

## Bag Filter Housings



*Powering Business Worldwide*

In September 2005 Eaton Corporation acquired the industrial filtration business of Hayward Industries, Inc. The Hayward filtration business has been integrated into Eaton's Fluid Power Group as the Filtration Division. In addition Eaton Corporation purchased in September 2006 the Ronningen Petter industrial fine filtration business from Dover Resources. Eaton's Filtration Division is a global leader in products that include pipeline strainers, bag and cartridge filtration systems, gas/liquid separators, and automatic filtration systems for industrial and commercial customers worldwide. Primary markets include general industrial, petro-chemical, automotive, pharmaceutical, oil & gas, pulp & paper, food and beverage, power utilities, marine, and water companies.

## BAG FILTRATION SYSTEMS

Eaton's bag filter housings and filter bags are used by industries around the world and are manufactured worldwide to global standards. Customers can choose from a complete line of single and multi-bag filter housings designed to meet the needs of the most demanding applications. The choice of single bag filter housings range from those suitable for exacting absolute filtration applications to high quality housings designed especially for cost sensitive applications... and everything in between. Multi-bag housings that accommodate up to 36 individual filter bags for flow rates of up to 1000 m<sup>3</sup>/h are available in a number of different designs. Eaton offers a full range of filter bags...more than 1500 choices in all. From economical sewn filter bags for standard applications to welded, multilayered bags for demanding applications.

## CARTRIDGE FILTRATION SYSTEMS

Eaton's broad range of filter cartridges gives customers wide flexibility in choosing filtration solutions. Available are nominal and absolute rated melt blown, string wound, resin bonded and activated carbon cartridges, filter modules, stainless steel and plastic filter housings.

## PIPELINE STRAINERS

Eaton's pipeline strainers are used by industrial and commercial customers to protect their process piping equipment by removing debris from the liquid that flows through pipelines. Products include automatic self-cleaning strainers as well as manual, duplex, sim-

plex, and Y strainers. Both cast and fabricated type strainers are made in standard configurations to meet the needs of most applications. For unique, complex, or specialized applications, a pipeline strainer can be designed and manufactured to meet the exact requirements of the application with no compromises.

## AUTOMATIC FILTER SYSTEMS

The wide Ronningen-Petter range consists of automatic self-cleaning filtration systems. Solutions can be offered from internal or external backwashing systems for the filtration of water and aqueous media to mechanically cleaned filters systems for high viscous liquids. The filters are always sized to the customer's individual applications and needs.

## GAS/LIQUID SEPARATORS

Eaton's gas/liquid separators protect expensive system components, such as turbines, by removing potentially damaging moisture and particulate matter from air, gas, and steam lines.

## COMMITMENT TO GLOBAL MARKETS

Eaton's bag filtration systems, cartridge filtration systems, pipeline strainers, and gas/liquid separators have each been developed into a global product line which is manufactured worldwide in multiple locations to a common design standard yet in compliance with local code requirements. This lets Eaton customers worldwide choose the pipeline strainer, bag filter, or gas/liquid separator that meets their exact requirements without compromise. Local sales and technical support specialists are always available to review the needs of an application with the customer and recommend specific solutions.

## EATON CORPORATION

Eaton is a diversified industrial manufacturer with sales of \$ 15.4 billion in 2008. Eaton is a global leader in electrical systems and components for power quality, distribution, and control; fluid power systems and services for industrial, mobile, and aircraft equipment; intelligent truck drivetrain systems for safety and fuel economy; and automotive engine air management systems, powertrain solutions, and specialty controls for performance, fuel economy, and safety. Eaton has 70,000 employees and sells products to customers in more than 150 countries. For more information, visit [www.filtration.eaton.com](http://www.filtration.eaton.com).

# QUALIFICATIONS

This brochure details what is now regarded as the most comprehensive, innovative range of filter housings and accessories available on the market. Over recent years Eaton has introduced new concepts to filter housing design encompassing the revolutionary QIC-LOCK® quick opening cover-lid mechanism (see page 8/9) greatly reducing change-out times and a tangential outlet which lowers housing height making it easier to access the filter bags.

Probably Eaton's greatest achievement is the development and implementation of a single global product line manufactured worldwide in multiple locations to a common design whilst complying with local code requirements:

- In Europe, Asia-Pacific and South America, Eaton is fully qualified to provide pressure housings of Category I-IV under the Pressure Equipment Directive (PED) (97/23/EC) which came into effect May 29, 2002. Eaton manufactures housings to Design Code AD 2000-Merkblätter, the Notified body is TÜV Nord, Conformity Assessment up to Module H1 and G.
- In North America, South America and Asia, Eaton is fully qualified to provide the same range of housings according to ASME.

In every location, Eaton Sales and Technical Support specialists can review the needs of an installation and recommend the right combination of hazard category and housing design to meet any need.



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Multi-Bag housing. Open and Close cycles in less than 30 seconds!

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The user friendly, cost effective bag filter housing for high volume applications and processes demanding frequent bag change-out. Ideal for batch process runs and safety filtration.



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The user friendly, perfect sealing bag filter housing for safe filtration and minimized product loss. Ideal for batch processes which demand the highest quality of filtration.

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## Sanitary Housings

Design considerations for sanitary housings; surface finish, cleaning featuring "Seen to be Clean", special connections and materials.

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## 15 Custom Designed Housings

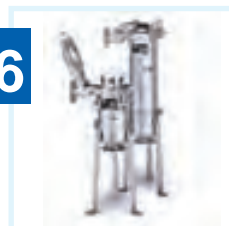
Eaton bag filter housings are designed to accommodate a wide range of possible standard modifications.



## TOPLINE™ Filter Housings

The best filter housing for the most demanding applications.

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# TECHNICAL DATA

SERIES	Type	No. of Bags		Bag Size	max. Flow 2	Material 1	max. allowable Pressure		max. allowable Temperature		Housing volume	Housing weight	Inlet outlet connection	Type	Vent 4	Main dimensions 3 [mm]					
							[m³/h]		[bar]	[°C]	[L]	[kp]	N1 / N2			A	B	C	D	E	F
MAXILINE VMDE	VMDE-0401-AS10-100D	4	01	80		SS	10	120	90	180	DN 100	Flange	1/4"	475	390	229	559	400	1950		
	VMDE-0402-AS10-100D	4	02	160		SS	10	120	185	220	DN 100	Flange	1/4"	475	740	229	559	400	2300		
MAXILINE VMBF	VMBF-0401-AS10-100D	4	01	80		SS	10	120	110	180	DN 100	Flange	1"	475	345	205	559	400	1950		
	VMBF-0402-AS10-100D	4	02	160		SS	10	120	205	220	DN 100	Flange	1"	475	740	205	559	400	2300		
	VMBF-0802-AS10-150D	8	02	320		SS	10	120	440	465	DN 150	Flange	1"	520	740	245	800	520	2500		
	VMBF-1202-AS10-250D	12	02	480		SS	10	120	645	770	DN 250	Flange	1"	760	620	395	950	625	3300		
MAXILINE MDE	MDE-0401-AS10-100D	4	01	80		SS	10	120	90	180	DN 100	Flange	1/4"	475	330	252	559	400	2000		
	MDE-0402-AS10-100D	4	02	160		SS	10	120	185	220	DN 100	Flange	1/4"	475	680	252	559	400	2350		
MAXILINE MBF	MBF-0401-AS10-100D	4	01	80		SS	10	120	110	180	DN 100	Flange	1"	475	345	205	559	400	1630		
	MBF-0402-AS10-100D	4	02	160		SS	10	120	205	220	DN 100	Flange	1"	475	740	205	559	400	2270		
	MBF-0802-AS10-150D	8	02	320		SS	10	120	440	465	DN 150	Flange	1"	520	740	245	800	520	2360		
	MBF-1202-AS10-250D	12	02	480		SS	10	120	645	770	DN 250	Flange	1"	760	611	395	950	625	3000		
	MBF-1602-AS10-300D	16	02	640		SS	10	120	945	975	DN 300	Flange	1"	875	590	470	1100	753	2800		
	MBF-2002-AS10-350D	20	02	800		SS	10	120	1325	1050	DN 350	Flange	1"	980	700	555	1250	790	3085		
	MBF-2402-AS10-350D	24	02	960		SS	10	120	1750	1700	DN 350	Flange	1"	980	735	555	1400	880	3120		
TOPLINE	TBF-0101-AD10-050D	1	01	20		SS	10	160	13	36	DN 50	Flange	1/4"	450	395	49	219	307	1360		
	TBF-0102-AD10-050D	1	02	40		SS	10	160	27,5	42	DN 50	Flange	1/4"	450	790	49	219	307	2140		
	TBF-0101-AS16-050D	1	01	20		SS	16	160	13	40	DN 50	Flange	1/4"	445	341	160	219	307	1400		
	TBF-0102-AS16-050D	1	02	40		SS	16	160	27,5	48	DN 50	Flange	1/4"	445	736	160	219	307	2190		
SIDELINE	SBF-0103-AD16-040B	1	03	6		SS	16	160	3	12	1 1/2"	BSP	1/4"		300	75	114	110	840		
	SBF-0104-AD16-040B	1	04	12		SS	16	160	4,5	13	1 1/2"	BSP	1/4"		455	75	114	110	985		
	TSBF-0103-AD16-040B	1	03	6		SS	16	160	3	12	1 1/2"	BSP	1/4"		300	75	114	110	840		
	TSBF-0104-AD16-040B	1	04	12		SS	16	160	4,5	13	1 1/2"	BSP	1/4"		455	75	114	110	985		
	SBF-0101-AD10-050D	1	01	20		SS	10	160	18	38	DN 50	Flange	1/4"		495	80	219	220	1040		
	SBF-0102-AD10-050D	1	02	40		SS	10	160	32	46	DN 50	Flange	1/4"		890	80	219	220	1820		
	SBF-0101-AD10-080D	1	01	20		SS	10	160	18	40	DN 80	Flange	1/4"		495	80	219	220	1040		
	SBF-0102-AD10-080D	1	02	40		SS	10	160	32	48	DN 80	Flange	1/4"		890	80	219	220	1820		
	SBF-0101-AS16-050D	1	01	20		SS	16	160	18	41	DN 50	Flange	1/4"		495	80	219	220	1040		
	SBF-0102-AS16-050D	1	02	40		SS	16	160	32	51	DN 50	Flange	1/4"		890	80	219	220	1820		
	SBF-0101-AS16-080D	1	01	20		SS	16	160	18	46	DN 80	Flange	1/4"		495	80	219	220	1040		
	SBF-0102-AS16-080D	1	02	40		SS	16	160	32	56	DN 80	Flange	1/4"		890	80	219	220	1820		
	TSBF-0101-AD06-050D	1	01	20		SS	6	160	18	38	DN 50	Flange	1/4"		495	80	219	220	1040		
	TSBF-0102-AD06-050D	1	02	40		SS	6	160	32	46	DN 50	Flange	1/4"		890	80	219	220	1820		
DUOLINE	DTBF-0202-AD10-050D	1+1	02	40		SS	10	160	60	145	DN 50	Flange	1/4"	330	790	49	219	848	2020		
	DSBF-0202-AD10-050D	1+1	02	40		SS	10	160	68	165	DN 50	Flange	1/4"	330	890	80	219	674	2150		
MODULINE	MTBF-0201-AD10-080D	2	01	40		SS	10	160	30	127	DN 80	Flange	1/4"	330	518	49	219	834	1360		
	MTBF-0202-AD10-080D	2	02	80		SS	10	160	60	139	DN 80	Flange	1/4"	330	913	49	219	834	2140		
	MSBF-0201-AD10-080D	2	01	40		SS	10	160	36	131	DN 80	Flange	1/4"	330	618	80	219	660	1500		
	MSBF-0202-AD10-080D	2	02	80		SS	10	160	64	147	DN 80	Flange	1/4"	330	1013	80	219	660	2270		
	TBF-0201-AS10-080D	2	01	40		SS	10	160	30	110	DN 80	Flange	1/4"	400	260	232	219	400	1360		
TOPLINE-Dual	TBF-0202-AS10-080D	2	02	80		SS	10	160	60	130	DN 80	Flange	1/4"	400	655	232	219	400	2140		
POLYLINE	PBF-0101-PO10-050B	1	01	12		PPL	10	20	25	23	2"	BSP	1/4"	83	527	86	263	156	1380		
	PBF-0102-PO10-050B	1	02	24		PPL	10	20	36	29	2"	BSP	1/4"	83	933	86	263	156	2140		
	PBF-0101-PO10-050D	1	01	12		PPL	10	20	25	25	DN 50	Flange	1/4"	83	527	86	263	219	1380		
	PBF-0102-PO10-050D	1	02	24		PPL	10	20	36	31	DN 50	Flange	1/4"	83	933	86	263	219	2140		
	PBF-0102-PF06-050D	1	02	24		PVDF	7	20	36	46	DN 50	Flange	1/4"	83	933	86	263	219	2140		
	DPBF-0201-PO10-050D	1+1	01	12		PPL / CPVC	10	20	55	74	DN 80	Flange	1/4"	160	990	132	263	760	1620		
	DPBF-0202-PO10-050D	1+1	02	24		PPL / CPVC	10	20	78	86	DN 80	Flange	1/4"	160	1400	132	263	760	2380		
FLOWLINE	FBF-0101-AD10-050B	1	01	20		SS	10	120	15,5	17	2"	BSP	1/4"		489	85	195	150	1040		
	FBF-0102-AD10-050B	1	02	40		SS	10	120	27	23	2"	BSP	1/4"		884	85	195	150	1820		
	FBF-0101-AD10-050D	1	01	20		SS	10	120	15,5	21,5	DN 50	Flange	1/4"		487	85	195	150	1040		
	FBF-0102-AD10-050D	1	02	40		SS	10	120	27	27	DN 50	Flange	1/4"		882	85	195	150	1820		
ECOLINE	EBF-0103-AC09-040B	1	03	6		SS	9	120	3	3,5	1 1/2"	BSP	1/4"		299	60	114	110	660		
	EBF-0104-AC09-040B	1	04	12		SS	9	120	4,5	4,5	1 1/2"	BSP	1/4"		454	60	114	110	970		
	EBF-0101-AC06-050B	1	01	20		SS	6	120	15,5	7,5	2"	BSP	1/4"		489	70	195	150	1025		
	EBF-0102-AC06-050B	1	02	40		SS	6	120	27	11	2"	BSP	1/4"		884	70	195	150	1805		

1) SS = Austenitic Stainless Steel SS 316 and CF8M or better  
2) Maximum theoretical flow based on water viscosity, bag specific  
3) Dimensions for reference only and approximate. Exact dimensions for installation purposes available on request  
4) For details, see available product specific data sheet

Product Codes								
D	-	V	MBF	-	04	02	-	AC
D-DUOLINE		V-QIC-LOCK-Quick closure	MDE-MAXILINE		No. of bags	Bag Size		Material
M-MODULINE		T-T-Bolt closure	MBF-MAXILINE		01, 02,	01-short 7"		AC- SS 316Ti
			TBF-TOPLINE		04, 08,	02-long 7"		AS-min. SS 316
			SBF-SIDELINE		12, 16,	03-short 4"		AD-min. SS 316/CF8M
			PBF-POLYLINE		20, 24	04-long 4"		PO-PPL Polypropylene
			FBF-FLOWLINE					PF-PVDF
			EBF-ECOLINE					
								Pressure rating
								06-6 bar
								07-7 bar
								09-9 bar
								10-10 bar
								16-16 bar
								Connection Size
								040-DN 40
								050-DN 50
								080-DN 80
								100-DN 100
								150-DN 150
								250-DN 250
								300-DN 300
								350-DN 350
								Connection Type
								B-BSP female
								D-DIN flange

# APPLICATIONS

	ECOLINE	FLOWLINE	SIDELINE	TOPLINE	MAXILINE				POLYLINE	SANITARY Housings	DUOLINE	MODULINE
					MBF	VMBF	MDE	VMDE				
Coarse filtration >500 µm	■	■	■		■	■			■		■	■
Medium filtration >10 µm			■	■	■	■	■	■	■	■		
Fine filtration <10 µm				■			■	■		■		
Pre-filtration	■	■	■		■	■			■		■	■
Safety filtration			■	■	■	■	■	■		■	■	■
High volume					■	■						■
Batch filtration		■	■	■		■		■	■	■		
Circuit filtration			■	■	■	■	■	■	■			■
Continous filtration											■	
Solvents, Paints			■	■	■	■	■	■		■		
Fats and Oils			■	■	■	■	■	■		■	■	■
Catalyst, Activated Carbon				■			■	■		■		
Acids, Bases			■	■	■	■	■	■	■		■	
Petrochemicals			■	■	■	■	■	■			■	■
Water, Waste Water	■	■	■	■	■	■	■	■	■	■	■	■
Chemical Industry			■	■	■	■	■	■	■	■	■	■
Pharmaceuticals				■			■	■		■		
Metal Cleaning	■	■	■		■	■						■
Automotive				■	■	■	■	■				■
Electronics				■			■	■	■	■		
Food and Beverage			■	■			■	■		■		
Paint and Laquer			■	■	■	■	■	■			■	
Water Treatment	■	■	■	■	■	■	■	■	■	■	■	■
Galvanic Industry			■	■					■			



Automotive



Metal Parts  
Washing



Resins, Polymers  
Inks, Dispersions



Chemical  
Industry



Petrochemicals



Water Treatment



Electronics  
Semiconductor



Paint and  
Lacquer



Galvanic Industry



Food and  
Beverage



Pharmaceuticals



Environmental



## 17 SIDELINE™ Filter Housings

Mid-priced filter housings for most applications.

## DUOLINE™ / MODULINE™ / TOPLINE™ Dual Filter Housings

Discover the flexibility of using multiple housings together as part of a system.



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## 19 POLYLINE™ Filter Housings

All-plastic, rugged Polypropylene or PVDF construction for superior corrosion resistance.

## FLOWLINE™ Filter Housings

Versatile, heavy-duty but cost-effective filter housings.



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## 21 ECOLINE™ Filter Housings

Light-weight, economical filter housings.

## Accessories for Filter Housings

Original Eaton accessories, consumables and spare parts for safety and reliability.



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## 24 Filter Bags / Pipeline Strainers

Overview of the entire Eaton filter bag range and strainer range.



## Cartridges / Cartridge Housings

Overview of the entire Eaton cartridge element range and cartridge housing range.



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# QIC-LOCK® CONCEPT

## User friendly

## Economical

**Fast • Simple • Efficient • Economical • Safe • User friendly • Durable •  
Low maintenance • Cost effective • Approved design • High productivity**

Take a look how Eaton takes care of your expectations.

## MULTI-BAG/MAXILINE™ HOUSING OPEN & CLOSE CYCLES IN LESS THAN 30 SECONDS!

The revolutionary QIC-LOCK® opening mechanism answers all the demands of modern bag filtration users working in an environment where productivity and safety are key priorities. Years of field-based experience on earlier designs such as the V-clamp “toggle” closure followed by the “ratchet” system have all proven the requirement and benefits of rapid opening mechanisms.

- QIC-LOCK is **safe to use**: an interlock prevents opening until the housing is entirely vented.
- QIC-LOCK is **simple and fast to operate**: standing in 1 position, the operator can rotate the hand-wheel and open the lid, there is no requirement to have full movement and access around the housing or the use of any tools as with conventional bolted closures.
- QIC-LOCK offers a **durable design**: precision machining assures long-life and repeatable operation, SS 316 and special coating protects the spindle surface from wear and corrosion.

The design is **approved for all pressure housing design codes**.

QIC-LOCK does not just make life easier for operators; there are significant **economical benefits** to be realised with greatly reduced down times and lower maintenance costs.

## Safe



e  
AND  
efficient  
effective



- 1** Filter element change necessary, opening the safety interlock ensures simultaneous pressure relief

Easy



- 2** Rotation of the spindle using a hand-wheel opens the V-clamp into the end position



- 3** Opening the lid aided by spring assisted mechanism



- 4** Filter element change



- 5** Closing of the lid



- 6** Closing of the V-clamp by rotation of the spindle

Fast



- 7** Closing of the safety interlock, housing is ready to go on-line!

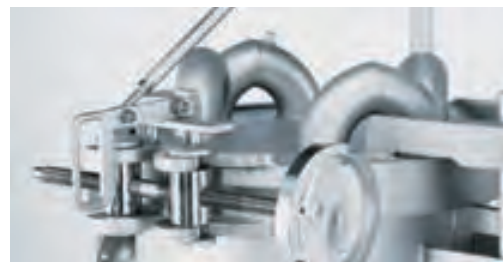
# MAXILINE™ VMDE



## QIC-LOCK® MAXILINE™ VMDE

The user friendly, perfect sealing bag filter housing for safe filtration and minimized product loss. Ideal for batch processes which demand the highest quality of filtration.

- QIC-LOCK rapid opening mechanism ensures simple, operator friendly and safe operation with minimal downtime to increase productivity and decrease running costs.
- Flat-lid design removes the requirement for additional sealing devices. In conjunction with Eaton SENTINEL® filter bags, efficiencies of >99.98% can be achieved – true absolute filtration. Under pressure, the unique pressure activated lip of each SENTINEL ring seals directly against the lid providing perfect, bypass-free sealing.
- The flat-lid construction also minimises the amount of residual product left on the inner surface of the lid when opening. This reduces product loss, possibility of spillage and makes cleaning easier.
- Direct feeding of filter bags via individual inlets generates a laminar flow. This ensures optimal cake formation to further improve performance.
- A counter-balanced spring assisted lid-lifting mechanism balances the lid perfectly giving it a weightless feel. Opening and closing of the lid with the “little finger” is a reality.
- Side inlet and bottom outlet provides easy and full drainage, tangential outlet option available to reduce housing height.
- Product wetted parts made from stabilized stainless steel guarantee high corrosion resistance with many fluids.
- Two standard 4-bag housing designs available (size 01 and 02).



### These value added features:

Eaton QIC-LOCK spindle quick closure

Simple, safe and effective bag sealing via flat-lid design

Fluid distribution via individual inlets per bag

### Give these benefits

Operator friendly, simple, fast bag change-out. Ideal for processes requiring frequent bag changes e.g. batch processes

Likelihood of faulty batches resulting from poor bag sealing or cross contamination are eliminated, easier cleaning and maintenance

Laminar flow optimises cake formation

\* Note: Image does not show the standard version.

# MAXILINE™ VMBF

## QIC-LOCK® MAXILINE™ VMBF

The user friendly, cost effective bag filter housing for high volume applications and processes demanding frequent bag change-out.

Ideal for batch process runs and high dirt load applications.

- QIC-LOCK rapid opening mechanism ensures simple, operator friendly and safe operation with minimal downtime to increase productivity and decrease running costs.
- Unique 3-point hold down or bayonet fittings ensure high quality of seal between each filter bag and housing body. Special tool (supplied) ensures simple effective operation.
- A counter-balanced spring assisted lid-lifting mechanism balances the lid perfectly giving it a weightless feel. Opening and closing of the lid with the “little finger” is a reality.
- Positive O-ring sealing offers easy and safe operation.
- Side inlet and bottom outlet provides easy and full drainage, tangential outlet option available to reduce housing height.
- Product wetted parts made from stabilized stainless steel guarantee high corrosion resistance with many fluids.
- Housing volume is optimized to minimize product loss.
- Six standard sizes with 4- through to 24-bag housings available (size 01 and 02).



### These value added features:

Eaton QIC-LOCK spindle quick closure

Simple, safe and effective bag sealing via 3-point hold down or bayonet fittings

In-house fluid distribution

Proven bag filter design

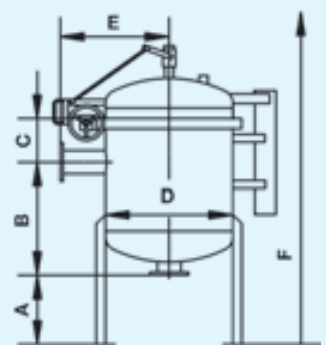
### Give these benefits

Operator friendly, simple, fast bag change-out. Ideal for processes requiring frequent bag changes e.g. batch processes

Easy installation and positioning of bags, excellent sealing characteristics

Minimized pressure loss, easy to clean

General filter design is easily adapted to other processes and applications



# MAXILINE™ MDE



## MAXILINE™ MDE

The user friendly, perfect sealing bag filter housing for safe filtration and minimized product loss. Ideal for long term process runs, which demand the highest quality of filtration.

- Flat-lid design removes the requirement for additional sealing devices. In conjunction with Eaton SENTINEL® filter bags, efficiencies of >99.98% can be achieved – true absolute filtration. Under pressure, the unique pressure activated lip of each SENTINEL ring seals directly against the lid providing perfect, by-pass free sealing.
- The flat-lid construction also minimises the amount of residual product left on the inner surface of the lid when opening. This reduces product loss, possibility of spillage and makes cleaning easier.
- Direct feeding of filter bags via individual inlets generates a laminar flow. This ensures optimal cake formation to further improve filtration performance.
- The bag filter housing is designed with a proven swing eye-bolt closure mechanism.
- A counter-balanced spring assisted lid-lifter balances the lid perfectly giving it a weightless feel. Opening and closing of the lid with the “little finger” is a reality.
- Side inlet and bottom outlet provides easy and full drainage, tangential outlet option available to reduce housing height.
- Product wetted parts made from stabilized stainless steel guarantee high corrosion resistance with many fluids.
- Two standard 4- bag housing designs available (size 01 and 02).



### These value added features:

Standard design with swing eye-bolts and spring lid-lifter

Simple, safe and effective bag sealing via flat-lid design

Fluid distribution via individual inlets per bag

### Give these benefits

Proven design, robust and reliable, easy to use

Likelihood of faulty batches resulting from poor bag sealing or cross contamination are eliminated, easier cleaning and maintenance

Laminar flow optimises cake formation

# MAXILINE™ MBF

## MAXILINE™ MBF

The user friendly, cost effective bag filter housing for high volume, multiple applications and processes.

- The bag filter housing is designed with a proven swing eye-bolt or segment clamp closure mechanism.
- Unique 3-point hold down or bayonet fittings ensure high quality of seal between each filter bag and housing body. Special tool (supplied) ensures simple, effective operation.
- A counter-balanced spring assisted lid-lifter balances the lid perfectly giving it a weightless feel. Opening and closing of the lid with the "little finger" is a reality.
- Positive O-ring sealing offers easy and safe operation.
- Side inlet and bottom outlet provides easy and full drainage, tangential outlet option available to reduce housing height.
- Product wetted parts made from stabilized stainless steel guarantee high corrosion resistance with many fluids.
- Housing volume is optimized to minimize product loss.
- Six standard sizes with 4- through to 24-bag housings available (size 01 and 02).



### These value added features:

Standard design with swing eye-bolts and spring lid-lifter

Simple, safe and effective bag sealing via 3-point hold down or bayonet fittings

In-house fluid distribution

Proven bag filter design

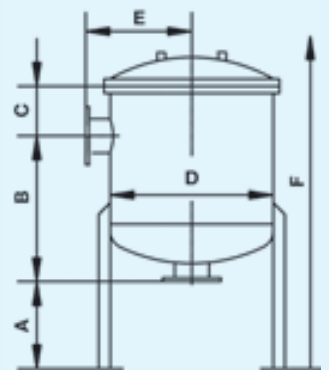
### Give these benefits

Proven design, robust and reliable, easy to use

Easy installation and positioning of bags, excellent sealing characteristics

Minimized pressure loss, easy to clean

General filter design is easily adapted to other processes and applications



# SANITARY

## SANITARY HOUSINGS

In the late 1990's Eaton launched a range of new, high performance "Premium" filter bags. Absolute filter elements, e.g. PROGAF™ with 99.9% efficiency at 1 µm, 95% at 0.15 µm have redefined the suitability of filter bags for applications previously only possible with expensive cartridges. Applications switched to bag filtration or new applications, such as membrane filter protection or activated carbon removal, led to significant cost reductions.

As a system supplier, we recognise the demands on housing design. Cleaning/sterilisation, corrosive chemicals and system validation/code approval are all major issues in Fine Chemical/Pharmaceutical, Food/Beverage and high purity Water applications.

### Surface Finish

Surface finish is critical:

- Ease of cleaning - smoother finishes are easier to clean by traditional methods SIP or CIP.
- Risk of bacterial growth - smoother finishes offer less surface support for bacteria.

Surface finishes up to Ra 0.4 µm can be guaranteed.



Ra 0.4 µm Finish



### Connections

Connections, flanges and threads are risk areas for bacterial growth. A number of special connections are available for such sanitary applications e.g. Tri-clamps for Fine Chemical/Pharmaceutical, IDF, Milk and RJT couplings for Food/Beverage.

1/4" (8mm)  
NPT

### Cleaning

Design can further minimise bacterial/residual contamination, no under-cuts, edges or dead volumes are allowed. "Seen to be Clean" is an Eaton innovation. Designs allow visual inspection of all internal pipe-work and surfaces, there is no requirement for costly housing removal and bioscope analysis.



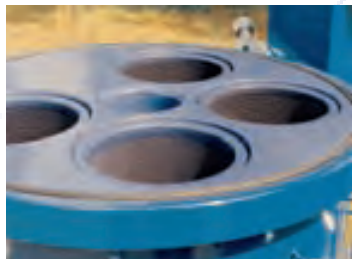
"Seen to be Clean" Housing

### Chemical resistance

Use of special materials e.g. HASTELLOY or coatings provide chemical resistance as do special O-rings e.g. FEP-Silicon.

## CUSTOM DESIGNED HOUSINGS

Eaton bag filter housings are designed to accommodate a wide range of possible standard modifications



HALAR coating

**Material of construction optimised for chemical and temperature compatibility:**

**Housing** – Carbon steel, Stainless steel in various grades, HASTELLOY, Titanium, Polypropylene and PVDF

**Coatings** – E-CTFE (HALAR), rubber lined, PTFE/FEP, Polyurethane and Epoxy

**Sealings** – A wide range of Gaskets and O-rings are available

**Process operating conditions:**

**Pressure/Temperature** – Depending on housing size, up to 100bar/400°C, Heating jackets with 15bar/400°C

**Flow rates** – Up to 1000m³/h



QIC-LOCK®

**Lid Closure/Lifting mechanisms:**

**Closure** – QIC-LOCK spindle, T-bolt, Swing eye-bolts, Hex-nuts, Stud-bolts, Segment clamps

**Lifting** – Spring, counter-balanced, hydraulic and Davit-arm



**Surface Finish/Connections:**

**Surface** – Glass-beaded, Electro-polished, Hand-polished, Acid-pickled, Coated (see above)

**Connections** – Standardised flanges and threads (DIN, ANSI, BSP), Sanitary (Tri-clamp, Milk pipe, IDF, RJT and other sterile types)



**Approvals and Design Codes:**

**PED** (Pressure Equipment Directive 97/23/EC)

**AD 2000-Merkblätter, EN 13445, Stoomwezen, CODAP, BS5500, ASME VIII Div 1**

Notified body: TÜV Nord

Modules: Up to module H1 and G

**SVTI**

**ASME** (American Society of Mechanical Engineers)

U stamp and UM stamp, CRN (Canadian Registration Number)

**Skid mounting and mobiles:**

**Skids** – In-house engineering capability to couple multiple housings and or integrated control systems

**Mobiles** – Application specific mobile units



Mobile unit

## TOPLINE™ Filter Housings

The best filter housing for the most demanding applications.

- TOPLINE... the first class single bag filter housing. From its high-performance design to its heavy duty investment-cast components, everything about TOPLINE is simply the best.
- TOPLINE's side inlet, flow through the top design results in a minimum headroom of unfiltered liquid for easy bag change-out, as well as providing optimum sealing of the filter bag.
- For filter bags sizes 01 and 02.
- TOPLINE's type 316 stainless steel construction means superior corrosion resistance and consistent performance, year after year. A smooth, bead-blasted finish, coupled with TOPLINE's minimum 2-weld design, makes it easy to completely clean the interior of the housing.
- All TOPLINE housings come with the exclusive Five Year Warranty from Eaton. A special line of CE stamped housings is also available as standard.
- TOPLINE... for highly demanding applications.



### These value added features:

"Over-the-top" inlet connection with hinged cover

Cover positively seals filter bag

Swing eye-bolt closure

Electropolished SS 316 perforated plate basket

Mounting legs to adjust housing height

### Give these benefits

Makes bag change-out quick and easy

Superior bypass-free sealing

Easy and robust opening and closing

Perfect bag support, easy to clean

Stable and adjustable construction

# SIDELINE™

## SIDELINE™ Filter Housings

Mid-priced filter housings for most applications.

- A SIDELINE housing from Eaton is a solid, precision cast filter in the medium cost range.
- SIDELINE offers the choice between a standard eye-bolt closure or a quick-opening centerbolt closure (T-bolt) and a choice of DN 50 or DN 80 flanged connections as standard.
- For filter bags sizes 01, 02, 03 and 04.
- SIDELINE's type 316 stainless steel construction means superior corrosion resistance and consistent performance, year after year. A smooth, bead-blasted finish, coupled with SIDELINE's minimum 2-weld design, makes it easy to completely clean the interior of the housing.
- All SIDELINE housings come with the exclusive Five Year Warranty from Eaton. A special line of CE stamped housings is also available.
- SIDELINE... for all heavy duty industrial applications.



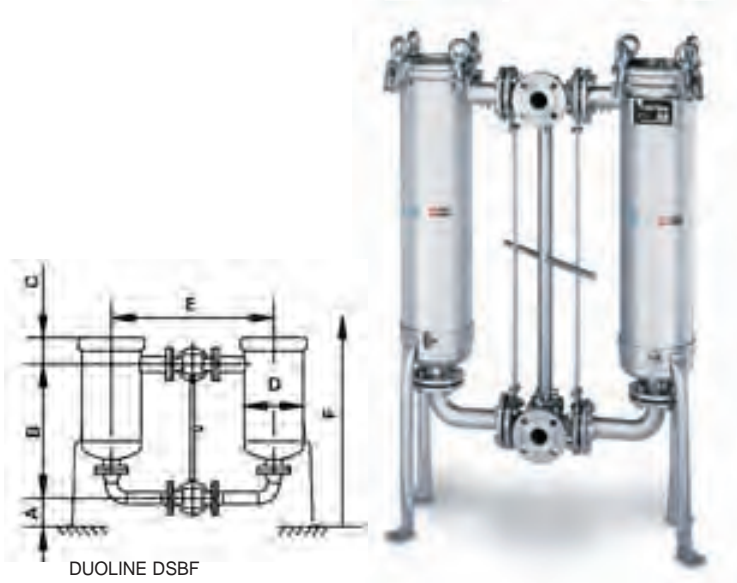
### These value added features:

Side-entry inlet with evacuation cover  
Cover adaptable to different opening directions  
Integrated handle in cover-lid  
Bag hold-down ring compressed by cover-lid  
Swing eye-bolt closure  
Electropolished SS 316 perforated plate basket  
Mounting legs to adjust housing height (option)

### Give these benefits

Eliminates spillage of liquid on opening  
Perfect accessibility, easy maintenance  
Ergonomically and easy to open  
Good 360° sealing of the filter bag  
Easy and robust opening and closing  
Perfect bag support, easy to clean  
Stable and adjustable construction

# DUOLINE™ / MODULINE™ / TOPLINE™



## DUOLINE™ Filter Housings

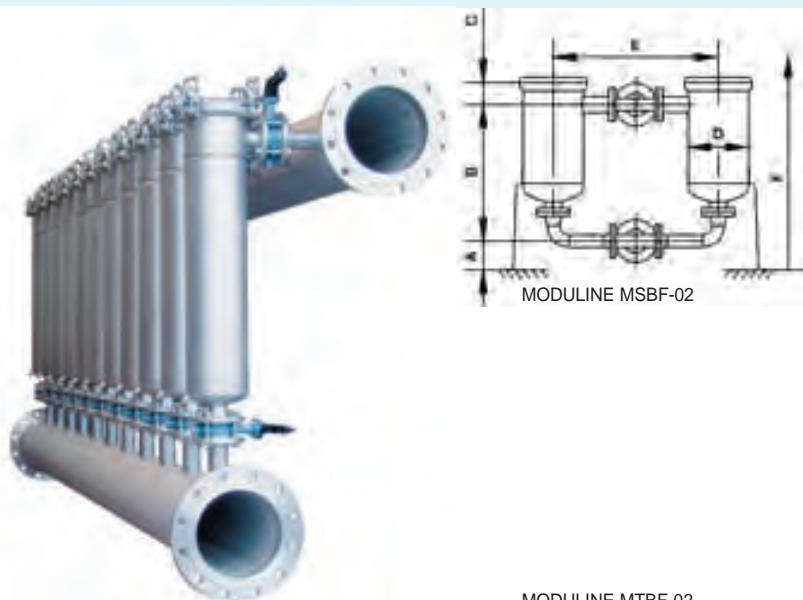
**DUPLEX units for continuous filtration processes.**

The DUOLINE bag filter system consists of two bag filter housings (SIDELINE™ or TOPLINE™) fitted together at the inlet and outlet by 3-way cook valve units. Both cook valves are connected together by a center post actuator in order to guarantee a synchronized change from filter A to filter B. A quick turn of the actuator diverts the flow from one filter housing to the other. The filtration process runs continuously during bag change-outs.

## MODULINE™ Filter Housings

**Double or modular multibag unit for larger flow rates.**

The MODULINE filter housings are multibag units assembled from two or more standard SIDELINE (MSBF) or TOPLINE (MTBF) housings using standard elbows, manifolds or T-Pipe modules. The MODULINE filter concept offers greater flexibility: capacity can be easily increased by adding further modules.



## TOPLINE™ Dual Filter Housings

**Compact 2-bag unit with single cover-lid.**

The TOPLINE TBF-02 filter housing combines the advantages of the TOPLINE series with a compact 2-bag design. Features a single cover-lid, eye-bolt closure and standard adjustable leg assembly.



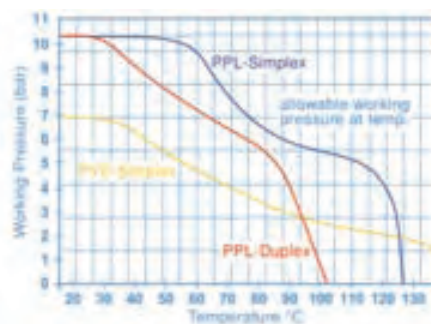
TOPLINE TBF-02

# POLYLINE™

## POLYLINE™ Filter Housings

All-plastic, rugged Polypropylene or PVDF construction for superior corrosion resistance.

- POLYLINE filter housings have no metal components to rust or corrode. The glass fiber reinforced polypropylene withstands relatively high pressure/temperature combinations. Available for filter bag sizes 01 and 02. Severely aggressive liquids can be filtered by a PVDF version, size 02 only.
- The cover is hand-removable without the need for any tools and features an all-plastic, built-in vent valve with integral 1/4" gauge tap. The two bottom pipe connections are interchangeable as outlet or drain, allowing easy modification to in-line or loop piping arrangements to accommodate any installation design.
- For applications that require continuous flow, a duplex model is available. Here, the flow never has to shut down for bag change-out. For contamination sensitive or severely corrosive filtration applications, POLYLINE is your best choice.



### These value added features:

Unique, one-piece molded body  
Glass reinforced polypropylene construction  
Hand-removable "spin off" cover  
Integral installation flange  
Double outlet connections  
Duplex model with CPVC valves available

### Give these benefits

No seams, welds or crevices  
High pressure and temperature resistance  
Easy to open, no tools needed  
Solid floor mounting  
One can be used as drain  
For continuous flow applications

# FLOWLINE™

## FLOWLINE™ Filter Housings

Versatile, heavy-duty but cost-effective filter housings.



- A FLOWLINE housing from Eaton is the best choice for industrial, commercial and OEM applications that do not require a code stamp. The standard design is available with threaded or flanged connections.
- FLOWLINE's cost-effective design incorporates all of the features heavy duty applications demand but in a light-weight construction.
- FLOWLINE's special design uses a minimum number of welds for a smooth, easy to clean interior surface.
- For filter bags sizes 01 and 02.
- FLOWLINE's type 304 or 316 stainless steel construction means superior corrosion resistance and consistent performance year after year. A smooth, bead-blasted finish makes it easy to completely clean the interior of the housing.



### These value added features:

### Give these benefits

Side-entry inlet with evacuation cover	Eliminates spillage of liquid on opening
Cover adaptable to different opening directions	Perfect accessibility, easy maintenance
Integrated handle in cover-lid	Ergonomically and easy to open
Bag hold-down ring compressed by cover-lid, PROFILE basket seal design in FPM	Good 360° sealing of the filter bag
Swing eye-bolt closure	Easy and robust opening and closing
Electropolished SS 304 or 316 perforated plate basket	Perfect bag support, easy to clean

## ECOLINE™ Filter Housings

Light-weight, economical filter housings.

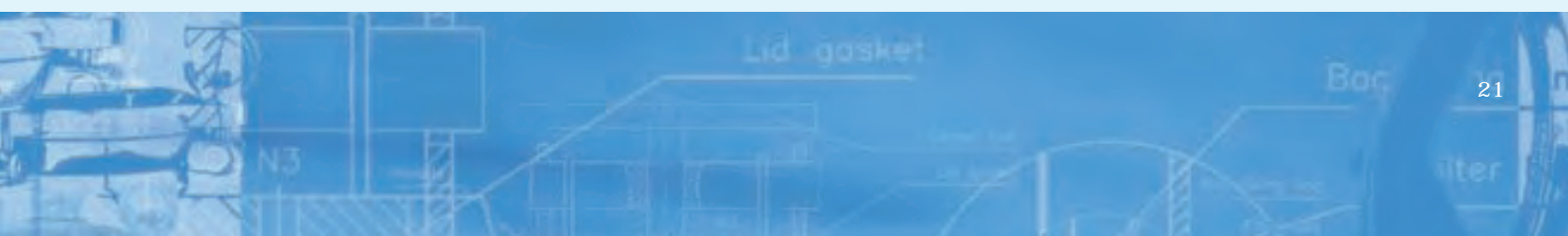
- An ECOLINE housing from Eaton is the entry model to the range. It is a light-weight design for commercial, OEM, non-hazardous, low pressure applications that do not require a Code Stamp.
- ECOLINE's cost-effective design incorporates a handy V-clamp closure and threaded couplings. The lid is fitted with a 1/4" BSP connection for easy fitting of a vent or gauge.
- For filter bags sizes 01, 02, 03 and 04.
- ECOLINE's type 304 or 316 stainless steel construction offers superior corrosion resistance and consistent performance. A smooth, bead-blasted finish makes it easy to completely clean the interior of the housing.



### These value added features:

### Give these benefits

Side-entry inlet with evacuation cover	Eliminates spillage of liquid on opening
Loose, light-weight cover with V-clamp closure	Easy maintenance
Bag hold-down ring compressed by cover-lid, PROFILE basket seal design in FPM	Good 360° sealing of the filter bag
Electropolished SS 304 or 316 perforated plate basket	Perfect bag support, easy to clean
Mounting legs or wall mounting brackets (option)	Easy to install



# ACCESSORIES

## FOR FILTER HOUSINGS

### Original Eaton Accessories, Consumables and Spare Parts for Safety and Reliability

The wide range of filter housing accessories from Eaton makes it possible to custom design a housing to the exact requirements of your application, no matter how complex or unique it may be.

Accessories can be used to improve processes as well as the application requirement itself. For example, displacement balloons make bag change-out easier, LOFNETIC magnetic inserts extend filter bag life in applications where magnetic particles are encountered.

Original Eaton “added value” accessories are guaranteed to work with your filter housings as part of the system to deliver the highest performance and reliability.

#### 01 Restrainer Baskets

Heavy duty, electro-polished SS 316 perforated plate baskets (included with housing) allows use of filter bags and HAYFLOW™ elements up to differential pressures of 3.5 bar. Available in all standard sizes, fitting all Eaton bag filter housings. Specially designed restrainer baskets, including special of construction such as HASTELLOY or E-CTFE (HALAR) coated, are available. Standard baskets can be used in combination with adaptor rings for retrofitting other types of housings.

#### 02 LOFNETIC Magnets

Magnets assemblies are a combination of a bag positioner fitted in the center with a magnetic bar(s) inserted into the filter bag during filtration. They extend lifetime by retaining magnetic particles such as chips and fines, preventing deposition onto the filter media. They also retain finer magnetic dust when using bags of coarser micron rating. Eaton magnetic strainers are available in size 01 and 02 using one or two SS 316 covered magnetic bars.

#### 03 Bag Positioner

Highly recommended for all installations, mandatory for some, bag positioners or “bag lock's” ensure correct positioning of the filter bag within the basket and eliminate any “bobbing” up and down movement of the bag caused by uncontrolled back pressure. This avoids any chance of bag bursting. ACCUGAFT™, PROGAF™ and LOFCLEAR™ 500 filter bags need to be equipped in all cases with a bag positioner. A special new collar design firmly fixes the element inside the bag during filtration. They are available in sizes 01 and 02.





#### **04 Leg Assembly**

Height-adjustable leg assemblies are standard for size 01 and 02 TOPLINE™ housings and optional for ECOLINE™, FLOWLINE™ and SIDELINE™ housings. Wall mounting brackets are also available.

#### **05 Displacement Balloons**

Inserting a displacement balloon inside the filter bag minimizes the amount of residual liquid present in the filter bag and reduces product loss. This eases the changing of the

filter bags and eliminates the need for expensive pressure-aided draining systems. A special new collar design firmly positions the balloon inside the bag. The SS 316 balloons' maximum DP is 16 bar, they are available in sizes 01 and 02.

#### **06 Manifold Modules**

Eaton standard pipe modules are available in SS 316. 90° elbows, flange reductions, flanged "T" sections and flange manifolds can be easily assembled to make DUOLINE™ or MODULINE™ bag filter versions based on FLOWLINE™, SIDELINE™ or TOPLINE™ size 01 or 02 housings.

#### **07 Adapter Head for Open Filtration**

Used in conjunction with SNAP-RING® filter bags in gravity feed open systems. Adapter heads are available in SS 316 and polypropylene with a 1.5" BSP connection. For pressures to 1.5 bar.

#### **08 Gaskets and O-ring Seals**

As standard, Eaton metal filter housings are fitted with NBR O-rings, plastic housings have FPM O-rings. Other material options such as EPDM, FPM, FEP encapsulated FPM or Silicone rubber are available as are flat gaskets. The options offer a variety of chemical and thermal resistances to meet a multitude of uses and applications.

#### **09 Mesh Strainers**

Bag filter housings may be fitted with SS 316 mesh lined strainers in place of baskets to convert them to strainer filters. Mesh strainers are available in four standard sizes: 01, 02, 03 and 04, micron ratings are 25, 50, 100, 150, 250, 400, 800 µm respectively.

#### **10 Miscellaneous**

Gauges, Vents, Eye-bolts, Clamp-screws, V-clamps, Center-bolts, Butterfly and Ball Valves are available as accessories or spare parts to fit the various Eaton bag filter housings.

#### **11 Bag Hold-down Rings**

The various ECOLINE™, SIDELINE™, FLOWLINE™, POLYLINE™ and MAXILINE™ MBF bag filter housings are fitted with different bag hold-down rings (included with housing). They hold the filter bag securely inside the restrainer basket which in turn is positioned correctly within the housing.

# FILTER BAGS

## **PROGAF™**

A revolution in filter bags. PROGAF combines a high efficiency media with a high capacity pre-filter for effective particulate removal down to submicron level.

## **ACCUGAF™**

Highly efficient filter bags that have an extremely high particle retention efficiency. Applications that require this high filtration efficiency can now take advantage of bag filtration with the ACCUGAF from Eaton.

## **LOFCLEAR™**

High Efficiency filter bags with a special multi-layer, pleated construction that results in a better than nominal efficiency in demanding applications.

## **HAYFLOW™**

The revolutionary new long-life filter element from Eaton.

## **DURAGAF™**

Features increased media thickness with finer fibers for high pore volume. Reduced bag change-outs improve efficiencies and reduce operating costs.

## **CLEARGAF™**

For Food/Beverage and Pharmaceutical applications most Eaton filter bags can be manufactured, packaged and stored to meet EEC and FDA requirements.

## **SENTINEL®**

All-welded construction bags for higher filtration efficiency. Unique pressure reactive ring seal ensures bypass-free sealing.

## **SNAP-RING®**

Sewn construction filter bag for less demanding applications.

## **BANDSEAL™**

Tie-on filter bags for filtration without a housing.

# PIPELINE STRAINERS

Protecting your Pumps, Filters, Nozzles, Flowmeters, Valves, Heat Exchangers, Condensers, Oil Burners, and Boilers from pipeline debris. Models available in different materials, for piping as from 1/4" up to 48".

## **DUPLEX Strainers**

Never have to be shut down for cleaning ... the line can run continuously. When one basket becomes dirty, flow is switched to the other. The first basket is removed, cleaned and is ready for use again.

## **SIMPLEX Strainers**

The particulate matter is captured in the strainer basket. The line is then temporarily shut down for cleaning the basket.

## **AUTOMATIC SELF-CLEANING Strainers**

Motorized units designed for the continuous removal of entrained solids from liquids in pipeline systems.

## **CUSTOM FABRICATED Strainers**

Nothing too big – Nothing too small – Nothing too special!

## **“Y” TYPE Strainers**

Compact design.

## **BASKETS AND ELEMENTS**

The heart of every strainer. Available in a wide range of materials, mesh linings or perforations to handle any straining problem.

# CARTRIDGES

## **LOFTOP**

Melt Blown absolute rated Polypropylene Filter Cartridges

## **LOFTREX**

Meltblown Industrial Polypropylene Filter Cartridges

## **LOFWIND**

String wound Filter Cartridges

## **LOFCLEAN**

Resin Bonded Acrylic fiber Filter Cartridges

## **LOFSORB**

Extruded Carbon Cartridges

## **LOFDISC**

Cellulose and active Carbon Filter Modules



# CARTRIDGE HOUSINGS

## **TOPCART**

A range of single and multiple heavy duty SS 316 cartridge filter housings designed for industrial liquid filtration. Options for DOE, SOE-222 and SOE-226 adaptor configurations.

## **ECOCART**

Lightweight SS 304 single and multiple round housings for DOE cartridges.

## **POLYCART**

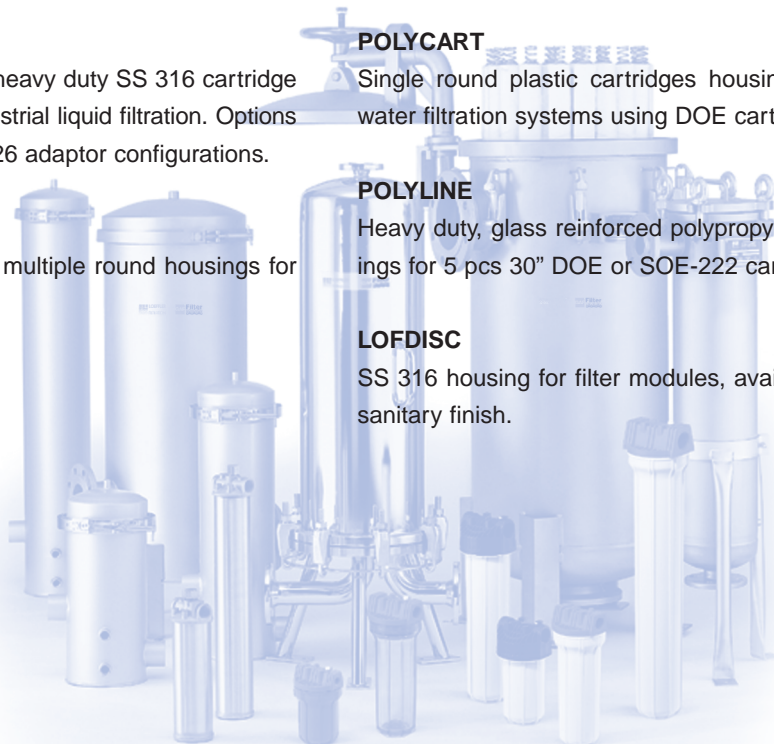
Single round plastic cartridge housings, ideal for in-line water filtration systems using DOE cartridges.

## **POLYLINE**

Heavy duty, glass reinforced polypropylene or PVDF housings for 5 pcs 30" DOE or SOE-222 cartridges.

## **LOFDISC**

SS 316 housing for filter modules, available in industrial or sanitary finish.



**North America - HQ**

44 Apple Street,  
Tinton Falls, NJ 07724  
Toll Free: 800 656-3344  
(North America only)  
Voice: +1 732 212-4700

**Brazil**

Av. Julia Gaioli, 474 - Bonsucesso  
07251-500 - Guarulhos  
Brazil  
Voice: +55 11 2465 8822

*For more information, please e-mail us at [filtration@eaton.com](mailto:filtration@eaton.com)*

*Visit us online at [eaton.com/filtration](http://eaton.com/filtration) for a complete list of Eaton's filtration products*

**Europe/Africa/Middle East**

Auf der Heide 2  
53947 Nettersheim, Germany  
Voice: +49 2486 809-0

**Internormen** Product Line

Friedensstraße 41  
68804 Altlusheim, Germany  
Voice: +49 6205 2094-0

**Begerow** Product Line

An den Nahewiesen 24  
55450 Langenlonsheim, Germany  
Voice: +49 6704 204-0

**China**

No. 7 Lane 280 Linhong Road,  
Changning District,  
Shanghai 200335, China  
Voice: +86 21 5200 0422

**Singapore**

4 Loyang Lane #04-01/02  
Singapore 508914  
Voice: +65 6825 1668

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