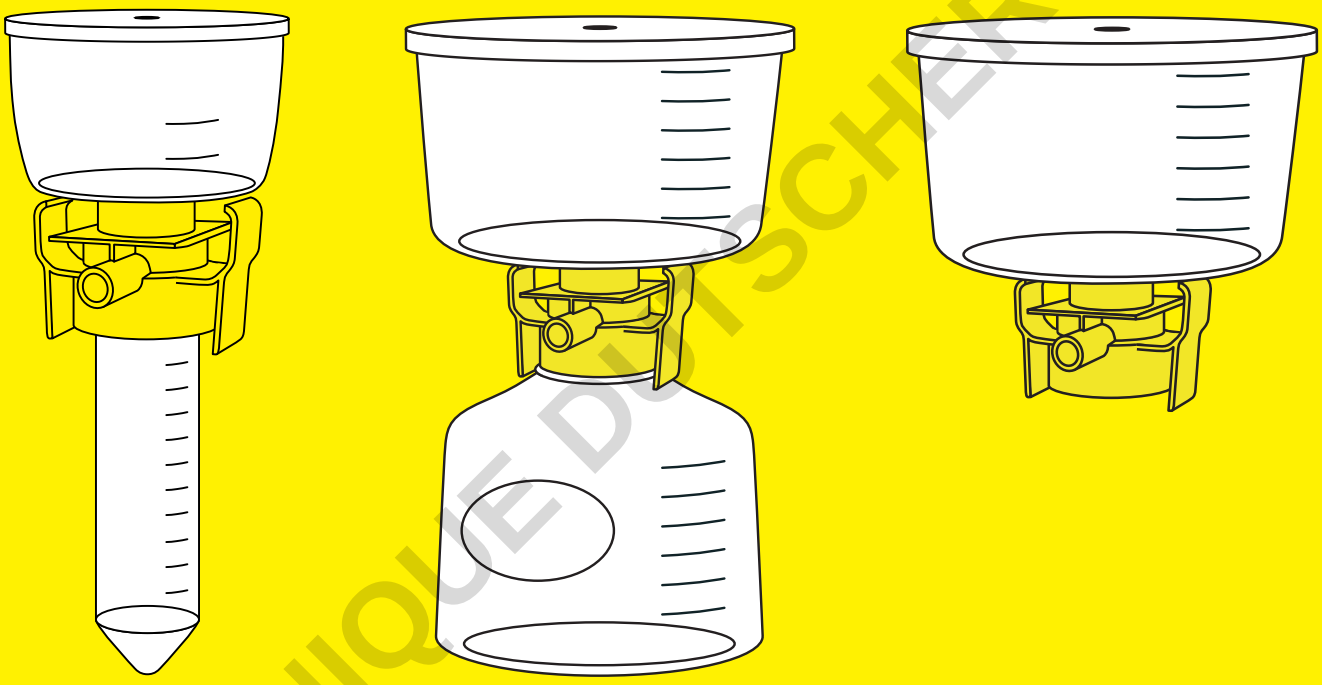
Instructions for Use

Sartolab® RF | BT

RF 50 – 1000 | BT 150 – 1000
Filtration Unit for Vacuum Filtration



DOMINIQUE DUTSCHER SAS

1000096582

SARTORIUS

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1 About these Instructions

1.1 Validity

These instructions are part of the product. These instructions apply to the product in the following versions:

	Pore Size		
	0.10 µm	0.22 µm	0.45 µm
Product	Type	Type	Type
With collection tube			
Sartolab® RF 50 sterile	–	180E01---------2	180F01---------2
Sartolab® RF 50 non-sterile	–	180E01--------E8	180F01--------E8
With receiver bottle			
Sartolab® RF 150	–	180E02---------E	180F02---------E
Sartolab® RF 250	180D03---------E	180E03---------E	180F03---------E
Sartolab® RF 500	–	180E04---------E	180F04---------E
Sartolab® RF 1000	180D05---------E	180E05---------E	180F05---------E
Without receiver bottle			
Sartolab® BT 150	–	180E12---------2	180F12---------2
Sartolab® BT 250	–	180E13---------2	–
Sartolab® BT 500	–	180E14---------2	–
Sartolab® BT 1000	–	180E15---------2	180F15---------2

1.2 Target Groups

These instructions are designed for the following target groups. The target groups must possess the knowledge listed below.

Target Group	Knowledge and Qualifications
User	The user is familiar with how to use the product and with the associated work processes. The user is familiar with the hazards that may arise when working with the product, and is able to avoid these hazards. The user has received training on how to use the product.
Operator	The operator of the product is responsible for ensuring compliance with workplace health and safety regulations. The operator must ensure that anyone working with the product has access to the relevant information and is trained to work with the product.

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1.3 Symbols Used

1.3.1 Warnings in Operation Descriptions

⚠ CAUTION
Denotes a danger with risk of moderate or minor injury may result if it is **not** avoided.

1.3.2 Other Symbols

▶ Required action: Describes activities that must be carried out. The actions in the sequence must be carried out in succession.

▷ Result: Describes the result of the activities carried out.

2 Safety Instructions

2.1 General Function

The product is used for vacuum filtration of liquids, e.g. cell culture media. The filtration applications, the liquids used, and the filling volume must be suitable for the product.

The product must be connected to a vacuum source during filtration. The liquid to be filtered must be poured into the funnel.

The product can be inserted into a support manifold. In this way, the support manifold applies a vacuum to the product and filtration can be performed simultaneously. The support manifold must be suitable for the product.

If the product is used without a support manifold: The product must be connected to a vacuum source, e.g. a vacuum pump, via a vacuum tube. The vacuum source must be suitable for the product.

The product is intended for single use and must be disposed of after one use.

The product is intended exclusively for use in accordance with these instructions. Any further use beyond this is considered **improper**.

Operating Conditions for the Product

The product may only be used for research purposes. The product is **not** suitable for diagnostic applications.

The product may only be used with the equipment and under the operating conditions described in the Technical Data section of these instructions.

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2.2 Significance of these Instructions

Failure to follow the instructions in this manual may have serious consequences, e.g., danger to individuals.

- ▶ Read the instructions carefully and in full. The required actions in the instructions build on each other.
- ▶ Ensure that the information contained in these instructions is available to all individuals working with the product.

2.3 Functionality of the Product

A damaged product or worn parts can lead to malfunctions or cause hazards that are difficult to identify.

- ▶ Operate the product only if it is in technically perfect condition.

2.4 Spilled Liquids

If liquids are spilled, e.g., due to the product falling over or sudden movement of the support manifold: People could come into contact with the spilled liquids, or work surfaces could be contaminated.

- ▶ Use the lid to close the funnel.
- ▶ **Do not** cause any sudden movements to the product that could tip it over or destabilize it, e.g., when pulling out the vacuum tube or when working on the support manifold.
- ▶ **Do not** exceed the permitted temperatures for the product. When using outside the permitted temperature range, the product may be damaged, e.g., due to the collection container bursting.

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3 Product Description

3.1 Product Overview

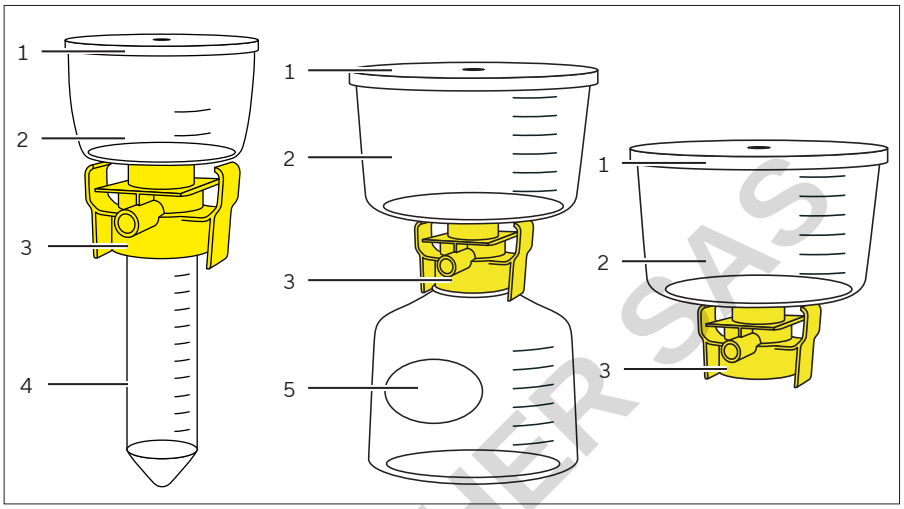


Fig. 1: Product (with collection tube, with receiver bottle, without receiver bottle, example)

Pos.	Name	Description
1	Lid	Removable.
2	Funnel	– For pouring in the liquid to be filtered. – Contains the membrane filter.
3	Adapter	– Connects the funnel to the collection tube or the receiver bottle vacuum-tight. – For attaching the product to a support manifold.
4	Collection tube	Collection container for the filtrate.
5	Receiver bottle	Collection container for the filtrate.

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3.2 Vacuum Connection

The vacuum connection is intended to connect the product to a vacuum source, e.g., a vacuum pump.

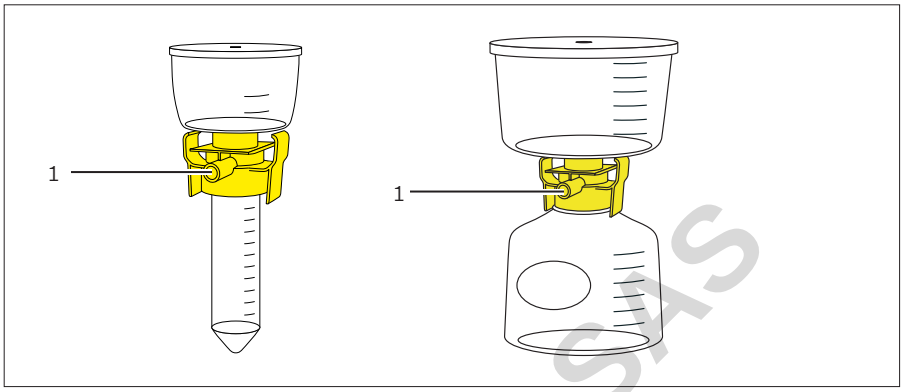
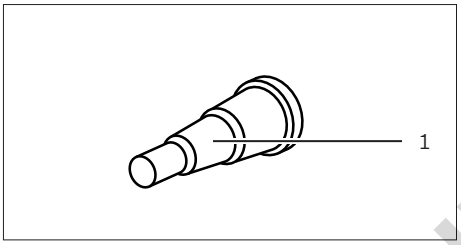


Fig. 2: Vacuum connection (example)

Pos.	Name
1	Vacuum connection

3.3 Vacuum Tube Adapter



The vacuum tube adapter (1) is intended for direct connection of the vacuum filtration unit to a vacuum source. The vacuum tube adapter holds the vacuum tube of the vacuum source.

3.4 Vacuum Filtration

The vacuum draws the liquids through the membrane. Particles that are larger than the pore size of the membrane are removed from the liquid. The liquid is collected as the filtrate in the collection tube.

3.5 Product Symbols

Symbol	Description
Qty:	Quantity
REF	Order number
LOT	Batch number
	Use by
STERILE R	Sterilized through irradiation
	Do not re-use
	Consult the Instructions for Use

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4 Process Preparation

4.1 Scope of Delivery

Item	Quantity
Product	
Sartolab® RF 50 sterile	24
Sartolab® RF 50 non-sterile	96
Sartolab® RF 150 – 1000	12
Sartolab® BT 150 – 1000	24
Vacuum tube adapter (sterile versions only)	24 or 12
Screw cap	
Sartolab® RF 50 sterile	24
Sartolab® RF 50 non-sterile	96
Sartolab® RF 150 – 1000	12
Quality certificate	1
Instructions for Use	1

4.2 Unpacking

The screw caps are packaged individually in sterile packaging. Exception: For the non-sterile versions, the screw caps are included in the product packages. The sterile screw cap must be unpacked immediately before use.

Procedure

- ▶ Check the usability of the product (see specification on packaging). Dispose of products for which the usability has been exceeded.
- ▶ Unpack the product.

4.3 Assembling the Receiver Bottle (Sartolab® BT 150 – 1000 Only)

The product must be attached to a receiver bottle. The receiver bottle must be suitable for the product (see Chapter 8.7.1, page 20).

Material: Receiver bottle of a suitable size x1

Procedure

- ▶ Screw the product adapter onto the receiver bottle.

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4.4 Inserting Product into a Rack (Sartolab® RF 50 Sterile Only)

The product must be positioned upright during filtration. The product can be inserted into a rack in order to ensure this. The bracket is **not** included in the scope of delivery. The non-sterile versions of the products can only be used with the Sartolab® Multistation because they are supplied without a vacuum tube adapter.

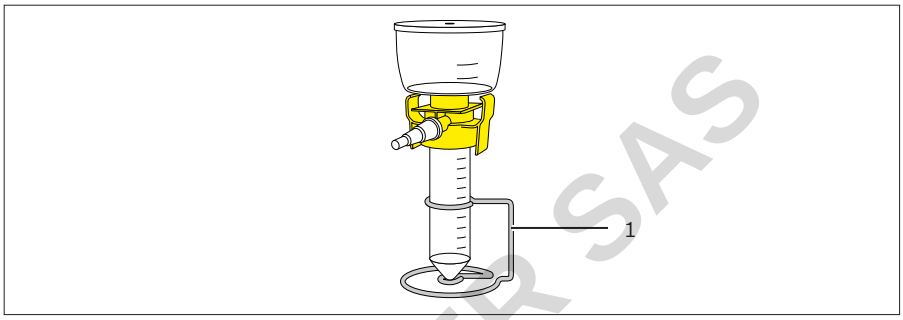


Fig. 3: Product placed in a rack (example)

Pos.	Name
1	Rack

Material: 1 rack or 1 holder for 50 mL centrifuge tubes

Procedure

▶ Insert the product into the chosen bracket.

4.5 Connecting the Vacuum Source

4.5.1 Inserting the Product Into the Support Manifold

The product can be inserted into a support manifold. In this way, the support manifold applies a vacuum to the product during filtration and multiple filtrations can be performed simultaneously.

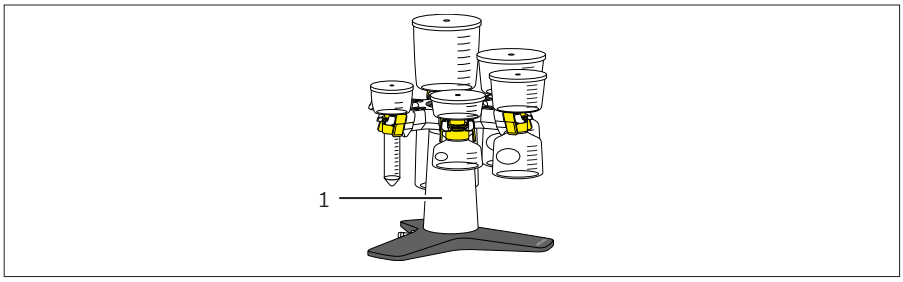


Fig. 4: Product inserted in support manifold (example: Sartolab® Multistation)

Pos.	Name
1	Support manifold

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Requirements

– The support manifold is suitable for the product (see Chapter 8.7.2, page 20).
– The product is equipped with a collection tube or a receiver bottle or is connected to a receiver bottle.

Procedure

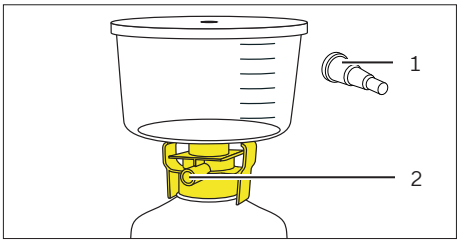
▶ Insert the product adapter into the bracket of the support manifold (see instructions for the support manifold).

4.5.2 Connecting the Product to the Vacuum Source via the Vacuum Tube

Requirements

The product is **not** inserted in a support manifold.

Procedure



▶ Attach the tube adapter (1) to the vacuum connection (2).
▶ Attach the vacuum tube of the vacuum source to the tube adapter. The vacuum tube **must not** come loose during filtration.

5 Use

5.1 Filling the Funnel

⚠ CAUTION

Danger of injury due to contamination of the vacuum source!

Excess liquid in the funnel can cause the liquid to be aspirated into the vacuum source or the support manifold:

▶ **Do not** exceed the maximum filling volume (see Chapter 8.4.4, page 17).

Procedure

▶ Make sure the funnel is securely attached to the collection tube or the receiver bottle.
  ▶ If required: Tighten the funnel.
▶ Remove the lid from the funnel.
▶ Pour the required quantity of liquid into the funnel.
▶ If diatomaceous earth is used as a filter aid for clarifying filtration: Observe the handling specifications (see instructions for the diatomaceous earth filter aid).
▶ Place the lid on the funnel.

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5.2 Performing Filtration

Procedure

- ▶ Connect the vacuum source so that a vacuum is applied to the product (See instructions for the vacuum source or support manifold).
- ▷ The filtrate is collected in the collection tube or receiver bottle.

5.3 Ending Filtration

⚠ CAUTION

Danger of injury due to spilled liquids!

- ▶ **Do not** cause any sudden movements to the product that could tip it over or destabilize it.

Procedure

- ▶ Shut off the vacuum source (see instructions for the vacuum source or support manifold).
- ▶ Remove the product from the support manifold (see instructions for the support manifold) or pull the vacuum tube out off the tube adapter.
- ▶ Unscrew the funnel with adapter from the collection tube or receiver bottle and dispose of it.

5.4 Preparing Filtrate for Storage (Sartolab® RF 50 | RF 150 – 1000 Only)

The filtrate can be stored in the collection tube or receiver bottle. The receiver bottle must be sealed with the appropriate screw cap.

Procedure

- ▶ Unpack the screw cap and screw onto the collection tube or receiver bottle.

6 Storage

6.1 Storing the Product

Procedure

- ▶ Store the product in accordance with the storage conditions (see Chapter 8.3, page 16).

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7 Disposal

7.1 Decontaminating the Product

If the product has come into contact with hazardous substances: Steps must be taken to ensure proper decontamination and declaration. The operator of the product is responsible for adhering to local government regulations on the proper decontamination and declaration for transport and disposal.

Procedure

- ▶ If the product has come into contact with hazardous substances: Decontaminate the product.

7.2 Disposing of the Product

The product must be disposed of properly. The packaging is made of environmentally friendly materials that can be used as secondary raw materials.

Procedure

- ▶ Dispose of the product in accordance with local government regulations.
- ▶ Dispose of the packaging in accordance with local government regulations.

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8 Technical Data

8.1 Dimensions and Weights

Sartolab® RF 50 – 250

		Sartolab® RF 50	Sartolab® RF 150	Sartolab® RF 250
	Unit	Value	Value	Value
Height	mm	116	142	180
Outer diameter, max.	mm	78	100	100
Product weight	g	51	100	114

Sartolab® RF 500 – 1000

		Sartolab® RF 500	Sartolab® RF 1000
	Unit	Value	Value
Height	mm	206	318
Outer diameter, max.	mm	124	124
Product weight	g	115	257

Sartolab® BT 150 – 250

		Sartolab® BT 150	Sartolab® BT 250
	Unit	Value	Value
Height	mm	88	103
Outer diameter, max.	mm	100	100
Funnel to fit bottle neck size	mm	45	45
Product weight	g	61	68

Sartolab® BT 500 – 1000

		Sartolab® BT 500	Sartolab® BT 1000
	Unit	Value	Value
Height	mm	114	171
Outer diameter, max.	mm	124	124
Funnel to fit bottle neck size	mm	45	45
Product weight	g	102	135

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8.2 Ambient Conditions

	Unit	Value
Temperature		
During transport	°C	-5 - +30
Storage conditions before use	°C	-5 - +30[1]
During use, max.	°C	70

[1] Sartorius recommends long-term storage at room temperature.

8.3 Storage Conditions after Use

	Unit	Value
Collection tube or collection container filled with filtrate and sealed with screw cap		
Temperature		
Sartolab® RF 50	°C	-80 – +100
Sartolab® RF 150 – 1000[2]	°C	-20 – +70

[2] Storage at temperatures of -20°C–0°C is dependent on the liquid type and the storage conditions. We recommend conducting a storage test for the solution before use.

8.4 Operating Conditions

8.4.1 Operating Pressure for Vacuum Source

	Unit	Value
Operating pressure of vacuum source	mbar	-350 – -900

8.4.2 Filtration Applications

Membrane Filter Pore Size	Recommended Filtration Application
0.10 µm	Retention of mycoplasma
0.22 µm	Sterile filtration
0.45 µm	Clarification

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8.4.3 Liquids

Liquid type
Aqueous solutions, e.g., buffer or cell culture media
– It is not advisable to use the following fluids: Acids, aldehydes, aliphatic amines, aromatic amines, alkalis, esters, hydrocarbons, and ketones – Fluids and temperatures may impair the properties of the product, e.g., mechanical strength, color, appearance, and dimensional stability
Alcohols may be suitable for some applications. We recommend testing the product with the solution before use.

8.4.4 Filtration Capacity

Sartolab® RF 50 – 250

		Sartolab® RF 50	Sartolab® RF 50	Sartolab® RF 50
	Unit	Value	Value	Value
Type		180E01---------2	180F01---------2	180E01--------E8
Filling volume, max.	mL	50	50	50
Funnel volume	mL	50	50	50
Receiver bottle volume	mL	50	50	50
Hold-up volume	mL	1.2	1.2	1.2

		Sartolab® RF 50	Sartolab® RF 150	Sartolab® RF 150
	Unit	Value	Value	Value
Type		180F01--------E8	180E02---------E	180F02---------E
Filling volume, max.	mL	50	150	150
Funnel volume	mL	50	150	150
Receiver bottle volume	mL	50	150	150
Hold-up volume	mL	1.2	2.7	2.7

		Sartolab® RF 250	Sartolab® RF 250	Sartolab® RF 250
	Unit	Value	Value	Value
Type		180D03---------E	180E03---------E	180F03---------E
Filling volume, max.	mL	250	250	250
Funnel volume	mL	250	250	250
Receiver bottle volume	mL	250	250	250
Hold-up volume	mL	2.7	2.7	2.7

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Sartolab® RF 500 – 1000

		Sartolab® RF 500	Sartolab® RF 500	Sartolab® RF 1000
	Unit	Value	Value	Value
Type		180E04---------E	180F04---------E	180D05---------E
Filling volume, max.	mL	500	500	1000
Funnel volume	mL	500	500	1000
Receiver bottle volume	mL	500	500	1000
Hold-up volume	mL	4.1	4.1	4.1

		Sartolab® RF 1000	Sartolab® RF 1000
	Unit	Value	Value
Type		180E05---------E	180F05---------E
Filling volume, max.	mL	1000	1000
Funnel volume	mL	1000	1000
Receiver bottle volume	mL	1000	1000
Hold-up volume	mL	4.1	4.1

Sartolab® BT 150 – 250

		Sartolab® BT 150	Sartolab® BT 150	Sartolab® BT 250
	Unit	Value	Value	Value
Type		180E12---------2	180F12---------2	180E13---------2
Funnel volume	mL	150	150	250
Hold-up volume	mL	2.7	2.7	2.7

Sartolab® BT 500 – 1000

		Sartolab® BT 500	Sartolab® BT 1000	Sartolab® BT 1000
	Unit	Value	Value	Value
Type		180E14---------2	180E15---------2	180F15---------2
Funnel volume	mL	500	1000	1000
Hold-up volume	mL	4.1	4.1	4.1

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8.5 Membrane Filter

Sartolab® RF 50 – 250

		Sartolab® RF 50	Sartolab® RF 150	Sartolab® RF 250
	Unit	Value	Value	Value
Membrane diameter	mm	58.5	80	80
Effective filtration surface	cm^2	21	43	43
Pore size	µm	0.22 0.45	0.22 0.45	0.10 0.22 0.45
Membrane type: PES				

Sartolab® RF 500 – 1000

		Sartolab® RF 500	Sartolab® RF 1000
	Unit	Value	Value
Membrane diameter	mm	100	100
Effective filtration surface	cm^2	69	69
Pore size	µm	0.22 0.45	0.10 0.22 0.45
Membrane type: PES			

Sartolab® BT 150 – 250

		Sartolab® BT 150	Sartolab® BT 250
	Unit	Value	Value
Diameter	mm	80	80
Effective filtration surface	cm^2	43	43
Pore size	µm	0.22	0.22
Membrane type: PES			

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Sartolab® BT 500 – 1000

		Sartolab® BT 500	Sartolab® BT 1000
	Unit	**Value**	**Value**
Diameter	mm	100	100
Effective filtration surface	cm^2	69	69
Pore size	µm	0.22	0.22 0.45
Membrane type: PES			

8.6 Sterility

Sterilized before delivery (beta irradiation) and packaged individually in sterile packaging
Exception (non-sterile versions):
Sartolab® RF 50 non-sterile (180E01--------E8 and 180F01--------E8)
Product **not** suitable for autoclaving

8.7 Approved Products

8.7.1 Receiver Bottle (Sartolab® RF | BT 150 – 1000 Only)

	Unit	**Value**
Bottle neck size	mm	45
Receiver bottle volume is equal to or greater than funnel volume		
Suitable for:		
Vacuum		

8.7.2 Support Manifold for Vacuum Filtration Unit

Sartolab® Multistation
Suitable for:
Sartolab® RF 50 – 1000
Sartolab® BT 150 – 1000, attached to a suitable receiver bottle

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8.8 Materials

	Value	Symbol
Funnel and lid	Polystyrene (PS)	
Membrane Filter	Polyethersulfone (PES)	
Collection tube	Polypropylene (PP)	
Receiver bottle	Polystyrene (PS)	
Adapter, tube adapter, screw cap	Polyethylene (HDPE)	
Gasket, vacuum filter (installed in funnel)	Polyethylene (PE), Polypropylene (PP)	
Product packing	PET | PE and PE | PA multilayer films	
Transport box	Corrugated board	

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9 Accessories

This table contains an excerpt of the accessories that can be ordered.
For information on other products, please contact Sartorius.

Item	Quantity	Order number
Sartolab® receiver bottle, including screw cap		
150 mL	24	180-22---------2
250 mL	24	180-23---------2
500 mL	24	180-24---------2
1000 mL	24	180-25---------2
Sartolab® Multistation support manifold	1	SDLC01

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Masculine or feminine forms are used to facilitate legibility in these instructions and always simultaneously denote all genders.

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