

BioMaster®4 PLUS

Food waste treatment system

Original operating instructions



EN



Before using the machine, read carefully the operating instructions, the product description and the safety instructions!

Contents

1	Notes to the user	4
1.1	The purpose of these operating instructions	4
1.2	Ways we present the information	4
2	Liability and warranty	4
2.1	Delivery contents	4
2.2	Liability	5
2.3	Warranty	5
3	Safety information	5
3.1	Presentation of safety information	5
3.2	Intended uses	5
3.3	Misuse	6
3.4	Risks in dealing with the BioMaster®	7
3.5	Operator's responsibilities	9
3.6	Personnel responsibilities	9
3.7	Personnel qualifications	9
3.8	Safety devices	10
3.9	Safety marking	11
4	Transport	12
4.1	Unpacking	13
5	Structure and function	13
5.1	Function	13
5.2	Main group BioMaster®	14
5.3	Control elements	15
5.4	Loading chute	16
5.5	Technical equipment	17
6	Installation	18
6.1	Unpacking and setting up	18
6.2	Connections	18
6.2.1	Electrical connection	18
6.2.2	Cold water connection	20
6.2.3	Connecting the biomass transport pipe	20
7	Commissioning	20
7.1	Safety information	20
7.2	Process water quantity	21
7.3	Venting the water supply, pump test run, leak check	21
7.4	Carry out test run with pure water	22
7.5	Handover and commissioning report	22
8	Operation	22
8.1	Safety information	22
8.2	Switching on	23
8.3	Opening and closing the lid	23
8.4	Filling	24
8.5	Starting the automatic homogenisation cycle	25
8.6	Pumping out contents of loading chute	25
8.7	Daily cleaning	26

8.8	Weekly cleaning.....	27
8.9	Measures in case of longer installation standstill	28
8.10	Switching off.....	28
8.11	Fault finding	28
9	Maintenance.....	30
9.1	Safety information.....	30
9.2	Maintenance plan	31
10	Corrective maintenance.....	32
11	Decommissioning, storage	32
12	Disposal.....	32
13	Technical data.....	33
13.1	EC/EU declaration of conformity	34
14	Handover and commissioning report – Checklist	35
15	Index	37
16	Notes.....	39

1 Notes to the user

1.1 The purpose of these operating instructions

These operating instructions

- Are included in the delivery of every BioMaster®.
- Describe how to operate the machine, remedy minor faults, maintain and clean the BioMaster®.
- Provide important information on how to operate the BioMaster® safely, properly and economically. Observe the notes included to avoid hazards, repair costs and downtime, and to increase the reliability and service life of the BioMaster®.



ATTENTION

Please read the operating instructions before commissioning the BioMaster®. It is imperative that you observe the safety instructions.



ATTENTION

Always keep these operating instructions where the BioMaster® is being used. The operating instructions must be freely accessible to the operating and maintenance personnel.

1.2 Ways we present the information

Action steps

The steps to be performed by the operating personnel are shown as a numbered list. The sequence of steps must be observed. The system's response to each action by the operator is marked with an arrow.

Example:

1. Operator action step 1
→ System response to operator action

Lists

There is no fixed sequence for lists. They are displayed as a list of points to check off. Example:

- Point 1
- Point 2

2 Liability and warranty

2.1 Delivery contents

Upon receipt of the delivery, please check immediately whether the contents of the delivery correspond with the shipping documents. MEIKO GmbH does not assume any liability for defects and will not pay compensation for defects claimed later on.

Complaints:

- Any noticeable damage caused in transit must be reported in writing immediately and within eight days, as per our terms and conditions.
- Any hidden defects must be reported immediately when they are discovered.

2.2 Liability

The information, data and notes specified in the operating instructions correspond to the latest version at the time of printing. No claims for BioMaster® systems which have already been delivered may be asserted based on these statements, illustrations or descriptions.

We accept no liability for damage or operational malfunctions caused by improper use. Please observe the notes in chapter 3.2 'Intended uses'.

2.3 Warranty

The warranty conditions can be found in the general terms and conditions and the warranty provisions of MEIKO Maschinenbau GmbH.

Please notify MEIKO Maschinenbau GmbH in writing of any warranty claims immediately after the defect or fault has been detected.

3 Safety information

3.1 Presentation of safety information



DANGER

Indicates a hazard with a high degree of risk which, if not avoided, will result in death or serious injury.



WARNING

Indicates a hazard with a moderate degree of risk which, if not avoided, will result in death or serious injury.



CAUTION

Indicates a hazard with a low degree of risk which, if not avoided, will result in minor or moderate injury.



ATTENTION

This describes a requirement to act in a certain way or carry out a specific activity to ensure the BioMaster® is handled safely and damage to property is avoided.



NOTE

Information on operating the BioMaster® consisting of an info pictogram and a worded note.

3.2 Intended uses



ATTENTION

Only use the BioMaster® as intended and when the machine's condition does not present any safety-related issues.

This is the only way to ensure the operational safety of the BioMaster®.

The BioMaster® is only to be used commercially for filling with and grinding raw organic and food waste of the kind that is usually generated in commercial kitchens, canteens, hotels, food service and communal catering. The ground waste is mixed with water and pumped out of the BioMaster® into a storage tank using a closed system. It is then ready to be collected and taken to a biogas plant where it can be recycled and used to generate energy.

The parameters and environmental conditions defined in chapter 13 must be strictly adhered to.

Kitchen waste (cleaning/raw organic waste) and food waste must always be inserted mixed.

What may be disposed of in the system?

- Food waste
- Fully liquid deep-frying oil (which is also liquid when cold)

Allowed in small quantities



NOTE

For the best possible processing, use the pre-grinding unit available as an optional accessory.

- Raw organic waste – mix and process a max. 50 % proportion with normal, wet food waste.
- Expanding food (mix and process with normal, wet food waste. Percentage of expanding substances: max. 50 %).
 - Cereals, such as wheat, barley, rice
 - Semolina
 - Pasta, dough
 - Sugar
 - Flour
 - Thick fruit peels (e.g. from citrus fruits, bananas)
- Skin from marine fish, mussels, shellfish and crustaceans:
- Mix and process with normal, wet food waste. Percentage skins from marine fish, etc.: max. 20 %.
- Used coffee grounds – mix and process max. 20% with normal, wet food waste.

What may not be disposed of in the system?

- Inputs with a temperature above 40 °C
- Stone fruits and tropical fruits with large stones/seeds. The stones cannot be processed. Remove after cycle.
- Bones of all kinds, including raw or cooked marrowbones
- Pineapple scoops (= pineapple stalks/leaves) and corn husks (leaves covering the corn cob)
- Wooden objects, such as wooden skewers, toothpicks or the like
- Metal or plastic objects such as dishes, cutlery, tools
- Textiles, such as serviettes, towels or the like
- Film, plastic, packaging
- Detergents
- Inorganic substances in general

3.3 Misuse

- Connecting to an on-site water pipe with contaminated water
- Improper work on the installation
- Inputting unauthorised waste
- Operator error
- Irregular or poor cleaning
- Excessive demands
- Exceeding the permissible operating parameters
- Operation at temperatures < 5°C and > 40°C

- Changing the operating parameters
- Unacceptable environmental conditions, such as strong magnetic fields, electric currents, radiation or strong vibrations
- Use of spare and wear parts or auxiliary materials not approved by the manufacturer
- Interference by third parties
- In-house extensions, conversions or modifications to the installation
- Irregular or inadequate cleaning (mould, bacteria, odours, corrosion, pipe blockage, damage to installation components).

3.4 Risks in dealing with the BioMaster®

The BioMaster® has been manufactured in line with the current state of the art and the established safety-related regulations. Nevertheless, its use may give rise to risks and restrictions:

- To life and limb of the operator or third parties
- To the BioMaster® itself
- To other tangible assets

In order to operate the BioMaster® safely and without errors, the operator must possess a complete knowledge of the safety instructions and the safety regulations.



DANGER

If you open the control cabinet, the terminal box or the casing of the BioMaster®, live parts may become accessible. Touching them can lead to serious injury or death!

Work on the electrical equipment may only be carried out by qualified electricians.

Check the electrical equipment in the installation regularly. Remove loose connections and fried cables immediately.

Always keep the control cabinet closed. Access is only permitted to authorised personnel with keys or tools.



DANGER

The BioMaster® has been built to comply with degree of protection IPX5 and is protected against splash water and water jets.

The interior can be cleaned with a shower head or normal jet water. Do not use strong water jets or a pressure washer.



DANGER

WARNING magnetic fields!

The BioMaster® contains strong magnets.

Persons with cardiac pacemakers or implanted defibrillators must not be in the vicinity of the BioMaster®.



WARNING

If irregularities in the work sequence, unusual noises or malfunctions occur, immediately trigger an emergency stop and inform the responsible specialist personnel. No unauthorised manipulation by the operating personnel!



WARNING

If you open the casing of the BioMaster®, pressurised lines may become accessible. Removing pressurised piping can cause serious injury.

Maintenance and repair work may only be carried out by qualified and authorised specialist personnel.



WARNING

When the lid is closing, the force switches from pressure to tension for the final section. There is a danger of crushing under the lid.

When closing the lid, hold onto the railing area, do not reach between the lid and the casing.



WARNING

The sharp edges of the grinder and the optional raw organic waste driver/pre-shredder present a risk of cutting.

Work carefully, only touch sharp-edged parts while wearing protective gloves.



WARNING

There is a risk of slipping on wet or dirty floors.

If you slip, you may accidentally come into contact with the sharp edges of the stationary grinder and the optional raw organic waste driver.

Keep your work area clean. Close the lid of the BioMaster® when it is out of use for a longer period.



WARNING

There is a risk of scalding when hot food is poured in.

Allow hot liquids to cool to below 40 °C before pouring, wear protective clothing when filling.



CAUTION

The BioMaster®'s A-scaled sound pressure level is under 70 dB(A).

Depending on local conditions, a higher sound pressure level may be produced, causing noise-induced hearing loss. For these areas, the operating company must protect the operating personnel with appropriate protective equipment and protective measures in accordance with Noise Protection Directive 2003/10/EC.

3.5 Operator's responsibilities

The operator undertakes to only allow those persons to work on the BioMaster® who:

- Are familiar with the foundational local regulations on safety in the workplace and accident prevention.
- Have been instructed in how to work with the BioMaster®.
- Have read and understood these operating instructions.

The operator also undertakes to:

- Comply with the requirements of EC Directive 2009/104/EC on the use of work equipment.
- Provide the prescribed personal protective equipment.
- Inform and train personnel on the location of the fire alarm system and the firefighting options.

3.6 Personnel responsibilities

All persons entrusted with work on BioMaster® undertake to:

- Observe the foundational local regulations on safety in the workplace and accident prevention.
- Read and observe the operating instructions before starting work.

3.7 Personnel qualifications

Only qualified, authorised and inducted personnel may work on the BioMaster®.

Qualified personnel who, because of their training, experience, instruction and knowledge of the relevant standards, regulations, accident prevention instructions and operating conditions, have been authorised by the person responsible for the safety of the BioMaster® dishwashing machine to carry out the necessary activities. Qualified personnel are also aware of the possible dangers and how to avoid them.

Personnel are classified using a qualification matrix. Each employee may only carry out activities using the BioMaster® that correspond to his or her level of training according to the qualification matrix. Any personnel undergoing training are only allowed to work on the BioMaster® under the supervision of an experienced person.

Specialist personnel must be trained in accordance with their area of responsibility. Completed inductions are documented in training lists and records. These show who has been trained in what area and when.

	Inducted personnel	Specialist personnel with technical training	Electricians	Supervisor with corresponding expertise
Transport	X	X	--	X
Installation		X	X	X
Commissioning	--	X	X	X
Operation	X	X	X	X
Fault finding	X	X	X	X
Troubleshooting, mechanical	--	X	--	X
Troubleshooting, electrical	--	--	X	--
Maintenance	X	X	X	--
Corrective maintenance	--	X	X	--
Decommissioning, storage	X	X	X	X

Key: X = allowed, -- = not allowed

3.8 Safety devices



DANGER

Operate the BioMaster® only if all safety and protective devices are fully present and functional.

In the event of faulty safety and protective devices:

- Switch off the BioMaster® immediately.
- Secure it against switching back on.
- If necessary, disconnect the power supply from the electrical current.

Before each time you start the BioMaster® every time, all protective devices must be properly installed and functional.

Protective devices may only be removed once all parts have stopped moving and the BioMaster® has been secured against restarting.

The emergency stop button and protective devices must be tested regularly to ensure they work reliably.

The BioMaster® has the following safety and protective devices:

- Emergency stop button on the operating panel
- All-pole disconnecting main switch on the operating panel
- Fault indication lights on the operating panel
- Lockable service hatch
- Protective cladding on all sides

- Protected against water jets according to IPX5
- Overheating protection
- Two safety contact switches connected in parallel in the lid guide shaft. The BioMaster® works only with the lid closed. When the lid is opened, the grinder in the BioMaster® is stopped immediately.

3.9 Safety marking



ATTENTION

Please note all warning and safety instructions on the BioMaster®, as well as other markings.

Maintain the legibility of all safety and danger notices on the BioMaster® and replace them if necessary.

The following pictograms and warning notices are on the BioMaster®:



WARNING magnetic fields!

The BioMaster® contains strong magnets.

Persons with cardiac pacemakers or implanted defibrillators must not be in the vicinity of the BioMaster®.



DANGER

When closing the lid, there is a risk of crushing between the lid and the casing of the BioMaster®.



WARNING dangerous electric voltage.



The BioMaster® has been built to comply with degree of protection IPX5 and is protected against splash water and water jets.

The interior can be cleaned with a shower head or normal jet water. Do not use strong water jets or a pressure washer.



The rating plate is located inside the casing, on the inner panel behind the door.

4 Transport



WARNING

There is a danger of the BioMaster® tipping over during transport! This could cause severe personal injury and damage to property. Secure the BioMaster® against tipping during transport.

Perform transport with care. Observe transport instructions on the packaging. In order to avoid damage to the device and life-threatening injuries to those involved when moving the system, observe the following requirements:

- Only have transport work performed by qualified persons observing the safety instructions.



- Only transport the device in its original packaging, otherwise it will not be stable during transport. Square timber frame (pallet) has additional cross struts at the bottom for stabilisation on lifting forks during transport. Only transport with lift truck!

When transporting the BioMaster®, make sure that you:

- Please note the environmental conditions defined in chapter 13, 'Technical data.'
- Avoid strong mechanical impacts (shocks, vibrations, etc.)
- Switch off the BioMaster® at the main switch before transport, even if it is only a minor change of location.
- Protect the BioMaster® from direct sunlight, frost and other extreme climatic conditions.
- Avoid extreme climatic changes (e.g. transport from a lorry to a heated room at high humidity in winter).
- Close all hatches and lids before transport. Secure them against unintentional opening.
- When transporting the BioMaster®, follow the general safety rules for transporting loads.
- When considering the permissible floor loading for transport, take into account both the weight of the BioMaster® and the self weight of the means of transport.
- Do not lift and transport the BioMaster® manually, instead only using a pallet truck or forklift. The load capacity must be > 170 kg, the fork length > 600 mm. Drive both forks completely under the BioMaster®, paying attention to components protruding from the floor.
- When setting down, load all four feet evenly, do not tip the BioMaster® from the truck transport.

4.1 Unpacking

- First remove the tapes and the plastic film using suitable tools.



- Unscrew the two stoppers from the pallet.



- Have two people lift the device from the pallet.

Removing the protective films

After unpacking the product, remove the protective films from the housing parts and clean the stainless steel surfaces with a suitable detergent.

5 Structure and function

5.1 Function

The BioMaster® serves as the infeed station in the system. The system offers an economically and ecologically sensible, hygienic solution for recycling kitchen waste and food waste. The system is used in commercial kitchens, canteens, hotels, food service and communal catering. The BioMaster® converts the waste produced into a homogenous biomass.

Kitchen waste and food waste are fed into the loading chute of the BioMaster® and homogenised in the BioMaster® using the water contained in the waste and adding process water.

Additional water can be fed in via a cleaning nozzle to cleaning the loading chute and to process extremely dry or very light waste.

The resulting biomass is pumped out of the BioMaster® and transported via a closed pipe system to the storage tank.

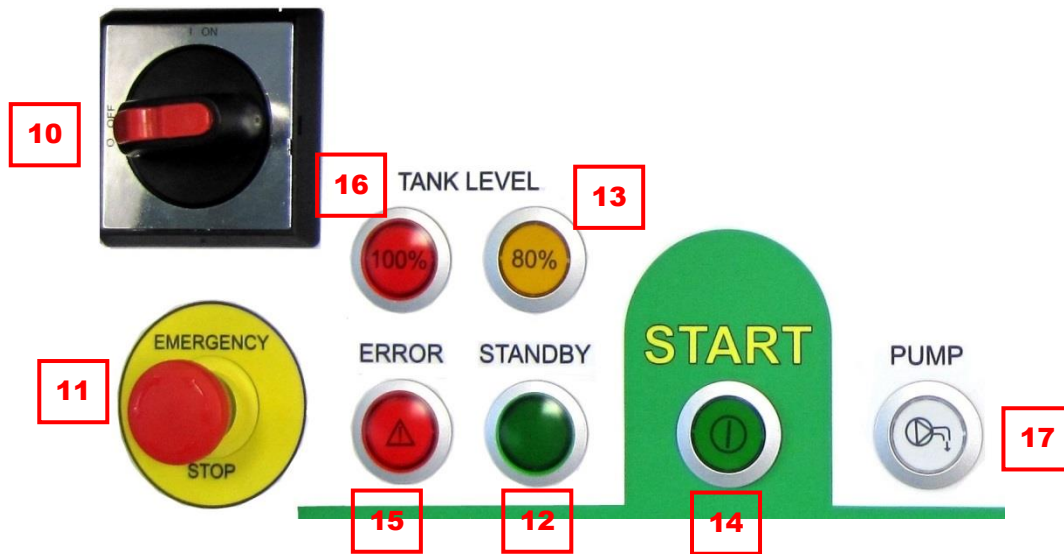
When using the BioMaster® as an infeed station of a vacuum plant, the biomass is conveyed through the pipe system by means of vacuum.

5.2 Main group BioMaster®



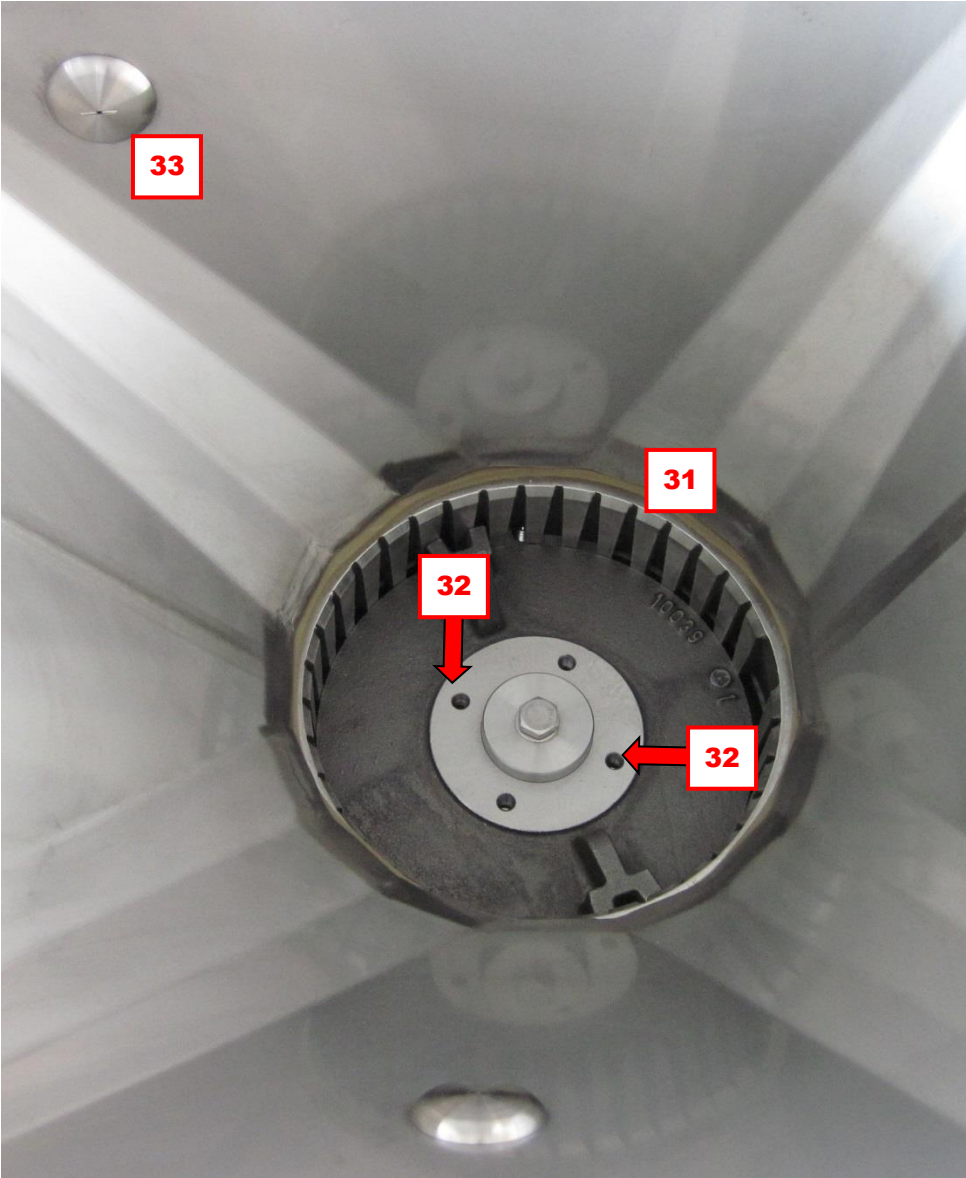
- 1 Lid rail
- 2 Lid with closing magnet
- 3 Lid seal
- 4 Safety contact switch
- 5 Loading chute
- 6 Operating panel
- 7 Lockable service hatch with control cabinet
- 8 Adjustable feet with anti-slip/vibration plate and 15 cm ground clearance

5.3 Control elements



No.	Operating element	Function
10	Main switch	Switch on, position ON; switch off, position OFF.
11	EMERGENCY STOP, emergency stop button	Immediate shutdown of the BioMaster® in dangerous situations.
12	STANDBY function	Lights up when the lid is closed and the main switch is in the ON position.
13	Tank level 80%, confirm key for level indicator at 80 %	Button flashes when the level sensor in the tank detects a fill level of 80%. Button lights up after confirmation. Contact disposal firm to empty tank!
14	START	The button lights up during the working cycle.
15	ERROR, fault indication light	Lights up in the event of malfunction, evaluation in chapter 0.
16	TANK LEVEL 100%, level indicator 100%	Button lights up when the storage tank is 100% full. The BioMaster® can no longer be started. Empty storage tank immediately.
17	PUMP, Switch on pump	Manual pumping out of loading chute content. Button lights up when pump is in operation.

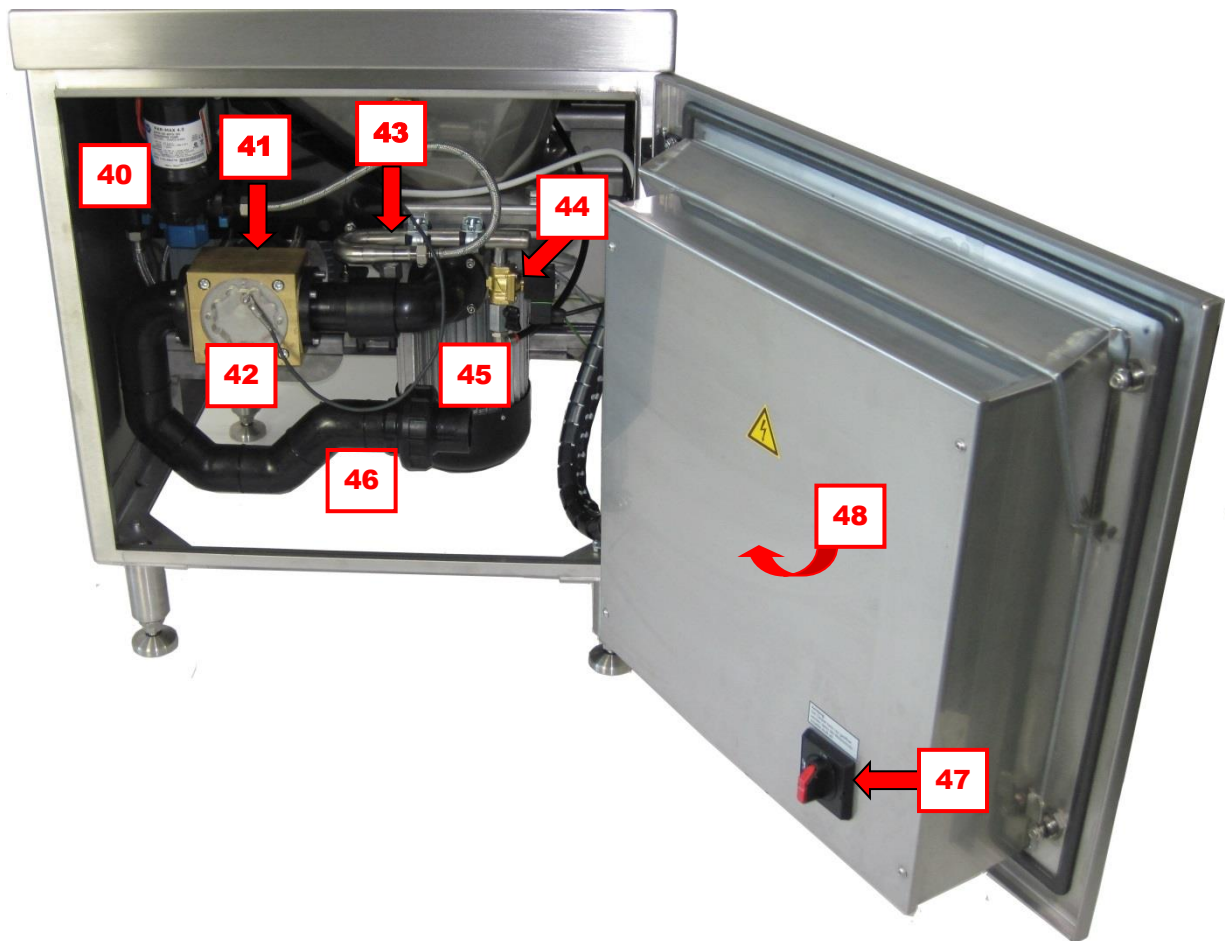
5.4 Loading chute



- 31 Grinder
- 32 Pre-grinding unit mount
- 33 Process water nozzle

Optional cutlery catcher magnet on outside of loading chute

5.5 Technical equipment



40 Drinking water module with pressurised water pump

41 Pump motor

42 BioPump®

43 Water distribution

44 Process water nozzle dosing valve

45 Grinder motor

46 Transport pipe connection, PE D 63 – screw connection

47 Overload circuit breaker

48 Control cabinet

6 Installation

6.1 Unpacking and setting up

- Carefully remove the transport packaging.
- Check the delivery includes everything it should.
- Report obvious transport damage immediately.
- Observe the permissible floor load when selecting a location.
- Set the BioMaster® on a solid, vibration-free surface.
- Please note the environmental conditions defined in chapter 13, 'Technical data.'
- Adjust the working height using the BioMaster®'s adjustable feet.
- Set up the BioMaster® using a spirit level.
- Ensure that all machine feet and adjustable feet are resting firmly on the floor.

6.2 Connections

6.2.1 Electrical connection



DANGER

Only use cables standardised for the correct power rating and only connect the BioMaster® to a fused power supply as per the applicable standards. Use a socket (CEE 16 amp) with IP67 degree of protection. In case of doubt, contact the authority responsible for the power supply in your company.



WARNING

The BioMaster® may only be connected by a qualified electrician.



ATTENTION

The machine wiring is aligned for a clockwise rotation field. Before turning on the power to the BioMaster®, check whether the power supply runs a clockwise rotation field.
Note the colour of the wires.



ATTENTION

Please note the information on electrical connections provided in chapter 13, 'Technical data.'



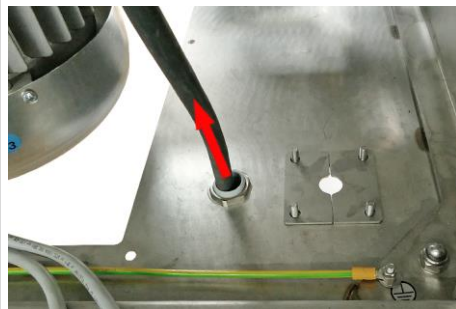
⚠ Warning

Danger to life from electric shock

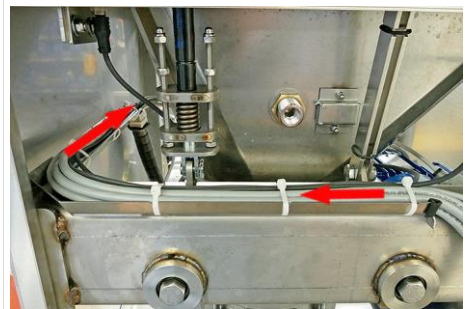
Contact with live electrical parts can lead to serious injury or death.

- Work at or repairs to the electrical system must be conducted by a qualified electrician who complies with the electrotechnical rules.
- Disconnect the machine from the power supply before working on the electrical system. To do this, turn the local mains switch to **OFF** and ensure that it can't be switched back on again.

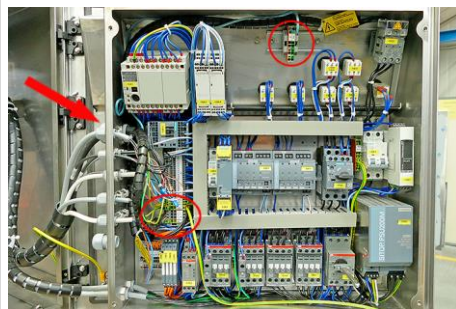
- ✂ Slotted screwdriver
- ✂ Flat spanner, SW 8 mm
- ✂ Hexagon socket spanner, 3 mm
- ✂ Wire cutter



1. Remove the rear panel and the cover of the control box.
2. Feed the power cable provided by the customer into the machine through the opening in the floor (arrow).



3. Lay the power cable in the cable duct up to the control box. Therefore remove the cable ties.



4. Lead the cable into the control box (arrow) and wire it to the terminals according to the wiring diagram (circuits).



5. Terminals:
N (illustration on the left),
L1, L2, L3, PE (illustration on the right)

6. Fit new cable ties.
7. Fit the control box cover and the rear panel.

- ✓ The machine is electrically connected.

6.2.2 Cold water connection



WARNING

The BioMaster® may only be connected by qualified specialist personnel.



ATTENTION

Wash the on-site water pipe before connecting until clear, clean water flows out permanently.

Dirt, turbidities and foreign particles such as sand and small pebbles must be flushed out as they can damage the valves of the BioMaster®.

Damage caused by dirty water will void the manufacturer's warranty.



ATTENTION

Risk of corrosion!

Do not use osmosis or demineralised water.

The hardness of the added water shall not exceed 8 dH or 1.43 mmol/l CaCO₃.



ATTENTION

Connect the BioMaster® to the water supply in accordance with local regulations.

Observe the relevant country-specific water regulations.

For USA/Canada only:

This equipment is to be installed with adequate backflow protection that complies with federal, state, or local codes having jurisdiction.



ATTENTION

Observe the connection information provided in chapter 13, 'Technical data.'

6.2.3 Connecting the biomass transport pipe

- Use the screw connection to connect the BioMaster® to the transport pipe installed on site. The union nut is on the BioMaster®.
- Screw connection: PE DN56 PN5
- Electrofusion socket: DN56 (max. 45° arc)

7 Commissioning

7.1 Safety information



DANGER

Only commission the BioMaster® when all safety and protective devices have been fully installed.

Cancel commissioning if:

- A pipe or other parts are damaged.
- The BioMaster® is not working properly even though you have been operating it according to the operating instructions.
- You hear unusual noises from the loading chute.
- Water escapes.



DANGER

WARNING magnetic fields!

The BioMaster® contains strong magnets.

Persons with cardiac pacemakers or implanted defibrillators must not be in the vicinity of the BioMaster®.



WARNING

The BioMaster® may only be commissioned by qualified and authorised personnel.



WARNING

When the lid is closing, the force switches from pressure to tension for the final section. There is a danger of crushing under the lid.

When closing the lid, hold onto the railing area, do not reach between the lid and the casing.



CAUTION

The BioPump® on the BioMaster® must never run when dry. This may cause irreparable deformations and damage in and to the BioPump®. MEIKO Maschinenbau GmbH accepts no liability whatsoever for such damage.

7.2 Process water quantity



ATTENTION

Do not close or adjust the process water nozzle!

It has been optimally adjusted to your individual operating conditions.

If the water supply is too low, there is an increased risk of clogging in the BioMaster® and in the system.

The homogenisation technology enables the efficient conversion of food waste into pulpy biomass with simultaneous volume reduction. By using the waste's own water, the addition of process water can be kept as low as possible.

The required amount of water to add depends largely on the type of food waste and the length of the transport and extraction pipe. MEIKO Maschinenbau GmbH adjusts the settings to the individual customer requirements during commissioning. Settings can be readjusted during maintenance if necessary.

7.3 Venting the water supply, pump test run, leak check

1. Switch on the BioMaster® at the main switch - position ON.
2. The STANDBY button lights up green when the lid is closed.
3. Make sure that the emergency stop button is unlocked.
4. Make sure that the on-site ¾" water valve is fully open and that water is making it to the BioMaster®.
5. Open the mini ball valve at the water distribution system in the interior of the BioMaster®.
6. Open the lid of the BioMaster®. Check that no objects (e.g. tools, packaging material, etc.) have been left in the loading chute.
7. Fill the loading chute with 10 litres of fresh water.
8. Press the white PUMP button. Keep it pressed until the loading chute is completely empty.
9. Then check the water distribution and the connection on the transport pipe for leaks.

7.4 Carry out test run with pure water

1. Close the lid of the BioMaster®.
2. Press the green START button.
 - The START button lights up.
 - The automatic homogenisation cycle starts. The pressurised water pump, BioPump® and grinder start automatically with the preset sequence and duration.
 - The white PUMP button lights up when the BioPump® is in operation.
 - During the cycle, the preset amount of process water is introduced into the homogenisation.



ATTENTION

If you hear unusual noises from the loading chute, switch off the BioMaster® immediately by pressing the EMERGENCY STOP button. Then check the contents of the loading chute for foreign substances.

- When the homogenisation cycle finishes, the START and PUMP buttons go out. The BioMaster® switches off automatically.
3. Then check the water distribution and the connection on the transport pipe for leaks again.
 4. When all cycles have been completed without any problems, the BioMaster® is ready for regular use.

7.5 Handover and commissioning report

- Fill in the 'Handover and commissioning report' printed in chapter 14.

8 Operation

8.1 Safety information



DANGER

WARNING magnetic fields!

The BioMaster® contains strong magnets.

Persons with cardiac pacemakers or implanted defibrillators must not be in the vicinity of the BioMaster®.

8.2 Switching on



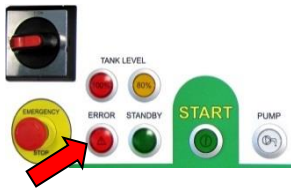
CAUTION

Only switch on the BioMaster® if the service hatch at the front is locked.



1. Fully open the stop valve on the water supply.
2. Switch on the main switch - ON position.

When the lid is closed, the STANDBY indicator lights up green. After a few seconds, the BioMaster® is ready for operation.



If the red ERROR fault indication light lights up, the BioMaster® is not ready for operation.

Possible causes can be found in chapter 0.

8.3 Opening and closing the lid



ATTENTION

Observe the following safety instructions **whenever** opening and closing the lid!



WARNING

When opening, there is a risk of crushing under the lid.

If you release the lid in the lower quarter when opening it, it closes automatically again.

Guide the lid by hand until it is fully open; do not reach between the lid and the casing.



ATTENTION

The half-opened lid is raised with a jerky movement by the internal gas pressure spring.

The lid could be damaged in the process.

Guide the lid by hand until it is fully open.



WARNING

When closing, there is a danger of crushing under the lid.

The lid closes automatically in the lower quarter.

When closing the lid, hold onto the railing area, do not reach between the lid and the casing.

8.4 Filling

1. Lift the lid by the lid rail and open it as far as it will go.



WARNING

There is a danger of crushing when opening the lid!

2. Fill the loading chute to no more than the -MAX- level marking. The marking indicates the maximum permissible filling level.



NOTE

For larger quantities of liquid, pour into the empty loading chute.



ATTENTION

Please note the information in chapter 3.2 'Intended uses'.



WARNING

There is a risk of scalding when hot food is poured in.

Allow hot liquids to cool to below 40 °C before pouring, work carefully, wear protective clothing when filling.



WARNING

If you would like to insert food waste only infrequently or just a little food, close the lid between occasions if possible.

If you slip, you may accidentally come into contact with the sharp edges of the grinder and the optional raw organic waste driver.

3. When the loading chute is full, close the lid.



WARNING

There is a danger of crushing when closing the lid!

8.5 Starting the automatic homogenisation cycle



Note

Start the BioMaster® only when the loading chute is sufficiently filled. Orientate yourself at the level marking -MAX- in order to save consumption costs.

Observe the information in chapter 'Filling'.

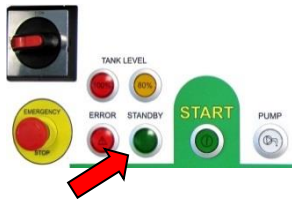


1. Press the green START button.
 - The START button lights up.
 - The automatic homogenisation cycle starts. The pressurised water pump, BioPump® and grinder start automatically with the pre-set sequence and duration.
 - The white PUMP button lights up when the BioPump® is in operation.
 - When the homogenisation cycle finishes, the START and PUMP buttons go out. The BioMaster® switches off automatically.
 - The STANDBY indicator lights up green.



ATTENTION

If you hear unusual noises from the loading chute during the homogenisation cycle, switch off the BioMaster® immediately by pressing the EMERGENCY STOP button. Check the contents of the loading chute for foreign substances and remove them.



2. When the STANDBY indicator lights up, open the lid.
3. If the loading chute is extremely dirty, you can perform the cleaning procedure described in the chapter 8.7.

8.6 Pumping out contents of loading chute



Note

Pour larger quantities of liquid, e.g. soup or cleaning water, into the empty loading chute. Pump them out without a homogenisation process.



1. Press the white PUMP button. Keep it pressed until the loading chute is completely empty.
2. When the button is released, the pump stops and the PUMP button goes out.

8.7 Daily cleaning



ATTENTION

Clean the BioMaster® thoroughly at the end of the shift every day. Irregular or improper cleaning can lead to the formation of mould and bacteria, unpleasant odours, corrosion, pipe blockages and damage to the pump impeller. Only use suitable, biodegradable agents in the dosage recommended by the manufacturer.

1. Rinse or spray the loading chute (if a cleaning hose is provided by the customer). Make sure your water consumption is sparing.



2. Switch of the BioMaster® at the main switch - position OFF.

3. Open the lid.



WARNING

There is a danger of crushing when opening the lid!

4. Thoroughly clean the loading chute, the area around the grinder, the lid, the seal on the lid and the casing surface on BioMaster® using hot water, sufficient biodegradable detergent (fat solvents) and sponge cloth.
5. Make sure that all critical points, such as the lid seal and loading chute, are thoroughly cleaned of grease and residues.
6. Wipe all cleaned areas dry.



WARNING

The sharp edges of the stationary grinder and the optional raw organic waste driver/pre-shredder present a risk of cutting.

Work carefully, only touch sharp-edged parts while wearing protective gloves.

7. Close the lid.



WARNING

There is a danger of crushing when closing the lid!

8.8 Weekly cleaning



ATTENTION

Clean the interior of the BioMaster® once a week.

1. Clean the BioMaster® as described in chapter 8.6 'Daily cleaning'.
2. Get the key for the service hatch from the designated person.
3. Make sure that the BioMaster®'s main switch is switched off.
4. Open the service hatch.



DANGER

The BioMaster® has been built to comply with degree of protection IPX5 and is protected against splash water and water jets.

The interior can be cleaned with a shower head or normal jet water. Do not use strong water jets or a pressure washer.

5. Clean the side walls and the inside of the service hatch with hot water, sufficient biodegradable detergent (fat solvents) and a sponge cloth.
6. Wipe all cleaned areas dry.
7. Lock the service hatch and give the key to the designated person.
8. Switch on the BioMaster® at the main switch - position ON.
9. Open the lid.



WARNING

There is a danger of crushing when opening the lid!

10. To minimise the risk of pipe blockage, clean the transport pipe by washing it with 15 litres of maximum 40°C hot water:
Pour the hot water carefully into the loading chute.



11. Press the white PUMP button. Keep it pressed until the loading chute is completely empty.
12. Wipe and dry the loading chute, the grinder area, the lid, the lid seal, and the casing surface on the BioMaster® afterwards.



13. Check the vacuum ventilation gap at the rear of the lid seal. The gap must be at least 2 cm wide. If necessary, move the seal by hand on both sides until there is a 2 cm gap.

14. Close the lid.



WARNING

There is a danger of crushing when closing the lid!

8.9 Measures in case of longer installation standstill



NOTE

Before the installation is shut down for more than two days, the following additional measures must be taken:

1. To minimise the risk of pipe blockage, clean the transport pipe by washing it with maximum 40°C hot water:
2. Pour the hot water carefully into the loading chute up to the 'Max.' marking.
3. Press the white PUMP button. Keep it pressed until the loading chute is completely empty.
4. Repeat this procedure several times, if necessary, depending on the length of the transport pipe to the storage tank, until the pipe has been completely flushed.

8.10 Switching off



NOTE

Switch off the BioMaster® for shorter downtimes, too, e.g. when changing shifts, overnight or on weekends.



5. Depending on the duration of the downtime, clean the BioMaster®.
6. Switch of the BioMaster® at the main switch - position OFF.
7. The STANDBY indicator goes out.
8. Close the water supply stop valve.

8.11 Fault finding




WARNING

If irregularities in the work sequence, unusual noises or malfunctions occur, immediately trigger an emergency stop and inform the responsible specialist personnel.

No unauthorised manipulation by the operating personnel!

Any troubleshooting which goes beyond the simple inspection of the input loading chute and the grinder may only be carried out by qualified and authorised personnel.

Problem	Solution
The BioMaster® has no power	<ul style="list-style-type: none"> • Is the machine connected to the power supply? • Is the main switch switched on? • Is the EMERGENCY STOP button unlocked? • Are the necessary fuses operational?

Problem	Solution
Work cycle cannot be started	<ul style="list-style-type: none"> • Is the storage tank full and is the 'Fill level indicator 100 %' lit up red? Have the storage tank(s) emptied immediately. • Is the EMERGENCY stop button unlocked? • Is the red ERROR fault indication light lit up? (See next item). • Is the lid properly closed? The STANDBY indicator light must be lit up.
The ERROR fault indication light is continuously lit up	<ul style="list-style-type: none"> • Overheating of the pump, mill motor or control unit. <ul style="list-style-type: none"> ○ Check the mill and pump. ○ Check the motor temperature. • If there is no fixed connection: The BioMaster®'s electrical plug is not correctly inserted in the socket. <ul style="list-style-type: none"> ○ Check the machine plug. ○ Check whether the plug screw connection is tightened. • Grinder jammed or motor overloaded. <ul style="list-style-type: none"> ○ Check loading chute contents for foreign matter. ○ Check that the grinder can be rotated using an unlocking key. ○ Remove foreign matter. • Open the service hatch and set the overload circuit breaker to ON.
Biomass is not pumped out of the loading chute	<ul style="list-style-type: none"> • BioPump® is blocked. • With the lid open, press the PUMP button for about five seconds and observe the fill level in the loading chute. If the fill level sinks, repeat the procedure until the loading chute is emptied and the BioPump® is free again. • If the fill level remains the same, the grinder, BioPump® or transport pipe is blocked. If this is the case, call a technician for help. • Check whether a foreign object (plastic, bandage, cloth, etc.) is blocking the grinder. • The biomass in the machine is too dry and therefore cannot be pumped away. Try filling it with hot water. • Any replacement of the pump impeller should only be carried out by trained personnel.
The loading chute is emitting an unusual noise	<ul style="list-style-type: none"> • Stop the BioMaster® with the EMERGENCY STOP button, check loading chute contents for foreign objects (cutlery, etc.) • Remove foreign matter.
<p>The grinder no longer rotates.</p> <div style="text-align: center;">  <p>WARNING</p> </div>	<ul style="list-style-type: none"> • Switch off the main switch - OFF position. Completely clear the loading chute. • Switch on the main switch - ON position. Pump out the remaining liquid by pressing the PUMP button. • Switch off the main switch – OFF position. If necessary, remove jammed solid parts/foreign materials with the aid of a suitable tool.

Problem	Solution
The brake motor is stiff! If in doubt, call a technician for help!	<ul style="list-style-type: none"> • Turn the jammed grinder forcefully to the left and right with the unlocking key until the grinder is able to move again. • Then rinse the BioMaster® with hot water and pump the water out again by pressing the PUMP button.

9 Maintenance

9.1 Safety information



DANGER

If you open the control cabinet, the terminal box or the casing of the BioMaster®, live parts may become accessible. Touching them can lead to serious injury or death!

Check the electrical equipment in the installation regularly. Remove loose connections and frayed cables immediately.

Always keep the control cabinet closed. Access is only permitted to authorised personnel with keys.

Only operate the BioMaster® at the prescribed voltage and frequency. Only replace fuses with fuses of the same specifications.



WARNING

If you open the casing of the BioMaster®, pressurised lines may become accessible. Removing pressurised piping can cause serious injury.

Inspect all cables, hoses, hose lines and screw connections regularly for signs of damage or aging. In the event of faulty parts, take the BioMaster® out of operation immediately.

Never repair damaged hoses or hose lines. Only replace them with original spare parts.



WARNING

Maintenance of the BioMaster® may only be carried out by specially trained personnel. Work on the electrical equipment may only be carried out by trained electricians.

Note the information in the Maintenance plan.



WARNING

Switch off the BioMaster® at the main switch before starting work. Close the water supply.

Secure all utilities against unintentional start-up.



WARNING

After completion of maintenance work:

- Check all screw fittings which were unscrewed are fitted securely.
- Check all pipes and connecting elements for leaks.
- Mount and install all covers and safety devices and check that they function correctly.




ATTENTION










All maintenance work is carried out by MEIKO Maschinenbau GmbH under a maintenance contract.

If you have not concluded a maintenance contract, you are responsible for the timely performance of the prescribed maintenance and inspection work. Adjust the maintenance intervals to your operating conditions.

Damage caused as a result of neglected or improper maintenance will void the manufacturer's warranty.

9.2 Maintenance plan

-  This work may only be carried out by qualified specialist personnel.
- This work may be carried out by inducted personnel.

Work to be carried out	Commissioning	Daily	Weekly	1000 h, minimum every 6 months	2000 h, minimum every 12 months
Cleaning the BioMaster® Visible surfaces, loading chute, grinder area, lid, lid seal, casing surface	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
Cleaning the interior of the Bio- Master® Wipe the service hatch and side walls with a damp cloth	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Check the pump, incl. impeller					
Check the lid seal for wear				<input checked="" type="checkbox"/>	
Clean the transport pipe by wash- ing it with 15 litres of hot water			<input checked="" type="checkbox"/>		
Check all functions	<input checked="" type="checkbox"/>				
Adjust and check process water quantity					
Visual check for damage	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Cover fuse test					
Brake motor test					

10 Corrective maintenance



WARNING

Repair work on the BioMaster® may only be performed by specialist personnel trained by the manufacturer or by persons authorised by the manufacturer.

Take the BioMaster® out of service immediately in the event of a fault that cannot be rectified using chapter 0. Notify MEIKO Maschinenbau GmbH.

11 Decommissioning, storage



WARNING

Switch off the BioMaster® at the main switch before decommissioning. Close the water supply.

Secure all utilities against unintentional start-up.



WARNING

The BioMaster® may only be decommissioned by trained specialist personnel. Work on the electrical equipment may only be carried out by trained electricians.



ATTENTION

Store the BioMaster® according to the environmental conditions specified in chapter 13 '

Technical data'.

12 Disposal



CAUTION

The components of the BioMaster®, all packaging, operating and auxiliary materials and replacement parts must be disposed of safely and in an environmentally friendly manner in accordance with the applicable local laws and regulations.

Disposing of the BioMaster® generates only working or auxiliary materials which are customary in mechanical engineering.



ATTENTION

Observe all safety in the workplace and environmental protection regulations valid at the time of disposal.

The operator is responsible for proper disposal and compliance with all applicable local regulations.

13 Technical data

General	
Specific designation	BioMaster® 4 PLUS
Width x depth x height [mm]	700 x 700 x 865-935 Height adjustable via the adjustable feet
Weight [kg]	approx. 195
Chute volume [l]	40
Filling height	Continuously variable
Capacity	> 1000 kg/hour in batch mode
Sound emission value (operation at no load, measuring position 1 m away)	≤ 70 dB (A)
Electrical connection	
Connected electrical load [V]	3 x 400 V + PE
Connection	Socket (CEE 16 A)
Frequency [Hz]	50
Power [kW]	4.5
Fuse protection	16 A / FI circuit breaker TYPE A with 30 mA trip current
Rotating field	Clockwise rotation field
Degree of protection	IPX5
Water connection	
On-site specifications	Stop valves with ¾" screw connection, easily accessible for regular use
Cold water connection	¾" external thread
Line pressure [kPa]	200 – 800
Filter size for cold water connection	≤ 100 µm

Max. water hardness	14° dH (German hardness) 25°fH (French hardness) 2.50 mmol/l
Process water addition	yes, automatic dosing
Connection to the storage tank	Screw connection: PE DN56 PN5 Electrofusion socket: DN56 (max. 45° arc)
Safety device for drinking water	Type AB air gap (according to national and international standards)
Environmental conditions	
Temperature (operating) [°C]	+5 – +40
Temperature (storage) [°C]	-25 – +55
Altitudes	up to 2000 m above sea level
Air humidity [%]	10 to 90 (non-condensing)
Other	<ul style="list-style-type: none"> • no large temperature fluctuations • no strong magnetic fields, electric currents, radiation, vibrations or shocks

13.1 EC/EU declaration of conformity

See separate EC/EU declaration of conformity.

14 Handover and commissioning report – Checklist

Work carried out	
1. The process water flows clear and without turbidity/foreign matter from the on-site water connection.	<input type="checkbox"/>
2. Position of installation: level and angle	<input type="checkbox"/>
2. Check 16 A mains connection, level sensor connection	<input type="checkbox"/>
3. Check transport pipe connection	<input type="checkbox"/>
4. Safety contact switch (emergency stop when lid is open)	<input type="checkbox"/>
a. In the working cycle	<input type="checkbox"/>
b. Installation does not work with the lid open (nothing is allowed to run.)	<input type="checkbox"/>
5. Test function with water adjusted to _____ litres	<input type="checkbox"/>
6. Check the connections on the tank for	<input type="checkbox"/>
a. Seals	<input type="checkbox"/>
b. Completeness	<input type="checkbox"/>
c. Open ball valves (except extraction)	<input type="checkbox"/>
7. Checking the level monitoring in the storage tank	<input type="checkbox"/>
a. 80%	<input type="checkbox"/>
b. 100%	<input type="checkbox"/>
8. Inducting employees	<input type="checkbox"/>
▪ Max. filling of the BioMaster®	<input type="checkbox"/>
▪ Do not put foreign bodies into machine (e.g. cutlery)	<input type="checkbox"/>
▪ Danger of clogging if foreign substances are put in	<input type="checkbox"/>
▪ Rice, coffee grounds, potatoes, etc. (filling)	<input type="checkbox"/>
▪ Cleaning	<input type="checkbox"/>

15 Index

B

BioPump	17
Bones	6

C

CAUTION	5
Cleaning	
daily	26
weekly	27
Commissioning	20
Commissioning protocol	35
Connections	18
electrical	18
transport pipe	20
water	20

Control cabinet	14, 17
Control elements	15
Corrective maintenance	32
Cutlery	6

D

DANGER	5
Data, technical	33
Declaration of conformity	34
Decommissioning	32
Detergent	
biodegradable	26, 27

Dishes	6
Disposal	32
Drinking water module	17

E

Electrical connection	33
Emergency stop	15
Emergency stop button	15
Environmental conditions	34
ERROR	15

F

Fat solvent	26, 27
Fault finding	28
Fault indication light	15, 29
Film	6

G

Grinder	16
Grinder motor	17
Grinding unit mount	16

H

Handover report	35
Homogenisation technology	21

I

Inorganic substances	6
Inputs	
not allowed	6

Installation	18
--------------------	----

L

Lid	14
closing	23
opening	23

Lid rail	14
Lid seal	14
Loading chute	14, 16

M

Main switch	15
Maintenance	30
Maintenance plan	31
Malfunctions	28
Metal	6
Misuse	6

N

Noise	8, 22, 25, 29
NOTE	5

O

Operating panel	14
Overload circuit breaker	17, 29

P

Packaging	6
Personal protective equipment	9
Personnel	9
Personnel qualifications	9
Plastic	6
Pressurised water pump	17
Prevent a pipe blockage	27
Process water nozzle	16
Process water nozzle dosing valve	17
Process water quantity	21
Protective devices	10
Pump	15
Pump motor	17
Pumping	25
Pumping contents of loading chute	25
Pumping out	25

Q

Qualification matrix	9
Qualified personnel	9

R

Risks	7
-------------	---

S

Safety contact switch	14
Safety devices	10
Safety information	5
Safety marking	11
Service hatch	14
Serviettes	6
Setting up	18
Specialist personnel	9
STANDBY	15
Start normal mode	25
Start, normal mode	15
Starting	25
Stone fruit	6
Storage	32
Structure	13
Switching off	28
Switching on	23

T

Tank level	15
Technical data	33
Temporary decommissioning	28
Test run	22
Textiles	6
Toothpicks	6
Transport	12
Transport pipe connection	17
Tropical fruits with large stones	6

U

Unlocking key	29
Unpacking	13
Use	5
as intended	5

V

Ventilation	21
-------------------	----

W

WARNING	5
Water connection	33
Water distribution	17
Wooden skewers	6



The clean solution



MEIKO Maschinenbau GmbH & Co. KG

Englerstraße 3

77652 Offenburg

Germany

www.meiko-global.com

info@meiko-global.com