wesemann®
LABOREINRICHTUNGEN

SYSTEM DELTA 30

LABORATORY FUME CUPBOARD I USER MANUAL



SYSTEM DELTA 30

LABORATORY FUME CUPBOARD I

USER MANUAL

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1 INTRODUCTION

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Introduction

1.1 Preamble

Our fume cupboards (as under 1.2) are tested and certified in accordance with DIN EN 14175. All persons involved in the installation, maintenance and operation of the laboratory fume cupboards must be suitably qualified. For installation and dismantling instructions, as well as information regarding disposal, please see the separate assembly instructions for laboratory fume cupboards. Please read this user manual carefully before operating the fume cupboard and observe all regulations and instructions.

Keep these instructions in a safe place for further use.
In the event of a sale of the laboratory fume cupboard, this manual must also handed over to the buyer.
Wesemann GmbH does not accept liability for damage caused by non-observance of the user manual.

1.2 Product variants

These instructions apply to the following products:

- DS-DG03-XXXX Table fume cupboard
- DS-DG03-XXXX-P Table fume cupboard DELTAprotect
- DS-DG03-XXXX-1070 Table fume cupboard, in special depth
- DSN-DG03-XXXX Fume cupboard for low ceilings/spaces
- DSN-DG03-XXXX-P Fume cupboard for low ceilings/spaces DELTAprotect
- DT-DG03-XXXX Low work-level fume cupboard
- DT-DG03-XXXX-P Low work-level fume cupboard DELTAprotect
- DT-DG03-XXXX-1070 Low work-level fume cupboard, in special depth
- DB-DG03-XXXX Walk-in fume cupboard
- DB-DG03-XXXX-1070 Walk-in fume cupboard in special depth
- DB-DG03-XXXX-1270 Walk-in fume cupboard in special depth

The XXXX serve as placeholders for the respective grid 1200-2100.
In this manual, the generic term laboratory fume cupboard is used for the different variants.

1.3 Other applicable documents

The following documents for operating the fume cupboard are to be studied carefully:

- Operating instructions for accessory parts
- Safety Data Sheets

- Operating instructions of the employer
- Operating instructions for work materials

1.4 Text design

To facilitate readability and overview in the user manual, some lines of the text and/or text paragraphs are accentuated:

- Symbol for a list

☞ Symbol for actions/work steps to be executed successively in the order prescribed

i Symbol for information

The explanation of the safety instructions is given in Section **2.1**.

1.5 EU-Declaration of Conformity

The CE marking confirms that the product conforms to the applicable European guidelines. The basis of the CE marking is the EU-Declaration of Conformity.

You can request the EU-Declaration of Conformity at the address given on the back of this manual.

1.6 Type plate with connection parameters

As a rule, the type plate is located on the front of the electric cable duct underneath the worktop.

For any queries to the manufacturer, the serial number and year of manufacture are required. You can find this data, together with the connection parameters, on the type plate of the laboratory fume cupboard.

For the ventilation connection parameters, please see the project drawing handed to you with the audit documentation.

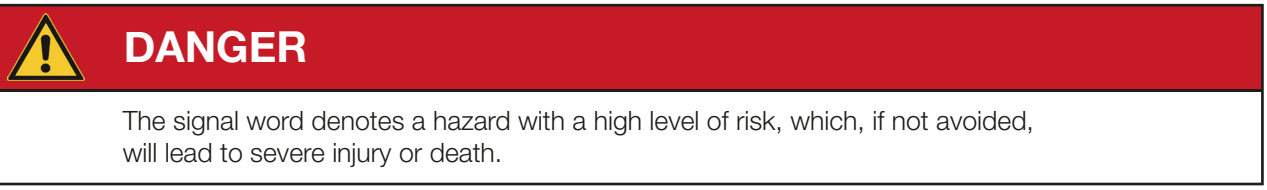
2 SAFETY

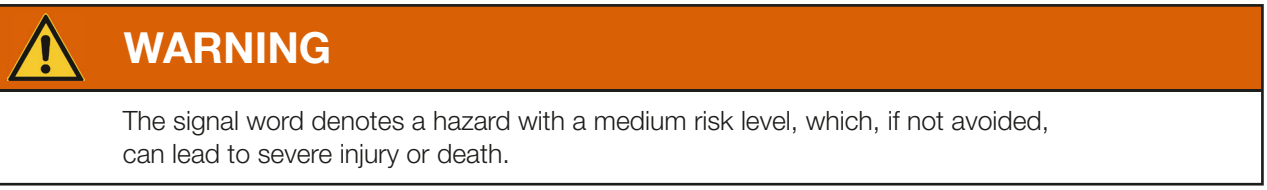
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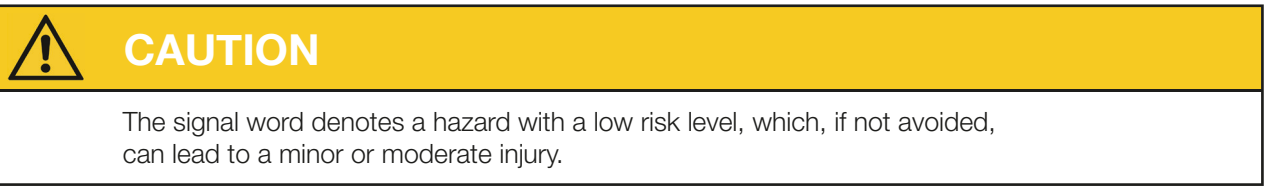
Safety

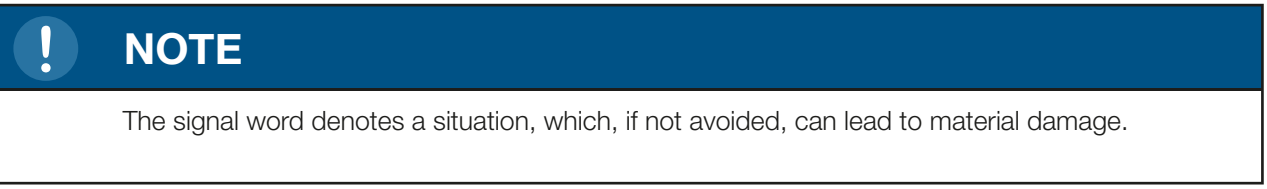
2.1 Marking of safety instructions

To avoid danger, you must observe the safety instructions. Wesemann GmbH does not accept any liability for damage caused by non-observance of the safety instructions. You will find the following symbols with all important safety instructions in this user manual. Always follow these instructions exactly and exercise particular caution in these cases.









In addition, the safety information in the accompanying supplier documentation must be strictly observed.

2.2 List of safety markings used

2.2.1 Warning signs



Warning of toxic substances



Warning of electrical voltage

2.2.2 Mandatory signs



Hand protection must be worn

2.3 Proper use

2.3.1 General rules for all laboratory fume cupboards

The fume cupboards may be used only for the following purposes/applications:

- use in buildings.
- for the extraction and discharge of harmful gases produced in a conventional laboratory during chemical processes. Each laboratory fume cupboard may only be subjected to chemical, thermal and mechanical stress according to its prescribed purpose (authorization) and material selection.
- under normal laboratory conditions. The additional information regarding the T032 laboratory fume cupboards: construction types and safe operation of the BG RCI - Professional Association of the Raw Materials and Chemical Industry - must be strictly observed.
- The sash must be kept closed at all times. Exceptions to this are inspections and short-term interventions, assembly, dismantling and loading, as well as loading/feeding of an apparatus, whereby the opening of the sash must be limited to the extent necessary for the activity. In this case the work should preferably be carried out through the laterally movable parts of the sash.
- No subsequent changes or modifications may be made to the construction of the fume cupboard (e.g. modification of the rear panel, additional openings in the side panels for pipelines, gas hoses, etc.).

Such changes may impair the flow behaviour and thus the protective effect of the laboratory fume cupboard.

- Underneath larger structures by which, due to their surfaces, a kind of “slipstream” is created on the worktop, sufficient clearance (at least 5 cm) (floor clearance) to the worktop, as well as a sufficiently large clearance to the sash (at least 10 cm) must be observed.

- The handling of substances that are classified as carcinogenic, germ cell mutagenic or toxic to reproduction (cmr substances) is only permitted in fume cupboards in closed lab devices/containers and with the front sash closed. The applicable guidelines must be observed!“

The fume cupboard may not be used in a potentially explosive atmosphere. Wesemann GmbH offers EX fume cupboards for such areas.

2.3.2 All-purpose fume cupboards

All-purpose fume cupboards are table fume cupboards, fume cupboards for low ceilings/spaces, low work-level cupboards and walk-in fume cupboards. The all-purpose fume cupboards are not special fume cupboards according to DIN EN14175-7:2012. They are therefore:

- not fume cupboard for high thermal loads
- not fume cupboards for high thermal loads in conjunction with acid digestions
- not perchloric acid fume cupboards
- not hydrofluoric acid fume cupboards
- not micro-biological safety work benches
- not suction boxes with air recirculation
- not radionuclide fume cupboards

They may not, therefore, be used as the said special fume cupboards and their applications.

2.4 Improper use

Any use which is not mentioned in the section **2.3 Proper use** is considered to be improper use.

2.5 Obligation of the operating company

The operating company undertakes only to allow persons to work on fume cupboards:

- if the operating company has performed a risk analysis and has taken the necessary protective measures.
- if those carrying out the activities to be performed are competent and reliable. The expertise is determined by the nature and duration of the relevant training, the general professional experience in the respective field, as well as the experience in the activities to be carried out.
- who have been trained.
- who have read this user manual carefully.

2.6 Obligation of the personnel

All persons working on the fume extractors or their components undertake:

- to observe the basic regulations regarding occupational safety and accident prevention.
- to have read this user manual carefully.

Furthermore, appropriate protective clothing is to be worn when working on the fume cupboard.

2.7 Liability

Warranty and liability claims for personal or material damage are excluded if they are attributable to one or more of the following causes:

- Improper use of the laboratory fume cupboard.
- Improper commissioning, operation, cleaning, maintenance and repair of the fume cupboard.
- Operation of the laboratory fume cupboard with defective safety devices or systems.
- Non-observance of the user manual.
- Unauthorized modifications to the fume cupboard or its components.
- Inadequate monitoring of parts that are subject to wear.

- Use of spare parts that have not been approved by Wesemann GmbH.

2.8 Other provisions

In addition to this user manual, the relevant national laws, rules and regulations in the applicable version are to be observed (i.e. Accident Prevention Regulations UVV, Industrial Safety Regulations BetrSichV, laboratory operating instructions, Safety Data Sheets, etc.).

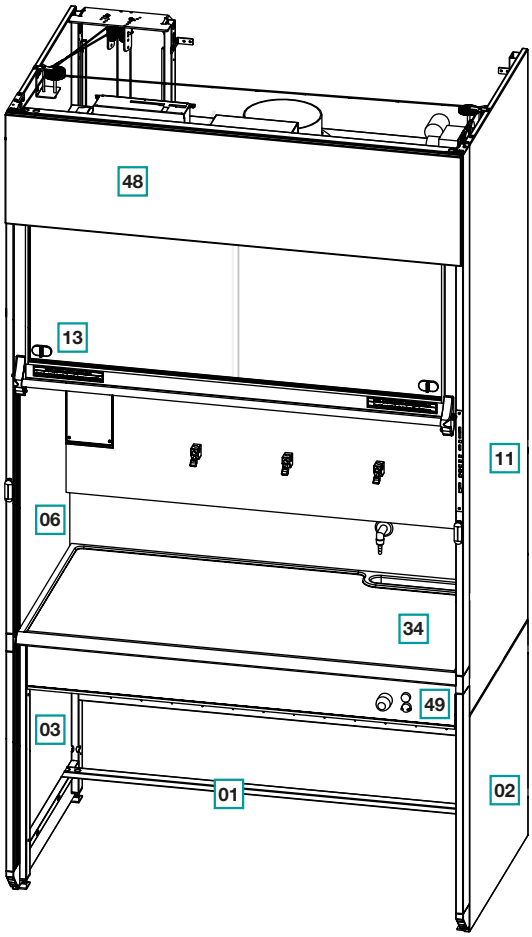
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Product description

3.1 Overview of the products

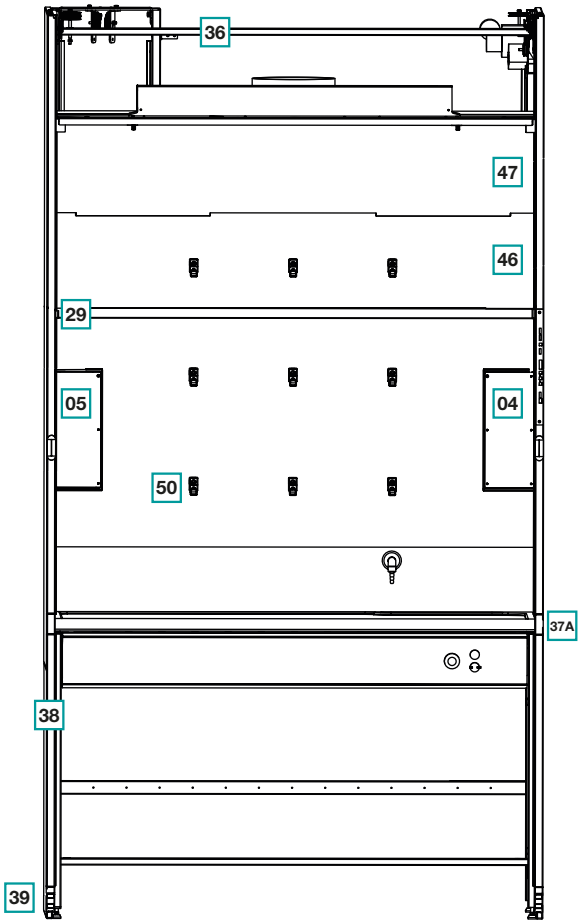
COMPLETE PRODUCT OVERVIEW



01 Frame
02 Side panel bottom right
03 Side panel bottom left
06 Lab fume cupboard top left
11 Lab fume cupboard top right
13 Sash
34 Worktop
48 Front panel
49 Electric cable duct

PRODUCT OVERVIEW FRONT

In this view the sash and front panel have been blended out.



04 Electrical box right

05 Electrical box left

29 Skirt profile

36 Grid strut

37A Pilaster strip adapter right

38 Pilaster strip below

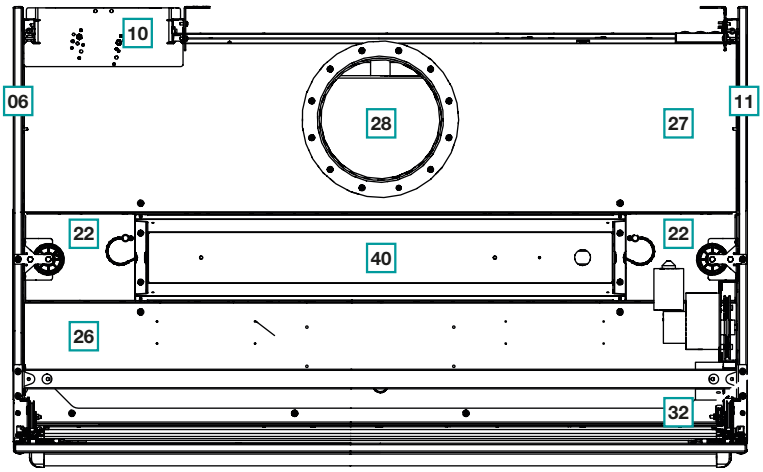
39 Pilaster strip plug

46 Air baffle

47 Air baffle top

50 Rod holder

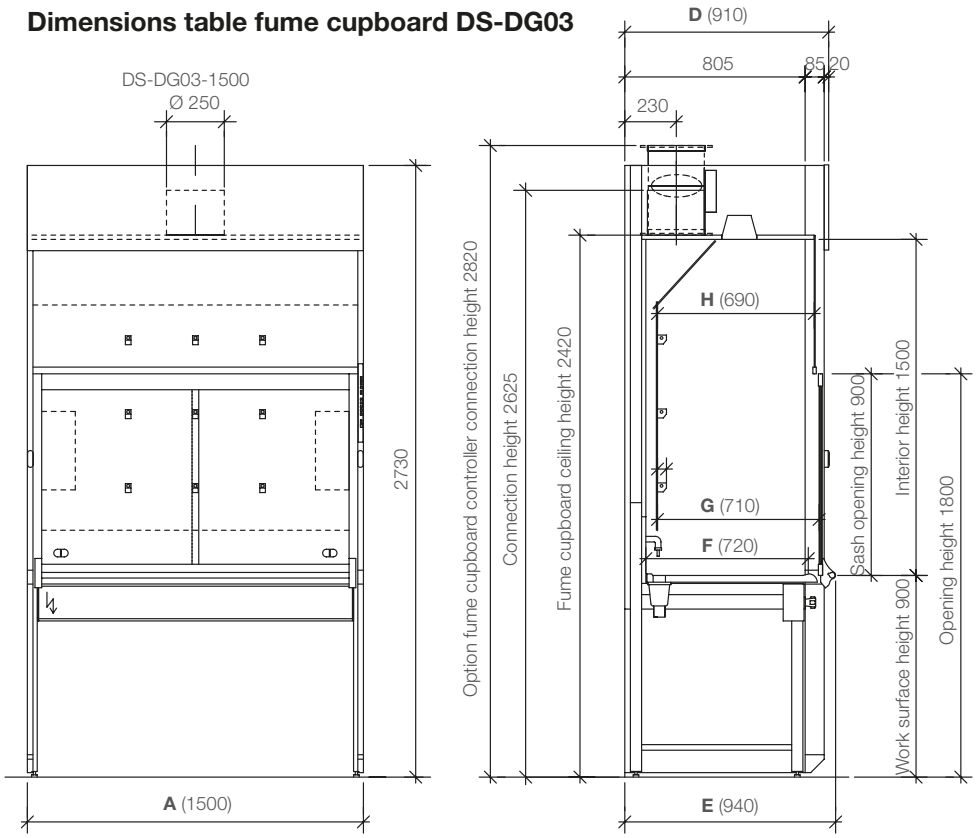
PRODUCT OVERVIEW ABOVE

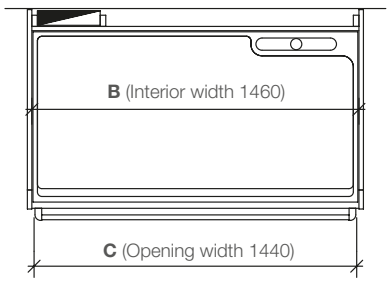


- 06 Laboratory fume cupboard side above left
- 10 Rope roller bracket
- 11 Laboratory fume cupboard side above right
- 22 Pressure equalization valve
- 26 Ceiling front
- 27 Ceiling back
- 28 Flange
- 32 Sheet metal skirt
- 40 Fume cupboard lamp

3.2 Technical Data

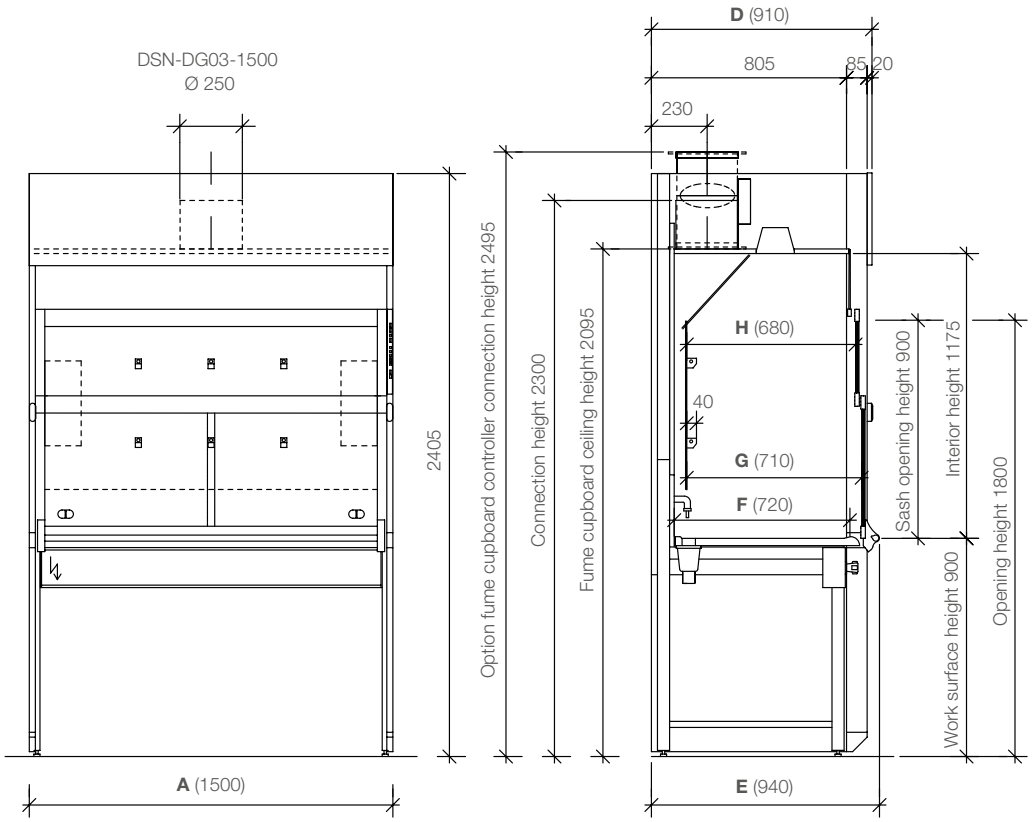
3.2.1 Dimensions table fume cupboard DS-DG03

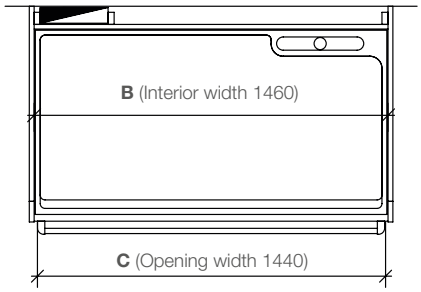




Grid width	A	1200	1500	1800	2100
Interior width	B	1160	1460	1760	2060
Opening width	C	1140	1440	1740	2040
		Standard		Special depth	
Depth of fume cupboard	D	910		1070	
Total depth	E	940		1100	
Usable depth worktop	F	720		880	
Usable depth in area of sash	G	710		870	
Usable depth in area of skirt	H	690		850	

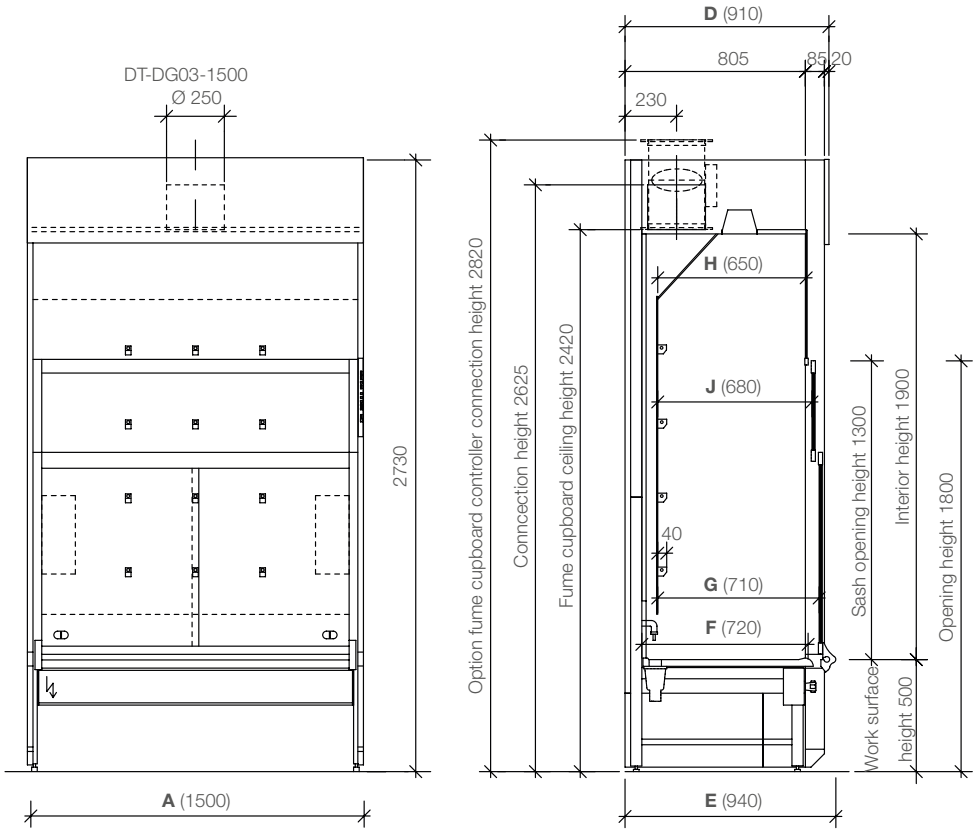
3.2.2 Dimensions fume cupboard for low ceilings DSN-DG03

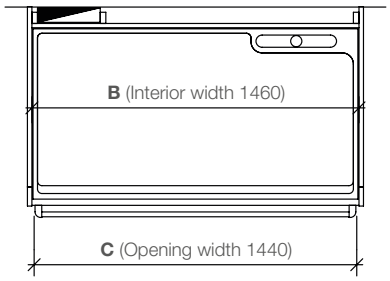




Grid width	A	1200	1500	1800	2100
Interior width	B	1160	1460	1760	2060
Opening width	C	1140	1440	1740	2040
		Standard		Special depth	
Depth of fume cupboard	D	910		1070	
Total depth	E	940		1100	
Usable depth worktop	F	720		880	
Usable depth in area of sash	G	710		870	
Usable depth in area of skirt	H	680		840	

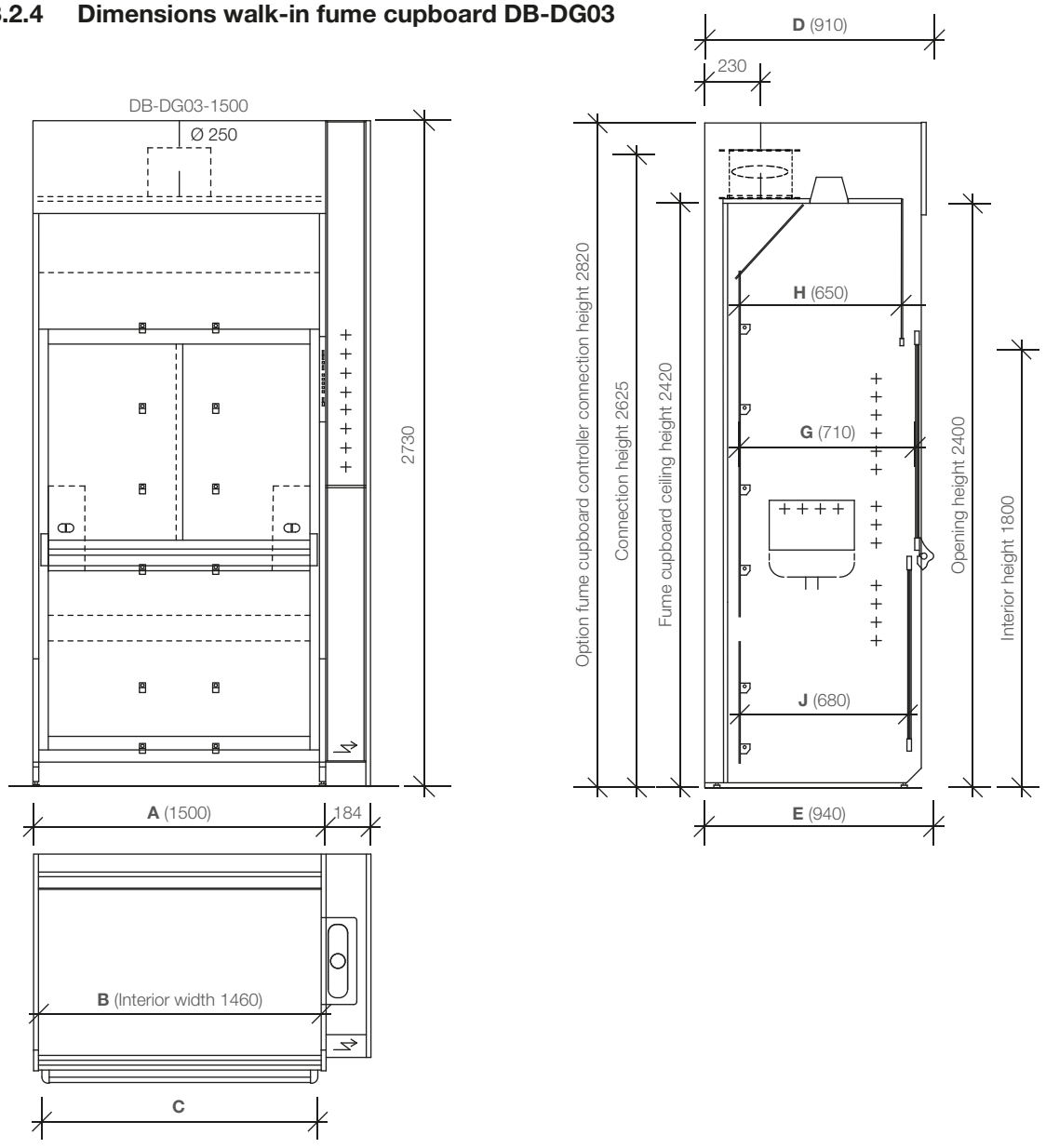
3.2.3 Dimensions low work-level fume cupboard DT-DG03





Grid width	A	1200	1500	1800	2100
Interior width	B	1160	1460	1760	2060
Opening width	C	1140	1440	1740	2040
		Standard		Special depth	
Fume cupboard depth	D	910		1070	
Total depth	E	940		1100	
Usable depth worktop	F	720		880	
Usable depth in area of sash	G	710		870	
Usable depth in area of skirt	H	650		810	
Usable depth in area of telescope sash	J	680		840	

3.2.4 Dimensions walk-in fume cupboard DB-DG03



Grid width	A	1200	1500	1800	2100
Interior width	B	1160	1460	1760	2060
Opening width	C	1140	1440	1740	2040
		Standard	Special depth		Special depth
Fume cupboard depth	D	910	1070		1270
Total depth	E	940	1100		1300
Usable depth in the area of sash	G	710	870		1070
Usable depth in the area of skirt	H	650	810		1010
Usable depth in the area of telescope sash	J	680	840		1040

3.2.5 Weights*

Grid (mm)		1200	1500	1800	2100
Fume cupboard type	DS-DG03	310 kg	340 kg	380 kg	420 kg
	DSN-DG03	295 kg	340 kg	385 kg	440 kg
	DT-DG03	345 kg	400 kg	455 kg	510 kg
	DB-DG03	270 kg	290 kg	310 kg	355 kg

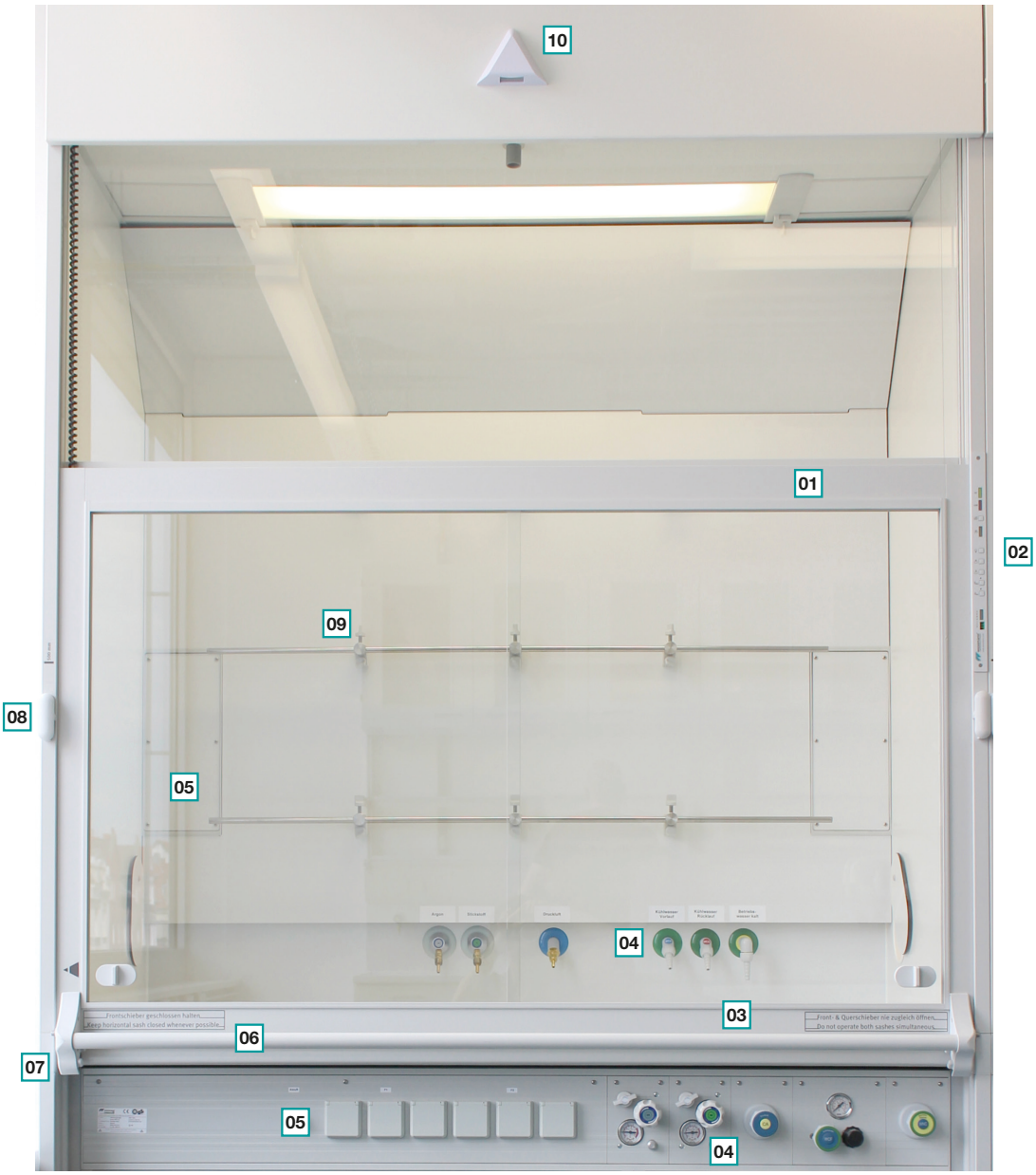
* without special equipment

3.2.6 Stresses

Grid (mm)	1200	1500	1800	2100
Permissible load on the worktop over an area of 120x120 mm	200 kg			

3.3 Overview of function and control elements

This section provides an overview of the most important functions and control elements of a fume cupboard.



01 SASH

The sash is an adjustable protective plate between the operator and the interior of the fume cupboard. In the case of a multi-part sash, two or more panels are so arranged that they can be simultaneously operated in the free opening area of the fume cupboard. The sash is moved manually or electrically by means of ropes.
The handle bar is also mounted on the sash. The sash should generally remain closed, as there is a danger of contaminants escaping into the breathing zone and the user is not protected against possible spraying out

of hazardous substances and flying (glass) splinters. Therefore, for reasons of personal safety, work should only be carried out through the laterally closeable parts (cross slide).

02 FUME CUPBOARD FUNCTION INDICATOR

The fume cupboard function indicator is situated in/on the pilaster strip on the right side of the fume cupboard. It indicates the correct functioning of the air flow to the fume cabinet. It monitors the amount of extracted air and, if necessary, the direct air supply and the air intake connection. It has audible and visual alarms to alert the user in the case of a malfunction of the fume cabinet.

03 WORKTOP

The worktop is the upper surface of the platform or the plate which forms the base of the interior of the fume cupboard.

04 THE MEDIA EXTRACTION POINTS

The media extraction points are mounted inside the fume cabinet. The controls for the media are arranged on the outside in the system duct underneath the worktop.

05 ELECTRIC SOCKETS

The electric sockets are located in the interior of the fume cabinet and in the system duct underneath the worktop. They comply with protection class IP44. The electric sockets in the interior can be switched from the outside. The switches are in the system duct and are clearly allocated.

06 SASH HANDLE BAR

The sash is opened and closed by means of one-handed operation of the handle bar. The sash is unlocked by turning the sash handle bar (twist-lock release mechanism).

07 LIGHT BARRIER (OPTIONAL)

The light barrier is mounted in the handle bar of the sash.
It is used for monitoring the automatic closing process of the sash. When the sash is in a downward motion, the area directly under the handle bar is monitored by a transmit/receive light barrier. Any interruption of the signal due to reaching into the working area, or devices protruding from inside, causes the sash to stop immediately (obstacle detection).

08 SASH LIMITER

In the case of table fume cupboards, the integrated sash limiter is standard. The sash limiter restricts the maximum variable work access opening of the laboratory fume cupboard. Any further opening is possible only through a conscious action by the user.

09 ROD HOLDERS

The rod holders are located in the rear panel of the laboratory fume cupboard. They are used to hold components when conducting experiments.

10 MOTION DETECTOR (OPTIONAL)

The passive infrared detector (motion detector) is located on the front panel.
The motion detector monitors the work area of the laboratory fume cupboard. If no movement is detected, the sash is closed after the set time.

3.4 Fume cupboard function displays

3.4.1 Fume cupboard function display Type 7.1



FUNCTION

01 **OLED-Display**
Display of volumetric flow, as well as operating and status reports

02 **LED OK (green)**
Volumetric flow okay

03 **LED LOW (red)**
Volumetric flow too low

04 **LED CLOSE SASH (yellow)**
Warning: Close sash if opening > 50 cm

05 **RESET button**
Reset acoustic alarm

06 **Button V_{MAX} with LED**
V_{MAX} Operation (Emergency)

07 **Button V_{MIN} with LED**
V_{MIN} Reduced Operation ON / OFF

08A **08B** **Sash button OPEN / CLOSE**
Sash control - Sash open - Sash close

09 **LIGHT button**
Fume cupboard interior lighting ON/OFF

10 **IR-Interface - Optional -**
Laptop Interface for parameter setting and actual value retrieval

STATUS DISPLAY - MAINS POWER FAILURE:
In the case of a power failure, the red LED flashes once every 2 secs. Parallel to this, an acoustic alarm sounds. A mains power failure is displayed even when the unit is switched off, but then without an acoustic alarm. This function is available if the control is equipped with an emergency power supply accumulator.

3.4.2 Fume cupboard function display Type 7.2



FUNCTION

01 **OLED-Display**
Display of volumetric flow, as well as operating and status reports

02 **LED OK (green)**
Volumetric flow okay

03 **LED LOW (red)**
Volumetric flow too low

04 **LED CLOSE SASH (yellow)**
Warning: Close sash if opening > 50 cm

05 **RESET button**
Reset acoustic alarm

06 **Button V_{MAX} with LED**
V_{MAX} Operation (Emergency)

07 **Button V_{MIN} mit LED**
V_{MIN} Reduced Operation ON / OFF

09 **LIGHT button**
Fume cupboard interior lighting ON/OFF

10 **IR-Interface - Optional -**
Laptop Interface for parameter setting and actual value retrieval

STATUS DISPLAY - MAINS POWER FAILURE:
In the case of a power failure, the red LED flashes once every 2 secs. Parallel to this, an acoustic alarm sounds. A mains power failure is displayed even when the unit is switched off, but then without an acoustic alarm. This function is available if the control is equipped with an emergency power supply accumulator.

3.4.3 Fume cupboard function display Type 7.6



FUNCTION

01 **OLED-Display**
Display of volumetric flow, as well as operating and status reports

02 **LED OK (green)**
Volumetric flow okay

03 **LED LOW (red)**
Volumetric flow too low

04 **LED CLOSE SASH (yellow)**
Warning: Close sash if opening > 50 cm

05 **RESET button**
Reset acoustic alarm

06 **Button V_{MAX} with LED**
V_{MAX} Operation (Emergency)

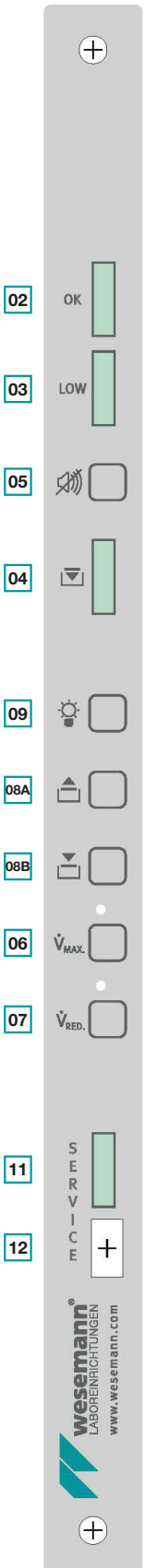
07 **Button V_{MIN} with LED**
V_{MIN} Reduced Operation ON / OFF

09 **LIGHT button**
Fume cupboard interior lighting ON/OFF

10 **IR-Interface - Optional -**
Laptop Interface for parameter setting and actual value retrieval

STATUS DISPLAY - MAINS POWER FAILURE:
In the case of a power failure, the red LED flashes once every 2 secs. Parallel to this, an acoustic alarm sounds. A mains power failure is displayed even when the unit is switched off, but then without an acoustic alarm. This function is available if the control is equipped with an emergency power supply accumulator.

3.4.4 Fume cupboard function display Type 4.1



FUNCTION

02 **LED OK (green)**
Volumetric flow okay

03 **LED LOW (red)**
Volumetric flow too low

05 **RESET button**
Reset acoustic alarm

04 **LED CLOSE SASH (yellow)**
Warning: Close sash if opening > 50 cm

09 **LIGHT button**
Fume cupboard interior lighting ON/OFF

08A 08B **Sash OPEN / CLOSE**
Sash control - Sash open - Sash close

06 **Button V_{MAX} with LED**
V_{MAX} Operation (Emergency)

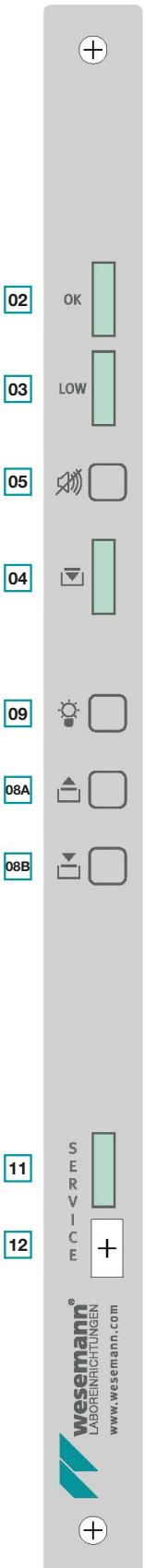
07 **Button V_{MIN} with LED**
V_{MIN} Reduced Operation ON / OFF

11 **LED SERVICE**
Service due, according to operating hours or date

12 **Service socket**
Laptop connection for setting parameters and actual value retrieval

STATUS DISPLAY - MAINS POWER FAILURE:
In the case of a power failure, the red LED flashes once every 2 secs. Parallel to this, an acoustic alarm sounds. A mains power failure is displayed even when the unit is switched off, but then without an acoustic alarm. This function is available if the control is equipped with an emergency power supply accumulator.

3.4.5 Fume cupboard function display Type 4.2



FUNCTION

02 **LED OK (green)**
Volumetric flow okay

03 **LED LOW (red)**
Volumetric flow too low

05 **RESET button**
Reset acoustic alarm

04 **LED CLOSE SASH (yellow)**
Warning: Close sash if opening > 50 cm

09 **LIGHT button**
Fume cupboard interior lighting ON/OFF

08A **08B** **Sash OPEN / CLOSE**
Sash control - Sash open - Sash close

11 **LED SERVICE**
Service due, according to operating hours or date

12 **Service socket**
Laptop connection for setting parameters and actual value retrieval

STATUS DISPLAY - MAINS POWER FAILURE:
In the case of a power failure, the red LED flashes once every 2 secs. Parallel to this, an acoustic alarm sounds. A mains power failure is displayed even when the unit is switched off, but then without an acoustic alarm. This function is available if the control is equipped with an emergency power supply accumulator.

3.4.6 Fume cupboard function display Type 4.3



FUNCTION

02 **LED OK (green)**
Volumetric flow okay

03 **LED LOW (red)**
Volumetric flow too low

05 **RESET button**
Reset acoustic alarm

04 **LED CLOSE SASH (yellow)**
Warning: Close sash if opening > 50 cm

09 **LIGHT button**
Fume cupboard interior lighting ON/OFF

11 **LED SERVICE**
Service due, according to operating hours or date

12 **Service socket**
Laptop connection for setting parameters and actual value retrieval

STATUS DISPLAY - MAINS POWER FAILURE:
In the case of a power failure, the red LED flashes once every 2 secs. Parallel to this, an acoustic alarm sounds. A mains power failure is displayed even when the unit is switched off, but then without an acoustic alarm. This function is available if the control is equipped with an emergency power supply accumulator.

3.4.7 Fume cupboard function display Type 4.6



FUNCTION

02 **LED OK (green)**
Volumetric flow okay

03 **LED LOW (red)**
Volumetric flow too low

05 **RESET button**
Reset acoustic alarm

04 **LED CLOSE SASH (yellow)**
Warning: Close sash if opening > 50 cm

09 **LIGHT button**
Fume cupboard interior lighting ON/OFF

06 **Button V_{MAX} with LED**
V_{MAX} Operation (Emergency)

07 **Button V_{MIN} with LED**
V_{MIN} Reduced Operation ON / OFF

11 **LED SERVICE**
Service due, according to operating hours or date

12 **Service socket**
Laptop connection for setting parameters and actual value retrieval

STATUS DISPLAY - MAINS POWER FAILURE:
In the case of a power failure, the red LED flashes once every 2 secs. Parallel to this, an acoustic alarm sounds. A mains power failure is displayed even when the unit is switched off, but then without an acoustic alarm. This function is available if the control is equipped with an emergency power supply accumulator.

3.4.8 Detailed description of the functions

01 OLED- Display
Display of volumetric flow, as well as operating and status reports

By means of the graphic OLED Display (64x64 Pixel) in the function display, all important operating and status information on the fume cupboard can be read off directly. Volumetric flow, inflow rate, error and operating information are immediately displayed in plain text and status reports are represented by graphic icons.

02 LED OK (green)
Volumetric flow okay

This green glowing LED indicates the normal state, i.e. the laboratory fume cabinet is operated with a sufficient exhaust air volumetric flow and is consequently in safe operation.

03 LED LOW (red)
Volumetric flow too low

This red glowing LED indicates a malfunction, i.e. the fume cupboard is being operated with an insufficient exhaust air volumetric flow and is, therefore not protected against the release of harmful substances. Using the RESET button, the acoustic alarm (malfunction due to insufficient exhaust air volumetric flow) can be Acknowledged. The optical alarm signal cannot be acknowledged and will only be reset when a sufficient exhaust air volumetric flow is available.

STATUS DISPLAY - MAINS POWER FAILURE:
In the case of a power failure, the red LED flashes once every 2 secs. Parallel to this, an acoustic alarm sounds. A mains power failure is displayed even when the unit is switched off, but then without an acoustic alarm. This function is available if the control is equipped with an emergency power supply accumulator.

04 LED CLOSE SASH (yellow)
Warning: Close sash if opening > 50 cm

This yellow flashing LED signals an optical warning if the sash is opened > 50 cm. This LED indicates to the user that the laboratory fume cupboard may be in unsafe operation. The sash must be closed.

05 RESET button
Reset acoustic alarm

With the RESET/QUIT button, the acoustic alarm (malfunction due to insufficient exhaust air volumetric flow) can be acknowledged. The optical alarm signal cannot be acknowledged and will only be reset when a sufficient exhaust air volumetric flow is available.

06 Button V_{MAX} with LED
V_{MAX} Operation (Emergency)

The maximum exhaust air volumetric flow can be requested via the V button (emergency extraction).

07 Button V_{MIN} with LED
V_{MIN} Reduced Operation ON/OFF

This V_{MIN} button can be activated or deactivated. The yellow glowing Status LED indicates the night reduction status when the terminals Day/Night X11.39 and X11.40 are activated. The night set point (reduced operation), is adjusted, regardless of the sash position.

08A 08B Sash button OPEN/CLOSE
Sash control - Sash open - Sash close

The sash can be opened by the button 8a. The sash can be closed by the button 8b.

09 LIGHT button
Fume cupboard interior lighting ON/OFF

The interior lighting of the laboratory fume cupboard is switched ON and OFF using the LIGHT button.

10 IR-Interface -Optional-
Laptop Interface for parameter setting and actual value retrieval

IR Interface, the infrared interface, is used for the decentralized parameterization via laptop (Program PC2500) with IR adapter. Using this interface, the commissioning, overall configuration, diagnosis and visualization of all system files can be carried out.

11 LED SERVICE
Service due, according to operating hours or date

According to the hours of operation or the outstanding maintenance service interval, the LED SERVICE is illuminated. In this case, please arrange for maintenance to be carried out.

12 Service socket
Laptop connection for setting parameters and actual value retrieval

Through the service socket the maintenance operator can set parameters and retrieve the actual value.

4 COMMISSIONING OF LABORATORY FUME CUPBOARD

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Commissioning of laboratory fume cupboard

4.1 Prerequisites for commissioning by the user

The laboratory fume cupboard may only be commissioned if:

- the electrical tests have been successfully carried out and documented by a qualified electrician.
- the sanitary inspections and thereby the leak test on the media have been successfully carried out and documented by a qualified sanitary specialist.
- the commissioning of exhaust air has been successfully carried out and documented by a qualified specialist.
- training has been conducted by a person appointed by Wesemann and the above-mentioned protocols handed over.
- the laboratory fume cupboard is connected to a sufficiently dimensioned ventilation system.
- the laboratory fume cupboard is used for the proper purpose.
- the laboratory fume cupboard is regularly serviced and its functionality checked.

Subsequently, no modifications may be made to the exhaust air system or the media which would impair the function of the laboratory fume cupboard.

4.2 Prerequisites for safe operation

Basic prerequisites for safe operation are that:

- the fume cupboard functions as intended,
- the sash is closed, if possible,
- the construction of the apparatus was carried out by an expert,
- the apparatus is used as intended,
- the reactions are performed safely, or at least controlled,
- hygiene, order and cleanliness are ensured,
- prior to the actual experiment, the hazards were ascertained and appropriate measures taken,
- the hazards associated with the work are communicated.“

T032 Laboratory fume cupboards, construction type and safe operation, BGRCI Professional association of the Raw Materials and Chemical Industry.

4.3 Commissioning of fume cupboard

4.3.1 Check before commissioning

The fume cupboard must be so placed that it can be safely operated with the nominal air volume. Alternatively, a minimum inflow of 0.25m/s is to be guaranteed.

WARNING

Danger of hazardous substances outbreak by improper use of the fume cupboard.

Severe poisoning may result.

- The green LED (volume flow okay) must be glowing, in order that the fume cupboard can be operated.

4.3.2 Emergency OFF and operating the electrical components

EMERGENCY OFF BUTTON

The EMERGENCY OFF button can come in a variety of different designs in laboratory fume cupboards. Actuating the Emergency OFF button is identical in all variants by pressing the Emergency OFF button.

NOTE

Before commissioning of the fume cupboard, find out about the Emergency OFF button

- which circuits and apparatus are affected by actuating the button.
- what should be done after actuating the Emergency OFF button.
- when may the Emergency OFF button be reactivated?

EMERGENCY OFF PULL-RELEASE



The emergency OFF button is to be pressed in the case of an emergency or to avert a danger. By pressing the button, all experimental sockets are disconnected from the power supply. Before reactivating, it must be ensured that no further danger exists. Reactivation is effected by pulling > pull-release.

EMERGENCY OFF KEY-OPERATED BUTTON



without key with key

The emergency OFF button is to be pressed in the case of an emergency or to avert a danger. By pressing the button, all experimental sockets are disconnected from the power supply.
Before reactivating, it must be ensured that no further danger exists.
Reactivation is effected by turning the key > twist-release

OPERATION OF ELECTRICAL COMPONENTS

Electrical sockets in the fume cupboard can always be switched from outside and have a minimum protection of IP44 (protection against splash water on all sides). The marking on the switch to the corresponding socket is identical to the circuit diagram of the wiring plan delivered with the audit documents.

The following points must be observed when operating electrical installations:

DANGER

Danger due to hazardous electrical voltage

Direct or indirect contact with live parts causes a dangerous current flow through the body: Serious injury or death can result.

- Work on electrical installations and live parts is only to be carried out by qualified electricians.

- The mains voltage of the sockets on the fume cupboard must comply with the details on the type plate of the device to be connected.
- Check cables, sockets and installations for visible defects before commissioning. In the case of damage to or malfunction of the components etc., do not use these, but have the fault remedied by a qualified electrician.
- No wet electrical equipment may be used or operated.
- As a general principal, operation of electrical apparatus with wet hands is prohibited
- Due to the risk of tripping, cables and power lines must be laid with care.
- Do not pull the plug out of the socket using the power supply cable.
- The maximum current load must not be exceeded.
- Do not use multiple sockets with cable in the fume cabinet

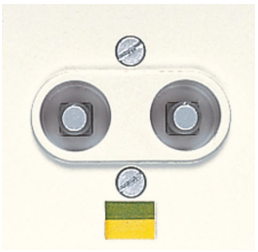
4.3.3 Uninterruptible power supply UPS

The colour coding of the UPS power sockets is customer-specific. The configuration of the sockets is in the colours red, green or orange, according to customer requirements. In some cases, the socket is marked with the letters UPS.

Obtain information on the marking of the power sockets from the laboratory operators. Systems that ensure an uninterruptible power supply protect the equipment from power failures and filter the voltage.

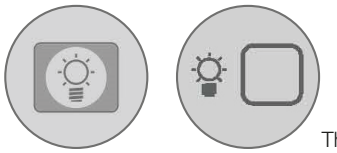
4.3.4 Potential Equalization Socket

The potential equalization socket is usually to be found in the interior of the fume cupboard, according to customer requirements. It is equipped with a hinged cover and labelled accordingly. The potential equalization socket serves as a separate earthing for medical and laboratory equipment.



Potential equalization socket with hinged cover open

4.3.5 Switching on interior lighting of fume cupboard



The interior lighting can be switched on or off via the button **fume cupboard interior lighting**.

Customer-specific deviations in the keyboard layout are possible.

4.3.6 Actuation of sash

The sash can be operated either mechanically or electrically, depending on the customer-specific configuration variant. Irrespective of the electrical operation of the sash, the fume cupboard can be operated manually without restriction at all times.

WARNING

Danger due to toxic substances

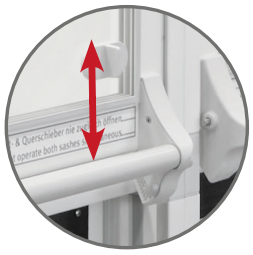
Toxic substances can lead to serious injury if the following instructions for safe working with the sash are not observed.

- The sash is to be kept closed at all times. Exceptions are short-term interventions, i.e. for monitoring, installation and dismantling, as well as feeding/loading of an apparatus, whereby the opening of the sash must be limited to what is necessary for the activities.
- Whenever possible, work should be performed through laterally-sliding sash parts.
- Avoid rapid movements (arm movements, running past) in front of fume cupboards that are, by way of exception, open.
- Parts of apparatus protruding from the fume cupboard should be avoided wherever possible. The apparatus must not be damaged when closing the sash. If the sash cannot be closed, the protective function of the fume cupboard is normally no longer ensured.

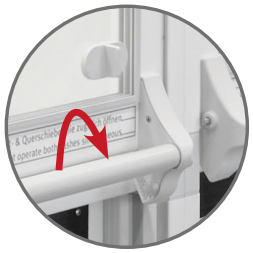
MECHANICAL OPERATION

The illustration of the buttons on the exhaust air function display may vary depending on the type of display. On the left is the illustration of the buttons of the exhaust air function display type 7.x and on the right of the exhaust air function display type 4.x.

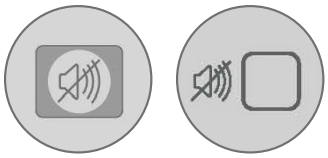
Deviations in the case of building site control systems are possible.



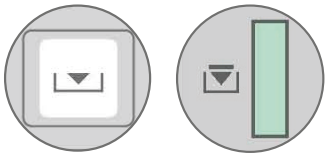
The sash is closed by means of a single-handed downward operation of the sash handle bar. At the top, the opening of the sash is mechanically limited to 500 mm, in accordance with standards. This limitation is for the safety of the user as, when the sash is open, the escape of noxious substances is higher and the user is not protected against the spraying out of hazardous substances and flying (glass) splinters.



It is possible to unlock the limitation of the sash to enable, for example, the positioning of high experimental set-ups in the fume cupboard. By turning the sash handle bar and by means of the twist-unlock mechanism, the limiter is unlocked and the sash can be moved further upwards over the work opening.



If the height of the opening is exceeded by unlocking the limiter, an optical and acoustic alarm is triggered. This alarm function alerts the user to the fact that the protective function of the fume cupboard is no longer present and that he is not protected against harmful substances and flying (glass) splinters. The alarm can be acknowledged by pressing the **RESET** button on the exhaust air function display.

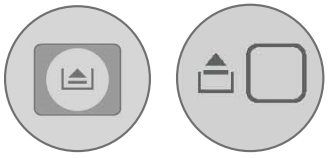


The optical warning by the yellow flashing LED draws attention to the operating mode and the fact that the sash is more than 500 mm open and that the sash is to be closed.

If the sash is moved downwards beyond the limiter, and thus the height of the opening is less than 500 mm, the twist-release mechanism is automatically locked again: Both warnings are automatically deactivated.

ELECTRICAL OPERATION

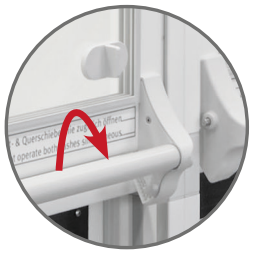
If the sash is in a stationary position, the sash can be opened and closed with the sash handle bar. Electric drive and sash are decoupled when in inactive state.



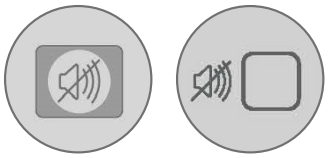
By pressing the button **OPEN SASH**, the sash moves to the opening limit of 500 mm. By pressing the **OPEN** or **CLOSE** button, the sash stops immediately. The limitation is stipulated in accordance with the standard. This limitation is for the safety of the user as, when the sash is open, the escape of noxious substances is higher and

the user is not protected against the spraying out of hazardous substances and flying (glass) splinters.

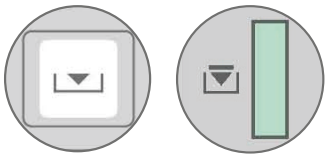
Due to the low working height, an opening limiter is not prescribed in the case of low and walk-in fume cupboards.



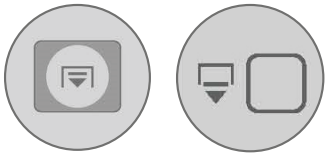
It is possible to unlock the limitation of the sash to enable, for example, the positioning of high experimental set-ups in the fume cupboard. By turning the sash handle bar and by means of the twist-unlock mechanism, the limiter is unlocked and the sash can be moved further upwards over the work opening.



If the height of the opening is exceeded by unlocking the limiter, an optical and acoustic alarm is triggered. This alarm function alerts the user to the fact that the protective function of the fume cupboard is no longer present and that he is not protected against harmful substances and flying glass. The alarm can be acknowledged by pressing the RESET button on the exhaust air function display.



The optical warning by the yellow flashing LED draws attention to the operating mode and the fact that the sash is more than 500 mm open and that the sash is to be closed.



By pressing the button **CLOSE SASH**, the sash moves downwards. By repeated pressing of the **OPEN** or **CLOSE** button, the sash stops immediately. If the sash moves down beyond the limiter and thus the height of the opening is less than 500 mm, the twist-release mechanism is locked again. Both warning are automatically deactivated.



During the downwards movement of the sash, the light barrier on the sash handle bar monitors the area directly below the sash. If it detects an obstacle, for instance a protruding object or hose, or if the user intervenes in the area, the sash stops automatically.

If a recognized obstacle led to the stopping of the sash closing process, the automatic closing is deactivated. By pressing the sash button **OPEN** or **CLOSE**, or by manually pushing the sash at least 3 cm (other parameters can be set by service personnel), the automatic closing is activated, which means normal operation is ensured again. Deactivation of the automatic closing is for safety reasons.



The passive infra-red sensor (motion detector) monitors the area in front of the fume cupboard. If no activity on the laboratory fume cupboard is registered by the expiry of the lowering delay time (parameter between 10 sec to 30 mins is programmable by the service personnel), the sash is automatically closed. Should a person stop in front of the fume cupboard during the closing process, the sash movement stops immediately. The light barrier monitors the area directly below the sash during the closing process and stops this in the case of an obstacle.

INCHING MODE DURING ELECTRICAL ACTUATION

In the case of the fume cupboard with the equipment variant electrical actuation of the sash, it is possible to open and close the sash by means of an electric motor in inching mode. The function inching mode must have been set at the required equipment variant during the commissioning of the fume cupboard.

Inching mode UP

If the sash is moved manually or in inching mode in the direction **UP**, the internal electronics recognizes the direction and moves either to the opening limiter 500 mm or to the 2nd breakpoint. The 2nd breakpoint had been previously set during the commissioning of the fume cupboard.

Furthermore, it is possible to set a 3rd breakpoint. This 3rd breakpoint would be first actuated by the upwards movement of the fume cupboard.

Inching mode DOWN

If the sash is moved manually or in inching mode in the direction **DOWN**, the internal electronics recognize the direction und close the sash. If a 3rd break point was set during the commissioning of the fume cupboard, this is not actuated by the downwards movement of the sash. The obstacle recognition (light barrier) is activated.

4.3.7 Button V_{max} and Button V_{min}

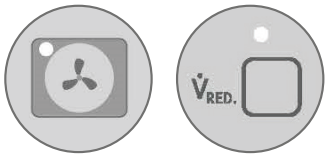


BUTTON V_{MAX}

After pressing the **V_{max}** button the LED is illuminated.
The button is activated. By activating the button, a maximum exhaust air flow volume can be requested on account of, for example, an increased emission of harmful substances.
>Emergency extraction.

In the case of an emergency, take further measures in accordance with the instructions of your laboratory.

By again pressing the **V_{MAX}** button the LED is extinguished and the maximum volume flow is disabled.
The value of the exhaust air volume flow is programmable and is set by a specialist during commissioning.



Button V_{min} or V_{RED}

After pressing the **V_{RED}** button the LED lights up. The button is activated. By activating the button, a reduced operation (night reduction) can be activated.

The green LED > volume flow OK does not light up. The fume cupboard is not in safe operation, as the volume flow rate is too low to operate the fume cupboard safely. By again pressing the **V_{RED}** button, the LED is extinguished and the night reduction is disabled.

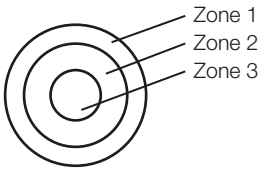
5 MEDIA SYSTEM: ARMATURES

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Media system: Armatures

5.1 Marking of armatures

Laboratory armatures must be colour-coded in accordance with DIN EN 13792. The standard does not apply to medical institutions or hospitals which use medical gases from a medical gas supply system according to EN737.



The 3 zones are colour-coded. Zone 2 includes the short designation / long text for the flow substance and is a Wesemann standard.

5.2 Colour-coding Zone 1 and abbreviations

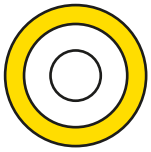
5.2.1 Water



The colour green of Zone 1 indicates that it refers to the flow substance water. Which water it is can be can be recognized by the colours in Zones 2 and 3.

WCS	Cooling water/Sprinkler water	**WPH**	Drinking/Potable water, hot
WPC	Drinking/Potable water, cold	**WSP**	Well water
WNH	Process water, hot	**WNC**	Well water, cold
WST	Steam/Water vapour	**WCO**	Condensate
WCH	Ultrapure water, hot	**WCC**	Ultrapure water, cold
WCR	Cooling water return	**WCF**	Cooling water flow
WSH	Surface water, hot	**WSC**	Surface water, cold
WDH	Demineralized water, hot	**WDC**	Demineralized water, cold
WRH	River water, hot	**WRC**	River water, cold
WDI	Distilled water		

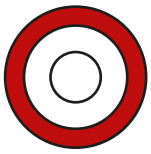
5.2.2 Combustible gaseous hydrocarbons



The colour yellow of Zone 1 indicates that it refers to the flow substance combustible gaseous hydrocarbons. Which combustible gaseous hydrocarbon it is can be recognized by the colours in Zones 2 and 3.

G	Natural gas	**LPG**	Propane / Butane (LPG)
CH_4	Methane	**C_3H_8**	Propane
C_4H_{10}	Butane	**C_2H_4**	Ethene
C_3H_6	Propene	**C_4H_8**	Butene
C_2H_2	Acetylene		

5.2.3 Other combustible gases, gas mixtures



The colour red of Zone 1 indicates that it refers to the flow substance other combustible gases, gas mixtures. Which combustible gas, gas mixture it is can be recognized by the colours in Zones 2 and 3.

Ar/CH_4	Argon / Methane	**H_2/N_2**	Hydrogen / Nitrogen
H_2	Hydrogen	**SiH_4**	Silane
H_2/He	Hydrogen / Helium	**D_2**	Deuterium

5.2.4 Incombustible gases / including combustive gases



The colour blue of Zone 1 indicates that it refers to the flow substance incombustible gases including combustive gases. Which incombustible gas, including combustive gases, it is can be recognized by

the colours in Zones 2 and 3.

N_2	Nitrogen	**N_2O**	Nitrous oxide
SA	Synthetic air 80 / 20	**CA**	Compressed air
O_2	Oxygen	**CO_2**	Carbon dioxide
RA	Control air	**BA**	Breath (air)
CB	Carbogen (CO2 + O2)	**Kr**	Krypton
Xe	Xenon	**Ne**	Neon
Ar	Argon	**He**	Helium

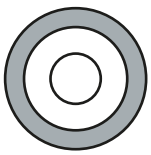
5.2.5 Toxic gases



The colour black of Zone 1 indicates that it refers to the flow substance toxic gases. Which toxic gas it is can be recognized by the colours in Zones 2 and 3.

NH_3	Ammonia	**NO_2**	Nitrogen dioxide
NO	Nitrogen monoxide	**H_2S**	Hydrogen sulphide
AsH_3	Arsine	**PH_3**	Phosphine
HCl	Hydrogen chloride	**SO_2**	Sulphur dioxide
CO	Carbon monoxide	**$COCl_2$**	Phosgene
Cl_2	Chlorine		

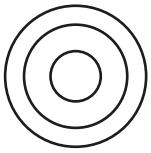
5.2.6 Vacuum



The colour grey of Zone 1 indicates that it refers to the flow substance vacuum. Which vacuum it is can be recognized by the colours in Zones 2 and 3.

V	Rough vacuum (10^{5} Pa to 100 Pa, 1000 mbar to 1 mbar)
VF	Fine vacuum (100 Pa to 0,1 Pa, 1 mbar to 10^{-3} mbar)
VH	High vacuum (0,1 Pa to 10^{-5} Pa, 10^{-3} mbar to 10^{-7} mbar)

5.2.7 Other substance



The colour white of Zone 1 indicates that it refers to the flow substance “other substance”. Which “other substance” it is can be recognized by the colours in Zones 2 and 3.

CH_2O	Formaldehyde solution	**C_3H_8O**	Propanol
CH_4O	Methanol	**C_3H_6O**	Acetone
C_2HCl_3	Trichloroethylene	**$HClO_4$**	Perchloric acid

5.3 Operation of armatures

The operation of the armatures is described in separate operating instructions of the respective manufacturer of the armatures. These instructions are provided together with the audit documents of Wesemann GmbH.

The following applies to the armatures in general:

WARNING

Escape of toxic substances

- Close the armatures again immediately after use.

5.4 Operation of equipment connection cables, connector plugs and burners

Section 11 of the DVGW Worksheet G621: ”Gas Installations in Laboratories and Natural Science – Technology Classrooms – planning, creation, modification, maintenance and operation”, contains instructions on handling/ operation of the listed components.

5.5 Operation of central isolation equipment

According to the DVGW Worksheet, the following is to be observed: ““In addition to the isolation equipment required in accordance with the DVGW Worksheet G600 and TRF, classrooms and laboratories must be equipped with a central shut-off device which, when activated, can shut off the gas supply to all gas outlets in the respective rooms. In the case of adjacent laboratories, a common central shut-off device (with safety system) may be sufficient.”

The position of the shut-off device is determined during the planning of the laboratories.

The planning drawings and the operating instructions for the isolation devices are provided together with the audit documents of Wesemann GmbH. Please read these very carefully.

6 CHEMICAL RESISTANCE

6.1 Chemical resistance of surface materials **62**

Chemical resistance

6.1 Chemical resistance of surface materials

Name	Molecular formula	Decorative laminate HPL[1]	Melamine-coated Chipboard (DBS) [2]	PP material [3]
Formic acid 99%	CH_2O_2	Formic acid in a concentration of over 10%: No resistance	No information	No significant impairment (24 hours)
Benzene	C_6H_6	Resistant max. 16 hours	No information	No significant impairment (24 hours)
1-Butanol	$C_4H_{10}O$	No information	No information	No significant impairment (24 hours)
Dichchloromethane	CH_2Cl_2	Resistant max. 16 hours (methylene chloride)	No information	No significant impairment (24 hours)
Acetic acid	$C_2H_4O_2$	Resistant max. 16 hours	No information	No significant impairment (24 hours)

TRESPA® TOPLAB ® PLUS [4]	Compact board (coloured high-pressure-compressed laminate board HPL) [5]	Fine stoneware [6]	Stoneware [7]	Epoxy resin grouting [8]
Formic acid 90%: no perceptible staining, no loss of gloss / no change to the worktop surface (24 hours)	No information	Formic acid 99%: no staining (24 hours)	Formic acid 98-100%: resistant, no damage	Formic acid 5%: resistant; no destruction of grouting after 10 weeks continuous exposure. Formic acid 10%: limited resistance; resistant to temporary exposure
No perceptible staining, no loss of gloss / no change to the worktop surface (24 hours)	Benzene: no damage after max. 16 hours	No staining (24 hours)	Resistant, no damage	Limited resistance; resistant to temporary exposure
Butyl alcohol: no perceptible staining, no loss of gloss / no change to the worktop surface (24 hours)	No information	Butyl alcohol: no staining (24 hours)	Butyl alcohol: resistant; no damage	Butyl alcohol: no destruction of grouting after 10 weeks continuous exposure.
Dichloromethane: no perceptible staining, no loss of gloss / no change to the worktop surface (24 hours)	No damage after max. 16 hours	No staining (24 hours)	No information	Methylene chloride: not resistant, damage to the grouting after relatively short exposure time, i.e. within 24 hours
Acetic acid 99%: no perceptible staining, no loss of gloss / no change to the worktop surface (24 hours)	No information	Acetic acid 99%, No staining (24 hours)	Acetic acid 10%: resistant, no damage	Acetic 10%acid: resistant; no destruction of grouting after 10 weeks continuous exposure; Acetic acid 96% (glacial): not resistant, damage to grouting after relatively short exposure time (i.e. 24 hours)

Name	Molecular formula	Decorative laminate HPL[1]	Melamine-coated chipboard (DBS) [2]	PP-material[3]
Acetic anhydride	$C_4H_6O_3$	No information	No information	No significant impairment (24 hours)
Amyl acetate	$C_7H_{14}O_2$	Isoamyl acetate: Resistant max. 16 hours	No information	No significant impairment (24 hours)
Hydrofluoric acid 48%	HF	Hydrofluoric acid in concentration over 10%: no resistance	No information	No significant impairment (24 hours)
Formaldehyde	CH_2O	Resistant max. 16 hours	No information	No significant impairment (24 hours)
Crystal violet	$C_{25}H_{30}ClN_3$	Resistant max. 10 – 15 min	No information	No significant impairment (24 hours), discoloration cannot be ruled out
Methanol	CH_4O	Resistant max. 16 hours	No information	No significant impairment (24 hours)
Methylene blue	$C_{16}H_{18}ClN_3S$	Resistant max. 10 -15 min	No information	No significant impairment (24 hours), discoloration cannot be ruled out

TRESPA® TOPLAB ® PLUS [4]	Compact board (coloured high-pressure-compressed laminate board HPL) [5]	Fine stoneware [6]	Stoneware [7]	Epoxy resin grouting [8]
No perceptible staining, no loss of gloss / no change to the worktop surface (24 hours)	No information	Acetic anhydride: No staining (24 hours)	No information	No information
Amyl acetate: no perceptible staining, no loss of gloss / no change to the worktop surface (24 hours)	No information	Amyl acetate: No staining (24 hours)	No information	Amyl acetate: Limited resistance; resistant to temporary exposure
Hydrofluoric acid: heavy staining or moderate deterioration, pit-corrosion, localized pitting or corrosion of the worktop surface	No resistance	Corrosion of the entire surface	No information	No information
Formaldehyde 37%: no perceptible staining, no loss of gloss / no change to the worktop surface (24 hours)	No information	No staining (24 hours)	Resistant, no damage	No information
No infomation	No infomation	No staining (24 hours)	Resistant, no damage	No information
Methyl alcohol: no perceptible staining, no loss of gloss / no change to the worktop surface (24 hours)	No damage after max. 16 hours	No staining (24 hours)	Resistant, no damage	Limited resistance; resistant to temporary exposure
Methylene blue 1%: no perceptible staining, no loss of gloss / no change to the worktop surface (24 hours)	No damage after max. 10 -15 min	No distinct staining (24 hours) removed with Acetone / Methanol	Resistant, no damage	No information

Name	Molecular formula	Decorative laminate HPL[1]	Melamine-coated chipboard (DBS) [2]	PP-material [3]
Natrium Chloride	NaCl	Cooking salt: Resistant max. 16 hours	No information	Natrium Chloride 10%: No significant impairment (24 hours)
Phenol	C_6H_6O	Resistant max. 16 hours	No information	No significant impairment (24 hours)
Nitric acid 10%	HNO_3	Resistant max. 10 -15min (Nitric acid up to10%)	No information	No significant impairment (24 hours)
Hydrochloric acid 10%	HCl	Resistant max. 10 -15min (Hydrochloric acid up to 10%)	No information	No significant impairment (24 hours)
Sulphuric acid 10%	H_2SO_4	Resistant max. 10 - 15 min (Sulphuric acid up to 10%)	No information	No significant impairment (24 hours)
Silver nitrate 1%	$AgNO_3$	Resistant max.10 - 15 min	No information	No significant impairment (24 hours), discoloration cannot be ruled out
Tetrahydrofuran	C_4H_8O	Resistant max. 16 hours	No information	No significant impairment (24 hours)

TRESPA® TOPLAB ® PLUS [4]	Compact board (coloured high-pressure-compressed laminate board HPL) [5]	Fine stoneware [6]	Stoneware [7]	Epoxy resin grouting [8]
Natrium Chloride 10%: no perceptible staining, no loss of gloss / no change to the worktop surface (24 hours)	Table salt: no damage after max. 16 hours	Natrium Chloride 10%: No staining (24 hours)	Resistant, no damage	Natrium Chloride solution, ges.: resistant; no destruction of grouting after 10 weeks continuous exposure
Phenol 90%: No perceptible staining, no loss of gloss or change to the worktop surface (24 hours)	No damage after max. 16 hours	No staining (24 hours)	Resistant, no damage	Phenol 1% in water: resistant; no destruction of grouting after 10 weeks continuous exposure, Phenol 20%in water: not re-sistant, damage to grouting after relatively short exposure time (i.e. 24 hours)
Nitric acid 20%: No discernable staining, no loss if gloss or change to the worktop surface (24 hours)	No resistance	No staining (24 hours)	Nitric acid to10%: resistant. No damage	Nitric acid 20%: resistant; ; no destruction of grouting after 10 weeks cont-inuous exposure, Phenol 20% in water: not resistant, damage to grouting after relatively short exposure time (i.e. 24 hours)
No discernable staining, no loss if gloss or change to the worktop surface (24 hours)	No resistance	No staining (24 hours)	Hydrochloric acid to 10%: resistant. No damage	Hydrochloric acid concentrate: resistant; no destruction of grou-ting after 10 weeks continuous exposure
Sulphuric acid 25%: No discernable staining, no loss if gloss or change to the worktop surface (24 hours)	No resistance	No staining (24 hours)	Sulphuric acid to10%: resistant. No damage	Sulphuric acid 70%: resistant, no destruction of grouting after 10 weeks continuous exposure; Sulphuric acid over 70%: not resistant, damage to grouting after relatively short exposure time (i.e. 24 hours)
No discernable staining, no loss of gloss or change to the worktop surface (24 hours)	No damage after max. 10 -15 Min.	No staining (24 hours)	Silver nitrate: resistant, no damage	Silver nitrate solution 1%: resistant; no destruction of grou-ting after 10 weeks continuous exposure
No discernable staining, no loss of gloss or change to the worktop surface (24 hours)	No damage after max. 16 hours	No staining (24 hours)	No information	Not resistant, damage to grouting after relatively short exposure time (i.e. 24 hours)

Name	Molecular formula	Decorative laminate HPL[1]	Melamine-coated chipboard (DBS) [2]	PP-material [3]
Toluol	C_7H_8	Resistant max. 16 hours	No information	No significant impairment (24 hours)
Hydrogen Peroxide	H_2O_2	Hydrogen Peroxide 3%: Resistant max.16 hours, Hydrogen Peroxide 3-30%: Resistant max. 10 - 15min	Hydrogen Peroxide 3%: Resistant max. 16 hours (Representative test substances according to standard: Acetone and black coffee)	Hydrogen Peroxide 30%: No significant impairment (24 hours)
Xylol	C_8H_{10}	Resistant max. 16 hours	No information	No significant impairment (24 hours)
Zinc chloride	$ZnCl_2$	Resistant max. 16 hours	No information	No significant impairment (24 hours)

TRESPA® TOPLAB ® PLUS [4]	Compact board (coloured high-pressure-compressed laminate board HPL) [5]	Fine stoneware [6]	Stoneware [7]	Epoxy resin grouting [8]
Toluene: No discernable staining, no loss if gloss or change to the worktop surface (24 hours)	No damage after max. 16 hours	No staining (24 hours)	Resistant, no damage	Limited resistance; resistant to temporary exposure
Hydrogen Peroxide 3%: No discernable staining, no loss of gloss or change to the worktop surface (24 hours)	Hydrogen Peroxide to 3% vol: No damage after max. 16 hours, Hydrogen Peroxide to 30% vol: No damage after max. 10 - 15 minutes	No staining (24 hours)	Hydrogen Peroxide 3%: resistant, no damage. Hydrogen Peroxide 30%: resistant, no damage	Hydrogen peroxide 30%: resistant; no destruction of grouting after 10 weeks continuous exposure
Xylene: No discernable staining, no loss if of gloss or change to the worktop surface (24 hours)	No damage after max. 16 hours	No staining (24 hours)	Resistant, no damage	Limited resistance; resistant to temporary exposure
Saturated zinc chloride: No discernable staining, no loss of gloss or change to the worktop surface (24 hours)	No information	No staining (24 hours	No information	Zinc chloride solution 50%: resistant; no destruction of grouting after 10 weeks continuous exposure

[1] Pfleiderer Holzwerkstoffe GmbH: PRODUCT INFORMATION, Chemical resistance of Duropal laminates, Sep.2014, with respect to EN 438

[2] Pfleiderer Holzwerkstoffe GmbH: Wood materials, raw and Melamine-coated. Technical data, in combination with: EN14323:2004(D) Appendix A: Staining substances Table A.1 – Test substances

[3] E-mails of 8.6.2015 and 20.4.2016: Chemical resistance of PP materials, Simona AG

[4] TRESPA TOPLABPlus - CHEMICAL RESISTANCE Identification number: G4650 - Date 18.8.2011, CONDITION 0 (Surface was rinsed with water after the test)

[5] Polyrey: Technical Guidelines, compact boards for interior use – July 2014, E-mail of 31.3.2016

[6] Systemceram GmbH & Co.KG: Test report KP74 / 06 of 9.5.2005
Chemical resistance of glazed laboratory worktop surfaces of chem. tech. Fine stoneware
(no staining = removable with warm water)

[7] Deutsche Steinzeug: Resistance table for Agrob Buchtal Laboratory ceramic (Status Oct. 2002)

[8] ARDAL® Fliesenlegen mit System, (Tile-laying with System), Resistance List 207, Status May 2002

7 CLEANING OF LABORATORY FUME CUPBOARDS

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Cleaning of Laboratory Fume Cupboards

Cleanliness, order and hygiene are of the utmost importance in order to be able to work safely with a laboratory fume cupboard. Depending on the level of contamination of the fume cupboard, the air baffle must be dismantled for cleaning purposes. The cleaning may only be carried out by a qualified and authorized person and personal protective equipment must be worn. Before cleaning begins, it must be ensured that the fume cupboard is free from harmful substances. Cleaning of the radionuclide and special applications fume cupboards is described in separate user manuals.

CAUTION

Residues of hazardous substances in the fume cupboard interior

These can cause severe burning to the hands.

- Always wear gloves when cleaning the fume cupboard.

NOTE

Damage to the fume cupboard

Scratching of the surfaces:

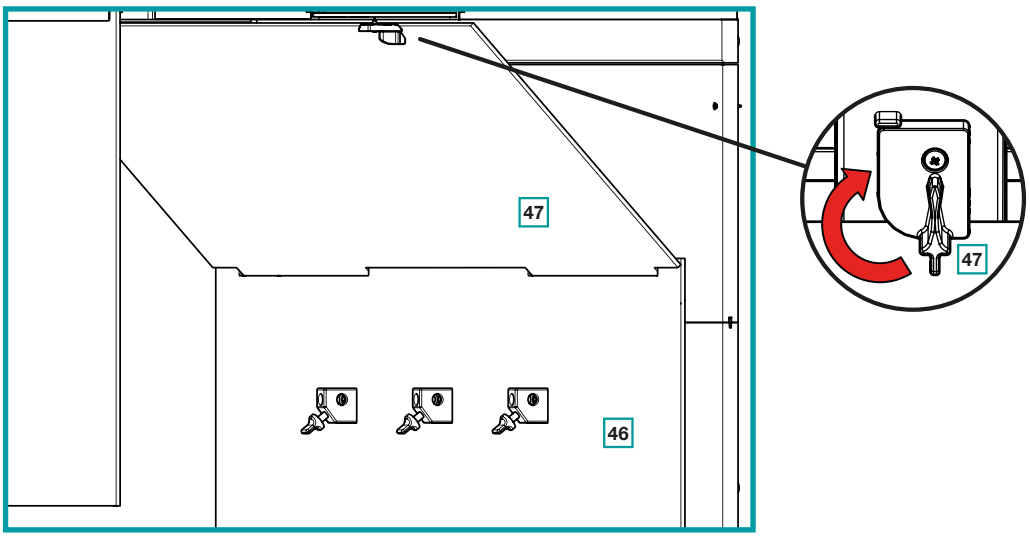
- Do not use abrasive cleaners.
- Use special glass cleaner for glass surfaces.
- For other surfaces, use standard household cleaners.
- Use soft cleaning cloths.

7.1 Dismantling of the air baffle for cleaning purposes

CAUTION

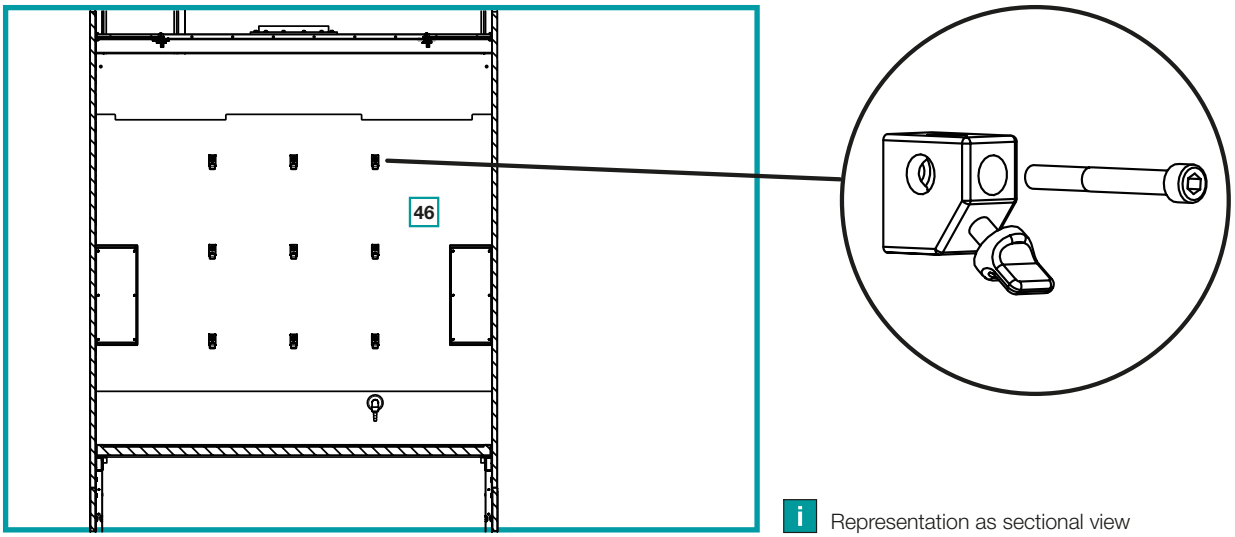
Before dismantling, all elements, structures etc. in the interior of the fume cupboard are to be removed. The fume cupboard may not be used for experimental procedures and work without the air baffle, as the protection function of the fume cupboard then no longer exists.

1. Dismantle top air baffle:



- Unlock rotary knob by rotating, at the same time supporting the air baffle.
- Carefully remove top air baffle Pos. 47.

2. Remove air baffle:

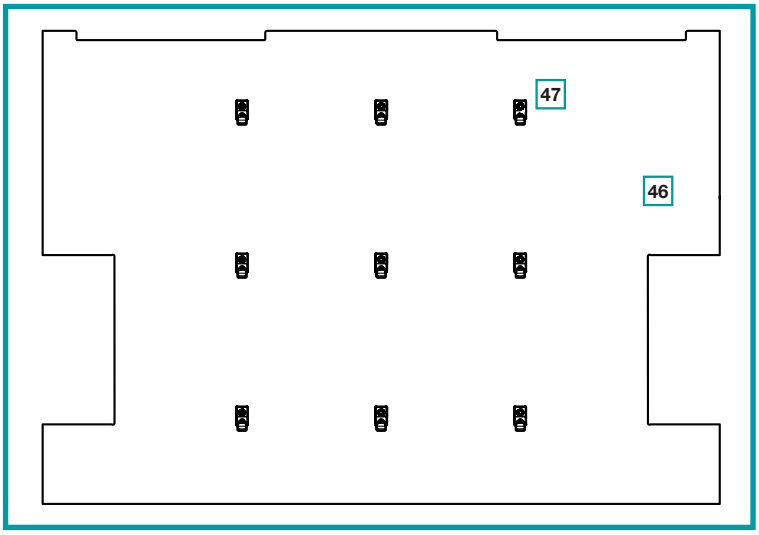


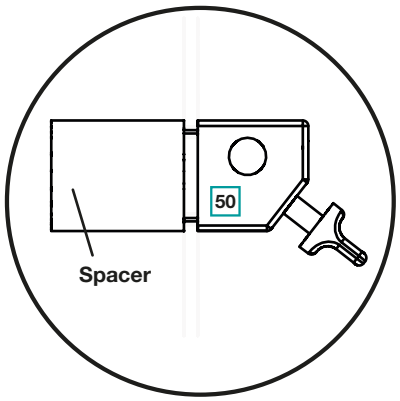
Representation as sectional view

- Using Allen key SW 5, disassemble cheese head screw and rod holder.
- Spacers behind the air baffle fall onto the worktop.
- Dismantle air baffle Pos. 46 in direction of the user.

3. Cleaning the air baffle and contaminated areas

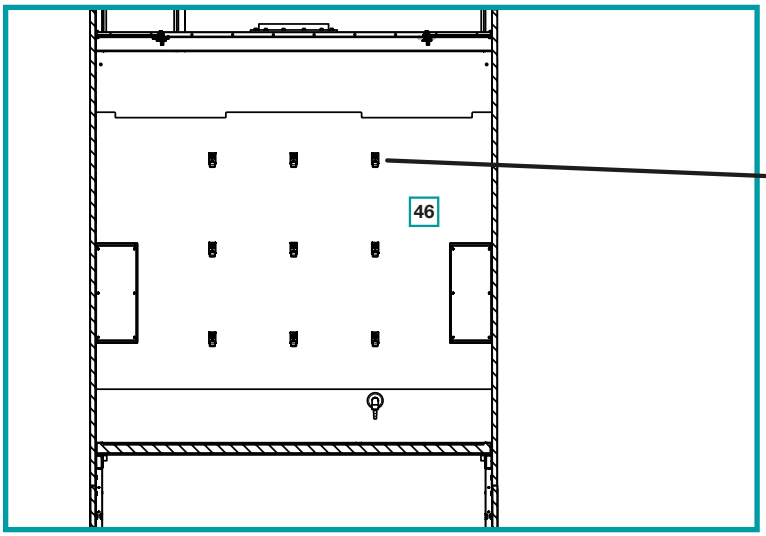
4. Assembly of air baffle:

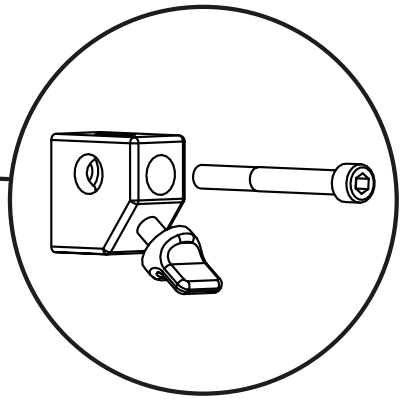




- Position rod holder Pos. 50 in air baffle Pos. 46.
- Mount the spacers on the back of the air baffle by sliding onto the rod holder.
- Check that all spacers are mounted.

5. Assemble air baffle:



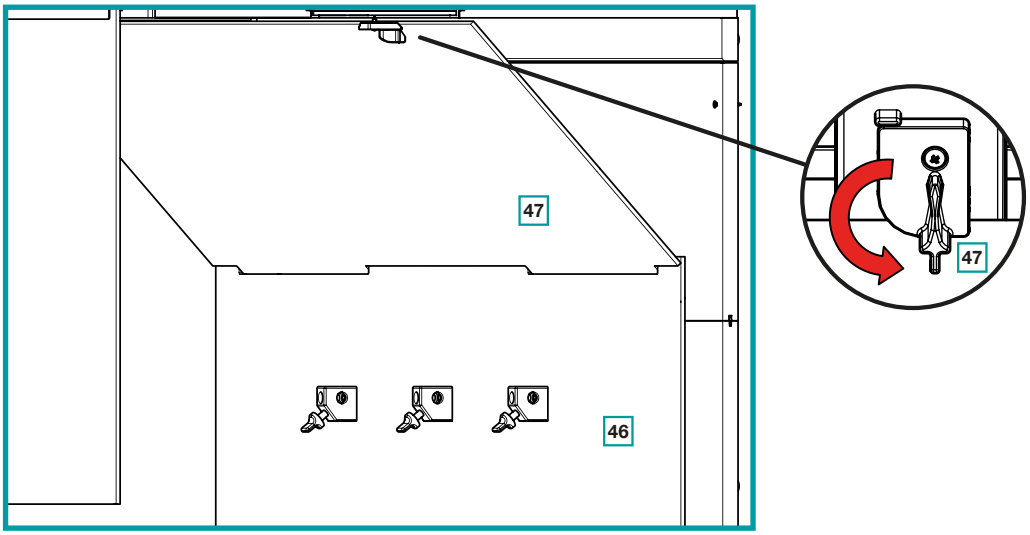


i Representation as sectional view

☞ Suspend air baffle, Pos. 46 on the back panel.

☞ Mount air baffle using cheese head screw and Allen key SW 5.

6. Assemble top air baffle:



☞ Position top air baffle Pos. 47 on air deflecting panel Pos. 46.

☞ Swivel the air baffle upwards and secure by means of the two rotary knobs.

7.2 Cleaning according to surface materials

Spilled substances, residues and stains must be removed immediately with a suitable cleaning cloth and cleaner. Follow the instructions of the manufacturer when using cleaning agents.
When using substances such as white spirit as a cleaner, adequate ventilation is to be ensured.
The instructions in the laboratory operating instructions must be strictly observed.
Wesemann GmbH generally recommends that, when cleaning, the cleaning agent and the cleaning cloth are first tested in an inconspicuous place.

7.2.1 Decorative Laminate HPL

When cleaning HPL laminate surfaces, cleaning agents which contain organic solvents can be used. Cleaning with abrasive cleaners damages the surfaces and these may, therefore, not be used.

☞ Cleaning the surface of HPL

The surface should be cleaned and then dried using kitchen paper or a soft cloth.

If the contaminants are not removed immediately, standard domestic cleaners can be used, such as washing powder, liquid or hard soap, which do not contain any abrasive components. If there is a more intense contamination, it is advisable to leave the cleaner to soak in. Finally, all cleaning agent residues should be removed with water and kitchen paper or a soft cloth.

7.2.2 Melamine-coated chipboard (DBS)

Standard domestic detergents or grease-dissolving all-purpose cleaners can be used for cleaning melamine-coated chipboard. The use of so-called balsam detergents should be avoided, as the substances contained in these leave a film on the surface which is difficult to remove. The use of abrasive cleaners, aggressive cleaning agents and descalers should also be dispensed with, as these damage the surface.

☞ Cleaning the surface of melamine-coated chipboard.

The basic cleaning of the surface is carried out with a solution of warm water and detergent. The solution should be applied to the contaminated area. In the case of heavier soiling, the solution can be left to soak briefly. Prolonged soaking must, however, be absolutely avoided. Subsequently, the cleaning agent residues should be removed from the surface using warm water and kitchen paper or a soft cloth and the surface dried with a dry, lint-free cloth in the direction of the pattern.

7.2.3 TRESPA® TOPLAB® PLUS

To clean TOPLAB®PLUS surfaces, a mild household cleaner or organic solvent can be used. Abrasive or polishing cleaners damage the surface and must, therefore, not be used.

☞ Cleaning the surface of TOPLAB® PLUS

The surface should be cleaned with a dry or damp cloth and, if necessary, a mild household cleaner. The surface is then wiped with an absorbent cloth. Special stains, such as solvent-based lacquers should be removed with an organic solvent, e.g. white spirit.

7.2.4 Compact board (coloured high-pressure-compressed laminate board HPL)

When cleaning the surface of the compact board, a soap solution or suitable organic solvent can be used. Cleaning with abrasive cleaners or bleach, strong alkalis, strong acids or other salts damages the surface.

☞ Cleaning the surface of compact board

Apply a soap solution to the contaminated area with a damp cloth and allow to act for a short time. Then remove the soap residue using kitchen paper and water. In the case of more intensive contamination or staining, an organic solvent such as benzine can be used.

7.2.5 Polypropylene (PP)

When cleaning the surface of the compact board, a soap solution or suitable organic solvent can be used. When cleaning with organic solvents which are capable of forming an explosive mixture when in contact with air, the Polypropylene can become charged and sparking can occur when discharging.

☞ Cleaning the surface of PP

Apply a soap solution to the contaminated area with a damp cloth and allow to act briefly. Then remove the soap solution residues with water and a cloth.

7.2.6 Stainless steel

To clean stainless steel, standard household cleansing milk or washing-up liquid may be used. Cleaning with abrasive cleaners damages the surface and must, therefore, not be used. The use of scouring pads and steel wool made of “normal” steel are also harmful to the surface. They give off rusting iron particles which impair the typical self-mechanism of stainless steel.

☞ Cleaning the surface of stainless steel

Apply the cleaning solution to the contaminated areas with a cloth or soft sponge, allow to act for a short time and remove with a cloth or sponge and water.

7.2.7 Fine stoneware / stoneware

To clean stoneware, washing-up liquid can be used. Highly abrasive cleaning agents and ceramic knives damage the surface and may, therefore, not be used.

☞ Cleaning the surface of fine stoneware

With a damp cloth or sponge, apply the washing-up liquid and water to the contaminated surface and work in lightly. Subsequently, remove with water and a cloth. Stubborn stains can be removed with a moderately abrasive cleaning agent and a sponge without a scouring surface.

7.2.8 Coating (Surface of painted metal parts)

For the cleaning of the coating, only water with small quantities of neutral detergents (pH7) may be used. The use of solvents such as ester, ketone, alcohols, aromatic compounds, glycol ethers or halogenated hydrocarbons, as well as highly acidic or alkaline and abrasive cleaning agents may not be used.

☞ Cleaning the surface coating

The surface temperature of the parts to be cleaned, as well as the temperature of the cleaning agent may

not be higher than 25°C. Apply a cleaning solution of water and a small amount of neutral detergent to the contaminated area with a non-abrasive cloth. Hard rubbing damages the surface. Allow to act briefly and then remove with a damp cloth and water. Contamination by greasy, oily or sooty substances, as well as residues of adhesives, silicone rubber or adhesive tape can be removed with aromatic-free white spirit.

7.2.9 Glass

For cleaning glass, a neutral cleaner or commercial domestic glass-cleaner may be used. Do not use alkaline solutions, acids or fluoride-containing agents. Abrasive cleaning agents, blades or knives damage the surface and may, therefore, not be used.

☞ Cleaning glass surfaces

Apply the cleaning solution to the contaminated area with a soft cloth or sponge, allow to act briefly and dry with a rubber wiper or cloth.

8 INSPECTION AND MAINTENANCE OF LABORATORY FUME CUPBOARDS

8.1 Maintenance contract **84**

8.2 Test plan **84**

8.2.1 Testing by user in the course of the year **84**

8.2.2 Annual inspection of fume cupboard **85**

8.2.3 Checks of media systems at least every 4 years **86**

8.2.4 Checks at least every 12 years **86**

Inspection and Maintenance of Laboratory Fume Cupboards

Regular checking of function and effectiveness of technical installations by the operator is a requirement of the Hazardous Substances Act and the Professional Association of the raw materials and chemical industry.

The fume cupboards must be serviced regularly and their functionality tested and documented (by means of inspection plan - see Section **8.2**). The installation, inspection and servicing of the fume cupboard may only be carried out by a person qualified according to TRBS 1203. The qualifications must be proven and documented in written form.

8.1 Maintenance contract

For safety inspections, maintenance and the execution of servicing work, we recommend the company Infralab GmbH in Syke. This is an efficient and reliable cooperation and service partner of the Wesemann Group.

Infralab GmbH
Max-Planck-Straße 12
28857 Syke
Germany
T: +49 4242 7804-0
F: + 49 4242 7804-10
E: service@infralab.com
www.infralab.com

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Infralab GmbH offers a complete service. This service includes the maintenance, inspections and repairs for your laboratory facilities, clean rooms, as well as natural science classrooms. The execution of all maintenance and servicing is carried out in accordance with current regulations and by qualified or certified technicians using calibrated and certified test equipment.

8.2 Test plan

The inspection intervals in the test plan are based on normal use of the fume cupboard.

8.2.1 Testing by user in the course of the year

According to the accident prevention regulations for electrical installations and operating equipment - DGUV, Regulation 3 - the following inspections are to be carried out on a 6-monthly basis:

Installation / Equipment	Inspection interval	Type of test	Tester
Residual current, Differential current and fault voltage circuit breaker - in stationary installations	6 months	for proper function by operation of the test equipment	User

8.2.2 Annual inspection of fume cupboard

The following inspection work is to be performed annually by a qualified person:

MECHANICAL INSPECTIONS

- Inspection of the fume cupboard interior for cracks/breaks
- Inspection of the worktop for cracks/breaks
- Inspection of the grouting in the interior for cracks
- Inspection of the lamp glass for damage
- Inspection of the 500 mm opening limiter for damage
- Inspection of the windows / handles for damage
- Inspection of the window ropes for damage/firm seating
- Test for tightness of the exhaust air system connection
- Test function of explosion flaps
- Test function of sash
- Check the guide of the counterweight bucket
- Test function of the fume cupboard lamp
- Test function of sprinkler (optional)

VENTILATION FUNCTION TEST

- Check exhaust air volumetric flow according to EN14175-4
- Examination of monitoring unit
- Check connections
- Test optical signals
- Test acoustic signals
- Check emergency power accumulators – replace after 5 years - (if arranged by Schneider Elektronik GmbH)

OPTIONAL INSPECTION DEPENDING ON EQUIPMENT

- Check the Passive Infrared Sensor (PIR)
- Test function of buttons UP and DOWN
- Check automatic sash closing
- Check the sash cable guide and friction on the drive unit, then perform function test
- Check the downward function of the light barrier
- Check the position of the sash

- Test the sub-structure extraction function
- Check the sash poti-rope/cable
- Test the automatic sash closing function
- Test the function of the 500mm opening-limiter signal
- Examination of supply systems
- Check the supply pipeline up to the shut-off valve
- Check the disposal pipe up to the customer's interconnection point
- Check the supply pipeline for liquefied gas according to DVGW-TRGI Worksheet G600
- Check the media system according to the manufacturer's instructions
- Check the water supply pipe according to DIN-EN 806-5
- Check all maintenance-relevant built-in sanitary components according to the maintenance instructions of the manufacturer

8.2.3 Checks at least every 4 years

According to prevention regulations for electrical installations and operating equipment DGUV Regulation 3, retests of fixed electrical installations and operating equipment are to be carried out every 4 years. The tests may be carried out only by a qualified electrician.
The test must be performed in accordance with the applicable electrical engineering regulations.

As a fixed installation, the supply pipeline for liquefied gas is to be tested at least every 4 years for leaks, proper condition, function and installation according to BGV D34. The pressure regulator, hoses and hose-rupture protection valves are to be replaced after 8 years.

8.2.4 Checks at least every 12 years

According to DVGW Worksheet 600 „Technical Rules for Gas Installations", a serviceability test is to be performed and documented by an approved contract installation company (VIU) every 12 years.

9 SPARE PARTS AND PROTOTYPE TEST REPORT

9.1 Spare Parts **90**

9.2 Prototype test report **90**

Spare Parts and Prototype Test Report

9.1 Spare Parts

Only spare parts authorized by Wesemann GmbH may be used.
Any use of unauthorized spare parts invalidates the agreed warranty claim.
Spare parts can be ordered from the address on the back of this user manual or contact our sales representative.

9.2 Prototype test report

The prototype test report is a report based on the result of a prototype test. The basis is one or more representative samples of the fume cupboard. You can request the prototype test report from the address on the back of this user manual.

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