

# FILTER ELEMENT – VSF

## Series: SPF & SF Series

(Particulate + Bacteria removal + Sterile)

### DESCRIPTION

VSF filter elements have been developed for high-efficient sterile filtration of compressed air, process air and technical gasses. Depth filter media made of borosilicate glass microfibers assures high-efficient removal of sub-micron particles down to 0,01µm including microorganisms (bacteria). Filter media supported with NOMEX\* is rigidly held between two stainless steel cylinders and encapsulated between stainless steel end-caps. The result is filter element with exceptional strength assuring high-efficient filtration and allowing large number of sterilization cycles.

<sup>(1)</sup>For any other technical gas please contact us or your local dealer



### FILTER ELEMENT RATING ACCORDING TO ISO 8573-1

| Solid particles class | Water class | Oil class |
|-----------------------|-------------|-----------|
| 1                     | /           | /         |

Validated according to ISO12500-3

### MICROBIOLOGICAL EFFICIENCY

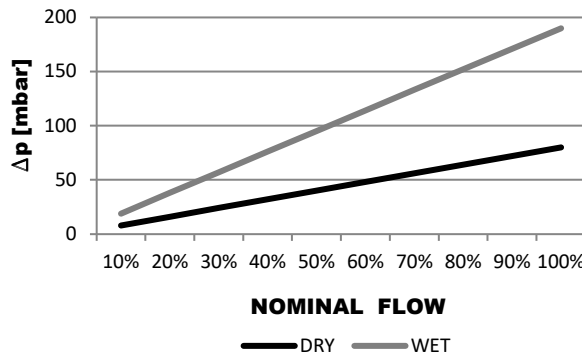
| Test organism                 | % Efficiency   | Titer reduction          |
|-------------------------------|----------------|--------------------------|
| <i>Brevundimonas diminuta</i> | >99.999999991  | >1.16 x 10 <sup>10</sup> |
| MS-2 Coliphage                | >99.9999999901 | >1.02 x 10 <sup>11</sup> |

The microbiological efficacy was independently evaluated by Public Health England (PHE). The challenge test was conducted on 0730- VSF filter element using aerosolised microorganisms, at 1050 L/min, under negative pressure, at 22 °C ± 3 °C and 42% ± 5% relative humidity.

### TECHNICAL SPECIFICATION

|  |                              |
|--|------------------------------|
| Operating temperature                      | -20 - +150 °C / -4 - +302 °F |
| Operating pressure                         | 0 - 14 barg / 0 - 232 psi    |
| Differential pressure (dry)                | 80 mbar / 1,160 psi          |
| Differential pressure (wet)                | 190 mbar / 2,756 psi         |
| Particle retention (nominal)               | 99,9999% (0,01 µm)           |
| Particle retention rate ISO <sup>(3)</sup> | 99,998 %                     |
| Residual oil content <sup>(4)</sup>        | /                            |
| Flow Direction                             | INSIDE to OUTSIDE            |
| Capacity (ISO12500-2) <sup>(5)</sup>       | /                            |

- Manufactured without use of binders or other chemical additives
- 100% integrity tested
- All components meet the FDA requirements for contact with food in accordance with the Code of Federal Regulations (CFR), title 21



## MATERIALS

|                       |                           |
|-----------------------|---------------------------|
| Filter media          | Borosilicate micro fibers |
| Protection media      | Polyester fleece          |
| Support media         | NOMEX                     |
| Adsorption media      | /                         |
| Support (inner-outer) | Stainless steel 1.4301    |
| Bonding               | Silicone                  |
| Endcaps               | Stainless steel 1.4301    |
| Sealing               | Silicone                  |

## SIZES

| Model    | Diameter [mm] | Height [mm] | Flow Capacity [Nm <sup>3</sup> /h] | Flow Capacity [scfm] |
|----------|---------------|-------------|------------------------------------|----------------------|
| 0310 VSF | 42            | 76          | 75                                 | 44                   |
| 0410 VSF | 42            | 104         | 105                                | 62                   |
| 0420 VSF | 52            | 104         | 150                                | 88                   |
| 0520 VSF | 52            | 128         | 225                                | 132                  |
| 0525 VSF | 62            | 128         | 315                                | 185                  |
| 0725 VSF | 62            | 180         | 420                                | 247                  |
| 0730 VSF | 86            | 180         | 600                                | 353                  |
| 1030 VSF | 86            | 254         | 900                                | 530                  |
| 1530 VSF | 86            | 381         | 1260                               | 742                  |
| 2030 VSF | 86            | 508         | 1680                               | 989                  |
| 3030 VSF | 86            | 760         | 2400                               | 1.413                |
| 3050 VSF | 140           | 760         | 3600                               | 2.119                |

## CORRECTION FACTORS

To calculate the correct capacity of a given filter based on actual operating conditions, multiply the nominal flow capacity by the appropriate correction factor(s). CORRECTED CAPACITY = NOMINAL FLOW CAPACITY x C<sub>OP</sub>

### OPERATING PRESSURE

| [bar]           | 2    | 3   | 4    | 5    | 6    | 7   | 8    | 9    | 10   | 11   | 12   | 13   | 14   |
|-----------------|------|-----|------|------|------|-----|------|------|------|------|------|------|------|
| [psi]           | 29   | 44  | 58   | 72   | 87   | 100 | 115  | 130  | 145  | 160  | 174  | 189  | 203  |
| C <sub>OP</sub> | 0,38 | 0,5 | 0,63 | 0,75 | 0,88 | 1   | 1,13 | 1,25 | 1,38 | 1,50 | 1,63 | 1,75 | 1,88 |

## STERILIZATION (saturated steam)

Cumulative steaming time:

- 121°C/250°F, Sterilization 30min, Heating and cooling 30min (100 cycles)
- 132°C/270°F, Sterilization 20min, Heating and cooling 40min (100 cycles)
- 143°C/290°F, Sterilization 10min, Heating and cooling 50min (100 cycles)

Please note that all VSF (sterile) filter elements are delivered unsterile in unsterile packaging! Please sterilize the filter elements before first use if needed for the application.

## MAINTENANCE

Replace filter element when first of following criteria is reached: twelve months in operation, pressure drop reaches 600 [mbar], as required by application, prescribed number of sterilization cycles.

### INFORMATION IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE

|  |   |  |
|--|---|--|
|  | Our quality management system is certified by BUREAU VERITAS in conformity with ISO 9001:2015 |  |
|--|---|--|