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 High-Purity, 20 % minimum elongation allowed

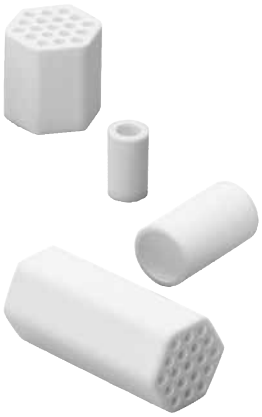
Membralox Ceramic Filtration Technology

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

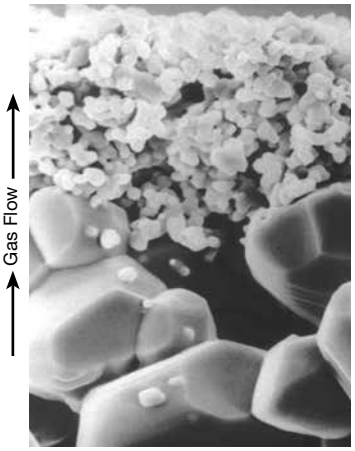
The Membralox ceramic element is an extruded multiflow channel block or tubular structure. The flow channels within the structure are coated with precisely controlled membrane layers. A final sintering process fuses the layers together.

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.



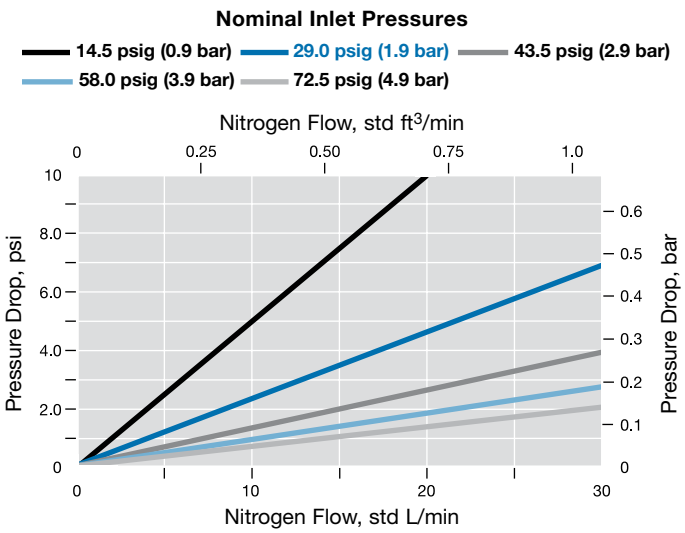
A scanning electron microscope image shows the two membrane layers of the filter element: ultrafine and fine (as shown from top to bottom).

Technical Data

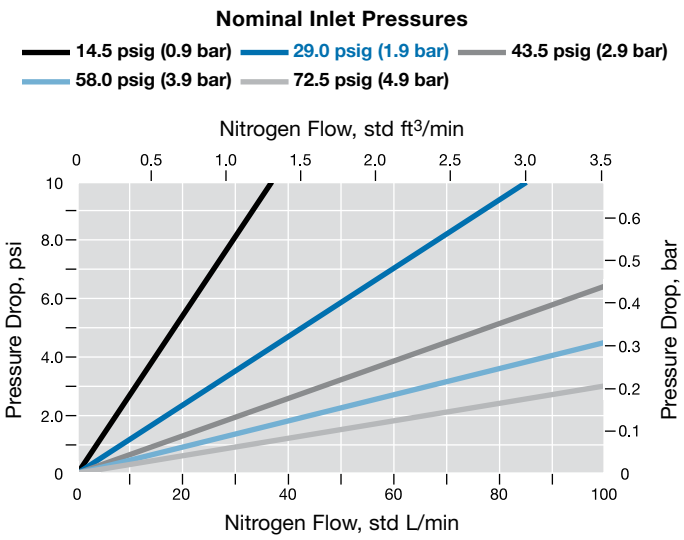
Maximum Flow Rate at Removal Rating std L/min (std ft³/min)	**Filtration Area** cm² (in.²)	**Pressure Rating at 37°C (100°F),** psig (bar)		**Temperature Rating** °C (°F)	**Removal Rating**	**Internal Surface Finish**
		Working	**Differential**			
30 (1.0)	10 (1.6)	3000 (206)	145 (10)	50 (122)	> 99.9999999 % 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

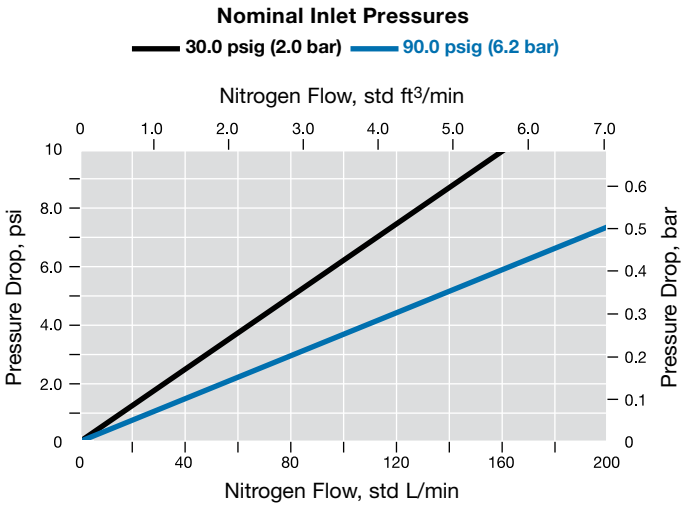
Maximum Flow Rate: 30 std L/min



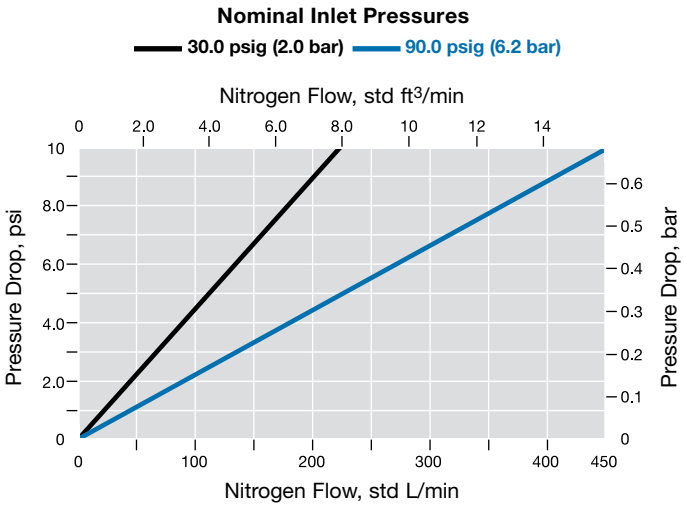
Maximum Flow Rate: 225 std L/min



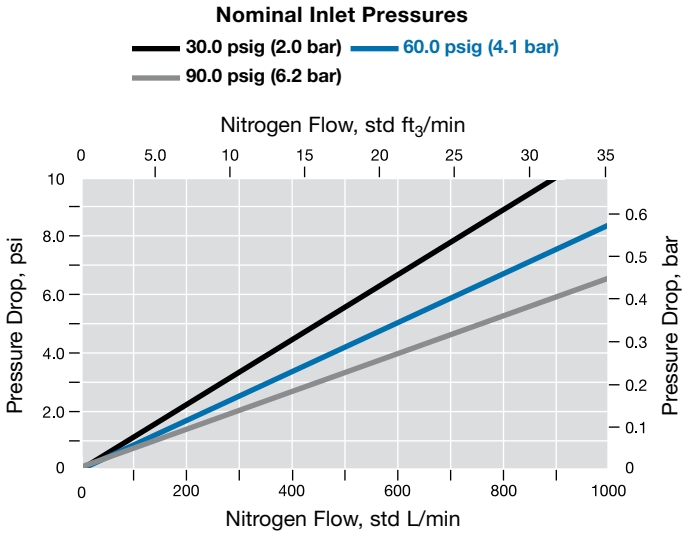
Maximum Flow Rate: 600 std L/min



Maximum Flow Rate: 900 std L/min



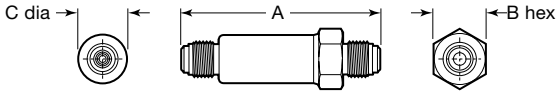
Maximum Flow Rate: 2700 std L/min



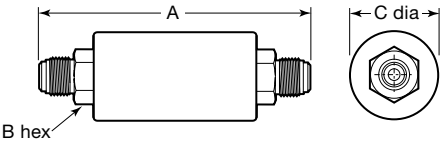
Ordering Information and Dimensions

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.

⚠ WARNING

Do not mix/interchange Swagelok products or components not governed by industrial design standards, including Swagelok tube fitting end connections, 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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