Description
Fine screens are used to protect orifices and other critical components from the occasional particles that enter the fluid during installation or otherwise. They are not intended to replace normal filtration equipment, but rather to augment the protection of critical components in fluid control systems.

Four sizes of screen particle retention are offered: 10, 15, 25 and 100 microns. The stainless steel wire screens do not introduce loose particles into the fluid stream. The screens are thoroughly cleaned to prevent inadvertent introduction of contaminants.

Applications
In-line screens are suitable for use with liquids or gases compatible with the materials of construction. The screens protect critical components such as orifices from clogging or reducing flow rate.

Applications for in-line screens include protection of:
- Precision Orifices
- Pneumatic Transducers
- Gas and Liquid Flow Instruments
- Medical Devices
- Filling and Purging Systems
- Pneumatic Timers
- Transmitters
- Pneumatic Transmission Lines
- Hydraulic Controls
- Leak Test Equipment
- Flow Measurement Devices

Features
The in-line screen products are all metal; the screen material is made from fine stainless steel wire.
- Particle retention size as small as 10 microns
- Miniature fittings and screens
- Clean assemblies
- No loose fibers or particles
- Long life screen material
- Well defined flow characteristics
- Compatible with standard 10-32 and NPT fittings

General Specifications
Body Materials
- Brass or 303 SS
- Viton Seal on Type FMS
Screen Material
- 304 SS
Maximum Operating Pressure
- Brass (NPT) – 2000 psig
- 304 SS (NPT) – 4000 psig
- 10-32 Threads – 100 psig
Maximum Pressure Differential Across Screen (MOPD)
- 100 psid
Flow
- See C, in chart on page 39
Fluids
- Use with liquids or gases compatible with materials of construction
Dimensions
- See drawings on page 39
Screen Ratings
See chart below

Part Numbers
The part number consists of Type, Screen Size Number, and Body Material.

EXAMPLES

<table>
<thead>
<tr>
<th>Type</th>
<th>Screen Size Number</th>
<th>Body Material</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMS</td>
<td>2 (15 micron)</td>
<td>SS</td>
<td>FMS-2-SS</td>
</tr>
<tr>
<td>DSO</td>
<td>20 (100 micron)</td>
<td>SS</td>
<td>DSO-20-SS</td>
</tr>
<tr>
<td>SLR4</td>
<td>5 (25 micron)</td>
<td>SS</td>
<td>SLR4-5-SS</td>
</tr>
<tr>
<td>ESO</td>
<td>1 (10 micron)</td>
<td>Brass</td>
<td>ESO-1-BR</td>
</tr>
</tbody>
</table>

Screen Filter Ratings

<table>
<thead>
<tr>
<th>Particle Retention Micron</th>
<th>Screen Size Inch</th>
<th>Screen Size Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>.0004</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>.0006</td>
<td>2</td>
</tr>
<tr>
<td>25</td>
<td>.0010</td>
<td>5</td>
</tr>
<tr>
<td>100</td>
<td>.0040</td>
<td>20</td>
</tr>
</tbody>
</table>
Miniature In-Line Screens

SS WIRE SCREENS

Dimensions

Type FFS

Type FMS

Type DSO GSO

Type BSO ESO

Type SLR4

Specifications

COUPLER

Threads – 10-32 UNF
Body – Brass or 303 SS
Screen – 304 SS
Maximum Operating Pressure – 100 psig
MOPD\(^2\) – 100 psid
\(C_v\) – See chart at bottom of page

ADAPTER

Threads – 10-32 UNF
Body – Brass or 303 SS
Seal – Viton
Screen – 304 SS
Maximum Operating Pressure – 100 psig
MOPD\(^2\) – 100 psid
\(C_v\) – See chart at bottom of page

ADAPTER

Threads – See chart at left
Body – Brass or 303 SS
Screen – 304 SS
Maximum Operating Pressure – Brass – 2000 psig 303 SS – 4000 psig
MOPD\(^2\) – 100 psid
\(C_v\) – See chart at bottom of page

NIPPLE

Threads – See chart at left
Body – Brass or 303 SS
Screen – 304 SS
Maximum Operating Pressure – Brass – 2000 psig 303 SS – 4000 psig
MOPD\(^2\) – 100 psid
\(C_v\) – See chart at bottom of page

TUBE CONNECTOR

1/4" OD Tubing

Body – 316 SS
Screen – 304 SS
Maximum Operating Pressure – 4000 psig
MOPD\(^2\) – 100 psid
\(C_v\) – See chart at bottom of page

Recommended Screen/Orifice Sizing

Chart Shows Maximum Orifice Diameter (Inch)\(^2\)

<table>
<thead>
<tr>
<th>Screen Size No.</th>
<th>Particle Retention Micron</th>
<th>Inch</th>
<th>Gas Flow MOD(^a)</th>
<th>Liquid Flow MOD(^a)</th>
<th>Screen Cv</th>
<th>Gas Flow MOD(^a)</th>
<th>Liquid Flow MOD(^a)</th>
<th>Screen Cv</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>.0004</td>
<td>.0064</td>
<td>**</td>
<td>.009</td>
<td>.011</td>
<td>**</td>
<td>.028</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>.0006</td>
<td>.0105</td>
<td>**</td>
<td>.025</td>
<td>.018</td>
<td>**</td>
<td>.068</td>
</tr>
<tr>
<td>5</td>
<td>25</td>
<td>.0010</td>
<td>.0165</td>
<td>**</td>
<td>.055</td>
<td>.028</td>
<td>**</td>
<td>.180</td>
</tr>
<tr>
<td>20</td>
<td>100</td>
<td>.0040</td>
<td>.0195</td>
<td>.0195</td>
<td>.090</td>
<td>.033</td>
<td>.033</td>
<td>.250</td>
</tr>
</tbody>
</table>

\(1\) When used with precision orifices, it is important that the screen not have a major influence on the flow through the orifice. The recommended maximum orifice when used with a screen will have less than 1% change in the orifice flow.

\(2\) MOD – Maximum Orifice Diameter (inch)

\(3\) Do not use this screen for liquid flow.

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**Miniature In-Line Screens**

**SS WIRE INSERTS**

**Type XS**

**Construction**

**PLAIN SCREEN**

<table>
<thead>
<tr>
<th>Type</th>
<th>D</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>XSA</td>
<td>.211&quot;</td>
<td>.005&quot;/.010&quot;</td>
</tr>
<tr>
<td>XSB</td>
<td>.254&quot;</td>
<td>.005&quot;/.010&quot;</td>
</tr>
<tr>
<td>XSC</td>
<td>.312&quot;</td>
<td>.005&quot;/.010&quot;</td>
</tr>
<tr>
<td>XSD</td>
<td>.165&quot;</td>
<td>.005&quot;/.010&quot;</td>
</tr>
</tbody>
</table>

**Dimensions**

**Type SS**

**BOUND SCREEN**

<table>
<thead>
<tr>
<th>Type</th>
<th>D</th>
<th>W</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSB</td>
<td>.254&quot;</td>
<td>.030&quot;</td>
<td>.15&quot;</td>
</tr>
<tr>
<td>SSC</td>
<td>.312&quot;</td>
<td>.030&quot;</td>
<td>.22&quot;</td>
</tr>
</tbody>
</table>

**Type PF**

**SCREEN SLEEVE**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>L</th>
<th>D1</th>
<th>D4</th>
<th>Press Fit Bore</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFA-SS</td>
<td>.188&quot;</td>
<td>.222&quot;</td>
<td>.156&quot;</td>
<td>.219/220&quot;</td>
</tr>
<tr>
<td>PFC-SS</td>
<td>.188&quot;</td>
<td>.323&quot;</td>
<td>.250&quot;</td>
<td>.320/321&quot;</td>
</tr>
</tbody>
</table>

**Installation Methods**

To install a press fit sleeve for securing a screen in position, it is good practice to have the shoulder diameter \( D_2 \) less than 70% of the press fit diameter \( D_1 \). The inner diameter of the sleeve should also be less than 70% of \( D_1 \).

To install a screen where \( D_2 \) is greater than 70% of diameter \( D_1 \), first install a washer in which the inner diameter \( D_3 \) is less than 70% of \( D_1 \) and then secure the screen with a sleeve which has an inner diameter that is less than 70% of \( D_1 \).

**Specifications**

**Screen Material** – 304 SS

**Screen Construction** – Wire Mesh

**Maximum Operating Pressure**

- Differential Across Screen – 100 psid
- Fluid Media – Air, Water, Gases and Liquids compatible with 304 SS

**Sleeve Material** – 303 SS

**Screen Micron Rating**

<table>
<thead>
<tr>
<th>Micron</th>
<th>Designation</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>.0004</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>.0006</td>
<td>2</td>
</tr>
<tr>
<td>25</td>
<td>.0010</td>
<td>5</td>
</tr>
<tr>
<td>100</td>
<td>.0040</td>
<td>20</td>
</tr>
</tbody>
</table>

**Part Numbers**

**Screens** – Screen part numbers consist of type and micron designation.

**EXAMPLES**

<table>
<thead>
<tr>
<th>Type</th>
<th>Micron Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>XSC</td>
<td>2 (15 micron)</td>
</tr>
<tr>
<td>SSB</td>
<td>20 (100 micron)</td>
</tr>
</tbody>
</table>

**Sleeves** – Part numbers for sleeves are listed above for Type PF.
## Description

Fine screen breathers provide an air passage into equipment, enclosures, and pneumatic controls while preventing the ingestion of solid particles. Miniature fine screen breathers are rated at 10, 15, 25 or 100 microns and are available in either brass or stainless steel fittings. Connection sizes are 10-32, 1/8" or 1/4" NPT.

## Applications

The fine screen breathers are used where there is a requirement to insure that only clean fluid enters into a component or system. Typical applications include:

- Equipment enclosures
- Vented control components
- Small 3- or 4-way valves
- Small 2-way vacuum valves
- Air purge equipment
- EMI or RFI shield

## Specifications

- **Materials**
  - Body – Brass or 303 SS
  - Screen – 304 SS
  - Seals – Viton (10-32 only)
- **Maximum Operating Pressure**
  - Brass (NPT) – 2000 psig
  - 303 SS (NPT) – 4000 psig
  - 10-32 threads – 100 psig
- **Maximum Pressure Differential Across Screen**
  - 100 psid
- **Flow**
  - See C_v data in chart at right.
- **Fluids**
  - Use with liquids or gases compatible with materials of construction.
- **Dimensions**
  - See drawings this page.

## Ordering Information

- Select the part number from the chart at right.
- Indicate quantity and part number on order.

## Part Numbers – Breathers

<table>
<thead>
<tr>
<th>Filter Rating (Microns)</th>
<th>Connection Size</th>
<th>Part Number Brass</th>
<th>Part Number Stainless Steel</th>
<th>Flow C_v</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10-32</td>
<td>QSB-1-BR</td>
<td>QSB-1-SS</td>
<td>.009</td>
</tr>
<tr>
<td>15</td>
<td>10-32</td>
<td>QSB-2-BR</td>
<td>QSB-2-SS</td>
<td>.025</td>
</tr>
<tr>
<td>25</td>
<td>10-32</td>
<td>QSB-5-BR</td>
<td>QSB-5-SS</td>
<td>.055</td>
</tr>
<tr>
<td>100</td>
<td>10-32</td>
<td>QSB-20-BR</td>
<td>QSB-20-SS</td>
<td>.090</td>
</tr>
<tr>
<td>10</td>
<td>1/8&quot; NPT</td>
<td>BMB-1-BR</td>
<td>BMB-1-SS</td>
<td>.009</td>
</tr>
<tr>
<td>15</td>
<td>1/8&quot; NPT</td>
<td>BMB-2-BR</td>
<td>BMB-2-SS</td>
<td>.025</td>
</tr>
<tr>
<td>25</td>
<td>1/8&quot; NPT</td>
<td>BMB-5-BR</td>
<td>BMB-5-SS</td>
<td>.055</td>
</tr>
<tr>
<td>100</td>
<td>1/8&quot; NPT</td>
<td>BMB-20-BR</td>
<td>BMB-20-SS</td>
<td>.090</td>
</tr>
<tr>
<td>10</td>
<td>1/4&quot; NPT</td>
<td>EMB-1-BR</td>
<td>EMB-1-SS</td>
<td>.028</td>
</tr>
<tr>
<td>15</td>
<td>1/4&quot; NPT</td>
<td>EMB-2-BR</td>
<td>EMB-2-SS</td>
<td>.068</td>
</tr>
<tr>
<td>25</td>
<td>1/4&quot; NPT</td>
<td>EMB-5-BR</td>
<td>EMB-5-SS</td>
<td>.180</td>
</tr>
<tr>
<td>100</td>
<td>1/4&quot; NPT</td>
<td>EMB-20-BR</td>
<td>EMB-20-SS</td>
<td>.250</td>
</tr>
</tbody>
</table>