



## Combisart<sup>®</sup>

The economic way  
for fast and reliable  
colony counting

### Combisart® sustav od nehrđajućeg čelika za filtraciju, sustavi sa jednim i više mjesta

Sartorius Combisart® sustav omogućuje Vam da odaberete ono što Vam najbolje odgovara za filtraciju i mikrobiološku analizu ili brojanje čestica u osiguranju kvalitete.

Combisart® se odlikuje modularnim dizajnom i standardnom dodatnom opremom.

Osnovu Combisart® sustava čini manifold od nehrđajućeg čelika, napravljen da se na njega mogu pričvrstiti svi držači i lijevci, poput:

- Biosart® 100 Monitora
- Biosart® 250 Ljevaka
- Ljevaka od nehrđajućeg čelika
- Stakleni držači filtera koji se mogu autoklavirati
- Polikarbonatni držači filtera koji se mogu autoklavirati



Posebno obilježje Combisart® manifolda su ventili od nehrđajućeg čelika, koji omogućuju kontrolu vakuuma za svaki filter posebno, te sterilnu filtraciju svakog filterskog dijela. To onemogućava sekundarnu kontaminaciju sa donje strane filtera, i zato se najčešće preporučuje za farmaceutске pogone.

Combisart® je konstruiran tako da se može lako autoklavirati. Membranski filter se stavi na držač, koji se potom odspoji od manifolda i stavi u autoklav. Combisart®-om lako rukuju i lijevci, jer se lijevci mogu podesiti prema zahtjevima korisnika.

#### Prava oprema za Vašu primjenu.

Zajedno sa bazom 16840 mogu se koristiti Biosart 250 ili lijevci od nehrđajućeg čelika. Mrežica od nehrđajućeg čelika držača filtera omogućuje jednakomjerno rasprostiranje po površini membranskog filtera. Biosart® 100 adapter 16414 služi za pričvršćivanje Monitora na držač. 3 ili 6 polikarbonatna držača tipa 16511 mogu se izravno pričvrstiti na manifold. Staklene jedinice (16306 ili 16307) pričvršćuju se pomoću adaptera ili gumenih čepova.

Sustave sa 3 ili 6 mjesta preporučuju se kada se odjednom obrađuje više uzoraka. za manji broj uzoraka, dovoljan je sustav sa jednim mjestom i prijemnom bocom.

- **Sigurno i pouzdano:**  
Sterilno prozračivanje svake membrane nakon filtracije  
Sterilizacija prema ISO 8199  
Posebno ispolirana površina nehrđajućeg čelika – lakše čišćenje i ispiranje
- **Ušteda vremena:**  
Filtracija 3 do 6 uzoraka odjednom  
Jednostavno izlijevanje tekućine koja se ne može profilirati  
Jednostavno korištenje i za dešnjake i ljevake
- **Ekonomično:**  
Maksimalna fleksibilnost zbog mogućnosti kombinacija

Manje zauzima mjesta u autoklavu  
Niska konstrukcija – lako za raditi na čistom stolu

- **Ušteda novaca:**  
Nehrđajući čelik 304 - dugotrajno

### Specifikacije

<b>Nehrđajući čelik</b>	<b>Nehrđajući čelik: B.S. 304S31   AISI 304</b>
Dimenzije u mm (L H D)	3-struki manifold: 435   103   120 6-struki manifold: 910   103   120
Max. radni tlak	Samo vakuum
Sterilizacija	autoklaviranje (max. 134°C), suha sterilizacija (max. 180°C), spaljivanje, druge metode prema ISO 8199
Materijali	Poklopac, lijevak, baza, držač filtera, ručka i ručica od nehrđajućeg čelika. Silikonske brtve. Silikonska guma poklopca.
Protok po jedinici za vodu pri 90% vakuuma	200 ml/min sa 0.2 µm membranskim filterom 600 ml/min sa 0.45 µm membranskim filterom
Površina filtracije	12.5 cm
Pogodni promjer membrane	50 mm (47 mm, uz držač 6980103)
Vanjski žlijebovi (pojedinačni sustav)	10 mm vanjski promjer
Ulaz (kod višestrukih sustava)	Ženski navoj, TR 20 x 2
Izlaz (kod višestrukih sustava)	Nastavak za cijev, DN 10

### Brojevi narudžbi

**Combisart® sustav sa jednim i više mjesta, od kvalitetnog nehrđajućeg čelika, sa lijevcima i poklopcima od istog**

Opis	Kapacitet	Br. nar.
Combisart® pojedinačni držač filtera, od nehr. čelika, 100 ml	1 x 100ml	16219-CS
Combisart® i pojedinačni držač filtera, od nehr. čelika, 500 ml	1 x 500ml	16201-CS
Combisart® 1- struki manifold od nehr. čelika 100ml	1 x 100 ml	16844-CS

Combisart® 1- struki manifold od nehr. čelika 500ml	1 x 500 ml	16845-CS
Combisart® 3- struki manifold od nehr. čelika 100ml	3 x 100 ml	16824-CS
Combisart® 3- struki manifold od nehr. čelika 500ml	3 x 500 ml	16828-CS
Combisart® 6- struki manifold od nehr. čelika 100ml	6 x 100 ml	16832-CS
Combisart® 6- struki manifold od nehr. čelika 500ml	6 x 500 ml	16831-CS

**Combisart® sustav sa jednim i više mjesta, od kvalitetnog nehrđajućeg čelika, bez poklopaca i lijevaka, sa mogućnošću rada sa drugim sustavima**

Opis	Br. nar.
Combisart® baza, od nehr. čelika, sa mrežicom, za lijevke od nehr. čelika i Biosart® 100/250	16841
Combisart® 1- struki manifold od nehr. čelika, bez mrežice	16844
Combisart® 3- struki manifold od nehr. čelika, bez mrežice	16842
Combisart® 6- struki manifold od nehr. čelika, bez mrežice	16843
Combisart® baza sa mrežicom, od nehr. čelika, za lijevke od nehr. čelika i Biosart® 100/250	16840

#### **Dodatna oprema i zamjenski dijelovi za Combisart® Sustav**

Opis	Količina	Br. nar.
Minisart® SRP25, sterilni filter za prozračivanje, 0.2 µm, pojedinačno sterilno pakirani, mogu se autoklavirati 5 puta.	50	17575-----ACK
Čep Luer Lock, za zatvaranje Minisart® ulaza, ukoliko sterilno prozračivanje nije potrebno	12	17012-----E
Čep, za zatvaranje otvora za prozračivanje pored navoja, ukoliko sterilno prozračivanje nije potrebno	10	6980225
Silikonski prsten za bazu 16840 muški navoj	3	6980274
Silikonski prsten za ženski navoj manifolda	3	6980235
Silikonska brtva ispod mrežice	1	6980124
PTFE brtva ispod mrežice	1	6980104
Mrežica od nehr. čelika, promjera 50 mm	1	6980102
Mrežica od nehr. čelika, promjera 47 mm	1	6980103

**Lijevci, poklopci, brtve i držači filtera za povezivanje na Combisart® sustav**

Opis	Kapacitet	Ø memb. filtera	Br. nar.
Lijevak od nehr. čelika sa ručkom za zatvaranje	100 ml	47   50 mm	6981065
Poklopac za lijevak 100 ml, od nehr. čelika			6981063
Silikonska brtva za poklopac 6981063			6981064
Lijevak od nehr. čelika sa ručkom za zatvaranje	500 ml	47   50 mm	6981002
Poklopac za lijevak 500 ml, od nehr. čelika			6981001
Silikonska brtva za poklopac 6981001			6981003
Lijevak od nehr. čelika sa ručkom za zatvaranje	40 ml	47   50 mm	6981004
Polikarbonatni držač filter, kompletni sa držačem filtera i lijevkom	250 ml	47 mm	16511
Stakleni držač, kompletni sa držačem filtera, lijevkom i metalnom ručkom	30 ml	25 mm	16306
Stakleni držač, kompletni sa držačem filtera, lijevkom i metalnom ručkom	250 ml	47   50 mm	16307

**Combisart® Adapteri, za pričvršćivanje različitih lijevaka**

Opis	Za pričvršćivanje	Br. nar.
Adapter za Biosart® 100, silikonski	Biosart® 100 na 16840 (Combisart® bazu) ili na 16841 (pojedinačnu bazu)	16414
Adapter za Biosart® 100, od nehr. čelika sa silikonskim čepom Zamjenski čep	Biosart® 100 na Combisart® manifolde 16842 i 16843	16835 00279
Adapter za stakleni lijevak, od nehr. čelika sa silikonskim čepom Zamjenski čep	16306/15 (stakleni lijevak, 30 ml) na Combisart® manifolde 16842 i 16843	16836 00280
Adapter za stakleni lijevak, od nehr. čelika sa silikonskim čepom Zamjenski čep	16307 (stakleni lijevak, 250 ml) na Combisart® manifolde 16842 i 16843	16837 00281

## Combisart® Multi-branch Systems – Total Reliability From a Proven Concept

You can rely on Sartorius' experience to help you make a sound decision.

**The right equipment for your application.**  
The Sartorius Combisart® system enables you to select the optimal hardware and consumables for your needs in quality assurance. Combisart® features a modular design and field-proven standard accessories to make your choice easier.

At the heart of the Combisart® system is a stainless steel manifold designed to accommodate all types of filter holders and funnels such as:

- Ready-to-use units, including Biosart® 100 Monitors and Biosart® 250 Funnels
- Flammable units such as stainless steel funnels for colony counting
- Autoclavable polycarbonate and glass filter holders


A special feature of the Combisart® manifold is that each filter unit can be individually vented. This rules out secondary contamination of the underside of the filter. Since the most reliable sterilization method is autoclaving, the Combisart® design offers a unique advantage for this method. After inserting the membrane filters in the filter holders, you can simply unscrew them as an entire unit from each workstation and autoclave them. You can even pour out a non-filterable sample from each unit. And Combisart® makes filtration equally easy for left- or right-handed users in your laboratory, because funnels can be positioned to suit the individual user.

### Maximum economy.

Requirements and applications may change over time. With Combisart®, you can quickly adapt your current equipment configuration to meet new requirements. This means that you can switch from a reusable filter holder to a disposable unit without requiring a new equipment investment.

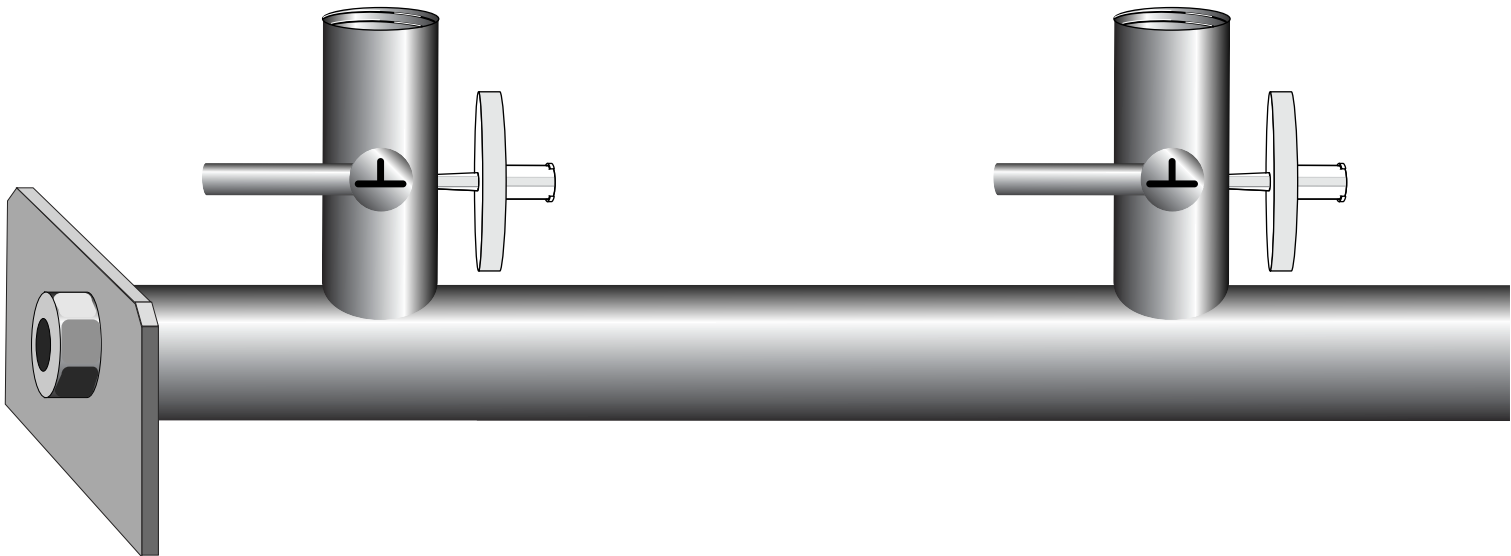
Whatever requirements you place on our products today, the choice of filter holders that best meet your needs is yours. Our field sales representatives will be happy to advise you concerning your specific requirements. Just ask us for an appointment.

To help you choose the Sartorius filter holders that best meet your needs, we have listed all systems on the following pages. You will find not only our product specifications and ordering information, but also an easy guide to locating the features you need.

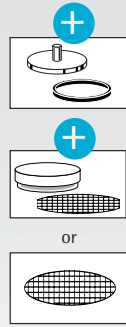
One glance at the pictograms  will tell you how a particular product will meet your requirements.

You will find a detailed overview of our individual systems on page 21.

Plus, you can fold out the last page to see a complete overview of our accessories while you view our Combisart® product information.



**Stainless Steel Funnels; 40, 100, 500 ml**  
For colony or particle counting.



- Safe & reliable: Autoclavable; filter can be used for documentation; individual serial number
- Saves time: Sanitizable by flaming, easy to use
- Saves money: Low consumable costs
- Disposal: None, since funnels are reusable

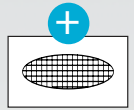
**Ordering information**

40 ml capacity  
100 ml capacity  
500 ml capacity

**Order no.**

6981004  
6981065  
6981002

**Glass Filter Holder; 30 ml**  
For particle counting and hybridization tests.



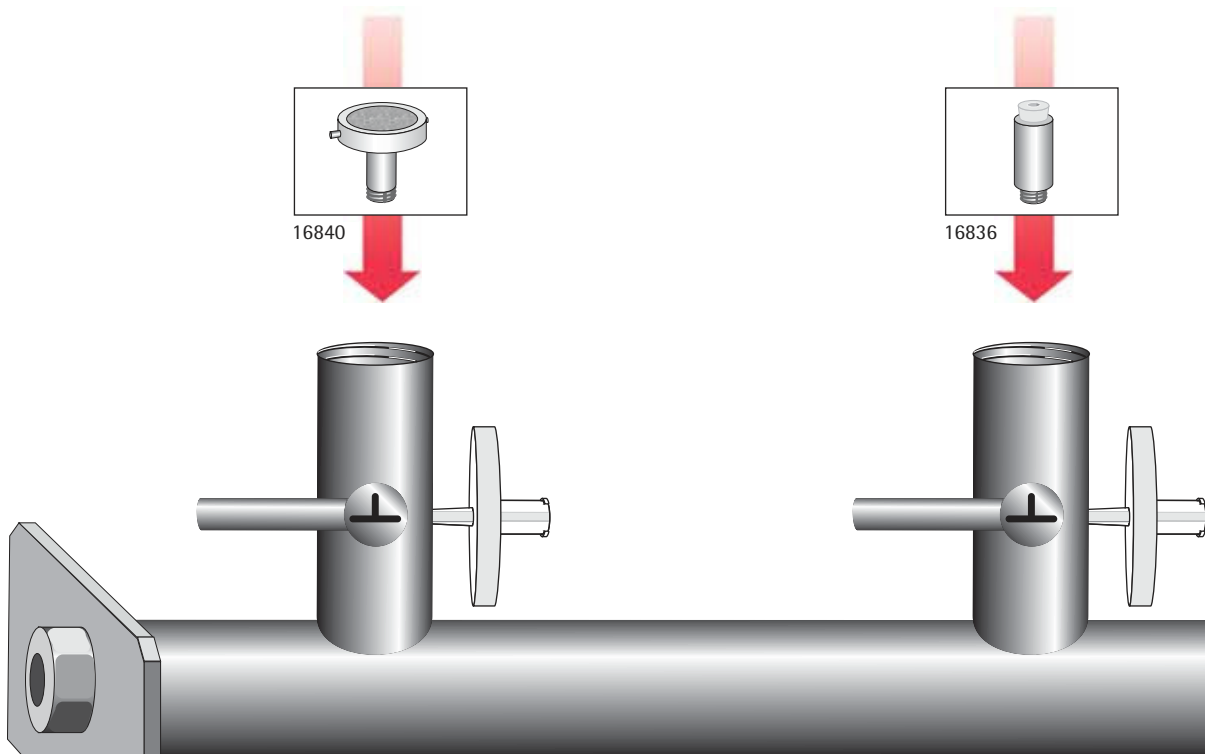
- Safe & reliable: Autoclavable; filter can be used for documentation
- Saves time: Easy to use
- Saves money: Low consumable costs
- Disposal: None, since filter holder is reusable

**Ordering information**

30 ml capacity

**Order no.**

16306



**Stainless steel manifolds, 3- and 6-branch.**

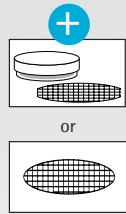
Made of high-grade stainless steel (B.S. 304S31 | AISI 304); accommodates any type of vacuum funnel. Stainless steel three-way valves (taps) allow the vacuum for each filter holder to be individually

controlled and each holder to be sterilely vented. The low height of the manifold ports is particularly advantageous for working on a clean bench.

**Specifications**

Dimensions (L H D)	3-branch manifold: 435 103 120 6-branch manifold: 910 103 120
Max. operating pressure	Vacuum or max. 2 bar (29 psi) pressure
Inlets	TR 20 x 2 female threads
Outlet	Hose nipple, DN 10
Sterilization	By autoclaving (134°C max.) By dry heat (180°C max.)

**Glass Filter Holder; 250 ml**  
For colony and particle counting.

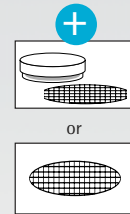


- Safe & reliable: Autoclavable, filter can be used for documentation
- Saves time: Easy to use
- Saves money: Low consumable costs
- Disposal: None, since filter holder is reusable

**Ordering information**  
250 ml capacity

**Order no.**  
16307

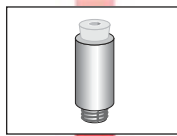
**Polycarbonate Filter Holder; 250 ml**  
For colony and particle counting.



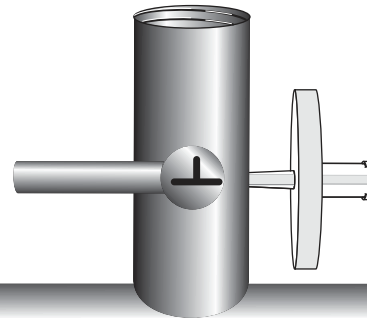
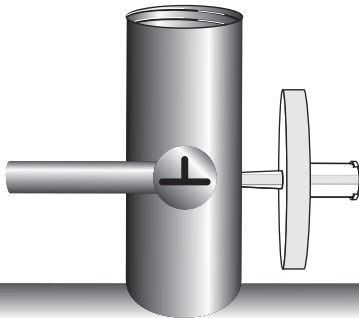
- Safe & reliable: Autoclavable; filter can be used for documentation
- Saves money: Low purchase price and cost of investment and consumables
- Disposal: None, since filter holder is reusable

**Ordering information**  
250 ml capacity

**Order no.**  
16511



16837



**Accessories and replacement parts**

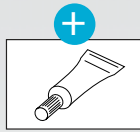
Description	Pack size	Order no.
Minisart SRP25, sterile filter for venting, 0.2 µm, individually sterile packaged, could be autoclaved 5 times	50	17575-----ACK
Plug Luer Lock, to close the Minisart inlet, if sterile venting is not required	12	17012-----E
Plug, conical, to close the venting hole beside the 3-way-valve, if sterile venting is not required	10	6980225
Silicone O-ring for manifold female threads	3	6980235

Ordering information	Order no.
1-branch manifold	16844
3-branch manifold	16842
6-branch manifold	16843

Stainless steel sets for multibranch systems		
3-branch	3×100 ml	16824-CS
3-branch	3×500 ml	16828-CS
6-branch	6×100 ml	16832-CS
6-branch	6×500 ml	16831-CS

In each set the funnels with lids are preassembled, ready to use on the multibranch system.

**Biosart® 100 Monitors; 100 ml**  
For colony counting.



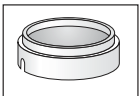
- Safe & reliable: Individually packaged, sterile, validated, certified. Membrane filters: Meet ISO 7740; available in various colors; can be used for documentation; without any hydrophobic adhesive areas
- Saves time: Ready to use; practical design that is easy to use; magnifying glass on the lid; ensures high flow rates, high throughputs; no preparation time necessary
- Saves money: No additional equipment needed
- Disposal: Easy; can be melted down by autoclaving

**Ordering information**

0.2 µm, white|black, 47 mm  
0.45 µm, white|black, 47 mm  
0.45 µm, green|dark green, 47 mm  
0.45 µm, gray|white, 47 mm

**Order no.**

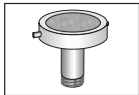
16401-47-07-ACK  
16401-47-06-ACK  
16402-47-06-ACK  
16403-47-06-ACK



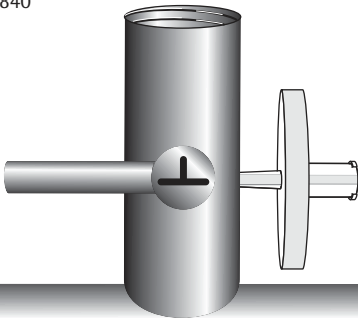
16414



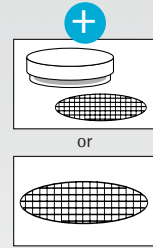
16835



16840



**Biosart® 250 Funnel; 250 ml**  
For colony and particle counting.



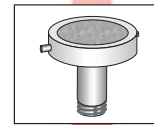
- Safe & reliable: Sterile, certified, filter can be used as documentation, can be autoclaved to a limited extent
- Saves time: Ready to use; practical design that is easy to use; ensures high flow rates, high throughputs; no preparation time necessary
- Saves money: No additional equipment needed

**Ordering information**

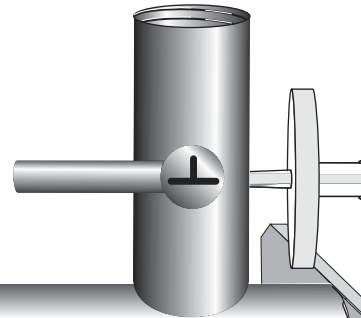
250 ml, 50 units, sterile  
250 ml, 50 units, individually sterile

**Order no.**

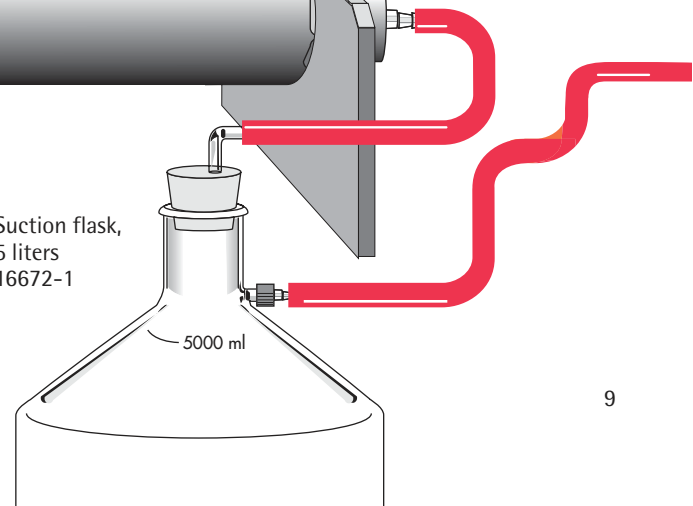
16407-25-ALK  
16407-25-ACK



16840



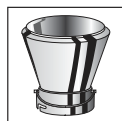
2 | Suction flask,  
5 liters  
16672-1



## Stainless Steel Funnels; 40, 100, 500 ml

For colony and particle counting.

### Stainless steel funnel



Specially designed for use in microbiological quality assurance, these three filter holders made of high-grade stainless steel differ only in their capacity.

Their special locking clamp simplifies positioning and removal of the membrane filter, ensuring secure lock-down. For traceability, each funnel has an individual serial number.

### Specifications

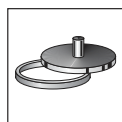
Material	Stainless steel, AISI 304 (B.S. 304S31)
Capacity	40 ml, 100 ml or 500 ml
Filter diameter	47 mm (or 50 mm)
Filtration area	12.5 cm <sup>2</sup>
Max. operating pressure	Vacuum only
Sanitization	By flaming
Sterilization	By autoclaving (134°C max.) By dry heat (180°C max.)

### Order numbers

6981004	Stainless steel funnel capacity 40 ml
6981065	Stainless steel funnel capacity 100 ml
6981002	Stainless steel funnel capacity 500 ml

### Description

### Lids and gaskets



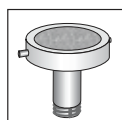
To avoid secondary contamination, the lid has a small central air port into which a cotton plug can be inserted.

### Order numbers

6981063	AISI 304 stainless steel lid for 100 ml funnel
6981064	Silicone lid seal (77.2 + 85.8 mm) for 100 ml funnel
6981001	AISI 304 stainless steel lid for 500 ml funnel
6981003	Silicone lid seal (122 + 131 mm) for 500 ml funnel

### Description

### Single base 16840



For adapting a stainless steel funnel for use on the manifold. The stainless steel frit used as the filter support is designed to ensure uniform distribution of

microorganisms and particles on the membrane filter surface. The pins on both sides of the base for holding the funnel clamp can be positioned as required.

### Specifications

Materials	AISI 304 stainless steel Gasket: Silicone flat gasket (41 × 50 × 1 mm)
Filter diameter	47 mm (or 50 mm)
Filtration area	12.5 cm <sup>2</sup>
Max. operating pressure	Vacuum only
Sanitization	By flaming
Sterilization	By autoclaving (134°C max.)   By dry heat (180°C max.)
Outlet	TR 20 × 2 mm male thread with DN 24 (~ 24 mm) hexagonal nut

### Order numbers

16840	Single base for stainless steel manifold
6980102	Stainless steel frit for 50 mm Ø membrane filters
6980103	Stainless steel frit for 47 mm Ø membrane filters

### Description

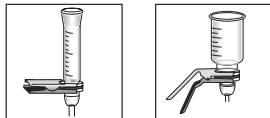
### Replacements:

6980124	Silicone flat gasket underneath the frit
6980104	PTFE flat gasket underneath the frit
6980274	Silicone O-ring for 16840 male thread

## Glass Filter Holders; 30, 250 ml

For colony and particle counting and for hybridization tests.

### Glass filter holders



Two compact vacuum filter holders for easy particulate analysis and colony counting (30 ml holder also suitable for hybridization tests). Both the top and bottom part of the filter holders are easily and securely fastened together using the metal clamp. The centering rim on the filter support ensures correct positioning of the membrane filter. The glass frit filter support guarantees uniform distribution of retained microorganisms and particles on the filter surface.

### Specifications

Materials	Funnel and base	Borosilicate glass, 3.3
	Clamp	Anodized aluminum
Max. operating pressure	Filter support	PTFE Borosilicate glass, 3.3
	Lid	Silicone (250 ml filter holder only)
Sterilization	Gasket	Silicone O-ring, 25 × 3 mm (30 ml filter holder) 45 × 3 mm (250 ml filter holder)
	Vacuum only	
	By autoclaving	134°C max.
	By dry heat	180°C max.

### Order number

### Description

16306	Glass filter holder	30 ml
	Filter diameter	25 mm (or 24 mm) Prefilter, 20 mm
	Filtration area	3 cm <sup>2</sup>
	Capacity	30 ml
	Outlet	12 mm outer diameter

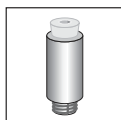
### Order number

### Description

16307	Glass filter holder	250 ml
	Filter diameter	47 mm (or 50 mm) Prefilter, 40 mm
	Filtration area	12.5 cm <sup>2</sup>
	Capacity	250 ml
	Outlet	15 mm outer diameter

### Adapter, 16836

### Adapter, 16837



For use of a glass filter holder, 16306 or 16307, on a Combisart® stainless steel manifold.

### Specifications

Materials	Base	AISI 304 stainless steel
	Stopper	Silicone
Max. operating pressure	Vacuum only	
	By autoclaving	134°C max.
Sterilization	By dry heat	180°C max.
	Outlet	TR 20 × 2 mm male thread

### Order numbers

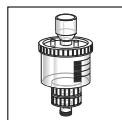
### Description

16836	Adapter with 11 mm opening in stopper; for using filter holder 16306 on a Combisart® manifold
00280	Replacement stopper for 16836
16837	Adapter with 14 mm opening in stopper; for using filter holder 16307 on a Combisart® manifold
00281	Replacement stopper for 16837

## Polycarbonate Filter Holders

For colony and particle counting.

### Polycarbonate filter holder, 250 ml



This reusable, practical filter holder made of autoclavable plastic is ideal for microbiological and analytical testing outside the laboratory.

### Specifications

Materials	Housing	Polycarbonate
	Filter support	Polypropylene
	Gaskets	Silicone O-rings, 40 × 5 mm; 80 × 3 mm; 14 × 2 mm
Capacity	250 ml	
Filter diameter	47 mm, prefilter 37 mm	
Filtration area	11.5 cm <sup>2</sup>	
Max. operating pressure	Vacuum or 2 bar (29 psi) pressure max.	
Sterilization	By autoclaving (121 °C max.)	
Outlet	TR 20 × 2 mm male thread	

### Order number

### Description

16511	Polycarbonate filter holder, 250 ml
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## Ready-to-use Biosart® 100 Monitors

For colony counting.

### Biosart® 100 Monitors



Biosart® 100 Monitors have been specially designed for microbiological testing of pharmaceuticals, cosmetics, water and other liquids. These

sterile disposables with an incorporated membrane filter and cellulose pad are ready to use. After filtration, just remove the 100 ml funnel to convert the Monitor into a petri dish.

Culture media for wetting the pad are available in individually sterilized, convenient plastic ampoules. Each box contains 50 ampoules, each with 2.5 ml and a lot certificate. If stored under the proper conditions (+4°C), the culture media have a shelf life up to one year. For more information, see the chart on the next page.

### Specifications

Materials	Housing	Polystyrene
	Membrane filter	Cellulose nitrate; choice of white, green or gray, with grid; Regenerate Cellulose, white; can be used as documentation
	Pad	Cellulose
	Plug adapter	Polyethylene
Capacity	100 ml, 10 ml graduations	
Pore size	0.2 µm, 0.45 µm, 0.8 µm	
Filter diameter	47 mm	
Filtration area	14.5 cm <sup>2</sup>	
Max. operating pressure	Vacuum only	
Sterilization	Gamma irradiation	
Outlet	6.5 × 1.5 mm	
Lot certificates	Recovery rate, sterility and specifications	

### Biosart®100 Monitors, 100 ml, 47 mm, individually, sterile packaged, 48 units

Order numbers	Pore size	Membranefilter*
		Filter color grid

16401-47-07-ACK	0.2 µm	CN white black
16401-47-06-ACK	0.45 µm	CN white black
16402-47-06-ACK	0.45 µm	CN green dark green
16403-47-06-ACK	0.45 µm	CN gray** white

### Biosart®100 Monitors, 100 ml, 47 mm, sterile packaged, 48 units

Order numbers	Pore size	Membrane filter*
		Color Grid color

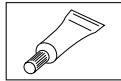
16401-47-H6----K	0.45 µm High Flow	CN white black
16401-47-06----K	0.45 µm	CN white black
16402-47-06----K	0.45 µm	CN green dark green
16403-47-06----K	0.45 µm	CN gray white**
16403-47-04----K	0.8 µm	CN gray white**
16404-47-06----K	0.45 µm	RC white

\*) CN = Cellulose nitrate (cellulose ester); RC = Regenerated cellulose

\*\*\*) Gray membranes after wetting black

# Biosart® 100 Nutrient Media

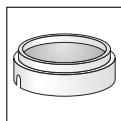
## Which type for which application?



Detection of Reference*	Test Sample Materials	Media Type (pH) Order No.	Recomm. Monitor Type	Typical results
<b>Total count</b> acc. to APHA (dairy), APHA (food), APHA (water), AOAC, DAB, EG 98/83, EP, FDA, IDF, ISO 8199, ISO 9308-1 [1990], ISO 9308-1 [2001], USDA, USP, Internal SOPs.	Pharmaceuticals, cosmetics, raw materials, water (general quality), waste water, foods	<b>Caso</b> (pH 7.3) 16400-02----CA-K	16402 Green with dark green grid	Predominantly bacteria of different sizes, shapes and colors
<b>Total count</b> acc. to APHA (water), EP, Internal SOPs.	Water for pharma purpose, water (general quality), waste water	<b>R2A</b> (pH 7.2) 16400-02----RA-K	16402 Green with dark green grid	Predominantly bacteria of different sizes and shapes. Most of them are white or colorless
<b>Total count</b> acc. to APHA (dairy), APHA (food), APHA (water), API, Internal SOPs.	Raw materials, water (general quality), natural water, waste water, beverages, soft drinks, concentrates, foods	<b>TGE   Tryptone Glucose Extract</b> (pH 7.0) 16400-02----TC-K	16402 Green with dark green grid	Predominantly bacteria of different sizes, shapes and colors
<b>Total count</b> acc. to Internal SOPs.	Soft drinks, concentrates, sugar, sugar products	<b>Total Count TTC</b> (pH 7.0) 16400-02----TZ-K	16402 Green with dark green grid	Predominantly bacteria grew on this medium. The majority of their colonies are stained red by TTC reduction
<b>E. coli and coliforms</b> acc. to APHA (dairy), APHA (food), APHA (water), DGHM, ISO 9308-1 [1990], MNO, USDA, Internal SOPs.	Raw materials, water (general quality), natural water, waste water, beverages, soft drinks, concentrates, fruit juice, sugar, sugar products, foods	<b>Endo</b> (pH 7.2) 16400-02----EN-K	16401 White with black grid	E. coli form red colonies with a metallic sheen, other coliforms grow as dark to light red colonies without metallic sheen
<b>E. coli and coliforms</b> acc. to APHA (food), APHA (water), AOAC, EPA, FDA, ISO 9308-1 [1990], USDA, Internal SOPs.	Raw materials, water (general quality), waste water, beverages, foods	<b>m FC</b> (pH 7.4) 16400-02----MF-K	16401 White with black grid	E. coli and coliform bacteria form blue colonies with a blue surrounding
<b>E. coli and coliforms</b> acc. to AFNOR, APHA (water), BS, FDA, ISO 9308-1 [1990], USDA, Internal SOPs.	Water (general quality), waste water, beverages, foods	<b>Lauryl Sulphate   Teepol</b> (pH 6.8) 16400-02----LS-K	16401 White with black grid	E. coli and coliform bacteria form 1-2 mm diameter yellow colonies surrounded by a yellow zone
<b>E. coli and coliforms</b> acc. to APHA (food), EG 98/83, ISO 8199, ISO 9308-1 [1990], ISO 9308-1 [2001], Internal SOPs.	Raw materials, water (general quality), waste water, beverages, foods	<b>Tergitol TTC</b> (pH 6.9) 16400-02----TT-K	16401 White with black grid	E. coli forms orange colonies with a yellow surrounding, Coliform colonies are red, some with yellow zones, others are red
<b>Enterococci</b> acc. to APHA (food), APHA (water), EG 98/83, HMSO, ISO 7899-2, ISO 8199, LMBG, MNO, Internal SOPs.	Raw materials, water (general quality), natural water, waste water, beverages, foods	<b>KF Strep   Azide</b> (pH 7.2) 16400-02----KF-K	16402 Green with dark green grid	Enterococci form red, pink or reddish brown colonies with a diameter of 05 – 2 mm
<b>Pseudomonas aeruginosa</b> acc. to APHA (water), AOAC, ASM, DAB, DIN 38411, EG 98/83, EP, FDA, ISO 8199, ISO 12780, USP, Internal SOPs.	Pharmaceuticals, cosmetics, raw materials, water (general quality), waste water, foods	<b>Cetrimide</b> (pH 7.2) 16400-02----CE-K	16401 White with black grid	Pseudomonas aeruginosa forms blue, blue-green or yellow-green colonies with blue zones. The colonies show fluorescence in UV-light
<b>Yeasts and molds</b> acc. to APHA (food), AOAC, EP, USP, Internal SOPs.	Pharmaceuticals, cosmetics, raw materials, water (general quality), waste water	<b>Sabouraud</b> (pH 5.6) 16400-02----SB-K	16403 Gray with white grid	Yeasts develop smooth white, rarely colored colonies. Molds generally form velvety or fluffy, cotton-like colonies
<b>Yeasts and molds</b> acc. to Internal SOPs.	Wine, soft drinks, concentrates, sugar, sugar products	<b>m Green yeast and mold   Schaufus Pottinger</b> (pH 4.6) 16400-02----MG-K	16401 White with black grid	Yeasts develop smooth white, rarely colored colonies. Molds generally form velvety or fluffy, cotton-like colonies
<b>Yeasts and molds</b> acc. to Internal SOPs.	Soft drinks, concentrates, sugar, sugar products	<b>m Green yeast and mold selective</b> (pH 4.6) 16400-02----GS-K	16401 White with black grid	Yeasts develop smooth white, rarely colored colonies. Molds generally form velvety or fluffy, cotton-like colonies
<b>Yeasts and molds and bacteria</b> acc. to Internal SOPs.	Beverages, beer, wine, soft drinks, concentrates, fruit juice	<b>WL Nutrient   Wallerstein</b> (pH 5.5) 16400-02----WN-K	16403 Gray with white grid	Yeasts grow as yellowish green colonies. Molds generally form velvety or fluffy cotton-like colonies
<b>Bacteria in fermentation processes</b> acc. to Internal SOPs.	Beverages, beer, wine, soft drinks, concentrates, fruit juice	<b>WL Differential   Wallerstein Diff</b> (pH 5.5) 16400-02----WL-K	16401 White with black grid	Bacteria grow as white, cream or opaque colonies
<b>Acid-tolerant microorganisms</b> acc. to APHA (water), IFU, MPP (packaging staff), Internal SOPs.	Raw materials, water (general quality), waste water, wine, soft drinks, concentrates, fruit juice, foods	<b>Orange Serum</b> (pH 5.5) 16400-02----OS-K	16402 Green with dark green grid	Only acid-tolerant microorganisms can grow on this medium such as lactic acid bacteria, yeast and molds

## Adapters for Biosart® 100 Monitors

### Biosart® 100 Monitor adapters



For adapting Biosart® 100 monitors onto the filter support of a Combisart® stainless steel system.

The adapters ensure that the Monitors are positioned perfectly level minimizing the risk of contamination during filtration.

### Specifications

Material	Silicone
Max. operating pressure	Vacuum only
Sterilization	By autoclaving (134°C max.)

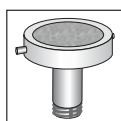
### Order number

16414

### Description

Adapter for Biosart® 100 Monitors for use on single base, 16840 (or 16841)

### Single base, 16840



For holding the Biosart® 100 adapter, 16414

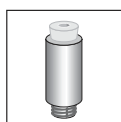
### Order number

16840

### Description

Stainless steel filter support for stainless steel manifold. See page 10 for specifications

### Adapter, 16835



For adapting Biosart® 100 Monitors for use on a Combisart® stainless steel manifold. This adapter is attached to the polyethylene adapter – included in the Monitor packaging – which is connected to the outlet of the Monitor. The bottom thread of the 16835 adapter is then attached directly to the manifold.

### Specifications

Materials	Base	AISI 304 stainless steel
	Stopper	Silicone
Max. operating pressure		Vacuum only
Sterilization		By autoclaving (134°C max.) By dry heat (180°C max.)
Outlet		TR 20 × 2 male thread

### Order number

16835

### Description

Adapter with 10 mm opening in stopper; for using Biosart® 100 Monitors on a Combisart® manifold

00279

Replacement stopper for 16835

### Biosart® 100 Monitor adapters



For adapting the Biosart® 100 Monitor onto other vacuum filter holder supports. The adapters ensure that the Monitors are positioned

perfectly level minimizing the risk of contamination during filtration.

### Specifications

Materials	Polypropylene
Max. operating pressure	Vacuum only
Sterilization	By autoclaving (134°C max.)

### Order number

16415

### Description

Adapter, for using the Biosart® 100 Monitors on a vacuum filter holder support with a 50 mm Ø (S&S)

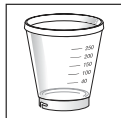
16416

Adapter, for using the Biosart® 100 Monitors on a vacuum filter holder support with a 59 mm Ø (MP)

## Ready-to-use Biosart® 250 Funnels

For colony and particle counting.

### Biosart® 250 Funnel



The Biosart® 250 Funnel has been specially designed for microbiological and analytical quality assurance in industry.

The sterile 250 ml plastic funnel guarantees fast filtration and high sample throughputs during routine testing. Its large inner diameter allows high flow rates, and the tapered inner walls permit thorough flushing of the funnel, after filtration.

### Specifications

Material	Polypropylene
Capacity	250 ml, 50 ml graduations
Filter diameter	47 mm (or 50 mm), prefilter 40 mm
Filtration area	12.5 cm <sup>2</sup>
Max. operating pressure	Vacuum only
Sterilization	Ethylene oxide
Lot certificates	Sterility and Performance Tests

### Order number

16407-25-ALK

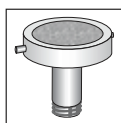
16407-25-ACK

### Description

Biosart® 250 Funnel, 50 units, sterile-packaged

Biosart® 250 Funnel, 50 units, individually sterile-packaged

### Single support, 16840



For adapting a Biosart® 250 Funnel for use on a Combisart® stainless steel manifold.

### Order number

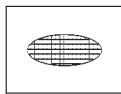
16840

### Description

Stainless steel filter support for stainless steel manifold  
See page 10 for specifications

## Gridded Membrane Filters

### Gridded membrane filters

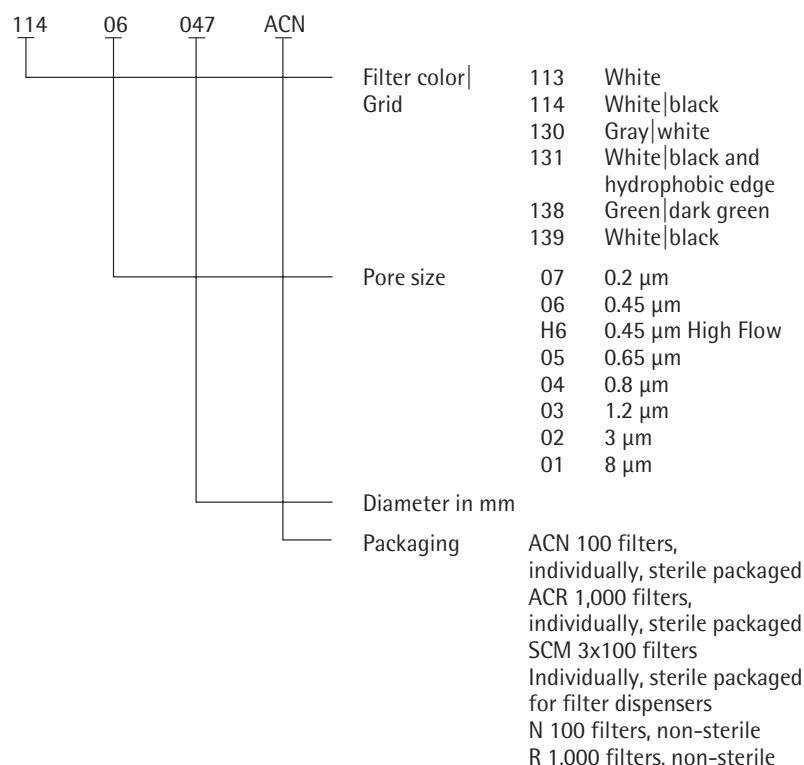


Sartorius cellulose nitrate membrane filters are offered in a choice of three different colors to suit your specific test application, and provide a high-contrast background.

For simple evaluation of the results, the grid divides the filtration area into 130 squares, each measuring 3.1 x 3.1 mm. The membrane filters are individually packaged and sterilized, and undergo stringent quality assurance testing. The certificate included in every package documents the quality assurance tests as well as the compliance of the 0.45 µm membrane filter with ISO 7704.

The special pore structure of the new 0.45 µm HighFlow membrane filters allow shorter filtration times due to higher flow rates and throughputs. As every Sartorius 0.45 µm membrane filter lot these membranes are also tested and released according to ISO 7704.

### Ordering diagram



## Nutrient Pad Sets (NPS)

For colony counting.

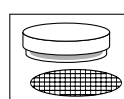
Microorganisms require the appropriate culture media for optimal reproduction. Ready-to-use Nutrient Pad Sets consist of a pad with culture medium in a petri dish and a gridded membrane filter. Made of inert cellulose, the nutrient pad is already impregnated with a culture medium of a specific formula and dehydrated. Each nutrient pad is individually "plated" in a petri dish and sterilized. Just moisten the nutrient pad with 3.5 ml of sterile, deionized water to reactivate the medium. NPS are continuously enhanced as part of our development program to adapt our products

to changing application requirements. Besides the new NPS types, we have also updated our packaging design. The standard NPS box contains 100 sterile Nutrient Pads, each of which is individually inserted in a petri dish and sterilized. Ten each of these petri dishes are sealed in an aluminum bag. This special packaging in bags protects the sensitive formula constituents of the Nutrient Pad during transport and storage from fluctuations in humidity and temperature. As a result, it guarantees the high quality of our NPS throughout their entire shelf life ranging from 18 to 24 month. This make the Sartorius

Nutrient Pads Sets unique: No other ready-to-use Nutrient media around the globe assures consistent high quality and reproducible results up to 24 month.

All Nutrient Pad Sets are conveniently supplied with the appropriate membrane filters, which are also individually packaged and sterilized.

These products undergo traceable quality assurance tests on the basis of which a lot certificate is issued and included in every package.



### Which type for which application?

Detection of Reference*	Test Sample Materials	Media Type (pH) Order No.** (filter type)***	Recom. Incubation Conditions	Typical results
<b>Total count</b> acc. to APHA (dairy), APHA (food), APHA (water), AOAC, DAB, EG 98/83, EP, FDA, IDF, ISO 7704, ISO 8199, ISO 9308-1 [1990], ISO 9308-1 [2001], USDA, USP, Internal SOPs.	Pharmaceuticals, cosmetics, raw materials, water (general quality), waste water, foods	<b>Caso</b> (pH 7.3) 14063--47-----N (1)	up to 5d at 32.5 ± 2.5°C	Predominantly bacteria of different sizes, shapes and colors
<b>Total count</b> acc. to APHA (water), EP, ISO 7704, Internal SOPs.	Water for pharmaceut. purpose, water (general quality), waste water	<b>R2A</b> (pH 7.2) 14084--47-----N (1)	48-72 h at 35 ± 2°C; 5-7 days at 20 ± 2°C	Predominantly bacteria of different sizes and shapes Most of them are white or colorless
<b>Total count</b> acc. to APHA (water), ISO 7704, VLB, Internal SOPs.	Raw materials, water (general quality), waste water, beverages, beer, foods	<b>Standard</b> (pH 7.2) 14064--47-----N (1)	2-5d at 30 ± 2°C	Predominantly bacteria grow on this medium. The morphology and color of their colonies vary
<b>Total count</b> acc. to APHA (water), ISO 7704, VLB, Internal SOPs.	Raw materials, water (general quality), natural water, waste water, beverages, beer, foods	<b>Standard TTC</b> (pH 7.2) 14055; 14005--47-----N (1)	2-5d at 30 ± 2°C	Predominantly bacteria grow on this medium. The majority of their colonies are stained red by TTC reduction
<b>Total count</b> acc. to APHA (water), ISO 7704, VLB, Internal SOPs.	Raw materials, water (general quality), natural water, waste water, beverages, beer, foods	<b>Standard TTC I mod.</b> (pH 7.2) 14085--47-----N (1)	2-5d at 30 ± 2°C	Predominantly bacteria grow on this medium. The majority of their colonies are stained red by TTC reduction
<b>Total count</b> acc. to APHA (dairy), APHA (food), APHA (water), API, ISO 7704, Internal SOPs.	Raw materials, water (general quality), natural water, waste water, beverages, soft drinks, concentrates, foods	<b>TGE   Tryptone Glucose Extract</b> (pH 7.0) 14076--47-----N (1)	2-5d at 30 ± 2°C	Predominantly bacteria of different sizes, shapes and colors
<b>Total count</b> acc. to EG 98/83, HMSO, ISO 6222, ISO 7704, ISO 8199, Internal SOPs.	Water (general quality), natural water	<b>Yeast extract</b> (pH 7.2) 14090--47-----N (1)	44 ± 4h at 36 ± 2°C; 68 ± 4h at 22 ± 2°C	Predominantly bacteria grow on this medium. The majority of all colonies are colorless
<b>E. coli and coliforms</b> acc. to ISO 7704, Journal Food Protection, ZenHyg (journal of hygiene), Internal SOPs.	Raw materials, water (general quality), waste water, beverages, foods	<b>Chromocult</b> (pH 6.8) 14087--47-----N (7)	24 h at 36 ± 1°C	E. coli develops dark-blue to violet colonies, other coliforms red to pink colonies
<b>E. coli</b> acc. to APHA (water), DIN 10110, EG 98/83, ISO 7704, ISO 8199, ISO 9308-1 [2001], LMBG, USDA, Internal SOPs.	Raw materials, water (general quality), waste water, beverages, foods	<b>ECD</b> (pH 7.0) 14082--47-----N (2)	18-24 h at 37 ± 1°C or acc. to ISO 9308-1	Colonies that show light blue fluorescence under UV light (360 nm) indicate E coli
<b>E. coli and coliforms</b> acc. to APHA (dairy), APHA (food), APHA (water), DGHM, ISO 7704, ISO 9308-1 [1990], MNO, USDA, Internal SOPs.	Raw materials, water (general quality), natural water, waste water, beverages, soft drinks, concentrates, fruit juice, sugar, sugar products, foods	<b>Endo</b> (pH 7.2) 14053--47-----N (2) 14003--47-----N (2)	24 ± 2 h at 36 ± 2°C or acc. to ISO 9308-2 [1990]	E. coli form red colonies with a metallic sheen, other coliforms grow as dark to light red colonies without metallic sheen

Detection of Reference*	Test Sample Materials	Media Type (pH) Order No.** (filter type)***	Recom. Incubation Conditions	Typical results
<b>Enterobacteria, E. coli</b> acc. to APHA (dairy), APHA (food), APHA (water), AOAC, DAB, DIN 38411, DGHM, EP, ISO 7704, LMBG, MNO, USDA, USP, Internal SOPs.	Pharmaceuticals, cosmetics, raw materials, water (general quality), natural water, waste water, beverages, soft drinks, concentrates, fruit juice, foods	<b>MacConkey</b> (pH 7.1) 14097--47-----N (2)	18–24 h at 36 ± 2°C	E. coli forms large red, coliform microbes form large pink, lactose-negative enterobacteria form colorless colonies Gram-positive microbes are inhibited
<b>E. coli and coliforms</b> acc. to APHA (food), EG 98/83, ISO 7704, ISO 8199, ISO 9308-1 [1990], SO 9308-1 [2001], Internal SOPs.	Raw materials, water (general quality), waste water, beverages, foods	<b>Tergitol TTC</b> (pH 8.0) 14056--47-----N (2) 14006--47-----N (2)	21 ± 3 h at 36 ± 2°C	E. coli forms yellow colonies with a yellow with a yellow surrounding, Enterobacter colonies with a small yellow surrounding Coliform colonies are red
<b>Enterococci</b> acc. to APHA (food), APHA (water), EG 98/83, HMSO, ISO 7704, ISO 7899-2, ISO 8199, LMBG, MNO, Internal SOPs.	Raw materials, water (general quality), natural water, waste water, beverages, foods	<b>Azide</b> (pH 7.2) 14051--47-----N (1)	44 ± 4h at 36 ± 2°C	Enterococci form red, pink or reddish brown colonies with a diameter of 05 – 2 mm
<b>Salmonellae</b> acc. to AFNOR, APHA (dairy), APHA (food), AOAC, DGHM, FDA, HMSO, IDF, ISO 6579 [1981], ISO 7704, USDA, USP, Internal SOPs.	Pharmaceuticals, cosmetics, raw materials, water (general quality), waste water, foods	<b>Bismuth Sulfite</b> (pH 7.6) 14057--47-----N (1)	up to 48 h at 36 ± 2°C	Most salmonellae form light colored colonies with brown to black centers surrounded by a black zone with a metallic sheen ("fish eye")
<b>Pseudomonas aeruginosa</b> acc. to APHA (water), AOAC, ASM, DAB, DIN 38411, EG 98/83, EP, FDA, ISO 7704, ISO 8199, ISO 12780, USP, Internal SOPs.	Pharmaceuticals, cosmetics, raw materials, water (general quality), waste water, foods	<b>Cetrimide</b> (pH 7.1) 14075--47-----N (2)	48 ± 4 h at 37 ± 1°C	Pseudomonas aeruginosa forms blue, blue-green or yellow-green colonies with blue zones. The colonies show fluorescence in UV-light
<b>Staphylococci, Staph. aureus</b> acc. to APHA (food), AOAC, DGHM, FDA, HMSO, ISO 7704, USP, Internal SOPs.	Pharmaceuticals, cosmetics, raw materials, water (general quality), waste water, foods	<b>Chapman</b> (pH 7.4) 14074--47-----N (2)	up to 3d at 36 ± 2°C	Staphylococcus aureus forms yellow colonies with a yellow surrounding (mannitol-positive)
<b>Wild yeasts</b> acc. to Journal Institute of Brewing, VLB, Internal SOPs.	Beer	<b>Lysine</b> (pH 5.0) 14061--47-----N (3)	2–5 days at 25–28°C	Only "wild yeasts" (not belonging to the genus Saccharomyces) grow on this medium, they form white or cream colored colonies
<b>Yeasts and molds</b> acc. to APHA (food), AOAC, IFU, Internal SOPs.	Beverages, wine, soft drinks, concentrates, fruit juice, foods	<b>Malt Extract</b> (pH 3.5) 14086--47-----N (6) 14086--47----CCN (8)	up to 3d at 25 ± 2°C or 7d at 30 ± 2°C	Yeasts develop smooth white, rarely colored colonies. Molds generally form velvety or fluffy, cotton-like colonies
<b>Yeasts and molds</b> acc. to APHA (food), AOAC, EP, USP, Internal SOPs.	Pharmaceuticals, cosmetics, raw materials, water (general quality), waste water	<b>Sabouraud</b> (pH 5.6) 14069--47-----N (3)	up to 5 days at 20–25°C	Yeasts develop smooth white, rarely colored colonies. Molds generally form velvety or fluffy, cotton-like colonies
<b>Yeasts and molds</b> acc. to Internal SOPs.	Wine, soft drinks, concentrates, sugar, sugar products	<b>Schaufus Pottinger   m Green yeast and mold</b> (pH 4.4) 14070--47-----N (4) 14072--47-----N (5) 14080--47-----N (6) 14083--47-----N (3)	2–7 days at 25–30°C	Yeasts develop smooth white, rarely colored colonies. Molds generally form velvety or fluffy, cotton-like colonies
<b>Yeasts and molds and bacteria</b> acc. to ISO 7704, Internal SOPs.	Beverages, beer, wine, soft drinks, concentrates, fruit juice	<b>Wallerstein   WL Nutrient</b> (pH 5.5) 14089--47-----N (2)	up to 14 days at 25–30°C aerobic or anaerobic depending on the target of the investigation	Yeasts grow as yellowish green colonies. Molds generally form velvety or fluffy cotton-like colonies
<b>Yeasts and molds</b> acc. to VLB, Internal SOPs.	Raw materials, beverages, beer, wine, soft drinks, concentrates, foods	<b>Wort</b> (pH 4.4) 14058--47-----N (3) 14008--50-----N (3)****	2–5 days at 25–30°C	Yeasts develop smooth white or colored colonies. Molds form velvety or fluffy cotton-like colonies
<b>Thermophilic spore formers and mesophilic bacteria</b> acc. to APHA (dairy), APHA (food), AOAC, ICUMSA, IFU, ISO 7704, NCA, Internal SOPs.	Fruit juice, sugar, sugar products, foods	<b>Glucose Tryptone</b> (pH 6.8) 14066--47-----N (2)	48 h at 55 ± 2°C or up to 3d at 31 ± 1°C	Microorganisms that ferment glucose and produce acid grow as yellowish green colonies

Detection of Reference*	Test Sample Materials	Media Type (pH) Order No.** (filter type)***	Recom. Incubation Conditions	Typical results
<b>Leuconostoc oenos and other wine spoiling microorgan.</b> acc. to ISO 7704, LanaridrisEt Lafon-Lafourcade; Internal SOPs.	Wine, fruit juice	<b>Jus de Tomate   Tomato Juice</b> (pH 4.4) 14079--47-----N (1)	4–6 days (up to 8d) at 28–30°C	Lactobacilli: whitish to slightly yellowish Pediococci: whitish to slightly brownish Oenococcus oeni: colorless to whitish colonies
<b>Acid-tolerant microorganisms</b> acc. to APHA (water), IFU, ISO 7704, MPP (packaging staff), Internal SOPs.	Raw materials, water (general quality), waste water, wine, soft drinks, concentrates, fruit juice, foods	<b>Orange Serum</b> (pH 5.5) 14062--47-----N (1)	up to 3d at 30 ± 2°C aerobic or anaerobic	Only acid-tolerant microorganisms can grow on this medium such as lactic acid bacteria, acetic acid bacteria, yeasts and molds
<b>Acid-tolerant microorganisms</b> acc. to APHA (water), IFU, MPP (packaging staff), Internal SOPs.	Raw materials, water (general quality), waste water, wine, soft drinks, concentrates, fruit juice, foods	<b>Orange Serum</b> (pH 3.2) 14096--47-----N (1)	up to 3d at 30 ± 2°C aerobic or anaerobic	Only acid-tolerant microorganisms can grow on this medium such as lactic acid bacteria, acetic acid bacteria, yeasts and molds
<b>Lactobacilli and Pediococci and other beer spoiling microorganisms</b> acc. to EBC, ISO 7704, MEBAC, VLB, Internal SOPs.	Beer	<b>VLB-S7-S</b> (pH 5.5) 14059--47-----N (2)	5–7 days at 25–28°C, anaerobic	Pediococci ("Sarcina") develop pale green and Lactobacilli slightly rounded, irregularly lobed colonies which are initially light green and later dark green
<b>Mesophilic slime-forming bacteria, esp. Leu. mesenteroides</b> acc. to ICUMSA, ISO 7704, Internal SOPs.	Soft drinks, concentrates, sugar, sugar products	<b>Weman</b> (pH 5.5) 14065--47-----N (1)	2–3 days at 25–30°C	The colonies of slime-forming mesophilic bacteria are smooth, round, usually colorless and transparent or translucent. Some have a diameter greater than 5 mm

\*) Reference Guide on page 20

\*\*) Diameter of the membrane filter, 47 mm. Order number for nutrient pad set with 50 mm membrane filter as above, but --47-----N replaced by --50-----N.

\*\*\*) The membrane filters are selected for optimum growth together with the corresponding nutrient media. The supplied membrane filter type is listed within brackets:

- (1) = green with dark green grid, 0.45 µm pore size
- (2) = white with green grid, 0.45 µm pore size
- (3) = gray (after wetting black) with white grid, 0.65 µm pore size
- (4) = white with green grid, 0.65 µm pore size
- (5) = white with green grid, 1.2 µm pore size
- (6) = gray (after wetting black) with white grid, 0.8 µm pore size
- (7) = white with black grid, 0.45 µm pore size
- (8) = gray (after wetting black) with white grid, 0.45 µm pore size

\*\*\*\*) This NPS type is only available with 50 mm membranes

## Typical Application Examples

Product	Detection and enumeration of...	Nutrient pad and Biosart® 100 Media type
Beer	Lactobacilli and Pediococci and other beer spoiling organisms	VLB-S7-S, Wallerstein Differential
	Total colony count	Standard, Standard TTC
	Wild yeasts	Lysine
	Yeasts and molds	Malt Extract*, Wallerstein Nutrient, Wort
Foods	Acid-tolerant microorganisms	Orange Serum
	Enterobacteria, E. coli and coliforms	Chromocult, ECD, Endo, (MacConkey), m FC, Teepol   Lauryl Sulphate, Tergitol TTC
	Enterococci, Streptococcus faecalis	Azide   KF Strep
	Pseudomonas aeruginosa	Cetrimide
	Salmonellae	Bismuth Sulfite
	Staphylococci, Staphylococcus aureus	Chapman
	Thermophilic spore formers and mesophilic bacteria	Glucose Tryptone
	Total colony count	Caso, Standard, Standard TTC, TGE   Tryptone Glucose Extract
Fruit juice	Yeasts and molds	Malt Extract, Wort
	Enterobacteria, E. coli and coliforms	Endo, (MacConkey), Tergitol TTC*
	Oenococcus and other product spoiling organisms	Jus de Tomate   Tomato Juice, Orange Serum, Wallerstein Differential
Milk	Yeasts and molds	Malt Extract, Schaufus Pottinger   m Green yeast and mold, Wallerstein Nutrient, Wort
	E. coli and coliforms	Endo
	Enterococci, Streptococcus faecalis	Azide   KF Strep
Pharmaceuticals, WFI, raw materials and cosmetics	Salmonellae	Bismuth Sulfite
	Enterobacteria, E. coli	MacConkey
	Enterococci, Streptococcus faecalis	Azide   KF Strep
	Pseudomonas aeruginosa	Cetrimide
	Salmonellae	Bismuth Sulfite
	Staphylococci, Staphylococcus aureus	Chapman
	Total colony count	Caso, R2A
Soft drinks, concentrates	Yeasts and molds, Candida albicans	Sabouraud
	Acid-tolerant microorganisms, Lactic-acid bacteria	Orange Serum, VLB-S-7-S, Wallerstein Differential
	Enterobacteria, E. coli and coliforms	Endo, MacConkey
	Mesophilic slime-forming bacteria, Leuconostoc	Weman
	Total colony count	Standard*, Standard TTC*, TGE   Tryptone Glucose Extract, Total Count TTC
Sugar, sugar products	Yeasts and molds	Malt Extract, Schaufus Pottinger   m Green yeast and mold, m Green yeast and mold selective, Wallerstein Nutrient, Wort
	E. coli and coliforms	Endo
	Mesophilic slime-forming bacteria, Leuconostoc	Weman
	Thermophilic spore formers and mesophilic bacteria	Glucose Tryptone
	Total colony count	Total Count TTC
Water (general quality), mineral water, natural water, waste water	Yeasts and molds	Malt Extract*, Schaufus Pottinger   m Green yeast and mold, m Green yeast and mold selective, Wort*
	Acid-tolerant microorganisms, Lactic-acid bacteria	Orange Serum
	Enterobacteria, E. coli and coliforms	Chromocult, ECD, Endo, (MacConkey), m FC, Teepol   Lauryl Sulphate, Tergitol TTC
	Enterococci, Streptococcus faecalis	Azide   KF Strep
	Pseudomonas aeruginosa	Cetrimide
	Salmonellae	Bismuth Sulfite
	Staphylococci, Staphylococcus aureus	Chapman
	Total colony count	Caso, R2A, Standard, Standard TTC, TGE   Tryptone Glucose Extract, Yeast Extract
Wine	Yeasts and molds, Candida albicans	Sabouraud
	Acetobacter	Orange Serum, Wort (both wetted with 5-8% ethanol)
	Acid-tolerant microorganisms, Lactic-acid bacteria	Orange Serum, Wallerstein Differential
	Oenococcus and other wine spoiling microorgan.	Jus de Tomate   Tomato Juice
	Yeasts and molds	Malt Extract, Schaufus Pottinger   m Green yeast and mold, Wallerstein Nutrient, Wort

\* These media types are suitable for the determination of the mentioned microorganisms, although the media are not explicit declared in the references described in this publication.

## Reference Guide

Abbreviation	Title
AFNOR	Association Française de Normalisation
APHA (dairy)	American Public Health Association: Standard Methods for the examination of dairy products
APHA (food)	American Public Health Association: Compendium of methods for the microbiological examination of foods
APHA (water)	American Public Health Association, American Water Works Association (AWWA) and Water Environment Federation (WEF): Standard Methods for the Examination of Water and Waste Water
AOAC	Association of Official Analytical Chemists
API	American Petroleum Institute: Recommended practice for biological Analysis of Subsurface Injection waters
ASM	American Society for Microbiology
BS	British Standards
DAB	Deutsches Arzneimittelbuch (German Pharmacopoeia, replaced by EP)
DIN 10110	Deutsches Institut für Normung: Mikrobiologische Fleischuntersuchung. Bestimmung der E. coli. (Microbial detection of E. coli on meat)
DIN 38411	Deutsches Institut für Normung: Deutsche Einheitsverfahren zur Wasser-, Abwasser- und Schlammuntersuchung (German standard for water, waste water and sludge analysis)
DGHM	Deutsche Gesellschaft für Hygiene und Mikrobiologie (German Association of Hygiene and Microbiology)
EBC	European Brewery Convention
EG 98/83	European Guideline 98/83: Water Quality for human purpose
EP	European Pharmacopoeia
EPA	U.S. Environmental Protection Agency: Laboratory standards for equipment and materials
FDA	U.S. Federal Drug Administration
HMSO	Her Majesty's Stationery Office: Department of Health and Social Security (1982) "The Bacteriological Examination of Drinking Water Supplies". Report 71, HMSO, London
ICUMSA	International Commission for Uniform Methods of Sugar Analysis
IDF	International Dairy Federation
IFU	International Federation of Fruit Juice Producers
Internal SOP	Internal Standard Operation Procedure of individual requests
ISO 6222	International Organization for Standardization: Water Quality - Enumeration of culturable micro-organisms
ISO 6579-1981	International Organization for Standardization: Microbiology. General guidance on methods for the detection of Salmonella. Reference method
ISO 7704	International Organization for Standardization: Water Quality, Evaluation of membrane filters used for microbiological analysis
ISO 7899-2	International Organization for Standardization: Water Quality – Detection and enumeration of intestinal enterococci
ISO 8199	International Organization for Standardization: Water Quality – General Guide to the enumeration of micro-organisms by culture
ISO 9308-1	International Organization for Standardization: Water Quality – Detection and enumeration of E. coli and coliform bacteria
ISO 12780	International Organization for Standardization: Water Quality – Detection and enumeration of Ps. aeruginosa
JFoodP	Journal of Food Protection
JIBrew	The Journal of the Institute of Brewing
LLL	Method described by Lanaridris& Lafon-Lafourcade
LMBG	Amtliche Sammlung von Untersuchungsverfahren nach dem §35 des Lebensmittel- und Bedarfsgegenständegesetzes des BGA (testing procedures for food stuffs and articles of daily use)
MEBAK	Methodensammlung der Mitteleuropäischen Brauereitechnischen Analysenkommission (methods of the Central European brewery commission)
MNO	Verordnung über natürliches Mineralwasser, Quellwasser und Tafelwasser (Mineral/Table Water Guideline)
MPP	Merkblätter für die Prüfung von Packmitteln (Testing procedures for packaging stuff)
NCA	National Canners Association: A Laboratory manual of the canning industry
USDA	U.S. Department of Agriculture
USP	United States Pharmacopoeia
VLB	Versuchs- und Lehranstalt für Brauerei in Berlin (institute of brewery)
ZenHyg	Zentralblatt für Hygiene (Journal of Hygiene)

DIN standards and the "Amtliche Sammlung von Untersuchungsverfahren nach dem §35 des Lebensmittel- und Bedarfsgegenständegesetzes des BGA" are available through the German publisher Beuth-Verlag, Burggrafenstr. 6, 10787 Berlin, Germany.

## Combisart® Individual Systems

If you have a low number of samples to test, we recommend that you use our individual systems. In this equipment set-up, you simply use a silicone stopper to fit your choice of glass funnel (described on the previous pages) on a suction flask.

To use all other types funnels with a suction flask, Sartorius has specially developed the single base, 16841. The stainless steel frit and silicone gasket are supplied with the single base.

### Stainless steel sets for individual systems

Order no.:	Base	Stainless steel funnels
16201-CS	1-base	1×500 ml
16219-CS	1-base	1×100 ml

In each set the funnels with lids are preassembled, ready to use on the single base.

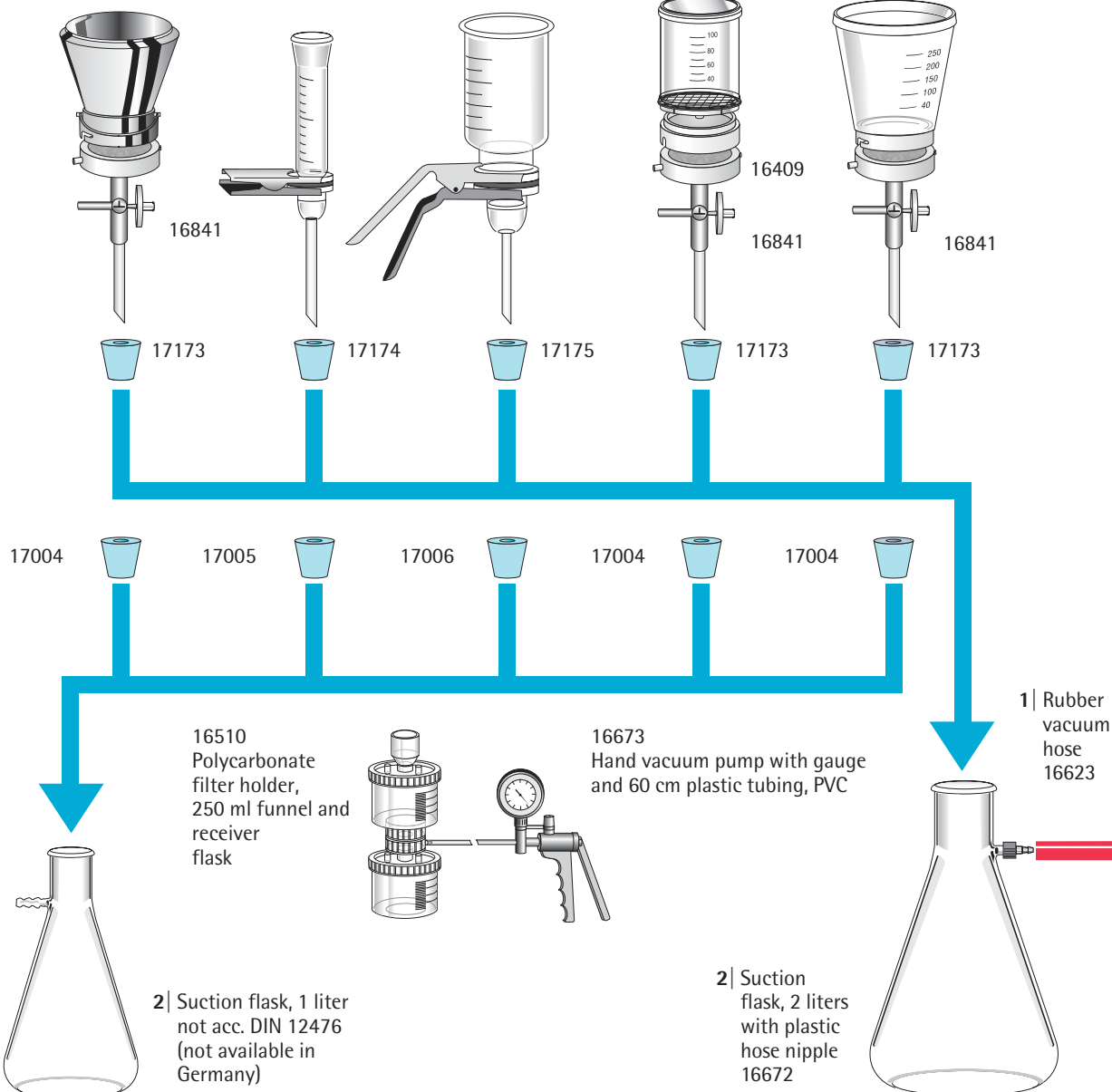
Stainless steel funnels  
40, 100, 500 ml

Glass filter holder  
30 ml

Glass filter holder  
250 ml

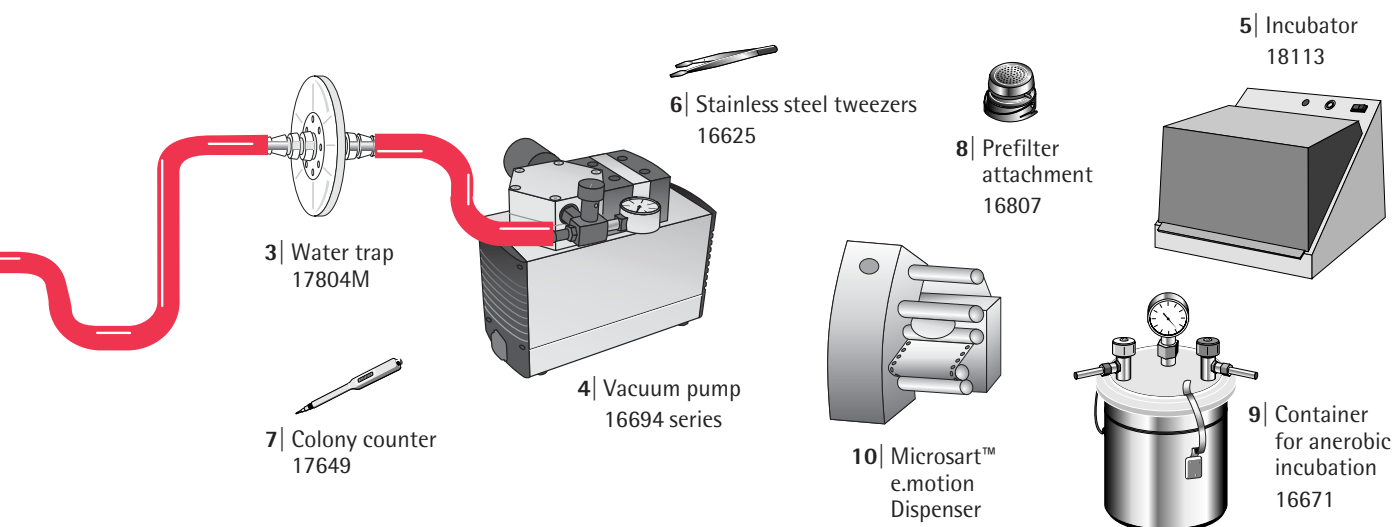
Biosart® 100,  
100 ml

Biosart® 250,  
250 ml



## Accessories

Description	Qty.	Order numbers
1  <b>Rubber vacuum hose</b> for connecting system components	1 m	16623
2  <b>Suction flasks</b> , for collecting the filtrate, vacuum-resistant borosilicate glass, 3.3		
Suction flask, 5 liters, to DIN 12476, incl. stopper and glass tube	1	16672-1
Suction flask, 2 liters, to DIN 12476, without stopper	1	16672
Stopper for 2-liter suction flask	1	17173
Tube connector for connecting a Combisart® stainless steel manifold	1	17204
Suction flask, 1 liter (not available in Germany)	1	16606
3  <b>Water traps</b> , for preventing overflow of filtrate into a vacuum pump		
Vacupart, ready-to-connect filtration unit with a water-repellent, but air-permeable PTFE membrane	3	17804-----M
Woulff's bottle, 500 ml, with stop cock	1	16610
4  <b>Vacuum pumps</b> , neoprene membrane pumps with low noise level, oil- and maintenance-free; reliable sources of vacuum		
Multiple filtration runs: 100 mbar final vacuum, 22 l/min max., 230 V, 50 Hz	1	16694-2-50-22
Multiple filtration runs: 100 mbar final vacuum, 22 l/min max., 115 V, 60 Hz	1	16694-1-60-22
Individual filtration run: 100 mbar final vacuum, 6 l/min max., 230 V, 50 Hz	1	16694-2-50-06
Individual filtration run: 100 mbar final vacuum, 6 l/min max., 115V, 60 Hz	1	16694-1-60-06
Water jet pump, with G 3/4 male thread	1	16611
5  <b>Incubator</b> , temperature range 20–50°C, 15 l capacity; designed to hold the following numbers and sizes of petri dishes: 200 × 47 mm, or 160 × 56 60 mm or 72 × 90 mm. Dimensions (W   H   D) 340   270   431 mm	1	18113
6  <b>Stainless steel tweezers</b> with blunt-edged tips for protection of the membrane filter, can be flamed and autoclaved	1	16625
7  <b>Colony counter</b> , handy, battery-operated	1	17649
8  <b>Stainless steel prefilter attachment</b> for removal of coarse particulate substances from samples in a single step along with bacteria-retentive filtration for subsequent bacteriological testing; clips between the filter support, 16840, and a stainless steel funnel (p. 7) or the Biosart® 250 Funnel (p. 9); autoclavable and can be flamed	1	16807
Bacteriological prefilters for the 16807 prefilter attachment, cellulose nitrate, pore size 8 µm, sterile and individually packaged, diameter 50 mm	100	11301--47----ACN
9  <b>Container for anaerobic incubation</b> , stainless steel, for holding up to 14 × 60 mm or 6 × 90 mm petri dishes; DN 6 (approx. 6 mm) hose nipple on the inlet and outlet, with two taps and a vacuum gauge	1	16671
10  <b>Microsart™ e.motion Dispenser</b> , the membrane filters are released from their sterile packaging fully automatically at the touch of a button or hands-free – a dispensing operation is triggered when the optical sensor detects approaching tweezers	1	16712



## Additional Product Information



### Microsart™ e.motion dispenser – membrane filters on demand.

The completely new membrane filter dispenser meets all requirements placed on advanced laboratory equipment. The membrane filters are released from their sterile packaging fully automatically at the touch of a button or hands-free – a dispensing operation is triggered when the optical sensor detects approaching tweezers.

- Fully automated membrane filter dispenser
- Works hands-free by an optical sensor
- Works by touch button
- Compact design
- Rapid and reliable transport due to sprocket feed roll technology
- Easy insertion of the filter band
- Easy-to-clean
- Low weight

### Order No.

16712 (not available in the U.S. and Canada)

Microsart™ e.motion membrane filters, individually, sterile packaged, 300 filters per box, without protective paper

Order No.	Color   Grid	Pore Size
11407Z-47----SCM	white   black	0.2 µm
11407Z-50----SCM	white   black	0.2 µm
11406Z-47----SCM	white   black	0.45 µm
11406Z-50----SCM	white   black	0.45 µm
114H6Z-47----SCM	white   black	0.45 µm High Flow
13906Z-47----SCM	white   green	0.45 µm
13906Z-50----SCM	white   green	0.45 µm
139H6Z-47----SCM	white   green	0.45 µm High Flow
114H6Z-50----SCM	white   black	0.45 µm High Flow
13806Z-47----SCM	green   dark green	0.45 µm
13806Z-50----SCM	green   dark green	0.45 µm
13006Z-47----SCM	gray   white	0.45 µm
13006Z-50----SCM	gray   white	0.45 µm
13005Z-47----SCM	gray   white	0.65 µm
13005Z-50----SCM	gray   white	0.65 µm
13004Z-47----SCM	gray   white	0.8 µm
13004Z-50----SCM	gray   white	0.8 µm



### Microsart™ e.motion membrane filters.

The cellulose nitrate (cellulose ester) membranes suitable for use in dispensers are sterile-sealed, without protective paper on top of each filter, in a specially designed individual package on a band. The special pleating of the band of membrane filter units ensures that they are perfectly flat when dispensed. The shape of the sealed band guarantees uniform dispensing of the individual membrane filters.

- Outstanding recovery rates for microorganisms
- 0.45 µm are acc. to ISO 7704
- Multi-fit: Fits into various dispensers
- Protective paper-free
- Packaged on a special pleated band
- Product data are printed on
- High Flow membranes available
- Gamma irradiated, 25kGray



### Sampling of airborne microorganisms and viruses.

Together with Gelatin Membrane Filters, the MD8 airscan® Air Sampling System is ideal for detection of airborne microorganisms and viruses in conventionally ventilated rooms, in clean rooms with or without laminar flow, air-conditioning systems and in isolators. The MD8 airscan® delivers precise and validatable results.

The advantages of the MD8 airscan® used together with the Gelatin Membrane Filter method are as follows:

- "Absolute", reliable recovery of microorganisms
- The filter maintains the viability of collected microorganisms for a relevant and meaningful sampling time
- One CFU can be detected in one m<sup>3</sup> of air
- Isokinetic sampling
- The MD8 airscan® can be calibrated on-site
- Suitable for use in class A|B cleanrooms, isolators and BFS machines

### Sterility testing.

Pharmaceutical products, such as parenterals, ophthalmic preparations, veterinary and other products, that come in contact with the blood stream or otherwise enter the body below the skin surface, must be sterile. Sterilization procedures and measures designed to maintain sterility are therefore essential technological process steps. The manufacturer is responsible for demonstrating and verifying the safety and sterility of these individual steps. The current worldwide pharmacopoeias require proof of the sterility of pharmaceuticals as a condition for the release of a production lot. Sterility testing with Sterisart®NF units using the membrane filtration method has advantages over the direct method of incubation:

- It allows growth inhibitors to be flushed out
- Low CFU counts can be detected in large sample volumes

Please contact your local Sartorius office or representative for more information.