatrex supplies custom made units, sizing is available on request.
SELECTING MODEL NUMBERS

(6) Selecting Model Numbers - Filtrex units are supplied in various sizes, type of materials & service configurations. The following is a breakdown of the Filtrex unit numbering system.

- **Number of Candles**: 36 - FMF - 10MR - SBP
- **Micron Rating**: 5MR - 5 Microns, 10MR - 10 Microns, 20MR - 20 Microns, 40MR - 40 Microns
- **Construction Material**: S - 304 Stainless Steel, SS - 316 Stainless Steel, C - Carbon Steel, P - F.R.P.
- **"O" Ring Material**: B - Buna-N, E - E.P.D.M., V - Viton, T - Teflon
- **Filter Media Material**: P - Polypropylene, N - Nylon, P.E. - Polyethylene, G.F. - Glass Filled, Other

OTHER FILTREX PRODUCTS

Filtrex designs and manufactures as per specific applications the following products:

- Large capacity conventional filter housing ASME code design in vertical and horizontal configurations.
- Large capacity, automatic backwash wedgewire strainers, capacities up to 30,000 G.P.M. and rating 25 micron and up.

Information will be sent on request.

FILTREX - THE FUTURE OF INDUSTRIAL FLUID FILTRATION

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