

- ◆ Bohman 2 C 43 Auto Scrubber With Cable
- ◆ Bohman 2 B 43 Auto Scrubber With Battery

Bohman 2 B 43/Bohman 2 C 43

AUTO SCRUBBER WITH BATTERY/CABLE



OWNER'S GUIDE

»» Please read carefully before operation

Subagency

Overview for Safety

Bohman 2 C 43 and Bohman 2 B 43 hand-push auto scrubbers are not intended for use by people with weak physical ability, slow reaction or mental disorders, including children, unless they are directed or assisted by personnel responsible for their safety:

▲ Be sure to check the power supply voltage and be familiar with all design, control methods and functions of the auto scrubber before starting any operation.

▲ The operator shall place it in an open area to understand its various functions when using the auto scrubber for the first time.

▲ Please check the state of the auto scrubber and its components under normal conditions and during operation before starting any operation.

▲ The scrubber cannot be used if it is in abnormal working condition.

▲ The operator must use it for the appropriate application area (cleaning hard ground) when operating the scrubber.

▲ Pay attention to obstacles in the workplace, such as stairs and shelves, and pay attention to the surrounding people, especially children, during the operation.

▲ Please use suitable detergent (the detergent can only be used according to the instructions of detergent manufacturer and the appropriate dosage and restriction requirements while using the detergent for the scrubber).

▲ The scrubber can only be maintained and repaired by properly trained personnel with appropriate tools.

▲ Please turn off the power supply or remove the battery when cleaning or maintaining the scrubber.

▲ It is forbidden to clean the scrubber with high-pressure water or steam equipment.

▲ No water is allowed in electrical components to avoid accidents and burning.

▲ Children being supervised not to play with the appliance.

▲ This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

▲ Cleaning and user maintenance shall not be made by children without supervision.

▲ If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similar qualified persons in order to avoid a hazard.



Note: It is forbidden to use this scrubber to clean flammable liquid, solvent, fuel oil, active metal vapor or flammable dust.

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1. Introduction of the Product

Welcome to purchase and use Bohman 2 C 43 wire-type/Bohman 2 B 43 battery-type hand-push auto scrubber. This machine has the outstanding advantages of convenient operation, safe use, floor washing and drying, high cleaning efficiency and remarkable cleaning effect, and therefore it is the ideal tool to replace the conventional floor-cleaning machine. It is especially suitable for large and medium-sized public places such as hotels, office buildings, exhibition venues, schools, etc. It is an indispensable and important cleaning equipment in modern cleaning machinery!

Bohman 2 C 43/Bohman 2 B 43 hand-push auto scrubber is a machine that uses the mechanical rotary motion of a disk brush and the chemical action of water and detergent solution, and can be used to clean hard floors with various stains, and collect the cleaned stains and detergent solution that has not been absorbed by the floor while cleaning the floor.

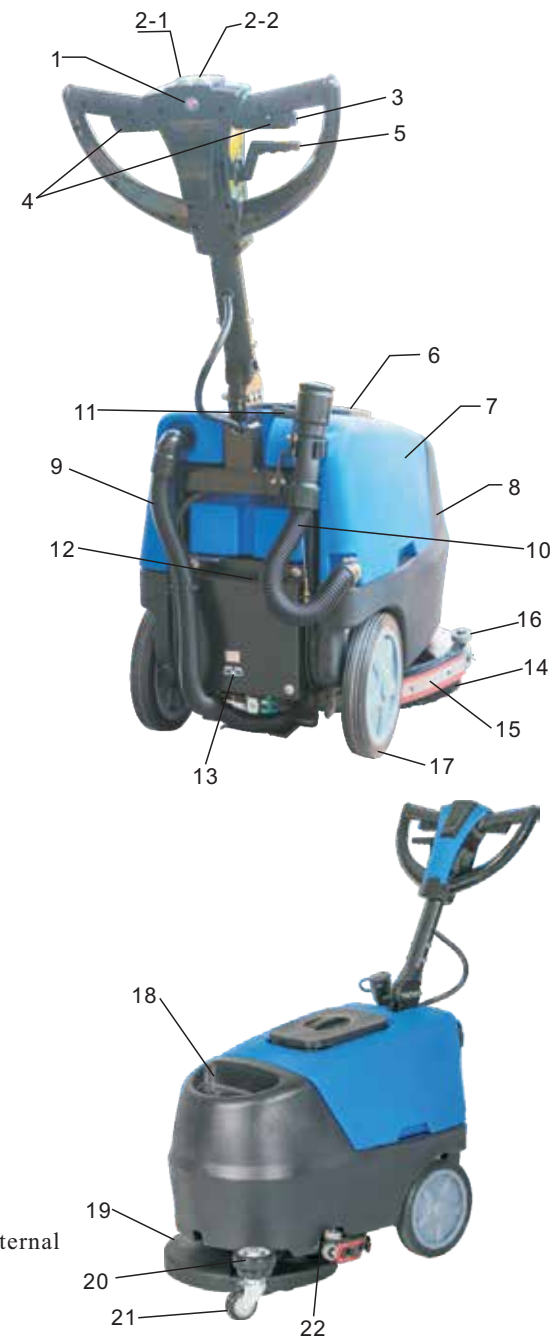
2. Product characteristics

Bohman 2 C 43/Bohman 2 B 43 hand-push auto scrubber is driven by single brush (18-inch) direct gear reduction box, with an extremely strong cleaning capacity. The machine body is compressed and designed with smart appearance and strong physical sense. The scrubber is characterized by small occupied area, simple operation, short machine body, light machine body and flexible rotation.

This machine is not suitable for use in rain or under a water gun. It is strictly prohibited to use this machine to collect hazardous dust or flammable liquid in flammable and explosive environment. In addition, this machine is not suitable for transportation.

3. Structural Diagram

1. Main Power Switch
- 2-1. Water Switch
- 2-2. Suction Motor Switch
3. Safety Button
4. Left/Right Switch
5. Lifting Handle
6. Sewage Tank Cover
7. Sewage Tank
8. Clean Water Tank
9. Suction Pipe
10. Drain Pipe
11. Squeegee Handle
12. Battery indicator lamp
13. Charging Socket
14. Floor brush
15. Squeegee
16. 40×15 plastic wheel
17. 10-Inch rear wheel
18. Water Injection Port
19. Brush plate cover
20. Anti-collision wheel
21. 3-Inch wheel
22. 2-point internal and external ball valve



4. Technical Parameters

Item	Parameters	
	Bohman 2 B 43	Bohman 2 C 43
Rated voltage	24V $\overline{=}$	220-240V~
Operating width	430mm	430mm
Water Suction Width	530mm	530mm
Operating Efficiency	1700m ² /h	1700m ² /h
Brush Plate	17"	17"
Brush Plate Speed	210r/min	160r/min
Brush Plate Motor	24V 550W	220V 750W
Brush Plate Pressure	25kg	25kg
Water Suction Motor	24V 500W	220V 700W
Vacuum Degree	140mbar	180mbar
Capacity of Clean Water Tank	25L	25L
Capacity of Sewage Tank	25L	25L
Storage battery	2×DC12V 80Ah	--
Battery Weight	54kg	--
Machine Weight	52kg	60kg
Net Weight	106kg	60kg
Gross Weight	121kg	75kg
Wire Length	--	18m

5. Packaging and Disassembly

5.1. Packaging

This machine is specially packaged and equipped with wooden pallet for loading and unloading by forklift truck. The package size is as follows: length 870mm, width 610mm, height 890mm.

5.2. Disassembly

1) Cut the packing tape, 2) take away the packing carton, 3) remove the wood board, 4) take out the accessories, 5) use the slope to slide the machine off the wood pallet.

6. Assembly Instructions

6.1. Assembly and Adjustment of Squeegee (Suction Grill)

The squeegee (suction grill) is used to dry the sewage on the ground. Please install the squeegee according to the following steps:

- ▲ Please make sure that the squeegee is in a lowered state.
- ▲ Tilt the machine back towards the rear
- ▲ Install the squeegee on the bracket (Position 1 in Fig. A)
- ▲ Tighten the two fixing handles (Position 3 in Fig A)
- ▲ Insert the suction pipe fully into the squeegee (Position 4 in Fig. A)

The absorbent rubber strips on the squeegee can scrape off water and detergent on the ground. In order to ensure better water absorption effect, the rubber strips shall be replaced after a period of time because long-term friction with the ground will blunt and crack the edge of the rubber strips, which will affect the water absorption effect. The absorbent rubber strips must be checked frequently.

In order to obtain excellent water absorption effect, the back rubber strip of the squeegee shall be kept at about 45 degrees with the ground during operation, and the pressure of the water squeegee can be adjusted by adjusting the height of the small wheel (position 2 in Fig. A) of the squeegee.

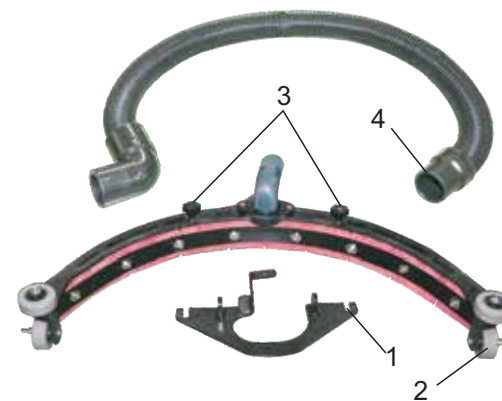


Fig.A

6.2. Installation of Brush Plate, Scouring Pad and Needle Holder

- ▲ Tilt the machine backward
- ▲ Place the brush plate (14) or the scouring pad + needle holder (DIA) under the center of the machine head and rotate it to the left. Remove the brush if rotating it to the right.

7. Operation preparation

7.1. Selection of accessories

- ▲ Nylon brush: suitable for cleaning rough, irregular ground or smooth ground.
- ▲ Scouring pad + needle holder brush: suitable for polishing flat ground.

7.2. Water Injection into Clean Water Tank

▲ The front end of the clean water tank of Bohman 2 C 43/Bohman 2 B 43 auto scrubbers is provided with a water injection port (18), which can directly inject water.

▲ Fill the clean water tank with clean water and appropriate amount of detergent according to the situation of stains on the ground.

▲ Defoaming agent must be added to the sewage tank if detergent is added in the clean water tank.



WARNING! If all detergents used produce too much foam, then it means that this detergent is not suitable for the auto scrubber. Please replace the detergents. Otherwise, it may burn the water-suction motor.

8. Operation Description

8.1. Correct Operating Steps to Start up the Machine

▲ Adjust the operating handle to the appropriate position and lower the squeegee to the ground.

▲ Observe and confirm or press to make the “0” button of the water-suction motor switch (2) in the “Pressed” state, i.e. the close state.

▲ Press the main power switch (1), then the three indicator lights will be ON (12).

▲ Press the (2) and (4) switches one after another to start the machine normally.

▲ Adjust the water quantity adjusting handle (22) according to actual needs

8.2. Description of Indicator Light on Control Panel

▲ The three indicator lights (12) on the Bohman 2 B 43 box show the battery power (from left to right, it changes from weak to strong). The battery power is sufficient when the right indicator light is ON. It warns an insufficient battery power if only the left indicator light is ON. At this moment, the machine must be stopped immediately and fully charged in time.

★ **ATTENTION:** To maintain the normal service life of the battery, the battery must be fully charged in time after each use of the machine, no matter how much the battery is used.

8.3. Warning and Operating Instructions for Full Sewage Tank

▲ When the sewage level in the sewage tank is close to the maximum limit water level (Fig. B), the floating ball will jump up to block the air outlet so that the vacuum motor is unable to work normally and generates different noises. (At this time, the squeegee will not suck water from the ground) Please turn off the suction motor and the brush-plate motor immediately.

▲ Raise the squeegee (suction grill)

▲ Move the machine to the place where sewage is discharged, remove the sewage hose (10) from the bracket clamp, and unplug the pipe cover in the opposite direction of the operator to discharge the sewage.

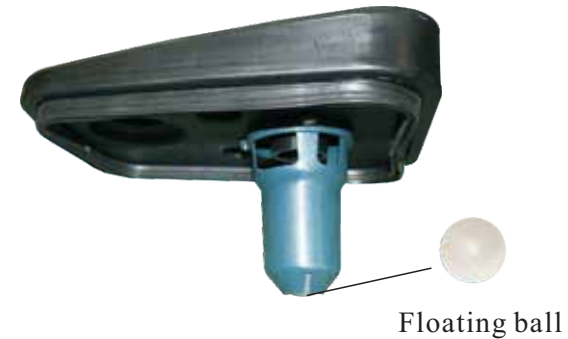


Fig. B

9.Common Faults and Troubleshooting

9.1.Form for Fault Analysis and Troubleshooting

Fault	Cause Analysis	Solution
The machine does not work	The power switch is not turned on	Please turn on the power switch
	The battery needs to be charged due to insufficient battery power	Please charge
	Battery is damaged	Replace the battery
	The battery wire connection is loose	Tighten the wiring
	The fuse has blown	Replace the fuse
	The power switch is damaged	Contact the manufacturer
The brush plate motor does not work	The overload fuse of the brush plate motor is burnt out	Replace the fuse
	The brush plate motor is damaged or its circuit is damaged	Contact the manufacturer
	The carbon brush of the brush plate motor is seriously worn	Contact the manufacturer
	Relay is damaged	Contact the manufacturer
The water suction motor does not work	The overload fuse of the water-suction motor is burnt out	Replace the fuse
	The water-suction motor is damaged or its circuit is damaged	Contact the manufacturer
	The carbon brush of the water-suction motor is seriously worn	Contact the manufacturer
	Relay is damaged	Contact the manufacturer
Little or no solution flow	The ball valve is opened too small or closed	Adjust flow switch
	The solution hose or filter is blocked	Flush the water pipe or filter screen with clean water
	The drainage solenoid valve is blocked	Dismantle and clean the drainage solenoid valve
Poor water absorption	The sewage tank is full	Drain the sewage tank
	The drain plug is loose	Tighten the drain plug
	The water scraper assembly is blocked	Clean the water scraper assembly
	The water scraper strips are worn	Switch to use or replace
	The scraping strip is not in the correct position	Adjust the height between the scraping strip and the ground
	The suction pipe is not reliably connected with the water scraper assembly	Reliably connect the suction pipe
	The suction pipe is blocked	Remove the blockages
	The suction pipe is damaged	Replace the suction pipe
	The sewage tank cover is not properly covered	Cover up
	The rubber sealing strip of sewage tank cover is damaged	Replace rubber sealing strip
	The water suction motor is damaged	Contact the manufacturer
	Short operating time	The battery power is low
The battery is damaged		Replace the battery
The battery needs maintenance		Refer to battery maintenance
The battery charger is damaged		Repair or replace the recharger

9.2 Preliminary inspection when the machine does not work

▲ Turn on the power switch (1). The indicator light of the switch is not ON, and the three power indicator lights are not ON. First check whether the 3A fuse in Fig. C ① is blown. If it is normal, check whether the main power switch is damaged. Finally check whether the power indicator board ⑥ is damaged.

▲ When the main power switch (1) is normal and the battery power display is normal, but the air-suction motor does not work, first check whether the 30A fuse is burnt out, then check whether the intermediate relays of the air-suction motor switches (2) and (4) are damaged, and finally check whether the air-suction motor is burnt out.

▲ When the main power switch (1) is normal and the battery power display is normal, but the brush plate motor does not work, first check whether the 60A fuse is burnt out. If it is normally, then check whether the intermediate relays of the brush plate motor switches (2) and (4) are damaged, and finally check whether the brush plate motor is burnt out.

- ①. 3A fuse
- ②. 30A fuse
- ③. 60A fuse
- ④. Air-suction relay
- ⑤. Brush plate relay
- ⑥. Circuit board

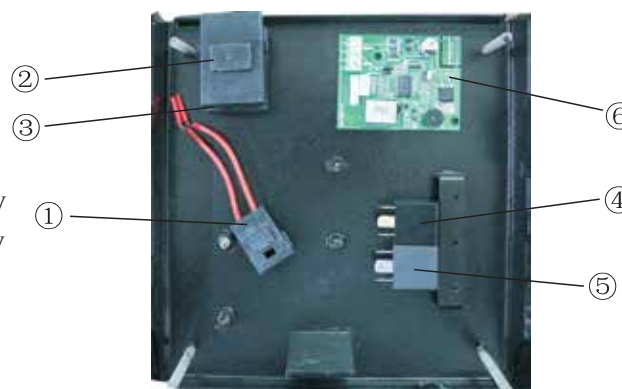


Fig.C

10. Daily Maintenance

10.1 Daily Maintenance and Servicing

- ▲ Remove the needle holder/brush plate and wipe it with a specific detergent.
- ▲ Drain the water from the sewage tank and rinse it with clean water. Check whether there are fragments in the sewage tank. If so, please remove them immediately. In addition, the remaining solvent in the clean water tank should also be drained.
- ▲ Lift the water scraper assembly from the ground and wipe the scraping strip with a wet towel.
- ▲ Remove the vacuum suction filter screen device and rinse it with clean water
- ▲ Wipe the machine with a specific detergent.
- ▲ Charge the battery
- ▲ Check whether the edge of the scraping strip is sharp. If it is damaged, please turn it around for use or replace it.

10.2 Monthly Maintenance and Servicing

- ▲ Check whether the top of the battery is clean to prevent corrosion
- ▲ Check whether the battery connecting wire is loose or corroded
- ▲ Check the sealing strip of the sewage tank cover. Replace it if it is damaged
- ▲ Lubricate all lubricating parts and rotating shafts with specific lubricating oil.
- ▲ Check whether the fasteners of the machine are loose
- ▲ Check whether the water tank leaks

10.3 Maintenance of Motor

- ▲ For motor maintenance, please contact the auto scrubber manufacturer.
- ▲ Check the carbon brush of the motor after every 250 hours of use. If the carbon brush is seriously worn, please contact the manufacturer for replacement.

10.4 Storage of the Machine

- ▲ Store it indoors and in a dry place.
- ▲ Upright storage
- ▲ Lift the water scraper assembly from the ground
- ▲ If it is extremely cold in the storage place, the machine needs to be kept completely dry before storage to avoid damage caused by low temperature.
- ▲ Drain the sewage tank and clean water tank.

11. Precautions for Maintenance-free Batteries

In order to better use the battery and prolong its service life, please pay attention to the followings during use:

1. The appearance of the battery shall be kept clean. Do not flush it with water. Please make sure that the battery connecting wires are fixed to the terminals. Loose wiring will generate large current during use, which will burn out battery terminals and wires.

2. Please select a charger that conforms to the maintenance-free battery charging curve to charge the battery. If failed, please ask your vendor for the “charging curve”. The use of mismatched chargers will cause the battery to bulge and shorten its use time or other defects.

3. Maintenance-free battery does not have memory function. Do not charge the battery after the battery is completely discharged, which will cause damage to the battery. The battery shall be charged when it is not in use. The battery shall be fully charged once a day (until the green light of charger is ON). The capacity of the battery will decrease when it is used without full charge for a long time.

4. The battery has self-discharge phenomenon during long-term storage. Generally, the fully charged battery needs to be recharged once a month. If the battery is not in use, it is better to store the battery after it is fully charged. Battery capacitance corresponds to “open circuit voltage” (voltage at both ends of the battery when it is not in operation for 24 hours).

100%→12.90-12.80V

75%→12.60V

50%→12.30V

25%→12.00V

0%→11.80V

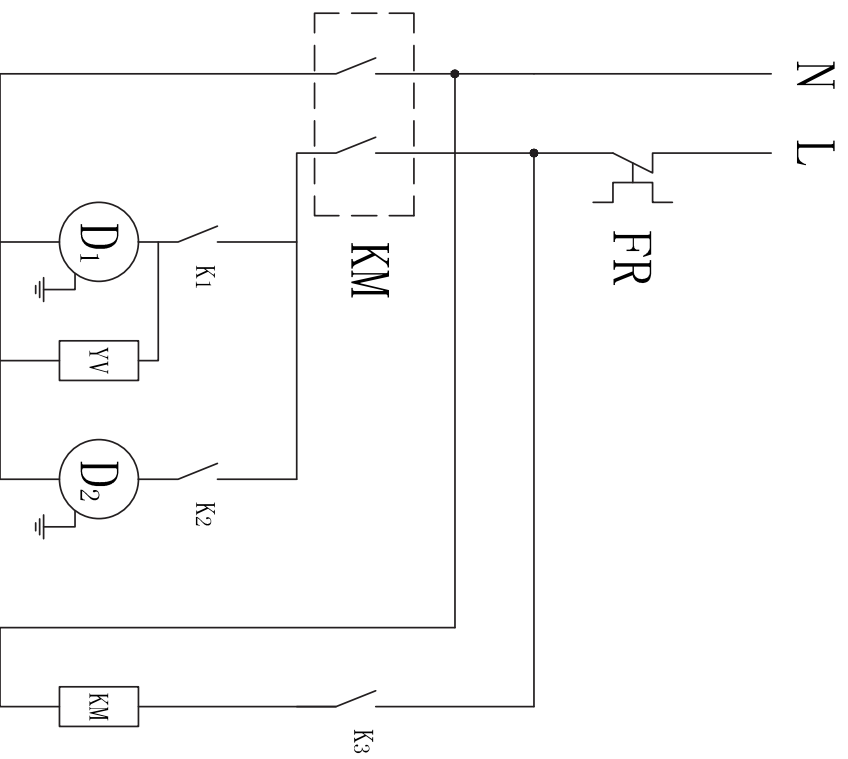
100%6.45-6.4V for 6V battery

The battery must be charged when the battery capacity is only 25%; otherwise the battery voltage will be too low for a long time and the internal vulcanization will occur.

5. Temperature will affect the capacity of the battery. It is not recommended to use the battery in the environment below - 10 degrees. Capacity decreases at a low temperature.

**Circuit Diagram of Bohman 2 C 43
Wire Scrubber**

- FR 15A Overload Protector
- KM 30A Intermediate Relay
- K1 Circular Switch
- K2 \K3 Rocker switch
- YV Solenoid valve
- D1 Brush Plate Motor
- D2 Water Suction Motor



Circuit Diagram of Bohman 2 B 43 Battery Scrubber

- K1 Circular Switch
- KM1/KM2 24V Intermediate Relay
- K2/K3 Rocker switch
- D1 Brush Plate Motor
- D2 Water Suction Motor
- YV Solenoid valve
- Fu1 60A fuse
- Fu2 30A fuse
- Fu3 3A fuse
- LC Electric quantity display board

