Product Brief – MaestroGuard® Filter

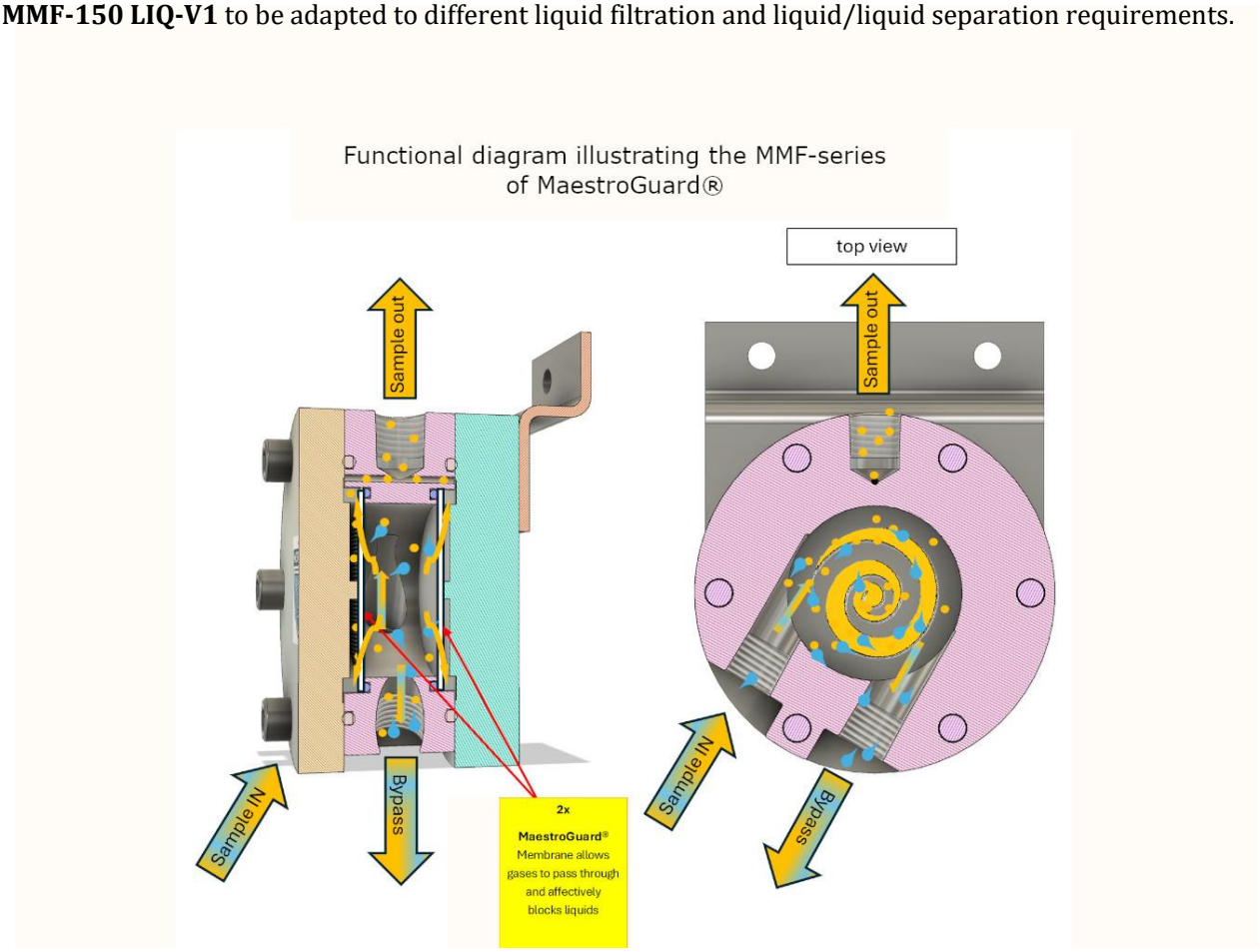
MMF-150-316L-160

1. Product Overview

High-Capacity Gas & Liquid Sample Conditioning Filter

The **MMF-150 MaestroGuard® Filter** is a compact, high-performance filter designed for critical gas sampling systems. It combines **parallel multi-membrane filtration**, **mechanical particle pre-separation**, and **self-cleaning bypass drainage**—resulting in **exceptional flow capacity**, **prolonged filter life**, and **minimal maintenance** requirements.

For **liquid-phase applications**, the MMF-150 is available in a dedicated LIQ-V1 configuration. Depending on the selected MaestroGuard® membrane type and pore size, selected liquids can pass through the membrane while free water and particulate contamination are rejected. This allows the **MMF-150 LIQ-V1** to be adapted to different liquid filtration and liquid/liquid separation requirements.



2. Key Features

The MMF-150 features a carefully engineered **internal spiral flow path** that significantly enhances phase separation and membrane protection:

- **Dual MaestroGuard® Membrane Chambers (Parallel)**
  The pre-separated gas then passes through **two parallel MaestroGuard® membrane zones**, allowing clean gas to pass while liquids and particles are retained.
- **Selective Liquid Filtration – LIQ-V1** The MMF-150 LIQ-V1 can be equipped with different MaestroGuard® membrane types and pore sizes. Depending on the selected membrane, the required liquid phase can pass through the membrane while free water and particulate contamination are retained. The retained contamination is continuously removed through the bypass.
- **Centrifugal Pre-Separation**
  Spiral inlet design creates a rotational flow that mechanically removes heavier droplets and particulates before they reach the membranes.
- **Self-Cleaning Bypass Channel**
  Continuously drains separated liquids and contaminants from the membrane chamber, preventing saturation and extending filter life.
- **Low-Flow, High-Precision Operation**
  Optimized for small-volume gas sampling systems in analytical and environmental applications.
- **Aggressive Cleaning for Harsh Streams**
  The internal swirl and bypass design also supports effective operation in dirty or multiphase gas flows, where oil mist, aerosols, and solid particles are present.
- **Robust and Compact Housing**
  Corrosion-resistant stainless steel body for integration in industrial or ATEX-rated environments.
- **Bypass Drainage Path**
  Collected liquids and contaminants are directed downward into a **dedicated bypass channel**, continuously flushed out to maintain membrane dryness and performance.
- **Vertical Sample Outlet**
  The clean, dry gas exits at the top—ready for precise downstream analysis.

This **internal spiral-bypass design** not only increases filtration effectiveness but also extends membrane life by preventing overload and fouling.

3. Technical Specifications

Housing Material	Stainless Steel 316L (1.4404)
Filter Element	2 x MaestroGuard® membrane
Gas Filtration	0.1 µm absolute standard - customizable
LIQ-V1 Pore Size	0.1 µm / 0.2 µm / 0.5 µm
Liquid Filtration	Application-specific MaestroGuard® membrane configuration
Selective Liquid Separation	Depending on membrane type, selected liquids can pass while free water is rejected
Membrane Selection	According to liquid composition, required filtration efficiency and flow
Operating Pressure	Up to 160 bar
Temperature Range	Up to 260°C (depending on seal)
Flow Rate	2000 L/h air @ 100mbar
Bypass flow	500ml to 25l/min (per application to drain or back to process)

Internal volume	122ml in centrifugal system and 24ml after membrane
Connections	NPT Female or on request
Seal Materials	FKM, FFKM, FEP
Certificates / Compliance	EN 10204 3.1, CE, ATEX, PED 2014/68/EU, ISO 11114-4, ISO 15156 / NACE MR0175

No self-ignition hazard – compliant with requirements for explosive environments.

4. Application Areas

- **Gas Analysis Systems**
  Effectively removes entrained liquids and fine particulates from corrosive or inert gas samples. Ideal for use with infrared sensors, TCDs, chromatographs, and moisture **analyzers.**
- **Oil and Fuel Sample Conditioning**
  Separates free water and solid contaminants from oil or diesel vapor samples, protecting sensitive analytical components.
- **Liquid Hydrocarbon Filtration & Water Separation**
  The MMF-150 LIQ-V1 provides dedicated filtration for liquid samples. Depending on the selected MaestroGuard® membrane type, hydrocarbon or other compatible liquids can pass through the membrane while free water and particulate contamination are rejected. Different membrane pore sizes allow the filtration performance and liquid flow to be adapted to the application
- **Hydrogen and Alternative Fuel Systems**
  Prevents ingress of droplets and aerosols in fuel cell and hydrogen quality monitoring systems.



- **Environmental & Stack Gas Monitoring**
  Ensures accurate low-level detection of pollutants such as NO_x, SO_2, CO, CO_2, and VOCs—even under humid or wet sampling conditions.
- **Industrial Process Control**
  Provides robust filtering in wet, oil-laden, or dust-rich gas streams—especially in harsh or remote processing environments.
- **Pharmaceutical and Chemical Manufacturing**
  Supplies dry, contaminant-free gas samples to instrumentation used for product validation and process compliance.
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5. Ordering Information

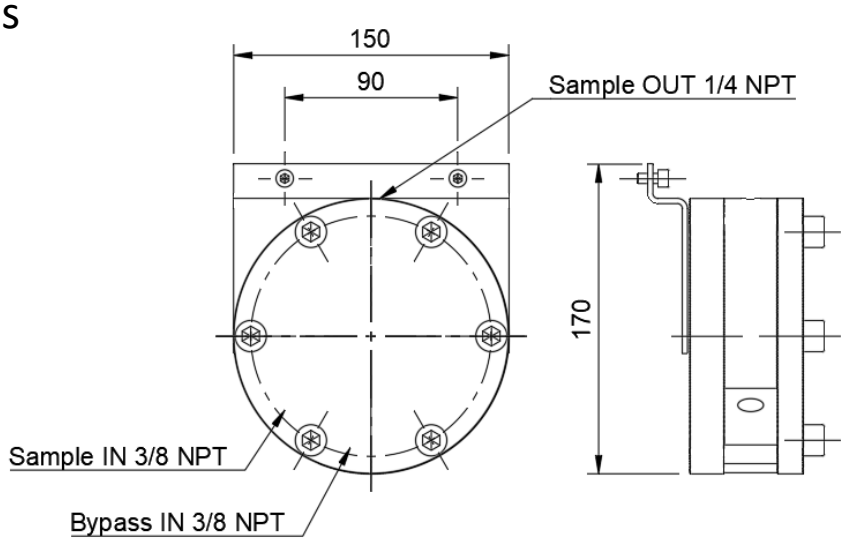
Order Number	Description
Gas Application Versions	
MMF-150-316L-160-FKM-V1	MMF-150 MaestroGuard® membrane Filter, 160 bar, O-ring FKM
MMF-150-316L-160-FFKM-V1	MMF-150 MaestroGuard® membrane Filter, 160 bar, O-ring FFKM
MMF-150-316L-160-PTFE-V1	MMF-150 MaestroGuard® membrane Filter, 160 bar, O-ring PTFE / FEP
LIQ-V1 – Liquid Filtration Versions	
MMF-150-316L-160-LIQ-01-V1	MMF-150 LIQ-V1, 0.1 µm MaestroGuard® liquid membrane
MMF-150-316L-160-LIQ-02-V1	MMF-150 LIQ-V1, 0.2 µm MaestroGuard® liquid membrane
MMF-150-316L-160-LIQ-05-V1	MMF-150 LIQ-V1, 0.5 µm MaestroGuard® liquid membrane
Option	
MBMMF-150-SS	MMF-150 Mounting Bracket in Stainless Steel 316L
Spare Parts	
MK-MMF-150-FKM-V1	MMF-150 Service kit: 2 x MaestroGuard® Membrane Set 0,1µm, 4 x O-ring FKM
MK-MMF-150-FFKM-V1	MMF-150 Service kit: 2 x MaestroGuard® Membrane Set 0,1µm, 4 x O-ring FFKM
MK-MMF-150-PTFE-V1	MMF-150 Service kit: 2 x MaestroGuard® Membrane Set 0,1µm, 4 x O-ring PTFE
MK-MMF-150 LIQ xxx	MMF-150 LIQ Service kit: 2 x MaestroGuard® Membrane xxx (specify application)
SS-MMF-150-SS-V1	MMF-150 Support screen, 316L

6. Benefits

- **Superior Gas Purity**
  Only clean, dry gas passes through the dual membrane system—protecting downstream analyzers from water, oil mist, aerosols, and fine particulates.
- **Extended Filter Lifetime with Minimal Maintenance**
  The combination of centrifugal pre-separation and self-cleaning bypass flow prevents membrane fouling and saturation, greatly reducing maintenance frequency.

- **Optimized for Multiphase and Contaminated Gas Streams**
  Handles challenging conditions with entrained liquids, oil droplets, and particles, making it ideal for oil & gas, refining, and chemical processing applications.
- **Flexible Liquid Filtration**
  The dedicated MMF-150 LIQ-V1 configuration allows the membrane type and pore size to be selected according to the liquid application. Selected liquids can pass through the membrane while free water and particulate contamination are rejected.
- **Low Bypass, High Separation Efficiency**
  Achieves effective gas-liquid separation with minimal sample loss—ideal for systems with limited sample flow or strict energy constraints.
- **Compact and Easy to Integrate**
  Space-saving design with flexible mounting options allows use in analyzer cabinets, field units, and mobile platforms.
- **Cross-Sector Versatility**
  Suitable for precision applications (e.g. hydrogen, pharma, environmental) as well as robust industrial settings, including offshore platforms, refineries, and process gas systems.
- **Minimizes downtime** – long service intervals and low maintenance

7. Dimensions



Specifications are subject to change without notice
as part of our continuous improvement efforts.

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