

ULT 160.1



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: 001

Date of issue: 03/2019



Extraction. Filtration. Persistence.



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Series description

The **ULT 160.1 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 160.1 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 principle of adsorption 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.

The ULT 160.1 devices can be perfectly combined with a **diverse range of accessories**. The right accessories can be selected according to the customer requirements.

Features ULT 160.1 extraction and filtration unit

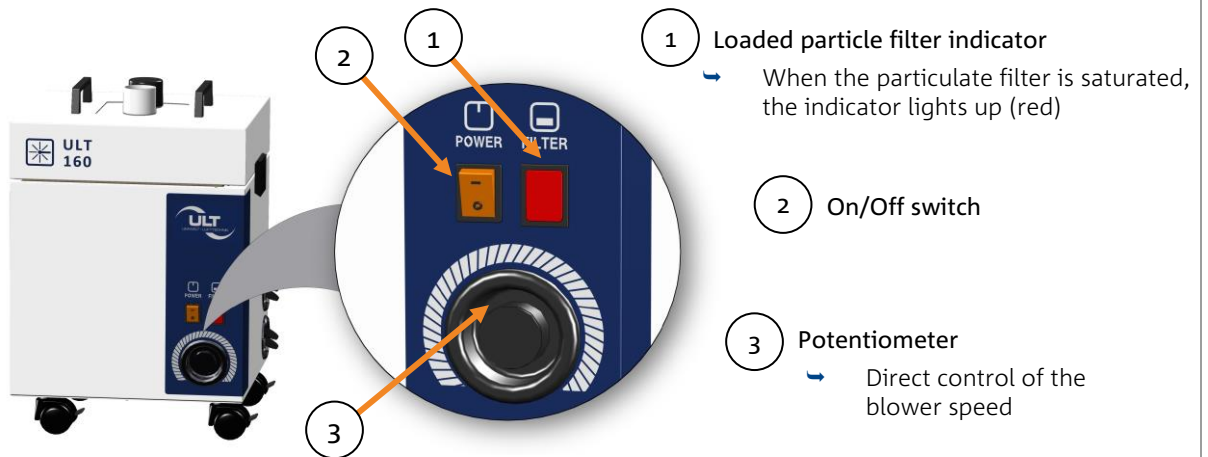
- ➔ with an **exchangeable filter system** – low-contamination removal
- ➔ **low replacement filter costs** thanks to the multi-level filter system with competitively priced prefilter elements with increased absorption capabilities
- ➔ **very low energy consumption** thanks to energy-efficient electronics
- ➔ The electrical equipment provided enables **worldwide use**: operable at 230 V (MD.11) or at 100 - 120 V (MD.11b)
- ➔ all electrical components are available in UL and CE-compliant versions
- ➔ integrated sound insulation ensures that the device **operates extremely quietly**
- ➔ exhaust position right or left freely selectable
- ➔ robust sheet steel housing with **powder coating** RAL7035 light gray
- ➔ device optionally **mobile** with wheels or **fixed** equipped with vibration dampers
- ➔ standard extraction openings 2x Ø50; optionally replaceable with assembly console for extraction arm Alsident® S50
- ➔ all interfaces on the back
- ➔ operating and display elements on the front



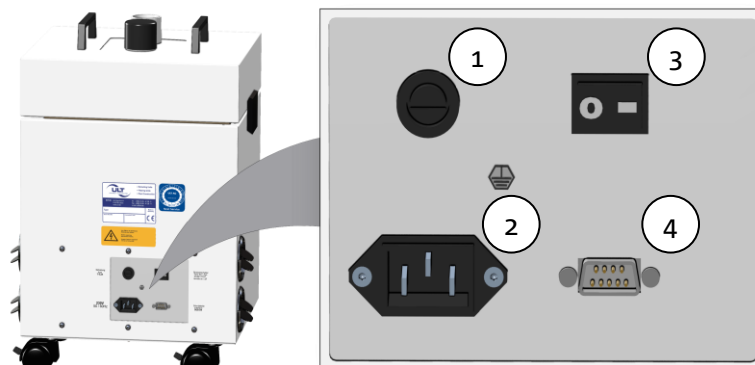


Equipment

→ front-side operating panel:



→ interfaces on the rear:

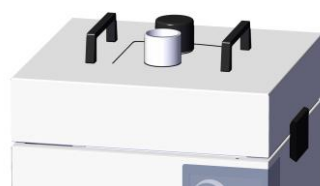


- (1) Fuse for mains voltage
- (2) Mains connection socket
- (3) Selection switch, remote control – only in combination with SUB D9
- (4) Interface SUB D9 – OPTIONAL (see interface plan for setup)

→ Suction versions:

Standard configuration:
2x intake nozzles \varnothing 50 mm

Option:
(Art. no.: ULT 0160.1-Opt.04)
console for extraction arm assembly
1x Alsident® S50

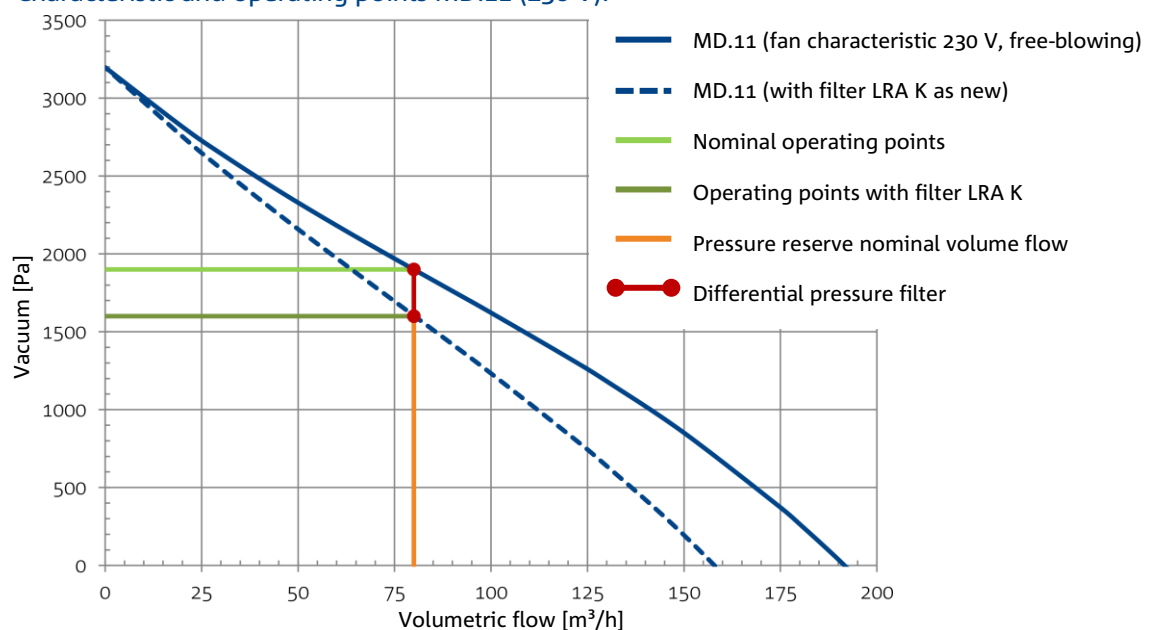




Technical data ULT 160.1 MD.11 (230 V) / MD.11b (100 - 120 V)

Parameter		Unit	MD.11	MD.11b
Volumetric flow, max.		m ³ / h	190	150 (100 V) - 160 (120 V)
Vacuum max.		Pa	3,200	2,500 (100 V) - 2,700 (120 V)
Rated operating point		m ³ /h @ Pa	80 @ 1,900	65 @ 1,300 (100 V) 80 @ 1,400 (120 V)
Protection rating		IP	54	54
Noise level (@ 50 - 100% air throughput)		dB(A)	49 - 54	49 - 54
Vacuum generator type			EC blower	EC blower
Rated voltage		VAC	1~230	1~100 - 120
Rated frequency		Hz	50/60	50/60
Motor rating		kW	0.15	0.15
Rated current		A	1.0	2.0
Air flow controller				yes
Loaded particle filter indicator		optical		yes
Interface SUB D9				optional
Dimensions	Width	mm	405	
	Depth	mm	355	
	Height	mm	545 (with wheels) / 492 (with feet)	
Weight (without filter)		kg	approx. 21	
Max. filter weight		kg	approx. 15	
Air intake versions:			Standard: 2x Ø 50 mm nozzles Option: 1x console with Alsident® S50 flange	
Connection options			Hose connection or optional Arm assembly on console	
Air outlet:			4 adjustable exhaust nozzles	
position			On the bottom on both sides	
Mains power cable		m	3.0 (country-specific versions selectable)	

Characteristic and operating points MD.11 (230 V):





Application ACD – Odor, Gas and Vapors

Areas of application

Adhesive Bonding | Pre-treat | Varnishing/Printing | Cleaning | Laminating | Casting

Functional principle:

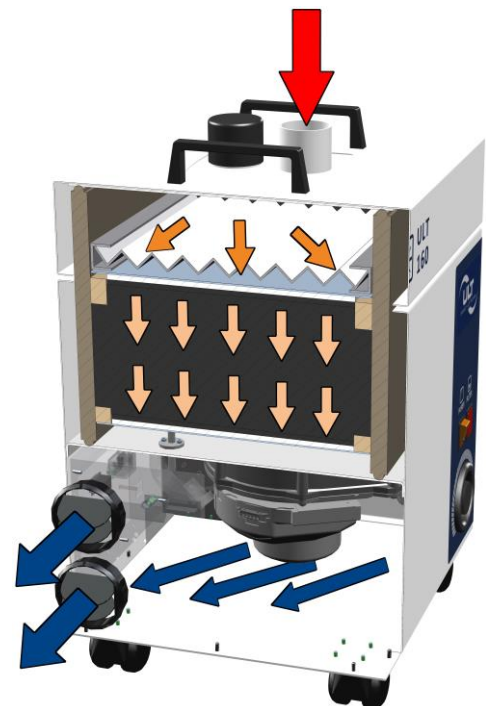
An EC blower with a high pressure reserve generates a volumetric flow suitable for the application on the clean-gas side of the filter. The volumetric flow can be controlled individually and steplessly. In this way, the pollutant-laden raw gas is extracted in a reliable manner.




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 charcoal 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.

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.



-  Raw gas
-  Filtration
-  Clean gas



Device variants:

The ULT 160.1 devices can be equipped with the following filter set-up for suctioning and filtering gaseous and vaporous air contaminations:

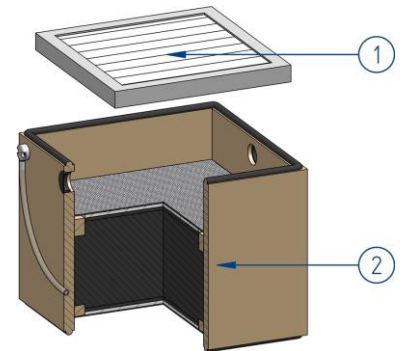
ACD 160.1 A6

Reference code filter set-up: ACD 0160.1-MD.xx.xx.1001

Filter set-up for organic gases:

Main filter module A6

- (1) Z-Line filter G4
Filter class: ISO Coarse 90% according to ISO 16890
- (2) Adsorption filter cassette A6
Filter medium: Activated carbon bed (6 kg)





Application ASD – dust and smoke

Areas of application

Grinding | Engraving | Polishing | Filling and dosing processes | Restoration work

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. In production processes in which **powder materials** are processed or materials are sawed, milled or ground, dust contaminates the working area. In addition, **mechanical processes** can generate smoke by heating the processed materials. Dust and smoke are harmful to health and affect the quality of production processes. For this reason, these pollutants must be removed from the work area.

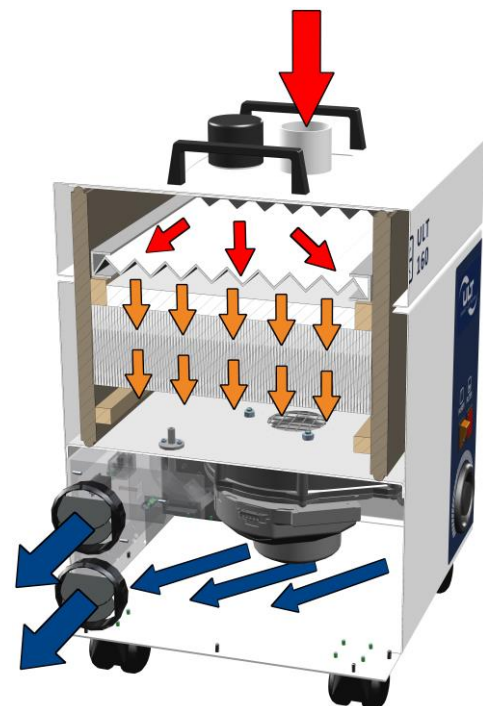
The filter set-up used is specially designed for this purpose. An upstream Z-Line filter retains coarse dust particles. The **particles** contained in the raw gas are precipitated in a multi-stage storage filter system. Thanks to their **depth penetration**, the filter mats used are particularly suitable for the precipitation of a wide spectrum of particles and for cooled smoke constituents.

The prefilter elements prevent premature clogging of the downstream H13 main filter element. Regularly changing the prefilter elements at shorter intervals significantly extends the functionality of the main filter.

Extremely fine suspended substances are held back by the High Efficiency Particulate Air filter H13 in the particle filter cassette H13. This guarantees a **precipitation rate of 99.95%**.

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.



- ← Raw gas
- ← Filtration
- ← Clean gas



Device variants:

The ULT 160.1 devices can be equipped with the following filter set-up for suctioning and filtering dust and smoke air contaminations:

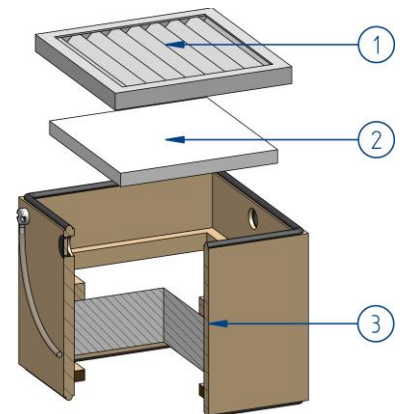
ASD 160.1 H

Reference code filter set-up: ASD 0160.1-MD.xx.xx.3001

Filter set-up for dust and smoke:

Main filter module H

- | | | |
|-----|------------------------------|---|
| (1) | Z-Line filter G4 | Filter class: ISO Coarse 90% according to ISO 16890 |
| (2) | Filter mat M5 | Filter class: ISO Coarse 85% according to ISO 16890 |
| (3) | Particle filter cassette H13 | Filter class: H13 HEPA filter, suspended matter filter to DIN EN 1822 |





Application LAS – laser smoke

Areas of application

Laser Cutting | Laser Marking | Laser Structuring | Laser Engraving

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 versatile work processes in which lasers are used generate **laser smoke**. This toxic, corrosive mixture of aerosol, gas and nanoparticles poses a health hazard and adversely affects the product and process quality. Depending on the process, very different precipitating mixtures of substances can be created, which must be removed from the raw gas.

The filter set-up used is specially designed for this purpose. An upstream filter combination retains **aerosols and particles** and prevents premature clogging of the downstream H13 main filter element.

Alternatively, a prefilter set-up with an **upstream expanded metal filter** is available. This can be cleaned in an industrial washer, making it reusable. Regularly changing the prefilter elements at shorter intervals significantly extends the functionality of the main filter.

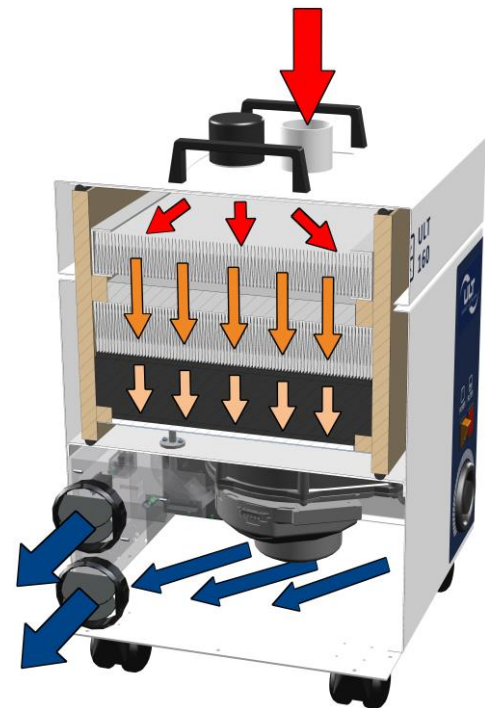
Thanks to their **depth penetration**, the prefilters used are particularly suitable for the precipitation of laser smokes. A majority of the particles contained in the laser smoke are trapped at this stage. Extremely fine suspended substances are held back by the High Efficiency Particulate Air filter H13 in the combined filter cassette H13A. This guarantees a **particle precipitation rate of 99.95%**.

The precipitation (adsorption) of **gaseous and vaporous** air contamination 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.



- Raw gas
- Filtration
- Clean gas



Device variants:

A variety of filter combinations is available for the suctioning and filtration of harmful gas/dust mixtures from laser machining processes. The precipitation effectiveness of the available filter combinations depends on the machining process used. For expert advice when choosing the correct filter combination, please contact your local dealer or ULT AG directly using ult@ult.de.

In accordance with customer-specific requirement, the ULT 160.1 devices can be equipped with the following filter set-ups:

LAS 160.1 K

Reference code filter set-up: LAS 0160.1-MD.xx.xx.6010

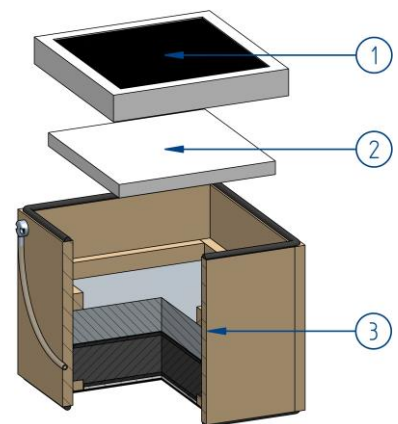
Filter set-up for laser smoke:

Main filter module K

- (1) Panel filter F9
Filter class: ISO ePM₁ 60% according to ISO 16890

- (2) Filter mat M5
Filter class: ISO Coarse 85% according to ISO 16890

- (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



LAS 160.1 SK

Reference code filter set-up: LAS 0160.1-MD.xx.xx.6018

Filter set-up for laser smoke with reusable expanded metal insert:

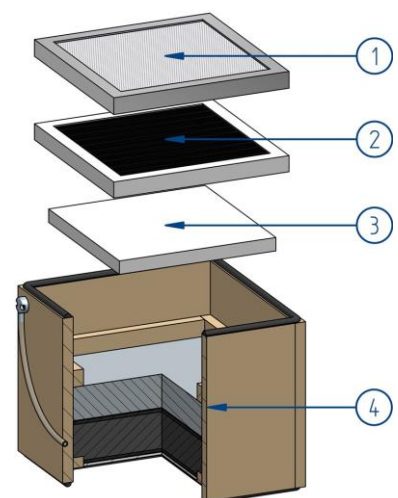
Main filter module SK

- (1) Expanded metal prefilter
Metal mesh, condensation filter

- (2) Panel filter F9
Filter class: ISO ePM₁ 60% according to ISO 16890

- (3) Filter mat M5
Filter class: ISO Coarse 85% according to ISO 16890

- (4) Combined filter cassette H13A
 - (4.1) Particulate filter H13
Filter class: H13 HEPA filter, suspended matter filter to DIN EN 1822
 - (4.2) Adsorption filter A
Filter medium: Activated carbon bed





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 set-up used is specially designed for this purpose. An upstream filter mat combination retains cooled, **sticky aerosols** in the suction line and prevents premature clogging of the subsequent H13 main filter element. Regularly changing the filter mat combination M5/F7 at shorter intervals significantly extends the functionality of the main filter.

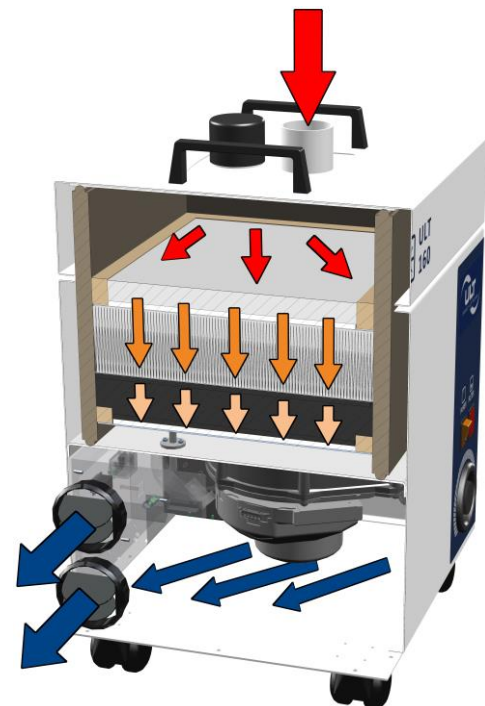
The **particles** contained in the soldering smoke are precipitated in a multi-stage storage filter system. Thanks to their **depth penetration**, the filter mats used are particularly suitable for the precipitation of soldering smokes. A majority of the particles contained in the soldering smoke are trapped at this stage. Extremely fine suspended substances are held back by the High Efficiency Particulate Air filter H13 in the combined 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.



-  Raw gas
-  Filtration
-  Clean gas



Device variants:

The ULT 160.1 devices can be equipped with the following filter set-up for suctioning and filtering harmful gas/dust mixtures from soldering processes:

LRA 160.1 K

Reference code filter set-up: LRA 0160.1-MD.xx.xx.6001

Filter set-up for soldering smoke:

Main filter module K

- (1) Filter mats M5/F7

Filter classes:

Filter mat M5: ISO Coarse 85% according to ISO 16890

Filter mat F7: ISO ePM₁₀ 75% according to ISO 16890

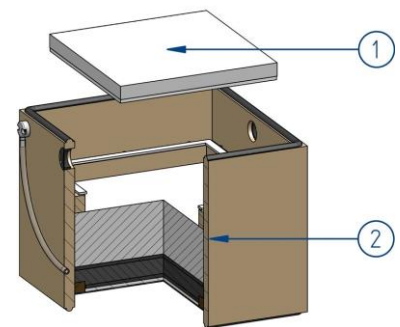
- (2) Combined filter cassette H13A

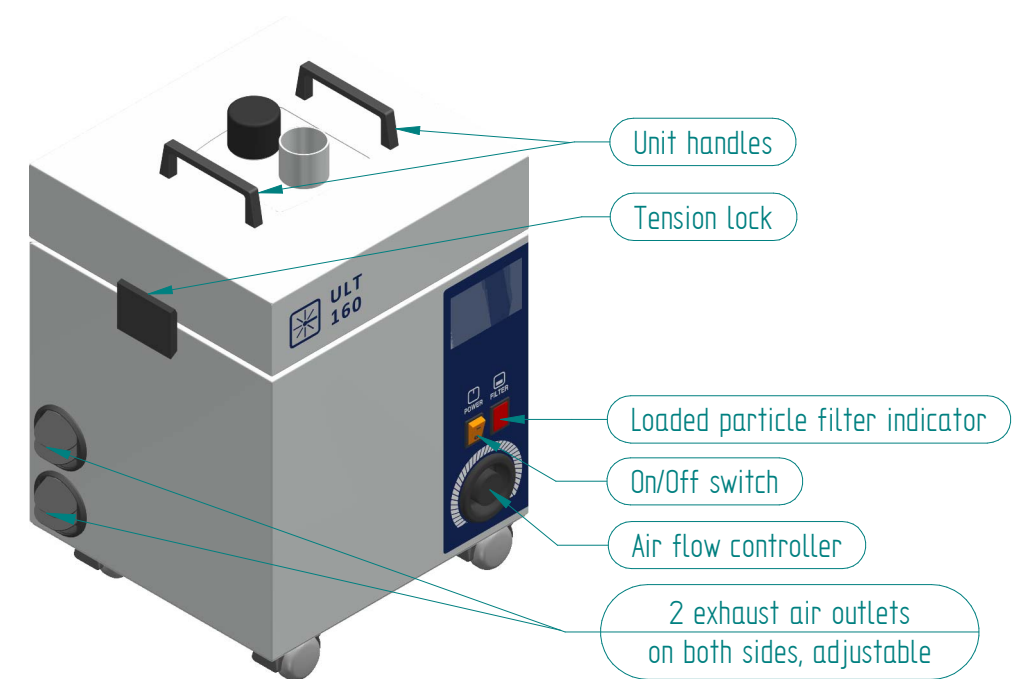
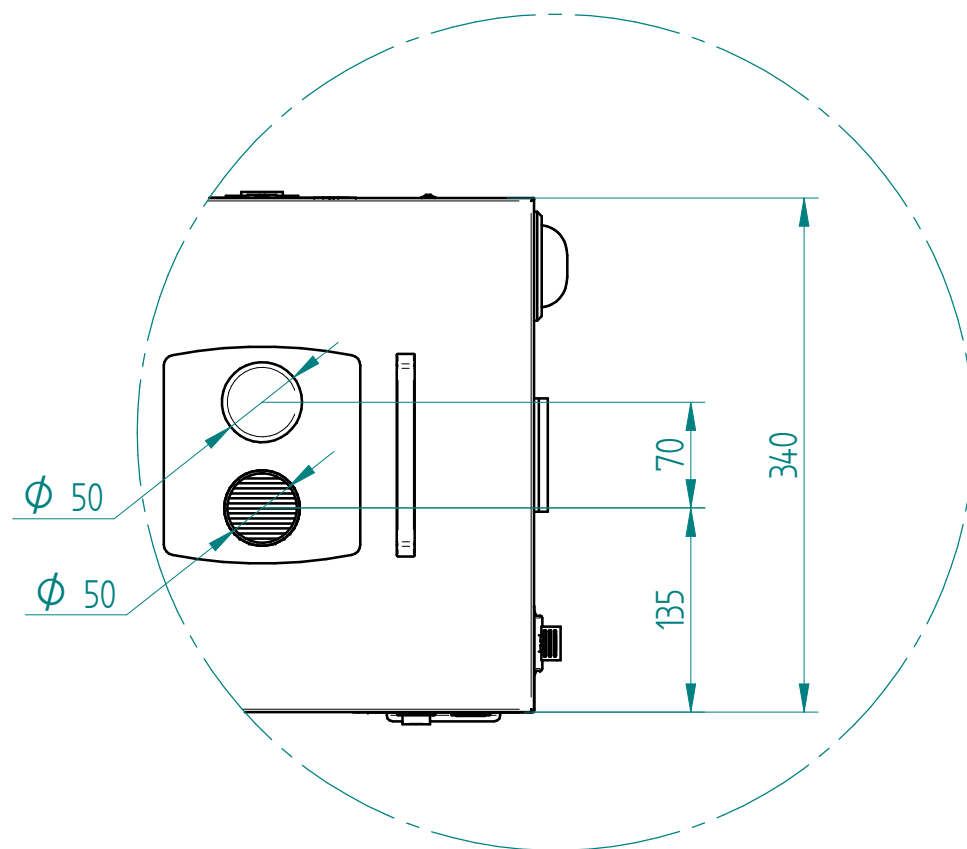
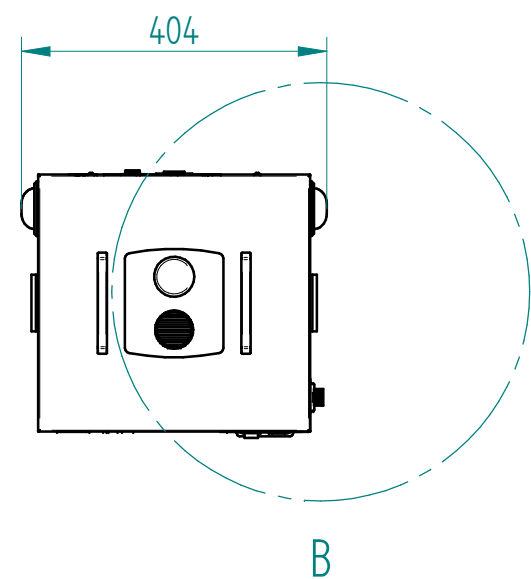
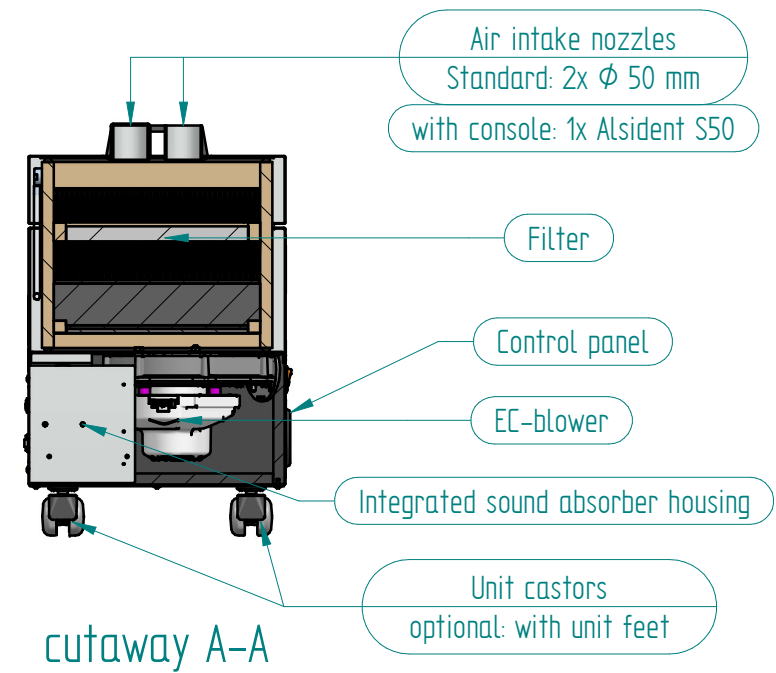
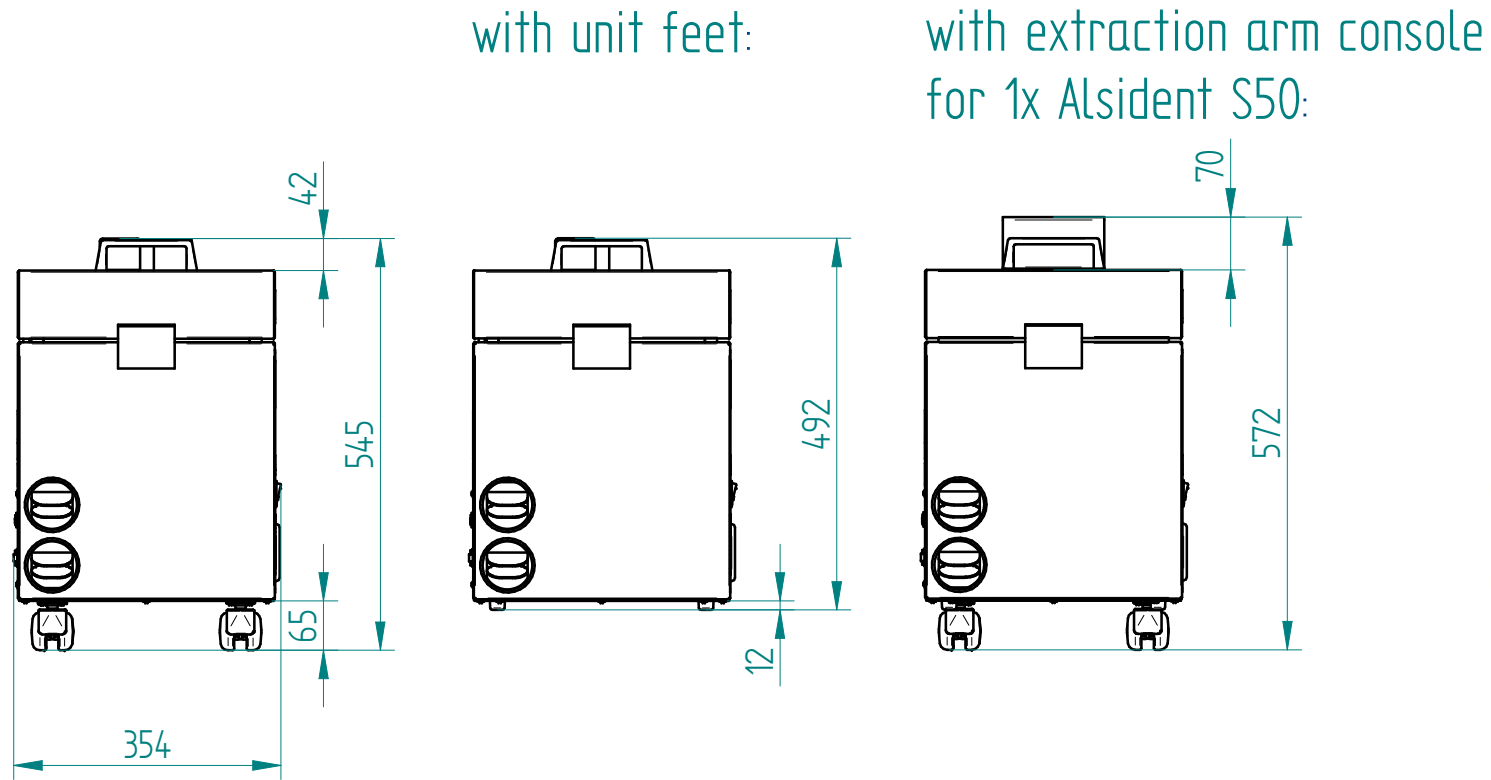
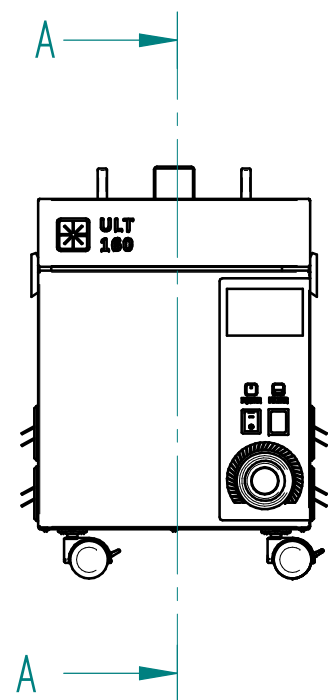
- (2.1) Particulate filter H13

Filter class: H13 HEPA filter, suspended matter filter to DIN EN 1822

- (2.2) Adsorption filter A

Filter medium: Activated carbon bed





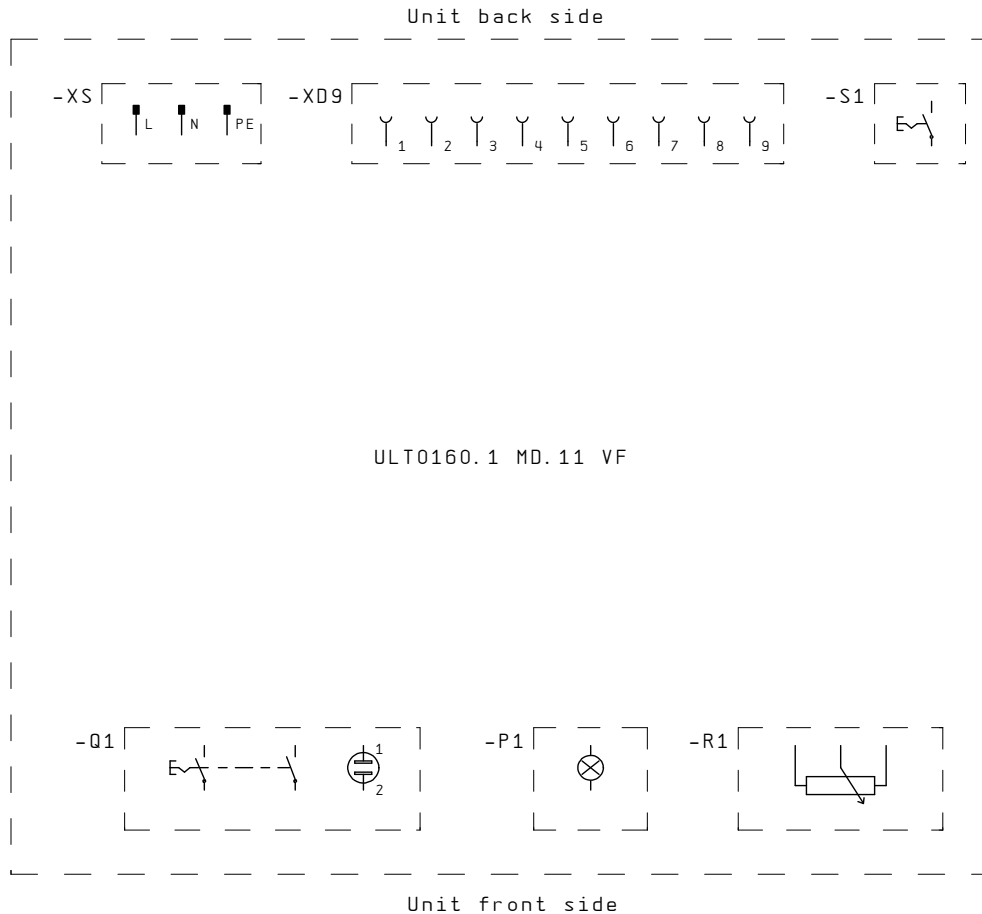
Weitere Maße sind dem 3D-Datensatz zu entnehmen. Für die Zeichnung behalten wir uns alle Rechte vor.
Other measure are to be taken from the 3D record. For the drawing we reserve ourselves all rights.



				ULT AG Am Göpelteich 1 D-02708 Lobau		designation: ULT 160.1	
001	base	01.03.19	JSACZ	2019	date	name	drawing number:
issue	revision	day	name	edit.	01.03.	JSACZ	ULT0160 00 301 100
				ver.	Norm		scale: 1 : 10

Interface overview

Schematic device view



Function description

-XS connector power supply 230 VAC / 50 Hz / 10 A

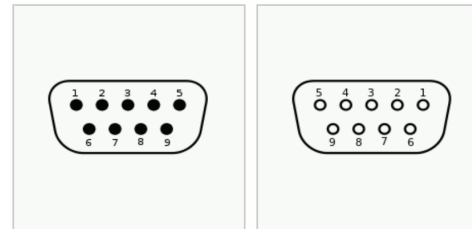
-XD9 connector Sub-D9 signal interface (female)

contact	function	potential	states	description
-XD9: 1/2	output	-	closed	unit in operation (flow okay)
			open	unit out of operation
-XD9: 3	output	GND	-	GND
-XD9: 4/5	output	-	closed	filter okay
			open	filter worn out
-XD9: 4/6	output	-	closed	filter worn out
			open	filter okay
-XD9: 8	output	+24 VDC	-	+24 VDC
-XD9: 9	input	-	+24 VDC	unit remote on
			GND	unit remote off

bridge switch possible

-S1 switch operation mode	I	remote
	0	local
-Q1 main switch	I	unit ON + indicator light (main=OK)
	0	unit OFF
-P1 indicator light filter	On	filter okay
	Off	filter worn out
-R1 potentiometer "volume flow"	0 %	volume flow min (left end stop)
	100 %	volume flow max (right end stop)

SubD9 pin assignment



DE-9
9-pol male

DE-9
9-pol female



ULT AG							Title	
Am Göpeöteich 1 02708 Löbau							ULT 160.1 230V MD.11VF Schnittstellen	
005	Schnittst	22.01.19	PS	2015	Date	Name	Drawing number	
002	Relais	03.06.16	PS	Drawn	27.10	PST	ULT 0160_60_010_100	
Issue	Revision	Date	Reviser	Checked			Sheet 2	
							3 Sheets	