Technical documentation

ULT 200.1

LASER FUMES

DUST AND SMOKE

SOLDERING FUMES

ODORS, GASES, AND VAPORS

CLEANING INDUSTRIAL GASES

NEW EMISSIONS

WELDING FUMES

OIL AND EMULSION MISTS

COMPLETE SOLUTIONS

Version: 010

Date of issue: 06/2018

ULT UMWELT - LUFTTECHNIK

Extraction. Filtration. Persistence.

Annexes:

- Drawing, device size M
- Drawing, device size L
- M12 plan of interfaces

Series description

The **ULT 200.1 product range** is suited to collecting and filtering contaminants and impurities in the form of dusts and gases. There are suitable multi-level filtering systems **for every possible industrial application** and the most diverse compositions of harmful or unwanted substances.

The contaminants and impurities generated during the customer's process are collected directly from the point of origin via the collection elements and filtered by the ULT 200.1 devices. **High precipitation rates** are achieved thanks to the targeted combination of the available single filters. The underlying filter technology uses the principles of particle separation for dust and the principles of adsorption and chemisorption for gaseous substances.

Thanks to the high degree of cleaning, the filtered clean gas can then be returned to the working area (**recirculated-air** operation). This avoids any loss of heat. If recirculated-air operation is not wanted, outgoing air operation can be implemented by simply assembling a pipe spigot which is included in the scope of delivery for the device. The filtered clean gas can then flow into an **exhaust air extraction** system.

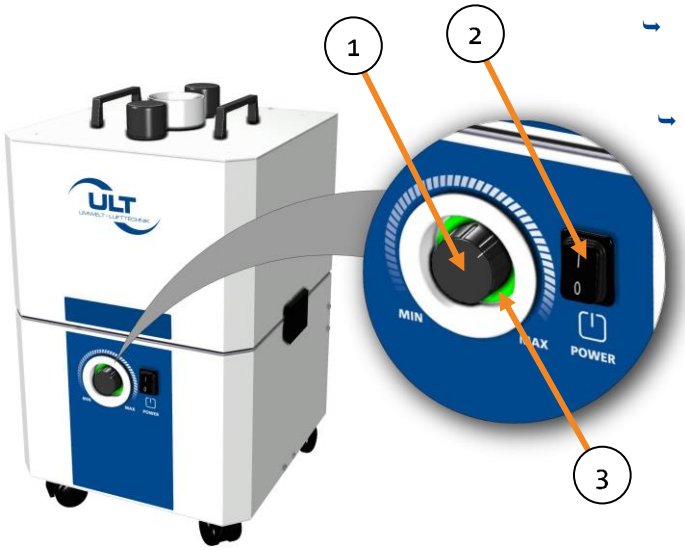
The ULT 200.1 devices can be perfectly combined with a **diverse range of accessories**. The right accessories can be selected according to the customer requirements.

Features of the ULT 200.1 extraction and filtration unit

- with an **exchangeable filter system** – low-contamination removal
- **low replacement filter costs** thanks to the multi-level filter system with competitively priced prefilter elements with increased absorption capabilities
- suitable for a **broad range of applications**: Use of a blower compatible with large negative pressures and large volumetric flows
- **very low energy consumption** thanks to energy-efficient electronics
- **global use** possible thanks to electrical equipment supplied: operates at 110 – 240 V
- all electrical components in versions compliant with both UL and CE
- integrated sound insulation ensures that the device operates **extremely quietly**
- rugged sheet steel housing with RAL7035 light gray **powder coating**
- **mobile device** with castors
- all interfaces on the back
- operating and display elements on the front

Equipment

➥ front-side operating panel:



(1) Potentiometer

Selectable assignments:

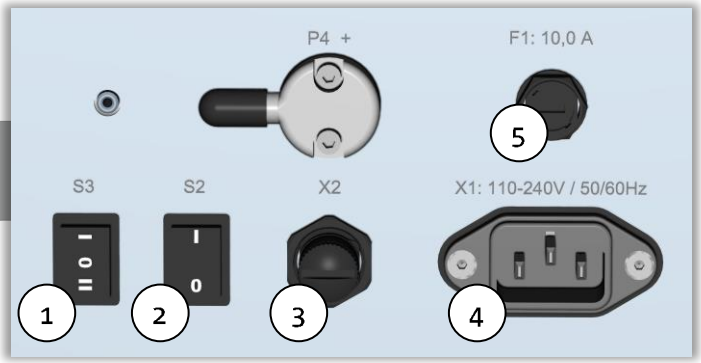
- ➥ Direct control of the blower speed: Random working point can be permanently set within the limits of the maximum blower output
- ➥ Negative pressure stabilization: Automatic compensation for dynamic flow conditions (increasing filter clogging, changing number of recording points in operation), two modes selectable:
  - Medium-pressure mode: Control range between 150 and 1,000 Pa
  - High-pressure mode: Control range between 150 and 5,000 Pa

(2) On/Off switch

(3) LED status ring

- ➥ Machine status display:
  - Standby operation via remote control (white)
  - Malfunction-free operation (green)
  - Malfunction caused by fault condition (flashing orange/red)
- ➥ Loaded particle filter indicator:
  - Particulate filter almost saturated (orange)
  - Particulate filter saturated (red)

➥ interfaces on the rear:

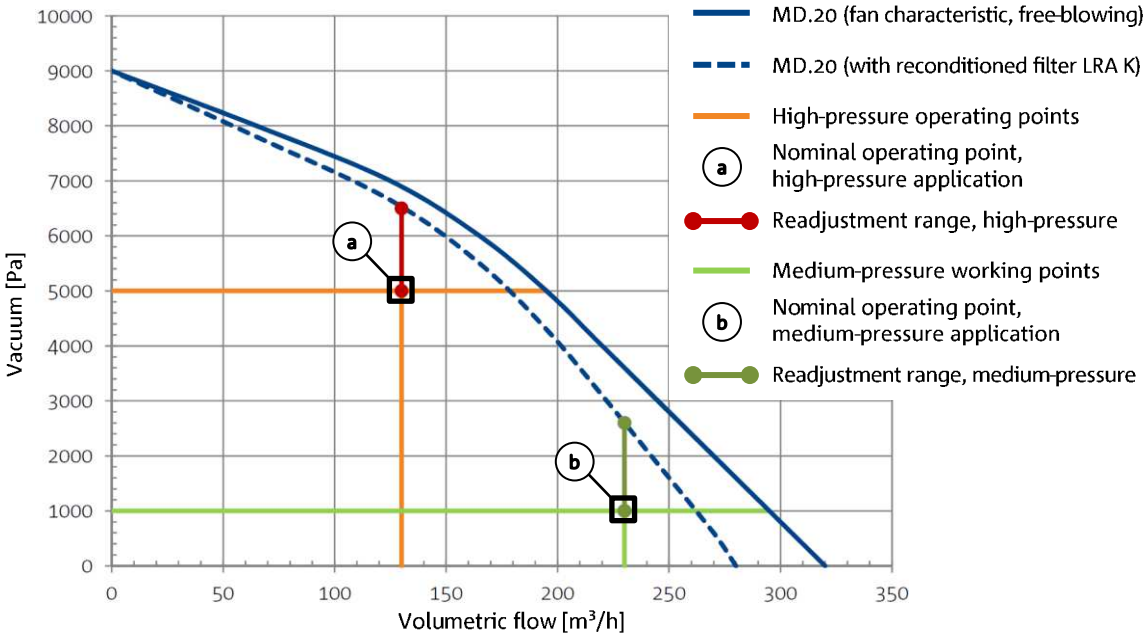


(1) Selection switch, negative pressure stabilization
(2) Selection switch, remote control
(3) Interface M12 (see attached plan of interfaces)
(4) Mains connection socket
(5) Fuse for mains voltage

Technical data ULT 200.1 MD.20

Parameter	Einheit		
Volumetric flow, max.	m^3 / h	320	
Vacuum max.	Pa	9,000	
Rated operating points	m^3/h @ Pa	130 @ 5,000 (a: High-pressure application) 230 @ 1,000 (b: Medium-pressure application)	
Protection rating	IP	54	
Noise level (@ 50 - 100% air throughput)	dB(A)	47 - 58	
Vacuum generator type		EC blower	
Rated voltage	VAC	1~110 ... 240	
Rated frequency	Hz	50/60	
		Voltage level 120 V	Voltage level 230 V
Motor rating	kW	0,9	0,8
Rated current	A	9,2	5,3
Air flow controller		yes	
Loaded particle filter indicator	optical	yes	
M12 interface		yes	
		Configuration M	Configuration L
Dimensions (Width x Depth x Height)	mm	390 x 400 x 620	390 x 400 x 775
Weight (without filter)	kg	approx. 21	approx. 23
Max. filter weight	kg	approx. 15	approx. 25
Air intake versions:	Spigot	1 x ∅ 80 mm and 2 x ∅ 50 mm available on the roof	
	Connection options	Hose connection or optional arm assembly with console	
Air outlet:		Adjustable exhaust grille / exhaust spigot Ø 100 mm, both included in scope of delivery for device	
	position	Device rear, bottom	
Mains power cable	m	3,0 (country-specific versions selectable)	

Characteristics and operating modes:



Application ACD – Odor, Gas and Vapors

Areas of application

- Adhesive bonding, pre-treat, varnishing/printing, cleaning, laminating, casting

Functional principle:

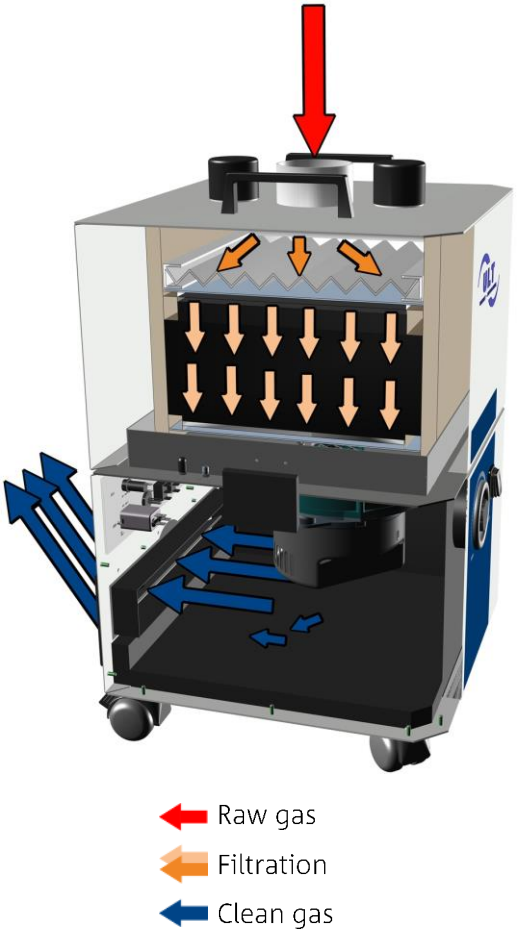
An EC blower with a high pressure reserve generates a volumetric flow suitable for the application on the clean-gas side of the filter. The volumetric flow can be controlled individually and steplessly. In this way, the pollutant-laden raw gas is extracted in a reliable manner.

The **coarse-dust particles** are precipitated and held back in the first filter stage. The precipitation (adsorption) of **gaseous and vaporous** air contaminations takes place in the activated carbon filter.

The filter effect of the activated carbon is based on **adsorption**, i.e. on the depositing of (gaseous) substances on the surface of the activated carbon. In general, no chemical changes of the adsorbed substance take place in physical adsorption. The filter construction is adapted to the nominal volumetric flow of the devices so that the contact period is sufficient for achieving a good adsorption response.

Activated carbon is not suitable as an adsorption medium in the presence of a multitude of gases and gaseous mixtures. The **chemisorption** adsorption process can be used in such applications, either as an alternative or as a supplement. A chemical alteration of the substances to be precipitated takes place in this connection.

When this procedure is used, the filter is filled with a mixture of activated carbon and chemisorption medium or the activated carbon is replaced in its entirety by the chemisorption medium.



Thanks to the high degree of cleaning, the **filtered clean gas** can then be returned to the working area (**recirculated-air** operation). This avoids any loss of heat.

Recirculated air operation is not permitted for the suctioning and filtration of carcinogenic, mutagenic or reprotoxic substances. The **exhaust air spigot** that is included in the scope of delivery for the device is to be mounted on the blow-out side in such cases. The filtered clean gas must be channeled through a connected pipeline into a central discharge air system.

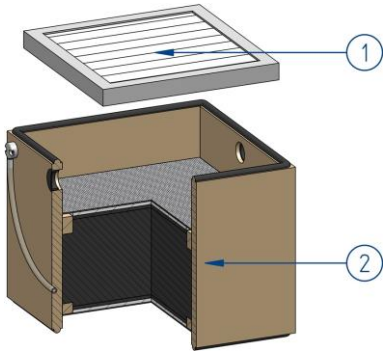
Device variants:

A variety of filter combinations is available for the suctioning and filtration of gases, odors and vapors. The available filter materials exhibit different suitabilities for precipitation, depending on the contaminant present. For expert advice for the selection of the correct filter medium, please contact your local dealer or ULT AG directly using ult@ult.de.

In accordance with customer-specific requirement, the ULT 200.1 devices can be equipped with the following filter attachments:

ACD 200.1 MD.20 A6

Part number for complete device: ACD 0200.1-MD.20.50.1001



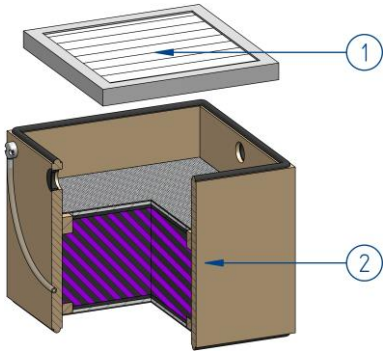
Filter for organic gases:

Main filter module A6

(1)	Z-Line filter G4 Filter class: G4 filter for coarse dust acc. to DIN EN 779
(2)	Adsorption filter cassette A6 Filter medium: Activated carbon bed (6 kg)

optional filter set-up:

Part number of option: ULT 0200.1-Opt.10

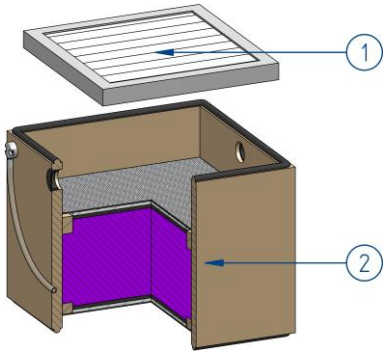


Filter for gas mixtures:

Main filter module AC7

(1)	Z-Line filter G4 Filter class: G4 filter for coarse dust acc. to DIN EN 779
(2)	Chemisorption filter cassette AC7 Filter medium: Granulate bed made of 50% activated carbon and 50% chemisorption medium (total 7 kg)

Part number of option: ULT 0200.1-Opt.11



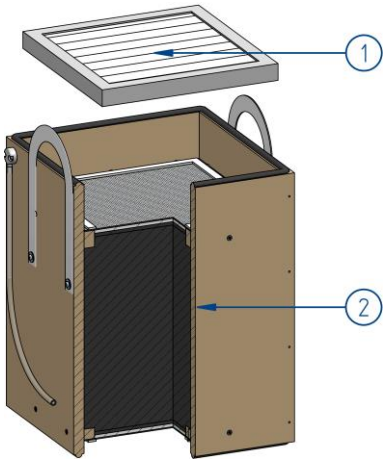
Filter for gaseous sulfur & nitrogen compounds:

Main filter module C11

(1)	Z-Line filter G4 Filter class: G4 filter for coarse dust acc. to DIN EN 779
(2)	Chemisorption filter cassette C11 Filter medium: Granulate bed made of 100% chemisorption medium (11 kg)

ACD 200.1 MD.20 A14

Part number for complete device: ACD 0200.1-MD.20.50.1006



Filter for organic gases:

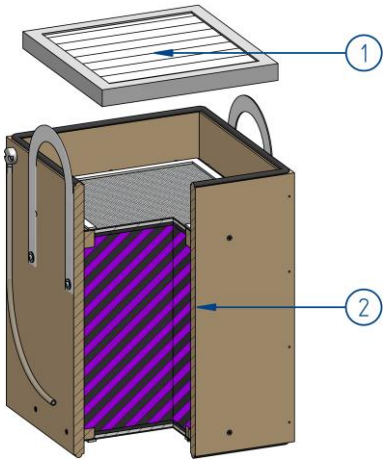
Main filter module A14

(1) Z-Line filter G4
Filter class: G4 filter for coarse dust acc. to DIN EN 779

(2) Adsorption filter cassette A14
Filter medium: Activated carbon bed (14 kg)

optional filter set-up:

Part number of option: ULT 0200.1-Opt.12



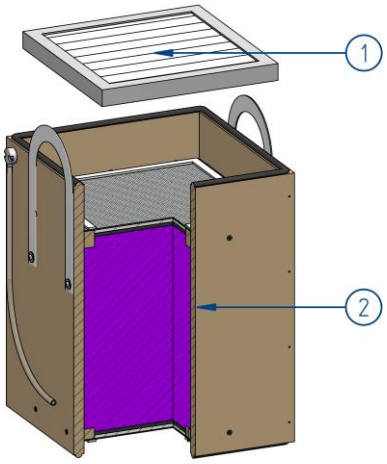
Filter for gas mixtures:

Main filter module AC17

(1) Z-Line filter G4
Filter class: G4 filter for coarse dust acc. to DIN EN 779

(2) Chemisorption filter cassette AC17
Filter medium: Granulate bed made of 50% activated carbon and 50% chemisorption medium (total 17 kg)

Part number of option: ULT 0200.1-Opt.13



Filter for gaseous sulfur & nitrogen compounds:

Main filter module C20

(1) Z-Line filter G4
Filter class: G4 filter for coarse dust acc. to DIN EN 779

(2) Chemisorption filter cassette C20
Filter medium: Granulate bed made of 100% chemisorption medium (20 kg)

Application LRA – Soldering smoke

Areas of application

- Manual soldering, robot soldering, soldering systems at special workstations

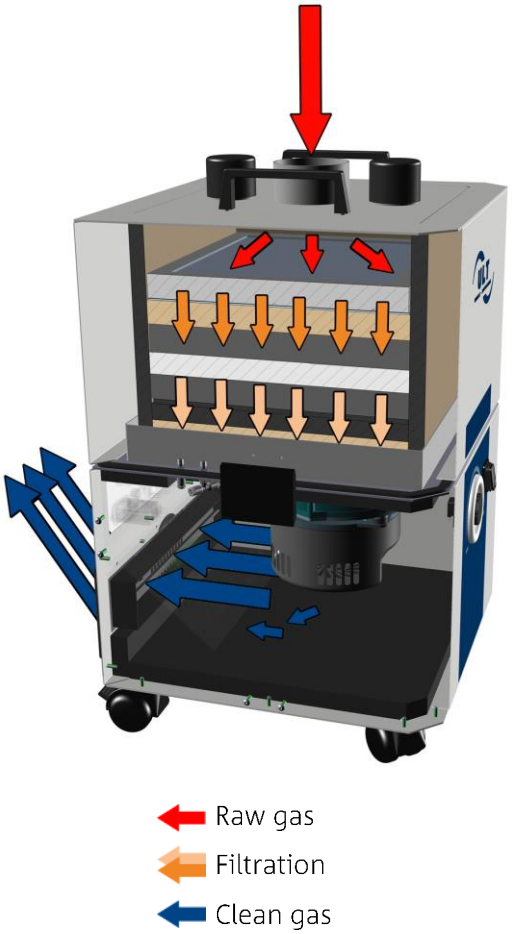
Functional principle:

An EC blower with a high pressure reserve generates a volumetric flow suitable for the application on the clean-gas side of the filter. The volumetric flow can be controlled individually and steplessly. In this way, the pollutant-laden raw gas is extracted in a reliable manner.

When soldering work is performed, **soldering smoke** forms out of vaporizing flux, small quantities of solder and gas-emitting substances from working circuit boards and components. This is comprised of a mixture of adhesive aerosols, particles and gases that must be removed from the raw gas.

The filter arrangement used is specially designed for this purpose. An upstream expanded metal filter holds back cooled, **sticky aerosols** in the suction line and prevents premature clogging of the subsequent filter elements.

The **particles** contained in the soldering smoke are precipitated in a multi-stage storage filter system. Thanks to their **depth penetration**, the filter mats used are particularly suitable for the precipitation of soldering smokes A majority of the particles contained in soldering smoke and the aerosols still remaining in the raw gas are bonded at this stage. Extremely fine suspended substances are held back by the HEPA H13 filter in the combination filter cassette H13A. This guarantees a **particle precipitation rate of 99.95%**.



The precipitation (adsorption) of **gaseous and vaporous** air contaminations takes place in the activated carbon bed of the combined filter cassette H13A.

The filter effect of the activated carbon is based on **adsorption**, i.e. on the depositing of (gaseous) substances on the surface of the activated carbon. In general, no chemical changes of the adsorbed substance take place in physical adsorption. The nominal volumetric flow of the devices is based on the filter construction, the contact period is oriented to a medium adsorption response.

Thanks to the high degree of cleaning, the **filtered clean gas** can then be returned to the working area (**recirculated-air** operation). This avoids any loss of heat.

Recirculated air operation is not permitted for the suctioning and filtration of carcinogenic, mutagenic or reprotoxic substances. The **exhaust air spigot** that is included in the scope of delivery for the device is to be mounted on the blow-out side in such cases. The filtered clean gas must be channeled through a connected pipeline into a central discharge air system.

SOLDERING FUMES

Device variants:

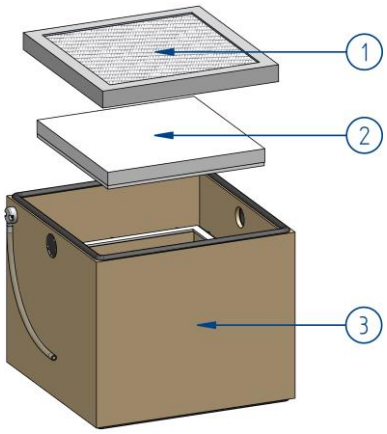
The ULT 200.1 devices can be equipped with the following filter arrangement for suctioning and filtering harmful gas/dust mixtures from soldering processes:

LRA 200.1 MD.20 K

Part number for complete device: LRA 0200.1-MD.20.50.6006

Filter set-up for soldering smoke:

Main filter module K



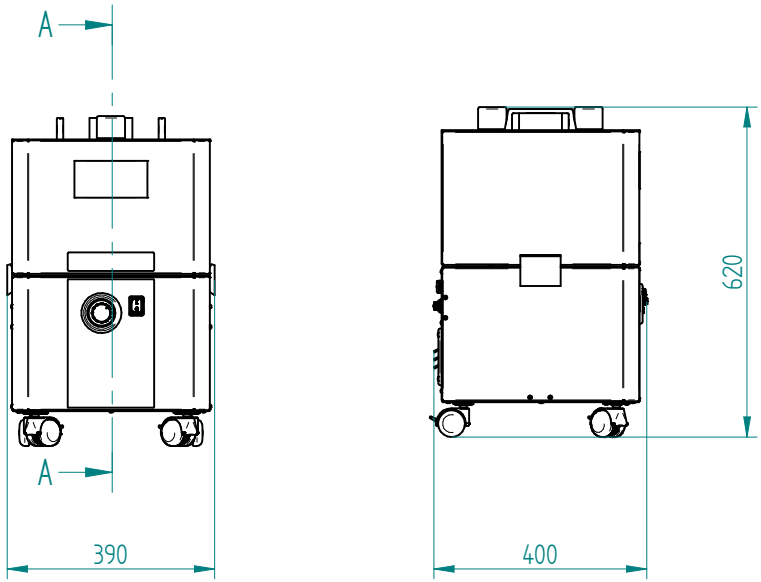
(1) Expanded metal prefilter
Metal mesh, condensation filter, spark protection

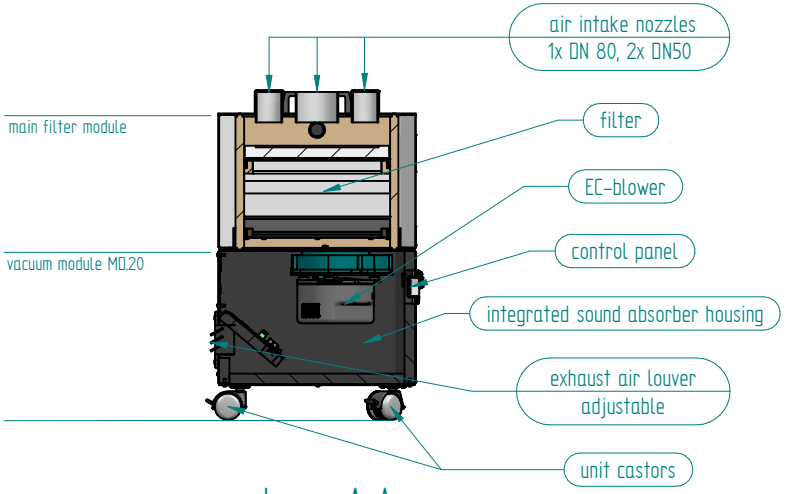
(2) Filter mats M5/F7
Filter classes: M5 medium dust filter and
F7 fine dust filter acc. to DIN EN 779

(3) combined filter cassette H13A

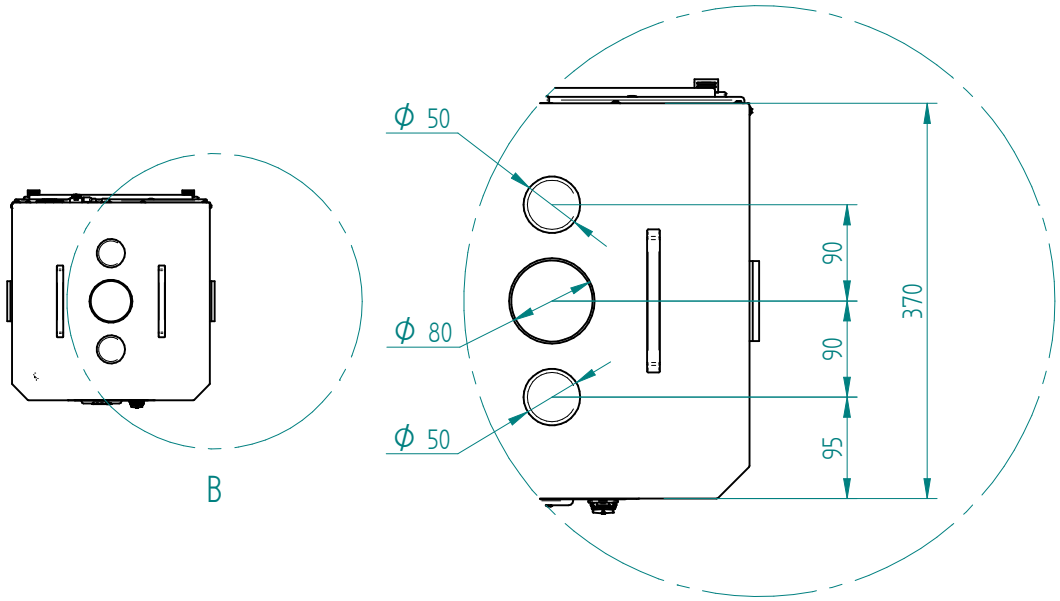
(3.1) Particulate filter H13
Filter class: H13 HEPA filter, suspended matter filter to DIN EN 1822

(3.2) Adsorption filter A
Filter medium: Activated carbon bed

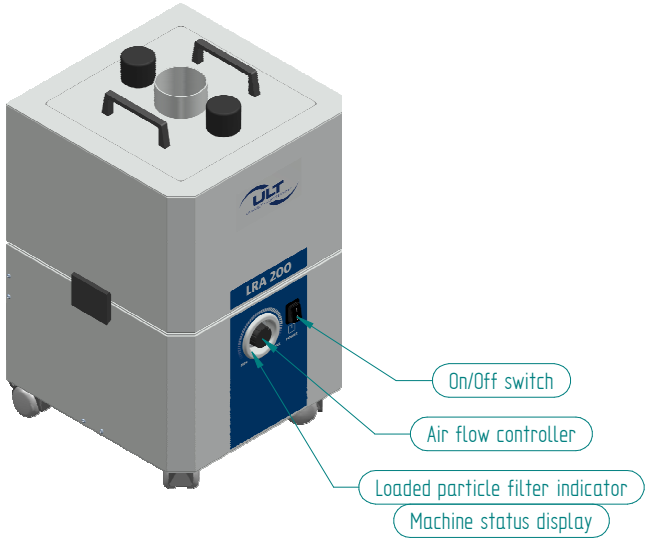




cutaway A-A



DETAIL B



ULT AG
Am Göpelteich 1
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designation: ULT 200.1 MD.20 M

issue	revision	day	name
001	base	21.02.18	JSACZ

	date	name
2018		
edit.	21.02.	JSACZ
veri.		
Norm		

drawing number: 2017050500003

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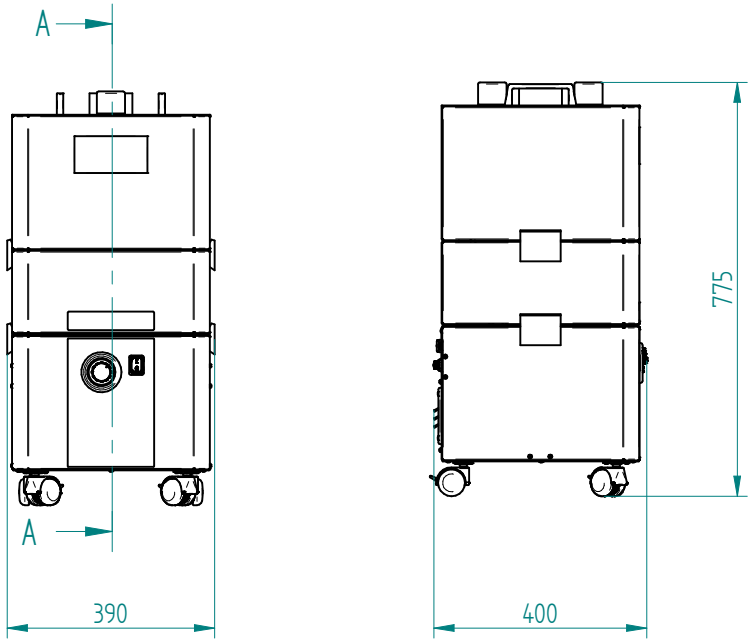
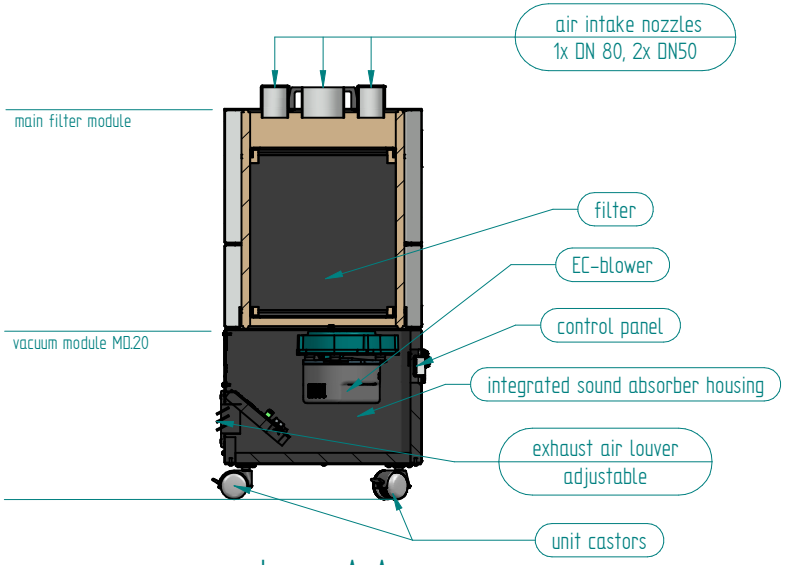
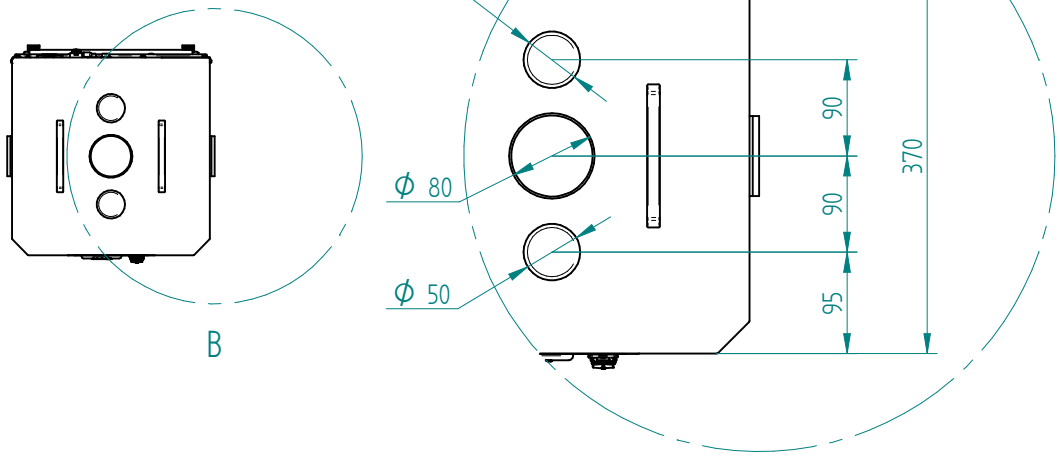
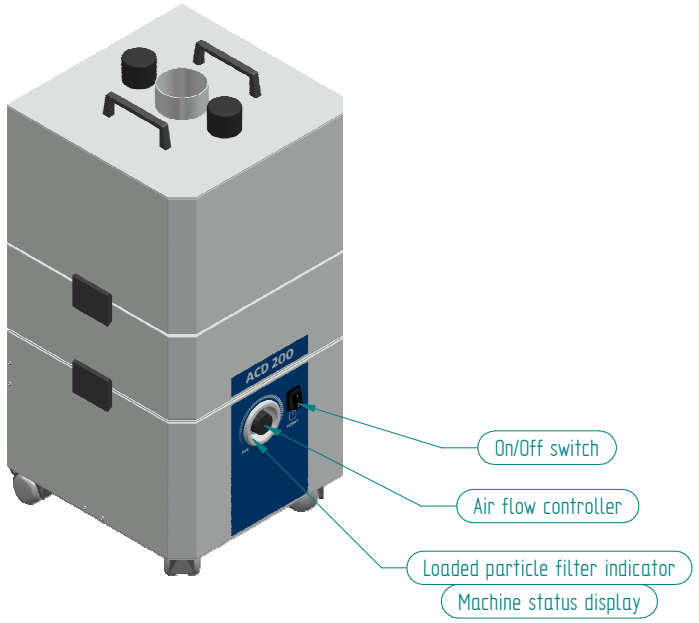




cutaway A-A



DETAIL B



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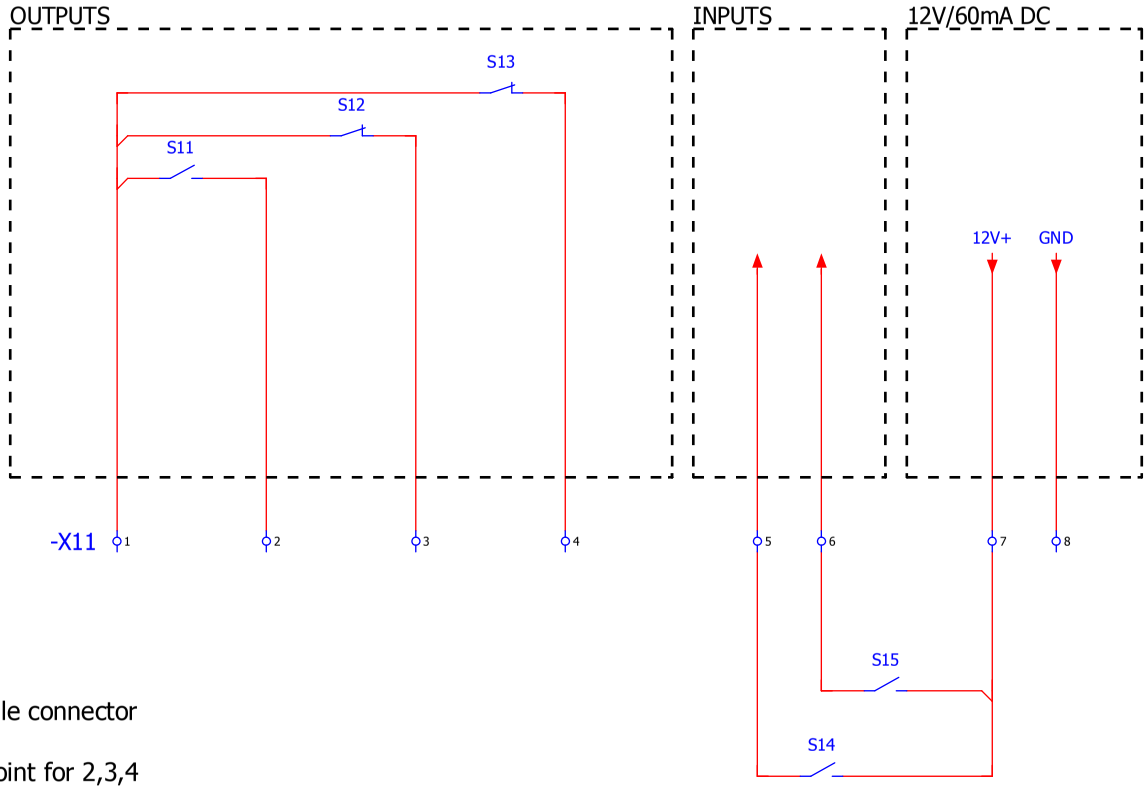

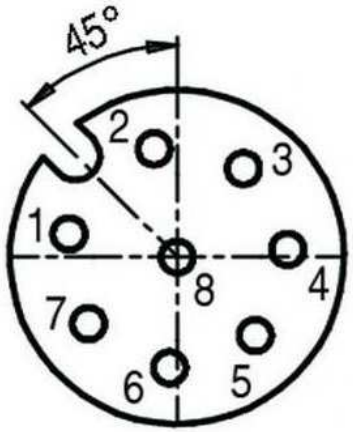

-X11 M12 8-pole female connector

1: Common contact point for 2,3,4
2: Potential free contact 30V/100mA - NO - operation message (1)
3: Potential free contact 30V/100mA - NC - filter nearly full (1)
4: Potential free contact 30V/100mA - NC - filter completely full (1)

5: Remote control input 12V/5mA (2)
6: Filter cleaning trigger 12V/5mA (2)

7: 12V output, maximal rating 60mA
8: GND

Note (1): Signals are only to be evaluted when the unit is connected to supply voltage and the main switch is ON
Note (2): Can be triggered from 7 (represented by S14, S15) or with external voltage up to 24V (GND of the external voltage source has to be connected to contact 8)