

OPERATION MANUAL

(Original Operation Manual)



MBH 1320 HOT

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1 Introduction

This operation manual provides you with all information needed for the smooth operation of MBH 1320 HOT (hereinafter referred to as the machine).

The operation manual must be read, understood and applied by all those entrusted with the operation, maintenance, cleaning and troubleshooting of the machine. This particularly applies for the listed safety instructions.

After studying the operation manual you know how to

- operate the machine in accordance with safety requirements,
- maintain the machine in accordance with the specifications,
- clean the machine in accordance with the specifications,
- take appropriate action in case of malfunction.

In addition to the operation manual the generally applicable, legal, and other binding regulations governing the prevention of accidents and environmental protection of the country where the machine is used must be observed.

The operation manual must always be available at the place where the machine is used.

1.1 Means of Depiction

References to and direct warnings of hazards in this operation manual are sections which require particular attention and they are marked as follows:



DANGER

This warning characterises dangers with high a degree of risk which, if not avoided, result in death or severe physical injury.



CAUTION

This warning characterises dangers with mean degree of risk which, if not avoided, may result in death or severe physical injury.



ATTENTION

This warning characterises dangers with low degree of risk which, if not avoided, may result in minor or moderate physical injury.

NOTE

This warning characterises dangers with low degree of risk which, if not avoided, may result in damage to property.



The info symbol refers to useful information.

Furthermore the following means of depiction are used:

- Texts following this marking are part of a list.
- Texts following this marking describe activities which must be carried out in the specified order.
- „“ Texts enclosed in double quotation marks are a reference to other sections or paragraphs.
- „.’ Texts enclosed in single quotation marks designate the name of a component.
- ON Texts written in capital letters identify a push button/switch on control elements.

Symbols used in this manual

Warnings which identify particular risks are additionally marked as follows:



Mortal danger due to electric current

This symbol cautions against mortal dangers caused by electric current.
Direct mortal danger in case of contact with live components.



Warning of suspended loads

This symbol cautions against dangers when entering areas underneath suspended loads.



Hot surfaces

This symbol cautions against risk of burns caused by hot surfaces.

1.2 Warranty and Liability

The agreed obligations, the General Terms and Conditions, as well as the Delivery Terms for the machine and the legal provisions valid at the time of the conclusion of the contract do apply.

All specifications and information contained in this operation manual are based on due consideration of valid standards and regulations, latest technology as well as our many years of knowledge and experience.

Warranty and liability claims for personal injury or damage to property are excluded if they are due to one or several of the following causes:

- Use of the machine for any other purpose than the intended use or inappropriate use.
- Improper installation, commissioning, operation, maintenance, and cleaning of the machine.
- Operating the machine in spite of defect safety equipment or improper or inoperable safety and protection equipment.
- Failure to observe the operation manual and information contained in the operation manual relating to the installation, commissioning, operation, maintenance, and cleaning of the machine.
- Deployment of unqualified or untrained personnel.
- Constructional changes to the machine (reconstruction or any other changes to the machine are not permitted without prior written authorisation by Meier-Brakenberg GmbH & Co. KG. In case of non-compliance the machine's EC conformity lapses).
- Improper repair.
- Use of unauthorised spare parts or use of spare parts which do not comply with the technical specifications.
- Event of disaster, external influences, and force majeure.

We reserve the right to make technical changes within the terms of improvement of performance characteristics and further development.

1.3 Copyright

This operation manual is protected by copyright and only intended for internal purposes.

Transfer of the manual to third parties, duplication of any kind and form – even in extracts – as well as utilisation and/or communication of the contents is not permitted without written authorisation by Meier-Brakenberg GmbH & Co. KG, except for internal purposes.

Contraventions are subject to compensation for damages. We reserve the right to assert further claims.

1.4 Warranty Policy

The warranty policy is included in the general terms and conditions of the Meier-Brakenberg GmbH & Co. KG.

1.5 Service / After-sales Service



Please contact our after-sales service for technical information:

Telephone: +49(0)52 62/993 99-0

Moreover, our colleagues are always interested in new information and experience made when using our products. Such information can be very valuable for the improvement of our products.

2 Safety



CAUTION

Failure to observe the following safety advice may have serious consequences:

- Endangerment of persons caused by electrical, mechanical, or chemical influences,
- Failure of important machine functions,
- Environmental damages due to escaping hazardous substances.

Read the safety advice and hazard warnings contained in this section carefully before commissioning the machine.

Observe the generally valid safety and accident prevention regulations in addition to the advice included in the manual.

The operating company must observe the applicable national work regulations, operating regulations, and safety regulations in addition to the advice included in this manual. Existing internal works regulation need to be equally observed.

2.1 Intended Use

The operational safety of the machine is only guaranteed when it is used as intended.

The machine is solely intended for cleaning of stables and agricultural machinery.

The machine is not intended for any other purpose except as stated herein. Use other than for the intended purpose shall be deemed to be unauthorised use. In particular it is prohibited to

- transport persons with the machine,
- fill in or transport other materials or hazardous goods,
- use the machine in potentially explosive areas,
- pull or push the machine laterally,
- use the machine on uneven surfaces,
- direct the water jet onto persons or animals.

Intended use also includes

- observance of all advice included in the operation manual,
- compliance with the inspection and maintenance intervals,
- use of operating materials and supplies in accordance with applicable safety regulations,
- observance of operating conditions,
- immediate replacement of defective high-pressure hoses,
- avoidance of contact with chemicals,
- inspection of water lines and connections for leakages and damages for each use.

Technical specifications as stated in the technical data must be observed without exceptions.



Use the machine for the intended purpose only. Otherwise safe operation is not guaranteed.

Not the manufacturer, but the company or user operating the machine is responsible for any personal injury or damage to property resulting from use other than the intended use!

2.1.1 Constructional Changes to the Machine

Construction and manufacturer approval are based on the Product Safety Act (Produktsicherheitsgesetzes ProdSG). Changes, modifications, and additions to the machine are subject to the without prior written approval by Meier-Brakenberg GmbH & Co. KG.

Failure to comply with this requirement results in the machine's loss of EU conformity. In this event the manufacturer's warranty obligations become void. The same also applies for welding work on load-bearing parts.

Immediately replace components which are not in perfect condition.

Use only original spare parts /wear parts /accessories. These parts are specially designed for the machine. Parts manufactured by third parties provide no guarantee that they have been designed and manufactured to meet the operational demands and safety requirements.

Parts and special equipment not supplied by Meier-Brakenberg GmbH & Co. KG are not approved for use on the machine.

2.1.2 Foreseeable Misuse

Any use of the machine exceeding the intended use and/or other than the intended use may result in serious injury.

- Use the machines only for the intended purpose.
- Do not use the machine to clean clothing or shoes.

2.2 Personnel Requirements

The machine must only be operated, maintained, and repaired by qualified and/or trained persons. These persons must be familiar with this operation manual and act accordingly. Respective authorisations for personnel must be clearly defined.

The manual includes the following qualifications for various areas of operation:

Personnel in training

Personnel in training, such as apprentices or temporary workers, are not fully aware of all the hazards which may occur when operating the machine. These persons are only permitted to operate the machine under supervision of qualified or trained personnel.

Trained personnel

Trained personnel has been instructed in the task entrusted to them and they are informed by the operating company or by qualified personnel about any possible hazards which may occur due to inappropriate behaviour.

Qualified personnel

Based on technical training, knowledge, and experience as well as the knowledge about relevant provisions qualified personnel are capable of carrying out the tasks entrusted to them and they are capable of identifying and avoiding possible hazards independently.

Certified electrician

Based on technical training, knowledge, and experience as well as the knowledge about relevant standards and provisions a certified electrician is capable of carrying out work on electrical equipment and of identifying and avoiding possible hazards independently.

Certified electricians are trained for the special field of work they are working in and they are familiar with the relevant standards and provisions.

2.2.1 Responsibilities

Inappropriate handling may result in serious personal injury and damage to property.

Therefore all work should only be carried out by qualified personnel.

The operating company is responsible for instructing their personnel.

- Personnel are only persons who are expected to perform their work reliably. Persons whose ability to respond is affected by drug abuse, alcohol, medication, or similar are not permitted to operate the machine.
- Comply with the legally required break times.
- All persons operating the machine must confirm by signature that they have read and understood this operation manual.
- Personnel in training is initially only allowed to operate the machine under supervision of qualified personnel. Successful completion of training requires written confirmation.

2.2.2 Obligations of Personnel

Before starting work, all persons entrusted with the operation of the machine are obliged to

- comply with the fundamental regulations on work safety and accident prevention,
- read the operation manual and to confirm that they have understood the safety advices and warnings contained in this operation manual.

2.2.3 Unauthorised Persons

Unauthorised persons who do not meet the qualification requirements for personnel are not aware of the hazards in the working environment.

- Do not allow unauthorised persons to have access to the work area.
- In case of doubt, address these persons and instruct them to leave the work area.
- Suspend work as long as unauthorised persons are in the work area.

2.2.4 Instructions and Training

Personnel must be regularly instructed by the operating company. Record conducted training for better traceability.

Date	Name	Type of training / instructions	Training / instructions conducted by	Signature

2.3 General Safety Information

- The machine must only be operated and maintained after having read this operation manual.
- Only use this machine as intended (see section „**Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.**“).
- Do not start the machine if there are any other persons in the danger zone .
- Refrain from modes of operation which could impair the safety of persons or the machine.
- Never operate the machine without the respective protection and safety equipment. Never decommission any integrated safety equipment.
- Always keep the machine’s work area clean and tidy to avoid hazards caused by dirt or objects left lying around.
- Do not exceed the technical performance data (see section „3.3 Technical Data“).
- Keep all safety advice and warnings at the machine in a legible condition and replace them, if necessary.
- Operation of and work with the machine must only be carried out by qualified or instructed personnel (see section „**Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.**“).

- Immediately decommission the machine in case of malfunction. Have any malfunction rectified by trained experts or by Meier-Brakenberg GmbH & Co. KG.
- Always keep the operation manual at the machine's site of operation. It must be ensured that all persons who are working with or on the machine can consult the operation manual at any time.
- The machine must only be lifted by two persons.
- Be careful when lifting weight. Rise from your knees as you lift the load.

2.4 Safety Measures for Environmental Protection

When working with the machine observe the regulations with regard to waste prevention and proper waste processing or disposal.

In particular during installation or maintenance work as well as during decommissioning it must be ensured that groundwater endangering substances, such as grease, oils, solvent-containing cleaning agents or the like do not contaminate the ground or reach the sewage system. Such substances must be collected, kept and transported in suitable containers and they must be disposed of in compliance with national legislation.

2.5 Special Hazards Information

2.5.1 Used Symbols on the Machine



Mortal danger due to electric current

This symbol cautions against mortal dangers caused by electric current. Direct mortal danger in case of contact with live components.



Hot surfaces

This symbol cautions against risk of burns caused by hot surfaces



Keep all safety advice and warnings at the machine in a legible condition and replace them, if necessary.

2.5.2 Dangers due to Electrical Energy



DANGER



When touching live parts there is the danger of electric shock.

- Always keep electrical components closed.
- Work on electrical equipment must only be carried out by certified electricians who are specially trained for working on electrical equipment and who can identify and avoid dangers.
- Observe five safety rules:
 1. Disconnect
 2. Secure against restarting
 3. Determine voltage free status
 4. Earth and short-circuit
 5. Cover or block live parts



DANGER



Electric shock may cause secondary accidents due to fright (e. g. fall).

- Observe the five safety rules when working on electrical equipment.
- Have work on electrical equipment carried out only be certified electricians.

- Switch the machine off, disconnect from power supply, and secure against inadvertent restart before working on the machine's electrical equipment.
- Work on electrical equipment must only be carried out by competent certified electricians – e.g. the company electrician.
- Regularly check electrical equipment for defects such as loose connections or scorched cables. Have defects removed immediately.
- Have electrical equipment and stationary electrical equipment checked by a certified electrician at least once every 4 years.

Stationary electrical equipment is fixed equipment or equipment which do not have any carrying fixtures and which mass is too high to be moved easily. This also applies for electrical equipment which is temporarily fixed and which is operated using moveable electrical connection cables.

- Have mobile electrical equipment, connection cables including plugs and extension leads including plug connection, if used, checked by a certified electrician at least once every 6 months.

Mobile equipment is such equipment which can be operated while carrying voltage and at the same time in accordance with the standard and intended use. This also includes the HDR10.

- Modifications carried out after the tests must comply with DIN EN 60204-1.
- Regularly check all safety equipment of the machine for their function.
- Only use original fuses.
- Always keep doors of the control cabinet closed.
- Damaged casings and damaged lines must be immediately repaired or replaced.

2.5.3 Dangers due to Water Pressure

Liquids emerging under high pressure may cause serious injury!

- Only specially skilled and experienced experts are allowed to work on and at the high-pressure components.
- Switch the machine off before working at the high-pressure components and secure the machine against restart.
- Depressurise system sections and pressure lines before starting repair work.
- Inspect all high-pressure hoses and screw connections regularly for leakages and visible damages. Any damages must be repaired immediately.
- Replace high-pressure hoses in adequate time intervals even if there are no visible safety relevant defects.

- Do not pull at the high-pressure hose when it has loops or bends.
- Do not pull the high-pressure hose over sharp edges.
- Do not let any vehicles pass over the high-pressure hose.
- Do not direct the water jet onto electrical equipment such as power outlets.

2.5.4 Dangers due to Hot Surfaces

Contact with hot components may cause burns.

- Principally wear protective clothing and protective gloves whenever working next to hot components.
- Allow components to cool down to ambient temperature before maintenance or repair work.

2.5.5 Dangers due to Noise

Being permanently exposed to the sound pressure level in the working area may lead to permanent hearing damages.

- The operating company must provide hearing protection as of a sound pressure level of 80 dB(A).
- It is compulsory to wear hearing protection as of a sound pressure level of 85 dB(A).

2.5.6 Dangers caused by the Use of Incorrect Spare Parts

Incorrect or defect spare parts may lead to damages, malfunction, or complete failure and they can impair the safety.

- Only use original spare parts.
- Purchase spare parts from Meier-Brakenberg GmbH & Co. KG. Necessary information on spare parts is included in the parts lists or in section „1.4 Warranty Policy
- The warranty policy is included in the general terms and conditions of the Meier-Brakenberg GmbH & Co. KG.
- Service / After-sales Service “.

2.6 Personal Protective Equipment

Wear personal protective equipment to minimise health risks when operating the machine.

- Always wear the necessary protective equipment during operation which is required for the work carried out.
- Observe the instructions which refer to personal protective equipment in the working area.

The symbols have the following meaning:



Hooded protective workwear

Hooded protective workwear includes close-fitting clothing with low tear strength, tightly fitting sleeves and does not have any protruding parts. Protective workwear mainly serves to protect against getting caught by moving machine parts.

Do not wear any rings, chains or other jewellery.



Safety footwear

Wear anti-slip safety footwear which provides protection against injury due to heavy, falling objects or against slipping on low-grip surfaces.



Protective gloves

Wear protective gloves to protect your hands against friction, graze, cuts, or deep wounds, as well as against contact with hot surfaces or chemical substances.



Face protection

Wear face protection to protect you against media emerging under high pressure, splashing dirt and flying objects.



Hearing protection

Wear hearing protection to protect you against hearing damages.



Breathing protection

Wear breathing protection to protect you against aerosols in case of being exposed to biological working substances in form of aerosol.

The operating company must provide protective equipment which complies with the applicable requirements.

Moreover, national provisions and, where appropriate, internal instructions of the operating company must be observed.

2.7 Safety and Protective Equipment

- Each time before switching on the machine check that all safety and protective equipment is correctly installed and in operational condition.
- During operation it is prohibited to bypass, remove or otherwise decommission any safety and protective equipment.
- Protective equipment may be removed only during shutdown times and after securing against restart of the machine.
- Regularly check all protective equipment of the machine for proper function.

2.8 Advice for Emergency Cases

Preventive measures

- Always be prepared for accidents or fire.
- Keep first aid equipment (first aid kit, blankets etc.) and fire-extinguishing agents in reach and ready to hand.
- Familiarise personnel with accident reporting systems, first aid equipment, fire extinguishing agents and devices, as well as emergency facilities.
- Keep access routes clear for rescue vehicles.

Measures in case of accidents

- If available, activate emergency stop.
- Rescue persons from the danger zone.
- In the event of cardiac and/or respiratory arrest initiate first aid measures immediately.
- In case of personal injury inform the person responsible for first aid and an emergency physician or emergency rescue service immediately.
- Clear access routes for rescue vehicles. Where appropriate, send someone to show rescuers the way.
- Extinguish burning oil/grease with a CO₂-extinguisher or a powder fire extinguisher.
- Extinguish fire in the electrical control system with a CO₂ fire extinguisher.

2.9 Obligations of the Operating Company

The machine is used for commercial operation. The machine's operating company is therefore subject to the statutory obligations governing occupational safety.

In addition to the safety advices included in this operation manual the applicable safety, accident prevention, and environmental protection provisions relevant for the machine's range of applications must be complied with. The following applies in particular:

- The operating company must ensure that the machine is only used for the intended purpose (see section „**Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.**“).
- The operating company must ensure that the operation manual is always complete and in a legible condition at the site of use of the machine.
- The operating company must clearly regulate and specify the responsibilities for installation, commissioning, operation, maintenance, and cleaning.
- The operating company must ensure that only sufficiently qualified and instructed personnel uses the machine.
- The operating company must ensure that all personnel handling the machine have read and understood the contents of the operation manual.
Moreover, the operating company must regularly and traceably train the personnel and inform them about any dangers.
- The operating company must provide the personnel with personal protective equipment and must ensure that the protective equipment is used.
- The operating company must ensure that no persons operate the machine whose ability to respond is impaired by drug misuse, alcohol, medication, or the like.

Moreover, the operating company is responsible that the machine is always in a technically impeccable state. Therefore the following applies:

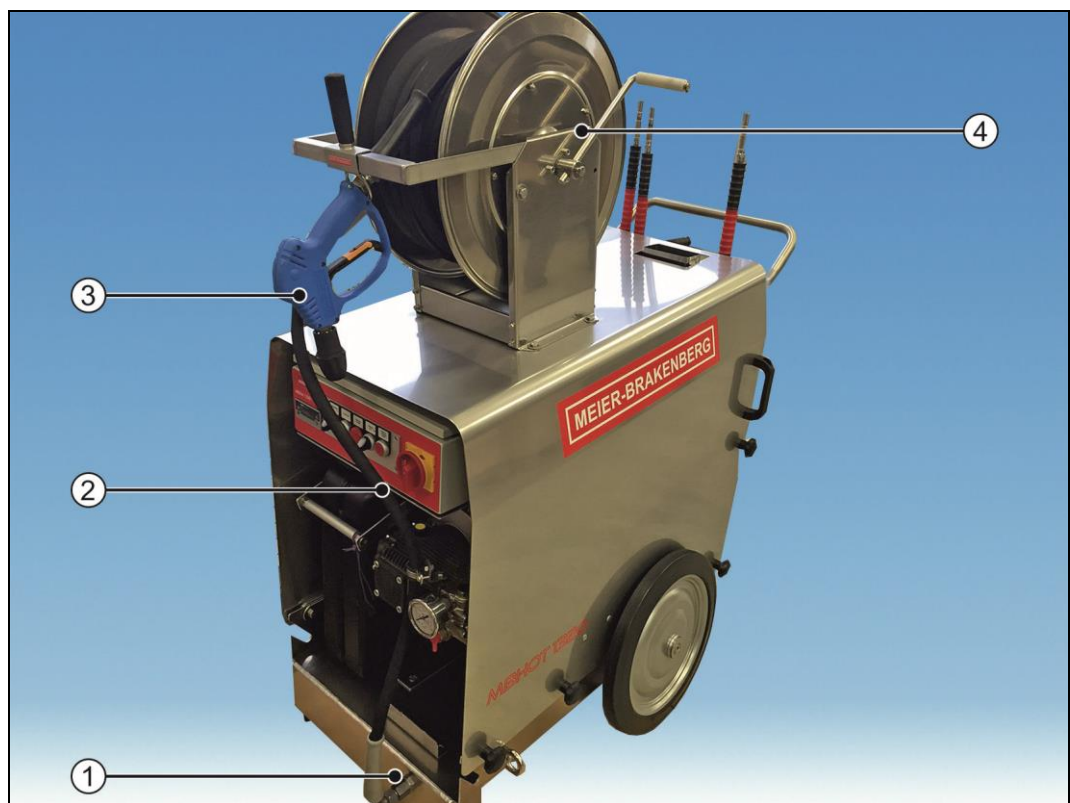
- The operating company must ensure the observance of the maintenance intervals, as specified in this operation manual.
- The operating company must ensure that all safety equipment are regularly checked for their functionality and completeness.
- The operating company must regularly check that all safety advices and warnings attached to the machine are in a clearly legible condition and permanently remain on the machine.

3 Machine Description

3.1 Overviews

3.1.1 Overview Functional Components

Front / left view



1 High-pressure connection

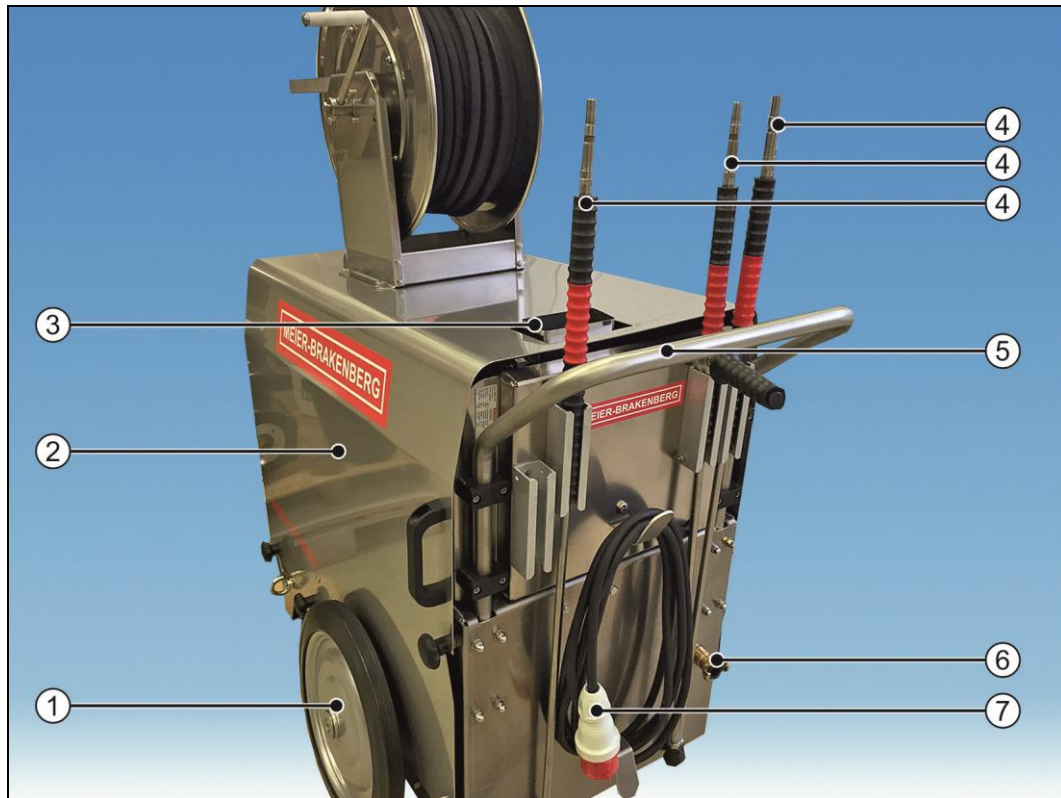
2 High-pressure hose

3 Gun

4 Hose reel (optional)

Motor and burner are located beneath the cover

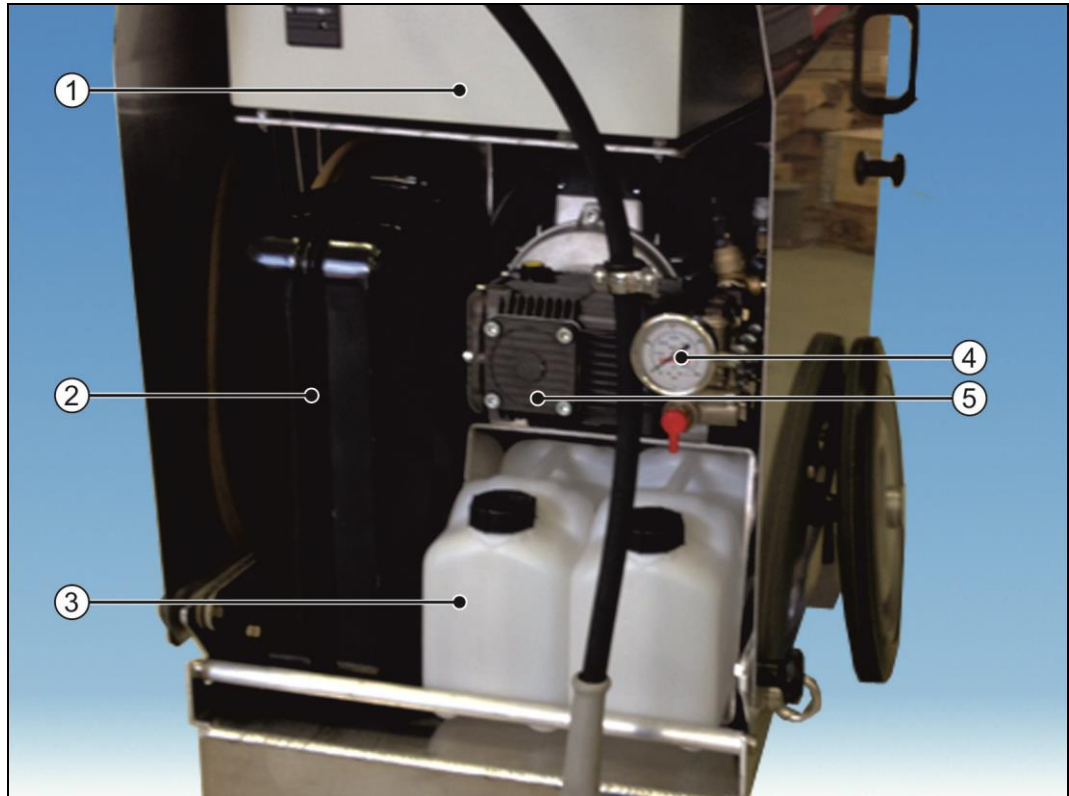
Rear / left view



- 1 Wheel
- 2 Cover
- 3 Exhaust
- 4 Lances

- 5 Handle
- 6 Water connection
- 7 Connection cable CEE

Front view



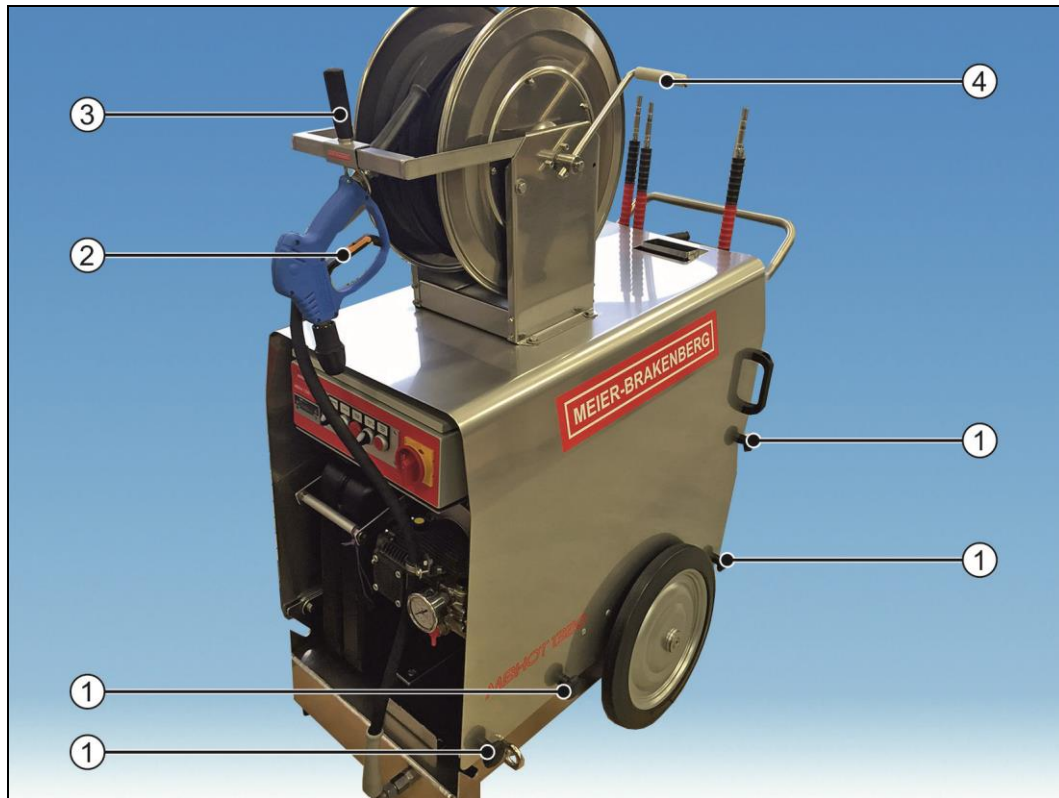
- | | | | |
|---|---------------------|---|------------------|
| 1 | Control box | 4 | Pressure reading |
| 2 | Diesel canister | 5 | Pump |
| 3 | Detergent reservoir | | |

3.1.2 Overview Control Panels

Front / left view



The illustration shows ,knurled screws of cover' on the left side. On the right side mirror-inverted there are four more ,knurled screws cover'.



- | | |
|-------------------------|---------------------------|
| 1 Knurled screw ,cover' | 3 Hose guide (optional) |
| 2 Gun trigger | 4 Manual crank (optional) |

Front view



1 Control panel

2 Canister securing bracket

3.1.3 Type Plate



The type plate is located at the rear left.

3.2 Functional Description

The machine serves for commercial cleaning of stables and agricultural machinery.

It consists of a motor with connection cable CEE, a filter, a pump, a burner and a water connection.

Additionally the machine comprises a high-pressure hose, a gun, a cover, wheels, one or several lances and a handle.

The water connection supplies the machine with water pressure of 2 to 10 bar and water temperatures of maximum 40 °C. The motor is put into operation by the star-delta-switch and drives the pump. The pump generates water pressure of 140 bar. The burner heats the water to up to 80 °C as soon as the minimum pressure of 40 bar is reached and when there is flow-through by activating the gun's trigger. The high-pressure hose, the gun and a lance serve to clean surfaces in stables or agricultural machines.

The machine is moved to the place of operation on wheels by using the handle.

3.2.1 Safety Equipment

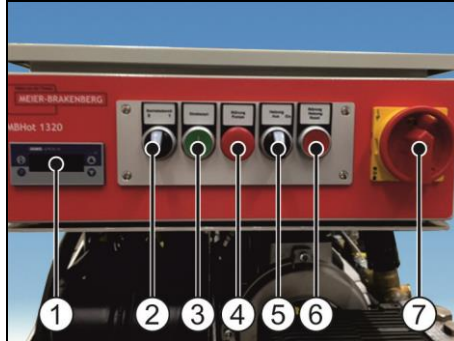
NOTE

Modifications or changes to safety equipment settings are prohibited!

A pressure control valve protects the machine against impermissible pressure increase. On pressure increase it switches to circulation mode.

3.2.2 Description of Control Elements

3.2.2.1 Control Panel



The control panel serves to operate the machine.

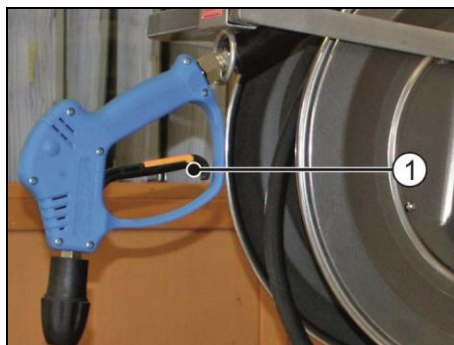
- | | |
|--|---|
| 1 Setpoint value adjustment | 5 Heater Aus/EIN (OFF/ON) |
| 2 Ready for operation | 6 Key button STÖRUNG HEIZUNG RESET (ERROR HEATER RESET) |
| 3 Direct start | 7 Main switch |
| 4 Signal lamp STÖRUNG PUMPE (ERROR PUMP) | |

3.2.2.2 Pressure Reading



The pressure reading (see image) serves to read the water pressure at the high-pressure side of the pump.

3.2.2.3 Gun Trigger

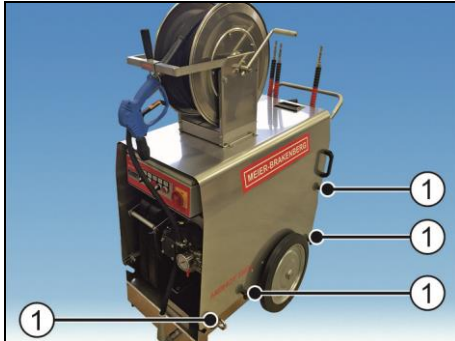


The gun trigger (1) serves to release the water jet for cleaning.

3.2.2.4 Knurled Screws of Cover

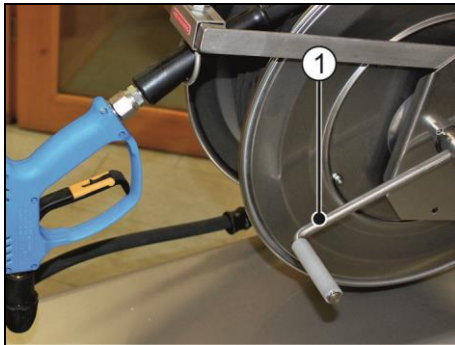


The illustration shows ‚knurled screws of cover‘ on the left side. On the right side mirror-inverted there are three more ‚knurled screws of cover‘.



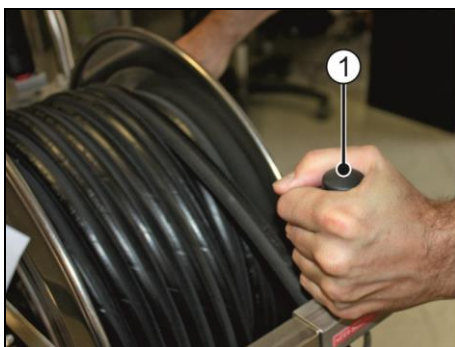
The knurled screws of the cover (1) serve to remove or fasten the cover.

3.2.2.5 Manual Crank (optional)



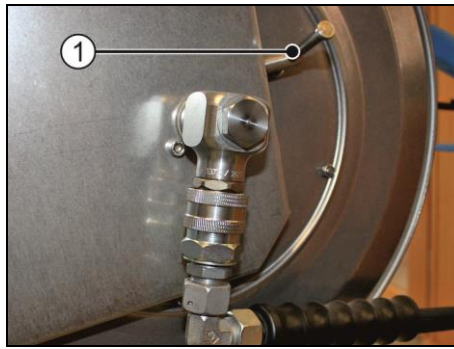
The manual crank (1) serves to coil up the high-pressure hose onto the hose reel.

3.2.2.6 Hose Guide (optional)



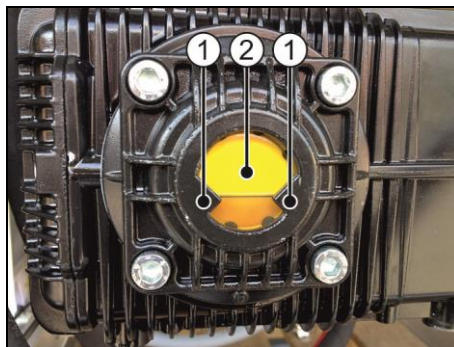
The hose guide (1) serves to guide the high-pressure hose during coiling up onto the hose reel.

3.2.2.7 Stop Lever (MBH line optional)



The stop lever (1) serves to lock the hose reel.

3.2.2.8 Inspection Glass



The inspection glass (2) serves to check the pump's oil level.

Oil level at inspection glass must be at the level of marking arrows (1).

3.3 Technical Data

3.3.1 General

Type of pump oil	SAE 10W-60 fully synthetic (item no.: WB0011-01)
Water temperature supply line max.	40 °C
Water output	1 260 l/h
Operating pressure	140 bar
Power electric motor	5,5 kW
rpm electric motor	1 450 rpm
Weight	190 kg
Dimensions	
Length	1 250 mm
Width	700 mm
Height	1 110 mm
Water hose	10 m

3.3.2 Airborne Noise Emissions

Sound power level	
Idle running	90 dB(A)
With flat jet lance	102 dB(A)
With dirt blaster (optional)	111 dB(A)

3.3.3 Ambient Conditions

NOTE

After use the high-pressure hose must be stored without being exposed to stress or load. The storage place should be cool, dry, at low dust level and moderately ventilated.

Permissible ambient temperature during operation	+10 °C up to +40 °C
Permissible ambient temperature for storage	+5 °C up to +40 °C
Permissible air humidity	80 % rel. humidity

3.3.4 Equipment

Delivered Standard Equipment

The machine is delivered with

- flat jet lance,
- 20 m high-pressure hose and
- gun.

Condition as Supplied

Machine and accessories are delivered on euro-pallet. The machine is secured on the euro-pallet by foil and fastener straps.

Special Accessories

Optionally available:

- Various lances such as foam lance, dirt blaster lance or double lance.

4 Transportation and Storage

The machine is delivered to the customer either by the Meier-Brakenberg GmbH & Co. KG or by an authorised carrier.

4.1 Inspection on Acceptance by the Recipient

On arrival of the machine the customer must check the machine for visible damages caused during transportation.

- Report transport damages immediately to the deliverer.

4.2 Packaging

The route of transportation is often decisive for the type of packaging. Unless otherwise contractually agreed, packaging complies with HPE packaging standards specified by the federal association of wooden packing materials, pallets and export packaging (Bundesverband Holzmittel, Paletten, Exportverpackung e.V.) and the association of German engineering companies (Verein Deutscher Maschinenbauanstalten).

4.3 Information on Risks during Transportation



CAUTION



During the transportation of the machine / components the following special risks must be expected:

- Using other load handling devices than specified herein may lead to serious personal injury.
 - Protruding edges may lead to severe bruising or lacerations.
 - Standing or walking under suspended loads may lead to serious injury.
-
- Please also read chapter „2 S“.
 - Transportation of the machine or its components must only be carried out by appropriately qualified and instructed personnel (forklift driver/crane operator with certificate of competence) and in compliance with all safety instructions.

- When selecting suitable lifting equipment or load handling devices always take account of the weight of the heaviest component (for weights please see section „3.3 Technical Data“).
- Suitable load handling devices are e.g. industrial trucks or forklifts.
- Wear protective workwear, safety footwear and safety gloves during work.
- Always assign a third person to secure transport routes.
- Make sure that there are no persons on the route or underneath suspended loads.
- Always lift the machine slowly and carefully to ensure stability and safety.
- The machine must be removed from the pallet by two persons.
- Make sure to rise from your knees as you lift the load.

4.4 Temporary Storage

In case the installation of the machine is not carried out directly after delivery, the machine must be stored carefully in a safe place. The machine must be stored in a place protected against cold, humidity, dirt and mechanical influences.

NOTE

Do not expose the high-pressure hose to stress or loads during storage. The storage place must be cool, dry, at low dust level and moderately ventilated.

Temporary storage of high-pressure hoses should not exceed a period of 2 years.

Please see section „3.3.3 Ambient Conditions“ to view the recommended storage conditions of the machine.



No liability accepted for damages caused by improper storage!

5. Assembly



CAUTION

Risk of injury due to loss of stability!

The loss of stability may lead to considerable risk of serious injury.

- Footprint must be level surface.
- Avoid lateral pushing and pulling of the machine

6. Commissioning

Prior to leaving the factory high-pressure cleaners of Meier-Brakenberg GmbH & Co. KG are commissioned and tested for faultless functioning by a qualified person and in accordance with the national provisions.

No further general work for initial commissioning necessary.

NOTE

Change the oil of the pump first-time after 50 hours of operation (see chapter „9.2.5.1 Oil Change“).

Safety Measures before Commissioning

The following actions must be carried out before commissioning or restart of the machine:

- Check and ensure that all safety equipment is installed and working.
- Check the machine for visible damages; rectify any identified defects immediately or report them to the supervisor – the machine must only be operated in a technically perfect condition.

7. Operation

a. Safety Measures in Normal Operation



CAUTION

Risk of poisoning due to exhaust gases!

Exhaust gases of the burner may lead to risk of poisoning.

- Ensure adequate ventilation before starting the burner.

- It is not permitted to remove or decommission any safety equipment during operation of the machine.
- The operating personnel must make sure that there are no unauthorised persons in the machine's work area.

Carry out the following control actions once daily:

- Check the machine for externally visible damages.
- Check the functions of safety equipment.
- Check all high-pressure lines and connections for leakages and correct connection.
- Check cover for firm mounting of knurled screws of the 'cover'.

b. Preparatory Measures

- Connect the water supply with a Geka coupling to the water connection and open the tap (see chapter „3.1.1 Overview Functional Components“).

NOTE

The electrical circuit is protected by a fuse against overload.

- Always use a fuse with the specified tripping current.
- Connect the connection cable CEE to a CEE power outlet (see chapter „3.1.1 Overview Functional Components“).
- Where applicable, connect the quick lock of the high-pressure hose to the high-pressure connection (see chapter „3.1.1 Overview Functional Components“).
- Actuate the gun trigger until emerging water is free of air.

i. Change of Diesel Canister



ATTENTION

Risk of skin irritations!

Contact with diesel may cause skin irritations.

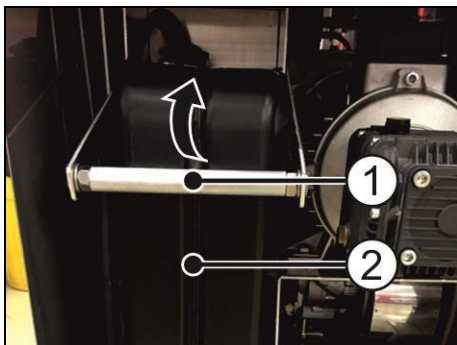
- Always keep the diesel canister closed.
- Wear protective gloves when working at the diesel canister.



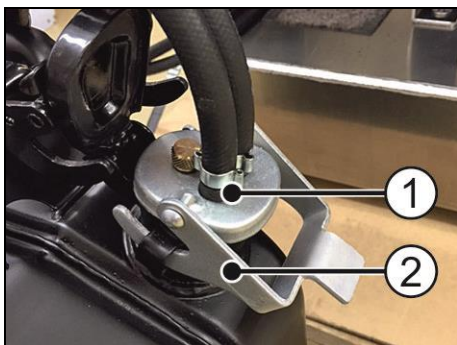
The image shows a slot for the grab handle. On the other side and mirror-inverted there is another slot for the securing bracket.



- Remove the securing bracket (1).



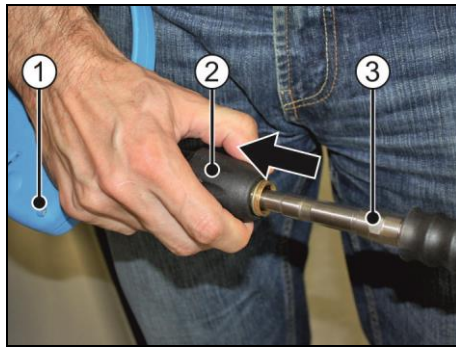
- Move the securing bracket upwards (1) (see arrow).
- Remove the canister (2).



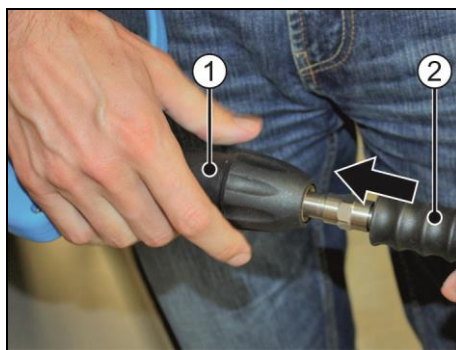
- Remove the cover (1) by pushing the locking bracket (2) upwards.

- Install the new or refilled canister.
- For installation of canister proceed in reverse order.

ii. Change of Lances



- Pull back the quick fastener (2) of the gun (1) (see arrow).
- Remove lance (3).



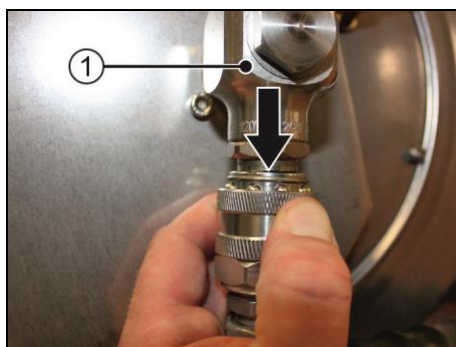
- Push the new lance (2) into the quick fastener (1) (see arrow).
- Check locking function.

iii. Use of Detergents

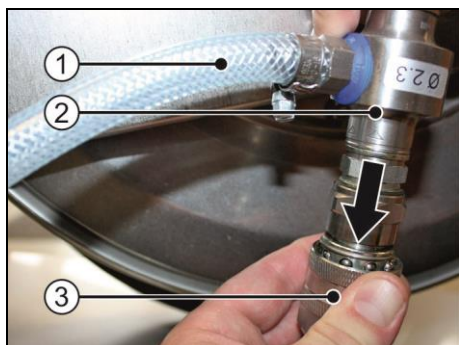


The cleaning hose allows to use detergents in tanks.

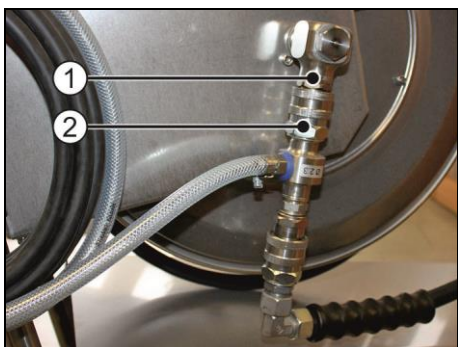
Explanations about the use of detergents refer to the MBH line with optional hose reel as an example. With regard to other machines install the connecting piece directly between high-pressure connection and high-pressure hose (see chapter „Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.“).



- Disconnect from high-pressure connection (1) by pulling back the quick fastener (see arrow).



- Connect the connection piece (2) of the detergent hose (1) with the quick fastener (3) of the high-pressure hose (see arrow).



- Connect the connection piece (2) of the detergent hose to the quick fastener (1) of the hose reel.

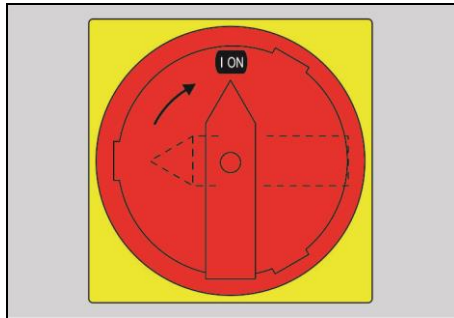


- Continue inserting the detergent hose (2) into the detergent tank until the screen (1) touches the bottom of the tank.



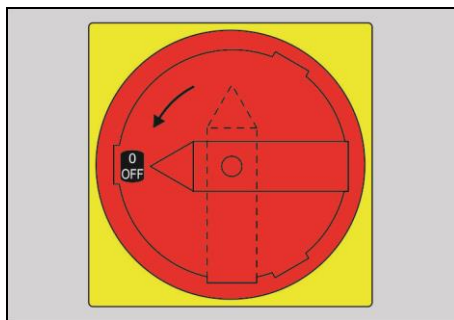
To remove the detergent hose after completion of work proceed in reverse order.

c. Switch Machine on/off



Switch-on

- Switch on the main switch (see arrow).



Switch-off

- Switch off the main switch (see arrow).

d. Setpoint Value Adjustment



The setpoint value adjustment serves to pre-select the heating temperature.

- | | |
|--|-----------------------|
| 1 Button START/STOP (without function) | 4 Button P |
| 2 Temperature indicator | 5 Arrow key AB (DOWN) |
| 3 Arrow key AUF (UP) | |

i After switching on the machine the actual value of the heating temperature is displayed on the temperature indicator (2).

i Setpoint value and actual value are displayed alternately on the temperature indicator (2) until you press button P.

- Press button P (4) to display setpoint value.
- Press arrow key AUF (UP) (3) to increase the requested setpoint value.
- Press arrow key AB (DOWN) (5) to lower the requested setpoint value.
- Press button P (4) twice to save the selected setpoint value.

i After saving of the setpoint value the temperature indicator (2) indicates the actual value.

e. Cleaning Surfaces



CAUTION

Risk of fire, explosion and poisoning!

When using solvent containing liquids, acetone or acids the atomised spray is highly flammable, explosive and poisonous.

- Never use any solvent containing liquids, acetone or acids.
- Observe the detergent manufacturer specifications.



CAUTION

Respiratory diseases!

Surfaces that generate aerosols or contain substances which are hazardous to health (e.g. asbestos) may cause respiratory diseases.

- Do not clean any asbestos containing surfaces.
- Do not clean surfaces containing substances which are hazardous to health.
- Use breathing protection in case of aerosol generation.



ATTENTION

Risk of unexpected start!

After return of energy or pressure, water might unexpectedly emerge under high pressure.

- Never lock the trigger of the gun.
- Never direct the water jet onto persons.



ATTENTION

Risks of rebound and twisting movement!

The emerging high-pressure jet may cause rebound and twisting movement in case of angled lances.

- Hold the lance firmly with both hands.
- Always stand on firm ground (do not stand on ladders, treads, platforms or other elevations).

NOTE

Observe the relevant safety instructions at petrol stations or when cleaning agricultural machinery.

Do not clean any surfaces with live parts that are not splash water protected.

When using detergents observe the safety data sheet of the detergent manufacturer.

Clean vehicle tires only from a distance of at least 40 cm.

When cleaning vehicles observe the regulations with respect to groundwater protection.

Do not use solvent containing detergents.

Use only approved, non-aggressive detergents.

- Hold the lance firmly with both hands.
- Unlock the gun trigger.
- Operate the gun trigger.

NOTE

Lack of water may destroy the pump.

Pressure must build up immediately, otherwise there is a fault (see chapter „8 Malfunction“).

- Clean surfaces by waving the lance evenly.

f. Finish Cleaning Operations



ATTENTION

Risk of burns!

After switching off the burner the remaining heat continues to heat up the water inside the machine. There is a risk of burns caused by the hot high-pressure hose, gun and lance.

- Let the high-pressure hoses cool down after use or shortly operate the machine in cold water mode.



For temporary storage of the machine observe contents of chapter

„Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.“.

- Switch the machine off.
- Depressurise the high-pressure hose and pump by operating the gun trigger.
- Lock the gun trigger.
- Close the water tap of the supply line, if applicable.

When using the machine with hose reel:

- Coil up the high-pressure hose by operating the manual crank (see chapter „3.2.2.5 Manual Crank (optional)“).
- Lead the high-pressure hose using the hose guide (see chapter „3.2.2.6 Hose Guide (optional)“).
- Lock the hose reel after coiling up the high-pressure hose by using the stop lever (see chapter „3.2.2.7 Stop Lever (MBH line optional)“).

8. Malfunction

a. Malfunctions and Corrective Measures

Malfunction	Cause	Corrective Measures
Pressure does not build up	Filter clogged	Clean filter (see chapter „9.a.iii Maintenance – Daily“)
	Air inside pump	Operate gun trigger when the machine is switched off until emerging water is free of air
	Water tap closed	Open water tap
Motor does not run	Star-delta switch or automatic switch-on defect	Contact your customer support
	Fuse of CEE outlet tripped	Replace fuse
	Undervoltages circuit breaker tripped	Switch on undervoltage circuit breaker
Burner does not work	Exhaust gas temperature too high	Let machine cool down
	Burner in fault mode	Press button STÖRUNG HEIZUNG RESET (FAULT HEATER RESET)
Pump does not work	Pump in fault mode	Press button STÖRUNG PUMPE RESET (FAULT PUMP RESET)

9. Maintenance



DANGER



When touching live parts there is danger of electric shock.

- Always keep electrical components closed.
- Work on electrical equipment must only be carried out by certified electricians who are specially trained for working on electrical equipment and who can identify and avoid dangers.
- Observe five safety rules:
 1. Disconnect
 2. Secure against restarting
 3. Determine voltage free status
 4. Earth and short-circuit
 5. Cover or block live parts

9.1 Safety Measures during Maintenance

Carry out prescribed maintenance work, such as cleaning, lubrication, service and inspections in due time.

Observe the following points when carrying out maintenance work:

- Disconnect from the central power supply by switching off the main switch. If possible, secure the main switch with a lock. Attach a caution sign to warn of restart by main switch.
- Secure all depressurised machine parts against unintended restart.
- Make sure that all machine parts are cooled down to ambient temperature.
- Squat down instead of bending down when working on components in low position. Maintain an upright and straight posture when working on components mounted in high positions.
- Replace any faulty machine parts immediately.
- Use only original spare parts.
- Make sure that appropriate collection containers are in place to collect all substances which are hazardous to groundwater (oils etc.).

Carry out the following works after completion of maintenance work and before starting the machine:

- Ensure that all bolt connections which have been unfastened are fastened securely again.
- Ensure that all previously removed protection equipment, covers, container lids, filters etc. are properly reinstalled.
- Ensure that all tools, materials, and other equipment have been removed from the work area.
- Clean the work area. Remove any possibly escaped liquids and similar substances.
- Ensure that all safety equipment of the machine functions correctly.

a. Inspections and Maintenance

i. Maintenance Intervals

Maintenance point	Maintenance work	see section
Daily		
Entire machine	Visual inspection	Fehler! Verweisquelle konnte nicht gefunden werden.
Yearly		
Entire machine	Inspection by qualified person	iv.1
Entire machine	Check screw connections	iv.2
Burner	Replace filter insert Clean fuel strainer	iv.3
Special maintenance intervals		
Pump	Oil change after the first 50 hours of operation, thereafter every 300 hours of operation or every 6 months	v.1
High-pressure hose	Replace high-pressure hose at the latest after 6 years	v.2
Burner	Descale heating coil as required Maintain oil burner/ignition system yearly or after 500 hours of operation	☐

ii. Preparatory Measures



DANGER

Mortal danger caused by electric shock!

Touching live components may lead to mortal electric shock. Always keep electrical components closed.

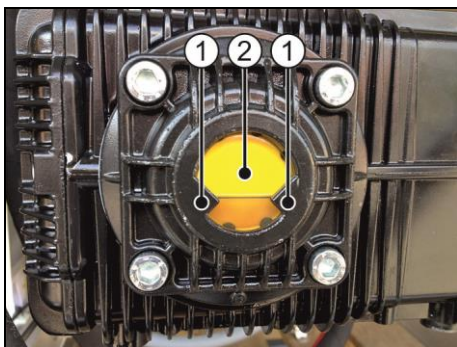
- Disconnect from power supply before maintenance work and inspections on the machine.

- Switch the machine off (see chapter „Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.“).
- Secure the machine against unexpected restart e.g. by blocking the main switch by means of a lock.
- If applicable, remove the cover by unscrewing the knurled screws of the ‚cover ‘ (see chapter „3 Machine Description
- Overviews“).

iii. Maintenance – Daily

1. Visual Inspection

- Inspect the machine for
 - mechanical damages,
 - damaged seals,
 - dirt deposits and
 - unusual noise.
- Clean the machine with a cloth, if necessary.



- Check the oil level at the inspection glass (2). The oil level must be at level with the marking arrows (1).

- Check the filter for soiling.

- Clean the filter, if applicable, by means of rinsing. For this purpose unscrew the filter.
- Check that the knurled screws at the machine are tight.
- Check fuel lines for leakages.
- Report any damages to your supervisor immediately.

iv. Maintenance – Yearly

1. Inspection by technical specialist



Industrial high-pressure cleaners must be inspected by a technical specialist once a year.

2. Check screw connections

- Check all screw connections at the machine for tightness.
- Retighten loose screw connections.

3. Burner

- Replace the filter insert of the burner.
- Clean the fuel strainer.

v. Special Maintenance Intervals

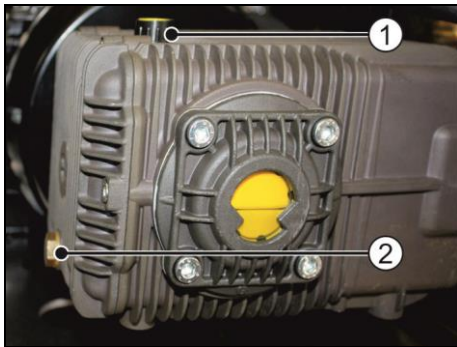
1. Oil change

- Carry out the preparatory measures (see chapter „ii Preparatory Measures“).
- Remove the cover by loosening the knurled screws of the ‚cover‘ (see chapter „3 Machine Description
- Overviews“).



Make sure that the machine is placed on level surface so that the oil drains off completely and so that you can read the oil level through the inspection glass correctly.

- Have a hopper and a collection container with a capacity of at least 2 litres ready at hand.

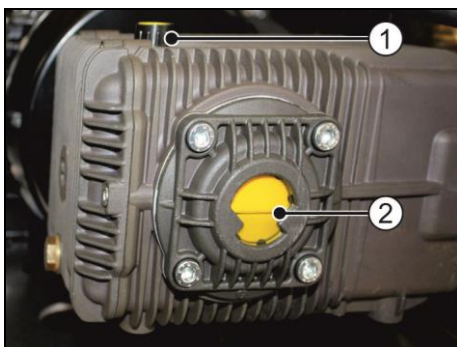


- Place the collection container underneath the oil drain screw (2).
- Remove the oil inlet screw (1).
- Remove the oil drain screw (2).

- Collect the draining oil with the collection container until no more oil drains off.
- Dispose of the waste oil in compliance with applicable regulations.
- Screw the oil drain screw back in.



Use a hopper to fill in the new oil.



- Fill in approx. 0.7 litre new oil SAE 10W-60 at the oil inlet until the oil level at the inspection glass (2) is at level of the marking arrows (see chapter „3.2.2.8 Inspection Glass“).
- Screw the oil inlet screw (1) back in.

- Install the cover after completion of maintenance work.

2. High-pressure hose

- Carry out the preparatory measures (see chapter „ii Preparatory Measures“).
- Replace the high-pressure hose at the latest after 6 years. Decisive in this respect is the production date of the hose (imprint on the hose).
- Install the cover after completion of maintenance work, if applicable.

3. Burner

Descale heating coil

- Check heating coil for calcination.



To check the pipe resistance remove the lance from the gun and operate the trigger so that a full water jet emerges from the gun. The heating coil requires descaling in case the manometer indicates a pressure higher than 25 bar.



CAUTION

Risk of injury caused by caustic substances!

There is a risk of injury to eyes and skin caused by descaling agents.

- Wear protective gloves and face protection.
- Prevent the descaling agent to come into contact with eyes, skin and clothing.

- Descal lance separately.
- Place the detergent hose into the tank with the descaling solution (see chapter „7.b.iii Use of Detergents“).
- Set the dispensing valve to maximum concentration.
- Point gun into a separate container and operate the gun trigger.



Wait until the descaling liquid emerges from the gun which is recognisable by the white colour.

Allow the descaling agent to react for 15 to 20 minutes.

- Remove the detergent hose.
- Continue to point the gun into the separate container and operate the gun trigger once again.
- Rinse with clear water for approx. 2 minutes.



Check the pipe resistance once again. In case the manometer still indicates a pressure higher than 25 bar, repeat the descaling process.

Maintenance of burner and ignition system

- Desulphurise and clear heating coil of soot.
- Clean oil nozzle, oil filter, magnetic valve, strainer, ignition transformer, ignition cable and ignition electrodes.
- Readjust ignition electrodes, if applicable.
- Replace defective parts.
- Check fuel filter for soiling.
- Clean fuel filter, if necessary.

10. Decommissioning and Disassembly



DANGER

Mortal danger caused by electric shock!

Touching live components may lead to mortal electric shock. Always keep electrical components closed.

- Disconnect from power supply before maintenance work and inspections on the machine.
- Switch the machine off (see chapter „**Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.**“).
- Secure the machine against unexpected restart e.g. by blocking the main switch by means of a lock.

10.1 Disposal



- Dispose of the machine in an environmentally friendly manner and separated by material.
- Dispose of oil in compliance with applicable regulations or contact Meier-Brakenberg GmbH & Co. KG, if necessary.

11 Annex

b. EU Declaration of Conformity

You will find the EU Declaration of Conformity for the machine on the following pages.

EU Declaration of Conformity

(Original)

We, company

Meier-Brakenberg GmbH & Co. KG
Brakenberg 29
32699 Extertal
Germany

hereby declare that the machine

MBH 1320 HOT

For cleaning surfaces inside stable or of agricultural machinery by means of water under pressure complies with the essential safety requirements included in the machine directive 2006/42/EG.

Other directives and applied standards:

- EN ISO 12100
- Low Voltage Directive 2006/95/EG

Extertal, 07.04.2016

(Managing Director)