

BioMaster®4 HIGHLINE

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	6
3.3	Misuse.....	7
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	17
6.1	Unpacking and setting up	17
6.2	Connections.....	18
6.2.1	Electrical connection	18
6.2.2	Cold water connection	18
6.2.3	Connecting the biomass transport pipe	19
7	Commissioning	19
7.1	Safety information.....	19
7.2	Process water quantity	20
7.3	Venting the water supply, pump test run, leak check	20
7.4	Carry out test run with pure water	20
7.5	Handover and commissioning report.....	21
8	Operation	21
8.1	Safety information.....	21
8.2	Switching on	21
8.3	Opening and closing the lid	22
8.4	Filling.....	22
8.5	Starting the automatic homogenisation cycle	23
8.6	Starting the automatic homogenisation cycle in DRY mode	24
8.7	Pumping out contents of loading chute	24

8.8	Starting Automatic cleaning programme	25
8.9	Cleaning the loading chute using the hand spray	25
8.10	Daily cleaning	26
8.11	Weekly cleaning.....	26
8.12	Measures in case of longer installation standstill	28
8.13	Switching off.....	28
8.14	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.....	33
13	Technical data.....	34
13.1	EC/EU declaration of conformity	35
14	Handover and commissioning report – Checklist	36
15	Index	38
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 Maschinenbau 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 inserted waste can be processed in standard mode or in DRY mode. 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 in standard mode?

- Food waste, mixed, wet, heavy
- Kitchen waste and production waste, e.g. fruit and vegetable peelings, leaves, salads, green cuttings, fruit cuttings, etc.
- Fully liquid deep-frying oil (which is also liquid when cold)

Authorised inserted waste (unmixed) in DRY mode for kitchen waste with low intrinsic water content:

- Dry waste, such as breakfast or break waste, old bread, sandwiches, sweet pastries, sausages, cheese, prepared meat, etc.
- Dried-out, sticky leftovers from plates and dishes, such as chips, pasta, rice, barley, wheat, etc.
- Powdered foodstuffs, such as coffee grounds, sugar, salt, etc., with the exception of flour, see below
- Highly swelling foods, such as thick fruit peels, e.g. from citrus fruits

Authorised inserted waste in DRY mode with loading chute filled, along with normal wet kitchen waste:



NOTE

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

For materials that are particularly difficult to process, use DRY mode in the following way: Fill the loading chute 1/3 full with hard-to-process material according to the list and 2/3 full with normal food waste / kitchen waste.



ATTENTION

Raw meat tendons and fibres can form deposits in the grinder or on the (optional) pre-grinding unit. Remove them regularly.

- Fibrous kitchen waste such as banana peels, raw leeks, asparagus peels, raw rhubarb, corn on the cob, etc.
- Raw meat with tendons
- Hollow bones of all kinds, of poultry, of pork, of beef

- Marine fish skins, crushed before entry
- Fish carcasses, molluscs, crustaceans and shellfish
- Raw foods with low intrinsic water content, such as uncooked rice, uncooked pasta, barley, wheat, semolina, dough waste, etc.
- Chocolate, other substances with high fat content
- Gelatine products
- Flour, including ground flour from bakery machines

What may not be disposed of in the system?



NOTE

Only suitable, biodegradable agents in the dosage recommended by the manufacturer may be used to clean the BioMaster®.

- Inserted waste with a temperature above 40 °C
- Raw or cooked marrowbones as pure waste
- 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
- Inorganic and chemical substances in general
- Detergent and disinfectant

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

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



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!

After switching off, the frequency converters have a residual current which must first be discharged. Do not open the control cabinet until five minutes after switching off the main switch. High leakage current.

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

After switching off, the frequency converters have a residual current which must first be discharged.

Do not open the control cabinet until five minutes after switching off the main switch. High leakage current.



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 on the inside right of the BioMaster®.

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.

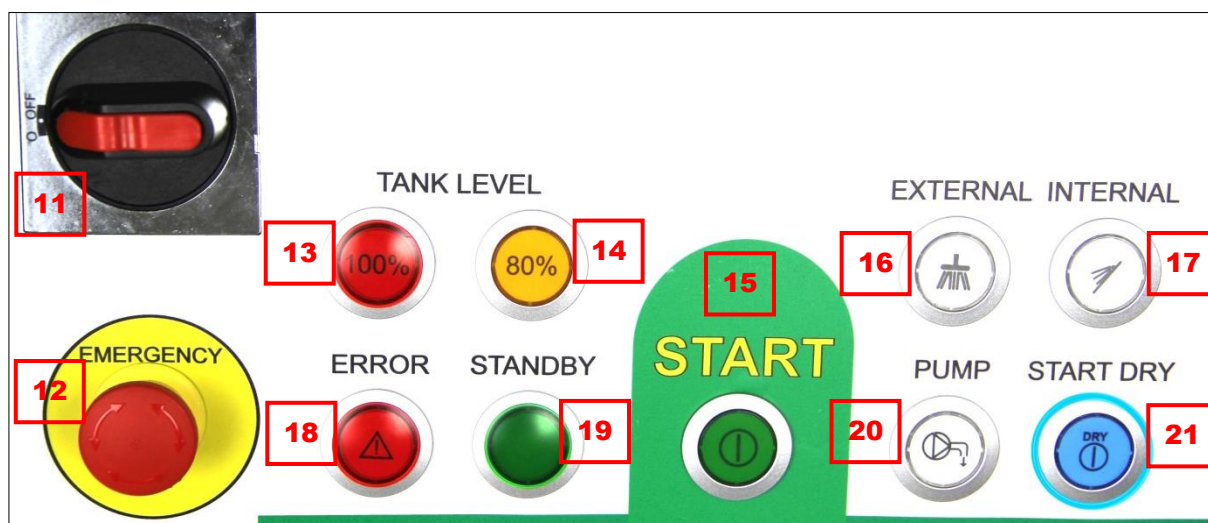
When using the BioMaster® as an infeed station of a vacuum plant, the biomass is conveyed through the pipe system by means of vacuum.

5.2 Main group BioMaster®



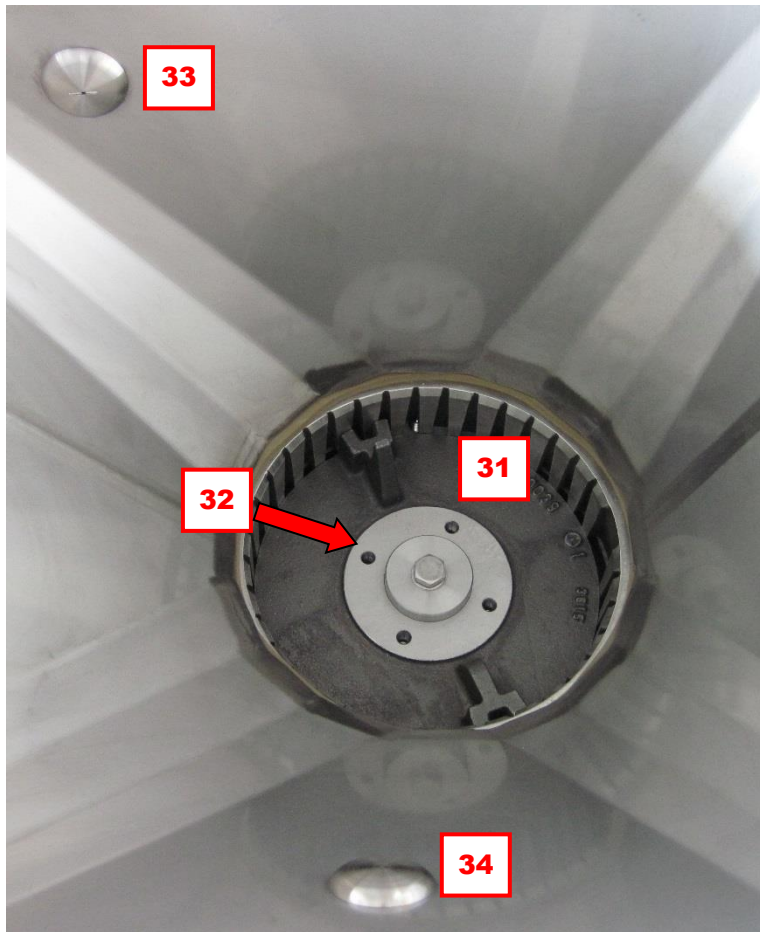
- 1 Lid rail
- 2 Lid with closing magnet
- 3 Lid seal
- 4 Two safety contact switches connected in parallel in the lid guide shaft
- 5 Loading chute
- 6 Operating panel
- 7 Hand spray with return mechanism
- 8 Control cabinet with lockable service hatch
- 9 Adjustable feet with anti-slip/vibration plate and 15 cm ground clearance

5.3 Control elements



No.	Operating element	Function
11	Main switch	Switch on, position ON; switch off, position OFF.
12	EMERGENCY STOP, emergency stop button	Immediate shutdown of the BioMaster® in dangerous situations.
13	TANK LEVEL, LEVEL INDICATOR 100 %	Button lights up when the storage tank is 100% full. The BioMaster® can no longer be started. Empty storage tank immediately!
14	TANK LEVEL, 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!
15	START, standard mode	Standard programme. The button lights up during the working cycle.
16	EXTERNAL, hand spray	For manual addition of water using the hand spray to clean the loading chute. Button lights up during the cleaning cycle.
17	INTERNAL, cleaning	Internally cleans the loading chute. Button lights up during the cleaning cycle.
18	ERROR, fault indication light	Lights up or flashes in the event of faults, evaluation in chapter Starting the automatic homogenisation cycle.
19	STANDBY function	Lights up when the lid is closed and the main switch is in the ON position.
20	PUMP, Switch on pump	Manual pumping out of loading chute content. Button lights up when pump is in operation.
21	START DRY mode	For inserted waste that is difficult to process or is swelled up. The button lights up during the working cycle.

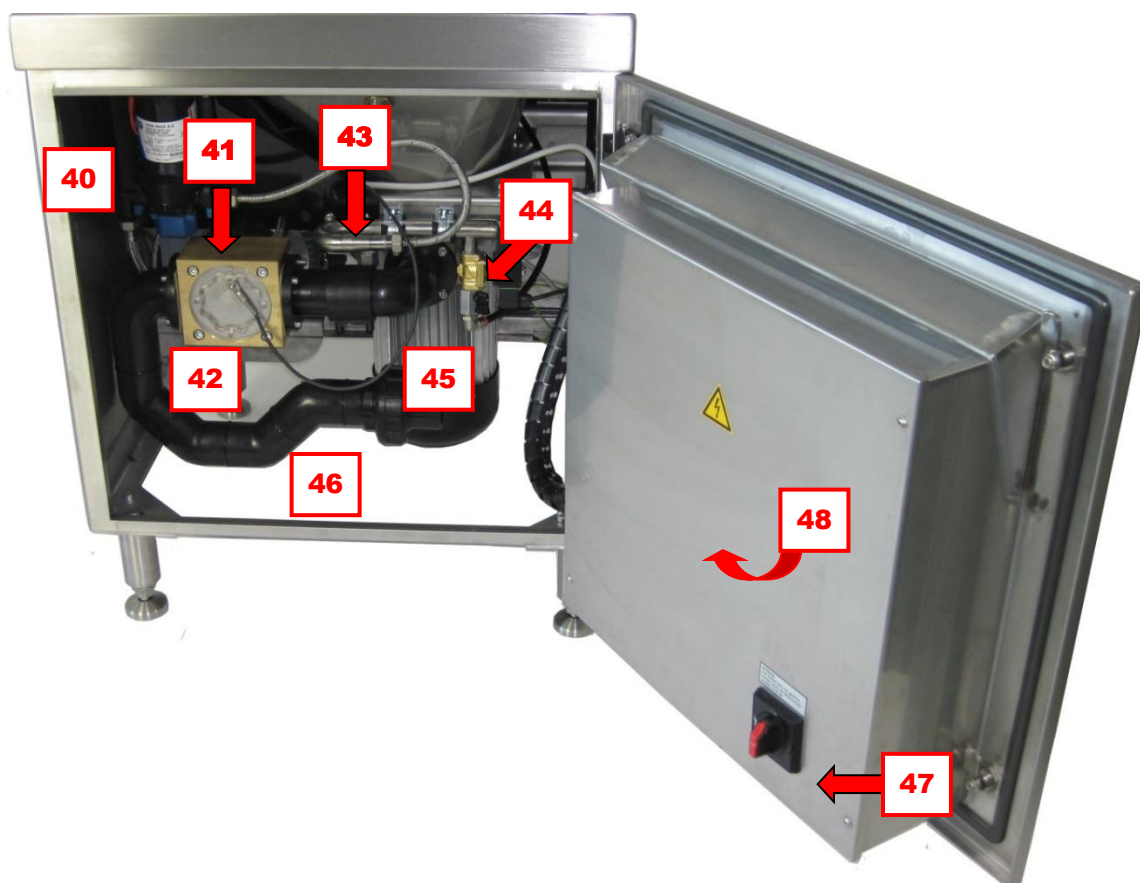
5.4 Loading chute



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

Optional cutlery catcher magnet on outside of loading chute

5.5 Technical equipment



- | | | | |
|----|---|----|---|
| 40 | Drinking water module with pressurised water pump | 45 | Grinder motor |
| 41 | Pump motor | 46 | Transport pipe connection, PE D 63 – screw connection |
| 42 | BioPump® | 47 | Overload circuit breaker |
| 43 | Water distribution | 48 | Control cabinet |
| 44 | Process water nozzle dosing valve | | |

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. 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.'

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.



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.
→ The STANDBY button lights up green when the lid is closed.
2. Make sure that the emergency stop button is unlocked.
3. Make sure that the on-site ¾" water valve is fully open and that water is making it to the BioMaster®.
4. Open the mini ball valves at the water distribution system in the interior of the BioMaster®.
5. Open the lid of the BioMaster®.
6. Remove the hand spray from the guide on the operating panel and hold it over the loading chute. Press the white EXTERNAL button.
→ The EXTERNAL button lights up.
7. Press the button on the hand spray and fill the loading chute with at least 10 litres of cold water.
8. Push the hand spray back into the guide on the operating panel.
9. Press the white PUMP button. Keep it pressed until the loading chute is completely empty.
10. 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 white INTERNAL button.
→ The button lights up.
→ The cleaning programme starts. It is used to roughly clean the inside of the BioMaster®.
→ The BioPump® starts automatically. The white PUMP button lights up.
→ You can hear the water coming in. A preset amount of water is fed into the loading chute through the cleaning nozzle.
→ The grinder starts automatically. The cycle length was set according to customer specifications.
→ Once the cleaning programme is finished, the INTERNAL and PUMP buttons go out. The BioMaster® switches off automatically.

3. Press the green START button.
 - The START button lights up.
 - The automatic homogenisation cycle starts in standard mode. 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.
4. Press the blue START DRY button for the DRY programme.
 - The START DRY button lights up.
 - The automatic homogenisation cycle starts in DRY mode. This mode is used for dry, sticky, powdery or highly swelling inserted waste and has different programme settings than the standard mode.
 5. Then check the water distribution and the connection on the transport pipe for leaks again.
 6. 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



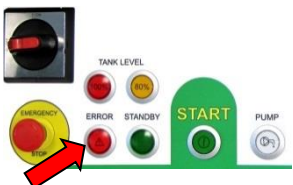
CAUTION

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 9.

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 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



ATTENTION

Use standard mode for normal, wet kitchen waste.

Observe the information in the chapter Authorised inserted waste.



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 Automatic cleaning programme.

8.6 Starting the automatic homogenisation cycle in DRY mode



ATTENTION

Use DRY mode for inserted waste that is difficult to process or is swelled up. Observe the information in the chapter Authorised inserted waste.

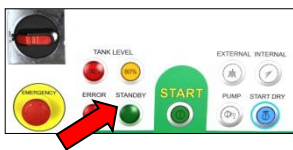


1. Press the blue START DRY button for DRY mode.
 - The START DRY button lights up.
 - The automatic homogenisation cycle starts in DRY mode.
 - The pressurised water pump, BioPump® and grinder start automatically with the preset sequence and duration.
 - The white PUMP button lights up when the BioPump®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



When the STANDBY indicator lights up, open the lid.

If the loading chute is extremely dirty, you can perform the cleaning procedure described in the chapter Automatic cleaning programme.

8.7 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.

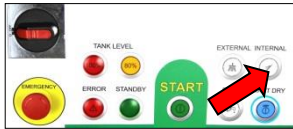
8.8 Starting Automatic cleaning programme



NOTE

If the loading chute is heavily soiled or food residue remains, run the automatic cleaning programme.

Use this function moderately to save process and cleaning water and thus space in the storage tank.



1. Press the white INTERNAL button.
 - The INTERNAL button lights up.
 - The automatic cleaning programme starts. A preset amount of water is fed into the loading chute through the cleaning nozzle. The grinder starts automatically.
 - Once the cleaning programme is finished, the INTERNAL button goes out. The BioMaster® switches off automatically.



ATTENTION

The automatic cleaning programme does not replace the daily thorough cleaning of the BioMaster®.

8.9 Cleaning the loading chute using the hand spray



NOTE

If food residues are firmly stuck in the loading chute or have not been removed by the automatic cleaning programme, use the hand spray.

Use this function moderately to save process and cleaning water and thus space in the storage tank.



1. Remove the hand spray from the guide on the operating panel. Hold the hand spray over the loading chute.



2. Press the white EXTERNAL button.
 - The EXTERNAL button lights up.
3. Press the button on the hand spray and clean the loading chute using the water jet.
 - Push the hand spray back into the guide on the operating panel.



4. Press the white PUMP button. Keep it pressed until the loading chute is completely empty.

8.10 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 to the machine.

Only use suitable, biodegradable agents in the dosage recommended by the manufacturer.

In the event of heavy soiling, spray out the loading chute as described in the chapter Cleaning the loading chute using the hand spray. Perform the cleaning procedure described in the chapter Automatic cleaning programme.



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



WARNING

There is a danger of crushing when opening the lid!

3. 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, biodegradable detergent and sponge cloth.
4. Make sure that all critical points, such as the lid seal and loading chute, are thoroughly cleaned of grease and residues.
5. Wipe all cleaned areas dry.



WARNING

The sharp edges of the stationary grinder and the optional pre-grinding unit present a risk of cutting.

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

6. Close the lid.



WARNING

There is a danger of crushing when closing the lid!

8.11 Weekly cleaning



Caution

Clean the interior of the BioMaster® once a week.



1. Clean the BioMaster® as described in chapter **Fehler! Verweisquelle konnte nicht gefunden werden. "Fehler! Verweisquelle konnte nicht gefunden werden."**
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, biodegradable detergent 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 20 litres of maximum 40°C hot water:
Pour the 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!

8.12 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.

8.13 Switching off



NOTE

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



1. Depending on the duration of the downtime, clean the BioMaster®.
2. Switch of the BioMaster® at the main switch - position OFF.
3. The STANDBY indicator goes out.
4. Close the water supply stop valve.

8.14 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. • Switch off BioMaster® at the main switch, await the 10-second reset time, switch on BioMaster®. ERROR should no longer be lit.
ERROR fault indication light flashes	<ul style="list-style-type: none"> • Water supply is faulty. • Check the water supply. Is the water supply stop valve open? • Press the EXTERNAL button and operate the hand spray. Check that the water meter is counting. Possible sources of error: <ul style="list-style-type: none"> ○ Pressurised water pump ○ Process water valve ○ Hand spray valve ○ Cleaning valve • Switch off BioMaster® at the main switch, await the 10-second reset time, switch on BioMaster®. ERROR should stop flashing.
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.

Problem	Solution
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>  <p>WARNING</p> <p>The brake motor is stiff! If in doubt, call a technician for help!</p>	<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. • 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 fried 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, at least every 6 months	2000 h, at least 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"/>				

Work to be carried out	Commissioning	Daily	Weekly	1000 h, at least every 6 months	2000 h, at least every 12 months
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 8.5. Notify MEIKO Maschinenbau GmbH or an authorised service partner.

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 information	
Specific designation	BioMaster®4 HIGHLINE
Width x depth x height [mm]	700 x 700 x 865-935 The height can be adjusted by the adjustable feet.
Weight [kg]	Approx. 170
Chute volume [l]	40
Filling height	Continuously variable
Capacity	≤ 1000 kg/hour in batch mode
Noise [dB(A)]	≤ 70
Electrical connection	
Connected electrical load [V]	3 x 400 V + N + PE
Connection	Fixed connection
Frequency [Hz]	50
Power [kW]	4.5
Fuse protection	16 A/FI circuit breaker sensitive to universal current type B with 300 mA trip current
Additional protective earth conductor [mm ²]	Min. 6, CU
Rotating field	Clockwise rotation field
Degree of protection	IPX5
Water connection	
Water quality	Clean water, free of dirt, non-turbid and free from foreign bodies such as sand and small pebbles – primarily drinking water
On-site specifications	Stop valves with ¾" screw connection, easily accessible for regular use
Cold water connection	DN (¾" - external thread) with shutt-off valve accessible for regular use

Line pressure [bar]	Min. 2,0 - max. 8.0 bar
Filter size for cold water connection [μm]	≤ 100
Maximum water hardness	0-14 °dH (German degree)
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 the prevention of drinking water contamination by due to backflow	Type AB air gap (according to national and international standards)
Environmental conditions	
Temperature [°C]	+5 to +40
Temperature (storage) [°C]	-25 to +55
Altitudes	up to 1000 m above mean sea level
Relative humidity [%]	10 to 90 (non-condensing)
<ul style="list-style-type: none"> No large temperature fluctuations No strong magnetic fields, electric currents, radiation, vibrations or shocks No direct sunlight 	

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"/>
3. Check 16 A mains connection, level sensor connection	<input type="checkbox"/>
4. Check transport pipe connection	<input type="checkbox"/>
5. 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"/>
6. Test function with water adjusted to _____ litres	<input type="checkbox"/>
7. 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"/>
8. Checking the level monitoring in the storage tank	<input type="checkbox"/>
a. 80 %	<input type="checkbox"/>
b. 100 %	<input type="checkbox"/>
9. 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"/>
▪ Confirm/unlock 80 % and disposal notification	<input type="checkbox"/>

15 Index

B

BioPump17

C

CAUTION5

Cleaning

daily26

with the hand spray25

Cleaning nozzle16

Cleaning programme25

Commissioning19

Commissioning protocol36

Connections18

electrical18

transport pipe19

water18

Control cabinet14, 17

Control elements15

Corrective maintenance32

D

DANGER5

Data, technical34

Declaration of conformity35

Decommissioning32

Disposal33

Drinking water module17

E

Electrical connection34

Emergency stop15

Emergency stop button15

Environmental conditions35

ERROR15

EXTERNAL15

EXTERNAL25

F

Fault finding28

Fault indication light15, 29

Food waste6

G

Grinder16

Grinder motor17

Grinding unit mount16

H

Hand spray14, 15

Handover report36

Homogenisation technology20

I

Inorganic substances7

Inserted waste

not authorised7

Installation17

INTERNAL15

INTERNAL25

L

Lid14

closing22

opening22

Lid rail14

Lid seal14

Loading chute14

M

Main switch15

Maintenance30

Maintenance plan31

Malfunctions28

Misuse7

N

Noise9, 21, 23, 24, 30

NOTE5

O

Operating panel14

Overload circuit breaker17

P

Personal protective equipment9

Personnel9

Personnel qualifications9

Pressurised water pump17

Process water nozzle16

Process water nozzle dosing valve17

Process water quantity20

Protective devices10

Pump15

Pump motor17

Pumping24

Pumping contents of loading chute24

Pumping out24

Q

Qualification matrix9

Qualified personnel9

R

Risks7



The clean solution



MEIKO Maschinenbau GmbH & Co. KG

Englerstraße 3

77652 Offenburg

Germany

www.meiko-global.com

info@meiko-global.com