



Vacuum Pump Exhaust Filters

Features

- Rugged Construction - Easy To Install
- Low Cost, Completely Disposable Elements
- Low Back Pressure, Exceptional Life
- Available In Aluminum and Stainless Steel
- Recover Expensive Lubricating Fluids

Applications

- Exhaust Directly to Outside Environment
- Ideal for Packaging Industries
- Semiconductor Protection
- Vacuum Pump Process Exhaust Polishing
- Allows Venting of Exhaust Directly into Workplace Environment

Our vacuum pump exhaust filter assemblies remove heavy concentrations of extremely fine oil droplets from vacuum pump exhaust to permit pumps to discharge into clean work areas or recycle clean gas to the process. These filter assemblies utilize one or more replaceable microfiber filter elements to coalesce the oil from the exhaust gas.

At the heart of the vacuum pump exhaust filter assembly is the two stage 50CS grade microfiber element which captures the oil mist droplets within the depth of the element's wall and coalesces the mist into larger droplets, thus allowing gravity to drain them from the assembly. Since the coalesced liquid drains from the elements at the same rate that liquid droplets enter the elements, the elements have an unlimited life when coalescing relatively clean liquids, and they operate at their initial retention efficiency even when wet with liquid.



Our disposable 50CS Grade Microfiber Filter Elements are specifically designed for all vacuum pump exhaust applications. The filters have an efficiency rating of **99.99% at 0.01 micron and are designed to have an initial dry pressure drop of less than 2 psi when sized correctly.** We recommend changing filter elements when the pressure drop reaches 7 psig or the pump manufacturers quoted maximum back pressure, whichever is lower. Do not undersize a filter assembly, since this will reduce performance and may damage the pump.

Since Headline Microfiber Filter Elements operate at their initial retention efficiency even when wet with oil, the filter elements need to be changed only when the back pressure on the pump reaches an unacceptably high level as a result of build-up of particles in the filter elements. **There usually is a very low particle contamination in vacuum pump exhaust, so filter element life is quite long – one year or more in most applications.**

The two stage filter element structure minimizes the possibility of carryover of coalesced oil, and the all-inorganic silica composition is completely resistant to lubricants and virtually any chemical found in vacuum pump exhaust. The maximum temperature limit for a filter assembly is determined by the seals or plastic materials in the system.

All vacuum pump filters have a drain port at their base to remove any collected oils. This port may be hard piped to continually drain into a reservoir.

Our vacuum pump exhaust elements are 100% interchangeable and equivalent to the Balston 371H series of vacuum pump filter elements.

Choose the correct assembly:

All Vacuum Pump Exhaust filter assemblies come complete with 50CS grade coalescing filter elements. Assemblies with multiple elements have an integral stainless steel mesh entrainment separator pad to reduce the possibility of oil carryover. This pad sits snugly above the elements at the outlet port.

Three simple rules to choosing the correct Vacuum Pump Exhaust filter:

1. For non-hazardous and non-corrosive, select our Aluminum Version.
2. For leak-tight service because of toxic or hazardous gas, or if a corrosion-resistant stainless steel filter housing is required, select our Stainless Steel Version, designated with an "S" in the part number – example **430S-50CS**
3. Next select the assembly which has a flow capacity equal to or greater than the vacuum pump flow capacity.

Quick Reference Chart on our Vacuum Pump Exhaust filters – More detailed information are on the next two pages:

SIZING CHART			
Maximum Flow Rate (scfm)	Line Size	Aluminum Housings (Non-Corrosive)	Stainless Steel Housings (Corrosive)
3	1/2" NPT	420-50CS	420S-50CS
9	3/4" NPT	425-50CS	425S-50CS
20	1" NPT	430-50CS	430S-50CS
45	1 1/2" NPT	433-50CS	433S-50CS
90	2" NPT	443-50CS	443S-50CS
100	3" NPT	437-50CS	437S-50CS
200	3" NPT	447-50CS	447S-50CS
450	4" Flange	456-50CS	456S-50CS

Custom Sizes are Available

Aluminum Construction For Non-Hazardous and Non-Corrosive Applications

All Vacuum Pump Exhaust filter assemblies come complete with 50CS grade coalescing filter elements.

Aluminum Housing Model	420-50CS	425-50CS	430-50CS	433-50CS*
Inlet/Outlet Port Size (NPT)	1/2"	3/4"	1"	1 1/2"
Drain Port (FNPT)	1/8"	1/8"	1/4"	1/4"
Aluminum Maximum Pressure (psig)	30	30	30	30
Maximum Flow Rate (scfm)	3	9	20	45
Maximum Temp. – Buna-N (250°F) Standard	BN420	BN425	BN430	BN433
Principle Dimensions: (inches)				
Body Diameter	1.97	3.50	3.50	7.00
Cap Diameter	1.97	3.50	3.50	9.45
Overall Length	3.64	6.02	11.61	17.13
Element Removal Clearance	3.15	3.15	7.87	N/A
Filter Element Codes:				
Disposable Element	25-64-50CS	51-89-50CS	51-230-50CS	51-230-50CS
Number of Elements Required	1	1	1	3
Drawing **For More Detail & Options**	<u>420-50CS</u>	<u>425-50CS</u>	<u>430-50CS</u>	<u>433-50CS</u>

Notes: (*) Models 433 and larger come complete with back pressure gauge and anti-reintrainment mesh pad

Aluminum Housing Model	443-50CS*	437-50CS*	447-50CS*	456-50CS*
Inlet/Outlet Port Size (NPT) w/ 1/4" FNPT Drain	2"	3"	3"	4" Flanged
Aluminum Maximum Pressure (psig)	30	30	30	30
Maximum Flow Rate (scfm)	90	100	200	450
Maximum Temp. – Buna-N (250°F) Standard	BN443	BN437	BN447	BN456
Principle Dimensions: (inches)				
Body Diameter	7.00	9.84	9.84	15.98
Cap Diameter	9.49	12.99	12.99	19.37
Overall Length	28.94	20.27	30.16	35.83
Element Removal Clearance	N/A	N/A	N/A	N/A
Filter Element Codes:				
Disposable Element	51-476-50CS	51-230-50CS	51-476-50CS	51-476-50CS
Number of Elements Required	3	7	7	16
Drawing **For More Detail & Options**	<u>443-50CS</u>	<u>437-50CS</u>	<u>447-50CS</u>	<u>456-50CS</u>

Notes: (*) Models 433 and larger come complete with back pressure gauge and anti-reintrainment mesh pad

Stainless Steel Construction

For Hazardous, Corrosive, and High Temperature Applications

All Vacuum Pump Exhaust filter assemblies come complete with 50CS grade coalescing filter elements.

Stainless Steel Housing Model	420S-50CS	425S-50CS	430S-50CS	433S-50CS*
Inlet/Outlet Port Size (NPT)	1/2"	3/4"	1"	1 1/2"
Drain Port (FNPT)	1/8"	1/8"	1/4"	1/4"
Stainless Steel Maximum Pressure (psig)	100	100	100	100
Maximum Flow Rate (scfm)	3	9	20	45
Maximum Temp. – Viton (400°F) Standard	GV420	GV425	GV430	GV433
Principle Dimensions: (inches) (2)				
Body Diameter	2.36	3.50	3.50	8.62
Cap Diameter	2.36	3.50	3.50	11.81
Overall Length	4.01	5.63	11.61	16.88
Element Removal Clearance	2.75	3.54	9.05	N/A
Filter Element Codes:				
Disposable Element	25-64-50CS	51-89-50CS	51-230-50CS	51-230-50CS
Number of Elements Required	1	1	1	3
Drawing **For More Detail & Options**	<u>420S-50CS</u>	<u>425S-50CS</u>	<u>430S-50CS</u>	<u>433S-50CS</u>

Notes: (*) Models 433S and larger come complete with back pressure gauge and anti-reintrainment mesh pad

Stainless Steel Housing Model	443S-50CS*	437S-50CS*	447S-50CS*	456S-50CS*
Inlet/Outlet Port Size (NPT) w/ 1/4" FNPT Drain	2"	3"	3"	4" Flanged
Stainless Steel Maximum Pressure (psig)	100	100	100	100
Maximum Flow Rate (scfm)	90	100	200	450
Maximum Temp. – Viton (400°F) Standard	GV443	GV437	GV447	GV456
Principle Dimensions: (inches)				
Body Diameter	8.62	10.79	10.79	15.98
Cap Diameter	11.81	14.05	14.05	19.37
Overall Length	28.94	19.02	31.10	40.10
Element Removal Clearance	N/A	N/A	N/A	N/A
Filter Element Codes:				
Disposable Element	51-476-50CS	51-230-50CS	51-476-50CS	51-476-50CS
Number of Elements Required	3	7	7	16
Drawing **For More Detail & Options**	<u>443S-50CS</u>	<u>437S-50CS</u>	<u>447S-50CS</u>	<u>456S-50CS</u>

Notes: (*) Models 433S and larger come complete with back pressure gauge and anti-reintrainment mesh pad

Vacuum Pump Inlet Filters

The IN series of housings is designed to protect small vacuum pumps from liquid and solids in the process stream that may be pulled into the pump. At the heart of the inlet filter is the completely disposable RC-type coalescing element. Made entirely from borosilicate glass fiber and phenolic binder, it is compatible with all compressor lubricants and will operate at temperatures up to 250°F.

The RC-type element has a two-layer structure, inner particle capture-layer and an outer drainage-layer. Liquid droplets remain mobile once captured and travel through the fine-pored capture-layer, along the intersecting microfibers, growing in size as they progress. These coalesced droplets are transferred to the large-pored drainage-layer, where they drain by gravity into the filter bowl. Oil collected in the filter bowl can then be drained and reused. The "RC" reinforced filter element is durable to handle particle build-up. This extra strength provides extra pump protection.

We also offer 4A elements to protect the pump against oil back streaming. Please consult UFS with your specific inlet requirements.

These units are good for service to 2 Torr.



-sizing chart

Maximum Flow Rate (scfm)	Line Size	Aluminum Housings (Non-Corrosive)	Stainless Steel Housings (Corrosive)
3	1/4" MNPT	IN-DIF-LN-RC	N/A
3	1/2" FNPT	IN-760NPR-RC	IN-420S-RC
7	KF 25	IN-427-RC	N/A
9	3/4" FNPT	IN-425-RC	IN-425S-RC
12	1" FNPT	IN-380AHP-RC	N/A
20	1" FNPT	IN-430-RC	IN-430S-RC
23	1 1/2" FNPT	IN-385AHP-RC	IN-150-RC
45	2" FNPT	IN-390AHP-RC	IN-162-RC