

BIOSAFETY EQUIPMENT:

# BIOSAFETY AIR, BIOSAFETY SURFACE, WATER PURIFICATION SYSTEMS



**UVC/T-M-AR**  
DNA/RNA UV-cleaner box



**UVT-S-AR**  
DNA/RNA UV-cleaner box



**UVR-Mi**  
UV Cleaner-Recirculator

## UVR-M and UVR-Mi, UV Cleaner-Recirculators

### How does UV-Air Flow Cleaner-Recirculator work?

Operation principle is based on a constant, forced air circulation through recirculator's chamber in close vicinity to UV lamps, thus ensuring maximal efficiency of disinfection. The inner mirror surface of the recirculator chamber reflects ultraviolet rays thereby increasing the UV radiation density and enhancing the disinfection effect.

### What does UV Air Flow Cleaner-Recirculator consist of?

UV Air Flow Cleaner-Recirculator consists of a germicidal UV lamp, a fan unit equipped with dust filters and a control unit confined in a flow-through chamber.

### What are the Benefits of UVR-M and UVR-Mi recirculators?

- UV Air Recirculators are ideal for air disinfection in hospitals (especially in outpatient departments, operating rooms, emergency rooms, delivery rooms etc.), kindergartens, research laboratories, veterinary clinics
- Recirculators are effective against common airborne diseases by disinfecting the air and efficiently destroying disease-causing agents (viruses, microorganisms) by UV radiation
- Provide complete protection from UV radiation
- Easy to install, operate and maintain. Very low noise level
- Built-in timer allows controlling the UV lamp operating time (UVR-Mi model)
- Digital control unit allows tracking overall UV lamp operating time (UVR-Mi model)

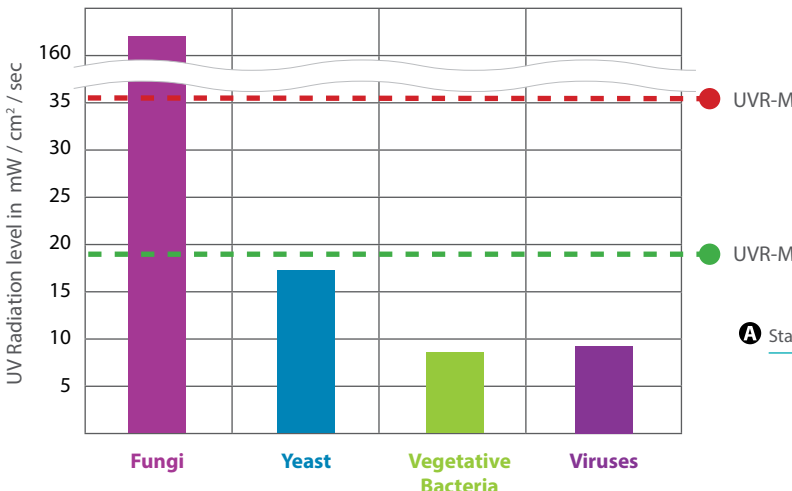
### Recirculator fixation:

- Convenient fixation on walls (standard)
- Mounting on a movable stand (optional) **A**



Both product videos are available on the website

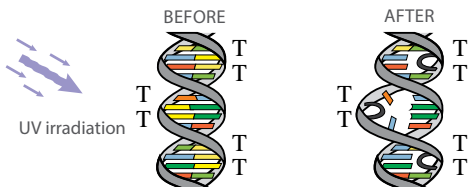
**Sensitivity of microorganisms to UV radiation intensity in UV air recirculators UVR-M and UVR-Mi**



## UVR-M and UVR-Mi, UV Cleaner-Recirculators

	UVR-M	UVR-Mi
UV radiation source bactericidal UV-C, TUV 25W 1SL/25	1 lamp	2 lamps
UV radiation level	18 mW/cm <sup>2</sup> /s	36 mW/cm <sup>2</sup> /s
Air-flow productivity	14 m <sup>3</sup> /h	
Full user protection from direct UV light	Yes	
Display	—	LCD
UV lamp operation indicator	Yes	Yes
UV lamp lifetime counter	—	Yes
Timer	—	1 min–24 h/non-stop
Automatic switch ON/OFF	—	Yes
Lamp fault detection	—	Yes
Overall dimensions (WxDxH)	110 × 135 × 660 mm	110 × 135 × 660 mm
Weight	3.4 kg	3.4 kg
Nominal operating voltage	230 V, 50 Hz or 120 V, 60 Hz	230 V, 50 Hz
Power consumption (230/120 V)	125 VA (540 mA)/160 VA (1.3 A)	110 W (0.5 A)

### Operation principle



T — thymine formations

### ORDERING INFORMATION:

Cat. number

<b>UVR-M</b>	BS-040105-AAA
<b>UVR-Mi</b>	BS-040110-AAA
<b>Optional adapters:</b>	
<b>UVR-S (stand)</b>	BS-040105-AK



See **UVR-M and UVR-Mi, UV-air flow Cleaner-Recirculators Test Report** on web page [biosan.lv/uvr-test](https://biosan.lv/uvr-test)

## UVC/T-AR, UVC/T-M-AR, UVT-B-AR and UVT-S-AR DNA/RNA UV-Cleaner Boxes

DESCRIPTION

DNA/RNA UV-cleaner boxes (**UVC/T-AR**, **UVC/T-M-AR**, **UVT-B-AR** and **UVT-S-AR**) are designed for clean operations with DNA samples. They provide protection against contamination.

All models are bench-top type, made of metal framework, glass (or plexiglass) walls and working surface painted with powder enamel or made of stainless steel (See the specifications table on page 94).

UV-cleaner boxes are equipped with an open UV lamp installed in the upper hood. UV-radiation from the open lamps disinfects the working area inactivating DNA/RNA fragments during 15–30 min of exposure. A digital timer controls the duration of the direct UV irradiation. A daylight lamp provides proper illumination of the working surface.

UV-cleaner box is equipped with a flow-type bactericidal **UV cleaner–recirculator AR**, which provides constant decontamination inside the box during operation. They are recommended for operations with DNA/RNA amplicons.

UV cleaner-recirculator AR consists of a UV lamp, a fan and dust filters organized in a special body to protect a user working with a UV-cleaner box against UV light. Recirculator increases the maximum density of UV light, making it sufficiently effective for DNA/RNA inactivation. The UV–recirculator processes 100 UV-cleaner box volumes per hour, creating permanent aseptic operation conditions inside the UV-cleaner box.



Development and evaluation of DNA amplicon quantification video is available on the website

### Advantages of Biosan UV-cleaner boxes:

- Ozone free high-density UV decontamination
- Long living UV lamps (9,000 hours average)
- Automatic switching off of UV-lamps when the protective screen is opened
- Bactericidal flow-type recirculator providing permanent decontamination inside UV-cleaner box during operation
- Shockproof glass walls
- Low noise, low energy consumption
- Tables for installation of UV-cleaner boxes
- UV-cleaner boxes with the bactericidal **UV cleaner–recirculator AR** is the patented Biosan solution

Premium  
Product Class

UVC/T-M-AR



Basic Plus  
Product Class

UVC/T-AR



Basic Plus  
Product Class

UVT-B-AR



# UVC/T-AR, UVC/T-M-AR, UVT-B-AR and UVT-S-AR DNA/RNA UV-Cleaner Boxes



DNA/RNA UV-cleaner box  
UVT-S-AR with equipment  
for nucleic acid extraction

Product video  
is available  
on the website



## P-5, F-1, Shelves for DNA/RNA UV-cleaner boxes

**A** P-5, shelf for pipettes



Two types of shelves have been developed for DNA/RNA UV-cleaner boxes to increase the effective area of the box: **P-5** — shelf-holder for five pipettes and **F-1** flat shelf.

On the **F-1** shelf, you can place laboratory glassware, reagents and other items that are convenient to keep in close proximity.

**B** F-1, shelf

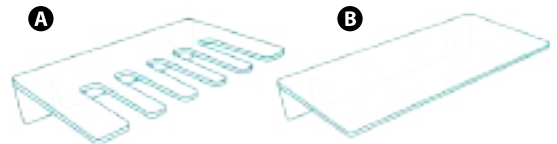


**A** P-5, shelf for pipettes:

Dimension (WxD)	230 × 140 mm
Capacity	5 pipettes

**B** F-1, shelf:

Dimension (WxD)	400 × 140 mm
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**ORDERING INFORMATION:**

	Cat. number
<b>UVC/T-AR</b> with inlet	BS-040102-AAA
<b>UVT-B-AR</b> with internal socket and inlet	BS-040109-A06
<b>UVC/T-M-AR</b> with internal socket and inlet	BS-040104-A06
<b>UVT-S-AR</b> with internal sockets and inlet	BS-040107-AAA

**Accessories:**

	Cat. number
<b>P-5</b> , shelf for pipettes	BS-040104-DK
<b>F-1</b> , shelf	BS-040104-CK

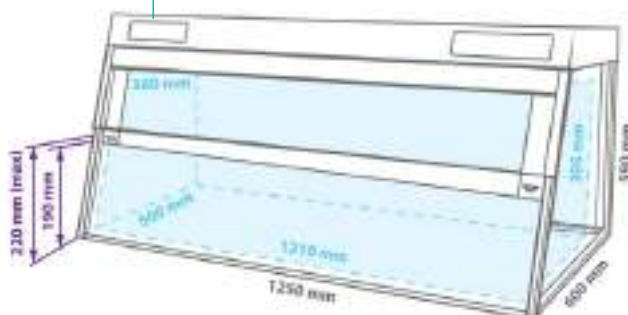
## UVC/T-AR, UVC/T-M-AR, UVT-B-AR and UVT-S-AR DNA/RNA UV-Cleaner Boxes



### SPECIFICATIONS

Model	UVT-S-AR (double size)
Wall materials	Rear: stainless steel. Sides and front: glass (EUROGLASS, Germany)
Working surface material	Stainless steel
Open UV-lamp	2 × 30 W built-in bactericidal UV-C, TUV 30W 1SL/25
Recirculator UV radiation level	18 mW/cm <sup>2</sup> /s
Radiation type	UV ( $\lambda = 253.7$ nm), ozone-free
Digital time setting of direct UV exposure	1 min–24 h/non-stop (increment 1 min)
UV-recirculator	1 × 30W (efficiency >99% per 1 h)
Daylight lamp (for working area illumination)	1 × TLD-30W
Thickness of side panels	4 mm
Thickness of upper front panel	8 mm
Thickness of the front protective screen	5 mm
Optical transmission	95%
UV protection	>96% UV-protection film, type 4 mil, clear
Working area dimensions	1,210 × 500 mm
Opening size (W×H, fully raised protective screen)	1,185 × 190 mm
Safety features	Automatic open UV-lamp switching off when screen is open
Power outlets inside the unit (230/120 V)	3 built-in sockets max. 1000 W/600 W, Inlet for power cords
Nominal operating voltage	100–240 V, 50/60 Hz
Power consumption	135 W
Overall dimensions(W×D×H)	1250 × 600 × 590 mm
Weight (net/gross)	58/68,5 kg
Optional table	<b>T-4L</b> (W×D×H : 1290 × 600 × 770 mm)

UVT-S-AR



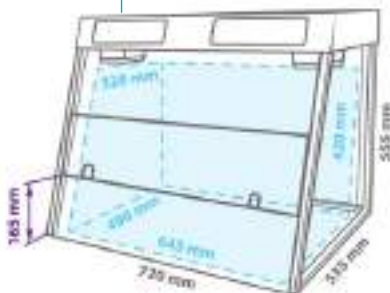
# UVC/T-AR, UVC/T-M-AR, UVT-B-AR and UVT-S-AR DNA/RNA UV-Cleaner Boxes



SPECIFICATIONS

UVC/T-AR (compact)	UVC/T-M-AR (compact)	UVT-B-AR (compact)
Plexiglass: Polymethyl methacrylate (ALTUGLAS EX)	Rear: stainless steel. Sides and front: glass (EUROGLASS, Germany)	Rear: stainless steel. Sides: steel with chemical resistant powder coating. Front: glass (EUROGLASS, Germany)
Steel with chemical resistant powder coating	Stainless steel	
1 × 25 W built-in bactericidal UV-C, TUV 25W 1SL/25		
18 mW/cm <sup>2</sup> /s		
UV (λ = 253.7 nm), ozone-free		
1 min–24 h/non-stop (increment 1 min)		
1 × 25W (efficiency >99% per 1 h)		
1 × TLD-15W		
4 mm	4 mm	2 mm
	8 mm	
8 mm	4 mm	4 mm
92%	95%	
>99.90% Polymethyl methacrylate ALTUGLAS EX	>96% UV-protection film, type 4 mil, clear	
645 × 490 mm		
645 × 165 mm	630 × 190 mm	
Automatic open UV-lamp switching off when screen is open		
Inlet for power cords	Inlet for power cords and 1 built-in socket, max. 1,000 W/600 W	
100–240 V, 50/60 Hz		
67 W		
720 × 535 × 555 mm	700 × 580 × 555 mm	
23/33 kg	28,8/39 kg	31,2/42 kg
<b>T-4 (W×D×H : 800×600×745 mm)</b>		

UVC/T-AR

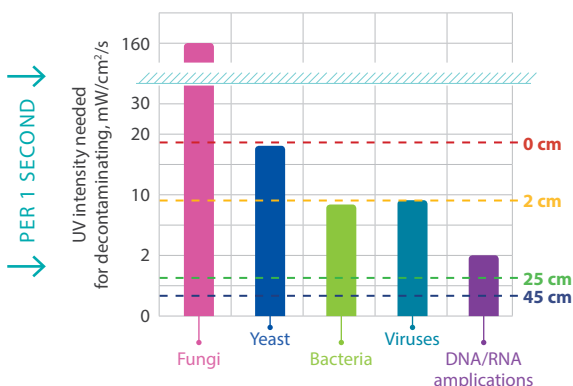
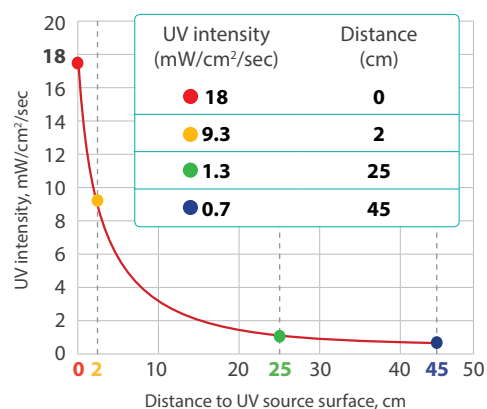


UVC/T-M-AR, UVT-B-AR



## UVC/T-AR, UVC/T-M-AR, UVT-B-AR and UVT-S-AR DNA/RNA UV-Cleaner Boxes

Germicidal, shortwave (254 nm) ultraviolet energy is used for complete destruction of various biological agents



### Average dosage for different surfaces

Surface	Dosage after 15 min	Dosage after 30 min
Working surface (40–50 cm)	570–680 mW/cm <sup>2</sup>	1140–1360 mW/cm <sup>2</sup>
Side walls (10–50 cm)	570–2500 mW/cm <sup>2</sup>	1140–5000 mW/cm <sup>2</sup>
Front window (10–50 cm)	570–2500 mW/cm <sup>2</sup>	1140–5000 mW/cm <sup>2</sup>

More information



[biosan.lv/uv-box](https://biosan.lv/uv-box)

## PDS-250 and PDS-10L, DNA/RNA decontamination solution

### DESCRIPTION

Contamination is especially problematic in the highly sensitive PCR technique. Originating from aerosolized fragments, contaminant DNA can lead to cross-contamination, thus resulting in inaccurate data and, as a result, misinterpreted analysis.

**PDS** is a ready-to-use solution for eliminating DNA and RNA from the surface prior PCR reaction preparation. DNA/RNA is removed within seconds after use. The solution contains a non-alkaline and non-carcinogenic agent. **PDS** is intended for use at PCR cabinets and laminars (e.g. UVT-S-AR), lab devices — BioMagPure 12, TS-100, pipettors — Assist series pipettes, etc.

**PDS** is effective against amplicon, plasmid, or genomic DNA and RNA from most surfaces except light or non-ferrous metals (e.g. aluminium, copper, lead, nickel, tin, titanium, zinc etc.).

The use of **PDS** both before and after PCR analysis is fast, easy and ideal to maintain a clean work area, thereby saving time and expenses.

**PDS** is heat resistant and stable for several years.

The decontamination solution is also available in 10 l containers — **PDS-10L**.



### ORDERING INFORMATION:

**PDS-250**, DNA/RNA decontamination solution, spray 250 ml

**PDS-10L**, DNA/RNA decontamination solution, 10 l

Cat. number

BS-040107-DK

BS-040107-FK



# Laboratory furniture

DESCRIPTION

**A** T-4, table



**B** T-4L, table



**C** LF-1, laboratory chest of drawers



Modular design of laboratory furniture provides flexibility and ease of use.

<b>A T-4</b> , table for — UVC/T-AR, UVC/T-M-AR, UVT-B-AR	
Maximum load	50 kg
Drawers	1
Mobility	Wheels with brakes
Material	Laminated particle board
Overall dimensions (WxDxH)	800 × 600 × 745 mm
Weight	23 kg

<b>B T-4L</b> , table for — UVT-S-AR	
Maximum load	75 kg
Drawers	1
Mobility	Wheels with brakes
Material	Laminated particle board
Overall dimensions (WxDxH)	1290 × 600 × 770 mm
Weight	36 kg

<b>C LF-1</b> , laboratory chest of drawers	
Drawers	5
Mobility	Wheels with brakes
Material	Laminated particle board
Overall dimensions (WxDxH)	300 × 450 × 705 mm
Weight	28 kg

UVT-S-AR on T-4L table with two LF-1 laboratory chests



**ORDERING INFORMATION:**

	Cat. number
<b>T-4</b> , table	BS-040101-BK
<b>T-4L</b> , table	BS-040107-BK
<b>LF-1</b> , laboratory chest of drawers	BS-050101-BK

## Ultrapure water systems: Labaqua series NEW

### DESCRIPTION

Labaqua ultrapure systems are multi-purpose water purification systems. The Labaqua systems produce ultrapure and pure water directly from tap water.

Ultrapure (Grade 1) water is dispensed through the point-of-use filter on the front panel. Pure (Grade 2) water is dispensed directly from the storage tank.

Labaqua ultrapure water can be used for the most demanding applications, including, but not limited to: Inorganic trace analysis, Liquid chromatography, Cell culture, Molecular biology.

With resistivity of 18.2 Mega — Ohm × cm (0.055 μS/cm), ultrapure water produced by a Labaqua system exceeds requirements of all relevant standards (ISO 3696 Grade 1, ASTM Type I, CLSI Type I). Purified water is collected in a storage tank. An integrated recirculation system ensures consistent quality of water and reduces total organic carbon (TOC) to very low levels: <2ppb.

Pure water produced by the Labaqua systems complies with ISO 3696 Grade 2 water requirements and can be used for labware washing, wet chemistry methods, flame spectrophotometers, etc.

All cartridges and filters are easily accessible, and no tools are required to replace them. The Labaqua system can be installed on a laboratory bench or mounted on a wall.

### FEATURES:

- **Volumetric dispense** — enables the user to set accurate dispensing volume for each dispense cycle. The dispense volume can be set either from the keyboard or by using the “teaching” mode.
- **Water quality** — embedded recirculation loop ensures stable premium water quality and enables practical elimination of Total Organic Carbon (TOC).
- **Low running costs** — performance of the deionization and polishing modules is constantly monitored. Monitoring algorithm enables cutting running costs, as replacement of the modules is requested only when service life is close to the end.
- **Total organic carbon (TOC) monitor** — organic contaminants may not affect the conductivity of water, so conductivity sensors cannot be used for TOC monitoring. Therefore, a special TOC monitoring module is needed to measure TOC level.
- **Color graphic LCD display** — system component status is reflected on the display in an intuitive colour pattern (Green/Yellow/Red).
- **System flowchart** — shows all component status and water quality parameters at a glance.



### The Labaqua systems include:

- Boost pump
- Pre-filter set
- Reverse osmosis module
- Deionization module
- Final stage polishing module
- 30 L storage tank with an integrated Grade 2 dispensing valve
- Recirculation system

### Model specific modules:

- **Labaqua Trace** — Point-of-use microfilter
- **Labaqua HPLC** — Point-of-use microfilter, TOC monitor
- **Labaqua Bio** — Point-of-use ultrafilter, UV sterilization module, TOC monitor

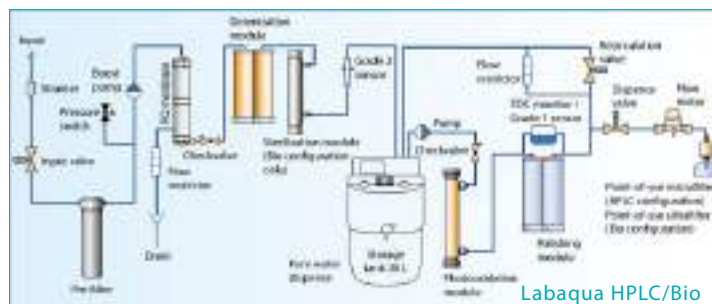
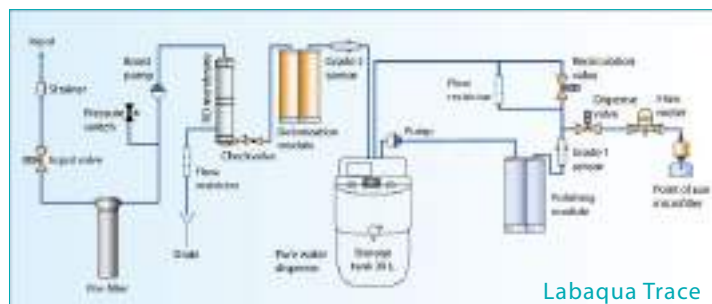
## Ultrapure water systems: Labaqua series

SPECIFICATIONS

Purified water specifications	Labaqua Trace		Labaqua HPLC	Labaqua Bio
Ultrapure (Grade 1) water resistivity			18.2 MΩ × cm	
Ultrapure (Grade 1) water conductivity			0.055 μS/cm	
Pure (Grade 2) water resistivity			>10 MΩ × cm	
Pure (Grade 2) water conductivity			<0.1 μS/cm	
TOC	<30 ppb		<2 ppb	
RNase	—		—	<0.01 ng/ml
DNase	—		—	<4 pg/ml
Bacteria	<1 CFU/ml			<0.01 CFU/ml
Endotoxins	<0.15 EU/ml			<0.001 EU/ml
Particles >0.22 μm			<1/ml	
Deionization module life (standard module)			1 m <sup>3</sup>	
Dimensions (W×D×H)			320 × 560 × 620 mm	
Storage tank			30 l	
Feed water pressure			0.8–4 bar	
Feed water conductivity			<1,300 μS/cm	
Weight	24 kg		25 kg	26 kg
Nominal operating voltage			230 V, 50/60 Hz	
Power consumption			130 W	

	Application	Labaqua Trace	Labaqua HPLC	Labaqua Bio
General laboratory applications	Glassware rinsing	+	+	+
	Laboratory washers	+	+	+
	Autoclaves	+	+	+
	Electrochemistry	+	+	+
	Wet chemistry	+	+	+
	Spectrophotometry	+	+	+
	Buffer and media preparation	+	+	+
	Reagent preparation	+	+	+
Inorganic analysis methods	Flame atomic absorption spectrophotometry	+	+	+
	Graphite atomizer atomic absorption spectrophotometry	+	+	+
	Plasma mass-spectrometry (ICPMS)	+	+	+
	Plasma spectrophotometry (ICPOES)	+	+	+
	Ion chromatography	+	+	+
Organic analysis methods	Liquid chromatography (HPLC/ UHPLC)		+	+
	Gas chromatography		+	+
	Total organic carbon measurements		+	+
Molecular Biology	Flow cytometry			+
	Cell and tissue culture			+
	Molecular biology			+

## Ultrapure water systems: Labaqua series



### ORDERING INFORMATION

**Labaqua Trace** include 30 l tank, power cord

**Labaqua HPLC** include 30 l tank, power cord

**Labaqua Bio** include 30 l tank, power cord

#### Optional accessories:

External pre-filter set (polyphosphate/carbon/1 µm) with manometer

External pre-filter set (carbon/1 µm) with manometer

Storage tank "Economy" with level switch, 50 l

Storage tank "Comfort" with level switch, 60 l

Storage tank "Comfort", 100 l

Storage tank "Comfort", 200 l

Storage tank "Comfort", 300 l

#### Replacement parts

Internal prefilter set

Deionization module

Polishing module

Microfilter – 0.22 µm non sterile

Microfilter – 0.22 µm sterile

Ultrafilter

UV bulb 254 nm

UV bulb 185 nm

0.22 µm air vent filter for the storage tank

Cat. number

BS-070105-A02

BS-070104-A02

BS-070106-A02

BS-070104-LK

BS-070104-KK

BS-070102-DK

BS-070102-EK

BS-070102-FK

BS-070102-GK

BS-070102-HK

BS-070104-AK

BS-070104-IK

BS-070104-BK

BS-070104-EK

BS-070104-FK

BS-070104-GK

BS-070104-CK

BS-070104-DK

BS-070102-AK