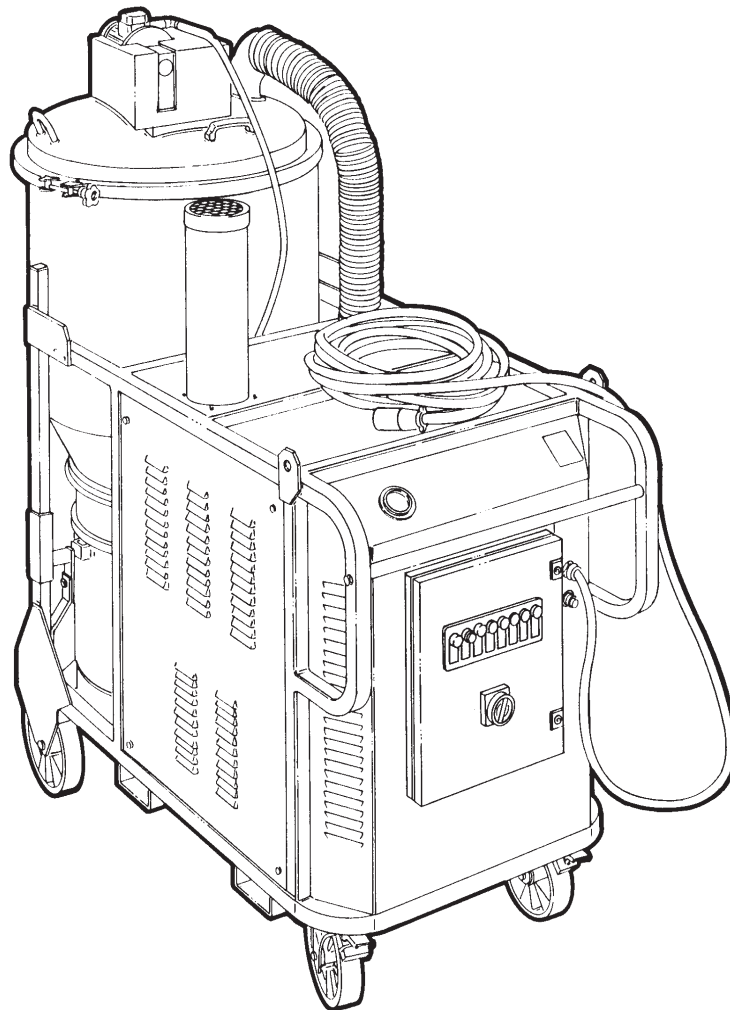
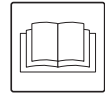




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MANUALE DI ISTRUZIONI

INSTRUCTIONS MANUAL

MANUEL D'INSTRUCTIONS

BETRIEBSANLEITUNG

MANUAL DE INSTRUCCIONES

3997 - 3997C

3997W - 3997WC



INDUSTRIAL  
VACUUM SOLUTIONS



**Nilfisk**

trusted since 1906

Translation of original instructions

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# Instructions for use

Read the operating instructions and comply with the important safety recommendations identified by the word **WARNING!**

## Operator's safety



**WARNING!**

*Before starting the vacuum cleaner, it is absolutely essential to read these operating instructions and to keep them ready at hand for consultation.  
The vacuum cleaner can only be used by people who are familiar with the way it works and who have been explicitly authorised and trained for the purpose.  
Before using the vacuum cleaner, the operators must be informed, instructed and trained on how to work it and for which substances its usage is permitted including the safe method for removing and disposing of the vacuumed material.*

## General information for using the vacuum cleaner

Use of the vacuum cleaner is governed by the laws in force in the country where it is used.

Besides the operating instructions and the laws in force in the country where the vacuum cleaner is used, the technical regulations for ensuring safe and correct operation must also be observed (Legislation concerning environmental and labour safety, i.e. European Union Directive 89/391/EC and successive Directives).

Do not carry out any operation that could jeopardize the safety of people, property and the environment.

Comply with the safety indications and prescriptions in this instruction manual.

## Proper uses

This vacuum cleaner is suitable for collective use, e.g. in hotels, schools, hospitals, factories, shops, offices and residences.

The vacuum cleaners described in this instruction manual are designed for industrial use. They are produced in different versions and for different applications.

The vacuum cleaner has been designed to be used by one operator at a time.

## Versions and variations

### Versions



**WARNING!**

#### Dust classification

*This vacuum cleaner is produced in versions:*

- *not suitable for vacuuming hazardous, combustible/explosive dust.*

### Variants

#### ATEX

The manufacturer produces vacuum cleaners suitable to be used in potentially explosive atmospheres. These variants are manufactured according to directives and standards in force. The relevant additional instructions are supplied together with the vacuum cleaner.

[ NOTE ]

#### ATEX variants

*Refer to the manufacturer's sales network for these versions.*

## Dust emissions into the environment

Indicative values of performance:

- The vacuum cleaner retains at least 99.1% of particles measuring  $\geq 3 \mu\text{m}$ ;

## General recommendations



**WARNING!**

### **Risk of fire outbreaks and explosions.**

- **The vacuum cleaner can only be used when active sources of ignition are not going to be vacuumed.**
- **It is forbidden to vacuum the following materials:**
  - **burning materials (embers, hot ashes, lighted cigarettes, etc.);**
  - **flammable liquids, aggressive fuels (e.g. gasoline, solvents, acids, alkaline solutions, etc.);**
  - **explosive dust or ones liable to ignite in a spontaneous way (such as magnesium or aluminium dusts, etc.).**
- **The vacuum cleaner is not suitable for vacuuming explosive or similar substances, as established by the laws governing explosive substances, particularly: liquid fuels and mixtures of flammable dust and liquids.**



**WARNING!**

### **Emergency**

**If an emergency situation occurs:**

- **filter breakage**
- **fire outbreak**
- **short-circuit**
- **motor block**
- **electric shock**
- **etc.**

**Turn off the vacuum cleaner, unplug it and ask for assistance from qualified personnel.**

[ NOTE ]

*Check the place of work and substances tolerated for the vacuum cleaner in ATEX variant.*



**WARNING!**

**The vacuum cleaners must not be used or stored outdoors, or in damp places.**

**GB**

## EC Declaration of conformity

Every vacuum cleaner comes with a EC Declaration of conformity (fig. 17).

[ NOTE ]

*The Declaration of conformity is an important document and should be kept in a safe place to be presented to the Authorities on request.*

# Vacuum cleaner description

## Machine parts and labels

Figure 1

1. Identification plate  
Code of the model, technical specifications, serial number, CE marking, year of manufacture
2. Power cable
3. Panel power plate  
Indicates that the panel is powered by the voltage given on the data plate.
4. Warning plate
5. Inlet
6. Outlet
7. Limiting valve(s)
8. Vacuuming unit
9. Door blocking circuit breaker
10. Electrical panel
11. Vacuum hose
12. Band latch
13. Container release lever
14. Electric filter shaker
15. Filter clogging control vacuum gauge
16. Differential pipe
17. Lifting bracket or eyebolt
18. Castor lever

The electric power cable (2) coming out from the vacuum cleaner near the control panel is without plug. The user must install a 63 Amps plug conforming to EEC standards.

Connect the plug to a plug with identical amperage and protected by a network switch.

This vacuum cleaner creates a strong air flow which is drawn in through the inlet (5) and blows out through the outlet (6). The vacuum cleaner is supplied with a remote control phase reverser which enables the vacuum unit to be started in the correct direction, preventing air and material from coming out from the dust container even if the phase connection to the motor does not comply with the correct sequence.

Before turning on the vacuum cleaner, fit the vacuum hose into the inlet and then fit the required tool on to the end part. Refer to the manufacturer's accessory catalogue or Service Centre.



**WARNING!**

*The Mod. "3997W - 3997WC" vacuum cleaner is not provided with quick-fit coupling of the suction hose, therefore the hose must be fixed to the Ø120 inlet hose with a clamp.*

The diameters of the authorised hoses are given in the technical specifications table.

This vacuum cleaner is equipped with a circumferential inlet which subjects the vacuumed substances to a circular centrifugal movement that makes them drop into the container.

The vacuum cleaner is equipped with a primary filter which enables it to be used for the majority of applications. Different types of class L main filter for dust harmful to health are available on models "3997 - 3997W"; models "3997C - 3997WC" are equipped with class M filter cartridges. Besides the main filter which retains the more common types of dust, the vacuum cleaner can be fitted with a downstream absolute filter, with a higher filtering capacity for fine dust and substances harmful for the health.

## Optional kits

Various optional kits are available for converting the vacuum cleaner:

- lifting bracket
- downstream absolute filter
- grill and depressor with bag
- grid

On request, the vacuum cleaner can be supplied with optional kits already installed. However, they can also be installed at a later date.

Please contact the manufacturer's sales network for further details.

Instructions to install parts on request are included in the conversion kit.



**WARNING!**

***Use only supplied and authorized genuine spare parts.***

## Accessories

Various accessories are available; refer to the manufacturer's accessory catalogue.



**WARNING!**

*ATEX variant: refer to the manufacturer's sales network.*



**WARNING!**

*Use only genuine accessories supplied and authorized by the manufacturer.*

## Packing and unpacking

Dispose of the packing materials in compliance with the laws in force.

Figure 2

Model	A (mm)	B (mm)	C (mm)	kg
3997-3997W	2,000	1,000	2,300	680
3997C - 3997WC	2,000	1,000	2,300	727

## Setting to work - connection to the power supply



**WARNING!**

- *Make sure that the vacuum cleaner is in perfect condition before starting work.*
- *Before plugging the vacuum cleaner into the electrical mains, make sure that the voltage rating indicated on the data plate corresponds to that of the electrical mains.*
- *Connect a 63A plug conforming to EEC standards to the end of the cable.*
- *Plug the vacuum cleaner into a socket with a correctly installed ground contact/connection. Make sure that the vacuum cleaner is off.*
- *The plugs and connectors of the connection cables must be protected against splashed water.*
- *Make sure that connections to the electrical mains and plug are correct.*
- *Use the vacuum cleaners only when the cables that connect to the electrical mains are in perfect condition (damaged cables could lead to electric shocks!).*
- *Regularly check that the electric cable does not show signs of damage, excessive wear, cracks or ageing.*



**WARNING!**

- When the vacuum cleaner is operating, do not:*
- *Crush, pull, damage or tread on the cable that connects to the electrical mains.*
  - *Only disconnect the cable from the electrical mains by removing the plug (do not pull the cable).*
  - *Only replace the electric power cable with one of the same type as the original: H07 RN - F. The same rule applies if an extension is used.*
  - *The cable must be replaced by the manufacturer's Service Centre staff or by equivalent qualified personnel.*

## Extensions

If an extension cable is used, make sure it is fit for the power draw and protection degree of the vacuum cleaner.



***ATEX variant: extensions, plugged in electrical devices and adapters cannot be used when the vacuum cleaner is used for flammable dust.***

Minimum section of extension cables:

Maximum length = 20 m

Cable = H07 RN - F

Max power (kW)	3	5	15	22
Minimum section (mm <sup>2</sup> )	2.5	4	10	16



***Sockets, plugs, connectors and installation of the extension cable must maintain the IP protection degree of the vacuum cleaner, as indicated on the data plate.***



***The vacuum cleaner's power socket must be protected by a differential circuit-breaker with surge current limitation, that shuts off the power supply when the current discharged to the ground exceeds 30 mA for 30 msec. or an equivalent protection circuit.***



***Never spray water on the vacuum cleaner: this could be dangerous for persons and could short circuit the power supply.***

Consult the latest edition of the European Union Directives, the Laws in the country of use and the current standards in force (UNI - CEI - EN), particularly European standard EN60335-2-69.



***Comply with the safety regulations governing the materials for which the vacuum cleaner is used.***

## Maintenance and repairs



***Disconnect the vacuum cleaner from its power source before cleaning, servicing, replacing parts or converting it to obtain another version/variant, the plug must be removed from the socket.***

- ***Carry out only the maintenance operations described in this manual.***
- ***Use only original spare parts.***
- ***Do not modify the vacuum cleaner in any way.***

***Failure to comply with these instructions could jeopardize your safety. Moreover, such action would immediately void the EC declaration of conformity issued with the vacuum cleaner.***

## Technical specifications

Parameter	Units	3997	3997C	3997W	3997WC
Voltage (50 Hz)	V	400	400	400	400
Power rating	kW	20	20	20	20
Noise level	dB(A)	79	79	78	78
Protection	IP	55	55	55	55
Insulation	Class	F	F	F	F
Container capacity	L	175	175	175	175
Inlet (diameter)	mm	100	100	120	120
Max vacuum without limiting valve	mbar	600	600	430	430
Max vacuum with limiting valve	mbar	440	440	250	250
Maximum air flow rate(without hose and reductions)	L/min'	18,600	18,600	36,000	36,000
Allowed hoses	mm	100	100	120	120
Main filter surface	m <sup>2</sup>	6.6	11	9.8	11
Downstream absolute "H" filter surface - HEPA 14 according to MPPS method (EN 1822)	m <sup>2</sup>	29	29	29	29
Standard version weight	kg	650	697	650	697
Downstream absolute filter version weight	kg	686	733	686	733

## Dimensions

Figure 3

Model	3997-3997W	3997C - 3997WC
A (mm)	2,000	2,000
B (mm)	900	900
C (mm)	2,150	2,150
Weight (kg)	650	697

- *Storage conditions:*  
*T : -10°C ÷ +40°C*  
*Humidity: 85%*
- *Operating conditions:*  
*Maximum altitude: 800 m*  
*(Up to 2,000 m with reduced performances)*  
*T : -10°C ÷ +40°C*  
*Humidity: 85%*

GB



## Safety devices

Figure 4

1. Vacuuming unit
2. Limiting valve position (3997 - 3997C series)
3. Limiting valve position (3997W - 3997WC series)
4. Limiting valve

**WARNING!**

**Do not tamper any limiting valve setting.**

## Controls, indicators and connections

Figure 5

1	Vacuum gauge
2	Hour counter
PM	Start button
PA	Stop button
PS1	Filter shaker start button (3997 - 3997W only)
H1	Voltage presence white indicator
H2	Thermal overload red indicator
Q1	Main / door blocking switch
H3	Compressed air low pressure red indicator (3997C - 3997WC only)
H4	Primary filter clogging blue indicator

## Inspection prior to starting

Figure 1

5. Inlet

Prior to starting, check that:

- the filters are installed
- all latches are tightly locked
- the vacuum hose and tools have been correctly fitted into the inlet (5)
- the bag or safety dust container is installed, if applicable.

**WARNING!**

**Do not use the vacuum cleaner if the filter is faulty.**

**WARNING!**

**The Mod. "3997W - 3997WC" vacuum cleaner is not provided with quick-fit coupling of the suction hose, therefore the hose must be fixed to the Ø120 inlet hose with a clamp.**

## Starting up

Figure 5

**WARNING!**

**Lock the castor brakes before starting the vacuum cleaner (18, Fig. 1).**

## Starting/stopping the vacuum cleaner

- Turn the main switch (Q1) from - 0 - (OFF) position to - I - (ON) position
- Switch on the vacuum cleaner by pressing the green start button (PM)

Press the stop button (PA) to stop the vacuum cleaner. Thus the electric power supply to the motor is cut out.

**WARNING!**

**When the vacuum cleaner is not used, turn the main switch (Q1) in -0- (OFF) position and disconnect the plug from the network switch installed on top of the machine.**

## Vacuum cleaner operation

Figure 6

Vacuum gauge (2): green zone (3), red zone (1)

Check the flow rate:

- when the vacuum cleaner is operating, the pointer of the vacuum gauge must remain in the green zone (3) to ensure that the speed of the intake air does not drop below the safety value of 20 m/sec;
- if the pointer is in the red zone (1) it means that the speed of the air in the vacuum hose is less than 20 m/s and that the vacuum cleaner is not operating in safety conditions. The filters must be cleaned or replaced.
- during normal operation conditions, close the vacuum hose, the pointer of the vacuum gauge must switch from the green zone (3) to the red zone (1).



***When the vacuum cleaner is operating, always check that the vacuum gauge pointer remains in the green zone (3). Consult the "Troubleshooting" chapter if faults occur.***

## Cleaning the primary filter (3997 - 3997W)

Depending on the vacuumed dust quantity and if the pointer of the vacuum gauge (Fig. 6) switches from the green zone (3, Fig. 6) to the red zone (1, Fig. 6) turn the vacuum cleaner off and shake the main filter.

"3997 - 3997W" models are equipped with a differential vacuum gauge that stops the vacuum cleaner when the filter is clogged.



***The differential activates when the filter has reached the maximum allowable clogging: frequently shake the filter before the activation of the differential to keep it in good condition.***

[ NOTE ]

*If the indicator is still in the red area. The suction hose or one of the accessories may be clogged, and not the filter. Clean these parts if this is the case.*



***Stop the vacuum cleaner before shaking the filter. Do not shake the filter while the vacuum cleaner is on, as this could damage the filter itself.***

Turn off the vacuum cleaner by pressing the red stop button (PA, fig. 5).

Wait a few seconds to allow the motor to stop, then press the filter shaker control button (PS1, fig. 5) for 10 ÷ 15 seconds. Wait before restarting the vacuum cleaner, to allow the dust to settle. Replace the filter element if the pointer still remains in the red zone (1, Fig. 6) even after the filter has been shaken (consult the "Primary filter replacement" paragraph).

## Cleaning the primary filter (3997C - 3997WC)

Figure 7

When very fine dust is continuously vacuumed without the vacuum being stopped and the filters cleaned, the Manufacturer can supply the machine with a filtering system consisting of four cartridges with capability 3 micron filtration. The unit is equipped with a fully automatic electropneumatic device (1) to alternately clean the filtering cartridges (2), which guarantees continuous service;

Electric panel (3), powered with a 24 V rating, is complete with cyclic timer to regulate the following times:

- time between one cleaning cycle and the next, set on 1 minute;
- time between one cartridge (2) cleaning operation and the next, set from 30 seconds;
- opening time of the solenoid valve for backwashed air exhaust into the cartridge, set at 2 tenths of a second. The shorter the time, the more energetic the cleaning action will be.



**WARNING!**

***Pay particular attention not to let the supply pressure to the filter unit exceed 5 bar (a pressure governor "4" fig. 7 is installed).***

***An exceeding pressure will dilate the the pores of the cartridge, resulting in a reduced filtering capacity.***

## Emergency stopping

Turn the main switch (Q1, fig. 5) to "0" position.

## Emptying the dust container



**WARNING!**

- ***Before proceeding with these operations, turn off the vacuum cleaner and remove the plug from the power socket.***
- ***Check the class of the vacuum cleaner.***

Before emptying the container it is advisable to clean the filter (see "Cleaning the main filter" paragraph).

- Normal version not suitable for vacuuming hazardous dust.
- Release the dust container (1, Fig. 8), then remove and empty it.
- Make sure that the seal is in perfect condition and correctly positioned.
- Place the container back in position and secure it again.

## Plastic bag

A plastic bag (2) can be used to collect dust (see Fig. 8). In this case, the vacuum cleaner must be equipped with optional accessories [depressor (3) and grid (4), Fig. 8].



**WARNING!**

- ***These operations can only be carried out by trained and qualified personnel who must wear adequate clothing, in compliance with the laws in force.***
- ***Take care not to raise dust when this operation is carried out. Wear a P3 protective mask.***
- ***In case of dangerous and/or toxic dust, use different kinds of safety bags.***
- ***The bag must only be disposed of by qualified personnel and in compliance with the laws in force.***

## At the end of a cleaning session

- Turn off the vacuum cleaner and remove the plug from the socket.
- Wind the connection cable and put it on the object holder (Fig. 1).
- Empty the container as described in the “Emptying the container” paragraph.
- Clean the vacuum cleaner as described in the “Maintenance, cleaning and decontamination” paragraph.
- Wash the container with clean water if aggressive substances have been vacuumed.
- Store the vacuum cleaner in a dry place, out of reach of unauthorized people.

## Maintenance, cleaning and decontamination



**WARNING!**

***Use only genuine spare parts supplied and authorized by the manufacturer.***



**WARNING!**

***The precautions described below must be taken during all the maintenance operations, including cleaning and replacing of the main and HEPA filters.***

- To allow the user to carry out the maintenance operations, the vacuum cleaner must be disassembled, cleaned and overhauled as far as is reasonably possible, without causing hazards for the maintenance staff or other people. The suitable precautions include decontamination before disassembling the vacuum cleaner, adequate filtered ventilation of the exhaust air from the room in which it is disassembled, cleaning of the maintenance area and suitable personal protection.
- The external parts of the vacuum cleaner must be decontaminated by cleaning and vacuuming methods, dedusted or treated with sealant before being taken out of a hazardous zone.  
All parts of the vacuum cleaner must be considered as contaminated when they are removed from the hazardous zone and appropriate actions must be taken to prevent dust from dispersing.  
When maintenance or repair procedure are carried out, all the contaminated elements that cannot be properly cleaned, must be eliminated.  
These elements must be disposed of in sealed bags conforming to the applicable regulations and in accordance with the local laws governing the disposal of such material.  
This procedure must also be followed when the filters are eliminated (main, HEPA, downstream filters).  
Compartments that are not dust-tight must be opened with suitable tools (screwdrivers, wrenches, etc.) and thoroughly cleaned.
- Carry out a technical inspection at least once a year, e.g.: Check the air filters to find out whether the air-tightness of the vacuum cleaner has been impaired in any way and make sure that the electric control panel operates correctly. This inspection must be carried out by the manufacturer or by a competent person.

**GB**

## Primary and absolute filter disassembly and replacement



**WARNING!**

*When the vacuum cleaner is used to vacuum hazardous substances, the filters become contaminated, thus:*

- *work with care and avoid spilling the vacuumed dust and/or material;*
- *place the disassembled and/or replaced filter in a sealed plastic bag;*
- *close the bag hermetically;*
- *dispose of the filter in accordance with the laws in force.*



**WARNING!**

*Filter replacement is a serious matter. The filter must be replaced with one of identical characteristics, filtering surface and category. Otherwise the vacuum cleaner will not operate correctly.*



**WARNING!**

*Lift up the cover and the primary filter with a tackle, a crane or a bridge crane of adequate carrying capacity. Use ropes suitable for the purpose; do not use cables not intended for this purpose. The cover must be correctly slinged, using the suitable eyebolts.*

Take care not to raise dust when this operation is carried out. Wear a P3 mask and other protective clothing plus protective gloves (DPI) suited to the hazardous nature of the dust collected, refer to the laws in force.

Before proceeding with these operations, turn off the vacuum cleaner and remove the plug from the power socket.

- Disconnect the plug (1).
- Unscrew the nut (2) and release the tube (3) from the fitting.
- Remove the suction hose (7) from the cover fitting.
- Unscrew the clamp (6) and remove the ring (5) that locks the cover to the filter chamber.
- Sling the cover using the eyebolts (4) and lift it carefully, because the star-shaped filter and the shaking cage are connected to the cover.



**WARNING!**

*Do not rest the cover-star-shaped filter vertically on the ground, but use suitable supports or rest it sideways, as the weight of the cover can damage the filter and the shaking cage*

- Remove filter to get access to the clamps that fix it to the shaking cage.
- Cut clamps (8) to detach the cage, unscrew clamp (9) and remove it from the edge of the filter (10), remove ring (11) with seal.

Obtain a new filter with identical characteristics as the previously one and proceed in the following way:

- Fit the filter catch (9) and retention ring (11) of the old filter on to the new one.
- Insert cage (12) and fix it to the filter using clamps (8), supplied along with the spare filter.
- Insert filter inside the filtering chamber.

## Primary filter replacement (3997 - 3997W)

Figure 9

1. Plug
2. Nut
3. Air tube
4. Eyebolts
5. Closing band
6. Clamp
7. Suction hose
8. Clamp
9. Filter catch clamp
10. Primary filter
11. Filter ring
12. Filter cage
13. Lever
14. Filter cage shaft
15. Connecting rod
16. Motor reducer

Before closing cover, check that the filter bags (10) and bearing case (12) are vertical and not slanting. Lever (13) fixed to cage (12) operating shaft (14) must be halfway along its travel in the neutral central position. Connecting rod (15) fixed to reduction unit (16) must point downwards. Only in this way will cage (12) cover an equal travel to the right and left when the reduction unit (16) is operated, without tightening filter (10).

The filter could be torn and the motor of the reduction unit burnt out if this is not done.

Before locking ring (5) locking the cover on the filter chamber, shake the filtering unit by hand in order to remove any small positioning defects.

Fit ring (5) and clamp (6), refit the suction hose (7), the plug (1) and the air tube (3).

## Changing the cartridge filters (3997C - 3997WC)

Figure 10

1. Tank
2. Coils
3. Air hose
4. Cables
5. Tube
6. Nuts
7. Venturi unit
8. Screws
9. Cartridge filters
10. Seal
11. Clamp
12. Closing ring
13. Cock

Take care not to raise dust when this operation is carried out. Wear a P3 mask and other protective clothing plus protective gloves (DPI) suited to the hazardous nature of the dust collected, refer to the laws in force.

Before proceeding with these operations, turn off the vacuum cleaner and remove the plug from the power socket.

**WARNING!**

**Before working on the filter unit in any way, shut off the compressed air supply to the tank (1) and vent off all the air from this latter through cock (13). Stand well back to prevent air from blasting into the face.**

Disconnect the machine from the electricity and compressed air sources and proceed in the following way when changing the four cartridges (9):

- Unscrew the clamp (11) and remove the ring (12) that locks the cover to the filter chamber.
- Remove the cover.
- Unscrew the nuts that lock coils (2) to the solenoid valves, leaving them inside the chamber (there will be no need to disconnect them from the electric cable in this way).
- Remove the compressed air supply pipe (3) from the tank (1).
- Remove the three wires (4) (neutral - n.open - n.closed) from the pressure switch. Remember their positions as the vacuum cleaner will not work if they are inverted (consult the wiring diagram).
- Detach condensate discharge pipe (5) from under the tank.
- Unscrew nuts (6) that fix the tank to the filter chamber and then remove the tank.
- Remove the Venturi units (7) allowing them to turn from right to left.
- Unscrew screws (8) and lift the cartridges (9), taking care not to dislodge the dust that will have deposited on them.
- Fit the new cartridges (9), and correctly position the seal (10) in the relative housing on the lower side of the cartridge (9) fixing flange.

## HEPA filter replacement

**WARNING!**

**Take care not to raise dust when this operation is carried out. Wear a P3 mask and other protective clothing plus protective gloves (DPI) suited to the hazardous nature of the dust collected, refer to the laws in force.**

## Downstream HEPA filter replacement

Figure 11

1. Nuts
2. Protective casing
3. Absolute filter

- Unscrew the four bolts (1) and remove the protective casing (2).
- Remove old absolute filter (3) and put it in a plastic bag, close the plastic bag hermetically and dispose of it in accordance with the laws in force.
- Assemble new absolute filter (3), taking care not to damage it.
- Fit the protective casing (2) with the slots pointing downwards.
- Lock it retightening the four nuts (1).

**[ NOTE ]**

*If the vacuum cleaner is ATEX variant: Perform galvanic continuity tests in accordance with the accident-prevention standards (e.g.: VBG4 and according to DIN VDE 0701 part 1 and part 3). Standard EN 60335-2-69 prescribes inspections at regular intervals or after repairs or modifications.*

## Motor cooling fan inspection and cleaning

Periodically clean the motor cooling fan to prevent the motor from overheating, especially if the vacuum cleaner is used in a dusty place.

**GB**

## Tightness inspection

### Hoses check

Figure 12

Make sure that connecting hoses (1 and 2) are in a good condition and correctly fixed.

If the hoses are damaged, broken or badly connected to the unions (3), they must be replaced.

When sticky materials are treated, check for possible clogging along the hose (2), in the inlet (4) and on the baffle plate inside the filtering chamber.

Scrape the inlet (4) from the outside and remove the deposited waste as indicated in the figure.

### Filtering chamber tightness check

Figure 13

If the gasket (5) between the container (4) and the filtering chamber (3) fails to guarantee tightness:

- Loosen the four screws (6) that lock the filtering chamber (3) against the vacuum cleaner structure.
- Allow the filtering chamber (3) to lower down and tighten the screws (6). Replace the gasket (5) if the degree of tightness is still not optimum.
- Check the seal (2) for tightening between the cap (1) and the filtering chamber (3).

The gaskets must be replaced if they are torn, cut, etc...

## Vacuum cleaner disposal

Figure 15

Dispose of the vacuum cleaner in compliance with the laws in force.

- **Proper disposal (electric and electronic waste) (applicable in the European Union and in countries providing a separate collection system)**

The above symbol (Fig. 15), which is present on the product or in its documentation, indicates that the product cannot be disposed of together with other domestic waste at the end of its life cycle.

To prevent damages to the environment or the health caused by improper waste disposal, please separate this product from other waste and recycle it responsibly in order to support the sustainable reuse of material resources.

Domestic users should contact the retailer or the local office providing information on separate collection and recycling of this product.

Companies should contact the supplier and check the purchase contract terms and conditions.

This product can not be disposed of together with other commercial waste.



## Wiring diagrams

## 3997-3997W models

Figure 16

Name	Code	Description	Q.ty
H1	8 39111 + 8 39113 + 8 39114	White lamp	1
H2	8 39112 + 8 39113 + 8 39114	Red indicator	1
H4	8 39334 + 8 39113 + 8 39114	Blue lamp	1
K1L	8 39261 + 8 39367	Contacteur kW 18.5 24 VAC	1
K2L	8 39261 + 8 39367	Contacteur kW 18.5 24 VAC	1
KM1	8 39261 + 8 39366 + 8 39367	Contacteur kW 18.5 24 VAC	1
KM2	8 39261 + 8 39367	Contacteur kW 18.5 24 VAC	1
KM3	8 39261 + 8 39367	Contacteur kW 18.5 24 VAC	1
KM4	8 39281	Contacteur kW 4 24 VAC 1NO	1
KT1	8 39119	Timer S/T 0-60 sec.	1
PA	8 39109 + 8 39110	Red button	1
PM	8 39107 + 8 39108	Green button	1
PS1	8 39312 + 8 39108	Yellow button	1
Q1	8 39558	63 A Main switch	1
Q2	8 39888 + 8 39726	Circuit breaker 40-50 A	1
Q3	8 39882 + 8 39726	Circuit breaker 1.1-1.6 A	1
SF1	8 391120	Phase sequence relay 180-600V E	1
TR1	8 391051	63VA V400/24 Transformer	1
M1	8 39244	Fuse box terminal 1.5 mmq S	2
	8 39120	Line terminal 6 mmq S	14
	8 39293	Ground terminal 16 mmq S	1
	8 39121	Ground terminal 6 mmq S	5

## 3997C - 3997WC models

Figure 17

Name	Code	Description	Q.ty
H1	8 39111 + 8 39113 + 8 39114	White lamp	1
H2	8 39112 + 8 39113 + 8 39114	Red indicator	1
H3	8 39112 + 8 39113 8 39114	Red indicator	1
H4	8 39334 + 8 39113 + 8 39114	Blue lamp	1
K1L	8 39261 + 8 39367	Contacteur kW 18.5 24 VAC	1
K2L	8 39261 + 8 39367	Contacteur kW 18.5 24 VAC	1
KM1	8 39261 + 8 39366	Contacteur kW 18.5 24 VAC	1
KM2	8 39261 + 8 39367	Contacteur kW 18.5 24 VAC	1
KM3	8 39261 + 8 39367	Contacteur kW 18.5 24 VAC	1
KT1	8 39119	Timer S/T 0-60 sec.	1
PA	8 39109 + 8 39110	Red button	1
PM	8 39107 + 8 39108	Green button	1
Q1	8 39558	63 A Main switch	1
Q2	8 39888 + 8 39726	Circuit breaker 40-50 A	1
SF1	8 391120	Phase sequence relay 180-600V E	1
TR1	8 391051	63VA V400-230/24V Transformer	1
M1	8 39244	Fuse box terminal 1.5 mmq S	2
	8 39120	Line terminal 6 mmq S	14
	8 39293	Ground terminal 16 mmq S	1
	8 39121	Ground terminal 6 mmq S	4

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## Recommended spare parts

The following is a list of spare parts that should be kept ready at hand in order to speed up maintenance operations:

- primary filter
- absolute filter
- filter chamber gasket
- filter gasket
- main filter tightening clamp
- dust bag

To order spare parts, please refer to the manufacturer's spare parts catalogue.

# Troubleshooting

Problem	Cause	Remedy
The vacuum cleaner suddenly stops	The differential pressure switch (blue indicator) activated	Shake the filter. Replace it if this is not sufficient.
	Clogged vacuum hose	Check the vacuum hose and clean it.
	Circuit breaker activation	Check the setting. Check the motor electrical input. Contact an authorized after-sales service centre if necessary.
The vacuum cleaner performance has decreased	Clogged primary filter	Shake the filter. Replace it if this is not sufficient.
	Clogged vacuum hose	Check the vacuum hose and clean it.
Dust leaks from the vacuum cleaner	The filter is torn	Replace it with another of identical type.
	Inadequate filter	Replace it with another of a suitable category and check.
Electrostatic current on the vacuum cleaner	Non existent or inefficient grounding	Check all ground connections. Especially check the inlet.