

Automatic Self-Cleaning Mini Filters/Strainers



The automatic back flushing SCM filter/strainer is a self-cleaning system for removing particles from low viscosity fluids. Its robust construction and automatic back flushing capability make a major contribution to operational reliability and reduce operating and maintenance costs. The slotted tube or SuperMesh filter elements with filtration rates from 25 to 1000 μm ensure highly effective separation of contaminating particles from the process medium.

Automatic cleaning starts as soon as the elements become contaminated. The flow of filtrate is not interrupted during the back flushing procedure. Two sizes allow flow rates from 10-60 gpm. The SCM is available as a fully automatic or purely manual version.

Numerous combinations of materials and equipment as well as individually adjustable control parameters allow optimum adaptation of the filter/strainer to any application.

OPERATION OF THE SCM

Filtration

The fluid to be filtered flows through the slotted-tube filter elements of the back flushing filter/strainer, passing from the inside to the outside. Contamination particles collect on the smooth inside of the filter elements. As the level of the collected contamination increases, the differential pressure between the contaminated and clean sides of the filter/strainer increases. When the differential pressure reaches its pre-set value, the back flushing cycle begins.

Triggering automatic back flushing

Back flushing is triggered automatically when the differential pressure set point is exceeded. As soon as back flushing has been triggered, the filter/strainer starts to clean the filter elements.

Triggering back flushing on manual version

When the differential pressure set point is reached, the visual clogging alarm indicates to an operator or maintenance personnel that a back flush cycle is needed.

Back flushing of the filter elements – back flushing cycle

The cycle begins with the element plate through turning 90°. This brings a clean filter element into filtration, and a contaminated filter element is positioned over the fixed flushing connection.

The back flush valve is opened.

The differential pressure between filtrate side and back flush line causes a small amount of the filtrate to reverse flow through the element to be cleaned. The contamination particles collected on the inside of the filter element are loosened and flushed into the back flush line via the flushing arm.

As soon as the “back flushing time per element” has elapsed, the back flushing valve is closed. The back flushing cycle is terminated when all the filter elements have been cleaned. On the SCM with manual back flushing, the element plate including filter elements, is turned and the back flushing valve is opened by hand.

Each filter element is cleaned successively in this manner.

SPECIAL FEATURES OF THE SCM

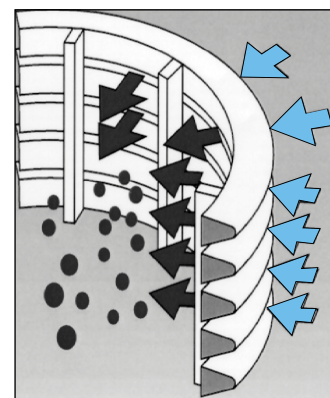
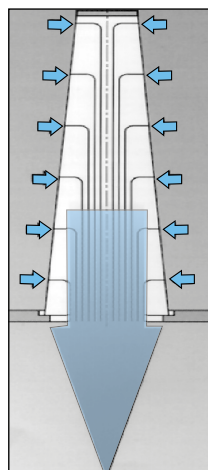
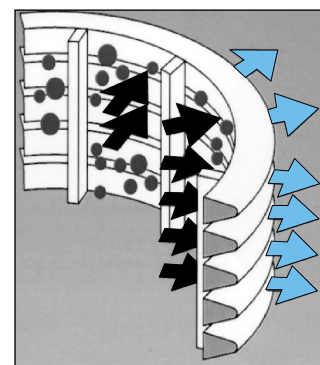
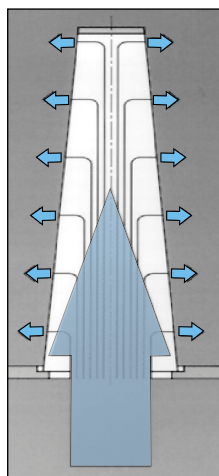
Isokinetic filtering and back flushing

The special conical shape and configuration of the filter elements allows for even flow, resulting in low pressure drop and complete cleaning of the elements. The advantage: fewer back flushing cycles and lower loss of back flushing fluid.

Pulse-aided back flushing

The filter element to be back flushed remains in the flushing position for only a few seconds. Rapid opening of the pneumatic back flushing valve generates a pressure surge in the openings of the filter elements that provides a pulse-aided cleaning effect to the back flushing process.

The back flush valve opens and closes during back flushing of each filter element, further minimizing the amount of filtrate needed to effectively clean the element.

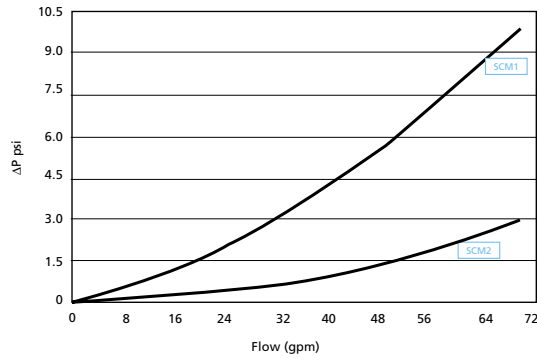


Water Applications

Fluid	Max. Flow Rate gpm (L/min)	
	SCM1	SCM2
Water	32 (120)	60 (220)

The flow rate ranges indicated apply to filtration ratings $\geq 100 \mu\text{m}$

Important
The pressure drop curves apply to water and other fluids up to a viscosity of 11 mm²/s.



Cooling Lubricant Applications

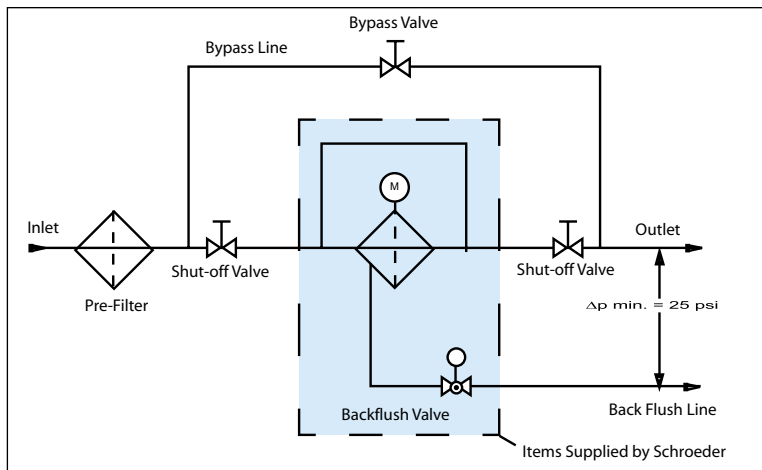
Machined Material	Type of Maching	Max. Flow Rate gpm (L/min)	
		SCM1	SCM2
Aluminum	Cutting	26 (100)	58 (220)
Cast Iron ¹	Cutting	18 (70)	48 (180)
Carbon Steel	Cutting	21 (80)	53 (200)
Stainless Steel	Cutting	21 (80)	53 (200)
Aluminium	Grinding	24 (90)	53 (200)
Cast Iron ¹	Grinding	13 (50)	37 (140)
Carbon Steel	Grinding	16 (60)	40 (150)
Stainless Steel	Grinding	16 (60)	40 (150)

¹Wire mesh is generally unsuitable for cast iron applications.

Installation Guidelines

- Minimum inlet pressure of 35 psi
- Maximum 2 psi clean pressure differential between inlet and outlet (with clean filter elements)
- Minimum 25 psi between the outlet and the back flush line (preferably the back flush line goes to atmospheric pressure or 0 psi)

System Installation Diagram



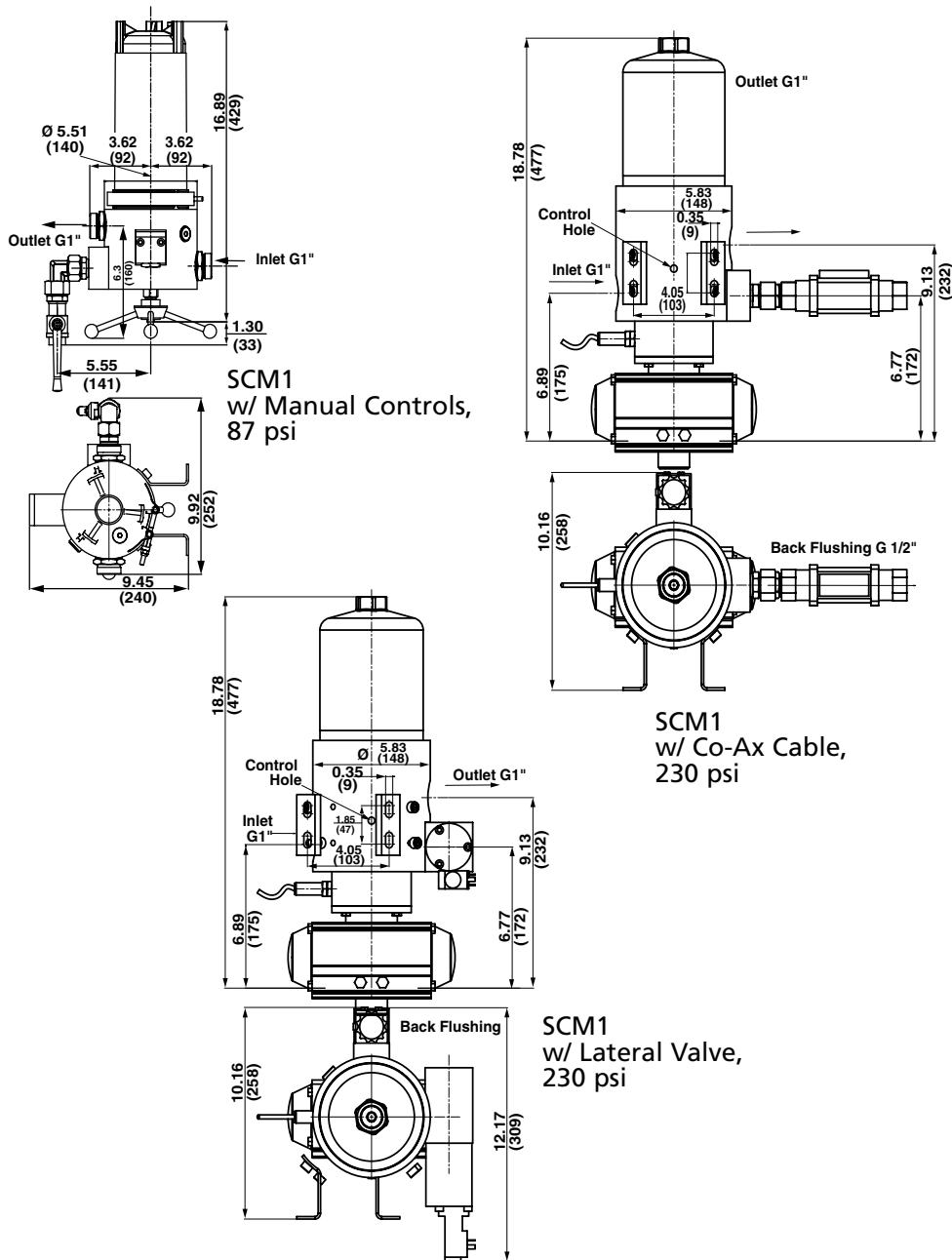
STEEL MAKING	PAPER INDUSTRY	SEWAGE AND WASTE WATER TREATMENT	MARINE	INDUSTRIAL	MACHINE TOOL	AUTOMOTIVE MANUFACTURING	THERMAL TRANSFER

Industries Served

Automatic Self-Cleaning Mini Filters/Strainers

SCM1

32 gpm
120 L/min



NOTES:

1. Metric dimensions in ().
2. Drawings may change without notice. Contact Factory for certified drawings.

Specifications

Process Connection:	G1" Female
Max. Flow:	32 gpm (120 L/min)
Max. Working Pressure:	87 psi (6 bar) or 230 psi (16 bar)
Max. Working Temperature:	194°F (90°C)
Weight:	29 lbs. (13 kg) or 33 lbs. (15 kg)
Housing Volume:	0.66 gallons (2.5 L)
Filter Area:	85 in. ² (548 cm ²)
No. of Filter Elements:	4
Back Flush Connection:	G½" Female
Back Flush Volume:	1.1 gallons (4 L/cycle)

Automatic Self-Cleaning Mini Filters/Strainers

SC02

How to Build a Valid Model Number for a Schroeder SCM:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
SCM	1									

Example: NOTE: One option per box

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
SCM	1	0	AP	M	0	0	0	1C	X	0

= **SCM10APM0001CX0**

Filter Model Number Selection

SC04

SC06

SC08

SC10

SC12

SC16

SC20

SC24

SC28

SC36

SCM1

SCM2

BWF

CBF1

CBF2

CBF4

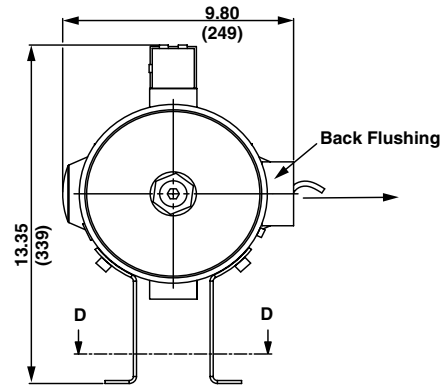
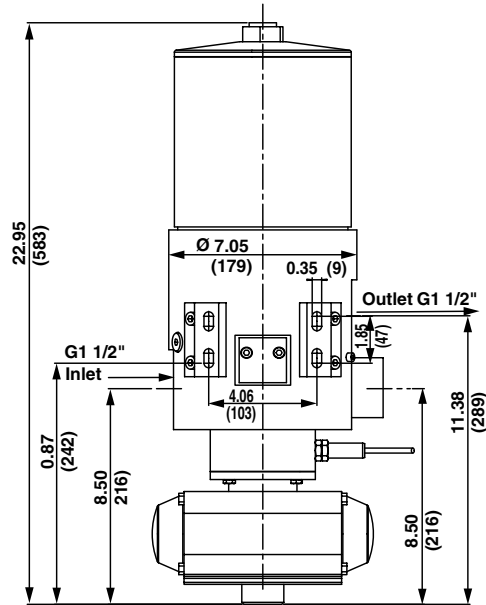
<p>BOX 1</p> <p>Filter Series</p> <p>SCM</p>	<p>BOX 2</p> <p>Flange Size</p> <p>1 = G1"</p>	<p>BOX 3</p> <p>Working Pressure</p> <p>0 = 87 psi (6 bar) 1 = 230 psi (16 bar)</p>	<p>BOX 4</p> <p>Material</p> <p>AP = aluminum bottom, Polyamid top AA = aluminum bottom, aluminum top EE = stainless steel bottom, stainless steel top</p>	<p>BOX 5</p> <p>Control Type</p> <p>A = electric/pneumatic M = manual</p>
<p>BOX 6</p> <p>Power Supply</p> <p>0 = manual controls 1 = 230 VAC control voltage and solenoid valve 2 = 24 VDC control voltage and solenoid valve 3 = 230 VAC solenoid valve, no control voltage 4 = 24 VDC solenoid valve, no control voltage A = 24 VDC control voltage, 240 VAC @ 50 Hz drive voltage (electric controls only) B = 24 VDC control voltage, 115 VAC @ 60 Hz drive voltage (electric controls only)</p>	<p>BOX 7</p> <p>Back Flush Valve</p> <p>0 = manual back flush valve 1 = co-ax cable controlled valve L = lateral valve (electric/pneumatic only) C = carbon steel ball valve (manual controls only) S = stainless steel ball valve (manual controls only)</p>	<p>BOX 8</p> <p>Differential Pressure Control</p> <p>0 = no DP control (manual) 1 = fixed set point 2 = adjustable set point</p>	<p>BOX 9</p> <p>Element Micron Rating</p> <p>25 = 25 micron super mesh 40 = 40 micron super mesh 50 = 50 micron slotted tube 60 = 60 micron super mesh 1C = 100 micron slotted tube 1L = 150 micron slotted tube 2C = 200 micron slotted tube 3C = 300 micron slotted tube 4C = 400 micron slotted tube 5C = 500 micron slotted tube 1K = 1000 micron slotted tube</p>	
<p>BOX 10</p> <p>Element Coating</p> <p>X = no coating C = super flush</p>	<p>BOX 11</p> <p>Documentation</p> <p>0 = no documentation required F = functional test M = material certification</p>			

*Shaded selections are preferred order codes that designate shorter lead times.

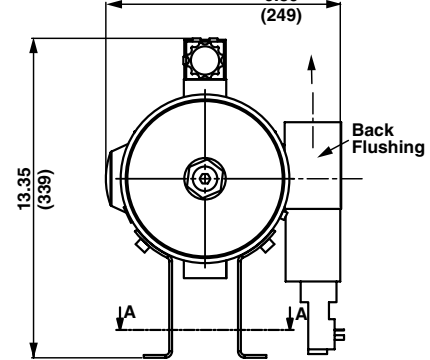
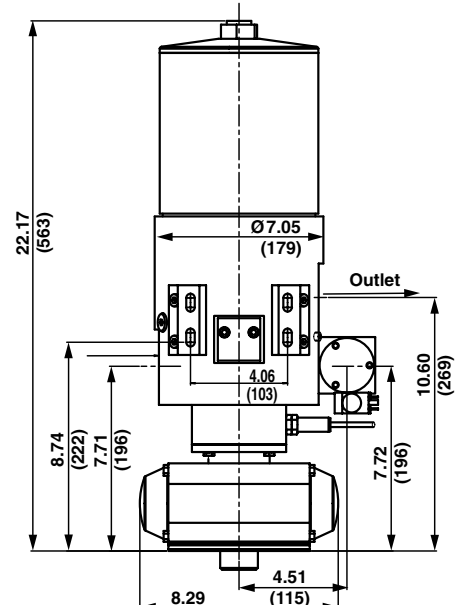
Automatic Self-Cleaning Mini Filters/Strainers

SCM2

60 gpm
220 L/min



SCM2
w/ Co-Ax Cable,
230 psi



SCM2
w/ Lateral Valve,
230 psi

NOTES:

1. Metric dimensions in ().
2. Drawings may change without notice. Contact Factory for certified drawings.

Specifications

Process Connection:	G1½" Female
Max. Flow:	60 gpm (220 L/min)
Max. Working Pressure:	87 psi (6 bar) or 230 psi (16 bar)
Max. Working Temperature:	194°F (90°C)
Weight:	71 lbs. (32 kg) or 140 lbs. (63 kg)
Housing Volume:	1.0 gallons (3.7 L)
Filter Area:	220 in. ² (1420 cm ²)
No. of Filter Elements:	4
Back Flush Connection:	G¾" Female
Back Flush Volume:	3.4 gallons (13 L/cycle)

Automatic Self-Cleaning Mini Filters/Strainers

SC02

How to Build a Valid Model Number for a Schroeder SCM:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
SCM	2			A						

Example: NOTE: One option per box

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
SCM	2	1	NN	A	2	1	1	1C	X	0

= **SCM21NNA2111CX0**

Filter Model Number Selection

SC04

SC06

SC08

SC10

SC12

SC16

SC20

SC24

SC28

SC36

SCM1

SCM2

BWF

CBF1

CBF2

CBF4

<p>BOX 1</p> <p>Filter Series</p> <p>SCM</p>	<p>BOX 2</p> <p>Flange Size</p> <p>2=G1½"</p>	<p>BOX 3</p> <p>Working Pressure</p> <p>0 = 87 psi (6 bar) 1 = 230 psi (16 bar)</p>	<p>BOX 4</p> <p>Material</p> <p>AE = aluminum bottom, stainless steel top (87 psi only)</p> <p>NN = carbon steel bottom, carbon steel top (230 psi only)</p> <p>EE = stainless steel bottom, stainless steel top (230 psi only)</p>	<p>BOX 5</p> <p>Control Type</p> <p>A = electric/pneumatic E = electric</p>
<p>BOX 6</p> <p>Power Supply</p> <p>1 = 230 VAC control voltage and solenoid valve</p> <p>2 = 24 VDC control voltage and solenoid valve</p> <p>3 = 230 VAC solenoid valve, no control voltage</p> <p>4 = 24 VDC solenoid valve, no control voltage</p>	<p>BOX 7</p> <p>Back Flush Valve</p> <p>1 = co-ax cable controlled valve</p> <p>L = lateral valve</p>	<p>BOX 8</p> <p>Differential Pressure Control</p> <p>1 = fixed set point</p> <p>2 = adjustable set point</p>	<p>BOX 9</p> <p>Element Micron Rating</p> <p>25 = 25 micron super mesh</p> <p>40 = 40 micron super mesh</p> <p>50 = 50 micron slotted tube</p> <p>60 = 60 micron super mesh</p> <p>1C = 100 micron slotted tube</p> <p>1L = 150 micron slotted tube</p> <p>2C = 200 micron slotted tube</p> <p>3C = 300 micron slotted tube</p> <p>4C = 400 micron slotted tube</p> <p>5C = 500 micron slotted tube</p> <p>1K = 1000 micron slotted tube</p>	
<p>BOX 10</p> <p>Element Coating</p> <p>X = no coating</p> <p>C = super flush</p>	<p>BOX 11</p> <p>Documentation</p> <p>0 = no documentation required</p> <p>F = functional test</p> <p>M = material certification</p>			

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