

LABORATORY FILTRATION Product Guide

Company Profile



Advanced Microdevices (**mdi**) is a leader in innovative membrane technologies. Starting from a single person R&D operation in 1976, **mdi** has developed into a dedicated team of 400 plus with more than 15000 products.

The company's core competence is its ability to develop new membrane technologies and innovate existing ones to deliver advantages to the customer for high end purification and separation applications in a wide range of industries such as pharmaceuticals, biopharmaceuticals, biotechnology, food and beverage, hospitals, and immunodiagnostics.



As membranes end up being incorporated into user friendly devices, plastic design and moulding and sealing technologies become an integral part of the chain to deliver value to the customer. Realizing this, **mdi** has grown into a vertically integrated company that helps deliver prototypes rapidly for quicker conversion to products for the market.

mdi products are used for critical applications in pharmaceutical and biopharmaceutical industries, such as sterilization of injectable drugs, sterility testing, sample preparation of drugs that are tested with highly sophisticated instrumentation, and development of new drug entities and formulations. **mdi** also offers world class membranes for making reliable immunoassays for testing of diseases at patient bedside.

mdi products meet or exceed industry standards and many of these are recognized as the best available in the world.

These products are manufactured by highly trained manpower in modern GMP facilities with large ISO class 7 production areas under ISO 9001:2008 certified quality management system and are backed by state of the art QC testing, microbiology, reliability and validation laboratories.

A strong pipeline of new products is constantly being developed in its well equipped R&D labs.



**World Class GMP Compliant
Multilocation Facilities (200,000 sq. ft.)**

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Filters for Sample Preparation

Sample filtration is a very important part of any analytical procedure as it is required to safeguard highly sensitive analytical equipment from instrument downtime and also to ensure reliable results.

Accuracy and reliability

1. Eliminates background peaks
2. Assures correct and reproducible volumes are injected into the system
3. Eliminates dissolved gases in the mobile phase which cause “noise” in the detector

Instrument downtime

1. Prevents plugging of critical valves and small ID tubing
2. Extends the life of the analytical column

Filter Selection

Product	Key Features	Type	Dia / Size	Applications
Nylon-66 Membrane Disc Filters	- Wide chemical compatibility - Low extractables	HNN	13mm 25mm 47mm	Filtration of samples for HPLC (<10ml) Filtration of samples for HPLC (<100ml) Solvent filtration: HPLC mobile phase
Nylon-66 Membrane Syringe Filters	- Wide chemical compatibility - Low extractables - Low hold-up volume	SY4NN SY13NN SY25NN	4mm 13mm 25mm	For aqueous as well as organic samples
Nylon-66 Membrane Syringe Filters with pre-filter	- Highly retentive of colloidal particles	SY13GN SY25GN	13mm 25mm	For difficult to filter turbid samples
PTFE Membrane Syringe Filters	- Very wide chemical compatibility	SY4TF SY13TF SY25TF	4mm 13mm 25mm	For highly aggressive solvents
PTFE Membrane Syringe Filters with pre-filter	- Very wide chemical compatibility - High throughputs	SY13TG SY25TG	13mm 25mm	For difficult to filter turbid samples
Hydrophilic PTFE Membrane Syringe Filters	- Very wide chemical compatibility	SY4TH SY13TH SY25TH	4mm 13mm 25mm	For aqueous as well as organic samples
Hydrophilic PVDF Membrane Syringe Filters	- Wide chemical compatibility	SY4VF SY13VF SY25VF	4mm 13mm 25mm	For sample filtration
Hydrophilic PVDF Membrane Syringe Filters with pre-filter	- Wide chemical compatibility - High throughputs	SY13VG SY25VG	13mm 25mm	For difficult to filter turbid samples
Hydrophilic Polypropylene Membrane Syringe Filters	- Wide chemical compatibility	SY4PP SY13PP SY25PP	4mm 13mm 25mm	For aqueous as well as organic samples
Hydrophilic Polypropylene Membrane Syringe Filters with pre-filter	- Wide chemical compatibility - High throughputs	SY13GP SY25GP	13mm 25mm	For difficult to filter samples
Regenerated Cellulose Membrane Syringe Filters	- Wide chemical compatibility	SY4RC SY13RC SY25RC	4mm 13mm 25mm	For sample filtration
Microglassfiber Syringe Filters	- Wide chemical compatibility	SY13GF SY25GF	13mm 25mm	For pre-filtration of difficult to filter samples
Automated Membrane Syringe Filters	- Specially designed for workstations for automated sample preparation	SZ25** ST25**	25mm	Automated sample filtration (<100ml)
Nylon-66 membrane Capsule Filters	- Wide chemical compatibility - Low extractables	<i>AseptiCap NL</i>	1"	Particulate removal from solvents to be used in highly sensitive analytical instruments (500ml to 5 liter)
Capsule filtration system for solvents	- Wide chemical compatibility as no elastomers are used	CFS - S	5 liter capacity	Particulate removal from chemicals, solvents and drug solutions, as it does away with flexible tubing and peristaltic pumps in analytical and process development labs

Disposable Membrane Syringe Filters

Unique Performance Advantages

- ◆ Very low extractables: No spurious peaks
- ◆ Minimal adsorption: Low variation in area under the peak
- ◆ Very low hand pressure: Maximum throughput
- ◆ Wide Range for all types of samples

Types Available

mdi offers a wide range of syringe filters with different sizes, pore sizes and membrane filter media to suit the variety of analytical sample preparation needs:

- ◆ Nylon-66
- ◆ PTFE
- ◆ Hydrophilic PTFE
- ◆ Hydrophilic PVDF
- ◆ Hydrophilic Polypropylene
- ◆ Regenerated Cellulose
- ◆ Microglassfiber

Syringe Filters for difficult to filter Turbid Samples

Specially designed membrane syringe filters with multi layered pre-filtration for graded retention of colloidal particles associated with highly turbid solutions

- ◆ Very high retention efficiency for colloidal fines
- ◆ Minimal hand pressure
- ◆ High throughput even with highly turbid, difficult to filter solutions

Syringe Filters for Automated Workstations

SZ25 and ST25**** are designed for use in workstations for automated sample preparation to ensure:

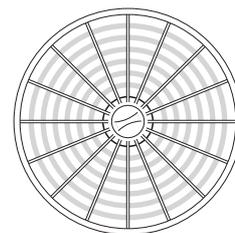
- ◆ Easy filter to filter release
- ◆ Consistently smooth movement
- ◆ Tight dimensional tolerances

SZ25** for Zymark workstations and ST25** for Sotax workstations are available with different membranes viz. Nylon, PVDF, PTFE and Polypropylene in different pore sizes. These are not available with pre-filters.

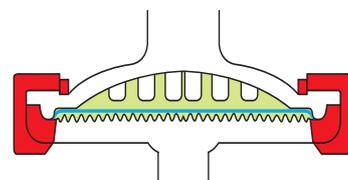
Zymark and Sotax are registered trade marks of the Sotax AG, Switzerland



16 Channels for Maximum Flow Rate



Designed for Maximum Throughput



Specifications

Diameter	4mm	13mm	25mm
EFA*	0.07cm ²	0.8cm ²	4.15cm ²
Hold-Up Volume	<5µl	<20µl	<50µl

* EFA: Effective Filtration Area

Color Coding for Easy Identification

	0.45µm SYNN Nylon-66 membrane syringe filter Available in 4mm, 13mm, 25mm
	0.45µm SYGN Nylon-66 membrane syringe filter with pre-filter Available in 13mm, 25mm
	0.45µm SYVF PVDF membrane syringe filter Available in 4mm, 13mm, 25mm
	0.45µm SYVG PVDF membrane syringe filter with pre-filter Available in 13mm, 25mm
	0.45µm SYTF PTFE membrane syringe filter Available in 4mm, 13mm, 25mm
	0.45µm SYTG PTFE membrane syringe filter with pre-filter Available in 13mm, 25mm
	0.45µm SYPP Polypropylene membrane syringe filter Available in 4mm, 13mm, 25mm
	0.45µm SYGP Hydrophilic Polypropylene membrane syringe filter with pre-filter Available in 13mm, 25mm
	0.45µm SYTH Hydrophilic PTFE membrane syringe filter Available in 4mm, 13mm, 25mm
	0.45µm SYRC Regenerated Cellulose syringe filter Available in 4mm, 13mm, 25mm
	0.45µm SYGF Microglassfiber syringe filter Available in 13mm, 25mm

	0.2µm SYNN Nylon-66 membrane syringe filter Available in 4mm, 13mm, 25mm
	0.2µm SYGN Nylon-66 membrane syringe filter with pre-filter Available in 13mm, 25mm
	0.2µm SYVF PVDF membrane syringe filter Available in 4mm, 13mm, 25mm
	0.2µm SYVG PVDF membrane syringe filter with pre-filter Available in 13mm, 25mm
	0.2µm SYTF PTFE membrane syringe filter Available in 4mm, 13mm, 25mm
	0.2µm SYTG PTFE membrane syringe filter with pre-filter Available in 13mm, 25mm
	0.2µm SYPP Polypropylene membrane syringe filter Available in 4mm, 13mm, 25mm
	0.2µm SYGP Hydrophilic Polypropylene membrane syringe filter with pre-filter Available in 13mm, 25mm
	0.2µm SYTH Hydrophilic PTFE membrane syringe filter Available in 4mm, 13mm, 25mm
	0.2µm SYRC Regenerated Cellulose syringe filter Available in 4mm, 13mm, 25mm
	1µm SYGF Microglassfiber syringe filter Available in 13mm, 25mm

ORDERING INFORMATION

Type		Size		Pore Size		Inlet/Outlet		XX	Sterile/ Non Sterile		Pack Size	
Type	Code	Dia	Code	Pore Size	Code		Code			Code	Pack Size	Code
SYNN	SYNN	4mm	01	0.2µm	01	Female Luer Lock	M		Non Sterile	1	100	04
SYGN	SYGN	13mm	03	0.45µm	02	Male Luer Slip	N					
SYTF	SYTF	25mm	06									
SYTG	SYTG											
SYVF	SYVF											
SYVG	SYVG											
SYPP	SYPP											
SYGP	SYGP											
SYTH	SYTH											
SYRC	SYRC											
SYGF	SYGF											

Example:

SYNN	06	01	MN	XX	1	04
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SZ25 and ST25** syringe filters with the desired membrane type can be ordered by replacing ** with the membrane code. These are not available with pre-filters.**

Example: For Nylon Membrane Syringe Filters for Zymark Workstations

SZNN	06	01	MN	XX	1	04
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Nylon-66 Membrane Disc Filters – Type HNN

HNN membrane disc filters are, hydrophilic, non-media migrating, biologically inert, plain white absolute filters useful for aqueous as well as organic solvent filtration.



Special Features

- ◆ Very low extractables
- ◆ Wide chemical compatibility
- ◆ HPLC certified: Assures that the filter will not add artifacts to the sample

Specifications

Maximum Operating Temperature: 80°C continuous

Maximum Operating Pressure: 5Kg/cm²

Extractables with Water: Within limits specified in USP

Oxidizable Matter: Passes as per USP



Water Flow Rates

Pore Size	0.2µm	0.45µm
Water Flow Rates (ml/min/cm²) at ΔP=10psi, 27°C	12.0	32.0

Type	
Type	Code
HNN	HNNX

Size	
Dia	Code
13mm	03
25mm	06
47mm	09

Pore Size	
Pore Size	Code
0.2µm	01
0.45µm	02

XX

XX

Sterile/ Non Sterile	
	Code
Non Sterile	1

Pack Size	
Pack Size	Code
100	04

Example:

HNNX	09	01	XX	XX	1	04
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ORDERING
INFORMATION

AseptiCap NL - Nylon-66 Membrane Capsule Filters



mdi 1" AseptiCap NL capsule filters employ Nylon-66 membranes for wide chemical compatibility. These large area filtration devices are ideal for large volume (5 - 20 liter) filtrations such as mobile phase filtration for preparative HPLC and for large laboratories with many HPLC systems.

Features

- ◆ Wide chemical compatibility
- ◆ Compact design
- ◆ Large filtration area
- ◆ Long service life
- ◆ 100% Integrity tested
- ◆ No elastomers or adhesives used in sealing
- ◆ Preflushed to minimize particulate release
- ◆ Non-toxic materials of construction
- ◆ Variety of end connections to suit different needs

Water Flow Rates

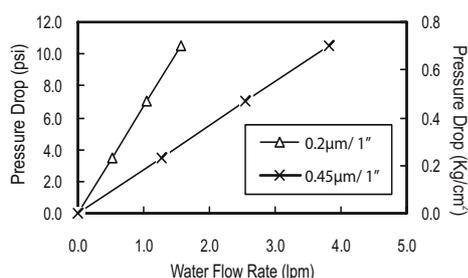


Figure 1: Water flow rates of 1" AseptiCap NL capsule filters.

Specifications

Pore Size: 0.2µm, 0.45µm

Length: 40mm without end connections

Diameter: 42mm

Effective Filtration Area: 0.025m² (250cm²)

Hold-Up Volume: <5ml

Retention Efficiency: 0.2µm: LRV>7 for *B. diminuta*
0.45µm: LRV>7 for *S. marcescens*

Maximum Differential Pressure: 4Kg/cm² @ 30°C

Maximum Operating Temperature: 80°C @ ≤2Kg/cm²

Extractables with Water: Passes as per USP

Oxidizable Matter: Passes as per USP

ORDERING INFORMATION

Type		Size			Pore Size		I/O Connection		X	Bell		Sterile/ Non Sterile		Pack Size	
Type	Code	Size	EFA*	Code	Pore Size	Code	Connection	Code			Code		Code	Pack Size	Code
AseptiCap NL	DNLX	1"	0.025m ²	51	0.2µm	01	1/4" SHB	A		with Bell	B	Non Sterile	1	1	01
					0.45µm	02	1/4" MNPT	B		without Bell	X				
							1/2" Hose Barb	D							
							1.5" Sanitary Flange	E							
							1/4" MPC	J							

*EFA: Effective Filtration Area

Example:

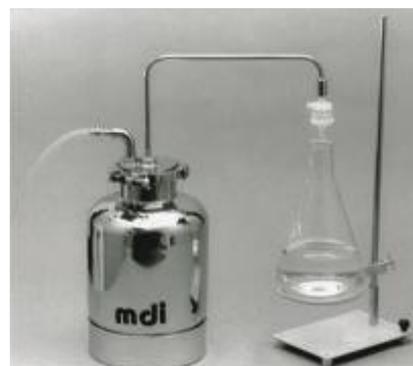
DNLX	51	01	BA	X	X	1	01
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Capsule Filtration System for Solvents

mdi Capsule Filtration System for solvents is ideal for pharmaceutical process development labs and for analytical labs requiring relatively larger volumes of particle free high purity solvents.

Features

- ◆ Compact design
- ◆ Wide chemical compatibility
- ◆ Available in upto 20 liter capacity to filter volumes ranging from 500ml to 20 liters
- ◆ All components are of 316L stainless steel
- ◆ No polymeric tubing is used on the outlet
- ◆ Filters offered are Nylon-66 membrane capsule filters



Advantages

- ◆ Very high flow rates (1-5 lpm) resulting in much reduced filtration time even with 0.2µm capsule filters
- ◆ Very low hold-up volume helps minimize loss of expensive drug solutions
- ◆ Occupies very less laboratory space due to its compact design

Components

- ◆ SS316L Pressure Vessel with vent valve and a special extended outlet connection to fit capsules with 1/4" MNPT Inlet
Available Sizes: 3, 5, 10 and 20 Liter - 01
- ◆ **mdi** Nylon-66 membrane capsule filter - 05
Type : *AseptiCap NL*
Pore Size : 0.2µm or 0.45µm
Size : 1"
End Connections : 1/4" MNPT Inlet
1/4" Stepped hose barb outlet



Type		Capacity		O-Rings/Seals		Inlet		Outlet		Pressure Pump		Capsule Filters		Pack Size	
	Code		Code		Code		Code		Code		Code		Code	Qty	Code
Capsule Filtration System	CFSX	3 Liter	03	Silicon	S	1/2" Hose Barb	D	1/4" FNPT	O	Yes	P	AseptiCap NL 0.2µm	DN01	1	1
		5 Liter	05			6-8 mm PU Tube Inlet	H			No	X	AseptiCap NL 0.45µm	DN02		
		10 Liter	10												
		20 Liter	20												

Example:

CFSX	05	S	H	O	P	DN01	1
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ORDERING INFORMATION

Filters for Biological Applications



mdi Filters for Biologicals are specially designed filtration devices for filtration of culture media, culture soups, serum solutions, nutrients, growth regulators etc.

These filters are validated for absolute bacterial retention, hold-up volume, and protein recovery.

mdi Filters offer:

- ◆ Low protein binding
- ◆ Maximum product recovery
- ◆ High throughputs
- ◆ Absolute microbial retention

Filter Selection

Product	Key Features	Type	Dia/ Size	Applications
Polyethersulfone Membrane Syringe Filters	- Low protein binding	SY4PL-S	4mm	Sterilization of high value additives such as growth hormones, vitamins, and antibiotics (<1ml)
		SY13PL-S	13mm	Sterilization/clarification of protein solutions and culture media (<10ml)
		SY25PL-S	25mm	Sterilization/clarification of protein solutions, Culture media, and serum (<20ml)
Polyethersulfone Membrane Syringe Filters with Pre-filter	- Low protein binding - High throughputs	SY13KG-S	13mm	Sterilization/clarification of difficult to filter solutions such as pure serum and serum based culture media
		SY25KG-S	25mm	
		IKG-S	50mm	
Polyethersulfone Membrane Inline Filter with Built-in Vent	- Low protein binding - Zero hold up volume	IKT-S	50mm	Sterilization of high value fluids
Polyethersulfone Membrane Bottle Top Vacuum Filter	- Low protein binding - High throughputs	Vacufil-S	75mm	Sterilization/clarification of protein solutions, culture media, and serum (≤1 liter)
Polyethersulfone Membrane Capsule Filters	- Low protein binding - High throughputs	<i>AseptiCap KL/KS</i>	1"	Sterilization/clarification of protein solutions, culture media, and serum based culture media

Pre-sterilized Polyethersulfone Membrane Syringe Filters



Pre-sterilized Polyethersulfone(PES) membrane syringe filters are available in pore sizes of 0.2µm and 0.45µm and several diameters to suit various applications for filtration in the laboratory.

Types Available

SY4PL-S, SY13PL-S, SY25PL-S

Low protein binding, high flow rate PES membrane syringe filters.

SY13KG-S, SY25KG-S

This special syringe filter houses a microglassfiber pre-filter along with the Polyethersulfone membrane filter and is ideal for filtering difficult to filter solutions.

IKG-S

This 50mm Polyethersulfone syringe filter with 1/4" stepped hose barb connections incorporates large filtration area and microglassfiber pre-filter for larger volume filtration. These filters can be used with 50ml syringe to filter volumes up to 500ml and also with a peristaltic pump for larger volumes.

Microbiologically Validated
as per ASTM F 838-05

Complies with USFDA
21 CFR 210.3(b)(6)

Meets and Exceeds
USFDA 21 CFR 177.1520



Specifications

Pore Size	0.2µm, 0.45µm			
Diameter	4mm	13mm	25mm	50mm
EFA*	0.07cm ²	0.8cm ²	4.15cm ²	20cm ²
Hold-Up Volume	<5µl	<20µl	<50µl	<300µl
Retention Efficiency	0.2µm: LRV >7 for B. diminuta 0.45µm: LRV >7 for S. marcescens			

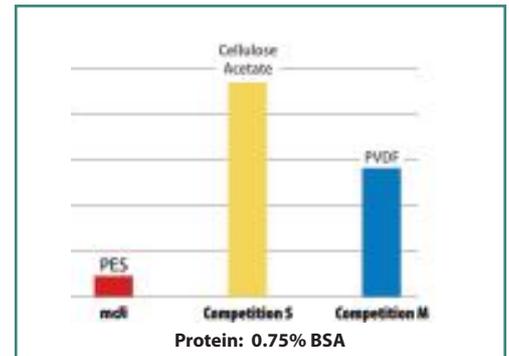


Figure 2: Protein loss with BSA

* EFA: Effective Filtration Area

For 4mm, 13mm, 25mm Filters

Type		Size		Pore Size		Inlet/Outlet		X	X	Sterilization		Pack Size	
Type	Code	Dia	Code	Pore Size	Code		Code			Code	Pack Size	Code	
SYPL	SYPL	4mm	01	0.2µm	01	Female Luer Lock	M			EO Sterile	2	100	04
*SYKG	SYKG	13mm	03	0.45µm	02	Male Luer Slip	N						
		25mm	06										

*SYKG is available in 13mm and 25mm only

Example:

SYKG	06	01	MN	X	X	2	04
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For 50mm Filters

Type		Size		Pore Size		Inlet/Outlet		X	Bell		Sterilization		Pack Size	
Type	Code	Dia	Code	Pore Size	Code		Code			Code	Pack Size	Code		
IKG	IKGX	50mm	10	0.2µm	01	1/4" Stepped Hose Barb	B		with Bell	B	EO Sterile	2	10*	02
				0.45µm	02				without Bell	X			12	08

*With Bell

Example:

IKGX	10	01	BB	X	X	2	08
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ORDERING INFORMATION



Microbially Validated
as per ASTM F 838-05

Complies with USFDA
21 CFR 210.3(b)(6)

Meets and Exceeds
USFDA 21 CFR 177.1520

Unique Performance Advantages

- ◆ Zero filtration losses during filtration of high value fluids as the unique air vent allows passage of even the last millilitre of fluid through the filter as well as downstream tubing
- ◆ Allows dosage of measured quantities into bio-reactors and culture vessels
- ◆ No wastage or contamination due to external vent
- ◆ No obstruction of fluid due to entrapped air in the upstream

IKT: 50mm PES Filters with In-Built Vent

mdi disposable IKT filters are compact devices with a unique design, incorporating high flow rate, high throughput, low protein binding polyethersulfone membrane with a special inbuilt PTFE vent to ensure unique performance advantages in a multitude of applications in life sciences research, bio-pharmaceuticals, and healthcare. The IKT filters are validated and assured for quality to ensure superior performance.

Special Features

- ◆ Unique in-built PTFE vent
- ◆ Low protein binding
- ◆ Large effective filtration area
- ◆ High flow rates
- ◆ Heat sealed
- ◆ Light weight and self supporting
- ◆ 100% Integrity tested
- ◆ **Total traceability:** Unique marking on each filter

Applications

- ◆ Formulation development of high value drug molecules
- ◆ Sterile filtration of new protein molecules

Specifications

Bubble Point (0.2 µm): ≥18psi (1.26Kg/cm²) with 70% IPA

Sterilization: 3 autoclave cycles at 125 °C for 30 minutes

Air Flow Rate: 16 lpm @ ΔP = 0.5 Kg/cm²

Water Flow Rate: 140 ml/min @ ΔP = 0.35 Kg/cm² at 27 °C

Burst Pressure : 8 Kg/cm²

Biosafety: Passes the Biological Reactivity tests for Class VI plastics as per USP <88>

Extractables: Within limits specified in USP

Oxidizable Matter: Passes test as per USP

ORDERING INFORMATION

Type		Size			Pore Size		I/O Connections		X	Bell		Sterilization		Pack Size	
Type	Code	Size	EFA*	Code	Pore Size	Code	Connection	Code			Code		Code	Pack Size	Code
IKT	IKTX	50mm	17cm ²	10	0.2µm	01	1/4" SHB	B		with Bell	B	Non Sterile	1	12	08
					0.45µm	02	1/8" MNPT	C		without Bell	X	EO Sterile	2		

*EFA: Effective Liquid Filtration Area

Example:

IKTX	10	01	BB	X	B	2	08
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Vacufil-S: Pre-Sterilized Bottle Top Vacuum Filters



mdi Pre-Sterilized Bottle Top Vacuum Filtration units with an extra large 75mm diameter, low protein binding polyethersulfone membrane are the best option for filtration of biologicals like sera and culture media, and other proteinaceous solutions.

Vacufil filters have a hydrophobic filter in the vacuum arm to prevent passage of filtrate to the pump. These filters screw perfectly on to vacuum safe bottles with 45mm neck size.

**Microbiologically Validated
as per ASTM F 838-05**
**Complies with USFDA
21 CFR 210.3(b)(6)**

Features

- ◆ Low protein binding
- ◆ Extra large filter area
- ◆ High flow rates
- ◆ 100% Integrity tested
- ◆ No elastomers or adhesive used in sealing
- ◆ Non-toxic materials of construction

Materials

Membrane: Polyethersulfone

Housing: Acrylic



Specifications

Pore Size: 0.2µm, 0.45µm

Diameter: 75mm

Connection: 45mm (Screw cap neck)

Hold-Up Volume: <3ml

Retention Efficiency: 0.2µm: LRV>7 for B. diminuta
0.45µm: LRV>7 for S. marcescens

Sterilization: EO sterilized

Maximum Operating Temperature: 45 °C

Type		Size		Pore Size		XX	XX	Sterilization		Pack Size	
	Code	Size	Code	Pore Size	Code				Code	Pack Size	Code
Vacufil	VFPX	75mm	11	0.2µm	01			EO Sterile	2	12	08
				0.45µm	02					24	12

Example:

VFPX	11	01	XX	XX	2	12
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**ORDERING
INFORMATION**



**Microbiologically Validated
as per ASTM F 838-05**

**Complies with USFDA
21 CFR 210.3(b)(6)**

**Meets and Exceeds
USFDA 21 CFR 177.1520**

AseptiCap KL/KS - Polyethersulfone Membrane Capsule Filters

mdi AseptiCap Polyethersulfone Capsule filters are self contained, ready to use, disposable filtration devices that contain a mini cartridge filter element sealed inside a polypropylene housing. The special design assures highest packing density of the membrane per unit volume resulting in a very compact capsule offering long service life.

Types Available

- ◆ **AseptiCap KL:** Single layered capsule filter for clear media, buffer filtration etc.
- ◆ **AseptiCap KS:** Serial filter, specially designed for filtration of difficult to filter solutions. These incorporate a large pore size upstream membrane layer to protect the downstream final filter.

Special Features

- ◆ Absolute retention
- ◆ Low protein binding
- ◆ Very low hold up volume
- ◆ High flow rates
- ◆ 100% Integrity tested

Applications

- ◆ Sterile filtration of high value fluids like vaccine concentrates, hormones and oncology drugs
- ◆ Scale up of new drug delivery systems
- ◆ Aseptic additions to fermentation processes

Water Flow Rates

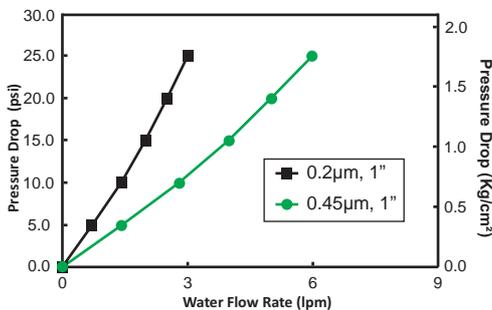


Figure 3: Water flow rates of AseptiCap KS capsule filters with ½" Hose Barb (DD) Connection

Specifications

Bubble Point: 0.2µm - ≥50psi (3.5Kg/cm²) with water

Sterilization: 25 autoclave cycles of 30 minutes at 125 °C

Maximum Differential Pressure: 60psi (4Kg/cm²) @ 25 °C

Maximum Operating Temperature: 80 °C @ < 30psi (2Kg/cm²)

Biosafety: Passes the Biological Reactivity tests for Class VI plastics as per USP <88>

Cytotoxicity: Passes Biological Reactivity Tests, invitro, USP <87> for cytotoxicity

Extractables with Water: Within limits specified in USP

Oxidizable Matter: Passes test as per USP

ORDERING INFORMATION

Type		Size			Pore Size		I/O Connection		X	Bell		Sterile/ Non Sterile		Pack Size	
Type	Code	Size	EFA*	Code	Pore Size	Code	Connection	Code			Code		Code	Pack Size	Code
AseptiCap KL	DKLX	1"	0.025m ²	51	0.2µm	01	1/4" SHB	A		with Bell	B	Non Sterile	1	1	01
AseptiCap KS (0.45µm Upstream)	DKSX				0.45µm	02	1/4" MNPT	B		without Bell	X	EO Sterile	2		
							½" MNPT	C							
							½" Hose Barb	D							
AseptiCap KS (0.8µm Upstream)	DKS5						1.5" Sanitary Flange	E							
							1/4" MPC	J							

*EFA: Effective Filtration Area

Example:

DKSX	51	01	AA	X	X	2	01
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Filters for Air / Gases

mdi offers a range of air filtration devices incorporating hydrophobic PTFE membrane. These filters are validated for absolute bacterial retention and heat stability and are ideal for sterile filtration and venting of air/gases.

The hydrophobic nature of PTFE membrane allows efficient flow of air/gases even under conditions of entrained moisture which would otherwise tend to wet the filter element and restrict the airflow.

These filters are validated for microbial retention with liquid bacterial challenge test as per ASTM F838-05 to provide a high degree of sterility assurance for critical applications such as bioreactor/fermentor venting etc. even under high moisture conditions.

mdi PTFE membrane capsule filters are designed for long service life and are suitable for a variety of applications such as sterile venting of culture vessels, bioreactors, incubators and autoclaves, and sterilization of air/gases for fermentors and bioreactors. The table below highlights some of the applications and suitable products.



Filter Selection

Product	Key Features	Type	Diameter / Size	Applications
PTFE Inline Vent Filters	Hydrophobic	<i>AseptiVent TF</i>	25mm 37mm 50mm	Air venting as well as sterile air filtration for small bioreactors and fermentors
PTFE Membrane Capsule Filters	Hydrophobic	<i>AseptiVent TF</i>	1"	Air venting for autoclaves and sterile air filtration for bioreactors and fermentors Cleaning sterile surfaces

Microbiologically Validated
as per ASTM F 838-05

Complies with USFDA
21 CFR 210.3(b)(6)

Meets and Exceeds
USFDA 21 CFR 177.1520

AseptiVent TF- 25 mm, 37 mm, 50 mm

AseptiVent TF Disposable inline PTFE gas filters are convenient pre-fabricated devices used for sterilization of gases and as a bacterial air vent in various pharmaceutical and biopharmaceutical processes.

Special Features

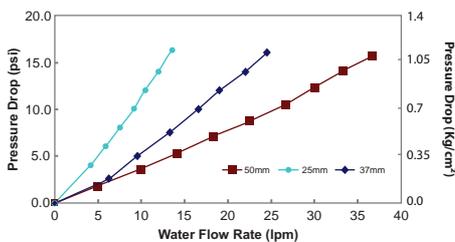
- ◆ High flow rates
- ◆ High heat stability
- ◆ Heat Sealed
- ◆ Light weight and self supporting
- ◆ 100% Integrity tested
- ◆ Total traceability: Unique marking on each filter

Types Available

- ◆ AseptiVent TF 37mm
- ◆ AseptiVent TF 50mm



Air Flow Rates



Specifications

Sterilization: 30 autoclave cycles of 30 minutes @ 125°C

Maximum Differential Pressure: 42 psi (3 Kg/cm²) @ 30 °C

Maximum Operating Temperature: 60 °C

Biosafety: Passes the Biological Reactivity tests for Class VI plastics as per USP <88>

Extractables with IPA: Within limits specified in USP

Oxidizable Matter: Passes test as per USP

Integrity Testing

Pore Size	Bubble Point (70% IPA wetted)
0.2µm	≥22 psi
0.45µm	≥10 psi

ORDERING INFORMATION

AseptiVent TF- 25 mm

Type		Size		Pore Size		Inlet/Outlet		X	X	Sterility		Pack Size	
Type	Code	Dia	Code	Pore Size	Code		Code				Code	Pack Size	Code
AseptiVent TF	ITFX	25 mm	06	0.2µm	01	Female Luer Lock	M			Non Sterile	1	100	04
				0.45µm	02	Male Luer Slip	N			EO Sterile	2		

Example: ITFX 06 01 MN X X 2 04

AseptiVent TF- 37 mm, 50 mm

Type		Size		Pore Size		Inlet/Outlet		X	X	Sterility		Pack Size	
Type	Code	Dia	Code	Pore Size	Code		Code				Code	Pack Size	Code
AseptiVent TF	ITFX	37 mm	08	0.2µm	01	*1/4" SHB	B			Non Sterile	1	12	08
		50 mm	10	0.45µm	02	1/8" MNPT	C			EO Sterile	2	20	09
						3/4" Sanitary Flange*	S						

Example: ITFX 08 01 BB X X 2 08

* Note: AseptiVent TF- 37 mm is available with BB connection only

AseptiVent TF - PTFE Membrane Capsule Filters



AseptiVent TF capsule filters employ hydrophobic PTFE membrane offering absolute retention and very wide chemical compatibility making these useful for sterile filtration of air/gases as well as aggressive solvents.

Special Features

- ◆ Hydrophobic
- ◆ Absolute retention
- ◆ Wide chemical compatibility
- ◆ 100% Integrity tested
- ◆ Total traceability: Unique marking on each filter



Specifications

Sterilization: 30 autoclave cycles of 30 minutes at 125 °C

Maximum Differential Pressure: 4Kg/cm² (60psi) @ 30 °C

Maximum Operating Temperature : 80 °C @ ≤2Kg/cm² (30psi)

Biosafety: Passes the Biological Reactivity tests for Class VI plastics as per USP <88>

Oxidizable Matter: Passes test as per USP

Microbiologically Validated
as per ASTM F 838-05

Complies with USFDA
21 CFR 210.3(b)(6)

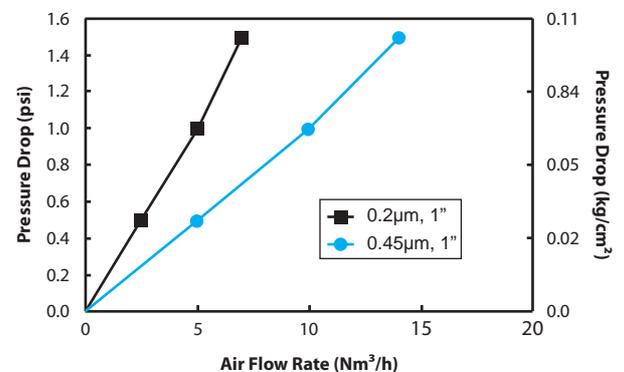
Meets and Exceeds
USFDA 21 CFR 177.1520

Integrity Testing

Pore Size	Bubble Point (70% IPA)
0.2µm	≥ 22 psi (1.55kg/cm ²)
0.45µm	≥ 10 psi (0.7kg/cm ²)

Air Flow Rates

0.2 µm AseptiVent TF Capsule Filters



Type		Size		Pore Size		I/O Connection		X	X	Sterility		Pack Size	
Type	Code	Size	Code	Pore Size	Code	Connection	Code			Code	Pack Size	Code	
AseptiVent TF	DTLX	1"	51	0.2µm	01	1/4" SHB	A			Non Sterile	1	1	01
				0.45µm	02	1/2" Hose Barb	D			EO Sterile	2		
						1 1/2" Sanitary Flange	E						
						3/4" Sanitary Flange	S						
						Quick Connector	J						

Example:

DTLX	51	01	AA	X	X	1	01
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ORDERING
INFORMATION

Filters for Sterility Testing and Microbiology



mdi offers a wide range of membrane disc filters and membrane based filtration devices for microbiological analysis. These filters are validated for key performance parameters such as retention efficiency, microbial recovery, biological inertness, heat resistance, and water flow rates and undergo a strict quality control regimen which ensures consistency and reliability. All products are identified by fully traceable lot numbers.

Applications

mdi filters for microbiological analysis are specially designed for sterility testing, product microbiology and water microbiology in process industries such as pharmaceuticals and food & beverages, and in microbiology laboratories in water treatment plants.

Filter Selection

Product	Key features	Type	Applications
Closed sterility test system	-Validated for sterility, microbial retention & microbial recovery	Stericheck	Sterility testing
Edge hydrophobic Cellulose Nitrate membrane filters	-Hydrophobic edge	EHCN	Sterility testing of antibiotics and drugs containing bacteriostats
Disposable device with Edge hydrophobic Cellulose Nitrate membrane filters	-Hydrophobic edge	E-Funnel	Product microbiology for antibiotics and drugs containing bacteriostats
Disposable device with Gridded Cellulose Nitrate membrane filters	-Non-inhibiting ink grids -Validated for microbial recovery	M-Funnel	Product and Water Microbiology
Gridded Cellulose Nitrate membrane filters	-Non-inhibiting ink grids -Validated for microbial recovery	GCN	Product and Water Microbiology
Gridded Cellulose Nitrate membrane filters in reel form	-Non-inhibiting ink grids -Validated for microbial recovery	RGCN	Product and Water Microbiology
Automatic Dispenser for dispensing pre-sterilized membrane disc filters in reel form	-Automatic single unit dispensing -Hands free operation -Compact and portable	Steridisc Dispenser	Sterility Testing and microbiology
Cellulose Nitrate membrane filters	-High throughputs	CN	Sterility testing Sterile filtration Bio-burden reduction

Stericheck: Closed Sterility Test System

mdi Stericheck: Closed Sterility Test System offers the complete sterility testing solution from sampling, filtration, media exposure, to incubation in a closed loop, doing away with the possibility of any extraneous contamination and therefore false positives.

Advantages

- ◆ Fast
- ◆ Pre-sterilized and ready to use
- ◆ Minimizes false positives
- ◆ No false negatives

The Stericheck system incorporates disposable Stericheck devices and a specially designed easy to use peristaltic pump system for aseptic transfer of fluids.



mdi Steripump SP06: Automatic Pump System

mdi Steripump is an automatic peristaltic pump system which is an integral part of the Stericheck: Closed Sterility Test System and is specially designed to aseptically transfer sterile liquids from their respective containers to the Stericheck canisters through a sterile tubing.

Operations of the specially designed peristaltic pump are wirelessly controlled by a separate capacitive touch screen control panel through a specially designed software with convenient user friendly navigation and controls with the help of menu prompts.

It has a manual as well as automatic operating mode and offers large storage space for virtually unlimited user SOPs which are fed directly into the control panel.

It has a compact design for preventing undesirable air turbulence in laminar flow hoods and can also be installed into isolators. Steripump incorporates a variable speed super efficient drive motor, pump head, sample holder and the Stericheck Canister Holder cum Drain Tray. The pump head has been specially designed for easy threading of the canister tubing and comes with a safety feature which automatically stops the pump in case it is opened while running.

Features

- ◆ Touch screen control panel for easy navigation and control
- ◆ Special software with large storage space for user SOPs
- ◆ Polished 316L SS body
- ◆ Autoclavable SS 316L canister holder with Nylon drain tray
- ◆ Foot paddle for both hands free operation



Wireless Pump Control

Type	Model No.
mdi Steripump	Model - SP06

To order please specify:

Type	Model No.	Qty
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Stericheck- Sterility Test Devices

mdi Stericheck is a presterilized, nontoxic, non-pyrogenic, ready to use sterility testing device. The twin canisters along with the tubing is packed individually in a blister pack.

The Stericheck device is available with three different polymeric membranes

- ◆ Cellulose Nitrate
- ◆ PVDF
- ◆ Nylon

Validated for

- ◆ Sterility
- ◆ Microbial Recovery
- ◆ Microbial Retention
- ◆ Equal Sample Distribution

Specifications

Pore Size: 0.45µm

Water Flow Rates: > 0.3lpm @ 10psi at 25 °C

Sterilization: EO sterilized
Gamma sterilized

Maximum Operating Temperature: 35 °C continuous

Maximum Operating Pressure: 45psi

Key Features

- ◆ Non coring needle design to prevent blockage by rubber particles from vial bungs
- ◆ Pre-installed color coded clamps for easy identification and clamping
- ◆ Raised transparent vent to prevent fluid logging and subsequent obstruction of airflow
- ◆ Special 'L' shaped flow directors to minimize frothing, specially with viscous fluids
- ◆ Tough membrane to withstand inadvertent back pressure
- ◆ Archivable chemical indicator in each Stericheck pack as evidence of EO gas/Gamma sterilization
- ◆ Easy to peel off, impervious blister pack cover for radiation sterilized Stericheck devices to prevent ingress of H₂O₂ during isolator disinfection
- ◆ Customized needle connections for specific customer needs such as mini vials and cartridges in biopharmaceuticals



Non Coring Needle Design



Pre-installed Color Coded Clamps



Raised Transparent Vent



Special 'L' shaped Flow Directors



Tough Membrane



Archivable Chemical Indicator



Easy to Peel off, Impervious
Blister Pack Cover



Customized Needle Connections

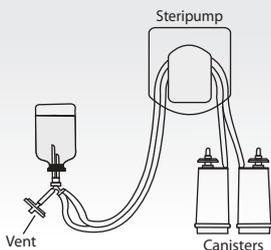
Types Available

These devices are available with special needle connections for sterility testing of ampoules, vials, blood bags, dry injectables, pre-filled syringes, and I.V. Fluids with glass and plastic containers. Please refer ordering information table for ordering specific types.

Stericheck SVP1

Stericheck device for Small Volume Parenterals - Vials (Liquid).

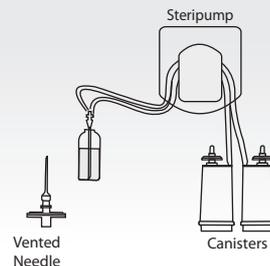
Connection: Dual vented needle with PVC tubing



Stericheck SVP2

Stericheck device for Ampoules and Collapsible bags.

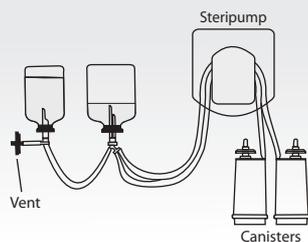
Connection: Single needle with PVC tubing and a separate air vented needle for venting media or rinse bottles during transfer steps.



Stericheck SVP3

Stericheck device for Small Volume Parenterals - Vials with soluble powder.

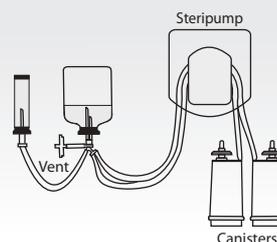
Connection: Single vented needle with single tubing to transfer sterile diluent to the vial for dissolving the powder and a double needle with double tubing for transferring the resulting solution.



Stericheck SVP4

Stericheck device for Small volume Parenterals - Mini vials and Cartridges.

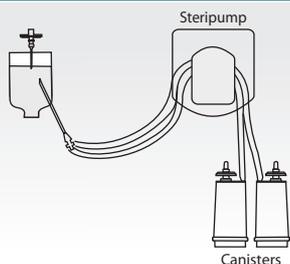
Connection: Single needle with single tubing to transfer sterile sample to a sterile pooling bottle, and a double vented needle with double tubing for transferring the pooled sample.



Stericheck PC

Stericheck device for Plastic containers.

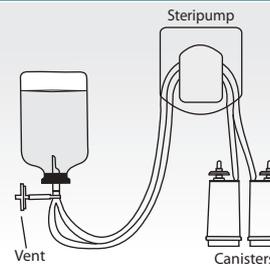
Connection: Single unvented, non-coring needle tip, PVC tubing and a separate air vented needle.



Stericheck LVP

Stericheck device for Large Volume Parenterals in glass bottles.

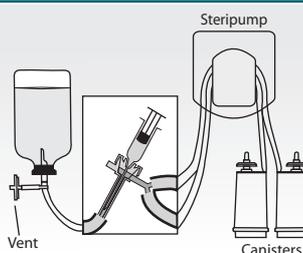
Connection: Single vented needle with PVC tubing.



Stericheck PFS

Stericheck device for pre-filled syringes

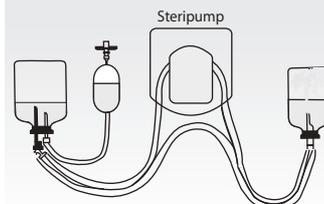
Connection: Specially designed adapter for sterility testing of the syringe's needle as well as its product. Testing of both inside and outside of the needle is ensured by the liquid flow pattern.



SVP Dilutor

SVP Dilutor for antibiotics and difficult to dissolve powders.

Connection: Single needle with expansion chamber and vent. Double needle with PVC tubing.



For Stericheck Canisters:

Type	Code		
	PVDF	Cellulose Nitrate	Nylon-66
Stericheck SVP1	SV1V	SV1C	SV1N
Stericheck SVP2	SV2V	SV2C	SV2N
Stericheck SVP3	SV3V	SV3C	SV3N
Stericheck SVP4	SV4V	SV4C	SV4N
Stericheck LVP	SLVV	SLVC	SLVN
Stericheck PC	SPCV	SPCC	SPCN
Stericheck PFS	SPFV	SPFC	SPFN

Size	
Dia	Code
47mm	09

Pore Size	
Pore Size	Code
0.45µm	02

XX	XX

Sterility	
	Code
EO Sterile	2
Gamma Sterile	3

Pack Size	
Pack Size	Code
10	02

* Stericheck Devices with Nylon membrane are available as EO sterilized only

Example:

SV1C	09	02	XX	XX	2	02
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For SVP Dilutor pack of 20:

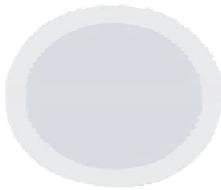
EO Sterilized: SVPDXXXXXXXXX209

Gamma Sterilized: SVPDXXXXXXXXX309

ORDERING
INFORMATION



Edge Hydrophobic Membrane Disc Filters Type - EHCN



EHCN membranes are used for sterility testing of antibiotics and drugs containing bacteriostats. 6mm rim is hydrophobic and rest of the membrane is hydrophilic. The hydrophobic edge does not allow the drug to seep under the rim of the filter holder. This ensures complete removal of the drug during flushing so that growth of microorganisms which have been retained on the membrane is not inhibited due to the residual drug, improving the sensitivity and reliability of the test.

Cost reduction is possible by reducing or eliminating antibiotic breaking enzymes.

Applications

- Sterility testing of antibiotics and drugs containing bacteriostats
- Product Microbiology of antibiotics and drugs containing bacteriostats

Validated for

- Microbial recovery with antibiotic drug samples
- Microbial retention
- Sterility

Specifications

Pore Size : 0.45µm

Diameter : 47mm

Bubble Point: ≥32psi (2.25Kg/cm²) with water

Retention Efficiency : LRV > 7 for *S. marcescens*

Water Flow Rates

Type	Water Flow Rates at ΔP = 10psi, 27 °C
EHCN	45ml /min/cm ²

ORDERING INFORMATION

Type		Size		Pore Size		XX	XX	Sterility		Pack Size	
Type	Code	Dia	Code	Pore Size	Code				Code	Pack Size	Code
EHCN	EHCN	47mm	09	0.45µm	02			Non Sterile	1	100	04
								EO Sterile	2		

Example:

EHCN	09	02	XX	XX	1	04
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E-Funnel



mdi E-Funnel is an easy to use pre-sterilized, individually packed, disposable filtration device specially designed to help facilitate and speed up microbial analysis of antibiotics and drugs containing bacteriostats in pharmaceutical API and formulation industries.

E-Funnel has a convenient design with a detachable 100 ml funnel and pluggable bottom for ease of sample collection and transfer to laboratory.

It houses a 0.45µm Edge Hydrophobic Cellulose Nitrate membrane, to improve sensitivity and reliability by ensuring complete flushing of the drug sample, which is critical during bio-burden testing of antibiotics and drugs containing bacteriostats.



Applications

- ◆ Product bio-burden testing in pharmaceutical API manufacturing
- ◆ Raw material bio-burden testing in pharmaceutical formulation manufacturing

Validated for

- ◆ Microbial recovery with antibiotic drug samples
- ◆ Microbial retention
- ◆ Sterility

Unique Performance Advantages

- ◆ Ready to use
- ◆ No sterilization required
- ◆ No re-usable stainless steel or polysulfone funnels
- ◆ Minimum lab space
- ◆ Minimizes chances of extraneous contamination

Specifications

Pore Size: 0.45 µm

Sterilization: EO

Diameter: 47mm

Water Flow Rates: 200ml/min at 250mm Hg Vacuum

Retention Efficiency: LRV > 7 for *S. marcescens*

Type		Size		Pore Size		XX	XX	Sterility		Pack Size	
Type	Code	Size	Code	Pore Size	Code				Code	Pack Size	Code
E-Funnel	FMEN	47mm	09	0.45µm	02			EO Sterile	2	24	12

Example:

FMEN	09	02	XX	XX	2	12
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ORDERING INFORMATION



M-Funnel



mdi M-Funnel is an easy to use pre-sterilized, individually packed disposable filtration device, specially designed to help facilitate and speed up microbial analysis of water as well as product in pharmaceutical, beverages and food processing industries.

M-Funnel has a convenient design with a detachable 100 ml funnel and pluggable bottom for ease of sample collection and transfer to laboratory. It houses a 0.45µm Cellulose Nitrate membrane, grid marked for ease of colony counting.

After filtration, its cap and base can be used as a petridish by directly adding culture media, and thus eliminating the chances of contamination during transfer of membrane and reducing costs.

Key Features

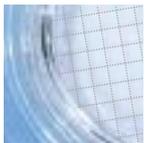
- ◆ Engraved volume markings for accurate measurement of sample volumes
- ◆ Validated ink grids for no inhibitory effect on microbial recovery and no inference with colony counting
- ◆ Universally adaptable design fits directly on most filter manifolds
- ◆ Validated "Media Reservoir" Pad for use with 2ml liquid media
- ◆ Easy to incubate design converts into a petri plate with an easy to "Squeeze Remove" cup and transparent lid

Types Available

- ◆ 100ml
- ◆ 250ml

Validated for

- ◆ Microbial Recovery
 - ◆ With Liquid Media
 - ◆ With Semi-solid Agar Media
- ◆ ASTM 4200-82 (2003)
 - ◆ Evaluating inhibitory effects of ink grids on membrane filters
- ◆ Microbial Retention
- ◆ Sterility



Validated ink Grids



Validated "Media Reservoir" Pad



Easy to Incubate

Specifications

Pore Size: 0.45 µm

Sterilization: EO

Diameter: 47mm

Water Flow Rates: 200ml/min at 250mm Hg Vacuum

Retention Efficiency : LRV > 7 for *S. marcescens*

ORDERING INFORMATION

Type		Size		Pore Size		XX	Capacity		Sterility		Pack Size	
Type	Code	Size	Code	Pore Size	Code			Code		Code	Pack Size	Code
M-Funnel	FMCN	47mm	09	0.45µm	02		100ml	XX	EO Sterile	2	24(100ml)	12
							250ml	01			12(250ml)	08

Example:

FMCN	09	02	XX	XX	2	12
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Grid Marked Membrane Disc Filters



Grid marked Cellulose Nitrate membranes are useful for water and product microbiology and the grid on the surface facilitates counting of colonies.

Types Available

- **GCN** : Grid marked Cellulose Nitrate membrane
- **RGCN**: Pre sterilized GCN membrane in reel form

Validated for

- Inhibitory effect of ink grids on membrane filters as per ASTM D 4200-82
- Microbial recovery
- Microbial retention
- Sterility



Specifications

Pore Size : 0.45µm

Diameter : 47mm

Bubble Point: ≥32psi (2.25Kg/cm²) with water

Retention Efficiency : LRV > 7 for Sr. marcescens

Water Flow Rate : 45ml/min/cm² at 10 psi, 27° C

Type		Size		Pore Size		XX	XX	Sterility		Pack Size	
Type	Code	Dia	Code	Pore Size	Code				Code	Pack Size	Code
GCN	GCNX	47mm	09	0.45µm	02			Non Sterile	1	100	04
		50mm	10					EO Sterile	2		

Example:

GCNX	09	02	XX	XX	2	04
------	----	----	----	----	---	----

Type		Size		Pore Size		XX	XX	Sterility		Pack Size	
Type	Code	Dia	Code	Pore Size	Code				Code	Pack Size	Code
RGCN	RGCN	47mm	09	0.45µm	02			EO Sterile	2	150	15

Example:

RGCN	09	02	XX	XX	2	15
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ORDERING INFORMATION



Cellulose Nitrate Membrane Disc Filters -Type CN

CN membrane disc filters are hydrophilic, non-media migrating, biologically inert, plain white absolute membrane filters.

Special Features

- ◆ Absolute retention
- ◆ High flow rates



Validated for

- ◆ Microbial retention
- ◆ Microbial recovery
- ◆ Sterility

Specifications

Pore Size: 0.2µm, 0.45µm, 0.8µm

Diameter: 47mm

Bubble Point: 0.2µm - ≥ 50 psi (3.52Kg/cm²) with water
 0.45µm - ≥ 32 psi (2.25Kg/cm²) with water

Retention Efficiency : 0.2µm: LRV > 7 for B. diminuta
 0.45µm: LRV > 7 for S. marcescens

Sterilization: Autoclavable at 121°C for 30 minutes

Maximum Operating Temperature: 80°C continuous

Maximum Operating Pressure: 5Kg/cm²

Biosafety: Passes the Biological Reactivity tests for Class VI plastics as per USP <88>

Oxidizable Matter: Passes as per USP

Water Flow Rates

Pore Size	Water Flow Rates at $\Delta P = 10$ psi, 27 °C
0.2µm	20ml /min/cm ²
0.45µm	45ml /min/cm ²
0.8µm	200ml /min/cm ²

ORDERING INFORMATION

Type		Size		Pore Size		XX	XX	Sterility		Pack Size	
Type	Code	Dia	Code	Pore Size	Code				Code	Pack Size	Code
CN	CNXX	47mm	09	0.2µm	01			Non Sterile	1	100	04
				0.45µm	02			EO Sterile	2		
				0.8µm	03						

Example:

CNXX	09	02	XX	XX	1	04
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Microglassfiber Filters

mdi microglassfiber filters are biologically and chemically inert, highly retentive depth filters with high dirt holding capacities.

Key Features

- ◆ Retain particles and precipitates which will normally pass through the finest grades of cellulosic filters
- ◆ Very high void volume assures good flow rates
- ◆ Unique design of these filters gives high dirt holding capacity
- ◆ The filters can be stored almost indefinitely without change in color or effect on the filter properties.

Applications

mdi microglassfiber filters are useful for:

- ◆ Gravimetric analysis of air borne particles
- ◆ Contamination analysis of waste water and industrial effluents
- ◆ Pre-filtration of difficult to filter turbid solutions
- ◆ Pre-filtration of solutions with high contamination load



Filter Selection

Product	Key features	Type	Applications
Microglassfiber disc filters for liquid filtration	-High flow rates -High dirt holding capacity -Wide chemical compatibility -Biologically inert	GF2	Pre-filtration of solutions with high dirt load
Fine microglassfiber disc filters for liquid filtration	-High retention efficiency -Wide chemical compatibility -Biologically inert	GF5	Turbid solutions with colloidal contamination eg. serum, plasma
Binderless microglassfiber filters	-Binder free -High temperature resistance: > 550 °C	GFH	Air/ water pollution monitoring Cell Harvesting

Type GF2

For high contamination load

GF2 is the general purpose filter most widely used as a pre-filter to membranes and to clarify various solutions in the laboratory.

Special Features

- ◆ Good retention efficiency
- ◆ High flow rates
- ◆ High dirt holding capacity
- ◆ Wide chemical compatibility
- ◆ Biologically inert

Applications

- ◆ Pre-filtration of solutions with high dirt load

Type GFS

For removing colloidal contamination

Special Features

- ◆ Higher Retention efficiency
- ◆ High flow rates
- ◆ Wide chemical compatibility
- ◆ Biologically inert

Applications

- ◆ Pre-filtration of:
 - Serum
 - Plasma
 - Culture Soups

Type GFH

Binder Less Microglassfiber Filters

GFH filters are binder less microglassfiber filters specially designed for a variety of applications.

Special Features

- ◆ High retention efficiency
- ◆ High dirt holding capacity
- ◆ Binder free
- ◆ High temperature resistance: > 550 °C
- ◆ Weight Stability with varying relative humidity

Relative Humidity	60%	90%
Weight	5.3mg/cm ²	5.3mg/cm ²

Typical Data

- ◆ **Thickness:** 450µm
- ◆ **Weight:** 5.3mg/cm²
- ◆ **Air Flow Rate:** 60 lpm/cm² at 0.7Kg/cm² (10psi)

Applications

- ◆ Air pollution monitoring: Gravimetric analysis of air borne particles
- ◆ Water pollution monitoring
 - Determination of Suspended Solids
 - Determination of Total Dissolved Solids
 - Determination of Total Volatile Solids
- ◆ Cell harvesting
- ◆ Liquid scintillation counting

Type	
Type	Code
GF2	GF2X
GFS	GFSX
GFH	GFHX

Size	
Size	Code
10mm Discs	02
13mm Discs	03
25mm Discs	06
47mm Discs	09
90mm x 120mm Sheets	79
102mm x 256mm Sheets	80

Pore Size	
Pore Size	Code
1.5µm	14
2µm	15

XX

XX

Sterile/ Non Sterile	
	Code
Non Sterile	1

Pack Size	
Pack Size	Code
100	04

GF2 and GFS are available as Discs only
GF2 is available in 1.5µm only
GFS is available in 2µm only

Example:

GFSX	03	15	XX	XX	1	04
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Chemical Compatibility

Table below shows the chemical compatibility of various laboratory filtration products with some commonly used solvents. All products were exposed to specified chemicals for 72 hours at 25°C. Chemical compatibility data on specific reagents is available on request.

Reagents	HNN	SYNN	SYGN	SYPL	SYKG	SYTF	SYTG	SYPP	SYGP	SYVF	SYVG	DKL/ DKS	DNL	DTL
Solvents														
Acetone	G	G	G	N	N	G	G	G	G	G	G	N	G	G
Acetonitrile	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Benzene	G	G	G	G	G	G	G	G	G	N	N	G	G	G
Benzyl Alcohol	G	G	G	N	N	G	G	G	G	G	G	N	G	G
Benzyl Alcohol 4%	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Diethyl Ether	G	G	G	G	G	G	G	G	G	N	N	G	G	G
Dimethylformamide	G	G	G	N	N	G	G	G	G	G	G	N	G	G
Ethyl Acetate	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Ethylene Glycol	G	G	G	G	G	G	G	G	G	N	N	G	G	G
Hexane	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Iso Propyl Alcohol	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Methanol	G	G	G	G	G	G	G	G	G	N	N	G	G	G
Methylene Chloride	G	N	N	N	N	N	N	N	N	N	N	N	N	N
n-Butanol	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Peanut oil	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Tetrahydrofuran /Water (50:50)	G	G	G	N	N	G	G	G	G	G	G	N	G	G
Toluene	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Trichloroethylene	G	N	N	N	N	N	N	N	N	N	N	N	N	N
Acids														
Hydrochloric Acid 37%	N	N	N	G	G	G	G	G	G	G	G	G	N	G
Hydrofluoric Acid 10%	N	N	N	G	N	G	N	G	N	G	N	G	N	G
Nitric Acid 67%	N	N	N	N	N	G	G	G	G	G	G	N	N	G
Nitric Acid 7%	N	N	N	G	G	G	G	G	G	G	G	G	N	G
Sulphuric Acid 10%	N	N	N	G	G	G	G	G	G	G	G	G	N	G
Bases														
Ammonium Hydroxide 25%	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Sodium Hydroxide 32%	G	G	G	G	G	G	G	G	G	N	N	G	G	G
Potassium Hydroxide 32%	N	N	N	G	G	G	G	G	G	N	N	G	N	G

G = Good, N = Not recommended

Ordering Information

Shipment details for customers outside India

Through Federal Express, UPS, or DHL courier (specify complete street address).

By air freight for large quantities (specify airport of discharge).

Goods usually reach destination within 5-10 days from date of shipment.

Membrane products are light weight and air freight charges usually vary between 3% to 10% of the value.

Any duties/taxes in the country of destination are the responsibility of the consignee.

Shipment details for customers inside India

The consignments can be sent through courier. Courier charges will be borne by the customer. Please specify the preferred courier and provide any form and instructions for octroi etc. that may be required for shipment.

How to order

Orders may be placed by phone/Fax/email/mail directly to Sales.

Advanced Microdevices Pvt. Ltd.

20-21, Industrial Area, Ambala Cantt - 133 006, INDIA

Tel: +91-171-2699290, 2699471

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Email: info@mdimembrane.com

Quality Policy

Quality is built into **mdi** products and services by not only adhering to well designed quality systems to consistently produce high quality, internationally acceptable products but also by striving to incorporate superior performance parameters into all our products and services and provide our customers with a unique performance advantage in their application. Our quality policy provides a glimpse of our commitment:

mdi strives to provide to its customers products and services of highest standards possible, consistently superior, and more satisfying than what is available anywhere else."

Stride Towards Excellence

At **mdi**, our mission is to constantly strive to achieve excellence in all our endeavors by establishing systems to create excellent products and services to fulfil the needs of our customers. To achieve this we

- ◆ Frequently compare our products with competing brands
- ◆ Simulate tests for functional use
- ◆ Develop easy-to-use innovative products

We are constantly working on improvements and welcome suggestions from our customers.

Guarantee

All **mdi** products are guaranteed and are backed by our

- ◆ Technical expertise and experience of over 35 years
- ◆ Validated **mdi** process' for consistency and repeatability
- ◆ Strict quality control and quality assurance regimen
- ◆ Certificate of Analysis accompanying all shipments

We have an unconditional replacement policy in case of any defects.





Worldwide Exports

Other Literature Available

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mdi Process Filtration Product Guide

mdi Biotech Product Guide

mdi Diagnostic Product Guide

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