



DUSTOMAT-10

Mobile Dust Extractors

Welcome to the sphere of suction technology

Your purchase of an **ESTA** machine has been a good decision. The design of our quality products complies with the latest state of the art. **ESTA** products have been devised to provide for clean air at the workplaces at which they are applied. This results in an even more enhanced level of quality and longer machine times and, particularly, healthier working conditions. Should you have any questions pertaining to suction technology issues, please feel free to contact us at any time. Our experts will be gladly at your disposal.

Your **ESTA Absaugtechnik** Team

**DEDUSTING
EXTRACTION
CLEANING**

The logo for ESTA, consisting of the word "ESTA" in red, bold, uppercase letters, centered within a gray square background.

Operating manual



DUSTOMAT-10

Item No. 09.201 (DUSTOMAT-10 (230V))
Item No. 09.215 (DUSTOMAT-10 (400V))



Do not use this device unless you have
read the user manual and understand it.

Translation of the original instructions
09201-08-01

Edition notice

Original operating manual

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Item No.: 09.201 // 09.215 and variants

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Warnings and safety instructions



Electrical current hazard



Note



Reference to ESTA customer service



Reference to legal regulations

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1. General safety notes

Before operation, all persons who are to use the dust extractor or perform maintenance on it must be provided with information, instructions and training in using the device and on the substances for which it is to be used, including the procedure for safe disposal of the collected material. Responsibilities must be clearly established for the following:

- **Installation**
- **Start-up**
- **Operation**
- **Maintenance and repair**



The device must be used only by persons who have been instructed in its handling and are explicitly authorized to use it.

Always keep the operating manual at the place where the suction device is being used, so that it can be seen by personnel at all times.

No liquids, aggressive gases, easily flammable materials or glowing particles (such as hot embers) may be aspirated. For example, it is prohibited to use the DUSTOMAT in painting operations. It is forbidden to exhaust processing machines with active ignition sparks or hot embers (such as multi-blade saws).

The dust extractor is intended only for dry cleaning and must not be used or stored outdoors or under wet conditions.



Installation and operation in dust explosive zones or gas explosive zones is not permitted.

Only original ESTA replacement parts must be used; use of other products will void the warranty.

During exhaust, the volume flow returned from the dust extractor into the room must be no more than 50% of incoming air. With free room ventilation, the incoming airflow must equal the room volume every hour. This means that the rate of air replacement must be once per hour.

$$\text{Incoming airflow [m}^3\text{/h]} = \text{room volume [m}^3\text{]} * \text{air replacement rate [1/h]}$$

Example:

When the ESTA dust extractor is operating at the nominal airflow volume of 720 m³/h, the same volume of fresh air must therefore be fed in. This occurs with natural ventilation if the volume of the work room is 720 m³ (e.g., 720 m² surface with a 2.4 m ceiling height).

Make sure that the power cable does not become damaged by being run over, compressed, pulled, etc.

The power cable must be examined regularly for signs of damage or ageing.



The device must not be used if damage to the power cable is determined.



The power cable and plug must be replaced only by an appropriately trained electrical specialist.

For the power supply and the device's power cords, only original ESTA replacement parts must be used. This guarantees that they are spray-proof according to applicable standards and have the necessary mechanical strength.

The power cord must be plugged in only after the dust extractor has been successfully set up at its place of use. For this a 16-amp Schuko wall socket fuse or a CEE wall socket with a slow-blow fuse must be in place.

Plugs and connectors complying with EN 61241-14 must be used for connecting electrically driven industrial exhausts and dust extractors. Coupling plugs and connectors or adapters are not permitted.

After use, before moving the device to another site and before cleaning, maintenance, or replacement or removal of movable parts, the device must be unplugged.

The DUSTOMAT is to be moved on a stable, even surface that can securely support a weight of 350 kg.

To prevent dust release when transporting the device, the intake port must be closed with the sealing plug.



Only original ESTA conductive accessories may be used for operating the device.



From its first use, the device contains toxic dust. Emptying and maintenance processes, including removal of the dust collection container, must be performed by expert personnel who are wearing appropriate protective gear. The device must not be operated without the complete filtration system!



According to work equipment user directive 2009/104/EC, safety devices for prevention or removal of hazards must be regularly maintained and regularly inspected by an expert for safe, flawless operation.



In all emergencies, the device must be disconnected from the power supply immediately. Turn the device off with the emergency switch and pull the plug. If there is a fire, the fire department is to be alerted immediately, and the fire must be contained by appropriate means! A suitable extinguishing agent must be kept near the device before start-up and during operation.

2. Preventing mechanical hazards

All movable machine parts driven by electric motors must be covered by fixed, securely fastened protective covers that can be removed only with tools.



Residual risk:

If a covering that can only be unfastened with a tool is removed, there is risk of injury if the machine is running!

3. Preventing electrical hazards

All electrical parts must be covered by fixed, securely fastened protective covers that can be removed only with tools. The device complies with Protection Class I according to EN 60 335.



Residual risk:

If a covering that can only be unfastened with a tool is removed, a hazard is posed by electric current!

4. Preventing dust hazards

Using a one-way dust collection bag with a sealable opening guarantees low-dust removal of the collected material.



Residual risk:

When emptying the dust collection bag, it is possible to inhale dust. Following the instructions in the section “Disposing of collected dust materials” will minimize this hazard!

5. Intended use

The ESTA dust extractor has been manufactured according to the state of the art and in compliance with safety regulations. It is suitable for commercial use, such as in industrial firms and workshops.

When used as intended, the devices are suitable for removing dry, non-flammable, non-explosive, nontoxic dusts. They are equipped with a filter for **dust class “M”** (moderate hazard) for separation of dust with an exposure limit of more than 0.1 mg/m³. The purified air can be directed back into the work area.

When connecting the suction hose, make sure to use only electrically conductive hoses and that the electrical connection between the hose and the port is perfect. If a so-called “spiral hose” is used, the metal spirals must be stripped and pressed to the bare wall of the exhaust port with a pipe clamp after the hose is attached.

Shavings and dust can be extracted from processing machines whose exhaust port is up to 100 mm in diameter. If it is smaller than 100 mm, ESTA supplies a corresponding reduced fitting, which is placed on the machine’s exhaust port as a junction. Processing machines with exhaust port diameters larger than 100 mm must not be connected to this device!

The device must not be used or stored outdoors or under wet conditions.



Only plugs and connectors complying with EN 61241-14 must be used for connecting electrically driven industrial vacuums and dust extractors. Extension cords, coupling devices and adapters are not permitted.

Other applications are considered unintended use. ESTA is not liable for damages due to unintended use!

ESTA sets up the dust extractor according to the operator’s information.

6. Technical data and description

6.1 DUSTOMAT-10

Model (see model plate)		10 WN	10 DN
Max. airflow volume	[m ³ /h]	720	
Connection diameter	[mm]	100	
Max. vacuum	[Pa]	2,800	
Nominal flow volume	[m ³ /h]	580	
Vacuum at port	[Pa]	2,600	
Connection voltage	[V]	230	400
Drive output	[kW]	1.3	1.1
Rated current	[A]	8	2.6
Nominal frequency	[Hz]	50	
Circuit breaker	[A]	16	
Filter area, dust class "M"	[m ²]	3.5	
Dust collection container	[litres]	100	
Environmental conditions	[°C]	5 ≤ 9 ≤ 25	
Max. air humidity	[%]	60	
Average sound pressure level L _{pa} *	dB(A)	70	
Dimensions (L x W x H)	[mm]	1,165 x 530 x 1,636	
Weight	[kg]	65	
Production year		See model plate.	

*= per DIN EN ISO 3744, measurement margin of error approx. 4 dB(A)

technical changes reserved

6.2 Functional description

Depending on the operating conditions, the DUSTOMAT is equipped with a 1.3 kW AC motor or a 1.1 kW three-phase motor that drives a radial fan.

The main switch supplies or cuts off the necessary power to the device, and the device is turned on and off with the green toggle switch on the AC version. The three-phase current versions have a red-green double push button for this purpose.

The vacuum created by the fan draws air through the suction hose connected to the intake port. A permanent filter set up within the filter housing separates the dust that is in the exhausted air.

The purified air is guided back into the room through the exhaust vents.

The DUSTOMAT is equipped with a manometer as a control device for overseeing minimum airflow volume. This monitoring device measures the vacuum in the filter. With increased dust soiling the filter, the flow resistance increases along with the vacuum behind the filter. At the latest, the filter must be cleaned when the zone designated for the intake diameter is reached on the manometer.

The filter is cleaned with manual equipment. The filter is freed from dust and regenerated using a hand crank on the lid. The dust collection container with a collection bag underneath the filter catches the dust that is cleared.

For easier removal of the collected material, the upper part can be tipped backwards and the dust collection container removed from the device.

7. Delivery and commissioning

7.1 Delivery and transport

At delivery, the DUSTOMAT is fastened to a pallet. After the protective cover and the bottom fasteners have been removed, the device can be picked up with a forklift. Do not use a crane!

Upon delivery, please inspect the device for transportation damage. Damage determined must be reported and documented immediately.



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When moving the device, make sure the ground can support it and be driven over.

7.2 Commissioning

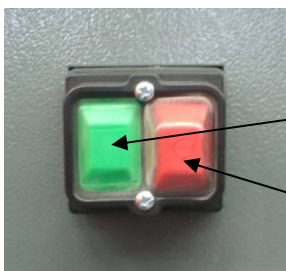


Only persons authorized under “General safety instructions” must turn the device on.

Before setting up the cable connection between the device and the power grid, check to make sure the operating voltage shown on the model plate is the same as that of the grid.



Before the device is used, its operation must be tested.



The device has a red-green double push button for switching on and off.

ON switch

OFF switch



On type “DN”, the fan’s direction of rotation must be checked!

After turning on the device, make sure that the fan rotor’s direction of rotation is correct.

For this purpose, look at the light underneath the double push button on the front side. If this lights after the main switch is turned on, the direction of rotation is wrong, and the power supply’s polarity must be reversed.



The polarity of the power feed must be changed only by an electrical specialist. For this purpose, the CEE plug is equipped with a phase inverter. Using a screwdriver to turn the pole pin built into the insulated part of the plug changes the fan rotor’s direction of rotation.



When the direction of rotation is wrong, the device gets impermissibly hot, the airflow volume gets weaker, and the device’s performance suffers. This can also damage the device.

Once a functional inspection has been completed, the connection can be made to the processing apparatus that is to be exhausted.

For this, the device must be turned back off, unplugged from the power grid, and set on an even surface as close as possible to the workplace. Lock the device’s wheels.

The dust extractor’s intake port has an interior diameter of 100 mm. At the port, the suitable electrically conductive ESTA suction hose is inserted and secured with the locking bolt. This suction hose comes with a plug connection attached.

Connection is made to a processing machine that has a smaller port diameter by using an adaptor that fits the exhaust hose and is chosen to fit the port diameter of the machine creating the dust. Here also, pay attention to the electrical conductivity between the connections.



Now the device can be connected to the power grid again.



After connecting the suction hose to the processing machine, first set the dust extractor in motion, and then the processing machine. When switching off, follow the same procedure in reverse.

During operation, the dust extractor’s location should not be changed.



When the device is turned off, the neutral line is not disengaged. The device is therefore intended only for use in TN networks.

8. Maintenance and troubleshooting

8.1 Maintenance instructions

For maintenance by qualified personnel, the device must be opened, cleaned and inspected at the given locations, as well as possible, without any hazard being posed to maintenance personnel or other persons. Proper precautions must be taken before cleaning and removal of wearing parts. This includes locally filtered forced-air ventilation in the area in which the device is being maintained, and proper personal protective gear.

During maintenance or repair work, all soiled objects that can no longer be adequately cleaned must be disposed of. Such objects must be discarded in an impermeable bag in compliance with applicable regulations for disposal of such refuse.

If the device is not needed in its location of use for a long time, it must be stored in a dry room. The temperature should not be below 5°C or over 25°C.

Before the device is placed into storage, it is recommended that it be cleaned with a disposable damp cloth, that the filter be cleaned, and that the dust container be emptied.

The device must never be cleaned with flowing water.



The operator is obligated to have maintenance performed once per year. During maintenance, the device is to be tested by a trained expert for correct operation. A log is to be kept of the main annual inspection in the included maintenance book. It must document the date of inspection, deficiencies determined and the name of the inspector. The date of the next inspection can be read from the test plate installed on the device.

8.2 Inspection and maintenance intervals

Regular maintenance consists of 3 intervals:

1. Daily inspection includes:

By the dust extractor's user

Visual inspection

- for damage to the device or its parts
- for mechanical damage to the power cable
- for a full dust collection container (regulations require that the container be emptied if it is more than 2/3 full)

2. Monthly inspection includes:

By expert maintenance personnel

Visual and functional inspection,

- for filter leaks (dust trails or deposits on the air outlets)
- whether function of the minimum airflow volume inspection (manometer) is assured. During inspection, the device's air intake must be closed. If the display reaches the limit threshold, the equipment is working properly.

3. The main annual inspection includes:

The last test by ESTA is documented on the device!

In collaboration with the ESTA maintenance service

- Flow volume measurement
- Vacuum measurement
- Current consumption measurement
- Visual check of filters
- Seal inspection

After maintenance, the device receives a new test plate to document that maintenance has been performed.



This inspection must be done once per year.



The maintenance work must be recorded in writing in the maintenance book provided. This must make clear the equipment inspected and, if necessary, the deficiencies found, along with the name of the inspector and the date of the inspection.

If there is a malfunction, the dust extractor must be switched off immediately and the responsible maintenance service notified.



According to work equipment user directive 2009/104/EC, safety devices for prevention or removal of hazards must be regularly maintained and regularly inspected by an expert for safe, flawless operation.



Maintenance must be performed according to accident prevention regulations. The device must be disconnected from the power supply.



Get the most from ESTA's maintenance service!

A maintenance contract ensures a long life and top-notch operation for your dust extractor.

We'll make you a great offer — just call us up:



ESTA maintenance service: +49 (0) 7307 804 - 0
ESTA replacement part service: +49 (0) 7307 804 - 0

8.3 Troubleshooting

Always use the following checklists if a malfunction is evident. Call the ESTA maintenance service right away if there is a malfunction that is not discussed in this list. Do not perform any repairs on the device yourself if they are not explicitly specified.

Problem	Possible cause	Possible solution
Motor stalls / motor won't restart	Motor protection triggered by frequently turning the device on and off	Let the device rest for about half an hour; then normal work with the device can resume
Suction performance diminishes / or no suction	Filter clogged Suction hose clogged	Clean filter In a vacuumed area, hold the hose vertically and bang it out with a rubber mallet.
Although the filter has been cleaned, the vacuum display on the manometer stays at the limit threshold of the corresponding intake diameter.	Fine dust is sucked right back to the filter.	Clean several times with device at rest and let the dust settle (1 min.)
	Dust collection container too full	Replace dust collection bag
	Filter pores clogged in main filter	Replace filter



If dust escapes or clouds up from the air outlets, if smoke develops or the fan runs loudly, the device must be disconnected from the power immediately!



When cleaning, the person doing the work must always wear a respirator mask (filter mask with particle filter, filter class P3) and gloves.



Before opening the switch box, make sure to turn the main switch to the “0” position and pull the electrical plug! Work in the switch box must be performed only by an electrical expert or an appropriately trained person.

9. Monitoring the minimum volume flow

9.1 Dust extractor - operation

With the dust extractor, shavings and dust can be exhausted from processing machines with various exhaust port diameters. In so doing, make sure that the exhausted airflow volume does not drop below the lower limit. This minimum airflow volume depends on the port diameter of the processing machine creating the dust.

On the manometer's scale, the minimum airflow volume for each port diameter is marked in red. The vacuum must be monitored manually. If, for example, a port diameter is 100 mm, and the manometer's needle is on the 100 mark, the filter must be cleaned. This applies correspondingly to exhaust ports of 80 mm and 63 mm diameters. The relationships are shown in the accompanying illustration and the following table.



1	2	3	4
dia. D (mm)	V (m ³ /h)	p ₁ (mbar)	p ₂ (mbar)
63	224	27.4	28
80	362	26	27.5
100	565	22.2	25.7

Key to the columns:

- Column 1: Diameter of the exhaust port on the processing machine.
- Column 2: Minimum airflow volume at 20 m/sec. in the exhaust port.
- Column 3: Possible vacuum at the beginning of the suction hose (2.5 m long). - Interface between the dust producer and the dust extractor at minimum airflow volume.
- Column 4: Vacuum marked on the manometer scale.



A processing machine requiring greater suction volume than shown in the chart cannot be properly exhausted with this dust extractor.

9.2 Industrial dust extractor - operation

During use as an industrial dust extractor, the minimum airflow volume is also monitored with the manometer. ESTA supplies optional suction fittings with diameters of 100 mm, 80 mm and 63 mm. For example, for a suction hose with a diameter of 80 mm, the filter must be cleaned when the manometer's needle is below the "80 mm" point after the nozzle has been withdrawn. This applies correspondingly to the other diameters.

10. Cleaning



The people assigned to cleaning work must be instructed on the aspirated toxic materials and wear a breathing protection mask with a class P3 particle filter, as well as protective gloves. All distractions by uninvolved persons must be prevented.



During cleaning work, all soiled objects that can no longer be adequately cleaned must be disposed of. Such objects must be discarded in an impermeable bag in compliance with applicable local regulations for disposal of such refuse.

10.1 Cleaning the filter

When the device's suction performance diminishes after every use, clean the filter unit.



A safety device is built into the machine for monitoring the minimum airflow volume to be exhausted. A manometer shows the latest time for cleaning (depending on the exhaust port diameter).

If the filter is to be cleaned, wait about one minute after turning off the fan, to allow the fan's rotor to come to a standstill. For cleaning the filter, turn the hand crank on the filter part about 60 times rightward and then 60 times leftward. The cleaning process should take about two minutes (1 minute per rotation direction) and must be repeated three times.

This process should be performed even after a long downtime.

If fine dust is being exhausted, the filter needs to be cleaned more often.

Once cleaning has been performed, wait a short time and check the fill level through the dust collection device's inspection window. At the latest, empty the dust collection container when the level has reached the upper edge of the window (see the section on "Disposal").

During operation, if the manometer display is still within the limit range, check to see if the suction line is clogged.

If that is not the cause, the filter must be replaced.

10.2 Filter replacement

Filter replacement must be performed in a well-ventilated room or outdoors. The people assigned to this work must be instructed on the aspirated toxic materials and wear a breathing protection mask with a class P3 particle filter, as well as protective gloves. All distractions by uninvolved persons must be prevented.



After an extended operation period, the filter pores can be clogged by extremely fine dust. Even the cleaning equipment cannot remove this dust. Now the affected filter must be replaced with a new one.

If possible, filter replacement must be done when there is no work going on. Used filters must be discarded in compliance with local regulations.



Before the filter is replaced, it must first be cleared of loose dust using the available cleaning system, and the power must be cut off.

Remove the crank from the cleaning device in order to loosen the threaded fastening pin. Now the crank can be pulled out. After that, loosen the clamping ring that holds the cover plate and remove the cover plate.

Pull the dust collection bag over the upper part of the vacuum.

The upper part will now tilt backwards when the locking bolt is removed.

On the underside of the filter part, 6 nuts are visible (M8, SW 13); remove them. Now the used filter can be pulled out of the upper part while being pulled upward against the cleaning shaft. In this way, the dust collection bag turns over the entire filter, so that no dangerous dust enters the environment. Close the dust collection bag with the supplied band so that no dust can escape.

Install the new filter cartridge with the integrated cleaning equipment by performing the same process in reverse. Additionally, the filter cartridge must be sealed at the upper side with sealing compound.



Cleaning the filter cartridge in a dismantled state by blowing it out or beating it is not permissible!

11. Disposal



The people assigned to disposal work must be instructed on the aspirated toxic materials and wear a breathing protection mask with a class P3 particle filter, as well as protective clothing. All distractions by uninvolved persons must be prevented.

11.1 Disposing of collected dust materials

After the cleaning process or an exhaust operation phase, wait about one minute for the dust to settle in the device. Only then can the dust collection container be emptied.

Replace the dust collection bag with a new one when it has reached the container's maximum fill height (about 2/3), which is the same as the upper edge of the inspection window, and after use, always replace it with a new bag after using the extractor.



Since the ESTA company does not know what types of dust are being exhausted, it can be necessary to replace the dust collection bag before it has reached its maximum fill level (a large bulk density means heavy weight).

Before replacing the dust collection bag, lock the castors, raise the locating pin on the intake port, and pull off the suction hose. To remove the full dust collection bag, after opening the buckle closure, tilt the upper part of the device in the direction of the fan. For this, remove the locating pin on the swivel arm. Turn the device back on. To remove the dust collection bag, pull this carefully upward and press it together about 30 cm below the upper edge of the bag. Tighten this 30 cm to about 15 cm at the upper edge, close it with the band included, remove it from the container, and dispose of it in accordance with local

regulations. When inserting a new dust collection bag, make sure that it lies flat against the walls of the container and overlaps the upper edge as little as possible. Turn the device off again, snap the upper part of the device shut, and close the buckle closure. Turn the device back on. It should remain on until the dust collection bag is lying completely against the wall of the container.

This process takes about 1 minute. Make sure that the upper part of the dust collection bag does not form a collar that can collect dust. Insert the suction hose and lock it. The device is now ready to operate again.

Follow applicable regulations when disposing of the collected material!

11.2 Disposing of the dust extractor

Before disposing of the device, empty the dust collection container, remove the filter cartridges, and dispose of both of them in compliance with local regulations.

Pack the device in a suitable manner and dispose of it in compliance with local regulations.





Due to contamination of the device with toxic dust, ESTA cannot take the device back.

12. Optional equipment

12.1 Pre-separator

The DUSTOMAT can be equipped with an upstream separator. This takes in large amounts of coarse dust to extend the life of the filter cartridge.

It is available in various sizes, depending on the dust extractor being used.

Order No.	Included in delivery	Connection size	Application
95,100	 mobile 200-liter vessel with pre-separator head, incl. connection to suction assembly	dia.100	Dry heavy, coarse suction material and large amounts of dust
97,100	 mobile 100-liter vessel with a baffle plate for filling with water, incl. connection to suction assembly	dia.100	Flying sparks Water separator for exhausting on processing machines that may produce sparks
20821100	 Cyclone with a mobile 100-litre dust collection container, incl. connection to the suction assembly	dia.100	Lightweight material large amounts of light material, mainly shavings and dust
91.023	 Floor suction nozzle on castors, 1m suction pipe with handheld tube electrically conductive	dia.100	Floor cleaning



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13. Device diagram

DUSTOMAT - 10



With the model information, request the **ESTA** replacement parts you need from the **ESTA** replacement part service: +49 (0) 7307 804 - 0

14. Declaration of conformity

Name of manufacturer: ESTA Apparatebau GmbH & Co. KG
Address of manufacturer: Gotenstraße 2 - 6
89250 Senden

Person in charge of documentation: Ramona Pflum
Gotenstraße 2 - 6
89250 Senden

Here we explain that the design of the machine

Machine: Dust extractor for collection, transport and elimination of dust and shavings from individual sources.

Series: DUSTOMAT
Model: DUSTOMAT-10, 230V/50Hz, 400V/50Hz

conforms to the following regulations:

2006/42/EG EC Machine Directive,
2004/108/EG EC Directive on Electromagnetic Compatibility

Reconciled norms used:

EN 12100 Safety of machinery - basic concepts, general propositions (part 1 and part 2)
EN 13857 Safety of machinery, devices and systems; safety distances to prevent hazard zones from being reached
EN 349 Safety of machinery; minimum distances for preventing body parts from being crushed
EN 61000-6-3 Electromagnetic compatibility - Emitted interference in residential areas, commercial and business operations, as well as small enterprises
EN 61000-6-4 Electromagnetic compatibility - Emitted interference for the industrial sector
EN 61000-3 Part 11 Electromagnetic compatibility
Limit values - Limiting voltage changes

National norms and technical specifications used:

VDI 3677 Filtering separators
DIN 8416 Dust extractors for commercial use

Senden, 23 February 2012


Dr. Peter Kulitz
CEO

ESTA-FAX: **+49 (0) 73 07 - 80 45 00**

ORDER FORM

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Amount	Order-No.	Item description

My address:

Customer-No.:

Company:

Address:

Contact person:

Phone:

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Signature:

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- Industrial Vacuum Cleaners
- Welding Fume Filters
- Oil Mist Separators
- Extraction Fans
- Extraction Arms
- Central Extraction Systems
- Pipe Systems

We reserve the right to make technical changes

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