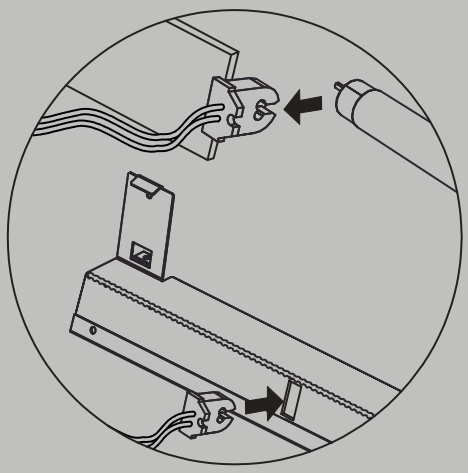
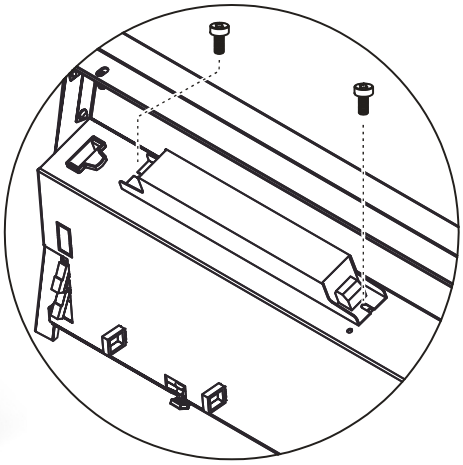




Installation Instructions
UV-Retrofit-Kit
MSC-Advantage™



Valid: 10.2009 / 50114076 A

Thermo SCIENTIFIC

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1 General notes

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1.1 Safety instructions for service work

These installation instructions describe the installation of the UV-Retrofit-Kit for the safety cabinet:

- MSC Advantage

and apply to the models MSC 1.2 and MSC 1.8.

Please note that any repairs to the device must be carried out only by personnel with appropriate qualification. Prior to installation of spare parts or performing repairs, read these installing instructions and the operating instructions carefully.

- The replacement of defined spare parts must be performed only by the Technical Service of Thermo Fisher Scientific or by authorized service personnel that has been trained by Thermo Fisher Scientific.
- Electrical work must be carried out only by electrical expert personnel.
- Work to gas supply lines and to gas supply system components must be carried out only by trained gas and air conditioning expert personnel.
- Service work must be carried out in accordance with the applicable national regulations.

1 General notes

1.2 Applicability of the instructions

- The contents of the installation instructions are subject to change without further notice.
- Concerning translations into foreign languages, the German version of these installation instructions is binding.
- Keep these service instructions close to the device so that safety instructions and important information are always accessible.
- Should you encounter problems that are not detailed adequately in these installation instructions, please contact Thermo Fisher Scientific immediately for your own safety.

1.3 Warranty

Thermo Fisher Scientific warrants the operational safety and functions of the safety cabinet only under the condition that:

- the device is operated and serviced exclusively in accordance with its intended purpose and as described in these operating instructions,
- the device is not modified,
- only original spare parts and accessories that have been approved by Thermo Fisher Scientific are used,
- inspections and maintenance are performed at the specified intervals,
- an installation test is performed prior to the initial operation of the device and a repeat test is performed on the occasion of all inspections and repairs.

The warranty is valid from the date of delivery of the device to the operator.

1 General notes

1.4 Explanation of symbols

1.4.1 Symbols used in the service instructions



WARNING!

is used if non-observance may cause serious or even lethal injuries.



CAUTION!

is used if non-observance may cause medium to minor injuries or damage.



NOTE!

is used for hints and useful information.



RECYCLING!

Valuable raw materials can be reused.



Electric shock hazard!



Biohazard!



Hazardous gases!

1 General notes

1.4.2 Symbols on the device



Observe operating instructions (control box ceiling)



Warning against hand injuries (device side walls)



Biohazard (left front section of device)



Checked safety (light dome / upper side of plenum panel)



Norme Française / NF - Postes de Sécurité Microbiologique

1 General notes

1.5 Safety instructions for installation

The general safety instructions point out potential hazards during installation. To prevent constant repetitions, the following safety instructions are not mentioned explicitly in the individual sections; instead, the sections contain only references to the general safety instructions.
Prior to repairs, read the general safety instructions carefully.



WARNING - Toxic hazard / infection hazard!



The safety cabinet can be used for processing dangerous materials:



- **infectious substances,**
- **cytostatic agents, toxic substances.**

Therefore, the device or device components may be contaminated.
Always observe the hygiene regulations of the operator!
Prior to beginning service work, cytostatic, infectious or other toxic substances or residues thereof must always be removed completely from the sample chamber!

1. **Prior to repairs, enquire the contamination hazard and make sure that the device has been cleaned and disinfected!**
2. **A certificate of nonobjection from the operator is required.**



WARNING - Dangerous gases!



If the safety cabinet is supplied with gases, the external gas supply must be shut off prior to installation!

1. **Make sure that the work rooms are sufficiently ventilated.**
2. **If equipped, activate the exhaust system.**
3. **Observe safety data sheets.**
4. **Report damaged or faulty supply lines or connections to the operator of the device.**

1 General notes



WARNING - Electric shock hazard!



Contact with current-carrying components may cause a lethal electric shock.
Motor-driven moving device components may cause injuries when switched on accidentally.
Prior to installation, disconnect the device from the power supply system!

1. **Isolate the device electrically.**
2. **Protect the device from accidental reconnection.**
3. **Make sure the device is deenergized.**
4. **Ground and short the device.**
5. **Cover or barrier adjacent components that are under voltage.**



NOTE - Start-up!

If safety devices were removed or disabled during installations, the unit must not be started up before the safety devices have been reinstalled and checked for proper operation! Before the unit is started up and operated, a test run must be performed.



NOTE - Recycling!



All device components except the filters can be recycled.
If the device was used to process cytostatic, toxic or infectious substances, the required decontamination measures must be taken prior to disposal or shipping.

If contaminated components are to be discarded during service work, they must be labelled in accordance with their grading as cytostatic, microbiological or otherwise toxic special waste.

1 General notes

1.6 Standards and safety regulations

The device complies with the safety requirements of the following standards and directives:

- NF 095 Rev3.2006 / NF - Postes de Sécurité Microbiologique
- IEC 61010-1:2002-08
- EN 61010-1:2002
- EN 12469:2000
- DIN EN 61326-1:2008-06
- Low Voltage Directive 2006/95/EC
- EMV Directive 2004/108/EC

2 Tools and auxiliaries

2.1 Auxiliaries

Screw connections:
All screw connections have metric threads.
Screw lockings:
All retaining screws with a diameter of 3 mm or more must be installed with a separable adhesive (medium tight) before they are tightened.
Recommended product: Loctite 586.
Torques:
All retaining screws must only be tightened finger-tight (without leverage).
Sealant:
Recommended product: Sista F 109 (Item 40, sealant)
Cleaner:
Commercial dishwashing agents based on soap suds.
Recommended product: Liquinox.
Disinfectant:
For the standard wipe/spray disinfection, a broad-range disinfectant can be used.
Recommended product: Barrycidal 36 or Microcide SQ.

2.2 List of required tools

Multimeter	U / I / Ohm
Allen key set	1.5 – 6 mm
Open-end wrench set	6 – 32 mm
Phillips screwdriver set	magnetic
Slot-head screwdriver set	2 – 6 mm
Socket wrench set	6 – 32 mm
Torx wench set	T-10 – T-40
Drilling machine	
Drill	ø 3.5 mm
Diagonal cutter	
Wire stripper	
Flat connector pliers	
Needle nose pliers	small
Tweezers	
Starter punch	small
Level	small
Heat gun	
Soldering iron	
Solder	
Cable ties	small, black
Screw locking adhesive	medium tight, separable, from M3
Shrink tube	d = 6 mm
Shrink tube with sealant	d = 6 mm
Flat connectors	6.3 mm
Wire end ferrules	1 mm²

3 Installing the UV-Retrofit-Kit

3.1 Removing covers

Fig. 1: The optional UV lamp is installed to a mounting bezel in the sample chamber front area at the ceiling.
To access the installation place, the following covers must be removed:

- ▶ left and right guide rail [4], light dome [3].
- ▶ mounting bezel at the ceiling of the sample chamber (see fig. 2).

3.1.1 Removing the light dome

1. Switch the device off, disconnect it from the power supply system, and protect it against accidental reconnection.
2. Remove the left and right guide rails [4]. The bottoms of the rails are screwed to the device frame.
3. Slide the front window down beyond the closing position.
4. Remove the three retaining screws at the top of the light dome [3] and the knurled screws at the bottom.
5. Remove the light dome.

3.1.2 Removing the front cover

1. **Fig. 1:** Remove the three retaining screws [2] at the upper splay of the control box.
2. Remove the front cover [1].

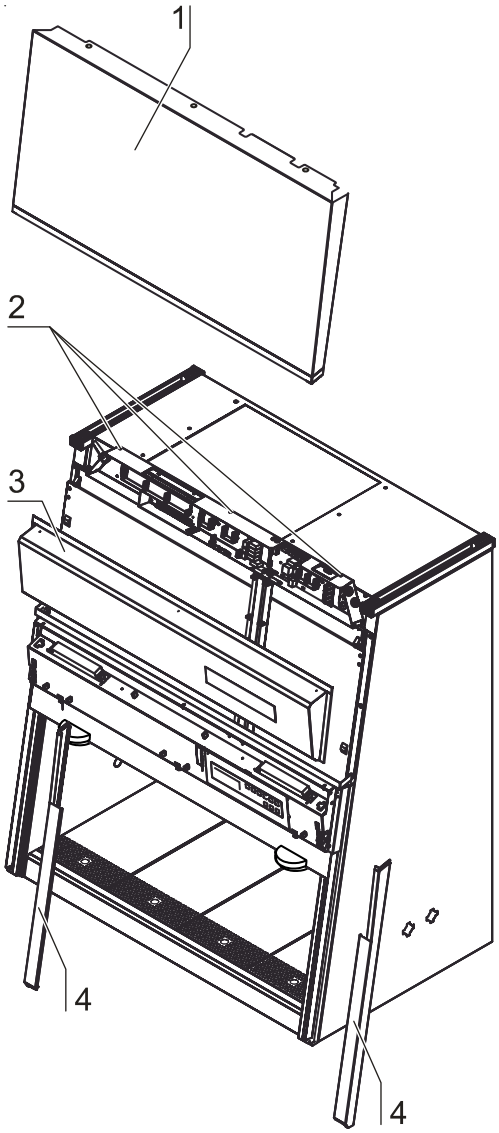


Fig. 1
Removing covers

3 Installing the UV-Retrofit-Kit

3.2 Installing the UV lamp ballast unit

Ballast unit, Elektron 230-240 V

Fig. 2: The ballast unit [3] is secured to the mounting frame using two tabs and screws.

1. Place the ballast unit [3] onto the mounting frame [1] of the light dome at the threaded holes [2].
2. Secure it to the threaded holes [2] using the two delievered screws [4].

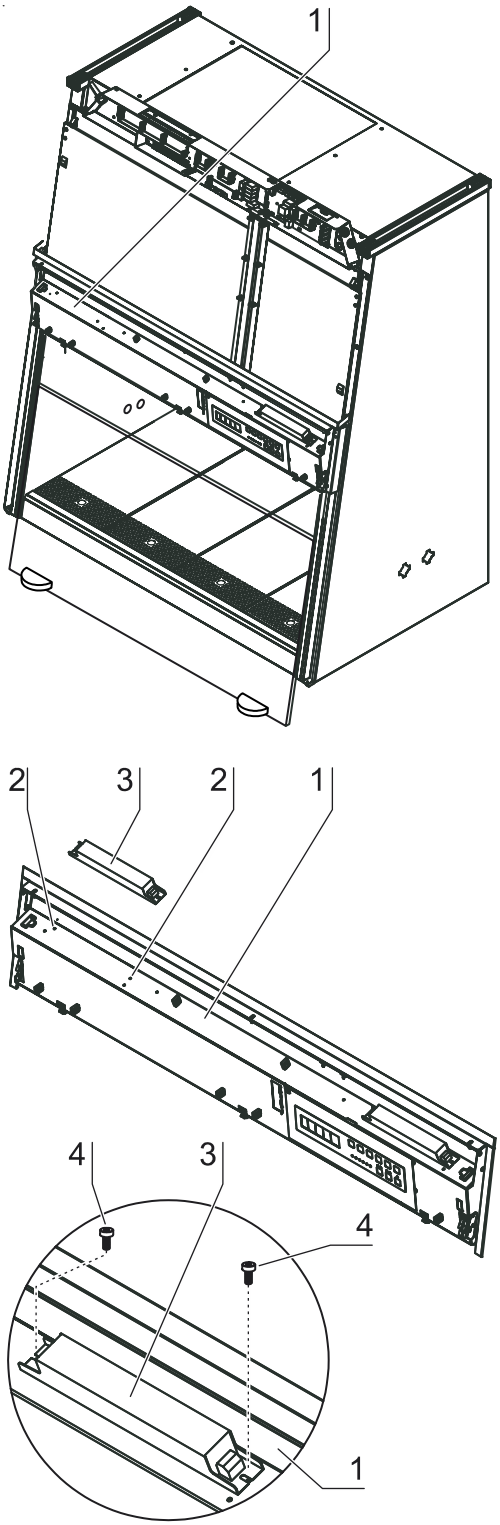


Fig. 2
Installing UV lamp ballast unit

3 Installing the UV-Retrofit-Kit

3.3 Removing the perforated plate (filter protection)

Fig. 3: The perforated plate [1] protects the downflow filter at the sample chamber ceiling from damage and controls the downflow behavior of the air that flows from the downflow filter into the sample chamber.
At the front, the perforated plate rests on the mounting bezel [2], at the sample chamber backpanel it rests on the pairs of screws [4].

1. Move the front window to the maximal opening position.
2. Remove the tapping screws [3] from the front edge of the perforated plate [1].
3. Remove the rear pairs of screws [4]. The perforated plate [1] can now be tilted downward and removed.

Removing the mounting bezel

4. Remove the five retaining screws from the holes [5].
5. Remove the mounting bezel [2].

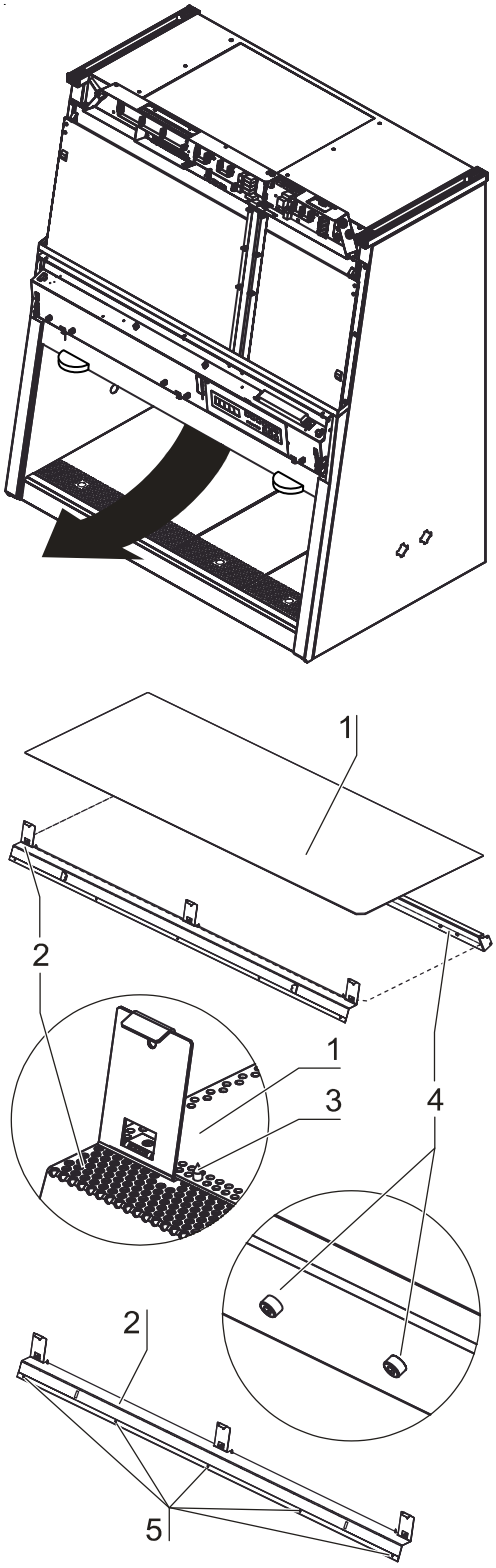


Fig. 3
Removing mounting bezel

3 Installing the UV-Retrofit-Kit

3.4 Installing UV lamp sockets

Rotating socket for UVC

Fig. 4: The rotating sockets [4] of the UV lamp [5] are attached to the notches [1] of the mounting bezel [2].

1. Pry the sheet metals [3] out of the notches [1] and lift them out of the notches.
2. To install, insert the rotating sockets [4] through the notches [1] at the mounting frame and push them in until they engage audibly.

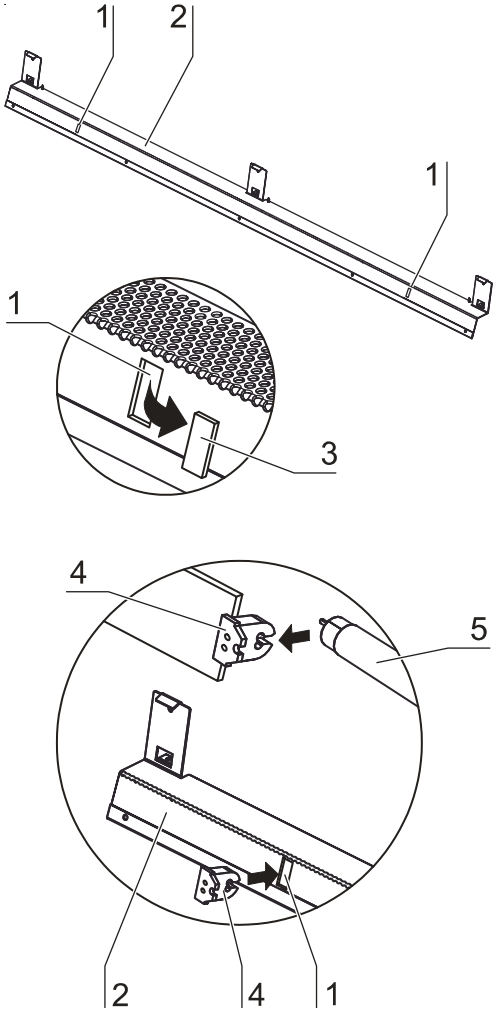


Fig. 4
Installing UV lamp sockets

3 Installing the UV-Retrofit-Kit

3.5 Clamp installation

Note

Required only for devices MSC 1.2 manufactured before September 2008.

Fig. 5:
1. Drill holes according to Fig. 5.
2. Be careful then drilling thru, avoid damages.
3. Snap in clamp.

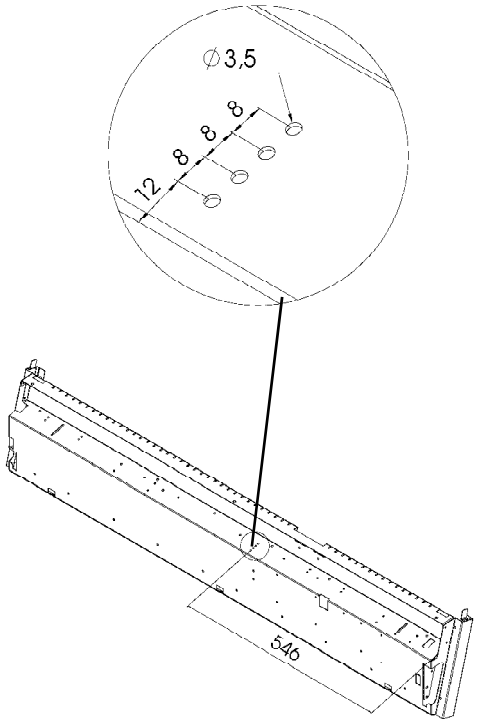


Fig. 5
Clamp installation

3 Installing the UV-Retrofit-Kit

3.5 Laying wirings

Wire set Mainboard-Display [1])
Wire set MSC 1.2 - 230 V
Wire set MSC 1.8 - 230 V
Protecting tube for cables 3-5 mm
Bushing Ø = 0-8 / 10

Fig. 6: The wirings are leaded to sample chamber through the two cable bushings [1] and to ballast unit [8] through the notches [7] of the mounting frame.

1. Slide the front window down (cleaning position)
2. Push through the two cable bushings [1] on the left and right side of the mounting frame.
3. Protect the wirings. Cover them with the cable deleivered protecting tubes..
4. Lay the wirings on **both** sides of the mounting frame:
   – duct them through the cable bushings [1] to the sample chamber,
   – lead them through the notches [7] of the mounting frame to the ballast unit [8].
5. Fix the wirings on both sides at the rails [5], using tie wraps [4].
6. Connect the wirings [5] to the rotating sockets [9] in the sample chamber (wiring diagrams see annex).
7. Disconnect the wirings at the cable duct [6] and replace it by the 5-pole type (wiring diagrams see annex).

Wiring diagrams MSC 1.2:

50113740	Wire set Mainboard-Display[1])
50109423	MSC Advantage
50109460	MSC Advantage 1.2 Light box
50113742	Wire MSC 1.2 Lights + UV

- Install wire set 50108463 corresponding to wiring diagram 50109460.
- Install the ballast unit.
- Protect wiring V2.1, V2.2 and V2.3, V2.4 with protecting tubes.

Wiring diagrams MSC 1.8:

50109423	MSC Advantage
50109447	MSC Advantage 1.8 light box
50113744	Wire MSC 1.8 Lights + UV

- Install wire set 50108548 corresponding to wiring diagram 50109447.
- Install the ballast unit.
- Protect wiring V2.1, V2.2 and V2.3, V2.4 with protecting tubes.

8. Secure the mounting bezel using the screws (see chap. 3.3).
9. Install the covers (see chap. 3.3).

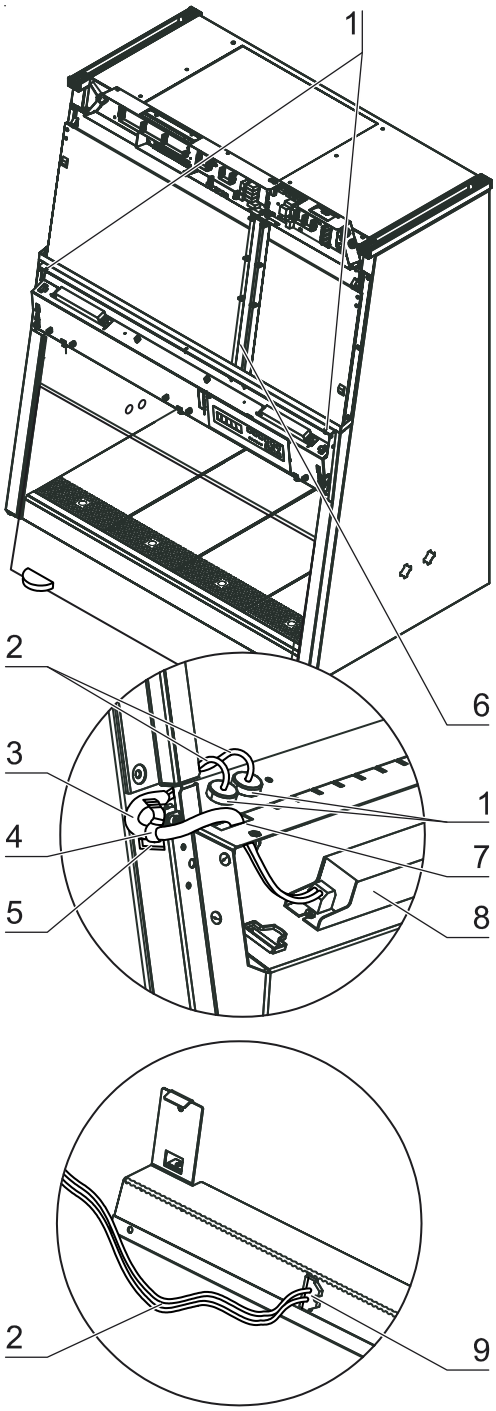


Fig. 6
Laying wirings

[1]) Required only for devices MSC 1.2 manufactured before September 2008

3 Installing the UV-Retrofit-Kit

3.7 Installing UV lamp

UVC lamp, 36 W, 826 mm

NOTE - Wear protective gloves!

Wear protective gloves to prevent skin fat residues from burning into the UV lamp tube.

1. **Fig. 6:** Slide the front window [1] down (cleaning position).
2. To install, slide the lamp contact pins into the grooves of the rotating sockets [2] and rotate the UV lamp [3] clockwise to latch the sockets.

3.8 Testing UV lamp

For running the UV disinfection routine, the front window must be in the closed position to protect against UV radiation. The routine cannot be run until the front window is in the "closed" position.

1. Press UV-Key for switching UV disinfection on (see operating instructions).
2. The UV disinfection routine is activated,
   – The yellow status indicator UV DISINFECTION ROUTINE ACTIVATED is illuminated until the preset time for the routine has elapsed. Then, the UV lamps are switched off automatically, and the status indicator is switched off.
   – The sample chamber illumination is disabled.
   – The internal power supply in the sample chamber is disabled.

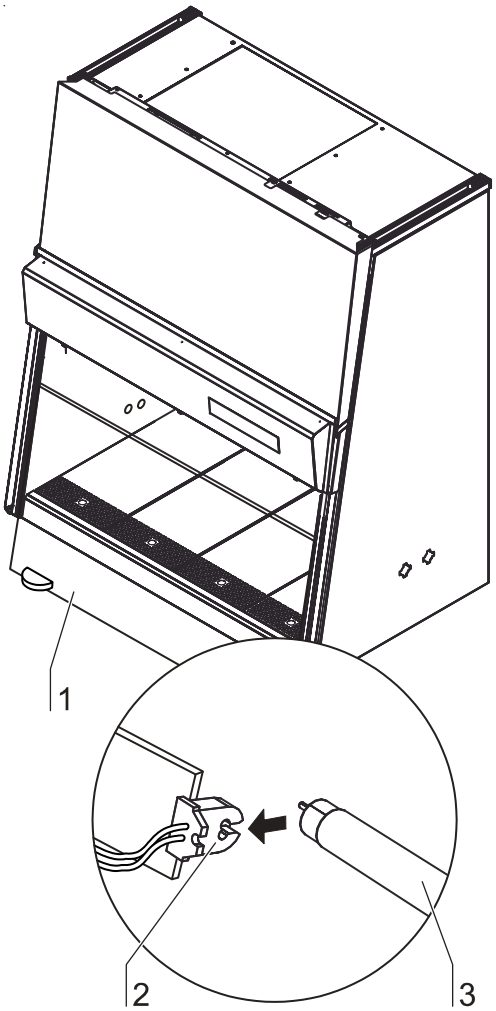


Fig. 7
Installing UV lamp

4 Components of the UV-Retrofit-Kit

Description	Qty.
Circuit diagram MSC Advantage 100-240VAC	1
Wiring diagram MSC 1.2 light box	1
Wiring diagram MSC 1.8 light box	1
Wire set MSC 1.2, lighting and UV	1
Wire set MSC 1.8, lighting and UV	1
UVC lamp, 36 W , 826 mm	1
Protecting tube for cables 3-5 mm	4
Rotating socket for UVC lamp, G5	2
Ballast unit 2 X 32 W 120 - 277 V	1
M4 X 8 Torx, A2K	2
Bushing D= 0-8 D=10 Silicon LO. D=3 HDL	2
Tie wrap B=2,5 L=100-6.6-TYP:SKB-1M-M	10
Nameplate 34,4X 8X0,08 FOL	1
Installing instruction UV-lamp 1300 Series	1

5 Technical data

Electrical data			
Description		**MSC 1.2**	**MSC 1.8**
Voltage			
Rated voltage	V	1/N/PE AC, 230 V - 50-60 Hz	
Blower voltage	V	48 V / DC	
Current			
Power consumption max.	A	7.3	8.7
Leakage current IEC 1010, EN 61010	mA	< 3.5	
Motherboard fusing	A	2 x T 16 A	
Outlet fusing	A	2 x T 5 A	
On-site fusing	A	Circuit breaker B16 / Fuse T 16 A	
Power			
Power input max.	W	1700.0	2000.0
Protection			
Protection class		I	
Protection type		IP 20	
Overvoltage category (IEC 1010, EN 61010)		II	
Contamination degree (IEC 1010, EN 61010)		2	
Connecting lines			
Mains connection		Cable (3.7 m)	

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