

## Vacuum Traps & Filters



<b>Vacuum Traps &amp; Filters Introduction .....</b>	<b>7.03</b>
<b>To EP or Not to EP? .....</b>	<b>7.04 - 7.05</b>
<b>Vacuum Traps &amp; Filters Selection Guide.....</b>	<b>7.06 - 7.07</b>
<b>VacuShield Vacuum Trap Overview .....</b>	<b>7.07 - 7.08</b>
Trap Model VSSC - Sealed Coaxial Hose Connection.....	7.09
Trap Model VSSC - Sealed Coaxial ISO-QF Connection .....	7.10
Trap Model VSRC - Rechargeable Coaxial - Copper .....	7.11
Trap Model VSRC - Rechargeable Coaxial - Stainless Steel.....	7.12
Trap Model VSRC - Rechargeable Coaxial - Activated Alumina.....	7.13
Trap Model VSRC - Rechargeable Coaxial - Activated Charcoal.....	7.14
Rechargeable Trap Replacement Media .....	7.15
Trap Model VSMI - Molecular Sieve Hose Connection.....	7.16
Trap Model VSMI - Molecular Sieve ISO-QF Connection.....	7.17
Trap Model VSCI - Cold Traps LN <sub>2</sub> .....	7.18 - 7.19
Trap Model VSDI - Dry Ice.....	7.20 - 7.22
<b>VacuShield Filter Overview .....</b>	<b>7.23</b>
Filter Model VSPC - Particulate Coaxial Ports.....	7.24
Filter Model VSPI - Particulate In-Line Ports .....	7.25
Filter Model VSPS - Particulate Separator .....	7.25
Filter Model VVRI - VacuView .....	7.26
Filter Model VSHE - Hermetic Exhaust Oil Mist.....	7.27
Filter Model VSOE - Open Exhaust ISO-QF and NPT Connection.....	7.28
Closed Exhaust Replacement Media .....	7.28
Closed Exhaust Replacement Kits.....	7.28
Filter Model VCEC - Closed Exhaust Filter: Coaxial ISO-QF Connection.....	7.29
Filter Model VCEA - Closed Exhaust Filter: Angle NPT Connection.....	7.29

# VACUUM TRAPS & FILTERS What's the Difference?

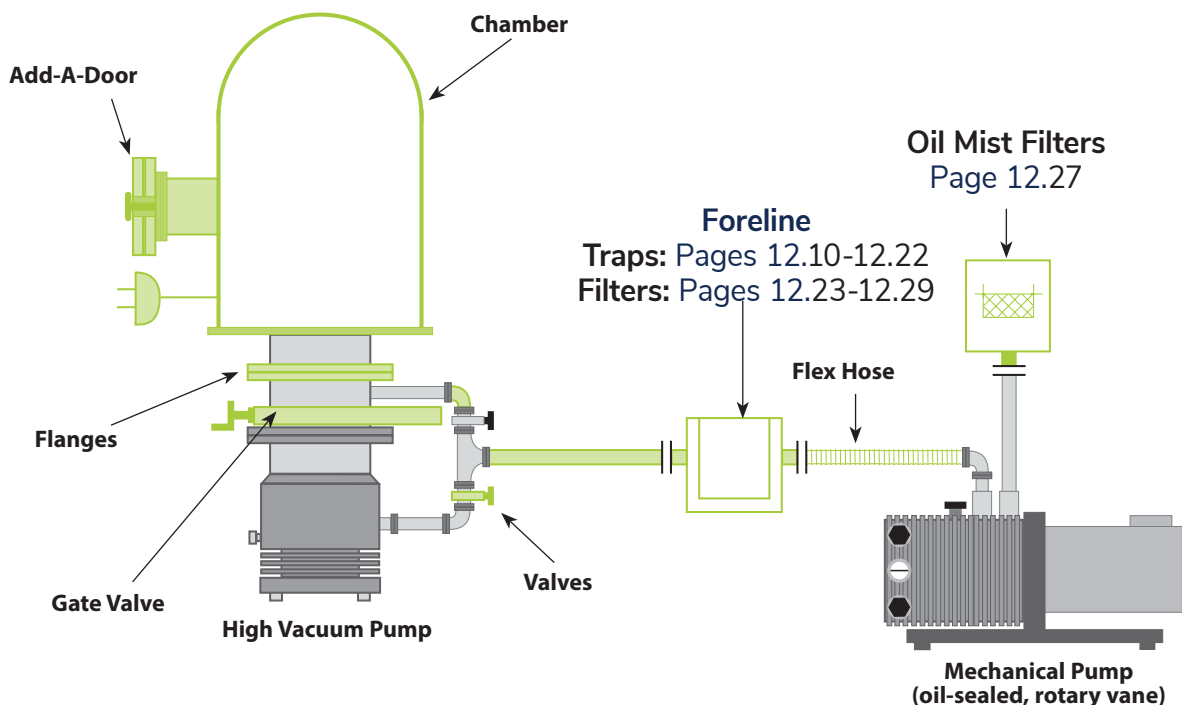


## Traps vs. Filters Introduction

In a high vacuum setting, traps and filters may be installed on a vacuum foreline, but each has a different function:

**TRAPS:** A trap is a device that is designed to capture vapors and gases.

**FILTERS:** A filter is a device that is designed to capture or reduce particulates, dust, smoke, and aerosols. A common filter function, for example, is to capture the oil mist (an aerosol) that is discharged from the outlet of an oil-sealed rotary vane mechanical pump.



# To EP Or Not To EP?

## Electropolishing or Sandblasting?

By Garrett Hanrahan

If you intend to answer this question yourself before purchasing a custom-fabricated vacuum component, it helps to know what electropolishing can and cannot do for you in the context of your vacuum application.

### What EP Can Do?

#### Enhance Component Cleanliness

The concentrated acidic solution baths used in EP thoroughly clean a component by removing contaminants that can be introduced during fabrication (dust, debris, lubricants, fingerprints, etc.)

Moreover, the surface of a stainless-steel component is rendered smoother after undergoing EP, meaning the resultant surface is easier to sterilize repeatedly over the life of the component.

#### Prolong Component Life

The EP process passivates stainless-steel components by removing iron from the surface and enhancing the concentration of chromium and nickel.

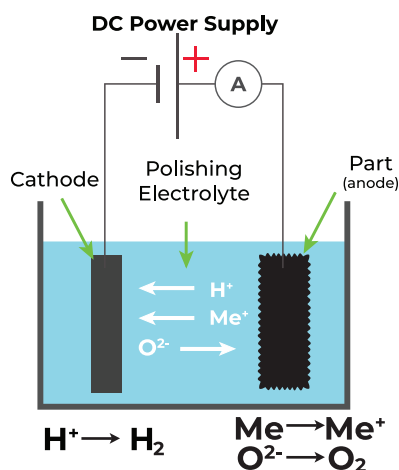
As a result, electropolished parts are less susceptible to corrosion over time.

#### Improve Aesthetic Quality

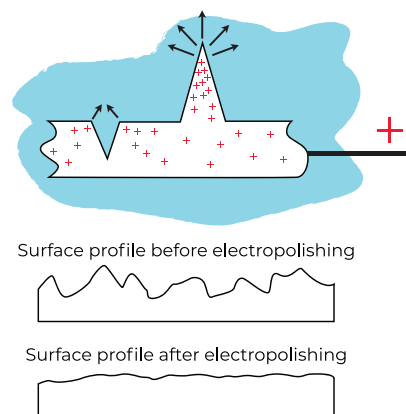
Electropolishing stainless steel concentrates chromium at the component's surface and smooths out microscopic peaks and valleys in the material. When the EP process is



### Electropolishing Process



#### Electrical Potential Distribution



performed after the component has been adequately polished by mechanical means beforehand, the result is a bright, smooth, mirror-like finish that is uniform across the entire component. Additionally, electropolishing can polish areas of a component that would otherwise be inaccessible by other polishing methods due to component geometry.



## What EP Cannot Do

### Achieve Exceptionally Smooth Surface Finishes On Its Own

The EP process serves to improve the surface finish that is already there, but it can only do so much. If you EP a rough, non-uniform, non-polished surface, the results will be neither aesthetically pleasing nor will they be particularly beneficial to the component's vacuum performance. EP works best when done after the component has been given a uniform finish by some mechanical means (e.g. glass-bead blasted, machine-polished). The mechanical method employed will be determined by the surface finish specification and vacuum-performance benefits you hope to achieve post-EP.

### Drastically Improve Pump-Down Time

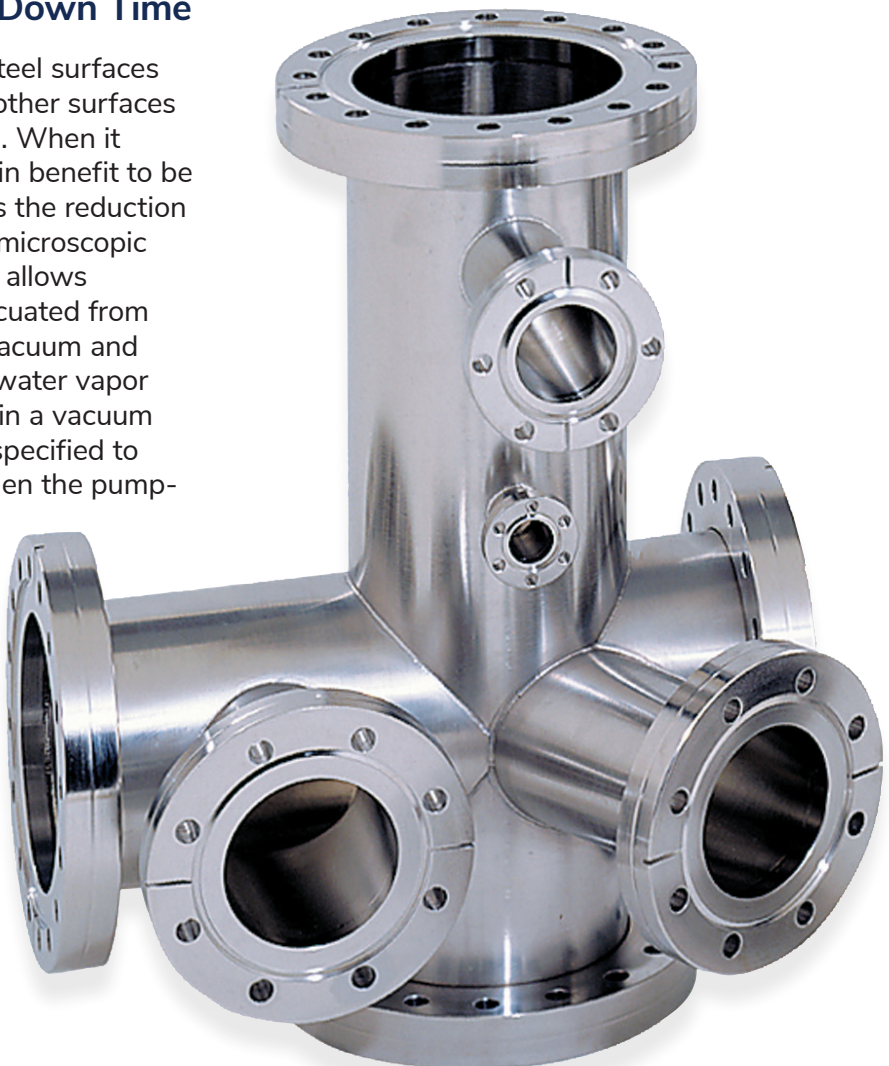
The notion that rougher stainless-steel surfaces outgas more than comparably smoother surfaces has been refuted by several studies. When it comes to pump-down time, the main benefit to be achieved through electropolishing is the reduction of a component's surface area at a microscopic level. This reduction in surface area allows water vapor to be more readily evacuated from the component's surface. At high-vacuum and ultra-high vacuum pressure levels, water vapor becomes the primary gas load within a vacuum system. If a vacuum component is specified to be baked out prior to installation, then the pump-down benefits of electropolishing become even more negligible since the bake-out process will remove most of the water vapor.

## What's Best For You?

Will your component need to be sterilized regularly? Will it operate in a corrosive environment? Are aesthetics of critical importance? Are you concerned that water vapor may prevent you from reaching your desired vacuum level?

If the answer to any of these questions is yes, then it is likely that the added cost and lead time of electropolishing will be worthwhile for you.

If the answers to these questions are no, then you may be able to save both time and money by opting for a glass-bead blasted or machine-polished finish for your component instead.



7

Surface Finishes

## SELECTION CRITERIA

When selecting a trap or a filter, there are three selection criteria: **Body Style, Port Terminations, and Media.**

**1. Body Style:** A trap or filter's body style incorporates the geometry of the plumbing (i.e., coaxial, in-line, or right angle), body volume, and, in a few instances, the choice between a sealed and a rechargeable housing. The choice between a coaxial or an in-line body style is based on the geometry of your foreline and your system's available footprint.

The decision on body volume is determined from your anticipated gas loads. Typically, larger gas loads require larger body volumes. Larger body volumes provide a higher conductance and a lower frequency of media change-outs.

The choice between a sealed and a rechargeable trap is based on system runtime (continuous vs. intermittent) and cost. Sealed traps are discarded after the media has been consumed and are ideal for light gas loads or intermittent use. With rechargeable traps, the housing is reused and only the media is replaced.

Because a clamp, gasket, and two additional vacuum flanges are required to gain access to the media, rechargeable traps typically cost more than sealed traps. Rechargeable traps are ideal for high gas loads and continuous use.

**2. Port Terminations:** Port selection is based on ultimate base pressure. Systems with a base pressure of  $10^{-3}$  Torr or higher can employ tube end terminations.

Systems with base pressures between  $10^{-3}$  Torr and  $10^{-8}$  Torr can employ elastomeric seals and terminations (ISO-QF and ISO-LF). Systems with base pressures less than  $10^{-8}$  Torr require metal seals (CF-ULRIC®) and sealed traps.

**3. Media:** Media selection is entirely dependent on the trap or filter's intended function. The following six categories summarize the universe of trap and filter applications:

- Prevention of pump lubricant backstreaming;
- Capturing process gases;
- Capturing moisture and/or process condensibles;
- Capturing process particulates;
- Capturing mechanical pump discharge; and
- Reduction of system base pressure via cryopumping.

Please contact an **ANCORP** factory engineer or account representative with any questions regarding media selection.

## Application Matrix

VacuShield: Application:	Sealed VSSC PAGES 10-11	Rechargeable VSRC PAGES 12-15	Molecular Sieve VSMI PAGES 17-18	LN2 VSCI PAGES 20-21	Dry Ice VSDI PAGES 21-22	VacuView VVRI PAGE 26	Small Particles VSPC VSPI PAGES 24-25	Large Particles ( > 100 µ) VSPS PAGE 25	Oil Mist Filters VSHE, VSOE, VCEC, VCEA PAGES 27-29
Backstreaming	X	X	X						
Process Gases		X	X			X			
Moisture and/or Condensibles				X	X				
Process Particulates							X	X	
Mechanical Pump Discharge									X
Cryopumping				X					

The following table summarizes the media that are available with the various trap and filter styles.

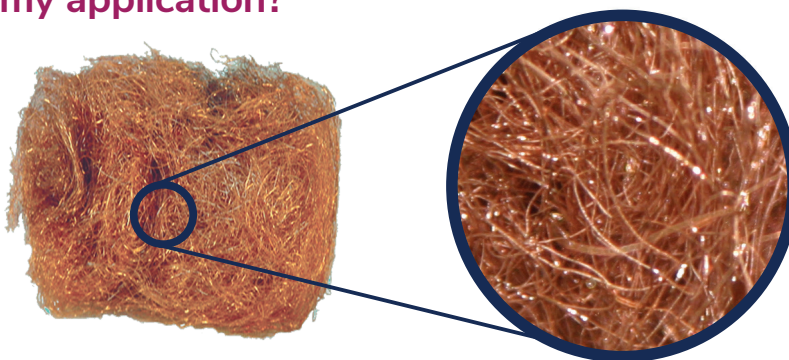
## Trap and Filter Media Matrix

VacuShield: Media	Sealed VSSC PAGES 10-11	Rechargeable VSRC PAGES 12-15	Molecular Sieve VSMI PAGES 17-18	LN2 VSCI PAGES 20-21	Dry Ice VSDI PAGES 21-22	VacuView VVRI PAGE 26	Small Particles VSPC VSPi PAGES 24-25	Large Particles ( > 100 µ) VSPS PAGE 25	Oil Mist Filters VSHE, VSOE, VCEC, VCEA PAGES 27-29
Alumina		X				X			
Borosilicate Fibers									X
Caustic Soda						X			
Charcoal		X				X			
Copper	X	X							
Dry Ice & Isopropanol					X				
Other Materials								X	
Liquid Nitrogen				X					
Molecular Sieve Zeolite			X						
Paper							X		
Polyester							X		
Stainless Steel	X	X							

## Which trap media is best for my application?

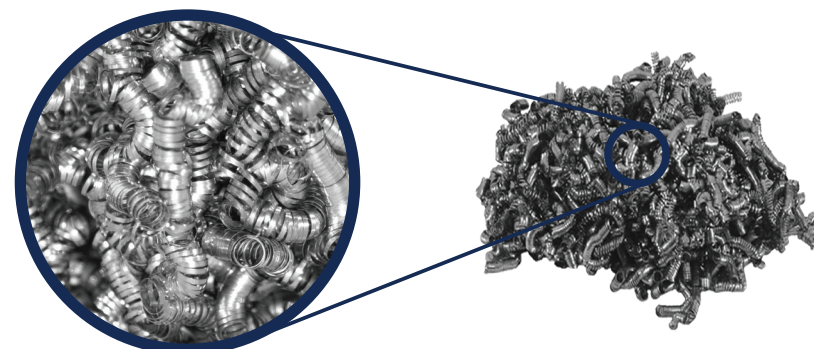
### Copper vs. Stainless Steel

**COPPER:** ANCORP's fine mesh copper wool media provides a dense physical barrier against backstreaming pump lubricants. Copper, however, is a reactive metal that may not be compatible with all process effluents.



**STAINLESS STEEL:** ANCORP's coarse stainless steel media is an excellent physical barrier to backstreaming pump lubricants. The stainless steel media, however, is slightly less dense than fine mesh wool.

The advantage of stainless steel is its high level of corrosion resistance to many aggressive process environments. If your process requires PFPE type pump oils, then stainless steel is the recommended metallic media.



## FORELINE VACUUM TRAPS: PRODUCT OVERVIEW

Foreline vacuum traps are installed between the mechanical pump and the high vacuum pump in a vacuum system. Foreline traps can perform three distinct functions within your vacuum system:

**FUNCTION 1: Protect your high vacuum pump and/or chamber from pump oil backstreaming from the mechanical pump.**

### SOLUTION 1: Trapping with Copper or Stainless Steel Media

ANCORP VacuShield Foreline traps employ a two-stage trapping system. In the first stage, rogue hydrocarbons are blocked by a baffle that is attached near the trap's inlet. Hydrocarbons and other pump oils coalesce here and drip harmlessly back into the pump. In the second stage, vaporized pump oil is trapped by the trap's copper or stainless steel media which prevent line-of-sight travel between the inlet and outlet of the trap.

It is impossible for the hydrocarbon molecules to pass through the trap without colliding many thousands of times with the trap media and the trap's inner walls. Eventually, more than 99% of the pump's oil is captured and retained within the trap.

ANCORP's VacuShield Foreline traps come in two models: sealed and rechargeable. Sealed traps are replaced after the media becomes saturated or is used up. Sealed traps are an economical solution for applications with intermittent use or continuous use with light gas loads. Rechargeable traps reuse the trap's housing and require only the trap's media to be replaced.

### SOLUTION 2: Molecular Sieve Trapping

The ANCORP molecular sieve trap employs synthetic zeolites (molecular sieve 13X) as an adsorbent. The large surface area provided by the numerous molecular-sized pores of the zeolite sieve provides excellent absorption of water vapor, oil vapor, and other gas molecules. Additionally, the zeolite sieve can be regenerated once it has become saturated with water vapor. This is accomplished through a bake-out cycle performed with the included, self-

regulating heaters. The molecular sieve trap is a multi-purpose trap. It is useful for the prevention of pump oil backstreaming as well as the reduction of the base vacuum through the removal of water vapor from the system.

**FUNCTION 2: Protect your mechanical pump from process gasses and vapors:**

This is the most challenging application because of the wide range of toxic and corrosive chemicals used in today's vacuum applications. While no means an exhaustive list, the following provides a brief guide to the more common applications.

### SOLUTION 1: Rechargeable Traps

ANCORP's rechargeable traps may be purchased with a wide range of media including copper, stainless steel, activated alumina, and activated charcoal. Copper and stainless steel media are used exclusively to minimize backstreaming of mechanical pump oils. Activated alumina and activated charcoal are both effective moisture getters. That is, they are quite hydrophilic. However, they do become quickly saturated with moisture and must be replaced.

As a result, cold reservoirs are the preferred method for moisture trapping. Activated alumina is also an excellent trap for many acids. Activated charcoal is also an excellent trap for many heavy metals (such as mercury) and organic solvents.

### SOLUTION 2: Molecular Sieve Zeolite

ANCORP's zeolite traps provide protection against a wide range of gases and vapors. In addition to being excellent mechanical pump oil getters, they are also excellent moisture traps. That is, zeolites are very hydrophilic.

Although zeolites saturate rapidly with moisture (as do activated charcoal and activated alumina), the onboard heaters allow this media to be periodically refreshed (regenerated) by driving off most of the water.

### SOLUTION 3: VacuView

ANCORP's VacuView traps are designed with clear



polycarbonate housings that provide a means to observe the surface of the media in-situ. The most common media for these traps is caustic soda for the trapping of hydrous acids. Activated alumina and activated charcoal media are also available.

**FUNCTION 3: Protect your rough vacuum pump from or reduce system pressure by eliminating water and other condensible or solvent vapors produced upstream within the vacuum system:**

## SOLUTION 1: Cold Trapping

The **ANCORP** VacuShield cold trap removes condensible vapor from the vacuum system before it can enter the pump. It also protects the system from lubricants that may backstream from the pump.

A secondary benefit of cold trapping is a reduction in base pressure as the trapping process also serves as a form of vacuum cryopump. The VacuShield cold trap utilizes the surface area of a cooled stainless steel Dewar to trap water and other condensible vapors. The reservoir is cooled by either liquid nitrogen or a dry ice and alcohol mixture.

All surfaces of the trap are electropolished to ease cleaning and deflect heat. The liquid nitrogen unit includes a vented stopper to reduce liquid nitrogen evaporation and assist in the maintenance of a stable temperature within the Dewar.

## SOLUTION 2: Adsorption Trapping with Alumina or Charcoal

The **ANCORP** VacuShield adsorption traps utilize a two stage trapping system. This system protects the

pump from water and condensible vapor and protects the vacuum system from lubricants that may backstream from the pump. The first stage is a baffle welded to the lower containment screen within the trap. Condensibles from the pump coalesce here and are either trapped or drip harmlessly back into the pump.

In the second stage, all flow within the trap is directed through the tortuous porous trapping media. There are two options: activated alumina for acids and water vapor and activated charcoal for organics and heavy metals.

## SOLUTION 3: Molecular Sieve Trapping

The **ANCORP** molecular sieve trap employs synthetic zeolite (molecular sieve 13X) as an adsorbent. The large surface area of the numerous molecular-sized pores of the zeolite sieve provides excellent adsorption of water vapor, oil vapor, and other gas molecules.

This trap operates at room temperature which reduces maintenance and cost as compared with the use of cold traps. Additionally, the zeolite sieve can be regenerated once it has become saturated with oil and water vapor. This is accomplished through a bake-out cycle performed with the integrated, self-regulating heaters. The molecular sieve trap is a multi-purpose trap.

It is useful for the prevention of pump oil backstreaming as well as the reduction of the base vacuum through the removal of water vapor from the system.

The following table provides a quick reference for media selection. Please contact an ANCORP factory engineer or account representative with any questions regarding media selection.

Trap & Filter Media	PUMP OIL BACKSTREAMING	WATER VAPOR	PARTICULATE	ACID	ORGANICS	OTHER CONDENSIBLE VAPOR
Metallic (copper, stainless steel)	X					
Alumina		X		X		
Charcoal					X	
Cold Reservoir		X				
Molecular Sieve (zeolite)	X	X				
Caustic Soda				X		

## Model VSSC: Sealed Coaxial Vacuum Traps

The VSSC series foreline trap provides a low cost, non-rechargeable shield for your vacuum system from the effects of pump fluid backstreaming. The trapping medias are durable, dense copper or stainless steel held in place by recessed stainless steel screens. The housing is bead-blasted 304 stainless steel. Service by replacing the contaminated trap.



### Sealed Traps: Hose Connection

#### Materials:

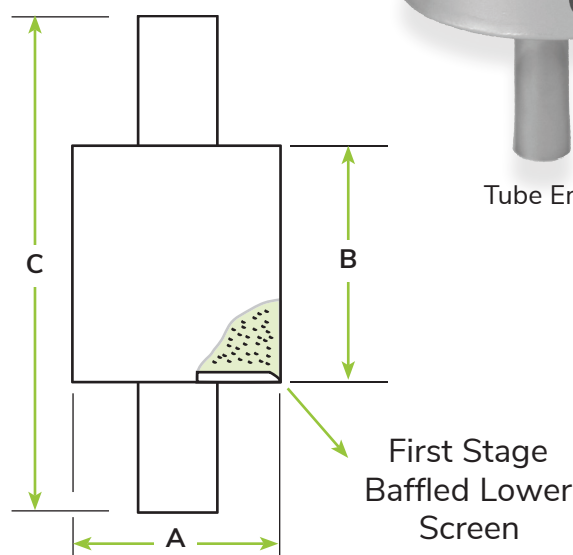
- Body: sand blasted 304L stainless steel
- Trapping media: copper or stainless steel

#### Product Notes:

- Trapping mechanics: adsorption

#### Benefits:

- Low cost system protection from pump oil backstreaming
- 2-stage trapping system
  - Stage 1:** stainless steel baffle – extends the life of the media
  - Stage 2:** coalescing media
- 304L stainless steel body, flanges and baffle
- Multiple connection options (ISO-QF, tube end, others on request)
- Simple, one-piece body design



PART #	REFERENCE ID	TUBE END CONNECTION (in)	TRAPPING MEDIA	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	OVERALL HEIGHT C (in)
7500001	VSSC-250-075-C	0.75	Copper	2.50	3.05	6.05
7500002	VSSC-250-075-S	0.75	Stainless Steel	2.50	3.05	6.05
7500031	VSSC-250-100-C	1.00	Copper	2.50	3.05	6.05
7500032	VSSC-250-100-S	1.00	Stainless Steel	2.50	3.05	6.05
7500007	VSSC-400-075-C	0.75	Copper	4.00	4.55	8.55
7500008	VSSC-400-075-S	0.75	Stainless Steel	4.00	4.55	8.55
7500009	VSSC-400-100-C	1.00	Copper	4.00	4.55	8.55
7500010	VSSC-400-100-S	1.00	Stainless Steel	4.00	4.55	8.55
7500011	VSSC-400-150-C	1.50	Copper	4.00	4.55	8.55
7500012	VSSC-400-150-S	1.50	Stainless Steel	4.00	4.55	8.55
7500013	VSSC-400-200-C	2.00	Copper	4.00	4.55	8.55
7500014	VSSC-400-200-S	2.00	Stainless Steel	4.00	4.55	8.55

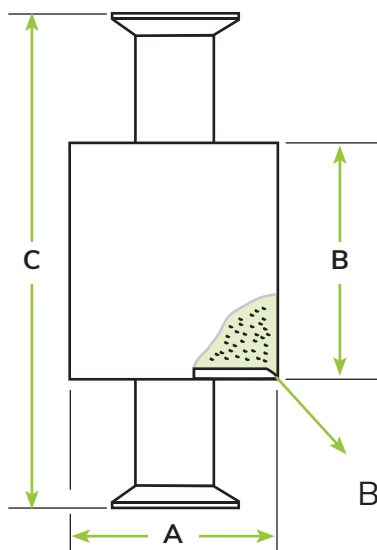
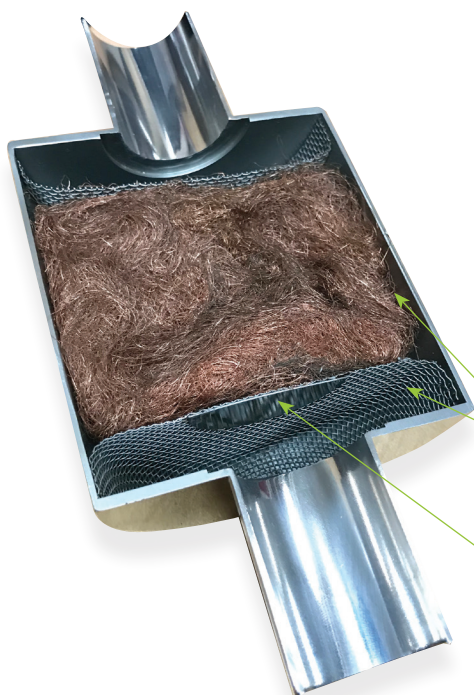
## Sealed Traps: ISO-QF Connection

### Materials:

- Body: bead-blasted 304L stainless steel
- Trapping media: copper or stainless steel

### Product Notes:

- Trapping mechanics: adsorption
- Connection to system: ISO-QF flanges



First Stage  
Baffled Lower  
Screen



### Benefits:

- Low cost system protection from pump oil backstreaming
- 2-stage trapping system
- Stage 1:** stainless steel baffle – extends the life of the media
- Stage 2:** coalescing media
- 304L stainless steel body, flanges and baffle
- Multiple connection options (ISO-QF, others on request)
- Simple, one-piece body design
- For Sealed and Rechargeable traps: The baffle plate and mesh block oil sputtered from the pump. The trapping media collects vaporized oil to be harmlessly dripped back into the pump.

PART #	REFERENCE ID	TUBE END CONNECTION	TRAPPING MEDIA	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	OVERALL HEIGHT C (in)
7500003	VSSC-250-QF16-C	QF16 Flange	Copper	2.50	3.05	6.30
7500004	VSSC-250-QF16-S	QF16 Flange	Stainless Steel	2.50	3.05	6.30
7500005	VSSC-250-QF25-C	QF25 Flange	Copper	2.50	3.05	6.30
7500006	VSSC-250-QF25-S	QF25 Flange	Stainless Steel	2.50	3.05	6.30
7500015	VSSC-400-QF16-C	QF16 Flange	Copper	4.00	4.55	8.80
7500016	VSSC-400-QF16-S	QF16 Flange	Stainless Steel	4.00	4.55	8.80
7500017	VSSC-400-QF25-C	QF25 Flange	Copper	4.00	4.55	8.80
7500018	VSSC-400-QF25-S	QF25 Flange	Stainless Steel	4.00	4.55	8.80
7500019	VSSC-400-QF40-C	QF40 Flange	Copper	4.00	4.55	8.80
7500020	VSSC-400-QF40-S	QF40 Flange	Stainless Steel	4.00	4.55	8.80
7500021	VSSC-400-QF50-C	QF50 Flange	Copper	4.00	4.55	8.80
7500022	VSSC-400-QF50-S	QF50 Flange	Stainless Steel	4.00	4.55	8.80

## Model VSRC: Rechargeable Vacuum Traps

The VSRC series foreline trap provides a rechargeable shield within your vacuum system. These traps can protect your system from backstreaming pump oil and/or your pump from contaminants created upstream within your system. The design of the rechargeable VacuShield traps allows multiple trapping media to be used with the same body. The VSRC traps have a coaxial port design for installation and a simple 2-piece clamped body design for easy media recharging and trap cleaning. A rechargeable trap is recommended for applications that experience heavy gas loads or continuous use.



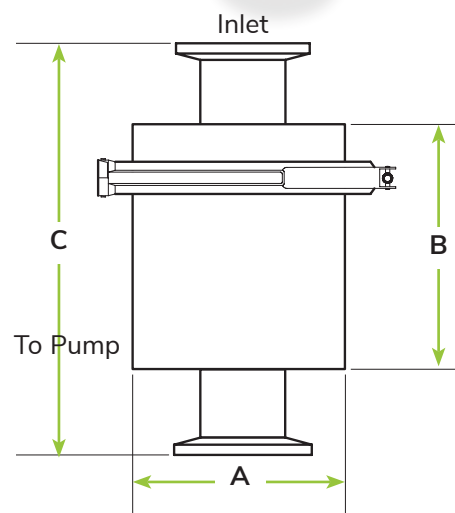
## Rechargeable Traps: with Copper ISO-QF & LF Connection

### Materials:

- Body, flanges and baffle: bead-blasted 304L stainless steel
- Seal: Buna-N
- Fully charged: replacement media is listed below.

### Product Notes:

- Trapping media: **COPPER**. Provides protection from pump fluid backstreaming. See pg. 7.
- Flanged body connection for large body diameter to ease assembly and ensure consistent seals.
- 2-stage trapping system  
**Stage 1:** stainless steel baffle – extends the life of the media  
**Stage 2:** coalescing media



PART #	REFERENCE ID	TUBE END CONNECTION	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	OVERALL HEIGHT C (in)
7500101	VSRC-200-QF16-C	QF16 Flange	2.00	3.80	5.90
7500111	VSRC-250-QF16-C	QF16 Flange	2.50	3.80	5.90
7500115	VSRC-250-QF25-C	QF25 Flange	2.50	3.80	5.90
7500121	VSRC-300-QF25-C	QF25 Flange	3.00	4.80	6.90
7500125	VSRC-300-QF40-C	QF40 Flange	3.00	4.80	6.90
7500131	VSRC-400-QF16-C	QF16 Flange	4.00	5.00	7.00
7500135	VSRC-400-QF25-C	QF25 Flange	4.00	5.00	7.00
7500139	VSRC-400-QF40-C	QF40 Flange	4.00	5.00	7.00
7500143	VSRC-400-QF50-C	QF50 Flange	4.00	5.00	8.00
7500151	VSRC-600-QF40-C	QF40 Flange	6.00	7.30	9.40
7500155	VSRC-600-QF50-C	QF50 Flange	6.00	7.30	10.40
7500159	VSRC-600-LF63-C	LF63 Flange	6.00	7.30	10.40
7500163	VSRC-600-LF80-C	LF80 Flange	6.00	7.30	10.40
7500171	VSRC-800-LF63-C	LF63 Flange	8.00	7.30	10.40
7500175	VSRC-800-LF80-C	LF80 Flange	8.00	7.30	10.40
7500179	VSRC-800-LF100-C	LF100 Flange	8.00	7.30	10.40



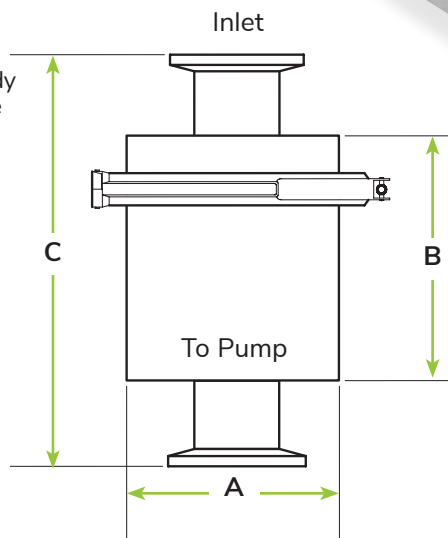
## Rechargeable Traps: with Stainless Steel ISO-QF & LF Connection

### Materials:

- Body, flanges and baffle: bead-blasted 304L stainless steel
- Seal: Buna-N
- Fully charged: replacement media is listed below.

### Product Notes:

- Trapping media: **STAINLESS STEEL**. Provides protection from pump fluid backstreaming. See pg. 7.
- Flanged body connection for large body diameter to ease assembly and ensure consistent seals.
- 2-stage trapping system  
**Stage 1:** stainless steel baffle – extends the life of the media  
**Stage 2:** coalescing media



7

Rechargeable Traps: ISO-QF & LF

PART #	REFERENCE ID	TUBE END CONNECTION	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	OVERALL HEIGHT C (in)
7500102	VSRC-200-QF16-S	QF16 Flange	2.00	3.80	5.90
7500112	VSRC-250-QF16-S	QF16 Flange	2.50	3.80	5.90
7500116	VSRC-250-QF25-S	QF25 Flange	2.50	3.80	5.90
7500122	VSRC-300-QF25-S	QF25 Flange	3.00	4.80	6.90
7500126	VSRC-300-QF40-S	QF40 Flange	3.00	4.80	6.90
7500132	VSRC-400-QF16-S	QF16 Flange	4.00	5.00	7.00
7500136	VSRC-400-QF25-S	QF25 Flange	4.00	5.00	7.00
7500140	VSRC-400-QF40-S	QF40 Flange	4.00	5.00	7.00
7500144	VSRC-400-QF50-S	QF50 Flange	4.00	5.00	8.00
7500152	VSRC-600-QF40-S	QF40 Flange	6.00	7.30	9.40
7500156	VSRC-600-QF50-S	QF50 Flange	6.00	7.30	10.40
7500160	VSRC-600-LF63-S	LF63 Flange	6.00	7.30	10.40
7500164	VSRC-600-LF80-S	LF80 Flange	6.00	7.30	10.40
7500172	VSRC-800-LF63-S	LF63 Flange	8.00	7.30	10.40
7500176	VSRC-800-LF80-S	LF80 Flange	8.00	7.30	10.40
7500180	VSRC-800-LF100-S	LF100 Flange	8.00	7.30	10.40

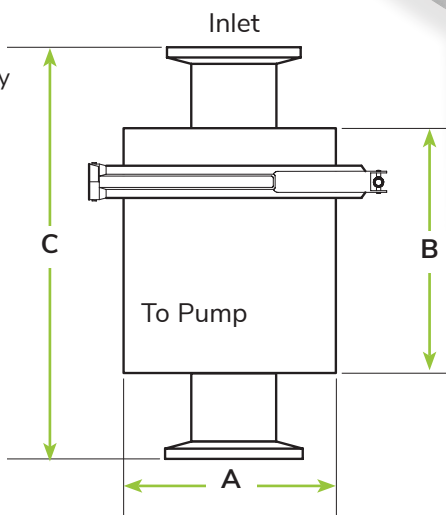
## Rechargeable Traps: with Activated Alumina ISO-QF & LF Connection

### Materials:

- Body, flanges and baffle: bead-blasted 304L stainless steel
- Seal: Buna-N
- Fully charged: replacement media is listed below.

### Product Notes:

- Trapping media: **ACTIVATED ALUMINA**. Provides protection from pump fluid backstreaming.
- Flanged body connection for large body diameter to ease assembly and ensure consistent seals.
- 2-stage trapping system  
**Stage 1:** stainless steel baffle – extends the life of the media  
**Stage 2:** coalescing media



PART #	REFERENCE ID	TUBE END CONNECTION	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	OVERALL HEIGHT C (in)
7500103	VSRC-200-QF16-A	QF16 Flange	2.00	3.80	5.90
7500113	VSRC-250-QF16-A	QF16 Flange	2.50	3.80	5.90
7500117	VSRC-250-QF25-A	QF25 Flange	2.50	3.80	5.90
7500123	VSRC-300-QF25-A	QF25 Flange	3.00	4.80	6.90
7500127	VSRC-300-QF40-A	QF40 Flange	3.00	4.80	6.90
7500133	VSRC-400-QF16-A	QF16 Flange	4.00	5.00	7.00
7500137	VSRC-400-QF25-A	QF25 Flange	4.00	5.00	7.00
7500141	VSRC-400-QF40-A	QF40 Flange	4.00	5.00	7.00
7500145	VSRC-400-QF50-A	QF50 Flange	4.00	5.00	8.00
7500153	VSRC-600-QF40-A	QF40 Flange	6.00	7.30	9.40
7500157	VSRC-600-QF50-A	QF50 Flange	6.00	7.30	10.40
7500161	VSRC-600-LF63-A	LF63 Flange	6.00	7.30	10.40
7500165	VSRC-600-LF80-A	LF80 Flange	6.00	7.30	10.40
7500173	VSRC-800-LF63-A	LF63 Flange	8.00	7.30	10.40
7500177	VSRC-800-LF80-A	LF80 Flange	8.00	7.30	10.40
7500181	VSRC-800-LF100-A	LF100 Flange	8.00	7.30	10.40

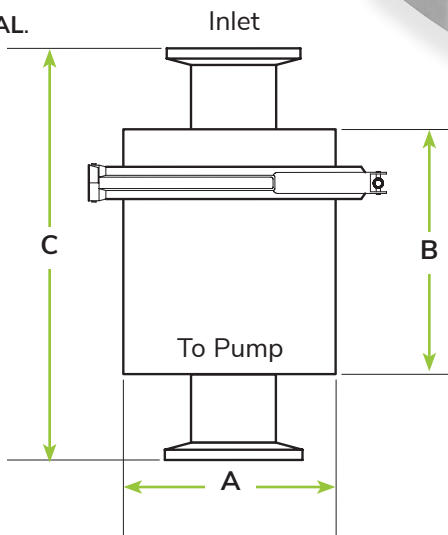
## Rechargeable Traps: with Activated Charcoal ISO-QF & LF Connection

### Materials:

- Body, flanges and baffle: bead-blasted 304L stainless steel
- Seal: Buna-N
- Fully charged: replacement media is listed below.

### Product Notes:

- Trapping media: **ACTIVATED CHARCOAL.**  
Provides protection from pump fluid backstreaming.
- Flanged body connection for large body diameter to ease assembly and ensure consistent seals.
- 2-stage trapping system  
**Stage 1:** stainless steel baffle – extends the life of the media  
**Stage 2:** coalescing media



7

Rechargeable Traps: ISO-QF & LF

PART #	REFERENCE ID	TUBE END CONNECTION	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	OVERALL HEIGHT C (in)
7500104	VSRC-200-QF16-O	QF16 Flange	2.00	3.80	5.90
7500114	VSRC-250-QF16-O	QF16 Flange	2.50	3.80	5.90
7500118	VSRC-250-QF25-O	QF25 Flange	2.50	3.80	5.90
7500124	VSRC-300-QF25-O	QF25 Flange	3.00	4.80	6.90
7500128	VSRC-300-QF40-O	QF40 Flange	3.00	4.80	6.90
7500134	VSRC-400-QF16-O	QF16 Flange	4.00	5.00	7.00
7500138	VSRC-400-QF25-O	QF25 Flange	4.00	5.00	7.00
7500142	VSRC-400-QF40-O	QF40 Flange	4.00	5.00	7.00
7500146	VSRC-400-QF50-O	QF50 Flange	4.00	5.00	8.00
7500154	VSRC-600-QF40-O	QF40 Flange	6.00	7.30	9.40
7500158	VSRC-600-QF50-O	QF50 Flange	6.00	7.30	10.40
7500162	VSRC-600-LF63-O	LF63 Flange	6.00	7.30	10.40
7500166	VSRC-600-LF80-O	LF80 Flange	6.00	7.30	10.40
7500174	VSRC-800-LF63-O	LF63 Flange	8.00	7.30	10.40
7500178	VSRC-800-LF80-O	LF80 Flange	8.00	7.30	10.40
7500182	VSRC-800-LF100-O	LF100 Flange	8.00	7.30	10.40

## Rechargeable Trap Replacement Media

With the exception of cold traps, **ANCORP** traps are sold fully charged with the desired media. Replacement media is available and listed below.



7

Rechargeable Traps Replacement Media

### Copper Media

PART #	REFERENCE ID	HOUSING SIZE (in)
7501001	VSR-200-C	2.00
7501011	VSR-250-C	2.50
7501021	VSR-300-C	3.00
7501031	VSR-400-C	4.00
7501051	VSR-600-C	6.00
7501071	VSR-800-C	8.00

### Activated Alumina Media

PART #	REFERENCE ID	HOUSING SIZE (in)
7501003	VSR-200-A	2.00
7501013	VSR-250-A	2.50
7501023	VSR-300-A	3.00
7501033	VSR-400-A	4.00
7501053	VSR-600-A	6.00
7501073	VSR-800-A	8.00

### Stainless Steel Media

PART #	REFERENCE ID	HOUSING SIZE (in)
7501002	VSR-200-S	2.00
7501012	VSR-250-S	2.50
7501022	VSR-300-S	3.00
7501032	VSR-400-S	4.00
7501052	VSR-600-S	6.00
7501072	VSR-800-S	8.00

### Activated Charcoal Media

PART #	REFERENCE ID	HOUSING SIZE (in)
7501004	VSR-200-O	2.00
7501014	VSR-250-O	2.50
7501024	VSR-300-O	3.00
7501034	VSR-400-O	4.00
7501054	VSR-600-O	6.00
7501074	VSR-800-O	8.00



## Model VSMI: Molecular Sieve Vacuum Traps

The VSMI series foreline trap provides a rechargeable and regenerable shield within your vacuum system. These traps can protect your system from backstreaming pump oil and/or your pump from water created upstream within your system. The design of the VacuShield Molecular Sieve traps includes a heating element that allows the trapping media to be refreshed once the synthetic zeolite has become saturated with water. The VSMI traps have an in-line port design for easy installation and a simple threaded fill port design to facilitate synthetic zeolite recharge.

- **Trapping Media:** molecular sieve (SYNTHETIC ZEOLITE)
- **System protection from pump oil backstreaming**
- **Pump protection from water**
- **2-stage trapping system**
  - Stage 1:** Stainless Steel Baffle – extends the life of the media
  - Stage 2:** Adsorbent Media
- **Body:** bead-blasted 304L Stainless Steel
- **Rechargeable Media** – refresh saturated synthetic zeolite by baking with the included heater element or replace with fresh synthetic zeolite
- **Connection Options** (ISO-QF, tube end, others on request)

## Molecular Sieve Traps: Hose Connection

### Materials:

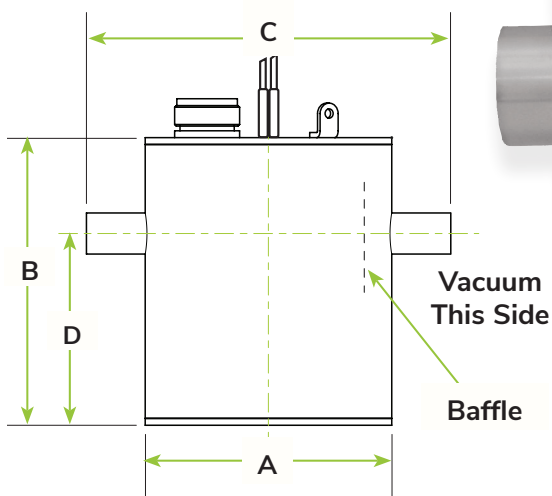
- Body, flanges and baffle: bead-blasted 304L stainless steel
- Seal: Buna-N

### Product Notes:

- Trapping mechanics: adsorption
- Trapping media: SYNTHETIC ZEOLITE.
- Connection to system: tube ends

### Heater Notes:

- -120 = 75w 120V AC
- -220 = 125w 220V AC



7

Molecular Sieve Vacuum Traps

PART #	REFERENCE ID	TUBE END CONNECTION (in)	A (in)	B (in)	C (in)	D (in)
7500321	VSMI-450-075-120	0.75	4.50	5.25	6.70	3.50
7500331	VSMI-450-075-220	0.75	4.50	5.25	6.70	3.50
7500322	VSMI-450-100-120	1.00	4.50	5.25	6.70	3.50
7500332	VSMI-450-100-220	1.00	4.50	5.25	6.70	3.50
7500323	VSMI-450-150-120	1.50	4.50	8.00	6.70	5.50
7500333	VSMI-450-150-220	1.50	4.50	8.00	6.70	5.50
7500324	VSMI-450-200-120	2.00	4.50	8.00	6.70	5.50
7500334	VSMI-450-200-220	2.00	4.50	8.00	6.70	5.50

## Molecular Sieve Traps: ISO-QF Connection

### Materials:

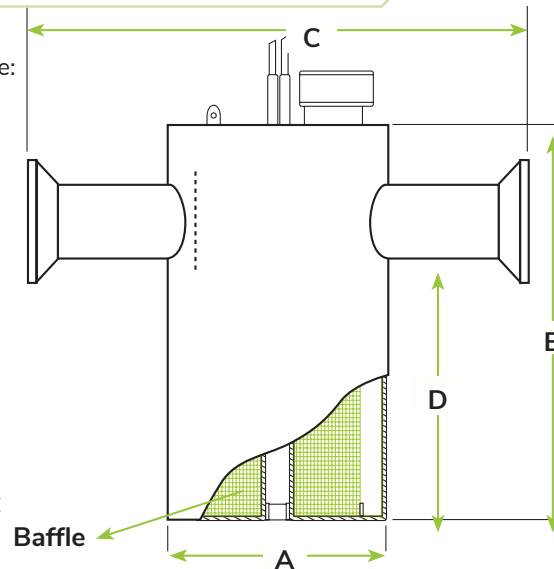
- Body, flanges and baffle: bead-blasted 304L stainless steel
- Seal: Buna-N

### Product Notes:

- Trapping mechanics: adsorption
- Trapping media: **SYNTHETIC ZEOLITE.**
- Connection to system: ISO-QF flanges

### Heater Notes:

- -120 = 75w 120V AC
- -220 = 125w 220V AC



PART #	REFERENCE ID	TUBE END CONNECTION	A (in)	B (in)	C (in)	D (in)
7500301	VSMI-450-QF16-120	QF16	4.50	5.25	7.00	3.50
7500311	VSMI-450-QF16-220	QF16	4.50	5.25	7.00	3.50
7500302	VSMI-450-QF25-120	QF25	4.50	5.25	7.00	3.50
7500312	VSMI-450-QF25-220	QF25	4.50	5.25	7.00	3.50
7500303	VSMI-450-QF40-120	QF40	4.50	8.00	7.00	5.50
7500313	VSMI-450-QF40-220	QF40	4.50	8.00	7.00	5.50
7500304	VSMI-450-QF50-120	QF50	4.50	8.00	7.00	5.50
7500314	VSMI-450-QF50-220	QF50	4.50	8.00	7.00	5.50

## Molecular Sieve Replacement Media

PART #	REFERENCE ID	TRAPPING MEDIA	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)
7510020	VSM-450-5-M	Synthetic Zeolite	4.50	5.25
7510021	VSM-450-8-M	Synthetic Zeolite	4.50	8.00

## Molecular Sieve Replacement Parts and Accessories

PART #	REFERENCE ID	DESCRIPTION
7510350	VSM-H75-120	Molecular Sieve Trap Heater - 75 Watts, 120VAC
7510352	VSM-H75-220	Molecular Sieve Trap Heater - 75 Watts, 220VAC
7510354	VSM-H125-120	Molecular Sieve Trap Heater - 125 Watts, 120VAC
7510356	VSM-H125-220	Molecular Sieve Trap Heater - 125 Watts, 220VAC
7510358	VSM-HEC	Electrical Connection for Trap Heater - Hubble 7464-7465 Set

## Model VSCI and VSDI: Cold Vacuum Traps

The VacuShield cold trap is capable of working with two different cooling agents. For high vacuum application, liquid nitrogen is the preferred agent and provides better trapping results. At low vacuum levels or during system pump down, a dry ice and alcohol mixture can be used. The trap is electropolished inside and out, has cap handles, and has a vented stopper all included standard. The VSCI traps have an in-line port design for installation and a simple 2-piece clamped body design to ease trap cleaning.

### Recommended Options:

A third port is included on all LN2 traps except the 0.8 liter trap. This third port is intended to serve as a vacuum break or vent. Without some means to break vacuum on this line, the liquid nitrogen Dewar will be difficult to disassemble for cleaning

- **Trapping Element:** cold Dewar
- **Pump protection from water and condensable vapor**
- **Multi-option trapping system**
  - Option 1:** liquid nitrogen for high vacuum trapping of condensable vapors
  - Option 2:** mixture of dry ice and alcohol to trap condensable vapors in low vacuum or during initial evacuation of your vacuum system
- **Simple, clamped two piece body design** – eases cleaning, assembly and provides a consistent seal

or servicing. Under no circumstances should a screwdriver or similar tool be used to separate the liquid nitrogen Dewar from its stainless steel, vacuum jacketed housing.

The most common configuration for this port is to include a tee with the appropriate ISO-QF terminations. On one side of the tee an up-to-air valve is attached and, on the other side of the tee, a vacuum gauge is attached. The up-to-air valve allows the system to be safely vented and the vacuum gauge provides an additional check on the trap's base pressure to ensure vacuum integrity.

Note: If a separate up-to-air valve is not employed or the vent port is sealed (blanked off) during use, some means of venting or breaking vacuum must be included in the inlet or outlet pumping lines.

- **Electropolished Body:** eases cleaning, deflects heat and reduces iron concentration on trap surfaces which increases corrosion resistance
- **Cap handles included to ease handling of trap**
- **Large fill port**
- **Port Stopper Included** - reduces liquid nitrogen evaporation and assists in the maintenance of a stable temperature within the Dewar
- **Connection options** (ISO-QF, others on request)

## Liquid Nitrogen or Dry Ice?

Water trapping is an excellent application for cold reservoirs and illustrates the choice between liquid nitrogen and dry ice traps. When molecules collide with a cold surface, they can surrender some of their (kinetic) energy to that surface. The colder the surface, the less energetic (i.e. slower) the particles will become. The temperature of liquid nitrogen is 77 K (-196° C) and a dry ice/isopropanol slurry is about 194 K (-79° C). The vapor pressure of water at 77 K is about  $10^{-12}$  Torr.

Therefore, water is effectively removed (cryopumped) from a vacuum system with a liquid nitrogen trap. Alternatively, the vapor pressure of water at 194 K is about  $10^{-3}$  Torr. That is, a vacuum system trapping moisture with dry ice trap should expect a base pressure no better than about 1 milliTorr (or the highest vapor pressure of the condensibles being pumped).

## Cold Traps: LN2 ISO-QF Connection

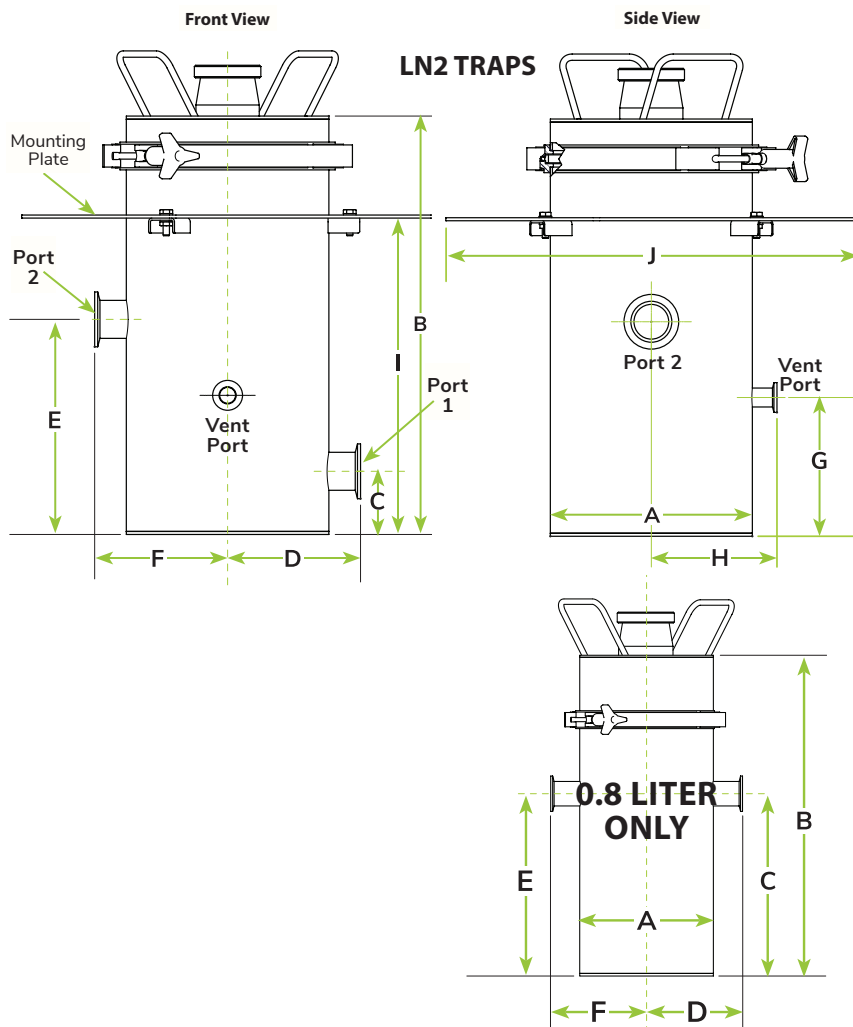
### Materials:

- Body, flanges and baffle: 304 stainless steel electropolished
- Seal: Buna-N

### Product Notes:

- Trapping mechanics: condensation
- Connection to system: ISO-QF flanges
- No mounting plate or exhaust vent on 0.8 liter

(All Dimension in Inches)



PART #	REFERENCE ID	TUBE END CONNECTION	VOL (L)	A	B	C	D	E	F	G	H	I	J
7500404	VSCI-800-QF16	QF16 Flange	0.8	4.00	10.00	5.50	2.75	5.50	2.75	N/A	N/A	N/A	N/A
7500405	VSCI-800-QF25	QF25 Flange	0.8	4.00	10.00	5.50	2.75	5.50	2.75	N/A	N/A	N/A	N/A
7500406	VSCI-800-QF40	QF40 Flange	0.8	4.00	10.00	5.50	2.75	5.50	2.75	N/A	N/A	N/A	N/A
7500411	VSCI-1000-QF25	QF25 Flange	1.0	4.00	14.50	2.50	2.75	7.50	2.75	5.00	2.98	10.20	7.00
7500412	VSCI-1000-QF40	QF40 Flange	1.0	4.00	14.50	2.50	2.75	7.50	2.75	5.00	2.98	10.20	7.00
7500425	VSCI-2000-QF25	QF25 Flange	2.0	6.00	15.50	2.50	4.25	8.50	4.25	5.50	3.98	11.40	10.00
7500426	VSCI-2000-QF40	QF40 Flange	2.0	6.00	15.50	2.50	4.25	8.50	4.25	5.50	3.98	11.40	10.00
7500427	VSCI-2000-QF50	QF50 Flange	2.0	6.00	15.50	2.50	4.25	8.50	4.25	5.50	3.98	11.40	10.00
7500431	VSCI-5000-QF25	QF25 Flange	5.0	8.00	16.50	2.50	5.25	8.50	5.25	5.50	4.98	12.50	12.00
7500432	VSCI-5000-QF40	QF40 Flange	5.0	8.00	16.50	2.50	5.25	8.50	5.25	5.50	4.98	12.50	12.00
7500433	VSCI-5000-QF50	QF50 Flange	5.0	8.00	16.50	2.50	5.25	8.50	5.25	5.50	4.98	12.50	12.00

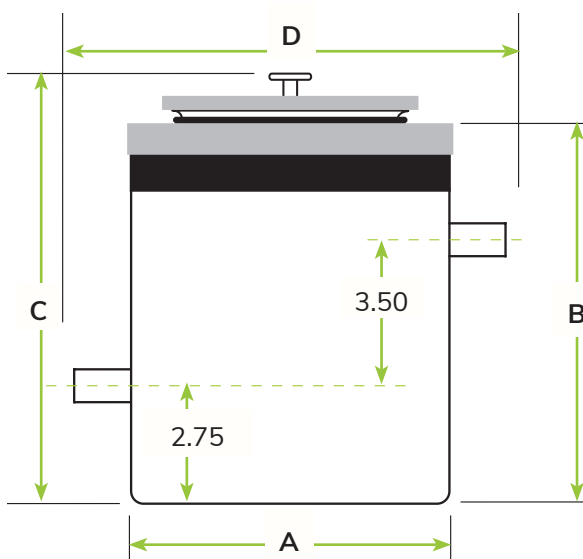


## LN2 Replacement Parts

PART #	REFERENCE ID	DESCRIPTION
7510450	VSC-800-D	DEWAR Kit for 0.8 Liter - includes DEWAR and Plug
7510451	VSC-1000-D	DEWAR Kit for 1.0 Liter - includes DEWAR and Plug
7510452	VSC-2000-D	DEWAR Kit for 2.0 Liter - includes DEWAR and Plug
7510453	VSC-5000-D	DEWAR Kit for 5.0 Liter - includes DEWAR and Plug
7510475	VSC-DPK-S	DEWAR Plug Kit for - Sizes 0.8, 1.0, and 2.0 Liters
7510476	VSC-DPK-L	DEWAR Plug Kit for - Size 5.0 Liter



## Cold Traps: Dry Ice Tube Port Connection



7

Cold Traps: Dry Ice

### Materials:

- Electropolished wetted surfaces: facilitates cleaning and servicing, promotes system cleanliness, and deflects heat to minimize frequency of media change-outs.
- Clear, loose fitting lid: see through design allows a quick check on condition of cold media. Loose fitting lid provides a simple vent for sublimating carbon dioxide and prevents unsafe pressure build up.

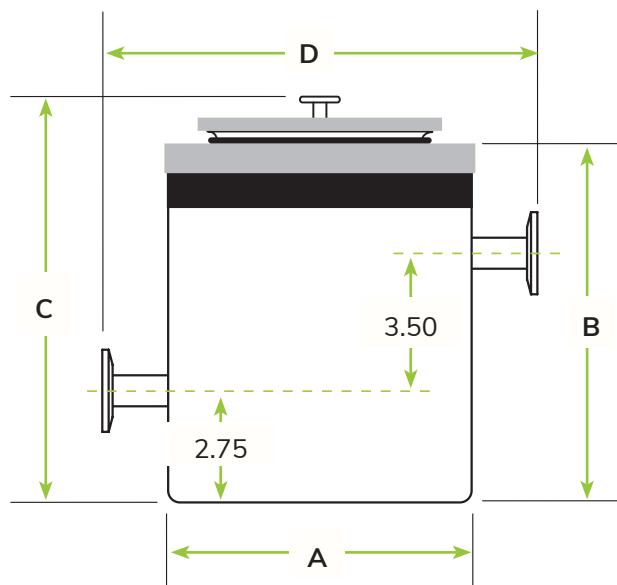
- Clear view ring: see through design allows a quick visual check on condition of cold surface. Visually determine when cold surface needs to be cleaned due to ice bridges and pump lubricant deposition.

### Product Notes:

- Port terminations: tube end
- Media: use dry ice and isopropanol slurry for maximum cold trapping effect

PART #	REFERENCE ID	TUBE END CONNECTION (in)	TRAPPING MEDIA	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	OVERALL HEIGHT C (in)	OVERALL WIDTH D (in)
7500420	VSDI-800-050	0.50	Dry Ice	7.88	9.00	10.50	10.70
7500421	VSDI-800-075	0.75	Dry Ice	7.88	9.00	10.50	10.70

## Cold Traps: Dry Ice ISO-QF Connection



### Product Notes:

- Port terminations: ISO-QF
- Media: use dry ice and isopropanol slurry for maximum cold trapping effect

### Materials:

- Electropolished wetted surfaces: facilitates cleaning and servicing, promotes system cleanliness, and deflects heat to minimize frequency of media change-outs.
- Clear, loose fitting lid: see through design allows a quick check on condition of cold media. Loose fitting lid provides a simple vent for sublimating carbon dioxide and prevents unsafe pressure build up.
- Clear view ring: see through design allows a quick visual check on condition of cold surface. Visually determine when cold surface needs to be cleaned due to ice bridges and pump lubricant deposition.

PART #	REFERENCE ID	TUBE END CONNECTION	TRAPPING MEDIA	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	OVERALL HEIGHT C (in)	OVERALL WIDTH D (in)
7500422	VSDI-800-QF16	QF16	Dry Ice	7.88	9.00	10.50	11.00
7500423	VSDI-800-QF25	QF25	Dry Ice	7.88	9.00	10.50	11.00
7500424	VSDI-800-QF40	QF40	Dry Ice	7.88	9.00	10.50	11.00

## Dry Ice Replacement Parts

PART #	REFERENCE ID	DESCRIPTION
7510400	VSDI-800-BSK	Replacement Seal Kit - Buna
7510401	VSDI-800-VSK	Replacement Seal Kit - Viton®
8751421	VSDI-800-ESK	Replacement Seal Kit - EPDM
7510410	VSDI-800-VR	Replacement Acrylic Viewing Ring
7510403	VSDI-800-LA	Replacement Acrylic Lid
7510476	VSC-DPK-L	DEWAR Plug Kit for - Size 5.0 Liter
7510415	VSDI-800-W	Replacement Stainless Steel Well



## Foreline Vacuum Filter Product Overview

Foreline filters are installed between the mechanical pump and the high vacuum pump in a vacuum system. Oil mist filters are installed on the outlet of an oil-sealed rotary vane mechanical pump. Each serves a unique function:

**FUNCTION 1: Protect your mechanical pump from dust and particulates generated upstream within the vacuum system:**

### SOLUTION 1: Particulate Filtration

For particulates between 10 and 100 microns in size, **ANCORP** particulate filters (VSPC and VSPI, pg. 24 and 25) are an excellent solution. Particulate filters may be configured with either paper (VSPC, pg. 24) or polyester (VSPI, pg. 25) media. Paper is the low cost option and is the more common choice. Paper filters, however, are unsuitable for wet applications and are disposable. Polyester filters may be reused after being cleaned with a shop vacuum or rinsed with soap and water and dried or both.

### SOLUTION 2: Particulate Filtration

For particulates greater than 100 microns, **ANCORP** particulate separators (VSPS, pg. 25) are an excellent choice. Particulate filters use gravity and a series of baffles (a tortuous path) to separate large particles from their gaseous carriers.

**FUNCTION 2: Protect your working environment from mechanical pump oil discharge:**

### SOLUTION 1: Open Exhaust Filters

**ANCORP's** VSOE (pg. 28) filters are a low cost solution to mechanical pump lubricant discharge. While retaining over 99% of the discharged pump oil, these filters do allow the pumped gases to pass through into the surrounding environment. Therefore, this filter is suitable for vacuum applications based on breathable air.

### SOLUTION 2: Closed Exhaust Filters

**ANCORP's** VCEC (pg. 29) and VCEA (pg. 29) filters capture mechanical pump oil discharge and allow the system's gaseous exhaust to be pumped away to a scrubber or an outside exhaust. The filter's body seal, however, is not a standard flanged vacuum seal and therefore is not intended for toxic or corrosive applications.

### SOLUTION 3: Hermetic Exhaust Filters

**ANCORP's** VSHE (pg. 27) filters trap more than 99% of the mechanical pump's lubricants and allow the captured lubricants to be transported back to the pump via a series of internal channels and a one-way valve. In addition, the filter's housing is sealed with an elastomeric high vacuum flange. As a result, chamber gases that are compatible with Buna-N seals may be safely transported to a scrubber or exhaust system.

## Trap and Filter Media

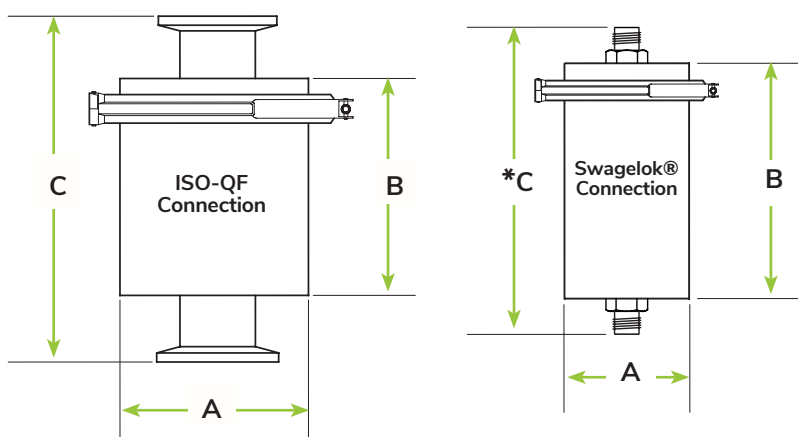
FILTER MEDIA	PUMP OIL BACKSTREAMING	WATER VAPOR	PARTICULATE	ACID	ORGANICS	OTHER CONDENSIBLE VAPOR
Borosilicate Fibers						X
Filter (polyester, paper)			X			X
Gravity			X			
Borosilicate Fibers						X

Table provides a quick reference for media selection. Please contact an ANCORP factory engineer or account representative with any questions regarding media selection.

## Model VSPC, VSPI, and VSPS: Particulate Filters

Large filters are designed to capture particulates 100 microns or larger. Small filters are designed to capture particulates ranging from 10 to 100 microns -nominally. Large filters (we call these filters particulate separators) use gravity and stainless steel baffles as a media. Small filters have two media: paper and polyester. Both paper and polyester media have a nominal mesh size of about 10 microns. Paper filters are a low cost, disposable solution for dry applications. Polyester filters can be cleaned and reused.

### Particulate Foreline Filters: Coaxial Ports Swagelok® and ISO-QF Connection



#### Materials:

- Body: bead-blasted 304 stainless steel
- Seals: Buna N

#### Product Notes:

- Port Terminations: Swagelok® and ISO-QF
- Media: paper

- \*(On Swagelok® connection: C dimension is from male nut to male nut.)
- Rechargeable housing: allows rapid, in-situ vacuum gasket servicing and media replacement. Elastomeric gasket and stainless steel clamp suitable for high vacuum applications.

PART #	REFERENCE ID	TUBE END CONNECTION (in)	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	OVERALL HEIGHT C (in)
7500501	VSPC-200-25SWG	0.25 Swagelok®	2.00	3.80	5.20
7500502	VSPC-200-38SWG	0.375 Swagelok®	2.00	3.80	5.20
7500503	VSPC-200-50SWG	0.50 Swagelok®	2.00	3.80	5.40
7500510	VSPC-300-QF25	QF25	3.00	3.50	5.50
7500511	VSPC-400-QF40	QF40	4.00	3.50	5.50
7500512	VSPC-400-QF50	QF50	4.00	3.50	6.50

### Particulate - Coaxial Replacement Media

PART #	REFERENCE ID	FILTER BODY SIZE A (in)	FILTER MEDIA
7510501	VSPC-200-F	2.00	Industrial paper filter 2U for 2 in. dia body
7510510	VSPC-300-F	3.00	Industrial paper filter 2U for 3 in. dia body
7510511	VSPC-400-F	4.00	Industrial paper filter 2U for 4 in. dia body



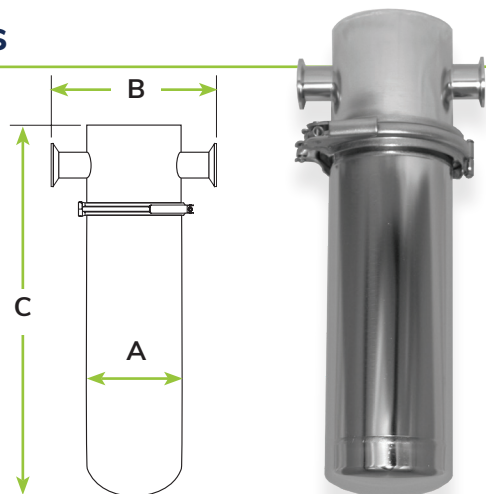
## Particulate Foreline Filters: In-Line Ports ISO-QF Connection

### Materials:

- Body: 304 stainless steel
- Seals: Buna N

### Product Notes:

- Port Terminations: ISO-QF
- Media: polyester
- Rechargeable housing: allows rapid, in-situ vacuum gasket servicing and media replacement. Elastomeric gasket and stainless steel clamp suitable for high vacuum applications.



PART #	REFERENCE ID	TUBE END CONNECTION	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	OVERALL HEIGHT C (in)
7500525	VSPI-400-QF25	QF25	4.00	15.00	6.00
7500526	VSPI-600-QF40	QF40	6.00	16.50	8.50

## Particulate - In-Line Replacement Media

PART #	REFERENCE ID	FILTER BODY SIZE A (in)	FILTER MEDIA
7510525	VSPI-400-F	4.00	Polyester particulate filter 10U
7510526	VSPI-600-F	6.00	Polyester particulate filter 10U

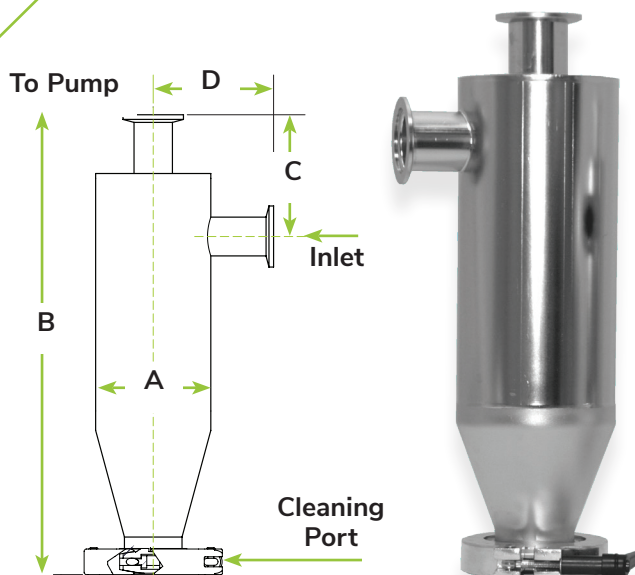
## Particulate Separator Filters: ISO-QF Connection

### Materials:

- Body: 304 stainless steel
- Clamp: Aluminum
- Seals: Buna N

### Product Notes:

- Port Terminations: ISO-QF
- Media: gravity and internal stainless steel baffles
- Electropolished: facilitates cleaning and servicing and promotes system cleanliness
- Applications: suitable for dusts and particulates greater than 100 microns. Also an excellent solution for back siphoning accidents.



PART #	REFERENCE ID	TUBE END CONNECTION	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	C (in)	D (in)
7500601	VSPS-300-QF25	QF25 Port	3.00	12.00	3.14	3.14
7500605	VSPS-400-QF40	QF40 Port	4.00	14.00	3.14	3.52

7

VSPI, VSPI & VSPS Particulate Filters

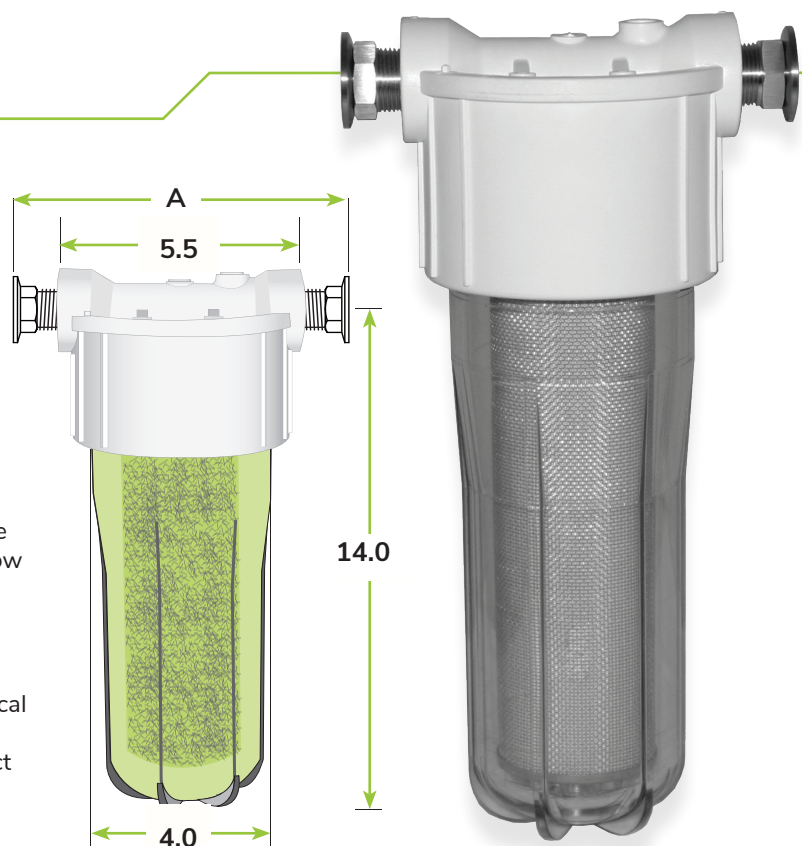
## VacuView Filters: ISO-QF Connection

### Materials:

- Clear housing: The see through design allows quick visual check on condition of media and amount of trapped or neutralized contaminants. The clear housing maximizes utility of outside-in flow design.

### Product Notes:

- Port terminations: ISO-QF
- Media: caustic soda (for hydrous acid neutralization), activated alumina, or activated charcoal.
- Dimension A: represents the approximate length between flanges depending on how tightly the ends are screwed in.
- Rechargeable housing: allows in-situ vacuum gasket servicing and media replacement.
- Port labels: Installation orientation is critical for this outside-in trap design. Inlet and Pump are clearly identified on the product labeling.



PART #	REFERENCE ID	TUBE END CONNECTION	FILTER MEDIA	A (in)
7500701	VVRI-1000-QF16-CS	QF16	Caustic Soda	7.00
7500702	VVRI-1000-QF25-CS	QF25	Caustic Soda	7.20
7500703	VVRI-1000-QF16-A	QF16	Activated Alumina	7.00
7500704	VVRI-1000-QF25-A	QF25	Activated Alumina	7.20
7500705	VVRI-1000-QF16-O	QF16	Activated Charcoal	7.00
7500706	VVRI-1000-QF25-O	QF25	Activated Charcoal	7.20

## VacuView Replacement Media

PART #	REFERENCE ID	FILTER MEDIA
7510701	VVR-1000-CS	Caustic Soda Replacement Media
7510702	VVR-1000-A	Activated Alumina Replacement Media
7510703	VVR-1000-O	Activated Charcoal Replacement Media

## VacuView Accessories

PART #	REFERENCE ID	DESCRIPTION
7510730	VVR-MK	Mounting Kit - contains Bracket with 4 Standoffs and Bolts

## Model VSHE, VSOE, VCEC and VCEA: Oil Mist Filters

Oil mist filters are installed on the outlet port of an oil-sealed, rotary vane mechanical vacuum pump. During each exhaust cycle, process chamber gases along with a tiny amount of pump lubricant leave the pump. If left uncorrected, over time, a greasy film of pump lubricant will form around the pump's outlet. Oil mist filters capture this lubricant and, in some instances, return the pump lubricant to the pump's oil reservoir.

**ANCORP** manufactures three (3) styles of oil mist filters. The VSOE or open-exhaust oil mist filter is a low cost solution designed for air only applications. That is, the VSOE captures the pump's lubricants but discharges the process gases into the area surrounding the pump. The VCEC/VCEA or closed-exhaust allows the process gases to be piped away

to a scrubber or external exhaust line. The VCEC/VCEA's steel housing has an enamel finish and employs integrated body tabs to form the vacuum seal. While suitable for vacuum applications requiring an elastomer seal, this filter is not recommended for aggressive or toxic applications. In addition to allowing the exhaust gases to be piped safely to a scrubber or external exhaust, the VSHE or hermetic exhaust filter is equipped with a rechargeable, machined stainless steel housing. The vacuum seal is formed with elastomeric gaskets (i.e. Buna-N) and stainless steel clamps. The VSHE is the best solution for those critical applications requiring high vacuum seals throughout the process piping run. All three oil mist filters use borosilicate glass fiber media.

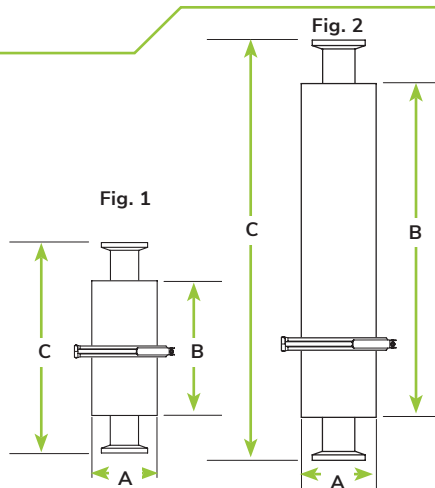
### Hermetic Exhaust Filters: ISO-QF Connection

#### Materials:

- Stainless steel

#### Product Notes:

- Port Terminations: ISO-QF
- Media: borosilicate glass fiber
- Rechargeable, 304 stainless steel housing: allows rapid, in-situ vacuum gasket servicing and media replacement. Elastomeric gasket and stainless steel clamp suitable for high vacuum applications.



7

Oil Mist Filters

PART #	REFERENCE ID	FIGURE	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	OVERALL LENGTH C (in)
7505001	VSHE-S-QF25	1	2.50	4.80	6.90
7505002	VSHE-L-QF25	2	2.50	11.30	13.30
7505003	VSHE-L-QF40	2	2.50	11.30	13.30

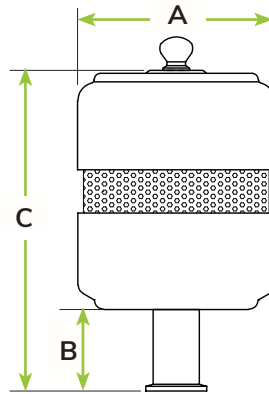
### Hermetic Exhaust Replacement Media

PART #	REFERENCE ID	DESCRIPTION
7515001	HE-RF-S	Replacement Filter for Short Body
7515002	HE-RF-L	Replacement Filter for Long Body
7515005	HE-RFK-S	Replacement Filter Kit for Short Body - includes Filter Caps
7515006	HE-RFK-L	Replacement Filter Kit for Long Body - includes Filter Caps

## Open Exhaust Filter: ISO-QF and NPT Connection

### Product Notes:

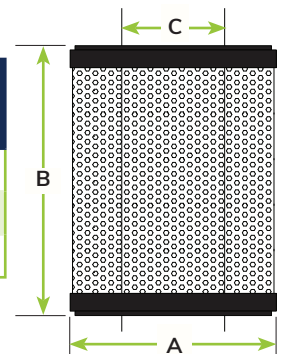
- Port Terminations: ISO-QF and NPT
- Media: borosilicate glass fiber



PART #	REFERENCE ID	CONNECTION	CFM	HOUSING DIAMETER A (in)	HEIGHT B (in)	OVERALL LENGTH C (in)
7505105	VSOE-5-50NPT	0.50 in NPT	4.50	2.50	0.90	4.00
7505110	VSOE-5-QF16	QF16	4.50	2.50	0.90	4.00
7505111	VSOE-5-QF25	QF25	4.50	2.50	0.90	4.00
7505112	VSOE-7-QF25	QF25	7.00	2.50	0.90	5.00
7505120	VSOE-10-QF25	QF25	24.00	5.10	2.10	8.50

### Open Exhaust Replacement Media

PART #	REFERENCE ID	DESCRIPTION	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	INNER DIAMETER C (in)
7515111	VOE-RF5	For VSOE-5-50NPT, -QF16, -QF25	2.25	3.00	1.25
7515112	VOE-RF7	For VSOE-7-QF25	2.25	4.00	1.25
7515120	VOE-RF10	For VSOE-10-QF25	4.00	6.00	3.00



### Closed Exhaust Replacement Media

PART #	REFERENCE ID	DESCRIPTION
7515205	VCE-RF8	For VCEC-8-QF16 and VCEC-8-QF25
7515201	VCE-RF50	For VCEA-50-150NPT
7515210	VCE-RF125	For VCEA-125-200NPT
7515211	VCE-RF175	For VCEA-175-200NPT

### Closed Exhaust Replacement Kits

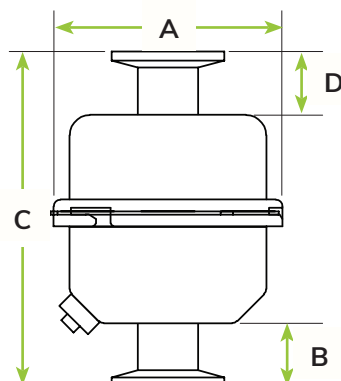
PART #	REFERENCE ID	DESCRIPTION
7515218	VCE-RK50	For VCEA-50-150NPT
7515216	VCE-RK125	For VCEA-125-200NPT
7515216	VCE-RK175	For VCEA-175-200NPT



## Closed Exhaust Filter: Coaxial ISO-QF Connection

### Product Notes:

- Port Terminations: ISO-QF
- Media: borosilicate glass fiber
- Rechargeable, enameled steel housing: allows rapid, in-situ vacuum gasket servicing and media replacement.
- Integral oil drain: allows captured oil to be safely discarded.

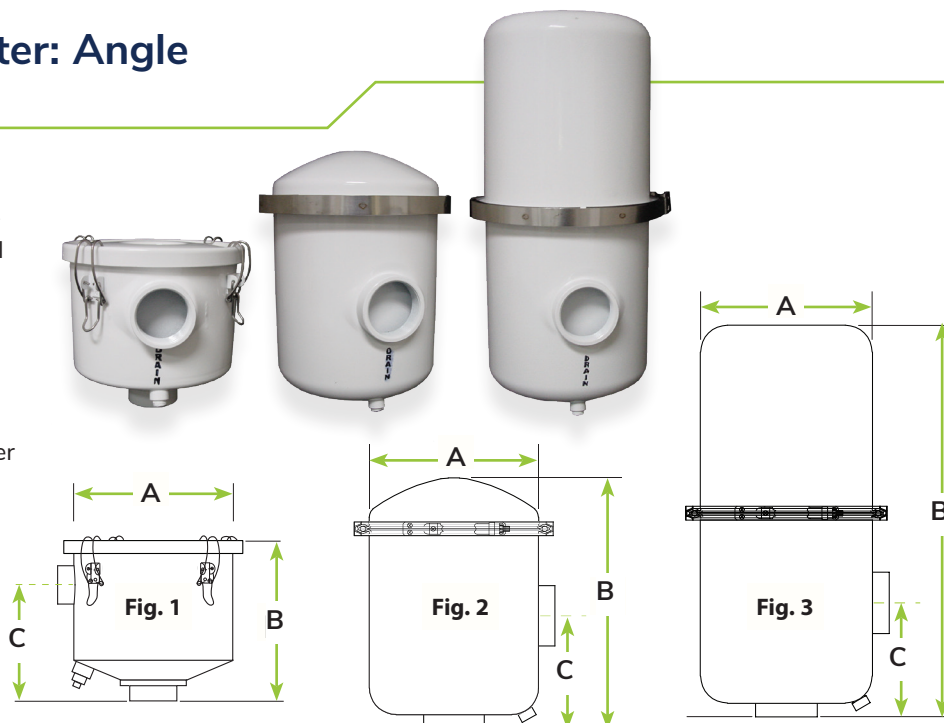


PART #	REFERENCE ID	CONNECTION	CFM	HOUSING DIAMETER A (in)	BODY HEIGHT B (in)	OVERALL HEIGHT C (in)	LENGTH D (in)
7505205	VCEC-8-QF16	QF16	8	3.25	0.88	4.69	0.88
7505206	VCEC-8-QF25	QF25	8	3.25	0.88	4.69	0.88

## Closed Exhaust Filter: Angle NPT Connection

### Product Notes:

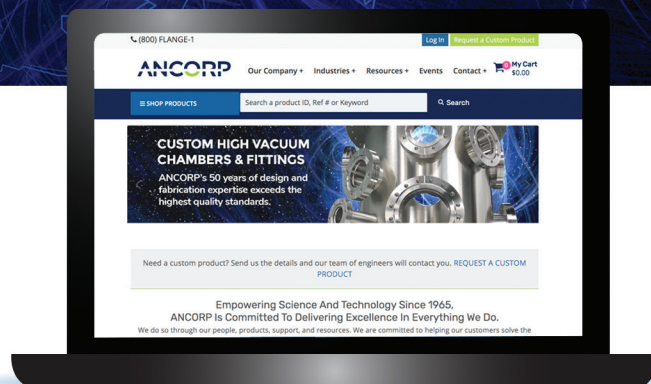
- Port Terminations: NPT
- Media: borosilicate glass fiber
- Rechargeable, enameled steel housing: allows rapid, in-situ vacuum gasket servicing and media replacement.
- Integral oil drain: allows captured oil to be safely discarded.
- NPT to ISO-QF Hybrid adapter available upon request



PART #	REFERENCE ID	CONNECTION	CFM	FIG	HOUSING DIAMETER A (in)	OVERALL LENGTH B (in)	LENGTH C (in)
7505201	VCEA-50-150NPT	1.50 in. Female NPT	50	1	7.32	6.75	4.62
7505210	VCEA-125-200NPT	2.00 in. Female NPT	125	2	8.75	11.25	5.00
7505211	VCEA-175-200NPT	2.00 in. Female NPT	175	3	8.75	17.50	5.00

# ANCORP

Visit Our Updated  
**WEBSITE**  
**WWW.ANCORP.COM**



We have updated our website to include:

- Downloadable CAD Models
- Faster and simplified checkout
- Easy to navigate product menus



## 2020 ANCORP CATALOG

**The newest edition of our catalog is here!**

Contact us today at 1-800-352-6431 to reserve your copy!

### CAN'T WAIT?

If you prefer a digital copy, you can download our virtual catalog online at:

<https://ancorp.com/manuals-technical-data-sheets>