

# **LAS300.81 – HFM054 – H-Ex**

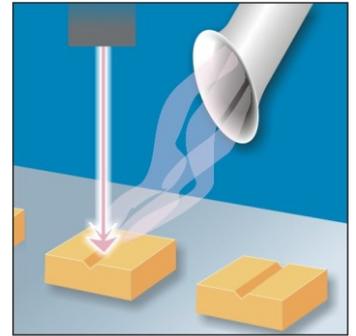
**Technical customer documentation**

Issue: 03/2022



# **ULT 300**

## *Modulsystem*



**Clean air, high-performance.**

**The LAS series, mobile extraction and filtration systems for laser smoke.**



**Air technology for environment and health protection**

# Technical documentation Extraction and filtration unit



## LAS300.81 – HFM054 – H-Ex

### Application and use



Laser smoke

The **LAS300 – HFM054** is suitable for capturing and filtering dry dusts that accumulate during laser processing operations. Toxic **dusts** that are released are captured by the collection elements immediately adjacent to their point of generation, and are filtered by the LAS300 – HFM054. The filter material of the filter elements ensure effective filtration of the various different particulate fractions in the dust. Pneumatic cleaning of the filter elements in the counterflow principle ensures that the main filter has a very long service life. In combination with a HEPA H14 secondary filter for suspended dust, the multiple air purification ensures a separation rate significantly higher than 99.995%.

The unit is a dust extractor of dust class “H”, which has been tested for the degree of permeability in accordance with DIN EN 60335-2-69, Annex AA, Section 22.AA.201.2. It is therefore suitable for separating and filtering dry, toxic dusts with the threshold limit value  $< 0.1 \text{ mg} \cdot \text{m}^{-3}$  and carcinogenic substances (§35 and §15a of the German Ordinance on Hazardous Substances) as well as dust containing pathogens.

The unit is suitable for separating and filtering combustible dusts of dust explosion class St 1 or explosive dust-air mixtures (with the exception of dusts with low minimum ignition energy  $\text{MIE} < 10 \text{ mJ}$ ), which are not self-igniting and not pyrophoric. The unit must not be set up and operated in “Ex” zones.

### Certifications:

“H” dust extractor of dust class H  
in accordance with DIN EN 60335-2-69, Annex AA,  
Section 22.AA.201.2

### Application examples

- ⇒ Laser cutting
- ⇒ Laser engraving
- ⇒ Laser forming

### ULT 300 stationary extraction and filtration unit

Stationary system with extraction modules, filter modules and exchangeable filter system, robust sheet steel housing, powder coating

- Vacuum module; RAL 7001 silver gray
- Powder coating; RAL 7035 light gray

### Filter system:

First filter stage:

Cartridge filter: Automatically cleanable filter elements for high pollutant levels

Second filter stage:

Storage filter: Filters that must be replaced when their absorption capacity is reached.



# Technical documentation

## Extraction and filtration unit



# LAS300.81 – HFM054 – H-Ex

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### **Filter technology:**

Main filter module HFM054

- (1) Filter cartridge: 2 pieces
- Filter material: Polyester fiber anti-static;  
optionally with PTFE coating, anti-static
- Filter class: BIA "M", separation efficiency > 99% [with test dust 0.3 µm]
- Filter area: 8 m<sup>2</sup> (2 x 4.0 m<sup>2</sup>)

Secondary filter module H14

- (2) Particle filter cassette H14
- Filter class: H14 High Efficiency Particulate Air filter, suspended matter filter as per DIN EN 1822

### **Equipment:**

Air flow controller: continuous adjustment of the suction power

Loaded particle filter indicator: visual indication of filter saturation

SUB D9 interface:

- ⇒ Remote I/O, operation, filter 100%
- ⇒ Filter cleaning
- ⇒ Automatic differential pressure-dependent jet stream cleaning

### **Vacuum generator:**

High-performance turbine set with maintenance-free EC drive

# Technical documentation

## Extraction and filtration unit



# LAS300.81 – HFM054 – H-Ex

### Technical data

Parameter	Unit	300.81
Volumetric flow, max.	m <sup>3</sup> /h	400
Vacuum max.	Pa	20,200
Rated volumetric flow	m <sup>3</sup> /h / Pa	270 / 5,000
Motor rating	kW	1.8
Rated voltage	V	230
Rated current	A	13.0
Frequency	Hz	50 / 60
Protection rating	IP	54
Vacuum generator type		EC turbine
Noise level (@ 50 - 100%)	dB(A)	60 - 71
Air flow controller		yes
Particle filter saturation indicator	optical	yes
SUB D9 interface		yes
Air intake versions	Ø	1x Ø 75 mm, other diameters as an option
	Position	Rear
Air outlet		Exhaust grille, optional: Exhaust air connection
	Position	Device cover
Width	mm	390 (370)
Depth	mm	590
Height	mm	1810
Weight	kg	105
Power line	m	5.0
Filter set-up		Filter system: Cartridge filter, automatic air pulse-jet cleaning
		Main filter module HFM054
	(1)	Cartridge filter set with 2 pieces, polyester fiber, each for 4.0 m <sup>2</sup> filter area ULT 02.1.494
		Secondary filter module
	(2)	Particulate filter cassette H14 ULT 02.1.488
Certifications	H	Dust extractor of dust class H
		in accordance with DIN EN 60335-2-69, Annex AA, Section 22.AA.201.2

# LAS300.81 – HFM054 – H-Ex



Laser smoke

## Functional principal:

A vacuum generator with a maintenance-free EC drive with a high pressure reserve generates a volumetric flow suitable for the application on the clean air side of the filter cartridges. The volumetric flow can be controlled individually and steplessly. In this way, the pollutant-laden air is extracted in a reliable manner.

The **particles** are separated by the **two filter cartridges** (polyester fiber, anti-static, optionally with PTFE coating) based on the principle of **surface filtration**. **Automatic individual cartridge cleaning** of the dirty filter cartridges is carried out by means of **compressed air pulse jet cleaning in counterflow**. A compressed air connection (5 - 6 bar) is required for operation of the system. The **particles removed** drop into a disposable bin for removal and disposal of the extracted material with minimal contamination.

In the second filter stage, ultra-fine **suspended dust particles** are separated and retained in a storage filter system.

A complete set of filters:

Cartridge filter system

Automatically cleanable filter elements for high pollutant levels

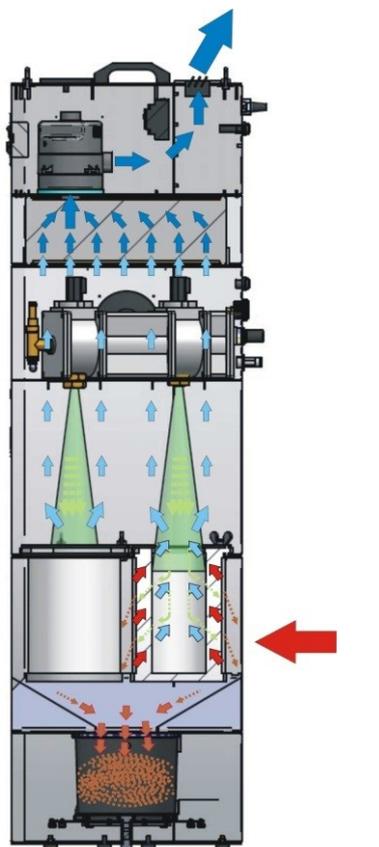
- (1) **Particle filter** 2 filter cartridges BIA M, separation degree > 99% for particle size 0.3 µm

Storage filter system

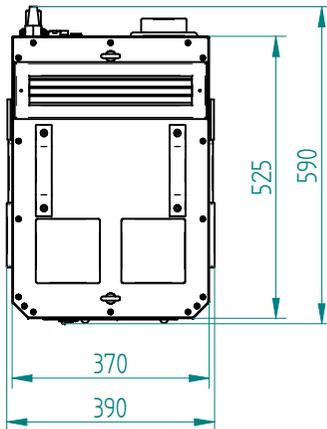
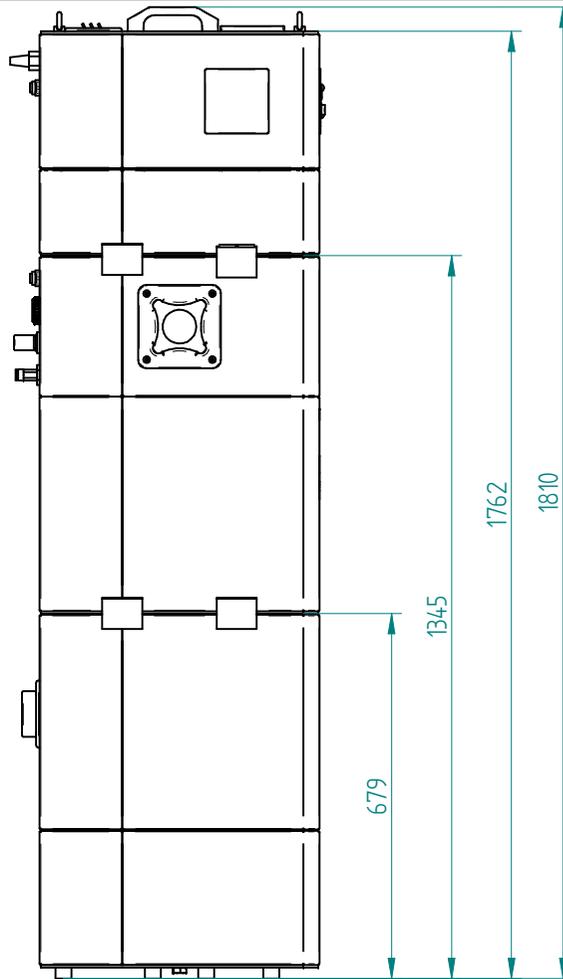
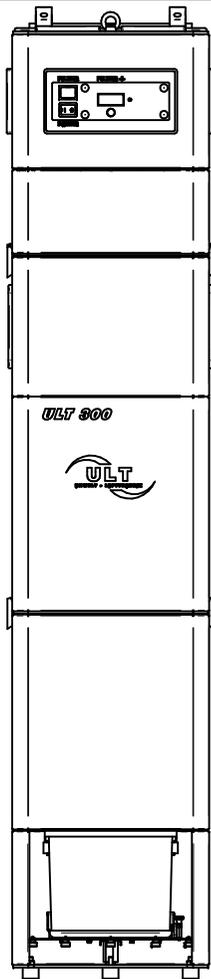
Filters that must be replaced when their absorption capacity is reached.

- (2) **Particle filter** Suspended matter filter H14

Due to the high degree of filtering, the **filtered air** can then be returned to the working area. This avoids any loss of heat.



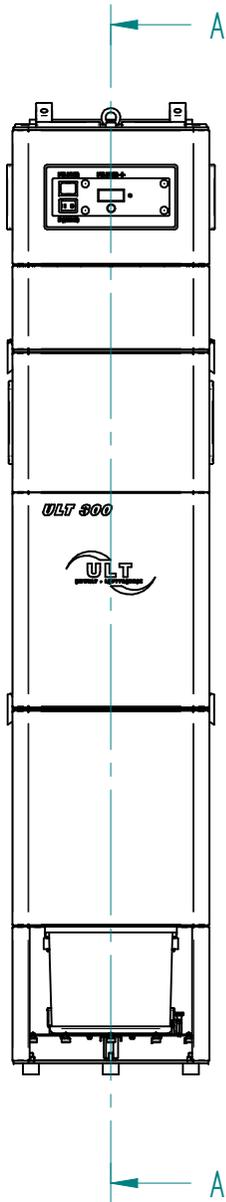
-  Raw gas
-  Clean gas first filter stage
-  Clean gas second filter stage
-  Cleaning air
-  Dropping extracted material
-  Collected extracted material



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		Benennung: LAS300-HFM054		Maßstab: 1 : 10
		Am Gopelreich 1 D-02708 Lobau		Maßzeichnung		
		2010	Datum	Name	Zeichnungsnummer:	
		Bearb.	23.04.	A. Reichmann	AR_2010_04_23_001	
Ausgabe	Anderung	Tag	Name	Gepr.	Norm	



Vacuum module 300.8

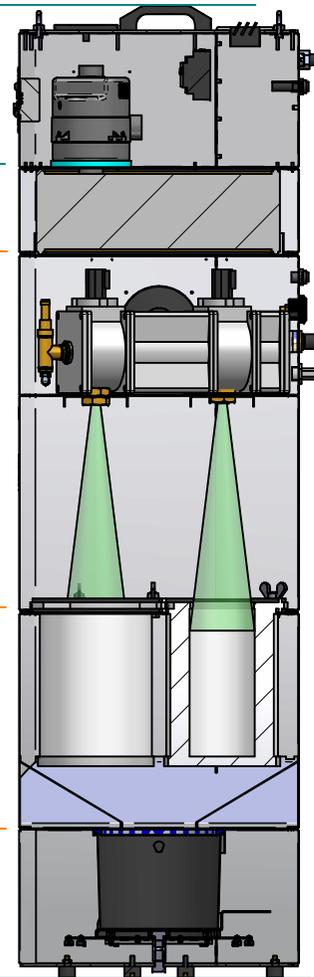
Hauptfiltermodul 054

Secondary filter HEPA H14

Filter cleaning module

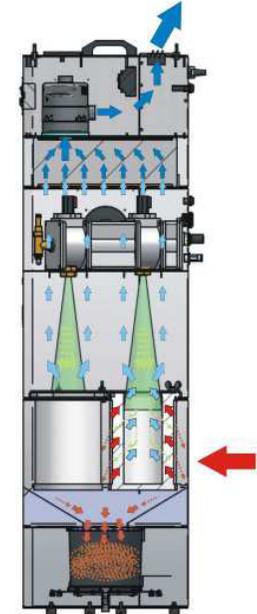
Cartridge filter stage

Extracted dust



Sectional view A-A

Functional principal



- ← Raw gas
- ← Clean gas first filter stage
- ← Clean gas second filter stage
- ← Dedusting pulse
- ← Dropping extracted material
- ← Collected extracted material

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