

Instruction manual

Negative pressure unit

D 610

in ex-protection design



Manufacturer: deconta GmbH
Im Geer 20, 46419 Isselburg

Description / Type-No.: Negative pressure unit **D 610 in ex-protection design**
Typ 418

Serial-No.:

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1 Introduction

Thank you for choosing a **deconta** product!

With this device you obtain a practical solution with simple operation, which was completed in a compact and functional way.

The **deconta** products guarantee:

- Stability, Long life and aptness on site
- Mechanics with „kick“
- Pleasing design
- Command with technical „acuteness“

With products of **deconta** you are sure to be one step ahead of your competitors.

As a result of our experiences in the asbestos removal industry our equipment technology is designed according to current safety standards TRGS 519.

For your protection, the use of the equipment technology outside of the asbestos removal should be agreed upon beforehand with **deconta**. With pleasure **deconta** will be of assistance and will then take liability beyond the original use.

In case of damage (mechanical or electrical) or a malfunction, the **deconta**-express service can remedy the situation in a short term.

Be aware that the non-observance of this instruction manual causes the expiration of your warranty claims.

The copyright of this instruction manual remains with **deconta**. This manual is intended for assembly, operation and maintenance personnel. It contains instructions and drafts of technical nature which may neither be distributed nor used in any unauthorised way for competitive purposes or passed on to others.

2 Basic safety advice

As an operator, you are obliged by **deconta** to follow the instruction manual and to use this engineered technology equipment only in accordance with the regulations and its suitability! In the event of non-observance, **deconta** assumes no liability.

The handling of the appliance technology is only allowed for instructed staff, because you have to consider the contaminated materials and devices as dangerous goods. The exact knowledge of the instruction manual is an important condition for your staff before handling the machine.

We explicitly point out the legally required safety measures during assembly and dismantling as well as when maintaining the equipment technology.

Necessary repairs, maintenance and cleaning, in particular in the field of electrical equipment should be performed by qualified staff or if necessary by the express service **deconta** in order to guarantee the function and safety.

The safety and protective equipment has to be treated with care and the indicated safety advice has to be kept in a readable state.

The installation and the operation of the device can only be executed according to the instruction manual or after consultation with **deconta**.

In order not to restrict safety, any changes to the machine are prohibited. Changes can only be made with the agreement of **deconta**.

Supplementary to this instruction manual, the standard, legal and remaining binding rules concerning the accident prevention and the protection of the environment have to be observed.

The control of the exhaust has to be effected during the initial operation as well as at least in a 3 years interval.

3 Transport and storage

3.1 Delivery

In order to protect the device against climatic influences it is wrapped with a plastic film. Transport damages have to be documented at once during the handing over of the carrier or another supplier. Additionally please notate the possible damages on the way bill.

3.2 Transport

Transport the device only in a decontaminated state.
The device can be transported by one person.
For the easy handling, the device has got carry handles.

3.3 Storage

Store the device only in a decontaminated state.
In order to avoid damages, the installation has to be kept in a dry location with no access for unauthorized persons.

4 Volume of delivery at purchase or rent

4.1 Volume of delivery

Regardless if the unit is purchased or rented, unless no other agreements have been made, the volume of delivery of the negative pressure unit D610 consists of:

- Unit D 610
- Instruction manual
- Complete filter set
- Packaging

**Instruction manual
Negative Pressure Unit D 610 EX**

4.2 Return delivery after renting

For the protection of our clients and in accordance with the rules for hazmat transport, we must insist on the following return delivery conditions:

- cleaned thoroughly (ready for use)
- completely free of adhesive remains
- complete, as described under 3.1 however without filter set
- without damages

5 Technical description

5.1 Intended use

Negative pressure unit with integrated 3 stage filtration unit to filtrate asbestos contaminated room air.

The unit specially designed for the use in the contaminated area.

Over-pressure technology prevents the intrusion of contaminated ambient air into the housing.

The negative pressure unit **Compact 5.500 in ex-protection** design may be utilized in **areas endangered by gas explosion Zone 2 according to EN 60079-10**, whereas additional national regulations have to be observed.

During asbestos sanitation works within closed rooms, you must avoid that asbestos fibres leave the sanitation area and endanger human health and the environment. For these reasons, the sanitation area (also called dirty area) has to be separated from the clean area with the help of a negative pressure unit and kept under dynamic negative pressure.

An integrated filtering system establishes the conditions that the asbestos concentration in the exhaust air does not exceed max. 1000F/m³. The exhaust air is blown into the open.

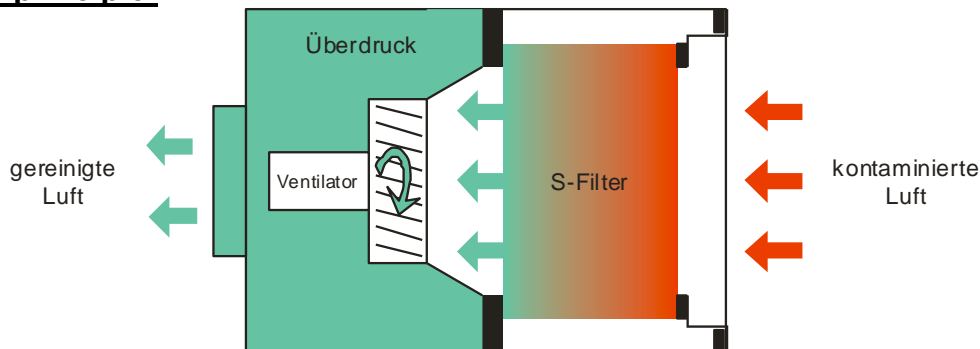
The segments used comply with the following standards:

- | | | |
|---------------------------|--------------------------|--|
| • Motor | Ignition protection type | increased safety „e“ according to EN 60079-7 |
| | Asset group | IIB |
| | Temperature class | T5 |
| • Motor protection device | Ignition protection type | flameproof enclosure „d“ according to EN 60079-1 |
| | Asset group | IIC |
| | Temperature class | T6 |
| • CEE-Connector | Ignition protection type | flameproof enclosure „d“ according to EN 60079-1 |
| | Asset group | IIC |
| | Temperature class | T6 |

5.2 Description D 610

The negative pressure unit D610 features powder-coated housing made of hard aluminium, in which an electric fan, a main filter, an intermediate filter and a pre filter find a place. There is hose connection on the extract side (filtered air). On the device there is a manometer for the filter control during operation.

Functional principle:



Highlights:

- Designed for the use in the contaminated work area
- Housing seal due to overpressure technology
- Smooth and easy-to-decontaminate housing
- Sturdy and light housing
- 3-fold sealed Hepa filter
- Hepa filter according to EN 1822 classification H13
- Simple and low emission filter change
- Filter change in 3 minutes
- The filter change is indicated optically on a manometer
- Rustproof and powder coated housing
- infinitive variable control 0 - 100% (SE and SRE)
- automatic soft starting, also after a power failure
- all operation and function elements are shock-protected
- stackable housing, ergo minor floor space
- Power optimised fan with high capacity

Options:

Attachment housing for the second hepa filter (Double filtration)

Attachment housing for pocket filter

Acoustical indication for the filter change

5.2.1 Control ON / OFF

The Unit D610 is delivered in series with an ON / OFF control for the power regulation.

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Negative Pressure Unit D 610 EX

5.3 Filter description / classification

Integrated in the unit is a 3-step filtering combination.

In particular:

Pre and intermediate filter	Pre-filter	Intermediate filter
Filter class pursuant DIN 24185 / EN 779	G3 / EU3	G4 / EU4
Frame	Cardboard frames, 48 mm wide	Cardboard frames, 48 mm wide
Filter medium	Glass fibre	Synthetic
Degree of separation(Am)	85 %	90 %
Nominal rated current	5400m ³ /h/m ²	5400m ³ /h/m ²
Nominal velocity in blower stream at nominal volume	1,5 m/s	1,5 m/s
Difference of initial pressure	30 Pa	42 Pa
Recommended difference of final pressure	450 Pa	250 Pa
Temperature / Air humidity	100°C/100% RF (relative humidity)	100°C/100% RF (relative humidity)
Filter dimensions	610x610x47	610x610x47

Main filter, Hepa filter (S)	
Frame	12-fold glued wood frame Or plastic frame (moisture-proof)
Separator	Aluminium
Filter medium	Glass fibre
Sealing mass	Polyurethan (2-Component-Glue)
Seal	Polyurethane, foamed
Filter area	31 m ²
Filter class	H13 according to DIN EN 1822
Degree of separation(>99,95% im MPPS leak tested (Most Penetrated Particle Size)
Temperature / Air humidity	110°C/100% RF (relative humidity)
Filter dimension	610x610x292

5.4 Filter change

The frequency of the change of filter depends on the degree of pollution of the filter. If the sealing up of the filter increases (contamination of the filter), the air capacity decreases. For the control of the filter during the operation, the device is equipped with a manometer (see image).



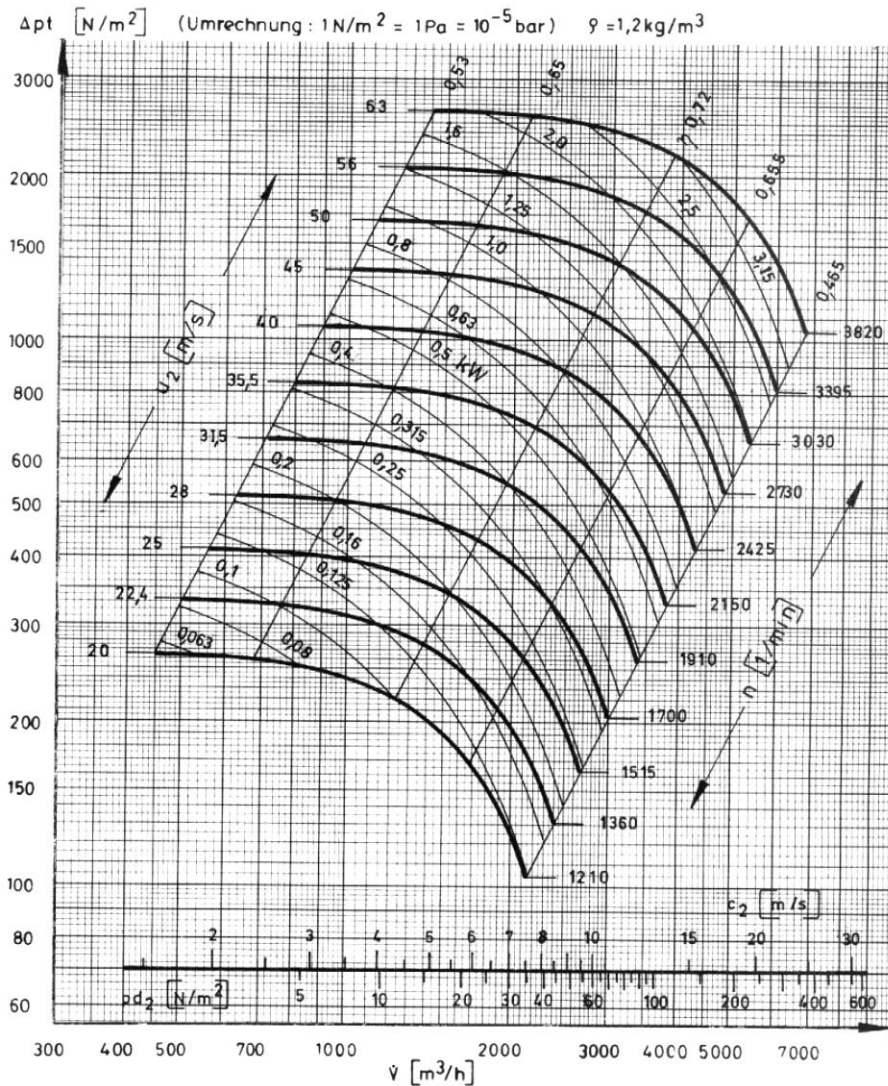
Important: Use only approved, faultless filter!

- In a new condition of the filter the manometer reads approx. 650 Pascal. (Analysed at 100 % capacity)
- We recommend a change of filter at approx. 1000 Pascal.

Optionally, the device can be equipped with an acoustic signal (horn), which indicated the clogging of the filter.

6 Technical Data

6.1 Fan characteristic curve



Technical Data:

Voltage: 400 V

Frequency: 50 Hz

Speed: 2800 U/min

Air discharge: 6000 m^3/h free exhaust

max. discharge temperature: 45°C

6.2 Performance data

Air performance free-blowing	6.000 m ³ /h
Air performance with 1x S-filter	4.500 m ³ /h
Air performance with 2x S-filter	4.000 m ³ /h
Power connection	230 Volt, 50 Hz
Power consumption	16 Ampere
Power	3 KW
Filter system	3-stage
Pre filter	EU 3 dimensions: 610 x 610 x 047
Intermediate filter	EU 4 dimensions: 610 x 610 x 047
Main filter	dimensions: 610 x 610 x 292

6.3 Connections, Dimensions, Weights

Total weight (without filter)	72 kg
Length x Width x Height	1020 x 690 x 850 mm
Power connection	400 Volt, 16 Ampere, CEE-plug
Exhaust air hose connection	electively Ø 400 or Ø 450
Suction hose connection	optionally Ø 400 or Ø 450

6.3.1 Attachment housing

Total weight (without filter)	10 kg
Length x Width x Height	290 x 690 x 690 mm

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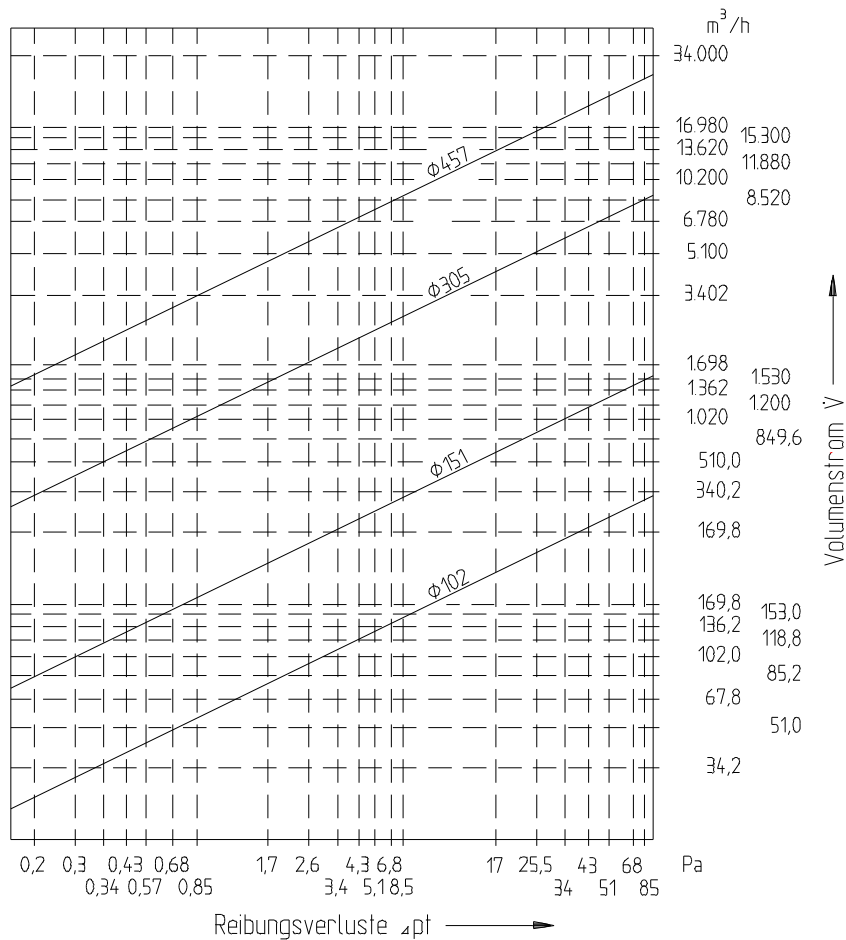
6.4 Power loss in hose lines

Following factors have adverse influence:

- Hose lines too long
- Bends and bows in the hose lines
- Cross-section narrowing of the hose lines.

6.5 Resistance diagram for hose lines

- Hose line with external spiral
- Sleeky inside
- in 10 mtr. Length



7 Assembly instructions

The negative pressure unit is delivered ex-works and ready for immediate operation.
If there are visible damages, do **not** operate the device.
Please contact the deconta GmbH at once.

7.1 Negative pressurisation

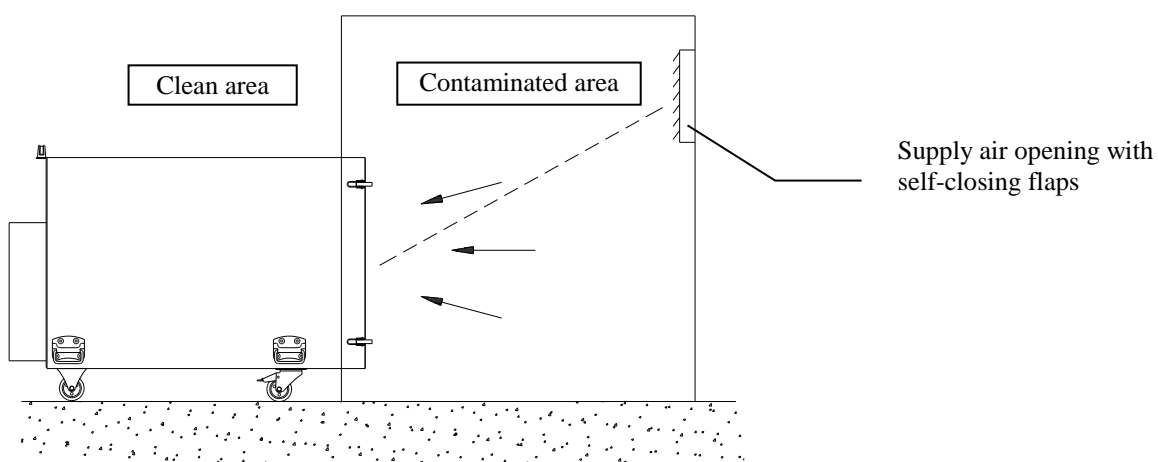
Optionally the negative pressure unit can be operated in the contaminated working area or connected to the working area from the outside.

Operation in the contaminated working area

- Set up unit in the working area
- Direct exhaust air hose into open air
- Provide for enough supply air in the working area (opening approx. 600 mm x 600 mm diagonally to negative pressure unit)

Operation outside of the contaminated working area

- Connect the device with the wall between clean / and contaminated working area
- Place it about 100 mm into the working area
- Seal the device with the wall
- Direct the exhaust air hose into the open air
- Provide for enough supply air in the working area



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7.2 Assembly of the optional attachment housing (SNAP)

Optionally for a second Hepa filter (Double filtration), additional activated carbon filter or pocket filter

- Dismount the pre filter and unscrew the safety corners



Safety corner

- Place the attachment housing and fix the tension locks



Tension lock

- Insert the Hepa filter / activated carbon filter
- Fix the tension frame by means of screws
- Insert the pre filter



By using an activated carbon filter, this should be inserted in the negative pressure unit and the Hepa filter in the attachment housing.

8 Initial operation

**Vor jeder Inbetriebnahme in gasexplosionsgefährdeten Bereichen das Gerät auf „Schleifgeräusche“ am Lüfter untersuchen.
Sollten Sie diese feststellen, darf das Gerät nicht in Betrieb genommen werden!**

The negative pressure unit D 610 is delivered in series with an ON / OFF switch.

- Connect to power
- Turn ON/OFF switch

Negative pressurisation

- Adjust the desired negative pressure at the supply air opening
 - ⇒ Negative pressure too high: open the supply air opening
 - ⇒ Negative pressure too low: shut the supply air opening

9 Maintenance

9.1 Maintenance

The ventilator plants (deduster, industrial vacuum cleaners and devices for the deaeration or negative pressurisation) have to be overhauled or controlled once a year at least or if necessary by an expert. The result of the inspection is to be submitted on request.

9.2 Filter control

During operation control filter conditions, as described under 5.4.

9.3 Change of pre and intermediate filter

Attention:

- **Contaminated filters has to be changed under all corresponding safety measures**
- **Filter change only when machine is switched off**
- **Use only approved filters**
- **Do not use bonding agents on the machine**

Pre and intermediate filter change:

- Carefully remove filter and dispose of it
- Insert new filter

9.4 Change of Hepa filter

Attention:

- Contaminated filters has to be changed under all corresponding safety measures
- Filter change only when machine is switched off
- Use only approved filters
- Do not use bonding agents on the machine

Remove the Hepa filter:

- Remove the pre filter
- Unscrew the hexagone screws M8 and remove the tension frame
- Remove the Hepa filter and dispose of it professionally

Insertion of the Hepa filter:

- Control the sealing face of the machine and clean.
- Clean the inside of the housingl
- Insert the new filter **in the middle**
- Tighten the tension frame and the hexagone screws M8 (tighten the screws carefully)
- Insert the pre filter

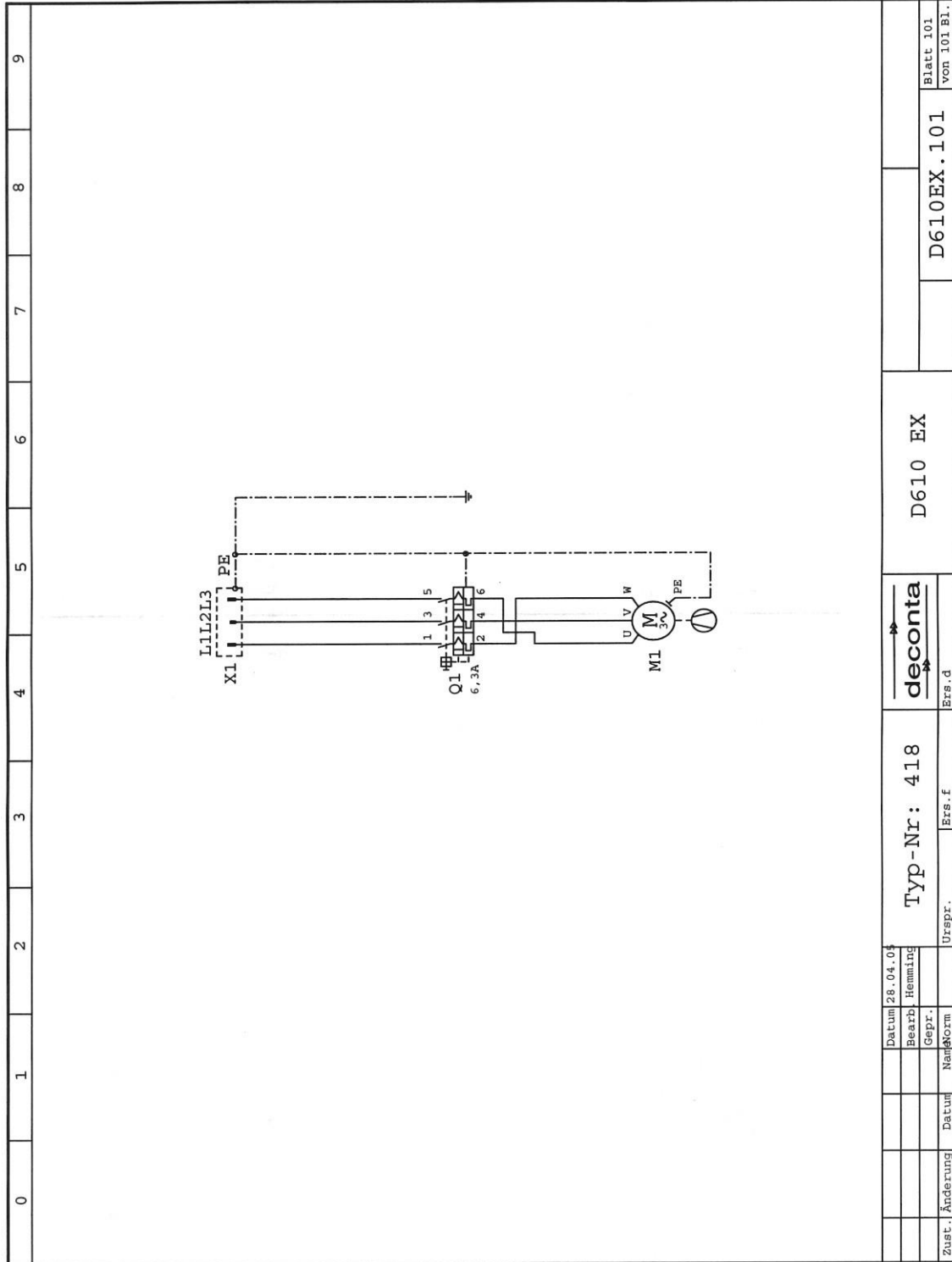
Important:

The Hepa filter must be treated with care, damages can suspend the effectivity of the filtration.

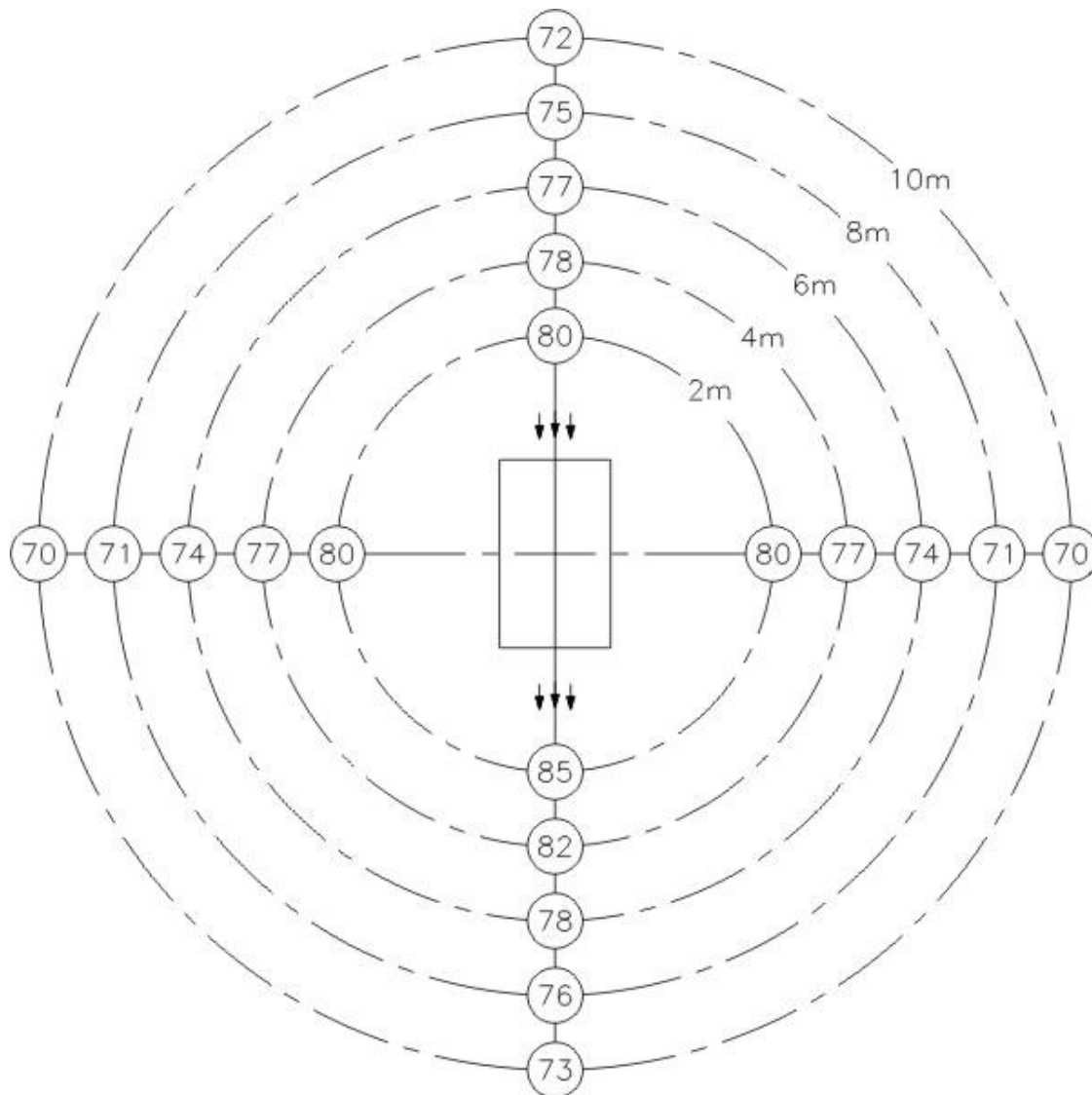
10 Possible failures and their repairs

Failure	Possible reason	Repair
Negative pressure too low	Pre- / intermediate filters dirty	Change of filters as described under 9.3 and 9.4
Device does not work	Power source out of order	Have power source examined and repaired by an expert.
Device does not work	Components of the Neg Air are defective	Have the device repaired by deconta or an accredited workshop..

11 Circuit diagram



12 Sound level measuring



Value in dB(A)

Status:
Engine power 100%, free exhaust, outside

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Negative Pressure Unit D 610 EX

deconta

EG-Konformitätserklärung

deconta GmbH
Im Geer 20
D-46419 Isselburg

Produkt: Unterdruckhaltegerät **Typ:** 418

Die Bauart der Geräte entspricht folgenden Bestimmungen: EG-Maschinenrichtlinie 2006/42/EG
EG-Niederspannungsrichtlinie 2014/35/EU
ATEX-Richtlinie 2014/34/EU

Angewendete harmonisierte Normen: EN 60335-2-69

Angewendete nationale Normen: DIN VDE 0701, DIN VDE 0702

Ort: Isselburg
Datum: 20.04.2016



(Unterschrift)
Geschäftsführer

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