

Anti-Static Filter Element



Static discharge is a common problem in the lubricating oil systems of today's turbo-machinery. While the static is most often observed in the areas of the lube system with nonconductive components such as the filter vessel, the root cause of the static problem is the low fluid conductivity of the lubricant itself.

Hilco has recently developed a filter cartridge that actually improves and maintains the lubricating oil's conductivity for extended periods of time and eliminates the static discharge problem. Filter cartridges are offered in commercial sizes 310, 511, and 718.



*Hilco Model AS718-00-CN
Anti-Static Filter Element*



Hilco 10HMF Series Portable Filter

One 718-size element treats up to 3,000 gallons of lubricating oil satisfactorily. A convenient and effective method of treating the lubricating oil is in a kidney-loop arrangement utilizing a Hilco portable filter. One filter assembly can service the needs of several units.

Contact The Hilliard Corporation for help in sizing your particular application. Our in-house laboratory service is available for your assistance.

The Hilliard Corporation
100 West Fourth Street
Elmira, New York 14902-1504
Phone: 607-733-7121
Fax: 607-733-0928
[http://: www.hilliardcorp.com](http://www.hilliardcorp.com)

Your Local Representative:

Helicopter Engine Air Intake Filters



The Hilliard Corporation was approached by Schweizer Aircraft Corporation to develop a custom dry media filter for a helicopter application. Hilliard engineers developed a specific media and pleat configuration to meet the customer's air flow, pressure drop, and dirt-holding requirements. The design was optimized through extensive flight and ground testing to yield the maximum performance for minimum weight. The dry media simplifies service through use of compressed air or other environmentally friendly techniques. The design eliminates the time and labor required to dry and re-oil traditional filter types. Hilliard manufactures many other air and oil filter designs in the Elmira plant. This resulted in rapid prototyping, testing, and expedited project completion under budget.



The Hilliard Corporation offers custom engineering, design, and manufacture of filtration and motion control products. Hilliard has been in business since 1905 and has been offering a complete line of oil and air filtration products since 1928. We stand ready to custom-design a filter to meet your specifications and requirements for design review of your application. For more information, call 607-733-7121, or send an email to hilliard@hilliardcorp.com. Someone will be happy to help.

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Your Local Representative:

AIF-1
THC-500-09/06

Hilco Bag Filter Cartridges



Hilco's high-performance line of pleated bag filter cartridges are intended to increase the filtration efficiency of existing bag filter housings, while reducing the associated costs of frequent bag change-outs.

Our bag filters fit into a standard basket to increase dirt-holding capacity and overall efficiency. The cartridge is designed with a flexible molded end that seals on the inside diameter of the basket, eliminating potential bypass problems.

Features

- Utilizes standard-size #1 and #2 filter baskets
- Self-sealing, flexible molded end eliminates traditional bag bypassing concerns
- Synthetic filter media facilitates usage in a variety of fluid applications
- Available in a wide range of micron retention ratings
- Large, usable surface area
- Environmentally friendly design

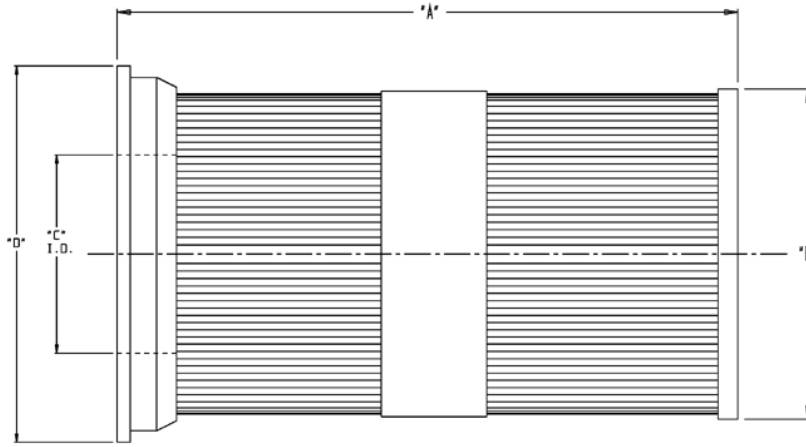
Benefits

- Higher dirt capacities
- Fewer change outs
- Lower labor costs

Characteristics

- Polyurethane molded ends
- Maximum recommended differential = 20 psid
- Synthetic filter media supported by epoxy-coated steel screen





Bag Capacity

Nominal Bag Size	Beta Ratio and Efficiency		Dirt Capacity	"A" in.	"B" in.	"C" in.	"D" in.
	Beta = 200 99.5%	Beta = 1000 99.9%					
#1	4 micron	6 micron	24 g	11 3/4	6 1/4	3 3/4	7 1/8
#1	15 micron	19 micron	30 g	11 3/4	6 1/4	3 3/4	7 1/8
#1	25 micron	27 micron	40 g	11 3/4	6 1/4	3 3/4	7 1/8
#1	41 micron	43 micron	40 g	11 3/4	6 1/4	3 3/4	7 1/8
#1	51 micron	53 micron	53 g	11 3/4	6 1/4	3 3/4	7 1/8
#1	69 micron	n/a	53 g	11 3/4	6 1/4	3 3/4	7 1/8
#2	4 micron	6 micron	48 g	26 3/4	6 1/4	3 3/4	7 1/8
#2	15 micron	19 micron	60 g	26 3/4	6 1/4	3 3/4	7 1/8
#2	25 micron	27 micron	80 g	26 3/4	6 1/4	3 3/4	7 1/8
#2	41 micron	43 micron	80 g	26 3/4	6 1/4	3 3/4	7 1/8
#2	51 micron	53 micron	106 g	26 3/4	6 1/4	3 3/4	7 1/8
#2	69 micron	n/a	106 g	26 3/4	6 1/4	3 3/4	7 1/8

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Your Local Representative:



Hilco Bag Filter Housings



Hilco's Series H8 Bag Filter Housing removes pipe scale, dirt, and other contaminants from process liquids. Water, chemical, and petroleum products are common applications. Down-stream equipment is fully protected due to quality design and construction.

Constructed of carbon or 316 stainless steel, single vessel models are designed for operating up to 150 psi at 300° F. Particulate accumulates in a large sump area at the bottom of the basket. This design efficiently utilizes the bag filter and prolongs the life of the element. The 316 SS basket seals onto a viton o-ring to eliminate particulate bypass between the basket and the seat. Optional mesh-lined baskets and o-rings are also available.

To speed evacuation and filling, the H8 Housing was designed with a vent in the housing lid and a drain port. Gauge ports are also located on the housing to enable easy installation of gauges for monitoring differential pressure across the bag. Other design features include permanently piped housings that can be opened with simple tools without disruption of the piping. Hardware need not be removed due to swing bolts with eye nuts which allows easy opening and closing of the swing lid.

Housings with a standard finish are blast-cleaned and painted inside and out with a two-part epoxy. Stainless steel housings are satin-finished. Housings can be ASME Code construction compatible. Special design requirements are welcome.

Features

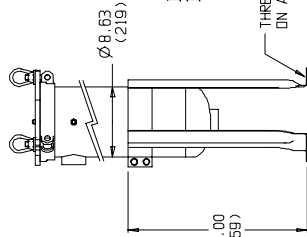
- O-ring sealed covers
- Swing bolt cover hardware
- Carbon steel or 316 stainless steel construction
- Available in duplex arrangement
- Suitable for a variety of inlet and outlet configurations
- Viton seals on lid and basket
- Differential, drain, and vent ports
- Two depths available: 15" and 30"

Benefits

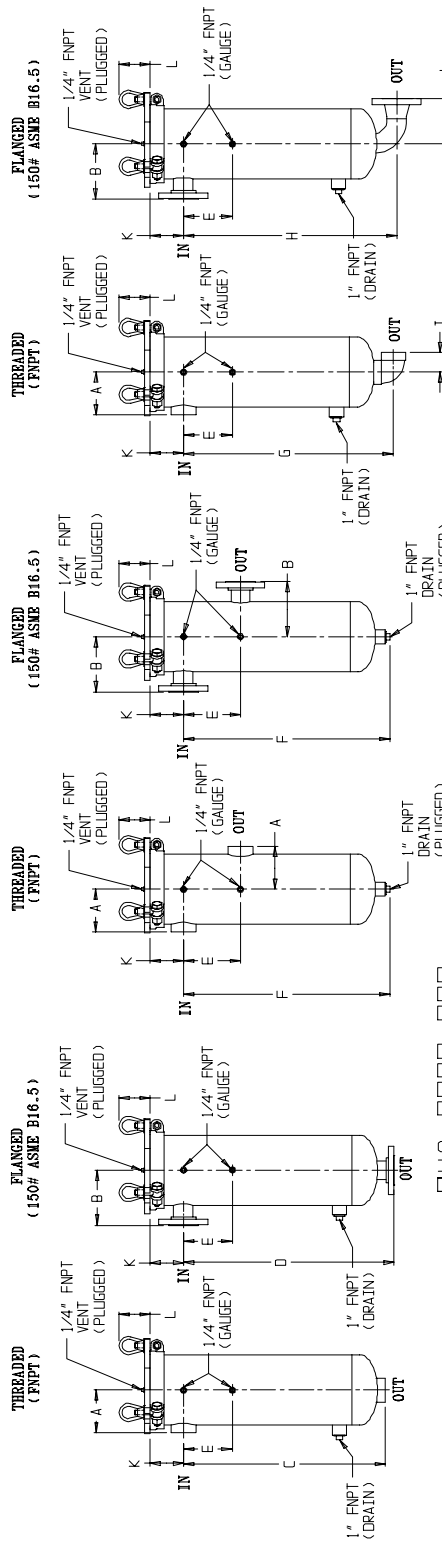
- Flow Rates to 220 gpm
- Designed to operate up to 150 psi at 300° F.
- Low Pressure Drop
- Adjustable Support Legs



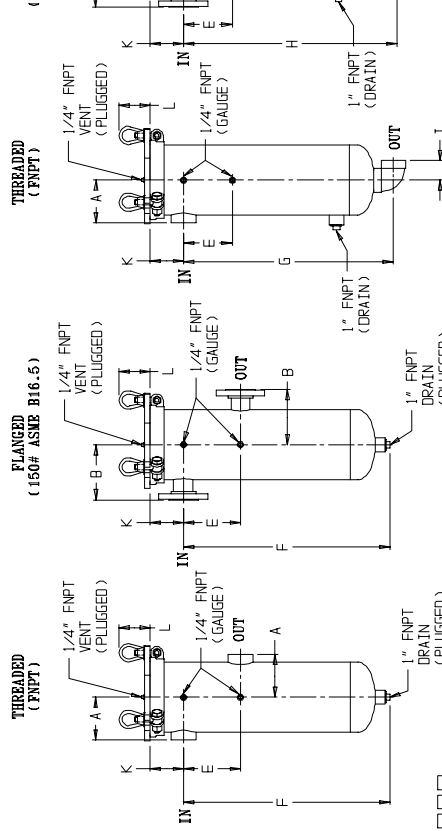
	CONN. SIZE	A	B	C	D	E	F	G	H	I	J	K	L1/2
BASKET SIZE 15" (#1)	2	5.25 (133)	6.75 (171)	24.75 (629)	25.88 (657)	7.00 (178)	25.63 (651)	26.19 (654)	26.19 (655)	2.38 (60)	5.59 (142)	4.12 (105)	3.81 (97)
	3	5.63 (143)	7.13 (181)	24.75 (629)	26.50 (673)	7.00 (178)	25.63 (651)	26.25 (667)	26.50 (673)	3.38 (86)	7.34 (186)	4.75 (121)	3.81 (97)
	4	5.63 (143)	7.13 (181)	24.75 (629)	26.63 (676)	7.00 (178)	25.63 (651)	26.88 (683)	29.13 (740)	4.19 (106)	7.12 (181)	5.38 (137)	3.81 (97)
BASKET SIZE 30" (#2)	2	5.25 (133)	6.75 (171)	36.19 (919)	37.38 (949)	7.00 (178)	37.06 (941)	37.19 (945)	37.75 (959)	2.38 (60)	5.59 (142)	4.12 (105)	3.81 (97)
	3	5.63 (143)	7.13 (181)	36.19 (919)	38.00 (965)	7.00 (178)	37.06 (941)	38.75 (984)	38.19 (955)	3.38 (86)	7.34 (186)	4.75 (121)	3.81 (97)
	4	5.63 (143)	7.13 (181)	36.19 (919)	38.13 (969)	7.00 (178)	37.06 (941)	38.88 (987)	40.63 (1032)	4.19 (106)	7.12 (181)	5.38 (137)	3.81 (97)



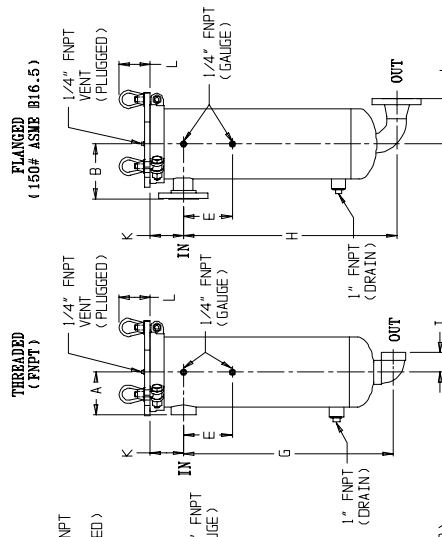
STYLE A



STYLE B



STYLE C



- NOTES:**
1. MAXIMUM WORKING PRESSURE: 150 PSI (10.3 BAR)
 2. MAXIMUM WORKING TEMPERATURE: 300°F (149°C)
 3. SEE PART NUMBER CHART FOR DURING MATERIAL LIMITATIONS.
 4. MFR. DESIGN METAL TEMPERATURE: CARBON STEEL - 20°F AT 150 PSI. 516 S.S. - 20°F AT 150 PSI.
 5. HYDRULICS PRESSURE: 195 PSI (13.4 BAR)
 6. SEE Z501-00-249-A FOR OPERATING INSTRUCTIONS.
 7. BOLT HOLES STRADDLE CENTERLINES ON ALL FLANGES.
 8. BOLLING FINISH IS 125-250 ARAH PER ANST B46-1.
 9. BASKET MATERIAL: 316/316L
 10. * DENOTES STANDARD FEATURE.

- MATERIAL / DESIGN CODE**
- 1 - CARBON STEEL, STANDARD CONSTRUCTION
 - 2 - CARBON STEEL, ASME CODE STAMPED
 - 3 - 316/316L SS, STANDARD CONSTRUCTION
 - 4 - 316/316L SS, ASME CODE STAMPED
- BASKET SIZE**
- 1 - 15" (#1)
 - 2 - 30" (#2)
- STYLE**
- A - BOTTOM OUTLET
 - B - SIDE OUTLET
 - C - BOTTOM OUTLET 90°
- CONNECTION SIZE**
- 2 - 2"
 - 3 - 3"
 - 4 - 4"
- CONNECTION TYPE**
- N - NPT
 - F - FLANGED
- BASKET PERFORATION OPTION**
- 0 - 9/64" DIAMETER *
 - 1 - 1/4" DIAMETER
 - 2 - 3/16" DIAMETER
 - 3 - 3/32" DIAMETER
 - 4 - 1/16" DIAMETER
- PAINT TYPE**
- 0 - NO PAINT
 - 1 - STANDARD EPOXY (GRAY)
- "D"-RING MATERIAL**
- B - BUNA-N (250°F MAX.) *
 - E - ETHYLENE PROPYLENE
 - V - VITON

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Your Local Representative:



Ceramic Membrane Crossflow Liquid Filtration System



Nominal 7,000 gal/day capacity model shown

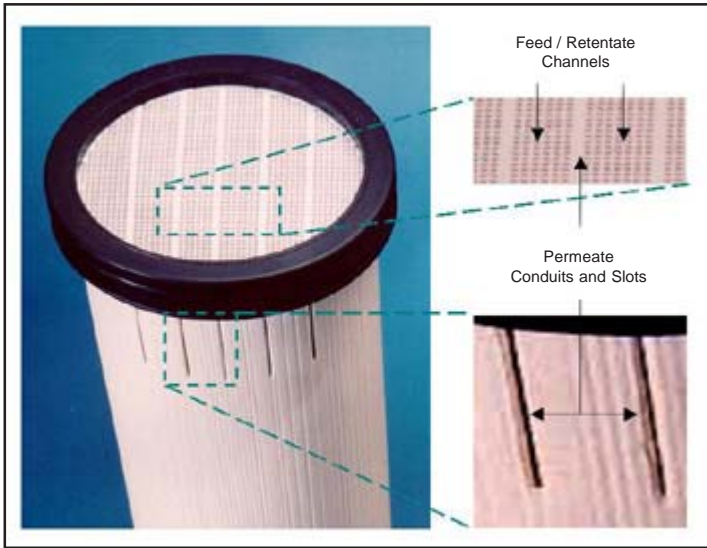
The Hilco Ceramic Membrane System is an ideal way to lower your filtration costs. The filtration system utilizes high-velocity “crossflow” across the membrane surface. The advanced-technology ceramic membranes deliver outstanding performance, durability, and cost-effectiveness. The robust filter design and high efficiency can help solve your tough filtration challenges. The filter is well-suited for multiple microfiltration (MF) and ultrafiltration (UF) applications. Available membrane pore sizes are 0.5 μm , 0.2 μm , 0.01 μm , and 0.005 μm .

Features and Benefits

- High surface area to unit volume
- Compact design
- Extended life with durable ceramic
- Chemically stable
- Broad pH range of 2-13
- Immune to chlorine attack
- Steam sterilizable
- Back flushable
- Suitable for aqueous and solvent/chemical streams
- High and sustainable flux rates
- Easy, less frequent membrane cleaning

Fluid Streams Processed

- Oil removal from wastewater streams
- Reclaiming solvents and chemicals
- Fruit juice and beverage clarification
- Aqueous wash solutions
- E-coat paints and lacquers
- CIP cleaning chemical recovery
- Catalyst stream recovery
- Industrial laundry



Membrane Filtration

1. Filter has 1800+ channels
2. Some channels are converted to permeate conduits
3. Permeate conduits allow the entire filter diameter to be effectively utilized
4. Patented membrane approach results in higher process flux

Typical Results from a Wastewater Stream

Component	Feed (ppm)	Permeate (ppm)
Oils, Grease	136	1.0
Pb	0.79	0.09
Ni	0.15	0.01
Cu	1.49	0.36
Zn	5.9	0.37

Specifications

Filter Sizes: 5.6" Diameter, 34" Long (120 ft² surface area)
 1.05" Diameter, 12" Long (1.5 ft² surface area)

Standard Membrane Pore Sizes (microns): 0.5 µm, 0.2 µm, 0.01 µm, 0.005 µm

Operating Parameters: Maximum TMP of 60 psi
 Maximum inlet pressure 85 psi
 Maximum differential pressure 30 psi
 Maximum backpulse pressure 100 psi

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Your Local Representative:



Ceramic Membrane Filtration System for Industrial Parts Washers



**HILCO Model 21CM01
Nominal 120 GPD System**

The new dense pack ceramic membrane crossflow technology is the ideal way to maintain your parts washing operation and keep it in superior condition.

Continuous recycling through the ceramic membrane keeps the wash solution clean and free of oil, fine particles, metals, and other contaminants which in turn, improves product yield. The non-complex design is easy to install, and requires minimal supervision to operate and maintain. It not only maintains the integrity of the process but also extends the useful life of the fluid, reduces labor, and reduces new fluid purchases. The resulting highly concentrated contaminants allow for convenient hauling and lower waste disposal costs.

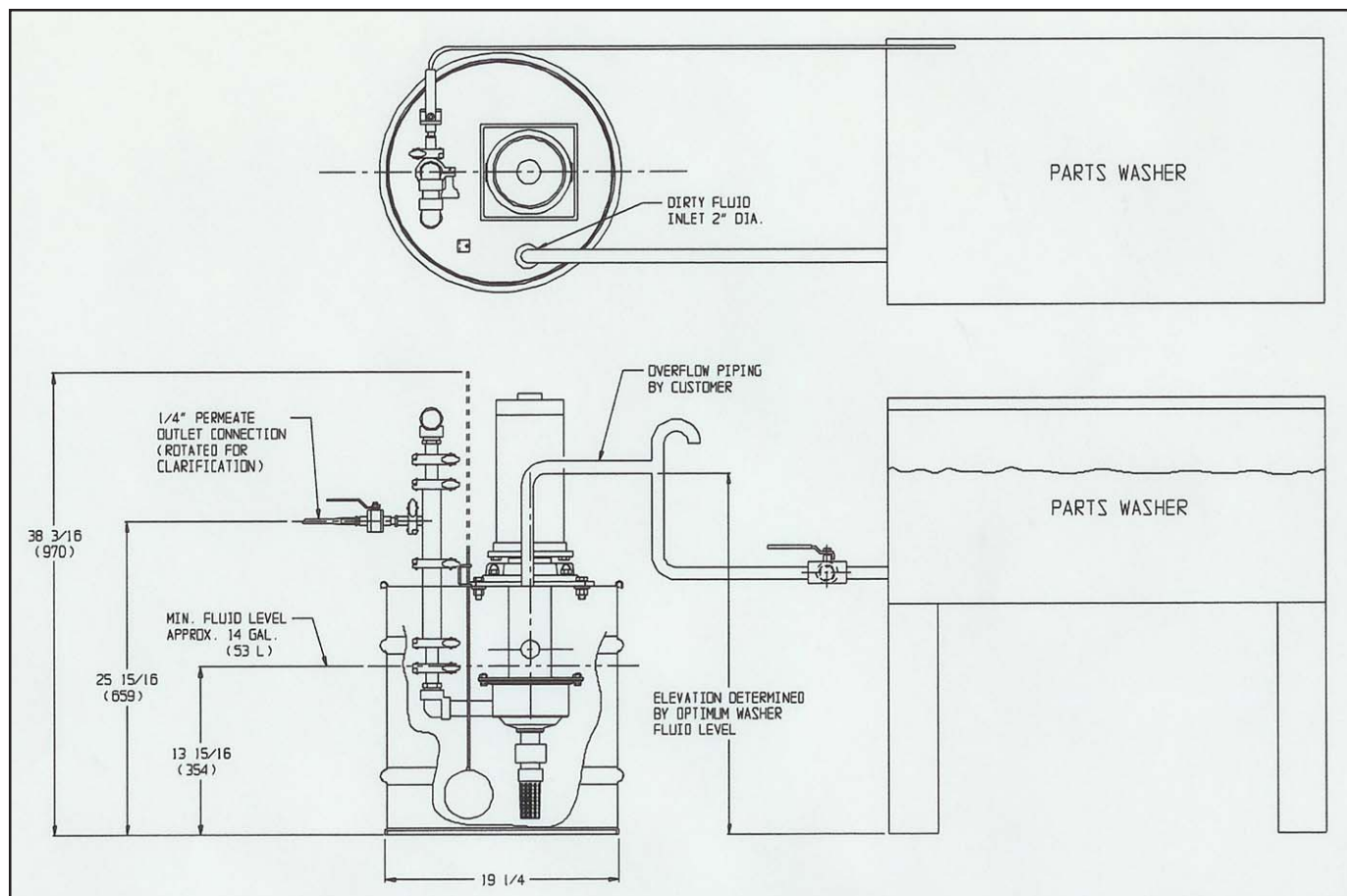
Because of the new ceramic technology, the membrane may be used for high temperature applications and does not remove soaps, rust inhibitors, and other additives, thereby significantly reducing chemical usage.

Features and Benefits

- Compact design
- Broad pH range of 2 - 13
- May be steam cleaned
- Chemically robust (compatible with aqueous and nonaqueous steams)
- Durable ceramic extends life of membrane
- Immune to chlorine attack
- Extended life prior to cleaning
- High temperature operation to 300° F
- Larger-capacity skid systems available

HILCO Ceramic Membrane Filtration System

Typical Parts Washer Installation



NOTE: 3/4 HP TEFC Motor, 115V-60Hz-1pH

*The Hilliard Corporation reserves the right to change specifications and dimensions at any time.
Please contact the factory for the most current information.*

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Your Local Representative:



Hilco Stainless Steel Filters for Donut Frying Machines



What Users Say About HILCO Filters:

- Extend donut shelf life
- Reduce fatty acids to acceptable level
- Oil in the fryer remains clear. (You can see the bottom of the fryer.)
- Fryers no longer smoke
- Consistent color of donuts
- Extends useful life of shortening



Stationary Filter Housings

- Filter housings of 304/304L stainless steel
- FDA approved viton o-ring seals
- Easy-to-use "T" handle for cover removal
- Inlet and outlet connections: 3/4" or 1-1/2" FNPT
- Solid piped to fryer pump
- Easy-to-change, throwaway filter cartridge

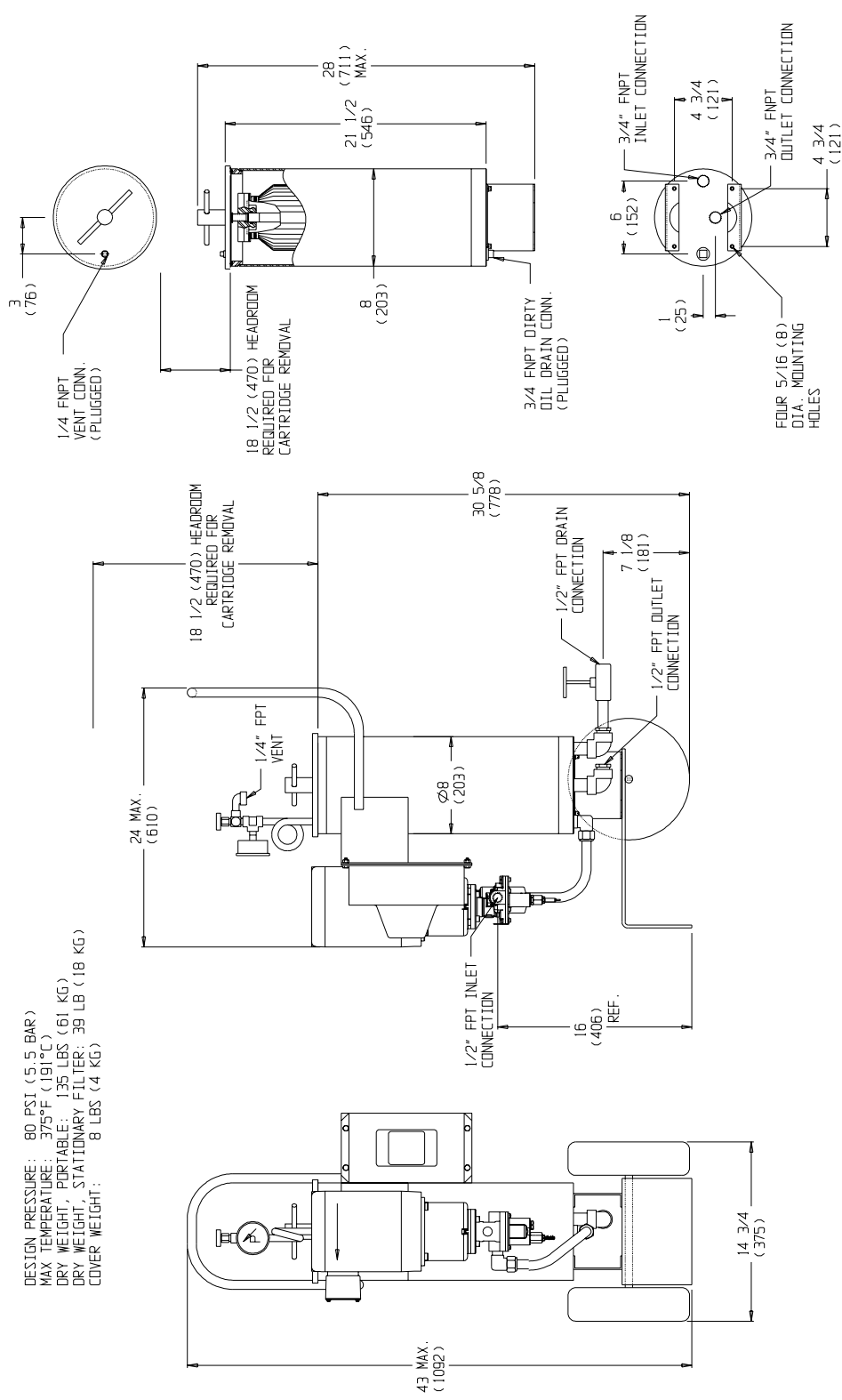
Portable Filters

- 1/2 HP washdown duty motor and stainless starter enclosure
- Filter housings of 304/304L stainless steel
- FDA approved viton o-ring seals
- Easy-to-use "T" handle for cover removal
- Inlet and outlet connections: 1/2" FNPT
- Easy-to-change, throwaway filter cartridge

Filter Cartridges

- Easy-to-change
- Throwaway
- Stainless steel metal parts
- High capacity, pleated design





DESIGN PRESSURE: 80 PSI (5.5 BAR)
 MAX TEMPERATURE: 375°F (191°C)
 DRY WEIGHT, PORTABLE: 135 LBS (61 KG)
 DRY WEIGHT, STATIONARY FILTER: 39 LB (18 KG)
 COVER WEIGHT: 8 LBS (4 KG)

**Stationary Filter
 Model 21518-520511003**

**Portable Filter
 Model 10718-531001023**

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Your Local Representative:



Conditioning of Synthetic Lube Oils



Acid Reduction of Synthetic Lubrication Fluids

Phosphate ester synthetic lubricants are gaining popularity among rotating equipment manufacturers and their customers. These lubricants have a distinct advantage over mineral oils in that they have better fire resistance and high-temperature stability. These traits make them safer. Accordingly, the use of the lubricants in place of mineral-based oils can substantially reduce insurance costs.

While the phosphate ester synthetic fluids are in many ways superior to mineral oils, they are not without their drawbacks. These lubricants hydrolyze and form acids. An increase in the acid number (also called Total Acid Number, or TAN) of the lubricant will result if it is not monitored carefully and treated. Lubricants with a high TAN (over 1.0) can damage pumps and bearings.



This system is designed to house six 11x19 ion exchange cartridges for a total of about six cubic feet of media. The post-filter (second stage) contains a HILCO PH718-12-CN cartridge for particulate removal.

Because fire-resistant phosphate ester lubricants have been used for many years for lube, hydraulic, and EHC systems, there has been an evolution of products used to control the acid number. Historically, fuller's earth (Hilite) and activated alumina (Hilite-A) have been and continue to be specified to neutralize the acid. The latest developments include the use of Selexsorb media for conditioning Akzo's Fyrquel phosphate ester fluids. Also, ion exchange technology is being used for fluids with additives. The advantages of ion exchange are that it has a relatively long life, contributes no mineral salts to the system, and does not remove additives (see HLE-1).

Treatment of large lube oil reservoirs requires a system big enough to house large quantities of media. In some cases, fluid manufacturers recommend up to 1% by weight of media to treat the reservoir. A 2500-gallon reservoir, for instance, will need about 170 pounds of media to maintain the acid number. The system requires six or seven 11 x 19 cartridges (about 40 pounds of media per cartridge) to condition and maintain the fluid.

HILCO has been manufacturing systems for synthetic fluids for several decades. No matter which type of cartridge you decide to use or how large the system, HILCO has the experience to design to the application.

Typical Features

- Hydraulic cover lifter
- Drip-pan base with channels for easy movement by fork truck
- Epoxy paint system compatible with phosphate ester fluids
- Flow meter
- Optional cartridge hoist

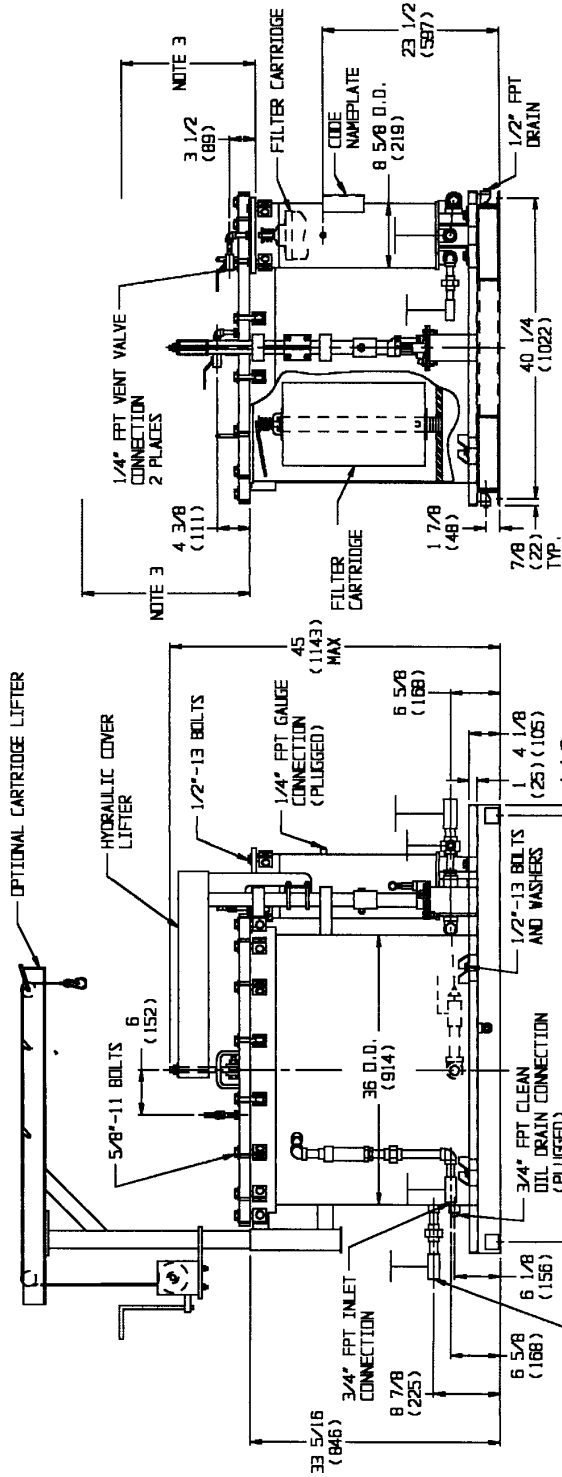
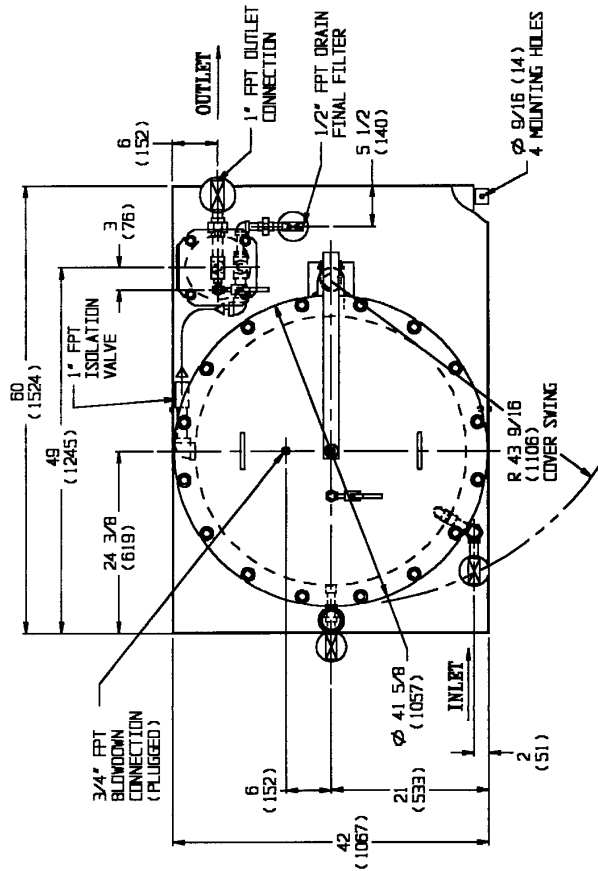
**GENERAL ASSEMBLY
PHOSPHATE ESTER IONIC
EXCHANGE FILTER**
MODEL: 82119-550680001

Hilliard
THE HILLIARD CORPORATION
100 WEST FOURTH STREET
ELMIRA, NEW YORK 14902

DESIGN PRESSURE..... 75 PSI (5.2 BAR)
MAXIMUM TEMPERATURE..... 250°F (121°C)
MINIMUM DESIGN METAL TEMPERATURE..... >20°F AT 75 PSI
APPROX. DRY WEIGHT..... 2195 LBS. (996 KG)
APPROX. WET WEIGHT..... 3250 LBS. (1473 KG)
APPROX. COVER WEIGHT..... 575 LBS. (261 KG)

NOTES:

1. VESSELS BUILT TO ASME CODE SECTION VIII, DIV. 1
2. MATERIAL: CARBON STEEL CONSTRUCTION
3. HEADROOM REQUIRED FOR CARTRIDGE REMOVAL:
27" (686) FOR ION EXCHANGE VESSEL,
18" (457) FOR FINAL FILTER
4. CARTRIDGES AS SPECIFIED ON ORDER.



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Filtration for Cooling Tower Gearbox



The HP4B-HV Gearbox Filtration System is designed specifically to filter heavy gearbox fluids to reduce maintenance costs and increase time between maintenance intervals.

Contamination within a gearbox can result in costly repairs. These repairs can be avoided by removing the contaminant with a filtration system. The HILCO HP4B-HV is designed specifically for gearboxes. It's heavy-duty 3/4 HP continuous-duty motor can handle oil viscosities up to 3000 SSU.

The HP4B-HV is competitively priced for a quick return on investment. High efficiency filter elements are rated to 1 micron absolute. Water removal elements are also available in 5 micron and 25 micron absolute.



HP4B at a power utility



Pays for itself in a matter of weeks!

Standard HP4B-HV Specifications

4 gpm positive displacement gear pump
3/4 HP continuous duty motor
Weight: 35 lbs. (dry)
Material: Aluminum
Electric: 115 VAC 60 Hz
0-100 psi pressure gauge
Internal pump relief set at 60 psid
7-ft. power cord



Ask about our FREE trial program to start your evaluation today!

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Your Local Representative:



Dryer Filter Systems



Removes water and air from insulating oil used in transformers, switching equipment, and circuit breakers



Hilliard
HILCO[®] DIVISION

Dry and clean insulating oil, minimize

Engineered to maximize water and carbon removal and increase dielectric strength

Hilco dryer filter systems are designed for increased efficiency, compact sizing, and reduced cost.

Designed to restore insulating oils used in transformer switching equipment and circuit breakers, the new dryer filters require fewer cartridges because they include the new super-absorbent media. Hilco dryer filters provide efficient filtration of insulating oils by removing free water and carbon particles to restore dielectric strength.

Hilliard's new dryer filters with simplified design features are self-contained to eliminate outside contamination and they are equipped with integral pump sets and ball valves for safe, convenient operation.

Standard models -- Options added easily

Standard models have capacities up to 6,000 GPH; and the modular design of the new dryer filters allows options to be easily added for more demanding applications.

Among the many options are an outlet sight glass, a discharge relief valve, an automatic air eliminator, and a flow meter.

Hilsorb™ dryer cartridges

The Hilsorb dryer cartridge combines highly efficient filtration for removal of extremely fine particulates plus super-absorbency of moisture thus providing high dielectric strength and greater stability in transformer oils. Dryer cartridges that will out-perform the original equipment are available from Hilliard for competitive vessels.

The Hilliard tradition of quality

All Hilco products are backed by Hilliard's tradition of quality, engineering, and service.

At Hilliard, we do more than manufacture quality standard products. Every effort is made to provide the best product to meet your specific application. For more information on quality Hilco products, contact the Hilliard Corporation or a Hilco representative.

Standard Features:

- ◆ Compact size
- ◆ Automatic air vent (on vessel)
- ◆ Ball valves
- ◆ All-steel vessel construction
- ◆ Inlet "Y" strainer
- ◆ Inlet sight glass
- ◆ Positive displacement pump with built-in bypass valve
- ◆ Meets NEMA 4 requirements
- ◆ Totally enclosed motor
- ◆ Throwaway filter cartridges
- ◆ Inlet/outlet pressure gauges
- ◆ Cover lifters are furnished on Models DRS-050 and DRS-075

Benefits:

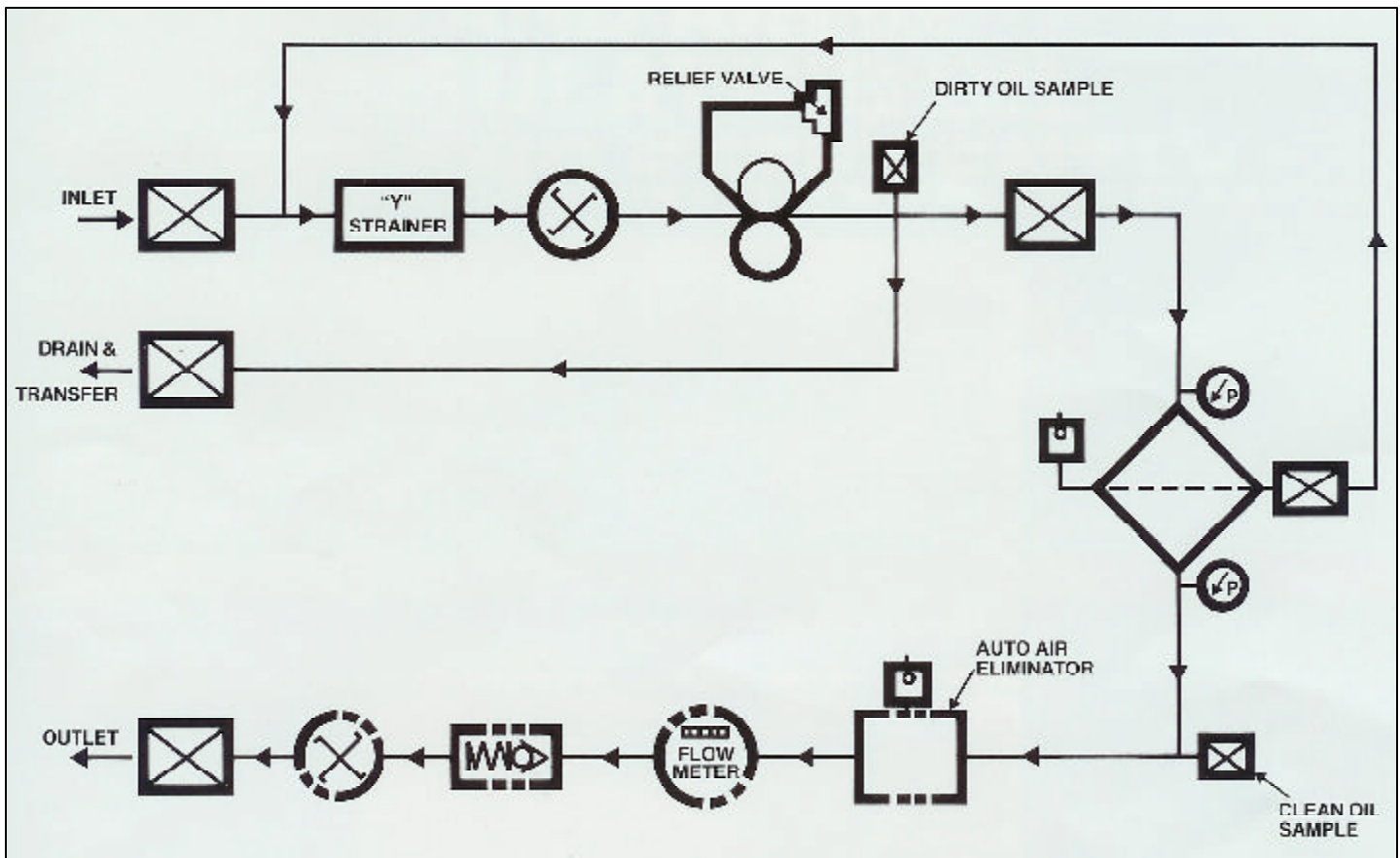
- ◆ High efficiency and reliability
- ◆ Low cost
- ◆ Low pressure drop
- ◆ Fewer cartridges
- ◆ Lightweight, compact design
- ◆ Minimum maintenance required

Options:

- ◆ Outlet sight glass
- ◆ Discharge relief valve
- ◆ Automatic air eliminator
- ◆ Flow meter
- ◆ Four-way valve
- ◆ Hoses
- ◆ Hose reels
- ◆ Portable base
- ◆ Over-the-road trailer
- ◆ Drip pans
- ◆ Higher flow rates
- ◆ Filters with Hilite (Fuller's Earth) cartridges
- ◆ Special units can be designed to meet your requirements

maintenance and off-line time.

Flow Schematic



Oil testing service

Through our extensive laboratory facilities, we can provide the following tests:

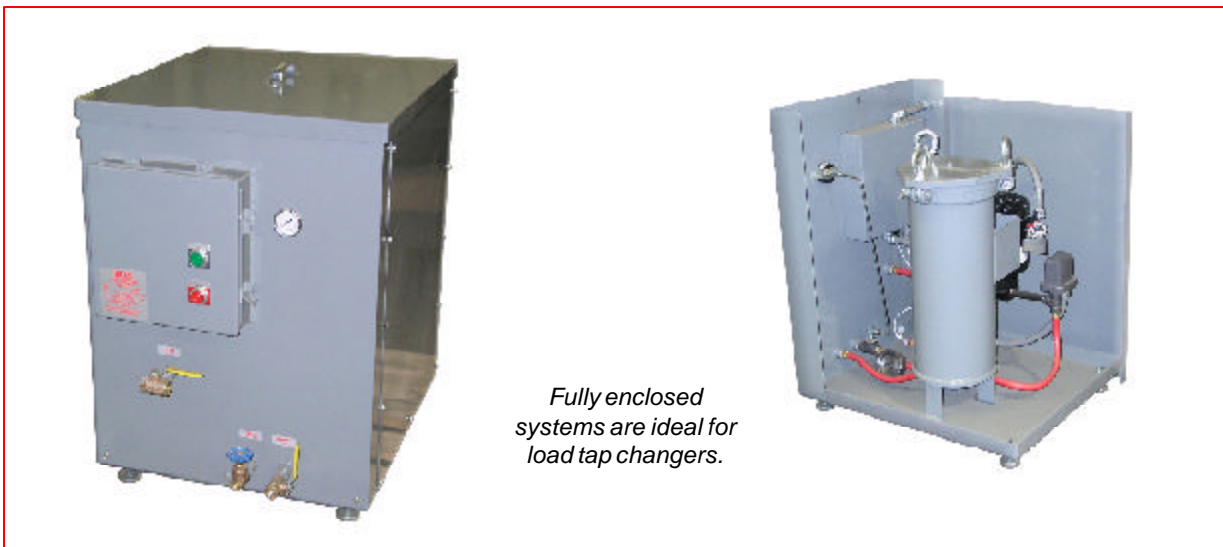
- Dielectric breakdown voltage of insulating oils of petroleum origin using VDE electrodes -- ASTM 1816.
- Dielectric breakdown voltage of insulating oils using disk electrodes -- ASTM D877.
- Water content in liquid petroleum products by Karl Fischer Reagent -- ASTM D1744.
- Water content in insulating liquids (Karl Fischer Method B) -- ASTM D1533.
- Neutralization number by Potentiometric Titration -- ASTM D664.



Specifications

Model Number	Capacity	Number of Hilsorb Cartridges	Maximum Working Pressure	Pipe Size
(DRS010)	10 GPM/600 GPH	1	100 PSI	1/2"
(DRS015)	15 GPM/900 GPH	1	100 PSI	3/4"
(DRS020)	20 GPM/1200 GPH	2	150 PSI	1"
(DRS030)	30 GPM/1800 GPH	2	150 PSI	1 1/2"
(DRS050)	50 GPM/3000 GPH	6	150 PSI	2"
(DRS075)	75 GPM/4500 GPH	6	150 PSI	2"

Note: For further technical information, see Data Sheets DD-645 and DD-646.
For installation, operation, and maintenance instructions, see Bulletin HF-11.



Optional trailer-mounted systems are available.

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Your Local Representative:



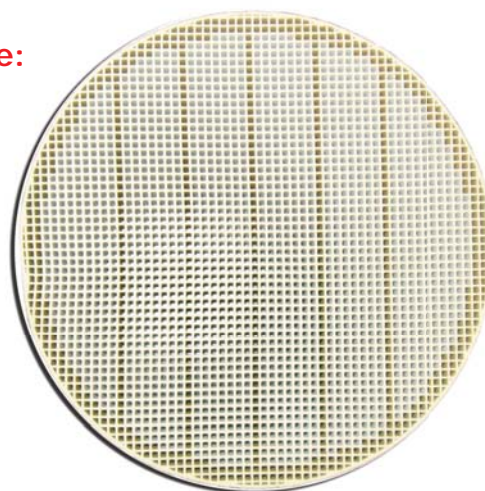
Ceramic Membrane Ultrafiltration for Electrocoat Paint Bath



Ceramic membrane ultrafiltration is a time tested technology that is relatively new to the electrocoat industry. Ceramic membrane filters are an attractive alternative technology for E-coat paint UF systems. It can be also be used to extend the life of the pretreatment stage alkaline cleaner bath.

Product features of the ceramic membrane filter include:

- Excellent chemical resistance
- Broad pH range of 2-13
- Inert to solvents and common chemicals
- Can be aggressively cleaned
- Allows for higher flux recovery
- High temperature operation – to 200° F
- Low thermal coefficient of expansion
- Membrane pore size stability
- Backpulsing capable
- Tolerance to pressure excursions
- Favorable solids loading capability
- High concentrations possible



Ceramic Membrane Filter Cross Section

Advantage Summary - Ceramic Membrane Ultrafilter for Electrocoat Paint Bath

- Sustained permeate flux
- Increased flux recovery after cleaning
- Reduction in labor costs
- Reduction in cleaning chemical usage and costs
- No delamination or telescoping of filter
 - *Structural durability
- Extended filter life
- Elimination of pore plugging due to temperature rise
- Construction alleviates blinding of membrane surface
- Requires fewer filter cleanings per year

Performance Issues with Existing Membrane Ultrafilters Include

- Low permeate flux
- Membrane cleaning
- Membrane replacement frequency
- Susceptibility to pressure surges
- Vulnerability to temperature excursions
- Treatment to remedy biofouling



Ceramic Membrane Filter

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Ceramic Membrane Ultrafiltration for E-coat Pretreatment



Ceramic membrane ultrafiltration is a time tested technology that is relatively new to the e-coating industry. It can be used to extend the life of the Alkaline cleaner bath. Membrane filters are also suitable for E-coat paint UF systems.

Product features of the ceramic membrane filter include:

- Excellent chemical resistance
- Broad pH range of 2-13
- Inert to solvents and common chemicals
- Can be aggressively cleaned
- Suitable for alkaline and acidic baths
- Allows for higher flux recovery
- High temperature operation – to 200° F
- Low thermal coefficient of expansion– membrane pore size stability
- Backpulsing capable
- Tolerance to pressure excursions
- High concentrations possible
- Favorable solids loading capability



Alkaline Cleaner Bath: Contemporary Problematic Issues

Costs and issues associated with frequent bath disposal

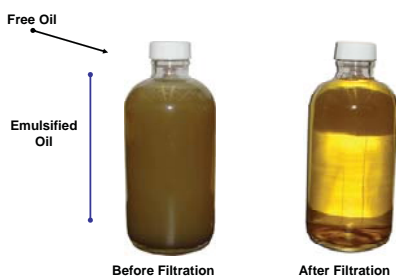
Bath Dumping
Labor/downtime
Hauling
Administrative compliance
Environmental impact

Costs and issues associated with frequent bath regeneration

Energy
Labor
Chemicals
Water

Maintenance

Nozzle plugging
Parts cleanliness issues
Variability
Re-work/scrap



Ceramic Membrane Filter

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HILCO® PH528 Filter Cartridge

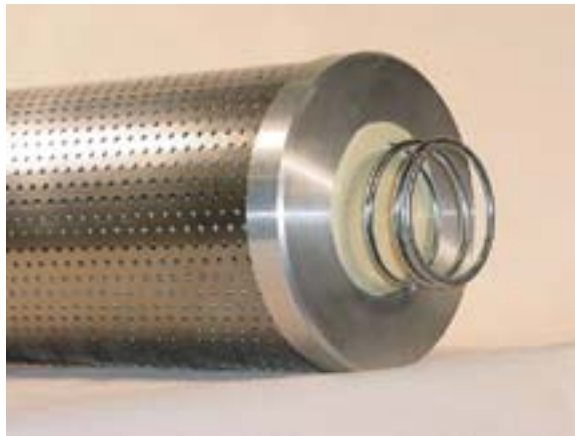


Hilco PH528 Filter Cartridges offer an economical, high-quality solution to your filtration needs. Hilco cartridges offer absolute-rated efficiency performance, high flow rate capability, and a long, dependable service life.

Benefits

- ◆ Direct replacement for Parker cartridge
- ◆ Qualified to GE specifications

When contacted to build cartridges, a quick reaction time is very important. Hilliard was recently asked to develop a replacement cartridge to be used in a Parker vessel. Hilco cartridges, made with totally new components, were assembled only 18 working days after the request and successfully tested six working days later. The reaction of the customer to the PH528 cartridges used in the qualification program was very positive. Data and measurements obtained during the testing were satisfactory and the cartridges were working superbly after heavy use at high flow.



Features

- ◆ Corrosion-resistant metal end caps and center tube
- ◆ Corrosion-resistant ambient
- ◆ Internal centering device
- ◆ External hold-down spring
- ◆ Fluorocarbon o-ring seal
- ◆ Synthetic filter media protected on both sides by epoxy-coated screens

Specifications

Part # PH528-05-CG1

Drawing # DD-700-110

GE item # 363A4378P003

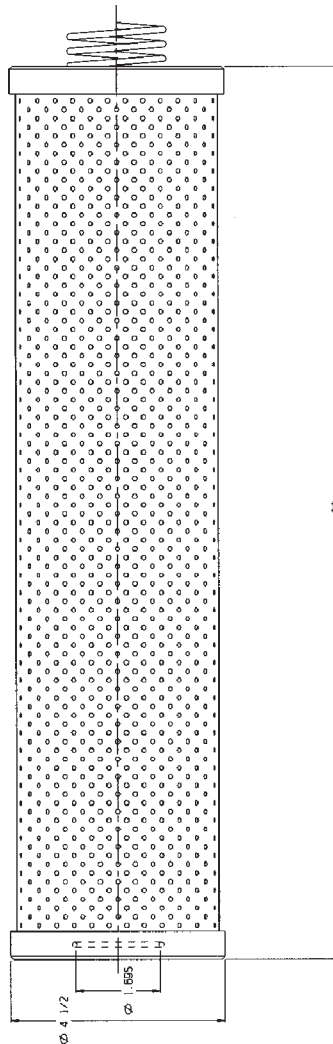
Replaces Parker Cartridge # PMG528-10-GE (GE item # 363A4378P001)

Used in the following Parker vessels (9 cartridges/vessel):

Parker TS35415, GE363A4377P001, gas turbine lube oil

Parker 9481-5301, GE 363A4377P002, gas turbine lube oil

Parker 9481-5303, GE 363A4377P003, steam turbine lube oil



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Your Local Representative:



HILCO EHC Fluid Conditioning System



The fluids used in the high pressure electro-hydraulic control systems (EHC) of steam turbines present a unique set of problems. These fluids are typically a fire-resistant, synthetic phosphate ester base which require continuous filtration in order to maintain proper lubricant characteristics.



HILCO Model 36717-530401052 Fluid Conditioning System



The local operator interface panel displays the system's operating status at all times.

HILCO has recently developed a self-supporting, manifold design system ideal for the fluid conditioning needs of the EHC system operators. The system incorporates Hilliard's patent-pending dry resin ionic exchange cartridges for acid control (TAN), while moisture and particulate contamination are maintained by a set of Hilsorb dryer cartridges. The system has a multitude of pumps, motors, and instrumentation that are all controlled by an onboard PLC.

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Your Local Representative:



HILCO Filter Cartridges for the GE Aftermarket



The Hilliard Corporation supplies genuine HILCO filter housings and filter cartridges to the General Electric Company (GE) on an original equipment manufacturer (OEM) basis. The filters and cartridges are used on lubricating oil, seal oil, hydraulic oil, and liquid fuel oil systems on gas turbines. On GE steam turbines, we supply filters and cartridges for the main lube oil system and the EHC/HPU conditioning system. Hilliard also supplies replacement parts in the GE aftermarket.

HILCO filter cartridges are also available to fit other manufacturers' filtration products. The following manufacturer's can be fitted with HILCO filter cartridges.

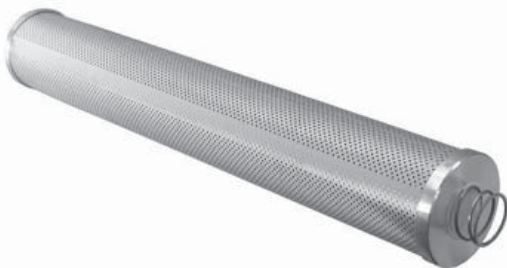
Pall

HILCO filter cartridge **HP311-12-GE** is a direct replacement for Pall part number HC9601FUP11YGE. This cartridge is used in both HILCO and Pall high pressure (1800 psi) hydraulic filters on a variety of GE gas turbines. The HP311-12-GE cartridge works with both HILCO or Pall filters, and is approved by GE. There are two cartridges per duplex filter arrangement. Note that a new cap assembly and gasket are required with the first fitting in older HILCO filters.



Parker

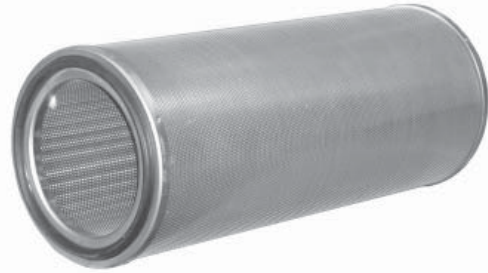
HILCO filter cartridge **PH528-05-CG1** is a direct replacement for Parker part number PMG528-10-GE. This cartridge is used in the main lube oil filter of a GE Frame 7FA gas turbine. There are nine cartridges used in each of the two filters, with a total of 18 cartridges per turbine. GE had quality problems with the Parker cartridges and asked Hilliard to design and supply replacements.



Dollinger

HILCO coalescer filter cartridges can be used in Dollinger oil mist eliminators that are used with GE Frame 7EA gas turbines. HILCO part number **DM1228-00-C** (five cartridges per mist eliminator) replaces Dollinger 95-121.

Also on the GE Frame 7EA gas turbine, look for HILCO filter cartridge PH718-01-CN (total 24 pieces in the duplex filter) in the main lube oil filter and in the liquid fuel filters (a total of 28 pieces in the duplex filter).



Kaydon

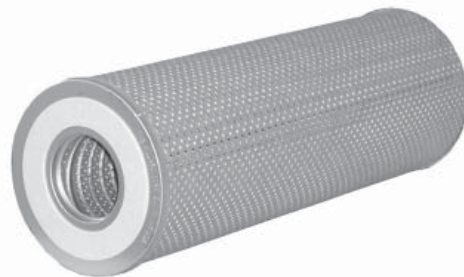
HILCO cartridges are used in Kaydon 30 GPM lube oil conditioners which remove water from the lube oil of GE steam turbines. HILCO coalescer cartridge **HC645-01-C** replaces Kaydon K-2000 (five cartridges per unit), and HILCO separator cartridge **HS629-200-C** replaces Kaydon K-3000 (three cartridges per unit).

Depending on the model, either HILCO filter cartridge **PH718-11-CGVGE** or **PH739-11-CG1VGE** can also be used in the HILCO main lube oil filters of the same GE steam turbine systems.



Alstom (GE, France)

On GE-type gas turbines manufactured in France, use HILCO filter cartridge **PL718-05-CNALS**. These cartridges replace Alstom filter cartridge 328A7132P001 in the main lube oil filter (24 cartridges per duplex filter).



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Your Local Representative:



The HILCO Advantage: PL Cartridges



**Maximum Performance at a
Minimum Price**



Hilliard
HILCO® DIVISION

HILCO cartridges have a reputation the world-over for no-nonsense industrial-strength quality and performance. They are engineered for durability in a tough environment to provide maximum performance at a minimum price. Because cartridge design is the key to filter performance, rigid inspection procedures ensure every cartridge performs up to its design expectations.

PL Cartridge Components



Center Tube

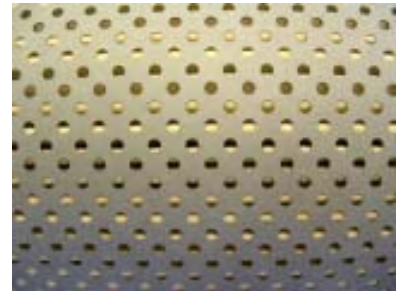
The center tube, the backbone of the cartridge, supports the element both axially and longitudinally against the forces of pressure and flow. HILCO tubes are plated for corrosion protection and designed to withstand up to 100 pounds of differential pressure or four times the working pressure the cartridges should normally encounter. HILCO center tubes feature helical seams that quadruple the material thickness in the seam to give maximum strength with minimum weight.



HILCO cartridges are assembled with the element tight against the center tube to gain full support from the tube. Some refill brands have a considerable gap between the tube and the element to facilitate speedy assembly. Under pressure, any gap between the element and the supporting center tube will allow the element to be pushed in until it contacts the center tube and may allow the element to rupture from lack of support.

Ambient

The ambient is the outer protective jacket that provides handling protection and acts as a flow diffuser to maximize filter performance. The HILCO ambient is perforated from heavy-duty, resin saturated, water-resistant card stock. HILCO uses a non-metal ambient for its corrosion resistance and to reduce the amount of disposable metals in the cartridge. It has no sharp edges to cut and cannot introduce hanging metallic burrs. The smooth perforations will not abrade the filter media that it protects. The HILCO ambient fits snugly around the element to firmly hold the pleats in place.



Side Seam

The side seam results from wrapping an element around a center core to form a cylinder. The two longitudinal edges of the element are joined together in a seam running lengthwise to the cartridge. HILCO PL cartridge elements employ two sealing methods for this side seam. The more open, -20 to -03 single-ply media utilizes a time-proven double overlap that effectively seals the element seam. On the high



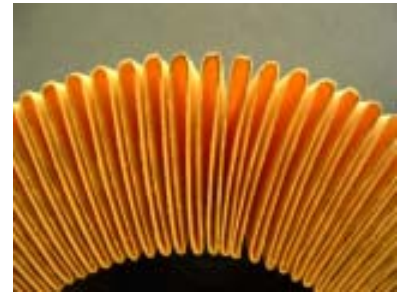
efficiency, three-ply sandwich -12 media, the overlapped seam is filled with an epoxy sealant that actually soaks into and seals all three plies.

Element

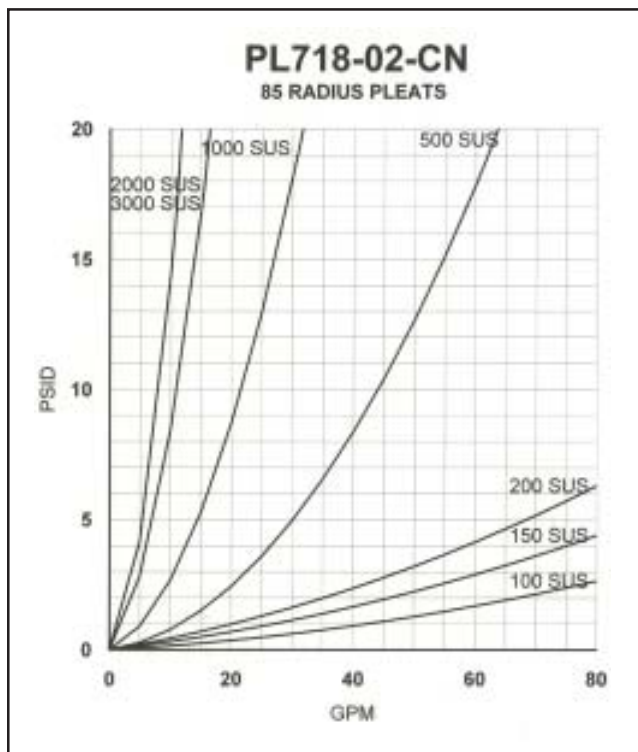
The element is that part of the filter cartridge that actually does the filtration. It must stand up to a wide range of fluids, temperatures, viscosities, and flow rates. HILCO PL elements are made from **specially formulated filter media** selected to provide the most effective combination of fluid particle separation, fluid compatibility, and structural properties. The media is pleated with **controlled-radius pleats**, which maximize effective filtration area and dirt-holding capacity, and resists bunching, distortion, and rupture. Sharply creased pleats overstress fibers, causing cracks and bypassing. Hilliard's manufacturing process forms a larger radius pleat on the outside and a smaller one on the inside. This causes the pleat geometry to assume an elliptical shape which stiffens the pleat pack and acts as a pleat separator to provide uniform pleat spacing. This feature permits lower pressure drops and larger dirt capacities over those of sharply pleated elements.



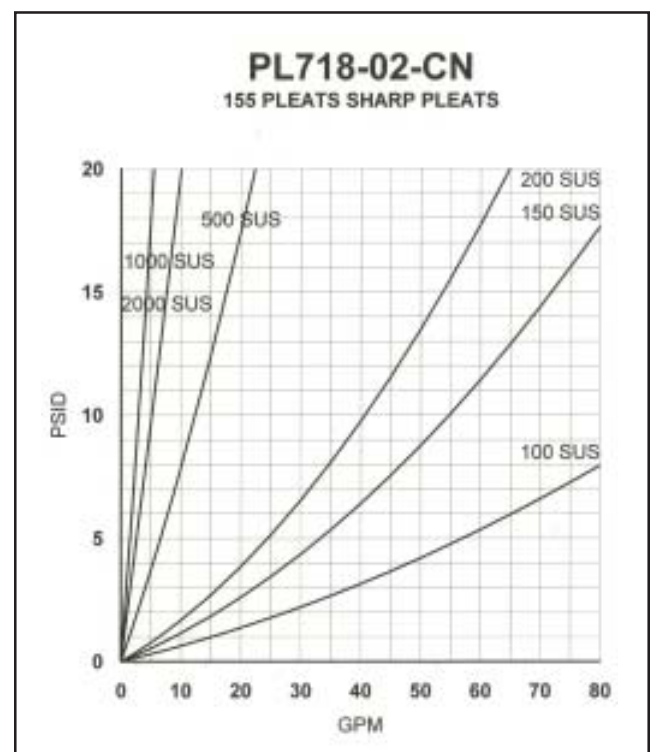
Brand X



HILCO



HILCO Brand



Brand X



Gaskets

The gasket ensures that 100% of the fluid flows through the filtering element without bypass leakage around it. Flat gaskets use the finest materials available which are selected for compatibility in the operating environment. The HILCO flat fiber gasket is unique in that it contains no binders that leach out, which can diminish the integrity of the gasket or the fluid system it is there to protect. HILCO o-ring seals are available in various materials to match system compatibility demands. The CG or o-ring version of the PL cartridge is unique in the fact that a premium sealing system is offered on a cartridge that provides maximum filtration value for the dollar.



Brand X



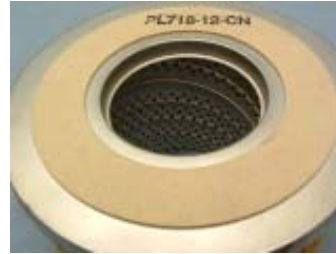
HILCO

Adhesive Sealant

The urethane adhesive sealant is formulated to stand up to virtually any filterable fluid. Its function is to bond the end caps to the element and provide a leak-proof seal. To qualify, it must first pass a rigorous battery of temperature and compatibility testing. To effectively seal, the adhesive sealant must actually wet and soak into the media. Beware of plastisol adhesives that do not soak into the media and may permit bypass leakage between the plastisol and the element. Plastisols also may dissolve in some synthetic fluids.

End Caps

The cartridge end caps are part of the cartridge supporting structure. They must support longitudinal cartridge loading and provide a gasket-bearing surface. The end caps also hold the adhesive sealant that seals the elements. HILCO end caps are either plated steel or molded heavy-duty structural urethane.



Efficiency Table

Efficiency	12 Media	01 Media	03 Media	05 Media	10 Media
99.5%	BETA ₆ = 200	BETA ₁₄ = 200	BETA ₂₈ = 200	BETA ₄₀ = 200	BETA ₅₉ = 200
98.7%	BETA ₅ = 75	BETA ₁₃ = 75	BETA ₂₇ = 75	BETA ₃₈ = 75	BETA ₅₈ = 75
90%	BETA ₄ = 10	BETA ₁₀ = 10	BETA ₂₂ = 10	BETA ₃₆ = 10	BETA ₅₅ = 10
50%	BETA ₃ = 2	BETA ₅ = 2	BETA ₈ = 2	BETA ₂₃ = 2	BETA ₃₇ = 2

BETA Ratio vs Particle Size

Beta Rated

HILCO uses Beta ratings to eliminate the confusion between nominal and absolute ratings. Media designations such as -5 and -12 are used to delineate one media grade from another. Each media grade has a Beta-rated efficiency with Beta ratios from 75 through 1000. The HILCO range of media grades permits one to choose an optimum efficiency for virtually any particle size range.

Features and Benefits

- Designed to withstand temperatures up to 250° F
- Controlled-radius pleats maximize effective filtration area and dirt-holding capacity
- Designed to withstand pressures up to 100 PSI
- Composed of specially formulated filter media to provide the most effective combination of fluid particle separation, fluid compatibility, and structural properties

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Your Local Representative:



Hilco Coreless Cartridges



The new Hilco “Coreless” Cartridges utilize a vessel with an integral center support or an adapter that eliminates the need for the cartridge to have a built-in center core to support the element against differential pressure. This cartridge and vessel combination are designed to balance hydraulic forces, preventing the cartridge from being crushed or deformed at differentiated pressures as high as 100 psid.



Coreless Element with Adapter

Coreless Cartridges Cut Costs

Costs are cut in the following ways:

- ✱ Initial costs of the cartridge are reduced by not having a built-in metal center core
- ✱ Fluid costs are reduced because fluid life is maximized through the use of high-efficiency filtration and long element life
- ✱ Disposal costs of used cartridges are minimized

Benefits of Coreless Cartridges

- ✱ Environmentally conscious product
- ✱ Easy and economical disposal
- ✱ Spent cartridge easily crushed or squeezed
- ✱ Disposal weight reductions of 50%
- ✱ Cost effective: eliminates need to throw away a non-incineratable metal core



720 Duplex Filter Housing with Transfer Valve



830 Filter Housing

The Coreless Lineup

PH720-CGW minimizes disposal and purchase costs through the use of a reusable adapter that fits standard PH720/739 housings. Large savings are made when purchase specifications require the use of stainless steel in the metal components so that expensive center cores are not being discarded with each cartridge change.

PH830-CGW and **PH818-CGW** cartridges were developed for those applications where a single large cartridge is preferred over multiple smaller ones, allowing a smaller and more compact vessel. The vessel with an integral cartridge support post eliminates the requirement for a large-diameter, heavy, expensive center-core cartridge. Cartridges are rated for a maximum 100 PSID with a recommended change-out pressure of 25 PSID.

The coreless cartridge line features a full range of media efficiencies to best match the filtration to the application. Available in 99.5% efficiency, $B_x > 200$ @ 1, 3, 11, 15, 25, and 41 micrometers. The synthetic media is fully supported on both sides to maintain pleat integrity under all conditions.

Cartridge	Data Sheet	Dimensions in inches	Weight in Lbs.	Qty. per Carton
PH720-CGW	DD-700-106	7 x 19	4	4
PH818-CGW	DD-700-108	9 x 18	6	1
PH830-CGW	DD-700-109	9 x 30	6	1

Media Available in Coreless Cartridges						
Media #	16	12	11	01	03	05
$B_x > 200$ @ particle size in micrometers	1	3	11	15	25	41

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Your Local Representative:



Hilsorb Dryer Cartridge



High Efficiency Water and Particulate Removal

PD Series Pleated Dryer

The Hilco® Hilsorb™ Super-Absorbent Dryer Cartridge combines high efficiency particulate filtration with high-capacity water absorption in a single pleated cartridge. The Hilsorb™ cartridge excels in applications requiring moisture control and high filtration efficiency such as insulating, hydraulic, lube, and fuel oils.

The Hilsorb™ Dryer features high-volume solid particulate and water removal capacity. The patented pleated construction permits higher flow rates at lower pressure drops than other dryer cartridges. The proprietary arrangement of the media layers provides a low pressure drop throughout the useful life of the cartridge, but as it nears saturation with water, the pressure drop increases to signal the need for a change.

The high-capacity Hilsorb™ saves money by processing more gallons of oil with fewer changes. It maintains high dielectric strength and greater stability in transformer oils. Hydraulic equipment is protected from water damage while long life is assured through high filtration efficiency.

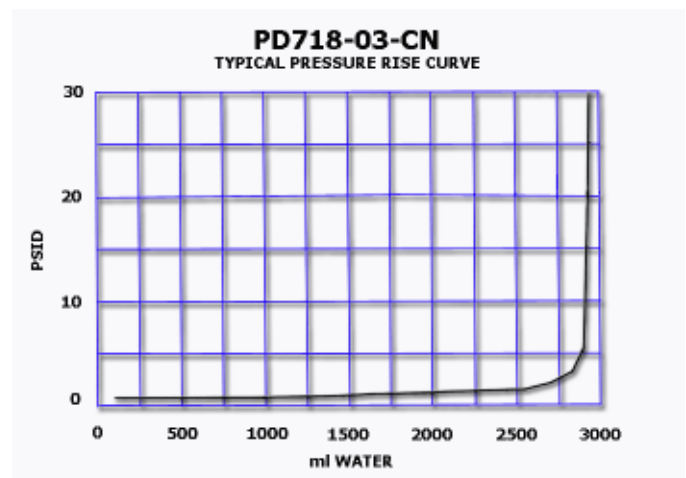


Applications

- Insulating Oils
- Hydraulic Oils
- Lube Oils
- Fuel Oils

Benefits

- High water-holding capacity
- Efficient particulate removal
- Low initial pressure drop
- High flow rate
- Increasing pressure drop signals saturation



Typical pressure rise curve with water absorption demonstrates the nearly flat low pressure drop curve until the cartridge is nearly saturated.

Hilsorb™ Performance Data

- Removes up to 99.8% free water in a single pass
- Can achieve as low as 25 PPM water on recirculation

-12: For Best Particulate Removal Efficiency, Fine Silt Control, Carbon Fines

	PD718-12-CN	PD511-12-C	PD310-12-C
Area, sq. ft.	10.36	3.65	1.82
Flow, gpm	10	1	.5
Water Capacity, ml	2015	775	245
Dirt Capacity, gms	107	38	19
Beta Ratio	$B_4=200$	$B_4=200$	$B_4=200$

-03: For Highest Water Capacity

	PD718-03-CN	PD511-03-C	PD310-03-C
Area, sq. ft.	14.5	5.07	1.93
Flow, gpm	10	1	.5
Water Capacity, ml	2735	1375	435
Dirt Capacity, gms	131	46	17
Beta Ratio	$B_{28}=200$	$B_{28}=200$	$B_{28}=200$

Hilsorb™ Cartridge Specifications

Cartridge	Data Sheet	ID (inches)	OD (inches)	Length (inches)	Quantity per Box	Shipping Weight (lbs.)
PD718-12-CN	DD-700-35	2.56	6.25	18	4	18
PD718-12-CRN	DD-700-79	2.093	6.25	18	4	18
PD718-03-CN	DD-700-35	2.56	6.25	18	4	21
PD718-03-CRN	DD-700-79	2.093	6.25	18	4	21
PD511-12-C	DD-700-83	1.75	4.68	11	4	7
PD511-03-C	DD-700-83	1.75	4.68	11	4	7
PD310-12-C	DD-700-82	1.063	2.75	9.68	4	3
PD310-03-C	DD-700-82	1.063	2.75	9.68	4	3

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Your Local Representative:



“New” DR Series Dry Ion Exchange Resin Cartridges



The newly developed Hilite Opti-Dri (Dry E) cartridge features a predried ion exchange resin with controlled expansion technology (patent pending).



ET718-DR-03ZXCO

Benefits

- Removes metal soaps
- Increases resistivity
- Increases fluid life
- Minimizes corrosion risk
- Absorbs water from wet systems
- Negates fluid disposal issues

Advantages

- Most effective acid scavenger
- Does not add water to the system
- No dust migration
- Controlled expansion eliminates risk of bursting in high-acid environments
- Increased acid capacity
- Extended shelf life
- No extractable metal content

Features

The new HILCO DR features patent pending controlled expansion technology to permit the ion exchange resin to safely swell without bursting as it scavenges acid and water.

The patented HILCO DR series Ion Exchange filled cartridges also feature Opti-Dry (Dry-E) resin. Opti-Dry reduces the high water content of the ion exchange resin to an optimum level that will absorb water instead of adding water to the system fluid, while maintaining enough internal moisture to ensure efficient ionic transport of acid molecules within the macroporous structure of the ion exchange resin.



BEFORE



AFTER

Specifications

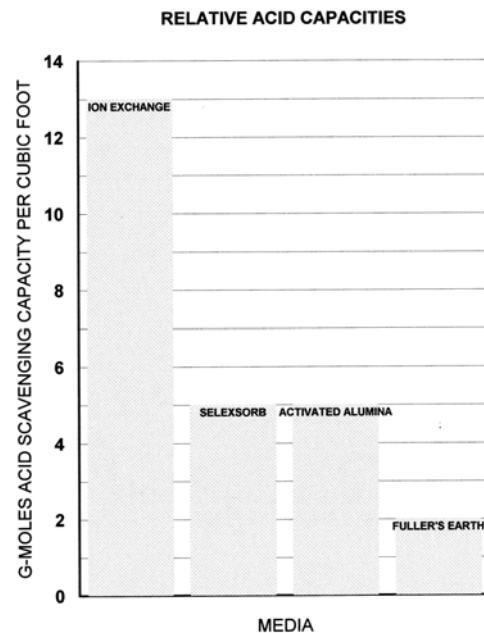
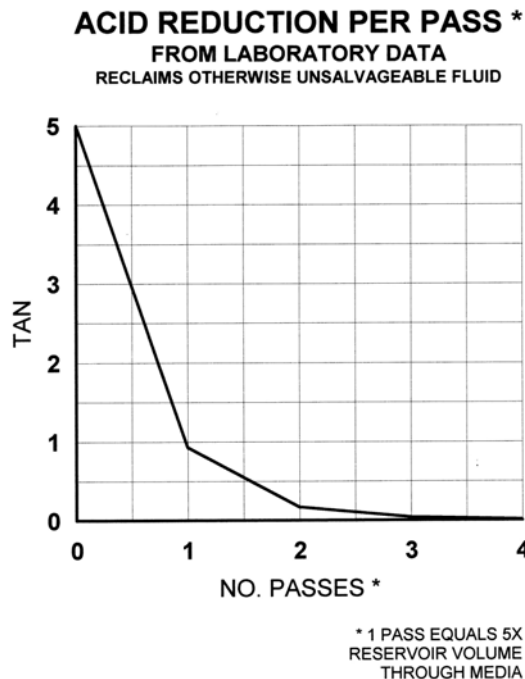
Cartridge	Dimensions (inches nominal)			POUNDS OF RESIN	CASE QUANTITY	SHIPPING WEIGHT PER CASE (lbs.)
	ID	OD	LENGTH			
ET119-DR-03ZXC0	2 3/32	11	19 9/16	16.5	1	22
ET718-DR-03ZXC0	2 3/32	7 1/4	18	6.6	1	11
ET718-DR-CRN	2 3/32	6 1/4	18	4.0	4	32
ET718-DR-CN	2 9/16	6 1/4	18	4.0	4	32
*ET718-DR-CGV	-----	6 1/4	17 7/8	4.0	4	32

* Features new o-ring seal design.

Packed ion exchange resin cartridges are rapidly becoming the international choice for reducing Total Acid Number (TAN) in lubricating, hydraulic, and insulating oil systems. It is especially suited for phosphate ester-based synthetic oils and is capable of both maintaining low TAN levels and reclaiming out-of-bounds high TANs.

Ion exchange resin treatment eliminates the metallic soap contribution and dust fines associated with other adsorbents and has a high acid scavenging performance with an overall acid capacity 2-6 times greater than other adsorbents. It will work in systems previously contaminated with fuller's earth leachates. The system does not have to be flushed prior to switching to Opti-Dry (Dry E) ion exchange resin.**

** May require additional trap filters to remove precipitated gels that are released into the system as high TAN levels are reduced.



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Your Local Representative:



Hilite-E Filter Cartridges



For Synthetic Fluids and Oils

Ion Exchange removes acids not additives: longer fluid life.

Description

The Hilite-E ion exchange cartridge line is based on the existing filled cartridges. Instead of a traditional activated adsorbent, the cartridge canister is filled with a dust-free ion exchange resin specifically selected for acid adsorption.

Users report increased life between changeouts to be many times greater than other activated adsorbents.

How It Works

The ion exchange media consists of resin beads .3 to 1.2 mm in diameter. They offer low pressure drop and no dust. Best of all, they contribute no other mineral salts to the system. Total acid number (TAN) reduction is greater than Selexsorb® media, with a much longer life reported by users. The ion exchange resin works as an adsorption bed to capture acid ions. A Hilsorb trap filter or Hilco coalescer may be used downstream to remove excess water. Low acid numbers can be maintained without water control. Optional water control allows the maximum fluid and cartridge life.

Does Not Remove Additives

Hilite-E ion exchange is an alternate method of treating phosphate ester fluids and hydrocracked petroleum-based oils for acid reduction and removing oxidation components.

It is used instead of Selexsorb, fuller's earth, or activated alumina in fluids that contain additives. Ion exchange does not remove additives as the activated adsorbents do.

Features and Benefits

- Much longer life
- Will not remove additives
- Does not react with fluid
- Will not contribute salts
- No dust migration
- Low pressure drop



Where Used

Ciba-Geigy and Monsanto phosphate ester-based fluids are prime candidates for ion exchange purification because of their additive content. Canada and Europe favor ion exchange treatment.

Ion exchange resin can be used for acid reduction in virtually any application where fuller's earth, activated alumina, or Selexsorb is used. It works especially well in Akzo's Fyrquel® and other polar fluids.

Applications

- Phosphate ester lube oil
- Phosphate ester hydraulic oil
- Synthetic based lube oil
- Synthetic based hydraulic oil
- Compressor lube oil
- Transformer insulating oil

Cartridge Specifications

Cartridge (Data Sheet)	Dimensions (in)				Maximum Flow * (GPM)	Media Weight (lbs.)	Case Quantity	Shipping Weight ** (lbs.)
	Outside Diameter	Length	Inside Diameter	Housing Nominal Centerpost				
ET718-00-CRN (DD-700-52)	6.25	18	2.09	1-1/2	0.5	7.7	4	49
ET718-00-CN (DD-700-52)	6.25	18	2.56	2	0.5	7.7	4	49
ET119-00-03ZXC0 (DD-700-58)	11	19	2.09	1-1/2	1	35	1	44
ET119-00-CRD (DD-700-71)	11	19	2.09	1-1/2	1	35	1	44

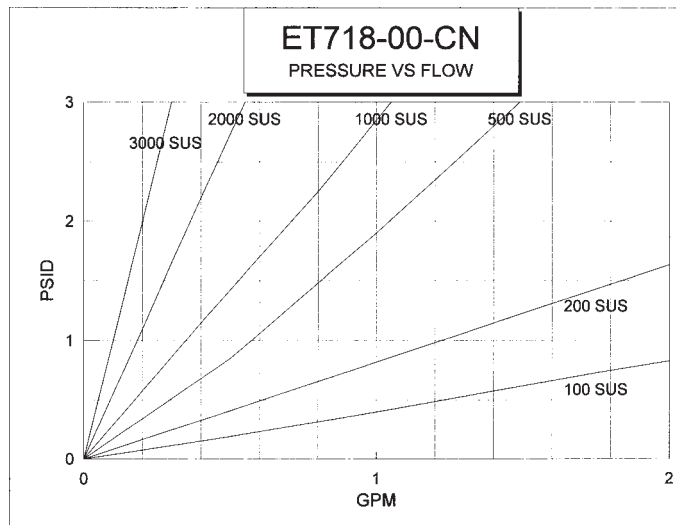
* Maximum flow per cartridge

** Shipping weight per case

System Sizing

To determine the equipment and cartridge(s) required, **reservoir size** and **type of fluid** must be known. For typical acid reduction in phosphate ester EHC fluids, less than one pound of ion exchange media is required to treat each 100 gallons of fluid to reduce a TAN of .2 to .02. Because acid removal is typically accomplished by off-line systems, due consideration must be paid to the amount of time required to circulate the entire sump. For reservoirs above 1000-gallon capacity, the factory should be consulted to optimally determine the equipment required.

Typical Flow Chart



The Hilliard Corporation reserves the right to change specifications and dimensions at any time.
Please contact the factory for the most current information.

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Your Local Representative:



PRODUCT INFORMATION



Hil-flo™ Oil Filters for up to 150 PSI and 25 GPM Service

Hilco's Hil-flo™ 01HMF-0150 Series filter vessels permit full-flow or off-line filtration of fluids at working pressures to 150 PSI and flow rates to 25 GPM. Inexpensive and compact, the versatile 01HMF-0150 filters utilize Hilco o-ring sealed cartridges which feature large dirt-holding capacities for efficient, cost-effective filtration of hydrocarbon oils, synthetic lubricants, and solvents used as fuel, lube, seal, hydraulic, heat transfer, and insulating oils. Hil-flo filters feature a newly designed cover and an "O" ring which enhance the filter's sealing capabilities. The Hil-flo 01HMF-150 Series filters are available in two models, featuring one or two cartridges.

Applications:

- Hydraulic Systems
- Diesel and Gas Engines
- Turbines
- Machine Tools
- Compressors and Vacuum Pumps

Features:

- All-steel welded construction
- Newly designed cover and Buna-N "O" ring gasket for better sealing
- Swing bolt cover; no loose hardware
- Accept Hilco's o-ring sealed pleated paper, PH, stacked-disc and fuller's earth or activated alumina-filled cartridges for various filtration applications, dirt-holding capacities and filtration efficiencies
- Filtration efficiencies from $\text{Beta}_{0.5} = 75$ to $\text{Beta}_{10} = 75$ (nominal 0.5 to 10 microns)
- Holds one or two cartridges
- 1" FPT accessory connections
- Positive hold down cap

Options:

- Pressure Gauge(s)
- Vent Valve
- Relief Valve
- Drain Valve
- Viton "O" Ring Gasket
- Reusable adapter to accommodate cartridges without center tubes
- Piping package for multiple vessels (series or parallel connections)

Benefits:

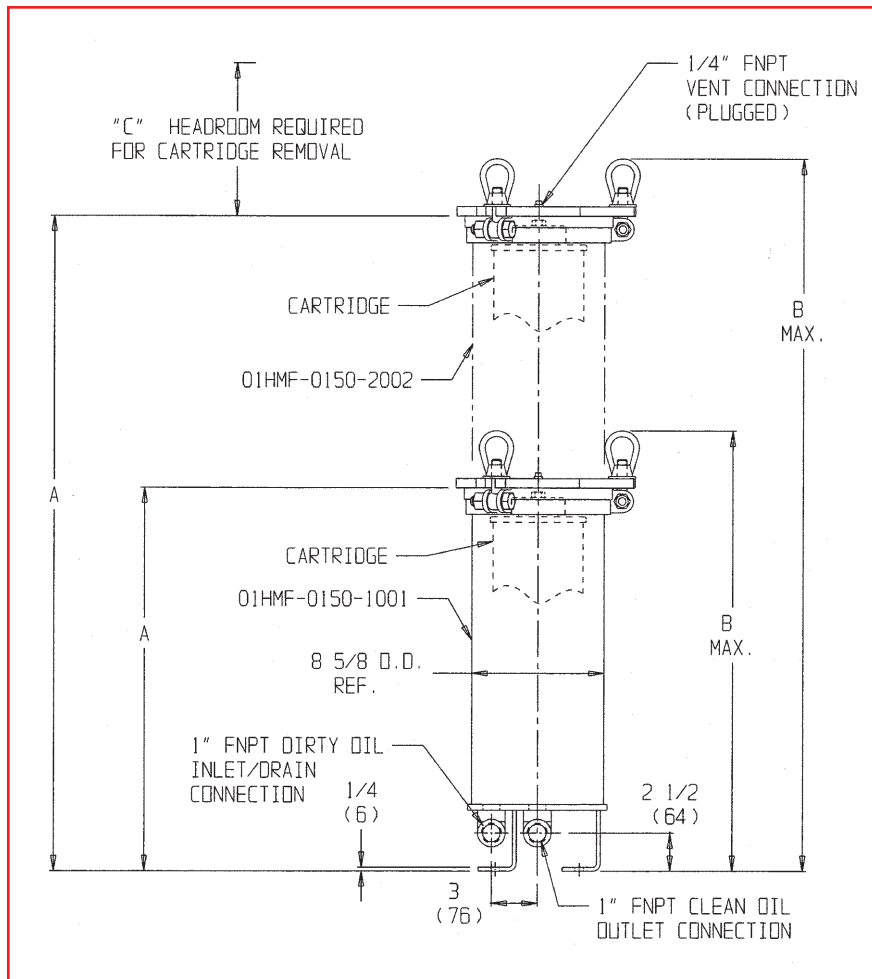
- Provides efficient filtration of fluids used in contaminant-sensitive systems
- Uses entire range of Hilco filter cartridges for removal of particulates, acids, water, varnishes, tars, lacquers, and gums
- Economically priced
- Easy to service
- "O" ring cover seal



How to Read Filter Model Numbers

Indicates:	Example: 01HMF-0150-1001
Standard construction	01
Series	HMF
Maximum design pressure (psi)	0150
Number of cartridges per centerpost	10
Design revision designation	0
Total number of cartridges	001

Specifications



Filter Models	Max. Flow Rate-GPM (LPM)* 3 PSID @ 200 SUS	Pleated Paper Dirt-Holding Capacity (Grams)*	Fluid Capacity Gal. (l)	A In. (mm)	B In. (mm)	C Headroom Required For Cartridge Removal In. (mm)	Approx. Net Weight Lbs. (Kg)
01HMF-0150-1001	25 (95)	350	5 (19)	25 1/8 (638)	29 1/2 (749)	18 5/8 (473)	55 (25)
01HMF-0150-2002	25 (95)	700	9 (34)	43 (1092)	47 1/4 (1200)	18 5/8** (473)	70 (31.8)

* Dependent upon cartridge model used.

** 36" (914mm) for single elements.

NOTE: Maximum Temperature 250° F (121° C)

The Hilliard Corporation reserves the right to change dimensions and specifications at any time. Please contact the factory for the most current information.

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Your Local Representative:



Hilco Replacement Cartridges



Reduce costs with high-quality Hilco Replacement Filter Elements



We carry a variety of paper, synthetic, and metal medias for liquid, gas, and exhaust filtration, as well as coalescing and vapor elimination. Contact us for a quote on elements for major manufacturers.

To receive a quotation, list your current filter element manufacturer and part number on the other side, and send this sheet back to us via mail or fax.

Start lowering your costs and boosting your annual savings today!

CURRENT ELEMENTS:

Manufacturer

Part Number

Quantity per Year

DESCRIPTION OF APPLICATION:

Name _____ Title _____

Company Name _____

Address _____

City _____ State _____ Zip Code _____

Phone _____ Ext. _____ Fax _____

Email _____

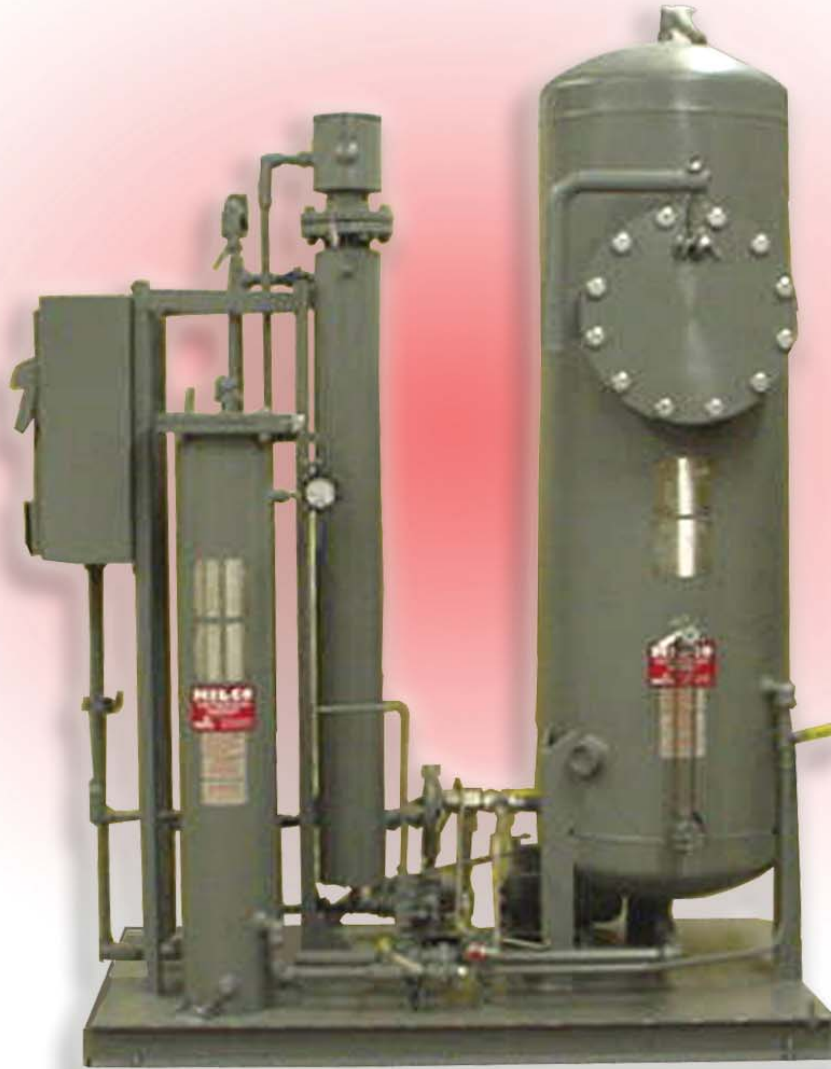
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Contact Steve Nalbach:
snalbach@hilliardcorp.com



Hilco Coalescer/ Separator Systems



**Remove Moisture and Particulate Contamination
from your Steam and Gas
Turbine Lube Oils**

Self-Sufficient Stand-Alone Models



Features

- System flow rates from 10, 30, 60, and 100 GPM
- Positive displacement oil pump with integral relief valve
- TEFC pump motor
- NEMA 4 electrical enclosure with controls
- ASME code pre-filter vessel
- ASME code coalescer/separator vessel
- Clean and dirty sampling ports
- Inlet basket strainer
- Automatic, pneumatically operated, water drain valve
- Manual moisture drain
- Liquid level sight gauge

Performance

- Particulate removal efficiency of 99.5% @ 3 micron
- Free and emulsified water content reduced to under 25 ppm
- Total water content to under 150 ppm based on an influent moisture content of 5% maximum

Options

- Explosion-proof electrical controls
- Low-watt-density oil heaters
- CRN or PED vessels

Sizing a System -- Your Hilco coalescer/separator should have a flow capacity of at least 1/2% of the total lube oil volume. The following chart depicts the maximum recommended size reservoir for each Hilco coalescer/separator system.

Model #	Flow Rate	Reservoir Capacity
02CS10	10 GPM	2,000 Gallons
02CS30	30 GPM	6,000 Gallons
02CS60	60 GPM	12,000 Gallons
02CS100	100 GPM	12,000+ Gallons

Portable Models

Features

- Flow capacities from 1 to 30 GPM
- Ability to service the needs of multiple units
- Customized electrical requirements
- Integral particulate filter and coalescer filter arrangement
- Liquid level sight gauge



Single or Multiple-Element Vessels

Features

- Flow capacities to 20 GPM
- Designed to side stream part of the existing lube oil pumps flow
- ASME Code and non-code designs available
- Duplex designs available for uninterrupted flow during element changeout
- Liquid level sight gauge
- Auto drain optional equipment



Custom Designs

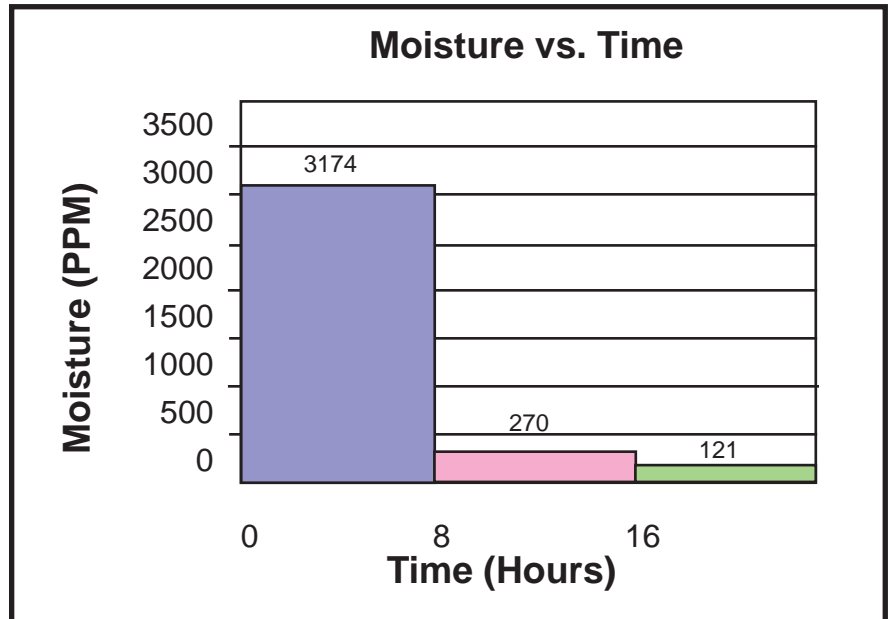
Hilco's staff of engineers is always willing to design a system for your particular needs. Call today with your specific application requirements.



Typical System Performance

The chart on the right depicts the moisture content of a 2,000-gallon steam turbine reservoir with a 10-GPM Hilco coalescer/separator installed.

After 16 hours of operation, the Hilco coalescer/separator was able to reduce the moisture content of fluid from 3,174 ppm to its natural saturation point.



Hilco has a large inventory of coalescer/separator element replacements available for immediate shipment. Call for assistance in determining the appropriate size.

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Your Local Representative:



TECHNICAL INFORMATION



GASEOUS FUEL FILTERS

HILCO® has been manufacturing filters for gaseous fuel for over 25 years. These filters are designed and built to ASME Code Section VIII, Div. 1. The filters are specifically designed for gas turbine systems with high pressure, high flow rate and minimal dirt load.

HILCO gaseous fuel filters are available in simplex design and in duplex arrangements for continuous operation. The duplex models use HILCO's zero leakage 6-port transfer valve designed specifically for gaseous applications.

HILCO gaseous fuel filters use cleanable pleated strainer cartridges for efficient filtration. These cartridges can be cleaned, and reused many times with a water hose spray, steam jenny or air.



The following is an example of a HILCO gaseous fuel filter.

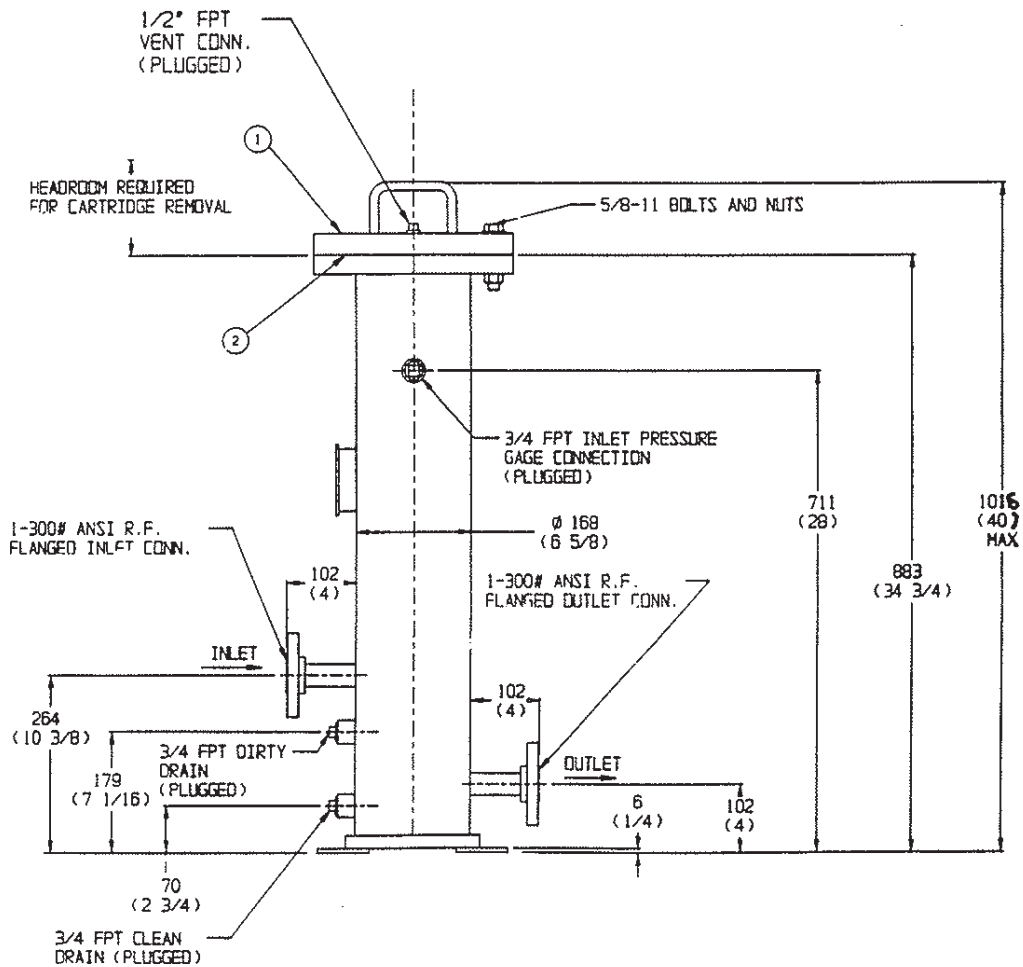
MODEL: 02518-520702021
ASME Code with "U" Stamp and Certificates

CARTRIDGE: Pleated Strainer PS518-10-C

FLOW: 537 Nm³/hr (316 SCFM)

DESIGN PRESSURE: 22 kgf/cm² (313 PSIG)

INITIAL PRESSURE DROP: 0.010-0.015 Kgf/cm² (0.14-0.20 PSID)



*The Hilliard Corporation reserves the right to change specifications and dimensions at any time.
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HILCO® is a registered trademark of The Hilliard Corporation.

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Load Tap Changer Filtration Systems



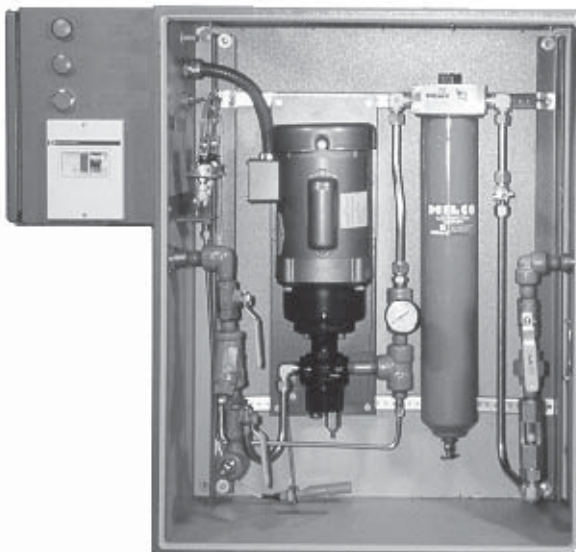
HILCO's complete line of filtration products can meet your requirements

Proven performance. Electric utility companies continue to show interest in using Hilsorb™ dryer filters on their transformer load tap changers (LTC). Rightfully so, as these filter cartridges have extended the time between maintenance intervals, thereby saving utility dollars. Dryer/filter cartridges, such as the PD718-12-CN, remove free water as well as particulate down to 1 micron ensuring that the contacts in the LTC always operate in oil that is at its prime dielectric strength. (See HHB-1)

HILCO: the originator of the LTC filtration system. For 15 years, HILCO has provided filtration systems to the utility industry to clean up LTC oil compartments. Since the original pilot project with Virginia Power in the early 1980s (see VPA-1), HILCO has manufactured hundreds of custom-designed systems for various utility companies.

Products to meet everyone's needs. Experience has shown that each utility has different requirements for LTC filters. Some companies are interested in 'bare bones', standard HILCO housings. When these units are properly installed, they provide an economical solution to the problem. On the other end of the spectrum, many utilities have opted for all the 'bells and whistles', where only simple plumbing and electrical work is required. In all cases, HILCO has the right product for you.

LTC Filtration System



Standard Features

- 3.5 gpm positive displacement pumps close coupled to 1/3 HP TEFC motor. Pump has 60 psi built-in relief valve.
- NEMA-4 electrical enclosure
- Buna-N o-ring cover seals
- Vent cock
- Y-strainer
- Pressure gage to detect dirty cartridge
- ANSI #70 gray paint
- Pressure switch, SPDT or DPDT to detect dirty cartridge
- Run light
- Dirty cartridge indicator light

Deluxe LTC Filtration System

Typical Model: **03718-530101031**

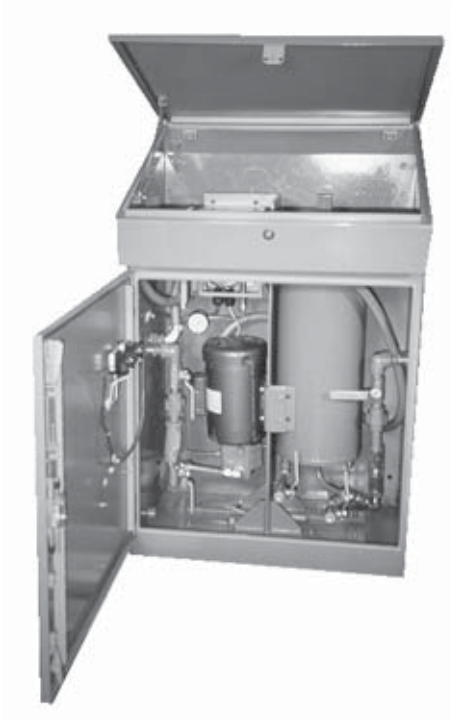
Drawing: **5301-01-031-C**

Features: includes all standard features of the LTC Filtration System, plus:

- Enclosed in Nema 4 enclosure with front and top access
- Float switch to indicate oil in compartment
- Pressure switch (SPDT) to indicate dirty cartridge
- Transfer valves to fill or top off reservoir
- Drain valves
- Flow indicator

Other options available (partial list):

- Programmable timer
- ASME code filters
- Pressure switch - to be wired into an alarm
- Drip pans and sump alarms - for leak detection
- Magnetic motor starter to shut down pump motor remotely
- Hour meter
- Heater



At the heart of it all... HILCO's own dryer cartridge

Don't be fooled by private labeling. HILCO manufactures its own filter cartridges in Elmira, NY. This gives our customers:

- a single source for housings, systems and cartridges;
- a resource for testing at our R&D lab;
- a reasonably priced cartridge.

Dryer cartridges are designed to remove free water and particulate. (See HDI-1)

Cartridges that remove 99% of particles 1 micron or larger are available.



The Hilliard Corporation

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Your Local Representative:



Non-Code 718 Filter Housing



A rugged, yet affordable solution for small filtration systems or portable filter carts.

HILCO is a name that is synonymous with durability. The HILCO Division of The Hilliard Corporation has a reputation for constructing rugged, durable filter housings. So, when HILCO Engineering was tasked with designing an inexpensive housing to meet customer demands, one objective was clear: HILCO's good name for constructing sturdy, high-quality products was not to be compromised.

The result is the new 718 filter canister. This housing is constructed of 11-gauge carbon steel with a 1" thick bottom and 1/2" thick steel cover. The canister weighs about 41 pounds and utilizes a single bolt closure and an o-ring face seal. The challenge was to design a competitively priced housing that would still reflect HILCO quality standards. Thin-walled, pressed cans and "pool clamp" closures were not even considered.

The filter canister will house any HILCO 718 cartridge designed for 2" centerposts. This includes the PL pleated cellulose and PH pleated synthetic cartridges. It will also work with filled 718 cartridges designed for 2" centerposts. This includes fuller's earth (HT718-00-CN), activated alumina (AT718-00-CN), Selexsorb[®] (ST718-00-CN), and ion exchange (ET718-00-CN) cartridges.



HILCO 718 Filter Housing

Model: **01718-0100-1C01**

Data Sheet: **DD-604-12**

Standard Features

- Carbon steel construction
- Design pressure: 100 psi
- Design temperature: 250° F
- -16 SAE, J514 (1") inlet/outlet connections
- 1/2" FNPT drain, 1/4" FNPT vent connections
- Buna-N o-ring cover seals
- Standard gray paint

Optional Features

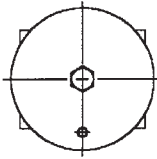
- Viton[®] cover seal
- Prime or epoxy paint
- Pedestal or floor mounting options

HILCO OIL FILTER

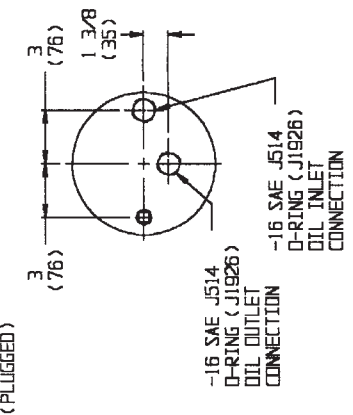
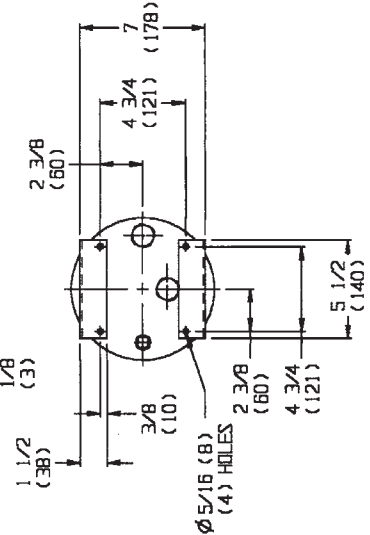
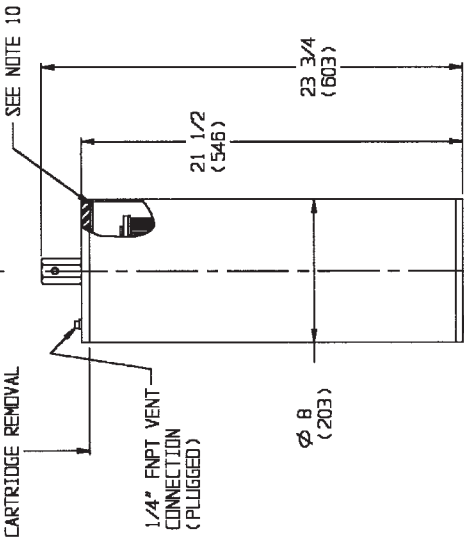
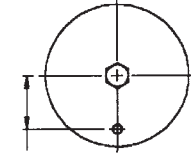
MODEL: 01718-0100-1C01

WEIGHT (APPROX)				FLUID CAPACITY	
FILTER INCLUDING COVER		COVER ONLY		GALLONS	LITERS
DRY		WET			
LBS	KG	LBS	KG		
41	19	76	34	4.2	15.9

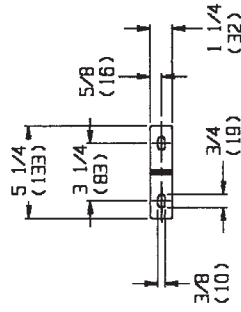
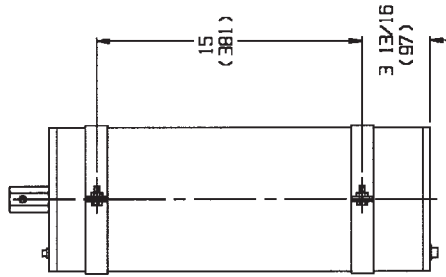
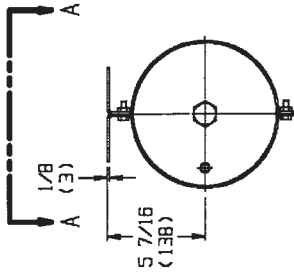
PEDESTAL MOUNTING



STANDARD



BRACKET MOUNTING



VIEW A-A MOUNTING BRACKET DETAIL

NOTES:

1. MAX. DESIGN PRESSURE.....100 PSI (6.9 BAR).
2. MAX. TEMPERATURE.....250°F (121°C).
3. FILTER CARTRIDGE AS SPECIFIED ON ORDER.
4. TO COMPLY WITH OSHA STANDARDS - DO NOT USE THIS VESSEL FOR LIQUID HEATED ABOVE ITS FLASH POINT - OR HAVING A FLASH POINT BELOW 200°F (93.3°C).
5. SEE 2501-00-147-A FOR OPERATING INSTRUCTIONS.
6. MATERIAL SPECIFICATION: CARBON STEEL CONSTRUCTION.
7. COVER BOLT TORQUE 60 FT-LBS (81 N-M).
8. COVER GASKET:
0391-00-414-T Buna-N (STANDARD)
0391-00-418-T Viton (OPTIONAL)



Fuel Gas Filter-Separator for
Siemens-Westinghouse 501 Series,
GE, and MHI Gas Turbines

Replacement Elements

Advantages:

- * High Quality
- * Direct Replacement
- * Durable Construction
- * **Competitively Priced**
- * In Stock



Hilco Element	National Element	For Use On
AA1624-00-C	2710E1	Siemens-Westinghouse 501D & F -- Main Fuel Gas GE MHI
AA1624-00-N	2710E3, 2710H2, 2710H6 G1625-0005-PG-3-8	
AA820-00-C	2710E2 2700G7 G820-0005-PG-3-8	Siemens-Westinghouse 501D & F -- Pilot Fuel Gas
AA1125-00-C	2700GA G1125-0003-PG-3-8	Siemens-Westinghouse 501G -- Pilot Fuel Gas

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HILCO Refrigeration Oil Conditioning Systems



The Hilliard Corporation has been furnishing the refrigeration industry quality oil conditioning systems for more than 50 years to dehydrate the mineral oils that have been in use for many years. They are also used with the newly required polyol ester fluids in preparation for charging the compressors.

Systems with flow rates of 1 GPH to 100 GPH are available with vacuum storage tanks either as an integral part of the conditioning unit or remotely mounted to maintain the oil in a dry state.

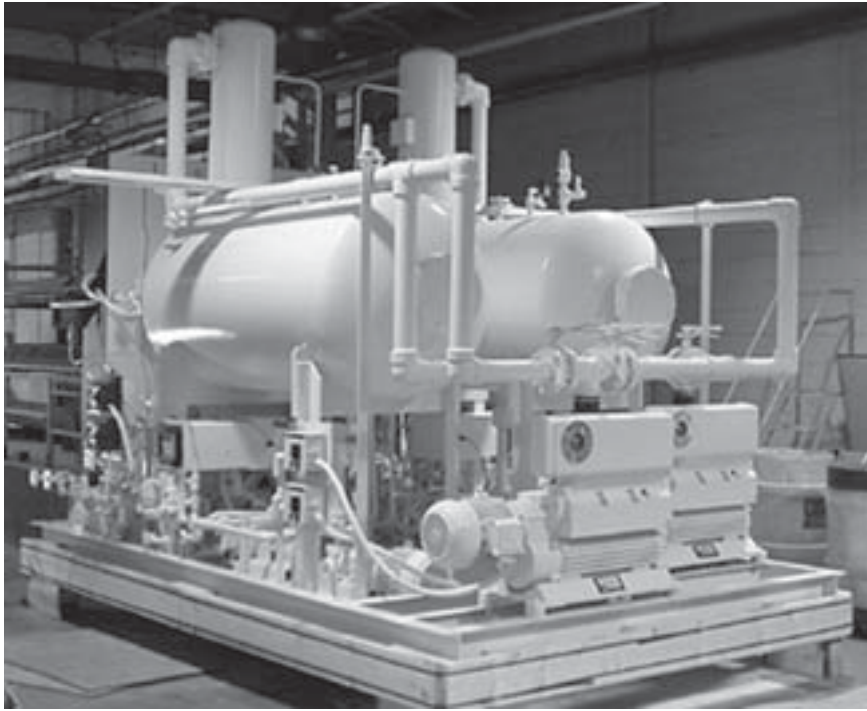
Many users have recently purchased dual systems set on a common base but controlled by one operating panel for processing two different viscosities or brands of oil. We have supplied systems to all of the major industrial players in the field.

Available Options

- ◆ Moisture analyzers
- ◆ Programmable controllers
- ◆ Automatic recirculation controls
- ◆ Preset batch controllers
- ◆ High-pressure discharge pumps
- ◆ Flow meters

The HILCO engineering group can design a system to meet your specific needs, or you may choose one of our standard designs. Give us a call to discuss your application requirements.





A dual oil conditioning system ready for shipment to a customer site.

Other HILCO Products

Cartridges
Vent Mist Eliminators
Coalescer/Separators
Transfer Valves
Oil Reclamation Units
Duplex Filters
Portable Filters

The Hilliard Corporation

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Fax: (607) 733-0928
<http://www.hilliardcorp.com>

Your Local Representative:



Portable Ceramic Membrane Filtration System



The Hilco Ceramic Membrane Filtration System is an ideal way to safely dispose of your oily-water waste streams. Depending on stream composition, disposal volumes can be reduced as much as 90%.

The system is designed to accept three different retention-rated ceramic membranes (0.2 μm , 0.01 μm , and 0.005 μm), depending on local discharge ordinances.

Systems can be custom-designed for maximum operating efficiency based on your weekly generating volumes.



Features and Benefits

- Compact Design
- Light Weight
- Broad pH operating range of 2-14
- Uses Standard 115 VAC Electrical Receptacle
- Maximum Operating Temperature of 200° F

Applications

- Machine Tool Coolant
- Aqueous Washer Fluids
- Mop Water
- Compressor Condensate
- Wash Water

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Your Local Representative:



Portable Filter Carts for Any Purpose



3.5 gpm to 15 gpm multipurpose carts

What fluids could benefit from a HILCO Filter Cart?

HILCO makes portable filters for many different fluids, including:

- Mineral-based lubricating, hydraulic, and insulating oils
- Synthetic lubricating and hydraulic (EHC) fluids
- Fuel oils, kerosene, gasoline
- Ethylene glycol mixes
- Solvents
- Coolants and cutting oils
- Vacuum pump oils

What can be done with the fluids?

HILCO offers a wide variety of cartridges to serve many different purposes:

- PL and PH series cartridges to remove particulate down to $BETA_1=200$.
- PD series dryer cartridges to remove particulate and water.
- Conditioning cartridges filled with activated alumina, fuller's earth, Selexsorb, or ion exchange media to serve many purposes such as acid reduction in synthetic fluids and varnishing effects of mineral oils.

HP4 Off-line Portable Filtration System

Purpose: Economical solution for removing water and particulate from oils, fuel and other fluids

Features:

- Filter housing: Heavy-duty aluminum construction, houses one HILCO o-ring sealed filter element; SAE inlet and outlet ports; vent cock and drain valve included.
- Pumps: Positive displacement gear type rated to 4 gpm. Pumps feature an internal relief valve set at 60 psi.
- Motor and electrics: Wired 115V, 60 Hz, 1/3 hp motor; NEMA 1 switch with thermal overload protection; 7-foot electric cord.
- Piping: pressure gauge included.
- Filter can be used as a mounted unit. High viscosity unit (HP3B) available.



Special Portable Filters

Purpose: Conditioning fuel oil, kerosene, gasoline, and other volatile fluids

Special Optional Features:

- ASME Code Filter Housings: Filter housings are pressure containment vessels. Depending on application and size, certain jurisdictions (state, federal, OSHA, etc.) may require the housings be constructed to ASME Boiler and Pressure Vessel Code. HILCO, an ASME certificate holder, can offer this option at minimal cost.
- Brass, Non-Sparking, UL Listed Pumps: For fuel applications, this is a necessity.
- Explosion-Proof Electrics: Motors and wiring to meet most Class and Division requirements.
- Air Driven Diaphragm or PD Pump: Where compressed air is available and electric motors are not desirable.
- Stainless Filter Housings: For corrosive environments.



Portable Filter for Synthetic Fluids

Purpose: Conditioning synthetic lubricating hydraulic fluids (see also PFS-3)

Features:

- Filter housing: Carbon steel construction, standard gray paint; houses one (3.5 gpm) or two (10 gpm) HILCO 718 filter cartridges; sealed cover with Viton o-ring; vent cock and drain valve included.
- Pumps: same as standard, except with Viton seals.
- Motor and electrics: same as standard.
- Piping: same as standard.
- Special: Painted with epoxy coating which is compatible with many phosphate ester fluids.

Other HILCO Portable Units

Multiple Stage Units

Purpose: Acid reduction as well as particulate removal. Multiple stages accomplish different purposes in a single pass.

Features: Available with all features and options of other portable filters. Mounted on a four-wheel dolly with drip edge.

Over-the-Road, Trailer-Mounted Units

Purpose: For those who treat fluids at different locations, these units can be towed to the site for use.

Applications: By using HILCO Dryer cartridges (PD series), off-site conditioning of transformer oils can be accomplished. PD cartridges will remove water and particulate from the fluids. Available with pumps to 50 gpm.

*The Hilliard Corporation reserves the right to change specifications and dimensions at any time.
Please contact the factory for the most current information.*

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<http://www.hilliardcorp.com>

Your Local Representative:



PH 426-XX-CG1V Element



High flow cartridge with improved, lower pressure drop

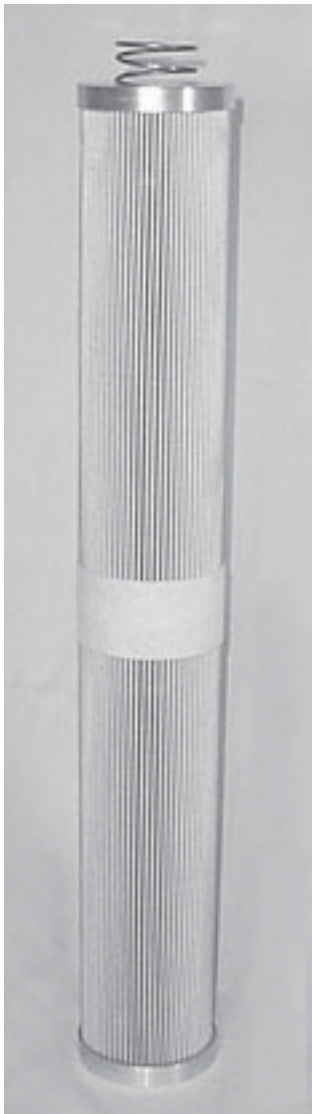
The move today is towards cleaner fuel, lube oil, and hydraulic oil. With lube and hydraulic oils, cleaner fluid means less wear on moving parts, improved performance, and reduced down-time. Cleaner fuel means less wear on injectors which reduces the possibility of increased fuel consumption, idle speed creep, and dilution of lube oil.

One way to obtain cleaner fluids is to use more efficient filters. Tightening the filtration of the filter cartridges can produce cleaner oil. But it's really not quite that simple.

If you are using a cartridge made of cellulose paper, tightening the efficiency of the cartridge will increase the pressure drop. The cartridge will also load up faster because it is catching more contaminant. This will result in more frequent cartridge replacement.

However, changing from less efficient cellulose cartridges to a more efficient PH cartridge could result in an actual decrease in pressure drop. PH cartridges have screened, synthetic media designed for high flows.

Synthetic media used in the PH cartridges makes it impervious to water. As a result, the cartridge is well suited for steam turbine lube and hydraulic oils.



Features

- Synthetic media
- Support Screen
- Rigid-pleat structure
- External hold-down spring
- O-ring seal
- Corrosion-resistant
- Metal end-caps and center tube
- High collapse strength

Filtration Efficiency

Part Number	Absolute Rating, x Beta _x = 75 *	Absolute Rating, x Beta _x = 200	Absolute Rating, x Beta _x = 1000
PH426-12-CG1V	3	4	7
PH426-11-CG1V	10	12	14
PH426-01-CG1V	14	15	17
PH426-03-CG1V	24	25	32

* The Beta Ratio system is an industry standard (ISO 4572) for measuring efficiency. For example, Beta₃=75 is equivalent to removing 98.7% of particles 3 micron and larger; Beta₄=200 is equivalent to removing 99.5% of particles 4 micron and larger; and Beta₇ = 1000 is equivalent to removing 99.9% of particles 7 micron and larger.

Specifications

Construction Materials

Media: Synthetic, epoxy-coated steel screen
 Center tubes: Plated and epoxy-coated steel
 O-ring: Viton

Specifications

Collapse Pressure: 100 psid (6.9 bar)
 Max. Service Temp.: 250° F (121° C)

The PH426-01-CG1V element is a direct replacement for:
 National, P/N 2200A3 (fuel and/or lube oil)
 Rep Filtration, P/N HF15426-1-7

The PH426-03-CG1V element is a direct replacement for:
 National, P/N 2200A4 (lube oil)
 Rep Filtration, P/N HF25426-1-7

The PH426-12-CG1V element is a direct replacement for:
 National, P/N 2200A2 (seal oil)
 Rep Filtration, P/N HF06426-1-7

These elements are widely used on Westinghouse 501 G&F turbines.

The Hilliard Corporation

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Your Local Representative:



PH618/636 CG Filter Cartridges



Features a new O-ring seal design!

Replaces the PH718-CN series in new installations.

Note: Is not interchangeable with the PH718-CN; requires a compatible vessel.

The Hilco PH618/636CG cartridges feature the same proven high-capacity deep pleat geometry of the ubiquitous 718 style cartridge but with a modern o-ring seal design. New o-ring design solves the age-old flat-gasket sealing problem of eliminating potential by-pass leakage. Currently available in a 36-inch length to minimize the number of inter-cartridge seals in a vessel, and to simplify cartridge changeout.



Features

- Microglass filter media is sandwiched between two protective layers of Nylon media, then supported with an inner and outer layer of epoxy-coated steel screen.
- Inner and outer support screens provide a rigid pleat structure to withstand high cyclic and pulse flow fatigue.
- Synthetic media enables the cartridge to be used in a wide range of applications, including those which could deteriorate a standard cellulose paper cartridge (e.g. water exposure).
- O-ring sealed ends means positive sealing for critical applications.

Applications

- Lube, seal, or hydraulic oils used in turbines, engines, and compressors
- Fuel oils
- Oils with water
- Water and water-based fluids
- Flushing



Specifications

Construction Materials:

- **Media:** Microglass filter media sandwiched between two protective layers of nylon media then supported with an inner and outer layer of epoxy steel screen.
- **Center Tubes:** Tin-plated steel
- **End Caps:** Coated steel
- **O-ring Seals:** Buna-N standard, others are available
- **Collapse Pressure:** 100 psid (6.9 bar)
- **Maximum Service Temperature:** 250° F

Filtration Efficiency

Media Number	Beta _x = 75*	Beta _x = 200*	Beta _x = 1000*
-16		2	3
-14	2	3	5
-12	3	4	6
-11	9	10	12
-01	14	15	17
-03	24	25	27
-05	40	41	43
-10	50	51	53
-20	64	69	74
-40	100	110	125

Bypass Leakage Information

Cartridge bypass leakage of as little as 1% can limit the maximum Beta Ratio to Beta = 100, no matter how efficient the media actually is. At 2% bypass leakage, the maximum Beta will be Beta = 50. A Beta₃ = 1000 cartridge would become a Beta₃ = 50 with a 2% bypass.

The o-ring seal PH618/636-CG insures you get the full filtration efficiency that you paid for.

*The "Beta Ratio" rating is an industry standard for measuring particle separation efficiency. For example, Beta₃ = 75 is equivalent to removing 98.7% of all particles 3 micrometers and larger and Beta₃ = 200 is equivalent to removing 99.5% of all particles 3 micrometers and larger.

Cartridge	Sold in Quantities of	Single Cartridge Weight	Dimensions Nominal
PH618-XX-CG	4	7 lbs.	6" OD x 18"
PH636-XX-CG	2	14 lbs.	6" OD x 36"

The Hilliard Corporation reserves the right to change specifications and dimensions at any time. Please contact the factory for the most current information.

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Your Local Representative:



High Flow PH Series Filter Cartridge



High Flow cartridges replace existing cartridges with improved efficiency, lower pressure drop.

The movement today is for cleaner fuel, lube oil and hydraulic oil. With lube and hydraulic oils, cleaner fluid means less wear of moving parts, unproved performance and reduced downtime. Cleaner fuel means less wear of injectors, reducing the chance of increased fuel consumption, idle speed creep and dilution of lube oil.

One way to obtain these cleaner fluids is to use more efficient filters. By tightening the filtration of the filter cartridges, the oil will be cleaner.

Can it be that simple? Not really. If you are using a cartridge made of cellulose paper, tightening the efficiency of the cartridge will increase the pressure drop. Also, the cartridge will load up faster because it is catching more contaminant. This will result in more frequent cartridge replacement.



So, how can we improve the efficiency of the cartridge, not dramatically increase the pressure drop and optimize the cartridge life?

HILCO's PH Synthetic Filter Cartridges

Changing from the old style, less efficient cellulose cartridges to a more efficient PH cartridge could result in an actual *decrease* in pressure drop. The PH cartridges have double screened, synthetic medias designed for high flows.

The synthetic media used in the PH cartridges also makes it impervious to water. As a result, the cartridge is well suited for steam turbine lube and hydraulic oils.

Features:

- Double screened, synthetic media designed for filtering.
- Rigid pleat structure to withstand high cyclic and pulse flow fatigue.
- The special synthetic media enables the cartridge to be used in a wide range of applications including those which would normally deteriorate a standard cellulose paper cartridge (i.e., water exposure).

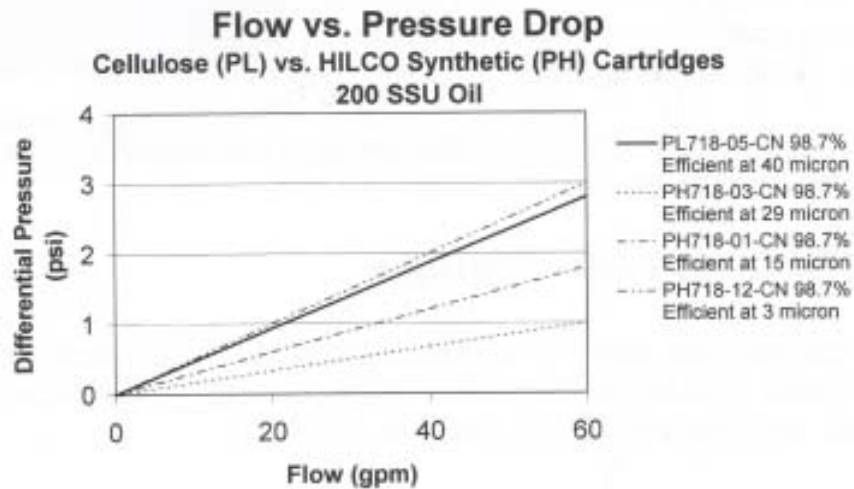
Filtration Efficiency

Media Number	Absolute Rating x Beta _x = 75 *	Beta _x = 200
05	40	41
03	24	25
01	15	17
11	10	12
12	3	4
14	2	3
16	<1	1

* The "Beta Ratio" rating is an industry standard (ISO 4572) for measuring efficiency. For example, Beta₃ = 75 is equivalent to removing 98.7% of particles 3 micron and larger and Beta₃ = 200 is equivalent to removing 99.5% of particles 3 micron and larger.

Specifications

Media: Synthetic, double-screened with nylon or epoxy-coated steel
 Center tubes: Corrosion resistant
 Collapse Pressure: 100 psid (6.9 bar)
 Max. Service Temp.: 250° F



Nomenclature

PH718-01-CN

Size: 310, 511, 518, 718, etc. _____

Media Number: 05, 03, 01, 11, 12, 14, 16 _____

End Seal Arrangement (Consult Factory) _____

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PHI13

Your Local Representative:



THC-500-08/06

PH Filter Cartridges



Hilco PH Filter Cartridges are suitable for filtration of oils, water, water-based fluids and a wide range of chemicals.

Today's modern machinery with its tighter clearances, operates at higher fluid pressures and speeds. This in turn places a far greater demand on the fluid cleanliness. Therefore, high efficiency filtration is essential to meet these stringent requirements.

The Hilco PH series of filter cartridges achieves the demand for higher efficiency without sacrificing dirt capacity and low pressure drop by incorporating modern synthetic filter fibers with much smaller diameters than traditional cellulose fibers. Smaller fibers take up less space in the filter matrix, leaving more room for dirt capacity. Smaller fibers also represent less resistance to fluid flow, maintaining lower pressure drops with closer fiber spacing and the resultant smaller pore sizes.



Water is a common contaminant in most fuel, lube, and hydraulic systems. Synthetic fibers do not absorb water and swell or soften as cellulose fibers can, making them far more reliable under adverse conditions.

Benefits for the system packager or OEM

- Filter housing cost savings
- Space savings
- Cartridge cost savings

Benefits for the end user

- Cartridge cost savings
- Smaller physical inventory
- Reduced number of inter-cartridge seals

Features

- Microglass filter media is sandwiched between two protective layers of nylon media then supported with an epoxy-coated steel screen.
- Support screens provide a rigid pleat structure to withstand high cyclic and pulse flow fatigue.
- Synthetic media enables the cartridge to be used in a wide range of applications, including those which could deteriorate a standard cellulose paper cartridge (i.e., water exposure).

Filtration Efficiency

Media Number	Beta _x = 75*	Beta _x = 200*	Beta _x = 1000*
-16		2	3
-14	2	3	5
-12	3	4	6
-11	9	10	12
-01	14	15	17
-03	24	25	27
-05	40	41	43
-10	50	51	53
-20	64	69	74
-40	100	110	125

Collapse Pressure: 100 psid
Maximum Service Temperature: 250° F

Applications

- Engine and Turbine Lube
- Compressor Lube and Seal Oil
- Fuel Oil
- Flushing
- High-Speed Coupling Oil
- EHC Fluid
- Oil with Water
- Process Water
- Cooling Water
- EDM Coolant
- Chemicals

* The "Beta Ratio" rating is an industry standard for measuring particle separation efficiency. For example, Beta₃ = 75 is equivalent to removing 98.7% of all particles 3 micrometers and larger, and Beta₃ = 200 is equivalent to removing 99.5% of all particles 3 micrometers and larger.

Nomenclature

PH718-01-CN

Size: 310, 511, 518, 718, and 736 _____
 Media Number: 16, 12, 11, 01, 03, 05, and 10 _____
 End Seal Arrangement (Consult Factory) _____

The Hilliard Corporation reserves the right to change specifications and dimensions at any time. Please contact the factory for the most current information.

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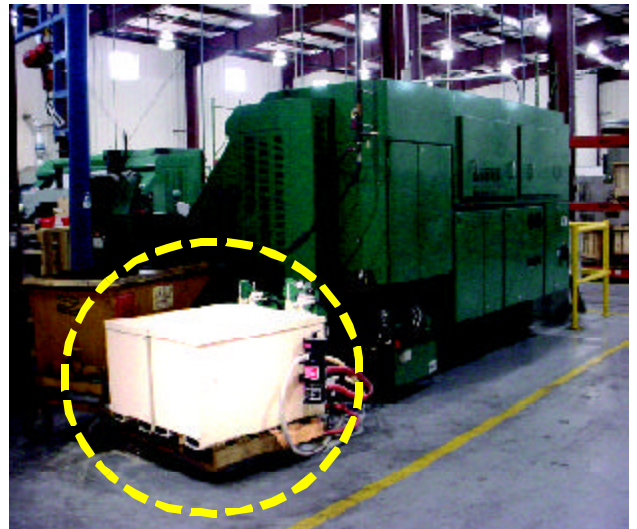


PRODUCTS FOR MACHINE TOOLS



The **CHIPS AWAY** high-pressure coolant delivery system from HILCO forces coolant through the machine tool, expelling chips from the bore hole or cutting surface. These chips are smaller and easier to manage than the larger spiral chips. This helps prevent chips from getting caught on chucks or wrapping around boring bars which requires machine shutdown and manual removal. The lower temperature and reduced friction leave your product with a better finish.

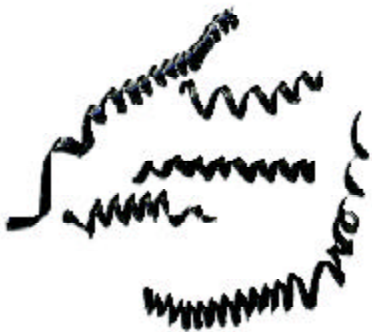
- **Reduced Cycle Time**
- **Longer Tool Life**
- **Eliminates Pecking Cycles**
- **Improves Finishes**
- **Prevents Damage from Heat**
- **Eliminates Recutting of Chips**
- **Enables Higher RPMs**
- **Reduced Coolant Purchases**



Typical CHIPS AWAY application

Why choose CHIPS AWAY?

- Quiet Operation
- Ability to Run Dry
- Consistent Pressure
- Built-in High-pressure Filter
- Reduced Vibration
- Multiple Models Available



Normal Chips



Using CHIPS AWAY

HILCO Coolant Recovery System



GS 200

The HILCO GS 200 is designed to recycle water-based machine tool coolants by removing metal fines and other particulate matter, as well as tramp oil. A pump pulls dirty coolant through a highly effective oil skimmer and then through a 10 micron pre-filter to remove metal fines and other particulate matter. The filtered coolant is then pumped through a coalescing cartridge to concentrate and release the free, unemulsified tramp oil and allow it to float to the top of the coalescing vessel. The clean coolant returns to the sump, while the tramp oil can be drained into a disposal vessel.

BENEFITS OF RECYCLING MACHINE COOLANT

- Extended Tool Life
- Reduced Smoke and Oil Vapor
- Improved Product Quality
- Savings on Replacement Coolant
- Reduced Disposal Costs
- Eliminates Odor Due to Rancid Coolant

Standard Equipment:

Filter Vessel
2 GPH Pump*
Gauges
Power Cord
Skimmer
Casters
Startup Cartridges

*6 GPH Pump Available

Features & Benefits of HILCO GS 200:

- Highly Efficient
- Portable
- Simple Operation
- Superior Quality



PMT-1

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Products for Metalworking



The Chips Away high-pressure coolant delivery system forces coolant through the machine tool, expelling chips from the bore hole or cutting surface. Use of this system reduces cycle time, improves finishes, eliminates recutting of chips, and extends tool life.



The Ceramic Membrane System separates oil-water emulsions without the use of chemicals. Ideal for recycling aqueous wash solutions and reducing coolant disposal costs.



Hilliard Mist and Smoke Eliminators capture contamination released into the air from flame cut, pipe burner, and welding operations. Removes 99.6% of all airborne contaminate and lowers heat and air conditioning costs.



Hilco Oil Reconditioning Systems are reliable, convenient units for the reclamation of waste oils. Quench, lube, vacuum, coolant, and hydraulic oils can all be restored to like-new condition.



The Hilco Machine Tool Mist Eliminator is easy to install, fits in compact areas, and is a cost-effective solution for the health issues caused by breathing water-based coolant mists.



The Star Filters PolyPress is designed for efficient solids removal from water and oils. It operates at high differential pressures, producing cakes with lower moisture content than belt presses or rotary drum vacuum filters. Also offers higher sludge-holding capacities than centrifuges.



Hilco Coolant Recycling System: Model CFS45-3, draws contaminated fluid from the sump through a synthetic pleated filter element to capture the chips and sludge, while separating tramp oil. The included 45 gpm pump makes clean-up fast!



Hilco Coolant Recycling System with 100-gallon tank, the CFS45-6, has similar features to the CFS45-3, with the addition of a 100-gallon holding tank as part of the system.



Portable Coolant Tanks are designed to be used with a Hilco Coolant Recycling System to hold the coolant from the machine tool sump, and to offer the advantage of recirculating the coolant in the tank through the recycling unit while servicing the machine tool.



The Hilco GS-200 Machine Tool Recycling System is used to recycle dirty, water-based machine tool coolants by removing metal fines, particulate, and tramp oils.



Hilco Portable Filters offer reliable, convenient-to-use, off-line filtration of all types of fluids. Heavy-duty construction offers years of dependable service.



Hilco's Bag Filter Housings remove pipe scale, dirt, and other contaminants from process liquids. Use standard bags or Hilco's pleated bag cartridge.



The Hilco Duplex Filter offers uninterrupted flow during filter cartridge replacement. Its compact, sturdy construction makes it ideal for critical hydraulic systems. An ideal replacement that utilizes readily available, low-cost filter elements.



Hilco's high-performance line of pleated Bag Filter Cartridges are intended to increase the filtration efficiency of existing bag filter housings, while reducing the associated costs of frequent bag change-outs. Provides 15 times the surface area of a typical bag.



Hilco DD615-05-CH56P EDM Stacked Disc Filter Element reduces spark erosion residue, extends fluid life, and eliminates arcing and hot spots. It also provides a large filtering area with high dirt-holding capacity.



Hilco carries a variety of high-quality pleated cellulose, synthetic, and metal medias for liquid, gas, and exhaust filtration.

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Your Local Representative:



**Replacements
for PALL®
HC Series
Filter
Elements**



Advantages:

High Quality, Direct Replacement, Low Price, In Stock

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Vent Mist Eliminator

Removes visible oil vapor in the air stream of vents from lubricating oil systems of large, high speed rotating equipment. The Hilco VME improves safety by eliminating oily residue caused by settling oil mist, as well as helping insure compliance with government regulations.



Selexsorb

Selexsorb GT is a patented adsorbent specifically designed for use with Fyrquel gas turbine lube oil. It is also used on steam turbine EHC hydraulic control systems. These units provide for longer fluid life, superior efficiency and increased equipment life.



Duplex

Duplex filters lead to less downtime because fluid flow can be transferred to the other element during changeouts. Duplex filters with transfer valve welded directly between the filter housings not only take up less space but eliminate the possibility of leaks from the four flanged joints. The versatile mounting features of the smaller housings allow wall or floor mounting.



Coalescer

The coalescer is designed to remove moisture and particulate contamination from turbine lube oil using the principles of filtration and coalescing / separation resulting in extended turbine oil life, reduced maintenance, increased bearing life and protection of components from corrosion.



Portable Filter

Hilco portable filters allow for one filter to serve several locations for convenient, reliable filtration of lubricating and sealing oils. These units are self-contained that come complete with motor driven pump sets. These filters reduce replacement expense of fluid by extending their life. Available powered with electric or compressed air.



Filter Cartridges

Hilco offers a wide range of drop-in replacement cartridges for most of its competitors including: Pall, Refilco, Nugent, Baldwin, Allen, Cuno, Dollinger, Filterdyne, Fluitek, Kaydon, Velcon, Winslow and Western, among others.



Dryer Systems

Designed to restore insulating oils used in transformer switching equipment and circuit breakers, Hilco dryer filters provide high efficiency filtration of insulating oils by removing free water and carbon particles to restore dielectric strength. Hilco dryer systems are self contained to eliminate outside contamination.



Trailer Mounted Dryer Systems

These dryer systems are the same as above, mounted on a trailer for over the road use for multiple locations. Options include site glass, flow meter, discharge relief valve, drip pans, and hose reels.



Load Tap Changer Filter

Hilco has developed a filtration system for electrical utilities to use on their transformer load tap changers (LTC). These filters remove free water as well as particulate down to 1 micron ensuring that the contacts in the load tap changer always operate in oil that is at its prime dielectric strength.



Portable Filter

Hilco portable filters allow for one filter to serve several locations for convenient, reliable filtration of insulating, lubricating and sealing oils. These units are self-contained that come complete with motor driven pump sets. These filters reduce replacement expense of fluid by extending their life.



Dryer Cartridges

The Hilsorb dryer cartridge combines highly efficient filtration for removal of extremely fine particulates plus super-absorbency of moisture thus providing high dielectric strength and greater stability in transformer oils.



Direct Replacement Filter Cartridges

Hilco offers a wide range of drop-in replacement cartridges for most of its competitors including: Pall, Refilco, Nugent, Baldwin, Allen, Cuno, Dollinger, Filterdyne, Fluitek, Kaydon, Velcon, Winslow and Western, among others.

HILCO® Quench Oil Reclaimer



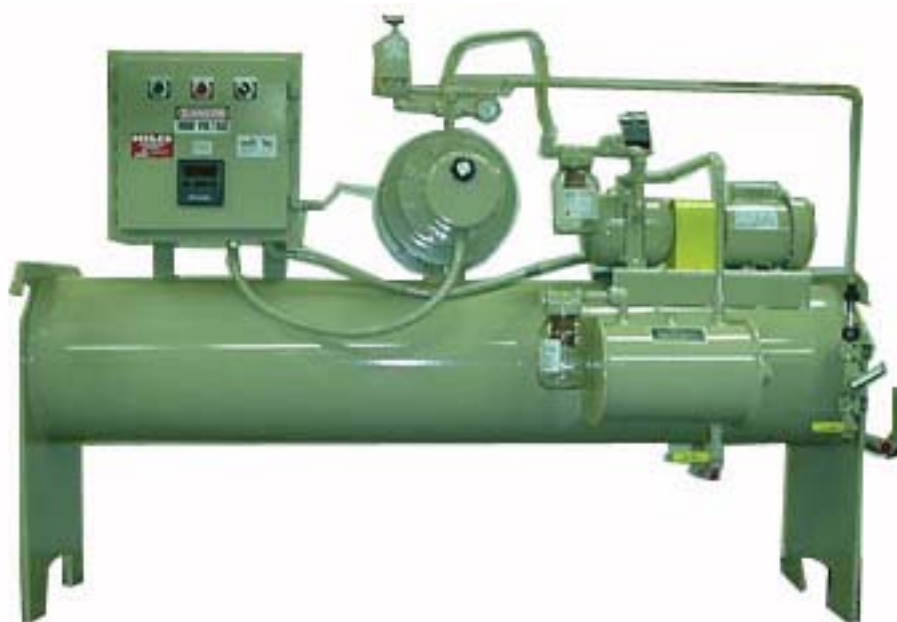
PURPOSE

Heat treating operators are faced with mounting costs and tighter regulatory compliance issues when disposing of used quench oils.

The HILCO® Quench Oil Reclaimer makes it possible to safely and economically recondition and reuse quench oil. This dramatically reduces disposal costs and new oil purchases and forms an efficient fluids management system.

The system removes moisture, dissolved gases and particulate contamination from oil-based quenching fluids. Water is removed, thus eliminating the cause of foaming and possible explosive and fire hazard. The removal of particulates will eliminate smoking.

This system can easily be justified by heat treaters who generate only 2,000 gallons a year.



FEATURES

- 4-8 GPH Rated Flow
- 1-1/2 KW Low Watt Heater
- Nema 12 Enclosure
- High Temperature Cutoff Switch
- Liquid Level Indicator
- Vacuum Regulator
- 50-Gallon Storage Tank
- Replaceable Filter/Dispenser Element
- Operating Electrics as Specified
- Distillate Collection Tank
- Manual Drain Valves for Tanks
- Flow Indicator with Control Valve

DESCRIPTION OF OPERATION

The Quench Oil Reclaimer is designed to process oil at a rate of up to 8 GPH, restoring the oil down to its saturation point in a single pass, providing the water content is not over 1%.

Oil is first settled in the customer's dirty oil settling tank. A connection line from the top of this tank needs to be provided and piped into our 1/4" FPT inlet. Oil flow is adjusted from 5-8 GPH utilizing a control valve and the flow indicator provided with the unit. The oil is drawn by 27" of vacuum through a fiberglass dispersion element. The oil is heated in the vaporization chamber to 220° F and is protected by a high temperature shutoff.

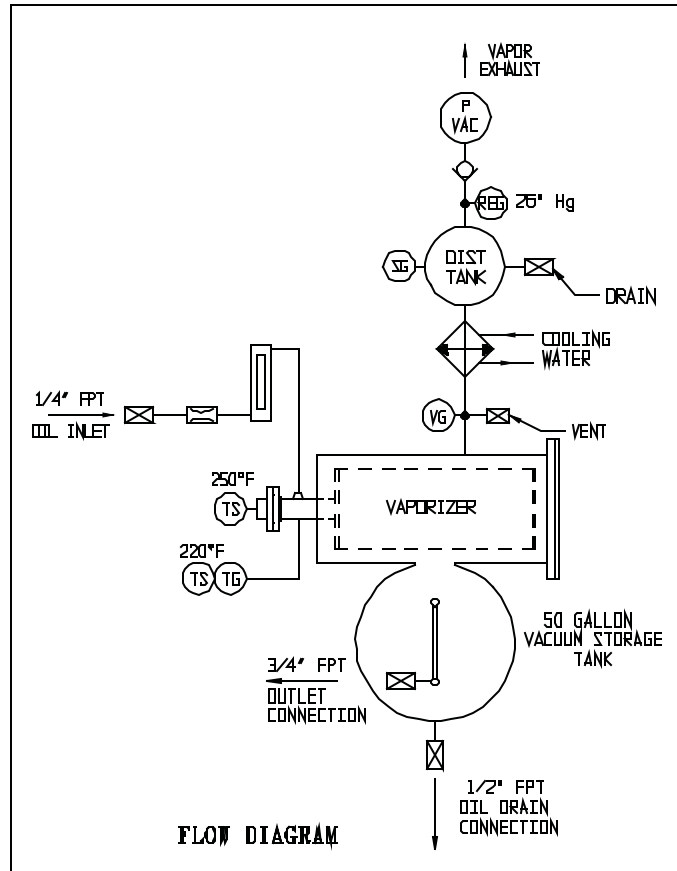
The water vapor is drawn from the chamber through a shell and tube heat exchanger where it condenses. It is then collected in the distillate tank, which needs to be manually drained after water appears in the sight glass. Processing can be stopped during this operation, but does not need to be.

The processed oil flows by gravity into the purified oil tank and is held under vacuum as long as the unit is running. There is a liquid level sight glass which needs to be monitored to determine when the oil is completely processed. After the tank is full, the vacuum pump can be left running, keeping the oil under vacuum, or shut off and the clean oil drained to a clean oil storage tank. The system is generally furnished with legs, but can be mounted slightly elevated so it can be drained and will be above the clean oil tank.

Cartridge changeout should be performed after oil flow has stopped. This would indicate that particulates have contaminated the cartridge beyond its useful life.

The Hilliard Corporation reserves the right to change specifications and dimensions at any time. Please contact the factory for the most current information.

Model 02R008



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Your Local Representative:



THC-500-07/05

HILCO DD615-05-CH56P EDM Stacked Disc Filter Element



Benefits

- Reduce Spark Erosion Residue
- Maintain Dielectric Insulation and Cooling Properties
- Eliminate Arcing and Hot Spots
- Extend Fluid Life
- Reduce Downtime

Features

- Rugged Construction
- Lifting Bail
- Large Filtering Area
- Large Dirt-Holding Capacity

Dimensions

1-1/4" ID x 6" OD x 14-1/2" H



Replaces all major manufacturer's disc elements !

High Quality, Direct Replacement, Low Price, In Stock

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Fewer fluid changeouts, increased equipment life

Cartridges fit most standard Hilco filter housings

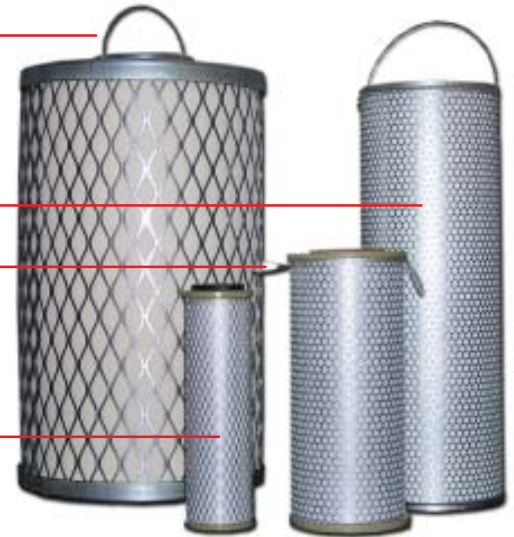


Lifting handle - for convenience in handling.

Ambient - Perforated steel or expanded metal ambient provides added strength.

Lifting tab - for convenience in handling.

Polyester media retainer - under the ambient for superior chemical resistance and media retention.



Selexsorb GT is a patented adsorbent specifically designed for use with Fyrquel gas turbine lube and hydraulic control fluids. Another application is steam turbine EHC control industrial hydraulic systems. The unique composition of this adsorbent maintains the original, superior properties of these fluids for prolonged periods. This media, in cartridge form, is available through your authorized Hilco distributor.

Benefits

When Hilliard systems are used in conjunction with a fluid maintenance program designed by your Fyrquel supplier, you can expect the following benefits:

- *Longer fluid life* - Fluid changeout intervals are greatly lengthened, and the fluid is maintained in near-original condition.
- *Increased equipment life* - A result of continual removal of acid phosphates and moisture.
- *Standard sizings* - Designs fit most standard Hilco filter housings (e.g., 718, 119).

- *Superior efficiency* - Maintains total acid number (TAN) much more effectively than fuller's earth.

Advantages versus other filter types

The key features of Selexsorb GT cartridges and systems over conventional fuller's earth and activated alumina are as follows:

- *Fuller's earth* - Low comparative removal of acid phosphates; acid removal relies upon neutralization with media surface. Major disadvantage is presence of metal impurities.
- *Activated alumina* - Acid capacity is 2-3 times that of fuller's earth; relies on neutralization of media surface with acid phosphates. Again, basic metal impurities can create similar problems as with fuller's earth through extended use.
- *Selexsorb GT* - Similar acid capacity to activated alumina types. However, acid phosphates are adsorbed or chemically bonded to the surface of the filter media as they are formed.

A neutralization reaction is not involved nor are free ionic metals liberated in the hydraulic system. Also can remove moisture but *preferentially* bonds acid phosphates in lieu of moisture. *Cartridge life can be extended 2-3 times versus fuller's earth.* Flow rate in auxiliary filter system must be slowed to allow chemical exchange to occur. Normal rate is 1/2 GPM maximum per 7" x 18" Selexsorb GT cartridge.

NOTE: Ideally, acid number should be maintained below a level of 0.1 TAN. Similarly, a moisture level of less than 0.1% (by weight) is desirable.

Selexsorb, ST Cartridge Specifications

Cartridge (Data Sheet)	Dimensions (inches nominal)			Housing Nominal Centerpost	Case Quantity	Shipping Weight Per Case	Gram-Moles Acid Capacity Per Cartridge
	OD	Length	ID				
ST310-00-C	3	10	1	3/4	4	7 lbs.	.11
ST511-00-C	5	11	1 3/4	1 1/4	4	22 lbs.	.45
ST718-00-CRN	7	18	2	1 1/2	4	46 lbs.	.80
ST718-00-CN	7	18	2 1/2	2	4	46 lbs.	.80
ST119-00-03ZXC0	11	19	2 1/4	1 1/2	1	41 lbs.	3.98

SYSTEM SIZING

Dosage for maintenance TAN level of .1 lb. per gallon of system volume. Not recommended for remediation of systems with a TAN greater than .2.

ST310-00-C

System Gallons	No. Cartridge ST310-C	GPM per ST310-C
10	1	.1
50	5	.1
100	10	.1

ST511-00-C

System Gallons	No. Cartridge ST511-C	GPM per ST511-C
10	1	.2
50	1	.2
100	3	.2

ST718-00-03ZXC0

System Gallons	No. Cartridge ST718-00-03ZXC0	GPM per ST718-00-03ZXC0
100	1	.5
500	3	.5
1000	5	.5
2000	10	.5

ST718-00-CN/CRN

System Gallons	No. Cartridge ST718-CN	GPM per ST718-CN
100	1	.5
500	7	.5
1000	14	.5
2000	29	.5

ST119-00-03ZXC0

System Gallons	No. Cartridge ST119-00-03ZXC0	GPM per ST119-00-03ZXC0
100	1	.5
500	1	.5
1000	3	.5
2000	6	.5

*The Hilliard Corporation reserves the right to change specifications and dimensions at any time.
Please contact the factory for the most current information.*

The Hilliard Corporation

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 Elmira, NY 14902-1504
 Phone: 607-733-7121
 Fax: 607-733-0928
 email: hilliard@hilliardcorp.com
<http://www.hilliardcorp.com>

Your Local Representative:



Hilco® TurboFlo Duplex Filters with Welded-in Transfer Valves



HILCO has used its strengths in manufacturing filter housings, cartridges and full-flow transfer valves to provide smaller, cost effective packages for flows to 450 gpm.

Filter Housings

TurboFlo Duplex Filters have the transfer valve welded directly between the filter housings. This not only takes up less space but eliminates the possibility of leaks from the four flanged joints. Housings are designed and stamped, if required, to ASME code. In the filter housings, fluid flow does not directly impinge on the filter cartridge.

Transfer Valves

TurboFlo Duplexes include Hilco transfer valves. These valves feature 316 S.S. trim.

High Flow PH-CG Cartridges

HILCO PH-CG Cartridges with double-screened synthetic media are proven performers in the turbo-compressor market. HILCO offers a complete line of cartridges to meet your flow needs.

These high-flow cartridges are efficient and affordable.



Benefits

- Meets API-614, 4th edition
- Small footprint
- Reduced number of leak points
- Affordable filter elements

Features

- ž HILCO TurboFlo filter housings are designed and stamped, if required, to ASME Code, Section VIII, Div. 1
- With the B₁₀=10 cartridge, the entire duplex assembly meets the requirements of API-614
- Buna N cover gasket is standard
- ANSI flanged inlet/outlet connections
- Carbon steel construction; stainless available

TurboFlo Duplex Oil Filters

Model Number	Data Sheet	Inlet/Outlet	Range GPM*
52312-0150-1001	DD-696	1.50"-150# R.F.	0 - 50
52312-0300-1001	DD-696	1.50"-300# R.F.	0 - 50
52414-0150-1001	DD-697	1.50"-150# R.F.	0 - 80
52414-0300-1001	DD-697	1.50"-300# R.F.	0 - 80
52414-0150-1001	DD-697-1	2.00"-150# R.F.	40 - 100
52414-0300-1001	DD-697-1	2.00"-300# R.F.	40 - 100
52518-0150-1C01	DD-698	2.00"-150# R.F.	40 - 125
52518-0300-1C01	DD-698	2.00"-300# R.F.	40 - 125
52720-0150-1C01	DD-690-10	2.00"-150# R.F.	40 - 150
52720-0150-1C01	DD-690-8	3.00"-150# R.F.	70 - 300
52739-0150-1C01	DD-680-8	3.00"-150# R.F.	70 - 350
52739-0150-1C01	DD-680-10	4.00"-150# R.F.	120 - 450

* Consult individual pressure drop curves for pressure drop at various viscosities.

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The **Hilgard** Advantage

HILCO® DIVISION™

Hydro Processing

Filtration Solutions for:

- Hydrocracking
- Hydrotreating
- Amine Sweetening
- Sulfur Recovery
- Catalytic Cracking
- Catalytic Reforming
- Finished Product
- Equipment Reliability



At HILCO® we know filtration.

We've seen many changes since our first oil reclaimer was built in 1925. The problems have become more complicated and the filtration techniques more sophisticated. Hilliard is first and foremost an engineering company. Every one of our products have been developed and tested by our dedicated engineering staff to bring fluid contamination problems under control.



- On Site Lab for Oil Analysis
- Welding and Manufacturing to Code
- Turn-Key Package Systems
- Cradle to grave manufacturing of vessels and cartridges



We're confident that we can provide a solution for your fluid contamination problem. Let us help you decrease your disposal costs and increase your profits.

Filter Media Platform

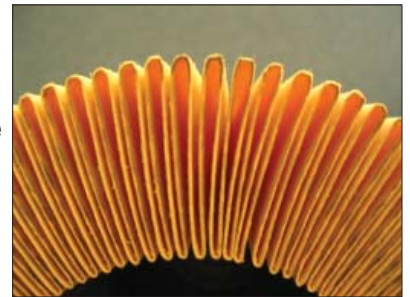
(Depth vs. Pleated)

Media Platform

The media is the heart of the filter cartridge which actually performs the solids separation. The media must withstand the high flow, harsh corrosive environment of acid gasses, water and chemical solvents and effectively remove heavy solids without being cost prohibitive. HILCO® filter cartridges are pleated and provide higher surface area than comparable depth cartridges of the same volumetric size. The media is pleated with **controlled-radius pleats**, which are uniformly spaced pleats that maximize effective filtration area and dirt holding capacity, and resists bunching, distortion and rupture. Hilliard's unique manufacturing process forms larger radius pleats on the outside diameter with smaller smaller radius pleats on the inside diameter which stabilizes pleat geometry. This feature permits lower pressure drops with higher dirt capacities than those with sharply pleated media.



Brand X - Flat Pleats



HILCO® Radial Pleats

Available Media Compositions



Pure Cellulose Fibers are very inexpensive but tend to swell when exposed to a high degree of water, resulting in a reduced dirt capacity and shorter service life.



Pure Polypropylene Fibers are very cost prohibitive and have a tendency to blind when exposed to hydrocarbons, resulting in a sharp reduction in service life in this application.



Pure Synthetic Blends are unaffected when exposed to hydrocarbons, however do not offer the dirt holding capacity of cellulose.



Hilliard's Proprietary Media Composition

Can be formulated specifically for individual types of service- amine, gas, oil, naphtha, to offer the dirt holding capacity of cellulose fiber with the structural integrity of synthetic borosilicate glass and polymeric fibers that are cost effective and unaffected when exposed to moisture and hydrocarbons. Packaged in a pleated format that reduces foaming with longer on-stream life than competitive brands.

Colors Not Representative
of Actual Media

HILCO® cartridges have a reputation the world over for no-nonsense industrial strength quality and performance. They are engineered for durability in a tough environment to provide maximum performance at a moderate price. Because cartridge design is the key to filter performance, rigid inspection procedures ensure every cartridge performs up to its design expectations.

Cartridge Design



Self Supported and Coreless Designs

The center tube is the backbone of the cartridge. It supports the element both axially and longitudinally against the forces of pressure and flow. HILCO® tubes are plated for corrosion protection and designed to withstand up to 100 pounds of differential pressure or four times the working pressure the cartridge should normally encounter. HILCO® center tubes feature helical seams that quadruple the material thickness in the seam to give maximum strength with minimum weight.



HILCO® cartridges are assembled with the element tight against the center tube to gain full support from the tube. Some refill brands have a considerable gap between the tube and the element to speed their assembly process. Under pressure, any gap between the element and the supporting center tube will allow the element to be pushed in until it contacts the center tube and may allow the element to rupture from lack of support.

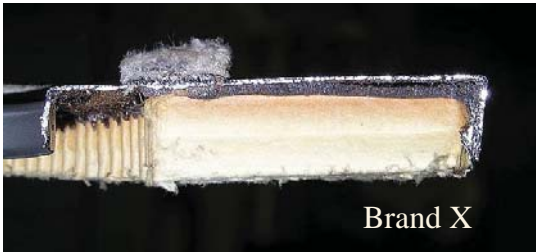
Ambient / Pleat Supporting Bands

The ambient is the outer protective jacket that provides handling protection and acts as a flow diffuser to maximize filter performance. The HILCO® ambient is perforated from heavy-duty, resin saturated, water resistant card stock. HILCO® uses a non-metal ambient for its corrosion resistance and to reduce the amount of disposable metals in the cartridge. It has no sharp edges to cut and cannot introduce hanging metallic burrs. The smooth perforations will not abrade the filter media that it protects. The HILCO® ambient fits snugly around the element to firmly hold the pleats in place.



Side Seam

The side seam results from wrapping an element around the center core to form a cylinder. The two longitudinal edges of the element are joined together in a seam running lengthwise to the cartridge. HILCO® cartridge elements employ two sealing methods for this side seam. The more open media utilizes a time proven double overlap that effectively seals the element seam. On the high efficiency media, the overlapped seam is filled with an epoxy sealant that actually soaks into and seals the media.



Adhesive Sealant

The urethane adhesive sealant is formulated to stand up to virtually any filterable fluid. Its function is to bond the end caps to the element and provide a leak-proof seal. To qualify, it must first pass a rigorous battery of temperature and compatibility testing. To effectively seal, the adhesive sealant must actually wet and soak into the media. Beware of plastisol adhesives that do not soak into the media and may permit bypass leakage between the plastisol and the element. Plastisols also may dissolve in some synthetic fluids.

End Caps

The cartridge end caps are part of the cartridge supporting structure. They must support longitudinal cartridge loading and provide a sealing surface. The end caps also hold the adhesive sealant that seals the elements. HILCO® end caps are either plated steel or molded heavy duty structural glass reinforced nylon.



Brand X



HILCO

Seals

The sealing arrangement ensures that 100% of the fluid flows through the filtering element without bypass leakage around it. HILCO® o-ring seals are available in various materials to match system compatibility demands. The o-ring version of the Process cartridge is unique in the fact that it is a redundant premium sealing system that provides back up seal integrity assurance in the event of a seal failure on the primary seal.

BETA Rated

HILCO® uses Beta ratings to eliminate the confusion between nominal and absolute ratings. Media designations such as -5 and -12 are used to delineate one media grade from another. Each media grade has a Beta-rated efficiency with Beta ratios from 75 through 1000. ***The HILCO® range of media grades permits one to choose an optimum efficiency for virtually any particle size range.***

Features and Benefits

- Designed to withstand temperatures up to 250° F
- Controlled-radius pleats maximize effective filtration area and dirt holding capacity
- High temperature designs available to 450° F for steam out
- Designed to withstand pressures up to 100 PSI (Standard)
- High pressure design available - up to 250 PSI
- Composed of specially formulated filter media to provide the most effective combination of fluid particle separation, fluid compatibility and structural properties.

Test Units

HILCO® has portable units available for on site testing.

Please contact your authorized HILCO® distributor for more information



Coalescer Separators

Removes moisture and particulate contamination from lube oils.

- Particulate removal efficiency of 99.5% @ 3 micron
 - Free and emulsified water content reduced to under 25 ppm
 - Total water content to under 150 ppm based on an influent moisture content of 5% maximum
-
- Extends turbine oil life
 - Reduces maintenance
 - Increases bearing life
 - Easy operation
 - Protects components from corrosion
 - Economically priced.



**HILCO® Filters and Systems are
manufactured to the
following Codes**

ASME (American Society of Mechanical Engineers)

API-614 (American Petroleum Institute)

AS1210 (Australia)

ATEX (Europe)

ISO (International Organization for Standardization)

97/23/EC (PED, Europe)

BS EN 10204 (British Standard)

CSA B51 (CRN, Canada)

DOSH (Malaysia)

NR-13 (Brazil)

Others:

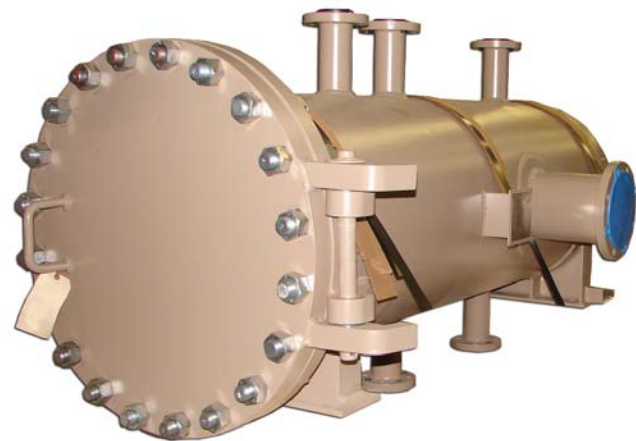
Special Certifications, Domestic Materials, etc.



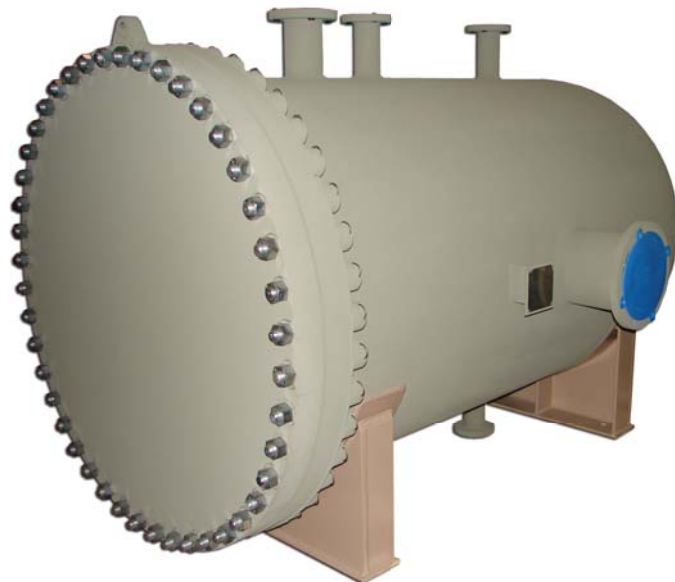
Custom Guide Rod Adaptation



Fuel Gas Coalescer



Customized Quick Closures



Simplex and Duplex Feed Filtration



Filter Cartridges



Duplex Filters



Portable Filtration



Oil Mist Eliminators



Custom Designed Vessels



Valves

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THC-500-5/09