

Filters for Vacuum Pumps

THE PROBLEM – The exhaust from oil sealed vacuum pumps is laden with a fine stable oil aerosol. This pollutant must be removed, or serious health and environmental damage may be caused.

THE SOLUTION – Headline CS-type coalescing filter elements completely remove oil aerosol from vacuum pump exhaust with:-

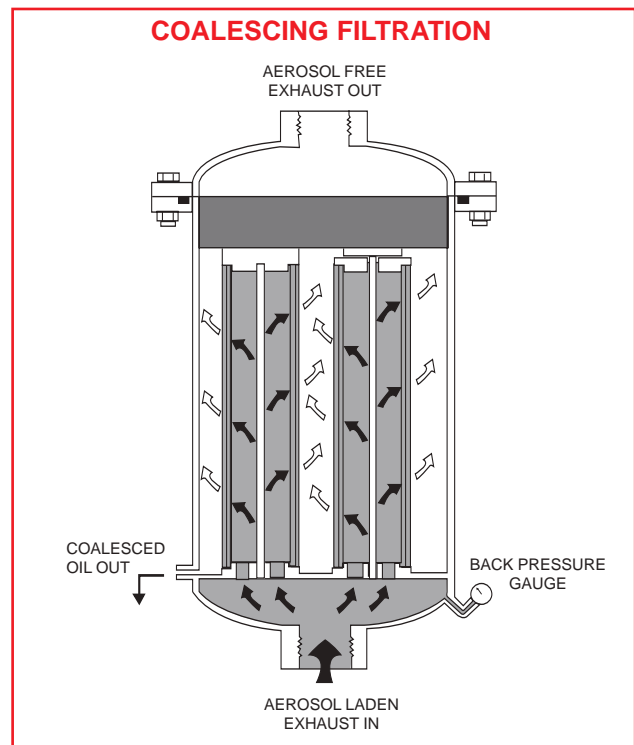
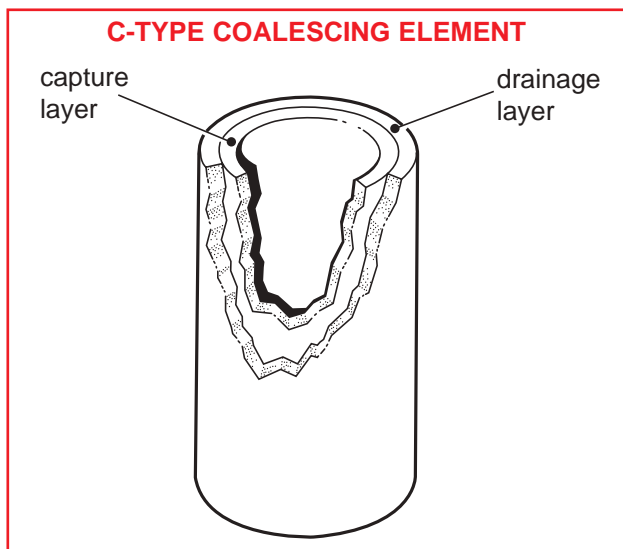
- Complete security
- Exceptional life
- Low back pressure
- Low running cost

COALESCING FILTRATION – HOW IT WORKS

At the heart of the Headline Vacuum Pump Exhaust Filter is the completely disposable CS-type coalescing element. Made entirely from borosilicate glass microfibre and silica binder, it is compatible with all compressor lubricants and will operate at temperatures up to 200°C.

The CS-type element has a two-layer structure, an inner particle capture-layer and an outer drainage-layer. Oil droplets remain mobile once captured and travel through the fine-pored capture-layer, along the intersecting microfibrils, growing in size as they progress.

These coalesced droplets are transferred to the large-pored drainage-layer, from where they drain by gravity into the filter bowl. Oil collected in the filter bowl can then be drained and reused.



Headline CS-type Coalescing Filters are completely self-supporting and are sealed into the filter housing simply by tightening a retaining nut. No end caps, gasketing materials or support cores are required. At element change only the filtering material itself is discarded, and this complete disposability keeps replacement element costs down.

Headline Coalescing Filters have an efficiency rating of 99.9% at 0.1 micron and are designed to have an initial dry pressure drop of less than 0.1 bar. Thereafter the pressure drop will increase only very slowly as solid particles are captured and retained in the capture-layer of the element. Headline recommends changing filter elements when the pressure drop reaches 0.3 bar or the pump manufacturer's quoted maximum back pressure, whichever is lower.

HEADLINE VACUUM PUMP EXHAUST FILTER HOUSINGS – THE BENEFITS

- Rugged construction – easy to install
- Choice of Aluminium or Stainless Steel Vessels
- Low cost, completely disposable elements
- Captured exhaust outlet allows for secondary treatment or ducting away of exhaust
- Automatic pressure relief standard on stainless steel units 433S and up

HOW TO SELECT THE CORRECT FILTER HOUSING:-

Headline Vacuum Pump Exhaust filter housings are available in two materials:- Aluminium and Stainless Steel. All housings, other than Model 420, provide a captured outlet for the ducting away of the aerosol-free exhaust if required. The choice between Aluminium and Stainless Steel will depend upon the chemical composition of the exhaust. If the temperature can exceed 120°C, or if corrosive chemicals are present, stainless steel should be used. All housings are rated at 2 bar pressure at their maximum pressure rating.

The size of the housing will depend on the maximum free air displacement of the pump. (See the concise selection chart below). Never specify a housing with a flow rating below that of the pump, or efficiency will be reduced. Standard connections are detailed in the tables on pages 4-7. Alternative connections are available on multi-element housings. For example Model 437 can be supplied with 3" NPT threads (standard) or KF80, DN80 or 3" 150lbs flanges.

CONCISE SELECTION CHART

MAXIMUM FLOW RATE Nm ³ /hr	ALUMINIUM HOUSINGS (pages 4 & 5)	STAINLESS STEEL HOUSINGS (pages 6 & 7)
5	420	420S
15	425	425S
35	430	430S
75	433	433S
150	443	443S
170	437	437S
340	447	447S
765	456	456S

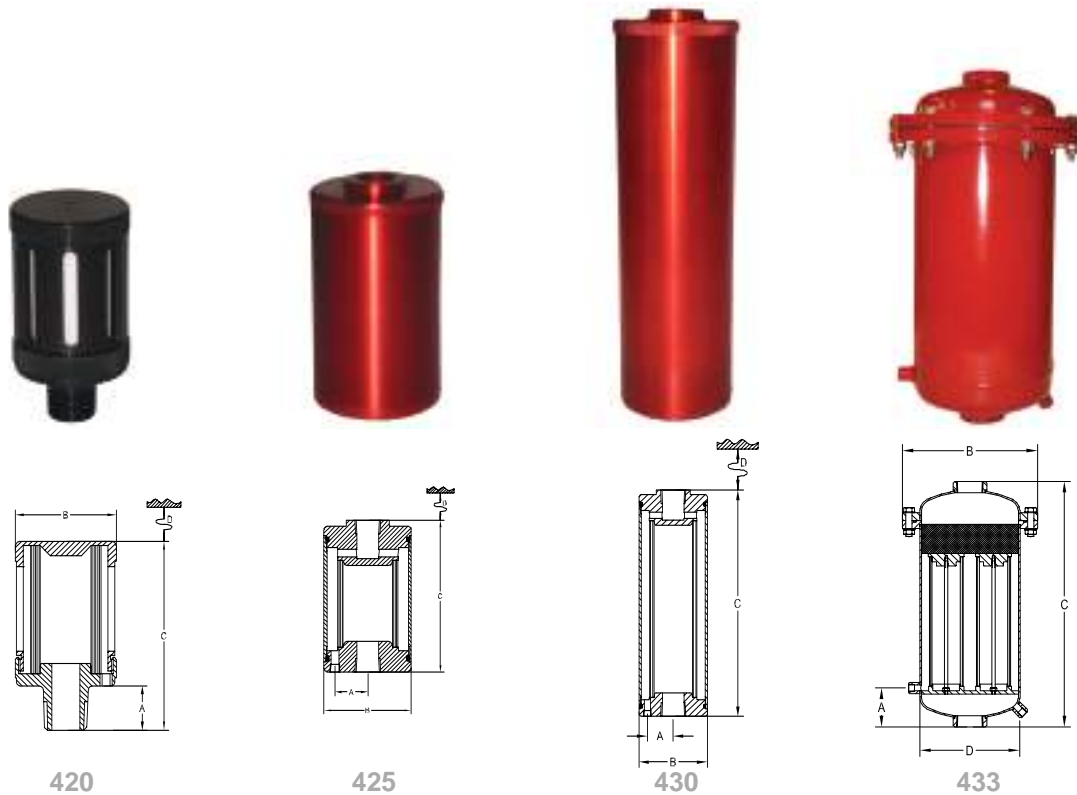
HOW TO ORDER

FILTER HOUSINGS – Please specify the model required, including connections when not standard.

Each housing comes complete with elements.
Models 433 and larger come complete with back pressure gauge and anti-reintrainment mesh pad.

REPLACEMENT – ELEMENTS – Are sold in packs of 3, 7, or 10. e.g. 51-230-50CS (7), 51-476-50CS (10).
Except 25-64-50CS available in packs of 3 or 10 only.

Aluminium Vacuum Pump Exhaust Filters

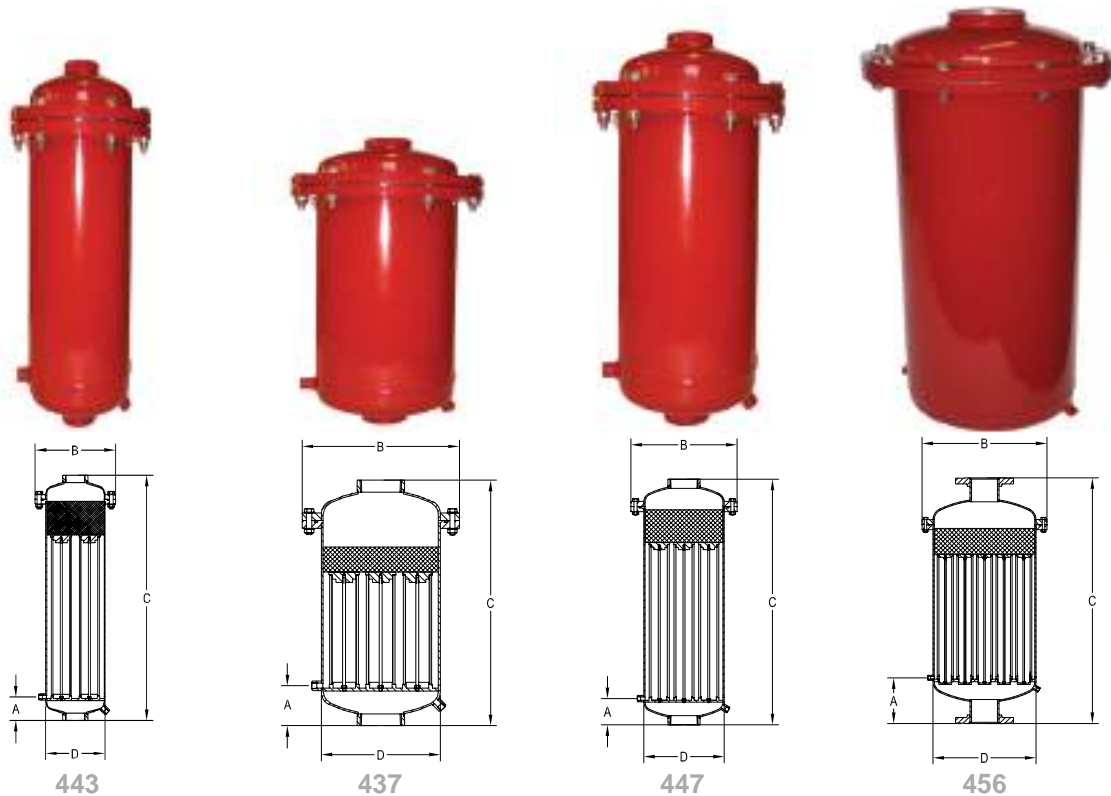


Principal Specifications

Housing Model	420	425	430	433
Port Size - NPT	1/2"	3/4"	1"	1 1/2"
Drain Port	M6	1/8"	1/8"	1/4"
Gauge Port	-	-	-	1/4"
Maximum Temperature - °C	120	120	120	120
Maximum Flow Rate - m ³ /hr	5	15	35	75
Materials of Construction (1)				
Body	AL	AL	AL	AL
Internals	-	-	-	AL/SS
Gaskets	-	Nitrile	Nitrile	Nitrile
Principal Dimensions				
A - mm	22	33.5	33.5	70
B - mm	50	89	89	240
C - mm	93	153	295	435
D - mm	-	90	230	178
Volume - cc	95	496	1260	9500
Accessories				
Standard Gasket Set	-	GN425	GN425	GN433
Viton Gasket Set	-	GV425	GV425	GV433
Filter Element Codes				
Disposable Element	25-64-50CS	51-89-50CS	51-230-50CS	51-230-50CS
Number of Elements	1	1	1	3

Notes (1) Material abbreviations, AL = Aluminium, SS = 316L Stainless Steel

Aluminium Vacuum Pump Exhaust Filters

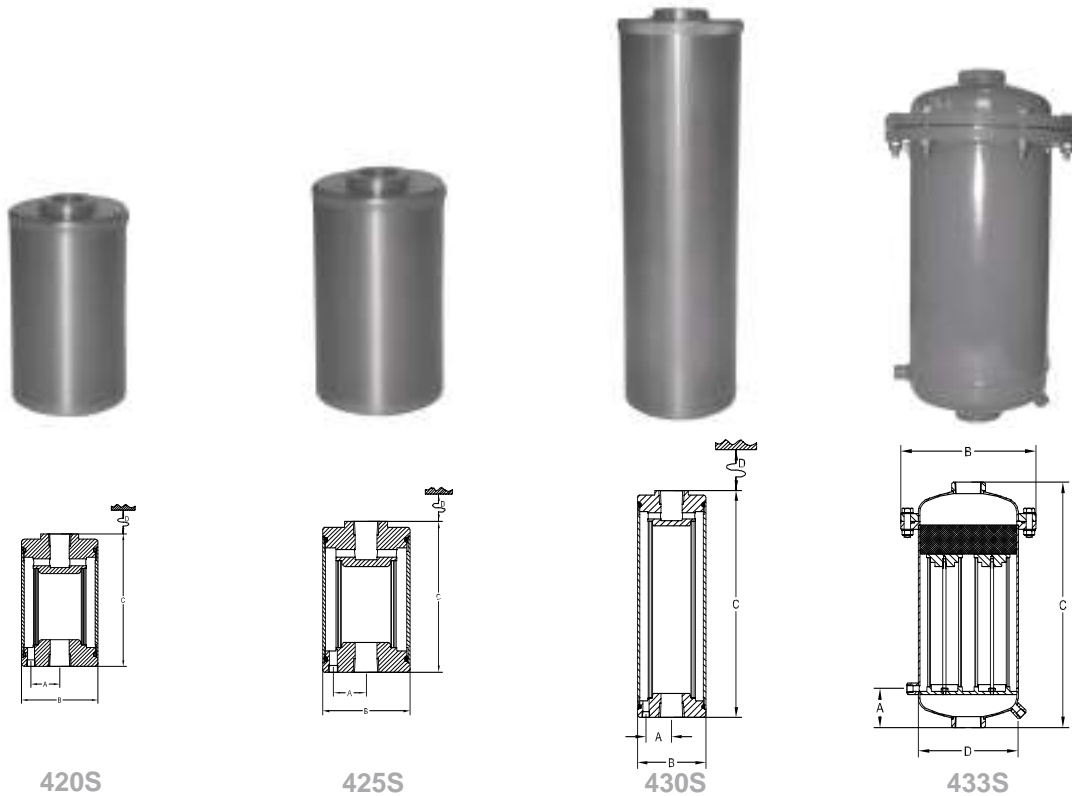


Principal Specifications

Housing Model	443	437	447	456
Port Size - NPT	2"	3"	3"	3"
Drain Port	1/4"	1/4"	1/4"	1/4"
Gauge Port	1/4"	1/4"	1/4"	1/4"
Maximum Temperature - °C	120	120	120	120
Maximum Flow Rate - m ³ /hr	150	170	340	765
Materials of Construction (1)				
Body	AL	AL	AL	AL
Internals	AL/SS	AL/SS	AL/SS	AL/SS
Gaskets	Nitrile	Nitrile	Nitrile	Nitrile
Principal Dimensions				
A - mm	70	85	85	114
B - mm	240	330	330	492
C - mm	735	515	776	836
D - mm	178	250	250	406
Volume - cc	16000	25000	35000	65000
Accessories				
Standard Gasket Set	GN433	GN437	GN437	GN456
Viton Gasket Set	GV433	GV437	GV437	GV456
Filter Element Codes				
Disposable Element	51-476-50CS	51-230-50CS	51-476-50CS	51-476-50CS
Number of Elements	3	7	7	16

Notes (1) Material abbreviations, AL = Aluminium, SS = 316L Stainless Steel

Stainless Steel Vacuum Pump Exhaust Filters

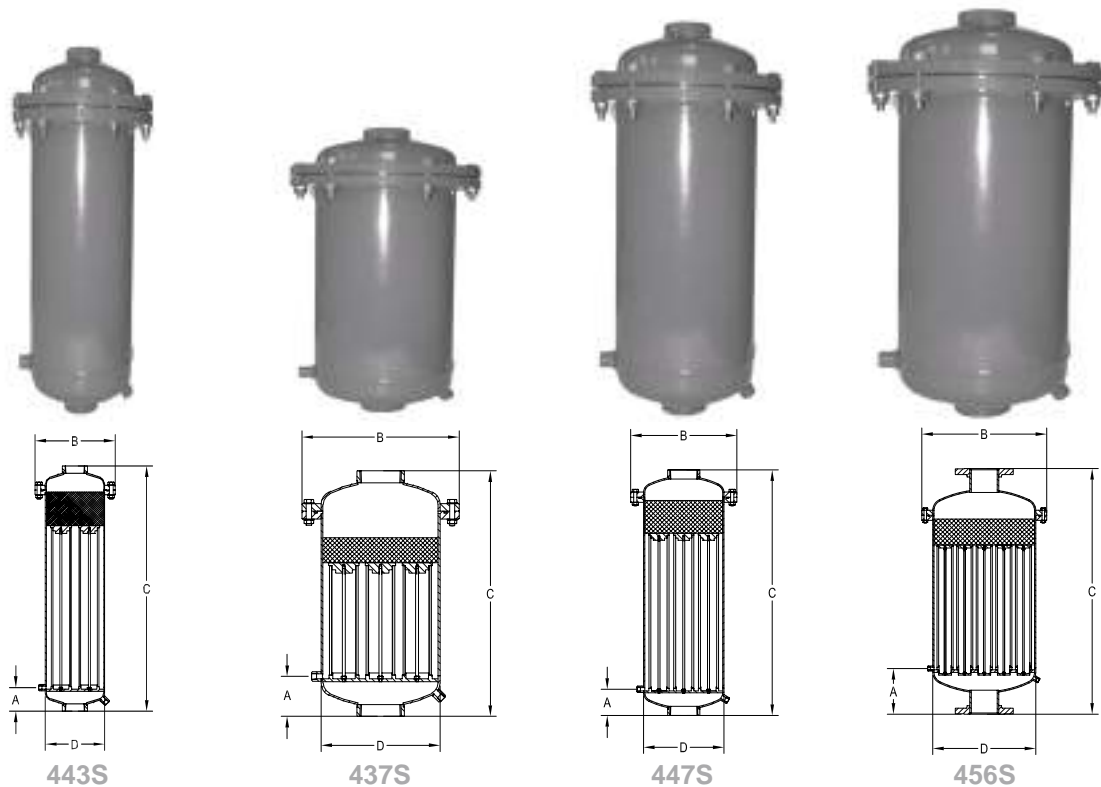


Principal Specifications

Housing Model	420S	425S	430S	433S
Port Size - NPT	1/2"	3/4"	1"	1 1/2"
Drain Port	1/8"	1/8"	1/8"	1/4"
Gauge Port	-	-	-	1/4"
Maximum Temperature - °C	200	200	200	200
Maximum Flow Rate - m ³ /hr	5	15	35	75
Materials of Construction (1)				
Body	SS	SS	SS	SS
Internals	-	-	-	SS
Gaskets	Viton	Viton	Viton	Viton
Principal Dimensions				
A - mm	22.5	33.5	33.5	72
B - mm	60	89	89	300
C - mm	102	143	278	429
D - mm	70	90	230	219
Volume - cc	170	496	1280	9500
Accessories				
Standard Gasket Set	GV420S	GV425S	GV425S	GV433S
Nitrile Gasket Set	GN420S	GN425S	GN425S	GN433S
Filter Element Codes				
Disposable Element	25-64-50CS	51-89-50CS	51-230-50CS	51-230-50CS
Number of Elements	1	1	1	3

Notes (1) Material abbreviations, AL = Aluminium, SS = 316L Stainless Steel

Stainless Steel Vacuum Pump Exhaust Filters



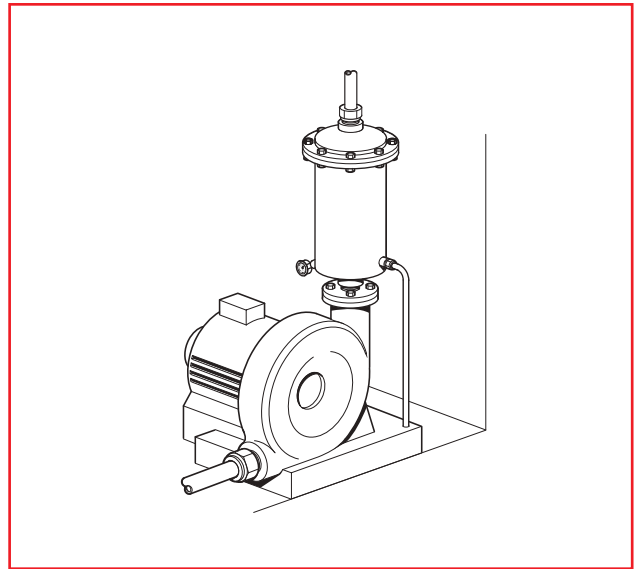
Principal Specifications

Housing Model	443S	437S	447S	456S
Port Size - NPT	2"	3"	3"	3"
Drain Port	1/4"	1/4"	1/4"	1/4"
Gauge Port	1/4"	1/4"	1/4"	1/4"
Maximum Temperature - °C	200	200	200	200
Maximum Flow Rate - m ³ /hr	150	170	340	765
Materials of Construction (1)				
Body	SS	SS	SS	SS
Internals	SS	SS	SS	SS
Gaskets	Viton	Viton	Viton	Viton
Principal Dimensions				
A - mm	72	87	87	193
B - mm	300	356	356	495
C - mm	735	510	790	1000
D - mm	219	273	273	406
Volume - cc	16000	25000	35000	65000
Accessories				
Standard Gasket Set	GV433S	GV437S	GV437S	GV456S
Nitrile Gasket Set	GN433S	GN437S	GN437S	GN456S
Filter Element Codes				
Disposable Element	51-476-50CS	51-230-50CS	51-476-50CS	51-476-50CS
Number of Elements	3	7	7	16

Notes (1) Material abbreviations, AL = Aluminium, SS = 316L Stainless Steel

INSTALLATION GUIDE

All models are designed for direct connection to the exhaust port of the vacuum pump. The filter must be mounted vertically, which on some pumps will require an elbow adapter. In many applications where no toxic gases are present, no ducting away of the aerosol-free exhaust will be necessary. When it is necessary, a union connector should be provided to facilitate easy servicing of the filter. A pipe and collection device must be fitted to the drain port, since build-up of coalesced oil inside the filter increasingly reduces efficiency and increases back pressure.



When vibration is excessive, or when temperature is high, or when cooling of the exhaust is desirable before coalescing, then the filter must be remotely mounted and connected by flexible ducting. The distance between the pump and the filter can be varied for convenience or to aid cooling, provided additional back pressure is not excessive.

