

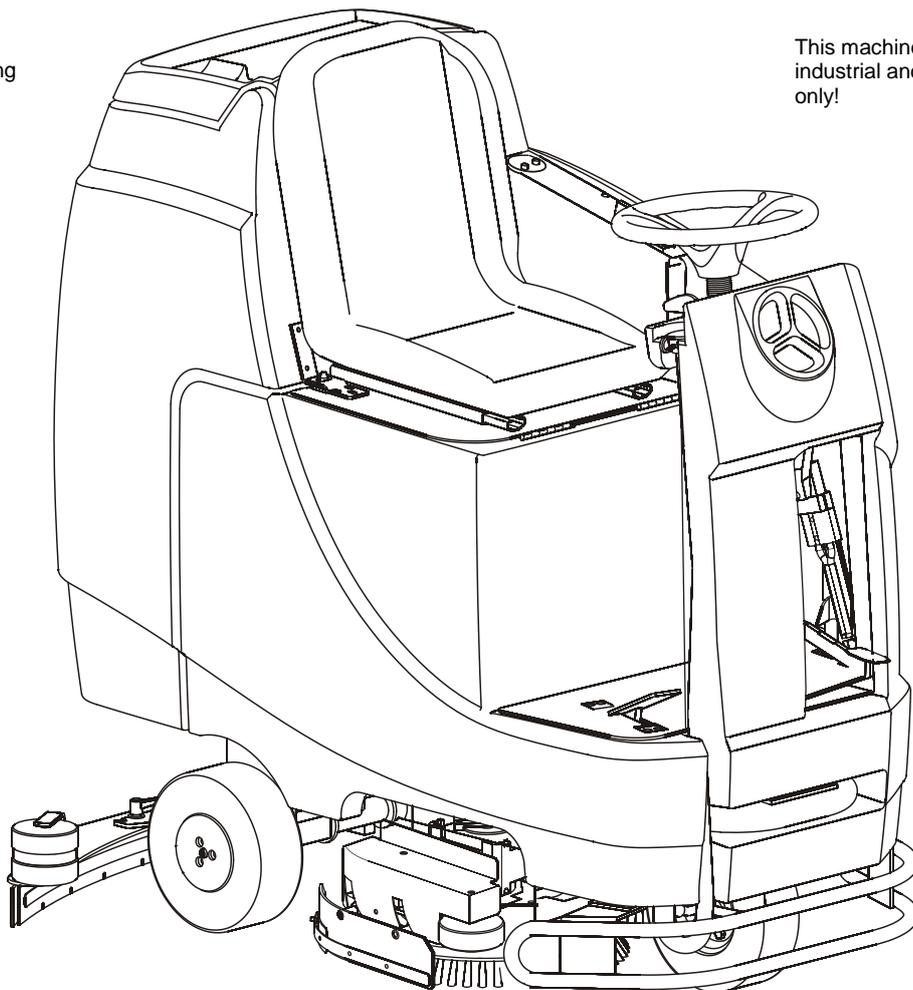
**ARA 66 | BM 100**  
**ARA 80 | BM 100**  
**ARA 66 | BM 100 iL**  
**ARA 80 | BM 100 iL**

## **Operating Manual for Scrubber dryer and Accessories**



Read these instructions  
carefully before operating  
the machine!

This machine is intended for  
industrial and professional use  
only!



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# 1 Introduction

## 1.1 About the operating manual

The operating manual contains important information for those concerned with the set up and use of the appliance and is designed to ensure safe and proper working with the equipment.

Prerequisite for this is the knowledge of the safety aspects to be observed for installation and use as well as the maintenance of the machine. Therefore start reading the operating manual at the chapter "Safety". The subsequent chapters are further focal points of information for the personnel.

To avoid improper use, this operating manual should be kept near the machine and must be available to those concerned with the machine at all times. The accident prevention and the general safety regulations must be observed when using the machine.



*The drawings shown in this manual may differ slightly from the actual design of the machine.*

As well as this operating manual, the manufacturers' instructions relating to the integrated components must also be observed. Special attention should be given to the notes relating to safety instructions.

## 1.2 Manufacturer

### Address:

G. Staehle GmbH u. Co. KG  
columbus Reinigungsmaschinen  
Mercedesstr. 15  
D-70372 Stuttgart

### Contact:

Tel: +49 (0)711/95 44-950  
Fax: +49 (0)711/95 44-941  
e-mail: [info@columbus-clean.com](mailto:info@columbus-clean.com)  
Internet: [www.columbus-clean.com](http://www.columbus-clean.com)

## 1.3 Liability and warranty

All details and information concerning the operation, maintenance and cleaning of the equipment is true according to our existing experience and to the best of our knowledge.

We reserve the right to make technical improvements within the scope of the development of the appliance described in this operating manual.

Translations have also been made to the best of our knowledge. However, we cannot accept liability for any translation errors. Legally authoritative is the German version of the operating manual supplied herewith.

The text and illustrations may not be identical to the goods supplied. The drawings and charts are not to scale 1:1.

Please read this operating manual carefully before starting the machine!

The manufacturer does not accept any liability for damages and failures due to non-observance of this operating manual.

It is not permitted to communicate the information in this operating manual to a third party. Any such action will lead to in claims for compensation.

## 1.4 Description of symbols

Important hints, such as safety instructions, are marked with appropriate symbols.

These instructions must be followed exactly to avoid accidents or damage to the appliance.



### **WARNING!**

**This symbol is used to mark all safety instructions in this operating manual whose non-observance could result in injury or death. Please follow these safety instructions exactly and take particular care in these cases.**

**WARNING! Danger of electric shock!**

This symbol draws attention to the danger of an electric shock. By non-observance of these safety instructions there is a danger of injury or death. Such work may only be carried out by a properly trained electrician.

**ATTENTION!**

The attention symbol marks all safety instructions in this operating manual, which must be kept because non-observance could lead to damage and/or malfunctioning of the appliance.

**NOTE!**

This symbol draws attention to hints and other useful information contained in the operating manual. All hints should be heeded to ensure the effective use of the appliance.

## 1.5 Spare parts

Use only original spares and accessories from the manufacturer.

**ATTENTION!**

The use of wrong or faulty spare parts from other manufacturers may result in damage to the appliance. Despite this, should other than the original spare parts from the manufacturer be used, or parts obtained from elsewhere, all obligations entered into by the manufacturer or his representations, such as warranties, maintenance contracts, etc., will immediately become null and void.

## 1.6 Copyright

This operating manual is to be treated confidentially. It may only be used by the persons for whom it is intended. Communication to a third party is only permitted with the written consent of the manufacturer.

All documents are protected by copyright law.

Passing on or duplication of documents, in whole or in part, or utilization or communication of the content is not permitted, unless expressly agreed. Offences are punishable and will lead to claims for compensation.

We reserve all rights to enforce our legal protection rights.

## 1.7 Disposal

- Consumable materials, conservation and cleaning products must be disposed of according to current environmental protection regulations.
- Any liquid which leaks out must be contained and disposed of in accordance with environmental regulations or better recycled where possible.
- Old batteries should be recycled where possible or disposed of according to current environmental regulations.

## 2 Safety

This chapter contains an overview of all important safety aspects.

In addition, the individual sections contain specific safety instructions on how danger can be avoided, indicated with appropriate symbols. Furthermore, the pictograms, signs and instructions on the appliance must be observed and kept in readable condition.

Observation of the safety instructions permits optimal protection of the personnel from hazards and ensures safe and reliable operation of the equipment.

### 2.1 General

The appliance is designed to the current standard of technology and operational safety.

However, dangers can arise from this appliance, if it from not used by properly trained personnel, is used improperly or not for the purpose intended.

Every person, who is asked to work with or carry out work on the appliance, is required to read the operating manual and have understood it before working with the equipment. This also applies to people who have already worked with such an appliance or a similar one or who was trained by the manufacturer.

Knowledge of the content of the operating manual is a prerequisite for protecting personnel against danger and avoiding mistakes and thus ensure safe and reliable operation of the appliance.

To avoid danger and ensure optimal performance, no modifications or changes may be made to the equipment, unless they have been expressly approved by the manufacturer

All safety signs and operating instructions on the appliance must always be kept in a clearly readable condition. Damaged or unreadable signs must be replaced immediately.

The settings and ranges of values shown in the operating manual must be respected.

The employer is recommended to obtain confirmation from the operator that he/she had read and understood the operating manual.

### 2.2 Transport and storage

During transport, the device must always be switched off and fastened securely.

The device may only be stored in closed rooms.

For proper storage, take the machine's weight into consideration.

### 2.3 Disposal / scrapping

Dispose of all operating materials, preservatives and cleaning agents according to the applicable environmental protection regulations.

Collect and dispose of any leaking liquids in an environmentally sound manner or process and recycle them wherever possible.

If possible, recycle used batteries; otherwise, dispose of them according to the applicable environmental protection regulations.

The device must be scrapped at an authorised scrapping point.

Prior to scrapping the device, the following components / materials must be removed and separated as well as disposed of separately in accordance with the environmental protection regulations:

- Batteries
- Brushes
- Plastic lines and parts
- Electrical and electronic parts (\*)

(\*) For the scrapping of the electrical and electronic components in particular, please contact your local plant branch office.

### 2.4 Responsibility of the owner/operator

This operating manual and the manufacturers' manuals relating to the components used must be kept in the immediate surroundings where the appliance is kept and must be available to the installation, service, maintenance and cleaning personnel at all times.

The appliance may only be used when it is in a safe condition and in perfect working order only. All protection devices must be fitted at all times and regularly checked to ensure they are in good condition.

The statements about the work safety refer to the directives of the European Union, valid at the time of manufacture of the appliance. During the entire working life of the equipment, the owner/operator is obliged to

compare the above mentioned safety protection measures with the current and heed any new rules, which may have been introduced. Outside the European Union, the work safety laws and local regulations valid where the equipment is used must also be taken into account.

Beside the work safety guidelines contained in this operating manual, it is also necessary to comply with the generally valid safety and accident prevention regulations, which apply to the use of the appliance, and with the current environmental protection regulations.

The owner/operator and those authorized by him are responsible for ensuring reliable operation of the equipment and for clearly specifying who is responsible for the set up, operation, maintenance and cleaning of the appliance.

The instructions given in the operating manual are to be respected in full and without reservations!

The owner/operator has also to ensure that

- as specified in the work safety regulations, a hazard assessment is carried out to determine what hazards exist which are specific to the area where the equipment will be used
- as specified in the law on the use of tools and appliances, an instruction sheet is provided containing all additional instructions and safety regulations, resulting from the hazard assessment of the workplace.

## 2.5 Proper use

The operational safety of the appliance is only guaranteed when the equipment is used according to the instructions contained in the operating manual.

The scrubber dryer is only designed for cleaning waterproof and abrasion resistant floor coverings inside buildings. Scrubbing brushes/pads and the suction devices are used for wet cleaning.

The surfaces to be cleaned must be flat and not exceed an inclination of more than 8 percent. You must not go over uneven bumps, such as thresholds and steps, when cleaning.

Proper use also means observing the correct procedures concerning set up, operation, maintenance and cleaning instructions.

**Every use of the appliance which goes beyond this and/or other use is forbidden and will be regarded as improper use! Claims for damages, of whatever kind, resulting from improper use against the manufacturer and/or his representatives are excluded. The operator alone is liable for all damages which may arise from improper use.**

## 2.6 Work safety

Danger to persons and/or the equipment can be avoided by following the on work safety instructions.

Non-observance of these instructions can put people or objects at risk through mechanical or electrical factors or through the equipment breaking down.

Non-observance of the safety regulations will result in the loss of any right to claim for damages.

## 2.7 Protective clothing

When working on and with the appliance the following must be worn:

- Solid closed shoes with non-skid soles
- Close-fitting working clothes (resistant to tearing, no wide sleeves, no rings or other jewellery, etc.)

In addition when working with the batteries the following must be worn:

- Safety glasses  
to protect the eyes against the caustic electrolyte in the battery
- Protective gloves  
to protect the hand against injuries and from contact with substances which could endanger health.

## 2.8 Dangers resulting from the equipment

The appliance has undergone a risk assessment. The design and layout of the equipment resulting from this corresponds to the current state-of-the-art.

However, a certain risk always remains!

The appliance needs to be used responsibly and carefully. Improper use or use by unauthorized persons can endanger other people.



**WARNING! Risk of injury!**

Improper use of the equipment can cause serious injuries through crushing, running over or contacting people with the rotating brushes, pad holder or pads.

Thus the following rules should be observed:

- The appliance may not be used on floors with an inclination of more than 8%.
- Always approach people and other objects slowly and carefully.
- When operating the appliance never put other people at risk.
- When working, ensure that other people – especially children – never come into contact with the appliance.
- Unauthorized persons should have no access to the appliance.
- Always turn off and remove the key switch when the device is not used.



**ATTENTION!**

Improper use can cause considerable damage to the appliance, floor covering as well as other objects. When using the appliance, never run over thresholds, steps, carpets or objects which could get caught up, such as cables.

The device is put into movement by the operator on the seat by operating the foot pedal. In order to push the device without electricity, the brake is deactivated manually.



**WARNING! Risk of injury!**

The uncontrolled motion of the appliance can cause serious injuries through crushing, running over or falling over. Thus always observe the following rules:

- Operate seat switch and foot pedal only as intended.
- The brake may only be deactivated while the device is moved manually, afterwards it is to be reactivated immediately.
- The device must be standing at ground level when the brake is deactivated.

The appliance is equipped with brushes, pad holder or pads.



**WARNING! Risk of injury!**

Rotating brushes, pad holder or pads can cause serious injuries if they come into contact with anyone. Therefore, please observe the following rules:

- Never touch rotating brushes, pad holders or pads.
- Never touch other people with the rotating brushes, pad holders or pads.
- Before you do touch brushes, pad holders or pads, always switch off the appliance and wait until the parts have come to a complete stop.

The appliance operates with rechargeable batteries.



**WARNING! Risk of explosion and risk of injury!**

Handling batteries represents a considerable risk to persons and objects. When charging, highly explosive gases are given off and battery acid can be very hazardous to health and is highly caustic.

The battery manufacturer's manual and the safety regulations are to be respected under all circumstances! (GNB 81700678)

Observe the safety instructions for avoiding hazards in the section, "Charging batteries" !

Only insert batteries that deliver the safety extra-low voltage according to the type label.

Depending on the type of appliance, the batteries are either connected directly to the mains supply for charging, or via an external charger. The batteries may only be charged with safety extra-low voltage chargers. Only use chargers which are explicitly suitable for the batteries that are fitted and which are supplied by Columbus.

**ATTENTION!**

It is absolutely necessary to comply with the safety information provided by the manufacturer of the installed charger or the manufacturer of the external charger!

**WARNING! Danger of electric shock!**

Electricity can cause serious injuries. If the insulation or an individual component is damaged, there can be a risk of a fatal electric shock. Therefore:

- Before starting work always unplug the appliance!
- When charging the battery, never touch the poles of the battery or the charging device, never place electrically conducting components on top of batteries.
- Always check the mains lead for damage before plugging in the appliance.

Through incorrect operation or other faults, cleaning fluid may remain on the floor.

**WARNING! Risk of injury through slipping!**

When working with the appliance always wear non-skid safety shoes and ensure that cleaning fluid which has leaked out is cleaned up completely.

When cleaning floors with the appliance, cleaning agents can be used.

**WARNING!**

Cleaning agents can be hazardous to health. Thus observe the following rules:

- Ensure that the cleaning agent does not come into contact with the skin or the eye.
- Keep to the concentration specified in the cleaning agent manufacturer's guidelines.
- Follow the instructions in the cleaning agent manufacturer's safety data sheet.

## 2.9 Operating personnel

The appliance may only be operated and maintained by approved, properly trained and instructed personnel. The personnel must have been especially instructed about the dangers which can arise.

"Instructed persons" are those who have been informed about the tasks they have to perform and about possible hazards if the equipment is used incorrectly; where necessary, they have been taught about the appropriate protection measures and the precautions to be taken.

"Qualified persons" are those who, through their training, knowledge and experience as well as their knowledge of the relevant regulations, are able to do the tasks conferred on them and to recognize the potential dangers.

If the persons concerned do not have the necessary knowledge, then training is required accordingly.

The responsibilities for operating and servicing the equipment must be clearly defined and adhered to, so that misunderstandings which could affect safety are avoided.

The appliance may only be operated and maintained by people who can be expected to perform their work reliably. Their approach to work must in no way endanger people, the environment or the equipment.

People under the influence of drugs, alcohol or medication which affects their reactions, are not allowed to work on or with the appliance **in any way**.

When choosing personnel, the youth employment laws of the country concerned must be taken into account with regard to minimum age requirements and any occupation-specific rules relating to this.

It is the responsibility of the operator to ensure that no unauthorized person works on or with the appliance.

Unauthorized persons, such as visitors, etc, may not handle the appliance. For security reasons they must be kept at an appropriate distance.

It is the duty of the operator to report any changes in the way the appliance works, which could affect safety, immediately to the person responsible..

## 2.10 Operating position

During the floor cleaning, the operating person's place of work is on the device. Only one person may work on the device at any one time.

## 2.11 Conduct in the case of danger or accidents

Where there is danger or if an accident occurs, immediately stop the appliance by switching it off at the control panel and secure it against rolling away (see Chapter "Operation").

Ensure that First-Aid equipment (first-aid box, eye lotion, etc.) and a fire extinguisher are available nearby.

Staff must be made aware of the procedures to be followed and location of safety equipment, alarm buttons, First-Aid boxes and rescue equipment. This will ensure prompt action in the case of accidents or if dangers occur.

## 2.12 Maintenance



### WARNING!

**Switch off the device prior to any cleaning or maintenance work. For battery-operated devices, disconnect the battery or pull out the battery charger plug.**

The maintenance intervals (according to the Maintenance Instructions item no. 70107700) must be complied with.

## 2.13 Accessories and spare parts

Only accessories and spare parts approved by the manufacturer may be used. By using original accessories and original spare parts, it is ensured that the device can be operated in a safe, reliable and failure-free manner.

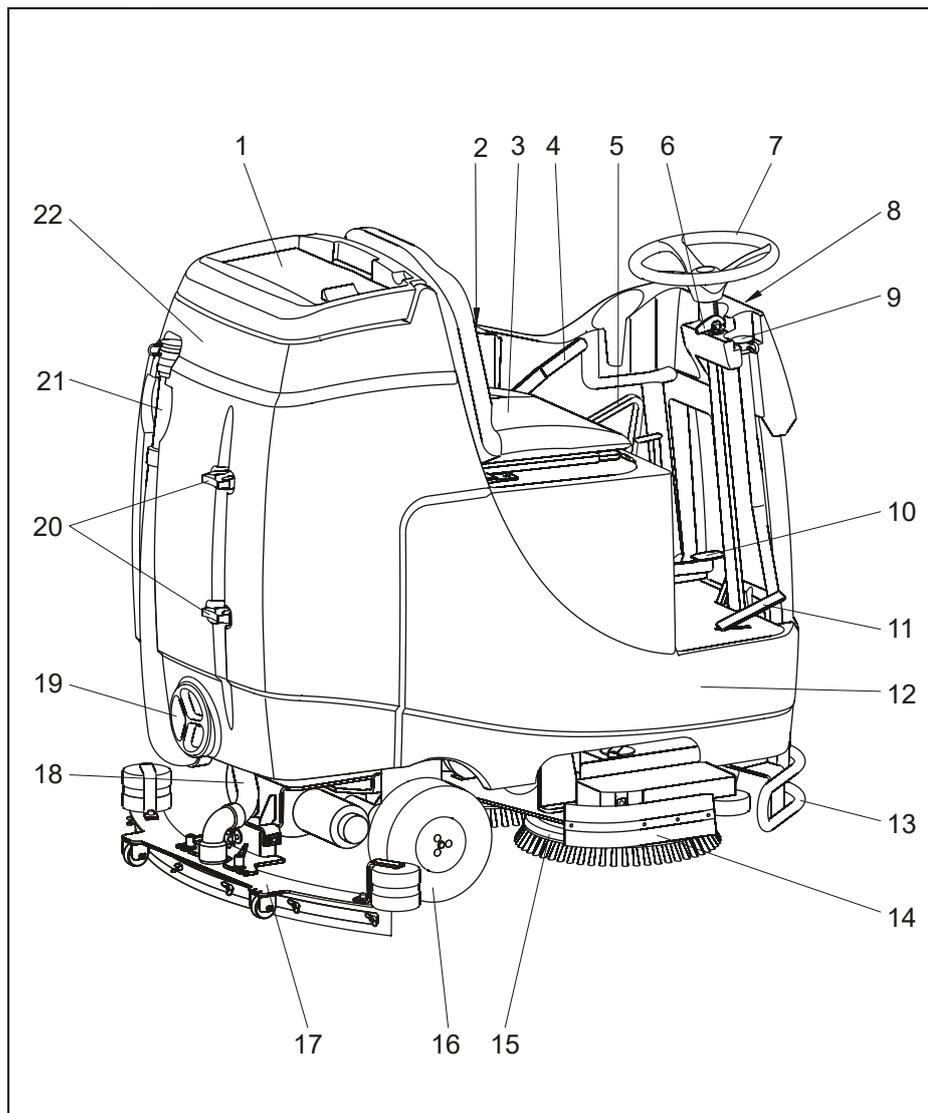


### ATTENTION!

**Incorrect or defective spare parts of third-party manufacturers might damage the device. If, however, other spare parts than original spare parts of the manufacturer or spare parts which were not purchased from the manufacturer are used, all obligations entered into by the manufacturer or their dealers, such as guarantee commitments, service contracts etc., will expire without notice.**

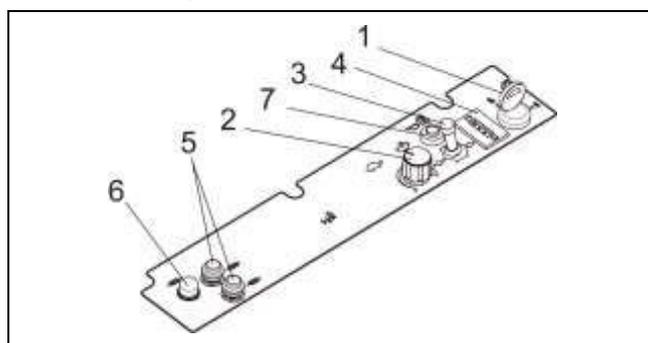
### 3 Design overview and features

#### 3.1 Design overview

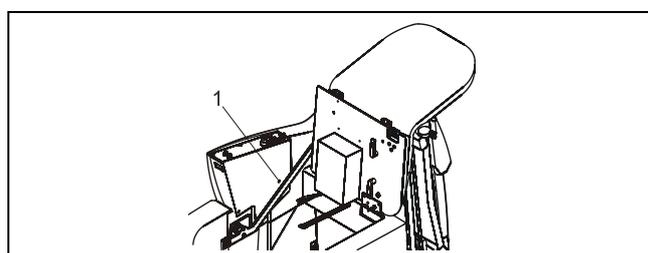


1. Recovery tank cover
2. Control panel
3. Driver's seat
4. Nozzle lifting lever
5. Emergency OFF / Charger plug
6. Fresh water dosage
7. Steering wheel
8. Fresh water/cleaning solution filling compartment
9. Fresh water drainage hose
10. Brush unit foot pedal
11. Accelerator pedal
12. Solution tank
13. Bumper guard
14. Splash guard
15. Brush unit
16. Drive wheel
17. Squeegee
18. Suction hose
19. Coarse dirt discharge
20. Accessories holder
21. Waste water drainage hose
22. Recovery tank

#### 3.2 Control panel



1. Main switch
2. Rotary knob maximum speed
3. Forwards/backwards toggle switch
4. Battery charge display
5. Automatic fuse for brush motors
6. Fuse for suction motor
7. Signal horn



1. Blinking LED signal from the drive control

### 3.3 Appliance description / functions

Sitting on the driver's seat, the operator has to push the appliance forward by the handle over the floor area to be cleaned. The rotary action of the brush cleans the floor and, at the same time, aids the forward motion of the appliance. Cleaning solution – consisting of fresh water or a mixture of fresh water and detergent – flows out of the brush unit and is sucked in again by the squeegee device at the back of the appliance. The amount of cleaning solution is controlled by the rotary knob on the right side of the steering wheel. For more information see Chapter "Operation".

### 3.4 Models

Models	ARA 66   BM 100	ARA 80   BM 100
Battery operation	24 V	24 V
Battery capacity	240 Ah internal battery charger 280 Ah, 320 Ah external battery charger	240 Ah internal battery charger 280 Ah, 320 Ah external battery charger
Traction drive	X	X
Internal battery charger	optional	optional
Chemical dosage	optional	optional

## 4 Technical data

Technical data		ARA 66   BM 100	ARA 80   BM 100
Working width (Brush diameter)	mm	660	800
Suction width (Squeegee)	mm	850	980
Length	mm	1380	1380
Width (without squeegee)	mm	<b>730</b>	900
Height	mm	1325	1325
Weight empty/Operating weight	kg	258/690 – at 320Ah + driver + fresh water	263/695 – at 320Ah + driver + fresh water
Suction air max.	l/s	33	33
Vacuum max.	mbar	170	170
Brush speed	r.p.m.	160	160
Number of brushes		2	2
Solution tank	l	100	100
Recovery tank	l	115	115
Rated power consumption (total)	W	2290	2290
Rated voltage	V	24	24
Battery capacity	24 V in Ah 5	max. 320	max. 320
Battery size L x W x H	mm	640x375x500	640x375x500
Connection cable (Battery charging)	m	1 (internal battery charger)	1 (internal battery charger)
Approval		CE	CE
Noise level	dB(A)	64 / 60 <sup>1)</sup>	64 / 60 <sup>1)</sup>
Rated current	A	95	95
Protection class		III	III
Degree of protection		IPX 3	IPX 3
Vibration	m/s <sup>2</sup>	< 0,5	< 0,5

<sup>1)</sup> silent version (optional)

We reserve the right to make technical changes to the products to improve product performance and for further development.

## 5 Transport, packaging and storage

### 5.1 Safety advice



#### **WARNING! Risk of injury!**

During transportation or during loading and unloading there is a risk of injury from falling parts. The appliance may be damaged or ruined if transported in the wrong way. For this reason the following safety advice should be observed:

- Never transport loads above peoples heads.
- Always take great care when moving the appliance.
- Never lift the appliance by sticking out mechanical parts, such as shafts.

### 5.2 Transport inspection

We recommend that you check the whole delivery for completeness and possible transport damage as soon as it arrives. Where damage is suspected, only conditionally accept the goods (e.g. on the delivery papers) giving details of the suspected damage. Inform the manufacturer immediately.

### 5.3 Packaging

The appliances are despatched in different packaging.

The most commonly used packaging materials are wood, cardboard and plastic (foil and expanded polystyrene), but also other materials such as tightening straps. Packaging materials may also include materials to protect the goods from moisture or frost (e.g. silica gel bags, antifreeze, etc.)

Unless otherwise agreed that the packaging material should be returned, the packaging material remains with the customer.



#### **ATTENTION!**

**Environmentally friendly disposal conform to the appropriate environmental protection regulations must be assured. If necessary, a specialize recycling firm should be given the task of disposing of the packaging material.**

### 5.4 Storage

After unloading, the packages must be stored in accordance to the relevant markings on the outside, until assembly can take place. Packed appliance components and auxiliary equipment may not be unpacked.

The following regulations apply to storage:

- Store dry. Relative humidity must not exceed 60 %
- The packages must not be stored outside in the open air.  
Furthermore it must be guaranteed that the warehouse floor stays dry during the storage period.
- Protect against direct sunlight. Storage temperature: 15 to 25 °C
- Store in a dust-free surroundings.
- Avoid mechanical vibration and damage.
- If storage lasts more than approx. 3 months, check that the protective measures taken are sufficient. In aggressive surroundings the protective measures may have to be renewed.

## 6 Assembly

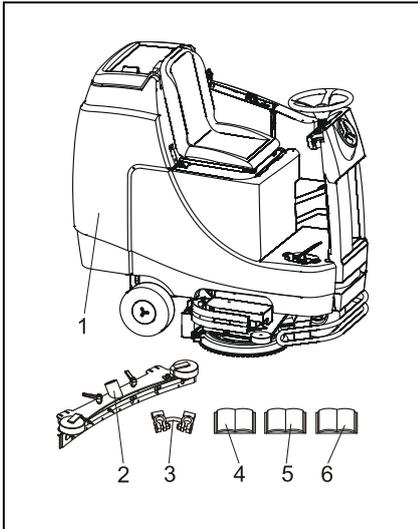


**WARNING! Risk of injury!**

Danger to people and objects may originate from the appliance. Work on and with the appliance may only be carried out by suitably qualified personnel in accordance with all the safety instructions given in Chapter "Safety"!

Before carrying out any assembly work, switch off the appliance and pull out the mains plug and charging plug.

### 6.1 Before assembly

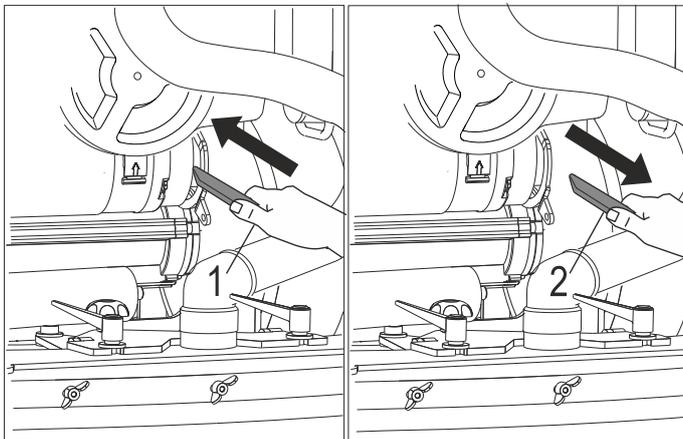


Before starting to assemble the appliance, check to ensure that all the parts necessary for operation are there.

Scope of delivery	ARA 66   BM 100	ARA 80   BM 100
1 Scrubber dryer	X	X
2 Squeegee	X	X
3 Battery connection cable	X	X
4 Operating manual	X	X
5 Spare parts list	X	X
6 Operating manual of the battery charger (option)	X	X
7 <sup>1)</sup> Brush/pad holder with pad	X <sup>1)</sup>	X <sup>1)</sup>
8 <sup>1)</sup> Batteries	X <sup>1)</sup>	X <sup>1)</sup>

<sup>1)</sup> not included in delivery, separate order required

### 6.2 Pushing/pulling the scrubber dryer



To move the automatic scrubber without electricity put the wedge into the electric brake (1). This action cut off the electric brake and the automatic scrubber can be pushed or pulled.

For the automatic scrubber to be driven, the wedge must be removed (2)



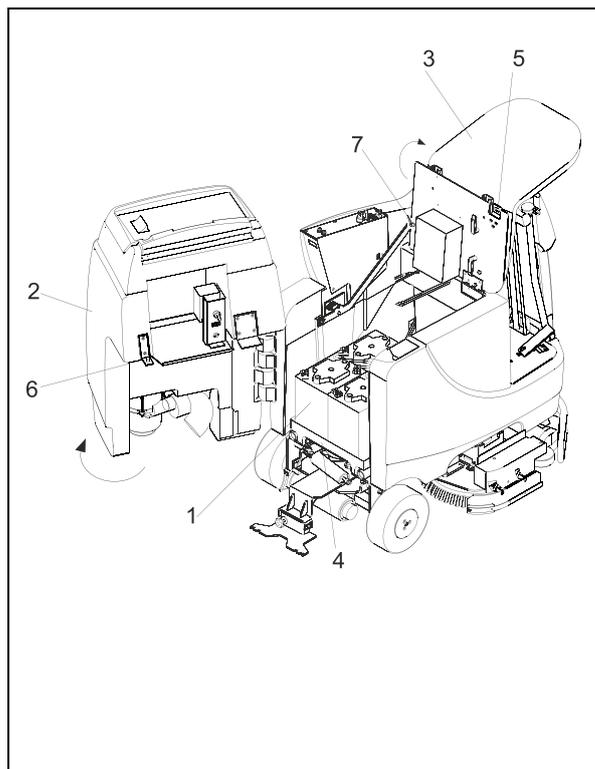
**WARNING! If the wedge won't be removed (2), the scrubber dryer might start moving due to its own weight, in the active as well as in the passive state.**

### 6.3 Battery installation / removal and connection



**WARNING! Danger of electric shock!**

Work on the appliance's electrical circuits may only be carried out by suitably qualified personnel!  
 Before installing/removing batteries ensure that the scrubber dryer is completely switched off!  
 Follow the operating and handling instructions for the batteries! Wear protective gloves and safety glasses!



**Opening the battery compartment:**

1. Push the driver's seat completely to the back (see Chap. "Driver's seat adjustment").
2. Click the driver's seat to the front and fix it.
3. Pivote the empty dirty water tank completely to the side.

**Installing/removing batteries:**

4. Prepare the batteries (1) and connection cable (2) according to the information in Chapter "Technical data".
5. Insert batteries (1) in the battery tray (4) .
6. The on board battery charger is programmed for 240 Ah Gel (maintenance free) batteries. In case of using other batteries, please reprogramm the charger according the instructions given in the manual of the charger delivered with the machine.

Using a suitable lifting truck, the batteries can be installed or removed together with the battery tray.

**Closing the battery compartment:**

7. Close the recovery tank (2) by swivelling it to the right side.
8. Tilt the driver's seat (3) downwards. Ensure that the lug (5) locks in place in the bolt (6).

**Connecting batteries:**

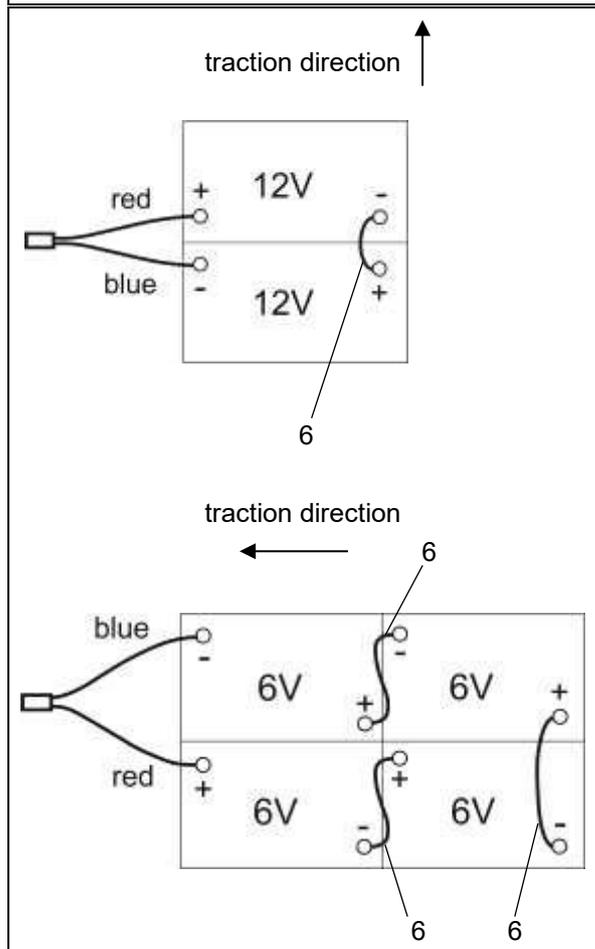
9. Place the batteries in the battery compartment as shown. Make sure the battery poles  $\oplus/\ominus$  are in the right position!



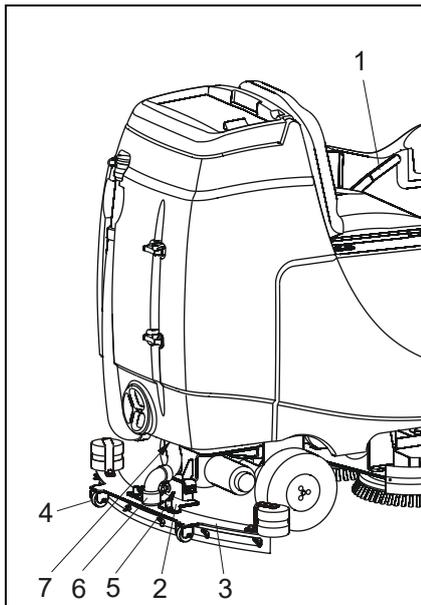
**WARNING! Risk of injury!**

**Connecting the batteries wrongly can result in a short circuit and may cause fire. Never connect the same poles together. Follow these instructions carefully:**

10. Connect the battery poles  $\oplus$  and  $\ominus$  with connection cable as shown.
11. Connect the red cable to the  $\oplus$  pole.
12. Connect the blue cable to the  $\ominus$  pole.
13. With smaller batteries use a spacer (7) to secure them.
14. Close the battery compartment (see 6 and 7).



## 6.4 Squeegee attach / remove



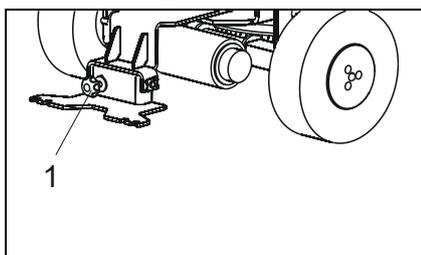
### Attach squeegee:

1. Lower the squeegee holder (2) using lever (1).
2. Place the squeegee (3) behind the scrubber dryer in such a way that the support rollers (4) are at the back.
3. Turn the quick clamping levers (5) counterclockwise through several turns, but don't unscrew completely. To protect against rust, the two clamping levers are lubricated with copper paste.
4. Push the squeegee (3) as far as it will go into the holder of the fork (2).
5. Tighten both quick clamping levers (5) in the clockwise direction.
6. Lift both quick clamping levers (5), swivel towards the chain and lower there.
7. Push the suction hose (6) hard onto the squeegee (3) and onto the suction pipe (7) on the recovery water tank.

### Remove squeegee:

8. Remove the squeegee in the reverse order.

## 6.5 Squeegee adjustment



Use the star-shaped knob (1) to adjust the inclination of the squeegee.

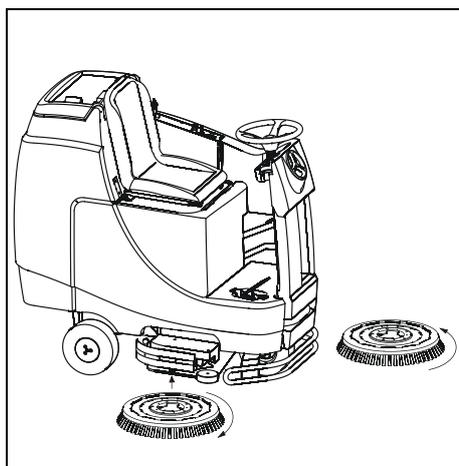
1. Turn clockwise – for better floor contact in the middle of the squeegee
2. Turn anticlockwise – for better floor contact at the ends of the squeegee.

## 6.6 Cleaning tool attach / remove



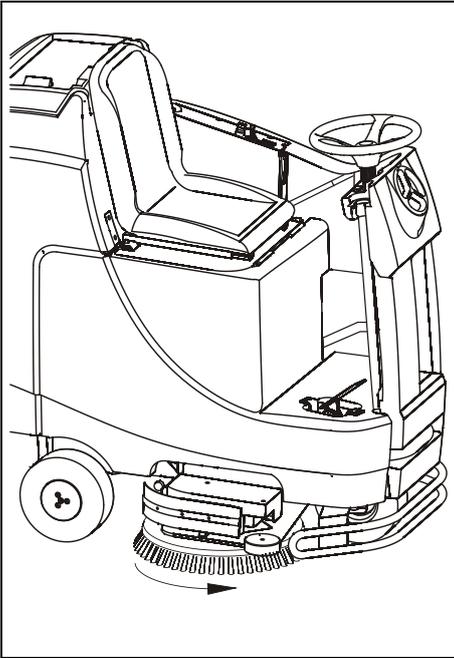
**WARNING! Risk of injury from rotating parts!**

**Before attaching / removing the cleaning tool ensure that the scrubber dryer is completely switched off! Wear protective gloves!**



### Attaching the cleaning tool:

1. Completely switch off the scrubber dryer and brush unit lift with the foot pedal (See Chapter "Operation").
2. Lift the cleaning tool on the carrier system. Turning to the right or left locks the cleaning tool in place.
3. Lower the brush unit (1) using the foot pedal and accelerate slightly.

**Removing the cleaning tool:**

1. Switch the scrubber dryer off completely and raise the brush unit using the foot pedal (See Chapter "Operation").
2. Turn the cleaning tool by hand sharply backwards in the direction indicated until it is released; repeat if necessary.
3. Pull the released cleaning tool out from under the brush unit towards the front.

## 7 Explanations of the symbols used on the device



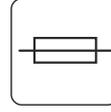
Max. speed



It is absolutely necessary to maintain a safety distance of 1 m to other people.



Min. speed



Fuse



Signal horn



Keep off the device at this place

max. 40°C

The temperature of the cleaning liquid must not exceed 40°C.

## 8 Operation



### WARNING! Risk of injury!

Danger to people and objects may originate from the appliance. Work on and with the appliance may only be carried out by suitably qualified personnel in accordance with all the safety instructions given in Chapter "Safety" !

Every operator must first read through the whole operating manual – especially all the instructions in the Chapter on "Safety" – and understood it before operating the appliance.

### 8.1 Tasks before starting cleaning

#### 8.1.1 Checks before starting



### ATTENTION!

The appliance must be in proper working order, otherwise the appliance or the floor surface to be cleaned may be damaged or ruined.

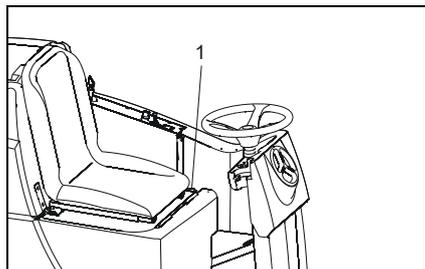
Therefore carry out the following checks before starting work:

1. Visual inspection of the appliance for damage or missing parts.
2. Check that all the operating controls are working properly.
3. The recovery tank must be empty, otherwise empty it (see Sec. "Emptying and cleaning the recovery tank").
4. Float in the recovery tank must be clean and working properly, otherwise clean it (see Sec. "Float clean/check").
5. The batteries must be sufficiently charged, otherwise recharge them (see Sec. "Check the battery charge level").
6. Check solution filter for cleanliness (see Sec. "Cleaning the filter sieve").
7. The solution tank must be full, otherwise fill it up (see Sec. "Filling with cleaning solution").
8. Check the cleaning tool is working properly.
9. Please check that the red lever of the driven motor's brake is in lower position (see chapter pushing/pulling of scrubber dryer). If the red lever will be kept in upper position, the scrubber dryer can roll/move at its own due to its own weight.

#### 8.1.2 Checking the battery charge

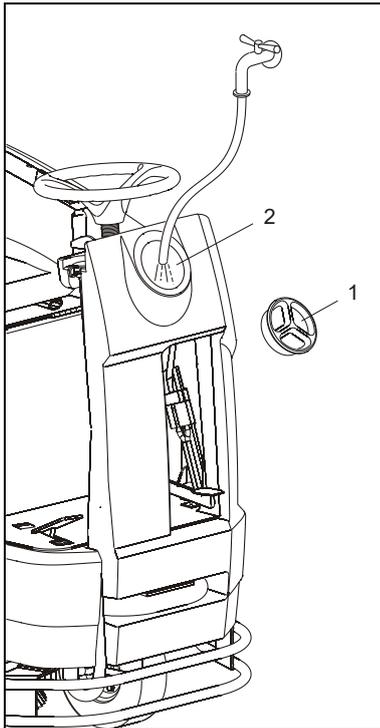
1. Hold the handle with one hand.
2. Switch on the squeegee for approx. 2 s, check the battery charge display, then switch off again (see Sec. "Squeegee switch On/Off"/"Battery charge display").
3. Recharge the batteries if required (see Sec. "Recharging the batteries").

#### 8.1.3 Driver's seat adjustment



1. Push the lever (1) aside and push driver's seat to the front or back until the appropriate position is reached and the seat locks audibly into place.

### 8.1.4 Filling with cleaning solution



1. Turn off the scrubber dryer completely.

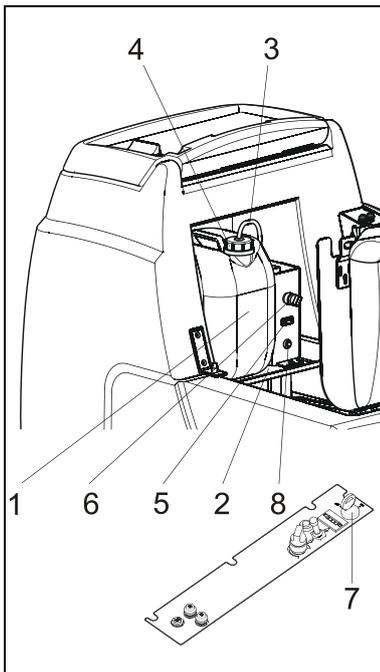


#### ATTENTION!

The wrong cleaning solution or filling may ruin the appliance. Pay attention to the following when filling with solution:

- The detergent should not foam much and be approved specifically for use in the scrubber dryer.
  - Follow the instructions of the detergent manufacturer use and concentrations.
  - Never pour the detergent undiluted into the solution tank.
  - Never use different detergents together.
  - The cleaning solution should not be warmer than 40°C.
  - Never fill the cleaning solution above the (max.) level mark.
2. Open the tank screw cap (1).
  3. Fill in the cleaning solution through the filler opening (2) at most up to the bottom edge of the filler neck.
  4. Close the tank screw cap (1).

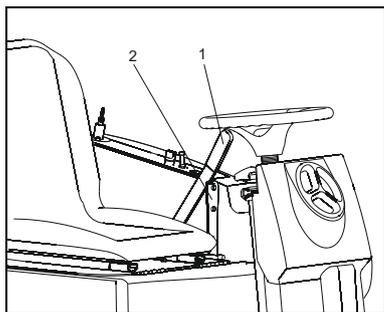
### 8.1.5 Chemical dosage (Optional)



1. Fill with fresh water through the filling opening of the solution tank. (See 7.1.4 Filling with cleaning fluid).
2. Tilt the driver's seat forward.
3. Place the 10 ltr. chemicals tank (1) with approved chemicals onto the shelf (2) provided.
4. Put the suction hose with filter (3) into the chemicals tank (1) so that the filter goes down to the bottom and then screw on the cap (4).
5. Switch the toggle switch (5) to ON. The chemicals will now be added.
6. The concentration of the chemicals is set using the regulating knob (6).
7. When filling initially, changing the chemicals or washing out the suction hose, the hose must be filled first. To do this, first switch on the main switch (7) and then press down button (8) until the hose is filled.
8. With longer periods of inactivity (> 3 days) remove the suction hose from the chemicals tank, place it in a container with clean water and press button (8) long enough to thoroughly rinse out the hose system.

## 8.2 Operation during cleaning work

### 8.2.1 Squeegee tool lower / raise – Suction device switch On / Off



#### ATTENTION!

The suction device is only switched on when the squeegee is lowered.

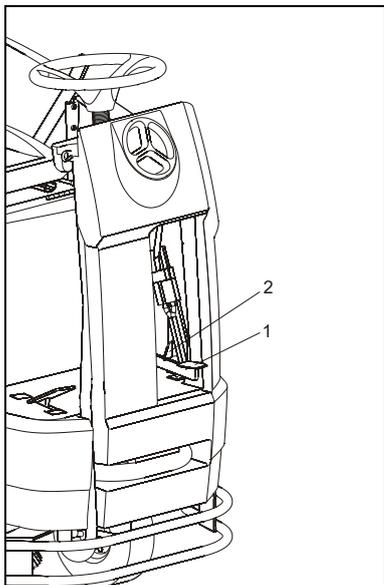
#### Lower squeegee to the working position:

1. Lift lever (1) a little, slightly pull it to the right and lower. The suction device is switched on simultaneously.

#### Raise the squeegee to the idle position:

1. Lift lever (1) and lock it in the locking plate (2). The suction device is switched off after 10 seconds.

### 8.2.2 Brush unit lower / raise



#### Lower the brush unit to the working position:

1. Press the foot pedal (1) down with the toe.
2. Press the foot pedal (1) with the toe to the right and slowly release the pressure.
3. Slowly press the accelerator pedal at the same time. The brush motors are switched on.

#### Raise the brush unit to the idle position:

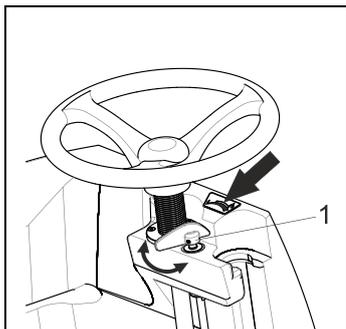
1. Press the foot pedal (1) down with the toe until it locks in place (2). The brush motors will be switched off at the same time.



#### WARNING! Risk of injury!

Never let go of the steering wheel while the brush motors are switched on.

### 8.2.3 Regulating the cleaning solution



1. Switch on the brush unit (see Sec. Brush unit On/Off).

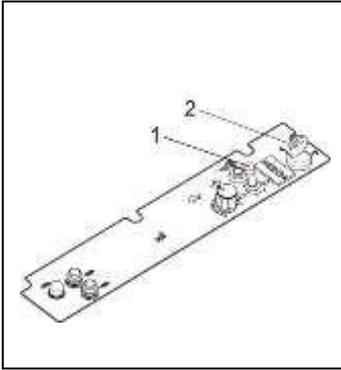


#### WARNING! Risk of injury by slipping!

Before regulating the flow of cleaning solution switch on the squeegee!

2. Turn the knob (1) further to the right: the amount of cleaning solution increases.
3. Turn the knob (1) further to the left: the amount of cleaning solution decreases. In the green area the chemical supply is optimized.
4. Turn the knob (1) to the left as far as it will go: no cleaning solution flows out.

### 8.2.4 Scrubber dryer stop / switch-off



1. The scrubber dryer is equipped with an immobiliser system. The switch is located under the driver's seat so that the scrubber dryer can only be moved when someone is sitting on the driver's seat.

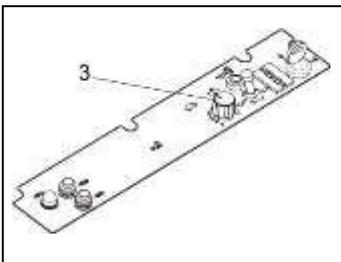


#### ATTENTION!

**The toggle switch (1) should be in a neutral position before you turn on the main switch!**

2. Plug in the main switch (2) and turn clockwise.

### 8.2.5 Adjusting the maximum speed

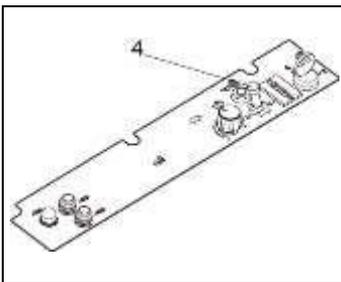


Adjust the maximum speed using the rotary knob (3).

Turn left – to reduce the speed

Turn right – to increase the speed

### 8.2.6 Setting the forward and reverse gear



The toggle switch (4) is used to select the forward and reverse gear.

Push the switch forward – to select the forward gear

Push the switch backward – to select the reverse gear

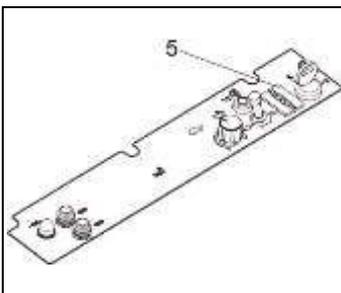


#### ATTENTION!

**The reverse gear can only be selected when the squeegee is raised, i.e. when the suction unit is switched off.**

(see Sec. "Lowering/Raising the squeegee")

### 8.2.7 Battery monitoring display



When the brush unit or squeegee are switched on, the LED's (5) light up in the order green – yellow - red, after which the current charging state of the batteries is displayed:

**green:** Battery is full to half full;  
the appliance is ready for operation.

**yellow:** Battery is half full or has the minimum charge level;  
the appliance can still be used but the batteries should be recharged soon (see Sec. "Recharging the batteries").

**red:** Battery empty,  
The brush unit and squeegee come to a stop or don't start;  
recharge the batteries straight away (see "Recharging the batteries").

## 8.3 Working with the scrubber dryer



### **WARNING! Risk of injury!**

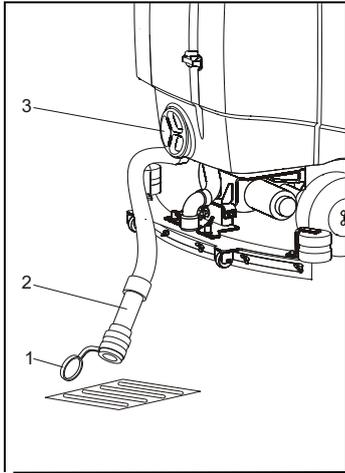
**Danger to people and objects may originate from the appliance. Work on and with the appliance may only be carried out by suitably qualified personnel in accordance with all the safety instructions given in Chapter "Safety"!**

**Every operator must first read through the whole operating manual – especially all the instructions in the Chapter on "Safety" – and understood it before operating the appliance.**

1. Prepare the scrubber dryer as described in Chapter "Tasks before starting cleaning".
2. Lower the squeegee and brush unit on site.
3. First switch on the squeegee, then the brush unit and regulate the cleaning solution (see Sec. "Squeegee On/Off"/"Brush unit On/Off"/"Regulate cleaning solution").
4. Guide the scrubber dryer carefully over the area to be cleaned at slow walking speed. Pay attention to the following:
  - **Move the appliance cautiously, taking care to avoid other people and objects in the vicinity.**
  - **When working with the appliance never put other people at risk.**
  - **When cleaning floors with the appliance, never go over thresholds, steps or carpets or objects which could get caught, such as e.g. cables. Max. floor gradient 8%.**
  - **Never leave the scrubber unattended. Keep unauthorized persons away from the appliance.**
  - Pay attention to the battery monitoring display (see Sec. "Battery monitoring display"), recharge the batteries when required (see Sec. "Batteries laden").
  - If faults occur – e.g. the noise from the suction or brush units gets louder or the suction force of the squeegee drops – stop the scrubber immediately and switch it off (see Sec. "Scrubber dryer stop/switch-off"), Follow the procedure described in Chapter "Troubleshooting".
5. To Stop cleaning, switch off the brush unit (see Sec. "Brush unit On/Off"), push the scrubber dryer forwards with the squeegee still switched on, in order to suck up any cleaning solution still on the floor.
6. Stop the appliance and switch it off (see Sec. "Scrubber dryer stop/switch-off").
7. Take the scrubber dryer away from the cleaning area (see Sec. "Moving scrubber dryer from place to place").
8. Emptying and cleaning the recovery tank and empty the solution tank if necessary (see Sec. "Tasks after finishing cleaning").
9. Recharge the batteries (see Sec. "batteries recharge").

## 8.4 Tasks after finishing cleaning

### 8.4.1 Emptying and cleaning the recovery tank



1. Switch off the scrubber dryer completely.



#### ATTENTION!

**Dispose of waste water and cleaning solution in accordance with existing environmental regulations, collect and recycle where possible.**

2. Push the scrubber to near a waste water drain.
3. Open the recovery tank cover as far as it will go.
4. Remove the recovery discharge hose (1) from its holder.
5. Position the recovery discharge hose (1) over the drain.
6. If necessary open the tank screw cap (3) and remove the coarse dirt.
7. Gentle spray out the recovery tank to clean it. Do not use any abrasive objects which might scratch the tank.
8. Remove the coarse dirt and close the tank screw cap (3) tightly.
9. Clean the float in the recovery tank (see Sec. "Cleaning the float").
10. Clean the air filter insert in the recovery tank (see Sec. "Air filter insert clean/change").
11. When the recovery tank has been cleaned and is empty, replace the closure cap (2) and return the recovery discharge hose (1) to its holder.

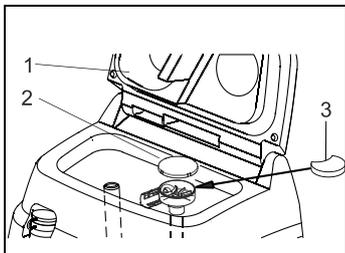


#### NOTE!

*Tip: Allow the suction unit to run for about 3 minutes under supervision with the lid open, then switch off. Dry air from the surroundings increases the life span of the suction unit.*

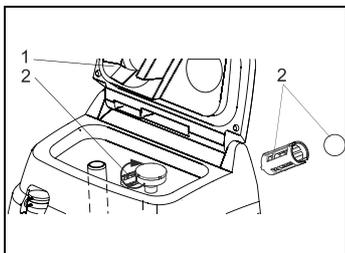
12. Leave the recovery tank cover open to stop bad smells building up.

### 8.4.2 Air filter insert clean/change



1. Switch the scrubber dryer off completely.
2. Open the recovery tank cover (1) as far as it will go.
3. Open the air filter cap (2) and remove the air filter insert (3) from the filter unit.
4. Carefully clean the air filter insert (3) by hand with clean water and then allow to dry completely, or replace with a new air filter insert (3).
5. Put the dry air filter insert (3) back in the filter unit and close the filter cap (2).
6. Close the recovery tank cover (1).

### 8.4.3 Cleaning / checking the float



1. Switch the scrubber dryer off completely.
2. Emptying and cleaning the recovery tank (see Sec. "Emptying and cleaning the recovery tank").
3. Open the recovery tank cover (1) as far as it will go.

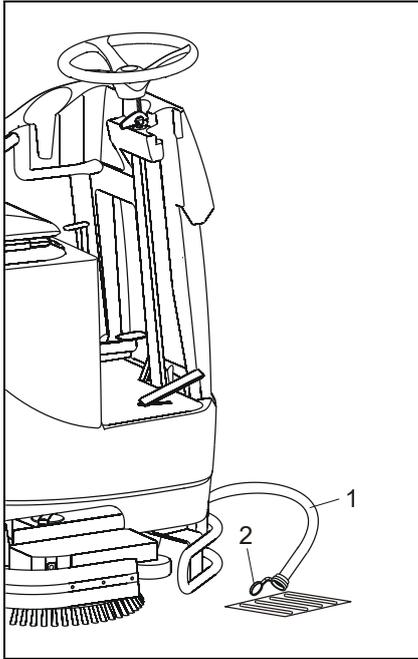


#### ATTENTION!

**A dirty or damaged float may ruin the equipment. Never use the appliance if the float is dirty or damaged float. Only clean carefully by hand with clean water.**

4. Clean the float (2) carefully by hand with clean water.
5. Close the recovery tank cover (1).

#### 8.4.4 Emptying the solution tank



1. Switch the scrubber dryer off completely.



#### **ATTENTION!**

**Dispose of waste water and cleaning solution in accordance with existing environmental regulations, collect and recycle where possible.**

2. Push the scrubber to near a waste water drain.
3. Remove the recovery discharge hose (1) from its holder.
4. Position the recovery discharge hose (1) over the drain as shown and remove the closure cap (2), wait until the solution tank is empty.
5. Flush the fresh water tank.
6. When solution tank is empty, replace the closure cap (2) and return the recovery discharge hose (1) to its holder.
7. Check solution filter for cleanliness

## 8.5 Recharging the batteries



### **WARNING! Risk of injury!**

Before charging the batteries, every operator must first have read the operating manuals of the scrubber dryer, the battery charger and the manual/instructions of the battery manufacturer – especially all safety instructions – and understood them.

The operating manuals of the scrubber dryer, the charger and of the batteries must always be available to the operator near the scrubber dryer during the whole charging period.



### **WARNING! Risk of explosion!**

During charging, highly explosive gases are given off. Therefore observe the following procedure:

- Before recharging, completely switch off the appliance. Never switch the appliance on while charging is going on.
- Observe the safety and accident prevention regulations for handling and installing batteries.
- Follow the procedures in the operating manual and handling instructions relating to the batteries.
- Before charging, check the battery and charging cables for faults, replace if necessary.
- Fire extinguishers should be in easy reach and in proper working order.
- All cavities (under lids, covers, etc.) in which explosive gases could collect must be open. The recharging area must be well ventilated.
- Never open batteries during charging.
- Never place electrically conducting components on top of batteries, this may cause short circuiting or fire!
- During charging, the presence of smoking, naked flames, sparks, glowing hot bodies or other potential sources of ignition are forbidden.

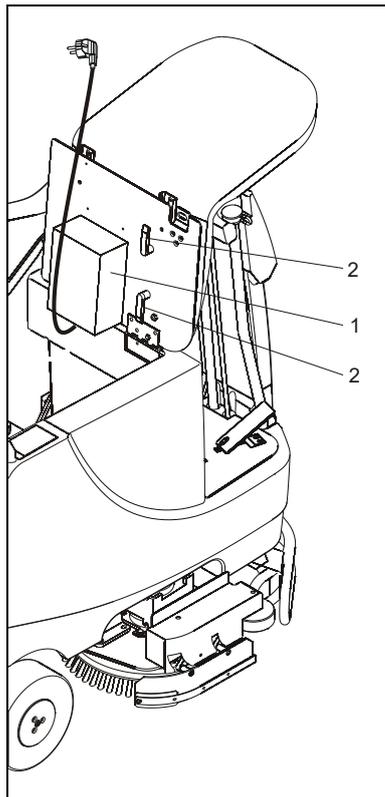


### **WARNING! Risk of injury!**

Batteries contain caustic and noxious electrolyte. Therefore observe the following rules:

- When working with batteries wear protective clothing.
- Never touch or spill battery acids.
- Never open batteries during the charging operation.
- Never smoke, eat, drink or keep food in the area where batteries are charged.
- Always wash your hands thoroughly after working with batteries and clean or change dirty clothing.

### 8.5.1 Recharging the batteries with internal charger (Optional)



1. Switch the scrubber dryer off completely, Opening the battery compartment (see Sec. "Opening the battery compartment").
2. Remove the mains plug from the holders (2) and pull out the mains cable completely.



**ATTENTION! Charger is preset to battery-sets 160-240 Ah5 maintenance free (gel) Exide. . In case of using other batteries, please reprogramm the charger according the instructions given in the manual of the charger delivered with the machine.**

3. Connect the mains plug to a reliable mains socket.
4. The charging time is approx. 12 to 14 hours.  
The charger LED's indicate the following status (1) during charging
  - Lower yellow LED lights up: Main charging
  - Middle yellow LED lights up: Recharging
  - Green LED lights up: Charging finished / Charged
5. When the battery is fully charged, pull the plug out of the mains socket.

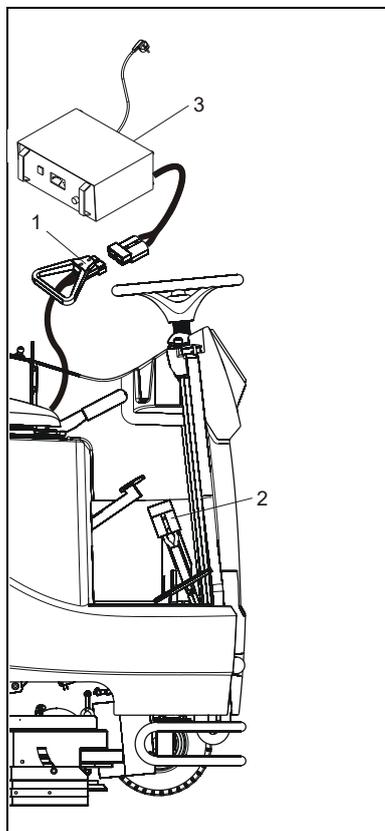


**WARNING! Danger of electric shock!**

**Contact between the mains plug and the battery terminals can cause short circuiting or lead to fire. After charging return the mains cable and plug to their original position as prescribed.**

6. Wind the mains cable completely round the holders (2) and carefully stow away the mains plug.
7. Close the battery compartment (see Sec. "Closing the battery compartment").

### 8.5.2 Recharging the batteries (external charger)



1. Switch the scrubber dryer off completely, Opening the battery compartment (see Sec. "Opening the battery compartment").
2. Pull the charging plug (1) from the connection (2) and take the charging cable out of the battery compartment.



**ATTENTION!**

**Only use original charging devices with automatic controller, which follows the charging curve for the set battery exactly and switches off automatically when charging is finished. Follow the instructions in the charger's operating manual!**

3. Connect the charging plug (1) to the charger (3).  
Follow the instructions in the charger's operating manual.
4. After charging has finished, disconnect the charging plug (1) from the charger (3).



**WARNING! Danger of electric shock!**

**Contact between the charging plug and the battery terminals can cause short circuiting or lead to fire. After charging return the charging cable and plug to their original position as prescribed.**

5. Return the charging cable completely to the battery compartment and push the charging plug (1) firmly into the connection (2).

## 9 Maintenance

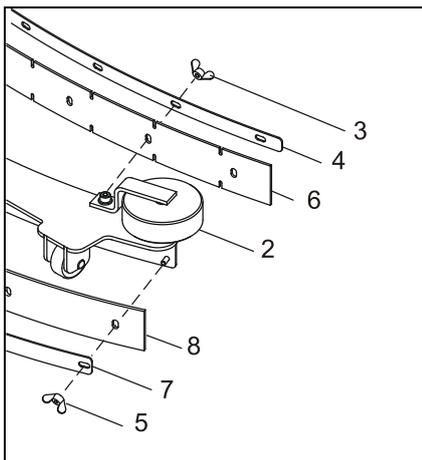


**WARNING! Risk of injury!**

**Danger to people and objects may originate from the appliance. Work on and with the appliance may only be carried out by suitably qualified personnel in accordance with all the safety instructions given in Chapter "Safety" !**

**Before carrying out any maintenance work, completely switch off the appliance and pull out the mains plug and charging plug and disconnect the battery cables.**

### 9.1 Changing / turning over of the squeegee blades



1. Switch the scrubber dryer off completely.
2. Dismantle the squeegee tool (1) (see Sec. "Assembly").
3. Carefully place the squeegee tool (1) with the turn away rollers (2) downwards on a work surface (e.g. rubber topped workbench).
4. Unscrew the wing nuts (3, 5) and clamping strips (4, 7).
5. Remove the squeegee blades (6, 8).

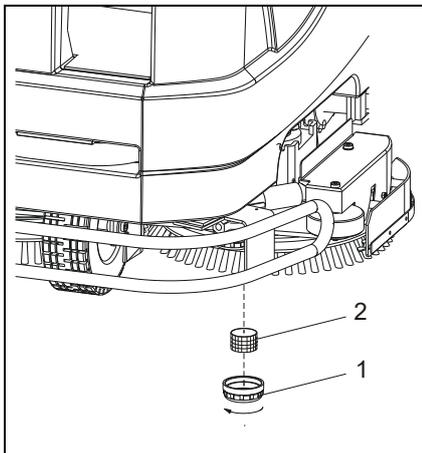


**NOTE!**

*Each squeegee blade has four sliding edges and thus can be used up to three times. Don't re-use the worn edges. Continuous squeegee blade must always be mounted on the same side as the stabilizing wheel.*

6. Replace both squeegee blades (6, 8) by new ones or where appropriate turn them over so that they are mounted with an unused edge pointing to the front in the direction of motion and projecting beyond the squeegee
7. Reinstall in the opposite order.

### 9.2 Cleaning the filter sieve



1. Unscrew the filter cap (1)
2. Remove the filter sieve (2) and carefully rinse by hand with clean water or replace by a new sieve.

### 9.3 Maintenance of batteries



**WARNING! Risk of injury!**

**Batteries can be a source of danger to people and objects. Maintenance work on batteries may only be carried out by suitably qualified personnel!**

- **When maintaining batteries follow the instructions in the operating manuals of the scrubber dryer, the battery charger and of the battery manufacturer.**
- **The maintenance frequency and the work carried out must be in accordance with the operating manual/instructions of the battery manufacturer.**

**Maintenance work:**

- Maintain the batteries in accordance with the operating manual/instructions.
- Every week remove the dirt from the battery terminals and apply terminal grease.
- Every week inspect the battery cables to ensure they are firmly attached and free from damage.

## 10 Troubleshooting



### WARNING! Risk of injury!

**Danger to people and objects may originate from the appliance. Work on and with the appliance may only be carried out by suitably qualified personnel in accordance with all the safety instructions given in Chapter "Safety" !**

**Before carrying out any maintenance work, completely switch off the appliance and pull out the mains plug and charging plug and disconnect the battery cables.**

Fault	Possible cause	Remedy
Suction unit/Brush unit doesn't work	Battery charge run down	Recharge the batteries
	Battery terminals dirt or loose	Check the battery terminals, clean and grease/tighten if necessary
	Batteries faulty	Check the batteries, replace if necessary
	Internal protection of the control system triggered by fusion	Switch the appliance off completely, determine the source of error and remove it. Change fusion, switch on the appliance
	Motor faulty	Contact the supplier
Suction power reduced or no suction at all	Recovery tank full	Empty the recovery tank
	Recovery discharge hose not closed	Close the closure cap
	Air filter in the recovery tank blocked	Clean or change the air filter insert
	Suction hose and squeegee blocked by dirt or hose not properly attached	Clean the suction hose, ensure the hose is firmly attached
	Recovery tank cover not closed or cover seal defective or dirty	Close the recovery tank cover or clean or replace the seal
Squeegee leaves stripes	Dirt under the squeegee	Clean the squeegee
	Squeegee worn out	Turn over or replace the squeegee blades
No cleaning solution comes out of the brush unit	Cleaning solution flow control not switched on	Switch on the cleaning solution flow control
	Solution tank empty	Refill solution tank
	Flow control valve blocked or dirty	Clean the valve
	Cleaning solution supply hose trapped or constricted	Check and free the hose

## 11 Accessories

The following accessories can be obtained from the manufacturer:

- Scrubbrushes of different brush strengths
- Pad holders for pads
- Silent version
- Drive batteries
- Maintenance free drive batteries
- Automatic charger with Wa-curves for wet batteries
- Automatic charger with UI-curves for maintenance free batteries
- Detergents for different applications
- Anti-foaming products

Detailed information about our accessories can be found in our price list.

## 12 Declaration of Conformity

in accordance with the EC Directive on Machines 2006/42/EC



Manufacturer G. Staehle GmbH u. Co. KG  
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hereby declares that the following product conforms to the regulations of the above mentioned directive – as well as any modifications valid at the time the declaration was made.

Product: **Scrubber Dryer**  
Types: **ARA 66 | BM 100 / iL**  
**ARA 80 | BM 100 / iL**

The following related standards apply:

EN 60335-1	Safety of electrical appliances for household and similar use - Part 1: General requirements
EN 60335-2-72	Safety of electrical appliances for household and similar use - Part 2-72: Special requirements for automatic machines for treating floors in commercial and industrial premises
EN 12100-1:2003	Machine safety - Basis terms, general design principles - Part 1: Basic terminology, methodology
EN 12100-2:2003	Machine safety - Basis terms, general design principles - Part 2: Technical principles and specifications
DIN EN ISO 13857	Machine safety – Safety distance against reaching danger areas with the upper extremities
IEC 61000-6-2:01	Electromagnetic compatibility - Generic standard: Interference resistance - Part 2: Industry
IEC 61000-6-4:01	Electromagnetic compatibility - Generic standard: Emitted interference - Part 2: Industrial applications

The following additional EU directives have been applied:

2014/30/EU EMC Directive

Stuttgart, 25.05.2019

Dipl. Ing.(BA) Erich Stockmann, Head of Design and Development

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