Ideen aus der Praxis!

MEIER-BRAKENBERG

Einweichanlagen
Hochdruckreiniger
Tierwaagen

OPERATION MANUAL HIGH-PRESSURE CLEANERS

MBH600

MBH900

MBH1020/1260/1500

MBH1800/2400/6000

MBHST600/900/1020/1260

MBHST1500/1800/2400/3000

Meier-Brakenberg GmbH & Co. KG

Brakenberg 29

32699 Extertal

Germany

Telephone +49(0)52 62/993 99-0
Telefax +49(0)52 62/993 99-3
E-mail info@meier-brakenberg.de
Internet www.meier-brakenberg.de

Keep for future use!

Machine/device:	MBH / MBHST series
Year of Manufacture:	as of 2008

Operation manual for the MBH MBHST series

- Mobile: Types:
  - MBH 600
  - MBH 900
  - MBH 1020/200 Special
  - MBH 1260K / 1260H
  - MBH 1500K / 1500H
  - MBH 1800 / 1800H
  - MBH 2400 / 2400H
  - MBH 6000
- Stationary: Types:
  - MBHST 600
  - MBHST 900
  - MBHST 1020/200 Special
  - MBHST 1260 / 1260H
  - MBHST 1500 / 1500H
  - MBHST 1800 / 1800H
  - MBHST 2400 / 2400H
  - MBHST 3000

Version 01.1

Issue: November 2022

Contents

1 Introduction

This operation manual provides you with all information needed for the smooth operation of the MBH MBHST series (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. 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 medium 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.

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 improperly installed 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 damage due to leaking 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/ the operator 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 the cleaning of stables and machinery in agriculture.

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,
- transport or fill in 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 at people or animals,
- perform work from unsafe footing, steps, or ladders.

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,
- avoiding contact with chemicals,
- checking the water pipes and connections for leaks and damage for every application.

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 operating company of 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 (Produktsicherheitsgesetz ProdSG). Changes, modifications, and additions to the machine are subject to 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 for cleaning clothing or shoes.
- Do not use the machine for cleaning animals or persons.

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 have 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 by signature that they have understood the safety advice 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 Instruction and Training

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

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

2.3 General Safety Information

- The machine must only be operated or maintained after having read this operation manual.
- Only use this machine as intended (see section „2.1 Intended Use“).
- Do not start the machine if there are any other persons in the danger zone (e.g. driveways).
- 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 „3.4 Technical Data“).
- Keep all safety advice and warnings at the machine in a legible condition and replace them, if necessary.
- Operation and work on the machine must only be carried out by qualified or trained personnel (see section “2.2 Personnel Requirements”).
- 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 sure to lift properly and rise from the knees.

2.4 Safety Measures for Environmental Protection

Observe the regulations for waste prevention and proper waste recycling or disposal during all work.

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

Danger to life due to electric current

This symbol warns of the danger to life due to electric current.

There is an immediate danger to life in the event of contact with live parts.

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 lose 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 machines of the MBH series (mobile).
- 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 the control panel closed.
- Damaged casings and damaged lines must be immediately repaired or replaced before starting the machine.

2.5.3 Dangers caused by Water Pressure

Liquids escaping under high pressure can cause serious injuries!

- Only qualified personnel with special knowledge and experience may work on the high-pressure components.
- Before working on the high-pressure components, switch off the machine and secure it against being switched on again.
- Depressurize system sections and pressure lines to be opened before starting repair work.
- Check all high-pressure hoses and screw connections regularly for leaks and visible damage. Have any damage repaired immediately.

- Replace high-pressure hoses at appropriate intervals, even if no safety-relevant defects are apparent.
- Do not pull the high-pressure hose with loops or kinks.
- Do not pull the high-pressure hose over sharp edges.
- Do not drive over the high-pressure hose.
- Do not point the water jet at electrical equipment such as sockets.

2.5.4 Dangers caused by Hot Surfaces

Contact with hot components can cause burns.

- Always wear protective clothing and gloves when working near hot components.
- Allow the components to cool down to ambient temperature before carrying out maintenance or repair work.

2.5.5 Dangers caused by Noise

Continuous exposure to the sound pressure level occurring in the work area can lead to permanent hearing damage.

- As of a sound pressure level of 80 dB(A), the operating company must provide hearing protection.
- Hearing protection must be worn as of a sound pressure level of 85 dB(A).

2.5.6 Dangers caused by the Use of Incorrect 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 „0 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:

Protective work clothing with hood

Hooded protective work clothing is close-fitting work clothing with low tear resistance, with tight sleeves and no protruding parts. It is mainly used to protect against being caught by moving machine parts.

Do not wear rings, chains, or other jewelry.

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 against media escaping under high pressure, splashing back dirt, or flying parts.

Hearing protection

Wear hearing protection to protect against hearing damage.

Respiratory protection

Wear respiratory protection to protect against aerosols if biological agents are present in form of aerosols.

The personal protective equipment must be provided by the operating company and must comply with the applicable requirements.

In addition, the national regulations and, if applicable, 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 protection 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

- Trigger an emergency stop - if available.
- 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.
- Clear access routes for rescue vehicles. Where appropriate, second someone to show rescuers the way.
- Extinguish burning oil/grease with a CO_2-extinguisher or a powder fire extinguisher.
- Extinguish fire inside the electric control with a CO_2-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 advice 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 „2.1 Intended Use").
- 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:

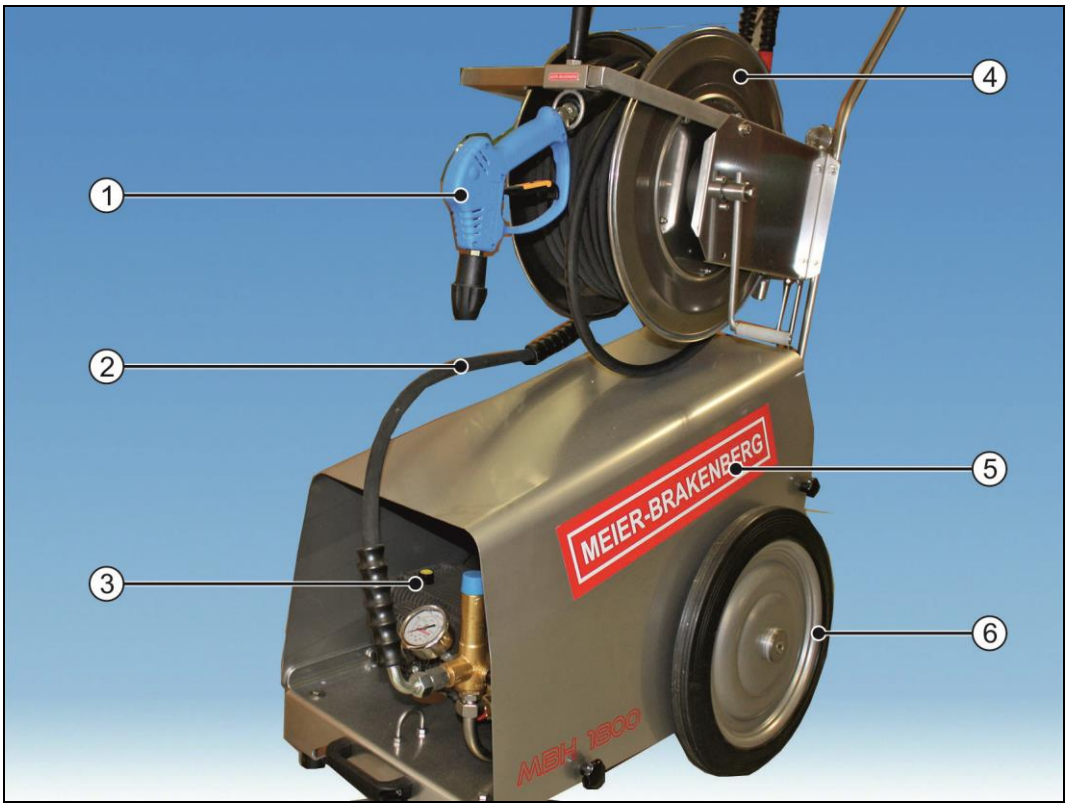
- The operating company must ensure the observance of the maintenance intervals, as specified in this operation manual.
- The operating company must ensure that all safety equipment is regularly checked for functionality and completeness.
- The operating company must regularly check that all safety advice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

3 Description of the Machine

3.1 Overviews MBH (mobile)

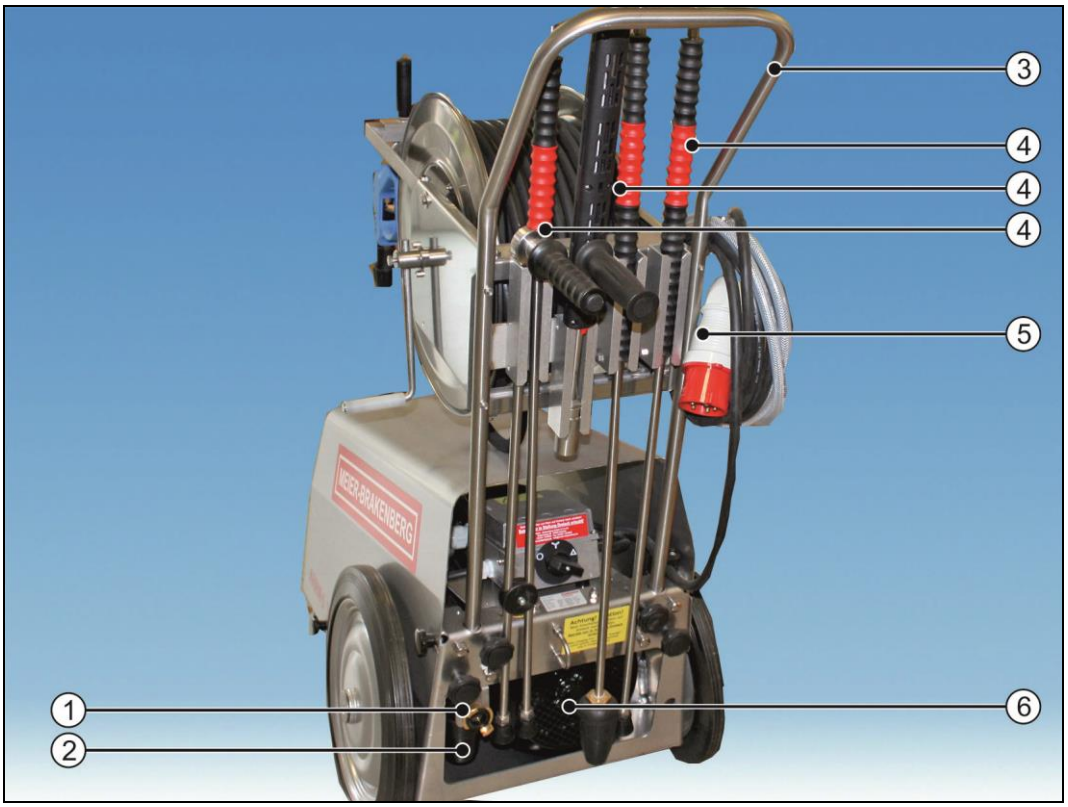
3.1.1 Overviews Functional Components

Front/ lateral view



1 Gun
2 High-pressure hose
3 Pump
4 Hose drum (optional)
5 Cover
6 Wheel

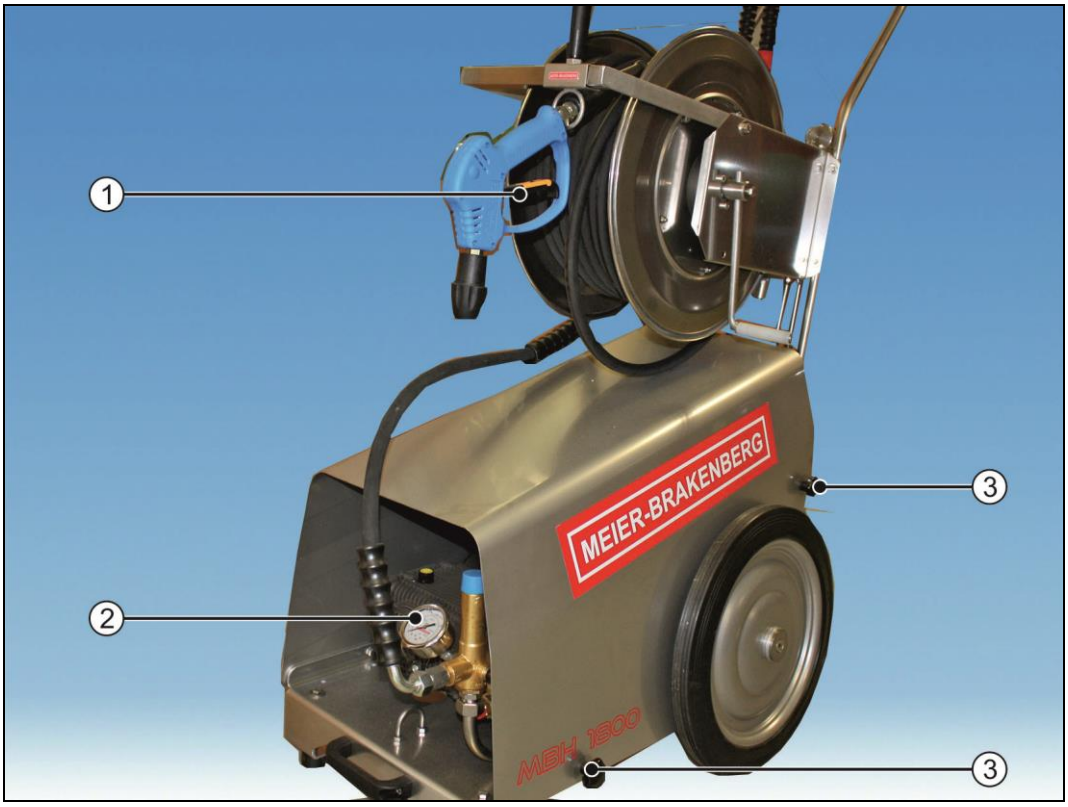
Rear/ lateral view



1 Water connection
2 Filter
3 Handle
4 Lance
5 Connection line CEE
6 Motor

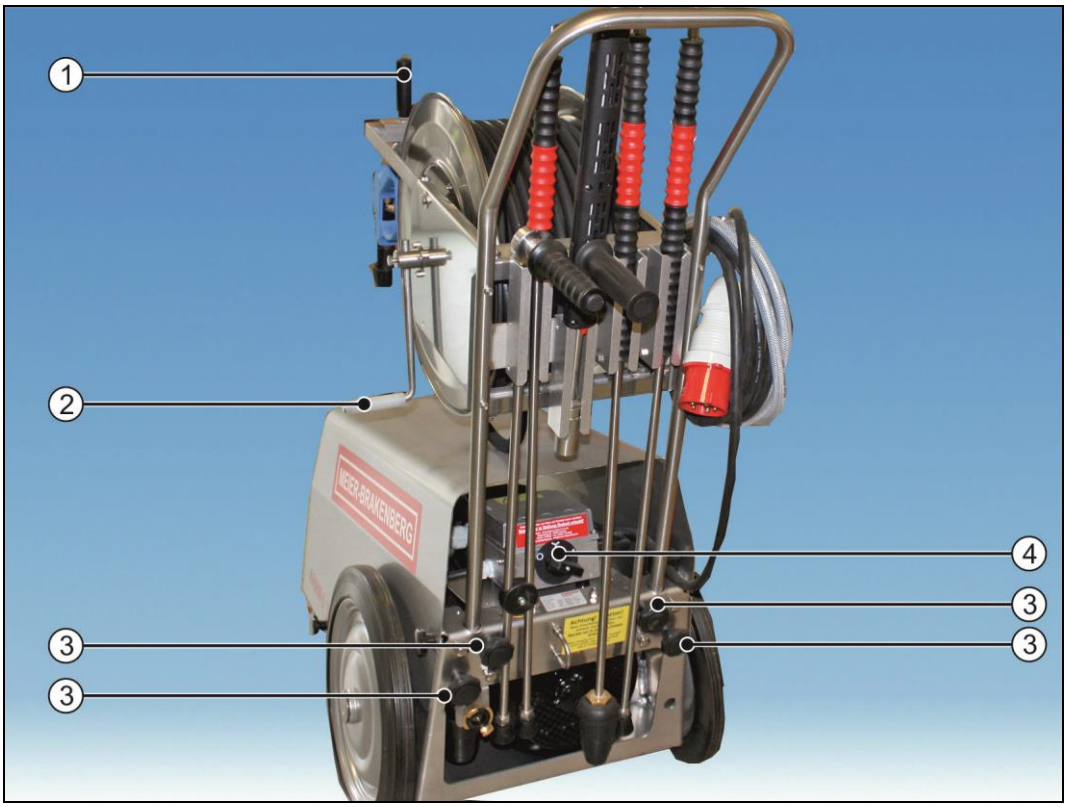
3.1.2 Overviews Control Elements

Front/ lateral view



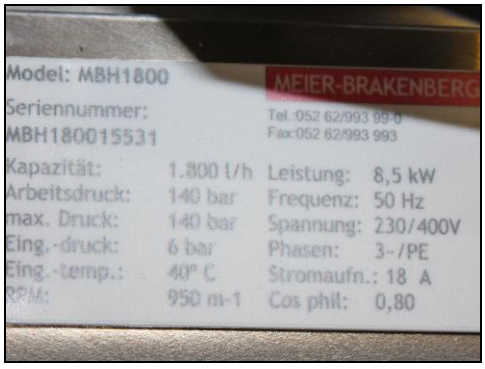
1 Gun lever
2 Pressure reading
3 Knurled screw ‚Cover'

Rear/ lateral view



1 Hose guide (optional)
2 Hand crank (optional)
3 Knurled screw ‚Handle'
4 Star-delta switch

3.1.3 Type Plate

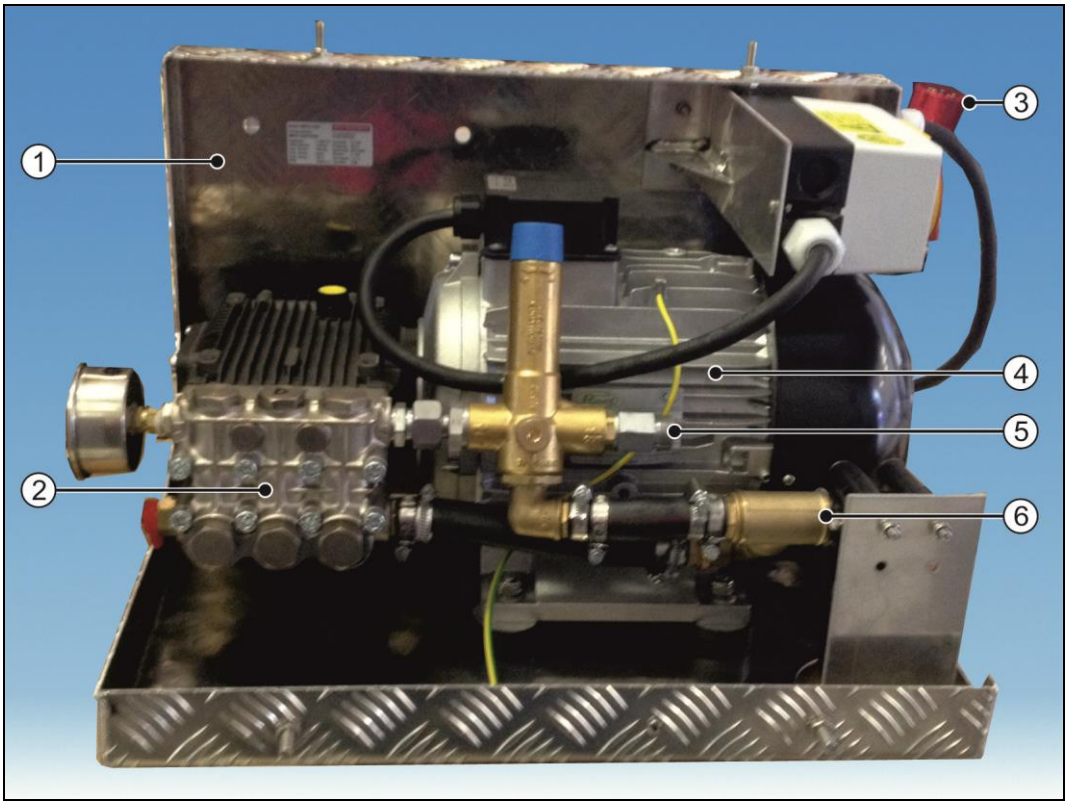


The type plate is located below the star-delta switch.

3.2 Overview MBHST (stationary)

3.2.1 Overview Functional Components

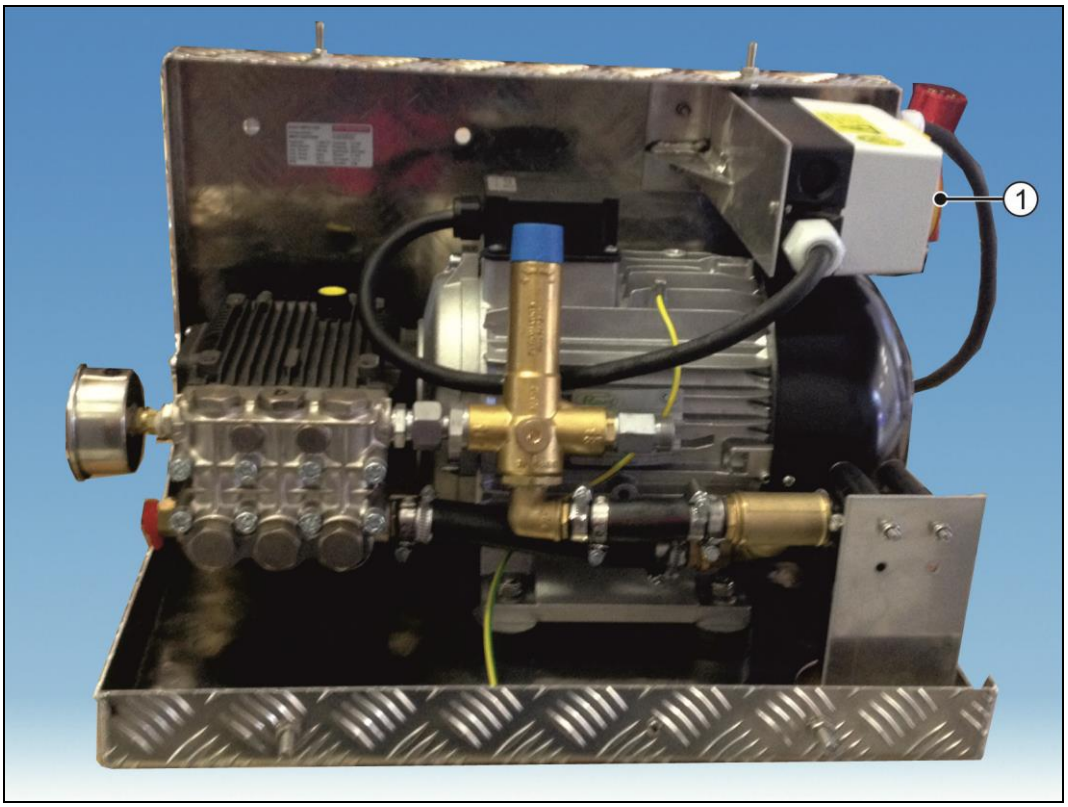
View without cover



1 Console
2 Pump
3 Connection line CEE
4 Motor
5 High-pressure connection
6 Water connection

3.2.2 Overview Control Elements

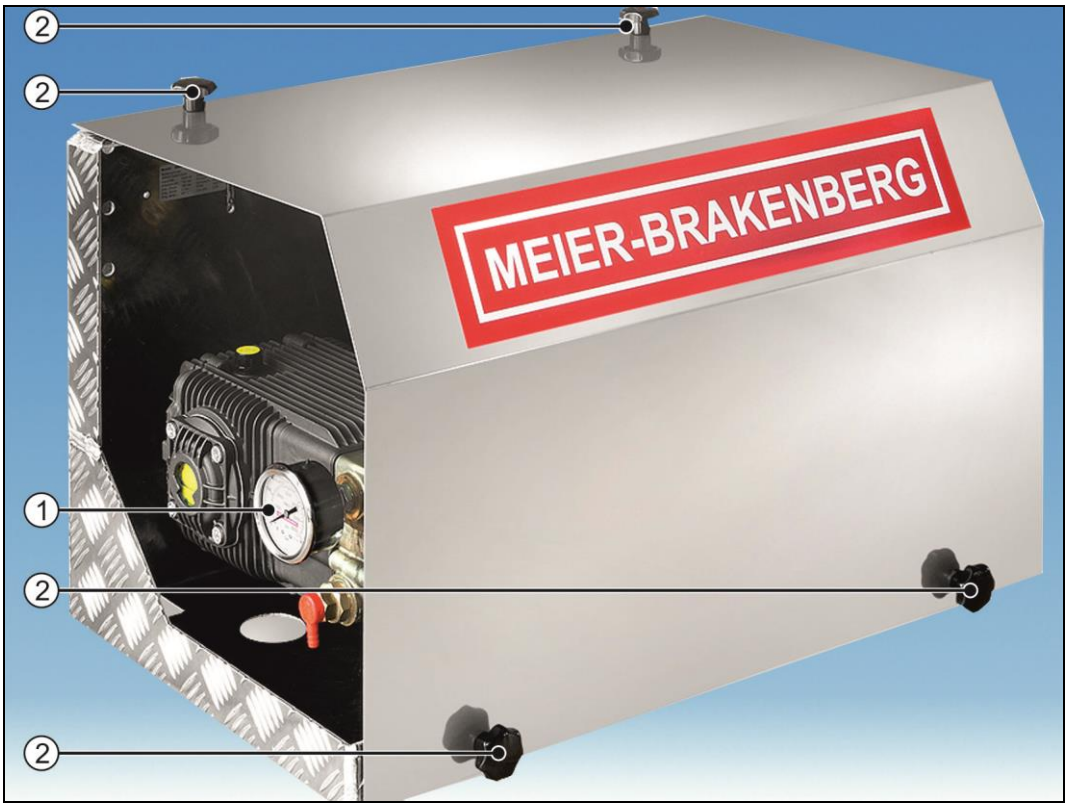
View without cover



1 Star-delta or ON-/OFF switch

3.2.3 Overview Control Elements

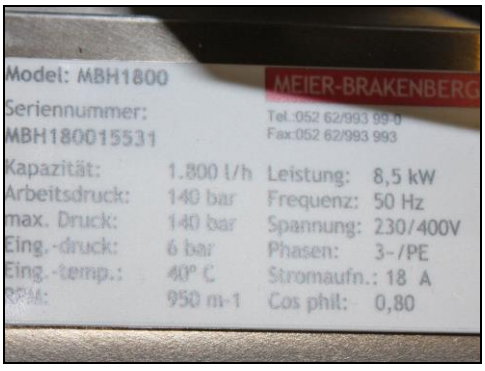
With cover



1 Pressure reading

2 Knurled screws ‚Cover'

3.2.4 Type Plate



The type plate is located on the console.

3.3 Functional Description

The machine is designed for commercial cleaning of stables and agricultural machinery.

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

Machines of the MBH series (mobile) additionally consist of a high-pressure hose, a gun, a cover, wheels, one or more lances, and a handle.

Machines of the MBHST series (stationary) additionally consist of a console.

Via the water connection, the machine is supplied with a water pressure of 2 to 10 bar and a water temperature of max. 40 °C (optionally 80 °C). The motor is started up via the star-delta switch (or the ON/OFF switch) and drives the pump. The pump generates a water pressure of 140 bar. The high-pressure hose, the gun, and a lance are used to clean surfaces in stables or of agricultural machines.

Machines of the MBH series (mobile) are moved on wheels to the place of use by means of a handle. Machines of the MBHST series are exemplary located in a technical room from where high-pressure lines need to be laid on site to the place of use.

3.3.1 Safety Equipment

NOTE

> Changes to the setting on the safety device are prohibited!

The machine is protected against impermissible pressure increases by a pressure control valve. In the event of a pressure increase, the system switches to circulation mode.

3.3.2 Description Control Elements

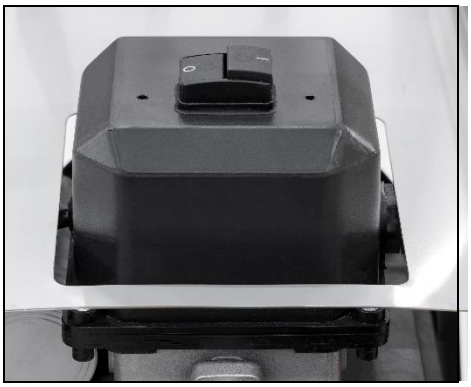
3.3.2.1 Star-delta Switch

A star-delta circuit has the function of limiting the starting current by first connecting the motor windings to 230 V (star) and then to 400 V (delta).

Since the motor is at rated speed immediately after switching on, switching from O (OFF) via Y (STAR) to Δ (DREIECK) must take place without delay.

The star-delta switch (1) is used to switch the machine on and off.

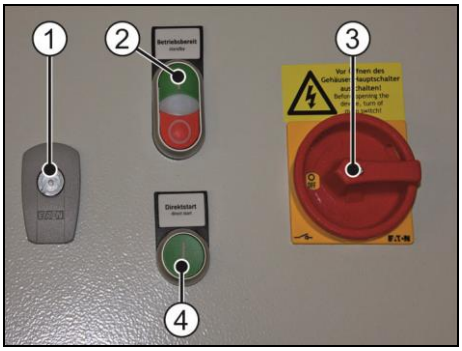
3.3.2.2 Alternative Switches



Switching on/ off

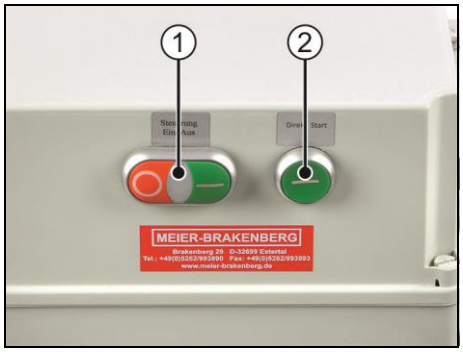
- Press the key with the dash to switch on.
- Press the key with the circle to switch off.

3.3.2.3 Automatic Starting (optional)



The automatic starting (stationary) is used to switch the machine on and off.

1: Door lock
2: Selection READY FOR OPERATION ON/ OFF
3: Main switch
4: Key DIRECT START



The automatic starting (mobile) is used to switch the machine on and off.

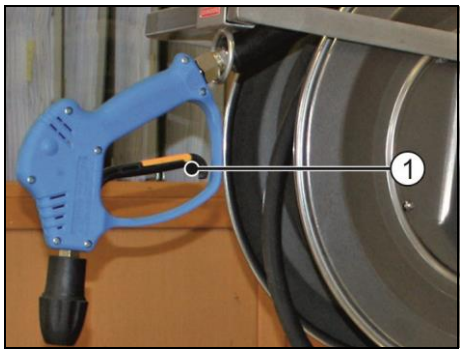
1: Selection READY FOR OPERATION ON/ OFF

2: Key DIRECT START

3.3.2.4 Pressure Indicator

The pressure indicator (see figure) is used to read the water pressure on the high-pressure side of the pump.

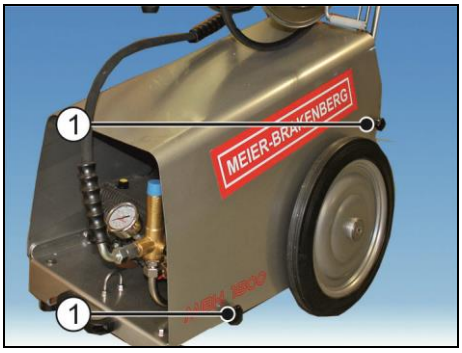
3.3.2.5 Gun lever (MBH series)



The gun lever (1) is used to trigger the water jet for cleaning.

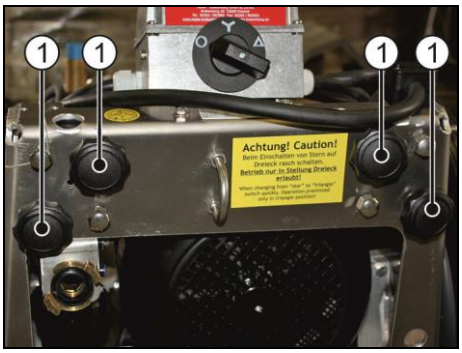
3.3.2.6 Knurled Screws ‚Cover' (MBH series)

The illustration shows the knurled screws 'Cover' of the left side. On the right side are two more knurled screws 'Cover' mirror-inverted.



The knurled screws ‚Cover' (1) are used to remove or fasten the cover.

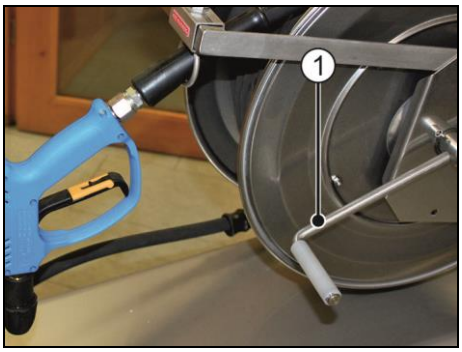
3.3.2.7 Knurled Screws ‚Handle' (MBH series)



The knurled screws ‚Handle' (1) are used to remove or fasten the handle.

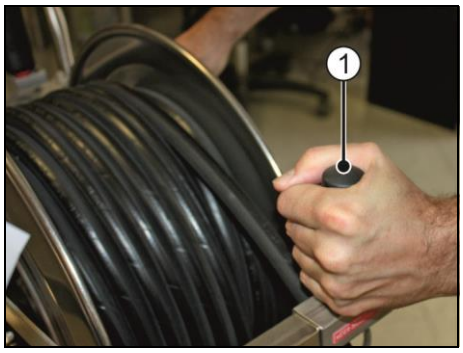
The handle can be removed during transportation of the machine.

3.3.2.8 Hand Crank (MBH series optional)



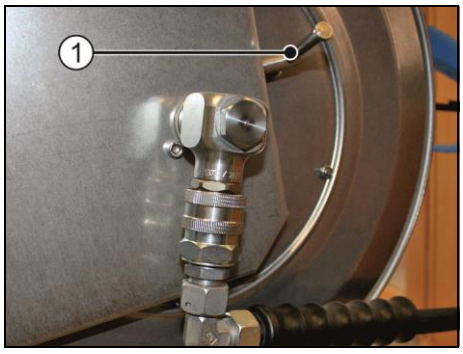
The hand crank is used to reel the high-pressure hose onto the hose drum.

3.3.2.9 Hose Guide (MBH series optional)



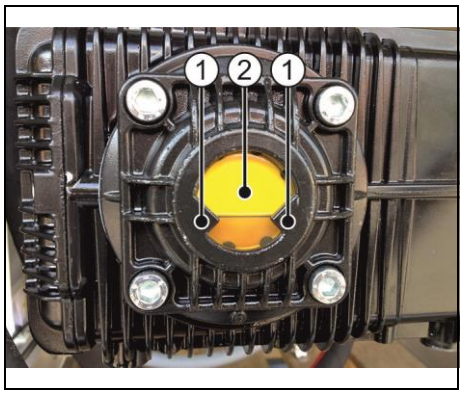
The hose guide (1) is used to guide the high-pressure hose when it is rolled onto the hose drum.

3.3.2.10 Stop Lever (MBH series optional)



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

3.3.2.11 Sight Glass and Dipstick



The sight glass (2) is used to check the oil level of the pump.

The oil level in the sight glass must be at the level of the marking arrows (1).

In the event of an oil change, the oil level must be checked on the **dipstick** (on top of the pump), as the oil only slowly reaches or reflects the effective level in the sight glass due to the pump design.!

3.4 Technical Data

3.4.1 General Information

Oil type pump	Industrial high-pressure pump oil (Art.-No.: WB0011-03)
Water temperature supply line max.	40 °C
Water temperature supply line (optional)	80 °C

The machine must be suitable for water temperatures between 40 and 80 °C (seals) and must be expressly ordered as such.

Meier-Brakenberg High-pressure Cleaner. Article WB0011-03

3.4.2 MBH 600

Water capacity	600 l/h
Operating pressure	120 bar
Output electric motor	2,2 kW
Speed electric motor	1400 rpm
Weight	40 kg
Dimensions	
Length	800 mm
Width	400 mm
Height	970 mm
High-pressure hose	10 m

3.4.3 MBH 900

Water capacity	900 l/h
Operating pressure	140 bar
Output electric motor	4,0 kW
Speed electric motor	1450 rpm
Weight	55 kg
Dimensions	
Length	960 mm
Width	550 mm
Height	1260 mm
High-pressure hose	10 m

3.4.4 MBH 1260

Water capacity	1260	l/h
Operating pressure	140	bar
Output electric motor	5,5	kW
Speed electric motor	1400	rpm
Weight	68	kg
Dimensions		
Length	960	mm
Width	550	mm
Height	1260	mm
High-pressure hose	10	m

Optional on frame of MBH 1800

Water capacity	1260	l/h
Operating pressure	140	bar
Output electric motor	5,5	kW
Speed electric motor	1450	rpm
Weight	73	kg
Dimensions		
Length	1090	mm
Width	590	mm
Height	1260	mm
High-pressure hose	10	m

3.4.5 MBH 1500

Water capacity	1500	l/h
Operating pressure	140	bar
Output electric motor	6,2	kW
Speed electric motor	1450	rpm
Weight	110	kg
Dimensions		
Length	1090	mm
Width	590	mm
Height	1260	mm
High-pressure hose	10	m

3.4.6 MBH 1800

Water capacity	1800	l/h
Operating pressure	140	bar
Output electric motor	8,5	kW
Speed electric motor	960	rpm
Weight	119	kg
Dimensions		
Length	1090	mm
Width	590	mm
Height	1260	mm
High-pressure hose	20	m

3.4.7 MBH 2400

Water capacity	2400	l/h
Operating pressure	140	bar
Output electric motor	11	kW
Speed electric motor	1450	rpm
Weight	121	kg
Dimensions		
Length	1090	mm
Width	590	mm
Height	1260	mm
High-pressure hose	20	m

3.4.1 MBH 1020/200 Special

Water capacity	1020	l/h
Operating pressure	200	bar
Output electric motor	8,5	kW
Speed electric motor	960	rpm
Weight	119	kg
Dimensions		
Length	1090	mm
Width	590	mm
Height	1260	mm
High-pressure hose	20	m

3.4.2 MBHST 600

Water capacity	600	l/h
Operating pressure	120	bar
Output electric motor	2,2	kW
Speed electric motor	1450	rpm
Weight	53	kg
Dimensions		
Length	570	mm
Width	390	mm
Height	400	mm

3.4.3 MBHST 900

Water capacity	900	l/h
Operating pressure	140	bar
Output electric motor	4,0	kW
Speed electric motor	1450	rpm
Weight	53	kg
Dimensions		
Length	570	mm
Width	390	mm
Height	400	mm

3.4.4 MBHST 1260

Water capacity	1260	l/h
Operating pressure	140	bar
Output electric motor	5,5	kW
Speed electric motor	1450	rpm
Weight	53	kg
Dimensions		
Length	570	mm
Width	390	mm
Height	400	mm

3.4.5 MBHST 1500

Water capacity	1500	l/h
Operating pressure	120	bar
Output electric motor	6,2	kW
Speed electric motor	1450	rpm
Weight	94	kg
Dimensions		
Length	720	mm
Width	430	mm
Height	440	mm

3.4.6 MBHST 1800

Water capacity	1800	l/h
Operating pressure	140	bar
Output electric motor	8,5	kW
Speed electric motor	960	rpm
Weight	94	kg
Dimensions		
Length	720	mm
Width	430	mm
Height	440	mm

3.4.7 MBHST 2400

Water capacity	2400	l/h
Operating pressure	140	bar
Output electric motor	11	kW
Speed electric motor	1450	rpm
Weight	97	kg
Dimensions		
Length	7200	mm
Width	430	mm
Height	440	mm

3.4.1 MBHST 1020/200 Special

Water capacity	1020	l/h
Operating pressure	200	bar
Output electric motor	8,5	kW
Speed electric motor	960	rpm
Weight	94	kg
Dimensions		
Length	720	mm
Width	430	mm
Height	440	mm

3.4.2 Airborne Noise Emissions

Sound power level MBH-MBHST series		
Idle mode	92	dB(A)
With flat jet lance	104	dB(A)
With dirt blaster lance (optional)	113	dB(A)

3.4.3 Ambient Conditions

NOTE

After use, store the high-pressure hose free of stress. The storage room should be cool, dry, low-dust and moderately ventilated.

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

3.4.4 Equipment

Design Options

Machines MBHST 1260, MBHST 1500, MBHST 1800 and MBHST 2400 can be supplied with

- Star-delta switch or
- Start-stop automatic

The machines are supplied with seals suitable for water temperatures up to 40 °C. Optionally, the machines can be supplied with seals suitable for water temperatures up to 80 °C.

Machine MBH1260 and MBH1500 can optionally be supplied with the base frame of MBH1800.

Supplied Standard Accessories

Machines of the MBH series are supplied with

- Flat jet lance,
- 10 m or 20 m high-pressure hose, and
- Gun.

State on Delivery

The machine with accessories is delivered on a Euro pallet. The machine is fixed on the Euro pallet with foil and tension straps.

Special Accessories

Optionally supply of:

- Various lances such as foam lance, dirt blaster lance and twin 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 Check 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 Bundesverband Holzmittel, Paletten, Exportverpackung e.V. (federal association of wooden packing materials, pallets, and export packaging) and the Verein Deutscher Maschinenbauanstalten (association of German engineering companies).

4.3 Information on Risks during Transportation

CAUTION

During the transportation of the machine the following special risks may occur:

- Using other load handling devices than specified herein may lead to serious personal injury.
- Protruding edges may lead to severe bruising or lacerations.
- Staying under suspended loads can lead to significant injuries.

- Please also ready chapter „2 Safety“.
- 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 consider the weight of the heaviest component (weights see section „3.4 Technical Data“). Suitable load handling devices are, for example, industrial trucks or lift trucks..
- 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.
- Lift the machine with two people from the europallet.
- Make sure to rise from your knees as you lift the load.

4.4 Temporary Storage

In case the machine will not be installed 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

After use, store the high-pressure hose free of stress. The storage room should be cool, dry, low-dust, and moderately ventilated.

The intermediate storage of high-pressure hoses should not exceed the duration of 2 years.

Please see section „3.4.15 Ambient Conditions“ to view the recommended storage conditions of the machine.

No liability accepted for damages caused by improper storage!!

5 Assembly

5.1 Information on Risks during Assembly (MBHST series)

CAUTION

Risk of tripping due to improperly laid power supply lines.

There is a risk of injury from tripping and falling due to tripping hazards.

- Always lay cables in the supply shaft so that they are free of tripping hazards and barriers.
- Mark unavoidable tripping hazards by means of color.

ATTENTION

Risk of injury to the musculoskeletal system

Incorrect lifting and dropping poses a risk of injury to the musculoskeletal system.

- Wear safety shoes.
- Lift heavy components in pairs.

Mounting Surface Requirements

CAUTION

Loss of stability

Loss of stability of the fixture can result in significant risk of injury.

- The mounting surface (wall) must have sufficient load-bearing capacity.
- Select suitable mounting material.

5.2 Machine Set-up (MBHST series)

- Mount the console of the machine on a load-bearing wall using suitable mounting material.
- Connect the water supply to the water connection (see section „3.2.1 Overview Functional Components“).
- Connect the high-pressure line to the high-pressure connection (see section „3.2.1 Overview Functional Components“).

NOTE

A fuse protects a circuit from overload.

– Always use a fuse with the specified tripping current rating.

- Connect the connection cable CEE to a CEE power outlet (see section „3.2.1 Overview Functional Components“).

6 Commissioning

High-pressure cleaners of Meier-Brakenberg GmbH & Co. KG are commissioned by a competent person in accordance with national regulations and tested for proper functioning before leaving the factory.

Further general work for initial commissioning is not required.

NOTE

Change the oil of the pump for the first time after 50 operating hours (see section „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 perfect condition.

7 Operation

7.1 Safety Measures in Normal Operation

- 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 leaks and correct connection.
- Check the cover for tight mounting of the knurled screws ‚Cover'.

7.2 Preparatory Measures (MBH series)

- Connect the water supply with a Geka connector to the water connection and open the water tap (see section „3.1.1 Overviews Functional Components").

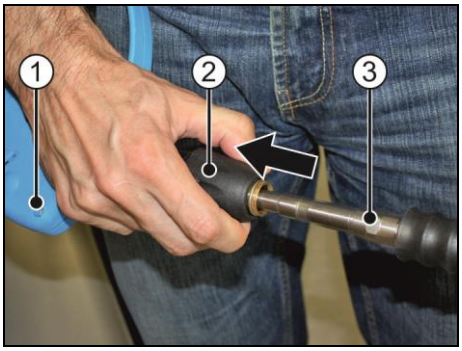
NOTE

A fuse protects a circuit from overload.

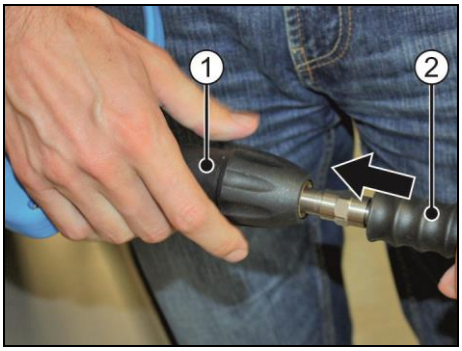
- Always use a fuse with the specified tripping current rating.

- Connect the connection line CEE to a CEE power outlet (see section „3.1.1 Overviews Functional Components").
- If necessary, connect the quick-release fastener of the high-pressure hose to the high-pressure connection (see section „3.1.1 Overviews Functional Components").
- Operate the gun lever until water flows out without air.

7.2.1 Change of Lances



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

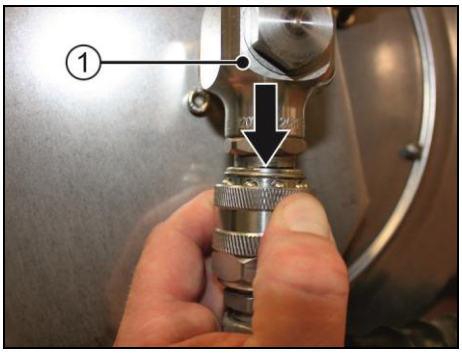


- Push the new lance (2) into the quick-release fastener (1) (see arrow).
- Check the snap-in function.

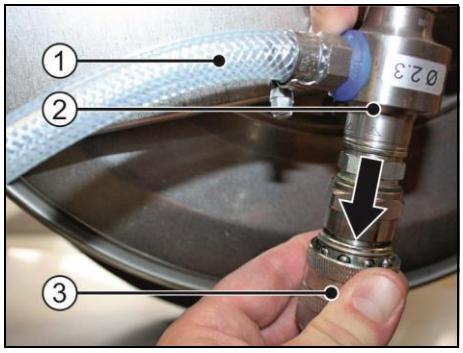
7.2.2 Use of Cleaning Agents

You can use cleaning agent in a container by means of the cleaning hose.

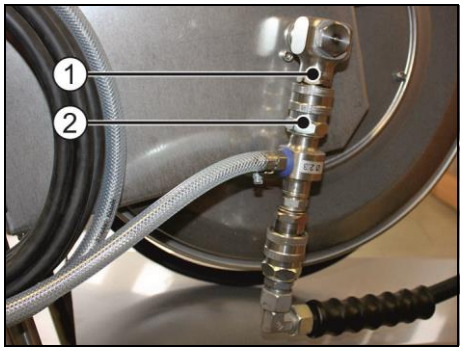
The use of cleaning agents is described using the example of the MBH series with optional hose reel. For the other machines, insert the intermediate piece directly between the high-pressure connection and the high-pressure hose (see chapter „3 Description of the Machine“).



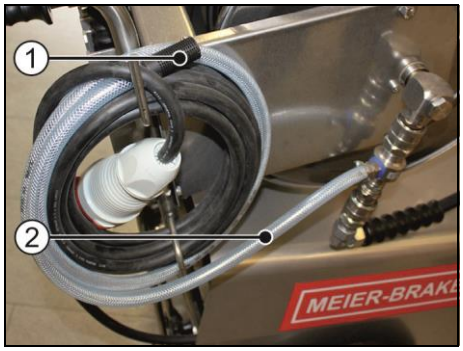
- Disconnect the connection at the high-pressure connection (1) by pushing back the quick-release fastener (see arrow).



- Connect the intermediate piece (2) of the detergent hose (1) to the quick-release fastener (3) of the high-pressure hose (see arrow).



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



- Insert the detergent hose (2) into a container with detergent so far that the strainer (1) touches the bottom of the container.

After completing the work, proceed in reverse order to remove the detergent hose.

7.3 Machine Switch on/ off

7.3.1 Star-delta Switch

Some machines are supplied with a simple on/ off switch.

The star-delta switch is demonstrated by example of the MBH series (mobile).

A star-delta circuit has the function of limiting the starting current at high powers by first connecting the motor windings to 230 V (star) and then to 400 V (delta).

Since the motor is at rated speed immediately after switching on, switching from O (OFF) via Y (STARS) to Δ (DELTA) must be performed without delay.

The machine may only be operated in position Δ (DELTA).

Switching on

– Switch the star-delta switch without delay O (OFF) via Y (STAR) to Δ (DELTA) (see arrow).

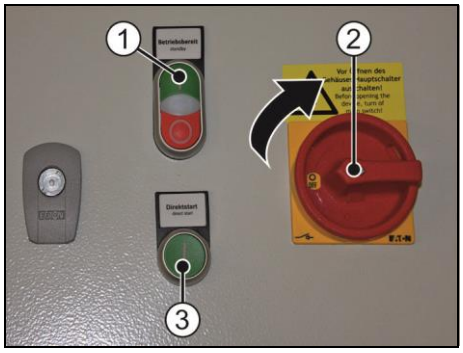
Switching off

– Switch the star-delta switch from Δ (DELTA) via Y (STAR) to O (OFF) (see arrow) without delay.

7.3.2 Automatic Starting (optional)

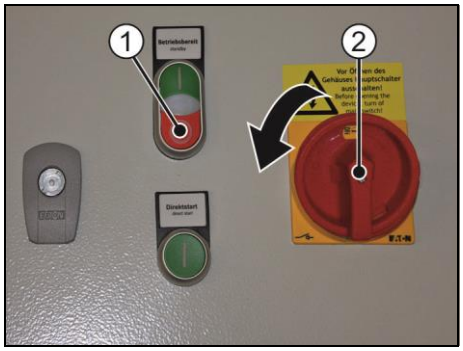
Optionally, the machine can be supplied with automatic switch-on instead of the star-delta switch.

The automatic starting is demonstrated by the example of the MBHST series (stationary).



Switching on

- Switch the main switch (2) to the I/ON position.
- Press the READY FOR OPERATION I button (1) of the READY FOR OPERATION ON/OFF selection.
- Press the DIRECT START button (3).



Switching off

- Press the READY O button (1) of the READY ON/OFF selection.
- Switch the main switch (2) to the O/OFF position.

7.4 Cleaning of Surfaces by the example of the MBH series

CAUTION

Fire, explosion, and poisoning hazard!

When using liquids containing solvents, acetone or acid, the spray mist is highly flammable, explosive, and toxic.

- Never use liquids containing solvents, acetone, or acids.
- Observe the cleaning agent manufacturer's instructions.

CAUTION

Respiratory disease!

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

- Do not clean surfaces containing asbestos.
- Do not clean surfaces that contain substances hazardous to health.
- Use respiratory protection if aerosols are generated.

ATTENTION

Risk of unexpected startup!

After power or pressure recovery, unexpected discharge of water under high pressure may occur.

- Never lock the gun lever.
- Never point the water jet at people.

ATTENTION

Danger due to recoil and torque!

The outgoing high-pressure jet generates a recoil and, with the lance angled, a torque.

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

NOTE

Observe the relevant safety regulations at filling stations or when cleaning agricultural machinery.

Only clean surfaces on which there are no live parts that are not splash-proof.

When using cleaning agents, observe the safety data sheet of the cleaning agent manufacturer.

Only clean vehicle tires from a distance of more than 40 cm.

When cleaning vehicles, observe the regulations for the protection of groundwater.

Do not use cleaning agents containing solvents.

Only use approved, non-aggressive cleaning agents.

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

NOTE

Lack of water can destroy the pump.

The pressure must build up immediately, otherwise there is a malfunction (see chapter „8 Malfunction“).

- Clean the surfaces to be cleaned by swiveling the lance evenly.

7.5 Completion of Cleaning Work

For intermediate storage of the machine after use, observe section „4.4 Temporary Storage“.

ATTENTION

Danger of burns!

There is a danger of burns due to the heating of the high-pressure hose, the gun, and the lance.

– After use, allow the high-pressure hoses to cool down or operate the machine briefly in cold water mode.

- Switch off the machine.
- Relieve the high-pressure hose and pump by actuating the gun lever.
- Lock the gun lever.
- If necessary, turn off the water tap of the supply line.

When using the machine with hose drum:

- Reel up the high-pressure hose using the hand crank (see section „3.3.2.8 Hand Crank (MBH series optional)“).
- Doing so, guide the high-pressure hose by means of the hose guide (see section „3.3.2.9 Hose Guide (MBH series optional)“).
- Lock the hose drum after reeling up the high-pressure hose by means of the stop lever (see section „3.3.2.10 Stop Lever (MBH series optional)“).

8 Malfunction

8.1 Malfunctions and Corrective Measures

Malfunction	Cause	Corrective Measure
Pressure does not build up	Clogged filter	Clean filter (see section „9.2.3 Maintenance – daily“)
	Air inside the pump	Operate gun lever when the machine is in off mode until water flows out without air
	Closed water tap	Open water tap
Motor does not work	Defective star-delta switch or automatic starting	Contact the customer service
	Fuse of CEE power outlet has tripped	Replace fuse
	Undervoltage release has tripped	Switch on undervoltage release

9 Maintenance

DANGER

There is a risk of electric shock when touching live parts.

- Always keep electrical components closed.
- - Work on the electrical equipment may only be carried out by a qualified electrician who has been specially trained to work on electrical equipment and can recognize and avoid hazards.

Observe five safety rules:

1. Disconnect.
2. Secure against restart.
3. Determine absence of voltage.
4. Ground and short-circuit.
5. Cover or isolate live parts.

9.1 Safety Measures during Maintenance

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

Observe the following points when carrying out maintenance work:

- Switch off the central power supply via the main switch. If possible, secure the main switch with a lock. Attach a warning sign to the main switch to prevent it from being switched on again.
- Secure all depressurized machine parts against unintentional restart.
- Make sure that all machine parts have cooled down to ambient temperature.
- Only work on low-mounted components in a squatting position, not in a bent-over position. Carry out work on high-mounted components in an upright, straight body position.
- Replace all faulty machine parts immediately.
- Only use original spare parts.
- Ensure that suitable collection containers are available for all substances hazardous to groundwater (oils or similar).
- Do not clean the machine with high pressure or a water jet.

After completing the maintenance work and before starting the machine, carry out the following activities:

- Recheck all previously loosened screw connections for tightness.
- Check all previously removed protective equipment, covers, tank lids, filters, etc. to make sure they are properly reinstalled.
- Ensure that all tools, materials, and other equipment used have been removed from the work area.
- Clean up the work area. Remove any spills of fluids and similar materials.
- Make sure that all safety devices of the machine are working properly again.

9.2 Inspection and Maintenance

9.2.1 Maintenance Intervals

Maintenance Position	Maintenance Work	See section
Daily		
Entire machine	Visual check	9.2.3.1
Annually	**Annually**	**Annually**
Entire machine	Expertise check	9.2.4.1
Special Maintenance Intervals		
Pump	Oil change after the first 50 operating hours, thereafter every 300 operating hours or every 6 months	9.2.5.1
High-pressure hose	Replacement	9.2.5.2

9.2.2 Preparatory Measures

DANGER

Danger to life due to electric shock!

Live components can cause fatal electric shock if touched.

– Disconnect the machine from the power supply before carrying out maintenance and inspection work on the machine.

- Switch off the machine (see chapter „0 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.

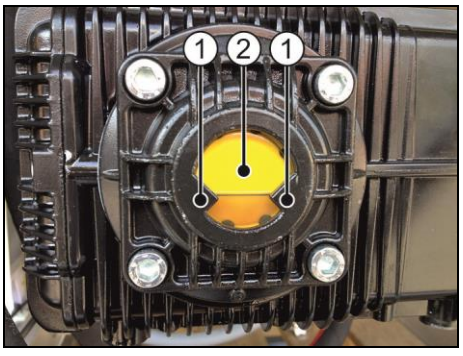
– Check the machine for visible damages; rectify any identified defects immediately or report them to the supervisor – the machine must only be operated in perfect condition.

- Operation“).
- Secure the machine against unexpected restarting, e.g. by locking the main switch with a lock.
- If necessary, remove the cover by loosening the knurled screws ‚Cover ‘ (see section „3.1 Overviews MBH (mobile)“).

9.2.3 Maintenance – daily

9.2.3.1 Visual Check

- Check the machine for
  - Mechanical damages
  - Damaged Seals
  - Sediments, and
  - Unusual noise
- If necessary, clean the machine with a cloth.



- In the first step, check the oil level at the sight glass (2).
  The oil level in the sight glass must be at the level of the marking arrows (1).
- Then always check the oil level at the **dipstick** a second time to rule out any falsification of the measurement due to design-related windings in the pump.

- Check the filter for contamination.
- If necessary, clean the filter by rinsing it. To do so, unscrew the filter cup.
- Check the knurled screws on the machine for tightness.
- Report any damage immediately to the supervisor.

9.2.4 Maintenance – annually

9.2.4.1 Inspection by an Expert

Commercial high-pressure cleaners must be inspected annually by an expert.

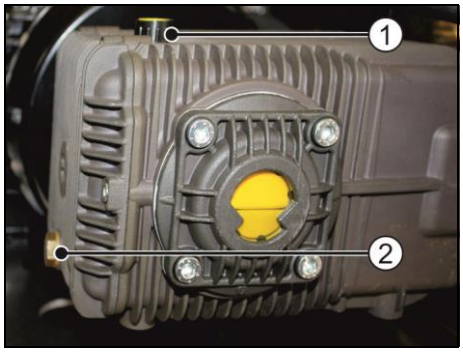
9.2.5 Special Maintenance Intervals

9.2.5.1 Oil Change

- Carry out the preparatory measures (see section „9.2.2 Preparatory Measures“).
- Remove the cover by loosening the knurled screws ‚Cover‘ (see section „3.1 Overviews MBH (mobile)“).

Make sure that the machine is standing on a level surface so that the oil can flow out completely and ensure that you can read the oil level correctly in the sight glass.

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

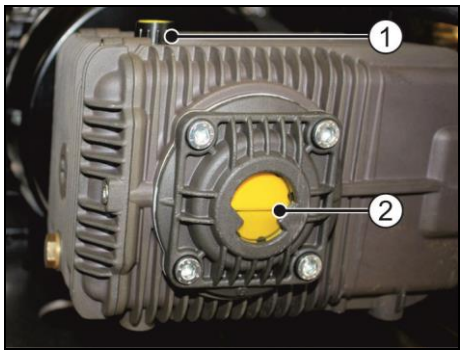


- Place the collection container under the oil drain plug (2).
- Remove the oil inlet screw (1).
- Remove the oil drain screw (2).

- Collect the oil flowing out with the collecting container until no more oil flows out.
- Dispose of the old oil according to applicable regulations.
- Screw in the oil drain plug again.

Use a hopper to fill the new oil.

Use only the industrial high pressure pump oil for Meier-Brakenberg High-pressure Cleaners. Article WB0011-03.



- Fill in approx. 0.7 liter (for 1260 series) or 1 liter (1800 and 2400 series) new high-pressure pump oil, article no. **WB0011-03** at the oil inlet, until the oil level according to the dipstick has reached the mark (see section „3.3.2.11 Sight Glass and Dipstick“).
- Screw in the oil inlet screw (1) again.

- After completing the maintenance work, mount the cover.

9.2.5.2 High-pressure Hoses

- Carry out the preparatory measures (see section „9.2.2 Preparatory Measures“).
- Replace high-pressure hoses after 6 years at the latest. The date of manufacture of the hoses (imprint on the hose) is decisive here.
- If necessary, mount the cover after completing the maintenance work.

10 Decommissioning and Disassembly

DANGER

Danger to life due to electric shock!

Live components can cause fatal electric shock if touched.

– Disconnect the machine from the power supply before carrying out maintenance and inspection work on the machine.

- Switch off the machine (see chapter „0 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 perfect condition.

- Operation“).
- Secure the machine against unexpected restarting, e.g. by locking the main switch with a lock.

10.1 Disposal

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

11 Annex

11.1 EU Declaration of Conformity

On the following page you will find the EC Declaration of Conformity for this machine.

EU Declaration of Conformity

(Original)

We, company

Meier-Brakenberg GmbH & Co. KG
Brakenberg 29

32699 Extertal

Germany

hereby declare that the machine

MBH and MBHST series

for cleaning surfaces in stables or on agricultural machinery by means of water under pressure comply with the essential safety requirements of the Machinery Directive 2006/42/EC.

Other directives and applied standards:

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

Extertal, 10.07.2025

Wolfgang Meier
(Managing Director)