



Universal vacuum Operation Manual



Models	Machine no.
LS 5000 ESW	

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1 Important general information

We are pleased that you have selected a machine from Cramer GmbH in Germany.

Please read this Operation Manual before you use the machine for the first time and observe the notes and safety instructions.

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1.1 General

Information on this Manual

- Observing the instructions in this manual allows for the safe and efficient handling of the machine.
- The operator must have read this manual carefully and understood it before starting working with the machine.
- Compliance with the safety instructions contained is a prerequisite for using the machine without any risk.

Keeping the Operation Manual

- The Operation Manual is an integral part of the machine and shall be kept in its immediate vicinity.
- The operator must have access to this Manual at any time.

Traffic regulations

- Any applicable traffic regulations have to be complied with in regard to manoeuvring and transporting the machine on public roads.


Accident prevention regulations


- General safety and local accident prevention regulations must also be observed.
- National occupational safety regulations shall be complied with.


Other applicable documents

Declaration of conformity

1.2 Symbols

	DANGER !
	This symbol cautions against an immediate threat resulting in serious injuries or death if not avoided.

	WARNING !
	This symbol cautions against a potentially dangerous source of risk which may result in death or serious injury if not avoided.

	ATTENTION !
	Indication of a potential risk which may result in minor injuries if not avoided.

NOTE !
This symbol indicates a potential risk source which may result in damage to property or minor personal injuries.

1.3 Limitation of liability

Liability on part of the manufacturer is excluded in the following cases:

- Non-compliance with the operation manual
- Use of the machine and accessory equipment not in compliance with intended purpose
- Assignment of untrained staff.
- Use of unauthorised spare parts. Only original components may be used.
- Unauthorized modifications on the machine and the accessory equipment.

1.4 Copyright

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Copying of the Operation Manual is only permissible for internal training purposes.

1.5 Warranty

The General Terms and Conditions of Business as issued by us in every country shall be applicable. Failures within the statutory warranty period will be remedied by us free of charge if they are caused by a material or manufacturing defect in our responsibility. Please contact your authorised dealer in case of a failure and submit the proof of purchase.

2 Safety

2.1 Use in compliance with intended purpose

The battery-driven universal vacuum is suitable for use as a leaf and litter vacuum. It must only be used for vacuuming leaves, grass, paper and other waste comprising lightweight materials.

Any use exceeding this is considered not in compliance with the intended purpose. The manufacturer shall not be liable for damage resulting from use not in compliance with the intended purpose; the risk for this shall be in the sole responsibility of the user.

Use in compliance with the intended purpose shall also include compliance with the operation and maintenance provisions specified by the manufacturer.

2.2 Possible misuse

It is particularly prohibited:

- To sweep up any wires, cables or heavy stones. This could result in machine damage and injuries caused by flinging materials.
- To vacuum highly flammable materials or hot objects (e.g. barbecue coal) - danger to life by burning!
- To use a foot to push items under the vacuum nozzle. (Risk of injuries!)
- To vacuum any materials which may block the fan. (Machine damage!)
- To vacuum glass or ceramic debris, such as broken bottles or fragments. Risk of injury from cuts!
- Never try to open the batteries! The batteries are maintenance-free! Risk of explosion and chemical burns!

2.3 General sources of risks

2.3.1 Use and operation

- Prior to starting the machine, the machine including accessories shall be checked for their proper condition and operational safety.
- The operator shall use the machine in compliance with its intended purpose.
- The machine is only approved for floorings as indicated in the Operation Manual.
- The machine may only be operated by staff who have been instructed in its use or have provided evidence of their operating capability, and who have explicitly been instructed to operate the machine.
- When starting the motor, no other persons may be in the vicinity of the machine.
- Any safeguards must be properly attached and in functional order.
- Never leave the machine unattended.
- When leaving the machine, stop the motor and secure the machine against unintended movement.
- The operator shall be responsible for accidents involving other persons or their property.
- Only use Cramer chargers and charge with the correct charging voltage.

2.3.2 Product-specific risks

- Never operate the machine without the collection box attached.
- Check the condition of the charging plug before every charging process! Defective charging plugs can lead to short circuits and fires.

2.3.3 Risks from motor operation

- Do not touch any parts of the motor during operation or immediately afterwards. Significant risk of burning by hot surfaces.
- Stop the motor and let it cool down before working on the machine as well as before performing maintenance, cleaning and repair work.

2.3.4 Operating risks

- Without any accessories mounted, only use the machine on slopes of up to 12 %.
- With accessories mounted, only use the machine on slopes of up to 2 %.
- When using the machine transverse to the direction of travel, this is only possible on slopes up to 12 %.

2.3.5 Danger when charging the battery system

- To charge the battery system, only use the supplied battery charger
- Do not use the supplied charger to charge other batteries
- The battery charger must be kept dry. Neither must be subjected to rain or dampness.
- When disconnecting the charger, pull the plug and not the cable. This avoids damaging the plug and cable
- Do not use the charger if it is damaged. A damaged charger must always be replaced completely.
- Do not dismantle the charger or attempt to repair it
- Disconnect the charger plug from the socket before cleaning the machine.

2.3.6 Risks for children and pets

- The operator shall take account of surrounding conditions, e.g. the effects of noise on persons and animals.
- The machine must never be left on a slope.
- Children and pets/livestock must not stay near the machine.
- Children must not play with/on the machine.

2.4 Maintenance





- Servicing, maintenance and repair work as well as troubleshooting shall only be carried out when the machine is switched off and the motor is at a standstill.
- The machine must not be cleaned with spray water (risk of short circuits or other damage).
- Safety checks pursuant to local regulations for non-stationary commercially used machines shall be complied with.
- Always use appropriate tools when working on the machine.
- Only use the manufacturer's original spare parts.
- Check weekly that the battery cable is attached securely.

2.5 Staff and operator qualification

- Persons with physical, sensory or mental handicaps or persons with insufficient experience or knowledge must not operate the machine unless a person in charge for their safety acts as operation or instruction supervisor.
- People under the age of 16 must not operate the machine.
- The operator's responsiveness must not be affected, e.g. by drugs, alcohol or medications.
- The operator shall have been instructed in the operation of the machine.
- The operator shall be familiar with the Operation Manual.

2.6 Safety instructions

These warning labels on the machine warn you of possible dangers and thus help you to avoid serious injuries and damage to property. If labels have become detached or illegible, please contact your Cramer dealer to have the labels replaced.

	The operation manual and safety instructions must be read and observed prior to starting the machine.
	Risk by flinging parts with running motor. Keep a safety distance of 3m.
	Risk of injury from rotating parts. Machine parts may only be touched once they have come to a complete standstill.
	Ear and eye protection is to be worn when operating the machine.

2.7 Required protection equipment for operation

- Rugged footwear
- Close-fitting clothing
- Ear protection
- Safety gloves

The information on accident prevention regulations must also be observed.

2.8 Safety devices

- Do not remove any covers during operation.
- Immediately remedy any damage to safety devices.

2.9 Behaviour in case of danger

1. Stop immediately.
2. Stop the motor
3. Leave the machine.
4. Remedy the risk situation.

2.10 Environmental protection

- Oils, fuels, greases and filters shall be disposed of properly and separately in accordance with legal regulations. Please do not dispose of any wastes in the environment.
- Packaging materials are recyclable. Please make sure that they are collected for reuse.
- Legacy devices contain valuable recyclable materials which should be collected for reuse. These devices may be disposed of through appropriate collection systems.

3 Technical data

Model	LS 5000 ESW
Machine data	
Working width (cm)	80
Collection bag (L)	240
Dimensions: LxWxH (cm)	157 x 80 x 105
Deadweight (transport weight), kg	205
Parking brake	yes
Collection bag	240 litres, fine with toggle closure
Dust cover	No
Motor data	
Motor	Electric motor ME0909
Start	Reversing starter
Rated output, kW	2.6
Motor output, max. (Watt)	3000
Motor speed, max. (rpm)	3200
Battery	Optima YTS 5,5
Battery capacity (Ah)	3 x 75
Battery operating voltage (V)	36
Forward speed	0 - 4.8 km/h
Reverse speed	—
Tyres	
Front wheels	180 / 80
Rear wheels	320 / 120
Tyre pressure	1.8 bar
Ambient conditions	
Temperature, °C	-5 to +40
Recommended ambient temperature for charging process, °C	25
Working ground	Asphalt, industrial flooring, floor screed, concrete, pavement
Application area	Normal use in facilities and landscaping maintenance
Noise emission	
Hand-arm vibration	2.5 m/s ²
Guaranteed acoustic power level	99 dB
Sound pressure level at operator ear	87 dB(A)
Working position and areas of risk	
Working position:	Behind the machine on the handles
Areas of risk:	Catchment area of the machine's vacuum nozzle Discharge area of the blower outlet
Responsibility limits for components:	Motor, battery
Accessories and spare parts	
Original parts	Only original spare parts and original accessories may be used.
Year of construction	See machine nameplate
Technical modifications reserved!	

4 Design and function

4.1 Brief description

The universal vacuum LS 5000 ESW is a battery-driven leaf and litter vacuum. Forward drive operation is controlled continuously via the turning handle on the steering bar. The collected materials are transported to the collection bag via the blower outlet by means of the airflow from the fan rotor. The collection bag can be removed and is suitable for leaves and coarse waste.

4.2 Overview



1	Vacuum nozzle
2	Fan housing
3	Blower outlet
4	Height adjustment lever for vacuum nozzle
5	Turning handle for continuous drive operation
6	Handle for parking brake
7	Collection bag
8	Electric motor

4.3 Operation and function

Vacuum nozzle



To remove the vacuum nozzle for maintenance and repair work, use the wrench provided.

1. Unscrew the hexagon bolt using the wrench.
2. Pull the vacuum nozzle upwards and out of the retainer.

Airflow

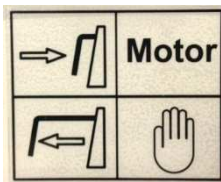


The zip fasteners for regulating the air extraction volume, located on the sides of the collection bag, can be opened if the airflow needs to be increased (e.g. to collect tin cans).

Motor/gear connection



You may move the machine manually by setting the lever for the motor-gear connection as follows:

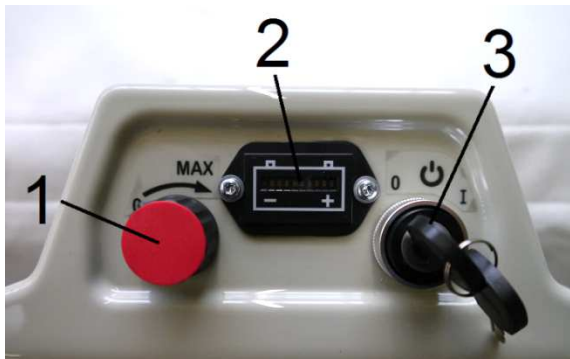


Push in lever for drive operation

Pull out lever, manual movement possible

Note! Do not start the machine in the manual setting - potential damage to gear.

Operating panel



Operating panel: 1 = Speed controller (Poty)
2 = Battery display
3 = Ignition switch



Indication of charge volume of battery system

Note!

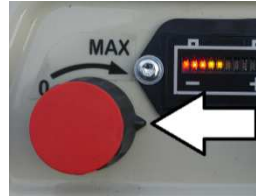
The universal vacuum must only be switched on when the battery system is fully charged. After use, the universal vacuum must be connected to the battery charger.

The machine is operated using the operating panel on the steering bar. The battery display indicates the current charge volume of the battery system.

Switching on the machine:

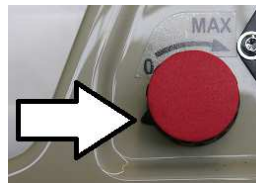
The machine is switched on as follows:

- Set speed controller to **O**
- Turn ignition key to **I**
- When switching on, the battery display flashes briefly and remains lit up. The lights indicate the charge level of the battery.
- Use the speed controller (1) to set the vacuum power/motor speed.



Continuous drive operation is only possible once the motor speed has been increased.

min. motor speed for drive operation



max. motor speed

Note on the lamp bar of the battery display

If the lights on the lamp bar light up alternately, this indicates faulty operation. Before switching the ignition key to **I**, the speed controller must be set to **O**. If a fault is indicated, repeat the process of switching on the machine.

Switching off the machine:

To switch off the machine, turn the ignition key to **O**.

Charger



Charger

Attention!

The battery charger must be kept dry. It must not be subjected to rain or snow.

To prevent electric shocks, it must be ensured that no water can get inside the plug.

The battery display on the operating panel provides an indication of the charge volume of the battery system. If only one or two of the lamps light up, the battery system should be charged.

Charging the battery system



Connect the battery charger to a socket.

Insert the charging plug into the charging socket. The red charge indicator lamp on the charger lights up to signal the ongoing charging process.

When the green indicator lamp lights up, the battery system is fully charged and can be removed from the charger. Pull the charger's plug out of the socket.

Setting the height of the vacuum nozzle

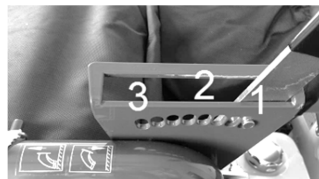


The height of the vacuum nozzle can be adjusted using this lever in order to adapt the vacuum power to the weight and nature of the material to be collected.

Press the lever slightly outward, to release it, and then move the lever to the desired height setting.

Pushing the lever away from you will lower the vacuum nozzle

Pulling the lever toward you will raise the vacuum nozzle.



1 = Low nozzle setting

2 = Medium nozzle setting

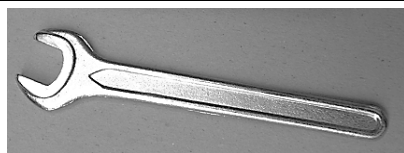
3 = High nozzle setting

Collection bag



To empty the collection bag, lift up the dust cover and open the toggle closure on the back of the collection bag.

Tool supplied



The wrench illustrated is attached to a retainer on the steering bar.

Continuous drive (turning handle)

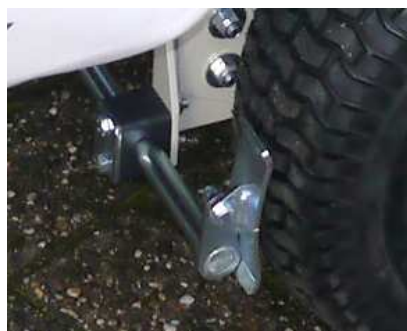


For continuous drive operation, the machine is fitted with a turning handle on the right-hand side of the steering bar.

Turn the handle → the driving speed increases gradually

Release the handle → drive operation is deactivated

Parking brake



The machine can be secured against unintended movement by applying the parking brake. The lever for operating the parking brake is located on the handle on the left side of the steering bar.



Apply brake:

Pull the brake lever by hand and secure using the grey clamp lever



Release brake:

Pull the brake lever slightly and release the grey clamp lever from the catch. Slowly let go of the brake lever

5 Operation


Before starting the machine, please read the safety information on pages 4 and 5 as well as the "Activities prior to use" section on this page.

5.1 Safety

Unauthorised restart

- It is prohibited to start the machine while another person is working on it.

Risks of non-applied safety devices

	WARNING !
	Danger of injuries due to missing protective covers!
Lack of covers may cause injuries by flinging materials.	
✓ Do not open or remove any covers during operation.	

Risks of insufficient order and cleanliness

- Clean the machine regularly.
- Check the machine for blocking objects.

Requirements at location of use


- Only leave the machine on plane surfaces and solid ground.

5.2 Activities prior to use


To ensure your safety and the maximum service life of the machine, please check the following before switching on the machine:

- Observe the safety information in this manual at all times.
- The machine is switched off. Ignition switch set to 0
- Check the vacuum nozzle for any foreign objects.
- Check the machine for damage and repair as required
- Check the condition of the safety devices. The machine must not be started if safety devices are missing or defective.
- Check the charge level of the battery system

5.3 Charging the battery

	Warning!
	Risk of short circuit and fire!
Incorrect use of the battery and charger can lead to a short circuit and/or fire. A highly explosive gas mixture is formed when batteries are being charged.	
✓ Operation and charging must only take place in well ventilated areas	
✓ Check the condition of the charger before every charging process	
✓ The battery system and charger must be kept dry	

The battery system of the universal vacuum can be charged with the supplied charger. The batteries used do not feature a memory effect and can therefore be charged in any charging phase.

	Attention!
	Only used approved battery chargers!
Only use chargers approved by Cramer and charge with the correct charging voltage.	

Before charging the battery system, the machine must be placed on an even surface and the ignition switched off. Secure the machine using the parking brake.

Connect the charger to a mains voltage with 230 V. Connect the charging plug with the universal vacuum at the charging socket. The completion of the charging time is indicated by means of the green LED lighting up on the charger. After use, the universal vacuum must be connected to the battery charger.

Charging for the first time

Before switching on for the first time, the battery system must be fully charged. The max. charging time is approx. 8 hours.

5.4 Switching the machine on and off

All important operating functions for switching the machine on and off are shown briefly in this table. More information can be found in Section 4.3. Operating panel.

Before switching on the machine
- Always attach the collection bag
Switching on
1. Set the speed controller to 0 2. Turn the ignition key
Switching off
1. Turn the ignition key to 0 2. Turn the speed controller to 0
Switching off in an emergency
1. Turn the ignition key to 0 immediately 2. Leave the machine and allow it to cool down.
Switching on again after an overload or EMERGENCY-OFF
1. Allow the machine to cool down 2. Remove any blockage 3. Start the machine again

5.5 Normal operation

1. Basic setting:
 - Park machine on an even surface
 - Set the vacuum nozzle depth.
2. Switch on the machine
 - Set the power output using the throttle
3. Push the machine over the material to be collected
 - In drive operation, turn the handle
4. Empty the collection bag when the machine begins to move down
 - To remove the collection bag, switch off the machine first. See Section 5.7.
5. The vacuum nozzle can be lowered for heavy materials to be collected.
 - Move the height adjustment lever to the desired position.
6. Switch off the machine before leaving it
 - Place the machine in a dry area
 - End drive operation
 - Set the ignition switch to 0
 - Apply the parking brake.


In the event of faulty operation, please contact your specialist dealer.

5.6 Activities after use

After use, switch off the machine and close the fuel tap, if open. Always empty the collection bag before storage. The machine must be left in a clean and dry condition. Check the machine condition; remedy damage to paint coating, if any.

5.7 Emptying the collection bag

The collection bag's filling limit is reached when the machine starts to move down at the back and the vacuum nozzle rises up.

	ATTENTION!
	Risk of injury from the fan!
Working on the machine with the motor running can lead to minor injuries.	
Always switch off the motor when:	
✓ Carrying out any work on the collection bag	
✓ Carrying out any work on the vacuum nozzle and intake canal	

With all universal vacuum models, always switch off the motor before emptying the collection bag.

Then empty the collection bag as follows:

1. Where applicable, lift up the dust cover
2. Open the toggle closures on the collection bag
3. Empty the collection bag by lifting up the back.

6 Transport, storage

6.1 Transport

Transport without packaging

Switch off the machine before loading it. Apply the parking brake of the universal vacuum and secure it to the transporter using tensioning straps.

6.2 Storage

Do not store the machine outdoors. The battery system must not be subjected to rain or dampness. Store the charger in an area that is dry, frost-free and protected from the weather. *After a long period without using the battery system (> 6 months), the batteries will have to be fully charged again before being used.*

There must be no aggressive materials in the vicinity of the machine. The machine must be stored away from appliances which have a pilot light or ignition source. For example: Furnaces, heating stoves, water boilers or similar appliances. Fuel gases could be ignited by such appliances.


7 Maintenance

7.1 Safety when performing maintenance work

Regular and correctly performed maintenance work is essential for the safe, economical and fault-free operation of the machine.

The information in the following sections helps you to ensure the correct maintenance of your machine. You can perform routine maintenance work yourself using basic hand tools. More complex maintenance work requiring special tools should be performed by qualified staff, e.g. at your Cramer dealer or by a qualified mechanic.

Some of the most important safety precautions and dangers are listed in the bottom box. However, it is not possible here to list all potential dangers that could arise during maintenance work and describe the associated precautions. You are solely responsible for deciding which maintenance work you wish to perform yourself.

	DANGER !
Risk of injury by inappropriately performed maintenance work!	
Defective work may result in serious bodily injuries and damage to property.	
<ul style="list-style-type: none"> ✓ Make sure that you have sufficient working space. ✓ Where applicable, disconnect the spark plug connector when working on the machine ✓ Place components separately. ✓ Remount all components. ✓ Remount all safety covers. ✓ Keep the risk area clear of persons. 	

7.2 Maintenance plan

For information on maintenance of the machine, the operation manuals supplied must be observed.


Maintenance	Prior to each use	Regularly	Intervals in hours
			200
Cleaning	X (Item 7.4)		
Check safety devices	X (Item 7.3.2)		
Check all screws for tight fitting	O		
Clean or replace air filter		O	
Adjust tyre pressure	O		
Check machine for corrosion on paint coating and remedy as appropriate		O	
Check machine for damage and remedy as appropriate	O		
Check vacuum nozzle for damage		X (Item 7.3.3)	
Check rotor fan for damage		X (Item 7.3.3)	
Check and adjust Bowden cables			F
Grease rotating points and joints		O	
Grease Bowden cables			O

X = Described in this Operation Manual in the indicated section

O = Not described in the present Operation Manual, inform specialist dealer as required

F = Work may only be performed by a qualified expert in this field

7.3 Maintenance work

	WARNING !
Never open the battery! Risk of explosion and injury!	
The batteries are absolutely maintenance-free. Never try to open these batteries.	
<ul style="list-style-type: none"> ✓ Only operate the machine outdoors. ✓ Wear protective gloves and eye protection, as battery acid is highly corrosive ✓ Do not tip up the machine, otherwise acid may leak out of the battery's venting openings. ✓ Batteries must not be subjected to dampness. 	

7.3.1 Battery maintenance

The batteries are completely maintenance-free. If they are properly charged, there is no need to worry about leaking, corrosion or gas formation. Check the terminal connections on your battery at regular intervals to ensure that they are fastened securely, clean and protected against exposure to the weather.

If there are any signs of damage to the battery poles, the housing or lid, have the batteries replaced by a qualified workshop.

7.3.2 Check safeguards

Safeguards are:

- Discharge covers (collection bag)
- Vacuum nozzle
- Cover of battery system

The machine must not be operated if the covers show any signs of damage or are removed. They are to be replaced in case of damage or loss. The machine must not be started without the safeguards.

7.3.3 Check vacuum nozzle and fan rotor for damage

To prevent major damage to the fan rotor, it should be checked and cleaned at regular intervals. To do this, the machine must always be switched off first. Then:

1. Allow the machine to cool down.
2. Use the wrench to unscrew the bolt on the vacuum nozzle (the wrench is supplied with the machine)
3. Pull the vacuum nozzle upwards and out of the retainer
4. Remove any foreign objects from the vacuum nozzle
5. Check the fan rotor for foreign objects. Remove all foreign objects. If damaged, the rotor must be replaced.
6. Insert the vacuum nozzle into the retainer and secure using the bolt.

7.4 Cleaning work

NOTE !
Machine damage! Do not clean the machine with spray water.

The machine should be cleaned regularly so that damage to the paint coating or plastic components can be detected. Please observe the notes listed for cleaning in order to avoid damage to the electronics.

7.4.1 Machine cleaning

Park the machine on an even surface before cleaning it. Switch off the machine and leave it to cool down. The machine can then be cleaned using a soft brush. If necessary, then clean the machine with a damp cloth.

7.4.2 Cleaning the collection bag

Remove the collection bag from the leaf vacuum. Turn the collection bag inside out to wash it.

The following cleaning methods may be used:

- Beat the dirt out of entire collection bag
- Clean in bath of water
- Clean under running water
- Clean at professional cleaners

Subsequently allow the collection bag to dry out completely. Clean the zip with a soft brush and occasionally rub with talcum. Re-attach the dry collection bag.

7.4.3 Cleaning the vacuum nozzle

The vacuum nozzle must always be dismantled for cleaning. Use the tool (wrench) attached to the machine frame in order to dismantle the vacuum nozzle.

1. Use the wrench to unscrew the bolt on the vacuum nozzle
2. Remove the vacuum nozzle from the retainer
3. Clean the vacuum nozzle and then attach it again.

8 Troubleshooting

8.1 Safety

Procedure for failures and accidents

1. Initiate emergency stop (leave working position).
2. Stop the machine.
3. Determine the failure cause.
4. Remedy failure or contact authorized dealer.

8.2 Service address

Please contact your sales consultant in case of failures, problems or otherwise. Please always indicate the machine serial no. in inquiries. (Please refer to nameplate on the machine or on the Operation Manual cover).

8.3 First action for troubleshooting

Possible causes of faults on this machine are listed below.

Failure	Cause / Remedy	Notes
Motor does not start	<ul style="list-style-type: none">- Check the display indication- Battery almost empty, charge battery- Check the fuse of the control circuit- Check the main fuse and, if damaged, have it examined by a specialist dealer	Notify authorized dealer if failure persists. Only use original spare parts!
Zip cannot be opened easily	<ul style="list-style-type: none">- Clean the collection bag and apply talcum to the zip	
Machine has no suction power	<ul style="list-style-type: none">- Collection bag too full, empty collection bag- Filter surface of collection bag contaminated. Clean filter surfaces (wash if necessary)- Vacuum nozzle blocked. Clean vacuum nozzle- Open airflow	
Wheel drive slips	<ul style="list-style-type: none">- Gear coupling dragging. Notify authorised dealer	

9 Declaration of conformity

EU Declaration of conformity pursuant to machine directive 2006/42/EC Annex II 1-A
The authorised party with residence in the EU,

**Cramer GmbH
Reimersstr. 36
D-26789 Leer**

herewith declares, that the following product

Manufacturer: Cramer GmbH
Reimersstr. 36
26789 Leer
Product designation: Universal vacuum
Make: Cramer GmbH
Serial number: see cover nameplate
Type(s): LS 5000 HSW electric

complies with all relevant regulations of the above-stated Directive as well as all other applicable Directives - including their amendments applicable at the date of this declaration.

The following other EU Directives were applied:

2014/30/EU
2005/88/EC
2006/42/EC

The following harmonized standards were applied:

EN ISO 12100:2010
EN ISO 3744:2010
DIN EN ISO 5349-2:2001
EN 12733:2001+A1:2009

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