# PROCESS AND STERILE FILTRATION

OMEGA AIR

# AIR AND GAS TREATMENT

Since 1988 OMEGA AIR is developing and manufacturing quality solutions for treatment of industrial as well as process air and gas. Due to constant investment in research and development and in new production tehnologies we can offer one of the most comprehensive ranges of products for general purpose process filtration, steam filtration, sterile filtration and sterile ventilation of tanks.

### TYPICAL APPLICATIONS

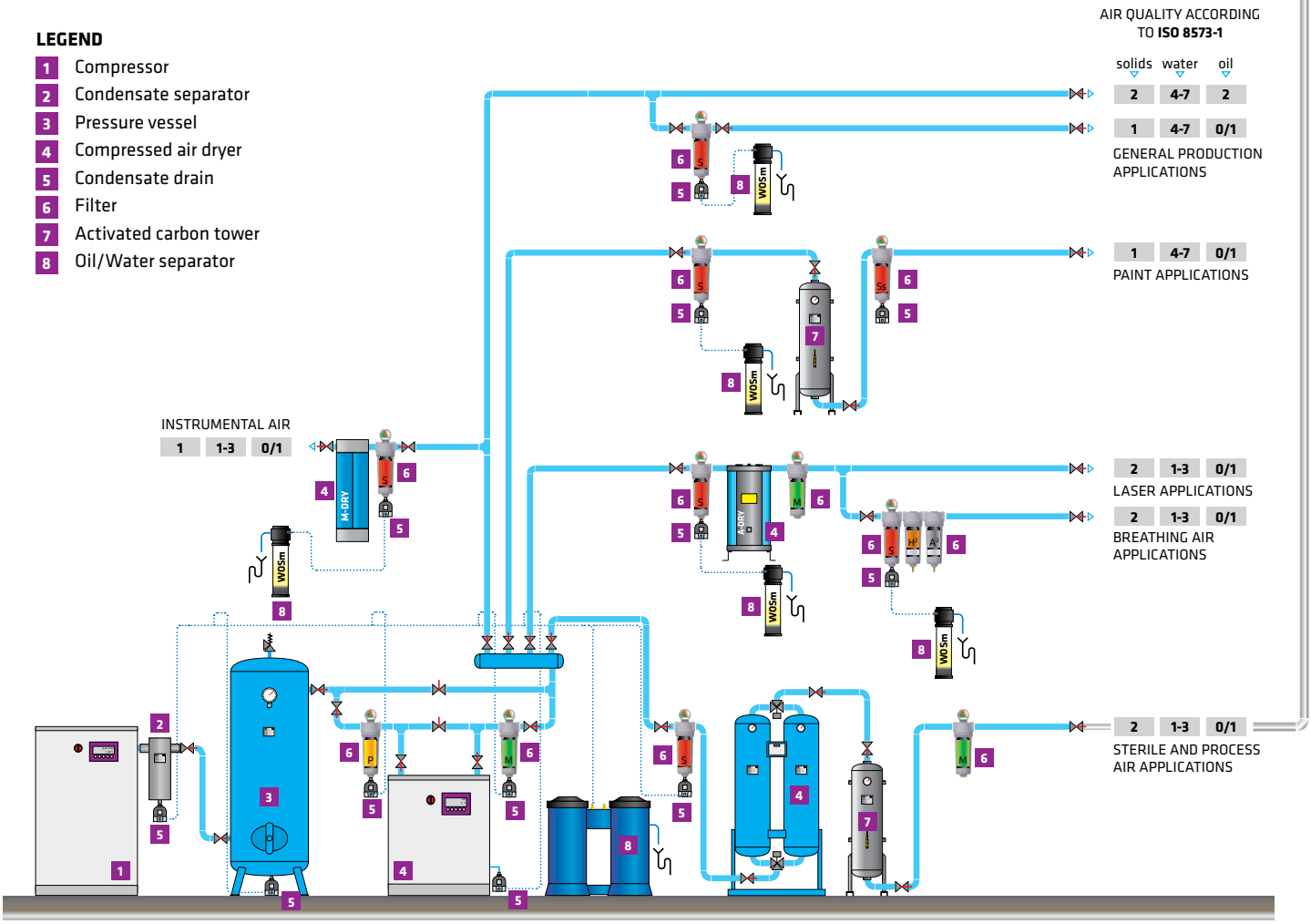
- Aseptic processing
- Aseptic packaging
- PET bottle blowing
- Moving ingredients
- Tank ventilation
- General filtration applications
- ....

### TYPICAL INDUSTRIES

- Food and Beverage
- Pharmaceutical / Biopharmaceutical
- Electronics / Semiconductor
- Medical / Health care
- ....

## CONVENTIONAL COMPRESSED AIR SYSTEM

In process industry purity requirements for air/gas are usually higher or at least different compared to purity requirements for standard industrial applications. Production of compressed air in process industry usually starts in conventional compressed air system with standard equipment for treatment of industrial compressed air/gas. At certain point there is a switchover from industrial to process filtration and from this point on different materials and filtration procedures are applied.

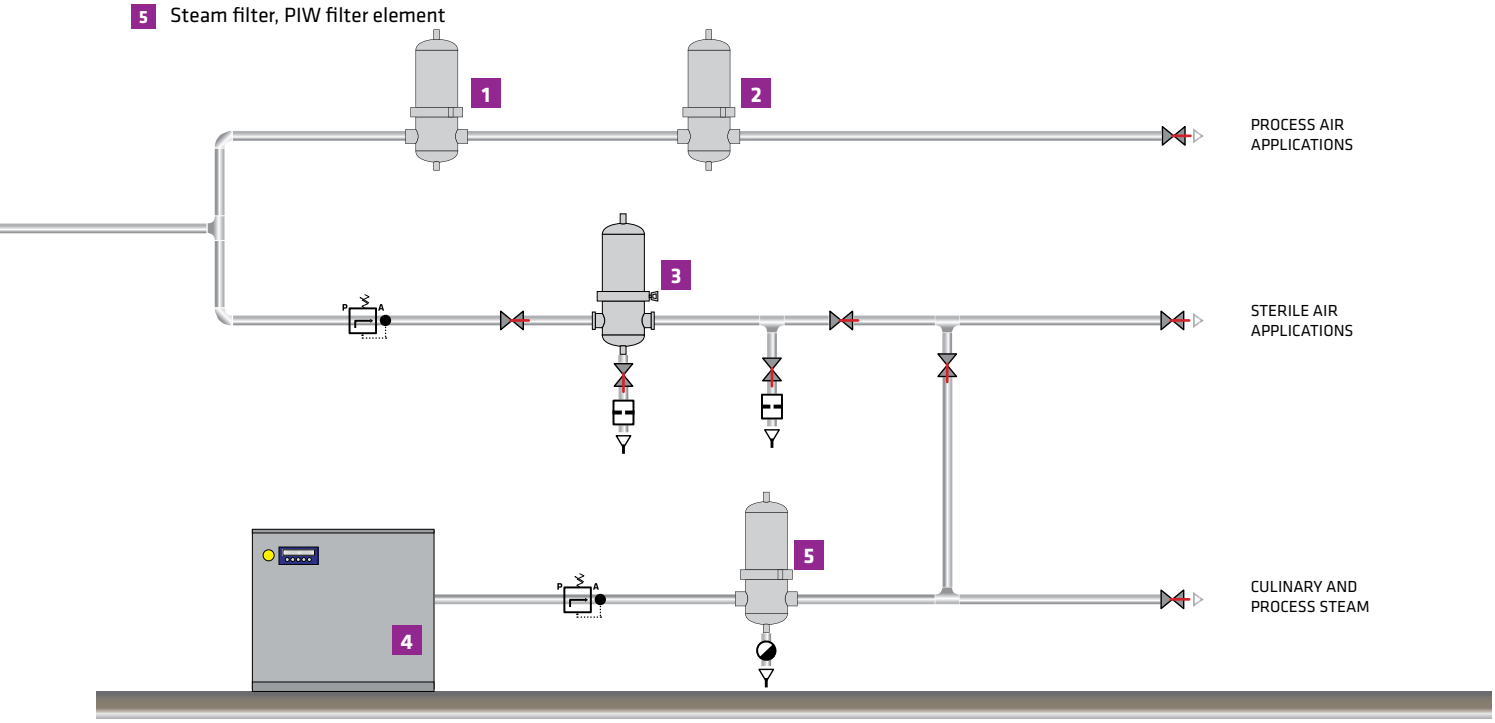


## PROCESS AIR/GAS SYSTEM

Due to contaminants such as solid particles, moisture, hydrocarbons or bacteria compressed air/gas when used in process can harm and cause quality and efficiency problems. Applications in process industry require compressed air or gas where above mentioned contaminants are removed or reduced to acceptable level for specific application.

**LEGEND**

1. Stainless steel process filter, PN filter element
2. Stainless steel process filter, PPF filter element
3. Stainless steel sterile filter, VSF filter element
4. Steam generator
5. Steam filter, PIW filter element

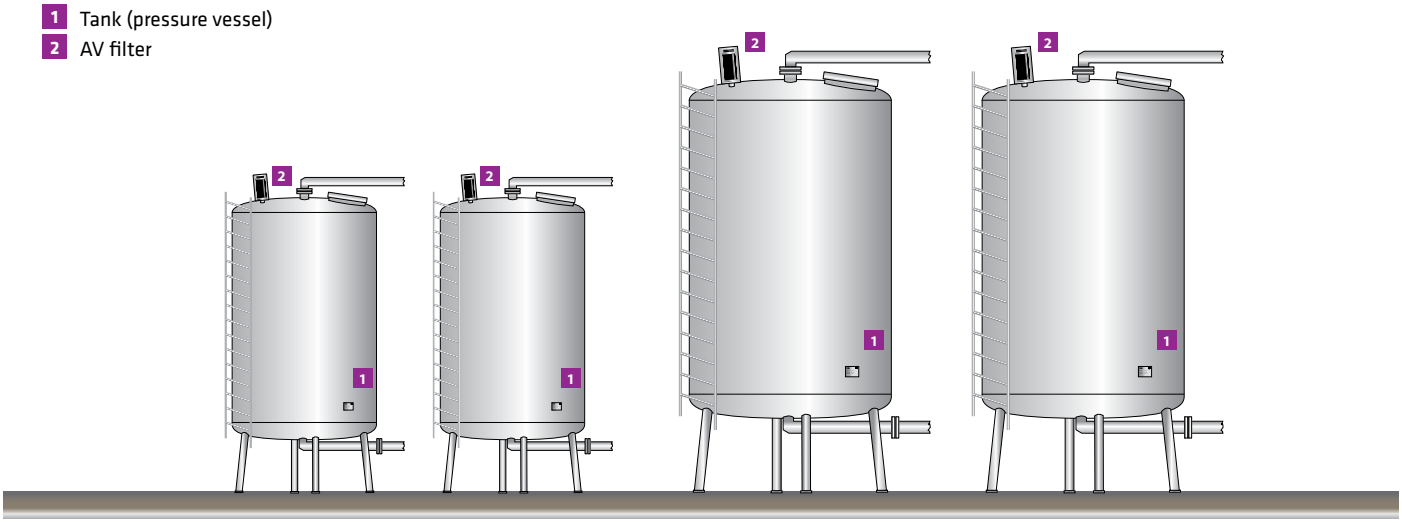



## VENTILATION OF TANKS

During filling and emptying of tank with liquid ambient air is being vented in and out of the tank. In order not to harm the process by letting contaminants from ambient into the tank “air-vent” filters (AV series) are installed on the top of the tank. Inside is filter element (AVF) which is designed to intercept any potential particulate or aerosol contaminants including bacteria.

**LEGEND**

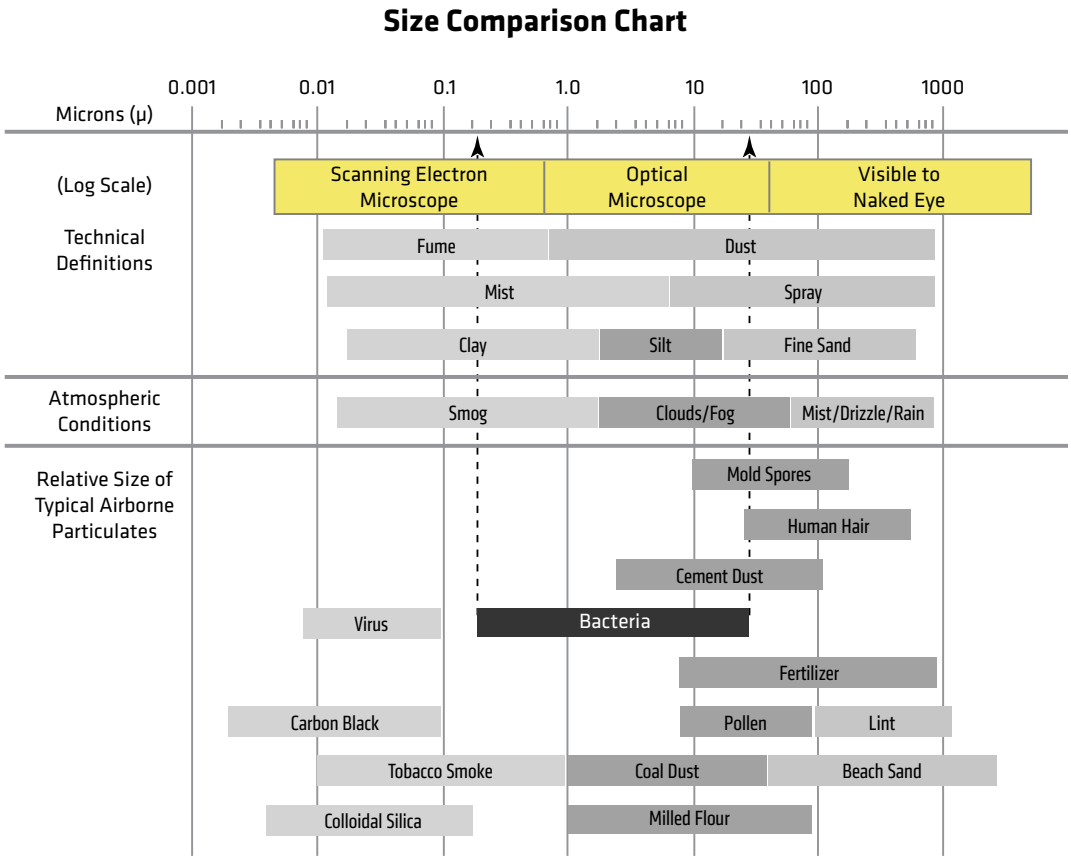
1. Tank (pressure vessel)
2. AV filter



## WHAT IS STERILE AIR

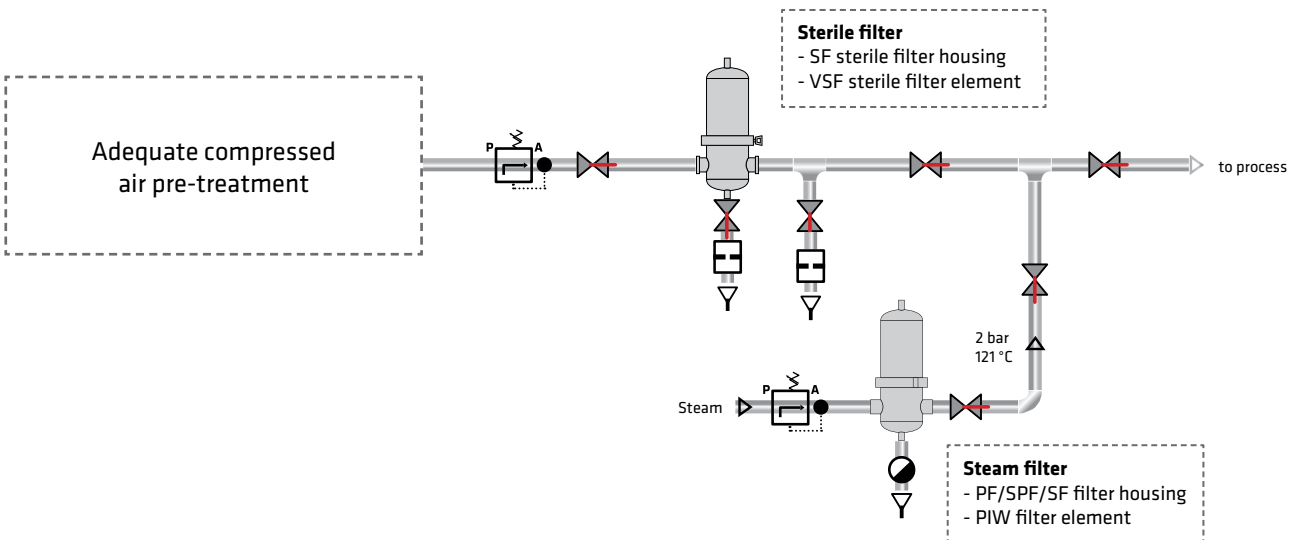
In process filtration applications “sterile” refers to “free from live bacteria or other microorganisms”.

## SIZE OF BACTERIA



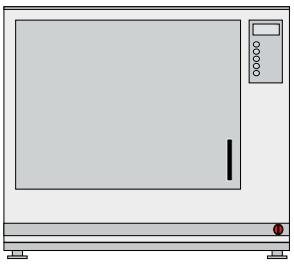

## HOW TO PRODUCE STERILE AIR

To produce sterile air proper sterile filter needs to be installed (e.g. SF filter housing with VSF filter element) to filter out / intercept bacteria. It is essential that air on the inlet side of sterile filter is adequately prefiltered upstream and that complete “sterile filter installation” is sterilized regularly. Sterilization is required because intercepted bacteria can colonize in the surface of filter media and begin to grow/migrate through filter media. Two most common types of sterilization are:



**STERILIZATION IN PLACE (SIP)** where filter or even larger segments of installation are sterilized with stream of steam flowing through complete filter installation. This procedure is done in place of use without removing any parts from the installation.

**AUTOCLAVE** sterilization where filter element or in some cases even complete filter housing is removed from installation and sterilized in autoclave. Autoclave is a device used to sterilize products by subjecting them to high pressure saturated steam.



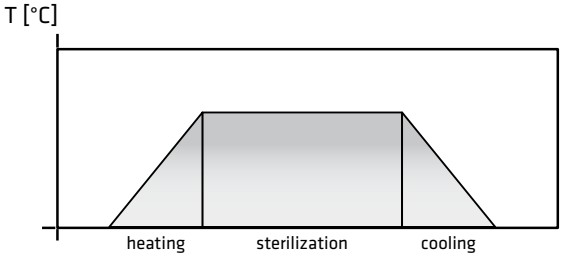
Frequency of sterilization depend on specific application requirements.

## STERILIZATION IN PLACE PROCEDURE

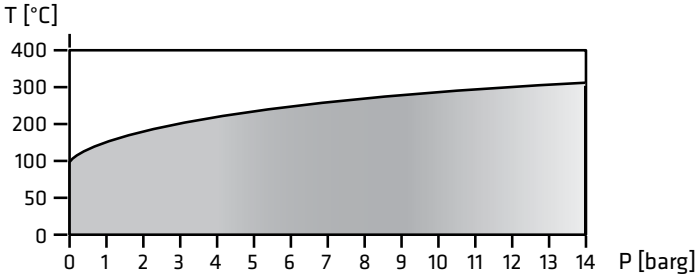
Usually every process or application has specific operating requirements and also sterilization is then performed in accordance with this specific requirements.

Comulative steaming time:

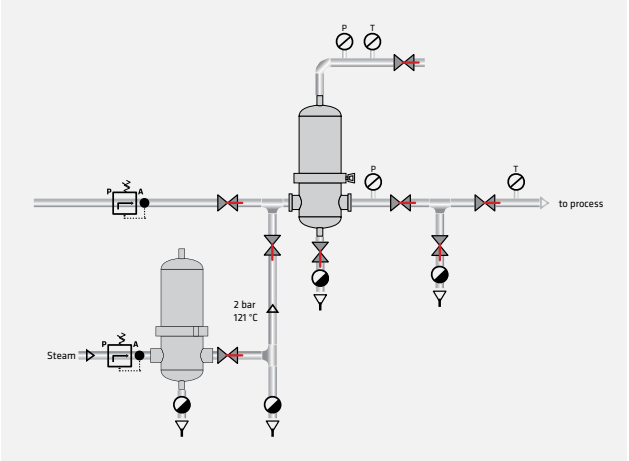
- 121 °C/250 °F, Sterilization 30 min, Heating and cooling 30 min (100 cycles)
- 132 °C/270 °F, Sterilization 20 min, Heating and cooling 40 min (100 cycles)
- 143 °C/290 °F, Sterilization 10 min, Heating and cooling 50 min (100 cycles)



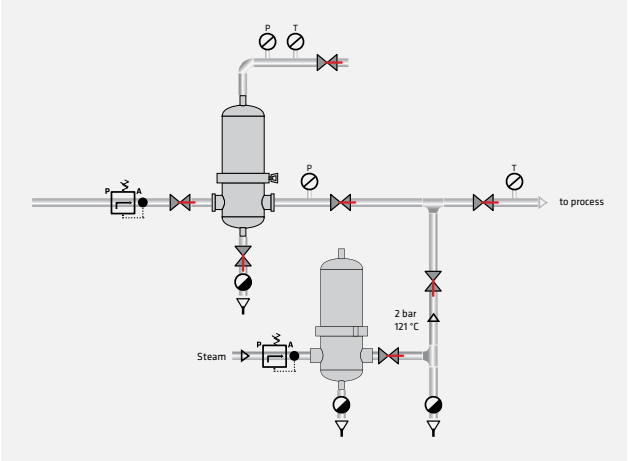

Sterilization cycle




Steam Saturation Curve




Forward steam in place




Reverse steam in place

# PF SERIES

## STAINLESS STEEL PROCESS FILTERS

**14 bar**
operating pressure

**75 to 21120 Nm³/h**
volume flow rate

**1/4" to DN200**
connections

**up to 150 °C**
operating temperature range

**stainless steel 1.4404**-standard
**stainless steel 1.4301**-option
material

## DESCRIPTION

PF process filters are designed for applications in process industry, where the risk for corrosion of compressed air system components is very high.

Required compressed air quality according to standard ISO 8571-1 can be achieved with 9 different grades of filter elements.

PF process filter housing can be used in variety of applications. For applications not listed please contact producer or your local distributor.

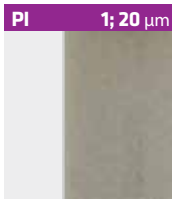
For any other technical gas please contact producer or your local distributor.

For oil removal, coalescing filter element must be installed and flow direction inside-out must be provided. General arrangement is bowl on the top and filter head on the bottom.

Fluid group 1 on request.

## APPLICATIONS

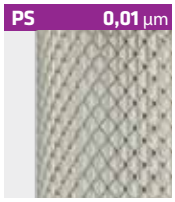
- Packing industry
- Biotechnology
- Breweries
- Chemical industry
- Dairies
- Fermentation processes
- Food and beverage industry
- Pharmaceutical industry
- Hospitals
- Steam













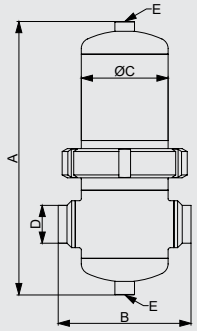









| TECHNICAL DATA | | | | | | | | | | FILTER ELEMENTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Filter housing size | Pipe size D | Oper. press. | Flow rate at 7 bar(g), 20 °C | | Dimensions [mm] | | | | Mass | **PI** prefilter 1; 20 µm | **PIW** prefilter 1; 20 µm | **PN** prefilter 5; 25 µm | **PP** prefilter 3 µm | **PR** prefilter 1 µm | **PM** microfilter 0,1 µm | **PS** microfilter 0,01 µm | **PA** activated carbon | CKL-P |
| | inch | bar/psi | Nm³/h | scfm | A | B | C | E | kg | | | | | | | | | |
| **PF 005** | 1/4" | 14/203 | 75 | 44 | 206 | 120 | 76,1 | 1/4" | 1,8 | 0310 PI | 0310 PIW | 0310 PN | 0310 PP | 0310 PR | 0310 PM | 0310 PS | 0310 PA | 0310 PA |
| **PF 007** | 3/8" | 14/203 | 105 | 62 | 236 | 120 | 76,1 | 1/4" | 2,0 | 0410 PI | 0410 PIW | 0410 PN | 0410 PP | 0410 PR | 0410 PM | 0410 PS | 0410 PA | 0410 PA |
| **PF 010** | 1/2" | 14/203 | 150 | 88 | 239 | 121 | 76,1 | 1/4" | 2,1 | 0420 PI | 0420 PIW | 0420 PN | 0420 PP | 0420 PR | 0420 PM | 0420 PS | 0420 PA | 0420 PA |
| **PF 018** | 3/4" | 14/203 | 225 | 132 | 263 | 121 | 76,1 | 1/4" | 2,2 | 0520 PI | 0520 PIW | 0520 PN | 0520 PP | 0520 PR | 0520 PM | 0520 PS | 0520 PA | 0520 PA |
| **PF 030** | 1" | 14/203 | 315 | 185 | 280 | 136 | 88,9 | 1/4" | 3,0 | 0525 PI | 0525 PIW | 0525 PN | 0525 PP | 0525 PR | 0525 PM | 0525 PS | 0525 PA | 0525 PA |
| **PF 047** | 1 1/4" | 14/203 | 420 | 247 | 343 | 155 | 88,9 | 1/4" | 3,4 | 0725 PI | 0725 PIW | 0725 PN | 0725 PP | 0725 PR | 0725 PM | 0725 PS | 0725 PA | 0725 PA |
| **PF 070** | 1 1/2" | 14/203 | 600 | 353 | 376 | 180 | 114,3 | 1/4" | 4,6 | 0730 PI | 0730 PIW | 0730 PN | 0730 PP | 0730 PR | 0730 PM | 0730 PS | 0730 PA | 0730 PA |
| **PF 094** | 2" | 14/203 | 900 | 530 | 445 | 180 | 114,3 | 1/4" | 5,2 | 1030 PI | 1030 PIW | 1030 PN | 1030 PP | 1030 PR | 1030 PM | 1030 PS | 1030 PA | 1030 PA |
| **PF 150** | 2" | 14/203 | 1.260 | 742 | 572 | 180 | 114,3 | 1/4" | 6,0 | 1530 PI | 1530 PIW | 1530 PN | 1530 PP | 1530 PR | 1530 PM | 1530 PS | 1530 PA | 1530 PA |
| **PF 175** | 2 1/2" | 14/203 | 1.680 | 989 | 736 | 226 | 139,7 | 1/4" | 9,6 | 2030 PI | 2030 PIW | 2030 PN | 2030 PP | 2030 PR | 2030 PM | 2030 PS | 2030 PA | 2030 PA |
| **PF 200** | 3" | 14/203 | 2.400 | 1.413 | 979 | 226 | 139,7 | 1/4" | 13,7 | 3030 PI | 3030 PIW | 3030 PN | 3030 PP | 3030 PR | 3030 PM | 3030 PS | 3030 PA | 3030 PA |
| **PF 240** | 3" | 14/203 | 3.600 | 2.119 | 1041 | 256 | 168,3 | 1/4" | 18,5 | 3050 PI | 3050 PIW | 3050 PN | 3050 PP | 3050 PR | 3050 PM | 3050 PS | 3050 PA | 3050 PA |
| **PF 450** | DN100 | 10/145 | 5.040 | 2.966 | 981 | 410 | 219,1 | 1" | 56 | 3x2030 PI | 3x2030 PIW | 3x2030 PN | 3x2030 PP | 3x2030 PR | 3x2030 PM | 3x2030 PS | 3x2030 PA | - |
| **PF 600** | DN100 | 10/145 | 6.720 | 3.955 | 1240 | 410 | 219,1 | 1" | 60 | 3x3030 PI | 3x3030 PIW | 3x3030 PN | 3x3030 PP | 3x3030 PR | 3x3030 PM | 3x3030 PS | 3x3030 PA | - |
| **PF 900** | DN150 | 10/145 | 9.600 | 5.650 | 1311 | 480 | 273,0 | 1" | 90 | 4x3030 PI | 4x3030 PIW | 4x3030 PN | 4x3030 PP | 4x3030 PR | 4x3030 PM | 4x3030 PS | 4x3030 PA | - |
| **PF 1200** | DN150 | 10/145 | 13.440 | 7.910 | 1330 | 540 | 323,9 | 1" | 112 | 6x3030 PI | 6x3030 PIW | 6x3030 PN | 6x3030 PP | 6x3030 PR | 6x3030 PM | 6x3030 PS | 6x3030 PA | - |
| **PF 1800** | DN200 | 10/145 | 17.280 | 10.171 | 1496 | 660 | 406,4 | 1" | 201 | 8x3030 PI | 8x3030 PIW | 8x3030 PN | 8x3030 PP | 8x3030 PR | 8x3030 PM | 8x3030 PS | 8x3030 PA | - |
| **PF 2000** | DN200 | 10/145 | 21.120 | 12.431 | 1496 | 660 | 406,4 | 1" | 202 | 10x3030 PI | 10x3030 PIW | 10x3030 PN | 10x3030 PP | 10x3030 PR | 10x3030 PM | 10x3030 PS | 10x3030 PA | - |




| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| quality class - solids (ISO 8573-1) | - | - | - | 6 | 3 | 2 | 1 | 1 [1] | - |
| quality class - oils (ISO 8573-1) | - | - | - | - | - | 2 | 1 | 1 | - |
| pressure drop - new element-dry [mbar] | ≤2600; ≤60 | ≤2600; ≤60 | 10 | 10 | 20 | 50 | 80 | 60 | - |
| filter media | sintered INOX 1.4404 | sintered INOX 1.4404 | stainless steel mesh 1.4301 | acrylic fibres, cellulose | borosilicate micro fibres | | | borosilicate micro fibres, activ. carbon | - |
| pleated version | - | - | - | ✓ | ✓ | ✓ | ✓ | - | - |
| wrapped version | - | - | ✓ | - | - | - | - | ✓ | - |
| sintered version | ✓ | ✓ | - | - | - | - | - | - | - |
| min. operating temperature (°C / °F) | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 |
| max. operating temperature (°C / °F) | 150 / 302 | 150 / 302 | 150 / 302 | 65 / 149 | 120 / 248 | 120 / 248 | 120 / 248 | 45 / 113 | 120 / 248 |

**CORRECTION FACTORS**

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

[1] Valid if "S" filter cartridge is installed upstream.

# HPF SERIES

## HIGH PRESSURE STAINLESS STEEL PROCESS FILTERS

**50 bar**
operating pressure

**150 to 2400 Nm³/h**
volume flow rate

**1/2" to 3"**
connections

**1,5 to 150 °C**
operating temperature range

**stainless steel 1.4404**-standard
**stainless steel 1.4301**-option
material

## DESCRIPTION

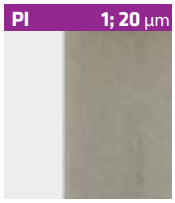
HPF process filters are designed for high pressure applications in process industry, where the risk for corrosion of compressed air system components is very high.

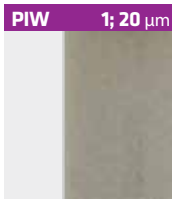
Required compressed air quality according to standard ISO 8571-1 can be achieved with 9 different grades of filter elements.

HPF process filter housing can be used in variety of applications. For applications not listed please contact producer or your local distributor.

For any other technical gas please contact producer or your local distributor.
For oil removal, coalescing filter element must be installed and flow direction inside-out must be provided. General arrangement is bowl on the top and filter head on the bottom.

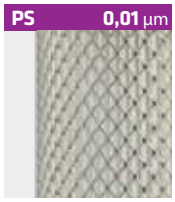
Fluid group 1 on request.













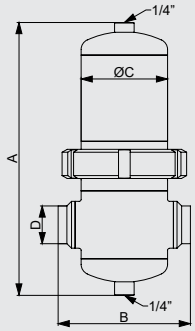
## APPLICATIONS

- Packing industry
- Biotechnology
- Breweries
- Chemical industry
- Dairies
- Fermentation processes
- Food and beverage industry
- Pharmaceutical industry
- Hospitals





| TECHNICAL DATA | | | | | | | | | FILTER ELEMENTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Filter housing size | Pipe size D | Oper. press. | Flow rate at 7 bar(g), 20 °C | | Dimensions [mm] | | | Mass | **PI** prefilter 1; 20 µm | **PIW** prefilter 1; 20 µm | **PN** prefilter 5; 25 µm | **PP** prefilter 3 µm | **PR** prefilter 1 µm | **PM** microfilter 0,1 µm | **PS** microfilter 0,01 µm | **PA** activated carbon | CKL-P |
| | inch | bar/psi | $Nm^3/h$ | scfm | A | B | C | kg | | | | | | | | | |
| **HPF 010** | 1/2" | 50/725 | 150 | 88 | 243 | 121 | 76,1 | 2,5 | 0420 PI | 0420 PIW | 0420 PN | 0420 PP | 0420 PR | 0420 PM | 0420 PS | 0420 PA | 0420 CKL-P |
| **HPF 018** | 3/4" | 50/725 | 225 | 132 | 267 | 129 | 76,1 | 2,7 | 0520 PI | 0520 PIW | 0520 PN | 0520 PP | 0520 PR | 0520 PM | 0520 PS | 0520 PA | 0520 CKL-P |
| **HPF 030** | 1" | 50/725 | 315 | 185 | 286 | 143 | 88,9 | 3,4 | 0525 PI | 0525 PIW | 0525 PN | 0525 PP | 0525 PR | 0525 PM | 0525 PS | 0525 PA | 0525 CKL-P |
| **HPF 047** | 1 1/4" | 50/725 | 420 | 247 | 336 | 160 | 88,9 | 3,9 | 0725 PI | 0725 PIW | 0725 PN | 0725 PP | 0725 PR | 0725 PM | 0725 PS | 0725 PA | 0725 CKL-P |
| **HPF 070** | 1 1/2" | 50/725 | 600 | 353 | 400 | 182 | 114,3 | 5,6 | 0730 PI | 0730 PIW | 0730 PN | 0730 PP | 0730 PR | 0730 PM | 0730 PS | 0730 PA | 0730 CKL-P |
| **HPF 094** | 2" | 50/725 | 900 | 530 | 481 | 180 | 114,3 | 9,2 | 1030 PI | 1030 PIW | 1030 PN | 1030 PP | 1030 PR | 1030 PM | 1030 PS | 1030 PA | 1030 CKL-P |
| **HPF 150** | 2" | 50/725 | 1260 | 742 | 607 | 180 | 114,3 | 10,9 | 1530 PI | 1530 PIW | 1530 PN | 1530 PP | 1530 PR | 1530 PM | 1530 PS | 1530 PA | 1530 CKL-P |
| **HPF 200** | 3" | 50/725 | 2400 | 1413 | 1018 | 228 | 139,7 | 11,5 | 3030 PI | 3030 PIW | 3030 PN | 3030 PP | 3030 PR | 3030 PM | 3030 PS | 3030 PA | 3030 CKL-P |




| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| quality class - solids (ISO 8573-1) | - | - | - | 6 | 3 | 2 | 1 | 1 [1)] | - |
| quality class - oils (ISO 8573-1) | - | - | - | - | - | 2 | 1 | 1 | - |
| pressure drop - new element-dry [mbar] | ≤2600; ≤60 | ≤2600; ≤60 | 10 | 10 | 20 | 50 | 80 | 60 | - |
| filter media | sintered INOX 1.4404 | sintered INOX 1.4404 | stainless steel mesh 1.4301 | acrylic fibres, cellulose | | borosilicate micro fibres | | borosilicate micro fibres, activ. carbon | - |
| pleated version | - | - | - | ✓ | ✓ | ✓ | ✓ | - | - |
| wrapped version | - | - | ✓ | - | - | - | - | ✓ | - |
| sintered version | ✓ | ✓ | - | - | - | - | - | - | - |
| min. operating temperature (°C / °F) | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 |
| max. operating temperature (°C / °F) | 150 / 302 | 150 / 302 | 150 / 302 | 65 / 149 | 120 / 248 | 120 / 248 | 120 / 248 | 45 / 113 | 120 / 248 |

| CORRECTION FACTORS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Operating pressure [bar] | 3 | 5 | 7 | 10 | 13 | 16 | 20 | 30 | 40 | 50 |
| Operating pressure [psi] | 44 | 72 | 100 | 145 | 189 | 232 | 290 | 435 | 580 | 725 |
| Correction factor | 0,50 | 0,75 | 1 | 1,38 | 1,75 | 2,13 | 2,63 | 3,88 | 5,13 | 6,38 |

[1)] Valid if "S" filter cartridge is installed upstream.

# PFL SERIES

## STAINLESS STEEL PROCESS FILTERS FOR LIQUIDS

**10 bar**
operating pressure

**3 to 600 l/min**
volume flow rate

**3/8" to 3"**
connections

**1,5 to 150 °C**
operating temperature range

**stainless steel 1.4404**
material

## DESCRIPTION

PFL process filter housings have been specifically developed for liquid filtration applications.

To meet the required liquid quality, appropriate filter element must be installed into filter housing.

For any other technical gas/ liquid, please contact us or your local dealer.

PFL process filter housing can be used in variety of applications. For applications not listed please contact producer or your local dealer.

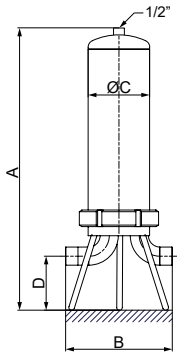
## APPLICATIONS

- Biotechnology
- Breweries
- Chemical industry
- Dairies
- Fermentation processes
- Food and beverage industry
- Hospitals

| TECHNICAL DATA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Filter housing size | Pipe size | Operating pressure | Flow rate at 7 bar(g), 20 °C | | Dimensions [mm] | | | | Mass |
| | inch | bar/psi | l/min | gpm | A | B | C | D | kg |
| **PFL 003** | 3/8" | 10/145 | 3 | 0,8 | 270 | 110 | 76,1 | 90 | 1,2 |
| **PFL 008** | 3/8" | 10/145 | 8 | 2,1 | 330 | 110 | 76,1 | 90 | 1,4 |
| **PFL 012** | 1" | 10/145 | 12 | 3,2 | 402 | 220 | 114,3 | 105 | 4,4 |
| **PFL 025** | 1" | 10/145 | 25 | 6,6 | 540 | 220 | 114,3 | 105 | 5,1 |
| **PFL 050** | 1" | 10/145 | 50 | 13,2 | 785 | 220 | 114,3 | 105 | 6,4 |
| **PFL 075** | 1" | 10/145 | 75 | 19,8 | 1.029 | 220 | 114,3 | 105 | 7,8 |
| **PFL 080** | 1 1/2" | 10/145 | 80 | 21,1 | 680 | 320 | 168,3 | 192 | 16 |
| **PFL 150** | 1 1/2" | 10/145 | 150 | 39,6 | 930 | 320 | 168,3 | 192 | 18 |
| **PFL 225** | 1 1/2" | 10/145 | 225 | 59,4 | 1.200 | 320 | 168,3 | 192 | 20 |
| **PFL 250** | 2" | 10/145 | 250 | 66 | 960 | 400 | 219,1 | 165 | 24 |
| **PFL 375** | 2" | 10/145 | 375 | 99 | 1.210 | 400 | 219,1 | 165 | 27 |
| **PFL 400*** | 2 1/2" | 10/145 | 400 | 106 | 980 | 500 | 323,9 | 175 | 36 |
| **PFL 600*** | 3" | 10/145 | 600 | 159 | 1.230 | 500 | 323,9 | 175 | 41 |

| CORRECTION FACTORS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Operating pressure [bar] | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Operating pressure [psi] | 29 | 44 | 58 | 72 | 87 | 100 | 115 | 130 | 145 |
| Correction factor | 0,38 | 0,50 | 0,63 | 0,75 | 0,88 | 1 | 1,13 | 1,25 | 1,38 |

Flow capacity based on water.
Standard is BSP pipe connection, other pipe connection on request.
* Max. operating pressure for liquids is 7 bar; 3 bar for saturated steam.



# SFL SERIES

## STAINLESS STEEL STERILE FILTERS FOR LIQUIDS

**10 bar**
operating pressure

**3 to 600 l/min**
volume flow rate

**DN10 to DN65**
connections

**1,5 to 150 °C**
operating temperature range

**stainless steel 1.4404**
material

## DESCRIPTION

SFL stainless steel sterile filter housings have been specifically developed for liquid filtration applications.

To meet the required liquid purity, appropriate filter element must be installed into filter housing.

For any other technical gas/ liquid, please contact us or your local dealer.

SFL sterile filter housing can be used in variety of applications. For applications not listed please contact us or your local dealer.

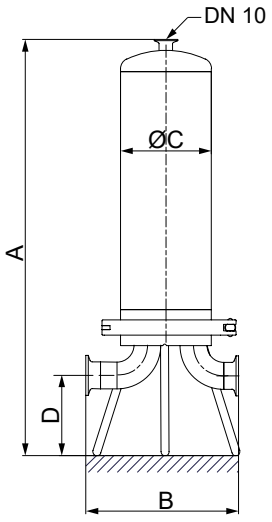
## APPLICATIONS

- Biotechnology
- Breweries
- Chemical industry
- Dairies
- Fermentation processes
- Food and beverage industry
- Hospitals

| TECHNICAL DATA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Filter housing size | Pipe size | Operating pressure | Flow rate at 7 bar(g), 20 °C | | Dimensions [mm] | | | | Mass |
| | inch | bar/psi | l/min | gpm | A | B | C | D | kg |
| **SFL 003** | DN10 | 10/145 | 3 | 0,8 | 260 | 110 | 76,1 | 90 | 1,2 |
| **SFL 008** | DN10 | 10/145 | 8 | 2,1 | 323 | 110 | 76,1 | 90 | 1,4 |
| **SFL 012** | DN25 | 10/145 | 12 | 3,2 | 396 | 220 | 114,3 | 105 | 4,4 |
| **SFL 025** | DN25 | 10/145 | 25 | 6,6 | 530 | 220 | 114,3 | 105 | 5,1 |
| **SFL 050** | DN25 | 10/145 | 50 | 13,2 | 775 | 220 | 114,3 | 105 | 6,4 |
| **SFL 075** | DN25 | 10/145 | 75 | 19,8 | 1.019 | 220 | 114,3 | 105 | 7,8 |
| **SFL 080** | DN40 | 10/145 | 80 | 21,1 | 680 | 320 | 168,3 | 192 | 16 |
| **SFL 150** | DN40 | 10/145 | 150 | 39,6 | 930 | 320 | 168,3 | 192 | 18 |
| **SFL 225** | DN40 | 10/145 | 225 | 59,4 | 1.200 | 320 | 168,3 | 192 | 20 |
| **SFL 250** | DN50 | 10/145 | 250 | 66 | 960 | 400 | 219,1 | 165 | 24 |
| **SFL 375** | DN50 | 10/145 | 375 | 99 | 1.210 | 400 | 219,1 | 165 | 27 |
| **SFL 400*** | DN65 | 10/145 | 400 | 106 | 980 | 500 | 323,9 | 175 | 36 |
| **SFL 600*** | DN65 | 10/145 | 600 | 159 | 1.230 | 500 | 323,9 | 175 | 41 |

| CORRECTION FACTORS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Operating pressure [bar] | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Operating pressure [psi] | 29 | 44 | 58 | 72 | 87 | 100 | 115 | 130 | 145 |
| Correction factor | 0,38 | 0,50 | 0,63 | 0,75 | 0,88 | 1 | 1,13 | 1,25 | 1,38 |

Flow capacity based on water.
Standard is BSP pipe connection, other pipe connection on request.
* Max. operating pressure for liquids is 7 bar; 3 bar for saturated steam.



# SF SERIES

## STAINLESS STEEL STERILE FILTERS

**10 bar**
operating pressure

**75 to 21.120 Nm³/h**
volume flow rate

**DN10 to DN80 TC ISO**
**DN100 to DN200 EN**
connections

**1,5°C to 150°C**
operating temperature range

**stainless steel 1.4404**-standard
**stainless steel 1.4301**-option
material

## DESCRIPTION

SF stainless steel sterile filters are designed for high-efficient sterile filtration of compressed air, process air and technical gasses. SF sterile filters provide high-efficient removal of sub-micron particles down to 0,01µm including microorganisms (bacteria). Filter housing surface is polished down to grade Ra0,8.

Required compressed air quality according to standard ISO 8571-1 can be achieved with appropriate filter element.

For any other technical gas please contact producer or your local distributor.

Fluid group 1 on request.

**VSF** sterile

**MSS**

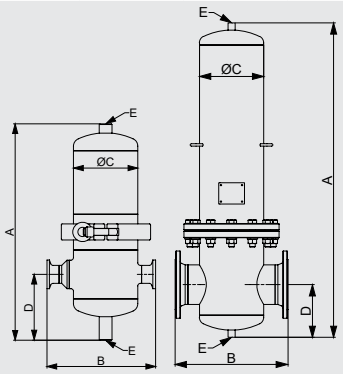
## APPLICATIONS

- Packing industry
- Biotechnology
- Breweries
- Chemical industry
- Dairies
- Fermentation processes
- Food and beverage industry
- Pharmaceutical industry
- Hospitals





| TECHNICAL DATA | | | | | | | | | | | FILTER ELEMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Filter housing size | Pipe size | Max. oper. pressure | Flow rate at 7 bar(g), 20 °C | | Dimensions [mm] | | | | | Mass | **VSF** sterile 0,01 µm |
| | inch | bar/psi | Nm³/h | scfm | A | B | C | D | E | kg | |
| **SF 0006** | DN10 | 10/145 | 75 | 44 | 220 | 130 | 76,1 | 74 | 1/8" | 1,6 | 1 x 0310 VSF |
| **SF 0009** | DN10 | 10/145 | 105 | 62 | 248 | 130 | 76,1 | 74 | 1/8" | 1,6 | 1 x 0410 VSF |
| **SF 0012** | DN15 | 10/145 | 150 | 88 | 256 | 128 | 76,1 | 78 | 1/8" | 1,8 | 1 x 0420 VSF |
| **SF 0018** | DN15 | 10/145 | 225 | 132 | 288 | 128 | 76,1 | 78 | 1/8" | 1,8 | 1 x 0520 VSF |
| **SF 0032** | DN25 | 10/145 | 315 | 185 | 315 | 180 | 114,3 | 99 | 1/4" | 3,1 | 1 x 0530 VSF |
| **SF 0048** | DN32 | 10/145 | 600 | 353 | 368 | 181 | 114,3 | 90 | 1/4" | 3,4 | 1 x 0730 VSF |
| **SF 0072** | DN40 | 10/145 | 900 | 530 | 449 | 174 | 114,3 | 65 | 1/4" | 3,6 | 1 x 1030 VSF |
| **SF 0108** | DN50 | 10/145 | 1.260 | 742 | 591 | 188 | 114,3 | 110 | 1/4" | 4,9 | 1 x 1530 VSF |
| **SF 0144** | DN65 | 10/145 | 1.680 | 989 | 741 | 205 | 139,7 | 136 | 1/4" | 8,4 | 1 x 2030 VSF |
| **SF 0192** | DN80 | 10/145 | 2.400 | 1.413 | 1014 | 203 | 139,7 | 136 | 1/4" | 10,2 | 1 x 3030 VSF |
| **SF 0432** | DN100 | 10/145 | 5.040 | 2.966 | 1005 | 410 | 219,1 | 183 | 1/2" | 44 | 3 x 2030 VSF |
| **SF 0576** | DN100 | 10/145 | 6.720 | 3.955 | 1266 | 410 | 219,1 | 183 | 1/2" | 45 | 3 x 3030 VSF |
| **SF 0768** | DN150 | 10/145 | 9.600 | 5.650 | 1337 | 480 | 273 | 267 | 1/2" | 70 | 4 x 3030 VSF |
| **SF 1152** | DN150 | 10/145 | 13.440 | 7.910 | 1331 | 540 | 323,9 | 267 | 1" | 80 | 6 x 3030 VSF |
| **SF 1536** | DN200 | 10/145 | 17.200 | 10.124 | 1496 | 660 | 406,4 | 306 | 1" | 200 | 8 x 3030 VSF |
| **SF 1920** | DN200 | 10/145 | 21.120 | 12.431 | 1496 | 660 | 406,4 | 306 | 1" | 201 | 10 x 3030 VSF |




| | |
|---|---|
| quality class - solids (ISO 8573-1) | 1 |
| quality class - oils (ISO 8573-1) | - |
| pressure drop - new element (dry) [mbar / psi] | 80/1,160 |
| pressure drop - new element (wet) [mbar / psi] | 190/2,756 |
| filter media | Borosilicate micro fibres |
| pleated version | - |
| wrapped version | ✓ |
| sintered version | - |
| min. operating temperature (°C / °F) | -20 / -4 |
| max. operating temperature (°C / °F) | 150 / 302 |

| CORRECTION FACTORS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Operating pressure [bar] | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Operating pressure [psi] | 29 | 44 | 58 | 72 | 87 | 100 | 115 | 130 | 145 |
| Correction factor | 0,38 | 0,50 | 0,63 | 0,75 | 0,88 | 1 | 1,13 | 1,25 | 1,38 |

# SPF SERIES

## STAINLESS STEEL STERILE FILTERS

**14 bar**
operating pressure

**75 to 3600 Nm³/h**
volume flow rate

**1/4" to 3"**
connections

**1,5 to +150 °C**
operating temperature range

**stainless steel 1.4404**-standard
**stainless steel 1.4301**-option
material

## DESCRIPTION

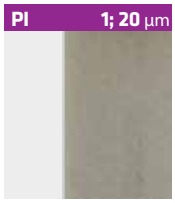
SPF stainless steel sterile filter housings have been specifically developed for applications in process industry, where the risk for corrosion of compressed air system components is very high. To meet the required compressed air quality appropriate filter element (Sterile filter cartridge) must be installed into filter housing.

For any other technical gas please contact us or your local dealer.

SPF process filter housing can be used in variety of applications. For applications not listed please contact us or your local dealer.

For oil removal, coalescing filter element must be installed and flow direction inside-out must be provided. General arrangement is filter head on top and filter bowl on bottom.

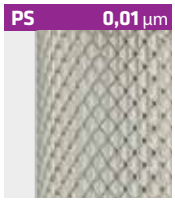
Fluid group 1 on request.















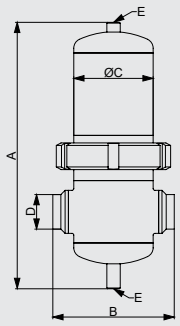
## APPLICATIONS

- Packing industry
- Biotechnology
- Breweries
- Chemical industry
- Dairies
- Fermentation processes
- Food and beverage industry
- Pharmaceutical industry
- Hospitals





| TECHNICAL DATA | | | | | | | | | | FILTER ELEMENTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Filter housing size | Pipe size D | Oper. press. | Flow rate at 7 bar(g), 20 °C | | DImensions [mm] | | | | Mass | **PI** prefilter 1; 20 µm | **PIW** prefilter 1; 20 µm | **PN** prefilter 5; 25 µm | **PP** prefilter 3 µm | **PR** prefilter 1 µm | **PM** microfilter 0,1 µm | **PS** microfilter 0,01 µm | **PA** activated carbon | **VSF** sterile 0,01 µm |
| | inch | bar/psi | Nm³/h | scfm | A | B | C | E | kg | | | | | | | | | |
| **SPF 005** | 1/4" | 14/203 | 75 | 44 | 225 | 120 | 76,1 | 1/8" | 1,9 | 0310 PI | 0310 PIW | 0310 PN | 0310 PP | 0310 PR | 0310 PM | 0310 PS | 0310 PA | 0310 VSF |
| **SPF 007** | 3/8" | 14/203 | 105 | 62 | 251 | 120 | 76,1 | 1/8" | 2,0 | 0410 PI | 0410 PIW | 0410 PN | 0410 PP | 0410 PR | 0410 PM | 0410 PS | 0410 PA | 0410 VSF |
| **SPF 010** | 1/2" | 14/203 | 150 | 88 | 258 | 121 | 76,1 | 1/8" | 2,1 | 0420 PI | 0420 PIW | 0420 PN | 0420 PP | 0420 PR | 0420 PM | 0420 PS | 0420 PA | 0420 VSF |
| **SPF 018** | 3/4" | 14/203 | 225 | 132 | 282 | 121 | 76,1 | 1/8" | 2,3 | 0520 PI | 0520 PIW | 0520 PN | 0520 PP | 0520 PR | 0520 PM | 0520 PS | 0520 PA | 0520 VSF |
| **SPF 030** | 1" | 14/203 | 315 | 185 | 299 | 136 | 88,9 | 1/8" | 3,1 | 0525 PI | 0525 PIW | 0525 PN | 0525 PP | 0525 PR | 0525 PM | 0525 PS | 0525 PA | 0525 VSF |
| **SPF 047** | 1 1/4" | 14/203 | 420 | 247 | 359 | 155 | 88,9 | 1/8" | 3,4 | 0725 PI | 0725 PIW | 0725 PN | 0725 PP | 0725 PR | 0725 PM | 0725 PS | 0725 PA | 0725 VSF |
| **SPF 070** | 1 1/2" | 14/203 | 600 | 353 | 395 | 180 | 114,3 | 1/4" | 4,7 | 0730 PI | 0730 PIW | 0730 PN | 0730 PP | 0730 PR | 0730 PM | 0730-PS | 0730 PA | 0730 VSF |
| **SPF 094** | 2" | 14/203 | 900 | 530 | 464 | 180 | 114,3 | 1/4" | 5,3 | 1030 PI | 1030 PIW | 1030 PN | 1030 PP | 1030 PR | 1030 PM | 1030 PS | 1030 PA | 1030 VSF |
| **SPF 150** | 2" | 14/203 | 1260 | 742 | 592 | 180 | 114,3 | 1/4" | 6,0 | 1530 PI | 1530 PIW | 1530 PN | 1530 PP | 1530 PR | 1530 PM | 1530 PS | 1530 PA | 1530 VSF |
| **SPF 175** | 2 1/2" | 14/203 | 1680 | 989 | 743 | 226 | 139,7 | 1/4" | 11,4 | 2030 PI | 2030 PIW | 2030 PN | 2030 PP | 2030 PR | 2030 PM | 2030 PS | 2030 PA | 2030 VSF |
| **SPF 200** | 3" | 14/203 | 2400 | 1413 | 995 | 226 | 139,7 | 1/4" | 12 | 3030 PI | 3030 PIW | 3030 PN | 3030 PP | 3030 PR | 3030 PM | 3030 PS | 3030 PA | 3030 VSF |
| **SPF 240** | 3" | 14/203 | 3600 | 2119 | 1029 | 256 | 168,3 | 1/4" | 18 | 3050 PI | 3050 PIW | 3050 PN | 3050 PP | 3050 PR | 3050 PM | 3050 PS | 3050 PA | 3050 VSF |




| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| quality class - solids (ISO 8573-1) | - | - | - | 6 | 3 | 2 | 1 | 1 [1)] | 1 |
| quality class - oils (ISO 8573-1) | - | - | - | - | - | 2 | 1 | 1 | - |
| pressure drop - new element-dry [mbar] | ≤2600; ≤60 | ≤2600; ≤60 | 10 | 10 | 20 | 50 | 80 | 60 | 80 |
| filter media | sintered stainless steel 1.4404 | sintered stainless steel 1.4404 | stainless steel mesh 1.4301 | acrylic fibres, cellulose | borosilicate micro fibres | | | borosilicate micro fibres, activ. carbon | borosilicate micro fibres |
| pleated version | - | - | - | ✓ | ✓ | ✓ | ✓ | - | - |
| wrapped version | - | - | ✓ | - | - | - | - | ✓ | ✓ |
| sintered version | ✓ | ✓ | - | - | - | - | - | - | - |
| min. operating temperature (°C / °F) | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | 1,5 / 35 | -20 / -4 |
| max. operating temperature (°C / °F) | 150 / 302 | 150 / 302 | 150 / 302 | 65 / 149 | 120 / 248 | 120 / 248 | 120 / 248 | 45 / 113 | 150 / 302 |

| CORRECTION FACTORS | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operating pressure [bar] | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Operating pressure [psi] | 29 | 44 | 58 | 72 | 87 | 100 | 115 | 130 | 145 | 160 | 174 | 189 | 203 |
| Correction factor | 0,38 | 0,50 | 0,63 | 0,75 | 0,88 | 1 | 1,13 | 1,25 | 1,38 | 1,50 | 1,63 | 1,75 | 1,88 |

[1)] Valid if "S" filter cartridge is installed upstream.

# AV SERIES

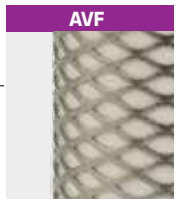
## STAINLESS STEEL AIR VENTING FILTERS

**9 to 310** $Nm^3/h$
volume flow rate

**DN32 to DN80**
connections

**1,5 +200** °C
operating temperature range

**stainless steel 1.4404**-standard
**stainless steel 1.4301**-option
material




## DESCRIPTION

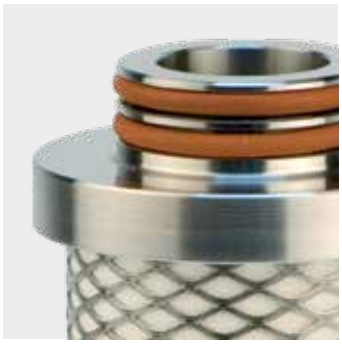
AV stainless steel filter housings are designed to remove impurities from air which is being feed or exhausted from tank during changing of liquid level.

To meet the required air quality appropriate filter element (typically AVF filtration grade) must be installed into filter housing.

AV filter housing is also designed for sterilisation. Before use, if needed for the application, sterilize the filters.

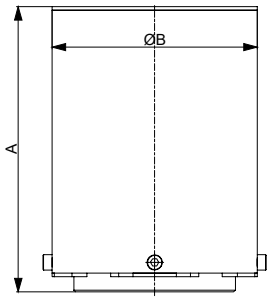
## APPLICATIONS

- Packing industry
- Biotechnology
- Breweries
- Chemical industry
- Dairies
- Fermentation processes
- Food and beverage industry
- Pharmaceutical industry
- Water treatment systems



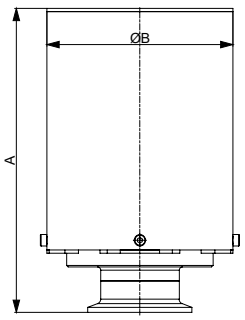
## Sizes

| Filter housing model | Connection DIN 11851 | Flow rate | Dimensions [mm] | | Mass | Filter element type |
|---|---|---|---|---|---|---|
| | DN | Nm³/h | A | ø B | kg | |
| **AV 006** | 32 | 9 | 110 | 88,9 | 1,2 | 0310 AVF |
| **AV 027** | 40 | 25 | 160 | 114,3 | 2,1 | 0525 AVF |
| **AV 032** | 50 | 40 | 165 | 114,3 | 1,9 | 0530 AVF |
| **AV 072** | 50 | 110 | 290 | 114,3 | 2,6 | 1030 AVF |
| **AV 144** | 80 | 210 | 550 | 168,3 | 7,3 | 2030 AVF |
| **AV 192** | 80 | 310 | 820 | 168,3 | 9,5 | 3030 AVF |




## Sizes - Tri-clamp connections

| Filter housing model | Connection ISO 1127 | Flow rate | Dimensions [mm] | | Mass | Filter element type |
|---|---|---|---|---|---|---|
| | | Nm³/h | A | ø B | kg | |
| **AV 006** | DN40 (1 1/2") | 9 | 126 | 88,9 | 1,2 | 0310 AVF |
| **AV 027** | DN40 (1 1/2") | 25 | 179 | 114,3 | 2,4 | 0525 AVF |
| **AV 032** | DN50 (2") | 40 | 181 | 114,3 | 2,0 | 0530 AVF |
| **AV 072** | DN50 (2") | 110 | 308 | 114,3 | 2,7 | 1030 AVF |
| **AV 144** | DN80 (3") | 210 | 568 | 168,3 | 7,7 | 2030 AVF |
| **AV 192** | DN80 (3") | 310 | 812 | 168,3 | 12,5 | 3030 AVF |



# MSS

## MOBILE STEAM STERILIZER

**1 to 3,6 bar**
steam pressure

**100 °C to 135 °C**
steam operating temperature

**up to 90 min**
sterilisation time

**up to 90 min**
drying time


## DESCRIPTION

Compressed air piping with high temperature and humidity is a suitable environment for microbial growth. In order to stop microbial activity, filters have to be sterilized. Sterilization can be done in place or in the autoclave. To perform autoclave, sterilization filters need to be removed from the system and due to septic conditions in the atmosphere it is difficult to prevent contamination during re-assembly of the installation.

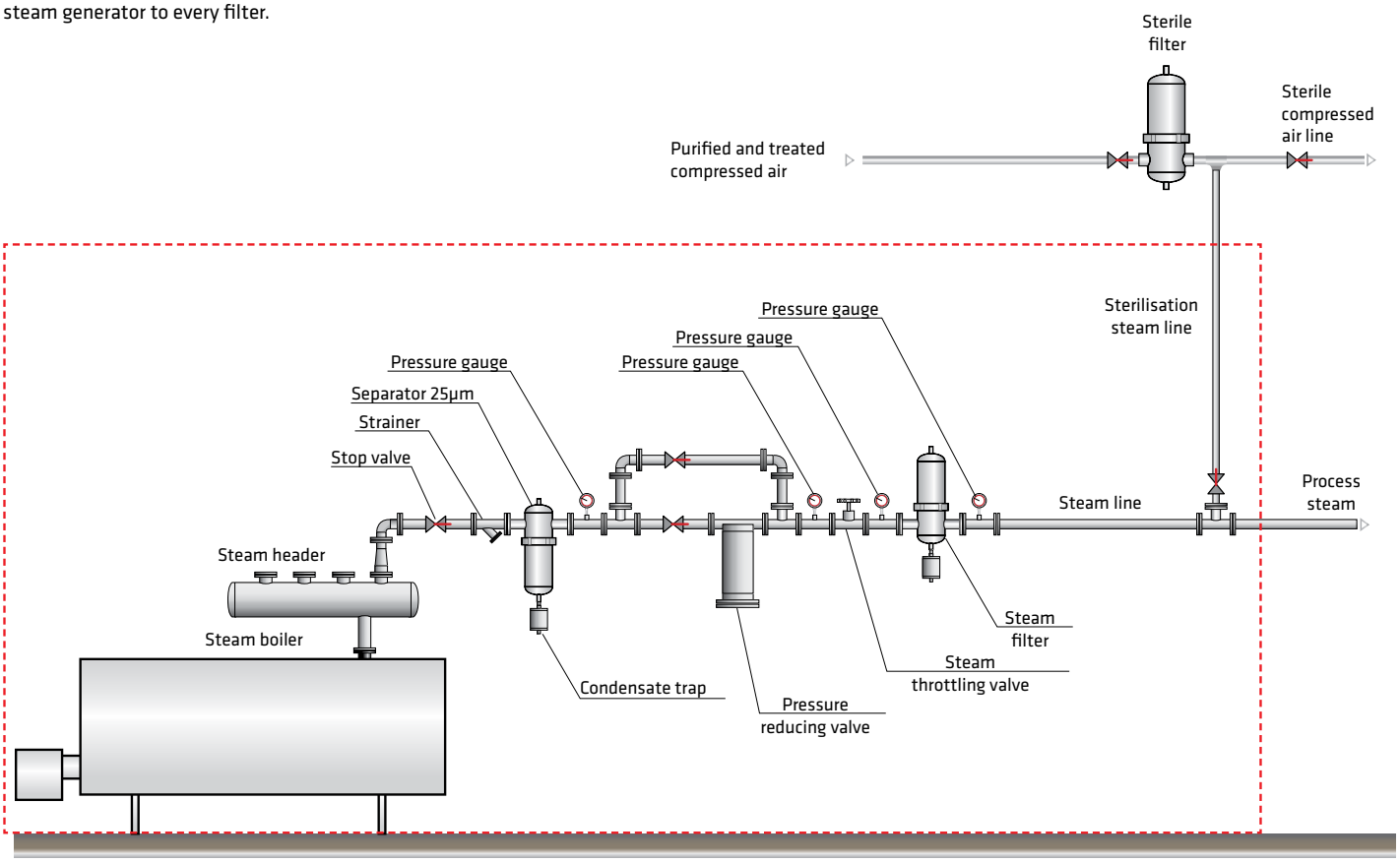
Sterilization in place (SIP) ensures much better results and is more common in the process industry. Steam sterilization is an effective method to stop microbial activity. "Mobile Steam Sterilizer" is designed for easier, cheaper and faster SIP. MSS can be easily connected to any part of installation where sterilization is required. After filter sterilization is completed MSS can simply be disconnected and transported to another location.

## APPLICATIONS

- Food industry
- Wine production
- Dairies
- Small breweries

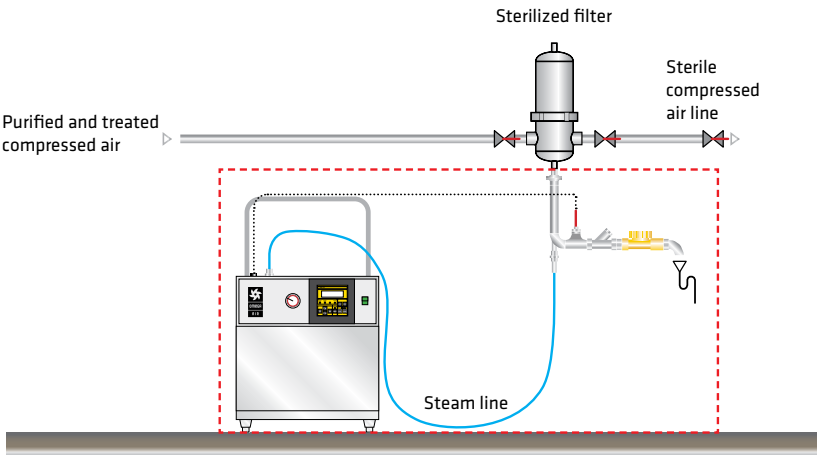
## INSTALLATION OF CONVENTIONAL STERILIZATION

Scheme of a conventional sterilization in place system. All the equipment surrounded by red line is required to perform sterilization of the filter housing in the upper right corner. Such a fixed steam distribution line connects steam generator to every filter.




## INSTALLATION OF MSS ON STERILE FILTER

Scheme of a new Mobile Steam Sterilizer connected to a filter. After sterilization cycle is completed flexible hose for steam distribution is disconnected from the filter and complete sterilizer (equipment outlined by a red frame) can be moved to another location.




| TECHNICAL DATA | MSS |
|---|---|
| Power supply | 110-230V / 50/60 Hz |
| Power consumption | 1,7 kW |
| Sterilization temperature | Adjustable from 100 - 135 °C |
| Sterilization time | Adjustable up to 90 min |
| Material drying time | Adjustable up to 90 min |
| Sound level | 60 dB(A) |
| Dimensions W x H x -L | 450 x 855 x 445 mm |

# Filtration grades

Below only the most common filtration grades for process applications are listed. For complete range of our products please check OMEGA AIR product catalogue or contact us for specific application.

## PI grade 1; 20 µm

**PREFILTER**
particulate

Rating according to ISO 8573-1

| Solid p. | Water | Oils |
|---|---|---|
| Class - | Class - | Class - |

high efficient removal of solid particles from compressed air

| | |
|---|---|
| Filter media | sintered stain. steel 1.4404 |
| Oper. temper. | 0 - 150 °C |
| Diff. press. (dry) | 60 mbar |

## PIW grade 1; 20 µm

**PREFILTER**
particulate

Rating according to ISO 8573-1

| Solid p. | Water | Oils |
|---|---|---|
| Class - | Class - | Class - |

high efficient removal of solid particles from compressed air

| | |
|---|---|
| Filter media | sintered stain. steel 1.4404 |
| Oper. temp. | 0 - 150 °C |
| Diff. press. (dry) | 60 mbar |

## PN grade 5; 25 µm

**PREFILTER**
particulate

Rating according to ISO 8573-1

| Solid p. | Water | Oils |
|---|---|---|
| Class - | Class - | Class - |

high efficient removal of solid particles from compressed air

| | |
|---|---|
| Filter media | stainles steel mesh 1.4301 |
| Oper. temp. | 0 - 150 °C |
| Diff. press. (dry) | 10 mbar |

## PM grade 0,1 µm

**MICROFILTER**
particulate+coalescing

Rating according to ISO 8573-1

| Solid p. | Water | Oils |
|---|---|---|
| Class 2 | Class - | Class 2 |

high efficient filtration in process industry applications, removal of submicrons particles, bacteria

| | |
|---|---|
| Filter media | borosilicate micro f. |
| Oper. temperature | 1,5 - 120 °C |
| Diff. pressure (dry) | 50 mbar |
| Part. reten. (nom.) | 99,9999% (0,1 µm) |

## PS grade 0,01 µm

**MICROFILTER**
particulate+coalescing

Rating according to ISO 8573-1

| Solid p. | Water | Oils |
|---|---|---|
| Class 1 | Class - | Class 1 |

high efficient filtration in process industry applications, removal of submicrons particles, bacteria

| | |
|---|---|
| Filter media | borosilicate micro f. |
| Oper. temperature | 1,5 - 120 °C |
| Diff. pressure (dry) | 80 mbar |
| Part. reten. (nom.) | 99,9999% (0,01 µm) |

## PA grade

**ADSORPTION**
activated carbon

Rating according to ISO 8573-1

| Solid p. | Water | Oils |
|---|---|---|
| Class - | Class - | Class - |

high efficient removal of oil, hydrocarbons, vapours and odours from compressed air

| | |
|---|---|
| Filter media | activated carbon, borosilicate micro f. |
| Oper. temperature | 1,5 - 45 °C |
| Diff. pressure (dry) | 60 mbar |
| Residual oil cont. | <0,0005 mg/m³ |

## PP grade 3 µm

**PREFILTER**
particulate

**Rating according to ISO 8573-1**

| Solid p. | Water | Oils |
|---|---|---|
| Class 6 | Class - | Class - |

high efficient removal of solid particles from compressed air

| | |
|---|---|
| Filter media | acrile fibres, celulose |
| Oper. temperature | 1,5 - 65 °C |
| Diff. press. (dry) | 10 mbar |
| Part. reten. (nom.) | 99,99% (3 µm) |
| Part. retent. (ISO) | 95 % |

## PR grade 1 µm

**PREFILTER**
particulate

**Rating according to ISO 8573-1**

| Solid p. | Water | Oils |
|---|---|---|
| Class 3 | Class - | Class - |

high efficient removal of solid particles from compressed air

| | |
|---|---|
| Filter media | borosilicate micro f. |
| Oper. temperature | 1,5 - 120 °C |
| Diff. pressure (dry) | 20 mbar |
| Part. reten. (nom.) | 99,9999% (1 µm) |
| Part. retent. (ISO) | 99.8 % |

## VSF grade

**STERILE**
particulate + bacteria removal + sterile

**Rating according to ISO 8573-1**

| Solid p. | Water | Oils |
|---|---|---|
| Class 1 | Class - | Class - |

high efficient sterile filtration of compressed air, process air and technical gasses

| | |
|---|---|
| Filter media | borosilicate micro f. |
| Oper. temperature | -20 to +150 °C |
| Diff. pressure (dry) | 80 mbar |
| Part. reten. (nom.) | 99,9999% (0,1 µm) |

## AVF grade

**STERILE**
particulate + bacteria removal + sterile

**Rating according to ISO 8573-1**

| Solid p. | Water | Oils |
|---|---|---|
| Class 1 | Class - | Class - |

high efficient sterile filtration of compressed air, process air and technical gasses

| | |
|---|---|
| Filter media | borosilicate micro f. |
| Oper. temperature | -20 to +150 °C |
| Diff. pressure (dry) | 80 mbar |
| Part. reten. (nom.) | 99,9999% (0,1 µm) |

# OMEGA AIR

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