

**aRKe<sup>®</sup>**  
FILTERS



**CHADHA INDUSTRIES**  
PRIVATE LIMITED

An ISO 9001 : 2015 Co.



# INTRODUCTION

Manufacturers have a task of designing filters to meet the ever increasing demand and expectations of industry. Change in environmental conditions have added further pressure to this ever increasing demand of filtering and purifying fluids be it gases or liquids. Keeping pace with this trend only those with extensive R&D and in depth knowledge would be able to succeed in the near future.

R&D and testing being the core of our Company have brought forward a world of possibilities for our clients to improve their processes and have a better and cleaner system.

## HISTORY

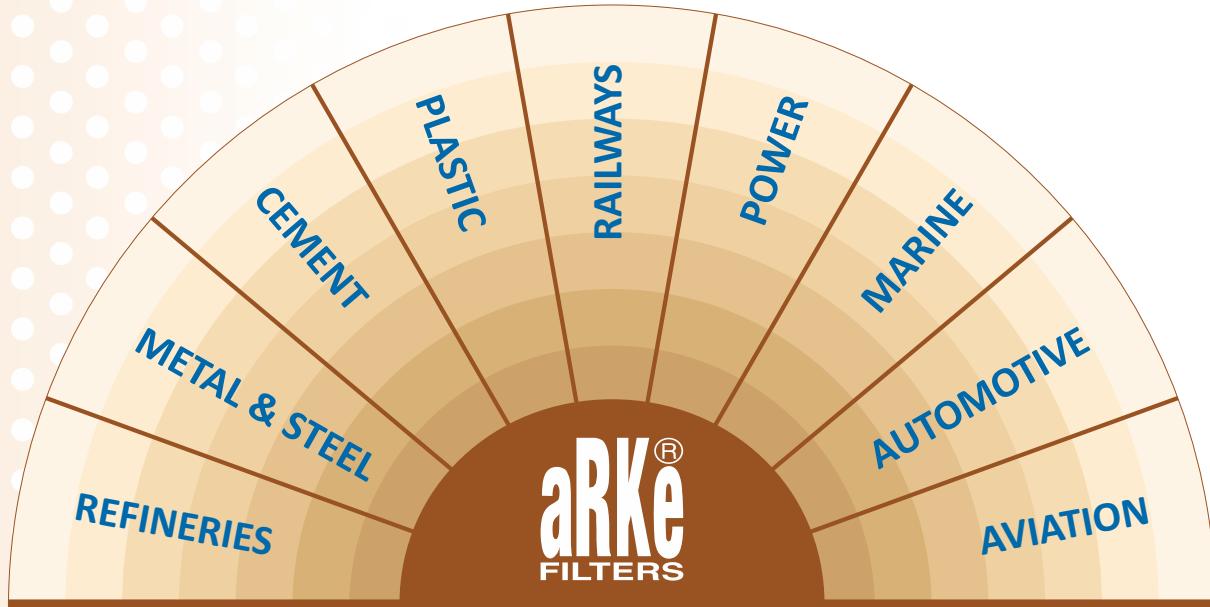
The saga of Chadha Industries dates back to early 60's wherein a simple idea of developing filter through products used for daily usage resulted in establishment of the Company and developing and manufacturing filters for early automotive after-market industry present in the country. With passing time we gained more expertise and started developing filters for Heavy Earth moving equipment, D.G. Sets, Compressors and others. Though the early pace was sluggish it didn't deter us from moving forward and during mid 90's came the opportunity wherein we moved our entire focus to industrial filters.

Since then we have achieved a tremendous growth trajectory along with indigenous technical understanding of various products, which has brought us to a stage wherein we have set the pace to establish ourselves as one of the leading players in the market with proud belief of being an 'Indigenous Filter Manufacturer'.

## "PIONEERS OF INDUSTRIAL FILTRATION"

Though our presence is only being felt in the last year or two we have set the wheel in motion to capture market on pan-India basis in the next few years while at the same time preparing ourselves to setting foot on a global market.

## INDUSTRIES WE CATER



# BASICS OF FILTRATION



## TECHNICAL JAGRONS

- ★ Micron rating:
  - ★ Absolute: a rating wherein the efficiency required at a particular micron rating is as high as 99.9%
  - ★ Nominal: a rating wherein the efficiency at a particular micron rating would be in a range of 80-95%
- ★ Beta ratio: Ratio of upstream and downstream particles. Standard value for critical applications is either >200 equivalent for efficiency of 99.5% or >1000 equivalent for efficiency of 99.9%
- ★ Initial ΔP is a measure of resistance caused by the filter cartridge and is dependent on air permeability of media, filtration area, flow rate, line pressure and viscosity of fluid
- ★ ISO 4406: Cleanliness levels are defined by three numbers (denoted as 21/18/13) corresponding to 4, 6 and 14 micron, in that order. Each number refers to an ISO code range which is determined by number of particles for that size and larger present in 1ml of fluid



NAS 9 ISO 20/18/15 Photomicrograph

## QUALITY

- ★ Is your oil report good enough? Then why does system break-downs happen in a few years?
- ★ How clean is your oil, check what ISO 20/18/15 or equivalent NAS 9 oil looks like
- ★ Quality and R&D goes hand in hand and thus we keep testing new materials to improve overall efficiency and performance of filters
- ★ Role of a filter is to reduce particle from a system and should not be measured in terms of how much days of performance can it provide
- ★ Are your systems designed to showcase when to change filters? Ask our experts to get better clarity and understanding



Karl - Fischer Titrator

## TESTING FACILITIES

- ★ Oil sample testing as per ISO 4406/ NAS 1638 value determination (bottle sampling PAMAS)
- ★ Fuel testing for dissolved water concentration determination: Karl Fischer titrator
- ★ Tensile testing for end caps (up to 5 ton)
- ★ Leakage testing for spin-on filters and small assembly for pressure up to 10 bar
- ★ Static high-pressure testing for assembly up to 450 bars (manual)
- ★ Life-cycle pressure testing for assemblies up to a range of 350 Bars



PAMAS Particle Counting System



# OIL FILTERS

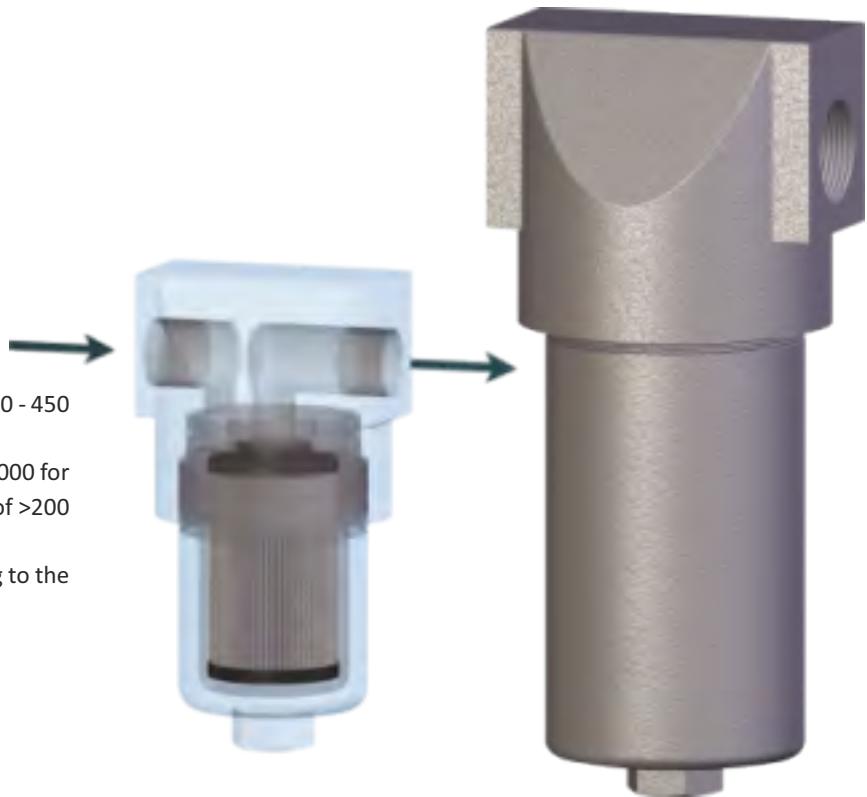
## PRESSURE LINE FILTERS

### Applications :

- ★ Hydraulic Oil
- ★ Lubrication Oil

### Features :

- ★ Medium and High-pressure filters ranging from 100 - 450 bar
- ★ High efficiency up to 99.9% with Beta Ratios of >1000 for pressure line application and standard beta ratio of >200 with efficiency of 99.5% for all other applications
- ★ Glass fiber filter cartridges are validated according to the following standards ISO 2941, 2942, 3724 & 16889



### Specifications :

Material of Construction	Housing	Medium pressure	Up to 100 Bars	Aluminum/Steel	
		High pressure	Up to 200 Bars	Aluminum/Steel	
		Extremely High pressure	Up to and above 350 bars	Alloy Steel/Stainless Steel	
Media		Glass fiber/ Wire mesh/ Cellulose			
Seals		NBR, EPDM, Viton			
Connection	Threaded (BSP)		1/2" to 2"		
Micron Rating	Glass Fiber		1-25 micron		
	Wire Mesh		5 to 500 micron (larger values on demand)		
	Cellulose		20 (other micron values on demand)		
Operating Temperature	Glass Fiber		Up to 70°C (short peak temperature 80°C)		
	Wire Mesh		Up to 150°C		
	Cellulose		80-120°C		
Flow Direction	Out to Inside (Inside to outside on demand)				
Efficiency	Glass Fiber		99.9%		
	Cellulose		90-95%		
	Wire Mesh		90%		

### Filter cartridges equivalent to (but not limited to):

Hydac	Ranging from series 0030 to 2600
Pall	Ranging from HC 2206 to 9901
Mahle	Ranging from PI 1005 to 9545, 13004 to 38100
MP Filtri	C, CU, F, MF, HP & M series filter cartridges
Fairey Arlon	170 to 390, TXX & TXW series cartridges
EPE	1.0 & 2.0 series cartridges
Hydroline	TIE, CFE & HFE series cartridges

## OUR NEW PRODUCT

# OIL FILTERS



## MANIFOLD MOUNTED PRESSURE LINE FILTERS

### Applications :

- ★ Hydraulic Oil
- ★ Lubricating Oil

### Features :

- ★ High pressure filters ranging up to 350 bars
- ★ High efficiency cartridges up to 99.9% with Beta Ratios of > 200 and > 1000
- ★ Glass fiber filter cartridges are validated according to the following standards ISO 2941, 2942, 3724 & 16889
- ★ Suitable for flow ranging from 60 to 600 LPM
- ★ With digital differential pressure switch



### Specifications :

Material of Construction	Housing	Up to 350 Bars	Alloy Steel
	Media	Glass fiber	
	Seals	NBR, EPDM, Viton	
Connection/Mounting	Flanged/Bolted	With O-ring seal at connection	
Micron Rating	Glass Fiber	3-25 micron	
Operating Temperature	Glass Fiber media	Up to 70°C (short peak temperature 80°C)	
By-pass Relief Valve	Cracking pressure	6 bars (other values on demand)	
Flow Direction	Out to Inside (Inside to outside on demand)		
Efficiency	Glass Fiber	Up to 99.9%	



# OIL FILTERS

## TANK-TOP MOUNTED RETURN LINE FILTERS

### Applications :

- ★ Hydraulic Oil
- ★ Lubricating Oil

### Features :

- ★ Low and Medium pressure filters ranging from 10-60 Bars
- ★ Variety of medias ranging from Glass fiber, wire mesh and cellulose
- ★ High efficiency up to 99.5% with Beta Ratios of >200 for glass fiber media filters
- ★ Efficiency of >90% for cellulose and wire mesh filters
- ★ Cartridges with by-pass valve fitment for continuous operation



### Specifications :

Material of Construction	Housing	Low pressure or return line	Up to 20 Bars	Aluminum/Steel
		Medium pressure	Up to 60 Bars	Aluminum/Steel
	Media	Glass fiber/ Wire mesh/ Cellulose		
	Seals	NBR, EPDM, Viton		
Connection	Threaded (BSP)	½" to 2.5"		
	Glass Fiber	1-25 micron		
Micron Rating	Wire Mesh	5 to 500 micron (larger values on demand)		
	Cellulose	10 & 20 (other micron values on demand)		
Operating Temperature	Glass Fiber	Up to 70°C (short peak temperature 80°C)		
	Wire Mesh	Up to 150°C		
	Cellulose	80-120°C		
Flow Direction	Out to Inside (Inside to outside on demand)			
Efficiency	Glass Fiber	99.5%		
	Cellulose	90-95%		
	Wire Mesh	90%		

# OIL FILTERS



## COMPLETE FILTERS: SIMPLEX & DUPLEX

### Applications :

- ★ Hydraulic Oil
- ★ Lubricating Oil
- ★ FO, LDO, Coolant Oil etc.

### Features :

- ★ Assembly Design as per ASME BPVC code 2015
- ★ Low pressure filters ranging up to 25 Bars
- ★ Two standard media being used are Glass fiber and Wire Mesh
- ★ High efficiency up to 99.5% with Beta Ratios of >200 for glass fiber media filters
- ★ Efficiency of >90% for wire mesh filters
- ★ Elements are either Cartridges or bucket type with high filtration area for extended working life
- ★ Multiple cartridge systems supports extended change-over time for continuous operation
- ★ Duplex assemblies designed for continuous operation



### Specifications :

Material of Construction	Housing	Class #150 (above classes on demand)	Steel/Stainless Steel (special alloy on demand)
	Media	Glass fiber/ Wire mesh/ Cellulose	
	Seals	NBR, EPDM, Viton	
Connection	Flanged	½" up to 6" (other sizes on demand)	
Micron Rating	Glass Fiber	1-25 micron	
	Wire Mesh	5 to 500 micron (larger values on demand)	
	Cellulose	10 & 20 (other micron values on demand)	
Operating Temperature	Glass Fiber	Up to 70°C (short peak temperature 80°C)	
	Wire Mesh	Up to 150°C	
	Cellulose	80-120°C	
Flow Direction	Out to Inside (Inside to outside on demand)		
Efficiency	Glass Fiber	99.5%	
	Cellulose	90-95%	
	Wire Mesh	90%	



# OIL FILTERS

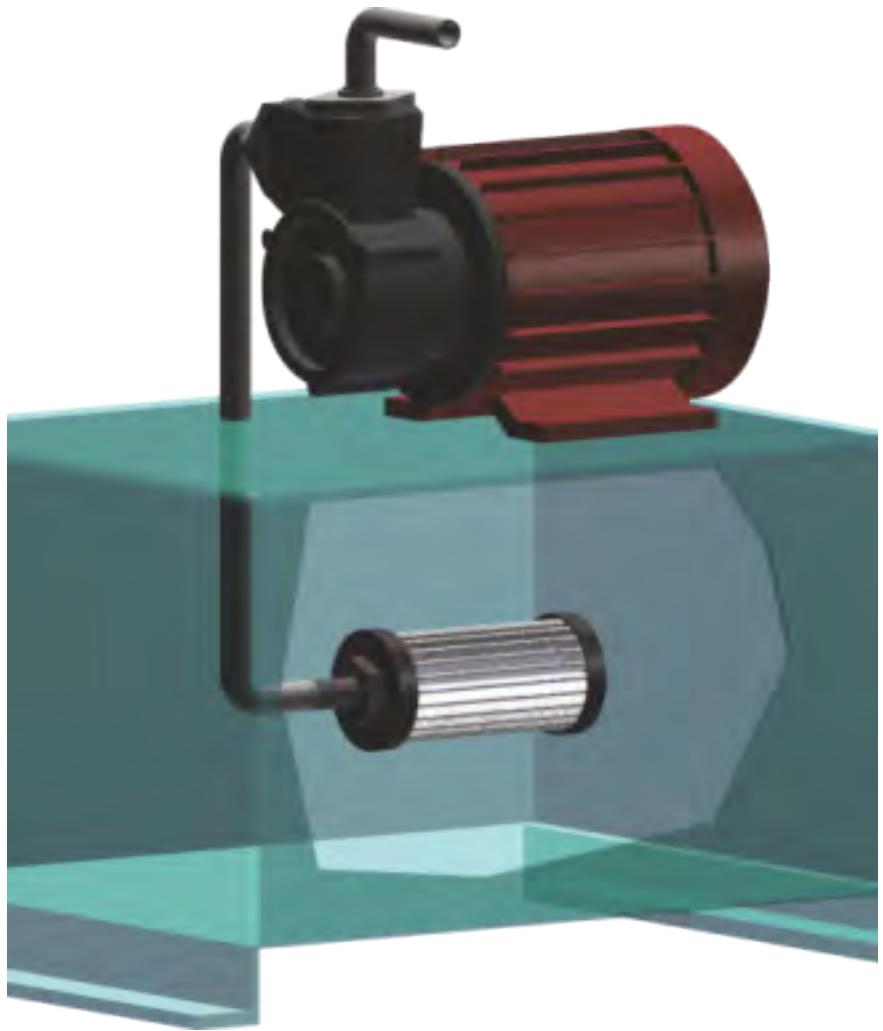
## SUCTION STRAINERS

### Applications :

- ★ For all variety of oil applications

### Features :

- ★ Cartridges are designed with female thread for easy installation and removal
- ★ Wire mesh filter media for easy maintenance (washable) and long shelf life
- ★ Strainers are capable enough to bear temperature range of -20° to 100°C
- ★ Standard strainers are manufactured with 150 micron rating



### Specifications :

#RK	Connection Size BSP Thread	Element Length In MM	Overall Length In MM	Outer Diameter In MM	Filtration Area In ft <sup>2</sup>
2000	1/2"	147	160	63	1.25
2001	3/4"	147	160	63	1.25
2002 & 2003	1"	100 & 160	112 & 173	63 & 90	0.85 & 1.65
2004	1 1/4"	200	212	90	2
2005	1 1/2"	200	212	90	2
2006 & 2007	2"	200 & 300	212 & 312	90	2.5 & 3
2008	2 1/2"	250	265	128	4
2009 & 2010	3"	225 & 325	240 & 340	140	3.5 & 5

\*Note: Other micron ratings and dimensions also available on demand

## OUR NEW PRODUCT

# OIL FILTRATION SYSTEM



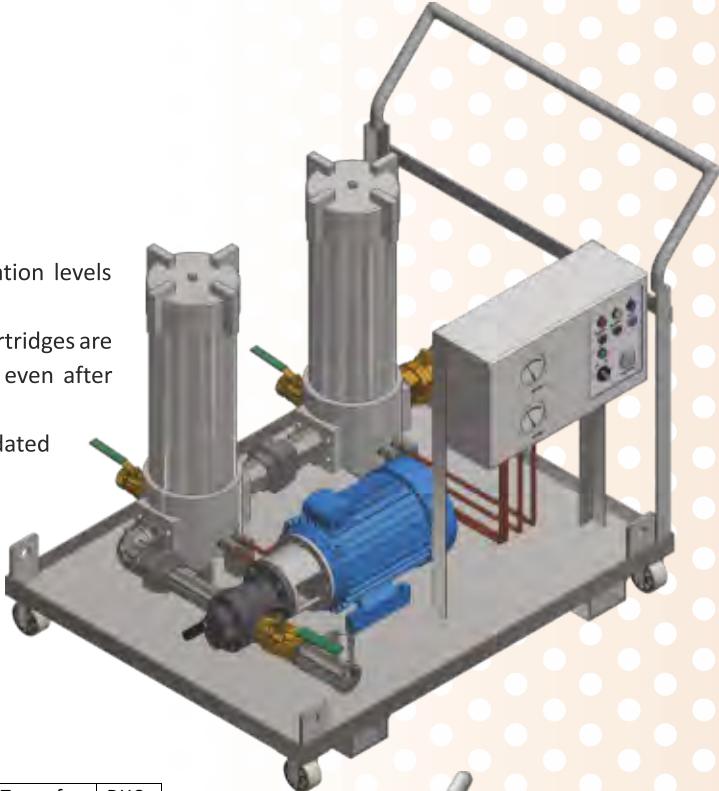
## OFFLINE FILTRATION SYSTEM

### Applications :

- ★ Hydraulic Oil
- ★ Lubricating Oil
- ★ Gear Oil

### Features :

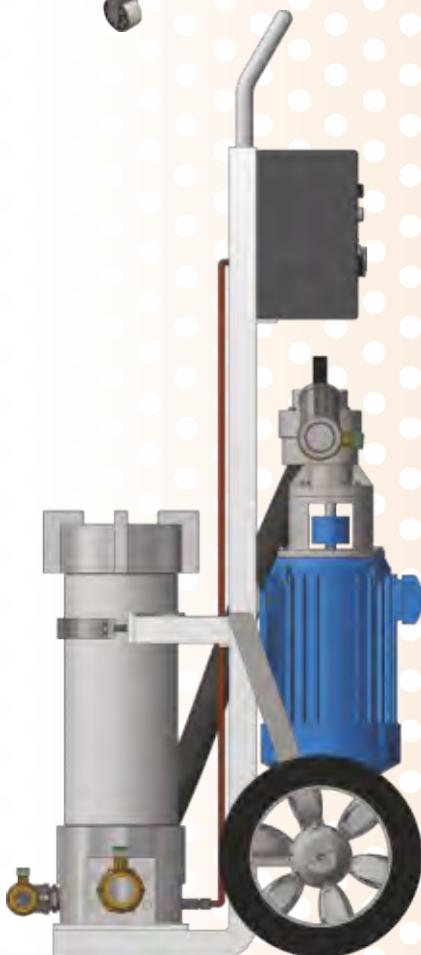
- ★ Offline system to remove dirt and help maintain low contamination levels without disturbing the operation of the system
- ★ High efficiency cartridges up to 99.9% with Beta Ratios of  $\geq 1000$ . Cartridges are fitted with by-pass valve arrangement for continuous operation even after choking
- ★ Glass fiber and Special Nano-web filter media cartridges are validated according to the following standards ISO 2941, 2942, 3968 & 16889
- ★ Multi-stage systems suitable for flow ranging from 20 to 330 LPM; higher flow rates on demand
- ★ Suitable for tank capacity up to 40KL, higher capacity on demand only
- ★ Installed with differential pressure gauges and phase reversal switches for easy operation



### Specifications :

Unit Type	Flow Rate LPM	Connection Size	Tank Capacity (in liters)	Power Supply (H.P)	Stages	No of cartridges per stage	Type of Cartridges	DHC per stage (gm)
OFS.20.2X1.10X3.5L	20	3/4"	2000	1	2/3	1	5L	260
OFS.50.2X1.10X3.5L	60	1"	5000	2	2/3	1	5L	260
OFS.100.2X1.10X3.9L	115	1.5"	10000	5	2/3	1	9L	480
OFS.200.2X1.10X3.9L	225	2"	20000	7.5	2/3	1	9L	480
OFS.300.2X4.10X3.9L	330	2.5"	40000	10	2/3	4	9L	1920

\*Note: Modifications maybe suggested based on client's requirement in terms of Flow rate and no of cartridges per stage.





OUR NEW PRODUCT

# OIL FILTRATION SYSTEM

## ELECTROSTATIC CLEANING MACHINE

### Applications :

- ★ Hydraulic Oil
- ★ Lubricating Oil
- ★ Gear Oil
- ★ Engine Oil

### Features :

- ★ Compatible with wide variety of Oil having viscosity up to 400 Cst
- ★ Easy maintenance and use can help reduce NAS value
- ★ Ability to capture variety of organic and inorganic contaminants
- ★ Can withstand moisture up to 1000 ppmv
- ★ Low flow rate compliment effective dirt capture

### Precautions :

- ★ Not ideal for use with synthetic oils
- ★ Cleaning capacity limited to ~5000 litre tank per machine, for higher capacity, multiple machines might be needed
- ★ Static pressure head should be maximum of 3 meters
- ★ Tank can withstand 1.5 kg/cm<sup>2</sup> of pressure only

### Specifications :

Model No	Dimensions (L X B x H in mm)	Weight (Kg)	Flow Capacity (LPM)	Power Requirement	Tank Cleaning Capacity (litres)
ECM-100	900 x 615 x 920	220	10-12	415V, 3Ø, 50 Hz	6000
ECM-50	835 x 480 x 915	130	10-12	415V, 3Ø, 50 Hz	4000
ECM-35	560 x 425 x 875	90	5-8	220V, 1Ø, 50 Hz	2000
ECM-25	515 x 420 x 850	70	3-5	220V, 1Ø, 50 Hz	1000



# AIR FILTERS



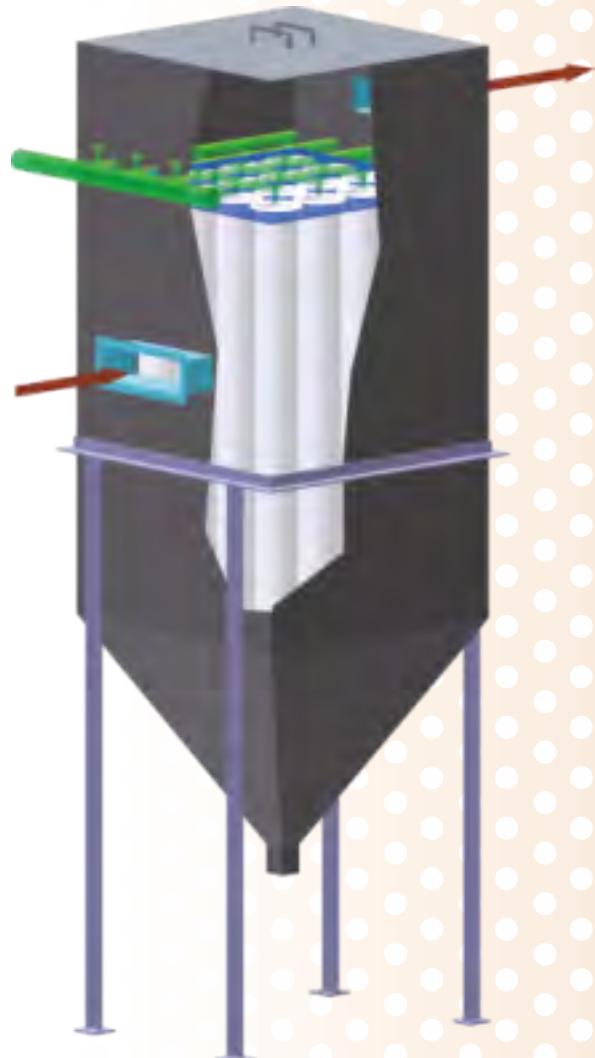
## BAG FILTERS

### Applications :

- ★ Cement & Lime: Crushing, Raw, Coke mill, cement kiln
- ★ Steel: Fly ash, Coal handling, Smelting, Refining
- ★ Power: Coal handling, AHU, fly ash dust collectors

### Features :

- ★ 2 year limited working life guarantee on pre-determined operating conditions
- ★ High efficiency, longer lifetime, extremely low emission and more energy saving
- ★ Lab and field tests with proven results
- ★ In range of 100-700 GSM with multitude of surface coating and features



### Specifications :

	PP	PES	PA	PMIA	PPS	PTFE	DURAtes
<b>Polymer</b>	Poly-propylene	Polyester	Polyamide	Meta-Aramid	Poly-phenylene Sulfide	Polytetrafluoroethylene	Polyester
Strong Acids	XXXX	XXX	X	XX	XXXX	XXXX	XXX
Weak Acids	XXXX	XXXX	XX	XXX	XXXX	XXXX	XXXX
Strong Alkalies	XXXX	X	XXX	XXX	XXXX	XXXX	X
Weak Alkalies	XXXX	XX	XXXX	XXX	XXXX	XXXX	XX
Oxidizing Agent	X	XXXX	XX	XXX	X	XXXX	XXXX
Hydrolysis (temp. & moisture)	X	X	XX	XX	XXX	XXXX	X
Maximum Continuous Temp. (°C)	80-100	140	100-110	200	180-190	240-260	140

<b>SYMBOL</b>	X	XX	XXX	XXX
<b>RESISTANCE</b>	Poor	Fair	Good	Excellent

\*Note : The following are available on demand

- Filter cloth / butterfly filter press
- Woven filter fabric for miscellaneous application



# AIR FILTERS

## AHU FILTERS

### Applications :

- ★ Blowers
- ★ Heavy duty compressors
- ★ Air handling units in power, cement, steel plants, etc.

### Features :

- ★ Box and flange type for easy installation
- ★ Useful for contaminant removal from open air environment
- ★ Washable type available in metallic and polyester media
- ★ Non-woven media for high dirt retention up to 95% efficiency
- ★ Filtration class ranging from EU-3 to EU-7
- ★ Filters with EU-10 to H13 filtration class on demand only

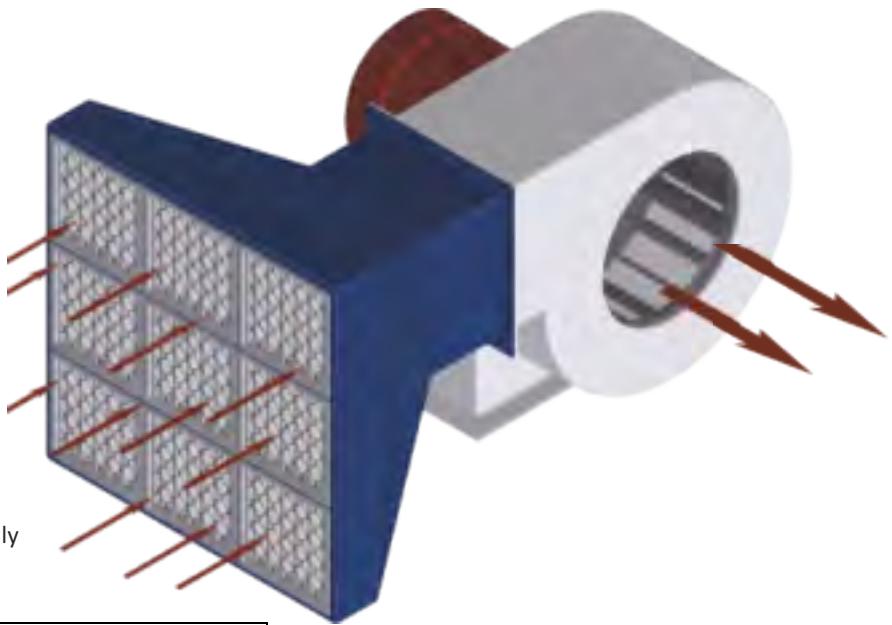
### Specifications :

Material of Construction	Frame	Flange or Box type
	Material	Aluminum or GI
	Media	Metallic, HDPE or Non-woven
Micron Rating	Metallic	50-100
	HDPE	Down to 50
	Non-woven	Down to 5
Operating Temperature	Metallic	110°C
	HDPE	60-70°C
	Non-woven	60°C
Efficiency	Metallic	60-80%
	HDPE	60-80%
	Non-woven	Up to 95%

### Standard Size Available:

Type	Thickness
Metallic	25 & 50mm
Pre-filter (EU-3,4)	50, 150 & 300mm
Fine Filter (EU-5,6,7)	50, 150 & 300mm

\*Note: odd sizes available on demand. Absolute and HEPA Filters with micron rating down to 0.3μ also available on demand.



## DUST COLLECTORS

### Applications :

- ★ Air suction line
- ★ CNC Machines
- ★ Suction Blowers
- ★ Powder Coating Plant
- ★ Air Compressors

### Features :

- ★ Available in variety of sizes
- ★ Cartridge type for ease of use and fitment
- ★ Fitment through tie-rod and/or connecting lugs
- ★ High filtration area utilization with specialized pleating mechanism to avoid pleats sticking together
- ★ Cellulose and washable polyester media with high efficiency up to 99% down to 5 micron



### Specifications :

Material of Construction	End Caps	Zinc/Powder coated metallic sheet
	Protective Core	Zinc/Powder coated metallic perforated sheet
	Media	Cellulose and Polyester
Micron Rating	Cellulose	15-45
	Polyester	5-25
Operating Temperature	Cellulose	80-100°C
	Polyester	60-80°C
Efficiency	Cellulose	80-90%
	Polyester	90%



# AIR FILTERS

## OIL MIST SEPARATORS

### Applications :

- ★ Compressed Air

### Features :

- ★ To help eliminate dirt, moisture and oil aerosol from compressed air systems
- ★ To achieve effectiveness of the system, use multi-stage arrangement to remove particles in the primary stage and moisture and oil aerosol in secondary and tertiary stages
- ★ Moisture and oil collected at the sump of the filter can easily be removed manually through check at the base of the filter
- ★ The cartridges are specifically designed in order to have least amount of pressure drop across the filter, thus eliminating drop in air pressure at the outlet
- ★ Can be used for gases other than air. Aluminum alloy filters are sturdy and light weight and thus can be mounted directly on the pipeline
- ★ Installed with differential pressure gauges to give indication of choked filter cartridges



### Specifications :

Model No	Connection Size	Type of Cartridge	Pressure Rating (bars)
OMS.1.F500.	1"	Cellulose/Wire Mesh/ Glass Fibre	16
OMS.1.5.F500	1.5"	Cellulose/Wire Mesh/ Glass Fibre	16

\*Note: Other sizes available on demand

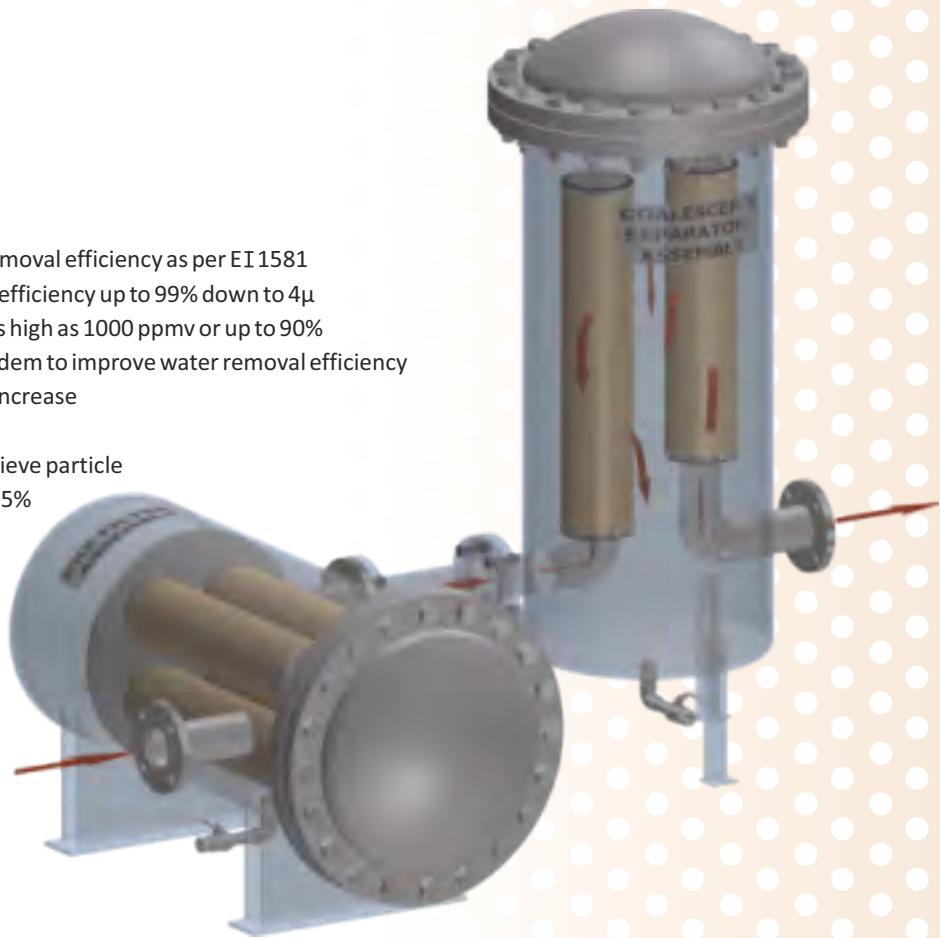
## COALESCER & SEPARATOR FILTERS

### Applications :

- ★ Diesel/ HSD/ Petrol
- ★ Naphtha
- ★ ATF
- ★ MGO
- ★ Kerosene

### Features :

- ★ Assembly Design as per ASME BPVC Codes 2015
- ★ Filter elements for fuel are tested for high water removal efficiency as per EI 1581
- ★ Specialty media are used to achieve high filtration efficiency up to 99% down to 4 $\mu$
- ★ Water removal efficiency down to 50 ppmv from as high as 1000 ppmv or up to 90%
- ★ Coalescer and separator cartridges are used in tandem to improve water removal efficiency
- ★ Pre-filters have become a prerequisite in order to increase overall performance and change over lead time
- ★ Special design for pre-filter housing in order to achieve particle retention down to 5 micron with high efficiency >95%



### Specifications :

Material of Construction	Housing	Class #150 (above classes on demand)	Steel/ Stainless Steel (special alloy on demand)
	Media	Specialty media, cellulose, PP	
	Seals	NBR, EPDM, Viton, Silicon, Teflon	
Micron Rating	Cellulose	10-25	
	Specialty media	Down to 4	
Connection	Flanged	4" to 24"	
Operating Temperature	Specialty Media	Up to 70°C (short peak temperature 80°C)	
	Cellulose	80-100°C	
	PP	Up to 70°C (short peak temperature 80°C)	
Flow Direction	Out to Inside (Inside to outside on demand)		
Efficiency	Specialty Media	99%	
	Cellulose (for pre-filter only)	90-95%	
	Polyester/PP (for pre-filter or Separator only)	80 or 99%	



# WATER FILTERS

## CANDLE FILTERS

### Applications :

- ★ Wine filtering system
- ★ Beer filtering system
- ★ Ultrapure water filtering system
- ★ Antibiotics filtering system
- ★ LVP filtering system

### Features :

- ★ Broad range of micron rating from 0.1 to 100 $\mu$
- ★ Thermally bonded and adhesive free cartridges
- ★ High retention efficiency through multi-layer membrane, 90-99.9%
- ★ No fiber migration into the process fluids
- ★ Wide chemical compatibility, resistance to strong alkali and acids



### Specifications :

Material of Construction	Filter Media	PP, Glass Fiber, PES membrane, Hydrophobic/Hydrophilic PTFE/PVDF membrane
	Micron rating	0.1 to 100 $\mu$
	Inner/Outer Core and end caps	Reinforced PP or PP
	O-Ring/Gaskets	Silicone, Nitrile, EPDM, Viton, Teflon
Operating Conditions	Normal operating temperature	55-65°C
	Max operating temperature	80-90°C
	PH value compatibility	1-14

# WATER FILTERS



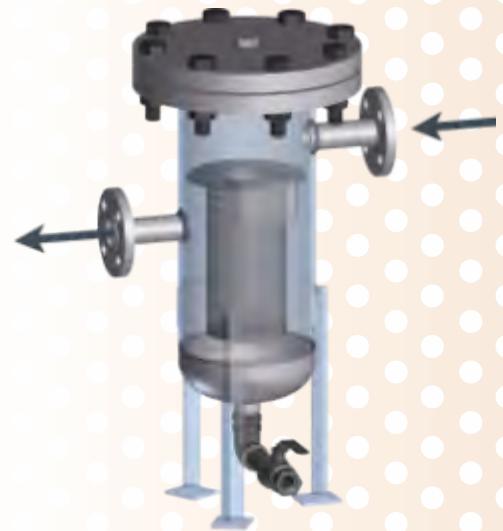
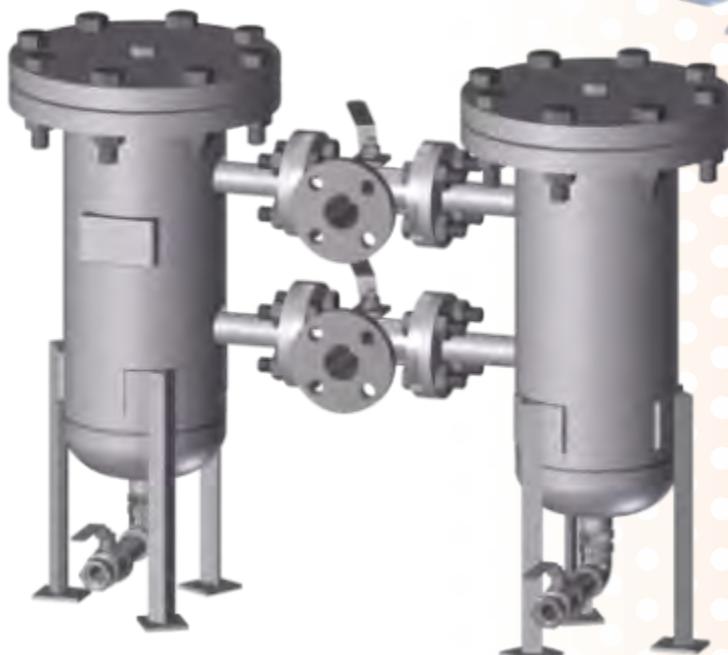
## BUCKET FILTERS

### Applications :

- ★ Coolant oil
- ★ Water & DM water

### Features :

- ★ Housing design as per ASME BPVC code 2015
- ★ Filter elements are manufactured in various types ranging from bucket to pleated cartridges
- ★ Available in Simplex and Duplex style for continuous operation
- ★ Bucket filters are used for higher dirt retention preferably for larger particles



### Specifications :

Material of Construction	Housing	Class #150 (above classes on demand)	Steel/Stainless Steel (special alloy on demand)
	Media	Wire mesh/Cellulose/ Polyester or PP	
	Seals	NBR, EPDM, Viton, Silicon, Teflon	
	Cartridge	SS 304	
Connection	Flanged	½" up to 6" (other sizes on demand)	
	Wire Mesh	5 to 500 (above values on demand)	
Micron Rating	Polyester or PP	0.45 up to 10	
	Wire Mesh	Up to 150°C (above values on demand)	
Operating Temperature	Polyester or PP	60°C (continuous running)	
	Bucket Type	Inside to outside	
Flow Direction	Candle Filter	Outside to Inside	
	Wire Mesh	90%	
Efficiency	Polyester/PP	90%	

\*Note: Other sizes available on demand



## MISCELLANEOUS

SPIN-ON FILTER  
CARTRIDGE



AIR-OIL SEPARATOR  
CARTRIDGES  
FOR COMPRESSORS



EDM / WIRE-CUT FILTER  
CARTRIDGE





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