1. Introduction

ProGuard tubular filters provide a reusable permanent filter element, which eliminates the need to replace dirty, expended filters, as well as eliminating the need to dispose of dirty cartridges or bags. These filters are used in a variety of pulp & paper and other industrial applications.

In certain batch operations, or in low flow continuous operations, manually cleaned filters may be the most economical filter solutions. Reusable elements become important when considering EPA issues and the cost of disposable media. Another important benefit of tubular filters is that they can be backflushed and drained, thus helping operators avoid contact with hot or caustic fluids.

The ProGuard 1000 series manual filter designates the 3-1/2" O.D. filter with either 1" or 1-1/2" connections. The ProGuard 2000 series manual filter is 4-1/2" O.D. with 2" connections. Both are 316 stainless steel construction and have safe, self-venting, quick-operating vessel closures.

When your process flow requires continual operation, it can often be a problem to change or clean a dirty filter element. A good option to by-passing the filter is to duplex two single filter tubes into one filtration system. The creation of a duplexed system allows one filter tube to be on-line and one filter tube to be off-line in a standby mode. When the on-line filter tube becomes dirty, the operator can simply open the valves to the clean standby filter tube and close the valves to the dirty filter tube. This design eliminates any interruption of the process or by-pass of a critical filter system.

Features

- Single filter or duplexed assembly
- Operating pressures to 350 psi
- 316 stainless steel construction
- Quick opening, self venting, vessel closure (fast & safe)
- Fast removal of filter elements
- Reusable filter media, from 10 mesh to one micron
- Built to ASME code design standards
2. Dimensional Information

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Model Number</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Housing O.D.</th>
<th>Inlet/Outlet Size</th>
<th>Single Element Surface Area</th>
<th>Duplex Element Surface Area</th>
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<tbody>
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<td>1002MS1A1NN</td>
<td>15</td>
<td>22</td>
<td>26.5</td>
<td>7</td>
<td>3.5</td>
<td>1&quot; FNPT</td>
<td>2.25 x 12</td>
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<tr>
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<td>28</td>
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<td>7</td>
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<tr>
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<td>1002MS1C1NN</td>
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<td>4.5</td>
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<tr>
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<td>58.5</td>
<td>7.5</td>
<td>4.5</td>
<td>2&quot; FNPT</td>
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<td>409 in²</td>
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</table>

Dimensions are in inches unless otherwise noted. Due to our continuing program of product improvement, specifications are for reference only and subject to change without notice. Dimensions not intended for piping specifications.

NOTES:

- **E** = Pressure taps 1/4 inch FNPT
- **F** = 6 inches
- **G** = Drain 1/2 inch FNPT
- **H** = Valve (4 each, on Duplex unit only)

3. Typical Applications

**Pulp & Paper Applications:**

**Retention Aids** - This is usually a polymeric compound, added to the pulp stock as a bonding agent. It can agglomerate and cause a quality problem in the paper sheet during the forming process. A duplexed ProGuard 2000 Series filter with 100 mesh wire screen elements is a great solution in these applications.

**Sizing Starch** - Wet end sizing starch is also a pulp stock additive, used to make the sheet stronger during forming. Dirty starch, poorly cooked starch, or agglomerations can cause a quality problem on the sheet. Depending on the flow, a 60-100 mesh wire or slotted media in a duplexed filter is the best solution here.

**Alum** - This additive is primarily for pH control. Because Alum can precipitate or crystallize during flow through piping, it is best to filter this additive with a tubular filter. Alum is normally very low flow, so the ProGuard 1000 Series unit, with a 100 mesh screen works best. There are many other applications, such as D1 water, boiler feed water, dye, trim squirt and shower nozzle protection on the paper machine where manual ProGuard filters can be used to raise the quality of the paper product or to prevent the fouling of equipment.

**Other Industrial Applications:**

Anytime liquid is treated, heated, refrigerated, or simply under pressure in the industrial process, there may be the need for a tubular filter to remove suspended solids. Solids can build cake on the inside of pipes, on the outside of coils and heat exchangers. Solids can also contaminate liquids used to make chemicals, products for human consumption, or just plain wash water. ProGuard filters do a very effective job taking solids out of liquids in a variety of industrial applications. Call us for your specific filtration application.

MAHLE Industrial Filtration USA, Inc.
428 N. Elm, PO. Box 678, Nowata, OK 74048 USA
Phone +1 (800) 259-2204, Fax +1 (918) 273-2101
industrialfiltration@us.mahle.com, www.mahle-industrialfiltration.com 10/2011