

VHS011Nx

Instructions for use

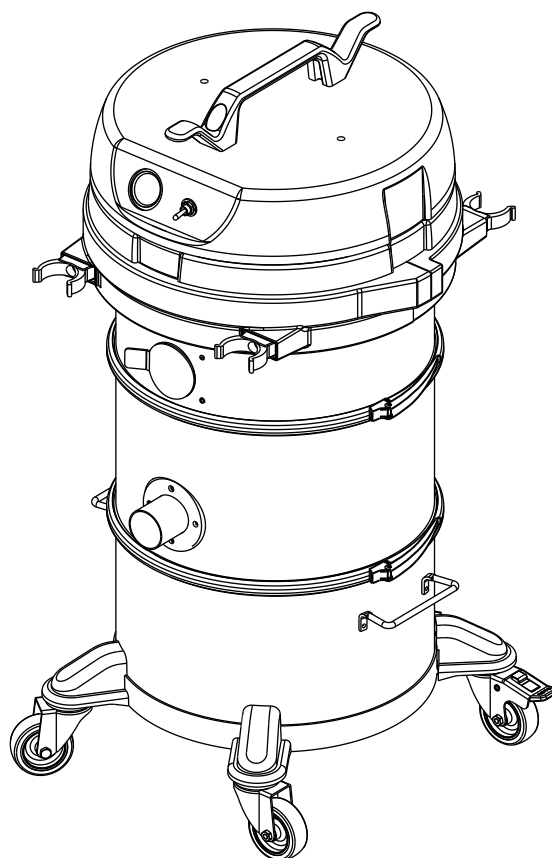
INSTRUCTIONS MANUAL
MANUEL D'INSTRUCTIONS
MANUAL DE INSTRUCCIONES



UMC413
EDITION 01/2024



US	English-American
FR	French-Canadian
ES	Spanish-Mexican



NILFISK

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Instructions for use

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

Operator's safety



Before starting the machine, it is absolutely essential to read these operating instructions and to keep them handy for consultation.

The machine 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 machine, 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.



The use of the machine by people (including children) with limited physical and mental capacities or lacking in experience and knowledge is strictly forbidden, unless they are supervised by a person who is experienced in the use and safe handling of the machine.

Children must be supervised to make sure they will not play with the machine.



Before using the machine, always check that any hazardous condition has been eliminated and inform the people in charge about any operational fault.

Check that all guards and protections are correctly mounted and that all safety devices are installed and efficient.

Repairs must only be carried out when the machine is at a standstill and disconnected from the electricity and air supply mains. Never ever carry out repairs without having first received the necessary authorization.



Any changes made by the user without the Manufacturer's explicit authorization shall invalidate the warranty and hold the Manufacturer harmless from any and all liabilities for damages caused by faulty products.

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General information for using the machine

Use the machine in accordance with 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 device 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 perform 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 machine is suitable for commercial use, in hotels, schools, hospitals, factories, shops, offices and apartment hotels for example, for hire and in any case for purposes other than normal domestic use.

This machine is suitable for cleaning and vacuuming solid materials in indoor and outdoor environments.

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

This machine consists of a vacuum unit, with an upstream filter unit and a container for collecting the vacuumed material.

Improper Use



The following use of the device is strictly forbidden:

- **Outdoors in case of atmospheric precipitation.**
- **When not placed on horizontal level ground.**
- **When the filter unit is not installed.**
- **When the vacuum inlet and/or hose are turned to face parts of the human body.**
- **Use without the cover on the vacuum unit.**
- **When the dust container is not installed.**
- **Use without the guards, protective covers and safety systems installed by the manufacturer.**
- **When the cooling vents are partially or totally clogged.**
- **When the machine is covered with plastic or fabric sheets.**
- **Use with the air outlet partially or totally closed.**
- **When used in narrow areas where there is no fresh air.**



The following use of the device is strictly forbidden:

- **When the cable or plug is damaged. If appliance is not working as it should, has been dropped, damaged, left outdoors or dropped into water, return it to an authorized service center.**
- **Vacuuming liquids with machine not equipped with specific original stopping systems.**
- **Do not pull or carry by the cord, use the power cord as a handle, do not close a door on cord, or pull cord around sharp edges or corners. Do not run the appliance over the cord. Keep cord away from heated surfaces.**
- **Vacuuming the following materials:**
 1. **Burning materials (embers, hot ashes, lit cigarettes, etc.).**
 2. **Naked flames.**
 3. **Combustible gas.**
 4. **Flammable liquids, aggressive fuels (gasoline, solvents, acids, alkaline solutions, etc.).**
 5. **Explosive dust/substances and/or ones liable to ignite in a spontaneous way (such as magnesium or aluminium dusts, etc.).**

Note: Fraudulent use is not admitted.

Testing and guarantee

- **Testing**
Each machine is subjected to a final test involving its operation and performances. This guarantees maximum efficiency during the work the machine must carry out.
- **Warranty**
The guarantee clauses are specified in the sales contract.

How to request assistance

In the event of faults or malfunctions requiring the intervention of specialized technicians, contact the Manufacturer or your nearest After-Sales Service Centre.

Exclusion of liability

The machine was delivered to the user according to the conditions valid at the time of purchase.

For no reason what so ever shall the user be authorized to tamper with the machine.

Contact your nearest After-Sales Service Centre in the event of faults.

All attempts by the user or by unauthorized personnel to demount, modify or, more generally, tamper with any part of the machine shall void the guarantee and relieve the manufacturer of all responsibility for damage to either persons or property caused by such action.

The manufacturer shall also be relieved of liability in the following cases:

- Wrong installation.
- Improper use of the machine by inadequately trained personnel.
- Utilization contrary to the provisions in force in the country of use.
- Incorrect or insufficient maintenance.
- Use of non-genuine spares or use of spares that are not specifically made for the model in question.
- Total or partial failure to comply with the instructions.
- Failure to forward the warranty certificate.
- Exceptional environmental events

Versions and variations

Versions for dust harmful for the health (L-M-H)

Vacuum cleaners for dust harmful to health are classified according to different dust classification, in compliance with standard UL/CSA 60335-2-69 – Annexe AA:

- **L** (low risk) suitable for separating dust with an exposure limit value of over 1 mg/m³, depending on the volume occupied; retains at least 99% of vacuumed particles;
- **M** (medium risk) suitable for separating dust with an exposure limit value not lower than 0.1 mg/m³; retains at least 99.9% of vacuumed particles;
- **H** (high risk) for separating all dust with an exposure limit value lower than 0.1 mg/m³, depending on the volume occupied, including carcinogenic and pathogenic dusts, such as asbestos; retains at least 99.995% of the vacuumed particles.

[NOTE]

- *In the case of dust harmful to health, contact the local health and safety authorities, and observe national regulations in force both during use and disposal.*
- *Radioactive substances are not included in the definition of the type of dust harmful to health described above.*

[NOTE]

Machines designed for picking up sawdust and quartz-containing mineral dust shall be at least M-class.

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Versions for combustible powders (ACD)

This machine is suitable to vacuum combustible dust, with the exception of magnesium dust, in areas not classified as ATE (normal locations) and certified in accordance with UL/CSA 60335-2-69 - Annex AA.

[NOTE]

Refer to the manufacturer's sales network for these versions.
For ACD devices, see the instructions for "ACD" use.

HEPA variants (AU)

This machine can be equipped with an upstream filter (HEPA). The procedures for servicing and emptying the machine including removing the dust container, must only be performed by authorized personnel wearing protective clothing. Do not use without the complete filter system in place.

General recommendations



CAUTION!

If an emergency situation occurs:

- *for example, accident - fault - filter breakage - fire - etc.*

Disconnect the machine from the power supply and ask for assistance from qualified personnel.

In case the user comes into contact with the vacuumed product, check the cautions shown on the safety technical sheet of the product, which must be made available from the employer.

[NOTE]

Check the place of work and substances tolerated for the machine suitable for liquids.



CAUTION!

The machines must not be used or stored outdoors, or in damp places.

[NOTE]

These devices must not be used in corrosive environment.

Residual Risks

After carefully considering the risks that are present in all machine operating phases, necessary measures were adopted in order to eliminate the risks for the operators, as far as possible, and/or limit or reduce the risks deriving from hazards that cannot be completely eliminated at the source.

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During operations and/or maintenance, operators are exposed to certain residual risks which, due to the nature of the operations themselves, cannot be completely eliminated. Therefore the installer is responsible for providing additional information and/or hazard signals based on the location of machine installation and the material that is handled.

Risks due to electrical hazards during maintenance



DANGER

Risk of electrocution if accessing the electrical equipment during maintenance without having deactivated the electrical power supply.



FORBIDDEN

It is forbidden to work on the electric equipment before disconnecting the machine or its parts from the electrical line.



MANDATORY



Have the electrical maintenance operations performed by qualified personnel. Perform the checks on the electric equipment as specified in the manual.

Risks to the presence of residual high temperature after stopping the vacuum unit.

During maintenance and cleaning operations, the operator may come into contact while the machine is stopped, with parts of the vacuum unit with surfaces at high temperatures. Specific warning signs placed in strategic points indicate the hazard due to the presence of hot surfaces and the obligation for the user to wear personal protective equipment, in particular protective gloves.

The potentially hot parts (high temperatures) are identified as follows:



IT IS MANDATORY TO WEAR GLOVES



CAUTION DANGEROUS TEMPERATURES

Description of the machine

Machine Parts and Labels

Figure 1

1. Identification plate:
Model code, serial number, NRTL marking, year of manufacture, weight (kg)
2. Dust container
3. Vacuum inlet
4. Wheel locking lever
5. Handle
6. Closing band lever
7. Air outlet
8. Accessories holder
9. Vacuum meter
10. Main switch
11. Filter cleaning System

This machine creates a strong air flow which is drawn in through the vacuum inlet and blows out through the outlet.

Before turning on the machine, 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).

The diameters of the authorized hoses are indicated in the Technical data table.

The machine is equipped with a primary filter which enables it to be used for the majority of applications.

In addition to the primary filter that retains the most common dust, a secondary filter (absolute filter) can be installed.

This machine is equipped with an internal baffle plate which subjects the vacuumed substances to a circular centrifugal movement that makes them drop into the container.

Figure 2

Vacuum cleaners for dust harmful to health and/or combustible dust are classified according to different dust classification, in compliance with standard UL/CSA 60335-2-69 – Annex AA:

1. Class **L** label
2. Class **M** label
3. Class **H** label
4. **ACD** label

The class H label reads the following.



This vacuum cleaner contains dust hazardous for the health.

Only authorised personnel wearing suitable personal protective equipment should empty and service the machine, including removing the means used to vacuum the dust. Do not use without the complete filter system in place.

Optional kits

Various optional kits are available for converting the machine.

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

Please contact the sales network for further details.

Instructions describing how to fit the optional kits and the relative operation and maintenance manuals are supplied together with the optional kits.



Use only supplied and authorised genuine spare parts.

Accessories

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



Use only genuine accessories supplied and authorised by the manufacturer.

Packing and unpacking

All the dispatched equipment has been thoroughly checked before being delivered to the haulage contractor.

On arrival, check the machine to see that it has not been damaged during transport. In case of damage, immediately lodge a complaint with the haulage contractor.

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

Figure 3

Modello	A (in)	B (in)	C (in)	lb (*)
VHS011Nx	21,6	21,6	47	60

(*) Weight with packing

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Unpacking, moving, use and storage

To unpack the vacuum unit, remove the retainers with a hammer and a screwdriver.

Also remove the fastening devices placed by the manufacturer when packing, by using suitable tools.

Release the wheel brakes and remove the machine from the supporting platform, by using a ramp that can provide adequate capacity, and by driving the vacuum cleaner by the handle.

Operate on flat, horizontal surfaces.

The load-bearing capacity of the surface the machine is placed on must be suitable for bearing its weight.

If the device is to work in a fixed position, allow wide space around the device in order to ensure freedom of the movement and allow the maintenance staff to operate with ease.

**CAUTION!**

The manufacturer shall not be liable for any damages caused to the machine during lifting, when the lifting equipment supplied by the manufacturer is not used.

**CAUTION!**

When several supporting platforms are provided, the supporting platform to which the machine is anchored must be handled with a forklift truck that can provide adequate capacity. Then unpack the machine by laying it down on a flat and horizontal surface that can provide adequate capacity for the vacuum cleaner weight.

Setting to work - connection to the power supply

**CAUTION!**

- *Make sure there is no evident sign of damage to the machine before starting work.*
- *Before plugging the machine into the electrical mains, make sure the voltage rating indicated on the data plate corresponds to that of the electrical mains.*
- *Connect the plug into a socket with a correctly installed ground contact/connection. Make sure that the machine is turned off.*
- *The plugs and connectors of the connection cables must be protected against splashes of water.*
- *Check that for proper connection to the electrical mains.*
- *Use the machine only when the cables that connect to the electricity mains are in perfect condition (damaged cables could lead to electric shocks!).*
- *Regularly check there are no signs of damage, excessive wear, cracks or ageing on the electric cable.*

US**CAUTION!**

- *When the device is operating avoid stepping on, crushing, pulling or damaging the cable that connects to the electrical mains.*
- *When the device is operating avoid disconnecting the cable from the mains only by pulling the plug (do not pull on the cable itself).*
- *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.*

The system safety officers must:

- Prevent any improper use or manoeuvre.
- Make sure that the safety devices are not removed or tampered with.
- Check that all maintenance operations are regularly performed;
- Make sure that no machine part (couplings, holes, etc.) is modified to attach additional devices;
- Make sure that only original Nilfisk spare parts are used.

NOTE

The user shall be responsible for ensuring that installation complies with the all relevant local provisions. The equipment must be installed by qualified technicians who have read and understood the instructions herein.

Extensions

If an extension cable is used, make sure it is suitable for the power input and protection degree of the machine.

Max power (kW)	1,5
Minimum section (AWG)	16
Maximum length (in)	785
Cable	SJT

**CAUTION!**

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

**CAUTION!**

The machine 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.

**CAUTION!**

Never spray water on the machine: this could be dangerous for people and could short circuit the power supply.

Grounding instructions

This appliance must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock.

This appliance is equipped with a cord that has an equipment-grounding conductor and grounding plug. The plug must be inserted into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

**CAUTION!**

Improper connection of the equipment grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are in the doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the appliance if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

Dry applications

[NOTE]

The supplied filters and the bag (if applicable) must be installed correctly.

**CAUTION!**

Comply with the safety regulations governing the vacuumed materials.

Technical data

Parameter	Units of measurement	VHS011N1
Voltage (@60Hz)	V	120
Power rating	kW	0.9
Current	A	8.0
Max vacuum	in h2o	80
Maximum air flow rate (118 in Ø 1,5 in hose)	cfm	82
Sound pressure level (Lpf) (*)	dB(A)	70
Vibration, ah (**)	m/s ²	≤2.5
Protection	IP	44
Insulation	Class	I
Container Capacity	gal	4
Vacuum inlet (diameter)	in	1.5
Allowed hoses	in	1.5
Primary filter surface (L-M-H)	Sq. ft	9.5
Upstream absolute filter surface area (AU)	Sq. ft	9.5
Absolute filter efficiency	%	99.995 (H14)

(*) Measurement uncertainty KpA < 1.5 dB(A). Noise emission values obtained according to UL/CSA 60335-2-69

(**) Total value of vibration output to the operator arm and hand

Dimensions

Figure 4

Model	VHS011N1
A (in)	16,5
B (in)	16
C (in)	31
Weight (lb)	40

[NOTE]

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

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Controls and indicators

Figure 5

1. Vacuum gauge
2. Main motor Start/Stop switch
3. Filter cleaning System

Inspections prior to starting

Before starting, check that:

- The filters are installed.
- The closing band is properly tightened.
- The vacuum hose and tools have been correctly fitted into the vacuum inlet.
- The bag or safety container is installed, if applicable.



Do not use the device if the filters are faulty.

Starting and stopping

Figure 5



Before starting the machine, lock the castor brakes

- Turn the switch (2) to "ON" position to start the vacuum cleaner.
- Turn the button (2) to "OFF" position to stop the vacuum cleaner.

Emergency stopping

Figure 5

Turn the switch (2) to "OFF" position.

The vacuum cleaner stops.



The motors and internal components of the vacuum cleaner will still be electrically powered.

Operation

Figure 6

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

When using the machine, check the flow control:

- when the machine 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 machine is not operating in optimal conditions. Shake or replace the filter.
- 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).



The air speed in the vacuum hose must not be less than 20 m/s.
This state is shown by the green indicator of the primary filter.



All machines can be used only with hoses whose diameters comply with the specifications in the "Technical Data" table.



Consult the "Troubleshooting" chapter if faults occur.

At the end of a cleaning session

- Turn off the machine and remove the plug from the socket.
- Wind up the connection cable.
- Empty the container and clean the machine as described in the "Maintenance, cleaning and decontamination" paragraph.
- Wash the container with clean water if aggressive substances have been vacuumed.
- Store the machine in a dry place, out of reach of unauthorised people.
- Lock the castor brakes.
- During transport and when not using the machine, close the vacuum inlet with the relevant plug (if equipped).

Maintenance, cleaning and decontamination



Disconnect the machine from its power source before cleaning, servicing, replacing parts or converting it to obtain another version/variant.

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

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



For maintenance procedures not described in this manual, please contact the manufacturer's technical support or sales network.



To guarantee the safety level of the machine, only original spare parts supplied by the manufacturer should be used.



The precautions described below must be taken during all maintenance operations, including cleaning and replacing the primary and absolute filters.



This Class H machine can collect dust hazardous for the health. The procedures for servicing and emptying the machine including removing the dust bag, must only be performed by specialised personnel wearing protective clothing. Do not use without the complete filter system in place.

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In particular, on Class H machines, the filtering efficiency of the machine must be checked at least once a year, or more often if required by national legislation. The test method for checking the filtering efficiency of the machine is indicated in standard UL/CSA 60335-2-69, par. 22.AA.201.2.

If the test isn't passed, it must be repeated after the class H filter has been changed.

- To allow the user to carry out the maintenance operations, the machine 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 machine, 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 machine 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 machine 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 in accordance with applicable regulations and local laws on the disposal of such material. This procedure must also be followed for filter disposal (primary and absolute filters).
- Compartments that are not dust-tight must be opened with suitable tools (screwdrivers, wrenches, etc.) and thoroughly cleaned.
- A check must be carried out by the manufacturer or the personnel of the same at least once a year. For example: Check the air filters to find out whether the air-tightness of the machine has been impaired in any way and make sure that the electric control panel operates correctly.

Filter cleaning

Primary filter cleaning with manual system

Depending on the amount of vacuumed material, if the vacuum gauge pointer (2, Fig. 6) goes from the green zone (3, Fig. 6) to the red zone (1, Fig. 6), clean the primary filter by closing the inlet (3, Fig. 1) and by opening the PullClean system flap (11, Fig. 1), repeat the operation 3 or 4 times, for 1 or 2 seconds each time.



Perform this procedure with the machine running.

Wait before restarting the machine, to allow the dust to settle. Replace the filter element if the indicator is red, even after the filter has been shaken (see "Primary and absolute filters disassembly and replacement").

[NOTE]

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

Container cleaning

Emptying the container



Before proceeding with these operations, turn off the machine and remove the plug from the power socket. Check the machine filtration class.

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

Figure 1

- Release the dust container (2) with the lever (6), then remove and empty it.
- Clean the machine as described in the "Maintenance, cleaning and decontamination" paragraph.
- Wash the container with clean water if aggressive substances have been vacuumed.
- Make sure the gasket is in perfect condition and correctly positioned.
- Place the container back in position and secure it again.

[NOTE]

After the cleaning session, leave the machine running for at least 60 seconds before turning it off. Avoid switching on/off too frequently.

Main filter disassembly and replacement



When the machine is used to vacuum hazardous substances, the filters become contaminated, therefore:

- **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.**



Filter replacement is a serious matter. The filter must be replaced with one of identical characteristics, filtering surface and category.

Otherwise the machine will not operate correctly.

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



Before performing these operations, clean the filter as described in the "Maintenance, cleaning and decontamination" paragraph.



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



Reassemble with care to avoid trapping your hands between the vacuum unit and the container. Use gloves that provide protection against mechanical risks (EN 388) with a level of protection CAT. II.



Do not use the Class H filter again after having removed it from the machine.

Change of primary filter for machines equipped with manual cleaning system

Figure 7

- Clean the primary filter (see "Filter cleaning" paragraph).
- Release the closing band (1).
- Lift the motor head using the handle (2).
- Remove and dispose the filter (3) according to the laws in force.
- Restore the vacuum cleaner by inserting a new filter (3).
- Ensure that the earthing plate (4) is in place and makes contact with the filter plate.
- Reposition the header and secure it with the locking strip (1).

Upstream absolute filter replacement (AU)

Figura 8

- Clean the primary filter (see "Filter cleaning" paragraph).
- Release the closing band (1).
- Lift the motor head using the handle (2).
- Remove the filter (3) by unscrewing the nut (4).
- Cover the filter (3) with a plastic bag, close the bag tightly and dispose of the filter in accordance with current legislation.
- Insert a new filter (3) with the same filtering characteristics as the removed one.
- Restore the vacuum cleaner by inserting a new filter (3) with same characteristics.
- Lock the filter with the nut (4).
- Reinstall the motor head and lock it with the closing band (1).

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Tightness inspection

Hoses check

Make sure that connecting hoses are in a good condition and correctly fixed.

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

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

To clean, scrape the inlet from the outside to remove deposits.

Filtering chamber gasket check for machines equipped with dust container

Figure 9

If the gasket (1) between the container and the filter chamber (3) does not guarantee a seal or if there are tears, cracks, etc., the gasket must be replaced.

Wiring diagrams




Figure 10

Name	Code	Description	Q.ty
Q1	4083901814	2P 20A switch	1
XM1	4083901908	3P terminal block	1
M1	4085400026	Motor unit	1

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.

Refer to the manufacturer's spare parts catalogue when ordering spare parts.

	Item	Code
	Primary filter	4081701855
	PTFE primary filter (FP)	4081701856
	Filter chamber gasket / Container	80554900
	AU absolute filter	Z8 17262
	Activated carbon filter	Z8 17322

Troubleshooting

Problem	Cause	Remedy
The machine does not start	Lack of power supply	Check for power at the socket. Check the condition of the socket and the cable. Ask for assistance to be performed by a qualified manufacturer's technician.
The machine revolutions increase	Clogged primary filter	Use the filter shaker (models with manual filter shaker). Replace it if this is not sufficient.
	Clogged vacuum hose	Check the vacuum hose and clean it.
Dust leaks from the machine	The filter is torn	Replace it with another of identical type.
	Inadequate filter	Replace it with another of a suitable category and check.
Noisy motors	Motor brushes (carbon) worn or broken	Remove and replace the (carbon) motor brushes.
Electrostatic current on the machine	Missing or inefficient grounding	Check all ground connections. In particular on the vacuum inlet fitting; replace the hose with an antistatic hose.

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Warranty

Nilfisk warrants that its equipment will be free of defects in workmanship or material for a period of two years from the date of delivery. If the vacuum fails to meet these warranty standards, Nilfisk shall, upon notification within such time period, correct such non-conformity, at its option, either by repairing any defective part or parts, or by replacing a part or parts, provided that the equipment is returned to an authorized Nilfisk service facility. In all cases freight both ways will be at expense of the customer. Equipment shall not be returned without advance notice to, and consent of Nilfisk.

EXCEPT AS SPECIFICALLY SET FORTH HEREIN, NILFISK MAKES NO WARRANTIES, EITHER EXPRESSED OR IMPLIED, AS TO ANY MATTER WHATSOEVER, INCLUDING WITHOUT LIMITATION ANY AND ALL WARRANTIES OF MERCHANTABILITY, FITNESS OF PURPOSE, OR OTHER WARRANTIES, ALL OF WHICH ARE EXPRESSLY DISCLAIMED AND EXCLUDED. NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF PRODUCTION, LOSS OF PROFITS OR ANY OTHER SIMILAR INDIRECT LOSSES WHICH MIGHT OCCUR AS A RESULT OF DEFECTS, PARTIAL OR TOTAL FAILURE OF THE PRODUCT TO PERFORM AS SPECIFIED.

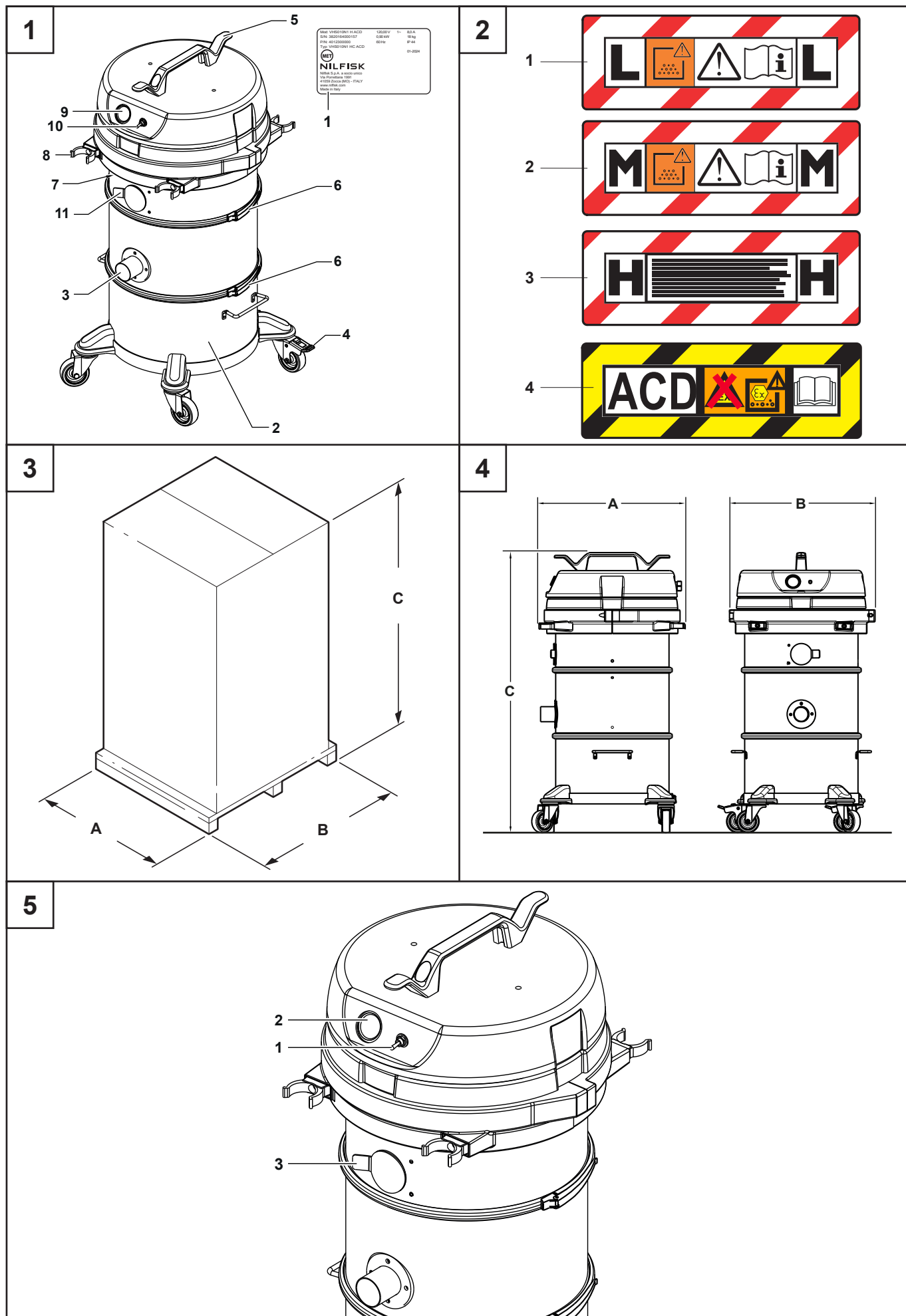
Correction of non-conformities or defects in the manner and for the period of time provided above, shall constitute fulfillment of all liabilities of Nilfisk to the customer, whether based on contract, negligence or otherwise with respect to, or arising out of such equipment. The remedies set forth herein are exclusive, and the liability of Nilfisk with respect to this sale or anything done in connection therewith, whether in contract, in tort, under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the equipment or part on which such liability is based.

This warranty does not cover repairs due to normal wear and tear, accident, neglect, misuse or abuse, incorrect installation or use other than as described in the instruction booklet. Breaks in hoses and cables are not covered.

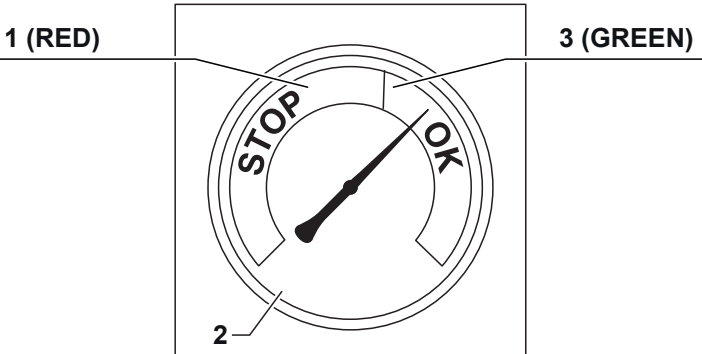
This warranty is rendered void if the motor number plate is removed or defaced or if repairs are made or attempted by persons not authorized by Nilfisk.

Some states do not allow exclusion of implied warranties or limitations on how long an implied warranty lasts so the above exclusions or limitation of implied warranties may not apply. Some states do not allow exclusion or limitation of incidental or consequential damages so the above exclusion or limitation of incidental or consequential damages may not apply.

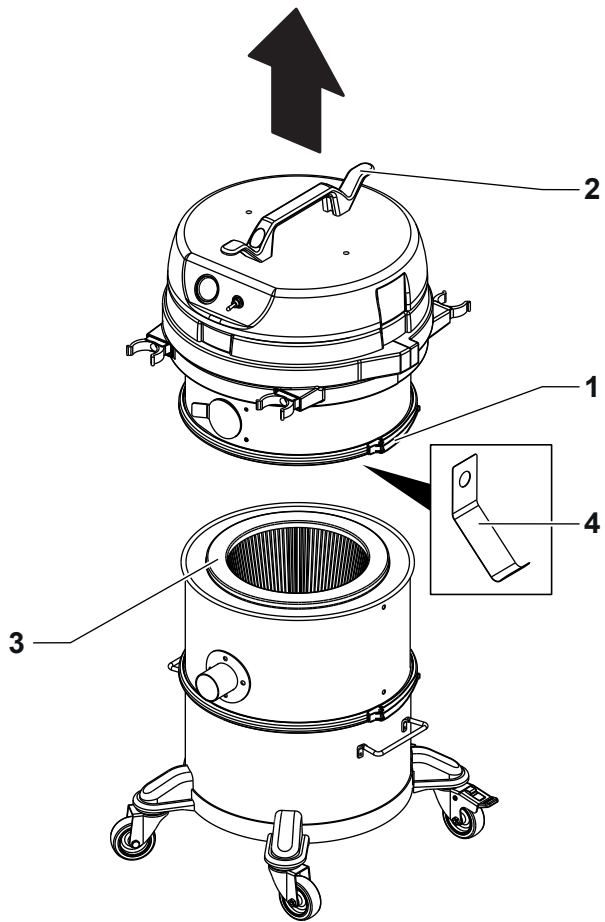
Limited warranties set forth above give specific legal rights. Customer may have other rights which vary from state to state.



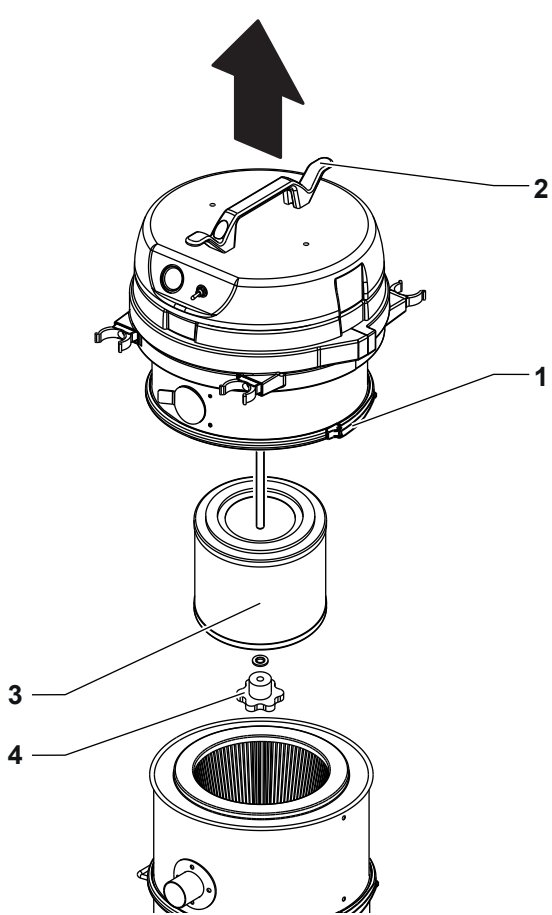
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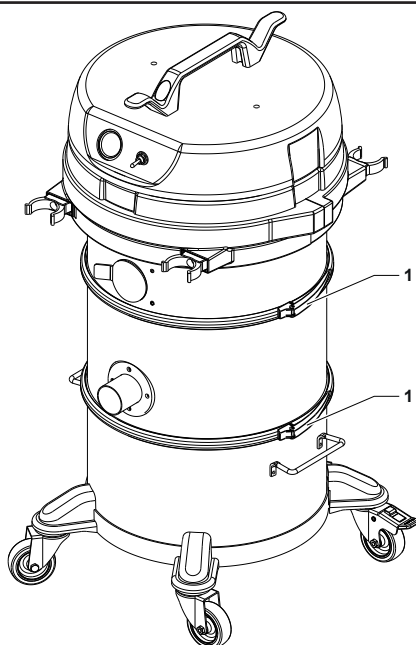
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