Ultrahigh-Purity Gas Filters

SCF Series

- Membralox® ceramic filtration technology
- Genuine Swagelok® VCR® face seal fittings
- Particle removal rating greater than 99.9999999 % at 0.003 µm at maximum flow rate
- Flow rates to 2700 std L/min

Swagelok®

SCF Series UHP Filters

The Swagelok SCF series UHP gas filter is designed to meet the stringent requirements of SEMI E49.8-96. With the proprietary Membralox ceramic element and 316L VAR stainless steel housing, the SCF series UHP filter is a solution for many demanding gas filtering applications.

Features

- High particle removal efficiency
- Exceptionally low particle shedding
- Superior moisture dry-down characteristics
- Extremely low outgassing
- Outstanding chemical compatibility
- High differential pressure rating
- Inline, all-welded construction
- Maximum flow rates: 30, 225, 600, 900, and 2700 std L/min
- End connections: 1/4, 1/2, and 3/4 in. integral male VCR face seal fittings; 1/4 in. female VCR face seal fittings
- Industry-standard lengths; see **Ordering Information and Dimensions.**

Materials of Construction

Ceramic element: high-purity alumina

Gasket: high-density PTFE

Housing: 316L VAR stainless steel/SEMI F20-0305 High-Purity, 20 % minimum elongation allowed

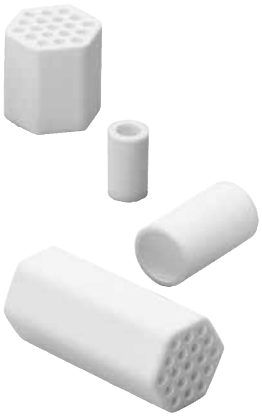
Membralox Ceramic Filtration Technology

The Membralox ceramic element is a multilayered filter medium. The material is a high-purity alumina with a precisely controlled pore structure.

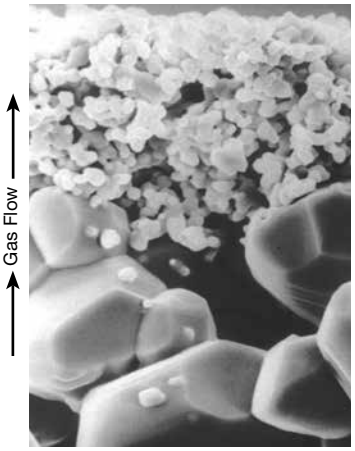
The Membralox ceramic element is an extruded multiflow channel block or tubular structure. The flow channels within the structure are coated with precisely controlled membrane layers. A final sintering process fuses the layers together.

The result is a filter element that is designed to minimize particle shedding and provide enhanced flow characteristics. The removal rating of the filter is greater than 99.9999999 % at 0.003 µm when tested in accordance with SEMI F38-0699.

The Membralox ceramic element provides both high temperature and chemical resistance, along with superior particle removal and outgassing characteristics.



The ceramic element is a multichannel block or tubular configuration of high-purity alumina.



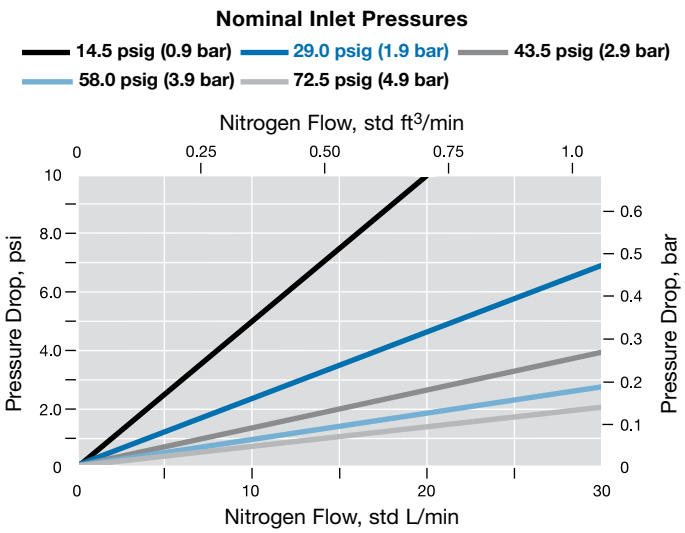
A scanning electron microscope image shows the two membrane layers of the filter element: ultrafine and fine (as shown from top to bottom).

Technical Data

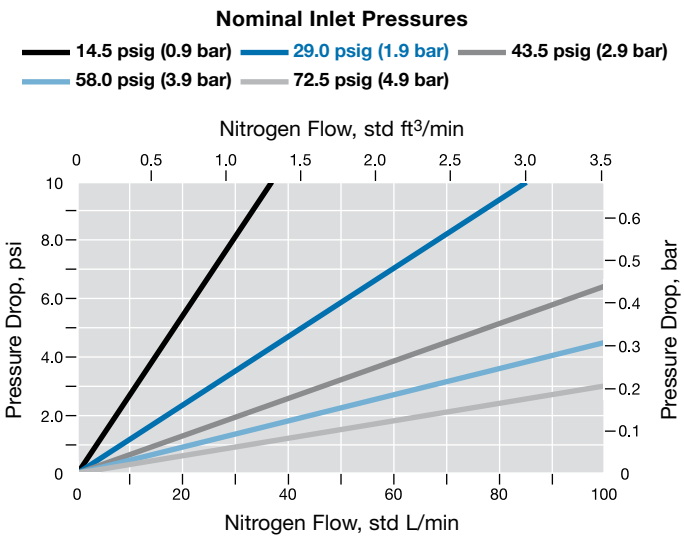
Maximum Flow Rate at Removal Rating std L/min (std ft³/min)	**Filtration Area** cm² (in.²)	**Pressure Rating at 37°C (100°F),** psig (bar)		**Temperature Rating** °C (°F)	**Removal Rating**	**Internal Surface Finish**
		Working	**Differential**			
30 (1.0)	10 (1.6)	3000 (206)	145 (10)	50 (122)	> 99.9999999 % at 0.003 µm	Electropolished and finished to a roughness average of 5 µin. (0.13 µm) R_a
225 (7.9)	20 (3.1)					
600 (21)	70 (11)					
900 (31)	150 (23)					
2700 (95)	450 (70)					

Flow Rate at Pressure Drop

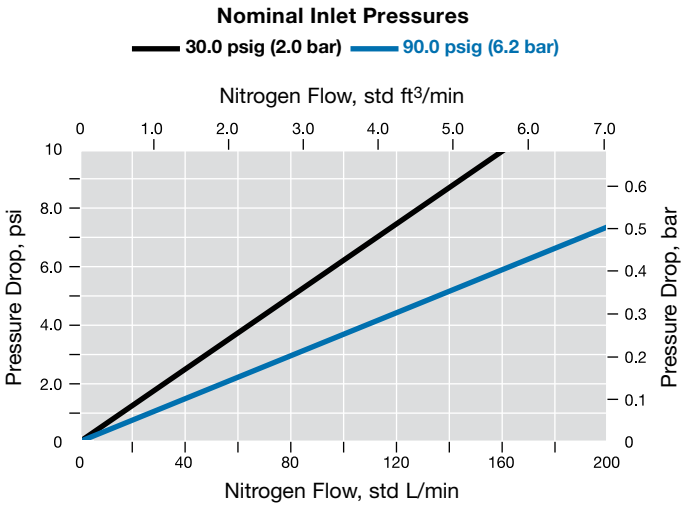
Maximum Flow Rate: 30 std L/min



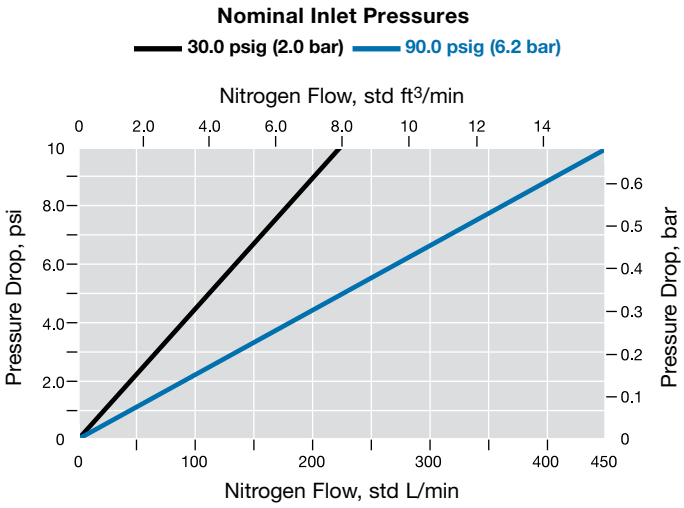
Maximum Flow Rate: 225 std L/min



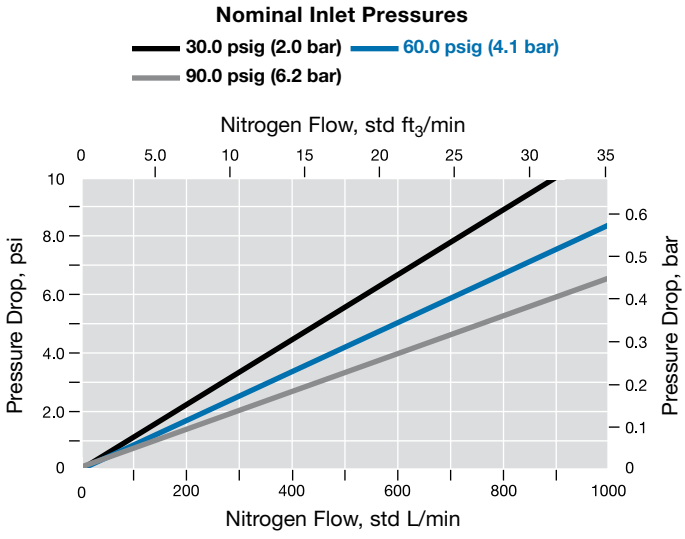
Maximum Flow Rate: 600 std L/min



Maximum Flow Rate: 900 std L/min



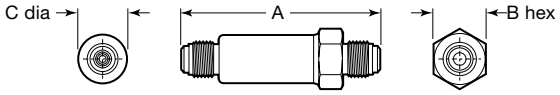
Maximum Flow Rate: 2700 std L/min



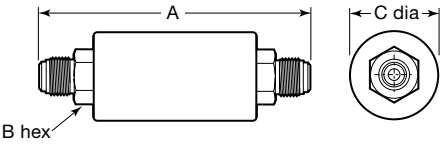
Ordering Information and Dimensions

Dimensions, in inches (millimeters), are for reference only and are subject to change.

3 in. (76.2 mm) Filters—30 and 225 std L/min



All Other Filters



Maximum Flow Rate std L/min	End Connection Inlet and Outlet	Ordering Number	Dimensions, in. (mm) A	B	C
3 in. (76.2 mm) Filters					
30	1/4 in. integral male VCR fitting	SS-SCF3-VR4-P-30	3.31 (84.1)	0.88 (22.4)	0.80 (20.3)
	1/4 in. integral male VCR fitting and 1/4 in. female VCR fitting	SS-SCF3-VR4FR4-P-30			
225	1/4 in. integral male VCR fitting	SS-SCF3-VR4-P-225		1.23 (31.2)	1.18 (30.0)
	1/4 in. integral male VCR fitting and 1/4 in. female VCR fitting	SS-SCF3-VR4FR4-P-225			
	1/2 in. integral male VCR fitting	SS-SCF3-VR8-P-225			
600	1/4 in. integral male VCR fitting	SS-SCF3-VR4-P-600		1.42 (36.1)	1.67 (42.4)
	1/2 in. integral male VCR fitting	SS-SCF3-VR8-P-600			
5 in. (127 mm) Filters					
900	1/4 in. integral male VCR fitting	SS-SCF5-VR4-P-900	5.00 (127)	0.93 (23.6)	1.67 (42.4)
	1/2 in. integral male VCR fitting	SS-SCF5-VR8-P-900			
11 in. (279 mm) Filters					
2700	1/2 in. integral male VCR fitting	SS-SCF11-VR8-P-2700	11.2 (284)	0.93 (23.6)	1.67 (42.4)
	3/4 in. integral male VCR fitting	SS-SCF11-VR12-P-2700		1.29 (32.8)	

Testing

Every SCF series filter is helium leak tested to a maximum leak rate of 9×10^{-9} std cm^3/s.

The SCF series filter design has been helium leak tested to a maximum leak rate of 2×10^{-10} std cm^3/s.

Cleaning and Packaging

Every SCF series filter is processed in accordance with Swagelok *Ultrahigh-Purity Process Specification (SC-01),* MS-06-61.

Safe Product Selection
When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

Caution: Do not mix or interchange parts with those of other manufacturers.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit swagelok.com or contact your authorized Swagelok representative.

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