**Small Flow Gas Coalescing Assembly**

**Description**
Small Flow Gas (SFG) Coalescing Assemblies are rugged, inexpensive, high efficiency assemblies that eliminate problems caused by oil, water, and dirt in air or gas.

**Performance Specifications**
- Removal of 99.99% of all aerosols 0.3 microns and larger. Typical downstream aerosol concentrations are less than 0.003 ppm.
- Patented surface treatment that prevents liquids from wetting the coalescer media allowing for higher gas flow capacity and lowered fouling tendency and differential pressure.
- Consistent performance using thin fibers and fixed pore construction optimized for efficient coalescing.
- Long service life due to pleated media structure and surface treatment.
- Low energy losses with typical saturated pressure drop of 1.2 psid (82.7 mbard).
- Wide range of compatibility for use with process gases, compressor oils, hydrocarbon condensates, and water.

**SFG Coalescer Features**
- Positive Seal: Standard seal material is Nitrile (H13) available as either an internal o-ring or flat gasket depending on coalescer size.
- Outer Drainage Layer: Drainage of coalesced liquid and protection from re-entrainment is provided by a polymeric outer drainage layer. This ensures consistent, high efficiency performance.
- Metal Support Core: Axial strength and protection against liquid slugs are provided by a perforated inner support core constructed of 304 stainless steel.
- Outer Cage: Media support during operation is provided by a 304 stainless steel outer support cage.
- Primary Coalescer: Coalescing is achieved by use of a high area pleated glass fiber medium that is surrounded by a non-woven polymeric support and drainage layers. A patented surface treatment is used that enhances coalescer performance and lowers fouling tendency and pressure drop.
- End Caps: 304 stainless steel end caps are used to improve cartridge strength and prevent contaminant bypass.
Key Benefits

- Protects process analyzers
- Safeguards instrument air operated equipment and systems
- Prevents orifice plugging in pneumatic controllers
- Improves accuracy of gas measurements in the field or plant
- Decreases freeze-out and corrosion problems
- Reduces fouling in small gas-driven engines
- Provides reproducible high-quality gas for all operations using produced gas

SFG Coalescer Element Specifications

<table>
<thead>
<tr>
<th>Coalescer Part Number</th>
<th>PFS4463ZMH13</th>
<th>PFS1001ZMH13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coalescing Efficiency at 0.3 µm</td>
<td>99.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Rated Flow Air @ 100 psig (6.9 bard) and 100°F (38°C)</td>
<td>60 scfm (8.3 acfm)</td>
<td>200 scfm (27.6 acfm)</td>
</tr>
<tr>
<td>Effective Coalescer Area</td>
<td>0.84 ft² (0.078 m²)</td>
<td>2.2 ft² (0.204 m²)</td>
</tr>
<tr>
<td>Clean Saturated Pressure Drop</td>
<td>0.53 psid (36.54 mbard)</td>
<td>1.5 psid (103.4 mbard)</td>
</tr>
<tr>
<td>Maximum Temperature (water present)</td>
<td>140°F (60°C)</td>
<td>140°F (60°C)</td>
</tr>
<tr>
<td>Maximum Temperature (no water)</td>
<td>250°F (121°C)</td>
<td>250°F (121°C)</td>
</tr>
<tr>
<td>Maximum Differential Pressure¹</td>
<td>50 psid (3.4 bard)</td>
<td>50 psid (3.4 bard)</td>
</tr>
<tr>
<td>Dimensions:</td>
<td>2¾ in O.D. x 5¼ in (57.2 mm O.D. x 133.4 mm)</td>
<td>2¾ in O.D. x 9¾ in (69.9 mm O.D. x 247.7 mm)</td>
</tr>
<tr>
<td>Sealing Mechanism</td>
<td>Single open-ended with internal o-ring</td>
<td>Double open-ended with gaskets / tie rod</td>
</tr>
</tbody>
</table>

¹ Standard seal material is Nitrile (H13). Fluorocarbon Elastomer (H) and Ethylene Propylene (J) are also available for optimum fluid compatibility.

² A change out differential pressure of 15 psid is recommended to ensure efficient operation.

SFG Coalescer Housing Specifications

<table>
<thead>
<tr>
<th>SFG Housing Part Number</th>
<th>Housing Material of Construction</th>
<th>Replacement Cartridge</th>
<th>Design Pressure (psi/bar)</th>
<th>Number of Cartridges</th>
<th>Weight (lb/kg) Dry</th>
<th>Weight (lb/kg) Wet</th>
<th>Connection &amp; Drain Sizes (NPT) (in/mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDS4463GN80MFH13</td>
<td>316 SS</td>
<td>PFS4463ZMH13</td>
<td>150/10.3</td>
<td>1</td>
<td>3.6/1.7</td>
<td>5.7/2.6</td>
<td>0.5/12.7</td>
</tr>
<tr>
<td>MDS4463G3455</td>
<td>316 SS</td>
<td>PFS4463ZMH13</td>
<td>400/27.6</td>
<td>1</td>
<td>15.0/6.8</td>
<td>22.0/10.0</td>
<td>0.5/12.7</td>
</tr>
<tr>
<td>CCL4001G160H13</td>
<td>316 SS</td>
<td>PFS1001ZMH13</td>
<td>400/27.6</td>
<td>1</td>
<td>7.0/3.2</td>
<td>13.0/5.9</td>
<td>1.0/25.4</td>
</tr>
<tr>
<td>MEN9001G240H</td>
<td>Nickel Plated Carbon Steel</td>
<td>PFS1001ZMH13</td>
<td>4000/275.8</td>
<td>1</td>
<td>26.0/11.8</td>
<td>32.0/14.5</td>
<td>1.5/38.1</td>
</tr>
</tbody>
</table>
To calculate the pressure drop for other process conditions use the following equation:

\[ \Delta P = K_H Q_A \rho + K_C Q_A \mu \]

where:
- \( \Delta P \): pressure drop in psid
- \( K_H \): housing pressure drop constant
- \( Q_A \): actual flow rate in acfm
- \( \rho \): gas density at operating conditions in lb/ft³
- \( K_C \): coalescer pressure drop constant
- \( \mu \): gas viscosity at operating conditions in cP

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