



MSF SERIES STERILE FILTERS





Founded in 1983 in Liege, Belgium, Drytec provides compressed air products worldwide and sales & after-sales service to channel partners throughout Europe. Drytec is keeping a high level of stock in Belgium with over 1000 dryers on shelves and thousands of consumables to serve customers in the best and fastest way. With nearly 45 years of experience in compressed air systems, Drytec is now one of the leading companies in the field of compressed air filters and automatic drainage systems for various industries.

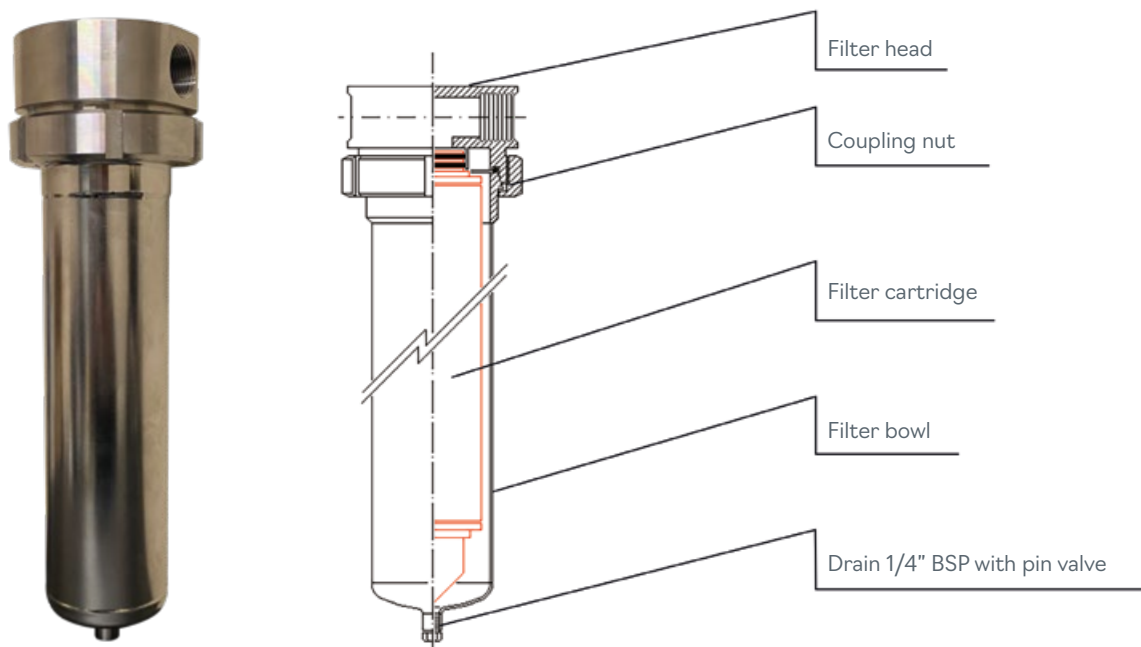
Note: The product images/visuals may include optional components. Images represent the appearance of the product. Please check the standard and optional lists of the relevant product for the most accurate cautiously.

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Drytec Sterile Filter Housing

MSF is a high-quality filter housing to provide safety and reliability in desired conditions. As the coupling body-bowl is designed to prevent unscrewing when in pressure, they are suitable in compressed air and gases.



Reference Conditions

REFERENCE Conditions For All MSF MODELS*

Design Pressure (@60°C)	20 barg
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Working Pressure Condition	7/14 barg
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Working Temperature Condition	21°C
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*All values preferred to the directive 2014/68/EU

Drytec PTFE Sterile Element

The MSF PTFE Membrane Filter offers 99.99% absolute filtration efficiency with a naturally hydrophobic PTFE membrane featuring high porosity and flow rate. This filter stands out with its low-pressure drop and long service life, while demonstrating broad chemical compatibility against strong alkalis, acids, and aggressive gases, and maintaining high temperature resistance. The MSF Membrane Series is available in 0.20 µm pore size.



Working Principle

The purpose of sterile filters in compressed air systems is to prevent the passage of microorganisms in compressed air and gases. These filters consist of a membrane structure with micro-pores. They effectively filter out more than 99.99%. To maintain flow rate and prevent accumulation on the filter surface during filtration, regular inspection and sterilization of the filters are required. Sterile filters are widely used in areas such as pharmaceutical production, biotechnology, food, and beverage production, medical device sterilization, and laboratory applications.

Sterilization

There are two types of sterilization process, both for preventing bacterial contamination by sterilizing filter elements and housings. It ensures filtration efficiency, extends filter lifespan, and maintains sterility in critical industries like food, beverage, and pharmaceuticals. This process guarantees product safety and regulatory compliance through efficient steam sterilization. These sterilization types are stated below including necessary steps.

NOTE: The recommended element replacement period is ≥ 100 cycles sterilization guaranteed.

1. Sterilization-in-Place

The process is introduced step-by-step below and the parameters are in the table below.

- Ensure the filter housing and element are in place
- All system connections except for steam inlet and condensate drain shall be closed
- Filtered steam (min. 1 bar) is supplied
- The required sterilization temperature (121-141°C) is maintained
- Steam for 10-30 minutes, depending on temperature shall be flowing constantly
- The condensate to prevent cold spots shall be drained continuously
- After sterilization process, sterile air or gas to cool the system shall be introduced
- The system integrity shall be checked (any leaks, etc.)
- The filter is now sterile and ready for use

2. Autoclave

The other sterilization process option is the autoclave. The elements can be sterilized by this process. The process is introduced step-by-step below and the parameters are in the table below.

- Air supply must be cut off. The steam used must be free of rust and other particles. Turn the filter housing counterclockwise to separate it from the head. During the sterilization process, steam pressure must not be allowed to fall below 1 barg or 121°C.
- To sterilize the dirty element with a new one, first turn the element counterclockwise and remove it from the tie rod. Condensate formed in the system during sterilization must be drained. Any air trapped inside the housing must be released. Loosen the drain at the bottom of the filter with a wrench to discharge the remaining air.
- After autoclaving, assemble the sterilized element by turning it clockwise to connect it to the rod. After sterilization, pressurize the system with process air or the gas used and allow it to cool until it is ready for use. Assemble the filter bowl to the filter head by turning it clockwise. Gently tighten the drain relief valve with a wrench as shown below.

NOTE: Generally, only the filter element is sterilized in an autoclave; however, both the housing and the element can be sterilized together if removed from the process, disassembled, and placed in the autoclave. Connect the system to the air supply to check for any leakages.

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Temperatures	Cycle Times (min.)			
	Sterilization	Cooling	Reheating	Total
121-124°C	30	15	15	60
129-135°C	15	15	15	45
141°C	10	15	15	40

Specifications

Materials	Filter Media	Hydrophobic PTFE Membrane
	Support Layers	Polypropylene
	Micron Rating	0.2 µm
	Inner Core	Reinforced Polypropylene
	Outer Cage	Reinforced Polypropylene
	End Caps	Polypropylene
	Sealing Method	No Adhesives
	O-ring	Silicone
Cartridge Safety	Endotoxins	<0.25 EL/ml
	Extractables	0.03 g/10"

7 barg - 21°C (0.2 µm)				
Models (@7 barg)	MSF-40	MSF-140	MSF-220	MSF-300
Element Models	MSE-40	MSE-140	MSE-220	MSE-300
Max. Flow Rate	40 m³/h	140 m³/h	220 m³/h	300 m³/h
Pressure Drop	56 mbar	78 mbar	66 mbar	63 mbar
Filter Body	316SS Stainless Steel			
Design Pressure	20 barg at 60°C			
IN/OUT Connections	1/4" BSP	1/2" BSP	3/4" BSP	1" BSP
Gasket Material	Silicone			
Drain	1/4" BSP with pin valve			

Given flows are at 7 barg pressure with reference to 20°C and 1 bar atmospheric air suction as per ISO 7183 standard

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	14 barg - 21°C (0.2 µm)			
Models (@14 barg)	MSF-40	MSF-140	MSF-220	MSF-300
Element Models	MSE-40	MSE-140	MSE-220	MSE-300
Max. Flow Rate	75 m³/h	255 m³/h	409 m³/h	560 m³/h
Pressure Drop	97 mbar	119 mbar	107 mbar	104 mbar
Filter Body	316SS Stainless Steel			
Design Pressure	20 barg at 60°C			
IN/OUT Connections	1/4" BSP	1/2" BSP	3/4" BSP	1" BSP
Gasket Material	Silicone			
Drain	1/4" BSP with pin valve			

* For other connection types such as NPT, Clamps, or Flange connections, please consult Drytec technical team.
Given flows are at 7 barg pressure with reference to 20°C and 1 bar atmospheric air suction as per ISO 7183 standard

Main Applications

- Various process filtrations
- Compressed air and gases filtration
- Sterile compressed air and gas filtration
- Food and beverage production
- Pharmaceutical production
- Biotechnology
- Medical device sterilization
- Laboratory applications
- Any need in sterile filtration application

Features and Benefits

-  Hydrophobic PTFE Membrane with superior porosity
-  Filtration efficiency ≥99.99%
-  Low pressure drop
-  Long service life
-  Wide chemical compatibility, resistant to strong gases and solvents
-  High temperature performance
-  Specifically designed to ensure sterilization
-  Filter head offers a smooth surface preventing bacteria growth
-  Heavy duty construction for housing
-  Filter bowl with minimum seams
-  Four different cartridge lengths to a maximum of 2 m³ of filter area
-  The head-bowl coupling uses a threaded round nut for secure fastening under pressure, ensuring greater reliability than clamped systems

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